

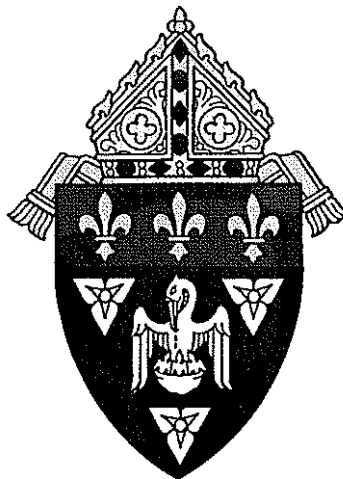
PROJECT NAME: Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana
HUD Project No: 064-98014
FEMA project worksheet : 11695V3 - Main Building
11705R1V2 - Yellow Masonry Building
18945 – Carriage House
10741 – Gate House

OWNER: St. Martin's Manor, Inc.
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113

DATE: January 30, 2011

Construction Documents
BID REQUIREMENTS

Volume I
DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS
thru DIVISION 8- DOORS AND WINDOWS



THE ARCHDIOCESE OF NEW ORLEANS
BUILDING OFFICE
7887 WALMSLEY AVE.
NEW ORLEANS, LA 70125

Repairs and Rehabilitation for St. Martin Manor

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

TABLE OF CONTENTS		PAGE	TABLE OF CONTENTS		PAGE
SECTION 00030 ADVERTISEMENT FOR BIDS			SECTION 00420 QUESTIONNAIRE (48 HOURS)		
1.	Bids	00030-1	Article 1	Organization	00420-1
2.	Work Description	00030-1	Article 2	Licensing	00420-1
3.	Bidding Documents	00030-1	Article 3	Experience	00420-1
4.	Bid Security	00030-1	Article 4	Additional Qualifications	00420-2
5.	Deadline for Award	00030-1	Article 5	References	00420-2
6.	Pre-Bid Conference	00030-1	References Attachment		00420-3
7.	Licensing Requirements	00030-1	SECTION 00450 COMPLIANCE WITH FEDERAL REGULATIONS (48 HOURS)		
8.	Contract Times	00030-1	Compliance with Federal Regulations		
9.	Requests for Interpretation	00030-1			
10.	Award	00030-1			
SECTION 00100 INSTRUCTION TO BIDDERS			SECTION 00460 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS (48 HOURS)		
Article 1	Qualification of Bidders	00100-1	Certification Regarding Debarment Suspension, and other Responsibility Matters		
Article 2	Bidding Documents	00100-2			
Article 3	Interpretation; Addenda	00100-3			
Article 4	Bid Security	00100-4			
Article 5	Contract Time; Liquidated Damages	00100-4			
Article 6	Materials and Equipment	00100-4			
Article 7	Subcontractors	00100-5			
Article 8	Bid Forms	00100-6			
Article 9	Preparation and Submission	00100-6			
Article 10	Bid Withdrawal; Modification	00100-7			
Article 11	Bid Opening	00100-8			
Article 12	Extension of the Deadline for Award	00100-8			
Article 13	Bid Evaluation and Contract Award	00100-8			
Article 14	Execution of the Agreement	00100-9			
Article 15	Agreement Form	00100-11			
SECTION 00110 BIDDERS CHECK LIST			SECTION 00470 MINORITY CONTRACTOR (MC) PARTICIPATION GOAL 10% (48 HOURS)		
Article 1	Bid Submission	00110-1	Minority Contractor (MC) Participation		
Article 2	Bidder's Representations	00110-1	List of all Minority Sub-Contractors		
Article 3	Time of Completion	00110-2			
Article 4	Attachments to the Bid	00110-3			
	Bidder's Check List	00110-4			
SECTION 00300 BID FORMS			SECTION 00480 SUBCONTRACTOR'S QUESTIONNAIRE (7 DAYS)		
Bid Form		00300-2	Article 1	Organization	00480-1
Certificate of Principal		00300-4	Article 2	Licensing	00480-1
Resolution of Corporate Authority		00300-5	Article 3	Experience	00480-1
Bid Bond		00300-6	Article 4	Additional Qualifications	00480-2
Non-Collusion Statement		00300-7	Article 5	References	00480-2
SECTION 00400 QUALIFICATIONS SUBMITTALS COVER SHEET (48 HOURS)			Certificate of Principal		00480-3
			References Attachment		00480-4
			List of All Sub-Contractors		00480-5
			SECTION 00630 BUY AMERICAN (REQUIREMENTS) (42 U.S.C. 5206)		
			Compliance with the Buy American Act		
			SECTION 00780 GLOSSARY		
			Defined Terms		00780-1
			Other Defined Terms		00780-5

Repairs and Rehabilitation for St. Martin Manor

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

TABLE OF CONTENTS	PAGE	TABLE OF CONTENTS	PAGE
--------------------------	-------------	--------------------------	-------------

Interpretations	00780-5		
-----------------	---------	--	--

SECTION 00800 SUPPLEMENTARY CONDITIONS

Article 1 - Article 15

TABLE OF CONTENTS

DIVISION 1 - GENERAL REQUIREMENTS

Section 01010	Summary of Work <i>Request for Information Form</i>
Section 01030	Alternates
Section 01040	Cutting and Patching
Section 01120	Alteration Project Procedures
Section 01200	Project Meetings
Section 01290	Payment Procedures
Section 01300	Submittals <i>Transmittal Form</i>
Section 01400	Procedures and Quality Control
Section 01410	Testing Laboratory Services
Section 01500	Construction Facilities and Temporary Controls
Section 01600	Materials and Equipment
Section 01700	Project Closeout

DIVISION 2 - SITEWORK

Section 02070	Selective Demolition <i>Lower-Impact Demolition Stipulations dated June 22, 2006 (4 pages)</i>
Section 02300	Earthwork
Section 02455	Wood-Concrete Composite Piles
Section 02456	Pipe Piles
Section 02510	Water Distribution
Section 02530	Sanitary Sewerage
Section 02630	Storm Drainage
Section 02750	Rigid Pavement

DIVISION 3 - CONCRETE

Section 03300	Cast-In-Place Concrete
---------------	------------------------

DIVISION 4 - MASONRY

Section 04100	Mortar
Section 04200	Unit Masonry
Section 04525	Masonry Restoration and Cleaning
Section 04720	Cast Stone
Section 04900	Masonry Anchorage Systems

DIVISION 5 - METALS

Section 05120	Structural Steel
Section 05300	Steel Deck
Section 05500	Metal Fabrications
Section 05515	Metal Alternating Tread Stairs
Section 05522	Ornamental Handrails and Railings

DIVISION 6 - CARPENTRY

Section 06100	Carpentry
Section 06140	Engineered Lumber
Section 06410	Architectural Woodwork

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

Section 07145	Crystalline Waterproofing
Section 07210	Building Insulation
Section 07215	Spray-On Thermal Insulation
Section 07270	Firestopping
Section 07311	Slate Roofing <i>Roofing Guarantee</i>
Section 07570	Roof Coating
Section 07600	Modified Bitumen Roofing <i>Roofing Guarantee</i> <i>Reports on existing roofing systems at Roof Areas A - K</i>
Section 07610	Sheet Metal Roofing <i>Roofing Guarantee</i>
Section 07620	Flashing and Sheetmetal
Section 07800	Roof Accessories
Section 07900	Joint Sealers

DIVISION 8 - DOORS AND WINDOWS

Section 08112	Steel Doors and Frames
Section 08305	Access Doors
Section 08331	Overhead Coiling Doors
Section 08513	Fire Rated Single Hung Steel Windows
Section 08520	Aluminum Windows
Section 08710	Door Hardware
Section 08800	Glazing

DIVISION 1 - DIVISION 16

DIVISION 9 - FINISHES

Section 09260	Gypsum Drywall System
Section 09265	Drywall Shaft Systems
Section 09300	Tile Work
Section 09511	Suspended Acoustical Ceilings
Section 09550	Wood Flooring
Section 09660	Resilient Tile Flooring
Section 09665	Resilient Sheet Flooring
Section 09688	Carpeting
Section 09865	High Impact Wall Sheeting
Section 09900	Painting
Section 09955	Wallcovering

DIVISION 10 - SPECIALTIES

Section 10165	Toilet Compartments
Section 10211	Fixed Metal Wall Louvers
Section 10265	Wall Crash Rails and Railings
Section 10400	Signage
Section 10500	Lockers
Section 10522	Fire Extinguishers, Cabinets and Accessories
Section 10550	Postal Specialties
Section 10800	Toilet Accessories

DIVISION 11 - EQUIPMENT

Section 11175	Trash Chutes and Compactor
Section 11400	Food Service Equipment
Section 11450	Kitchen Appliances

DIVISION 12 - FURNISHINGS

Section 12530	Platform Curtains and Tracks
Section 12500	Horizontal Blinds

DIVISION 13

Not used

DIVISION 14 - CONVEYING DEVICES

Section 14240	Traction Elevator Refurbished
Section 14245	Hydraulic Elevators

DIVISION 15 - MECHANICAL

Section 15010	Mechanical General Provisions
Section 15400	Plumbing Systems
Section 15500	Fire Protection Systems
Section 15600	Heating, Ventilating and Air Conditioning Systems
Section 15650	Heating, Ventilating and Air Conditioning Control Systems

DIVISION 16 - ELECTRICAL

Section 16010	Electrical General Provisions
Section 16100	Electrical Basic Materials and Methods
Section 16201	Electrical Automatic Transfer Switches and Remote Annunciators
Section 16400	Electrical Service and Distribution Systems
Section 16500	Electrical Lighting
Section 16600	Electrical Special Systems

END OF TABLE OF CONTENTS

SECTION 00030 ADVERTISEMENT

- 1. **BIDS** - The Archdiocese of New Orleans Building Office (ANOBO) will receive sealed Bids on the above referenced Project at 7887 Walmsley Ave. New Orleans, Louisiana, 70125 until **3:00 P.M.** local time, on **March 8, 2012** at which time all bids duly received will be opened publicly and read aloud.
- 2. **WORK DESCRIPTION** Repairs and Rehabilitation for St. Martin Manor, An Independent Living Senior Housing Facility, 1501 N. Johnson St., New Orleans, Louisiana
- 3. **BIDDING DOCUMENTS** - Complete Bidding Documents may be obtained from:

Mathes Brierre Architects
201 St Charles Avenue, Suite 4100
New Orleans, LA 70170
504-586-9303

Complete Bidding Documents for this project are available in electronic form. They may be obtained without charge and without deposit from <http://dhelgeson@mathesbrierre.com/>. Printed copies are not available from the Designer, but arrangements can be made to obtain from http://dhelgeson@mathesbrierre.com. Plan holders are responsible for their own reproduction costs. Questions about this procedure shall be directed to the Designer.

- 4. **BID BOND** - Bid Bond in the amount of five percent (5%) of the Bidder's Base Bid plus all Alternates shall accompany each Bid in accordance with the Instruction to Bidders.
- 5. **DEADLINE FOR AWARD** - Subject to an extension of the period for holding Bids, as permitted in LSA-R.S. 38:2215, the ANOBO will act within forty-five (45) days after the date of Bid opening to award the Contract or reject all Bids. Bids shall not be subject to withdrawal except as provided in the instruction to Bidders.
- 6. **PRE-BID CONFERENCE** - A **MANDATORY** pre-bid conference will be held at the site on **February 23, 2012 at 10:00 AM** local time. All Bidders (or their authorized representatives) shall attend the pre-bid conference. Other parties interested in the Work are encouraged to attend the pre-bid conference. The **Owner's Representative** may issue Addenda, as the ANOBO considers necessary in response to questions raised at the tour and the pre-bid conference.
- 7. **LICENSING REQUIREMENTS** - Provide Louisiana contractor's license as required by Louisiana State Contractor's licensing law requirements.
- 8. **CONTRACT(S)** - A contract may be awarded to the successful Bidder pending **Owner** approval.
- 9. **REQUESTS FOR INTERPRETATION** - All questions or inquiries concerning the Bidding Documents or the Work shall be submitted in writing to the architect / engineer with a copy to the ANOBO.
- 10. **AWARD** - The Archdiocese of New Orleans reserves the right to waive any non-conformances in any Bids, to reject any and all Bids for just cause and to re-advertise for Bids.

By: _____ Published By: _____
 Building Office Dates:

- (1) _____
- (2) _____
- (3) _____

 Approved
 Director of Building Office

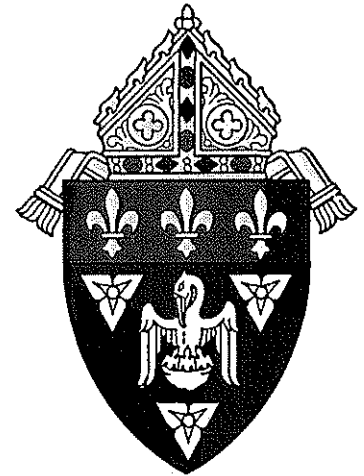
Advertised:

END OF SECTION 00030

INSTRUCTIONS TO BIDDERS

LIST OF ARTICLES

<u>Article</u>	<u>Page</u>
1 QUALIFICATIONS OF BIDDERS	1
2 BIDDING DOCUMENTS; SITE CONDITIONS; LAWS	2
3 INTERPRETATIONS; ADDENDA	3
4 BID SECURITY	4
5 CONTRACT TIME; LIQUIDATED DAMAGES	4
6 MATERIALS AND EQUIPMENT	4
7 SUBCONTRACTORS	5
8 BID FORM AND BID FORM ATTACHMENTS	6
9 PREPARATION AND SUBMISSION OF BIDS	6
10 BID WITHDRAWAL; BID MODIFICATION	7
11 BID OPENING; OBJECTION TO THE AWARD	8
12 EXTENSION OF THE DEADLINE FOR AWARD	8
13 BID EVALUATION AND CONTRACT AWARD	8
14 EXECUTION OF THE AGREEMENT	9
15 AGREEMENT FORM	11



St. Martin's Manor, Inc. New Orleans, Louisiana (**OWNER**)
The Archdiocese of New Orleans Building Office (**ANOBO**)
The Archdiocese of New Orleans Finance Office (**ANOFO**)
Architect / Engineer (**A/E**)

ARTICLE 1 QUALIFICATIONS OF BIDDERS

1.1. Each Bid shall certify that the Bidder is licensed by the State Licensing Board for Contractors for the primary classification of the Work and, in the case of hazardous materials, for the proper subclassification under the hazardous material classification.

1.2. The Apparent Low Bidder shall submit to the **ANOBO**, within **forty eight (48)** Business Day Hours after the Opening of bids the Qualification Submittals (Section 00420 through 00470) itemized in the request. The Apparent Low Bidder may be required to attend a pre-award conference(s).

1.3. The Apparent Low Bidder shall submit to the **ANOBO**, within **seven (7)** Business Days after the Opening of bids the Subcontractor's Qualification Submittal (Section 00480) itemized in the request.

1.4. Unless otherwise determined by the **Owner**, in its sole discretion, failure or refusal by a Bidder recognized by the **Owner** as the Apparent Low Bidder to submit Qualification Submittals as required by these instructions justifies the **Owner's** refusal to consider that Bid and to forfeit that Bidder's Bid Security. As to any other Bidder in contention for the award, such failure or refusal will disqualify that Bidder for any further consideration for the award but it will not constitute grounds for forfeiting the Bidder's Bid Security.

**ARTICLE 2 BIDDING DOCUMENTS; SITE CONDITIONS;
LAWS**

2.1. It is the responsibility of each Bidder to examine the Bidding Documents thoroughly, visit the site and, if necessary, record conditions at the site (through notes, photographs, video or other means). It is the responsibility of each Bidder to study and correlate the Bidder's observations with the Bidding Documents and to submit written inquiries promptly upon discovering conflicts, ambiguities, errors or omissions in the Bidding Documents.

2.2. Each Bidder will be held responsible for taking or having taken those steps that are reasonably necessary to ascertain, satisfy itself and account for all general, local and prevailing conditions at or near the site that may affect the cost, schedule, progress, performance and furnishing of the Work.

2.2.1. Relevant conditions may include the extent to which the nature, characteristics and use of adjacent or nearby lands, rights-of-way and easements, and facilities (including real and personal property) may affect Work activities. Conditions related to the transportation, disposal, handling and storage of materials, the availability and suitability of labor, materials, water, power, telephone, sanitary services and roads, daily and monthly weather variations, river stages or like conditions, may also be relevant.

2.2.2. Relevant conditions may also include the character, quality and quantity of subsurface conditions, including but not limited to ground water table variations. The character of equipment and facilities needed preliminary to and during Work performance, conditions related to maintaining operation of existing facilities and conditions of existing facilities (whether a part of, or affected by, the Work) may also be relevant conditions.

2.3. It is a Bidder's responsibility to inform itself of all applicable Laws. Examples include, but are not limited to 44 CFR Ch. 1 13.36, laws governing protection of public and employee health and safety, environmental protection, building codes, fire protection, grading and drainage, dust control, noise abatement, dumping of materials, as well as laws governing vehicular traffic, access to streets and highways, restoration of lands and property under the control of a Public Entity, nuisance control, taxes, permitting and licensing.

2.4. If requested by a Bidder, pursuant to 2.1, at least seven (7) Days before Bid opening, the **Owner** will provide access to the site to allow the undertaking of any reasonable explorations and tests that Bidder considers necessary for preparation and submission of its Bid. Access to the site will be provided when and as designated by the **Owner** and will be conditioned on the Bidder undertaking such explorations and/or tests in accordance with the requirements of the **Owner**, any Public Utilities involved and any Public Entities with jurisdiction. Upon completion of the explorations and tests, that Bidder shall fill all holes and clean up and restore the site to its former condition, to the **Owner's** satisfaction.

2.5. Each Bidder shall be responsible for obtaining any lands, areas, properties, facilities, rights-of-way and easements, in addition to those furnished by the **Owner**, that the Bidder considers necessary for temporary facilities, storage, disposal of spoil or waste material or other similar purpose. The **Owner** and **A/E** do not assume any responsibility for existing conditions at any such lands, areas, properties, facilities, rights-of-way and/or easements obtained by any Bidder.

2.6. Each Bid shall include and be deemed to include all applicable State and local taxes that are required on the date of Bid opening and the cost and time required to secure all construction permits. Fees for securing the permits shall be paid by the **Contractor**, including all regulatory plan review fees and inspection fees. This provision applies to, but is not limited to, construction permits from any governmental entity and the State Fire Marshal.

2.7. To the extent the **Owner** or **A/E** has knowledge of other work at the site that may be concurrent with the Work, the Bidding Documents will identify such other work. Each Bidder will be held responsible for taking or having taken those steps that are reasonably necessary to coordinate the Work with such other work. This includes, but is not limited to the effect that operations from such other work (e.g., dewatering, etc.) may have on the Work, and any related sequences and Contract Times.

2.8. Submission of a Bid also constitutes a binding representation that the Bidder has complied with every requirement of the Bidding Documents and that, without exception, the Bid is premised upon performing and furnishing the Work required by the Bidding Documents. Also, that the Bidder considers the Bidding Documents to be sufficient in scope and detail to give a clear understanding of all relevant terms and reasonably foreseeable conditions and their effect on the cost, schedule, progress, performance and furnishing of the Work.

2.9. Any failure by any Bidder to take the actions described and acknowledged in this Article will not relieve that Bidder of the responsibility for estimating the difficulty, cost of and schedule for performing and furnishing the Work in accordance with the Contract Documents. Any such failure will not relieve that Bidder, if the Bidder is awarded the Contract, of the responsibility to properly perform and furnish the Work at no increase in Contract Price and/or Contract Time.

2.10. The **Owner** and **A/E** do not assume any responsibility for any conclusions or interpretations any Bidder makes based on the information contained in the Bidding Documents.

2.11 Submission of a bid constitutes a binding representation by the Bidder that the Bidder agrees that the Bidder and **Owner** share the rights in the administration of early completion schedules and concerning responsibilities for delays within available Total Float and Contract Float time.

ARTICLE 3 INTERPRETATIONS; ADDENDA

3.1. All Bidder inquiries shall be submitted in writing to the **A/E** at the address provided in the Advertisement with a copy to the ANOBO. This requirement applies to all requests for clarification or interpretation of the Bidding Documents, proposals for any modifications to the Bidding Documents, requests for information and all other questions or inquiries about the Bidding Documents and/or the Work.

3.2. Any interpretation or clarification, modification to the Bidding Documents (whether by correction, addition, deletion or other revision) and/or information given will be binding only if given by written Addenda. Interpretations or clarifications, modifications to the Bidding Documents and/or information given orally or in any other manner are not binding on the **Owner** and if relied upon by any Bidder, shall be at the Bidder's own risk.

3.3. Addenda will be sent by certified mail, email, private carrier or FAX to any party who has obtained Bidding Documents and has furnished to the **A/E** a physical address, email address and FAX number for receiving Addenda. If the necessity arises to issue an Addendum within seventy-two (72) hours of the time for Bid opening bids shall be extended for at least seven (7) but not more than twenty-one (21) working days. The addendum shall state the revised time and date for the opening of bids.

3.4. Each Bidder shall verify receipt of all Addenda before submitting its Bid. Each Bid shall be binding on the respective Bidder, regardless of whether the Bidder correctly completes the acknowledgment of Addenda in the Bid Form or not.

3.5. Any measured or contingent quantities of Unit Price Work given on the Bid Form are approximate only, and are to be used solely for comparing Bids and establishing the Contract Price. Neither the **Owner** nor **A/E** represents that actual quantities for any item of Unit Price Work will equal the quantity given. Whether or not actual quantities of Unit Price Work overrun or underrun the respective quantity, no deviation

from any bid unit prices contained in the Contract Documents will be allowed in computing the costs of Change Orders.

ARTICLE 4 BID SECURITY

4.1. Bid Security shall be made payable to the **Owner** in the form of a duly executed Bid Bond from the same Surety furnishing the Performance and Payment Bond. A Bid Bond shall be executed by a surety licensed in the State of Louisiana qualified to write Bonds. Attorneys-in-Fact signing Bid Bonds shall attach a certified copy of Power of Attorney to sign Bid Bonds.

4.2. Failure by a Bidder to enclose with its Bid a duly executed Bid Bond (on the form found in Section 00310 Bid Bond) shall disqualify that Bidder from any consideration for the award.

4.3. Subject to the retention period dictated by paragraph 4.5, the Bid Bond of the Apparent Low Bidder will be retained until it has fulfilled the following three requirements: first, it has submitted the required Qualification Submittals; secondly it has executed the Agreement and furnished Performance Bond and Labor and Material Payment Bond; third it has delivered evidence of specified insurance.

4.4. If the Apparent Low Bidder fails to do so when and as specified, the **Owner** may annul the Notice of Award and if the **Owner** does annul the Notice of Award, the Apparent Low Bidder and/or its Surety shall pay to the **Owner** the entire value of the Bid Bond. If the **Owner** incurs any collection costs in the enforcement of the Bid Security requirement, the Apparent Low Bidder and its surety agree jointly and severally to reimburse the **Owner's** costs of collection. Costs reimbursable include reasonable fees and charges of attorneys and others, court or hearing costs and interest.

4.5. The Bid Securities of the Apparent Low Bidder and of any other Bidder remaining in contention for the award will be retained until the date marking the deadline for award of the Contract or seven (7) Days after the **Owner** and **Contractor** sign the Agreement, whichever last occurs.

4.6 The Bid Bond shall be written by a Surety licensed in the State of Louisiana, the Surety shall be currently on the U.S. Department of the Treasury Financial Management Service List of approved bonding companies, the bid amount plus alternates shall be within the single bond limit of the U.S. Department of the Treasury Financial Management Service List for that company, and the Surety shall have at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide.

ARTICLE 5 CONTRACT TIME; LIQUIDATED DAMAGES

5.1. The Contract Time for completion of the entire work will be (a) substantially complete and ready for acceptance, in accordance with the Contract Documents within the bid calendar days of the date of the Notice to Proceed (NTP); and (b) complete and ready for final payment in accordance with the Contract Documents within 45 days of the date of the Substantial Completion Certificate

5.2 The **Contractor** agrees to allow the **Owner** to deduct from progress payments and retention and to pay to the **Owner** as liquidated damages, and not as a penalty, the amount of **Eight Hundred** Dollars and No Cents (**\$800.00**) for each calendar day that expires after the Contract Time for Substantial Completion and acceptance of the entire work until the entire work is substantially complete.

ARTICLE 6 MATERIALS AND EQUIPMENT

6.1. The name of a certain brand, make, supplier or manufacturer or definite specification is to denote the quality standard of material and equipment desired and does not restrict Bidders to the brand, make,

supplier, manufacturer or specification named. It is to set forth and convey the style, type, character and quality of material or equipment desired.

6.2. Any proposal for adding another brand, make, supplier or manufacturer or definite specification shall be delivered in writing to the **A/E** seven (7) days prior to the Bid opening. The written proposal shall include sufficient drawings, brochures, schedules, charts, instructions, samples and other data as may be necessary to allow the **A/E** to make a determination. A list of installations (including the name, address and telephone number of a person familiar with and at the installation) shall be included.

6.2.1. A written proposal shall demonstrate objectively that the proposed material or equipment has the desired essential characteristics and will equally perform the functions and achieve the results called for by the design. A proposal shall certify that the proposed material or equipment is suited to the same use as that of the item named or specified and is at least of equal materials of construction, quality and necessary essential design features. The proposed material or equipment shall conform substantially to the desired requirements, including, but not limited to durability, strength, appearance, aesthetics (if significant), safety, service, life, reliability, economy of operation and ease of maintenance. The proposal shall document a proven record of performance and service for at least three (3) years before Bid opening. The differences between the proposed and named or specified material or equipment shall be clearly identified.

6.2.3. The **A/E** will only consider written proposals received no later than seven (7) Days before the date of Bid opening. The **A/E** will consent to any such proposal if, in the **A/E's** professional judgment, the proposed material or equipment also may be used to denote the quality standard and to convey and establish the general style, type, character and quality of material or equipment desired. Lack of adequate information, as determined solely by the **A/E**, may be sufficient cause for rejecting a proposal.

6.3. General Conditions contains provisions requiring each Supplier to be bound to the requirements of the Contract Documents and to assume toward the **Contractor** all obligations that the **Contractor** assumes toward the **Owner** and **A/E**. General Conditions also contains provisions requiring each Supplier to furnish Work under a Subagreement containing waiver of rights of subrogation provisions.

ARTICLE 7 SUBCONTRACTORS

7.1. Each Bidder shall nominate each Subcontractor to whom that Bidder intends to award a Subagreement for each subclassification listed. Bidders also are required to designate the classifications and subclassifications the Bidder intends to self-perform.

7.2. One Subcontractor shall be nominated for each subclassification, unless a Bidder, directly or through a higher tier Subcontractor, anticipates having more than one Subcontractor providing Work for the listed subclassification.

7.3. If the **Owner**, before the Notice of Award, has reasonable objection to any nominated Subcontractor, the **Owner** may request replacement of that Subcontractor at no extension in the Bid hold period or any increase in the Apparent Low Bidder's Base Bid or any Alternates. Within seven (7) Days after receiving such **Owner** request, the Apparent Low Bidder shall nominate a substitute Subcontractor. If the Apparent Low Bidder declines to make the substitution, as conditioned in this paragraph, the Apparent Low Bidder will not be awarded the Work, and the **Owner** will return the Apparent Low Bidder's Bid Security.

7.4. No removal or replacement of a nominated Subcontractor will be consented to by the **Owner**, except for just cause. Before award, no Subcontractor addition or substitution will be considered, unless written notice with all required qualifications data is furnished to the **Owner** in time to allow a proper evaluation.

7.5. After award, if the Successful Bidder, as **Contractor**, nominates *for the first time* a Subcontractor

for any subclassification in the List of Subcontractors to whom the **Owner** has reasonable objection, the **Contractor** shall provide a replacement Subcontractor at no increase in Contract Price and/or Contract Time.

7.6. These provisions shall not be construed to create any third party beneficiary or joint employer status with respect to the **Owner** and/or **A/E** and/or the Roman Catholic Church of the Archdiocese of New Orleans and any Subcontractor. These provisions shall not be construed to create or impose any duty or liability on the **Owner** to exercise this authority for the benefit of any Bidder, nominated or newly-nominated Subcontractor or other third party.

7.7. The General Conditions contain provisions requiring each Subcontractor to be bound to the requirements of the Contract Documents and to assume toward the **Contractor** all obligations that the **Contractor** assumes toward the **Owner** and **A/E**. The General Conditions also contain provisions requiring each Subcontractor to provide Work under a Subagreement containing waiver of rights of subrogation provisions.

ARTICLE 8 BID FORM AND BID FORM ATTACHMENTS

8.1. A copy of Bid Form and Bid Form through Bidder's Affidavit shall be used to submit the bid. If revised by Addendum, the latest revision of the appropriate Bid Form and Bid Form Attachment shall be used.

8.2. All blank spaces shall be legibly and properly printed in ink or typed as required on each form. All Bid prices shall be printed or typed in words and figures. Evidence of authority to sign the Bid must be sufficient and acceptable and subject to the evidence indicating authority required by paragraph 1.2.

8.3. The Bidder shall acknowledge receipt of all Addenda by completing the blank spaces in the table provided for that purpose in the Bid Form.

8.4. The Bidder's Louisiana contractors' license number(s) and contractor classification(s), as stated on the **Contractor's** license(s), and the Bidder's certification shall be entered in the spaces provided, unless LSA-R.S. 37:2157 applies.

8.5. Bids by individuals shall state the name and business address of the individual and shall be signed by the person making that Bid, or the Bid shall enclose a Power of Attorney evidencing authority to sign the Bid in the individual's name.

8.6. Bids by partnerships shall be signed in the name of the partnership. The name, signature and designation (general or managing) of the partner authorized to sign and the official address of the partnership shall be provided. The documents indicating authority, or equivalent forms, shall be completed.

8.7. Bids by corporations shall be signed in the legal corporate name. The signature of the president or authorized officer shall be entered below the corporate name, followed by the attesting signature of the secretary of the corporation or an authorized officer other than the officer signing the Bid, the corporate address and the state of incorporation. The documents indicating authority, or equivalent forms, shall be completed.

8.8. Bids by joint ventures shall be signed by all or one of the joint venturers. If not all joint venturers sign, a certified copy of Power of Attorney authorizing the individual signing to bind all joint venturers shall be attached. If a certified copy of the joint venturer's certificate attached to the Bid Form indicates that all joint venturers have signed, no separate authorization is required.

ARTICLE 9 PREPARATION AND SUBMISSION OF BIDS

9.1. A Bid shall be either hand-delivered by the Bidder or its agent (in which instance the deliverer shall be handed a written receipt), or sent by certified mail. Bids submitted orally or by telephone, telegraph,

FAX, e-mail or other electronic media are invalid and will be rejected without consideration.

9.2. Each Bid shall be enclosed in an opaque sealed Bid package marked with the Bidder's name, address and telephone number and the date of Bid opening. The Bidder's Louisiana contractor's license number shall be placed above the firm's name. The opaque sealed Bid package shall contain the completed set of Bid Form and the completed Bid Form Attachments (unbound set of Section 00300) and other required Bidder-provided documents (Drawings and Project Manual are not required).

9.3. If Unit Price Work is specified, for each Unit Price Work item listed in the Bid Form, the Bidder shall bid a unit price and extend the respective quantity times the bid unit price. Bid prices for each lump sum or "One Each" item listed on the Bid Form shall be printed or typed only in the appropriate "Bid Price" column. The Bidder shall show the sum representing the Base Bid and, if Alternates are listed, the Bid prices for Alternates, in the spaces provided for those purposes.

9.4. For each Cash Allowance, the Bidder shall price, within its Bid, all labor costs, construction equipment costs, insurance and Bond premiums, general conditions costs and Fee (Bidder's and Subcontractors') to provide the material, equipment or item covered by the Cash Allowance.

9.5. The Bidder's Base Bid and Alternates shall price all services, activities, obligations and responsibilities. These include management, supervision, labor, materials, equipment, construction equipment, general conditions, warranties, temporary facilities, small tools and supplies. They also include permits, patent and copyright royalties, testing, inspection and approval responsibilities, Bonds, insurance, taxes, mobilization, close-out, overhead and profit. All connections, appurtenances and any other incidental items, as are necessary to complete the Work, in accordance with the Drawings and Specifications, and as otherwise required to fulfill the requirements of the Bidding Documents, also shall be included.

9.6. Neither the Bid Form nor any Bid Form Attachment made available to the Bidders and submitted with the Bid shall be altered in any way. Bids shall not contain any qualifications or conditions or any recapitulations of the Work whatsoever. No Alternate will be considered, unless any such Alternate is itemized in the Schedule of Alternates in Bid Form and specified in the Bidding Documents.

9.7. Before and after submitting the Bid, and before the time for receiving Bids has expired, any Bidder may alter or revise any price or information entered on its Bid Form or any Bid Form Attachments. This may be accomplished by crossing out the entry, legibly printing in ink or typing the new price or information, and placing the initials of the person who signs the Bid adjacent to each change. After Bid opening, the **Owner** may require a Bidder to verify any such alteration or revision.

9.8. Neither the **Owner** nor A/E bear any responsibility for any costs a Bidder incurs in preparing, submitting and withdrawing its Bid or, in objecting to, or being disqualified for, the award.

9.9. If Attachment A Bidder's Checklist conflicts with any requirements specified elsewhere in the Bidding Documents, the requirements of the Bidding Documents when taken as a whole shall be binding on the Bidders.

ARTICLE 10 BID WITHDRAWAL; BID MODIFICATION

10.1. Any Bid may be withdrawn before Bid opening through a withdrawal request signed and submitted in the manner in which a Bid shall be signed and submitted. Withdrawal of a Bid before Bid opening will not disallow submission of a new Bid.

10.2. Once the time for receiving Bids expires, no Bid may be withdrawn, unless a written request is received by the **Owner** within forty-eight hours (Business Days only) after Bid opening. The withdrawal request shall furnish to the **Owner** clear and convincing notarized evidence consistent with LSA-R.S. 38:2214(C).

10.3. If a claim to withdraw a Bid is received in a timely fashion, the **ANOBO** Director will review the relevant facts and will seek to determine whether the Bid contains errors consistent with LSA-R.S. 38:2214(C). Consideration will be given to whether the errors are clearly shown by objective evidence, the Bid was submitted in good faith, and the errors were not caused by the Bidder's violation of positive legal duty or culpable negligence.

10.4. If the **ANOBO** finds that the error is consistent with LSA-R.S. 38:2214(C) and the **Owner** suffers no prejudice, except loss of bargain, the **ANOBO** will accept the Bid withdrawal and return the Bidder's Bid Security. The decision of the **ANOBO** shall be final and binding on the Bidder.

10.5. A Bidder who attempts to withdraw a Bid under this Article shall not be allowed to resubmit another Bid for the Work.

ARTICLE 11 BID OPENING; OBJECTION TO THE AWARD

11.1. Each Bidder is responsible for timely delivery of its Bid. Bids received after the closing time will not be considered. Any uncertainty as to whether a Bid was submitted in time may be resolved against the Bidder, in the sole discretion of the **Owner** as advised by the **ANOBO**.

11.2. Upon review of the Bids, a tabulation of the Bids will be made available. If any Bidder who submitted a Bid has any objection to the Apparent Low Bidder, the objecting Bidder shall protest, in writing, to the **ANOBO** within two (2) Business Days after the Bid tabulation becomes available. The protest shall describe in detail the basis for the objection, and shall request a determination under this Article.

11.3. If a protest is filed in a timely fashion, the **ANOBO** will review the basis for the protest and relevant facts under such terms and conditions as the **ANOBO** considers proper. Upon completion of the review, the **ANOBO** will submit its findings and decision to the protesting Bidder. The protesting Bidder may appeal these findings and decision to the Chief Operating Officer of the **ANOFO**, who shall then review the matter under such terms and conditions as deemed proper. The Chief Operating Officer of the **ANOFO** will notify the Bidder(s) involved of the his/her decision to dismiss or uphold the protest. The decision of the Chief Operating Officer of the **ANOFO** shall be final and binding on the objecting Bidder.

ARTICLE 12 EXTENSION OF THE DEADLINE FOR AWARD

12.1. Bids shall remain open for acceptance by the **Owner** for 45 days. However, the **Owner** and Apparent Low Bidder, by mutually written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) days.

12.2. The Apparent Low Bidder and any other Bidder who, by mutually written consent, agree to any such extension request without increasing Base Bid, Alternate Bid Prices and Contract Times stated in Days will remain in contention for the award. Failure to agree to any extension will not constitute grounds for forfeiting the Bid Security of any such Bidder.

ARTICLE 13 BID EVALUATION AND CONTRACT AWARD

13.1. If the **Owner** awards the Contract, the **Owner** will make the award to the lowest responsive, responsible Bidder who had Bid according to the Bidding Documents, as determined solely by the evaluation of the Bid and Qualification Submittals. Alternates, if accepted, shall be accepted in the order listed in the "Schedule of Alternates" on Bid Form. Determination of the low Bidder shall be on the basis of the sum of the Base Bid and any accepted additive and deductive Alternates. The **Owner** reserves the right to accept Alternates in any order that does not affect determination of the low Bidder.

13.2. Non-conformances with the Bidding Documents, for which corrective action is not already provided in the Bidding Documents, may be waived by the **Owner**, in its sole discretion.

13.3. Failure to deliver the required Qualifications Submittals will be sufficient grounds for determining that a Bidder is not responsive. Failure to attend the mandatory pre-bid conference and tour, if any conducted, may be also be sufficient grounds for determining that a Bidder is not responsive . Being debarred or suspended from consideration for award by the **Owner**, the State or any federal agency may also justify determining that a Bidder is not responsible.

13.3.1. Additional grounds include not having an established business or adequate experience, equipment or finances to meet contractual obligations. Also, demonstrated lack of qualifications or capability to perform the Work without excessive delays, extensions, cost overruns or changes and a record of past projects resulting in arbitration or litigation where the Bidder was found at fault. In addition, non-payment of federal, State and local taxes and permit fees, and concealment, misrepresentation or misstatement of a material fact may justify a determination that the Bidder is not responsible.

13.4. If the **Owner** proposes to disqualify the Apparent Low Bidder, the **ANOBO** will give written notice of the proposed disqualification to that Bidder, and include in the notice all reasons for the disqualification. Within ten (10) Days after giving notice, the **ANOBO** will conduct an informal hearing, at which the Apparent Low Bidder shall be afforded the opportunity to refute the reasons for the disqualification. Upon completion of the review, the **ANOBO** will submit its findings and decision to the protesting Bidder. The protesting Bidder may appeal these findings and decision to the Chief Operating Officer of the **ANOFO**, who shall then review the matter under such terms and conditions as deemed proper. The Chief Operating Officer of the **ANOFO** will notify the Bidder(s) involved of the his/her decision to dismiss or uphold the protest. The decision of the Chief Operating Officer of the **ANOFO** shall be final and binding on the objecting Bidder.

13.5. Except in situations leading to a determination obviously in error or inconsistent with the Bidding Documents, discrepancies or non-conformances on the Bid Form or Bid Form Attachments shall be resolved as follows:

13.5.1. If any words and figures differ, the words will control. If any sum computed by the Bidder and the correct sum differ, the correct sum will control. If the product computed by the Bidder of any quantity and bid unit price and the correct product of the unit price by the quantity of Unit Price Work differ, the unit price bid and correct product will control.

13.5.2. If a unit price for a Unit Price Work item is not bid but a Bid Price is shown, the missing unit price will be computed from the quantity and the Bid Price shown.

13.6. If there are reasonable grounds for believing that collusion or unlawful agreements exist between any Bidders, that a Bidder is interested in more than one Bid, or that any Bids are not genuine, those Bidders will be disqualified and their Bids will be rejected without consideration.

13.7. Preference for products produced or manufactured in Louisiana; preference to firms doing business in Louisiana; and preference in letting contracts to Louisiana Resident Contractors. Preference is given to materials, supplies and provisions, produced, manufactured or grown in Louisiana, quality being equal to articles offered by competitors outside of the State.

13.8. All costs incurred by any Bidder in responding to requests from the **Owner** or **A/E** shall be that Bidder's sole responsibility. Any such **Contractor** costs will not provide any basis for subsequent consideration by the **Owner** of a proposal or claim for any increase in Contract Price and/or Contract Time.

ARTICLE 14 EXECUTION OF THE AGREEMENT

14.1. If an award is made, the **ANOBO** will award the Contract within the deadline for award. Subsequently, the **ANOBO** will send the Notice of Award to the Successful Bidder establishing the Contract Price and the Alternates selected by the **Owner**. The Notice of Award will outline procedures to be followed by the Successful Bidder for signing of the Contract.

14.2. Within seven (7) Days after receiving the Notice of Award, the Successful Bidder shall forward to the **Owner** evidence of insurance, those other documents itemized in the Notice of Award and the correct legal name of the surety or sureties. The names and titles of each of their respective representatives who will sign Agreement, Performance Bond and Labor and Material Payment Bond shall be provided.

14.3. Evidence of insurance shall consist of acceptable certificate(s) of insurance confirming that the Successful Bidder's insurance complies with the General Conditions. Certificate(s) of insurance shall state the limits of coverage and endorsements provided, and shall confirm that the insurance complies with the required thirty-Day prior notice of cancellation.

14.4. Within three (3) Days after receiving notice that the documents are acceptable to the **Owner**, the Successful Bidder and surety shall appear before the **ANOBO** Notary. At that time, they shall sign duplicate originals the Agreement and Performance Bond and Labor and Material Payment Bond and the cover page of each volume of duplicate original sets of the Contract Documents.

14.5. The **Owner** shall pay the cost of recording the Agreement, the Performance Bond and the Labor and Material Payment Bond.

14.6. When compiled, a set of complete Contract Documents will consist of the Project Manual with all Addenda and Drawings and a separate volume with those **Contractor** Qualification Submittals selected by the **Owner**, if any are selected.

14.7. Within thirty (30) Days after Contract signing, the **ANOBO** will issue the Notice to Proceed. The Notice to Proceed will designate a date of Commencement of the Contract Time no later than sixty (60) Days after the date of the Agreement.

ARTICLE 15 AGREEMENT FORM

CONTRACT	*	
BETWEEN	*	UNITED STATES OF AMERICA
“OWNER”	*	STATE OF LOUISIANA
	*	PARISH OF ORLEANS
	*	
AND	*	
	*	
	*	
“CONTRACTOR”	*	

BE IT KNOWN, that on this ____ day of _____, in the year of Our Lord, two thousand ____;

BEFORE ME, _____, Attorney and Notary Public, duly commissioned and qualified in and for the parish of Orleans, and in the presence of the witnesses hereinafter named and undersigned;

PERSONALLY CAME AND APPEARED:

“OWNER”, domiciled in the Parish of _____, whose mailing address is _____, herein represented by _____, its _____, duly authorized by virtue of authority per resolution annexed hereto;

and

“CONTRACTOR”, domiciled in the Parish of _____, whose mailing address is _____, herein represented by _____, its _____, duly authorized by virtue of authority per resolution annexed hereto;

The said “Owner” being hereinafter referred to as the Owner, and the said “Contractor”, as the Contractor;

WITNESSETH: That the Contractor and the Owner for the consideration hereinafter named

agree as follows:

ARTICLE I. SCOPE OF THE WORK. The Contractor shall perform all of the work and furnish all of the materials set forth in the contract documents, including Specifications, Drawings, and Addenda, entitled: “ _____ ” as prepared by _____, acting as and in these Contract documents entitled the Architect, and shall do everything required by this Agreement.

ARTICLE II. TIME OF COMMENCEMENT AND COMPLETION. The work to be performed under this Contract shall be commenced on the date of the Notice to Proceed (NTP) and will be (a) substantially complete and ready for acceptance, in accordance with the Contract Documents within 365 calendar days of the NTP and (b) complete and ready for final payment in accordance with the Contract Documents within 45 days of the date of the Substantial Completion Certificate.

ARTICLE III. THE CONTRACT PRICE AND PROGRESS PAYMENTS. The Owner shall pay the Contractor for the performance of the Contract, subject to additions and deductions provided therein, a sum not to exceed _____
() DOLLARS, as follows: On or about the 25th day of each calendar month, ninety-five (95%) percent of the proportion of the Contract Price allocable to labor, materials and equipment incorporated in the work, and ninety-five (95%) percent of the portion of the Contract Price allocable to materials and equipment suitably stored at the site or at some other location agreed upon in writing by the parties, up to the first day of that month, less the total of previous payments, and upon substantial completion of the entire work, a sum sufficient to increase the total payments to ninety-five (95%) percent of the Contract Sum, less such retainages as Architect shall determine for all incomplete work and unsettled claims.

The contract price is determined as follows:

BASE BID.....	\$
ALTERNATES.....	\$
TOTAL PRICE.....	\$

ARTICLE IV. ACCEPTANCE AND FINAL PAYMENT. Final payment shall be due thirty-one (31) days after substantial completion and filing of Notice of Termination of the work, provided the work be then fully completed in a satisfactory manner and the Contract fully performed in every respect, and provided further that a Certificate of the Recorder of Mortgages for the Parish of Orleans is furnished

by the Contractor to the effect that no liens or privileges are recorded against this Contract, the Contractor, the Owner or the property.

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Architect shall promptly make such inspection, and when he finds the work acceptable under the Contract, and the Contract is fully performed, he shall promptly issue a final certificate, over his own signature, stating that the work provided for in this Contract has been fully completed and is accepted by him under the terms and conditions hereof, and the entire balance found to be due the Contractor, as noted in said final certificate, is due and payable.

Before issuance of final certificate, the Contractor shall submit evidence satisfactory to the Architect that all payrolls, materials, bills and other indebtednesses connected with the work have been paid. If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Architect so certifies, the Owner shall, upon such certificate of the Architect, and without terminating the Contract, make payment of the balance due for the portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except it shall not constitute a waiver of claims or rights of Owner.

ARTICLE V. THE CONTRACT DOCUMENTS. The Specifications, Drawings, and Addenda, together with this Agreement, form the Contract, and they are as fully a part of the Contract as if hereto attached or repeated herein. The following is an enumeration of the Specifications, Drawings, and addenda, as prepared by _____ and entitled: “ _____ ”:

DRAWINGS:

SPECIFICATIONS:

ARTICLE VI. LIQUIDATED DAMAGES. It is understood and agreed that time is of the essence to this Contract, and all work shall be completed within _____ calendar days from the Notice to Proceed. In case the work is not completed in every respect; and particularly within the time that is specified in the Contract, or within the time that may be extended, it is distinctly understood and agreed that deductions at the rate of _____ per diem shall be assessed from the total Contract price for each and every calendar day after and exclusive of the date of which completion of the work and acceptance thereof by the Owner. The above sum shall be deducted as liquidated damages, and not as a penalty, the said sum being specifically herein agreed upon in advance as the measure of damages to the Owner on account of such delay in the completion of the work. It is further agreed that the

expiration of the terms herein assigned, or as may be extended for performing the work shall, ipso facto, constitute a putting in default, and the Owner need not formally place the Contractor in default, the Contractor hereby waiving any and all notice of default. The Contractor agrees and consents that the Contract price, reduced by the aggregate of the entire damages so deducted, shall be accepted in full satisfaction of all work executed under this Contract.

ARTICLE VII. INSURANCE.

1. The Contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

(a) Claims under Workers' Compensation, Disability Benefit and other similar employee benefits acts;

(b) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

(c) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

(d) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person. The limits of liability shall be: for Bodily Injury or Death, not less than \$1,000,000.00 for each occurrence and \$3,000,000.00 aggregate;

(e) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom. The property damage insurance shall not exclude the Contractor's liability for loss or injury to any building or structure due to excavation, shoring, underpinning, raising or demolition of any building or structure due to excavation, shoring, underpinning, raising or demolition of any building or structure, or removal or rebuilding of any structural support thereof, nor shall it exclude coverage for injury to or destruction of wires, conduits, pipes, mains, sewers, or any other property either above or below the surface of the ground. The limits of liability shall be: for Property Damage not less than \$1,000,000.00 for each occurrence and \$3,000,000.00 aggregate;

(f) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, and claims for damages because of bodily injury to or destruction of tangible

property, including loss of use therefrom, occasioned by use of Owned, Non-Owned or Hired Vehicles.

The limits of liability shall be: for Bodily Injury and Death not less than \$1,000,000.00 for one person and not less than \$1,000,000.00 for all injuries and death resulting from any one occurrence; for Property Damage not less than \$1,000,000.00 for each occurrence and \$3,000,000.00 aggregate.

(g) The Contractor shall provide minimum \$1,000,000.00 umbrella excess liability over primary insurances by Subparagraphs 1(a) through 1(f).

(h) The General Liability Coverages shall be provided by a Commercial General Liability Policy on an occurrence basis only. shall include the interests of the Owner and the Contractor in the Work and shall include "all risk" insurance for physical

(I) Owner shall purchase and maintain Builders' Risk insurance upon the entire Work at the site to the full insurable value thereof. This insurance loss or damage, including, without duplication of coverage, theft, vandalism, and malicious mischief.

Any loss insured under Paragraph 1(I) is to be adjusted with the Owner and made payable to the Owner, as trustee for the insureds, as their interest may appear. The Contractor shall pay each Subcontractor a just share of any insurance moneys received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each Subcontractor to make payments to his Subcontractors in similar manner. Any and all policies and insurance shall be endorsed as such if necessary.

2. The insurance coverages required by Subparagraph 1(a) through 1(f) shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations, as set forth in the General Conditions. Policies shall include the Owner and The Roman Catholic Church of the Archdiocese of New Orleans as additional insured, not merely as certificate holders, with respect to any and all liability arising out of the work.

3. Certificates of Insurance written through companies acceptable to the Owner shall be filed with the Owner prior to commencement of work. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled or materially changed until at least thirty (30) days prior written notice has been given to the Owner.

4. The Owner shall be responsible for purchasing and maintaining his own liability

insurance and, at his option, may purchase and maintain such insurance as will protect Owner against claims which may arise from operations under the Contract.

5. (a) The Contractor shall file a Certificate of Insurance with the Owner before an exposure to loss may occur.

(b) The Owner, as trustee, shall have power to adjust and settle any loss with the insurers.

(c) The Contractor agrees and binds himself to furnish and deliver to the Owner, contemporaneously with the execution of this Contract, a bond assuring the faithful performance of the Contract from a good and solvent surety company, satisfactory to the Owner, in the amount of \$ _____.

ARTICLE VIII. PROPERTY DESCRIPTION. The following is a property description of the site of the work:

THUS DONE AND PASSED, in multiple originals, in New Orleans, Louisiana, on the day, month and year herein first above written, in the presence of the undersigned competent witnesses who hereunto sign their names with said appearers and me, Notary, after due reading of the whole.

WITNESSES:

“OWNER”

BY: _____

“CONTRACTOR”

BY: _____

NOTARY PUBLIC

SECTION 00110 BIDDER'S CHECK LIST

OWNER: **St. Martin's Manor, Inc.,
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113**

PROJECT: **Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

ARTICLE 1 THE BID IS SUBMITTED TO THE Archdiocese of New Orleans Building Office ("the ANOBO")

1.1. The Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner on the Agreement Form including the attached Supplement and to perform and furnish all Work as specified or indicated in the Bidding Documents for the Bid prices in the "Bid Schedule" on the Bid Form, within the Contract Times specified in the Agreement, and in accordance with all the provisions and terms and conditions of the Bidding Documents, including without limitation, those dealing with the disposition of the Bid Security.

1.2. This Bid will remain open as specified in the Advertisement and in the Instructions to Bidders. Submission of this Bid constitutes a binding representation by the Bidder that the Bidder will perform the following obligations within the times and in the manner specified in the Bidding Documents: (a) the Bidder will deliver to the Owner acceptable evidence of insurance, and (b) the Bidder and its surety will appear before the Owner and sign the Agreement, Performance Bond, and Labor and Material Payment Bond, as specified.

ARTICLE 2 THE BIDDER'S REPRESENTATIONS

2.1. The Bidder has attended the pre-bid conference (mandatory), and examined the Bidding Documents, and acknowledged all Addenda.

2.2. The Bidder has (a) familiarized itself with the Work, site and locality; Owner's and/or ANOBO policies and regulations; all applicable federal, State and local Laws; all general, local and prevailing conditions that may in any manner affect cost, schedule, progress, performance or furnishing of the Work; and the terms and conditions of the Bidding Documents; and (b) carefully correlated the Bidder's observations with the Bidding Documents.

2.3. The Bidder has studied carefully all reports concerning subsurface conditions and drawings of physical conditions of existing surface and subsurface facilities that have been used by the Architect and/or Owners Representative in the preparation of the Bidding Documents and all documents of physical conditions of Underground Utilities (and accepts responsibility for Underground Utilities). The Bidder accepts the determinations set forth in the Bidding Documents of the extent of the technical data contained in those reports, the Bidding Documents or any other documents on which the Bidder may rely.

2.4. The Bidder has obtained and carefully studied, or assumes responsibility for obtaining and carefully studying, all such additional reports of explorations and tests of subsurface conditions and information and data about surface or subsurface facilities or Underground Utilities that may affect cost, schedule, progress, performance or furnishing of the Work as the Bidder considers necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Bidding Documents. The Bidder expressly agrees to perform and furnish the Work, in accordance with the Bidding Documents, at no increase in Contract Price and within the Contract Time.

2.5. The Bidder has carefully correlated the results of its observations, examinations and studies of those reports of explorations and all that information and data in studies, drawings and specifications, referred to in paragraphs 2.3 and 2.4, with the terms and conditions of the Bidding Documents.

2.6. The Bidder has examined all information and data shown or indicated in the Bidding Documents concerning other work (performed by other parties under contracts with the Owner), including, but not limited to

OWNER: **St. Martin's Manor, Inc.,
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70**
PROJECT: **Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

**ARTICLE 2 THE BIDDER'S REPRESENTATIONS
(Cont'd)**

provisions in the General Conditions. The Bidder assumes responsibility for all reasonably foreseeable terms, conditions and consequences resulting from such other work that may in any manner affect cost, schedule, progress, performance or furnishing of the Work.

2.7. The Bidder has carefully examined the terms and conditions of the General Conditions, and the other Bidding Documents concerning delay, and the Bidder accepts the determinations set forth in the General Conditions that no delay shall be unreasonable under the circumstances, except as provided in the General Conditions. The Bidder has correlated those terms and conditions with the Bidders schedule for executing the Work and the Bidder's Base Bid and Alternates.

2.8. The Bidder represents that each unit price covering Unit Price Work shown or indicated in the Bidding Documents or contingent upon actual conditions, whether bid on the Bid Schedule or other document, includes sufficient amounts to cover a) all labor, Subcontractor, materials and/or equipment, construction equipment and supplemental costs, and b) all administrative costs and profit.

2.9. The Bidder has given the Owner's Representative written notice of all conflicts, ambiguities, errors or omissions the Bidder has discovered in the Bidding Documents, and the written resolution given by the Owner's Representative is acceptable to the Bidder.

2.10. This Bid is genuine, is not made in the interest of or on behalf of any undisclosed person, is not submitted in conformity with any agreement or rules of any group, association, organization or corporation, and no unlawful agreements exists concerning employment of, or payments to, a solicitor(s). To induce the Owner into consideration of this Bid, the Bidder reiterates and makes each of the representations made in the Bidder's Non-Collusion Statement, Section 00300 that is executed by the Bidder and included with this Bid.

2.11. The Bidder has read and studied each provision of the Bidding Documents. The Bidder has no expectations different from the terms and conditions of the Bidding Documents.

ARTICLE 3 TIME OF COMPLETION

3.1. The Contract Times as inserted into the bid form by the Contractor. The Bidder has carefully correlated the provisions in Article II of the Agreement with the other terms and conditions of the Bidding Documents and unequivocally accepts the Contract Times for the Work, and any other designated pans of the Work, as specified.

3.2. The Bidder unequivocally accepts the liquidated damage provisions specified in Article VI of the Agreement in the event of failure, neglect or refusal to complete the Work, or any designated part of the Work, within the corresponding Contract Times specified in Article II of the Agreement.

ARTICLE 4 ATTACHMENTS INCLUDED WITH THIS BID

4.1. Attachments to this Bid Form (Section 00300) and made a condition of this Bid are:

4.1.1. Cover for Bid Forms

4.1.2. Certificate of Principal

4.1.3. Certificate of Corporate Authority

4.1.4. Bid Bond, including Certified Copy of Power of Attorney.

4.1.5. Bidder's Non Collusion Statement.

4.2. If the Bidding Documents require the enclosure, in the opaque sealed Bid envelope, of documents separate from the Bid Form and Bid Form Attachments, those Bidder-provided documents are so enclosed and made a condition of this Bid.

OWNER: **St. Martin's Manor, Inc.,
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70**
PROJECT: **Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

BEFORE BID OPENING:

_____, 2011 – Due date for delivery to the **ARCHITECT/ENGINEER** a written proposals seeking to have the **Architect/Engineer** consent to adding another brand, make, supplier or manufacturer or definite specification by Addenda. (Reference: Section 00100, paragraph 6.2).

_____, 2011 – Bidder inquiries received after this date will not be answered, unless the Bid opening is postponed by Addendum. (Reference: Section 00100, paragraph 3.3).

CONTENTS IN AND MARKING OF OPAQUE SEALED BID PACKAGE (ITEMS 1 THROUGH 6 BELOW):

REMINDER: THE BIDDER SHALL USE THE SECOND, UNBOUND BLANK SET OF SECTION 00300 BID FORMS INSERTED WITHIN THE PROJECT MANUAL, EXCEPT AS REVISED BY ADDENDUM. IF THE BID FORMS, SECTION 00300, ARE REVISED BY ADDENDUM, THE LATEST REVISION ISSUED BY ADDENDUM SHALL BE USED.

CAUTION: THE BIDDER IS NOT REQUIRED TO INSERT THE PROJECT MANUAL OR DRAWINGS IN THE OPAQUE SEALED BID PACKAGE, ONLY THE COMPLETED SECTION 00300 BID FORMS!

- _____ 1. Completed Section 00300 Bid Forms, including completing (a) the acknowledgment of Addenda
- _____ 1.1 Bidder is providing evidence of authority to the **Owner** with the Bid, attach the completed Certificate of Principal and Resolution of Corporate Authority or Certificate of Partnership Authority, or other equivalent acceptable document(s), to Section 00300 Bid Forms.
- _____ 2. Completed Bid Bond, including certified copy of Power of Attorney .
- _____ 3. Completed Non-Collusion Statement
- _____ 4. The Bidder's name, address and telephone number; the Bid opening date; and the Bidder's Louisiana contractor's license number shall be marked on the OPAQUE SEALED BID PACKAGE

END OF SECTION 00110

BID FORMS

PROJECT NAME: Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana

OWNER: St. Martin's Manor, Inc.
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70siana

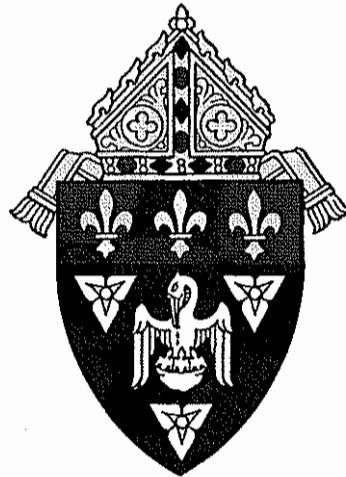
CONTRACTOR'S NAME: _____

CONTRACTOR'S LICENSE NUMBER: _____

COVER FOR BID FORMS

ARCHDIOCESE OF NEW ORLEANS

BID FORMS (SECTION 00300)



<u>TABLE OF CONTENTS</u> (INCLUDE THESE SECTION WITH BID)		<u>PAGE</u>
SECTION 00300	BID FORM	2
SECTION 00300	CERTIFICATE OF PRINCIPAL / VERIFICATION	3
SECTION 00300	CERTIFICATE OF CORPORATE AUTHORITY	4
SECTION 00300	BID BOND	5
SECTION 00300	NON-COLLUSION STATEMENT	6

BID FORM

TO Archdiocese of New Orleans

BID

Repairs and Rehabilitation for

:

FOR:

Martin Manor

Building Office
7887 Walmsley Ave.
New Orleans, Louisiana 70125

1501 N. Johnson St
New Orleans, Louisiana

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents.

The Bidder acknowledges receipt of the following ADDENDA:

No. ___ Dated: ___ No. ___ Dated: ___ No. ___ Dated: ___
No. ___ Dated: ___ No. ___ Dated: ___ No. ___ Dated: ___

TOTAL BID: For all work required by the Bidding Documents (including any and all unit prices if applicable, but no alternates) the sum of: (\$ _____)

Dollars

After the bids, for the Owners information required for the administering of the funds, the following five (5) individual prices will be required for the construction to be submitted by the successful bidder. Note that each of the below shall have its own schedule of values and each submitted with its own Application for Payment.

- 1. construct the Main Building (PW# 11695) as shown on the drawings.
2. construct the Yellow Masonry Building (PW #11705) as shown the drawings, with sitework listed as a line item
3. construct the Gate House (PW #10741) as shown the drawings
4. construct the Carriage House (PW #18945) as shown the drawings
6. construct the Front Gate (PW# 10770) as shown on the drawings

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description. See Section 01030-Alternates for description of alternates

Alternate No. 1 Add the underpinning of Tower Foundation at Eastern Corner of Main Building as indicated on the drawings for the lump sum of:

Dollars (\$ _____)

Add _____ consecutive calendar days for the alternate

Alternate No. 2 Add the telephone directory entry system at Door D173 for the lump sum of:

Dollars (\$ _____)

Add _____ consecutive calendar days for the alternate

CONTRACT TIME: The Bidder agrees, if awarded the Contract , the Contract Time for completion of the entire work will be (a) substantially complete and ready for acceptance, in accordance with the Contract Documents within _____ calendar days of the date of the Notice to Proceed (NTP); and (b) complete and ready for final payment in accordance with the Contract Documents within 45 days of the date of the Substantial Completion Certificate

NAME OF FIRM OR JOINT VENTURE: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

SIGNATURE OF BIDDER **: _____

NAME OF BIDDER: _____

TITLE OF BIDDER: _____

ADDRESS OF BIDDER: _____

DATED: _____, 2012

**If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid.

BID SECURITY in the form of a bid bond is attached to and made a part of this bid. The bid bond provided it shall be on the attached form and only on the attached form.

CERTIFICATE OF PRINCIPAL
(BIDDER)

I, _____ Certify that I am a Managing Member of the Company or a General Partner of the Partnership, named as the Bidder in the attached Bid Form that _____ who signed the Bid Form on the behalf of the Bidder; was then _____ of the Company or Partnership acting by authority of its governing body or partners .

Signed by the Managing Member of the Company
Or By General or Managing Partner Certify

Name of the Company or True Name of the Partnership

(Company Seal if any)

VERIFICATION
(BIDDER)

STATE OF LOUISIANA
PARISH OF _____

Before me, a Notary duly commissioned, qualified and acting, personally appeared (enter the name of the person who signed the Bid Form on behalf of the Bidder) _____ to me well known to be the person described in and who signed the Bid Form, who being by me first duly sworn upon oath, says that he/she is the attorney-in-fact for (enter the Bidder's Name) _____ and that he/she has been authorized by(enter name of the individual, partnership name, or that governing body of the Bidder named in the attached corporate resolution) _____ to execute the attached Bid Form on behalf of the named Bidder in favor of the **St. Martin Manor, An Independent Living Senior Housing Facility, 1501 N. Johnson St., New Orleans, Louisiana.**

Subscribed and sworn before me this _____ day of _____, 2012

Notary

CERTIFICATE OF CORPORATE AUTHORITY
(If the Contractor is a Corporation)

I, _____, Corporate Office of _____ a _____
(Print or Type) (Indicate State)

Corporate (the "Company") DO HEREBY CERTIFY that the following is a true and correct excerpt from the minutes of the meeting of the Board of Directors, wherein a quorum was present, duly called, and held on _____ and that the same is now in full force and effect:

"RESOLVED, that the Chairperson, the President, each Vice President, the Treasury, and the Secretary and each of them, hereby is authorized to execute and deliver, in the name and on behalf of the Company and under its corporate seal or otherwise, any agreement or other instrument or document in connection with any matter or transaction that shall have been duly approved; the execution and delivery of any agreement, document, or other instrument, or document in connection with any matter or transaction that shall have been duly approved; the execution and delivery of any agreement, document, or other instrument by any of such officers to be conclusive evidence of such approval."

I FURTHER CERTIFY that _____ is Chairperson of the Board _____ is President, _____ is Treasurer, and _____ is Secretary

I FURTHER CERTIFY that any of the aforementioned Officers of the Company are authorized to execute or guarantee and commit the Company to the conditions, obligations, stipulations and undertakings contained in the Contract Documents and that all necessary corporate approvals have been obtained in relationship thereto.

IN WITNESS THEREOF, I have set my hand this _____ day of _____, 2012

CORPORATE SEAL

Corporate Officer's Signature

Title

SECTION 00310: BID BOND

OWNER: **St. Martin's Manor, Inc.,
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113**

PROJECT: **New Building "A" (Galvez St. Building) for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

KNOW ALL PERSONS BY THESE PRESENTS: That we "the Bidder," a corporation, individual, partnership, joint venture, of the state of _____, qualified and licensed to do business in the State of Louisiana, as Principal, and "the Surety," of the state of _____, authorized to do business as surety in the State of Louisiana, are hereby held and firmly bound unto the Owner, as obligee, in the amount of five percent (5%) of the sum of the Bidder's Base Bid plus all Alternates, which equates to the penal sum of Dollars (\$ _____), for the payment of which the Bidder and Surety hereby bind ourselves, our respective heirs, successors, legal representatives and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Bidder has submitted to the Owner the Bidder's Bid, to which this Bond is attached, to enter into the Contract with the Owner for _____ covered by Bidding Documents prepared by _____, which Bidding Documents are incorporated into this Bid Bond by this reference:

NOW, THEREFORE: THE CONDITION OF THIS OBLIGATION IS THAT, if the Bidder (a) faithfully performs and fulfills all the understandings, covenants, terms, conditions and requirements of the Bidding Documents (including written Addenda) within the time specified or any extension thereof, with or without notice to the Surety, or (b) fails to comply with all the understandings, covenants, terms, conditions and requirements of the Bidding Documents (including written Addenda) within the time specified or any extension thereof, with or without notice to the Surety, but pays the Owner the penal sum amount set forth in this Bond - then THIS OBLIGATION SHALL BE NULL AND VOID, otherwise THIS OBLIGATION SHALL REMAIN IN FULL FORCE AND EFFECT.

A. If the Owner makes demand on the Surety to perform in accordance with the Surety's obligations under this Bond then, the full amount of the penal sum set forth in this Bond

shall be immediately due and payable to the Owner, and the Surety shall pay that sum without delay. Additionally, the Surety shall reimburse the Owner for all costs of collection.

B. The Surety, for value received, stipulates and agrees that the obligations of the Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept the Bid, and the Surety does, by this agreement, waive notice of any such extension.

C. It is the intention of the Bidder, Surety and Owner that the Surety shall be bound by all terms and conditions of the Bidding Documents and this Bid Bond. However, if any provision(s) of this Bid Bond is/are illegal, invalid or unenforceable, all other provisions of this Bid Bond shall nevertheless remain in full force and effect.

IMPORTANT: The Surety shall provide proof satisfactory to the Owner of the following: The Bid Bond shall be written by a Surety licensed in the State of Louisiana, the Surety shall be currently on the U.S. Department of the Treasury Financial Management Service List of approved bonding companies, the bid amount plus alternates shall be within the single bond limit of the U.S. Department of the Treasury Financial Management Service List for that company, and the Surety shall have at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to 10% of policyholders' surplus as shown in the A.M. Best Key Rating Guide.

Address and Telephone of Surety

Address and Telephone of agent (licensed and residing in Louisiana):

Signed and sealed this _____ day of _____, 2012

Bidder: (Sign & Print Full Name)

By: _____

Witness: _____

Name & Title: _____

SURETY: (Sign & Print Full Name)

By Agent: _____

Witness: _____

By Attorney-in-Fact: _____

SECTION 00360 : NON-COLLUSION STATEMENT

OWNER: **St. Martin's Manor, Inc.,
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113**
PROJECT: **New Building "A" (Galvez St. Building) for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

State of Louisiana
Parish of Orleans

_____, states that he/she is _____ (a partner of the firm, officer of the corporation, or individual making the foregoing proposal or bid); that said proposal is genuine and not collusive or sham; that said proposer has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person to put in a sham bid or to refrain from bidding, collusion, or communication or conference, with any person, to fix the bid or affiant or any other bidder, or to fix any overhead, profit or cost element, or that of any other proposer, or to secure any advantage against any person interested in the proposed contract, and that all statements contained in the said bid or proposal are true.

(Signature)

THE PRINCIPALS OF THE COMPANY ARE:

PRESIDENT: _____

VICE-PRESIDENT: _____

SECRETARY: _____

TREASURER: _____

BIDDER: _____
(Signature)

NAME: _____
(Print or Type)

ADDRESS: _____

CITY, STATE, ZIP: _____

AREA CODE & PHONE: _____

AREA CODE & FAX: _____

END OF SECTION 00300

SECTION 00400 : QUALIFICATION SUBMITTALS

OWNER: St. Martin's Manor, Inc.
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113

PROJECT: Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana

CONTRACTOR'S NAME: _____

CONTRACTOR'S LICENSE NUMBER: _____

COVER FOR QUALIFICATION SUBMITTALS

TO BE SUBMITTED BY THE APPARENT LOW BIDDER

WITHIN 48 HOURS OF THE RECEIPT OF THE BIDS

AFTER BID OPENING, AS PROVIDED IN INSTRUCTIONS TO BIDDERS

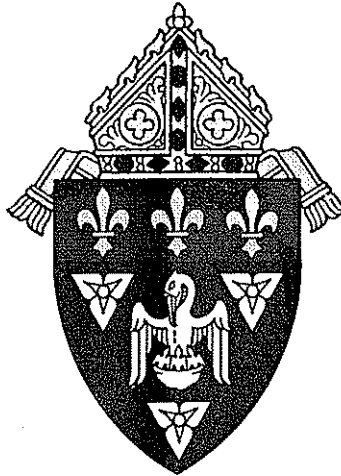


TABLE OF CONTENTS

QUALIFICATION SUBMITTALS (FORMS ARE INCLUDED WITH THE BIDDING DOCUMENTS)

SECTION 00420	QUESTIONNAIRE
SECTION 00450	CERTIFICATION OF EQUAL OPPORTUNITY AND NON SEGREGATED FACILITIES
SECTION 00460	CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS
SECTION 00470	MINORITY CONTRACTOR (MC) PARTICIPATION (10% GOAL)

FAILURE TO TIMELY SUBMIT THE QUALIFICATION SUBMITTAL FORMS WILL RESULT IN THE CONTRACTOR'S BID BEING DEEMED NON-RESPONSIVE

SECTION 00420 QUESTIONNAIRE

OWNER: **St. Martin's Manor, Inc.**
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113

PROJECT: **Repairs and Rehabilitation for St. Martin Manor**
1501 N. Johnson St., New Orleans, Louisiana

ARTICLE 1 ORGANIZATION

1.1 Date of organization (or incorporation) _____ State of incorporation _____ (IRS) EIN _____

1.2 Title and name of Principals (President, Vice Presidents, Secretary and Treasurer, if a corporation; partners, if a partnership)

1.3 Is your organization a Louisiana Licensed Contractor? _____ If so, initial the applicable blank and complete one of the following two statements regarding residency:

_____ If an individual, I have been a Licensed Contractor of the State of Louisiana for two(2) years or more before the date of Bid opening.
I reside at _____.

_____ If a partnership, association, corporation, or other legal entity, I(we) certify that: (a) I(we) have maintained a valid Louisiana Contractor's License for two (2) years before Bid opening and have operated a permanent facility at:

_____ (b) I(we) have not had a change in ownership or control throughout those two (2) years, and (c) the majority interest is owned by and controlled by a Licensed Contractor of the State of Louisiana. The names and addresses of each of the owners is as follows:

Name	Address	Ownership Percentage

Name	Address	Ownership Percentage

Name	Address	Ownership Percentage

1.4 If your organization, any business entity related to or affiliated with your organization, or any present or former employee, officer, director, shareholder (owning twenty percent (20%) or more of the outstanding shares), partner, or owner of your organization or of any such related or affiliated entity has ever been convicted of a felony, or has felony charges pending, in any state within the last five (5) years before Bid opening, furnish all facts relating to any such felony conviction or any such pending felony charges.

ARTICLE 2 LICENSING

2.1 Attach copies of all applicable Bidder's valid Louisiana Contractor's licenses covering Work that the Bidder intends to self-perform and for which a license is required under LSA-R.S. Title 37, Chapter 24.

ARTICLE 3 EXPERIENCE

3.1 What is the general character of the work performed by your organization? _____

3.2 How many years experience in the construction of school facilities, university buildings and/or and other like institutional facilities has your organization had: (a) as a General Contractor? _____; (b) as a Subcontractor? _____.

3.3 Attach a list of all contracts or subcontracts under contracts, whether they be for public or private entities, that your organization has performed within the last five (5) years involving schools, university buildings and/or other like institutional facilities similar in character, scope and contract amount to the Work under the Bidding Documents (using the forms in the attached "References Attachment"). If the contract or subcontract is not substantially completed, furnish the percentage complete for that contract or subcontract.

3.4 Within the last five (5) years has your organization a) failed to complete a contract or subcontract awarded it, b) been placed in default, and/or c) been determined to be a non-responsible bidder? _____. If so, for each failure of contract or subcontract, default, and/or non-responsible bid, state when, where and why? Attach separate pages to this document as necessary.

3.5 Within the last five (5) years (a) have any claims arising from or relating to a contract been made against your organization or any officer or partner of your organization that resulted in mediation, litigation or arbitration? _____. (b) Has your organization or and officer or partner of your organization made any claims arising from or relating to a contract that resulted in mediation, litigation or arbitration? _____. If so, attach a description of each such claim, the amount of the claim, the parties involved, and the settlement amount or award and to whom.

ARTICLE 4 ADDITIONAL QUALIFICATIONS

4.1 State the name and telephone number of a representative(s) of your organization who personally attended (a) the pre-bid conference _____, (b) visited and inspected the site _____.

4.2 Does your organization rent or lease equipment or facilities from other affiliate organizations? _____. If so, state the name of the affiliate organization(s) _____. Attach a list of construction equipment your organization intends to use in the execution of the Work, as estimated in the preparation of your organization's Bid.

4.3 Bank line of credit available? \$ _____.

4.4 Will your organization, i.e., the Bidder named in the Authorized Signature Article on the Bid Form, be the only named Principal in the Performance Bond and Labor and Material Payment Bond? _____. If not, please identify the organization who will be named as Principal or Co-Principal on the Performance Bond and Labor and material Payment Bond _____.

Also, state how such organization relates to the Bidder _____. (NOTE: If another organization is identified the Bidder shall submit to the Owner or Architect a separate Questionnaire filled out by that organization as part of the Qualification Submittals required under Article 1 of the Instructions to Bidders.)

ARTICLE 5 REFERENCES

5.1 Trade references (Minimum of three(3)):

5.2 Bank references:

5.3 Insurance:

The Bidder, _____, warrants that all statements and answers made to interrogatories in this Questionnaire are current, accurate and complete as of the date stated below. (Note: Attachments shall be fastened at the end of this Section).

Signed by: _____ Name _____

Title _____

On this _____ day of _____, 2011.

REFERENCE ATTACHMENT

OWNER: **St. Martin's Manor, Inc.**
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113

PROJECT: **Repairs and Rehabilitation for St. Martin Manor**
1501 N. Johnson St., New Orleans, Louisiana

REFERENCE:

Owner: _____

Project/Contract Name: _____

Location of Project: _____

Contract Price: _____

Project Started: _____ Completed: _____

Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:

Owner: _____

Project/Contract Name: _____

Location of Project: _____

Contract Price: _____

Project Started: _____ Completed: _____

Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:

Owner: _____

Project/Contract Name: _____

Location of Project: _____

Contract Price: _____

Project Started: _____ Completed: _____

Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:

Owner: _____

Project/Contract Name: _____

Location of Project: _____

Contract Price: _____

Project Started: _____ Completed: _____

Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:

Owner: _____

Project/Contract Name: _____

Location of Project: _____

Contract Price: _____

Project Started: _____ Completed: _____

Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

END OF SECTION

SECTION 00450 COMPLIANCE WITH FEDERAL REGULATIONS

**OWNER: St. Martin’s Manor, Inc.
 1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113**
**PROJECT: Repairs and Rehabilitation for St. Martin Manor
 1501 N. Johnson St., New Orleans, Louisiana**

1. THE BIDDER WILL COMPLY WITH THE FOLLOWING REQUIREMENTS, STATUTES, REGULATIONS AND EXECUTIVE ORDERS :

- Executive Order 11246 entitled "Equal Employment Opportunity" as amended by Executive Order 11375, AND AS SUPPLEMENTED IN THE Department of Labor regulations (41 CFR Chapter 60)
- Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in the Department of Labor regulations (29 CFR Part 3).
- Contract Work Hours Safety Standards Act (40 U.S.C. 327-330) Sections 103 and 107 as supplemented by Department of Labor regulations (29 CFR Part 5).
- Clean Air Act(42 U.S.C. 1857/(h)) Section 306
- Clean Water Act (33 U.S.C. 1368) Section 508
- Executive Order 11738 and Environmental Protection Agency (40 CFR Part 15)
- Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871)
- FEMA access to any books, documents, papers, and records of the contractor which are directly pertinent to this specific contract for the purpose of making audit, examination, excerpts, and transcriptions.
- FEMA requirement for retention of all records for three years after receipt of final payment and all other matters are closed.
- Cooperate with and allow full access to all FEMA representatives regarding this site.
- Ensure that all subcontractors are bound by the foregoing and include language in any subcontracts that requires the subcontractors to abide by all of the terms and conditions of the foregoing.

 Signature and Title of Bidder’s Representative

 Printed or Typed Name and Title of Bidder’s Representative

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

END OF SECTION 00450

SECTION 00460 CERTIFICATION REGARDING DEBARMENT, SUPENSION AND OTHER RESPONSIBILITY MATTERS

OWNER: **St. Martin's Manor, Inc.**
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113
PROJECT: **Repairs and Rehabilitation for St. Martin Manor**
1501 N. Johnson St., New Orleans, Louisiana

The Bidder certifies to the best of its knowledge and belief that the Bidder, the Bidder principals and any other entities owned or controlled by Bidder or Bidder's principal(s):

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local instrumentalities.
2. Have not within the last (5) years before Bid opening been convicted of or had a civil judgment Rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 1 of this certification; and
4. Have not within the last (5) years before Bid opening had one or more transactions terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this Bid termination of the award.

Name and Title of Authorized Representative

Signature of Authorized Representative

Date

_____ I am unable to certify to the above statements. My explanation is attached.

SECTION 00470 Minority Contractor (MC) Participation Goals 10%

**OWNER: St. Martin's Manor, Inc.
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113**

**PROJECT: Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

1. To enable the Owner and Architect to evaluate the Apparent Low Bidder's qualifications to perform the Work, the Apparent Low Bidder shall nominate each Subcontractor to whom the Bidder intends to award a Sub-agreement. If the Bidder intends to self-perform a classification and sub-classification of Work for which a contractor's license is required, the Bidder shall nominate itself in the spaces provided for that purpose, and the Bidder shall furnish the Bidder's contractor's license number(s) for that classification. For each nominated Subcontractor, the bidder shall enter the nominated Subcontractor's required licensing information and, if the nominated Subcontractor is a MC.
2. Failure by the Apparent Low Bidder or any other Bidder wishing to remain in contention for the award, to nominate Subcontractors, or to nominate the Bidder itself and/or to provide the required licensing information within forty-eight (48) hours after Bid opening, excluding non-Business Days, may be considered sufficient grounds for determining that the Apparent Low Bidder is not responsible or not responsive and shall justify disqualification.
3. The Apparent Low Bidder hereby agrees not to remove, replace or add a nominated Subcontractor after the period specified in paragraph 2, except for good cause shown as determined solely by the Owner.
4. This listing requirement is not intended to create any express or implied duty or obligation to the Bidder or the nominated Subcontractors by the Owner or Architect.
5. The requirement to make a definite nomination of Subcontractors or to state that the Bidder intends to self-perform a classification or sub-classification, and to clarify any omissions or ambiguities in the List of Subcontractors, applies to the Apparent Low Bidder and any other Bidder wishing to remain in contention for the award.
6. All forms shall be timely submitted to the Archdiocese of New Orleans Building Office, 7887 Walmsley Ave, New Orleans, LA 70125, within forty-eight (48) hours after Bid opening, excluding non-Business Days.
7. Failure to timely submit forms will result in contractor's bid being deemed non-responsive.

SECTION 00470 LIST OF ALL SUB-CONTRACTORS (BOTH MC AND NON MC)

Classification or Sub-classification of Work to be Performed	Subcontractor	MC	Percent of Base Bid
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____

SECTION 00480 : SUBCONTRACTOR'S QUESTIONNAIRE

OWNER: **St. Martin's Manor, Inc.**
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113
PROJECT: **Repairs and Rehabilitation for St. Martin Manor**
1501 N. Johnson St., New Orleans, Louisiana

ARTICLE 1 ORGANIZATION

1.1 Date of organization (or corporation) _____ State of incorporation _____ (IRS)EIN _____

1.2 Title/name of Principals (President, Vice Presidents, Secretary and Treasurer, if a corporation; partners, if a partnership

1.3 Is your organization a Louisiana Licensed Contractor/Subcontractor? _____ If so, initial the applicable blank and complete one of the following two statements regarding residency:

_____ If an individual, I have been a Licensed Contractor/Subcontractor of the State of Louisiana for two(2) years or more before the date of Bid opening.

I reside at _____

_____ If a partnership, association, corporation, or other legal entity, I(we) certify that: (a) I(we) have maintained a valid Louisiana Contractor's License for two (2) years before Bid opening and have operated a permanent facility at:

_____ (b) I(we) have not had a change in ownership or control throughout those two (2) years, and (c) the majority interest is owned by and controlled by a Licensed Contractor of the State of Louisiana. The names and addresses of each of the owners is as follows:

Name Address Ownership Percentage

Name Address Ownership Percentage

Name Address Ownership Percentage

1.4 If your organization, any business entity related to or affiliated with your organization, or any present or former employee, officer, director, shareholder (owning twenty percent (20%) or more of the outstanding shares), partner, or owner of your organization or of any such related or affiliated entity has ever been convicted of a felony, or has felony charges pending, in any state within the last five (5) years before Bid opening, furnish all facts relating to any such felony conviction or any such pending felony charges.

ARTICLE 2 LICENSING

2.1 Attach copies of all your organization's valid Louisiana Contractor's licenses covering Work that your organization intends to perform under a subcontract and for which a license is required under LSA-R.S. Title 37, Chapter 24.

ARTICLE 3 EXPERIENCE

3.1 What is the general character of the work performed by your organization? _____

3.2 How many years experience in the construction of school facilities, university buildings and/or and other like institutional facilities has your organization had: (a) as a General Contractor? _____; (b) as a Subcontractor? _____

3.3 Attach a list of all contracts or subcontracts under contracts, whether they be for public or private entities that your

organization has performed within the last five (5) years involving schools, university buildings and/or other like institutional facilities similar in character and scope to the Work under the Bidding Documents (using the forms in the References Attachment" attached to this Subcontractor's Questionnaire). If the contract or subcontract referenced is not substantially completed, furnish the percent complete for that contract or subcontract.

3.4 Within the last five (5) years, has your organization failed to complete a contract or subcontract awarded to it? _____. If so, for each contract or subcontract, state when, where and why.

3.5 Within the last five (5) years, have any claims arising from or relating to a contract or subcontract been made against your organization or any officer or partner of your organization that resulted in mediation, litigation or arbitration? _____. If so, attach a description of each claim, the amount of claim, the parties involved, and settlement amount or award.

3.6 Within the last five (5) years, has your organization or an officer or partner of your organization made any claims arising from or relating to a contract or subcontract that resulted in mediation, litigation or arbitration? _____. If so, attach a description of each claim, the amount of claim, the parties involved, and the settlement amount or award.

ARTICLE 4 ADDITIONAL QUALIFICATIONS

4.1 Will you subcontract any part of the Work covered by the intended Subagreement? _____. If so, which parts of the Work covered by the intended Subagreement do you intend to subcontract to a lower tier Subcontractor?

4.2 State the name, address and telephone number of a representative of your organization who personally visited and inspected the site: _____. Also describe the subsurface and physical conditions that are at or contiguous to the site that your representative investigated and how they were accounted for in the preparation of your organization's sub-bid.

4.3 Attach a list of construction equipment and machinery your organization intends to use in the execution of the Work, as estimated in the preparation of your organization's sub-bid.

4.4 Does your organization rent or lease equipment or facilities from other affiliate organizations? _____. If so, state the name of the affiliate organization(s) _____

4.5 Bank line of credit available? \$ _____.

ARTICLE 5 REFERENCES

5.1 Trade references (Minimum of three(3)):

5.2 Bank references:

5.3 Insurance:

The undersigned Subcontractor _____ warrants that all statements and answers made to the interrogatories in this Questionnaire are current, accurate and complete as of the date stated below. (Note: Attachments shall be fastened at the end of this Section in the bound Bidding Documents).

Signed by: _____ Name _____ Title _____

on this _____ day of _____, 2010.

**CERTIFICATE OF PRINCIPAL
(NOMINATED SUBCONTRACTOR)**

I, certify that I am the Secretary of the Corporation____or a General Partner_____ or Managing Partner of the partnership, named as the Subcontractor in the attached Questionnaire; that _____ who signed the Questionnaire on behalf of the Subcontractor, was then _____ of that organization _____ or partnership _____; that I know the undersigned's signature, and the sign signed on the Questionnaire on behalf of the Subcontractor, was then _____ of that organization _____ partnership _____; that I know the undersigned's signature, and the signature on the Questionnaire is genuine, and that the Questionnaire was duly signed, sealed, and attested for and on behalf of that organization _____ or partnership _____ by authority of its governing body _____ or partners _____.

Signed by the Secretary or Other Authorized Officer of the Corporation
Or By General or Managing Partner Certifying

Name of the Corporation or True Name of the Partnership

(Corporate Seal)

**VERIFICATION
(NOMINATE SUBCONTRACTOR)**

STATE OF LOUISIANA)
)
PARISH OF _____)

Before me, a Notary duly commissioned, qualified and acting personally appeared (enter name of person who signed the Questionnaire on behalf of the Subcontractor), to me well known to be the person described in and who signed the Questionnaire, who being by me first duly sworn upon oath, says that he/she is the attorney-in-fact for (enter Subcontractor's name) and that he/she has been authorized by (enter name of individual, partnership name, or that governing body of the Subcontractor named in the attached corporate resolution) to execute the attached Questionnaire on behalf of the named Subcontractor in favor of the Archdiocese of New Orleans.

Subscribed and sworn before me this _____ day of _____, 2010.

Notary

SECTION 00480 REFERENCE ATTACHMENT

OWNER: **St. Martin's Manor, Inc.**
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113
PROJECT: **Repairs and Rehabilitation for St. Martin Manor**
1501 N. Johnson St., New Orleans, Louisiana

REFERENCE:
Owner: _____
Project/Contract Name: _____
Location of Project: _____
Contract Price: _____
Project Started: _____ Completed: _____
Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:
Owner: _____
Project/Contract Name: _____
Location of Project: _____
Contract Price: _____
Project Started: _____ Completed: _____
Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:
Owner: _____
Project/Contract Name: _____
Location of Project: _____
Contract Price: _____
Project Started: _____ Completed: _____
Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

REFERENCE:
Owner: _____
Project/Contract Name: _____
Location of Project: _____
Contract Price: _____
Project Started: _____ Completed: _____
Owner's Representative (Name and Telephone):

Bidders Representative (Name and Telephone):

Scope of Project: _____

SECTION 00480 LIST OF ALL SUB-CONTRACTORS

OWNER: **St. Martin's Manor, Inc.**
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113
PROJECT: **Repairs and Rehabilitation for St. Martin Manor**
1501 N. Johnson St., New Orleans, Louisiana

List below all subcontractor's by trade and contract amount.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

END OF SECTION 00480

SECTION 00630 BUY AMERICAN (REQUIREMENTS) (42 U.S.C. 5206)

(a) Compliance With Buy American Act – No funds authorized to be appropriated under this Act [Disaster Mitigation Act of 2000, Pub. L. No. 106-390] or any amendment made by this Act [Disaster Mitigation Act of 2000, Pub. L. No. 106-390] may be expended by an entity unless the entity, in expending the fund, complies with the Buy American Act (41 U.S.C. 10a et seq.).

(b) Debarment of Persons Convicted of Fraudulent Use of “Made in America” Labels-

(1) In general – If the Director of the Federal Emergency Management Agency determines that a person has been convicted of intentionally affixing a label bearing a “Made in America” inscription to any product sold in or shipped to the United States that is not made in America, the Director shall determine, not later than 90 days after determining that the person has been so convicted, whether the person should be debarred from contracting under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.).

(2) Definition of debar – In this subsection , the term “debar” has the meaning given the term in section 2393(c) of title 10, United States Code.

END OF SECTION 00630

SECTION 00780 GLOSSARY

**OWNER: St. Martin's Manor, Inc.
1000 Howard Avenue, Suite 100, New Orleans, Louisiana 70113**

**PROJECT: Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana**

1.1 Defined Terms:

1.1.1. The following terms or relative pronouns used have the following intent and meanings, unless the context requires otherwise:

Activity - An element in a Progress Schedule establishing a requisite step, or the time and resources required, for performing or furnishing the part of the Work designated by the Activity.

Addenda - Written instruments issued before Bid opening modifying the Bidding Documents by additions, deletions, interpretations or clarifications, corrections, or other revisions.

Advertisement - The public notice to contractors of intention to receive Bids and contract for the Work.

Agreement - The written agreement between the Owner and the Contractor covering the Work to be performed. Agreement Form included with the Instructions to Bidders.

AIA - The American Institute of Architects.

ANOBO - The Archdiocese of New Orleans Building Office.

Apparent Low Bidder - That Bidder whose Bid yields the lowest sum of Base Bid and those Alternates selected by the Owner.

Application for Payment - (or Request for Payment) - The form (similar to AIA document G702) used by the Contractor in requesting progress payments, and which shall enclose all supporting information required by the Contract Documents.

Architect - The person named "the Architect" in the Agreement who has the rights and authority assigned to the Architect in the Contract Documents.

As-Planned Schedule - Revision O Progress Schedule returned to the Contractor as "Resubmittal Not Required," with or without comments or objections needed.

Bar Chart Schedule - Graphical schedule based on bar chart techniques that accounts for the entire Work.

Bid - Written offer by a Bidder for the Work as specified, on the forms furnished with the Bidding Documents. *Base Bid* means the sum of the Base Bid Item Prices, excluding all Alternates.

Bidding Documents - The proposed Contract Documents as advertised, and all Addenda issued before Bid opening.

Bid Price - The Bidder's price for a lump sum item of Work, or the product of the Bidder's unit price for an item of Unit Price Work times the quantity given on the Bid Form for that item.

Bid Security - Security serving as a guarantee that the Bidder will conform with all conditions requisite for its return, or as liquidated damages in the event of failure or refusal to conform.

Bid Requirements - The Advertisement, Instructions to Bidders, Supplementary Instructions, Information for Bidders, Bid Form, Bid Form Attachments and Qualification Submittals.

Bonds - *Performance Bond and Labor and Material Payment Bond* are security furnished by the Contractor, as required by the Contract Documents. Other required Bonds may include *maintenance Bonds and manufacturer performance Bonds*.

Business Day - Any day except Saturdays, Sundays and legal holidays observed by the ANOBO.

Cash allowance – An amount included within the Contract Price to reimburse the Contractor for the actual cost of Work not specified in detail, and consisting of furnished materials, equipment or other items designated in the Contract Documents.

Certified mail - Includes registered U.S. mail and certified U.S. mail with return receipt requested.

Change Authorization – A written order signed by the Owner directing changes in the Work, or giving the basis for a change in Contract Price and/or Contract Time for incorporation into the Contract Documents by Change Order, or both.

Change Order – A written order signed by the Owner that amends the Contract Documents to provide for changes in the Work, or changes in Contract Price or Contract Time, or both.

Claims Board - Three-member board constituted to hear and render written decisions on claims, counterclaims, disputes or other matters in question between the Owner and Contractor.

Contract Documents - Those documents itemized or designated in Article V of the Agreement.

Contract Float - If the Contractor anticipates early completion, *Contract Float* is the number of days or Business Days between the Contractor's anticipated date for early completion of all or any part of the Work and the corresponding Contract Time.

Contract Price – The Contract price for the Work, or a designate part of the Work, is the total compensation, including authorize changes, payable by the Owner to the Contractor as stated in the Agreement and elsewhere in the Contract Documents (subject to applicable provisions for Unit Price Work).

Contract Times - The Contract Times for the entire Work are the periods allowed, including authorized changes, for Substantial Completion and acceptance and final completion of the Work. The Contract Time for a designated part of the Work is the period allowed for its Substantial Completion or Partial Completion as specifically designated in the Contract Documents.

Contractor - Person named " the Contractor" in the Agreement with whom the Owner has entered into the Agreement.

Correction Period - The period specified in the Contract Documents within which the Contractor shall, in accordance with the Contract Documents, either correct, or if rejected, remove and replace, defective Work.

Cost of the Work involved - The sum of all costs that would be, or actually were, necessarily incurred by the Contractor in the proper performance of the Work involved.

CPM Schedule - Computerized Progress Schedule based on CPM techniques that accounts for the entire Work.

Critical Path - A sequence of Activities in a CPM Schedule controlling achievement of a specified Contract Time.

Day - Every day shown on the calendar, Saturdays, Sundays and holiday included.

Date of Commencement of the Contract Time - The date when the Contract Time starts to run.

Defective Work – (a) Work that is unsatisfactory, deficient or damaged, does not conform to the Contract Documents, or does not meet the requirements of any inspection, test or approval, and (b) Work associated with Punch List items that the Contractor fails to complete within a reasonable time after issuance of the Punch List by the Architect.

Delay - Acts or omissions that postpone, extend or in any other manner alter the schedule or completion of all or any part of the Work. Delay includes deferral, stop, slow down, interruption and extended performance, and all related acceleration, hindrance, rescheduling, disruption, interference, inefficiency and productivity and production losses. Delay may result form added Work, as provided the General Conditions, or without the addition of any Work (due to suspension of Work, Contractor-caused delay or delay from causes covered in General Conditions and not itemized in the General Conditions).

Director - Director of the Archdiocese of New Orleans Building Office.

Division – Each of the seventeen (17) parts (starting with Division O) into which the Specifications are divided.

Drawings (or "Contract Drawings", or "Plans") - Part of the Contract Documents depicting the Work. Drawings shall neither serve nor be used as Shop Drawings or Submittals of any kind.

Early (Late) Dates - Early (late) times of performance for the Work, given, but not limited to, the requirements specified in paragraph 8.3.3 of the General Conditions.

IT - The Information Technology Department for the Archdiocese of New Orleans.

FAR – The Federal Acquisition Regulation System, Title 48 of the Code of Federal Regulations, Chapter 1. The term *CFR* means the Code of Federal Regulations.

Fee for the Work involved (or *Fee*) - A negotiated fee allowed to the Contractor for (a) reasonable costs under the General Conditions, and (b) reasonable profit.

FEMA - Federal Emergency Management Agency.

Hand Delivered- The term "hand delivered" includes delivery by private carriers.

Hazardous Material - *Asbestos, ACMs, PCBs*, petroleum products, radioactive products, such materials used in the normal course of construction as paint thinners, solvents, gasoline, oil, etc., and any other material or substance the manufacture, use, treatment, storage, transportation or disposal of which is regulated by any federal, State or local Law governing the protection of public health, natural resources or the environment.

Laws, - Laws, including statutes, by-laws, resolution and ordinances, orders and rules and regulation, whether federal, State or local. The term *Law* means Laws and/or regulations.

LSA-R.S. – The Louisiana Statutes Annotated, Revised Statutes.

Means and Methods – Includes means, methods, techniques, sequences and/or procedures applicable to the Work.

Milestone – A point of progress for a key aspect of the Work, having a *Milestone Time* equal to the Late Date in the *As-Planned Schedule* for the Activity designating that Milestone.

Notice of Award – The written notice stating that the Owner will sign the Agreement upon compliance by the Bidder, within the time specified, with those conditions itemized in the notice.

Notice to Proceed – The written notice authorizing the Contractor to proceed with the Work, or a designated part of the Work.

Owner or ANOBO – The entity named as Owner in the Agreement. The term Owner or *ANOBO* includes authorized representatives of the Owner or *ANOBO*, respectively.

Partial Completion - A designated part of the Work has been completed in accordance with the Contract Documents, except for the Punch List items that are to be completed or corrected to the satisfaction of the Architect, and if required by the Contract Documents or elected by the Owner, partially used for the purpose for which it is specified in the Contract Documents.

Partial Use - Use by the Owner of a portion of the Work before reaching Substantial Completion for the entire Work. In the Contract Documents, the terms "partially used" or "partially occupied" have in context the same meaning as Partial Use.

Person – Individuals, partnerships, corporations, receivers, trustees, joint ventures and any combination(s).

Progress Schedule – Work Schedule that shows the Contractor's approach to planning, scheduling and execution of the Work and accurately portrays completed Work as to sequencing and timing.

Project – The total construction, which includes the Work and possibly other work, as indicated in the Contract Documents.

Project Representative(s)- Authorized representative(s) of the Architect who is (are) assigned to the project.

Public utility – A utility company, utility department or agency of a Public Entity, a natural gas pipeline company, cable TV company, or any other owner/operator of utilities that are operated or maintained in, on under, over or across public right-of-way or public or private easements.

Punch List – A list minor incomplete or unsatisfactory items that do not materially impair the usefulness of the Work, or designated part of the Work, for its intended purpose (or its specified use, under Partial Utilization), and that is developed by the Architect in determining the status completion of the Work, or designated part of the Work, and is attached to a certificate of Substantial Completion or Partial Completion or to the Architect's recommendation

Record Documents – The *As-Planned Schedule* progressed at selected cut-off dates and reflecting how completed Work (by the cut-off date) has been performed as to sequencing and timing, delays and other significant events experienced before the cut-off date, and Work involved in Change Orders and Change Authorizations duly signed by the Owner; but excluding, purposely, any revisions in Activities and sequences initiated by the Contractor that affect Work after the cut-off date.

Records - Books, reports, documents and other evidence pertaining to the bidding, award and performance of the Work.

Schedule of Values - A schedule which subdivide the Work into components parts and details, for each itemized part, quantity and cost information required for making payments for Work performed. The sum of all costs in the Schedule of Values shall equal the Contract Price for the Work.

Section – Each of the separable parts into which a Division of the Specifications is divided.

Shop Drawings - Includes drawings, diagrams, illustrations, standard schedules, performance charts, instructions and other data prepared by or for the Contractor to illustrate some part of the Work, or by a Supplier and submitted by the Contractor to illustrate items of material or equipment.

Short Term Schedule – Graphic diagram disclosing, in significant detail, the schedule for the next month's Work.

Specifications - Parts of the Contract Documents organized into Divisions. "Technical Specifications" means Divisions of the Specifications consisting of technical descriptions of materials equipment, construction systems, standard and workmanship.

State - The State of Louisiana, including any agency, department, unit of instrumentality of the State. Non-capitalized references to a state refer to a state other than the State of Louisiana.

Sub agreement – A subcontractor or purchase order awarding a part of the Work to a Subcontractor or Supplier.

Subcontractor - A person having a Sub agreement for (a) performing craft labor at the site, which craft labor is engaged in incorporating materials and/or equipment into the Work, or (b) both performing such craft labor at the site and furnishing materials and/or equipment for incorporation into the Work.

Submittals – Includes Shop Drawings, samples, Progress Schedules and those other documents required for submission by the Contract Documents. The term "technical Submittal" includes Shop Drawings, brochures, samples, test procedures, and those other Submittals required by the Contract Documents for submission by the Contractor to demonstrate how the Contractor intends to conform to the design concept of the Project and the related information given in the Contract Documents.

Substantial Completion – The finishing of the Work, or specified part of the Work, in accordance with the Contract Documents, to the extent that the Owner can use or occupy all or the specified part of the Work for the use for which it is intended without any concurrent Work at the site, except as required to complete Punch List items with cumulative value under one percent (2%) of the Contract Price. Prerequisites for Substantial Completion include: (a) all systems have been successfully tested and demonstrated by the Contractor for their intended use, and (b) the Owner receiving all occupancy certifications and approvals from those State and local Public Entities with jurisdiction.

Supplementary Conditions – Section within Division O that amends and/or supplements the General Conditions.

Supplier – A manufacturer, fabricator, distributor, material man or vendor having a Sub agreement for furnishing materials and/or equipment and not for performing craft labor at the site.

Total Float – Number of days, or Business Days, by which the Work or any part of the Work may be delayed from its Early Dates without necessarily extending a pertinent Contract Time. Total Float is by definition at least equal to Contract Float.

Underground Utilities – Pipelines, conduit, duct, cables, tanks, tunnels and appurtenances, or other similar facilities installed underground to convey/support conveyance of potable water, sprinkler or irrigation water, fire protection, electricity, gases, steam, petroleum products, sewerage/drainage removal, telephone, communications, cable TV, traffic or control systems.

Unit Price Work, specified – Work of specified and defined quantities (i.e., shown in the Contract Documents) that when performed is measured and paid based on unit prices.

Unit Price Work, contingent - Work involving specified but undefined quantities (i.e., shown in the Contract Documents), the performance of which is contingent upon conditions encountered at the site, as determined by the Architect.

Value, Activity - Portion of the Contract Price representing a fair payment for the part of the Work represented by that Activity.

Work - The entire completed construction, or its various parts, as specified in the Contract Documents that is the result of performing and furnishing all services, obligations, responsibilities, labor, materials, equipment, temporary facilities, and incidentals required by the Contract Documents. The term "execution" used with reference to the Work includes performance or furnishing of the Work, or both. The terms "the Work," "the entire Work" and "all the Work" have in context the same meaning.

Work involved - Denotes Work (a) covered by changes ordered or under negotiation, (b) affected by delay ordered, caused or under negotiation, or (c) covered by any proposal or claim, all as provided in the Contract Document.

1.2 Other Defined Terms

1.2.1. Terms defined in this Glossary and use elsewhere in the Specifications and in the Drawings in lower cases or as capitalized terms, have the intent and meanings assigned to them in this Glossary, unless the context requires otherwise.

1.3 Interpretations

1.3.1. Defined include lower case and capitalized terms that are defined in paragraph 1.1 of this Glossary and those other terms designated in paragraph 1.2 of this Glossary. Capitalized terms include certain defined terms and titles of Sections of the Specifications.

1.3.2. The terms "substantially complete" and "substantially completed" have in context the same meaning as Substantial Completion; "partially complete" and "partially completed" have in context the same meaning as Partial Completion.

1.3.3. Whenever the term "first tier" is used concerning a Subcontractor or Supplier, it means a Subcontractor or Supplier having a direct Sub agreement with the Contractor. Relatedly, the term "lower tier" refers to a Subcontractor or Supplier having a direct Sub agreement with another Subcontractor.

1.3.4. Contract Time computations shall be made in days even if the Contract Time in question is specified as a date. Float computations made in Business Days shall be converted to days in making decisions about changes in Contract Time.

1.3.5. Any computation of a Contract Time made by adding days to the Date of Commencement of the Contract Time shall include both the first and last day. Any computation of a notice period will be computed to exclude the first and include the last day. In either case, if the last day falls on a non Business Day, it shall be omitted from the computation.

1.3.6. An "early completion" Progress Schedule is one that anticipates completion of all or specified part of the Work ahead of the corresponding Contract Time.

1.3.7. Each Article contains sub-articles, numbered as this sub-article 1.3 is numbered; parts, numbered as this part 1.3.87 is numbered, and sub-parts, all of which are considered "paragraphs." A reference to a paragraph means a reference to the sub-article, part or sub-part, or any combination of any of them, if the context will permit.

1.3.8. Any reference to an Article or a paragraph in a Section within Division O means a reference to an Article or paragraph in the very Section in which the reference is made, unless that reference specifically names another Section.

1.3.9. Whenever the context of any provision requires, the singular number includes the plural number and vice-versa, and the use of any gender includes any other and all genders.

End of Section 00780

SECTION 00800 - SUPPLEMENTARY CONDITIONS

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201, 2007 edition. Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions shall remain in effect.

1.1 BASIC DEFINITIONS

Add the following as the next to last sentence in Section 1.1.2:

Nothing contained in the Contract Documents shall create a cause of action in favor of any third-party, including, but not limited to any subcontractor or sub-subcontractor, against the Owner.

Add the following to Section 1.1.8:

The Architect shall be the Initial Decision Maker.

In the first sentence of Section 1.5.1 delete "...and owners...and will retain all common law, statutory and other reserved rights, including the copyrights" and replace with "...and the Owner shall be the owners of all Instruments of Service with all rights pertaining thereto."

Delete sentence "All copies made under this authorization shall bear the copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants Instruments of Service." from section 1.5.2.

2.1 GENERAL

Add the following at the end of Section 2.1.1:

For the purpose of these conditions, the Owner shall be the authorized representative of the parish or institution and the representative from the Building Office, 7887 Walmsley Ave., New Orleans, LA, 70125.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

Delete Section 2.2.1.

2.3 OWNER'S RIGHT TO STOP THE WORK

In the first sentence of Section 2.3 replace the word "repeatedly" with "persistently".

Add the following at the end of Section 2.3:

The Owner's failure to stop the Work shall not in any way limit or otherwise modify the Contractor's obligations to perform the Work in accordance with the Contract Documents. The foregoing rights of the Owner shall be in addition to those rights set for in Article 14 hereof and any other rights the Owner may have at law or in equity. Any such order issued by the Owner which is determined to have been inappropriate shall not be deemed to be a breach of the Contract, but shall be deemed to be a suspension for the convenience of the Owner as provided in Paragraph 14.3.

3.4 LABOR AND MATERIALS

Add the following to Section 3.4.2:

By making requests for substitutions based on Subparagraph 3.4.2 above, the Contractor:

- .1 represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
- .2 represents that the Contractor will provide the same warranty for the substitution that the Contractor would have provided for the product specified;

- .3 certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be changed as a result of the substitution, except the Architect's redesign costs, and waives all claims for additional costs related to the substitution that subsequently become apparent; and
- .4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

In the last sentence of Section 3.4.3 delete "properly".

Add the following Section 3.4.4:

- 3.4.4 The Contractor shall coordinate and be at the site to receive all deliveries. The Owner will not receive deliveries for the contractor.

3.5 WARRANTY

In the third sentence of Section 3.5 add "including substitutions not properly approved or authorized" after "requirements".

Add the following at the end of Section 3.5:

This warranty shall be in addition to and not in limitation of any other warranty or remedy provided by law or required in the Contract Documents.

3.7 PERMITS, FEES AND NOTICES

Delete Section 3.7.1 and replace with the following:

- 3.7.1 The Owner, through direct reimbursement to the Architect or Contractor, shall pay for the building permit and the Office of the State Fire Marshal plan review. The Contractor shall obtain the building permit. The Contractor shall secure and pay for all other permits, fees, licenses, and inspections by government agencies necessary for proper execution of and completion of the Work.

In the last sentence of Section 3.7.3 add "losses and/or damages" after "costs".

In Section 3.8.3 delete "with reasonable promptness" and replace with "in sufficient time to avoid delay in the Work."

3.9 SUPERINTENDENT

Add Sections 3.9.4 and 3.9.5:

- 3.9.4 The Contractor shall provide competent, suitably qualified personnel to survey and lay out the work. As part of this responsibility, the Contractor shall engage a registered land surveyor to accurately locate building lines and slab elevations. The surveyor used on the work shall be required to furnish certifications that lines and grades for all concrete slabs were checked before and after placing of concrete, and that final grades are as required by the Contract Documents.
- 3.9.5: As a prerequisite to Substantial Completion, the Contractor shall provide a surveyor-certified elevation certificate for the first floor of the Work.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

Replace Section 3.10.2 with the following:

- 3.10.2 The Contractor may submit a schedule that shows a shorter construction period than that allowed by the contract time. Such accelerated schedules, however, shall impose no accelerated requirements on the Owner or Architect. The Contractor shall not be entitled to additional costs or time deemed necessary by it to meet the accelerated schedule.

Add the following Section 3.10.4:

3.10.4 The Contractor shall maintain daily field reports recording activity, resources and events at the site. Daily field reports shall record all labor force and equipment of the Contractor and Subcontractors; materials and equipment received at the site, construction equipment being used on the site, visits by suppliers, weather, temperature and description of work in progress.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

In Section 3.12.10 delete the word "Owner" from sentences 3 and 6.

3.13 USE OF SITE

Add the following Sections 3.13.1 – 3.13.8:

- 3.13.1 The Contractor shall post appropriate construction signs to advise the occupants and visitors of occupied facilities of the limits of the construction work area. On Owner-occupied sites all construction personnel shall wear identification insignia.
- 3.13.2 The Contractor shall maintain operation of all systems in operating facilities including but not limited to smoke detection, fire alarm, intercom, exit lights, security, HVAC systems, and electrical systems. In the event of any unauthorized interruption of service to an operating facility, the Contractor shall take immediate action to restore that service as soon as practicable. The Contractor shall furnish and install clean air filters during the course of the work and replace the filters with new as specified at the time of Substantial Completion.
- 3.13.3 The Contractor shall maintain ingress and egress to all operating facilities according to state and local fire codes, and shall provide an additional forty-eight (48) hour notice before interrupting service of any stair in an operating facility.
- 3.13.4 The Contractor shall install temporary fencing to establish barriers between the work and the public and the facilities' occupants. Temporary fence used for maintaining and controlling circulation of facility occupants shall be a minimum four-foot high plastic "snow" fence or better if required in other sections of the specifications. Yellow tape fence lines are unacceptable.
- 3.13.5 The Contractor shall provide temporary access roadways for ingress and egress as required for construction operations. The Contractor shall also provide circulation roadways and support pads as may be needed for the moving and the operation of construction equipment.
- 3.13.6 The Contractor shall not remove, injure, cut, alter, or destroy trees, shrubs, plants, or grass unless otherwise provided in the Contract Documents. For all areas affected by the work, the contractor is responsible for grounds up-keep, lawn mowing, weed control, grounds cleaning, and associated care and maintenance at least once every other week.
- 3.13.7 The Contractor shall restore to pre-existing conditions all walks, roadways, paved or landscaped areas and other real and personal property not designated for alteration by the Contract Documents.
- 3.13.8 The Contractor shall take steps to prevent dust and odor nuisances resulting from the Contractor's operations. Occupied areas in existing facilities shall be separated from construction areas with suitable dust barriers. Dust shall be prevented from being tracked into occupied corridors and other occupied spaces. Sweeping, vacuuming and mopping as necessary, on a daily basis, to maintain clean facilities.

3.15 CLEANUP

In Section 3.15.1, add the words "on a daily basis" after the word "shall" in the first sentence.

4 ARCHITECT

Delete Section 4.1.1 and replace with the following:

The term Architect, when used in the Contract Documents, shall mean the prime Designer (Architect, Engineer, or Landscape Architect), or his authorized representative, lawfully licensed to practice architecture, engineering, or landscape architecture in the State of Louisiana, identified as such in the Agreement, and is referred to throughout the Contract Documents as if singular in number.

4.2 ADMINISTRATION OF THE CONTRACT

Delete the word "observed" from the first sentence of Section 4.2.2

Add Section 4.2.2.1 to 4.2.2:

4.2.2.1 The Contractor shall reimburse the Owner for amounts paid to the Architect for site visits necessitated by excessive Contractor errors or by excessive defects and deficiencies in the work. The Owner shall be the sole judge of "excessive".

Delete the first sentence from Section 4.2.3.

Add the following Section 4.2.4.1:

4.2.4.1 The Architect and the Contractor shall provide copies to the Owner and the Building Office of all correspondence, notices, proposals, requests for changes, notices of all meetings, inspections, testing related to start-up, Owner-training, and warranty review meetings.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

In the first sentence of Section 5.2.1 delete "as soon as practicable after award of Contract" and replace with "at the Pre-Construction Conference or prior to commencing work"

Add the following to Section 5.2.2:

The Contractor shall be solely responsible for the performance of all subcontractors. The Contractor shall not be entitled to claims for additional time and/or an increase in the contract sum due to a problem with performance or non-performance of a subcontractor.

Add the following to Section 5.2.4

Notice of substitution must be given by Contractor in accordance with Section 5.2.1.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Delete Section 5.4, 5.4.1.1, 5.4.1.2, 5.4.2 and 5.4.3

7.2 CHANGE ORDERS

Delete Section 7.2.1 and replace with the following:

7.2.1 A Change Order is a written order to the Contractor signed by the Owner, the Contractor, and the Architect, issued after execution of the Contract, authorizing a change in the work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates has agreement therewith, including the adjustment in the Contract Sum and/or the Contract Time.

7.2.2 The cost to the Owner resulting from a change in the work shall be the sum of the Contractor's material and labor cost, the Subcontractor's and/or Sub-Subcontractor's (as defined in Article 5) material and labor cost, overhead and profit. The credit to the Owner resulting from a change in the work shall be the sum of the Contractor's material and labor cost, the Subcontractor's and/or Sub-Subcontractor's material and labor cost. Credit will not be required for overhead and profit.

7.2.3 Before a Change Order is prepared, the Contractor shall provide and deliver to the Architect the following information, not subject to waiver, within a reasonable time after being notified to prepare said Change Order: a) an itemized list of material and labor costs for each Subcontractor's and/or Sub-Subcontractor's work including quantities and unit costs for each item of labor and each item of material; b) an itemized list of material and labor costs for the General Contractor's work including quantities and unit costs for each item of labor and each item of material.

7.2.4 Overhead and profit shall be computed by one of the following methods (not to exceed 25% on any portion of work):

- .1 When all of the work is General Contract work: 15% of the cost of the work as defined hereafter.
 - .2 When the work is all Subcontract work: 15% of the cost of the work for Subcontractor's overhead and profit plus 10% of the cost of the work for General Contractor's overhead and profit.
 - .3 When the work is a combination of General Contract work and Subcontract work: 15% of the cost of Subcontract work for Subcontractor's overhead and profit plus 10% of the cost of the Subcontractor's work for General Contractor's overhead and profit plus 15% of the cost of General Contract work for General Contractor's overhead and profit.
- 7.2.5 After a Change Order has been approved no future requests for extensions of time or additional cost shall be considered for that Change Order.
- 7.2.6 Cost of the work for the purpose of Change Orders shall be costs necessarily incurred in performance of the work and paid by the Contractor which shall consist of wages paid, cost of all materials and supplies, cost of necessary machinery and equipment, cost of applicable taxes, insurance, fringe benefits, unemployment compensation, social security, and old age pensions.
- 7.2.7 Subcontract cost shall consist of the items in 7.2.6 above plus overhead and profit as described in 7.2.4 above.
- 7.2.8 Cost of the work, whether General Contract cost or Subcontract cost, shall not apply to the following:
- .1 salaries or other compensation for the Contractor's personnel at the Contractor's principal office and branch offices,
 - .2 any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the work,
 - .3 overhead and general expenses of any kind or the cost of any item not specifically and expressly included above in cost of the work,
 - .4 cost of supervision not specifically required by the Change Order (supervision already in place shall not be an eligible expense),
 - .5 costs due to the negligence of the Contractor, any Subcontractor or Sub-Subcontractor, anyone directly employed by any of them, or for whose acts any of them may be liable, including but not limited to the correction of defective or nonconforming work, disposal of materials and equipment wrongly supplied, making good any damage to property, or delays caused by failure to provide adequate Change Order documentation.
- 7.2.9 When applicable as provided by the Contract, the cost to the Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be as submitted by the Contractor and approved by the Architect. Unit prices shall cover cost of material, labor, equipment, overhead and profit.

8.2 PROGRESS AND COMPLETION

Delete Section 8.2.2 and replace with the following:

- 8.2.2 Completion of the work must be within the time stated in the Contract Documents, subject to such extensions as may be granted under Section 8.3 and 15. Where the Owner elects to record the contract, the Contractor agrees to commence work not prior to the date of the recordation of the contract. The Contractor agrees to commence work within the time established in the Contract, and to substantially complete the project within the time stated in the Contract. The Owner will suffer financial loss if the Project is not substantially complete in the time set forth in the Contract and Proposal Form. The Contractor waives and dispenses with any requirement for putting in default.

Add Section 8.2.3:

- 8.2.3 The Contractor shall coordinate its work schedule at occupied sites for Archdiocesan, School, or Church holidays, special events, funerals, etc. at which times the facilities may be closed or not accessible (verify at site).

Add Section 8.2.4:

- 8.2.4 If the Contractor performs work outside of normal working hours, the Contractor may request that the Owner make arrangements to have the facility open for its use and shall reimburse the Owner for any related charges. The Contractor shall provide a minimum 48-hour notice to all affected parties.

8.3 DELAYS AND EXTENSIONS OF TIME

In Section 8.3.1, replace the last word "determine" with "recommend, subject to Owner's approval".

Add Sections 8.3.4 and 8.3.5:

8.3.4 Time is of the essence and completion of the Work must be within the time stated in the Contract subject to such extensions as may be granted under 8.3. The Contractor agrees to complete the project within the time stated in the Contract. The Owner will suffer financial loss of the Project is not substantially complete in the time set forth in the Contract. The Contractor and his Surety shall be liable for and shall pay to the Owner liquidated damages specified in the documents for each consecutive calendar day required to achieve substantial completion.

8.3.5 Contractor may submit a schedule that encompasses less time than the contract time. Such accelerated schedules, however, shall impose no accelerated requirements upon the Owner or Architect. The Contractor shall not be entitled to additional costs or time deemed necessary by him to meet the accelerated schedule.

9.3 APPLICATIONS FOR PAYMENT

Add Section 9.3.1.3:

9.3.1.3 The Contractor shall make applications for payment monthly. The application shall be for an amount equal to 90% of the value of labor and materials incorporated into the work up to the last day of the previous month (95% in projects which exceed \$500,000 in Contract Amount), less aggregate amount of previous payments approved. The Contractor shall submit the application at least 30 days before each progress payment falls due. The normal retainage shall not be due the Contractor until expiration of the thirty-day lien period and receipt by the Owner of a Clear Lien Certificate and Architect-certified pay application for retainage.

9.4 MOBILIZATION PAY ITEM

.1 When specified, the mobilization pay item shall cover up-front costs incurred by the Contractor from Contract Award until sixty (60) Days after the Contractor starts the Work. Allowable mobilization costs shall be as itemized in the Schedule of Values approved by the Architect.

.2 Mobilization costs shall include the cost of establishing temporary site offices and facilities specified in the Contract, permits required to start the Work, premiums for bonds and for insurance obtained by the Contractor to comply with the requirements of the Contract.

.3 Total payments to the Contractor under the mobilization pay item will not exceed four percent (4%) of the Base Bid, unless otherwise provided in the Contract Documents. If the Contractor incurs costs, which the Contractor considers within the scope of the mobilization pay item, over the four percent (4%) limit, those excess costs will not be reimbursed under the mobilization pay item and will be deemed to be included in other parts of the Contractor's Bid.

.4 To the extent practicable, the basis of measurement for payment will be proof of actual payment by the Contractor. Where prior Contractor payment does not apply, the basis of measurement for payment will be as stipulated in the Schedule of Values approved by the Architect.

.5 Approval by the Architect of the Schedule of Values shall be a condition precedent to making any payment under the mobilization pay item. Partial payments shall be based on the Contract Price breakdown itemized in the Schedule of Values and the extent of completion of each pay item, as certified by the Architect. Payments made by the Owner to the Contractor shall be based on the requirements of the Bidding Documents.

9.7 FAILURE OF PAYMENT

In the first sentence delete "or awarded by binding dispute resolution" and replace with "or by any compromise as a result of dispute resolution agreed to by Owner."

9.8 SUBSTANTIAL COMPLETION

Add the following to Section 9.8.1:

- 9.8.1.1 Substantial Completion requires no concurrent Work at the site except as required to complete Punch List items with a cumulative value under two percent (2%) of the contract price. Prerequisites for Substantial Completion include the following:
- (a) all systems have been successfully tested and demonstrated for their intended use,
 - (b) the Owner has received an acceptable testing and balancing report,
 - (c) the Owner has received all passing final inspections reports from those public authorities having jurisdiction, including a Use and Occupancy Certificate, and
 - (d) the Owner has received an executed Roofing Contractor's and Roofing Manufacturer's guarantees, where specified as a part of the Contract Documents.

Add the following to Section 9.8.3:

- 9.8.3.1 A punch list of exceptions and the dollar value related to each item thereto will be prepared by the Architect. The monetary value assigned to the list by the Architect shall be at least twice the estimated actual value of the work. None of the funds reserved for the punch list shall be due the Contractor until all punch list items are completed and are accepted by the Architect. If the dollar value of the punch list exceeds the amount of funds, less the retainage amount in the remaining balance of the Contract, then the project shall not be accepted as substantially complete. If funds remaining are less than that required to complete the work, the Contractor shall pay the difference.
- 9.8.3.2 The signed Certificate of Substantial Completion shall be forwarded to the Director of the Building Office of the Archdiocese of New Orleans with a punch list, if any, and with the contractor's semi-final payment request (90 per cent of contract amount, 95 per cent if the retainage was 5 per cent, less monies determined by the Architect to be the value of the punch list).
- 9.8.3.3 For recorded Contracts, the Building Office will prepare the First Acceptance Certificate which will be forwarded with a check for the pay request to the Owner. The Owner will execute the First Acceptance and return same to the Building Office. The Building Office will then forward the Certificate to the Archdiocesan Attorney for filing at the recorder of mortgages to begin the lien period.

9.10 FINAL COMPLETION AND FINAL PAYMENT

In Section 9.10.2, replace Item 3 with the following:

- (3) a Clear Lien and Privilege Certificate (original to Building Office, copy to Architect),

Add the following to Section 9.10.2:

- 9.10.2.1 If all punch list items have not been completed by the end of the thirty day lien period, through no fault of the Architect or the Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If, within sixty days after notification, the surety has not taken reasonable steps to complete the punch list, the Owner may contract to have the balance of the work completed, and pay for such work with the unpaid funds remaining in the Contract sum.

10.2 SAFETY OF PERSONS AND PROPERTY

In Section 10.2.2 in the second line between the words "on" and "safety", add the words "health and".

Delete Section 10.2.4 and replace with the following:

- 10.2.4 Unless otherwise authorized in writing by the Owner, the Contractor shall not use explosives or other hazardous materials, equipment, or unusual methods in the prosecution of the Work. The Contractor shall not have explosives at the site.

In Section 10.2.8 delete from the next to last sentence "not exceeding 21 days after discovery."

Add the following Section 10.2.8.1:

- 10.2.8.1 If the Contractor is to perform pile driving within five hundred (500) feet of any residence or other building not owned by the Archdiocese of New Orleans, the Contractor shall perform a survey before starting pile driving

operations. The survey shall involve visual inspection of existing structures for any preexisting damages. The Contractor shall advise the Owner on the need for photographs or video to verify existing conditions.

10.3 HAZARDOUS MATERIALS

Add the following Section 10.3.1.1:

10.3.1.1 Before beginning Work at existing schools, the Contractor shall review the asbestos management plan manual located at the site to become familiar with the possible locations of asbestos containing material on site.

In Section 10.3.5 between the words "shall" and "indemnify" add the word "defend". After the word "indemnify" add "and hold harmless".

In Section 10.4, add the following to the first sentence:

...and the Contractor shall notify the Owner and Architect immediately of the emergency.

11 INSURANCE AND BONDS

Delete this entire Article and replace it with the following:

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

- .1 PUBLIC LIABILITY INSURANCE: While Contractor is performing operations on an Owner/Archdiocese of New Orleans project, Contractor shall maintain public liability insurance in the amount of not less than one million dollars (\$1,000,000) per occurrence and three million dollars (\$3,000,000) aggregate and name Owner/Archdiocese of New Orleans as an additional insured, not merely a certificate holder, on such policy of insurance. It is further agreed that the Contractor agrees to protect, defend, indemnify, and hold harmless the Owner/Archdiocese of New Orleans against and from any claim or cause of action arising out of or from any negligence or other actionable fault of the Contractor, or its employees, agents, members, or officers.
- .2 AUTOMOBILE LIABILITY INSURANCE: Contractor shall maintain automobile liability insurance for any owned autos, hired autos or non owned autos used in connection with the contractor's business. Automobile liability coverage shall be maintained by the Contractor in the minimum amount of \$500,000 per person/\$1,000,000 per accident/\$500,000 property damage.
- .3 WORKER'S COMPENSATION INSURANCE: Contractor shall maintain worker's compensation insurance as required.
- .4 ADDITIONAL INSURED: Contractor agrees to provide a certificate of insurance to the Owner/Archdiocese of New Orleans that will name the Owner/Archdiocese of New Orleans as additional insured, not merely a certificate holder, on Contractor's liability policy for claims arising out of Contractors' operations or made by Contractor's employees, agents, guests, customers, invitees or subcontractors. Contractor must verify its liability insurance policy is primary in the event of a covered claim or cause of action against Owner and The Roman Catholic Church of the Archdiocese of New Orleans. The Contractor also agrees to defend, hold harmless and indemnify the Owner and The Roman Catholic Church of the Archdiocese of New Orleans against and from any claim or cause of action brought by any person or entity, including but not limited to Contractor, its employees, agents guests, customers, invitees or subcontractors for property damage or personal injury (including but not limited to physical or emotional damages or economic loss of any type) arising out of the negligence, intentional acts or any other fault of Contractor, its employees, agents, guests, customers, invitees or subcontractors, including but not limited to any operations at the site of the construction as well as any claims or causes or action arising from use of

automobiles by Contractor, its employees, agents, guest, customers, invitees or subcontractors related to Contractor's operations.

- .5 SUBCONTRACTORS: Contractor shall be required to verify that all subcontractors maintain public liability insurance, worker's compensation insurance and automobile liability insurance in the amounts set forth above. Furthermore, Contractor agrees to indemnify and defend the Owner/ Archdiocese of New Orleans for any claim or cause of action, whatsoever which was caused by the negligence, or other actionable fault of an uninsured subcontractor.
- .6 NO WAIVER OF SUBROGATION: Owner/Archdiocese of New Orleans does not waive any rights of recovery against the Contractor or subcontractor for any damages that are covered by the Owner's/Archdiocese of New Orleans's property insurance coverage or builder's risk coverage.
- .7 Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:
 - a. Premises Operations (including X, C and U coverages as applicable).
 - b. Independent Contractors' Protective.
 - c. Products and Completed Operations.
 - d. Personal Injury Liability with Employment Exclusion deleted.
 - e. Contractual, including specified provision for Contractor's obligations under Paragraph 3.18.
 - f. Owned, non-owned and hired motor vehicles.
 - g. Broad Form Property Damage including Completed Operations.
- .8 The General Liability coverages shall be provided by a Commercial General Liability Policy on an occurrence basis only.
- 11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than any limits of liability specified in the Contract Documents or required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations under Paragraph 3.18.
- 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates shall contain a provision that coverage afforded under the policies will not be canceled until at least thirty days' prior written notice has been given to the Owner. Policies shall include the institution name and the Roman Catholic Church of the Archdiocese of New Orleans as additional insureds with respect to any and all liability arising out of the work.
- 11.1.4 SEVERABILITY PROVISION: If any paragraph or sentence of these provisions is deemed or is determined to be in conflict with local or state or national statutes, both Contractor and Owner/Archdiocese of New Orleans agree that; the portion of the supplementary conditions to Contract which is in conflict with the statutes will be stricken from the Contract with the remainder of the supplementary conditions to the Contract remaining binding for both parties.
- 11.2 OWNER'S LIABILITY INSURANCE
- 11.2.1 The Owner shall be responsible for purchasing and maintaining his own liability insurance and, at his option, may purchase and maintain such insurance as will protect him against claims that may arise from operations under the Contract.
- 11.3 PROPERTY INSURANCE
- 11.3.1 The Owner shall carry builders' risk insurance per Builder's Risk Coverage Form PKS-102 (7-03). Copies are available upon request.
- 11.3.2 Any loss insured under Subparagraph 11.3.1 is to be adjusted with the Owner. The Contractor shall pay each Subcontractor a just share of any insurance moneys received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each Subcontractor to make payments to his Subcontractors in similar manner.
- 11.4 PERFORMANCE BOND AND PAYMENT BOND

- 11.4.1 The Contractor shall furnish the Performance and Payment Bond from a company licensed to do write bonds in the State of Louisiana, and through an agent, acceptable to the Owner, and in form approved by the Owner, in an amount equal to 100% of the contract sum, as security for the faithful performance of the Contract and payment in full of all subcontractors and persons performing labor, furnishing service and furnishing materials in connection with the contract. The executed bond, together with the Bonding agent's power of attorney, shall be furnished to the Owner along with the executed Contract, in the number of copies required by him, for filing or recording purposes. The bond shall provide that the surety waives notice of any change in the work that does not exceed 20% of the contract amount and of any extension of time granted to the Contractor.
- 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize the furnishing of a copy.
- 11.4.3 In projects determined by the Owner as requiring recordation, the Owner shall record the Contract Between Owner and Contractor and Performance and Payment Bond with the Clerk of Court in the Parish in which the work is to be performed.
- 11.4.4 The condition of this Performance and Payment Bond shall be that should the Contractor herein not perform the contract in accordance with the terms and conditions hereof, or should the Contractor not remedy latent or other defects attributed to faulty workmanship or materials within the prescriptive period as governed by Louisiana law, or should said Contractor not fully indemnify and save harmless the Owner from all cost and damages which it may suffer by said Contractor's non-performance or should said Contractor not pay all persons who have and fulfill obligations to perform labor and/or furnish materials in the prosecution of the work provided for herein, including by way of example workmen, laborers, mechanics, and furnishers of materials, machinery, equipment and fixtures, then said Surety agrees and is bound to so perform the contract and make said payment(s). Surety shall remain obligated and bound under the Performance and Payment Bond for the full prescriptive period as provided in Louisiana Law.
- 11.4.5 The Surety shall provide proof satisfactory to the Owner that the Surety is currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies and approved for an amount equal to or greater than the contract amount, and shall have an A.M. Best rating of A- or better.

12.2 CORRECTION OF WORK

Add the following to Section 12.2.2.4.:

- 12.2.2.4 There shall be a one year Guarantee/Warranty inspection of the entire Project to be called by the Architect approximately three hundred and thirty calendar days after the date of Substantial Completion. The Architect, the Contractor, the Owner shall be present for the inspection. The inspection shall result in a report of corrective work needed to be done by the Contractor. The Contractor shall complete corrective work within thirty (30) calendar days from the date of receiving the report.

13.5 TESTS AND INSPECTIONS

In Section 13.5.1, delete the second sentence and replace with the following:

The Contractor shall make arrangements for such tests, inspections, and approvals with the Testing Laboratory provided by the Owner, and the Owner shall bear Testing Laboratory's costs of tests, inspections, and approvals except as noted below. The Contractor shall schedule testing activities giving sufficient notice, minimum 48 hours, to the testing laboratory.

Delete the last sentence of this Section 13.5.1.

13.6 INTEREST

Delete Section 13.6.

13.7 TIME LIMITS ON CLAIMS

Delete from the next to last sentence of Section 13.7 "but in any case not more than 10 years after the date of Substantial Completion of the Work."

Delete the last sentence of Section 13.7.

14.1 TERMINATION BY THE CONTRACTOR

Delete Section 14.1.1.4.

Delete from Section 14.1.3 "and for proven less with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit, costs incurred by reason of such termination and damages."

Delete Section 14.1.4.

14.2 TERMINATION BY THE OWNER FOR CAUSE

In Sections 14.2.1.1 and 14.2.1.3 replace the word "repeatedly" with "persistently".

Add the following Section 14.2.1.5 to 14.2.1:

14.2.1.5 failure to complete the punch list within the lien period as provided in 9.8.2.3.

Add the following Subparagraph 14.2.5:

14.2.5 If liquidated damages have been established, termination by the Owner under this Article will not relieve the Contractor and/or Surety of his obligations under the liquidated damages provisions and the Contractor and/or Surety shall be liable to the Owner for per diem liquidated damages.

Delete from Section 14.3.2 the sentence "Adjustments of the Contract Sum shall include profit."

Delete from Section 14.4.3 the words "and profit".

15 CLAIMS AND DISPUTES

Delete the following clause from Section 15.1.5.2:

...were abnormal for the period of time, could not have been reasonably anticipated, and...

Add the following to Section 15.1.5.2:

An increase in the contract time due to weather shall not be cause for an increase in the contract sum.

Add the following Section 15.1.4.1:

15.1.4.1 Contractor agrees to make no claims for damages for delay or disruption in the performance of this contract occasioned by any act or omission to act of the Owner or any of its representatives, or by any other cause beyond the Contractor's control, and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the work as provided herein.

15.2 INITIAL DECISION

Delete in the second sentence in Section 15.2.1 the word "arbitration".

Delete in the last sentence of Section 15.2.5 "and, if the parties fail to resolve their disputes through mediation, to binding dispute resolution arbitration." and replace with "if all parties agree, or litigation."

Delete from Section 15.2.6 "terms of Section 15.2.6.1." and replace with "the agreement of all parties to mediate."

Delete from Section 15.3.1 "as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party binding dispute resolution. "and replace with "if all parties agree to mediation."

Delete Section 15.3.2 and replace with the following:

Any litigation will be decided under the laws of the State of Louisiana and must be brought in the State District Court having jurisdiction in the Parish where the construction project is located.

15.4 LITIGATION

Delete Section 15.4.1 and replace with the following:

15.4.1 Any litigation involving claims, disputes, or other matters in question arising out of or related to this Contract will be decided under the laws of the State of Louisiana and must be brought in the State District Court having jurisdiction in the Parish where the construction site is located.

15.4.2 Notwithstanding any provision concerning litigation contained in this Contract, at the sole option and discretion of the Owner, if selected by the Owner as the final means of dispute resolution, any claim, dispute or other matter in question arising out of or related to this Contract shall be subject to binding arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect. The demand by the Owner for arbitration shall be filed in writing with the Contractor and with the American Arbitration Association.

END OF SECTION 00800

SUMMARY OF WORK**SECTION 01010**

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions, and other Division 1 - General Requirements apply to the work specified in this Section.
- B. Division 1 Sections describe the administrative and procedural requirements and are as follows:
 - 1. 01010 - Summary of Work
 - 2. 01200 – Project Meetings
 - 3. 01300 – Submittals
 - 4. 01400 – Procedures and Quality Control
 - 5. 01410 – Testing Laboratory Services
 - 6. 01500 - Construction Facilities and Temporary Controls
 - 7. 01600 - Materials and Equipment
 - 8. 01700 - Project Closeout

1.02 PROJECT IDENTIFICATION

- A. The work contemplated and covered in these Specifications and the accompanying Drawings consist of the Contractor furnishing all labor, materials, equipment, supervision, and all other services required including all work reasonably intended in the Contract Documents for:

Repairs and Rehabilitation for St. Martin Manor
1501 N. Johnson St., New Orleans, Louisiana
HUD Project No: 064-98014
FEMA project worksheet : 11695V3 - Main Building
11705R1V2 - Yellow Masonry Building
18945 – Carriage House
10741 – Gate House

- B. The drawings which accompany and compliment the Specifications are identified on cover sheet of the drawings.

1.03 GENERAL WORK DESCRIPTION

- A. Scope of Services: The work of this Contract, except as otherwise specified shall include all labor, materials, equipment and facilities necessary to produce the required result, all transportation and services, and all materials and equipment incorporated and intended to be incorporated in such results. The Work includes all fees, taxes, permit costs, insurance premiums, and costs for overhead, superintendence, temporary facilities, and other direct and indirect costs and expenses incidental to the performance of the Work.

Note: Gypsum board, ceilings and similar finish materials shall not be installed until building is enclosed, either with permanent or temporary walls to remain until permanent walls are erected and watertight, including roof, and also the building is climatized by the building HVAC systems being operable or

other temporary mechanical systems to maintain the dry bulb temperatures between 55 and 82 degrees F and relative humidity at less than 50% during installation.

1.04 EXISTING CONDITIONS

- A. The Contractor shall accept the area of the work in its present condition and carefully examine the area of the work and determine for himself all existing conditions visually discernable and/or reasonably expected from his understanding of the Construction Documents and/or reasonably inferable from the Contract Documents or his particular knowledge of this particular type of project, and shall be responsible for same. No activity by the Contractor shall jeopardize the usefulness of the existing building to the Owner at any time during the construction period.

1.05 CONTRACTOR'S USE OF PREMISES

- A. Confine operations at site to areas within the limits of the work of this Contract.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move any stored products which interfere with operations of the Owner.
- F. Obtain and pay for use of additional storage or work areas needed for operation.

1.06 INTERPRETATION OF DOCUMENTS

- A. The Contractor shall notify the Architect of any ambiguity, inconsistency or error which he may discover upon examination of the Construction Documents or of the site and local conditions. If the Contractor performs any work knowing it to be contrary to applicable laws, ordinances rules and regulations, and without such notice to the Architect, he shall assume full responsibility therefore and shall bear all costs attributable thereto. In case of conflict in the documents, the most stringent shall apply.

1.07 CONTRACTORS REPRESENTATIONS

- A. The Contractor represents that he has visited the site and determined for himself all existing conditions, laws and regulations that will affect the construction of the work and be responsible for same.
- B. The contractor must be fully qualified under any "Licensing Law for Contractors" in effect at the time and place of the work before submitting his proposal. In the State of Louisiana, only the bids of Contractors and Subcontractors duly licensed under Chapter 24 of the Louisiana State Legislature, La. R.S. 37:2151, et seq., will be considered if licensing is required. The law requires the Contractor to ascertain that his Subcontractors are fully licensed in accordance with the law.

- C. The Contractor shall pay the full cost of the building permit. Contractor is responsible for State Fire Marshal review fees for fire protective signaling, detection or suppression systems
 - 1. Contractor is responsible for submitting, paying for and securing the permits for the installation, of fire protective signaling, detection or suppression systems. The permit shall be submitted to the Department of Fire, City of New Orleans, Fire Prevention Division, 317 Decatur Street, New Orleans, LA 70130 in a timely manner since the Use and Occupancy permit is contingent on this permit.
- D. The Contractor represents that the Contract will include all applicable taxes; local, state, and federal.
- E. The Contractor represents that he has ascertained prior to submission of his bid that he has received all addenda issued., and that his contract will contain the costs associated with these addenda.
- F. The Contractor represents he will notify the District Office of the State Fire Marshal for inspection of all fire and/or smoke barrier **walls before any construction is installed that would conceal such construction and prevent a proper inspection.** Access to randomly selected areas may be required by the inspector at time of final inspection, if this notification is not given. The Contractor further represents he will provide detailed instructive cut sheets of the fire penetration sealing system used to the inspector at time of inspection. Random selective sampling by the Contractor will be observed by the inspector

1.08 SUPERINTENDENT

- A. Contractor shall, prior to the commencement of construction operations, submit to the Architect for approval the name of the Superintendent and assistants he proposes to assign to the job and shall further submit a resume of the experience of the Superintendent and assistants and such other data as will attest to their competence and qualifications. This information shall be submitted in duplicate for the guidance of the Architect and Owner, and assignment of a Superintendent to the job shall not be made until the Owner and the Architect have approved this selection.
- B. The Superintendent shall be full time and be in attendance at the site whenever Work is being performed.

1.09 MATERIALS AND EQUIPMENT DELIVERY DATES

- A. The Contractor shall submit a statement giving a firm shipping and delivery date on all major items of building material and equipment. The statement shall be submitted not later than six weeks from the date the contract is returned to the Contractor.
- B. In addition, submit the names of the manufacturers of any long lead items that would potentially impact the progress of the Work and is the Contractor's responsibility to identify these manufacturers. Unless the aforementioned information is submitted, no extensions of time will be considered if extenuating circumstances exist affecting timely product delivery. Furthermore, no payments will be made to the Contractor until all information is furnished.

1.10 WORKING CONDITIONS AND SCHEDULING

- A. In general, the work may be performed during normal hours, provided it is performed in a manner which does not interfere with the normal use and functions of the adjacent areas and buildings by the Owner, and is of a duration authorized in advance by the Owner.
- B. The Contractor shall furnish sufficient forces, construction plant and equipment, and shall work such hours of overtime or perform a continuous operation if necessary to insure the prosecution of the work in accordance with the approved progress schedule. It is imperative that the Work be completed on or before the date scheduled, and necessary allowances shall be made in estimating the project to allow for the construction schedule. The Contractor shall "accelerate" his subcontractors to the fullest extent and he shall impress upon his subcontractors the expedience required to overcome delays on their part or in the delivery of materials. He shall be alert to any and all happenings that affect the progress of the project. If the Contractor should fall behind in the progress schedule, it is mandatory that he take immediate steps, whatever required, to put the project back on schedule. Neither the Contractor nor any of his subcontractors nor anyone working on the Project shall be entitled to any compensation whatsoever for acceleration of the work for any reason for which the Contractor or any of his subcontractors or anyone else working on the Project is responsible, even if that responsibility is only a partial cause of the need to accelerate.
- C. The Architect and its consultants will incur additional expenses if the Contract Time is extended due to the fault of the Contractor. The Owner will withhold monies from the Contractor's established retainage on this Contract and shall use those monies to pay for additional expenses of the Architect and its consultants incurred during each day of delay. If the retainage or any part thereof is not sufficient to cover those noted additional expenses, the Contractor shall be responsible for any excess above the retainage amounts. The additional expenses will be derived by an hourly rate (raw rate x 1.4 x 2.5) plus all normal reimbursable expenses. All expenses will be substantiated with time sheets supported by description of activities. This cost is not part of, but in addition to any liquidated damages

1.11 PROTECTION OF PROPERTY AND PUBLIC

- A. Contractor shall protect Owner's existing property that is adjacent to the Work being performed under this contract. Contractor shall also obtain approval from the Architect prior to removal of protection. Prior to commencing work, the Contractor shall provide adequate protection such as covers, dust partitions, platforms, scaffolding, etc., all as may be necessary to protect the Owner's property from dust and possible falling debris and/or materials. Removal of such protection shall likewise be performed with extreme care to prevent possible damage to the Owner's property.
- B. Furthermore, the Contractor shall repair at his own cost and make good all damage to the Owner's property and to adjacent and adjoining properties not belonging to the Owner for which he is or has been adjudged to be legally responsible. He shall further, reimburse the Owner and/or Architect in full for any damages resulting from suits that may be decided against the Owner and/or Architect rising out of claims for property damage due to the

Contractor's improper performance or negligence on the part of any of the Contractor's employees, agents, or subcontractors, or due to any other acts for which the Contractor is legally responsible, together with all attorneys' fees, cost of court, and any other expense that may be entailed by the Owner and/or Architect in defending themselves against such suits and/or claims.

- C. The Contractor shall make all necessary provisions for the protection of the public and traffic and the use of streets and sidewalks. He shall provide barriers and shelters or any other safeguards as required to protect the public in accordance with the local laws. The safeguards and protections shall be fully maintained in first-class condition during the entire construction period, and at no time shall required protection be removed without the approval of the Architect. When required, provide all-night lights, lanterns, flares, etc. for night-time protection. All excavations shall be completely fenced in at all times.
- D. It is of utmost importance that all construction work be done without interfering with the normal operations of the adjacent areas and buildings.
- E. Restore all areas and items disturbed by the new construction to original condition.

1.12 CLEANLINESS AND CLEANUP

- A. All existing areas adjacent to the area of work must be kept clean from Contractor's debris. Any area not adequately cleaned by the Contractor shall be cleaned by the Owner (to his satisfaction) and the cost of such cleaning operations shall be deducted from any monies still due the Contractor.

1.13 ASBESTOS FREE CERTIFICATION

- A. All new building components shall be totally free of asbestos. The contractor is responsible to verify that the aforementioned condition exist during and at the completion of the project.
- B. Contractor shall furthermore submit a written certification that the building is asbestos free. The certification shall be on company letterhead, contain appropriate building identification, be in the form approved by the Owner, and be signed by an officer of the company.

1.14 DEFINITIONS AND EXPLANATIONS

- A. Scope: This article defines certain terms used in the specifications (Project Manual), and explains the language, abbreviations thereof, format and certain conventions used in the Specifications and associated Contract Documents.
- B. Limitations: The definitions and explanations of this article are not necessarily either complete or exclusive, but are general for the work to the extent such definitions or explanations are not stated more explicitly in another provision of the Contract Documents.
- C. General Explanation: A substantial amount of the Contract Document Specification language constitutes specific definitions for terms found in the other contract documents, including the drawings which must be recognized as diagrammatic in nature and not

completely descriptive of the requirements indicated thereon. Certain terms used repetitiously in the Contract Documents are defined generally in this article.

- D. General Requirements: The provisions and requirements of the performance of the work, either exclusively or in conjunction with others performing other work as part of the project.
- E. Definitions:
1. Project Site: The space available to the Contractor for the performance of the work, either exclusively or in conjunction with others performing other work as part of the project.
 2. Provide: Except as otherwise defined in greater detail, the term "provide" means furnish and install, complete and ready for the intended use, as applicable in each instance.
 3. Project Manual: Includes the bidding requirements, Conditions of the Contract, and the Specifications (Division 1 through 16).
 4. Related Work Specified Elsewhere: List of items under this heading in the Specifications is for convenience only and is not intended to be all-inclusive or all-exclusive, nor to the direct specific trades to perform specific work.
- F. Format Explanation: The format of principal portions of these specifications can be described as follows; although other portions may not fully comply and no particular significance will be attached to such compliance or non-compliance:
1. Sections and Divisions: For convenience, the basic unit of specification text is a "section", each unit of which is named and numbered. These are organized into related families of sections, and the various families of sections are organized into "divisions", which are recognized as the present industry-consensus on uniform organization and sequencing of specifications. The section title is not intended to limit the meaning or content of the section, nor to be fully descriptive of the requirements specified therein, nor to be an integral part of the next.
 2. Parts: Each section of specification has been subdivided into 3 (or less) "parts" for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution). These do not limit the meaning of, and are not an integral part of, the text which specifies requirements.
 3. Underscoring: Used strictly to assist the reader of specification text in scanning the text for key works in the content (for quick recall). No emphasis on or relative importance of text is intended where underscoring is used.
 4. Section Numbering: Sections are numbered in CSI 5 Digit System. Contract Documents sections are placed in the Project Manual in numerical sequence; however, the numbering sequence is not complete, and the listing of sections in the Project Manual must be consulted to determine the numbers and names of specification sections in the contract documents.

5. Page Numbering: Numbered independently for each section.
- G. Overlapping and Conflicting Requirements: Where compliance with 2 or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes 2 different or conflicting minimums or levels of quality, the most stringent requirement (which is generally recognized to be also the most costly) is intended and will be enforced, unless specifically detailed language written into the Contract Documents (not by way of reference to an industry standard) clearly indicates that the less stringent requirement is to be fulfilled. Refer apparently equal, but different requirements and uncertainties, as to which of 2 levels of quality is the more stringent, to the Consultant for a decision before proceeding.
- H. Minimum Quality/Quantity: In every instance, the quality level or quantity shown or specified is intended as the minimum for the work to be performed or provided.
- I. Specialists; Assignments: In certain instances the specification text requires (or at least implies) that specific work be assigned to certain specialists or expert entities, who must be engaged for the performance of those units of work.
- J. Abbreviations: The language of the specifications and elsewhere in the Contract Documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted.

END OF SECTION



Request For Information

**Project: Repairs and Rehabilitation
for St. Martin Manor**

New Orleans, Louisiana

Project No. 10233 _____

RFI No. _____

Date: _____

Contractor: _____

Brief Description: _____

Drawing No. _____

Spec. Section _____

Detailed Description: _____

MBA Response: _____

Note: Some of the items in this response may result in credits or additions which may become part of a future Request for Change Order.

____ This document is not a RFI and therefore is being returned to you without a response. This document has not been entered into the project's RFI Log.

Initialed: _____

Date: _____

ALTERNATES**SECTION 01030****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Administrative and procedural requirements for Alternates.
- B. Documentation of changes to Contract Sum/Price and Contract Time (if applicable).

1.02 REQUIREMENTS

- A. An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that modifies to the Base Bid amount if the owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates are additive type, unless otherwise indicated, and if accepted, will be added to the base bid amount.
 - 2. The cost for each alternate is the net addition to the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.
- B. Accepted alternates will be identified in the Owner-Contractor agreement.
- C. Notification: Immediately following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- D. Coordinate related work and modify affected surrounding work as necessary to completely and fully integrate the work of each Alternate into the project.
- E. Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not specifically mentioned as part of the Alternate.
- F. Execute accepted alternates under the same conditions as other Work of this Contract.

1.03 SCHEDULE OF ALTERNATES

- A. **Alternate No. 1:** Add the underpinning of Tower Foundation at Eastern Corner of Main Building as indicated on the drawings, as follows
- 1.C002: The demolition of pavement around the tower and the partial demolition of the existing ramp.
 2. C103: New Paving around the tower.
 3. A709: 3/4 of ramp to be rebuilt due to demolition of existing.
 4. 2/S205, 5/S205, 6/S205, 7/S205: Drawings indicating all of the new required foundation work.
- B. **Alternate #2:** Add the telephone directory entry system at Door D173.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

CUTTING AND PATCHING**SECTION 01040****PART 1 - GENERAL****1.01 SUMMARY OF WORK**

- A. Furnish all labor materials, tools, and equipment, and perform all operations necessary for cutting and patching work indicated or specified. The work involved in this section includes the following:
1. Cutting and patching of existing construction to accommodate the new Work.
 2. Any cutting of fire rated construction i.e. walls, floors, chases, etc., shall be patched with same construction or equivalent firestopping materials to maintain the existing fire rating.
 3. Firestopping of all existing openings in fire rated construction, i.e. walls, floors, chases, etc. within the area of work. Existing openings must be field verified by the Contractor.
 4. Comply with Section 07270 for firestopping materials and installations.
 5. Removing existing masonry and reinstallation as required to match existing system and accommodate the new work.
 6. Note: Contractor is solely responsible for providing weathertightness of the new and existing building at all times during the contract time. Provide all required temporary weather protection at all new construction, and at all openings and other construction removed as indicated and also construction removed as required to accommodate the new.
- B. "Cutting-and-Patching" is hereby defined to include but is not necessarily limited to the cutting and patching of nominally completed and previously existing work, in order to accommodate the coordination of the work, or to uncover other work for access or inspection, or to obtain samples for testing, or for similar purposes.

1.02 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures well in advance of the time cutting and patching will be performed if the Owner requires approval of these procedures before proceeding. Request approval to proceed. Include the following information, as applicable, in the proposal:
1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.
 2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.

3. List products to be used and firms or entities that will perform work.
4. Indicate dates when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.

1.03 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.
- B. Visual Requirements: Cut-and-patch work in a manner which will not result in a reduction of visual qualities or in substantial evidence of the cut-and-patch work, both as judged solely by the Architect. Remove and replace work judged by the Architect to be cut-and-patched in a visually unsatisfactory manner.

1.04 WARRANTY

- A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Except as otherwise indicated or approved by the Architect provide materials for cutting-and-patching which will result in equal-or-better work than the work being cut-and-patched, in terms of performance characteristics and including visual effect where applicable. Use the original materials where feasible and where recognized that satisfactory results can be produced thereby.
- B. Through Wall Flashing: 16 oz. copper.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

- D. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. Avoid cutting existing pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.

3.02 CUTTING AND PATCHING

- A. General: Employ skilled tradesmen to perform cutting-and-patching. Except as otherwise indicated or approved by the Architect, proceed with cutting-and-patching at the earliest feasible time, in each instance, and perform the work promptly.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
 - 1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
 - 4. Comply with requirements of applicable Division 2 Sections where cutting and patching requires excavating and backfilling.
 - 5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
 - 6. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 7. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

8. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.
 4. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.03 MASONRY REMOVAL AND REBUILDING

- A. Carefully remove existing masonry including back up by hand at locations indicated. Cut out full units from joint to joint and in a manner to permit replacement with full size units.
 1. Remove enough masonry to provide space for installation of flashings.
- B. Support and protect masonry indicated to remain which surrounds removal area.
- C. Salvage as many whole, undamaged bricks as possible. If necessary, provide new bricks to match existing.
- D. Install salvaged masonry as required to replace removed brick and to fit into bonding and coursing pattern of existing. When cutting is required, use motor driven saw designed to cut masonry with clean, sharp unchipped edges.
- E. Lay brick with completely filled bed, head and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Use wetting methods which ensure that units are nearly saturated but surface dry when laid. Maintain joint width for replacement units to match existing.
- F. Tool mortar joints in repaired areas to match joints in size and color of surrounding existing brickwork.

- G. Mortar shall comply with ASTM C270, Type S utilizing the Proportion Method to achieve 1,800 psi strength at exterior masonry and Type N utilizing the Proportion Method to achieve 750 psi strength at interior masonry.

3.04 MASONRY FLASHINGS

- A. Turn up minimum 8 inches and seal to back-up substrate.
- B. Lap end joints minimum 6 inches and seal watertight.
- C. Use flashing manufacturer's recommended adhesive and sealer.

END OF SECTION

ALTERATION PROJECT PROCEDURES**SECTION 01120****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Selective demolition and protection of existing items.
- B. Products and installation for patching and extending Work.
- C. Transition and adjustments.
- D. Repair of damaged surfaces, finishes, and cleaning.

1.02 RELATED SECTIONS

- A. Section 01040 - Cutting and Patching: Cutting and patching.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. New Materials: As specified in individual Sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspection and testing products where necessary, referring to existing Work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that demolition is complete, and areas are ready for installation of new Work.
- B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

- A. Cut, move, or remove items as necessary for access to alterations Work. Replace and restore at completion.
- B. Remove unsuitable material not marked for salvage, such as corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- C. Remove debris and abandoned items from area and from concealed spaces.

- D. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.

3.03 SELECTIVE DEMOLITION

- A. Demolition of designated portions of the building and lawful removal of materials from site.
- B. Careful removal and protection of existing items indicated for salvage and/or reinstallation.
- C. Obtain required permits from governing authorities.
- D. Protections: Provide temporary barricades, temporary dust partitions, and other forms of protection to protect personnel from injury and existing finishes from damage due to selective demolition work.
 - 1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
 - 2. Provide shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
 - 3. Protect from damage existing finish work that is to remain in place during demolition operations.
 - 4. Protect floors with suitable coverings.
 - 5. Construct temporary dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks.
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.
- F. Remove from the site debris, rubbish, and other materials resulting from the demolition operations.
- G. If hazardous materials are encountered during demolition operations notify the Owner immediately. Comply with applicable regulations, laws, and ordinances concerning and protection against exposed or environmental pollution.
- H. Cleanup and Repair: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
 - 1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

3.04 INSTALLATION

- A. Coordinate work of alterations to expedite completion.
- B. Remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes.
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.
- D. Install products as specified in individual Sections.

3.05 TRANSITIONS

- A. Where new Work abuts or aligns with existing, perform a smooth and even transition. Patched Work to match existing adjacent Work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.

3.06 ADJUSTMENTS

- A. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Architect's review.
- C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.

3.07 REPAIR OF DAMAGED SURFACES

- A. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- B. Repair substrate prior to patching finish.

3.08 FINISHES

- A. Finish surfaces as specified in individual specification Sections.
- B. Finish patches to product uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.09 CLEANING

- A. In addition to cleaning specified in individual Sections, clean Owner occupied areas of work where affected by the Work.

END OF SECTION

PROJECT MEETINGS**SECTION 01200****PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Pre-Construction Conference
 - 2. Pre-Installation Conferences
 - 3. Coordination Meetings
 - 4. Progress Meetings
- B. The Contractor shall schedule and conduct and the Architect shall record the contents of all meetings and distribute typed minutes to all pertinent parties in a timely manner.

1.03 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than fifteen (15) days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
 - 1. Tentative construction schedule.
 - 2. Critical Work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing field decisions and Change Orders.
 - 5. Procedures for processing Applications for Payment.
 - 6. Distribution of Contract Documents.
 - 7. Submittal of Shop Drawings, Product Data and Samples.
 - 8. Preparation of record documents.
 - 9. Use of the premises.
 - 10. Office, Work, and storage area.
 - 11. Equipment deliveries and priorities.
 - 12. Safety procedures.
 - 13. First aid.

14. Security.
 15. Housekeeping.
 16. Working hours.
 17. Establish timing of progress meetings to coincide with monthly pay request.
- D. Submittals: Contractor will be responsible for submitting the following at the pre-construction conference:
1. Schedule of values
 2. List of major subcontractors
 3. Tentative construction schedule
 4. Critical work sequencing

1.04 PRE-INSTALLATION CONFERENCES

- A. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of schedule meeting dates.
- B. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
1. Contract Documents
 2. Options
 3. Related Change Orders
 4. Purchases
 5. Deliveries
 6. Shop Drawings, Product Data and quality control samples
 7. Possible conflicts
 8. Compatibility problems
 9. Time schedules
 10. Weather limitations
 11. Manufacturer's recommendations
 12. Compatibility of materials
 13. Acceptability of substrates
 14. Temporary facilities
 15. Space and access limitations
 16. Governing regulations
 17. Safety
 18. Inspection and testing requirements
 19. Required performance results
 20. Recording requirements
 21. Protection
- C. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.

- D. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.05 COORDINATION MEETINGS

- A. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and shall address similar agenda items as the Progress Meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.06 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project site at regularly scheduled intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, Contractor and his Superintendent each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project to include applicable agenda items listed for the Pre-Construction Conference and as further listed below.
- D. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- E. Review the present and future needs of each entity present, including such items as:
 - 1. Interface requirements
 - 2. Time
 - 3. Sequences
 - 4. Deliveries
 - 5. Off-site fabrication problems
 - 6. Access
 - 7. Site utilization

8. Temporary facilities and services
 9. Hours of work
 10. Hazards and risks
 11. Housekeeping
 12. Quality and Work standards
 13. Change Orders
 14. Documentation of information for payment requests
- F. Reporting: No later than three (3) days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- G. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

END OF SECTION

PAYMENT PROCEDURES**SECTION 01290**

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Application for Payment. **Note:** Each of the following individual work items shall have their own Schedule of Values and each submitted with their own Application for Payment.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Submit draft of AIA Document G703 Continuation Sheets.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion~ and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Progress payments shall be submitted to Architect by the 30th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- F. Transmittal: Submit five (5) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors. Submit at Pre-Construction Conference.
 2. Schedule of Values. Submit at Pre-Construction Conference
 3. Contractor's Construction Schedule (preliminary if not final). Due 5 days after Award of Bid, but no later than the Pre-Construction Conference.
 4. Schedule of unit prices. Submit at Pre-Construction Conference.
 5. Submittals Schedule (preliminary if not final). Due 5 days after Award of Bid.
 6. List of Contractor's staff assignments. Due 5 days after Award of Bid.
 7. Initial progress report. Due with first Application for Payment.
 8. Report of preconstruction conference. Due with first Application for Payment.
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion on, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final, liquidated damages settlement statement.
 9. Prior to final payment (retainage) being released by the Owner, the Contractor must secure and provide the Owner with an unrestricted Use and Occupancy Certificate.

PART 2- PRODUCTS (Not Used)

PART 3- EXECUTION (Not Used)

END OF SECTION 01290

SUBMITTALS**SECTION 01300****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Submittal schedule and procedures.
- B. Construction progress schedule.
- C. Proposed products list.
- D. Daily construction reports.
- E. List of Subcontractors.
- F. Shop drawings.
- G. Product data.
- H. Samples.
- I. Manufacturer's instructions.
- J. Manufacturer's certificates.
- K. Schedule of values.

1.02 RELATED SECTIONS

- A. Section 01700 - Project Closeout

1.03 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not samples.

1.04 SUBMITTAL SCHEDULE

- A. General: Immediately following the development and acceptance of the fully developed progress schedule, prepare a complete Submitted Schedule of work-related submittals.

Submit within ten (10) days of date required for establishment of the progress schedule. Correlate submittal schedule with the requirements of Division 2 through 16.

- B. Form: Prepare schedule in chronological sequence of submittals related to dates required for the items on the site. Indicate generic description of work covered including type of submittal, related specification section numbers, name of subcontractor/vendor and required date for item to be delivered on the site. The Schedule shall contain all submittals required including shop drawings (SD), product data (PD) and samples (S). Columns for date of submittal to Architect and Architect to Contractor, resubmittal, and final release by the Architect shall be left blank for use by the Architect.
1. See the "Sample" Submittal Schedule following this Section, which represents the format to be used for development of the Schedule.
 2. The above Schedule will serve as a summary of work related submittal and will be used by the Architect as a submittal log.

1.05 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- B. Submission Requirements: Schedule submissions at least 45 days before dates on which reviewed submittals will be needed. Submit samples in number and size specified in each Specification Section. Accompany submittals with transmittal letter, in duplicate, containing the following:
1. Date.
 2. Project Title and Number.
 3. Contractor's Name and Address.
 4. The number of each Shop Drawing, Project Datum and Sample submitted.
 5. Notification of deviations from Contract Documents.
 6. Other pertinent data.
 7. NOTE: Each individual transmittal shall only contain submittals for a single specification division, i.e. do not submit division 3 items together with division 4 items on the same transmittal.
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4 by 6 inches on the label or beside the title block on shop drawings to record the Contractor's and Architect's review markings and the action taken.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Architect.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate specification section.
 - i. Drawing number and detail references, as appropriate.
 - j. Identification of product or material.
 - k. Relation to adjacent structure or materials.
 - l. Field dimensions, clearly identified as such.
 - m. Application standards, such as ASTM number or Federal Specification.
 - n. Identification of deviation from Contract Documents (if any).
 - o. Contractor's stamp, initialed certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. The Architect will not accept submittals received from sources other than the Contractor.
1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. Transmittal Form: Use the "round-robin" form at the end of this Section for transmittal of submittals.
- E. Sequentially number the transmittal forms. Resubmittals shall have original number with an alphabetic suffix.
- F. Identify Project, Contractor, subcontractor or supplier; pertinent drawing sheet and detail number(s), and specification section number.
- G. Contractor shall review all submittals. Apply Contractor's stamp, signed, or initialed certifying that review, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- H. Schedule submittals to expedite the Project, and deliver to Architect at Architect's business address. Coordinate submission of related items.

- I. Contractor shall identify deviations from Contract Documents in writing and/or indicate on the submittal and on the submitted transmittal noting "Deviation". Also provide product or system limitations which may be detrimental to successful performance of the completed Work.
 - 1. If items, dimensions or methods submitted deviate from the Contract Documents and action is not taken by the Architect or his Consultants, this action and the deviation shall not alter the Contract sum.
- J. It is the Contractor's responsibility to submit revised details and coordinate any necessary changes in related work when the dimensions and configuration of original details (Contract Documents) are altered by substitutions of materials according to provisions for substitutions contained in the Contract Documents and/or any deviations submitted.
- K. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- L. Begin no work which requires submittals until submittals are received with Architects/Engineers stamp and initial indicating review and final unrestricted release. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.06 ARCHITECT'S REVIEW

- A. The Architect will review submittals only for the limited purpose of checking conformance with the design concept of the project and with the information given in the Contract Documents. Review of a separate item shall not indicate approval of an assembly in which the item functions or any other related assembly.
- B. The Architect's review shall not relieve the Contractor from responsibility for errors or omissions in the submittals.
- C. The Architect's review shall not constitute approval of safety precautions or unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures.
- D. The Architect's action on the stamp does not constitute acceptance of any deviations. If deviations are accepted the contract price shall not increase.
- E. Action Stamp: The architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "Do Not Resubmit", that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "Reviewed" and "Noted", that part of the Work covered by the submittal may proceed provided it

complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. Returned for Resubmittal: When submittal is marked "Resubmit As Noted" or "Rejected", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
- F. Should resubmission be required, the resubmission will be checked one additional time. Should three (3) or more submissions be required, the Owner shall reduce the contract amount, by deductive change orders, for the additional services and expenses of the Architect and/or his consultants.

1.07 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Architect at weekly intervals:
1. List of subcontractors at the site.
 2. Approximate count of personnel at the site.
 3. High and low temperatures, general weather conditions.
 4. Accidents and unusual events.
 5. Meetings and significant decisions.
 6. Stoppages, delays, shortages, and losses.
 7. Meter readings and similar recordings.
 8. Emergency procedures.
 9. Orders and requests of governing authorities.
 10. Change Orders received, implemented.
 11. Services connected, disconnected.
 12. Equipment or system tests and start ups.
 13. Partial Completions, occupancies.
 14. Substantial Completions authorized.

1.08 CONSTRUCTION PROGRESS SCHEDULES

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 10 days after the date established for "Commencement of the Work".

1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the work as indicated in the "Schedule of Values".
 2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As work progresses, place a contrasting mark in each bar to indicate actual completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, or sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the work.
 5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
 6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner.
- C. Phasing: On the schedule, show how requirements for phased completion to permit work by separate Contractors and partial occupancy by the Owner affect the sequence of work.
- D. Work Stages: Indicate important stages of construction for each major portion of the work, including submittal review, testing, and installation.
- E. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the work. Indicate where each element in an area must be sequenced or integrated with other activities.
- F. Cost Correlation: At the head of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of work performed as of the dates used for preparation of payment requests.
- G. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the project meeting room and temporary field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.
- H. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.09 PROPOSED PRODUCTS LIST

- A. Within ten (10) days after date of Owner-Contractor Agreement, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. In addition, submit the names of the manufacturers of any long lead items that would potentially impact the progress of the Work and is the Contractor's responsibility to identify these manufacturers. Unless the aforementioned information is submitted, no extensions of time will be considered if extenuating circumstances exist affecting timely product delivery. Furthermore, no payments will be made to the Contractor unless all information is furnished.
- C. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.10 SUBCONTRACTORS

- A. Within ten (10) days of signing the Agreement or at the Pre-Construction Conference (whichever is first) submit to the Owner and Architect, in writing, the names of the persons and/or entities, (including those who furnish materials or equipment), proposed to perform the work of each portion of the Work.
- B. No payments will be made to the Contractor until all information is furnished.

1.11 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Review of shop drawings by the Architect will be for general compliance with Contract Documents. No responsibility will be assumed by the Architect for correctness of dimensions, quantities or details. The Contractor shall check and verify all field measurements. The Contractor and each separate Contractor shall submit with such promptness as to cause no delay in their own work or in that of any other Contractor, shop or setting drawings, and schedules required for the work of the various trades.
- C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

1. Dimensions.
 2. Identification of products and materials included by sheet and detail number.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Indicate deviations from the Contract Documents.
- D. Initial Submittal: The first submittal of shop drawings to the Architect for review shall consist of one (1) sepia and two (2) blue or black line prints made from the original shop drawings tracing (not the sepia). The sepia quality shall be sepia lined Helios Albanized transparent paper, or equivalent. Print sepia shop drawings in "face-up" attitude.
1. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit shop drawings on sheets at least 8¹/₂" x 11" but no larger than 36 by 48 inches. If drawings require more than one 24" x 30" size sheet multiple 8¹/₂" x 11" size drawings are not acceptable and will be returned for incorporating into a larger sheet.
- E. Final Submittal: The sepia (with corrections marked thereon and stamped) will be returned to the Contractor. A subsequent sepia and print shall be resubmitted by the Contractor after correcting the original tracing, until the sepia is stamped by the Architect "No Exceptions Taken", the Contractor shall resubmit three (3) blue or black line prints made from the approval sepia to the Architect for his use.
- F. Maintain one set of shop drawings at the project site, available for reference by the Architect, Engineer or others.
- G. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section 01700 - Contract Closeout.

1.12 PRODUCT DATA

- A. Collect and submit all required data into one submittal for each material, product or system; and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for specific application and use for this project, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data at the project site, available for reference by the architect, Engineer or others.
1. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer' standard data to provide information unique to this Project. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information only. Include the following information:

- a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- B. Submit two (2) copies of each required submittal. The Architect will retain one and will return the other marked with action taken and corrections or modifications required.
1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.13 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection, or where indicated as "custom", submit in custom color indicated.
- C. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
- D. All such samples, colors, etc. shall be submitted in one complete package to facilitate Architects review of related materials and colors. Each sample and color grouping shall be properly labeled with project name, Architect's job number, and applicable specification section number.

1.14 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. The Contractor is responsible to furnish and install equipment in accordance with manufacturer's instructions and more stringent requirements when specified. If manufacturer's instructions deviate or conflict with the Contract Documents, the Contractor shall identify conflict to the Architect prior to procuring or installing equipment.

1.15 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceed specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on materials or Product, but must be acceptable to Architect/Engineer.

1.16 SCHEDULE OF VALUES

- A. In accordance with General Conditions. Correlate line items with other administrative schedules and forms required for the Work, including progress payment request forms (AIA Forms G703 and G702). Provide breakdown of Contract Sum in sufficient detail to facilitate continued evaluation of payment requests and progress reports. Submit three (3) copies of Schedule of Values to Architect and as follows:
 - 1. Submit at Pre-Construction Conference.
 - 2. Use the Index of this Specification as the format for listing costs of work for Sections under Division 1 through 16. Use each Section number under each Division. Each section shall be subdivided into separate line items for the total cost (with overhead and profit) of separate items in Section.
 - 3. Round off cost figures to the nearest ten (10) dollars. The total of all items shall equal the total Contract Sum.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

Mathes Brierre

ARCHITECTS

ROUTING TRANSMITTAL

Architects Contact: _____
 General Contr. Contact: _____
 Mechanical Contact: _____
 Electrical Contact: _____

PROJECT: _____

PROJECT NO.: _____
 SUBMITTAL NO.: _____

TO	FROM	SENT	RECEIVED
MATHES BRIERRE ARCHITECTS			
	MATHES BRIERRE ARCHITECTS		

Enclosed please find the following:

Drawings Prepared By:	Copies:	Drawing No. or Title:	Resubmit	Do Not Resubmit	Resubmit As Noted	Reviewed	Noted	Rejected

REMARKS:

Architect's review is for conformity to the design concept and for general arrangement only in accordance with the general conditions of the contract:

1. Reviewed: work may proceed.
2. Noted: work may proceed as noted -- resubmit corrected drawing.
3. Resubmit: Correct and resubmit drawing before proceeding.
4. Rejected.
5. Do not resubmit.
6. Resubmittals noted.

PROCEDURES AND QUALITY CONTROL**SECTION 01400****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. The general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to the work specified in this section.

1.02 ADMINISTRATION

- A. Coordination: Coordinate various elements of the work and entities engaged to perform work; and coordinate the work with existing facilities/conditions, and with work by separate contractors (if any) and Owner.
- B. Project Meetings: Conduct general progress and coordination meetings at least once each month, attended by a representative of each primary entity engaged for performance of work. Record discussions and decisions, and distribute copies to those attending and others affected including the Architect. Schedule meetings to coordinate with preparation of payment requests.
 - 1. See Section 01200 - Project Meetings.

1.03 PROGRESS SCHEDULE AND REPORTS

- A. Bar-Chart Type Progress Schedules: Within ten (10) days of date established for "Notice to Proceed", submit a comprehensive bar-chart type progress schedule indicating a time bar for each significant category or unit of work to be performed at the site. Arrange schedule to indicate required sequencing of units, and to show time allowances for inspections and similar time margins.
 - 1. See Section 01300 for schedule requirements

1.04 SUBMITTAL SCHEDULE

- A. General: Immediately following the development and acceptance of the fully developed progress schedule, prepare a complete schedule of work-related submittals. Submit within ten (10) days of date required for establishment of the progress schedule. Correlate submittal schedule with the listing of principal subcontractors. Refer to Section 01300 and Division 2 through 16 for submittal requirements.
- B. Form: Prepare schedule in chronological sequence of "first submittals". Show category of submittal, name of subcontractor, generic description of work covered, related Specification section numbers, activity or event number on progress schedule, scheduled date for first submission, and blank columns for actual date of submittal, resubmittal, and final release by the Architect.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Receive, store and handle products, materials and equipment in manner which will prevent loss, deterioration and damage. Schedule deliveries to minimize long-term storage at project site. See Specification sections for specific requirements.

1.06 WARRANTIES (GUARANTEES)

- A. Categories of warranties required for the work include: 1) Special project warranty (guarantee), issued by Contractor and, where required, countersigned by Installer or other recognized entity involved in performance of the work, 2) Specified product warranty, issued by manufacturer or fabricator, for compliance with requirements in Contract Documents, and 3) Coincidental product warranty, available on a product incorporated into the Work, by virtue of manufacturer's publication or warranty without regard for application requirements (non-specified warranty). Refer to sections of Divisions 2 through 16 for requirements of specified warranties.
- B. Warranty Obligations: Restore or remove-and-replace warranted work to its originally specified condition, at such time during warranty as it does not comply with or fulfill terms of warranty. Restore or remove-and-replace other work which has been damaged by failure of warranted work, or which must be removed and replaced to gain access to warranted work. Cost of restoration or removal-and-replacement is Contractor's obligation, without regard to whether Owner has already benefitted from use of failing work.
 - 1. Reinstatement of Warranty: Upon restoration or removal-and-replacement of warranted work which has failed, reinstate the warranty by issuing newly executed form, for at least the remaining period of time of the original warranty, but for not less than half of the original warranty period.
- C. Owner's Recourse: Warranties and warranty periods do not diminish implied warranties, and do not deprive Owner of actions, rights and remedies otherwise available and established by law. Owner reserves right to reject coincidental product warranties considered to be conflicting with or detracting from requirements of the contract documents.

1.07 INSPECTIONS AND TESTING

- A. General: Neither inspection-and-test results nor failure thereof to disclose deficiencies relieves Contractor of responsibility to comply with requirements of Contract Documents. Provide services to inspection and testing agencies (Owner's and Contractor's), including taking and delivery of samples, patching work and similar assistance. Require engaged agencies to perform indicated testing and submit reports promptly; and to report significant observations having an important bearing on the work, to the Architect by the most expeditious means possible.
- B. Installer Inspections: Require Installer of each major unit of work to inspect substrate and conditions for installation, and to report (in writing) unsatisfactory conditions. Correct unsatisfactory conditions before proceeding. Inspect each product immediately before installation, and do not install damaged or defective products, materials or equipment.

1.08 PREPARATIONS FOR INSTALLATION

- A. **Pre-Installation Conference:** Prior to starting installation of each major component of the Work, hold a pre-installation conference, attended by each entity involved or affected by planned installation. Include technical representatives of product manufacturers and other recognized as expert or otherwise capable of influencing success of the installation. Review significant aspects of requirements for the Work. Record discussion and distribute as plan of action.

1.09 INSTALLATION, GENERAL

- A. **Examination of Substrate and Conditions:** Examine the substrate and the conditions under which work is to be performed. If unsatisfactory conditions are found, do not proceed with the work until these conditions have been corrected and placed in a condition recommended by the manufacturer of the items to be installed.
- B. Comply with manufacturer's printed instructions and recommendations to extent printed information is more detailed or stringent than requirements contained directly in Contract Documents.
- C. **Timing:** Install work during time and under conditions which will ensure best possible results, coordinated with required inspection and testing.
- D. Anchor work securely in place, properly located by measured line and level, organized for best possible uniformity, visual effect, operational efficiency, durability, and similar benefit to Owner's use. Isolate non-compatible materials from contract, sufficiently to prevent deterioration.
- E. Mount individual units of work at industry-recognized mounting heights, if not otherwise indicated; refer uncertainties to Architect before proceeding.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that the installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Architect.
 - 1. Maintain one set of complete instructions at the job site.
- B. Handle, prepare substrate, install, connect, clean, and adjust products in strict accordance with such instructions and in conformity with specified requirements.
- C. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Architect for further instructions.
- D. Do not proceed with work without clear instructions.

1.11 CLEANING AND PROTECTION

- A. General: Clean each element of work at time of installation. Provide sufficient maintenance and protection during construction to ensure freedom from damage and deterioration at time of substantial completion.

See Section 01700 - Project Closeout

1.12 DEFINITIONS

- A. General: In addition to the definitions in the General and Supplementary Conditions and other locations in the Contract Documents, add the following:
1. Provide: Furnishing of all labor and materials, equipment, transportation, installation and services required, directly or indirectly.
 2. Project Manual: Includes the bidding requirements, Conditions of the Contract, and the Specifications (Division 1 through 16).
 3. Related Work Specified Elsewhere: List of items under this heading in the Specifications is for convenience only and is not intended to be all-inclusive or all-exclusive, nor to the direct specific trades to perform specific work.

1.13 REFERENCE STANDARDS

- A. General: Any reference to standards (such as ASTM, Federal Specifications, etc.), where the date is not specified, shall mean the latest edition of such standards published prior to the date of the Contract Documents. Where such a reference is made, the applicable standard is hereby made a part of the specification which refers to it to the same extent as if written out in that specification in full.

1.14 SCHEDULE OF VALUES

- A. At the Pre-Construction Conference, the Contractor shall submit to the Architect a Schedule of values prepared as follows:
1. See Section 01300 for Schedule of Value requirements

1.15 COORDINATION

- A. The Contractor is responsible to coordinate construction activities included under various sections of these specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different sections of the specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notes, reports and attendance at meetings.
- C. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work. Such administrative activities include, but are not limited to, the following:
1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project close-out activities.
- D. Contractor shall coordinate the arrangements for all chases, openings, trenching, etc., required for the installation of the work under this contract and shall be held solely responsible for proper location of same.
- E. Where work will be installed in close proximity to other work of other trades, or where there is evidence that work will interfere with the work of the other, Contractor shall assist in resolving space conditions to make a satisfactory adjustment. If a subcontractor installs his work before coordinating with other trades, or cause interference with work of other trades, the Contractor shall implement necessary changes in the work to correct the condition without additional charge to the Owner.
- F. All questions regarding scope, cost, project schedule, or intent of the Documents shall be initiated with the Architect. The Contractor's performance of any Work at the direction of others, without the prior authorization of the Architect or another Owner's designated representative, will be at the Contractor's risk.

END OF SECTION

TESTING LABORATORY SERVICES**SECTION 01410****PART 1 - GENERAL****1.01 SELECTION AND PAYMENT:**

- A. The Owner will select and will pay for the services of an independent testing laboratory to perform inspections and test of materials and constructions as hereinafter specified and/or as specified in other sections of the specifications or as shown on the Drawings.

1.02 RELATED SECTIONS

- A. Section 02200 - Earthwork
- B. Division 2 - Piling
- C. Division 3 - Concrete

1.03 RESPONSIBILITY OF CONTRACTOR

- A. Selection of the laboratory by the Owner in no way relieves the Contractor of his responsibility to furnish materials and construction in full compliance with the project plans and specifications. The Contractor accepts all processes, materials and their use which are approved by the testing laboratory unless the Contractor protests in writing prior to the approval by the testing laboratory.

1.04 COOPERATION OF CONTRACTOR

- A. The Contractor shall cooperate with the laboratory and make available, without cost, samples of materials to be tested.
- B. Furnish such nominal labor and sheltered working space as is necessary to obtain samples at the project.
- C. Advise the laboratory of the identity of material sources and instruct the suppliers to allow tests or inspections by the laboratory.
- D. Notify the laboratory sufficiently in advance of operations to allow for completion of initial tests and assignment of inspection personnel. Notification shall be not less than 48 hours in advance or as directed by the Architect.

1.05 REJECTION OF MATERIALS

- A. The laboratory shall reject any materials which are not in full conformance with specifications, and promptly notify the Architect. The Architect shall notify the Contractor promptly of such rejections. Any materials rejected by the laboratory shall not be incorporated in the work without prior written approval of the Architect.

1.06 TEST METHODS

- A. Tests and inspections shall be conducted in accordance with the requirements of these specifications or, if not herein specified, in accordance with latest ASTM, ACI, or other recognized authorities.

1.07 TEST REPORTS

- A. The laboratory shall submit written reports of each test and inspection made to the Architect, Engineer and Contractor, suppliers of tested products and to such other parties the Architect may specify.

1.08 ADDITIONAL TESTS

- A. The Architect reserves the right to require additional tests to those specified or upon materials not herein specified for testing. If such tests are necessary because of apparently defective materials or workmanship, the cost of these additional tests shall be borne by the Contractor.

1.09 DESCRIPTION OF TESTS AND INSPECTION

- A. Piling: Inspect all piling for compliance with the specifications and stamp with seal of laboratory. Log the driving of probe piles, conduct pile load test and prepare report of load test. See Division 2 - Piling section for requirements.
- B. Vibration Monitoring: During the driving of all piles, including exploratory piles (if any), the laboratory shall monitor and record the vibrations to adjacent building and surrounding areas. The laboratory shall employ the services of a vibration specialist engineer who in conjunction with the laboratory shall render complete reports and interpretations of the data obtained, including the possible effects of the measured vibrations on adjacent and surrounding structures. The vibrations shall be measured by means of a portable Seismograph which directly measures particle velocity (rate of ground movement) in three mutually perpendicular directions (longitudinal, transverse and vertical). Probes shall be located at various locations as required to achieve meaningful readings. An air blast monitor which measures the air pressure phenomena associated with the pile driving shall also be employed. In addition to daily reports, a complete report of the vibration study, including seismograms, shall be furnished after the conclusion of the driving of the exploratory piles (if any) and after driving all remaining piles.
- C. Concrete: The laboratory shall continuously monitor the delivery and placing of ready-mix concrete for compliance with the Drawings and the Specifications in Division 3. The laboratory representative shall report any substandard concrete operations as soon as practicable. Laboratory shall comply with the requirements of ACI 301, Chapter 16.
- D. Soil Compaction: The Testing Laboratory shall obtain a sample of soil to be used as fill or backfill material and perform a sieve analysis test and a Moisture-Density Relation analysis per ASTM D698 or ASTM D1557 to determine optimum moisture content and maximum density in accordance with Section 02200 - Earthwork.

- E. Reinforcing Steel: The laboratory shall check mill test reports and monitor the placing of all reinforcing steel for compliance with the Specifications.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**SECTION 01500****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing of construction site, storm protection, protection of the Work, and water control.
- C. Construction Facilities: Parking, progress cleaning, project signage, and temporary buildings and elevator use.
- D. Contractor shall provide and pay all metered cost of temporary facilities.

1.02 RELATED SECTIONS

- A. Section 01700 - Contract Closeout: Final cleaning.

1.03 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:
 - 1. Building Code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, Fire Department and Rescue Squad Rules.
 - 5. Environmental protection regulations.
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities".
- C. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- D. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

1.04 TEMPORARY UTILITIES

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.
- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
- D. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.
1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.
- E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants.
1. Provisions shall be available for sending messages to call to the telephone the Architect and his representatives when they are at the site.
- F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully.
1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers before discharge.
 2. Connect temporary sewers to the municipal system as directed by the sewer department officials.

- G. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

1.05 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors or gases. Special consideration shall be taken for ventilation directly to the exterior of vapors during painting.

1.06 TEMPORARY SANITARY FACILITIES

- A. The Contractor shall provide adequate toilet facilities at the site for use of all workmen. These facilities shall conform to all City, County and State regulations and be constructed in a location and manner so that they will not be a nuisance in the neighborhood. These facilities shall be removed upon completion of the work.
- B. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
- C. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- D. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

1.07 PROTECTION OF WORK

- A. Protect Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Barricades, Warning Signs and Lights: Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

1.08 SECURITY AND ENCLOSURES

- A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.

- B. Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
- C. Enclosure Fence: Provide 6' high security fence equivalent to chain link around entire site limits with appropriate gates for access of construction and Owner's personnel.

1.09 PARKING, STAGING AND ACCESS TO THE SITE

- A. The Contractor may use areas for parking, staging and stockpiling of materials within the area of limits for the Work.
- B. Ingress and egress to the site shall not interfere with adjacent properties.
- C. Prohibit access to the site by unauthorized personnel.
- D. Upon completion of the project and prior to the final payment, the Contractor shall restore the areas of the site used for his operations to their original condition prior to start of the work.

1.10 TEMPORARY FIRE PROTECTION

- A. Provide and maintain fire extinguishers and other equipment necessary for proper fire protection during construction. In addition, provide one or more qualified personnel with fully charged and operating foam type fire extinguishers during all field welding, roofing and similar operations of adequate capacity which are fire hazardous.
- B. Comply with NFPA 10 "Standard for Portable Fire Extinguishers", and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations".
- C. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
- D. Store combustible materials in containers in fire-safe locations.
- E. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- F. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- G. All temporary contractors' offices, storage sheds, workmen's shanties, etc. shall be located outside of or well detached from, the building under construction.
- H. The installation of water supplies, sprinklers, standpipes and fire hose shall closely follow completion of floors and areas.
- I. Storage of all combustible and flammable materials shall be maintained outside of (and well detached from) the buildings.

- J. Only flame-proofed tarpaulins shall be used.
- K. The supply of paints, solvents, oils, gas cylinders, etc. inside the building shall be limited to that required for one day's use. The handling of these materials should be carefully supervised.
- L. Cutting and welding work shall be performed out-of-doors whenever possible. This type work, when performed inside, shall be closely supervised and done with a fire watch with portable extinguishers in the area.
- M. Temporary electric wiring shall be kept to a minimum. Flood lights shall be used unless unavoidable then individual unprotected lamps may be used. All temporary electric circuits should be properly installed to prevent physical damage, and they should be provided with overload protection as specified in the National Electric Code.
- N. All material heaters (or any similar equipment) shall be located outside the building, with as much detachment as possible.
- O. Hot applications of mastics or insulating materials shall be avoided inside of the building. Where this type of application is necessary in the building interior, adequate ventilation shall be provided to prevent the build-up of the flammable vapor concentrations, and appropriate fire extinguishing equipment should be maintained in the area during the entire operation.
- P. Smoking is prohibited within the building. Definite control shall be maintained in the storage areas and areas involving flammable liquids.
- Q. No "on site" incineration is permitted.
- R. Ready access for the Public Fire Department shall be maintained to all areas.

1.11 WINDSTORM LOSS PREVENTION

- A. All structural framing members shall be properly secured and braced at the end of each working day.
- B. All roof decking shall be permanently secured as it is laid in place.
- C. All insulation and roofing materials shall be permanently fastened to the roof deck as it is applied.
- D. All construction materials shall be adequately protected against wind damage during storage.
- E. All tarpaulins, or any other temporary enclosure materials, shall be securely fastened.

1.12 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.13 MISCELLANEOUS PROVISIONS

- A. Dewatering: Maintain the site, excavations and construction free of water.
- B. Rodent and Pest Control: Before foundation Work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be relatively free of pests and their residues at Substantial Completion. Perform control operations in a lawful manner using environmentally safe materials.
- C. Temporary Signs: Prepare project identification and other signs; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

1.14 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

MATERIALS AND EQUIPMENT**SECTION 01600****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions; Request for Substitution Form.

1.02 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

1.03 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
- C. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
- D. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.05 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, substitutions are allowed. Submit a request for substitution for any manufacturer not named meeting the quality and aesthetics of that specified

1.06 SUBSTITUTIONS

- A. Substitutions (Definition): Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions. The following are not considered to be requests for substitutions:
- B. Substitution Request Submittal: The Architect will consider requests for substitution if received within 15 days after commencement of the Work. Requests received more than 15 days after commencement of the Work will not be considered.
 - 1. Submit 3 copies of each request for substitution with complete data for consideration. Submit requests on the attached form entitled "Request for Substitution".
 - 2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification section and drawing numbers.
 - 3. Provide complete data substantiating compliance with the specified product/system and documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

- a. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.
 - b. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - c. Samples, where applicable or requested.
 - d. A statement indicating the substitution does not affect the Contractor's Construction Schedule.
 - e. Cost information, including a proposal of the net savings, if any in the Contract Sum.
 - f. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
 - g. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
4. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of the substitution within 2 weeks of receipt of the request, or one week of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.
 - a. Use the product specified if the Architect cannot make a decision on the use of a proposed substitute within the time allocated.
- C. Conditions: The Architect will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.
1. Revisions to the Contract Documents are not required.
 2. Proposed changes are in keeping with the general intent of the Contract Documents.
 3. The request is timely, fully documented, and properly submitted.
 4. The specified product or method of construction cannot be provided within the contract time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the work promptly or coordinate activities properly.

5. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume.
 6. The specified product or method of construction cannot receive necessary approval by governing authority, and the requested substitution can be approved.
 7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
 8. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
 9. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- D. A request constitutes a representation that the Contractor:
1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 2. Will provide the same warranty for the Substitution as for the specified product.
 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 5. Will reimburse Owner for review and/or redesign services associated with re-approval by authorities.
- E. The Contractor's submittal and the Architect's review of shop drawings, product data or samples for construction activities not complying with the Contract Documents do not constitute an acceptable or a valid request for substitution, nor do they constitute approval.
- F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

Mathes Brierre
ARCHITECTS

**Request
For
Substitution**
(Not for Prior Approvals)

**Project: Repairs and Rehabilitation
for St. Martin Manor**

Project No. 10233 _____

Sub No. _____

New Orleans, Louisiana

Date: _____

Contractor: _____

Brief Description: _____

Drawing No. _____

Spec. Section _____

Detailed description of why substitution is beneficial:

Architects Response:

Note: Some of the items in this response may result in credits or additions which may become part of a future Request for Change Order.

Initialed: _____

Date: _____

PROJECT CLOSEOUT**SECTION 01700****PART 1 - GENERAL**

1.01 DESCRIPTION OF WORK

- A. Furnish all labor, materials, tools, and equipment, and perform all operations necessary for project closeout work indicated or specified.

1.02 DEFINITIONS

- A. Closeout is hereby defined to include general requirements near the end of Contract Time, in preparation for final acceptance, final payment, normal termination of Contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in specification sections.

1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. General: Prior to requesting Architect's inspection for certification of substantial completion, as required by General Conditions, complete the following, and list known exceptions in request. Furthermore, issuance of certificate of substantial completion and Architect's final inspection is contingent on completion of all the following:
1. In the progress payment request that coincides with, or first request following substantial completion date claimed, show either 100% completion for portion of work claimed as "substantially complete" or list incomplete items, dollar value of incomplete items, and reasons for being incomplete.
 2. Submit statement showing accounting of changes to the Contract Sum.
 3. Deliver to Owner tools, spare parts, extra stocks of material, and similar physical items as specifically mentioned in individual specification sections.
 4. Complete start-up testing of systems and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
 5. Complete final cleaning up requirements.
 6. Touch-up and otherwise repair and restore marred exposed finishes.
 7. Submit all warranties, workmanship/maintenance bonds, maintenance agreements, final inspection certifications, record (as-built) drawings, maintenance and operating manuals, final project photographs (if any) and similar documents.
 - a. Note: All above closeout documents must be submitted at one time and be all inclusive.

8. HVAC test and balance reports must be completed and accepted.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of incomplete requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected (the Architect's "Punch List") before the certificate will be issued.
1. The Architect will repeat inspection one time when requested and assured that the Work has been substantially completed.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 PREREQUISITES TO FINAL ACCEPTANCE

- A. General: Prior to requesting Architect's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following. List known exceptions (if any) in request. Furthermore, issuance of certificate of final acceptance is contingent on completion of all the following:
1. Submit occupancy and use permit.
 2. Submit final payment request with final releases and supporting documentation not previously submitted and accepted.
 3. Submit updated final statement, accounting for additional (final) changes to the Contract Sum.
 4. Submit copy of final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
 5. Submit statement of any continuing insurance coverage.
 6. Submit consent of surety.
- B. Reinspection Procedure: Upon receipt of Contractor's notice that work has been completed, including punch list items resulting from earlier inspections, and excepting incomplete items delayed because of unacceptable circumstances Architect will reinspect work. Upon completion of reinspection, Architect will either prepare certificates of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance for final acceptance. If necessary, procedure will be repeated.
1. Should the Architect be required to make two (2) final inspections and he finds that the Work is still incomplete, then the cost of additional Architect's inspections shall be paid for by the Contractor. The aforementioned Architect's compensation will be withheld from the next payment.

1.05 RECORD DOCUMENT SUBMITTALS

- A. General: Specific requirements for record documents are indicated in individual sections of these Specifications. Other requirements are indicated in General Conditions, with additional provisions indicated in Division 15 and Division 16 for mechanical and electrical work, respectively. General submittal requirements are indicated in the Section 01300. Do not use record documents for construction purposes; protect from deterioration and/or loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.
- B. Record (As-Built) Drawings: Submit one set of bluelines and electronic copy on disk in .pdf format of Contract Drawings and shop drawings in clean, undamaged condition, modified to show actual installations which vary substantially from the work as originally shown. Modify whichever drawing is most capable of showing "field" conditions fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on Contract drawing.
1. Mark-up new information which is recognized to be of importance to Owner, but was for some reason not shown on either concealed work, which would difficult to measure and record at a later date. Note related change order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.
 2. Contractor shall pay all reproduction, handling and delivery costs.
 3. Contractor shall stamp date and sign each record (as-built) drawing indicating his certification of as-built conditions. The stamp shall read "RECORD AS-BUILT DRAWINGS".
- C. Keys: Provide all keys to Owner as called for in the Finish Hardware Section, Electrical Panelboard keys and any other keys called for in other sections of the Specifications.
1. All keys shall be tagged with same description used in the Hardware Schedule. Other keys shall be tagged with item name and room name and number. "Master" keys shall be so identified.
 2. Keys shall be accompanied by three (3) copies of a typewritten list showing key identification as indicated above and number of keys for each location. One (1) copy shall be initialed by the individual receiving keys and returned to the Contractor as proof of receipt.
- D. Maintenance and Operating Manuals:
1. Provide three (3) copies unless otherwise stated in the individual section.
 2. Organize Maintenance and Operations Manuals into suitable sets of manageable size, and bind into individual binders properly identified and indexed sections, bind

each manual of each set in a heavy-duty 2", 3-ring vinyl-covered binder, and include pocket folders for folded sheet information. Provide a minimum of three (3) sets.

In addition, the Operating and Maintenance Manuals shall include but shall not be limited to the following:

- a. The project title, date of acceptance, names of Architect, General Contractor, subcontractors (associated with the installation of items included in the manual) should be clearly identified on the front cover along with addresses and telephone numbers.
- b. There shall be an index in front of the manual giving the divisions for major equipment groups and a list of subdivision within the groups.
- c. The major divisions should have indexed tabs at the front of each one.
- d. Originals, and legible copies of manufacturers data sheets.
- e. With the data sheets for each equipment item, attach any parts list, sequence of operations, maintenance requirements, and associated certificates or warranties.
- f. Include copies of shop drawings.
- g. Any equipment data which covers different models, options, system configurations, etc., should be clearly marked and highlighted to identify which was installed.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.01 FINAL CLEANING

- A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
 1. Remove labels that are not permanent labels.
 2. Clean transparent materials, including mirrors and glass in doors and windows to a polished condition, removing substances which are not noticeable as vision-obscuring material. Replace broken glass.
 3. Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition.

4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances.
5. Remove debris and surface dust from limited-access spaces including roofs, plenum, shafts, trenches, equipment vaults and similar spaces.
6. Clean concrete floors in occupied and non-occupied spaces; broom clean and remove all elements not an integral part of the surface.
7. Vacuum clean carpeted surfaces and similar soft surfaces.
8. Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.
9. Clean light fixtures and lamps so as to function with full efficiency.
10. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances resulting from the work of this contract. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

END OF SECTION

SELECTIVE DEMOLITION**SECTION 02070****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Demolition of designated portions of the building and removal of materials from site.
- B. Disconnecting and capping of existing utilities.
- C. Patching and repairs.
- D. Removal and protection of existing items indicated for salvage.
- E. Note: Demolition work shall be done in a systematic manner so to allow the Owner and Architect to observe the completed demolition of required portions of the building and removing all finishes to expose the existing structure, including wall studs. The aforementioned site observations (walk thru) shall be scheduled and completed prior to any new construction work commencing. This walk thru will allow the Owner and Architect to evaluate the existing conditions that were not visible prior to the demolition and take any action required to remedy deficient and/or unanticipated conditions, if any.
- F. Comply with all requirements in the National Historic Preservation Act (NHPA) "Requirements-Lower-Impact Demolition Stipulations" (4 pages, dated June 22, 2006), which follows this section, including "Inadvertent Discoveries" provisions.
- G. Contractor shall submit completed AAC-2 form to the DEQ. Additionally, Contractor shall pay for all ADVF's and provide documentation to Owner.
- H. The Owner will have removed any hazardous materials including asbestos and lead from the building under a separate contract prior to the work of this Contract. Note: The existing windows, doors and trim being removed contain lead paint and must be handled and disposed of in accordance with all applicable state, federal and local regulations under this contract and not the aforementioned separate contract. Regarding the removal and disposal of these materials, it is imperative that the materials do not become friable at any point during the removal/disposal process.

1.02 RELATED WORK

- A. Limited cutting and patching of floors and walls for penetrations of piping, ducts, and conduits is included with the work of the respective mechanical and electrical specification sections in Divisions 15 and 16 and Section 01040 - Cutting and Patching including additional requirements for patching and repair work.

1.03 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

- B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.04 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of capped utilities.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition of structures, safety of adjacent structures, dust control and runoff control.
- B. Obtain required permits from governing authorities.
- C. Do not close or obstruct roadways, sidewalks and hydrants without permits.
- D. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.
- E. Notify the Environmental Protection Agency prior to any demolition work.
- F. Comply with L.R.S. 40: 1749.13 which states that no person shall excavate or demolish without first ascertaining the location of underground utilities by serving telephonic notice to a regional notification program. In the State of Louisiana, the regional notification program is Louisiana One Call (formerly DOTTIE) which may be reached by calling (504) 275-3700, or toll free at 1-800-584-4274, or by FAX (504) 272-1967.

1.06 SUBMITTALS

- A. Schedule: Submit two copies of proposed methods and operations of demolition to the Architect for review prior to the start of work. Include in the schedule the coordination for shut-off, capping and continuation of utility services as required, and proposed dust control measures.
 - 1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.

4. Use of elevator and stairs.
 5. Locations of temporary partitions and means of egress.
 6. Coordinate with Owner's continuing occupation and use of existing building.
- B. Photographs of existing conditions of structures surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Architect prior to start of work.
- C. Record drawings at project closeout according to Division 1 Section "Contract Closeout".

1.07 JOB CONDITIONS

- A. Occupancy: Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.
- B. Condition of Structures: The Owner assumes no responsibility for the actual condition of structures to be demolished.
1. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner in so far as practicable. However, variations within the structure may occur by Owner's removal and salvage operations prior to the start of the demolition work.
- C. Partial Removal: Items of salvable value to the Contractor may be removed from the structure as the work progresses. Salvaged items must be transported from the site as they are removed.
1. Storage or sale of removed items on the site will not be permitted.
- D. Traffic: Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
1. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- E. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work. See Section 01010 for additional requirements.
1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
 2. Erect temporary protections as required by authorities having jurisdiction.

3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
 4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 5. Protect floors with suitable coverings when necessary.
 6. Construct temporary dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks. Comply with Section 01562.
 7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
- F. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.
- G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- H. Utility Services: Maintain existing utilities, indicated to remain, keep in service, and protect against damage during demolition operations.
1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.
 2. Maintain fire protection services during selective demolition operations.
- I. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protections.

PART 2 - PRODUCTS

2.01 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 2. Use materials whose installed performance equals or surpasses that of existing

materials.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.
 - 1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
- C. Provide, erect, and maintain temporary barriers and security devices required to protect personnel and structures.
- D. Protect existing landscaping materials, appurtenances and structures which are not to be demolished.
- E. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
 - 2. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.
- F. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

3.02 DEMOLITION REQUIREMENTS

- A. Note: Demolition work shall be done in a systematic manner so to allow the Owner and Architect to observe the completed demolition of portions of the building and expose the existing structure. The aforementioned site observations (walk thru) shall be scheduled and completed prior to any new construction work commencing. This walk thru will allow the Owner and Architect to evaluate the existing conditions that were not visible prior to the demolition and take any action required to remedy deficient or unanticipated conditions, if any.
- B. Conduct demolition to minimize interference with adjacent structures and drives.

- C. Conduct operations with minimum interference to public or private accesses. Maintain egress and access at all times.
- D. Sprinkle Work with water to minimize dust. Provide hoses and water connections for this purpose.
- E. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
 - 1. Construct dustproof partitions in accordance with Section 01562.
 - 2. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
 - 3. Protect air-handling equipment.

3.03 DEMOLITION

- A. Disconnect, cap and identify designated utilities within demolition areas.
- B. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 - 4. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 - 5. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
 - 6. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations as directed by the Architect or governing authorities. Return adjacent areas to condition existing prior to the start of the work.
 - 7. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
 - 8. Where new finishes are required, completely remove existing finishes to expose bare substrate. After removal no residual application materials shall remain that could

cause failure of any kind of new finishes, i.e. failure to bond, staining or discoloration, etc.

9. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- C. If unanticipated mechanical, electrical or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.04 PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Patching is specified in Division 1 Section "Cutting and Patching".
- C. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 1. Completely fill holes and depressions in existing masonry walls to remain with an approved masonry patching material, applied according to manufacturer's printed recommendations.
- D. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- E. Patch and repair floor and wall surfaces in the new space where demolished walls or partitions extend one finished area into another. Provide a flush and even surface of uniform color and appearance.
 1. Closely match texture and finish of existing adjacent surface.
 2. Patch with durable seams that are as invisible as possible. comply with specified tolerances.
 3. Where patching smooth painted surfaces, extend final paint coat over entire unbroken surface containing the patch after the surface has received primer and second coat.
 4. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 5. Inspect and test patched areas to demonstrate integrity of the installation, where feasible.
- F. Patch, repair or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.05 SALVAGED MATERIALS

- A. Salvaged Items: Where indicated on Drawings as "Salvage", carefully remove indicated items, clean, store, and turn over to Owner and obtain receipt.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from the site debris, rubbish, and other materials resulting from the demolition operations.
- B. If hazardous materials are encountered during demolition operations notify the Owner immediately. Comply with applicable regulations, laws, and ordinances concerning and protection against exposed or environmental pollution.
- C. Burning of removed materials from demolished structures will not be permitted on the site.

3.07 CLEANUP AND REPAIR

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
 - 1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

P W A T T A C H M E N T
A NATIONAL HISTORIC PRESERVATION ACT (NHPA) REQUIREMENT
DEMOLITIONS & DEMO/REBUILDS STATEWIDE
LOWER-IMPACT DEMOLITION STIPULATIONS

PW SCOPE OF WORK (SOW) LANGUAGE FOR
THE LOWER-IMPACT DEMO STIPS & PROTOCOLS

A Request For Proposal (RFP) that includes conformity with the prescribed procedures listed in the FEMA-SHPO "Lower Impact Demolition Stipulations & Additional Protocols" should be developed by the Applicant. The stipulations & protocols should be explicit in the RFP. The "Lower Impact Demolition Stipulations & Additional Protocols" that were provided to the Applicant prior to RFP preparation can be found in the attachments of this PW. The Applicant shall not initiate ground disturbing activities prior to receiving approval from FEMA Public Assistance. Failure to comply with the "Lower Impact Demolition Stipulations & Additional Protocols" will jeopardize receipt of funding.

LOWER-IMPACT DEMOLITION STIPULATIONS
(To Be Included in Demolition Contracts)

FEMA and the State Historic Preservation Office (SHPO) have agreed that the Applicant is responsible for ensuring that their demolition contractor adheres to the "Lower-Impact Demolition Stipulations" (work restrictions) as prescribed by FEMA and SHPO. This will partially fulfill FEMA requirements to comply with the National Historic Preservation Act (NHPA) for demolitions funded by FEMA. Compliance with Lower-Impact Demolition Stipulations expedites project review and reduces costs because in-depth & lengthy historic review can be circumvented as the stipulations are designed to avoid impacts to archaeological resources.

The Applicant will ensure that all Lower-Impact Demolition Stipulations are made explicit in demolition contracting documents. The Applicant will ensure that the Contractor does not initiate ground-disturbing work prior to receiving approval from a FEMA Public Assistance representative.

FEMA reserves the right to conduct unannounced field inspections and monitor demolition activities to verify compliance with Lower-Impact Demolition Stipulations. Failure to comply with the stipulations will jeopardize the Applicant's receipt of federal funding.

• **General Approach:**

- Major demolition activities, including placement of equipment, will be confined to areas where soils have been previously disturbed by activities, such as site development, construction, surface grading, landscaping, utility trenching, etc. The Applicant will identify areas of obvious soil disturbance and direct their contractor to work within these areas.
- When heavy equipment is not in use, it will be staged on hard or firm surfaces where equipment is not susceptible to sinking. Paved surfaces will be used to the fullest extent possible,

P W A T T A C H M E N T
A NATIONAL HISTORIC PRESERVATION ACT (NHPA) REQUIREMENT
DEMOLITIONS & DEMO/REBUILDS STATEWIDE
LOWER-IMPACT DEMOLITION STIPULATIONS

- Tracked vehicles and/or large-tired equipment will be used whenever possible to reduce the depth of soil disturbance and minimize soil compaction to a depth of six (6) inches or less.
- The Applicant will ensure that its contractors will not operate heavy equipment on wet soils if the equipment begins to sink more than six (6) inches below the current ground surface. Heavy equipment may be operated in the rain, but the Applicant will ensure that its contractors will pay special attention to equipment sinkage, as noted above.
- Shearing off structural features at the ground-surface is strongly encouraged so that further soil disturbance is minimized.
- There will be no salvage of architectural materials from below-grade
- Excavation of on-site materials and burial of debris are not permitted.
- **Activity Specific Guidelines:**
 - Treatment of Utilities:
 - Utility lines will be disconnected and capped. Extraction of utility lines is not an eligible FEMA cost. In cases where there are no shut-off valves, limited excavation within the utility rights-of-way will be required to cap these service lines. Excavation will be limited to the existing ROW to the greatest extent feasible to limit unnecessary ground disturbance.
 - Footing and Pier Removal:
 - If it is absolutely necessary to remove footings and piers to ensure public health and safety, the soil disturbance caused by these activities should be limited to a depth no greater than six (6) inches below the footing or pier to be extracted. The excavation shall not exceed a 3-foot lateral width from the footing or pier being extracted.
 - Slab Removal:
 - Slab removal is only an eligible FEMA cost if the slab, or portions thereof, present a public health and safety threat (i.e. broken and angled upward). FEMA anticipates that slab removal will be a rare occurrence and eligibility calls will be made by an FEMA official. If slab removal is funded by FEMA, the slab will not be removed through excavation. It will be hoisted off the lot, and the Applicant will ensure that its contractors will make every effort to limit any soil disturbance necessary to facilitate this process.
 - Void and/or Feature filling
 - Any voids which require filling because they are a “health and safety issue” will be filled with clean fill from off-site. Whenever possible this will be a sand matrix, however sand is not required. These voids may include, but are not

P W A T T A C H M E N T
A NATIONAL HISTORIC PRESERVATION ACT (NHPA) REQUIREMENT
DEMOLITIONS & DEMO/REBUILDS STATEWIDE
LOWER-IMPACT DEMOLITION STIPULATIONS

limited to, those created as the result of exposing cisterns, privies, wells, and/or basement-like depressions.

- Surface Grading and Site Clean-Up:
 - The Applicant will ensure that its contractors will limit site grading to within the first six (6) inches of the existing surface elevation (e.g., side walk level, driveway level, slab level, etc.). The Applicant will ensure that its contractors will use light equipment (e.g., small bobcats, hand tools, etc.) to complete final site clean-up.
- **Treatment of New Discoveries:**
 - Archaeological Materials
 - If demolition activities disturb moderate amounts of archaeological artifacts (e.g. old bricks, ceramic pieces, historic bottle glass or cans, coins, beads, stones in the form of tools [arrow heads], pieces of crude clay pottery, etc.) or archaeological features (e.g. grave markers, house foundations, cisterns, etc.), the Applicant will ensure that the Contractor immediately stop work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the finds. In such cases, the Applicant will immediately inform FEMA of the discovery and FEMA will deploy a professional archaeologist to conduct a site assessment. The Applicant will ensure that the Contractor does not proceed with work until FEMA staff have completed consultation with the Louisiana State Historic Preservation Office (SHPO) and other interested parties, as necessary.
 - Human Remains
 - If human skeletal remains are uncovered during demolition activities, the Applicant will direct the Contractor to stop work immediately in the vicinity of the discovery. The Applicant will immediately notify FEMA, the New Orleans Police Department, and the Orleans Parish Coroner's Office of the discovery. Within **twenty-four (24) hours** of the Applicant's notification, FEMA will notify and coordinate with the SHPO and other interested parties, as necessary. The Applicant will notify the Louisiana Unmarked Burial Sites Board by contacting the Louisiana Division of Archaeology at 225-342-8170 within **seventy-two hours (72)** of the discovery. The Coroner's Office will assess the nature and age of the human skeletal remains. If the coroner determines that the human skeletal remains are older than 50 years of age, the Louisiana Unmarked Burial Sites Board has jurisdiction over the remains. FEMA shall take the lead in working with the Applicant, the SHPO, the Burial Sites Board, and other interested parties to ensure compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq.*) and other applicable laws. In addition, it is incumbent upon FEMA to follow the "Human Remains Policy" set forth by the Advisory Council on Historic Preservation (ACHP).

P W A T T A C H M E N T
A NATIONAL HISTORIC PRESERVATION ACT (NHPA) REQUIREMENT
DEMOLITIONS & DEMO/REBUILDS STATEWIDE
LOWER-IMPACT DEMOLITION STIPULATIONS

- **Protocol for Working with Archaeological Monitors:**
 - Archaeological Monitoring –Compliance Violations:
 - If during spot checks, FEMA Historic Preservation Specialists/Archaeologists observe violations of the Lower-Impact Demolition Stipulations, they shall request that the Applicant’s official on-site cease demolition activities until the effects of the Undertaking can be assessed through intensive visual inspection. If adverse affects are observed, FEMA shall consult with SHPO and other consulting parties, as necessary.
 - Archaeological Monitoring–Findings Assessment:
 - If during the course of work, FEMA archeological monitors observe significant or potentially significant findings as a result of activities associated with the Undertaking a findings assessment will be required. If the FEMA archeological monitors determine that a findings assessment will require a discontinuation of work greater than one hour in duration, the archeological monitor is responsible for promptly notifying the official on-site regarding the delay. If after the initial one hour findings assessment, the archeologist has determined more evaluation time will be necessary at this location, the archeologist shall promptly convey this to the official on-site.
 - Archaeological Monitoring --Asbestos Demolitions:
 - The Applicant contractors shall establish a safety perimeter beyond which archeological monitors will not be permitted to cross without first obtaining the appropriate training and personal protective equipment (PPE). Archaeologists shall have formal asbestos training, a pulmonary fitness examination, and may be required to wear a full respirator and a Tyvek suit. If an archeological monitor needs to cross the safety perimeter, she/he shall approach the Applicant’s official on site and notify them of the need to access the demolition site. The Applicant’s official on site shall have all equipment inside the work zone stop work so that the archaeologist may conduct a brief inspection. Once the archeological monitor has completed work, she/he shall leave the restricted zone and the work may resume. This procedure applies not only to field inspections but also to monitoring of known archeological sites and investigations of inadvertent discoveries.

EARTHWORK**SECTION 02300****PART 1 - GENERAL**

1.01 SUMMARY

- A. Section includes:
 - 1. Site Preparation
 - 2. Excavation
 - 3. Backfill
 - 4. Fill

1.02 DESCRIPTION OF WORK

- A. Extent of earthwork is shown on the drawings.

1.03 QUALITY ASSURANCE

- A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. The Owner shall employ an independent testing laboratory or geotechnical engineer to conduct all inspections and testing of fill materials and compaction of fill and backfill.

1.04 JOB CONDITIONS

- A. Existing Utilities: Locate existing underground utilities, if any, in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.
 - 1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the Utility Owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
 - 2. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Architect and then only after acceptable temporary utility services have been provided.
 - 3. Coordinate with utility companies for shut-off of services if lines are active.
- C. Use of Explosives: The use of explosives is not permitted.

- D. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction.
- E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. Select fill shall consist of a select granular fill material such as locally available pumped river sand. Select granular fill material shall be non-plastic and free of wood, roots clay lumps, and any other deleterious materials and shall not contain more than 10% (by weight) of material passing a U. S. Standard No. 200 mesh sieve. Prior to transporting structural fill to site, a sample shall be tested to verify conformance with these specifications.

PART 3 - EXECUTION

3.01 SITE PREPARATION

- A. Establish adequate temporary and permanent drainage to prevent ponding of water and ensure immediate runoff of all rainfall. Maintain adequate surface drainage away from all foundations during and after construction.
- B. The existing ground surface at the site shall be stripped of any vegetation, loose topsoil, debris, stumps, organic matter, loose fill, and any other deleterious materials. Stripping shall be to the minimum depth necessary to remove any vegetation and roots. Deeper excavations may be required in the vicinity of stumps or demolition debris. The actual depth of stripping shall be determined by a representative of the Owner's Geotechnical Engineer.
- C. Pavement Demolition: All existing pavements within the proposed construction area that have been scheduled for removal as indicated on the Drawings shall be removed if removal was not completed during previous demolition activities. Removal or relocation of structures and obstructions shall conform to the requirements of Section 202 of the Louisiana Standard Specifications for Roads and Bridges, 2000 edition.
- D. Cut-off of abandoned piles: The Contractor shall investigate existing piles on site and locate existing piles that are scheduled for reuse as indicated on the Drawings. The Contractor shall exercise caution in selecting existing abandoned piles for cut off. These abandoned piles shall be cut off 5 feet below the proposed grade beams or the existing ground surface, whichever is greater. Removal or relocation of structures and obstructions shall conform to the requirements of Section 202 of the Louisiana Standard Specifications for Roads and Bridges, 2000 edition.
- E. After stripping operations, the exposed subgrade in the parking areas shall be proof-rolled with a bulldozer or tracked vehicle exerting a pressure between 10 and 15 psi. The vibratory system of the compactor, if present, shall not be used during proof-rolling. Soils which are observed to rut or deflect excessively under the moving load shall be undercut and replaced with properly compacted structural fill. Proof-rolling, undercutting, and filling activities shall be witnessed by a

representative of the Owner's Geotechnical Engineer and shall be performed during a period of dry weather.

- F. After subgrade preparation and observation are complete, the first layer of structural fill shall be placed in a relatively uniform horizontal lift and be adequately keyed into the stripped and scarified subgrade soils.

3.02 EXCAVATION

- A. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, and other construction and for inspection.
 - 1. Excavations for footings and foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
- B. Dewatering:
 - 1. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
 - 2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
 - 3. Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.
 - 4. Dispose of excess soil material and waste materials as herein specified.

3.03 COMPACTION

- A. Percentage of Maximum Density Requirements:
 - 1. Structural Form Fill Beneath the Pile Supported Structure: Fill materials shall be compacted from lifts of 8 to 10 in. in loose thickness to not less than 95 percent of Standard Proctor (ASTM D 698) maximum dry density. Each lift of compacted structural fill shall be tested by a representative of the Owner's Geotechnical Engineer prior to placement of subsequent lifts.
 - 2. Structural Form Fill Beneath Areas of Paving: Fill materials shall be compacted from lifts of 6 to 8 in. in loose thickness to not less than 95 percent of Standard Proctor (ASTM D 698) maximum dry density. Each lift of compacted structural fill shall be tested by a representative of the Owner's Geotechnical Engineer prior to placement of subsequent lifts.
- B. Moisture Control:

1. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material.
2. Remove and replace soil material that is too wet to permit compaction to specified density.

3.04 BACKFILL AND FILL

- A. General: Place fill or satisfactory excavated material in layers to required subgrade elevations.
- B. Placement and Compaction:
 1. Place backfill and fill materials in loose thickness as specified herein.
 2. Before compaction, moisten or aerate each layer as necessary percentage of maximum dry density. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.05 FIELD QUALITY CONTROL

- A. Quality Control Testing during Construction: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed as required by Owner's Geotechnical Engineer.
 1. Perform field density tests on each lift of compacted structural fill in accordance with ASTM D 698, as determined by the fill application.
- B. Building Slab Subgrade: Perform at least one field density test of subgrade for every 5,000 sq. ft. of building slab.
 1. In each compacted fill layer, perform field density test, as indicated above.
 2. If in opinion of Owner's Geotechnical Engineer, based on testing service reports and inspection, subgrade or fills that have been placed are below specified density, perform additional compaction and testing until specified density is obtained.

3.06 DISPOSAL OF WASTE MATERIALS

- A. Removal from Owner's Property: Remove trash debris and waste materials and lawfully dispose of it off the Owner's property.

END OF SECTION

WOOD-CONCRETE COMPOSITE PILES**SECTION 02455**

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish all labor, materials, tools, and equipment, and perform all operations necessary for piling work indicated or specified.
- B. This Section includes the furnishing and driving of the following types of piling:
 - 1. Wood-Concrete Composite Piles.

1.02 DAMAGE TO EXISTING PROPERTY

- A. Investigate the existing adjacent buildings, sewers, and utilities. Take proper and necessary precautions to protect those things from damage due to the execution of the Piling work. Should damage occur due to the Contractor's negligence, responsibility and cost for repairing or replacing the work in original condition shall be borne by the Contractor, without additional compensation.

1.03 SUBSURFACE INFORMATION

- A. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that the Contractor will be responsible for all interpretations or conclusions which he draws from the subsurface information. Data are made available in the office of the Architect for the convenience of Contractor.
- B. Additional soil borings and other exploratory operations may be made by Contractor at no cost to Owner.

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications.
 - 1. Pile Data, material inspection reports.
 - 2. Pile installation equipment, including hammer and drill information.

1.05 QUALITY ASSURANCE

- A. The Owner will employ an independent testing laboratory to perform the following:
 - 1. Timber Piles: Inspect at source of supply and hammer mark in the butt to indicate conformance with the requirements of these specifications.
 - 2. Logging of pile driving: Log the driving of all piling including reaction piles and record the following:

- a. Date driven.
- b. Hammer description.
- c. Dimensions of piles as measured on jobsite.
- d. Location of pile.
- e. Depth and size of predrill
- f. Number of blows per foot for full length of pile.

Submit driving records daily, no later than morning after driving.

B. Concrete fill for Piles:

1. Inspect shell of composite piles immediately prior to placing concrete.
2. Perform all inspections and testing specified in Section 03300.

C. Vibration Study:

During the driving of exploratory piles and reaction piles, the laboratory shall monitor and record the vibrations to adjacent and surrounding areas. The laboratory shall employ the services of a vibration specialist engineer who in conjunction with the laboratory shall render complete reports and interpretations of the data obtained, including the possible effects of the measured vibrations on adjacent and surrounding structures. The vibrations shall be measured by means of a portable Seismograph which directly measures particle velocity (rate of ground movement) in three mutually perpendicular directions (longitudinal, transverse, and vertical). Probes shall be located at various locations as directed. A complete report of the vibration study, including seismograms, shall be furnished after the conclusion of the driving of these piles.

D. Notification: Notify the Architect and Engineer of Record a minimum of 48 hours prior to start of pile driving activities.

PART 2 - PRODUCTS

2.01 WOOD-CONCRETE COMPOSITE PILES

- A. Driving of Contract Piles shall not start until all fill placement and compaction operations within the building footprint are complete.
- B. Untreated Timber Section: Shall be ASTM Designation D25 (latest revision) round timber piles, rough peeled, Southern Pine with a minimum tip diameter of 7 inches (7½ inches maximum) and a minimum tip diameter of 13 inches (13½ inches maximum) three feet from the butt.
- C. Shell for Concrete Section: Shall be steel of sufficient strength to prevent distortion during driving of the pile or adjacent piles. The shell shall be a minimum of 11 inches (I.D.) and sufficiently water tight to exclude water and foreign matter during the placing of concrete. The connector shall be manufactured or fabricated of structural grade steel and shall consist, in general, of a drive-shoe of twelve (12) gauge or thicker material which is firmly attached to the steel casing. The drive-shoe shall be capable of penetrating a minimum of four (4) inches into the wood section. All other requirements of the connector shall conform to the requirements of the New Orleans Building Code. The splice shall withstand a minimum moment capacity of 4

- foot kips, with no applied axial load. The splice shall withstand a minimum tensile force of 10 tons.
- D. Concrete: Concrete for cast-in-place upper section of composite piles shall be in accordance with Section 03300 of these specifications. Concrete shall have a compressive strength of 4,000 psi at 28 days.
 - E. Contract Length: As shown on the drawings.

PART 3 - EXECUTION

3.01 HANDLING

- A. Piles shall be carefully handled to prevent damage to timber piles.

3.02 EQUIPMENT

- A. Driving equipment is subject to the Architect's approval. Architect will reject equipment if in his opinion, at any time, the equipment does not perform its intended task adequately.

3.03 PREDRILLING

- A. For each pile, pre-drill an 8 inch diameter hole to a 65 foot depth below the existing ground surface using a 3-blade SH-800 demon wet rotary type bit. Immediately thereafter drive the pile into the drilled hole. Use a minimum amount of water during the drilling operations. The Architect may require the Contractor to change the depth and size of predrill. If this is necessary, it shall be done at no additional cost to the Owner.

3.04 HAMMERS

- A. No. 1 Vulcan (15,000 ft. lbs. per blow) for all piles.

3.05 DRIVING PROCEDURE

- A. Driving shall be done with fixed leads that shall hold the pile firmly in position and in alignment with the hammer. The top of each pile before driving shall be cut at right angles to the longitudinal axis of the pile. The top of the pile shall be protected with a standard steel hood or similar-type device which will prevent damage to the pile during driving.
- B. Drive continuously (except for the time required for splicing) until proper penetration as determined by the Architect is obtained.
- C. When pile is spliced and lower section of pile is allowed to remain in ground without completing driving of upper section for a period of time which renders the driving of the completed pile impossible without damage to the pile, furnish and drive additional piles as directed by Architect without additional compensation to Contractor.
- D. Make field splice a sufficient distance above the ground surface to insure viewing of splice for complete seating prior to splice being driven below ground surface.

- E. The upper portion of wood-concrete composite piles shall be driven with a mandrel.
- F. Contractor shall be aware that driving conditions may prohibit driving more than one wood lower section before driving the steel shell upper section. The Architect shall make this determination as pile driving progresses.

3.06 LOCATION

- A. Piles shall be driven plumb and accurately into positions shown on Drawings: a maximum variation not exceeding 3" for each pile will be accepted as fulfillment of Contract, providing limiting and controlling conditions make it impossible to maintain more accurately the spacing indicated on plans. Should the variations from true center exceed the above, the piles in each cluster shall be plotted by the Contractor and the center of gravity of said cluster determined. If required, sufficient pile shall then be added at locations determined by the Architect. Contractor shall, at his own cost, drive such additional piling and/or alter pile caps as may be required to compensate for or to rectify the conditions brought about by failure to preserve proper spacing and plumbness, whether this defect is discovered before or after cutting off.

3.07 DEFECTIVE PILES

- A. Immediately remove and replace a pile that is damaged, deflected, broken, or which cannot be driven to proper elevation because of interference by underground obstruction. Replace such pile with an acceptable substitute pile at the location determined by the Architect. In the event that such pile's removal should prove to be impossible, abandon the defective pile; replace with an additional pile(s) driven close to the worthless one as directed by the Architect.

3.08 PLACING CONCRETE FOR COMPOSITE PILES

- A. Shell of wood-concrete composite pile shall be clean of all earth and debris and must be dry prior to placing concrete.
- B. Concrete shall not be placed until the shell has been inspected by the testing laboratory representative immediately prior to filling.

3.09 CUTOFF

- A. After driving, pile butts shall be cut-off to the required elevation on a neat horizontal plane and the cut-off portions shall be removed from the job site.

3.10 MISSING PILES

- A. Contractor shall be held responsible for any pile omitted; and missing piles at whatever stage of work discovered shall be provided without extra cost to the Owner.

END OF SECTION

PIPE PILES**SECTION 02456****PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings, and general provisions of the Contract, including General and Supplementary Conditions and Division I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. The extent of piling work is shown on the drawings.

1.03 JOB CONDITIONS

- A. Contractor shall investigate the existing adjacent buildings, sewers, and utilities and shall take proper and necessary precautions to protect same from damage due to the execution of the piling work. Should damage occur due to Contractor's negligence, the cost and responsibility for repairing or replacing the work in its original condition shall be borne by the Contractor at no cost to the Owner.
- B. Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn there from by Contractor. Data are made available in the office of the Architect for the convenience of Contractor. Additional test borings and other exploratory operations may be made by Contractor at no cost to the Owner.
- C. Limited Headroom: Contractor shall be aware that piles are to be driven on the first floor under an existing overhang. Contractor shall visit site prior to bidding to confirm the accessibility of his driving equipment.

1.04 TYPES OF PILING

- A. This Section includes the furnishing and driving of the following types of piling:
 - 1. Open-end steel pipe piles, partially coated, concrete filled after driving.

1.05 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division I Specifications.
 - 1. Material inspection reports, and mill certificates.
 - 2. Coating system.
 - 3. Welding procedure for pipe splices.
 - 4. Pile installation equipment.

1.06 NOTIFICATION

- A. Notify Architect 48 hours prior to driving piles. Pile driving must not commence without the Architect's representative and the testing laboratory being present.

1.07 QUALITY ASSURANCE

- A. The Owner shall employ an independent testing laboratory to perform the following:
1. Logging of pile driving: Log the driving of all piling including reaction piles and record the following.
 - a. Date driven
 - b. Hammer description
 - c. Dimensions of piles
 - d. Location of pile
 - e. Number of blows per foot for full length of pile, logged from foot marks on the pile.
 - f. Length of time required for each sequence of work, such as drilling, driving, splicing, etc.Submit driving records daily, no later than morning after driving.
 2. Open-end Pipe Piles:
 - a. Inspect mill certificates.
 - b. Verify welder's certification for pipe pile welding.
 - c. Inspect all welding operations during driving.
 - d. Inspect coating for conformance with specifications.
 3. Concrete Fill for Piles:
 - a. Perform all inspections and testing specified in Section 0330 0.
 4. Vibration Study: During the driving of all piles, including exploratory piles and reaction piles, the laboratory shall monitor and record the vibrations to adjacent and surrounding areas. The laboratory shall employ the services of a vibration specialist engineer who in conjunction with the laboratory shall render complete reports and interpretations of the data obtained, including the possible effects of the measured vibrations on adjacent and surrounding structures. The vibrations shall be measured by means of a portable Siesmograph which directly measures particle velocity (rate of ground movement) in the three mutually perpendicular directions (longitudinal, transverse, and vertical). Probes shall be located at various locations as directed. In addition to daily reports, a complete report of the vibration study, including seismographs, shall be furnished after the conclusion of the driving of the exploratory and reaction piles.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Open-End Steel Pipe Piles

1. 12 3/4" with 0.250" minimum wall thickness steel pipe meeting requirements of ASTM A252 Grade 2. Spiral welded pipe is not allowed.
2. If pipe has a welded seam the welds must conform to A.W.S. Standards for a full penetration butt weld. The welds will be subject to radiography examination.

3. Length: The piles may be driven in section lengths to suit the Contractor's method of installation. Total length of pile shall be as indicated on Drawings.
4. Mill Test Reports and Identification: Certified mill test reports shall be submitted for each piece of pipe supplied. Mill test reports shall contain the following:
 - a. Actual yield and tensile strengths.
 - b. Elongation.
 - c. Chemical analysis.
 - d. Statement that longitudinal welds have been inspected and that welds have complete penetration.
 - e. Results of tensile tests on the longitudinal welds proper. A minimum of four (4) tests per 100 pieces shall be made.
5. Pile Splice During Driving: For splice during driving, provide full-penetration butt welds.
6. Concrete: Concrete for cast-in-place pipe piles shall be concrete having a compressive strength of 3,000 psi at 28 days.
7. Coating for Pipe Piles
 - a. General
 - (1) The upper 15 feet of all piles shall be shop coated. External surface only, of pipe for piles, shall be shop cleaned and coated with a protective coating system as herein further specified.
 - (2) All equipment for cleaning, priming, coating and testing operations shall be located under the cover of building roofs or in accordance with the coating manufacturer's recommendations. Contractor shall only perform coating work under climate conditions recommended by the coating manufacturer.
 - (3) Coating material shall be as specified below.
 - (4) The Engineer shall be notified two (2) working days prior to start of coating operation so that on-site inspection may be scheduled by the Owner and/or by the testing laboratory.
 - b. Workmanship
 - (1) The work shall be done by an experienced organization and with experienced and skilled coating crews working under close, concentrated supervision, qualified to do the most effective job with up-to-date methods in coating of pipe. The supplier shall submit an outline of experience and facilities of the organization to be used in the administration and operations under this specification. This information will be given careful consideration by the Engineer who must approve the organization's qualifications, facilities and coating and handling plans.

- (2) A high degree of workmanship and materials shall be maintained throughout all phases of work so as to provide a high-quality, protective cover to the pipe.
 - (3) Coating shall be applied by mechanical means except for repairs as permitted in these specifications.
- c. Material for Coating Steel Pipe Piles: Pipe piles shall be coated with the coating system below. The coating shall meet the following performance criteria.

Coal tar epoxy system equal to C-200.

Materials

- (1) C-200 U. S. Corps of Engineers Specifications.
- (2) SSPC-Paint-16 Latest Edition.
- (3) Minimum Solids by Volume: >58%.
- (4) Weight per gallon: 10.5 lbs + or - 0.25 lbs.

Execution

- (1) Abrasion: ASTM D-4060 C-17 Wheel-1000 gm load: No more than 180 mg loss after 1,000 cycles.
- (2) Minimum dry film thickness: 18 mil (two coat application).

PART 3 - EXECUTION

3.01 HANDLING

- A. Piles shall be carefully handled so as to prevent damage to pipe and ends of pipe.

3.02 DRIVING

- A. Driving Equipment: All driving equipment shall be subject to the Architect's review, and if at any time, in the Architect's opinion, does not perform its intended task adequately, it shall be rejected.
- B. Hammer: Impact hammers shall be used for piles. Contractor shall provide hammer of capacity required to install piles to design tip elevation.

3.03 DRIVING PROCEDURE

- A. Driving shall be done with fixed leads or templates that shall hold the pile firmly in position and in alignment with the hammer. The top of the pile shall be protected with a standard steel hood or similar-type device which will prevent damage to the pile during driving.

- B. Drive continuously (except for time required for splicing) until proper penetration as determined by the Architect is obtained.
- C. When pile is spliced and lower section of pile is allowed to remain in ground without completing driving of upper section for a period of time which renders the driving of the completed pile impossible without damage to the pile, furnish and drive additional piles as directed by Engineer without additional compensation to Contractor.
- D. Make field splice a sufficient distance above the ground surface to insure viewing and testing of splice prior to splice being driven below ground surface.
- E. Location: Piles shall be driven plumb and accurately into position shown on drawings. A maximum variation not exceeding 2" for each pile will be accepted as fulfillment of contract, providing limiting and controlling conditions make it impossible to maintain more accurately the location indicated on plans.
- F. Defective Piles: Any piles driven too low to permit proper cut-off must be corrected without extra charge. Any pile which is damaged, deflected, or broken, or any pile which cannot be driven to proper tip penetration because of interference by stumps or other underground obstructions shall be immediately removed and replaced with an acceptable substitute pile at the location determined by the Architect.

3.04 PLACING CONCRETE FOR PIPE PILES

- A. Pipe shall be dry prior to placing concrete.
- B. Concrete shall not be placed until the shell has been inspected by the testing laboratory representative immediately prior to filling.

3.05 CUT-OFF

- A. Piles shall be cut-off a neat horizontal plane without damaging pile and the cut-off portions shall be removed from the job site.

END OF SECTION

WATER DISTRIBUTION**SECTION 02510****PART 1 - GENERAL**

1.01 SUMMARY

- A. Scope: The work to be done under this section of the specifications includes all labor, materials, equipment and services necessary to install the water distribution system as indicated on the drawings.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 2 Section "Earthwork" for excavation and backfill required for water system piping and structures.
 - 2. Division 3 Section "Cast-in-Place Concrete" for cast-in-place concrete.
- C. Submittals:
 - 1. General: Submit all data required by and in conformance with the "Submittals" section of these specifications.
- D. Quality Assurance:
 - 1. General: Comply with all requirements and standards of the New Orleans Sewerage and Water Board (S&WB).
 - 2. Environmental Compliance: Comply with applicable portions of local environmental agency regulations pertaining to water systems.
- E. Project Conditions:
 - 1. Site Information: Verify existing utility locations. Verify that water system piping may be installed in compliance with design and referenced standards.
 - a. Locate existing water main system piping and structures that are to be maintained.
- F. Sequencing and Scheduling:
 - 1. Coordinate with other utility work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All water mains, unless otherwise noted, shall be Class 150 Polyvinyl Chloride (PVC) pipe manufactured in accordance with AWWA C900, latest edition, and shall be U. L. listed. Pipe shall be furnished in standard lengths (min. 16 feet) with integral cast bells or couplings using elastomeric gaskets conforming with the C900 specification. Fittings shall be of cast iron conforming to ANSI A21.10 with rubber gasketed joints

conforming to A21.11. Where fittings and valves with mechanical joints are used the bolts and nuts shall be stainless steel.

B. Concrete and Reinforcement:

1. Concrete: Strength at 28 days as shown on the Drawings.
 - a. Cement: ASTM C 150, Type I or II.
 - b. Fine Aggregate: ASTM C 33, sand.
 - c. Coarse Aggregate: ASTM C 33, crushed stone.
 - d. Water: Potable.
2. Reinforcement: Steel conforming to the following:
 - a. Fabric: ASTM A 185, welded wire fabric, plain.
 - b. Reinforcement Bars: ASTM A 615, Grade 60, deformed.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The installation of the PVC pipe shall conform with the manufacturer's recommendations. The trench bottom shall be relatively smooth and free from roots, rocks, etc. The pipe shall be laid on a smooth bed of river sand six inches in depth for the full width of the trench and extending to the top of the pipe. The sand should be placed and consolidated under the pipe haunches to provide adequate side support to the pipe while avoiding displacement and misalignment. The remainder of the trench should be filled with pumped sand well compacted to the grade as required below.
- B. Offsets in water mains over or under drain lines shall be made by the Contractor with ductile iron fittings or ductile offset fittings. All ductile iron fittings shall be mechanical joint with retainer glands. All ductile iron pipe shall be wrapped with 8 mil. polyethylene wrap. Where off-sets are made over the drain, there shall not be less than 3.5 feet of cover over the offset piping. Before the backfilling of trench, the offsets shall be subjected to an in service visual inspection in the presence of the Architect.

3.02 BACKFILL

- A. Backfill material shall be select fill and shall be placed at or near optimum moisture content and compacted according to Section 02300 - Earthwork.
- B. The above backfill material and compaction procedure shall be applied also for any service connections, offsets, etc.
- C. Backfill and compaction procedures shall comply with all requirements of the S&WB.

END OF SECTION

SANITARY SEWERAGE**SECTION 02530****PART 1 - GENERAL****1.01 SUMMARY**

- A. Extent of exterior sanitary sewer system as shown on the drawings.
- B. Refer to Division - 2 Section "EARTHWORK" for excavation and backfill required for exterior sanitary sewer system.
- C. Refer to Division 3 Section for concrete work required for sanitary sewer systems.

1.02 QUALITY ASSURANCE

- A. **Manufacturer's Qualifications:** Firms regularly engaged in manufacture of sanitary sewer system's products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. **Plumbing Code Compliance:** Comply with applicable portions of National Standard Plumbing Code pertaining to selection and installation of sanitary sewer system's materials and products, and the regulations and standards of the New Orleans Sewerage and Water Board (S&WB).
- C. **Environmental Compliance:** Comply with applicable portions of local Environmental Agency regulations pertaining to sanitary sewer systems.

1.03 SUBMITTALS

- A. **Product Data:** Submit manufacturer's technical product data and installation instructions for sanitary sewer system materials and products.
- B. **Record Drawings:** At project closeout, submit record drawings of installed sanitary sewer system piping and products, in accordance with requirements of Division 1.

1.04 SYSTEM DESCRIPTION

- A. **Sanitary Sewer Gravity Pipeline:** Provide mains and laterals of polyvinyl chloride (PVC) plastic pipe.

1.05 DELIVERY AND STORAGE

- A. **Piping:** Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Store plastic piping and jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.
- B. **Metal Items:** Check upon arrival; identify and segregate as to types, functions, and sizes. Store off the ground in manner affording easy accessibility and not causing excessive rusting or coating with grease

or other objectionable materials.

- C. Cement, Aggregate, and Reinforcement: As specified in Division 3 section.
- D. Handling: Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Carry, do not drag, pipe to trench.

PART 2 - PRODUCTS

2.01 PIPELINE MATERIALS

- A. PVC Plastic Gravity Pipe and Fittings: ASTM D3033 or ASTM D3034, SDR 35, with ends suitable for elastomeric gasket joints.
- B. PVC Plastic Gravity Joints and Jointing Material: Joints shall conform to ASTM D3212. Gaskets shall conform to ASTM F477.

2.02 MISCELLANEOUS MATERIALS

- A. Gaskets and Connectors at Manholes: Gaskets for joints between manhole sections shall conform to ASTM C443. Resilient connectors for making joints between manhole and pipes entering manhole shall conform to ASTM C923.

2.03 METAL ITEMS

- A. Frames, Covers and Gratings for Manholes: FSRR-F-621, cast iron.
- B. Manhole Steps: Zinc-coated steel conforming to ANSI A14.3. As an option, plastic or rubber coating pressure-molded to the steel may be used. Plastic coating shall conform to ASTM D4101, copolymer polypropylene. Rubber shall conform to ASTM C443, except shore A durometer hardness shall be 70 plus or minus 5. Aluminum steps or rungs will not be permitted. Steps are not required in manholes less than 4 feet deep.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

- A. General Requirements for Installation of Pipeline: Apply except where specific exception is made in the following paragraphs entitled, "Special Requirements."
- B. Location: The work covered by this section shall terminate at a point approximately 5 feet from the building, unless otherwise indicated. Where the location of the sewer is not clearly defined by dimensions on the drawings, do not lay sewer line closer horizontally than 10 feet to a water line.
- C. Earthwork: Perform earthwork operations in accordance with Section 312000, "EARTHWORK" and as indicated on the drawings.

- D. **Pipe Laying and Jointing:** Inspect each pipe and fitting before and after installation; replace those found defective and remove from site. Provide proper facilities for lowering sections of pipe into trenches. Lay pipe with the bell ends in the upgrade direction. Adjust spigots in bells and tongues in grooves to give a uniform space all around. Blocking or wedging between bells and spigots will not be permitted. Replace by one of the proper dimensions, pipe or fittings that do not allow sufficient space for installation of joint material. At the end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads. Provide batterboards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batterboards for the same purpose.
- E. **Connections to Existing Lines:** Obtain approval from the S&WB before making connection to existing line. Conduct work so that there is minimum interruption of service on existing line.
- F. **Special Requirements:**
1. **Installation of PVC Plastic Piping:** Install pipe and fittings in accordance with paragraph entitled, "General Requirements for Installation of Pipelines" of this section and with the requirements of UNI B5 for laying and joining pipe and fittings. Make joints with the gaskets specified for joints with this piping and assemble in accordance with the requirements of UniBell Plastic Pipe Association (UNI) B5 for assembly of joints. Make joints to other pipe materials in accordance with the recommendations of the plastic pipe manufacturer.
 2. **Cleanouts:** Construct cleanouts of cast iron soil pipe and fittings.
 3. **Concrete Work:** Cast-in-place concrete is included in Division 3 Section.
 4. **Manhole Construction:** Construct base slab of cast-in-place concrete. Make inverts in cast-in-place concrete bases with a smooth-surfaced semi-circular bottom conforming to the inside contour of the adjacent sewer sections. For changes in direction of the sewer and entering branches into the manhole, make a circular curve in the manhole invert of as large a radius as manhole size will permit. Construct manholes in accordance with drawings. Make joints between concrete manholes and pipes entering manholes with the resilient connectors specified for this purpose; install in accordance with the recommendations of the connector manufacturer. Where a new manhole is constructed on an existing line, remove existing pipe as necessary to construct the manhole. Cut existing pipe so that pipe end are approximately flush with the interior face of manhole wall, but not protruding into the manhole. Use resilient connectors as previously specified for pipe connectors to manholes.

3.02 MISCELLANEOUS CONSTRUCTION AND INSTALLATION

A. Metal Work

1. **Workmanship and Finish:** Perform metal work so that workmanship and finish will be equal to the best practice in modern structural shops and foundries. Form iron to shape and size with sharp lines and angles. Do shearing and punching so that clean true lines and surfaces are produced. Make castings sound and free from warp, cold shuts, and blow holes that may impair their strength or appearance. Give exposed surfaces a smooth finish with sharp well-defined lines and arises.
2. Provide necessary rabbets, lugs, and brackets wherever necessary for fitting and support.

3.03 FIELD QUALITY CONTROL

- A. Field Test and Inspections: The Contractor shall perform field tests and provide labor, equipment, and incidentals required for testing. Be able to produce evidence, when required, that each item of work has been constructed in accordance with the drawings and specifications.
- B. All tests and inspections must meet the requirements of the S&WB.
- B. Inspection: Check each straight run of pipeline for gross deficiencies by holding a light in a manhole; it shall show a practically full circle of light through the pipeline when viewed from the adjoining end of line.
- C. Leakage Test: Test lines for leakage by either infiltration tests or exfiltration tests, or by low-pressure air tests. Prior to testing for leakage, backfill trench up to at least lower half of pipe. When necessary to prevent pipeline movement during testing, place additional backfill around pipe sufficient to prevent movement, but leaving joints uncovered to permit inspection. When leakage or pressure drop exceeds the allowable amount specified, make satisfactory correction and retest pipeline section in the same manner. Correct visible leaks regardless of leakage test results.
- D. Infiltration Tests and Exfiltration Tests: Perform these tests for sewer lines made of the specified materials, not only concrete, in accordance with ASTM C969. Make calculations in accordance with the Appendix to ASTM C969.
- E. Low-Pressure Air Tests: Test in accordance with UNI B6. Allowable pressure drop shall be as given in UNI B6. Make calculations in accordance with the Appendix to UNI B67.
- F. Deflection Testing: Perform a deflection test on entire length of installed plastic pipeline on completion of work adjacent to and over the pipeline, including leakage tests, backfilling, placement of fill, grading, paving, concreting, and any other superimposed loads determined in accordance with ASTM D2412. Deflection of pipe in the installed pipeline under external loads shall not exceed 4.5 percent of the average inside diameter of pipe. Determine whether the allowable deflection has been exceeded by use of a pull-through device or a deflection measuring device.
- G. Pull-through Device: This device shall be a spherical, spheroidal, or elliptical ball, a cylinder, or circular sections fused to a common shaft. Circular sections shall be so spaced on the shaft that distance from external faces of front and back sections will equal or exceed diameter of the circular section. Pull-through device may also be of a design promulgated by the Uni-Bell Plastic Pipe Association, provided the device meets the applicable requirements specified in this paragraph, including those for diameter of the device, and that the mandrel has a minimum of 9 arms. Ball, cylinder, or circular sections shall conform to the following:
 - 1. A diameter, or minor diameter as applicable, of 95 percent of the average inside diameter of the pipe; tolerance of plus 0.5 percent will be permitted.
 - 2. Homogeneous material throughout, shall have a density greater than 1.0 as related to water at 39.2 degrees F, and shall have a surface Brinell hardness of not less than 150.
 - 3. Center bored and through-bolted with a 1/4 inch minimum diameter steel shaft having a yield strength of not less than 70,000 pounds per square inch, with eyes or loops at each end for attaching pulling cables.
 - 4. Each eye or loop shall be suitably backed with a flange or heavy washer such that a pull exerted on opposite end of shaft will produce compression throughout remote end.
- H. Deflection Measuring Device: Sensitive to 1.0 percent of the diameter of the pipe being tested and

shall be accurate to 1.0 percent of the indicated dimension. Deflection measuring device shall be approved prior to use.

- I. Pull-through Device Procedure: Pass the pull-through device through each run of pipe, either by pulling it through or flushing it through with water. If the device fails to pass freely through a pipe run, replace pipe which has the excessive deflection and completely retest in same manner and under same conditions.
- J. Deflection Measuring Device Procedure: Measure deflections through each run of installed pipe. If deflection readings in excess of 4.5 percent of average inside diameter of pipe are obtained, retest pipe by a run from the opposite direction. If retest continues to show a deflection in excess of 4.5 percent of average inside diameter of pipe, replace pipe which has excessive deflection and completely retest in same manner and under same conditions.
- K. Field Tests for Concrete: Field testing requirements are covered in Division 3 section.

END OF SECTION

STORM DRAINAGE**SECTION 02630****PART 1 - GENERAL**

1.01 SUMMARY

- A. Scope: This Section includes storm drainage piping and appurtenances.

1.02 RELATED SECTIONS

- A. The following sections contain requirements that relate to this section:
 - 1. Division 2 Section "Earthwork" for excavation and backfill required for storm drainage system piping and structures.
 - 2. Division 3 Section "Cast-in-Place Concrete".

1.03 SUBMITTALS

- A. General: Submit all product data requested by the Architect in conformance with Section - Submittals.

1.04 QUALITY ASSURANCE

- A. Environmental Compliance: Comply with applicable portions of local environmental agency regulations pertaining to storm drainage systems.
- B. Utility Compliance: Comply with all requirements and standards of the local governing utility agency having jurisdiction pertaining to storm drainage systems.

1.05 PROJECT CONDITIONS

- A. Site Information: Verify existing utility locations. Verify that storm drainage system piping may be installed in compliance with original design and referenced standards.
 - 1. Locate existing storm drainage system piping and structures that are to be abandoned and closed.

1.06 SEQUENCING AND SCHEDULING

- A. Coordinate with other utility work.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE PIPE AND FITTINGS

- A. Comply with sizes and specifications as indicated on the drawings.

2.02 DROP INLETS

- A. Refer to drawings.

2.03 CONCRETE AND REINFORCEMENT

- A. Concrete: Portland cement mix, 4,000 psi. at 28 days.
 - 1. Cement: ASTM C 150, Type I or Type II.
 - 2. Fine Aggregate: ASTM C 33, sand.
 - 3. Coarse Aggregate: ASTM C 33, crushed stone or gravel.
 - 4. Water: Potable.
- B. Reinforcement: Steel conforming to the following:
 - 1. Fabric: ASTM A 185, welded wire fabric, plain.
 - 2. Reinforcement Bars: ASTM A 615, Grade 60, deformed.

PART 3 - EXECUTION

3.01 PREPARATION OF FOUNDATION FOR BURIED STORM DRAINAGE SYSTEMS

- A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.
- B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill with clean sand or pea gravel to indicated level.
- C. Shape bottom of trench to fit bottom of pipe. Fill an initial 6" layer with select fill compacted to 98% of maximum dry density at optimum moisture according to ASTM D-698. Dig bell holes at each pipe joint to relieve the bells of all loads and to warrant continuous bearing of the pipe barrel on the foundation. The remainder of the bedding material shall be placed around and up to the finish grade above the pipe barrel, and compacted to the same density specified before.
- D. Foundation lumber consisting of 100% coverage with the use of 2" x 10" boards shall be used to stabilize the trench before installing the bedding material.

3.02 INSTALLATION, GENERAL

- A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of the underground storm drainage system piping. Location and arrangement of piping layout take into account many design considerations. Install the piping as indicated, to the extent practical.
- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's recommendations for use of lubricants, cements, and

other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

- C. Use manholes or catch basins for changes in direction, except where a fitting is indicated. Use fittings for branch connections, except where direct tap into existing sewer is indicated.
- D. Use proper size increasers, reducers, and couplings, where different size or material of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.
- E. Install piping pitched down in direction of flow, at minimum slope of 1 percent, except where indicated otherwise.
- F. Extend storm drainage system piping to connect to building storm drains, of sizes and in locations indicated.

3.03 DROP INLETS

- A. General: Install drop inlets complete with accessories as indicated. Form continuous concrete or split pipe section channel and benches between inlets and outlet. Set tops of frames and covers flush with finish surface where drop inlets occur in pavements. Elsewhere, set tops 3 inches above finish surface, unless otherwise indicated.
- B. Construct brick drop inlets as indicated on the drawings.

3.04 CLEANOUTS

- A. Install cleanouts and extension from drain pipe to cleanout at grade as indicated. Set cleanout frame and cover in concrete block 18 by 18 by 12 inches deep, except where location is in concrete paving. Set top of cleanout 1 inch above surrounding earth grade or flush with grade when installed in paving.

3.05 FIELD QUALITY CONTROL

- A. Testing: Perform testing of completed piping in accordance with regulations of the local governing utility agency having jurisdiction.
- B. Cleaning: Clear interior of piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
 - 1. In large, accessible piping, brushes and brooms may be used for cleaning.
 - 2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.
 - 3. Flush piping between manholes to remove collected debris.
- C. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.
 - 1. Make inspections after pipe between drop inlets and manhole locations has been installed and approximately 2 feet of backfill is in place, and again at completion of project.
 - 2. If inspection indicates poor alignment, debris, displaced pipe, infiltration, or other

defects, correct such defects and reinspect.

END OF SECTION

RIGID PAVEMENT**SECTION 02750****PART 1 - GENERAL**

1.01 SUMMARY

- A. Scope: The work included in this section of the specifications includes all labor, materials, equipment, and services necessary for cement concrete paving as indicated on drawings, including curbs, gutters, walkways, and pavement.
- B. Prepared subbase is specified in "Earthwork" section.
- C. Concrete and related materials are specified in Division 3.

1.02 SUBMITTALS

- A. Provide samples, manufacturer's product data, test reports, and materials' certifications as required in referenced sections for concrete and joint fillers and sealers.

1.03 QUALITY ASSURANCE

- A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
 - 1. Use flexible spring steel forms or laminated boards to form radius bends as required.
 - 2. Coat forms with a nonstaining form release agent that will not discolor or deface surface of concrete.
- B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A 185.
 - 1. Furnish in flat sheets.
- C. Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 60.
- D. Fabricated Bar Mats: Welded or clip-assembled steel bar or rod mats, ASTM A 184. Use ASTM A 615, Grade 60 steel bars, unless otherwise indicated.
- E. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.

- F. Hook Bolts: ASTM A 307, Grade A bolts, internally and externally threaded. Design hook bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- G. Concrete Materials: Comply with requirements of applicable Division 3 sections for concrete materials, admixtures, bonding materials, curing materials, and others as required.
- H. Expansion Joint Materials: Comply with requirements of applicable Division 7 sections for preformed expansion joint fillers and sealers.
- I. Liquid-Membrane Forming and Sealing Curing Compound: Comply with ASTM C 309, Type 1-D, Class A unless other type acceptable to Architect. Moisture loss no more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal.
- J. Bonding Compound: Polyvinyl acetate or acrylic base, rewettable type.
- K. Epoxy Adhesive: ASTM C 881, 2-component material suitable for use on dry or damp surfaces. Provide material "Type", "Grade", and "Class" to suit project requirements.

2.02 CONCRETE MIX

- A. Comply with requirements of applicable Division 3 sections for concrete mix design, sampling and testing, and quality control and as herein specified.
- B. Design mix to produce normal-weight concrete consisting of portland cement, aggregate, water reducing or high-range water-reducing admixture (superplasticizer), air-entraining admixture, and water to produce the following properties:
 - 1. Compressive and Flexural Strength: As indicated on the drawings.
 - 2. Slump Limit: 8 inches for concrete containing high-range water-reducing admixture (superplasticizer); 4 inches for other concrete.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.
- B. Proof-roll prepared subbase surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

3.02 FORM CONSTRUCTION

- A. Set forms to required grades and lines, braced and secured. Install forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
- B. Check completed formwork for grade and alignment to following tolerances:

1. Top of forms not more than 1/8 inch in 10 feet.
 2. Vertical face on longitudinal axis, not more than 1/4 inch in 10 feet.
- C. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

3.03 REINFORCEMENT

- A. Locate, place, and support reinforcement as specified in Division 3 sections, unless otherwise indicated.

3.04 CONCRETE PLACEMENT

- A. General: Comply with requirements of Division 3 sections for mixing and placing concrete, and as herein specified.
1. Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
 2. Place concrete by methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.
 3. Use bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 4. Deposit and spread concrete in a continuous operation between transverse joints as far as possible. If interrupted for more than 1/2 hour, place a construction joint.
 5. When adjacent pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained sufficient strength to carry loads without damage.
- B. Fabricated Bar Mats: Keep mats clean and free from excessive rust, and handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities or replace units as required before placement. Set mats for a minimum 2- inch overlap to adjacent mats.
- C. Curbs and Gutters: Automatic machine may be used for curb and gutter placement at Contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results that meet or exceed minimums specified. Machine placement must produce curbs and gutters to required cross-section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.

3.05 JOINTS

- A. General: Construct expansion, weakened-plane (contraction), and construction joints true to line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.
 - 1. When joining existing structures, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. Weakened-Plane (Contraction) Joints: Provide weakened-plane (contraction) joints, sectioning concrete into areas as shown on drawings. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, as follows:
 - 1. Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.
- C. Construction Joints: Place construction joints at end of placements and at locations where Placement operations are stopped for more than 1/2 hour, except where such placements terminate at expansion joints.
 - 1. Construct joints as shown or, if not shown, use standard metal keyway-section forms.
 - 2. Where load transfer-slip dowel devices are used, install so that one end of each dowel bar is free to move.
- D. Expansion Joints: Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks, and other fixed objects, unless otherwise indicated.
 - 1. Locate expansion joints at 50 feet o.c. for each pavement lane unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint, not less than 1/2 inch or more than 1 inch below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.
 - 3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.
 - 4. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.
- E. Fillers and Sealants: Comply with requirements of applicable Division 7 sections for preparation of joints, materials, installation, and performance.

3.06 CONCRETE FINISHING

- A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.
- B. After floating, test surface for trueness with a 10-ft. straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- C. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2-inch radius, unless otherwise indicated. Eliminate tool marks on concrete surface.
- D. After completion of floating and when excess moisture or surface sheen has disappeared, complete troweling and finish surface as indicated on the drawings as follows:

1. Broom finish by drawing a fine-hair broom across concrete surface perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to Architect.
 2. On inclined slab surfaces, provide a coarse, non-slip finish by scoring surface with a stiff-bristled broom, perpendicular to line of traffic.
- E. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by Architect.

3.07 CURING

- A. Protect and cure finished concrete paving in compliance with applicable requirements of Division 3 sections. Use membrane-forming curing and sealing compound or approved moist-curing methods.

3.08 REPAIRS AND PROTECTIONS

- A. Repair or replace broken or defective concrete, as directed by Architect.
- B. Drill test cores where directed by Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just before final inspection.

END OF SECTION

CAST-IN-PLACE CONCRETE**SECTION 03300****PART 1 – GENERAL****1.01 SUMMARY**

- A. Scope: The work to be done under this section of the specifications includes all labor, materials, equipment, and services necessary for cast-in-place concrete including formwork, reinforcing, mix design, placement procedures, finishes, as indicated on drawings and herein specified.

1.02 CAST-IN-PLACE CONCRETE

- A. Foundations and footings.
- B. Slabs-on-grade.
- C. Columns, Girders, Beams and Elevated Slabs.
- D. Foundation walls.
- E. Equipment pads and bases.
 - 1. Include all concrete pads and supports for mechanical and electrical equipment where indicated. Unless otherwise shown, these pads shall include concrete of the size required to support the equipment purchased and 500 lbs. of reinforcing steel per cubic yard of concrete.

1.03 RELATED SECTIONS

- A. Section 03100 – Concrete Formwork.
- B. Section 03200 – Concrete Reinforcement.
- C. Section 03230 - Post-Tensioned Unbonded Tendons.

1.04 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others if requested by Architect.
- C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structure showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for

openings through concrete structures. Reproductions made from contract drawings will not be allowed. Submit three prints to the Engineer. One will be kept as a record copy and two marked-up prints will be returned to the Architect. The Engineer will have up to ten (10) working days from the time of receipt of the submittal to complete his review and return the submittal to the Architect. Review of shop drawings by the Architect/Engineer will be for general compliance with contract documents. No responsibility will be assumed for correctness of dimensions, quantities or details.

- D. Samples of materials as requested by Architect, including names, sources, and descriptions.
- E. Laboratory test reports for concrete materials and mix design test.
- F. Material certificates in lieu of material laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

1.05 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. American Concrete Institute (ACI) 301-05, "Specifications for Structural Concrete for Buildings."
 - 2. ACI 318, "Building Code Requirements for Reinforced Concrete," current edition.
 - 3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice," current edition.
- B. Concrete Testing Service: The Owner shall employ a testing agency to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at any time during progress of Work. Retesting of rejected materials for installed Work shall be done at Contractor's expense.

PART 2 – PRODUCTS

2.01 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 g/l volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- D. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal.

Provide units that will leave no metal closer than 1-1/2 inches to the plane of the exposed concrete surface.

2.02 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric. Flat sheets only. Rolls are not permitted.
- D. Deformed-Steel Welded Wire Fabric: ASTM A 497.
- E. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.
 - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1).

2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II.
 - 1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.
- B. Fly Ash: ASTM C 618, Type C or F.
- C. Ground-granulated blast furnace-slag conforming to ASTM C 989.
- D. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.
 - 1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
 - 2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.
- E. Lightweight Aggregates: ASTM C 330.
- F. Water: Potable.
- G. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.
- H. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

- I. Water-Reducing Admixture: ASTM C 494, Type A.
- J. High-Range Water-Reducing Admixture: ASTM C 494, Type approved by Architect.
- K. Water-Reducing, Accelerating Admixture: ASTM C 494, Type C or E.
- L. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

2.04 POST-TENSIONED, PRESTRESSED CONCRETE MATERIALS

- A. Comply with ACI 301-05, Chapter 9, Article 9.2 except modify paragraph 9.2.1.4a as follows: Add the following sentences to the end of the paragraph: "Sheathing shall be a continuous hollow tube. Spiral wrapping is not allowed except to splice or repair hollow tube sheathing."
- B. Refer to Section 03230 - Post-Tensioned Unbonded Tendons.

2.05 RELATED MATERIALS

- A. Vapor Retarder: Provide vapor retarder conforming to ASTM E1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape. Material shall be Stego Wrap (15 mil) Vapor Barrier, or approved equal.
- B. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- C. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
 - 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. Polyethylene-coated burlap.
- D. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg/sq. meter when applied at 200 sq. ft./gal.
 - 1. Provide material that has a maximum volatile organic compound (VOC) rating of 350 mg per liter.
- E. Water-Based Acrylic Membrane Curing Compound: ASTM C 309, Type I, Class B.
- F. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.
- G. Underlayment Compound: Free-flowing, self-leveling, pumpable, cement-based compound for applications from 1 inch thick to feathered edges.
- H. Bonding Agent: Polyvinyl acetate or acrylic base.

- I. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.
- J. Waterstops: Dumbbell or centerbulb polyvinyl chloride type conforming to CRD-C572. Size and configuration shall be as indicated on the Drawings.

2.06 PROPORTIONING AND DESIGNING MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Architect for preparing and reporting proposed mix designs. The independent testing agency shall review and approve the proposed mix design.
- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of Work. Do not begin concrete production until proposed mix designs have been submitted to Architect.
- C. Design mixes to provide normal weight concrete or light weight concrete with the 28-day compressive strength as indicated on drawings.
- D. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
 - 1. Not more than 4 inches.
- E. Concrete mix design shall adhere to the following requirements:
 - 1. Portland Cement, ASTM C150, Type I or II: a minimum of 60% of total cementitious material by weight.
 - 2. Flyash, ASTM C 618, Type C or F: If used, 15% of total cementitious material by weight.
 - 3. Ground-granulated blast furnace-slag, ASTM C 989: If used, not to exceed 25% of total cementitious material by weight.
- F. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in Work.

2.07 ADMIXTURES

- A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
- B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 40 deg F (10 deg C) and falling.

2.08 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.
 - 1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes. Ice can be added to concrete so that delivery time can remain at 1-1/2 hours.

PART 3 – EXECUTION

3.01 GENERAL

- A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

3.02 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits:

- 1. Provide Class B tolerances for concrete surfaces exposed to view.
- 2. Provide Class C tolerances for other concrete surfaces.

- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal.

Formwork for Grade Beams and Pile Caps: Provide vertical formwork at the perimeter of grade beams and pile caps. Contractor shall install formwork as described here-in to ensure plumbness of cast vertical surfaces.

- D. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

3.03 VAPOR RETARDER/BARRIER INSTALLATION

- A. General: Under all slabs on grade, place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.
- B. Lap joints 6 inches and seal with manufacturer's recommended mastic or pressure-sensitive tape.

3.04 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.
 - 1. Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Architect.
- D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
 - 1. Install only flat sheets. Rolls are not permitted.
- F. Where not specifically detailed on the drawings, support slab top reinforcing bars with continuous #4 reinforcing bars. Slab top reinforcing bars less than 6 feet in length shall have two support bars and slab top reinforcing bars greater than 6 feet in length shall have support bars spaced at no more than 3'-0" o.c. These bars shall be equally spaced along the length of the slab top reinforcing bars.

3.05 POST-TENSIONED, PRESTRESSED CONCRETE

- A. Comply with ACI 301-05, Chapter 9 and as modified and/or supplemented herein.
- B. Add the following to Article 9.1.1:

Post tensioning system shall be furnished, placed and stressed by a firm specializing in post-tensioned concrete construction. Post-tensioning specialty firm shall meet the approval of Architect. Work to be performed by the post-tensioning specialty firm to include the following:

1. Furnish all labor, materials, tools, plant, equipment and transportation services necessary for the furnishing, installing and stressing of all post-tensioning tendons including support and anchorage reinforcing steel pertinent to the tendon layout and installation, all as required or indicated in Contract Documents and Shop Drawings bearing Architect's review stamp with "Approved" noted.
2. Preparation and submittal to Architect for review, post-tensioning shop drawings as indicated in Article 9.1.2.1.a Shop drawings must bear Seal of a Louisiana registered Civil Engineer.
3. Placing the tendons in forms in proper alignment, profile and location in accordance with placing requirements noted herein.
4. Stressing and anchoring tendons at required forces in accordance with stressing requirement noted herein.
5. Procedures for removal of excess tendon after anchorage if appropriate, and/or procedures for sealing and protecting the tendon and anchorage upon completion of stressing.
6. Post-tensioning specialty firm shall provide the services of a Civil Engineer with Louisiana registration to control the post-tensioning work. Upon completion of this work, the aforementioned Civil Engineer shall submit four (4) copies of a notarized affidavit to Architect certifying that all applicable Code requirements have been complied with. This affidavit shall be submitted in addition to any testing or inspection services specified elsewhere in these specifications; however, the two efforts may be held in concert.

- C. Add the following to Article 9.2.1:

1. Article 9.2.1.2.1: Tendons shall be manufactured in such sequence and quantity as to avoid lengths storage at jobsite.
2. Article 9.2.1.2.2: Tendons shall be coiled for delivery in 3'-6" minimum diameter coils, securely tied, and tagged for identification. Tags shall show location of tendon in forms in conformance with shop drawings. The prestressing steel manufacturer's heat number from which tendon was fabricated shall also be indicated on tag.

- D. Add the following to Article 9.3.3.1:

1. Article 9.3.3.1.2: Placing of post-tensioning tendons shall be performed by experienced personnel who have successfully completed projects of similar scope and magnitude.
2. Article 9.3.3.1.3: In slabs, tendons shall be supported at the vertical location as shown on shop drawings by means of steel wire chairs of correct height. Where slab exposure is such that rusting would be damaging, chairs shall be fabricated from galvanized wire or otherwise protected. Chairs shall be located under each tendon at the column lines and at point mid-way between column lines, or as noted, and tendons shall follow an approximate parabolic curve between the chairs.

Additional chairs shall be supplied at intermediate points as required to maintain required vertical curve. All chairs shall be tied with wire to tendon to prevent dislodging during concreting operations.

3. Article 9.3.3.1.4: Tendons in two-way slabs shall be maintained in a straight line, laterally, between bearing plates and be tied at intersections where they contact tendons in perpendicular direction by a standard "figure-eight" cross tie of #16, black, annealed tie-wire. Support steel equivalent to #4 bars of 4' o.c. perpendicular to tendons shall be provided, and tied to the tendons to prevent lateral movement during concreting operations.
4. Article 9.3.3.1.5: Tendons in slabs may be displaced no more than 1'-3" laterally to miss openings in the slab, as long as this occurs no more than twice on any single tendon, and as long as angular offset does not exceed 1 in 12. If a displacement of more than 1'-3" is required, bearing plates shall be shifted so that tendon misses the opening, at direction of Architect.
5. Article 9.3.3.1.6: In beams, support steel shall be placed in primary members to maintain tendon profile and horizontal alignment.

E. Add the following to Article 9.3.4.3:

1. Concrete Cylinder Strength at Application of Prestressing Force: Not less than 3,000 psi. Stressing of post-tensioning Tendons: Shall be performed by experienced personnel in the presence of the independent testing laboratory representative.
2. Certified calibration data shall accompany each hydraulic jack. Stressing equipment shall provide for attachment of a test gage which can be read simultaneously with jack hydraulic gage. Certified test gage calibration data shall accompany each test gage.
3. The cause of any difference between calculated and measured elongation which exceeds 5% shall be ascertained and corrected.
4. The prestressing steel shall be anchored at an initial or anchor force or stress that will result in the ultimate retention of the working or effective force shown on the plans. In no case may steel be tensioned above 80% of specified ultimate strength of prestressing steel. Anchor force shall not exceed 70% of specified ultimate strength of prestressing steel. Anchor forces shall be verified when necessary by lift-off reading.
5. Final average stress in tendon shall not exceed 60% of specified ultimate strength of prestressing steel. In arriving at final average working stress, it is assumed that loss in prestress due to creep and shrinkage of concrete, creep of steel and elastic shortening from sequence stressing shall be 10% of the specified ultimate strength of prestressing steel unless there is data to prove otherwise.
6. Safety precautions shall be taken to prevent workers from standing behind the stressing jacks during stressing operation.

3.06 JOINTS

- A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.
- B. Provide keyways as indicated on drawings or at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.

- C. Provide dumbbell or centerbulb type waterstops at all construction joints in areas indicated on the drawings.
- D. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.
- E. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- F. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Joint fillers and sealants are specified in Division 7 Section "Joint Sealants."

3.07 INSTALLING EMBEDDED ITEMS

- A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.
- B. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.08 PREPARING FORM SURFACES

- A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.
 - 1. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.
 - 2. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.09 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
 - 1. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

- C. **Placing Concrete in Forms:** Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.
- D. **Placing Concrete Slabs:** Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
 2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 3. Maintain reinforcing in proper position on chairs during concrete placement.
- E. **Cold-Weather Placement:** Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- F. **Hot-Weather Placement:** When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.
1. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Architect.

3.10 FINISHING FORMED SURFACES

- A. **Rough-Formed Finish:** Provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished Work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
- B. **Smooth-Formed Finish:** Provide a smooth-formed finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.

- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces.

3.11 MONOLITHIC SLAB FINISHES

- A. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, Portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.

- B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.

1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

- C. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.

1. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance.

- D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.

- E. Nonslip Broom Finish: Apply a nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.

- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.13 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
 - 1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- B. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.
 - 1. Provide moisture curing by the following methods:
 - a. Keep concrete surface continuously wet by covering with water.
 - b. Use continuous water-fog spray.
 - c. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4-inch lap over adjacent absorptive covers.
 - 2. Provide moisture-retaining cover curing as follows:
 - a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and Curb as follows:
 - a. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - b. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
- C. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

- D. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.
 - 1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

3.14 REMOVING FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 12 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Comply with ACI 301-05, Chapter 2, Article 2.3.3 – Reshoring and Backshoring.

3.15 REUSING FORMS

- A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable to Architect.

3.16 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to Architect.
- B. Mix dry-pack mortar, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.
 - 1. Cut out honeycombs, rock pockets, voids, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
 - 2. For surfaces exposed to view, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

- C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
1. Repair concealed formed surfaces, where possible, containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.
1. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
 2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
 3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Architect.
 4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The Owner will employ a testing agency to perform tests and to submit test reports.
- B. Sampling and testing for quality control during concrete placement shall include the following, as directed by Architect.
1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 2. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 3. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.

5. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
 6. Compressive-Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yd. plus additional sets for each 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 7. Post-tensioned, Prestressed Concrete: Perform all testing and inspection specified in Article 3.5.
- C. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
 - D. Test results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
 - E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
 - F. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

END OF SECTION

MORTAR**SECTION 04100****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Mortar for masonry.
- B. Grout for reinforced masonry, bond beams, lintels, etc.

1.02 RELATED SECTIONS

- A. Section 04200 - Unit Masonry: Installation of mortar and grout.
- B. Section 08112 - Steel Frames: Grouting steel door frames.

1.03 REFERENCES

- A. ASTM C5 - Quicklime for Structural Purposes.
- B. ASTM C144 - Aggregate for Masonry Mortar.
- C. ASTM C150 - Portland Cement.
- D. ASTM C207 - Hydrated Lime for Masonry Purposes.
- E. ASTM C270 - Mortar for Unit Masonry.
- F. ASTM C404 - Aggregates for Masonry Grout.
- G. ASTM C476 - Grout for Masonry.
- H. ASTM C780 - Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
- I. ASTM C1019 - Method of Sampling and Testing Grout.
- J. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Include design mix, indicate method used, required environmental conditions, and admixture limitations.

- C. Mix Design: Independent testing laboratory, hired by the Contractor shall provide mix design. Mix design shall include certified test results that portland cement will be “low alkali” as specified herein.
- D. Certificates: Submit certificates attesting to compliance with applicable specifications for grades, types, classes, etc. reports on mortar indicating conformance to ASTM C270.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store protect and handle products to site under provisions of Section 01600.
- B. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland Cement: ASTM C150, Type I, except Type III may be used in cold weather.
- B. Mortar Aggregate: ASTM C144, standard masonry type.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Quicklime: ASTM C5, non-hydraulic type.
- E. Water: Clean and potable.
- F. Grout Aggregate: ASTM C404.

2.02. MORTAR MIXES

- A. Mortar: ASTM C270, Type S utilizing the Proportion Method to achieve 1800 psi strength at load-bearing CMU work, and Type N to achieve 750 psi at exterior brick
 - 1. No chlorides or masonry cements permitted.
 - 2. Limit cementitious materials in mortar to portland cement-lime.
 - 3. Approved: Cement/Lime Mortamix® by Holnam, Inc. or Eaglebond by Blue Circle Cement.

2.03 MORTAR MIXING

- A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270 and written instructions of the manufacturer of prepackaged cement/lime mix.
- B. Do not use anti-freeze compounds to lower the freezing point of mortar.
- C. If water is lost by evaporation, re-temper only within two hours of mixing.
- D. Use mortar within two hours after mixing at temperatures of 80 degrees F, or two-and-one-half hours at temperatures under 50 degrees F.

2.04 MORTAR MIX TESTS

- A. Test mortar in accordance with Sections 01410 and 04200.
- B. Testing of Mortar Mix: In accordance with ASTM C780 for compressive strength, consistency, mortar aggregate ratio, and water content and slump.

2.05 GROUT MIXES

- A. Bond Beams and Lintels: 3000 psi strength at 28 days; 7-8 inches slump; mixed in accordance with ASTM C476 Course grout.

2.06 GROUT MIXING

- A. Thoroughly mix ingredients in quantities needed for immediate use in accordance with ASTM C476 and of consistency (fine or coarse) at time of placement which will completely fill all spaces to receive grout.
 - 1. Use fine grout in grout spaces less than 2" in horizontal direction, unless otherwise indicated.
 - 2. Use coarse grout in grout spaces 2" or more in least horizontal dimension, unless otherwise indicated.
- B. Add admixtures in accordance with manufacturer's instructions. Provide uniformity of mix.
- C. Do not use anti-freeze compounds to lower the freezing point of grout.

2.07 GROUT MIX TESTS

- A. Test grout in accordance with Section 01410.
- B. Testing of Grout Mix: In accordance with ASTM C1019.
- C. Test mortar mix for compressive strength and slump.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install mortar in accordance with ASTM C780 and to the requirements of the specific masonry section.
- B. Brace masonry for wet grout pressure.
- C. Work grout into masonry cores and cavities to eliminate voids.
- D. Do not displace reinforcement while placing grout.
- E. Remove grout spaces of excess mortar.

END OF SECTION

UNIT MASONRY**SECTION 04200****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Concrete masonry units; load bearing.
- B. Face Brick, solid multi wythe application.
- C. Cast stone units are specified in Section 04720.
- D. Reinforcement, anchorage, and accessories.

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Section 05500 - Metal Fabrications: Placement of loose steel lintels.
- B. Section 07600 - Roofing and Sheet Metal: Placement of reglets for flashings.
- C. Section 08410 and 08900 - Aluminum glazed Systems: Placement of window anchors.
- D. Section 10200 - Louvers

1.03 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Division 3 - Concrete Formwork: Dove-tail anchors and sheetmetal reglets (for membrane flashing) to be cast in concrete.

1.04 RELATED SECTIONS

- A. Section 04100 - Mortar: Mortar and grouts.
- B. Section 05500 - Metal Fabrication: Loose steel lintels.
- C. Section 07900 - Joint Sealers: Rod and sealant at control and expansion joints.
- D. Section 09260 - Gypsum Board Systems: Sheathing at exterior walls.

1.05 REFERENCES

- A. ANSI/ASTM C55 - Concrete Building Brick.
- B. ANSI/ASTM A82 - Cold-Drawn Steel Wire for Concrete Reinforcement.
- C. ANSI/ASTM C216 - Facing Brick (Solid Masonry Units Made From Clay or Shale).

- D. ASTM C62 - Building Brick (Solid Masonry Units Made From Clay or Shale).
- E. ASTM C90 - Hollow - Load Bearing Concrete Masonry Units.
- F. ASTM C145 - Solid Load Bearing Concrete Masonry Units.
- G. ASTM C129 - Non-Load Bearing Concrete Masonry Units.
- H. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specification for Cold Weather Masonry Construction.
- I. UL - Underwriters' Laboratories.

1.06 SUBMITTALS

- A. Submit product data provisions of Section 01300.
- B. Submit product data for each type of masonry unit and fabricated wire reinforcement, and ties.
- C. Submit drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades.
 - 1. Provide setting drawings, templates and directions for the installation of dove tail slots and other anchorages installed as a unit of work under other sections.
 - 2. Shop drawings for stone trim in form of cutting and setting drawings showing sizes, profiles, and locations of each stone trim unit required.
 - 3. Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcing" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.
- D. Submit samples under provisions of Section 01300.
- E. Submit four (4) samples of face brick units to illustrate color, texture and extremes of color range.
 - 1. Include size variation data verifying that actual range of sizes for brick falls within ASTM C 216 dimension tolerances for brick where modular dimensioning is indicated.
- F. Quality Control Submittals
 - 1. Mix Designs: Submit mix design for each mortar and grout mix, for indicated strength.
 - 2. Field Test Reports: Submit certification that materials conform to requirements of Contract Documents.

3. Certificates: Submit copies for each type of product indicated, submit manufacturer's specifications and other data needed to prove compliance with the specified requirements.
- G. Submit material certificates for the following signed by manufacturer and Contractor certifying that each material complies with requirements.
1. Each different cement product required for mortar and grout including name of manufacturer, brand, type, and weight slips at time of delivery.
 2. Each material and grade indicated for reinforcing bars.
 3. Each type and size of joint reinforcement.
 4. Each type and size of anchors, ties, and metal accessories.
- H. Submit material test reports from a qualified independent testing laboratory employed and paid by Contractor indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:
1. Mortar complying with property requirements of ASTM C270.
 2. Grout mixes. Include description of type and proportions of grout ingredients.
 3. Masonry units complying with specified tests.
- I. Submit cold-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.
- J. Submit hot-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.

1.07 QUALIFICATIONS

- A. Installer: Company specializing in performing the work of this Section with minimum 5 years documented experience.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products to site under provisions of Section 01600.
- B. Deliver masonry materials to project in undamaged condition.
- C. Store and handle masonry units off the ground, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.
- D. Store cementitious materials off the ground, under cover and in a dry location.

- E. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- F. Store masonry accessories including metal items to prevent corrosion and accumulation of dirt and oil.

1.09 PROJECT CONDITIONS

- A. Protection of Masonry: During erection, cover top of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 - 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Remove immediately any grout, mortar, and soil that come in contact with such masonry
 - 1. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes from mortar droppings.
- D. Cold-Weather Construction: Comply with referenced unit masonry standard for cold-weather construction and the following:
 - 1. Do not lay masonry units that are wet or frozen.
 - 2. Remove masonry damaged by freezing conditions.
- E. Hot-Weather Construction: Comply with referenced unit masonry standard.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate the masonry work with installation of window anchors and other embedded items.

1.11 QUALITY ASSURANCE

- A. Fire-Rated Masonry: Wherever a fire-resistance classification is shown or scheduled for unit masonry construction (4-hour, 3-hour, and similar designations), comply with the requirements for materials and installation established by the American Insurance Association and other governing authorities for the construction shown.
- B. Single Source Responsibility: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces. Also obtain all mortar materials from a single source.
- C. Job Mock-Up: Prior to installation of masonry work, erect sample wall panel mock-up using materials, bond and joint tooling shown or specified for final work. Provide special features as directed for caulking and contiguous work. Build mock-up at the site, where directed, of full thickness indicating the proposed range of color, texture and workmanship to be expected in the completed work. Obtain Architect's acceptance of visual qualities of the mock-up before start of masonry work. Retain mock-up during construction as a standard for judging completed masonry work. Do not alter, move or destroy mock-up until work is completed. Provide mock-up panel for face brick construction.
 - 1. Size: 4' x 4' of wall area selected by the Architect to include brick and decorative concrete block incorporating stone elements.
 - 2. Retain mock-up during construction as a standard for judging completed masonry work. Do not alter, move or destroy mock-up until work is completed. Provide mock-up panel for face brick construction.
- D. Construct masonry in strict accordance with ACI 531.1, "Specification for Concrete Masonry Construction" unless otherwise indicated.
- E. Preinstallation Conference: Conduct conference at project site to comply with requirements of Division 1 Section 01200 - Project Meetings.

PART 2 - PRODUCTS

2.01 BRICK UNITS

- A. Face Brick: ANSI/ASTM C216, Type FBS, Grade SW.
 - 1. Size, texture and color: Match existing
- B. Special Bricks: For sills, caps, and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncured or unfroged units with similar texture on all exposed sides.
- C. Provide special molded shapes where indicated and for application requiring brick of form, size and finish on exposed surfaces which cannot be produced from standard brick sizes by sawing.

2.02 CONCRETE MASONRY UNITS

- A. Hollow and Solid Load Bearing Block Units: ASTM C90, Grade N, Type I - Moisture Controlled; lightweight classification except as follows:
 - 1. Unit Compression Strength: Provide units with minimum average net-area compressive strength of 1,900 psi.
- B. Masonry Units Size: Nominal modular size with face dimension of 8 x 16 inches. Provide special units for 90° corners, bond beams and lintels.

2.03 REINFORCEMENT AND ANCHORAGE

- A. Adjustable Masonry Veneer Anchors (General): Provide two-piece assemblies allowing vertical or horizontal differential movement between wall and framework parallel to plane of wall, but resisting tension and compression forces perpendicular to it.
 - 1. Structural Performance Characteristics at Metal Studs: Capable of withstanding a 100 lbf load in either tension or compression without deforming over, or developing play in excess of 0.05 inch.
- B. C. Single Wythe Joint Reinforcement: Ladder type; hot dip galvanized after fabrication, cold-drawn steel conforming to ANSI/ASTM A82, 3/16 inch side rods with No. 9 cross ties not more than 16" o.c.
- C. Multiple Wythe Joint Reinforcement: Ladder type; with 3/16 inch rectangular adjustable wall ties at 16" o.c. with pintle-eye connection for single brick masonry wythe, without moisture drip; hot dip galvanized after fabrication cold-drawn steel conforming to ANSI/ASTM A82, 3/16 inch side rods with No. 9 cross ties; wall tie shall be sized to extend 2" into bed joints of masonry veneer.
 - 1. Equal to Dur-O-Wall "Ladur-Eye".
- D. Reinforcing Steel: ASTM A615, 60 ksi yield grade, deformed billet bars.
- E. Strap Anchors: Bent steel shape, 1-1/4" wide, not less than 16 gage thick, galvanized to ASTM A123 G90 finish.
- F. Dovetail Anchors: Equal to Hohmann and Barnard No. 305 slots with #315 3/16" wire anchors with 12 gauge dovetail end of required length to be embedded in bed joints to within 1" of masonry face, fabricated of 22 gage galvanized steel. Provide fillers for slots during concrete pours.
- G. Flexible Metal Anchors: Where masonry is shown or specified to be anchored to structural framework, provide 2-piece anchors which will permit horizontal and vertical movement of masonry but will provide lateral restraint.

1. For anchorage to steel framework, provide 2-piece anchor with 16 gauge galvanized channel slot or 3/8" bar stock flanges for welding to steel and vee-shaped 3/16" wire tie section sized to extend 2" into bed joints of masonry veneer.
 2. For anchorage to concrete or precast concrete framework, provide manufacturer's standard anchors with dovetail anchor section and triangular-shaped wire tie section sized to extend within 1" of masonry face.
- H Finish: Hot-dip galvanized after fabrication to comply with ASTM A153, Class B2 (minimum 1.50 oz. of zinc per square foot).
1. Provide above for all reinforcement, ties and anchors at exterior wall construction except mill galvanized at interior partitions not in conjunction with exterior walls, and stainless steel and masonry veneer anchor ties.
- I Manufacturers: Subject to compliance with requirements, provide products of one of the following:
1. AA Wire Products Co.
 2. Dur-O-Wall, Inc.
 3. Heckman Building Products, Inc.
 4. Hohmann & Barnard, Inc.
 5. National Wire Products Corp.

2.04 ACCESSORIES

- A. Non-Metallic Expansion Joint Strips: Premolded, flexible cellular neoprene rubber filler strips complying with ASTM D 1056, Grade RE41E1, capable of compression up to 50%, of width and thickness indicated.
- B. Premolded Control Joint Strips: Material as follows, designed to fit standard sash block and to maintain lateral stability in concrete masonry wall; size and configuration as indicated.
 1. Styrene-butadiene rubber compound complying with ASTM D 2000, Designation 2AA-805.
- D. Weep Holes: Full head joints.
- E. Cleaning Solutions: Non-acidic, not harmful to masonry work or adjacent materials. Special care shall be taken to keep white concrete masonry units from turning a color as a result of washing solutions applied to adjacent brick surfaces; products shall be equal to products manufactured by ProSoCo, Inc.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.
- D. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied to other Sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.
- C. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.
 - 1. Use dry cutting saws to cut concrete masonry units.

3.03 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Lay brick units in bond as indicated. Course three brick units and three mortar joints to equal 8 inches. Form concave mortar joints.
- D. Lay concrete masonry units in running bond, unless otherwise indicated on the drawings.. Course one unit and one mortar joint to equal 8 inches. Form concave mortar joints in all joints except provide cut joints flush in concrete masonry back-up on the cavity side to provide a even surface for application of cavity insulation.

3.04 PLACING AND BONDING

- A. Blending of Face Brick: After bricks are delivered to designated areas, the band on each of four cubes should be broken and the brick from all four cubes shall be used at the same time.
- B. Wetting Clay Brick: Wet brick made from clay or shale which have ASTM C 67 initial rates of absorption (suction) of more than 30 grams per 30 sq. in. per minute. Use wetting methods which insure each clay masonry unit being nearly saturated but surface dry when laid.

- C. Do not wet concrete masonry units.
- D. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- E. Lay hollow masonry units with face shell bedding on head and bed joints.
 - 1. With full mortar coverage on horizontal and vertical face shells.
 - 2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
 - 3. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.
- F. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- G. Remove excess mortar as Work progresses.
- H. Interlock intersections and external corners except on stack bond.
- I. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- J. Perform jobsite cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- K. Isolate top joint of masonry partitions from horizontal structural shelf angles compressible joint filler, backing rod and caulking.
- L. Nonbearing Interior Partitions: Build full height of story to underside of solid floor or structure above and install pressure-relieving joint filler in joint between top of partition and underside of strut above.
- M. Stopping and Resuming Work: Rack back 1/2-unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.
- N. Built-In Work: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
 - 1. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
 - 2. Fill cores in hollow concrete masonry units with grout 3 courses (24 inches) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.05 REINFORCEMENT AND ANCHORAGES - GENERAL

- A. General: Provide anchor devices of type indicated.
- B. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
 - 1. Provide an open space approximately 1/2 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and caulk with approved butyl sealant and backer rod per Section 07900.
 - 2. Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure or embedded in structure.
 - 3. Space anchors as indicated, but not more than 16" o.c. vertically and 16" o.c. horizontally.
- C. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, pipe enclosures and other special conditions.

3.06 REINFORCEMENT AND ANCHORAGES - SINGLE WYTHE MASONRY

- A. Install horizontal joint reinforcement 16 inches o.c.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place joint reinforcement continuous in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches. Extend minimum 16 inches each side of openings.

3.07 LINTELS

- A. Provide masonry lintels where shown and wherever openings of more than 1'-0" for brick size units and 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide precast or formed in place masonry lintels. Cure precast lintels before handling and installation. Temporarily support formed-in-place lintels.
 - 1. For hollow concrete masonry unit walls, use specially formed U-shaped lintel units with reinforcement bars placed as shown filled with coarse grout.
- B. Install loose steel and poured U-block lintels over openings as indicated on Drawings.
- C. Do not place mortar within 1/2 inch of either side of steel lintels to allow for expansion.
- D. Allow masonry lintels to attain specified strength before removing temporary supports.

- E. Maintain minimum 8 inch bearing on each side of opening.
- F. Openings Up To 42 Inches Wide): Place two, No. 3 reinforcing bars 1 inch from bottom web.
- G. Openings From 42 Inches Up To 78 Inches Wide: Place two, No. 5 reinforcing bars 1 inch from bottom web.
- H. Openings Over 78 Inches: Reinforce openings as detailed on Drawings.
- I. Use single piece reinforcing bars only.
- J. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- K. Place and consolidate grout fill without displacing reinforcing.

3.08 GROUTED COMPONENTS

- A. Reinforce bond beam with 2, bars, placed as scheduled.
- B. Reinforce pilaster as scheduled.
- C. Lap splices minimum 24 bar diameters.
- D. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- E. Place and consolidate grout fill without displacing reinforcing.
- F. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.09 EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcement through control and expansion joints.
- B. Install preformed control joint filler in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- C. Size control joint in accordance with Section 07900 for sealant performance.
- D. Form expansion joints as detailed.
- E. Joint Spacing: If location of joints is not shown, place vertical joints spaced not to exceed 30'-0" o.c. Locate joints at point of natural weakness in the masonry work.

- F. Build in horizontal pressure-relieving joints where indicated; construct jointly by inserting nonmetallic 50 percent compressible joint filler of width required to permit installation of sealant and backer rod specified in Section 07900.
 - 1. Locate horizontal pressure-relieving joints beneath shelf angles supporting masonry veneer.

3.10 BUILT-IN WORK

- A. As work progresses, build in metal door and glazed frames window frames and other items furnished by other Sections.
- B. Build in items plumb and level.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build in organic materials subject to deterioration.

3.11 TOLERANCES

- A. Maximum Variation From Unit to Adjacent Unit: 1/32 inch.
- B. Maximum Variation From Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.
- C. Maximum Variation From Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- D. Maximum Variation From Level Coursing: 1/8 inch in 3 feet and 1/4 inch in 10 feet; 1/2 inch in 30 feet.
- E. Maximum Variation of Joint Thickness: 1/8 inch in 3 feet.
- F. Maximum Variation From Cross Sectional Thickness of Walls: 1/4 inch.

3.12 CUTTING AND FITTING

- A. Obtain Architect approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.13 CLEANING

- A. Clean work under provisions of Section 01700.
- B. Clean exposed brick masonry surfaces as recommended by BIA Technical Notes 20 "Cleaning Clay Products Masonry".

- C. Clean exposed CMU masonry by dry brushing at the end of each day's work and after final pointing to remove mortar spots and droppings.
- D. Remove excess mortar and mortar smears.
- E. Replace defective mortar. Match adjacent work.
- F. Clean soiled surfaces with cleaning solution.
- G. Use non-metallic tools in cleaning operations.

END OF SECTION

MASONRY RESTORATION AND CLEANING**SECTION 04525****PART 1 - GENERAL**

1.01 DESCRIPTION OF WORK

- A. Repairing damaged clay masonry.
- B. Removal and rebuilding of clay masonry.
- C. Cleaning exposed clay masonry surfaces with detergent or manufactured proprietary brick cleaner equal to ProsoCo BioWash and low water pressure (150 psi) cleaning methods. Use proprietary cleaning agents where scrubbing does not remove the contaminant.
- D. Tuckpointing mortar joints where missing, voids and powdery joints exist. Bid shall be based on the following percentage of area requiring tuckpointing
 - 1. Brown building – 20%
 - 2. Yellow Building – 10%
 - 3. Gatehouse Building – 15%
 - 4. Carriage House – 35%
- E. At movement type cracks in walls, cut out the crack 5/8" and caulk with one-part urethane sealant. At larger cracks, no cut out required, but install backer rod and one-part urethane sealant. Comply with Section 07900
- F. At movement type cracks at lintels, cut out the crack 1/2". Exposed steel shall be cleaned and primed with exterior metal primer equal to SW DTM Primer and caulk with one-part urethane sealant
- G. All mortar shall be "soft" type complying with Vieux Carre' Masonry Guidelines

1.02 RELATED SECTIONS

- A. Section 07900 - Joint Sealants: Joint sealants.

1.03 DEFINITIONS

- A. Repointing: The process of raking out (removing) mortar and replacing it with new mortar.
- B. Pointing: The process of placing new mortar in existing joint spaces, which have previously been raked out. This term does not include the raking out process.
- C. Tuckpointing: The process of touching up existing mortar joints by filling in recesses with new mortar, without first raking out the joints.

1.04 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements.
- C. Samples for verification purposes, prior to mock-up erection, of the following:
 - 1. Each new exposed masonry material to be used for replacing existing materials. Include in each set of samples the full range of colors and textures to be expected in the completed Work.
 - a. Provide straps or panels containing not less than four brick units.
 - 2. Each type of mortar for pointing and masonry rebuilding and repair in the form of sample mortar strips six (6) inches long by 1/2 inch wide set in aluminum or plastic channels.
 - 3. Each type of repair anchor.
 - 4. Each type of chemical cleaning material.
- D. Restoration program for each phase of the restoration process, including protection of surrounding materials on building and site during operations. Describe in detail the materials, methods, and equipment to be used for each phase of the restoration work.
 - 1. If alternative methods and materials to those indicated are proposed for any phase of restoration work, provide a written description, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this project.
- E. Cleaning program indicating cleaning process, including protection of surrounding materials on building and site, and control of runoff during operations. Describe in detail the materials, methods and equipment to be used.
 - 1. If alternative methods and materials to those indicated are proposed for any phase of cleaning work, provide a written description, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this project.

1.05 QUALITY ASSURANCE

- A. Restoration Specialist: Engage an experienced masonry restoration and cleaning firm that has specialized in the types of work required for this project. At Contractor's option, the work may be divided between two specialist firms: one for cleaning work and one for repair work.

1. Field Supervision: Require restoration specialist firm to maintain an experienced full-time supervisor on the job site during times that clay masonry restoration and cleaning are in progress.
- B. Chemical Manufacturer Qualifications: A company regularly engaged in producing masonry cleaning compounds, which have been used on similar projects with successful results, and that retains factory-trained representatives who are available for consultation and jobsite inspection and assistance at no additional cost.
- C. Field-Constructed Mock-ups: Prior to starting general masonry restoration, prepare the following sample panels on the building where directed by the Architect. Prepare sample panels using same materials and methods proposed for the work, and under same weather conditions to be expected during the restoration. Obtain Architect's acceptance of visual qualities before proceeding with masonry restoration. Retain acceptable panels in an undisturbed condition, suitably marked, during construction as a standard for judging the completed work.
1. Notify Architect one week in advance of dates and times when sample panels will be prepared.
 2. Cleaning: Demonstrate the materials and methods to be used for cleaning each type of masonry surface and condition on sample panels approximately 25 sq. ft. in area.
 - a. Test materials and methods on samples of adjacent nonmasonry materials for possible reaction with cleaning materials, except where materials and methods are known to have a deleterious effect on such materials.
 - b. Allow a waiting period of the duration indicated, but not less than 7 calendar days, after completion of sample cleaning to permit a study of sample panels for negative reactions.
 3. Tuckpointing: Prepare two separate sample areas approximately 3 feet high by 6 feet wide for each type of repointing required, one for demonstrating methods and quality of workmanship expected in removing mortar from joints and the other for demonstrating quality of materials and workmanship expected in pointing mortar joints.
 4. Masonry Repair: Prepare sample panels of size indicated for each type of masonry material indicated to be patched, rebuilt, or replaced. Erect sample panels into an existing wall, unless otherwise indicated, to demonstrate the quality of materials and workmanship.
- D. Preconstruction Testing: Contractor shall employ, at his own expense, an independent testing agency experienced in performing the type of tests indicated and acceptable to Architect to perform the preconstruction tests.
1. Preconstruction brick tests involve testing each type of existing brick indicated for replacement and each type of proposed replacement brick for properties indicated

below using the sampling and testing methods in ASTM C 67. Carefully remove existing bricks from locations designated by Architect.

- a. Compressive strength.
 - b. 24 hour cold water absorption.
 - c. 5 hour boil absorption.
 - d. Saturation coefficient.
 - e. Initial rate of absorption (suction).
2. Preconstruction mortar tests involve testing each type of existing mortars where restoration work is indicated. Tests shall identify existing materials and their proportions to establish mortar for use for the project
- E. Source of Materials: Obtain materials for masonry restoration from a single source for each type material required (face brick, cement, sand, etc.) to ensure a match of quality, color, pattern, and texture.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Carefully pack, handle and ship masonry units and accessories strapped together in suitable packs or pallets, or in heavy-duty cartons. Unload and handle to prevent chipping and breakage.
- B. Deliver other materials to project site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.
- C. Protect masonry restoration materials during storage and construction from rain, snow, and ground water, and from staining and mixing with soil and other materials.
- D. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

1.07 PROJECT CONDITIONS

- A. Clean masonry surfaces only when air temperature is 40 deg. F. (4 deg.C) and above and will remain so until masonry has dried out, but for not less than seven (7) days after completion of cleaning.
- B. Do not repoint mortar joints or repair masonry unless air temperature is between 40 deg. F. (4 deg. C) and 80 deg. F. (27 deg. C) and will remain so for at least 48 hours after completion of work.
- C. Prevent grout or mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Immediately remove grout and mortar in contact with exposed masonry and other surfaces.
- D. Protect sills, ledges, and projections from mortar droppings.

1.08 SEQUENCING/SCHEDULING

- A. Order replacement materials at the earliest possible date to avoid delaying completion of the work.
- B. Perform masonry restoration work in the following sequence:
 - 1. Repair existing masonry, including replacing existing masonry with new masonry materials.
 - 2. Rake out existing mortar from joints indicated to be repointed.
 - 3. Repoint existing mortar joints of masonry indicated to be restored.
 - 4. Clean masonry surfaces. Remove plants, paint, and soot prior to general cleaning.
 - 5. Point existing mortar joints of masonry indicated to be restored.

PART 2 - PRODUCTS

2.01 MASONRY MATERIALS

- A. Face Brick and Accessories: Provide face brick and accessories, including units for lintels, arches, corners, and other specially ground, cut or sawed shapes where required to complete masonry restoration work.
 - 1. Provide units with color, surface texture, and size to match existing brick work and with physical properties not less than those determined from preconstruction testing of selected existing units.

2.02 MORTAR MATERIALS

- A. Mortar Materials and Proportions:
 - 1. Portland Cement: ASTM C150
 - 2. Lime: ASTM C207, Hydrated Lime for Masonry Purposes.
 - 3. Aggregate: Fine granular material composed of natural sand free of loam, silt, soluble salts and vegetable material. Aggregate shall conform to the following size gradation, ASTM C144:

Percentage Retained on Sieve		
Sieve Size	Minimum	Maximum
No. 16	0	10
No. 30	10	40
No. 50	30	65
No. 100	60	95

4. Water: Clean, fresh, potable and free of mineral or organic materials

5. Proportions:

1 part by volume portland cement

6 part by volume hydrated lime

20 parts by volume aggregate

Water – enough to form a workable mix

2.03 CLEANING MATERIALS AND EQUIPMENT

A. Water for Cleaning: Clean, potable, free of oils, acids, alkalis, salts, and organic mater.

B. Warm Water: Heat water to a temperature of 140 to 180 deg. F. (60 to 82 deg. C.)

C. Brushes: Fiber bristle only.

2.04 MORTAR MIXES

A. Measurement and Mixing: Mortar materials and proportions shall be as established by preconstruction testing to match the existing mortar. Measure cementitious and aggregate material in a dry condition by volume or equivalent weight. Do not measure by shovel, use known measure. Mix materials in a clean mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 1 to 2 hours. Add the remaining water in small portions until reaching mortar of the desired consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

B. Colored Mortar: Produce mortar of color required by using selected ingredients. Do not adjust proportions without Architect's approval.

1. Colored Mortar Pigment: Where colored mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.

C. Do not use admixtures of any kind in mortar, unless otherwise indicated.

2.05 CHEMICAL CLEANING SOLUTIONS

A. General: Unless otherwise indicated, dilute chemical cleaning materials with water to produce solutions of concentration indicated but not greater than that recommended by chemical cleaner manufacturer.

B. Acidic Cleaner Solution for Brick: Maximum hydrofluoric acid content of 3 percent.

- C. Chemical Paint Remover: In a concentration recommended by chemical cleaner manufacturer.
- D. Soot Remover: in a concentration recommended by chemical cleaner manufacturer.

PART 3 - EXECUTION

3.01 PREPARATION

- A. General: Comply with the chemical cleaner manufacturer's recommendations for protecting building surfaces against damage from exposure to their products.
- B. Protect persons, motor vehicles, surrounding surfaces of building whose masonry surfaces are being restored, building site, plants, and surrounding buildings from injury resulting from masonry restoration work.
 - 1. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be injured by such contact.
 - 2. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 - 3. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
 - 4. Erect temporary protection covers over pedestrian walkways and at points of entrance and exit for persons and vehicles that must remain in operation during course of masonry restoration work.
- C. Protect adjacent surfaces from contact with chemical cleaners by covering them with a liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with manufacturer's recommendations. Do not apply liquid masking agent to painted or porous surfaces.

3.02 CLEANING MASONRY - GENERAL

- A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Work from bottom to top of the building for each scaffold drop.
- B. Use only those cleaning methods indicated for each masonry material and location.

- C. Perform each cleaning method indicated in a manner which results in uniform coverage of all surfaces, including corners, moldings and interstices, and which produces an even effect without streaking or damage to masonry surfaces.
- D. Rinse off chemical residue and soil by working upwards from bottom to top of each treated area at each stage or scaffold setting.

3.03 BRICK REMOVAL AND REBUILDING

- A. Carefully remove by hand, at locations indicated, bricks that are damaged, spalled, or deteriorated. Cut out full units from joint to joint and in a manner to permit replacement with full-size units.
- B. Support and protect masonry indicated to remain that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.
- C. Salvage as many whole, undamaged bricks as possible.
- D. Remove mortar, loose particles and soil from salvaged brick by cleaning with brushes and water. Store brick for reuse.
- E. Clean remaining brick at edges of removal areas by removing mortar, dust, and loose debris in preparation for rebuilding.

3.04 BRICK REBUILDING

- A. Install new or salvaged brick to replace removed brick. Fit replacement units into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
- B. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet clay bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 grams per 30 sq. in. per minute. Use wetting methods that ensure units are nearly saturated but surface dry when laid. Maintain joint width for replacement units to match existing units.
- C. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
- D. Point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and rake out mortar used for laying brick before mortar sets.

3.05 TUCKPOINTING MASONRY

- A. Rake out joints as follows:
 - 1. Rake out mortar from joints to depths equal to 2-1/2 times their widths but not less than 1/2 to expose sound, unweathered mortar.

2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.
 - a. Cut out old mortar by hand with a chisel and mallet, unless otherwise indicated.
 - b. Do not use power-operated rotary hand saws and grinders unless specific Architect's written approval is obtained based on submission by Contractor of a satisfactory quality control program and demonstrated ability of operators to use tools without damaging masonry. Quality control program shall include provisions for supervising performance and preventing damage due to worker fatigue.

B. Point joints as follows:

1. Rinse masonry joint surfaces with water to remove dust and mortar particles. Time the rinsing application so that at the time of pointing excess water has evaporated or run off and joint surfaces are damp but free of standing water.
2. Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Compact each layer and allow it to become thumbprint hard before applying the next layer.
3. After joints have been filled to a uniform depth, place remaining pointing mortar in three layers with each of first and second layers filling approximately two fifths of joint depth and third layer the remaining one fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges recess final layer slightly from face. Take care not to spread mortar over edges onto exposed masonry surfaces, or featheredge mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in a damp condition for not less than 72 hours.
6. Where repointing work precedes cleaning of existing masonry, allow mortar to harden not less than 30 days before beginning cleaning work.

3.06 TUCKPOINTING MASONRY

A. Prepare joints as follows:

1. Grind and remove existing joints as required to remove existing sealer and expose raw mortar to depth required to apply new pointing mortar to match existing.
- B. Point joints as follows:
1. Rinse masonry joint surfaces with water to remove dust and mortar particles. Time the rinsing application so that at the time of pointing excess water has evaporated or run off and joint surfaces are damp but free of standing water.
 2. Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Compact each layer and allow it to become thumbprint hard before applying the next layer.
 3. After joints have been filled to a uniform depth, place remaining pointing mortar in three layers with each of first and second layers filling approximately two fifths of joint depth and third layer the remaining one fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges recess final layer slightly from face. Take care not to spread mortar over edges onto exposed masonry surfaces, or featheredge mortar.
 4. When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.
 5. Cure mortar by maintaining in a damp condition for not less than 72 hours.

3.7 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter using stiff nylon or bristle brushes and clean water, which is spray-applied at a low pressure.
- B. Using metal scrapers or brushes is not permitted.
- C. Using acid or alkali cleaning agents is not permitted.

END OF SECTION

CAST STONE**SECTION 04720****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Cast stone units with integral color for sills to match the existing with all stainless steel anchors and attachment accessories for a complete installation.

1.02 RELATED SECTIONS

- A. Division 3 - Concrete
- B. Section 04200 - Unit Masonry
- C. Section 07900 - Joint Sealers for sealants and lead cap at copings.

1.03 REFERENCES

- A. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
 - 1. Cast Stone Institute Standard Specification 04435-90.
 - 2. ASTM C150 - Specification for Portland cement.
 - 3. ASTM C33 - Specification for concrete aggregates
 - 4. ASTM C979 - Specification for coloring pigments
 - 5. ASTM C494 - Specification for concrete admixtures
 - 6. ASTM A615 - Specification for reinforcing bars
 - 7. ASTM C1194 - Test method for compressive strength of cast stone
 - 8. ASTM C1195 - Test method for absorption of cast stone
 - 9. CIELAB 1976 - Standards for measuring color variation

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data and instructions for manufactured materials and products. Include mix designs, certifications, and laboratory test reports as required.
 - 1. Include water absorption test reports for units with exterior exposure.
- C. Shop drawings prepared by or under supervision of a qualified professional engineer showing complete information for fabrication and installation of units. Indicate member dimensions and cross-section arrangement of joints, anchoring, fabrication tolerances, location, size, and type of reinforcement, including special reinforcement, and lifting devices necessary for handling and erection.

1. Include erection procedure for cast stone units, sequence of erection, and erection tolerances.
 2. Show layout, dimensions, and identification of each unit corresponding to sequence and procedure of installation.
 3. Indicate welded connections by AWS standard symbols. Detail inserts, connections, and joints, including accessories and construction at openings in units.
 4. Show caulked and lead cap joints, including expansion joints ("soft" type) and grouted joints ("rigid" type).
 5. Show location and details of anchorage devices to be embedded in other construction.
 6. Indicate finishes for metal items including connectors.
 7. Unless otherwise shown on contract drawings provide suitable wash on all exterior sills, coping, projecting courses and pieces with exposed top surfaces and drips as needed.
- D. Provide complete design calculations, including loads imposed on structure, prepared by a qualified professional engineer.
- E. Samples approximately 12 by 12 by 2 inches to illustrate quality, color, and texture of surface requested by Architect.
1. Submit samples of anchorages, and other attachments and accessories.

1.05 DESIGN REQUIREMENTS

- A. Design and size components and anchorage/fasteners to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as required by and calculated in accordance with the International Building Code 2009 and Supplements (City of New Orleans Building Code) and ASCE 7-05, measured in accordance with ANSI/ASTM E330 and when tested in accordance with ANSI/ASTM E330, based on 130 mph wind speed, Exposure B and Importance Factor of 1.00, and as follows
1. Deflection shall not exceed $L/600$.
- B. Design units to accommodate construction tolerances, shrinkage, deflection of building structural members and clearances of intended openings without exceeding specified tolerances.
- C. Design component connections to accommodate building movement and thermal movement. Provide adjustment to accommodate misalignment of structure without unit distortion or damage.

1.06 QUALITY ASSURANCE

- A. Quality Standard: Comply with all requirements of the Cast Stone Institute.
- B. Manufacturer: Must have ten (10) years minimum continuous operating experience and have facilities for manufacturing Cast Stone as described herein.
- C. Testing: Test three (3) specimens per 500 cubic ft. at random from plant production in accordance with referenced standards.
- D. Engineer Qualifications: A professional engineer legally authorized to practice in jurisdiction and licensed where project is located and experienced in providing engineering services that have resulted in successful installation of architectural precast concrete units similar in material, design, and extent as required for this Project.
- E. Mock-ups: Prepare full size mock-up of each type of cast stone unit for Architect's inspection at production plant or on site prior to start of installation work and after Architect review of finish samples. Acceptable full-size mock-ups may be incorporated in job installation.
 - 1. Incorporate trim pieces into masonry mock-up specified in Section 04200.
 - 2. In presence of Architect, damage an area on an exposed face surface and demonstrate materials and methods proposed for repair of surface blemishes. Patching of damaged exposed face surfaces may be permitted when acceptable to Architect. Otherwise, remove and replace damaged units when patching repairs are unacceptable to Architect.
- F. Design modifications may be made only as necessary to meet field conditions and to ensure proper fitting of the work and only as acceptable to Architect. Maintain general design concept shown without increasing or decreasing sizes of members or altering profiles and alignment shown. Provide complete design calculations and drawings prepared by a professional engineer registered in State where project is located, if design modifications are anticipated.
- G. Erector Qualifications: Minimum of five (5) years successful experience in erection of cast stone units similar to units required for this project.

1.07 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this Section, under provisions of Section 01200.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver cast stone units to project site in such quantities and at such times to assure continuity of installation. Store units at project site to prevent cracking, distorting, warping, staining, or other physical damage and so that markings are visible. Lift and support units only at designated lifting or supporting points as shown on final shop drawings.

PART 2 - PRODUCTS**2.01 MATERIALS****A. Raw Materials: As follows:**

1. Portland cement - Type I or III, white ASTM C150
2. Coarse aggregates - Carefully graded and washed Granite, quartz or limestone, ASTM C33
3. Fine aggregates - Carefully graded and washed manufactured or natural sands, ASTM C33
4. Colors - Inorganic iron oxide pigments, ASTM C979 of color selected by Architect to be integral with the mix.
5. Admixtures - ASTM C494
6. Water - Potable
7. Reinforcement - ASTM A615 Grade 40 or 60

2.02 ACCEPTABLE MANUFACTURER

- A. W. N. Russell and Co. (Westmont, NJ), or equal.

2.03 COLOR AND FINISH

- A. General: Match buff limestone appearance.
- B. Exposed surfaces shall exhibit a fine grained texture similar to natural stone. No bugholes or air voids will be permitted. All facing material shall be mixed in a muller mixer.
- C. Color shall match Architects sample and be as selected by the Architect.
- D. Variation: As follows:
1. Must match color and finish of approved sample when viewed in direct daylight at a 10 foot distance.
 2. CIELAB color variation allowed - 1% hue; 3% lightness, chroma and hue combined.

2.04 CURING AND FINISHING

- A. Cure units in a warm, moist curing chamber at 95% relative humidity in totally enclosed curing room under dense fog and water-spray for 24 hours.

- B. Cure for 350 degree-days (i.e. 7 days @ 50F or 5 days @ 70F) prior to shipment.
- C. Acid-etch exposed surfaces to remove cement film prior to packaging for shipment.

2.05 REINFORCING

- A. New billet steel reinforcing bars - ASTM A615 and as follows:
 - 1. Reinforce units when necessary for safe handling and structural stress.
 - 2. Reinforcement shall be galvanized or epoxy coated when covered with less than 1-1/2" of material.
 - 3. Area of reinforcement in panels shall be not less than 1/4 percent of the cross section area.

2.06 CONNECTION MATERIALS

- A. Steel Plates: Structural quality, Type 302/304 stainless steel.
- B. Dowels: Type 302/304 stainless steel.
- C. Anchor Bolts: Stainless steel regular hexagon nuts and carbon steel washers.
- D. Electrodes for Welding: Comply with AWS Code.

2.07 GROUT MATERIALS

- A. Nonmetallic Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining product containing selected silica sands, portland cement, shrinkage compensating agents, and plasticizing and water-reducing agents, complying with CRD-C621.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to the following:
 - a. "Euco N.S.", Euclid Chemical Co.
 - b. "Crystex", L & M Construction Chemicals, Inc.
 - c. "Masterflow 713", Master Builders, Inc.
 - d. "Sealtight 588 Grout", W. R. Meadows, Inc.
 - e. "Five Star Grout", U.S. Grout Corp.

2.08 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type of concrete required.
- B. Design mixes may be prepared by independent testing facility paid for by the Contractor and approved by the Architect.

- C. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the project for each type of concrete required, complying with ACI 318.
- D. Mix: Consisting of required portland cement, aggregates, admixtures, and water to produce the following properties.
 - 1. Compressive Strength: 7000 psi minimum at 28 days per ASTM C1194.
 - 2. Water Absorption: Not to exceed 6 percent by weight, per ASTM C1195.
- E. Add integral color in strict accordance with manufacturer's printed instructions.
- F. Submit written reports to Architect of proposed mix for each type of concrete at least 15 days prior to start of precast unit production. Do not begin concrete production until Architect has reviewed mixes and evaluations.
- G. Adjustment to Mixes: Mix design adjustments may be requested when characteristics of materials, job conditions, weather, test results, or other circumstances warrant. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by Architect before using in the work.

2.09 FABRICATION

- A. General: Fabricate units complying with manufacturing and testing procedures, quality control recommendations, and following dimensional tolerances, unless otherwise indicated.
- B. Fabricate units straight, smooth, and true to size and shape, with exposed edges and corners precise and square unless otherwise indicated.
 - 1. Units that are warped, cracked, broken, spalled, stained, or otherwise defective will not be acceptable.
- C. Anchorages: Provide loose steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other miscellaneous steel shapes not provided by other trades, necessary for securing precast units to supporting and adjacent members.

PART 3 - EXECUTION

3.01 TOLERANCES

- A. Comply with Cast Stone Institute technical manual #04435-90.
- B. Set stones 1/8" within plane of adjacent unit.
- C. Joints: 1/8".

3.02 JOINTING

- A. Joint size: As follows unless otherwise indicated:
 - 1. At stone/brick joints - 3/8"
 - 2. At stone/stone joints in vertical position - match stone/brick joints
 - 3. Stone/stone joints exposed on top side - 3/8"
- B. Joint Material: As follows:
 - 1. Use a full bed of mortar at all bed joints
 - 2. Flush vertical joints full with mortar
 - 3. Leave all joints in coping open for lead cap seal.
- C. Location of joints: As shown on approved shop drawings.

3.03 SETTING

- A. Attach all anchors securely to building structure. All anchors and dowels shall be firmly placed and all anchor holes and dowel holes and similar holes filled completely with mortar or non-shrink grout.
 - 1. Anchor holes are not permitted on the exposed face of units.
- B. Drench stones with clear, running water just prior to setting.
- C. Fill all dowel holes and anchor slots completely with mortar on non-shrink grout.
- D. Set all stones in a full bed of mortar.
- E. When ready for pointing, the joints shall be dampened and carefully pointed to a slight concave unless otherwise specified by the Architect. No pointing shall be done in freezing weather nor in locations exposed to hot sun, unless properly protected. Pointing mortar shall comply with Section 04100. Coloring pigments shall be added to match color selected by the Architect.
- F. Accessories: Install clips, hangers, and other accessories required for erection of precast units to supporting members and backup materials.
- G. Anchor units in final position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring and grouting are completed.
 - 1. At bolted connections use lock washers or other acceptable means to prevent loosening of nuts.
- H. Sealant joints: Prime the ends of stones, insert properly sized foam backup rod and gun-in sealant. Use sealant with lead cap at all joints in copings.

- I. Protect stone while on ground (and after setting) from splashing, mortar and damage from other trades.

3.04 CLEANING AND REPAIR

- A. Clean stone by wetting with clear running water and applying a solution of "Sure-Clean #600" by ProSoCo Products, Inc., or equal. Follow manufacturer's instructions.
- B. Repair obvious chips with touchup material furnished by the manufacturer.

3.05 ACCEPTANCE

- A. Applicable standards for inspection and quality control shall be ACU Committee 311 Manual of Concrete Inspection and PCI MNL-117 Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products.
- B. Cast stone shall show no obvious repairs or imperfections other than minimal color variations when viewed with the unaided eye at a 10 ft. distance in good typical daylight illumination.

END OF SECTION

MASONRY ANCHORAGE SYSTEMS**SECTION 04900**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Division 04 for repointing and repair of existing masonry structures.

1.02 SUMMARY

- A. These specifications cover all plant, labor, materials, mobilization, surveying, directional boring, installation and injection of masonry anchorage enhancement, personnel qualifications, training, prior contractor qualifying experience, and nondestructive testing quality control requirements for the manufacture and injection of compatible injectable fill (CIF) including installation and injection of spiral wall ties and hollow injectable steel enhancement anchor rods.
- B. This Section includes the following injected fill work:
 - 1. The preparation of the existing wythe in the existing masonry walls between masonry back-up and exterior brick veneer.
 - 2. Drilling holes in the brick masonry exterior.
 - 3. Formulation and injection of cementitious fill into masonry wythes.
 - 4. Testing and cleanup.
 - 5. Providing equipment, scaffolding, power tools, etc., for preparation and installation of products.
 - 6. Refer to drawings for locations where injected fill work is identified.
 - 7. Providing General Contractor Bidders with allowance amount to be included in their proposal.
- C. The General Contractor shall provide, and is responsible for the following:
 - 1. Scaffolds and access to buildings.
 - 2. Electricity and water for mixers/ pumps (mixers/pumps furnished by this section 04901).
 - 3. Wiring and maintenance.
 - 4. Cleaning and storage, hoisting, debris removal, window-related work.

1.03 QUALITY ASSURANCE

- A. An experienced and approved Injection Contractor and Professional Engineer (CIF Engineer) shall be employed by the Contractor. The Injection Applicator and Professional Engineer shall be familiar with CIF restoration projects and have a thorough knowledge of non-destructive test methods.
- B. The Contractor's CIF/Injection Engineer shall design the CIF mix formulation(s) required for the building and provide other services as described herein. CIF component materials shall be

mixed according to the proportions and mix procedures determined by the Contractor's CIF/Injection Engineer and shall have the required properties, suitable for the masonry injection, listed herein.

- C. Preconstruction Meeting: A preconstruction meeting shall be held between the Architect, Contractor, Injection Contractor, and CIF Engineer for coordination between trades and work scheduling.

1.04 SUBMITTALS

- A. Masonry Personnel Qualifications: Documented qualifications for all personnel involved in performing the work including all personnel. The personnel qualifications must be complete and include reference project(s) Owner's name and current phone number along with any written statements of reference they are willing to provide. Experience must be specific to CIF injection, and installation of anchorage enhancement including specified equipment for historical brick masonry without changing the appearance, aesthetics of the masonry wall, and characteristics of the existing wall such as expansion, vapor transmission, and water diffusion. All referenced projects shall have been completed using CIF mix formulations that did not include additives or components that create moisture barrier problems or had plastic polymeric material characteristics unless they are compatible and can be shown to not create short and long term moisture barrier problems, contain no chloride or corrosive materials, and have the same thermal characteristics as the existing masonry.
- B. The Contractor shall employ a registered Professional Engineer with documented 10 years minimum experience specific to the CIF material required for this work, mix formulation, CIF injection, anchorage enhancement design, and testing, and determining the structural properties of brick and CMU masonry construction.
 - 1. Submitted documentation of experience must include; CIF injection and masonry enhancement engineering services and supervision provided for at least 5 brick masonry projects, on historic masonry buildings similar in age, size, and masonry composition, with 3 of the 5 having been successfully completed for a time period of seven (7) years.
- C. Injection and Boring Personnel Experience: Submit documentation of job experience and specifically related training over the past five (5) years for the tasks listed below;
 - 1. Injection Supervisor,
 - 2. Mixer-Supervisor,
 - 3. Injection Pump Operator.

Lead personnel must be competent in all skills of the CIF operation. They shall be capable of supervising wall preparations, equipment set up, injections, and cleaning operations. Work foreman shall be capable of submitting daily checklists. Submit documentation of training and current certifications in the preparation and installation of CIF and anchor rods (vertical and horizontal) including anchor socks for all injection personnel. Submit documentation of experience for personnel performing dry core air-cooled drilling work for anchor reinforcement for past project experience demonstrating the boring of at least 30 feet vertically and 50 feet horizontally.

- D. Work Plan: The Contractor shall submit a Work Plan which details the masonry injection and anchorage systems intended for use. The Work Plan shall include:
1. Schedule of all laboratory and field tests.
 2. Sequence of installation for CIF wall injection work and hollow stainless steel anchor rods.
 3. Description of coordination and sequencing with other subcontractor work which must be done in conjunction with the masonry anchorage and enhancement including sequence of work for temporary roof opening protection from weather and restoration/cleaning of existing masonry.
 4. Complete description of procedures and order of work for installation and injection of spiral wall ties, hollow stainless steel enhancement anchor rods, and retention fitting, including complete description of equipment and tools required for the work.
 5. Complete description of procedures for and order of work for injecting CIF, including complete description of equipment and tools required for the work.
- E. Shop Drawings: Shop drawings shall include plans, elevations, sections, and details showing:
1. Complete description of mounting and securing the drilling equipment to the existing wall including method/material for hole repair after equipment removal. Equipment shall be secured using socked CIF injected anchors. The anchor method shall be designed by the CIF/Injection Engineer. Equipment mounting shall not damage or permanently alter the visible appearance of the existing wall.
 2. Location, size, cross-sectional area, and total quantity of spiral wall ties (or equivalent), hollow injectable steel enhancement anchor rods (or equivalent), with retention fittings for each elevation. All anchor rod and spiral wall tie locations shall be numbered for reference. Placement dimensions and spacing including dimension(s) from nearest face of existing walls in plan, elevation or section. Anchor rod dimension from edge of masonry and embedment dimension into existing foundation or concrete supporting wall. All wall injection port locations shall be determined by the CIF/Injection Engineer including method of sealing all port openings.
 3. Method of finishing port openings for the masonry restoration sub-contractor under the supervision of the Injection Contractor.
- F. Component Materials and Mix Formulations: Submit certifications stating that all CIF mix formulations conform to the following requirements:
1. All formulations are non-shrink.
 2. All formulations have similar compatible properties as the masonry walls being repaired.
 3. All formulations are non-chloride and non-corrosive.
 4. Submit additional CIF mixes as required to properly fill the wall voids leaving no voids larger than a two (2) inch sphere within a cubic yard of wall volume and the overall voids within a cubic yard of wall volume will be less than 0.5%.
- G. Daily Field Reports: The Injection Contractor shall record the following in a daily field report for each building:
1. Date
 2. Weather conditions including temperature, humidity, cloud cover, and wind.
 3. Time of operations
 4. Personnel list

5. Description of work performed including installation locations, quantity (volume, cu. ft.) of injected CIF, identification of area injected, and CIF maximum injection pressure reading at the wall.
 6. Equipment performance
 7. Include results for all tests performed as well as flow test results of the flow cone calibration.
 8. Notes regarding any special or non-typical situations encountered during the day.
- H. As-Built Drawings:
1. As-built drawings showing the location and orientation of each masonry anchor, anchor lengths and injection records stating the mix batch number, quantity injected, and injection pressure recorded for each wall injection port and hollow steel anchor rod installation.
 2. All changes from the original shop drawings shall be shown, signed and dated, including a statement of the reason for the change, by the CIF/Injection Engineer.
- I. Installer Certificates: Signed by manufacturers certifying that installers complied with requirements.
- 1.05 TESTING AND INSPECTION
- A. Test reports from the Owner's approved masonry testing laboratory shall demonstrate that the CIF formulation meets the performance criteria and shall be submitted to the Architect.
- B. Prototype Test Wall: Under the supervision of the CIF/Injection Engineer, a four (4) foot high by six (6) foot wide prototype wall representative of the wall construction for the existing building will be erected in the laboratory with clear panels at each end where the CIF mix formulations will be tested for effectively filling the voids, shear bond strength, and flexural tensile strength. Photographs of the construction of the prototype wall shall be included showing the brickwork pattern, every three (3) courses. Each CIF mix formulation used for injection testing on the prototype wall shall contain a different color for visibly determining the extent of penetration. CIF consistency and viscosity characteristics shall be sufficient to flow from the drilled ports located within the mortar joints to sufficiently fill voids and fissures within the wall, bonding to the substrate without initial or long term shrinkage. Photographs and/or radio graphs of the injected CIF mix shall be included showing the CIF mix design penetration leaves voids no larger than a two (2) inch sphere within a cubic yard of wall volume and the overall voids within a cubic yard of wall volume will be less than 0.5%.
- C. The manufacturer's test result(s) for the capacity of the assembled hollow anchor rod components shall be submitted.
- D. Testing of Existing Masonry Structure: The following in-place tests shall be performed on each existing masonry structure.
1. Existing Masonry Compressive Strength: ASTM C 1197. For solid unreinforced masonry, the strength of the masonry will be estimated using a flatjack test in accordance with ASTM C 1196. The expected compressive strength shall be based on the net mortared area.

2. Existing Masonry Elastic Modulus in Compression: ASTM C 1197. For solid unreinforced masonry, the elastic modulus of the masonry will be estimated using a flatjack test in accordance with ASTM C 1197.
 3. Existing Masonry Flexural Tensile Strength: ASTM C 1072 or ASTM E 518.
 4. Minimum Number of Tests: At least one (1) test of each type shall be performed on each of the four (4) sides of the building with a minimum of six (6) tests of each type performed on the entire building.
- E. CIF Performance Tests on Prototype Wall:
1. Flow time: API RP 13B-1 or ASTM C 939, Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method). CIF material for the prototype wall and existing injected wall shall be required to flow without separation; flow time will be specified for the project by CIF/Injection Engineer. CIF material flow shall be calibrated twice daily by flow cone test.
 2. Bleeding: ASTM C 940, Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced-Aggregate Concrete in the Laboratory; no greater than 0.5 percent.
 3. Mix stability: measured with the Gelman pressure cell; water loss under 10 psi pressure shall not be more than 5 ml per 350 ml sample.
 4. Plastic Expansion: ASTM C 940; shall be determined by the CIF/Injection Engineer based on the in-place material; typically not more than 1 to 4 percent by weight of cement.
 5. Shear bond strength: shall be 100 psi minimum, as tested on samples from the prototype wall constructed in the laboratory to be representative of in-place construction. Testing shall conform to California Test 644.
 6. Compression strength: ASTM C 1019, Standard Test Method for Sampling and Testing Grout. Strength testing for the prototype wall and existing injected wall shall be performed at 7, 14, and 28 days. All test results shall be certified by the Injection Contractor's CIF/Injection Engineer. Compression at 28 days shall not be less than 1,000 psi nor greater than 1,500 psi. Test on prototype wall shall be conducted for each batch of CIF material injected. Test on CIF material mixed on job site shall be conducted for every 3,000 lbs. of bagged CIF material used.
- F. Post Installation Testing:
1. The Injection Contractor shall conduct non-destructive verification of CIF penetration on the existing walls that received CIF injection using pulse-echo, infrared thermography, microwave radar, or through-wall pulse velocity measurements as determined by the CIF/Injection Engineer.
 2. Results of quality verification testing shall be kept in a Log Book showing areas inspected, approximate dimensions, how areas were chosen for inspection, test equipment used, results of nondestructive tests, and actions taken at locations found to be in non-compliance with these specifications. The Log book shall be keyed to a plan view of the floor level, room number, and elevation view of the walls with inspected areas drawn on the elevation view of each wall. The Log Book shall be submitted and approved by the CIF/Injection Engineer.
 3. The Injection Contractor shall determine the number and location of such tests by a random statistical process and shall submit the number and location of tests to the Architect for review and approval before beginning these tests. Approximately ten (10) percent of the injection area is to be tested to verify injection penetration.

- G. Post Installation Testing:
1. After all work is completed for each building, the Architect, Injection Contractor, and CIF/Injection Engineer shall inspect the masonry structures for any damages caused by the Contractor, any unpatched bolt holes, discolored brick due to injection spills, leakage, etc. The Injection Contractor shall make all required repairs. The Contractor shall submit a written report that the inspection was conducted, who was present for the inspection, obtain signatures from those present, and submit the inspection report for approval.

PART 2 - PRODUCTS

2.01 CIF COMPONENT MATERIALS

- A. CIF mix design shall be determined by testing performed on the prototype wall and existing masonry structure as described here-in.
1. All CIF mix formulations shall be non-shrink, non-chloride, non-corrosive, and have similar (compatible) properties as the masonry walls being repaired.
 2. CIF mix formulations that include additives or components that create moisture barrier problems or have plastic polymeric material characteristics will be rejected unless the Contractor can prove that the plastic polymeric material characteristics do not create short or long term moisture barrier problems, and have the same thermal characteristics as the existing masonry.
 3. Each CIF mix formulation used for injection testing on the prototype wall shall contain a different color for visibly determining the extent of penetration for each mix.
- B. Low-alkali Portland Cement, Type I/II or III conforming to ASTM C 150.
- C. Aggregate selection will be determined by the CIF/Injection Engineer.
1. Washed and graded sand aggregate must be free of organic materials and may contain no more than 1.0% (by weight) of deleterious substances as described in Section 5 and 6 of ASTM C 404 Standard Specification for Aggregates for Masonry Grout. Graded sand shall be in a damp and loose condition before use.
- D. Class F fly ash conforming to ASTM C 618.
- E. Type S lime conforming to ASTM C 5.
- F. Water: Clean, potable, free of deleterious amounts of acids, alkalis, or organic material conforming to ASTM C 94.

2.02 MATERIAL FLOW, MIXING, AND STORAGE OF CIF MATERIAL

- A. Material flow shall be calibrated daily by flow cone tests.
- B. No hand-mixing or small (200 pound or less packages) mixes will be allowed except for material within 20 inches of windows, doors or wall terminations, or secondary fine material injection, if additional mixes are required.

- C. Pre-blended CIF pre-packaged 1,000 lb. waterproof bags shall be stored in a covered location, off the ground, protected from environmental moisture. Access to the area shall be sufficient to off load pallets of material using a forklift. Materials and equipment shall be protected from freezing, as necessary.

2.03 EQUIPMENT

- A. CIF Injection Equipment: The equipment for injection of the CIF shall be clean, in good working order, and include all necessary components for the successful completion of the masonry injection. A positive displacement, non-piston pump, capable of maintaining a consistent regulated pressure shall be used for injection work. Equipment shall be pressure-limited, and verified by the CIF/Injection Engineer to be correctly calibrated to positively prevent a buildup of pressure within the building wall. Maximum pressure measured at the wall face shall be determined by the CIF/Injection Engineer. In order to prevent damage to the existing masonry, injection equipment shall not exceed an injection pressure beyond 29 psi (2 Bar) when measured at the wall. The injection pump shall be equipped with pressure gauges to accurately monitor CIF pressures, sized to enable continuous injection. Equipment for injection shall be low pressure range, self-dosing with automatic pressure shutoffs and pressure valves at the pump and the wall. Equipment shall include mixers, pumps, hoses, nozzles, pressure gauges, and be capable of continuously pumping and agitating the grout.
- B. Dry Core Boring Equipment: Equipment for drilling shall be wall mounted, non-percussive drills operating at 450 to 750(max.) RPM capable of long-bore drilling operation. Equipment used shall not cause damage to the existing walls. Any use of materials to enhance drilling shall not be detrimental to the existing wall construction or proposed injection materials. Vibrations shall be eliminated by all means necessary. Cutting crown segment used in coring for the hollow injectable steel anchor rods shall be custom-fitted cutting crowns capable of being re-tipped on site with segments positioned, as determined by the CIF/Injection Engineer according to wall conditions. In order to minimize vibration and dust, segments utilizing solely natural and/or synthetic diamonds will not be permitted.

2.04 STAINLESS STEEL SPIRAL WALL TIES AND ENHANCEMENT ANCHOR ROD ASSEMBLIES

- A. Injected Masonry Spiral Wall Ties: Shall be approximately 1mm gauge by 7.8 mm wide with a center stiffening helix formed from cold-twisted stainless steel, Type 304 or equivalent. The tube containment material shall be Nylon 319 psi (22 Bar), or suitable equivalent. The spiral wall tie injection tubes are to be factory-attached to the masonry anchorage and enhancement assembly. Tubes must be free and clear and be inspected for continuity.
- B. Fabric Containment Sock: The sock must be capable of 150% expansion. The sock to reinforcement member connection must be able to withstand an internal pressure of 58 psi (4 Bar). The containment "sock" for the hollow stainless steel enhancement anchor rods shall be sized by the CIF/Injection Engineer. Geotextile fabric will not be permitted.
- C. Injectable Stainless Steel Enhancement Anchor Rods with Hollow Center Stainless steel type 304 (minimum), conforming to ISO 10208, 1999(E), manufactured to the following standards:

maximum 0.07% Carbon, Silicon 1.0%, Sulphur 0.03%, Manganese 2.0%, Phosphorus 0.045%, with minimum 16.5% Chromium, or ASTM A 955, Grade 60, with irregular projecting (deformed) profile to increase outside surface area. The anchor rod shall be assembled on site from three (3) Meter lengths (or other approved length) and joined with couplers. Coupler shall be capable of developing the full cross sectional area of the anchor rod in tension. The anchor rod shall incorporate spacers to ensure that the anchor remains centered on the drilled hole. In-situ testing of grout outlet performance will be required before anchor installation commences. The bottom of the vertical anchors will incorporate a welded stainless steel threaded retention fitting capable of developing the full cross sectional area of the anchor rod and centering the rod on the cored hole bottom. The fitting diameter will be a minimum of 2mm less than the anchor rod cored hole diameter. The vertical anchor rod length shall not be less than the full-height of the wall and foundation plus the distance required for connecting to a structural steel element as detailed on the contract drawings, including the depth of the tapered connection formed by the Tapor-Loc drill assembly or other approved connection detail which produces similar strength properties which are compatible with the existing structure and CIF process. Horizontal injectable anchor rods shall be the length indicated on the contract drawings and approved shop drawings. Provide injectable stainless steel enhancement anchor rods with hollow center, including couplings and retention fittings.

PART 3 - EXECUTION

3.01 PRE-INJECTION EVALUATION

- A. An evaluation of the existing masonry material condition shall be conducted by the Injection Contractor and the CIF/Injection Engineer. The initial evaluation will utilize non-destructive methods using microwave radar, mapping the extent and size of any visible surface cracks, mortar joint delaminations, cracked or spalled units, or other visible surface damage which may have an effect on spiral wall tie performance, CIF containment or the spiral wall tie installation process. Include in the evaluation any situations requiring special treatment prior to spiral wall tie installation, such as interior voids or unstable zones.

3.02 WALL PREPARATION

- A. Surface Repairs Prior to Injection: Refer to Division 04 for historic masonry restoration. Prior to start of masonry anchorage work, restoration of masonry joints shall be evaluated by the Injection Contractor and CIF Engineer.

3.03 CIF MATERIAL MIXING

- A. Mix all CIF component materials according to the mix design(s) established by the CIF/Injection Engineer. Monitor flow of the CIF using appropriate quality control procedures to maintain mix stability. Flow properties must meet specification requirements for leaving voids no larger than a two (2) inch sphere. If the measured CIF flow rate varies by more than 10% from the rates established during injection testing on the prototype wall, discard the entire CIF batch. CIF shall not be used longer than one (1) hour after mixing and testing.

3.04 SPIRAL WALL TIE INJECTION

- A. **Spiral Wall Tie Location:** Provide spiral wall ties at a minimum spacing of one (1) for every 2.67 square feet. All locations of spiral wall ties shall be premarked with washable chalk. All locations shall be specified by the CIF/Injection Engineer, and shall occur only at the junction of an existing head and bed mortar joints. Holes drilled for the spiral wall ties shall be a maximum diameter of 12mm. The hole shall not drill into the stretcher unit side of the mortar joint junction. All holes shall be tangential to the stretcher without intruding on the whole brick and shall be centered on the head joint.
- B. **Spiral Wall Tie Flushing:** Flush the holes drilled to receive the spiral wall ties, and soak the injection tube assembly with potable water. During the flushing procedure, water must flow freely into each injection tube. If a hole is totally or partially blocked, remove and install a new injection tube. Do not allow water pressure to build in excess of fourteen (14) psi (0.965 bar) during flushing.
- C. **Injecting Spiral Wall Ties:** Immediately prior to CIF spiral wall tie injection (within ten (10) minutes) spray the exterior masonry surface lightly with water to prevent CIF adhesion. Keep a water hose and brush on hand during injection for cleaning any CIF spills from the masonry surface. Any CIF or "milk" on the wall must be washed off immediately. Surface cleaning shall be performed during spiral wall tie and CIF injection by immediately flushing any CIF from the masonry surface with water. Immediately following the injection of either the spiral wall ties or the wall with CIF, remove any remaining surface stains using water and a non-metallic bristle brush. Follow manufacturer's recommendations for CIF mixing and delivery. Injection pressure of CIF shall not exceed 29 psi (2 bar). Begin injection at lowest most location and proceed across the work area and up placing, flushing and injecting the spiral wall ties until all areas have been injected. CIF wall tie injection will typically begin at the lower-most location. Ports located above and to the side of the injection hole must be plugged only when CIF flows freely from that port. Proceed with injection of the next spiral wall tie as described above until all anchors in the designated repair area have either been injected or plugged.
- D. **Wall Injection with CIF:** The CIF/Injection Engineer will be responsible for establishing appropriate injection port location, size, depth and fill sequence in accordance with the requirements demonstrated by the prototype panel. When Injection port size in accordance with the Injection Engineer's protocol is in excess of 12 mm, face brick shall be removed so that the port may be hidden behind the removed brick unit. In these instances, the brick will be removed by the Injection Contractor to accommodate the injection port without damaging adjacent brick. The brick will be kept at a secure location and installed in accordance with Division 04 historic masonry restoration. Injection with CIF typically will begin with the lowest most injection port, with the exception of injection ports around windows, doors, corners, setbacks, alcoves and coves at which the Injection Contractor has been instructed by the CIF/Injection Engineer to inject in prior order. In the event that a second CIF mix is required using a finer aggregate, all course injection shall be completed in the work area before the second CIF mix is injected. In the course of injection, dam CIF at full ports by using wood damming dowels as instructed by the CIF/Injection Engineer's protocol. Each port shall be injected to refusal, as indicated by CIF flowing from an adjacent injection port or refusal of the present port to accept more CIF. Allow CIF to stiffen but not set before removing dowels from injection holes; time period shall be as specified by the CIF/Injection Engineer. All recessed (only) injection port holes in mortar joints shall be re-pointed. The injection hole shall be flushed with water and shall be damp, but not

saturated, prior to re-pointing. Point with a mortar similar in color and composition, after curing, to the original mortar firmly into injection holes and tool to match the surrounding mortar.

3.05 CORED HOLES AND CIF INJECTION INTO HOLLOW STAINLESS STEEL ENHANCEMENT ANCHOR ROD

- A. **Injectable Enhancement Anchor Rods:** The net cross section capacity of the hollow stainless steel enhancement anchor rods shall meet or exceed the cross section capacity of the deformed steel reinforcing shown on the contract drawings. The anchor rods shall be injected through the hollow center of the rod. The CIF will be introduced through the top of the anchor and exit at the base of the hollow stainless steel anchor rod. The CIF will inflate the factory installed fabric containment sock as it flows upward, expelling all air as it flows. The containment sock shall be filled with pressurized CIF where the pressure will be held for a time period as specified by the CIF/Injection Engineer, allowing the CIF "milk" to percolate into any micro pores of the masonry.
- B. **Coring Existing Masonry:** After the Contractor and the CIF/Injection Engineer's pre-injection examination of the existing conditions, installation of the stainless steel spiral wall ties and CIF wall injection remedial work shall be completed per the CIF/Injection Engineer's protocol. Minimum edge distance from edge of hole to face of brick shall not be less than two (2) inches. After completion and verification of the remedial work by the CIF/Injection Engineer, coring utilizing a non-irrigated, air-cooled, dry system may proceed. **ONLY A NON-IRRIGATED, AIR-COOLED, DRY SYSTEM WILL BE PERMITTED DUE TO THE POSSIBILITY OF EROSION AND UNDERMINING.** Percussive or vibratory methods will not be permitted. Cored material must be completely removed by method(s) that will insure no remnants of the core remain in the hole. When the vertical holes have been drilled to the correct depth, the base of the hole shall be reamed using equipment which will provide a positive, tapered core wall with a slope of at least five (5) degrees (wider at the bottom than the top) approximately twelve (12) inches in length providing a positive tension connection at the base of the anchor. The anchorage at the base of the anchor rod in the footing must provide for the full mobilization of the hollow stainless steel anchor rod. Tapering the slope of the cored hole wall shall be performed using a Tapor-Lok drill assembly as manufactured by Gruenstark International or approved equal.
- C. Only tapered wall holes will be used in the footings. No substitutions will be permitted.
- D. **Control of Dust Emissions:** Core drillers shall maintain negative pressure (vacuum) at holes undergoing the coring process. Dust emissions shall be evacuated to a container for legal disposal.
- E. **Containment "sock" for CIF:** The containment sock shall be checked by the CIF/Injection Engineer prior to placement to ensure that it is securely attached and undamaged.
- F. **Flushing Prior to Injection:** When operating outside in hot weather conditions, with temperatures greater than 90 F, additional water shall be sprayed inside of each cored hole to cool and partially saturate the masonry prior to injection.

- G. Injection of Hollow Stainless Steel Enhancement Anchor Rod Assemblies: The enhancement anchor rod installer is to maintain an injection pressure in order to completely fill the core hole and all anchor components. The maximum injection pressure shall be as specified by the CIF/Injection Engineer. Injection pressure shall not damage existing wall construction. Any damage resulting from CIF injection shall be repaired at the expense of the Injection Contractor. For the enhancement anchor rods, the CIF shall be injected from the top of the wall, through the hollow stainless steel enhancement anchor rod to the bottom of the cored hole and up the cored hole, around the rod within the containment sock. The CIF/Injection Engineer is responsible for determining the required protocol for the injection, including the order of work sequence for installing the anchor rods. Injected CIF will stiffen rapidly after placement: injection of each lift shall proceed in continuous fashion, with no time lapse of more than three (3) minutes during injection of any single lift.

3.06 TOP OF WALL CONDITIONS

- A. The hollow stainless steel enhancement anchor rods are shall provide for connections to steel framing as shown on the drawings. Anchor rods shall extend a minimum of four (4) inches above the top of wall anchor plate for attachment to the existing roof truss connection plate.

3.07 POST INSTALLATION TESTING AND INSPECTION

- A. Post Installation Testing: The Injection Contractor shall conduct non-destructive testing and inspection of CIF penetration on the existing walls that received CIF injection using pulse-echo, infrared thermography, microwave radar, or through-wall pulse velocity measurements as determined by the CIF/Injection Engineer and report the results according to requirements in paragraphs SUBMITTALS section and QUALITY CONTROL section. Non-destructive measurements and visual inspection by the Injection Contractor shall confirm the presence of CIF around the masonry anchoring and enhancement system and adhesion of CIF within the existing masonry. Where confirmation cannot be made or evidence of incomplete adhesion is found inspection holes shall be drilled to verify CIF by borescopic examination. Locations where CIF is not found to meet the specifications shall be re-injected and subsequently reinspected.
- B. Post Installation Testing: The Injection Contractor is responsible for cleaning and repairing any damages to the existing structures, including repairs/replacement of bricks removed, bolt holes repaired, and cleaning etc. in accordance with Division 04 for historic masonry restoration. After all work is completed, the Architect, Contractor, Injection Contractor, and CIF/Injection Engineer shall inspect the masonry structures for any damages caused by the Contractor, any unpatched bolt holes, discolored brick due to injection spills, leakage, etc. The Injection Contractor shall make all required repairs.
- C. Project Close-Out: The Injection Contractor and CIF/Injection Engineer shall coordinate project closeout thru review of the documentation of the masonry work with the Architect. The review will include a signed statement that the requirements of the design documents with regard to the work for masonry anchorage and enhancement have been met along with the quality verification, the Log Book, and sketches. At work completion the Contractor shall provide As-built Drawings. Refer to paragraph, "SUBMITTALS".

3.08 WALL CLEANING

- A. Surface cleaning shall be conducted during injection by immediately flushing any CIF from the masonry surface with water. Immediately following completion of the injection process, remove any remaining surface stains using water and a stiff, non-metallic bristle brush.
- B. Allow CIF to stiffen but not set before removing dowels from injection holes; an elapsed time of 30 minutes to 60 minutes is sufficient. All injection holes left in mortar joints must be repointed. The injection hole should be flushed with water and should be damp, but not saturated, prior to re-pointing. Point a mortar similar color and composition to the original mortar firmly into injection holes and too to match the surrounding mortar.

END OF SECTION

STRUCTURAL STEEL**SECTION 05120****PART 1 – GENERAL**

1.01 SUMMARY

- A. Scope: This Section includes fabrication and erection of structural steel work, as shown on drawings including schedules, notes, and details showing size and location of members, typical connections, and types of steel required.
- B. Structural steel is that work defined in American Institute of Steel Construction (AISC) "Code of Standard Practice" and as otherwise shown on drawings.
- C. Miscellaneous Metal Fabrications are specified elsewhere in Division 5.

1.02 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
 - 1. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
 - 2. High-strength bolts (each type), including nuts and washers.
 - 3. Structural steel primer paint.
 - 4. Shrinkage-resistant grout.
- C. Shop drawings prepared under supervision of a Louisiana licensed Structural Engineer, including complete details and schedules for fabrication and assembly of structural steel members, procedures, and diagrams.
 - 1. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols and show size, length, and type of each weld.
 - 2. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as work of other sections.
 - 3. See Section Submittals for shop drawings requirements. Reproductions made from contract drawings will not be accepted. Submit three prints with each submittal. Two marked-up prints will be returned. Review of shop drawings by the Architect/Engineer will be for general compliance with contract documents. No responsibility will be assumed for correctness of dimensions, quantities or details.
 - 4. Miscellaneous Metal Fabrications are specified elsewhere in Division 5.
 - 5. All shop drawings used in the field must bear the Architect/Engineer shop drawings review

stamp with "Approved" indicated.

- D. Mill Test Reports: Submit manufacturer's certified test reports to the testing laboratory and architect showing chemical analysis and results of tensile and bending tests. Tests shall meet the requirements of ASTM A6/A6M.
- E. Test reports conducted on shop- and field-bolted and welded connections. Include data on type(s) of tests conducted and test results.

1.03 QUALITY ASSURANCE

- A. Standard Specifications: Except as modified or supplemented by these specifications, materials, design, fabrication, and erection of Structural Steel shall be in accordance with the American Institute of Steel Construction's "Specifications for Structural Steel for Buildings, Allowable Stress Design and Plastic Design", June 1, 1989, and the A.I.S.C. "Code of Standard Practice for Steel Buildings and Bridges", September 1, 1986. A.I.S.C. "Manual of Steel Construction, Allowable Stress Design", Ninth Edition.
- B. Codes and Standards: Comply with provisions of following, except as otherwise indicated:
 - 1. American Institute of Steel Construction (AISC) "Code of Standard Practice for Steel Buildings and Bridges."
 - a. Paragraph 4.2.1 of the above code is hereby modified by deletion of the following sentence:

"This approval constitutes the Owner's acceptance of all responsibility for the design adequacy of any detail configuration of connections developed by the fabricator as a part of his preparation of these shop drawings."
 - 2. AISC "Specifications for Structural Steel Buildings," including "Commentary."
 - 3. "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Structural Connections.
 - 4. American Welding Society (AWS) D1.1 "Structural Welding Code - Steel."
 - 5. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use."
- C. Qualifications for Welding Work: Qualify welding procedures and welding operators in accordance with AWS "Qualification" requirements.
 - 1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
 - 2. If re-certification of welders is required, retesting will be Contractor's responsibility.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site at such intervals to ensure uninterrupted progress of work.
- B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not to delay work.

- C. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. If bolts and nuts become dry or rusty, clean and relubricate before use.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.
- B. Structural Steel Shapes, Plates, and Bars: ASTM A 572 Grade 50.
- C. Cold-Formed Steel Tubing: ASTM A 500, Grade B, min. $f_y = 46$ ksi.
- D. Steel Pipe: ASTM A 53, Type E or S, Grade B; or ASTM A 501, min. $f_y = 35$ ksi.
- E. Anchor Bolts: ASTM A 307, non-headed type unless otherwise indicated.
- F. Unfinished Threaded Fasteners: ASTM A 307, Grade A, regular low-carbon steel bolts and nuts.
 - 1. Provide hexagonal heads and nuts for all connections.
- G. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows.
 - 1. Quenched and tempered medium-carbon steel bolts, nuts, and washers, complying with ASTM A 325.
 - 2. Where indicated as galvanized, provide units that are zinc coated, either mechanically deposited complying with ASTM B 695, Class 50, or hot-dip galvanized complying with ASTM A 153.
- H. Electrodes for Welding: Comply with AWS Code.
 - 1. Welding electrodes for manual shielded metal-arc welding shall conform to AWS A5.1 or A5.5 E70XXX welding electrodes and flux used in submerged arc process shall conform to AWS A5.17 F7X-EXXX. Use low hydrogen electrodes for A572 steel.
- I. Structural Steel Primer Paint: Rust-inhibitive conforming to Fed. Spec. TT-P-664 and be compatible with finish paint systems.
- J. Cement Grout: Portland cement (ASTM C 150, Type I or Type III) and clean, uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 2.0 parts sand, by

volume, with minimum water required for placement and hydration.

- K. Nonmetallic Shrinkage-Resistant Grout: Premixed, nonmetallic, non-corrosive, non-staining product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with CE-CRD-C621.

2.02 FABRICATION

- A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.
 - 1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.
 - 2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- B. Connections: Weld or bolt shop connections, as indicated.
 - 1. Bolt field connections, except where welded connections or other connections are indicated.
- C. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
- D. Holes for Other Work: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on final shop drawings.
 - 1. Provide threaded nuts welded to framing and other specialty items as indicated to receive other work.
 - 2. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.03 SHOP PAINTING

- A. General: Shop-paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel that is partially exposed on exposed portions and initial 2 inches of embedded areas only.
 - 1. Do not paint surfaces to be welded or high-strength bolted with friction-type connections.
 - 2. Do not paint surfaces scheduled to receive sprayed-on fireproofing.
 - 3. Apply 2 coats of paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
- B. Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 1.5 mils. Use

painting methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.04 GALVANIZING

- A. Items shown on the plans to be galvanized and bolts for same shall be hot dip zinc coated after fabrications. Galvanizing shall be done in accordance with A.S.T.M. Serial Designation A123 and A153. Any zinc coating that is damaged shall be touched up with Galvacon as manufactured by Southern Coatings in accordance with the manufacturer's recommendations.

2.05 SOURCE QUALITY CONTROL

- A. General: Materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.
 - 1. Promptly remove and replace materials or fabricated components that do not comply.
- B. Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.
 - 1. Promptly notify Architect whenever design of members and connections for any portion of structure are not clearly indicated.

PART 3 - EXECUTION

3.01 ERECTION

- A. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary Members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.
- B. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.
- C. Setting Bases and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.
 - 1. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
 - 2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate

- prior to packing with grout.
3. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
 4. For proprietary grout materials, comply with manufacturer's instructions.
- D. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
1. Level and plumb individual members of structure within specified AISC tolerances.
 2. Splice members only where indicated and accepted on shop drawings.
- E. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds, and grind smooth at exposed surfaces.
1. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 2. Do not enlarge unfair holes in members by burning or by using drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.
- F. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members that are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.
- G. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
1. Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

3.02 QUALITY CONTROL

- A. The Owner will engage an independent testing and inspection agency to inspect high-strength bolted welded connections and to perform tests and prepare test reports.
1. Testing agency shall conduct and interpret tests, state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.
 2. Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.
 3. Testing agency may inspect structural steel at plant before shipment.
- B. Correct deficiencies in structural steel work that inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as necessary to reconfirm any noncompliance of original work and to show compliance of corrected work.
- C. Shop-Bolted Connections: Inspect or test in accordance with AISC specifications.

Verify that gaps of installed Direct Tension Indicators are less than gaps specified in ASTM F 959, Table 2.

D. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Perform visual inspection of all welds.
3. Perform tests of welds as follows.

Ultrasonic Inspection: ASTM E 164.

E. Field-Bolted Connections: Inspect in accordance with AISC specifications.

F. Field Welding: Inspect and test during erection of structural steel as follows:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Perform visual inspection of all welds.
3. Perform tests of welds as follows:
Ultrasonic Inspection: ASTM E 164.

END OF SECTION

STEEL DECKING**SECTION 05300****PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

- A. All steel decking as shown on the drawings.
- B. Standing Seam Metal Roofing, if required by the drawings, is specified in Division 7.

1.03 QUALITY ASSURANCE

- A. Standard Specifications: Except as modified or supplemented herein, the decking shall be designed in accordance with the latest edition of AISI "Specifications for the Design of Cold-Formed Steel Structural Members and all applicable requirements contained in "Design Manual for Composite Decks, Form Decks and Roof Decks" of the Steel Deck Institute, Inc.
- B. Testing – Contractor's independent testing laboratory shall witness all welded connections.

1.04 SUBMITTALS

- A. Manufacturer's Data: For information only, submit 2 copies of manufacturer's specifications and installation instructions for each type of decking and accessories. Include manufacturer's certifications as may be required to show compliance with these specifications.
- B. Shop Drawings: Submit detailed drawings showing layout and types of deck panels, anchorage details, and conditions requiring closure panels, supplementary framing, cut openings, special jointing or other accessories. Submit three prints. Two marked-up prints will be returned. Refer to Division 1 requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Deck, Dimensions and Properties: Dimensions and properties of the various types of deck are shown on the drawings. Deck configurations shall be similar to that of the decks called for on the drawings. Allowable stresses shall be equal to that of the deck specified on the drawings.
- B. Deck Coating: Galvanized, ASTM A525, G90.
- C. Miscellaneous Steel Shapes: ASTM A36.

- D. Sheet Metal Accessories: ASTM A 526, commercial quality, galvanized.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Deck sheets shall be erected and welded to supports in accordance with the manufacturer's specifications and erection layouts and as required to resist the uplift loads, if any, noted on the drawings.
- B. Side joints must be fastened together in accordance with manufacturer's specifications. Cutting openings through the deck less than 16 square feet in area, and all skew cutting shall be performed in the field. Deck shall be continuous over three (3) or more spans.
- C. Except where other permanent type edge closures are shown on the drawings, provide sheet metal edge closures around the perimeter of all steel deck areas, including openings, where concrete is to be applied to the deck. Deck closures shall be of proper gage and configuration to retain the wet concrete.

3.02 TOUCH-UP

- A. All damaged coating, including welds, shall be touched up with an approved coating before placing fill.

END OF SECTION

METAL FABRICATIONS**SECTION 05500****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Shop fabricated ferrous metal items, galvanized and prime painted with principal items listed below. Refer to Drawings for items not specifically listed.
 - 1. Rough hardware
 - 2. Ladders (including elevator pit ladders and exterior galvanized ladder).
 - 3. Loose steel lintels.
 - 4. Miscellaneous framing and supports.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Division 3 - Concrete: Work: Placement of metal fabrications in concrete.
- B. Section 04200 - Unit Masonry System: Placement of metal fabrications in masonry.

1.03 RELATED SECTIONS

- A. Section 05120 - Structural Steel: Structural steel column anchor bolts.
- B. Section 05510 - Prefabricated Metal Stairs: Prefabricated stairs and railings.
- C. Section 05522 - Handrails and railings systems.
- D. Section 09900 - Painting: Paint finish.

1.04 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- C. ASTM A123 - Zinc (Hot-Galvanized) Coatings on Products Fabricated From Rolled, Pressed and Forged Steel Shapes, Plates, Bars, and Strip.
- D. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- E. ASTM A283 - Carbon Steel Plates, Shapes, and Bars.
- F. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.
- G. ASTM A325 - High Strength Bolts for Structural Steel Joints.
- H. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.

- I. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.
- J. AWS A2.0 - Standard Welding Symbols.
- K. AWS D1.1 - Structural Welding Code.
- L. SSPC - Steel Structures Painting Council.
- M. Fed. Spec. FF-S-325 - Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry).
- N. Fed. Spec. FF-P-395 - Pin, Drive, Guided and Pin Drive, Power Actuated (Fasteners For Power Actuated And Hand Actuated Fastening Tools)
- O. Fed. Spec. FF-B-588 - Bolt, Toggle; and Expansion Sleeve, Screw.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
- C. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.06 QUALIFICATIONS

- A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the work.
- B. Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the project is being constructed.
- A. Welders Certificates: Submit under provisions of Section 01300, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.07 FIELD MEASUREMENTS

- A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Steel Sections: ASTM A36.
- B. Steel Tubing: ASTM A500, Grade B.
- C. Plates: ASTM A283.
- D. Pipe: ASTM A53, Grade B, Schedule 40.
 - 1. For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A53.
- E. Fasteners:
 - 1. Power Actuated Drive Pins: Fed. Spec. FF-P-395, style to suit material.
 - 2. Expansion Bolts (Shields): Fed. Spec. FF-S-325, except lead, fiber and plastic shields are not acceptable. Furnish bolts and screws required.
 - 3. Toggle Bolts: Fed. Spec. FF-B-588, except wire wings are not acceptable.
- F. Bolts, Nuts, and Washers: ASTM A325 or A307 as appropriate, galvanized to ASTM A153 for attachment to galvanized components.
- G. Gray-Iron Castings: ASTM A48, Class 30
- H. Malleable-Iron Castings: ASTM A47, Grade 32510 (ASTM A47M, Grade 22010).
- I. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E488, conducted by a qualified independent testing agency.
- J. Welding Materials: AWS D1.1; type required for materials being welded.
- K. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications equal to products as follows:
 - 1. B-6 Construction Grout; W. R. Bonsal Co.
 - 2. Euco N-S Grout; Euclid Chemical Co.
 - 3. Five Star Grout; Five Star Products
 - 4. Crystex; L & M Construction Chemicals, Inc.
 - 5. Masterflow 928 and 713; Master Builders Technologies, Inc.
 - 6. Sealtight 588 Grout; W. R. Meadows, Inc.
 - 7. SonogROUT 14; Sonneborn Building Products-ChemRex, Inc.

2.02 PAINT

- A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.
 - 1. Provide organic zinc rich primer complying with FS SSPC 20, Type II, at exterior work and work built into exterior walls.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.
- C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

2.03 FABRICATION - GENERAL

- A. Fit and shop assemble in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- G. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling

limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.04 FINISHES

- A. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Interiors (SSPC Zone 1A): SSPC-SP 3 "Power Tool Cleaning".
- B. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes or to be embedded in concrete, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
- C. Galvanize in accordance with ASTM A123 or ASTM A386, as applicable. Provide minimum 1.25 oz/sq ft galvanized coating.
 - 1. Galvanize all items exposed to the exterior or built into exterior wall/roof construction.
 - 2. Do not apply passivating treatment for items which receive paint finish after erection.

2.05 ROUGH HARDWARE

- A. Furnish bent or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.
- B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.

2.06 STEEL LADDERS

- A. General: Fabricate ladders for the locations shown, with dimensions, spacings, details and anchorages as indicated. Comply with requirements of ANSI A14.3 and OSHA.
- B. Siderails: Continuous steel flat bars, 3/8 inch x 3 inches, with eased edges, spaced 20-1/4 inch apart. At elevator pits, extend siderails 42 inches above floor/parpet level
- C. Bar Rounds: Round steel bars, 1 inch diameter, spaced 12 inches o.c.

- D. Crossover Platform: Steel supports indicated on the Drawings with non-slip raised pattern checker plate floor
- E. Fit rungs in centerline of side rails, plug weld and grind smooth on outer rail faces.
- F. Support each ladder at top and bottom and at intermediate points spaced not more than 4-0" o.c. by means of welded or bolted steel brackets.
 - 1. Size brackets to support design dead and live loads required and to hold centerline of ladder rungs clear of the wall surface by not less than 7 inches.

2.07 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

2.08 LOOSE STEEL LINTELS

- A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
- B. Weld adjoining members together to form a single unit where indicated.
- C. Size loose lintels for equal bearing of 1 inch per foot (85 mm per meter) of clear span but not less than 8 inches bearing at each side of openings, unless otherwise indicated.
- D. Provide lintels at all openings for mechanical and electrical penetrations of masonry partitions whether specifically indicated or not to provide support of the openings.

2.09 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports for applications indicated that are not a part of structural steel framework as required to complete the work.
- B. Fabricate units to sizes, shapes, and profiles indicated and required to receive other adjacent construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
 - 2. Except as otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide by 1/4 inch thick by 8 inches long.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.
- C. Center nosings on tread widths with noses flush with riser faces and tread surfaces.
- D. Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on Drawings or shop drawings as follows:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- D. Perform field welding in accordance with AWS D1.1.
- E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
- F. Cutting, Fitting, and Placement: Perform cutting, drilling and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and

elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

- G. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop-welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
- H. Obtain Architect approval prior to site cutting or making adjustments not scheduled.

3.04 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a 2.0 mil minimum dry film thickness.
 - 2. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of the shop paint on miscellaneous metal is specified in Section 09900 - Painting.
 - 3. For galvanized surfaces, clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A780.

3.05 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION

METAL ALTERNATING TREAD STAIRS**SECTION 05515****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Pre-engineered steel alternating tread stair system complete with handrails, treads, railings and all supports independent of main building structural framing.

1.02 DESIGN REQUIREMENTS

- A. Fabricate stair assembly to comply with requirements of the 2000 edition of the International Building Code and City of New Orleans supplements and as follows, whichever is the most stringent: support live load of 100 lb/sq ft with deflection of stringer or landing framing not to exceed 1/180 of span and a concentrated load of 300 lbs. placed upon an area of 2-1/2 feet square or so located as to produce maximum stress condition.
- B. Size and Spacing of Handrails: The diameter or width of the gripping surfaces of a handrail shall be 1-1/4 inch to 1-1/2 inch or the shape shall provide an equivalent gripping surface. If handrails are mounted adjacent to a wall, the space between the wall and the grab bar shall be 1-1/2 inch.
- C. Railing assembly, wall rails, and attachments to resist a horizontal thrust of 50 lbs. per ft. at the top of the railing and as follows, without damage or permanent set. The following is a requirement of article 4.26 of Federal Register, Vol. 56 No. 144, July 26, 1991, Rules and Regulations.
 - 1. Bending stress in a handrail induced by the maximum bending moment from the application of 250 lbf shall be less than the allowable stress for the material of the handrail.
 - 2. Shear stress induced in a handrail by the application of 250 lbf shall be less than the allowable shear stress for the material of the handrail. If the connection between the handrail and its mounting bracket or other support is considered to be fully restrained, then direct and torsional shear stresses shall be totaled for the combined shear stress, which shall not exceed the allowable shear stress.
 - 3. Shear force induced in a fastener or mounting device from the application of 250 lbf shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load.
 - 4. Tensile force induced in a fastener by a direct tension force of 250 lbf plus the maximum moment from the application of 250 lbf shall be less than the allowable withdrawal load between the fastener and the supporting structure.
 - 5. Handrails shall not rotate within their fittings.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate profiles, sizes, supports, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
- C. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.04 QUALIFICATIONS

- A. Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Louisiana.
- B. Welders' Certificates: Submit under provisions of Section 01300 certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on Drawings or shop drawings.

PART 2 - PRODUCTS

2.01 STAIR SYSTEM

- A. The Lapeyre steel alternating tread stair. The treads shall welded to the central stringer and to the handrails, creating an all-in-one welded unit.
- B. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes
- C. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Steel Tubing: ASTM A 513.
- E. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D
- F. Finish: Factory painted.
- G. Angle: 68 degrees
- H. Handrails: Factory finished steel Schedule 40 pipe, Standard Handrail (42" above landing) .

2.02 FABRICATION - GENERAL

- A. Fit and shop assemble in largest practical sections, for delivery to site.

- B. Fabricate components with joints tightly fitted and secured.
- C. Continuously seal jointed pieces by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- G. Accurately form components required for anchorage of stairs, landings and railings to each other and to building structure.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed/finished steel items to bare metal where site welding is required.
- B. Supply items required with setting templates, to appropriate sections.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide anchors, plates, angles, hangers and struts required for connecting stairs to structure.
- C. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments..
- D. Field weld components indicated on Drawings and shop drawings. Perform field welding in accordance with AWS D1.1.
- E. Field bolt to match shop bolting.. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- F. Mechanically fasten joints butted tight, flush, and hairline..

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION

ORNAMENTAL HANDRAILS AND RAILINGS**SECTION 05522****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Ornamental custom exterior fabricated galvanized steel handrails, ballusters and fittings with components indicated on the drawings. Also, provide cast iron assemblies where indicated on drawings, factory primed

1.02 RELATED SECTIONS

- A. Section 05500-Miscellaneous Metal: For metal handrail anchorage other than specified in this Section.

1.03 REFERENCES

- A. ADA - American with Disabilities Act of 1990, Title III (Accessibility Regulations for Private Entities) and latest amendments (if any).
- B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- C. ASTM A283 - Carbon Steel Plates, Shapes and Bars.
- D. ASTM A386 - Zinc-Coating (Hot Dip) on Assembled Steel Products.
- E. ASTM 500 - Cold-Formed Welded and Seamless Carbon Steel Tubing and Shapes.
- F. AWS D1.1 - Structural Welding Code.

1.04 DESIGN REQUIREMENTS

- A. Comply with requirements of the American with Disabilities Act of 1990, Title III (Accessibility Regulations for Private Entities) and latest amendments (if any).
- B. Size and Spacing of Handrails: The diameter or width of the gripping surfaces of a handrail shall be 1-1/4 inch to 1-1/2 inch or the shape shall provide an equivalent gripping surface. If handrails or grab bars are mounted adjacent to a wall, the space between the wall and the grab bar shall be 2-1/4 inch. Handrails may be located in a recess if the recess is a maximum of 3 inches deep and extends to at least 18 inches above the top of the rail.
- C. Railing assembly, wall rails, and attachments shall resist a horizontal thrust of 50 lbs. per ft. applied to the top of the railing and as follows, without damage or permanent set.
 - 1. Bending stress in a handrail induced by the maximum bending moment from the application of 250 lbf shall be less than the allowable stress for the material of the handrail.

2. Shear stress induced in a grab bar by the application of 250 lbf shall be less than the allowable shear stress for the material of the handrail. If the connection between the handrail and its mounting bracket or other support is considered to be fully restrained, then direct and torsional shear stresses shall be totaled for the combined shear stress, which shall not exceed the allowable shear stress.
3. Shear force induced in a fastener or mounting device from the application of 250 lbf shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load.
4. Tensile force induced in a fastener by a direct tension force of 250 lbf plus the maximum moment from the application of 250 lbf shall be less than the allowable withdrawal load between the fastener and the supporting structure.
5. Handrails shall not rotate within their fittings.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- C. Samples: Submit two (2) samples of handrail finish.

1.06 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

PART 2 - PRODUCTS

2.01 STEEL RAILING SYSTEM

- A. Steel and Iron: Provide steel and iron in the form indicated complying with the following requirements:
 1. Tubing: Cold-formed, ASTM A500; or hot-rolled, ASTM A501.
 2. Steel Plate, Shapes and Bars: ASTM A 36/A 36M.
- A. Rails and Posts: Shapes indicated on Drawings, welded joints.
- B. Fittings: wall brackets, escutcheons; cast steel.
- C. Mounting: Brackets and flanges, with steel inserts for casting in concrete, with steel brackets for embedding in masonry. Prepare backing plate for mounting in drywall wall construction.

- D. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.
- E. Gray-Iron Castings: ASTM A48, Class 30
- F. Malleable-Iron Castings: ASTM A47, Grade 32510 (ASTM A47M, Grade 22010).
- G. Welding Materials: AWS D1.1; type required for materials being welded.

2.02 FABRICATION

- A. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than that required to support structural loads.
- B. Fit and shop assemble components in largest practical sizes, for delivery to site.
- C. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain profile of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.
- D. Fabricate components with joints tightly fitted and secured.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth.
- F. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- G. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- H. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

- I. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.03 GROUT

- A. Nonshrink Nonmetallic Grout: Premixed, factory-pachaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD-C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section as follows:
 1. Euco N-S Grout; Euclid Chemical Co.
 2. Masterflow 713; Master Builders.
 3. SonogROUT; Sonneborn Building Products Div.

2.04 FINISHES

- A. Galvanize in accordance with ASTM A123 or ASTM A386, as applicable. Provide minimum 1.25 oz/sq ft galvanized coating.
 1. Galvanize all items exposed to the exterior or built into exterior wall/roof construction.
 2. Do not apply passivating treatment for items which receive paint finish after erection

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete and or embedded in masonry or placed in partitions with setting templates, to appropriate Sections.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions to comply with specified performance requirements.
- B. Install components plumb and level, accurately fitted, free from distortion or defects.
- C. Provide anchors, plates or angles required for connecting railings to structure. Anchor railing to structure.

- D. Field weld anchors as indicated on shop drawings. Grind welds smooth. Touch-up welds with specified galvanize primer.
- E. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- F. Adjust railings prior to securing in place to insure proper matching at butting joints and correct alignment throughout their length. Plumb posts in each direction. Secure posts and rail ends to building construction as follows:
 - 1. Anchor post in concrete by means of pipe sleeves set and anchored into the concrete. Provide sleeves of galvanized, steel pipe, not less than 1/2" greater than the outside diameter of the inserted pipe post. Provide steel plate closure secured to the bottom of the sleeve, and of width and length not less than 1" greater than the outside diameter of the sleeve. After the posts have been inserted into the sleeves, fill the annular space between post and sleeve solid with non-shrink, non-ferrous grout. Cover anchorage joint with a round steel flange welded to the post.
- G. After erection, prime welds and abrasions of railings.

END OF SECTION

CARPENTRY**SECTION 06100****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Treated wood blocking in walls and roofs for miscellaneous nailers and supports, and framing lumber.
- B. Plywood sheathing where indicated on the drawings.
- C. Telephone and electrical panel backboards.
- D. Preservative and fire retardant treatment of wood.
- E. Hardware and attachment accessories.
- F. Factory finished wall and base cabinets for kitchens, reception area and vanities for bathrooms.

1.02 REFERENCES

- A. ALSC - American Lumber Standards Committee: Softwood Lumber Standards.
- B. ANSI A208.1 - Mat Formed Wood Particleboard.
- C. APA: American Plywood Association.
- D. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- E. AWWA (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- F. AWWA (American Wood Preservers Association) C20 - Structural Lumber Fire Retardant Treatment by Pressure Process.
- G. NHLA (National Hardwood Lumber Association).
- H. NWWDA (National Wood Window and Door Association) I.S.4 - Water Repellant Preservative Treatment for Millwork.
- I. NFPA: National Forest Products Association.
- J. PS 1 - Construction and Industrial Plywood.
- K. PS 20 - American Softwood Lumber Standard.
- L. SPIB: Southern Pine Inspection Bureau.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories to a minimum scale of 1-1/2 inch to 1 ft
- C. Product Data: Provide technical data on wood preservative materials and application instructions.
- D. Certification of Treating Plant: Wood Preservatives: Submit certificate stating water-borne chemical and process used, net amount of preservative retained, and compliance with applicable standards. Include statement that moisture content of treated lumber was reduced to a maximum of 15% prior to shipment to site.

1.04 QUALITY ASSURANCE

- A. Rough Carpentry Lumber: Visible grade stamp, of agency certified by National Forest Products Association (NFPA).
- B. Lumber Standard: Comply with PS 20, except as otherwise indicated.
- C. Plywood Standard: Comply with PS 1, and APA grade trademarks.
- D. Factory mark each piece of lumber and plywood with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.
- E. Shop fabricate carpentry work to the extent feasible and where shop fabrication will result in better workmanship than feasible for on-site fabrication.
- F. Pressure-treated lumber shall conform to AWWA requirements for preservative or fire-retardant treated materials. Treatment plant shall be licensed by manufacturer of treated material.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces.
- C. Stack lumber and plywood in a way to provide air circulation with stacks.

1.06 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.07 COORDINATION

- A. Coordinate the work with plumbing and electrical rough-in, installation of associated and adjacent components.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Lumber shall be sound, thoroughly seasoned and well manufactured in compliance with NFPA "National Design Specifications" for Stress Grade Lumber and its Fastenings.
 - 1. Each piece of lumber shall bear an identification stamp of the accredited test agency. Maximum moisture content: 19%.
- B. Softwood Plywood: Comply with PS1.
 - 1. Plywood Backing Panels (for mounting electrical or telephone equipment): Fire-retardant, C-D - plugged with exterior glue, Exposure 1, 3/4" thick, each piece bearing U.L. label.
 - 2. Plywood Sheathing APA - Rated Sheathing, Exposure 1 with exterior glue, thickness as indicated with span rating as required for spacing of framing members
- C. Miscellaneous Blocking: No. 2 Southern Yellow Pine, 15 percent maximum moisture content.

2.02 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners: Hot-dipped galvanized steel for treated wood locations, unfinished steel elsewhere. Screw fasteners at the roof sheathing shall be long enough to penetrate the roof decking.
 - 2. Anchors: Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.03 FACTORY WOOD TREATMENT

- A. Fire retardant: AWWA Treatment C20, Interior Type, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating of 25 /450.
 - 1. Provide at telephone and electrical backboards.
- B. Wood Preservative : AWWA Treatment C2, ACQ (Alkaline Copper Quat) preservative, with a minimum of 0.40 lb/cu./ft. retainage. After treatment, kiln-dry lumber to a maximum moisture content of 19% .

1. To prevent deterioration of fasteners and anchors, all anchors and fasteners in contact with the treated wood and plywood shall be 300 series stainless steel, including fasteners for attachment of the treated wood and plywood, and also fasteners and anchors for securing building components (doors, windows, roofing, etc.) into and through the treated wood and plywood. Also, any treated wood in contact with aluminum and ferrous or galvanized steel products shall be isolated from the metal by installing a layer of self adhering modified bitumen sheet or equal (felt is not permitted) to the metal prior to installing the wood and plywood.
2. Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
3. Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWWPA M4 to cut surfaces.

2.04 CABINETS

- A. Kitchen Cabinets, Reception Area: (full wood construction, no particle board)
Diamond Prelude Collection – “Lansing Maple”, Partial Overlay or Southeastern Architectural Woodworks - “Lagniappe cabinets”
Finish: Toffee Stain on Maple w/ Cocoa Glaze
Construction: ½” plywood sides, 3/8” plywood top, bottom, and solid back panel w/extra 3/8” plywood support rail, ¾” adjustable plywood shelving, fully concealed, six way adjustable hinge, ¾” wood dovetail drawer with undermount full access glides
Hardware: Belwith P2283-SN knobs at cabinets, Belwith P2281 – SN pulls at drawers
Warranty:
Kitchen Counter & Backsplash: Laminate plastic specified in Section 06410
- B. Bathroom Cabinet: (full wood construction, no particle board)
Diamond Prelude Collection – “Lansing Maple”, Partial Overlay or Southeastern Architectural Woodworks - “Lagniappe cabinets”
Finish: Toffee Stain on Maple
Construction: ½” plywood sides, 3/8” plywood top, bottom, and solid back panel w/extra 3/8” plywood support rail, ¾” adjustable plywood shelving, fully concealed, six way adjustable hinge, ¾” wood dovetail drawer with undermount full access glides
Hardware: Belwith P2281 – chrome pulls at drawers
Bathroom Counter: Cultured Marble, color as selected by designer

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Erect wood stripping and nailing members true to lines and levels with closure strips at all edges and openings. Do not deviate from true alignment more than 1/4 inch.

- B. Securely attach carpentry work to substrates by anchoring and fastening as shown and as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.
- C. Install cabinets and tops in strict accordance with manufacturers printed instructions attached to studs and blocking with screws. Erect plumb and levels coordinated with finish tops and appliances. Use fine finishing nails for exposed trim, countersunk and filled flush with woodwork, and matching final finish where transparent finish is required. Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Secure cabinet and counter bases to floor using appropriate angles and anchorages
- A. Install telephone and electrical panel boards with fire retardant treated plywood sheathing. Oversize the panels by 12 inches on all sides.
- B. Carefully scribe work abutting over components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- C. Construct members of continuous pieces of longest possible lengths.
- D. Place miscellaneous blocking true to lines and levels. Secure rigidly in place.
- E. Locations of Use for Decay and Insect Resistant Pressure Treated Lumber:
 - 1. Use pressure-treated decay and insect resistant lumber for blockings and nailing strips in contact with masonry, concrete, roofing, steel, framing setting on and in contact with concrete and blocking in contact with exterior wall openings.
 - 2. Apply two (2) drenching coats of preservative compatible with treatment to job cut edges of lumber.

3.02 INSTALLATION OF PLYWOOD

- A. Comply with recommendations of the American Plywood Association (APA), for the installation of plywood. Install sheathing as recommended by the APA's "Design/Construction Guide.

END OF SECTION

ENGINEERED LUMBER**SECTION 06140****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes all laminated veneer lumber as shown on the drawings.

1.03 QUALITY ASSURANCE

- A. Laminated veneer lumber shall be designed and manufactured to the standards set forth in the Council of American Building Officials (CABO) Report No. NER-126.

1.04 SUBMITTALS

- A. Shop drawings: Complete shop drawings showing the layout and details necessary for determining fit and placement in the structure shall be provided by the manufacturer. Reproductions made from contract drawings will not be allowed. Submit three prints to the Engineer. One will be kept as a record copy and two marked-up prints will be returned to the Architect. The Engineer will have up to ten (10) working days from the time of receipt of the submittal to complete his review and return the submittal to the Architect. Review of shop drawings by the Architect/Engineer will be for general compliance with contract documents. No responsibility will be assumed for correctness of dimensions, quantities or details.

PART 2 - PRODUCTS**2.01 MATERIAL**

- A. All materials used in the manufacture of laminated veneer lumber shall comply with CABO Report No. NER-126.
- B. Veneer species and thickness shall be those accepted by the above referenced standard. They shall be ultrasonically graded or graded by other advanced grading systems accepted by the standard.
- C. Adhesives shall be of the waterproof type conforming to the requirements of ASTM D- 2559.
- D. All hardware shall be as called for in the details and notes on the drawings.

2.02 DESIGN

- A. The laminated veneer lumber shall match the sizes and material properties indicated on the drawings.

- A. Refer to "QUALITY ASSURANCE".
- B. Laminated veneer lumber shall be manufactured by Trus Joist MacMillan or approved equal. It shall be manufactured in a continuous process with all grain parallel with the length of the member.

2.04 IDENTIFICATION

- A. The laminated veneer lumber shall be identified by a stamp indicating the product type, species and grade, CABO NER report number, manufacturer's name and plant number.

PART 3 - EXECUTION

3.01 ERECTION AND INSTALLATION

- A. Refer to "QUALITY ASSURANCE".
- B. Exercise care at all times to avoid damage to laminated veneer lumber due to careless handling during storage, delivery, unloading and installation. Protect from the weather, if stored.
- C. Members shall be installed plumb, adequately braced, in the proper orientation, and as specified in the design and erection drawings.
- D. Cutting of members or field alteration is not permitted.

END OF SECTION

ARCHITECTURAL WOODWORK**SECTION 06410****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Standing and running trim for paint finish
- B. Plastic laminate finished countertops; particleboard is not allowed
- C. Wood shelving, plywood shelving with paint finish ; see drawings for brackets
- D. Wood door frames and jambs for paint finish
- E. Interior and exterior custom panel wood doors for paint finish: Spanish cedar at exterior doors
- F. Kitchen cabinets and vanities are specified in Section 06100
- G. Provide all wood blocking required for attachment of architectural woodwork, complying with Section 06100

1.02 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Grounds and support framing.
- B. Division 15: Plumbing fixtures and trims.

1.03 REFERENCES

- A. ANSI/BHMA A1156.9 - Cabinet Hardware
- B. AWI - Quality Standards
- C. FS MM-L-736 - Lumber, Hardwood
- D. FS MMM-A-130 - Adhesive, Contact
- E. National Electrical Manufacturers Association (NEMA) LD3 - High Pressure Decorative Laminates
- F. PS-1 - Construction and Industrial Plywood
- G. PS-20 - American Softwood Lumber Standard

1.04 SUBMITTALS

- A. Submit under provision of Section 01300.

- B. Product data for each type of product and process specified and incorporated into items of architectural woodwork during fabrication, finishing, and installation.
- C. Shop Drawings: Include plans, indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location, schedule of finishes and as follows:
 - 1. Show details full size.
 - 2. Show locations and sizes of furring, blocking and hanging strips, including concealed blocking and reinforcing specified in other sections.
 - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
- D. Samples for initial selection of the following in the form of manufacturer's color charts consisting of actual units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.
 - 1. Plastic Laminates surface materials.

1.05 QUALITY ASSURANCE

- A. Quality Standard: "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute for grades of interior architectural woodwork, construction, finishes, and other requirements.
- B. Prior to installation of custom casework, examine shop fabricated work for completion, and complete work as required, including back priming and removal of packing.
- C. Provide custom casework and trim conforming to the following Architectural Woodwork Institute (AWI) Quality Standards as a minimum requirement:
 - 1. Standing and Running Trim:
 - a. Paint Finish: AWI Section 300 - Custom Grade
 - 2. Plastic Laminate Finished Countertops:
 - a. AWI Section 400C - Custom Grade
 - 3. Wood Shelving:
 - a. Finish: AWI Section 600 - Custom Grade
 - 4. Wood Door Frames:
 - a. Paint Finish: AWI Section 900B - Custom Grade

5. Wood Stile and Rail Panel Doors:
 - a. Paint Finish: AWI Section 1400 – Custom Grade

1.06 QUALIFICATIONS

- A. Fabricator: Company specializing in manufacturing the products specified in this section with minimum three (3) years documented experience.
- B. Installer Qualifications: Arrange for architectural woodwork installation by a firm that can demonstrate successful experience in installing architectural woodwork items similar in type and quality to those required for this Project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products to site under provisions of Section 01600.
- B. Protect units from moisture damage.

1.08 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.9 COORDINATION

- A. Coordinate the work with plumbing and electrical rough-in.

PART 2 - PRODUCTS

2.1 SOLID WOOD MATERIALS

- A. Softwood Lumber: PS 20; graded in accordance with AWI Custom grade average moisture content of 11 percent; species and grade as follows:
- B. Hardwood Lumber: FS MM-L-736; graded in accordance with AWI Premium; average moisture content of 11 percent; species and grade as follows:
 1. Paint Finish: Poplar.
 2. Exterior Paint Finish: Spanish Cedar

2.2 SHEET MATERIALS

- A. Plywood: PS 51; or graded in accordance with AWI, waterproof type glue recommended for application

2.3 LAMINATE MATERIALS

- A. Plastic Laminate: AWI 0.050 inch General Purpose quality, color, pattern, and surface texture as selected, high pressure application.
- B. Laminate Backing Sheet: 0.020 inch Backing Sheet grade, undecorated plastic laminate.

2.4 ACCESSORIES

- A. Adhesive: FS MMM-A-130 contact adhesive or type recommended by AWI or laminate manufacturer to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.
- D. Concealed Joint Fasteners: Threaded steel.

2.5 FABRICATION

- A. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.
- C. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
 - 1. Apply laminate cabinet linings to all interior surfaces.
- D. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
- E. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.
- F. Shop-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges with a water-resistant coating.

2.10 SHELVING HARDWARE

- A. Adjustable Shelf Standards and Related Supports: Provide standards and supports of type indicated which comply with ANSI/BHMA A156.9.

2.11 STILE AND RAIL DOORS

- A. Construction: AWI Sections 1400, Custom Grade for paint finish; finger joints are not permitted.
- B. Solid and Veneer Wood: Exterior doors, and frames shall be Spanish Cedar.
- C. Construction methods shall include panels tongue grooved into adjacent stiles and rails. Connecting joints between stiles, rails and mullions shall be doweled and glued under pressure using #1 PVA waterproof adhesive. Panels to be retained by solid sticking or an applied bead. Provide provisions for expansion and contraction of the door panels so not to be visible.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

- A. Set and secure casework in place; rigid, plumb, and level in accordance with AWI Section 1700.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose. Refinish cut surfaces or repair damaged finish at cuts.
- E. Secure cabinet and counter bases to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- G. Tops: Anchor securely to base units and other support systems as indicated. Calk space between backsplash and wall with specified sealant.
 - 1. Install countertops with no more than 1/8 inch in 96 inch sag, bow, or other variation from a straight line.
 - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c.
- H. Install standing and running trim with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at inside returns, miter at outside corners to

produce tight fitting joints with full contact throughout length of joint, and comply with Quality Standards for joinery. Use scarf joints for end-to-end joints.

1. Install standing and running trim with no more than 1/8 inch in 96 inch variation from a straight line.
 - I. Anchor woodwork to anchors or blocking built-in or directly attached to substrate. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nails for exposed nailings, countersunk and filled flush with woodwork, and matching final finish where transparent finish is required.

3.03 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Adjust moving or operating parts to function smoothly and correctly.
- C. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.

3.04 CLEANING

- A. Clean work under provisions of Section 01700.
- B. Clean casework, counters, shelves, hardware, fittings and fixtures.

END OF SECTION

CRYSTALLINE WATERPROOFING**SECTION 07145****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Apply crystalline waterproofing to elevator pits; all horizontal and vertical surfaces, and treatment of joints and penetrations. Provide slurry coat system. Permeable grout tubes injected with sealing material at all intersections of horizontal and vertical construction.
- B. Apply crystalline waterproofing to all existing plaster walls and concrete floors of the existing basement. Repair all plaster as required to provide a smooth surface and clean all surfaces as required and approved by the waterproofing manufacturer.

1.02 RELATED SECTIONS

- A. Division 3 - Concrete Work.
- B. Division 14 - Elevators.

1.03 REFERENCES

- A. Applicable standards; standards of the following as referenced herein:
 - 1. American Society for Testing and Materials (ASTM).
 - 2. Army Corps of Engineers (CRD).

1.04 SYSTEM DESCRIPTION

- A. Crystalline Waterproofing: Mix of Portland cement, fine treated silica sand and active proprietary chemicals which when mixed with water and applied as a cementitious coating, causes a catalytic reaction which generates a non-soluble crystalline formation of dendritic fibers within the pores and capillary tracts of concrete. This process shall cause concrete to become permanently sealed against the penetration of water or liquids from any direction.

1.05 SUBMITTALS

- A. Submit product data under provisions of Section 01300.
- B. Product Data: Submit product data including installation methods for surface applications, treatment of penetrations and junctures, etc. for each type of product required, to demonstrate products comply with Contract Documents.
- C. Test Reports: Submit and obtain acceptance of independent laboratory test reports of tests specified herein, prior to application of cementitious crystalline waterproofing material.

- D. **Manufacturer's Certification:** Provide a copy of manufacturer's representative's report certifying that surfaces to which waterproofing is to be applied are in an acceptable condition to receive same, that materials to be installed comply with specified requirements, and that applicator has the experience to install the materials in accord with manufacturer's product data.

1.06 DELIVERY AND STORAGE

- A. Waterproofing materials shall be delivered to the project site in original sealed containers with manufacturer's name and brand clearly identified, shall be stored in dry locations with adequate ventilation, and shall be handled in a manner to prevent damage or contamination.

1.07 QUALITY ASSURANCE

- A. Provide products of a manufacturer with no less than 10 years experience in manufacturing the principal materials for the required work.
- B. **Applicator:** Waterproofing applicator shall be a firm experienced in the installation of cementitious crystalline waterproofing as demonstrated by previous successful installation. Waterproofing applicator shall be acceptable to the manufacturer and such acceptance shall be indicated in writing.
- C. **Pre-installation Conference:** Schedule a meeting, before start of construction of surfaces to receive waterproofing, with waterproofing applicator, applicators of work adjacent to or which penetrates waterproofing, waterproofing manufacturer's technical representative, Architect and Owner's representative to review procedures for substrate preparation and waterproofing application.
 - 1. Review Contract Document requirements for waterproofing and waterproofing manufacturer's product data including application instructions.
 - 2. Document discussion in writing, including issues requiring action, and distribute report to entities concerned with waterproofing work.

1.08 PROJECT CONDITIONS

- A. Comply with manufacturer's product data regarding condition of substrate to receive waterproofing, weather conditions before and during installation, and protection of the installed waterproofing system including work which will penetrate waterproofing.

1.09 WARRANTY

- A. Applicator, individually and separate from performance bonds, shall warrant his work from the Date of Substantial Completion, covering the surfaces treated, and binding him to repair, at his expense, any and all leaks through the surfaces treated which are not due to structural weaknesses or other causes beyond his control, such as fire, earthquake, tornado, and hurricanes, for a period of five (5) years after Date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable products for slurry coat application: "Xypex Concrete Waterproofing by Crystallization" by Xypex Chemical Corporation and "Penetron" by Penetron Corporation or HEY'DI K-11.
- B. Provide products manufactured or approved by prime waterproofing manufacturer.
- C. Gout Tube Products: equal to "INJECTO" systems as available from De Neef Construction Chemicals, Inc. and distributed by TCS, Kenner, LA (504) 466-4564. To be considered equal, an alternative product shall:
 - 1. Be constructed to resist the pressures of freshly placed concrete.
 - 2. Have a filter layer to prevent the entry of cement particles into the tube, yet allow the easy passage of the sealing material during injection over the total length of the tube.
 - 3. Have protection for the filter layer to resist the abrasive effects of the concrete aggregates.
 - 4. Be less than 3/4 inch overall diameter.
- D. Tube Sealing Material: Hydrophobic polymer of the isocyanate type which is installed by injection. The uncured polyurethane grout shall have a viscosity of 600 - 1000 cps (at 70 F) and be 100% solids, Hydro Active Flex LV of De Neef Construction Chemicals, Inc.
 - 1. When the sealing material is mixed with approx. 10% water, the sealing material shall expand and cure to a closed cell foam with a tensile strength of 30 psi and 250% elongation (ASTM-3574).
 - 2. The sealing material shall have the ability to react in moving water and the viscosity shall remain the same until gelation occurs.
 - 3. The cured sealing material shall be resistant to most organic chemicals, mild acids, alkali, micro-organisms and be essentially non-toxic

2.02 PERFORMANCE CRITERIA

A. Slurry Coat System

- 1. Perform independent testing according to CRD C48-73 Permeability of Concrete under the following conditions:
 - a. Concrete samples shall be 6 inches (150 mm) in diameter and no thicker than 2 inches (50 mm).

- b. Coatings shall be a maximum thickness of 0.05 inches (1 mm) per coat with up to 2 coats permitted.
- c. Concrete samples shall have a design strength of 2000 psi or less. No admixtures will be permitted.
- d. A minimum of four samples shall be tested; 2 treated and 2 untreated. Untreated samples shall exhibit leakage at 10 psi or less.
- e. Test samples to a pressure of 175 psi (405 foot head of water). Treated samples, after crystalline growth has occurred, shall exhibit no measurable leakage whatsoever.

2.03 MIXES

A. General:

- 1. Mix waterproofing material by volume with clean water, which is free from salt and deleterious materials. Mix materials in quantities which can be applied within 20 to 30 minutes from the time of mixing. As mixture thickens, stir frequently, but do not add additional water.
- 2. Do not mix bonding agents or admixtures, with crystalline waterproofing materials.

B. Brush application mix:

- 1. Measure dry powder and place in mixing container. Measure water and mix into powder with a paddle on a slow speed electric drill (250 RPM) or other type mixer which will ensure mixing and is acceptable to manufacturer.
- 2. Mixing proportions shall be as follows:

<u>Coverage</u>	<u>Proportions (by Vol.)</u>
1.5 lbs. per sq. yd	5 powder to 2 water
2.0 lbs. per sq. yd.	3 powder to 1 water

C. Spray application mix:

- 1. Mixing shall be same as specified for brush application, except that mix shall be thinner. Use the following proportions only as a guide. Adjust proportions in order to match type of equipment and pressures used.
- 2. Mixing proportions shall be as follows:

<u>Coverage</u>	<u>Proportions (by Vol.)</u>
1.5 lbs. per sq. yd	5 powder to 3 water

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to start of waterproofing installation, arrange a visit to project site by waterproofing material manufacturer's representative. Representative shall inspect and certify that surfaces to which waterproofing is to be applied are in acceptable condition.
- B. Verify that surfaces are sound and clean.
- C. Verify that form release agents, methods, and materials used to cure concrete surfaces are compatible with waterproofing materials.

3.02 PREPARATION AND INSTALLATION

- A. General: Examine surfaces to be waterproofed for form tie holes and structural defects such as honeycombing, rock pockets, faulty construction joints, and cracks. Repair these defects in accordance with manufacturer's product data and as follows:
 - 1. Form tie holes, faulty construction joints and cracks: Chip defective areas in a "U" shaped slot 3/4 inch to 1 inch wide and a minimum of 1 inch deep. Clean slot of debris and dust. Soak with water and remove surface water then fill cavity with Dry-Pac. Compress into cavity using pneumatic packer or block and hammer.
 - 2. Rock pockets, honeycombing or other defective concrete: Rout out defective areas to sound concrete. Remove loose materials and saturate with water. After slurry has set, but while it is still "green", fill cavity to surface with non-shrink grout.
- B. Construction joints:
 - 1. Install injectable grout tube in accordance with manufacturer's instructions. See subsection 3.04.
- C. Concrete finish:
 - 1. Concrete surfaces shall have an open capillary system to provide tooth and suction and shall be clean; free from scale, excess form oil, laitance, curing compounds and foreign matter. Smooth surfaces caused by steel forms and surfaces covered with excess form oil or other contaminants shall be lightly sandblasted or waterblasted to provide a clean absorbent surface equivalent to ICRI CSP 3.
 - 2. Vertical surfaces may have a sacked finish.
 - 3. On horizontal surfaces which do not require a trowel finish, a broom finish shall be provided. Do not apply waterproofing material to this surface if concrete is less than 20 hours old.

4. Apply waterproofing material to "green" concrete as soon as possible after forms have been stripped, or to existing concrete which has been saturated with water. Moisten surfaces to be treated prior to application, as required to insure migration of crystalline chemicals into capillary voids in concrete. Remove free water prior to treatment with waterproofing material.
- D. Surface Application: After repair, patching and sealing strip placement has been completed in accord with manufacturer's product data and as specified herein, treat concrete surfaces with waterproofing material slurry applied at rates and locations indicated on Drawings and in accord with manufacturer's product data.
- E. Brushing: Use a semi-stiff bristle brush or broom to work slurry into concrete surface, filling hairline cracks and surface pores.
- F. Spraying: Hold spray nozzle close enough to ensure that slurry is forced into surface pores, and hairline cracks.
- G. First Coat: Apply at a rate of 1.5 lbs. per Sq. Yd
- H. Second Coat: Apply at a rate of 1.5 lbs. per Sq. Yd while first coat is still "green", but after it has reached an initial set. Lightly pre-water when rapid drying conditions occur.

3.03 INSTALLATION OF GROUT TUBES AND SEALING MATERIAL

- A. Grout tubes shall be fastened to clean concrete surface every 12 inches (see drawing for location in construction joint). The Plastic ends will be bent so that they will protrude through or under the forms. Install tube in strict accordance with tube manufacturer's printed instructions.
- B. Each end of the grout tube shall cross the next one so that there will be no default in the injected zone.
- C. After the concrete has cured the grout tubes shall be injected with the sealing material to fill the construction joint and any honeycombs with the sealing material.
- D. Prior to injection of the sealing material, water will be injected into one end in order to provide water for the reaction process and to verify continuity between ends.
- E. Water shall be injected into one end until it begins to flow from other end of grout tube. If an excessive amount of water needs to be injected or a blockage is encountered the location needs to be marked. This marking will influence the injection procedure
- F. Start the injection of the sealing material at one end of the grout tube (pressure of approx. 200 psi). As soon as sealing material appears at other end, close this other end and increase pump pressure (to approx. 250 psi). Stop injection when sealing material percolate out of joint or a substantial back-pressure is built.
- G. Patch injection ends with high strength cementitious mortar so not noticeable

3.05 CURING

A. Slurry Coat:

1. Begin curing as soon as waterproofing materials have set up sufficiently so as not to be damaged by a fine spray. Fog-spray treated surfaces three times a day for a two day period, or cover treated surfaces with damp burlap for the prescribed period.
 - a. In warm climates, more than 3 sprayings per day may be necessary to prevent excessive drying of coating.
 - b. Do not lay plastic sheeting directly on waterproofing coating as air contact is required for proper curing.
 - c. For structures holding hot or corrosive liquids, cure waterproofing for 3 days and allow to set for 18 days.
 - d. If there is poor air circulation in treated areas, provide fans or blown air to aid in curing of waterproofing.
2. Horizontal surfaces: Begin curing as soon as final set has occurred but before surface starts to dry. Conventional moist procedures such as water spray, and wet burlap may be used. Cure for a minimum of 48 hours.
3. In hot, dry, sunny conditions, consult manufacturer's product data.
4. If moist curing is not possible, a chemical curing agent manufactured for or compatible with each approved waterproofing material shall be available for the work. Chemical agent shall have at least 2 years of successful field use to be eligible for acceptance.
5. Protect cured surfaces from damage to wind, sun, rain and temperatures below 36 degrees F. for a period of not less than 48 hours after application. If plastic sheeting is used as protection, it shall be raised off waterproofing coating to allow air circulation.

3.06 PROTECTION AND CLEANING

- A. Protect completed coating from damage after application for balance of construction period.
- B. Do not permit traffic on unprotected coating.
- C. Clean spillage and soilage from adjacent surfaces, using cleaning agents and procedures recommended by manufacturer of surface.

END OF SECTION

BUILDING INSULATION**SECTION 07210****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Labor, materials, tools, and equipment, to perform all operations necessary for thermal insulation work indicated or specified.
- B. The applications of thermal insulation specified in this section include the following:
 - 1. Blown-in loose fill cellulose insulation at attics
 - 2. R-values are indicated on the Drawings.
- C. Insulation in conjunction with metal roofing is specified as part of Section 07610.

1.02 QUALITY ASSURANCE

- A. Thermal Resistance Values: Provide, if required, adjusted thicknesses of insulation (based on the insulation's thermal conductivity) to maintain the required thermal resistance. R- values are based on requirements of SPRR 257-55 of the U.S. Department of Commerce.
- B. Fire and Insurance Ratings: Comply with the fire resistance, flammability and insurance ratings indicated, and comply with code interpretations by governing authorities.
- C. Provide insulation with a flame spread rating of less than 25 and a smoke development rating of 450 or less.

1.03 SUBMITTALS

- A. Manufacturer's Data: Submit 2 copies of manufacturer's specifications and installation instructions for each type of insulation required. Include data substantiating that the materials comply with specified requirements.

1.04 PRODUCT HANDLING

- A. Protection From Deterioration: Do not allow insulation materials to become wet or soiled, or covered with ice. Comply with manufacturer's recommendations for handling, storage and protection during installation.

1.05 JOB CONDITIONS

- A. Examination of Substrate: The Installer must examine the substrate and the conditions under which the insulation work is to be performed, and notify the Contractor in writing of any unsatisfactory conditions. Do not proceed with the insulation work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Cellulose Insulation: Loose fill insulation complying with ASTM C-739 (Standard Specification for CellulosicFiber [Wood-Base] Loose-Fill Thermal insulation)

PART 3 - EXECUTION**3.01 INSTALLATION**

- A. General: Comply with manufacturer's instructions for the particular conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific recommendations before proceeding with the work.
- B. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation.
- C Even distribution of cellulose insulation with a pneumatic blowing machine.

3.02 PROTECTION

- A. General: Protect installed insulation from harmful weather exposures and from possible damage by completing the enclosing construction as soon as possible or by temporary enclosure.

END OF SECTION

SPRAY-ON THERMAL INSULATION**SECTION 07215****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. The applications of thermal insulation specified in this section include installation of sprayed-on closed cell polyurethane insulation to thickness indicated. The application shall be coverage of within the metal framing to encapsulate the framing. In addition to thermal resistance, the sprayed insulation shall provide a continuous, uninterrupted air/weather barrier at the exterior walls and overhead structure. Prime all existing plaster substrates.
- B. Where sprayed on insulation is exposed (not covered with drywall, etc) apply specified thermal barrier to achieve a 15 minute thermal barrier
- C. Mock-Up: A representative surface of not less than 100 square feet shall be sprayed, reviewed for adhesion and density, and approved by the Architect and Owner. This shall apply to each different substrate so substrates can be tested for adhesion

1.02 QUALITY ASSURANCE

- A. Thermal Resistance Values: Provide, if required, adjusted thicknesses of insulation (based on the insulation's thermal conductivity) to maintain the required thermal resistance. R- values are based on requirements of SPRR 257-55 of the U.S. Department of Commerce.
- B. Fire and Insurance Ratings: Comply with the fire resistance, flammability and insurance ratings indicated, and comply with code interpretations by governing authorities.
- C. Provide insulation with a flame spread rating of less than 25 and a smoke development rating of 450 or less.
- D. Contractor must use a total system, encompassing equipment, fiber and adhesive as supplied and tested by the manufacturer.
- E. Fibers supplied under this specification shall have each bag coded with the date and lot number of manufacture, and retained samples shall be kept by the manufacturer for not less than one year.
- F. Contractor must be licensed and trained by the manufacturer

1.03 SUBMITTALS

- A. Manufacturer's Data: Submit 2 copies of manufacturer's specifications and installation instructions for each type of insulation required. Include data substantiating that the materials comply with specified requirements.

- B. Submit under provisions of Section 01300. Submit data documenting LEED credits applicable to herein specified products that qualify for credit categories specified in Section 01352- LEED Requirements

1.04 PRODUCT HANDLING

- A. Protection From Deterioration: Do not allow insulation materials to become wet or soiled, or covered with ice. Comply with manufacturer's recommendations for handling, storage and protection during installation.

1.05 JOB CONDITIONS

- A. Examination of Substrate: The Installer must examine the substrate and the conditions under which the insulation work is to be performed, and notify the Contractor in writing of any unsatisfactory conditions. Do not proceed with the insulation work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Polyurethane Spray-On Insulation: Closed cell spray applied polyurethane foam equal to "Walltite" by BASF and "Earthseal Series" by Apex Foam industries, Metairie LA, 800-630-2338 and, complying with following:
 1. Density, in place: 1.8 minimum (ASTM D-1622).
 2. Compressive Strength: 30-35 psi (ASTM D-1621).
 3. Shear Strength: 90-95 psi (ASTM C-273).
 4. Closed Cell Content: greater than 90% (ASTM D-6226).
 5. R-Value, Initial: 6.2 per inch (ASTM C-518).
 6. Perm Rating: less than 1.0 perm at 2-3/4 inch thickness (ASTM E-96)
 7. Dimensional Stability (% volume change): 2.0-2.20 dry age 28 days (158 degree F (ASTM D-2126).
 8. Surface Burning Characteristics (4 inch thickness): Flame spread of max. 25 and smoke development of max. 450.
- B. Thermal Barrier: Minimum .5 lbs/cu.ft. density gypsum based spray applied coating over exposed polyurethane foam plastic to provide a well adhered, monolithic thermal barrier protecting the spray foam from the effects of heat and fire, equal to Monokote Z-3306-G by W.R. Grace.

PART 3 - EXECUTION**3.01 INSTALLATION**

- A. General: Comply with manufacturer's printed instructions for the particular conditions of installation in each case. If printed instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific recommendations before proceeding with the work.
 - 1. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation.
- B. Apply a single layer of insulation of the required thickness, unless otherwise shown or required to make up the total thickness.
- C. Provide masking, drop cloths or other satisfactory coverings for all materials/surfaces which are not to receive insulation so as to prevent damage from over-spray.
- D. Surfaces to receive spray insulation shall be inspected prior to application to determine if priming/sealing is required to insure bonding and/or to prevent discoloration caused by migratory stains
- E. Thickness will be determined as the minimum thickness measured as per ASTM E-605 field test accordingly.
- F. Provide natural or mechanical ventilation continuously to properly cure the insulation
- G. Where foam is exposed, apply thermal barrier in thickness required in strict accordance with manufacturers printed instructions.
- H. Clean any overspray off adjacent surfaces

3.02 PROTECTION

- A. General: Protect installed insulation from harmful weather exposures and from possible damage by completing the enclosing construction as soon as possible or by temporary enclosure.

END OF SECTION

FIRESTOPPING**SECTION 07270****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Firestopping materials and accessories for all penetrations through existing and new fire or smoke rated construction with ratings indicated on the Drawings. Maintain fire ratings of construction being penetrated to include, but not limited to the following:
 - 1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 3. Wall openings at heads of partitions between walls and overhead construction.
 - 4. Openings at each floor level in all vertical shafts.
 - 5. All penetrations for data/communication cabling shall be firestopped with "putty" type firestopping herein specified to accommodate future removal and reuse.

1.02 RELATED SECTIONS

- A. Section 09260: Gypsum board systems for fire rated construction.
- B. Division 15: Mechanical work requiring firestopping.
- C. Division 16: Electrical work requiring firestopping.

1.03 REFERENCES

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. ASTM E814 - Standard Test Method of Fire Tests of Through-Penetration Firestops.
- C. UL 1479 Fire Test of Through - Penetration Firestops.

1.04 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases.

- B. F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.
- C. T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings as determined per ASTM E 814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas. T-rated assemblies are required where the following conditions exist:
 - 1. Where firestop systems protect penetrations located outside of wall cavities.
 - 2. Where firestop systems protect penetrations located outside fire-resistive shaft enclosures.
 - 3. Where firestop systems protect penetrations located in construction containing doors required to have a temperature-rise rating.
 - 4. Where firestop systems protect penetrating items larger than a 4-inch-diameter nominal pipe or 16 sq. in. in overall cross-sectional area.
- D. Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E 119, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.
- E. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.
 - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 - 2. For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.
 - 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal if insulation.
- F. For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke developed values of less than 250 as determined per ASTM E 84.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on product characteristics, performance and limitation criteria for each product required.

- C. Certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs) and are nontoxic to building occupants.
- D. Shop drawings detailing materials, installation methods, and relationships to adjoining construction for each through-penetration firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspecting agency, i.e. U.L. evidencing compliance with requirements for each condition indicated.
 - 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop configuration for construction and penetrating items.
- E. Product certificates signed by manufacturers of firestopping products certifying that their products comply with specified requirements.
- F. Product test reports from, and based on tests performed by, a qualified testing and inspecting agency evidencing compliance of firestopping with requirements based on comprehensive testing of current products.

1.06 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.
- B. Applicator: Company specializing in performing the work of this Section approved in writing by the manufacturer of the firestopping products. All firestop applications shall be performed by a one-specialty contractor that is trained and licensed specifically in this discipline. Said contractor's personnel shall have received specific training and certification or approval from the proposed respective firestop manufacturer and shall have a minimum of two years experience installing firestop systems of the type herein specified.
- C. Firestop System: Through Penetration Firestop Systems shall be designed to prevent the spread of fire, gases and smoke through openings in fire rated assemblies for a specified period of time. Incorporating the use of specific products installed in a specific manner, they shall only be installed in configurations for which they have been specifically tested and listed by Underwriters Laboratories (UL) per ASTM E 814 or UL 1479.
- D. Fire-Test-Response Characteristics: Provide firestopping that complies with the following requirements and those specified under the "System Performance Requirements" article:
 - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspection agency is UL, Warnock Hersey, or another agency performing testing and follow-up inspection services for firestop systems that is acceptable to authorities having jurisdiction.
 - 2. Through-penetration firestop systems are identical of those tested per ASTM E 814 under conditions where positive furnace pressure differential of at least 0.01 inch of water is maintained at a distance of 0.78 inch below the fill materials surrounding

the penetrating items in the test assembly. Provide rated systems complying with the following requirements:

- a. Through-penetration firestop systems correspond to those indicated by reference through-penetration firestop system designations listed by UL in their "Fire Resistance Directory", by Warnock Hersey, or by another qualified testing and inspecting agency.
- E. Fire-resistive joint sealant systems are identical to those tested for fire-response characteristics per ASTM E 119 under conditions where the positive furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch from the face exposed to furnace fire. Provide systems complying with the following requirements:
1. Fire-Resistance Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency.
 2. Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.
- F. Single-Source Responsibility: Obtain through-penetration firestop systems for each kind of penetration and construction condition indicated from a single manufacturer.
- G. Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through-penetration firestop systems are installed per specified requirements.
- H. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section.

1.07 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire resistance ratings and surface burning characteristics.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply materials when temperature of substrate material and ambient air is below 60 degrees F.
- B. Maintain this minimum temperature before, during, and for 3 days after installation of materials.
- C. Provide ventilation in areas to receive solvent cured materials.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. 3M Fire Protection Products

- B. Bio Fireshield, Inc.
- C. Dow Corning Corp.
- D. Hilti Construction Chemicals, Inc.
- E. International Protective Coatings Corp.
- F. General Electric Co.
- G. The RectorSeal Corp.
- H. Tremco, Inc.
- I. Substitutions: Under provisions of Section 01600.

2.02 MATERIALS - GENERAL

- A. Through-Penetration Firestopping System: Provide systems listed in the U.L. Fire Resistance Directory under categories XHCR and XHEZ, providing that it conforms to the construction type, penetrant type, annular space requirements and fire rating involved in each separate instance, and that the system be symmetrical for wall applications. Systems must be asbestos-free. Mortar systems must be Warnock Hersey approved.
 - 1. Additional requirements: Withstand the passage of cold smoke either as inherent property of the system, or by the use of a separate product included as a part of the U.L. system or device, and designed to perform this function.
 - 2. Acceptable Manufacturers and Products: Those listed in the U.L. Fire Resistance directory for the U.L. System involved or Mortar systems approved by Warnock Hersey.
 - 3. All firestopping products must be from a single manufacturer. All trades shall use products from the same manufacturer.
- B. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.
- C. Firestopping Material: Single component elastomeric foam compound, intumescent sealant, formulated compound mixed with incombustible non-asbestos fibers or mineral fiber stuffing insulation in combination with and encapsulated by the aforementioned products; passing ASTM E814 (UL 1479) Standard Method of Fire Tests for Through Penetration Fire Stops with basic rating criteria as follows:
 - 1. F Rating: No visible passage of flame or flaming on any element during rating period.

2. T Rating: Temperature rise of any thermocouple limited to 181°C (325°F) above ambient on non-fire side during rating period.
 3. Hose stream applied with no projection of water through fire stop.
- D. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.
- E. Accessories: Provide components for each firestopping system that are needed to install fill materials and comply with "System Performance Requirements: article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:
1. Permanent forming/damming/backing materials including the following:
 - a. Semirefractory fiber (mineral wool) insulation
 - b. Ceramic fiber.
 - c. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
 - d. Fire-rated formboard.
 - e. Joint fillers for joint sealants.
 2. Temporary forming materials.
 3. Substrate primers.
 4. Collars.
 5. Steel sleeves.

2.03 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

- A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.
- B. Intumescent, Latex Sealant: Single-component, intumescent, latex formulation.
- C. Intumescent Putty/Compound: Nonhardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.
- D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum foil on one side.
- E. Mortar: Prepackage dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogenous mortar.

- F. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- G. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, nonshrinking foam.
- H. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping/gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
- I. Solvent-Release-Curing Intumescent Sealant: Solvent-release-curing, single-component, synthetic-polymer based sealant of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping/gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
- J. Products: Subject to compliance with requirements and actual job conditions, products and combination of products that may be incorporated in the work include, but are not limited to, the following:
 - 1. Endothermic, Latex Sealant: As follows:
 - a. Fyre-Shield, Tremco, Inc.
 - 2. Endothermic, Latex Compounds: As follows:
 - a. Flame-Safe FS500/600 Series, International Protective Coatings Corp.
 - b. Flame-Safe FS900/FST900 Series, International Protective Coatings Corp.
 - 3. Intumescent Latex Sealant: As follows:
 - a. Metacaulk 950, The RectorSeal Corporation.
 - b. Fire Barrier CP 25WB Caulk, 3M Fire Protection Products.
 - c. Firestop Sealant FS605 and FS611A, Hilti Construction Chemicals, Inc.
 - 4. Intumescent Putty/Compound: As follows:
 - a. Pensil 500 Intumescent Putty, General Electric Co.
 - b. Flame-Safe FSP1000 Putty, International Protective Coatings Corp.
 - c. Fire Barrier MPS-2 Moldable Putty, 3M Fire Protection Products.
 - d. Trowelable Firestop Compound FS635, Hilti Construction Chemicals, Inc.
 - e. Biostop Fire Rated Putty, The RectorSeal Corp.

- f. Biostop Fire Rated Putty Pods, The RectorSeal Corp.
5. Intumescent Wrap Strips: As follows:
 - a. Dow Corning Fire Stop Intumescent Wrap Strip 2002, Dow Corning Corp.
 - b. CS2420 Intumescent Wrap, Hilti Construction Chemicals, Inc.
 - c. Fire Barrier FS-195 Wrap/Strip, 3M Fire Protection Products.
 - d. Biostop Wrap Strip by The RectorSeal Corp.
6. Mortar: As follows:
 - a. Bio K-10, Bio K-2 Mortar by The RectorSeal Corp.
 - b. 3M Fire Barrier Mortar.
 - c. K-2 Firestop Mortar, Bio Fireshield, Inc.
 - d. Novaskit K-10 Firestop Mortar, Bio Fireshield, Inc.
 - e. KBS-Mortar Seal, International Protective Coatings Corp.
7. Pillows/Bags: As follows:
 - a. Firestop Pillows, Bio Fireshield, Inc.
 - b. KBS Sealbags, International Protective Coatings Corp.
8. Silicone Foams: As follows:
 - a. Dow Corning Fire Stop Foam 2001, Dow Corning Corp.
 - b. Pensil 200 Foam, General Electric Co.
9. Sealants: As follows:
 - a. Dow Corning firestop Sealant 200, Dow Corning Corp.
 - b. Dow Corning Firestop Sealant SL 2003, Dow Corning Corp.
 - c. Pensil 100 Firestop Sealant, Hilti Construction Chemicals, Inc.
 - d. Metacaulk 835, The RectorSeal Corporation.
 - e. Metacaulk 880, The RectorSeal Corporation
 - f. Fyre-Sil, Tremco Inc.
 - g. Fyre-Sil S/L, Tremco Inc.
 - h. Biostop 500+ by The RectorSeal Corp.
 - i. Biotherm 100, Biotherm 200 by The RectorSeal Corp.
 - j. Biostop 700 by The RectorSeal Corp.
 - k. CP 25WB+ Caulk by 3M.
10. Solvent-Release-Curing Intumescent Sealants: As follows:
 - a. Biostop 500 Intumescent Firestop Caulk, BioFireshield, Inc.
 - b. Fire Barrier CP 25N/S Caulk, 3M Fire Protection Products.
 - c. Fire Barrier CP 25S/L Caulk, 3M Fire Protection Products.

11. Firestop Mastic:

- a. Biostop 700 by The RectorSeal Corp.

2.04 GENERAL SYSTEMS

A. The following products and manufacturers are examples of acceptable products and combinations of products for the following general applications within the restrictions of the manufacturer's printed data:

1. Cable, metal pipe, insulated pipe, construction gaps, HVAC ductwork and certain plastic pipe applications under static conditions:
 - a. 3M Brand Barrier Moldable Putty MPS-2 STIX, CP 25WB/CP 25WB+ Caulk and Interam FireDam 150 Caulk.
 - b. Metacaulk 950 by Rectorseal Corp.
 - c. Hilti FS601 Elastomeric Firestop Sealant
2. Plastic pipe penetrations under static conditions:
 - a. 3M Brand Fire Barrier FS-195/FS-195+ Wrap or Strip used in conjunction with putty or RC-1 Collar.
 - b. Hilti FS 611A Intumescent Firestop Sealant
3. Multiple cables, large conduit and/or cable tray penetrations.
 - a. Hilti CP 657 Fire Blocks.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that openings are ready to receive the Work of this Section and all work penetrating the openings is completed.

3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.
- B. Remove incompatible materials which affect bond.
- C. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bone; do not allow spillage and migration onto exposed surfaces.

- D. **Masking Tape:** Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

3.03 APPLICATION

- A. **Installing Through-Penetration Firestops: General:** Comply with the "System Performance Requirements" article in Part 1 and the through-penetration firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.
- B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:
 - 1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- D. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.
- E. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.
- F. Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.04 CLEANING

- A. Clean Work under provisions of Section 01700.
- B. Clean adjacent surfaces of firestopping materials.
- C. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.
- D. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

3.05 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SLATE ROOFING**SECTION 07311****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Remove existing shingle roofing, felts and sheetmetal where indicated on the drawings. Provide new natural slate roofing system to include one (1) layer of rubberized asphalt membrane underlayment sheets on sheathing for entire roof area, slate roofing, and new copper gutters and flashing and schedule 80 PVC downspouts to extent indicated on the Drawings on the following substrate:
 - 1. Sheathing substrate (Section 06100).

1.02 RELATED SECTIONS

- A. Section 06100 - Carpentry - Plywood substrate

1.03 QUALITY ASSURANCE

- A. UL Listing: Provide labeled materials which have been tested and listed by UL for Class "A" and Wind Resistant Label.
- B. Installer: Company experienced in installing natural slate roofing of the type and scope specified in this section and employing persons with not fewer than five years of documented experience. Company shall provide skilled workers, thoroughly trained and experienced in the necessary crafts of natural slate roof systems and who are familiar with this specification and methods required for a warrantable roof.
- C. Pre-Roofing Conference: Meet at the project well in advance of the time scheduled for roofing work, and review requirements for the work and conditions which could possible interfere with successful performance of the work. Require every party who is concerned with the work, or required to coordinate with it or to protect it thereafter, to attend the conference.
- D. Slate Standard: Comply with ASTM C 406 - Specification for Roofing Slate.

1.04 SUBMITTALS

- A. Product Data: Submit technical product data on all specified products, installation instructions and recommendations from slate manufacturer, including data that materials comply with requirements.
- B. Samples: Submit full range of samples for color and texture selection. After selection, submit two (2) full-size slates for verification of each color/style/texture selected.
- C. Maintenance Stock: 2% of each type/color/texture slate used in the work delivered in original unopened containers.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver shingles to project site in distributor's crates/pallets, labeled with data indicating source..
- B. Handle shingles to prevent chipping, breakage, soiling, or other damage. Protect edges with wood or other rigid material.
- C. Place and stack crates/pallets to distribute weight evenly and to prevent breakage or cracking.
- D. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double stack rolls.
- E. Protect unused underlayment from weather, sunlight and moisture when left overnight or when roofing work is not in progress.
- F. Stage roofing materials on the building in a manner to avoid significant or permanent damage to the roof deck or structural supporting members

1.06 JOB CONDITIONS

- A. Substrate: Proceed with work only after substrate construction and penetrating work have been completed.
- B. Weather Conditions: Proceed with work only when weather conditions are in compliance with manufacturer's recommendations and when substrate is completely dry.

1.07 WARRANTY

- A. Guarantee: Upon completion and acceptance of the work, furnish the attached two (2) year maintenance guarantee on the roofing Installer's letterhead stationery signed by the Installer and the Contractor. A copy of the guarantee follows this section.
 - 1. Slate shingle fabricators warranty, signed by the distributor and covering the slate shingles described in this section, in which the distributor agrees to replace slate shingles that fail in materials. The duration of this warranty shall be seventy five (75) years as established by ASTM C406.

1.08 EXTRA MATERIALS

- A. Provide an additional 3 percent of installed field slates for Owners use in roof maintenance

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Slate: Slate shall be hard, dense, sound rock, with chamfered edges, punched or drilled for two nails each, complying with ASTM C406, Grade S2: Expected service life 75 years. Slate shingles shall be punched or drilled back to front, and on the thinner end when there is variation in thickness along the length of the shingle. No broken corners on covered ends which sacrifice nailing strength or the laying of a watertight roof will be allowed. No broken or cracked slates shall be used. Slate shall be free of any visible inclusions of oxidizable iron pyrite.
1. Size: 20" ht x random size widths
 2. Thickness: Nominal 1/4 inch (7 mm).
 3. Exposure: 8-1/2" "
 4. Cut Butt Shape: Standard square cut
 5. Natural Cleft: Medium texture
 6. Starter Slate Size: Length of starter slates to be the exposure of the field slates plus the specified headlap and rounded up to the nearest full inch. Starter slates are to be front-side punched and installed chamfered edge down
 7. Color: 50% gren/50% grey to match existitng
 7. Approved: Vermont Slate, S1 Grade
- B. Curvature or twist in slate shingles shall not exceed 1/8 inch in 12 inches (3 mm in 100 mm). Curved slate shingles shall be trimmed and punched to permit them to be laid with convex side up. Knots, knurls and cramps are acceptable on the exposed slate shingle face. Knots, knurls and cramps on the back or covered portion of slate shingles, which prevent close contact of slate shingles or the laying of a watertight roof, will not be accepted
- C. Slate shingles shall be trimmed with 90-degree square corners. Face dimensions of slate shingles shall not differ from those specified by more than 1/8 inch (3 mm). Source: Obtain slate required for the project from a single quarry, with consistent color range, physical properties and texture throughout
- D. Elastic Cement: ANSI/ASTM D2822; asphalt type with mineral fiber components, free of toxic solvents, capable of setting within 24 hours at temperature of 75 degrees F and 50 percent RH; cement shall be colored to match the general color of the slate.
1. Above elastic cement must be specifically recommended in writing by slate roof applicator.
- E. Fasteners: Shall be a nail manufactured from structural copper with a minimum 7/16" head 0.120 inch (3 mm) or No. 11 gauge Stubs, not less than twice the nominal slate thickness plus 1 inch in length, with 3/8 inch (9 mm) head. and a needle point. Point should penetrate through underside of deck except where the underside of roof deck is exposed to view, where shorter nails are acceptable. Nails 1/2 inch (13 mm) or longer than field slate nails for hip and ridge installation..

- F. Rubberized Underlayment: ASTM D 1970, self-adhering polyethylene-sheet-back rubberized asphalt membrane, 40 mils thick. Provide primer when recommended by underlayment manufacturer. Approved products as follows:
 - 1. "Bituthene Ice & Water Shield", W.R. Grace & Co.
 - 2. "Polyken 640 Underlayment Membrane", Polyken Technologies.
 - 3. "Polyguard Deck Guard", Polyguard Products, Inc.
- G. Polymer Sealant: ASTM C 920 silicone sealant of type, grade, class, and use classification required to seal joints in slate-shingle roofing and remain watertight.
- H. Butyl Rubber Sealant: ASTM C 1311, single-component, solvent-release; polyisobutylene plasticized; heavy bodied.
- I. Plastic Cement: ASTM C 1085, one part non-sag polymerized butyl sealant.

2.02 SHEET METAL AND TRIM MATERIALS

- A. Copper: ASTM B 370; temper H00 (cold-rolled) except where temper 060 is required for forming; 16oz. (0.0216 inch thick) except as otherwise indicated
- B. Miscellaneous Materials and Accessories:
 - 1. Solder: For use with steel or copper, provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.
 - 2. Fasteners: Same metal as flashing/sheet metal or, other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
 - 3. Bituminous Coating: SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
 - 4. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
 - 5. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealers".
 - 6. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching material being installed, noncorrosive, size and gage required for performance but not less than item being anchored.
 - 7. Roofing Cement: ASTM D 2822, asphaltic
- C. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal

Manual" and other recognized industry practices. Fabricate for waterproof and weather resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

- D. Metal Drip Edge: Minimum 24 gauge prefinished sheet, brake-formed to provide 3 inch roof deck flange and 1½ inch fascia flange with 3/8 inch drip at lower edge. Furnish in lengths of 8 or 10 feet.
- E. Gutters: Form in sections not less than 8 ft. in length, complete with end pieces, outlet tubes, and any special pieces that may be required. Join sections with riveted and soldered or sealed joints. Unless otherwise indicated, provide expansion-type slip joint at the center of runs. Furnish gutter supports spaced at 36" o.c., constructed of same metal as gutters.
- F. Downspouts: Formed in sections of PVC pipe approximately 10 ft. long, complete with elbows and offsets. Join sections with waterproof adhesive. Provide fasteners for top, bottom, and 5' o.c. intermittently between, designed to securely hold downspouts not less than 1" away from walls.
 - 1. PVC shall have no writing or labels on the surfaces

PART 3 - EXECUTION

3.01 PREPARATION OF SUBSTRATE

- A. Clean substrate of any projections and substances detrimental to the work. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with roofing nails.
- B. Coordinate installation of roofing with flashing and other adjoining work to ensure proper sequencing. Do not install slate roofing until all vent stacks and other penetrations through roofing have been installed and are securely fastened against movement.

3.02 ROOFING INSTALLATION

- A. General: Comply with written instructions and recommendations of slate manufacturer and NRCA Steep Roofing Manual and slat manufacturers printed instructions, except to extent more stringent requirements are indicated.
 - 1. Double shingles at eaves and cornice line. Beginning at eaves, project shingle 2 inches (50 mm) beyond perimeter with no gutters or troughs, or 1 inch (25 mm) with gutters or troughs. Lay shingles in horizontal courses. Provide at least the specified head lap between succeeding courses of shingles and stagger joints between courses a minimum of 3 inches (75 mm). Provide 1 inch (25 mm) to 2 inches (50 mm) projection of shingles at gable and rake edges.
- B. Install one layer of self-adhering sheet underlayment wrinkle free. Apply from roof edge to a line that when projected to the horizontal is not less than 24 inches (610 mm) inside of interior wall line. Install lapped in direction to shed water. Lap sides not less than 3 1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm), staggered 24 inches (600 mm) between

courses. Roll laps with roller. Proceed with installation only within the range of ambient and substrate temperatures recommended by manufacturer. Stagger each layer by 1/3.

- C. The entire surface of all roofs, the roofs and sides of any appurtenances where indicated or required, and all other surfaces so indicated on the Drawings, shall be covered with slate in a proper and watertight manner. Blend slates from all crates/pallets together to achieve a uniform color and texture to the roof.
- D. The slate shall project 2" at the eaves and from 1/2" to 1" as directed at all gable ends, and shall be laid in horizontal courses with 3" headlap and each course shall break joints with the preceding one by at least 3". Slates at the eaves or cornice line shall be doubled using same thickness slate for under-eaves at first exposed course and canted 1/4" by a wood strip. Under-eave slate to be approximately 3" longer than exposure of first course.
- E. Slates overlapping sheet metal work shall have the nails so placed as to avoid puncturing the sheet metal. Exposed nails shall be permissible only in top courses where unavoidable.
- F. Neatly fit slate around any pipes, ventilators, etc.
- G. Nail slate shingles so nail heads touch shingle lightly. Nails shall not be driven in so far as to produce a strain on the slate.
- H. Cover all exposed nailheads with elastic cement. Hip slates and ridge slates shall be laid in plastic cement spread thickly over unexposed surface of undercourses of slate, nailed securely in place and pointed with elastic cement.
- I. Hips: Install slate shingles at hips. Lay hip shingles in plastic cement spread generously over unexposed portions of lower courses and nail in place. Only where heads of nails are exposed, cover with plastic cement.
 - 1. Install approved metal hip caps per manufacturers installation instructions.
- J. Ridges: Install slate shingles at ridges. Lay ridge slates in plastic cement spread generously over unexposed lower courses and nail in place. Only where nail heads are exposed, cover with plastic cement
- K. On completion all slate must be sound, whole and clean, and the roof shall be left in tight and neat in every respect. Remove and replace damaged or broken slates using slate repair hooks or nail and bib repair procedure where standard nailing is not possible.

3.03 SHEET METAL INSTALLATION

- A. Install sheet metal trim, flashing and counterflashing, and roof edges and penetrations in a manner indicated or implied by the Drawings and Specifications and as recommended by the manufacturer of SMACNA.
- B. Join sheet metal using a flat locked seam or lapped and securely soldered joints. Make allowance at all joints for expansion and contraction. At exposed edges, sheet metal shall be hemmed and returned upon itself 1/2" for strength. At lap joints, make hems together so that one slides into the other.

- C. Install gutters and downspouts in accordance with SMACNA with watertight joints; slope gutters for positive drainage.
- D. Downspouts shall be installed with a minimum of three (3) straps for every 10 ft. of run

3.04 PROTECTION

- A. Lay out progression of work to prevent other trades from working on or above completed roofing.
- B. Minimize traffic over finished roof surface. If necessary, wear soft-soled shoes and walk on the 'butt' of the shingles in order to avoid breakage

(Name of Building)

MAINTENANCE GUARANTEE

The General Contractor and roofing contractor jointly guarantee and warrant the roof of the above-named building against faulty material or workmanship, or both for a period of two (2) years from the date of the Owner's acceptance.

During this period, they agree to repair or replace all defects, and generally to maintain the roofing and associated sheet metal in its original weathertight and watertight condition - all without cost to the Owner.

EXCEPTIONS: Exceptions to this guarantee are failure of work installed by others, abuse, lightning, tornado, hail storm, or other unusual climatic phenomena.

During the maintenance period, the General Contractor and roofing contractor agree that, within 24 hours of receipt of notice from the Owner, they will inspect and make immediate repairs to defects and leaks threatening the interior of the building. They further agree to effect permanent repairs to these defects or leaks within 30 days of said notice. The above repairs shall be made without cost to the Owner.

Permanent restoration shall be made using materials and methods originally specified.

It is understood that the Owner reserves the right to make immediate emergency repairs, at their own expense, to conditions threatening the building contents, before the notice or expiration of the 24-hour period, without abrogating their rights under this guarantee.

It shall be understood and agreed that should temporary repairs not be made within 24 hours or permanent repairs within 30 days, then the Owner may employ others to make such corrections at the expense of either or both (jointly) of the signatories.

Date of Owner's Acceptance: _____

By: _____

By: _____

Title: _____

Title: _____

(Name of Roofing Contractor)

(Name of General Contractor)

END OF SECTION

ROOFING GUARANTEE

OWNER: ARCHDIOCESE OF NEW ORLEANS

ADDRESS: BUILDING OFFICE
7887 WALMSLEY AVE.
NEW ORLEANS, LA. 70125

WHEREAS _____

Address _____

Telephone () _____, herein called the "Roofing Contractor", has performed roofing and flashing in accordance with the Contract Documents (Hereinafter called the "Work") under a Contract with the Owner.

Name of Project: _____

Parish or Institution _____

Location/Address

Name and type of Building (s)

Type (s) of Roof Deck (s):

Total Roof Area _____ SF, Flashing, Edge: _____ LF
Base: _____ LF

Date of Acceptance: _____ Guarantee
Period: 2 Years

Date of Expiration: _____

AND WHEREAS the Roofing Contractor has contracted to guarantee said work against water entry from faulty or defective materials and workmanship for the designated Guarantee period:

NOW THEREFORE the Roofing Contractor guarantees, subject to the terms and conditions herein set forth, that during the Guarantee Period he will at his own cost and expense make or cause to be made with approval procedures and materials such repairs to or replacements of said work resulting from water entry or faults or defects of said Work as are necessary to correct faulty and defective work and as are necessary to maintain said Work in watertight conditions and further to respond

on or within two (2) working days upon written notification of leaks or defects by the Owner. Furthermore, he will at his own cost and expense maintain the roof for (2) years after acceptance, in accordance with the current edition of the Roof Maintenance Manual published by the Roofing Industry Educational Institute. The roof shall be inspected a minimum of twice each year, and a report prepared documenting the conditions observed at each inspection. These inspections shall be made once during the months of April or May and once during the months of September and October. Two copies of each report shall be forwarded to the Owner.

This guarantee is made subject to the following terms and conditions:

1. Specifically excluded from this guarantee are damages to the Work, other parts of the building and building contents caused by: A) lightning, windstorm (includes hurricanes and tornados), hailstorm, earthquakes and other unusual phenomena of the elements; B) fire; and C) structural failures causing excessive roof deck, edgings and related roof components movement. When the Work has been damaged by any of the foregoing causes, the Guarantee will be null and void until such damage has been repaired by the Roofing Contractor, and until the cost and expense thereof has been paid by the Owner or another responsible party so designated.
2. During the Guarantee Period, if the Owner allows alteration of the Work by anyone other than a Contractor approved in writing by the Roofing Contractor, prior to the work being performed, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations, the Guarantee shall not become null and void, unless the Roofing Contractor, prior to proceeding with said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the Work, thereby reasonably justifying a termination of this Guarantee.
3. During the Guarantee Period, if the original use of the roof is changed and it becomes used for, but for which it was not originally designed or specified, as a promenade, work deck, spray-cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
4. During the Guarantee Period, if any building or area of a building is changed to uses creating extremes of interior temperature and/or humidity, but for which it was not originally designed And specified, without provisions and alterations made to the building which effectively contain or control these conditions, this Guarantee shall become null and void upon the date of said change.
5. The Owner shall promptly notify the Roofing Contractor in writing of observed known or suspected leaks, defects or deterioration and shall afford reasonable opportunity for the Roofing Contractor to inspect the Work, and to examine the evidence of such leaks, defects or deterioration.
6. This Guarantee is recognized to be the only guarantee of the Roofing Contractor on said work, and shall not operate to restrict or cut off the Owner from other remedies and recourses lawfully available to him in case of roofing failure. Specifically, this Guarantee shall not operate to relieve the Roofing Contractor of his responsibility for performance of the original work, regardless of whether the Contract was a Contract directly with the Owner or a Subcontract with the Owner's General Contractor.

IN WITNESS THEREOF, this instrument has been duly executed this day of _____, 201____.

General Contractor's Signature: _____

Typed Name: _____

Representing: _____

Telephone No. _____

WITNESS: _____

Roofing Contractor's Signature: _____

Typed Name: _____

Representing: _____

Telephone No. _____

WITNESS: _____

ROOF COATING**SECTION 07570****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. Urethane coating system to provide a seamless, fully adhered fluid applied waterproof roof coating system over existing galvalume metal roofing as indicated on the drawings..
- B. Note: Securing the existing roof is part of the work of this section.

1.02 MANUFACTURERS QUALIFICATIONS

- A. Manufacturer regularly and presently manufactures traffic coating as called for in this section as one of his principal products.
- B. Installer has technical qualifications, experience, trained personnel and facilities to install specified items and is an approved installer in writing by the manufacturer.
- C. Manufacturer's product submitted has been in satisfactory and efficient operation on three installations similar or equivalent to this project for three years. Submit list of installations. List shall include name and location of project and name of owner.
- D. UL Listed Products: Provide materials which have been tested and listed by UL for applications indicated, with following rating for deck and ramp slope shown:
 - 1. "Class A" rated materials/system.

1.03 SUBMITTALS

- A. In accordance with Section 1300.
- B. Manufacturer's Literature and Data: Printed installation instructions and Maintenance instructions.
- C. Samples: 12" square samples of fully cured exposed finish materials, in colors required for work including aggregate coating on samples.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened, labeled containers, and comply with manufacturer's instructions for storage and handling.
 - 1. Provide UL labels on containers.

1.05 JOB CONDITIONS

- A. Proceed with traffic coating work only after substrate construction and penetrating work have been completed.

- B. Pre-Installation Conference: Meet at project site well in advance of time scheduled for work to proceed, and review requirements for work and conditions which could possibly interfere with successful performance. Require every party who is concerned with traffic coating work, or required to coordinate with it or to protect it thereafter, to attend conference.
 - 1. Require manufacturer's technical representative to participate in conference.

1.06 GUARANTEE

- A. Guarantee coating installation, including flashings against failures and water penetration with a guarantee period of ten (10) years.

PART 2 - PRODUCTS

2.01 ELASTOMERIC URETHANE ROOF COATING

- A. Liquid elastomeric urethane base coating, either one-component or 2-component mixture for application in one or more coats. Provide each coat complying with following requirements for cured membrane, as certified by independent laboratory tests:
 - 1. Tensile Strength (ASTM D412): 1500 psi.
 - 2. Elongation at Break(ASTM D412) : 360%.
 - 3. Permanent Set (ASTM D412): <10%.
 - 4. Tear Resistance (ASTM D1004): 100 lb/in.
 - 5. Water Resistance (ASTM D471): <3% @ 7 days
 - 6. MVT @ 30 Mils (ASTM E96): 2.2 English
 - 7. Shore A (ASTM D2240): 70-75
 - 8. Adhesion (ASTM D903): 15 pli
 - 9. Weathering Resistance (ASTM D822): Slight chalk
 - 10. Minimum Dry Film Thickness: 15 mils average for total system.
 - 6. Approved: "Elasta-Gard M" by Neogard Division of Jones-Blair Company,

2.02 MISCELLANEOUS COVERING MATERIALS

- A. Flashing Sheets, Fillers, Cant Strips and Accessories: Types as recommended by deck coating manufacturer, supplied for locations recommended by manufacturer.
- B. Expansion Joint Sealant: Epoxy base elastic sealant as recommended by the coating manufacturer for compatibility with coating and size of joint indicated.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Comply with manufacturer's printed instructions for preparation of substrates to receive traffic coating system.
- B. Cleaning: Surfaces contaminated with oil or grease shall be vigorously scrubbed with a power broom and a strong non-sudsing detergent. Thoroughly wash, clean and dry.
- C. Etching: Treat concrete surfaces with 10% to 15% solution of muriatic acid to remove laitance and impurities. After acid has stopped foaming or boiling, immediately rinse thoroughly with water. Re-rinse as required to remove muriatic acid solution. Note: If acid etching is not practical, shotblasting is an acceptable alternative.
- D. Cracks and Cold Joints: Visible hairline cracks (up to 1/16" in width) in concrete and cold joints shall be cleaned, primed and treated with polyurethane deck coating material a minimum distance of 2" on each side of crack to yield a total thickness of 30 dry mils. Large cracks (over 1/16" in width) in concrete shall be routed and sealed with coating manufacturer's traffic bearing sealant. Sealant shall be applied to inside area of crack only, not applied to deck surface. Detail sealed cracks with polyurethane deck coating material a distance of 2" on each side of crack to yield a total thickness of 30 dry mils.
- E. Install flashing sheets and accessory items as recommended by manufacturer.
- F. Fill voids, including non-moving joints and rough areas of substrate, with manufacturer recommended fillers or feathered-out coating of membrane material, in manner recommended by manufacturer. Form coves at corners and penetrations of substrate.
- G. Test substrate for excessive moisture content, in manner recommended by manufacturer.
- H. Prime and seal substrate as recommended by traffic coating manufacturer, applying thinned coating of membrane liquid if not otherwise recommended.
- I. Mask off adjoining surfaces not to receive traffic coating, to prevent spillage and migration of liquid materials outside membrane area.
 - 1. Protect all mechanical, electrical items, cables, conduit, etc., and do not allow contact with deck coating.

3.02 INSTALLATION

- A. General: Comply with manufacturer's instructions for installation of system, including surface preparation, priming, joint treatment, flashing, and surfacing. Apply membrane liquids by roller coating, or distributing with notched squeegee to provide uniform thickness. Trowel heavy-bodied mixtures in place uniformly as recommended by manufacturer.
 - 1. Start installation of deck covering only in presence of manufacturer's technical representative.
- B. Apply total thickness of traffic coating in number of coats recommended by manufacturer, using special top coating to achieve wear and chemical resistance required, and to provide color and texture required.
- C. System: Apply base membrane of urethane elastomer and aggregate-bearing top course in accordance with manufacturer's printed instructions.
 - 1. At urethane/epoxy system apply aggregate-bearing chemical resistant epoxy top coat to urethane base coating and slip resistant aggregate.
 - 2. Apply dry mil thickness indicated in product description herein.
- D. Terminate floor system at abutting walls with sealed joints and turn up a minimum of 4 inches at vertical arises.

3.03 PROTECTION

- A. Provide protection to ensure that work will be without damage or deterioration at time of final acceptance.

END OF SECTION

MODIFIED BITUMEN ROOFING**SECTION 07600****PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions, and other General Requirements apply to the work specified in this Section.

1.02 DESCRIPTION OF WORK

- A. Completely remove existing BUR. roofing systems, board insulation and base flashings to expose bare substrate of existing deck, i.e. concrete, plywood and wood.. After removal, no residual application materials shall remain that could cause failure of any kind of the new roofing systems

1. See the attached descriptions of existing **roof areas A-K** following this section.

Note: The information contained in above reports must be verified and does not relieve the Contractor of the responsibility to verify all existing conditions.

- B. **Asphalt modified bitumen roofing** shall include:

1. New roofing system configurations shall consist where applicable over existing deck; fiberglass base sheet loose laid, flat and tapered rigid insulation, crickets, cover panel, base ply of modified bitumen applied with torch application, cap sheet of modified bitumen layer with granular surfacing applied with torched application, and parapet treatment up wall and under the metal coping and flashing systems applied by torched application:

Concrete Deck: tapered polyisocyanurate board (minimum 1-1/2 inch thick) adhered in foam adhesive, gypsum cover panel adhered in foam adhesive, base ply of modified bitumen applied with torch application and top layer with granular surfacing applied with torched application, and parapet treatment up wall and under the metal coping and flashing systems applied by torched application

Wood/Plywood Decks: fiberglass base sheet loose laid over existing substrate, one layer of flat or tapered polyisocyanurate board (minimum 1-1/2 inch thick) mechanically attached simultaneously with gypsum cover board, base ply of modified bitumen applied with torch application and top layer with granular surfacing applied with torched application, and parapet treatment up wall and under the metal coping and flashing systems applied by torched application

2. Provide roofing system and application to meet the wind uplift requirements the perimeter and corners as required by FM LPDS 1-29: The net design wind pressures below represent the net pressures (sum of internal and external) to be applied normal to each building surface, as required by and calculated in accordance with the International Building Code 2009 and Supplements (Orleans Parish) and ASCE 7-05, measured in accordance with ANSI/ASTM E330 and when tested in accordance with ANSI/ASTM E330, based on 130 mph wind speed, Exposure B and Importance Factor of 1.00, and perimeter and corners as required by Codes

figured without parapets.

3. Approved Roofing/Flashing Systems: Equal to the following system:

Siplast Inc.:

Fiberglass Base Sheet: (Wood/Plywood Decks Only): Parabase FS

Cap Sheet: Paradiene 30 FRTG.

Interply: Paradiene 20 TG.

Flashing: Paradiene 20 SA/Veral Alum; (Parapro 123 for flashing at all penetrations)

General notes:

- a. All foil faced flashing products shall be resistant to thermal shock.
 - b. Flashing systems are to be two ply systems (specify backer ply).
 - c. Note: If required, provide heavier base sheets or other components if required by the roofing manufacturer for the application being used.
 - d. Provide liquid flashing system (catalyzed acrylic resin and fleece inner layer), where indicated on the drawings and also at all pipe and other similar penetrations.
4. If application methods and materials are required to differ from those listed above due to new or existing slopes that are in excess of the slope limit of the specified systems, provide materials and application methods as recommended by the roofing manufacture for those conditions. It is the Contractor's responsibility to verify all slopes and coordinate with roofing manufacturer's requirements.

C. Sheet metal work shall include:

1. New stainless steel metal flashings, scuppers, downspouts, etc as indicated on the drawings associated with the modified bitumen roofing. Pre-engineered copings and gravel stops are specified in Section 07620-Flashing and Sheet metal

D. Rough Carpentry: Treated wood nailers.

1.03 QUALITY ASSURANCE

- A. Installer: Roofing and sheet metal work shall be by a single firm that has been in business at least five (5) years, called the Installer in this Section, specializing in the type(s) of roofing required, so that there will be undivided responsibility for the performance of the work.
- B. Installer shall be certified as an approved applicator in writing by the roofing materials manufacturer prior to award of contract for the installation of a fully guaranteed roof as required by this specification.
- C. UL Rating: Provide materials and roofing systems which have been tested, listed and labeled by UL for the following Class or Rating as roofing:
- D. Provide "Class A" rating, except as otherwise indicated.
- E. Manufacturer of Roofing Materials: Obtain primary and secondary materials from a single

manufacturer, who publishes complete information on the required system, and offers to guarantee or bond the completed roofing installation as required. Obtain accessory, i.e., non-combustible cant, roofing nails, etc materials from sources acceptable to the manufacturer of the primary materials.

- G. The roofing system product supplier shall furnish the Roofing Contractor with Material Safety data Sheet/Sheets (MSDS), incorporating OSHA approved form, current edition. Said sheets shall be available at the site at all times until project completion.
- H. On Site Inspector: The Owner may require that an inspector be in attendance continually from the beginning of roofing operations.
- I. Acceptable Products: Primary roofing products, including each type of sheet, all manufactured in the United States, shall be supplied by a single manufacturer which has been successfully producing the specified types of primary products for not less than 10 years. The primary roofing products shall have maintained a consistent composition for a minimum of five years.
- J. Product Quality Assurance Program: Primary roofing materials shall be manufactured under a quality management system that is monitored regularly by a third party auditor under the ISO 9001 audit process. A certificate of analysis for reporting/confirming the tested values of the actual material being supplied for the project will be required prior to project close-out.
- K. Agency Approvals: The proposed roof system shall conform to the following requirements. No other testing agency approvals will be accepted.
 - 1. Underwriters Laboratories Class A acceptance of the proposed roofing system (including mopping asphalt or cold adhesive) without additional requirements for gravel or coatings.
- L. Acceptable Contractor: Contractor shall have a minimum of (5) years experience in successfully installing the same or similar roofing materials and be certified in writing by the roofing materials manufacturer to install the primary roofing products. A complete list of projects, with the product to be used, shall be provided.
- M. Secondary Products: Products shall be supplied by the single roof system manufacturer for coverage under the terms of the guarantee. The primary membrane manufacture shall have private labeling agreements with secondary product suppliers for the listed products; thermal insulation, cover panel, insulation fasteners, fastener plates, base sheet fasteners, cements, primers, sealants, membrane and insulation adhesives, perimeter metal systems, etc. Manufacturer shall provide evidence that it complies with these requirements by providing
 - 1. Primary manufacturer's commercial product data sheets.
- N. Pre-Roofing Conference: Before the waterproofing work is scheduled to commence, after shop drawings have been reviewed by the Architect, and before any materials are ordered. A conference shall be called at the jobsite by the Contractor for the purpose of reviewing the drawings and specifications. The intent is to resolve questions before the work is started.

The conference shall be attended by the waterproofing contractor, and his foreman, General Contractor's Superintendent, roof manufacturer's representative as well as the Architect's and Owner's representative.

- O Pre-application Conference: Before the waterproofing work is scheduled and within one week of roofing application is to commence, after shop drawings have been reviewed by the Architects, a conference shall be held at the jobsite for the purpose of a final review of the drawings and specifications. The intent is to resolve questions before any work is started. (The manufacturer's representative shall be present).
- P. At start up, prior to completion and at completion, the waterproofing contractor must pay for an independent roofing inspector to inspect the roof and issue to the Architect a certificate stating that the material and workmanship on complying with a 20 year unlimited guarantee/warranty. At the completion visit, the independent auditor shall make a punch list of items to be completed with a dollar value, and shall revisit the project to confirm that all punch list items have been completed. (The Architect shall be sent a copy of the punch list). The name of the independent roofing auditor/inspector shall be submitted with shop drawings.
- Q. The representative of the Architect, Owner, the General Contractor, the Roofing Contractor, and Roofing Manufacturer's representative shall make inspections of the roofing system toward the end of the (1) year warranty period and toward the end of the Waterproofing Contractor's two (2) year guarantee period. The Roofing Contractor or Roofing System Manufacturer, as applicable, shall make approved repairs and/or replacements covered by the Guarantee. The project will not be accepted until the Roofing Contractor's Guarantee, executed in strict accordance with the Contract Documents, have been submitted and accepted by the Architect and Owner. (A sample of the total roof system guarantee shall be submitted in shop drawings.)
- R The roofing system supplier shall furnish the roofing Contractor with Material Safety Data Sheet/Sheets (MSDS), incorporating OSHA approved form, current edition. Said sheets shall be available at the site at all times until project completion.
- S The Roofing Contractor shall submit to the Architect, in a ring binder, two copies of all roofing data, including manufacturer's catalogs/manuals of material and accessories used in the Project for distribution to the Owner.
- T Scope of Work: The work to be performed under this specification shall include but is not limited to the following: Attend necessary job meetings and furnish competent and full time supervision, experienced roof mechanics, all materials, tools, and equipment necessary to complete, in an acceptable manner, the roof installation in accordance with this specification. Comply with the latest written application instructions of the manufacturer of the primary roofing products. In addition, application practice shall comply with requirements and recommendations contained in the latest edition of the Handbook of Accepted Roofing Knowledge (HARK) as published by the National Roofing Contractor's Association, amended to include the acceptance of a phased roof system installation.
- U. Local Regulations: Conform to regulations of public agencies, including any specific requirements of the city and/or state of jurisdiction.

- V. **Manufacturer Requirements:** The primary roofing materials manufacturer shall provide direct trained company personnel to attend necessary job meetings, perform periodic inspections as necessary, and conducts a final inspection upon successful completion of the project.

1.04 SUBSTITUTION SUBMITTALS

- A. **Submittal of Equals:** All submittals which do not conform to the following requirements will be rejected. A Contractor may submit a primary roof systems to be considered as equals to the specified roof system no less than 10 days prior to bid date. List the name of the substituted item, the manufacturer, model/number, etc., and any other deviations in performance or appearance from the "Standards" set forth in this Section. Contractor shall present to the Owner a written guarantee and certification that the substituted material/method meets the standards of the materials specified. The burden of proof of quality and equality rests on the Contractor. The Owner reserves the right to determine if the material is equal to the specified and is acceptable under this contract. Primary roof systems which have been reviewed and accepted as equals to the specified roof system will be listed in an addendum prior to bid date; only then will equals be accepted at bidding. Submittals shall include the following:
1. Two 3 inch x 5 inch samples of the primary roofing and flashing sheets.
 2. Latest edition of the roofing system manufacturer's specifications and installation instructions.
 3. Evidence that the manufacturer of the proposed roofing system utilizes a quality management system that is ISO 9001 certified. Documentation of ISO 9001 certification of foreign subsidiaries without domestic certification will not be accepted.
 4. Evidence and description of manufacturer's quality control/quality assurance program for the primary roofing products supplied. The quality assurance program description shall include all methods of testing for physical and mechanical property values. Provide confirmation of manufacturer's certificate of analysis for reporting the tested values of the actual material being supplied for the project prior to issuance of the specified guarantee.
 5. Descriptive list of the materials proposed for use.
 6. Evidence of Underwriters' Laboratories Class A acceptance of the proposed roofing system (including mopping asphalt or cold adhesive) without additional requirements for gravel or coatings. No other testing agency approvals will be accepted.
 7. Letter from the proposed primary roofing manufacturer confirming that a phased roof application, with only the modified bitumen base ply in place for a period of up to 10 weeks, is acceptable and approved for this project.
 8. List of 3 of the proposed primary roofing manufacturer's projects, located in the United States, of equal size and degree of difficulty which have been performing successfully for a period of at least 10 years.

9. Letter from the proposed primary roofing manufacturer confirming that the filler content in the elastomeric blend of the proposed roof membrane and flashing components does not exceed 35% in weight.
10. Complete list of material physical and mechanical properties for each sheet including: weights and thicknesses; low temperature flexibility; peak load; ultimate elongation; dimensional stability; compound stability; high temperature stability; granule embedment and resistance to thermal shock for foil faced products.
11. Request for substitution constitutes a representation that the Contractor:
 - a. Has personally investigated the proposed substitute product and determined that it is equal to or superior in all respect to that specified.
 - b. Will provide the same or better warranties, bonds and guarantees for the substitution as for the specified product.
 - c. Will coordinate the installation of an accepted substitution into the Work and making such changes as may be required to make the Work complete in all respects.
 - d. Waives all claims for additional costs, related to the substitution which may subsequently become apparent.
 - e. Certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesigns costs, and waives all claims for additional costs related to the substitution which subsequently become apparent.
12. Should the Contractor propose a substitute material or method assembly that is of questionable quality or suitability to the Architect, suitable tests may be required to establish a basis for acceptance or rejection. Such tests will be paid for by the Contractor and conducted in accordance with industry accepted standards and as accepted to the Architect.
13. Substitutions will not be considered when they are indicated or implied in shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
14. The Architect shall be the judge of the acceptability of proposed substitutions.
15. The Owner reserves the right to disapprove and reject any request for substitution.
16. Sample copy of the proposed guarantee.
17. Completed Product Substitution Request Form included with this specification section.
18. Letter from the proposed primary roofing manufacturer confirming that the bidder is an acceptable Contractor authorized to install the proposed system.
19. Letter from the primary roofing manufacturer stating that the proposed application will comply with the manufacturer's requirements in order to qualify the project for the specified guarantee.

20. Certificate Of Analysis from the testing laboratory of the primary roofing materials manufacturer, confirming the physical and mechanical properties of the roofing membrane components. Testing shall be in accordance with the parameters published in ASTM D 5147 and ASTM D 7051 and indicate Quality Assurance/Quality Control data as required to meet the specified properties. A separate Certificate Of Analysis for each production run of material shall indicate the following information:
- a) Material type
 - b) Lot number
 - c) Production date
 - d) Dimensions and Mass (indicate the lowest values recorded during the production run);
 - Roll length
 - Roll width
 - Selvage width
 - Total thickness
 - Thickness at selvage (coating thickness)
 - Weight
 - e) Physical and Mechanical Properties;
 - Low temperature flexibility
 - Peak load
 - Ultimate Elongation
 - Dimensional stability
 - Compound Stability
 - Granule embedment
 - Resistance to thermal shock (foil faced products)
21. Manufacturer's printed recommendations for proper maintenance of the specified roof system including inspection frequencies, penetration addition policies, temporary repairs, and leak call procedures.

1.05 MODIFIED BITUMEN CRITERIA

- A. General Requirements: All SBS membrane systems shall be a multi-layer, homogeneous roofing sheet assembly with a granular surfacing on the cap sheet layer. All roofing sheets shall be made with identical SBS blend formulations and manufactured using the same process for sheet construction.
- B. Performance Features: All SBS membrane systems shall have the following performance features as a minimum.
- 1. Phased Construction: Each SBS sheet shall be manufactured as an independent waterproofing layer. The independent waterproofing layer design shall allow for phased construction between layers.
 - 2. Granule Surfacing: The finished membrane system shall have a factory applied granule surfacing to allow for ease of inspection, maintenance and repair.

3. Detail Treatments: The SBS membrane terminations and associated roof penetrations shall be waterproofed using conservative detail configurations according to the following basic criteria.
 - a. Flanged metal flashings shall be set in mastic over the first SBS layer and waterproofed using a minimum of 2 additional layers of the SBS membrane.
 - b. Walls, curbed penetrations, etc. shall be waterproofed using a minimum total of 4 layers of the SBS membrane at junctures of the roof deck to the penetration. The 4 layered construction shall consist of: SBS base ply layer; SBS reinforcing ply layer; SBS cap sheet layer; SBS flashing sheet layer.
4. Underwriters Laboratories Rated: The SBS membrane system shall be UL rated Class A without the necessity for maintenance oriented coatings or surfacings.
5. Physical Properties: Each SBS sheet shall have the physical properties as a minimum specified under Part 2 herein.

1.06 PRE-INSTALLATION CONFERENCE

- A. Approximately two weeks prior to beginning of roofing operations, the roofing Contractor shall arrange to meet with the Architect, his inspector (if any), a representative of the material's manufacturer, and his project foreman which will be required to be on the roof at all times when any roofing is being done, for the purpose of reviewing specification requirements, construction procedures, and the prevalent job conditions under which the work is to be performed.
 1. Meet with Owner; Architect; Owner's insurer, if applicable; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and attachment to structural members.
 4. Review loading limitations of deck during and after roofing.
 5. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing.
 6. Review governing regulations and requirements for insurance, certifications, and inspection and testing, if applicable.
 7. Review temporary protection requirements for roofing system during and after installation.
 8. Review roof observation and repair procedures after roofing installation.
 9. Document proceedings, including corrective measures or actions required, and furnish copy of record to each participant.

1.07 ACCEPTANCE OF ROOF DECK

- A. Roofing Contractor shall inspect the roof deck and shall either accept the roof deck or shall indicate to the General Contractor where the deck is not acceptable for proper application of the roofing membrane.

1.08 NOTIFICATION OF START OF WORK

- A. The Contractor shall notify the Architect of his intention to begin work not less than 48 hours (2 working days) in advance so that arrangements may be made for an inspector to be present. No work is to be performed without the presence of the inspector.

1.09 SUBMITTALS

- A. **Manufacturer's Data:** Submit two copies of specifications, installation instructions and sample warranty from the manufacturer for each major roofing product, insulation and sheet metal required. Include data substantiating compliance with the requirements. Indicate by transmittal form that the Installer has received a copy of the manufacturer's instructions and recommendations.
- B. **Furnish approved application recommendations** which must include itemizing sequences of applications to provide for (1) inspection and approval by the Manufacturer's representative and the Owner's representative of the first ply or interply membrane complete with flashing installation prior to (2) application of the cap sheet and final finishing work on the flashings, both base and edge.
- C. **Contractor's Certification:** The Contractor shall certify in writing that the materials he will be using in the roofing system(s) shall be in accordance with the specifications.
- D. **Sheetmetal Shop Drawings** showing layout, profiles, methods of joining, and anchorages details, including counter-flashings, and expansion joint covers. Provide layouts 1/4 inch scale and details at 3 inch scale.
- E. **Submit, in a ring binder, three (3) copies of all roofing data, including manufacturer's catalogs/manuals of materials and accessories used in the Project, including manufacturer's Maintenance recommendations, for distribution to the User and Umbrella Agencies as directed by the Owner. See Section 01700 - Project Closeout.**

1.10 STORAGE AND HANDLING

- A. All materials shall be stored off the ground on pallets and protected from damage and moisture by tarpaulins. Do not store felts or roofing materials on the ground or over new concrete floors. Stack roofing felt or roofing materials on the ground or over new concrete floors. Stack roofing felt reels on end during storage. Avoid prolonged storage of felts at the site. All materials must be absolutely dry and in good condition when ready for use. All materials which in the opinion of the Architect, have become damaged or otherwise unfit for use during delivery or storage shall be replaced at the expense of the Contractor.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Precipitation; Do not apply roofing materials during precipitation or in the event there is a probability of precipitation during application.

1.12 PROTECTION REQUIREMENTS

- A. Torch Safety: Designate one person on each crew to perform a daily fire watch. The designated crew member shall watch for fires or smoldering materials on all areas of the roof construction. Continue the fire watch after roofing material application has been suspended for the day.
- B. Debris Removal: Remove all debris daily from the project site and take to legal dumping area authorized to receive such materials.

1.13 WARRANTY

- A. Manufacturer's Warranty: Submit executed copy of roofing manufacturer's watertight "No Dollar Limit" membrane guarantee. Coverage of this guarantee shall include roof membrane, base sheets, membrane flashing, roof insulation systems, insulation adhesives, insulation fasteners, new lightweight insulating concrete, asphalt cements, primers and base sheet fasteners specified. This guarantee shall not be prorated." Guarantee shall be signed by an authorized representative of the roofing manufacturer, on form which was published with product literature as of the date of Contract Documents, for the following period of time. The roofing guarantee shall not exclude random areas of ponding from the coverage defined as "no standing water after 48-hours from the last rain".
 - 1. Twenty (20) years from date of substantial completion.
- B. The Roofing Manufacturer's Warranty shall guarantee at the manufacturer's own cost and expense, to make or cause to be made such repairs to or replacement of, to correct any and all faulty installations or materials of the roofing system, to keep the roofing system in a watertight condition throughout the 20 year guarantee period. The guarantee shall not be prorated. The executed guarantee shall be delivered to the Architect in three original counterparts prior to acceptance of the Work. No signature by the Owner shall be required.
- C. The executed guarantee shall be delivered to the Architect in three original counterparts prior to acceptance of the work. Final payment shall not be given until the written guarantee is furnished.
- D. Any interior wall and ceiling finishes damaged by failure to correct any problem in a timely fashion shall be paid by the waterproofing contractor and/or manufacturer.
- E. Certificate of Analysis for all roll good products shall be submitted with waterproofing guarantee. A sample certificate of analysis shall be submitted with shop drawings
- F. Additionally, provide roofing contractors 2 year Roof Guarantee –see attached Guarantee following this section

PART 2 - PRODUCTS

2.01 MATERIALS GENERAL

- A. General: Furnish the specified materials for this roofing operation. Furnish all accessories necessary for a complete roofing and sheet metal job even if not specifically shown or specified. Substitution of any other materials or assemblies will not be permitted without prior approval before bid time. All SBS membrane sheets shall not contain any oxidized asphalt.
- B. Primer: Provide primer on all substrates to receive roofing components. Primer(s) shall be as recommended by roofing component manufacturers.

2.02 ASPHALT MODIFIED BITUMEN ROOFING

- A. Roofing Membrane Assembly: The roof membrane assembly shall consist of two (2) plies of a prefabricated, fiberglass reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane. The cap sheet shall have factory applied granular surfacing. The modified bitumen base ply shall be fully adhered to the prepared substrate as specified herein, and shall possess waterproofing capability, such that a phased roof application, with only the modified bitumen base ply in place, can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire roof system. The modified bitumen cap sheet membrane shall be fully adhered to the modified bitumen base ply as specified herein.
- B. Flashing Membrane Assembly: The flashing membrane assembly shall consist of a prefabricated, fiberglass scrim-mat reinforced, Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane with a continuous, channel-embossed metal-foil surfacing. A low softening point asphalt shall be incorporated into the membrane between the metal foil surfacing and the SBS modified bitumen asphalt membrane, at the channels, in order to preclude foil delamination during daily thermal cycling.
- C. Granule Surfaced Two-Ply SBS Roofing Membrane System: As follows:
 - 1. Modified Bitumen Base Ply in accordance with ASTM D5147 Test Method:
 - a. Compound Stability: Min. 121°C (250°F)
 - b. Low Temperature Flexibility: @-26°C (-15°F)
 - c. Elongation @23°C (73°F): 3% min. @ 5% max. load
 - d. Dimensional Stability: <0.1%
 - e. Elongation @-18°C (0°F): 4.5%
 - f. Ultimate Elongation **: 50%
 - g. Water Absorption (Maximum): 2%
 - h. Cyclic joint displacement fatigue passes ASTM D5849 both as manufactured and after heat conditions per ASTM D5147
 - 2. Modified Bitumen Cap Sheet in accordance with ASTM D5147 Test Method:
 - a. Compound Stability: Min. 121°C (250°F)
 - b. Low Temperature Flexibility: @-26°C (-15°F)
 - c. Elongation @23°C (73°F): 3% min. @ 5% max. load

- d. Dimensional Stability: <0.1%
- e. Granule Embedment*: <1.5 g. per sample*, max individual loss 2.0g per sample
- f. Breaking Load @-73°F (Ave): 30 lbf/inch
- g. Ultimate Elongation**: 55%
- h. Cyclic joint displacement fatigue passes ASTM D5849 both as manufactured and after heat conditions per ASTM D5147

* This test is based on #11 ceramic coated granules used as surfacing. Using this granule type, there are approximately 6 grams total in the abraded test area.

** Ultimate elongation is measured at the point on the stress-strain curve where the load is reduced to 5% of the reported tensile strength.

D. SBS Flashing Membrane Sheet

1. Modified Bitumen Flashing Sheet in accordance with ASTM D5147 Test Methods:

- a. High Temperature Compound Stability: Min. 107°C (225°F)
- b. Low Temperature Flexibility: -18°C (-5°F)
- c. Tensile Strength (lbs/in.): 120 lbs.
- d. Dimensional Stability: 2% max.
- e. Ultimate Elongation**: 45%

** Ultimate elongation is measured at the point on the stress-strain curve where the load is reduced to 5% of the reported tensile strength.

E. Primer: Primer(s) shall be as recommended by roofing component manufacturers.

- 1. At wood use asphalt primer complying with ASTM D-41.

F. Cant Strips: Fibrous adhered in system complying with uplift requirements.

G. Flashing Cement: ASTM D 2822 Bituminous plastic roofing cement, non-asbestos containing formulation or ASTM D4586, Type II.

H. Lead sheet: Fed. Spec. QQ-L-201, Grade D, hard lead, 4.0 lb.

G. Walkway Protection Board: As part of roofing system; equal to Paratred, as a part of the roofing system prefabricated, puncture resistant polyester core reinforced, polymer modified bitumen sheet material topped ceramic coated granule and as follows:

- 1. Thickness: 0.217 in (5.5 mm)
- 2. Weight: 1.4 lb/ft² (6.8 kg/m²)
- 3. Width: 30 in (76.2 cm)

H. Mechanical Anchors: Type 304 stainless steel, type and size as specifically recommended by the insulation manufacturer for the type of deck used and complying with specified wind load rating requirements.

L. Catalyzed Acrylic Resin Liquid Flashing System: A specialty flashing system consisting of a liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared or primed substrate. The flashing

system consists of a catalyzed acrylic resin primer, basecoat and topcoat, combined with a non-woven polyester fleece. The resin and catalyst are pre-mixed immediately prior to installation. The use of the specialty flashing system shall be specifically approved in advance by the membrane manufacturer for each application Provide Parapro 123 Flashing System by Siplast or equal systems by specified manufacturers.

- M. Low Rise Foam Adhesive: Single component polyurethane adhesive dispensed from a portable pre-pressurized container requiring no external power source- range of working temperatures (33° F/0.5° C to 111° F/43° C.; equal to "ParaStik" by Siplast
- N. Insulation Fasteners for Wood/Plywood Decks: The fastener shall conform meet or exceed Factory Mutual Standard 4470 and when subject to 30 Kesternich cycles, show less than 15% red rust. A fluorocarbon coated screw type waterproofing fastener having a minimum 0.245 inch thread diameter. Plates used in conjunction with the fastener shall be a metal type having a minimum 3 inch diameter, equal to "Parafast HD Fastener" by Siplast.

2.03 SHEET METAL AND ACCESSORIES

- A. See Section 07620

2.04 ROOF INSULATION

- A. Base Layer (Straight and Tapered Wood/Plywood Decks): A closed cell, rigid polyisocyanurate foam core material, integrally laminated between glass fiber facers. The polyisocyanurate panel shall be in full compliance with ASTM C1289, Type II, Class1, Grade 2. The panels shall have a minimum thickness of 1.5 inch, providing for a 1/4 inch per foot slope and a total nominal thickness indicated on the drawings. The insulation, for thermal performance , shall provide an R-value of 10 for each 1.5 thickness installed. Acceptable types are as follows:
 - 1. Equal to "Tapered Paratherm" by Siplast.
 - 2. Crickets shall have a minimum of 1/2" per foot slope.
- B. Base Layer (Tapered Concrete Decks): A closed cell, rigid polyisocyanurate foam core material, integrally laminated between coated facers. The polyisocyanurate panel shall be in full compliance with ASTM C1289, Type III, Class1, Grade 2. The panels shall have a minimum thickness of 1.5 inch, providing for a 1/4 inch per foot slope and total nominal thickness indicated on the drawings. The insulation, for thermal performance , shall provide an R-value of 10 for each 1.5 thickness installed. Acceptable types are as follows:
 - 1. Equal to "Tapered Paratherm" by Siplast.
 - 2. Crickets shall have a minimum of 1/2" per foot slope.
- C. Overlay Panels: Nonstructural, non-woven, non asphaltic glass mats embedded into both faces and 500 PSI moisture-resistant treated faced gypsum core, having a nominal thickness of 1/2 inch, Dens-Deck Primed" or "Securock" by USG, not requiring priming and compatible with specified roofing system-no substitutions.
 - 3. Insulation panels installed in Low Rise Foam Adhesive shall have a maximum panel size of four (4) feet x four (4) feet.

PART 3 - EXECUTION**3.01 GENERAL**

- A. All surfaces to be covered shall be smooth, dry and free from dirt, debris and foreign material which will affect the adherence and integrity of the specified materials. Installation of the roofing felts constitutes the acceptance of the roof deck by the Installer.
- B. Do not place any load on the roof that will exceed the safe design load.
- C. Provide barricades and, where necessary, signs to ensure the safety of the general public and other workmen on the job from fire and falling materials.
- D. The Roofing Contractor shall be responsible for the proper attachment of the specified work to any work embedded in, in contact with, or forming an integral part of the specified roofing system.
- E. All roof areas shall be accurately laid out for proper lap and sequence of plies, and all plies laid to chalked line. Each ply shall be broomed in place. Felts shall be free from fishmouths, buckles, blisters, or other faulty workmanship.
- F. Water Cut Offs: Provide water cut-offs at the end of each day's work or whenever operations cease due to weather conditions. Water cut-offs shall seal the exposed edges of roof insulation and shall consist of two plies of No. 15 tarred felt extending from a point 12" on the roof deck carrying up and over the roofing and extending 6". Hot mop both edges so that they are weathertight. Follow with a glaze coat. Remove the cut-off before commencing work at that point at a later date.
- G MAINTAIN A FIRE WATCH FOR TWO (2) HOURS AFTER TORCHING OPERATIONS AS WELL AS WALKING THE ENTIRE ROOF CHECKING FOR "HOT SPOTS" BY USING AN INFRARED HEAT-SENSING THERMOMETER

3.02 INSULATION

- A. Comply with the manufacturer's instructions for the particular condition of installation including treatment at edges of each insulated area. Extend insulation in thickness as shown over concrete deck. Cut and fit tightly around obstructions, and fill voids with insulation and mastic. Form crickets and tapered areas as shown and as required for proper drainage of the membrane.
- B. Apply with low rise foam adhesive in strict accordance with manufacturers printed instructions. Run long joints of insulation in continuous straight line, perpendicular to roof slope, with end joints staggered between rows. Stagger joints two ways in each course by not less than 1/3 of the narrow board dimension.
- C. Insulation – multiple layers: Mechanically attach the insulation layers simultaneously to the substrate, using the specified fasteners, at a rate of 1 fastener per 2 square feet of panel area (16 per 4' by 9' panel). Increase the fastening frequency at the roof perimeter by 50% and in the corners by 100%. Stagger the panel joints between insulation layers.

3.03 BASE SHEET SECUREMENT

- A. Wood Decks: Lay base sheet loose over the entire area to be roofed, lapping sides 3 inches and ends 6 inches.

3.04 ASPHALT MODIFIED BITUMEN ROOFING INSTALLATION

- A. Asphalt Modified Bitumen Roofing: Two (2) plies of modified bitumen asphalt membrane set in asphalt bitumen equal to systems specified installed in strict accordance with roof manufacturer's printed instructions.
- B. Priming: Prime metal flanges (all jacks, edge metal, lead drain flashings, etc.) and concrete and masonry surfaces with a uniform coating of asphalt primer ASTM D-41-73.
- C. Roofing Application: All layers of roofing shall be laid free of wrinkles, creases or fishmouths. Sufficient pressure shall be exerted on the roll during application to ensure prevention of air pockets. Lap seams of the cap sheet layer. The courses shall be staggered to ensure this.
 - 1. All layers of roofing shall be laid in relation to the slope of the deck as recommended by the manufacturer.
 - 2. The base ply shall be fully bonded to the prepared substrate and shall have a minimum of three (3) inch side and end laps. Each sheet shall be applied directly behind the asphalt applicator.
 - 3. The cap sheet shall be bonded to the base ply and have a minimum of three (3) inch side and end laps.
 - 4. Sufficient pressure shall be exerted on the metal clad modified bitumen sheet to ensure the prevention of air pockets.
 - 5. All end laps of the metal-clad modified bitumen flashing sheet shall be primed with a uniform coating of the specified asphalt primer and allowed to thoroughly dry prior to overlapping of adjoining sheets.
 - 6. All side laps of the metal-clad modified bitumen flashing sheet shall be heat fused to ensure a complete seal.
 - 7. Maximum sheet lengths and special fastening of the specified roof membrane system may be required at various slope increments where the roof deck slope exceeds one-half (1/2) inch per foot. The manufacturer shall provide acceptable sheet lengths and the required for all roofing sheet applications to applicable roof slopes.
- D. Granule Embedment: Mineral granules shall be broadcast over all bitumen overruns on the cap sheet surface, while the bitumen is still hot, to ensure a monolithic surface color.
- E. Flashing Application at Vertical Walls: Flashing shall be accomplished using the reinforcing sheet and metal foil flashing membrane. The flashing shall be applied in three foot lengths

(cut from the end of roll) using the factory selvage edge for laps. The reinforcing sheet shall be lapped a minimum of three (3) inches to itself and shall extend a minimum of three (3) inches onto the base surface and three (3) inches up the parapet wall above the cant. Lap seams in the reinforcing layer shall never coincide with the laps of the metal foil flashing layer. The reinforcing sheet shall be adhered by a mopping of asphalt both wall and sheet. After the cap sheet has been applied to the top of the cant, the surface area that is to receive flashing coverage shall be prepared by torch heating granular surfaces or application of asphalt primer to foil surfaces allowing primer to dry thoroughly. The metal foil flashing sheet shall be torched in place. Pressure shall be exerted on the flashing sheet during application to ensure complete contact with the wall/roof surfaces, preventing air pockets; this can be accomplished by using a damp sponge or shop rag. All loose laps and edges shall be checked and sealed. The top edge of the flashing shall be nailed on nine (9) inch centers.

- F. Use Of Metallic Powder: Metallic powder shall be broadcast over all bitumen overruns on the metal foil membrane surface color.
- G. Lead Pipe Flashings: The lead flanges shall be flashed with Catalyzed Acrylic Resin Liquid Flashing System
- H. Sheet Metal Components: In all cases, unless otherwise approved by the roofing manufacturer, flanged components shall be incorporated into the system between the application of the base ply and the cap sheet. The flange must be primed with a uniform coating of approved ASTM D41-73 asphalt primer and allowed to dry thoroughly; all flanges must be set in approved mastic.
- I. Catalyzed Acrylic Resin Liquid Flashing System: Install the liquid-applied primer and flashing system in accordance with the membrane system manufacturer's printed installer's guidelines and other applicable written recommendations as provided by the manufacturer.

3.04 ROOF DRAINS

- A. Lead Drain Flashings: The lead drain flashing shall be completely primed and allowed to dry prior to installation. After the base ply has been applied, the lead flashing sheet shall be set in mastic and formed to turn down inside of the drain bowl. The perimeter of the lead flashing shall be plied-in using an additional layer of the base ply material, overlapping the perimeter of the lead a minimum of three (3) inches. The cap sheet shall then be applied, extending beyond the clamping ring seal. The clamping ring shall then be installed with all clamps, bolts, etc., in place.

3.05 EXPANSION JOINTS

- A. A. Install all components of the system in accordance with the manufacturer's instructions. The system is to be wholly encapsulated between the plies of the modified bitumen membrane in a roofing/waterproofing by torching.
- B. Slit the modified bitumen base ply with a knife along the joint gap. Refer to the manufacturer's instructions for the preparations and torching of the expansion joint material. Torch the prepared expansion joint material to the substrate, making sure that the expansion joint material is firmly and uniformly set, without voids, into the liquefied asphalt. Torching is carried out by the liquefaction of the modified bitumen base sheet and the expansion joint material rolled into it. Flame can be directed at the expansion joint material. At all times observe the modified bitumen manufacturer's

recommendations and safety instructions. The expansion joint material must be completely encapsulated in the hot asphalt/bitumen and a bitumen bead visible along expansion joint material selvage edge.

- C. Torch the modified bitumen stripping plies smooth, free from air pockets, wrinkles, fish mouths, or tears. When torching, direct the flame away from the expansion joint material gland material, use the torch and flop technique. Install each stripping ply; shingle lap fashion, onto the expansion joint material firmly and uniformly, without voids. At all times observe the modified bitumen manufacturer's recommendations. The expansion joint material must be completely encapsulated in the melted bitumen and a bitumen bead visible along the expansion joint material selvage edge
- D. Attach a modified bitumen sheet to one side of the expansion joint. This is achieved by torching the modified bitumen sheet to the already installed modified bitumen cap ply.

3.06 ROOF ACCESSORIES

- A. Install roof accessories in accordance with manufacturer's recommendations. All roof accessories shall be left in a clean and first class condition.

END OF SECTION

ROOFING GUARANTEE

OWNER: ARCHDIOCESE OF NEW ORLEANS

ADDRESS: BUILDING OFFICE
7887 WALMSLEY AVE.
NEW ORLEANS, LA. 70125

WHEREAS _____

Address _____

Telephone () _____, herein called the "Roofing Contractor", has performed roofing and flashing in accordance with the Contract Documents (Hereinafter called the "Work") under a Contract with the Owner.

Name of Project: _____

Parish or Institution _____

Location/Address

Name and type of Building (s)

Type (s) of Roof Deck (s):

Total Roof Area _____ SF, Flashing, Edge: _____ LF
Base: _____ LF

Date of Acceptance: _____ Guarantee
Period: 2 Years

Date of Expiration: _____

AND WHEREAS the Roofing Contractor has contracted to guarantee said work against water entry from faulty or defective materials and workmanship for the designated Guarantee period:

NOW THEREFORE the Roofing Contractor guarantees, subject to the terms and conditions herein set forth, that during the Guarantee Period he will at his own cost and expense make or cause to be made with approval procedures and materials such repairs to or replacements of said work resulting from water entry or faults or defects of said Work as are necessary to correct faulty and defective work and as are necessary to maintain said Work in watertight conditions and further to respond

on or within two (2) working days upon written notification of leaks or defects by the Owner. Furthermore, he will at his own cost and expense maintain the roof for (2) years after acceptance, in accordance with the current edition of the Roof Maintenance Manual published by the Roofing Industry Educational Institute. The roof shall be inspected a minimum of twice each year, and a report prepared documenting the conditions observed at each inspection. These inspections shall be made once during the months of April or May and once during the months of September and October. Two copies of each report shall be forwarded to the Owner.

This guarantee is made subject to the following terms and conditions:

1. Specifically excluded from this guarantee are damages to the Work, other parts of the building and building contents caused by: A) lightning, windstorm (includes hurricanes and tornados), hailstorm, earthquakes and other unusual phenomena of the elements; B) fire; and C) structural failures causing excessive roof deck, edgings and related roof components movement. When the Work has been damaged by any of the foregoing causes, the Guarantee will be null and void until such damage has been repaired by the Roofing Contractor, and until the cost and expense thereof has been paid by the Owner or another responsible party so designated.
2. During the Guarantee Period, if the Owner allows alteration of the Work by anyone other than a Contractor approved in writing by the Roofing Contractor, prior to the work being performed, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations, the Guarantee shall not become null and void, unless the Roofing Contractor, prior to proceeding with said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the Work, thereby reasonably justifying a termination of this Guarantee.
3. During the Guarantee Period, if the original use of the roof is changed and it becomes used for, but for which it was not originally designed or specified, as a promenade, work deck, spray-cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
4. During the Guarantee Period, if any building or area of a building is changed to uses creating extremes of interior temperature and/or humidity, but for which it was not originally designed And specified, without provisions and alterations made to the building which effectively contain or control these conditions, this Guarantee shall become null and void upon the date of said change.
5. The Owner shall promptly notify the Roofing Contractor in writing of observed known or suspected leaks, defects or deterioration and shall afford reasonable opportunity for the Roofing Contractor to inspect the Work, and to examine the evidence of such leaks, defects or deterioration.
6. This Guarantee is recognized to be the only guarantee of the Roofing Contractor on said work, and shall not operate to restrict or cut off the Owner from other remedies and recourses lawfully available to him in case of roofing failure. Specifically, this Guarantee shall not operate to relieve the Roofing Contractor of his responsibility for performance of the original work, regardless of whether the Contract was a Contract directly with the Owner or a Subcontract with the Owner's General Contractor.

IN WITNESS THEREOF, this instrument has been duly executed this
day of _____, 201____.

General Contractor's Signature: _____

Typed Name: _____

Representing: _____

Telephone No. _____

WITNESS: _____

Roofing Contractor's Signature: _____

Typed Name: _____

Representing: _____

Telephone No. _____

WITNESS: _____

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area A
Inspection Date:	August 25, 2011
Square Footage:	423
# Stories:	1 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Perimeter edge blocking is rotted. Roof deck is exposed on corner of the roof area. Area of the roof has thick vegetation growing on system. Wall flashing is brittle and aged.

Composition: 3 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Structural concrete
 Insulation Single Layer: Three layers of 3/4 -inch fiberglass insulation.
 Membrane System: 3 ply built-up-roof with gravel surfacing
 Flashing System: Asphalt based granular surfaced.

Drainage: Gutter downspout.
 Flashing Details: 2 piece copper wall counter flashing, waste stack, gravel stop edge,

Inspected by: Sean Tufts
 Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area B
Inspection Date:	August 25, 2011
Square Footage:	976
# Stories:	1 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Inter-ply blistering. Alligatoring of asphalt flood coat surfacing is thru out the roof area and is brittle. I observed a large split in BUR felts at perimeter edge.

Composition: 3 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Wood Deck
Insulation Single Layer: Perlite crickets.
Membrane System: 3 ply built-up-roof with asphalt flood coat surfacing.
Flashing System: Asphalt based granular surfaced.

Drainage: Gutter downspout.

Flashing Details: 2 piece copper wall counter flashing, waste stack, gravel stop edge,

Inspected by: Sean Tufts
Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area C
Inspection Date:	August 25, 2011
Square Footage:	38
# Stories:	1 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Exposed deck evident. Roof and flashing system is well beyond service life.

Composition: 3 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Plywood Deck
 Base Sheet: asphalt fiberglass felt.
 Membrane System: 3 ply built-up-roof with asphalt flood coat surfacing.
 Flashing System: Asphalt based granular surfaced.

Drainage: Gutter downspout.
 Flashing Details: 2 piece copper wall counter flashing, waste stack, gravel stop edge,

Inspected by: Sean Tufts
 Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area D
Inspection Date:	August 25, 2011
Square Footage:	90
# Stories:	2 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Typical deficiencies in BUR system were not evident. Wall flashing system has been repaired. The repair of membrane and fabric is aged with cracks and exposed felts.

Composition: 3 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Plywood Deck, slope in structure.
 Base Sheet: asphalt fiberglass felt.
 Membrane System: 3 ply built-up-roof with asphalt flood coat surfacing.
 Flashing System: Composition flashing.

Drainage: Conductor head to downspout.

Flashing Details: 1 piece galvanized step wall counter flashing, thru-wall scupper, parapet wall.

Inspected by: Sean Tufts

Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area E
Inspection Date:	August 25, 2011
Square Footage:	60
# Stories:	2 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Typical deficiencies in BUR system were not evident. Wall flashing system has been repaired. The repair of membrane and fabric is aged with cracks and exposed felts.

Composition: 3 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Plywood Deck, slope in structure.
 Base Sheet: asphalt fiberglass felt.
 Membrane System: 3 ply built-up-roof with asphalt flood coat surfacing.
 Flashing System: Composition flashing.

Drainage: Conductor head to downspout.

Flashing Details: 1 piece galvanized wall counter flashing (low height), thru-wall scupper, parapet wall.

Inspected by: Sean Tufts

Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area F
Inspection Date:	August 25, 2011
Square Footage:	38
# Stories:	1 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Exposed deck evident. Roof and flashing system is well beyond service life.

Composition: 3 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Plywood Deck
Base Sheet: Red Rosin.
Membrane System: 3 ply built-up-roof with asphalt flood coat surfacing.
Flashing System: Asphalt based granular surfaced.

Drainage: Gutter downspout.
Flashing Details: 2 piece copper wall counter flashing

Inspected by: Sean Tufts
Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area G
Inspection Date:	August 25, 2011
Square Footage:	773
# Stories:	1 Story
Approx. year Installed:	Unknown
Type of building:	Canopy
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies BUR system showing signs of age and service life is limited.

Composition: 4 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Plywood Deck, slope in structure
 Base Sheet: Red Rosin.
 Membrane System: 4 ply built-up-roof with asphalt with gravel surfacing.
 Flashing System: Composition flashing.

Drainage: Gutter downspout.

Flashing Details: 1 piece galvanized wall counter flashing, gravel stop, Two A/C duct curb (raise height), Two A/C unit on wood sleepers, two electrical supply penetrations, gas line on wood sleepers,

Inspected by: Sean Tufts

Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area H
Inspection Date:	August 25, 2011
Square Footage:	536
# Stories:	3 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Roof Hatch
Leakage Reported:	No
Previous work done:	No
Work done by:	Unknown

Membrane / Flashing Deficiencies: Observed collapsed chimney lying on roof area.
Possible punctures but this could not be determined.

Composition: 4 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Wood Deck
Base Sheet: Asphalt fiberglass base sheet.
Membrane System: 4 ply built-up-roof with asphalt with gravel surfacing.
Flashing System: Composition flashing.

Drainage: Gutter downspout.
Flashing Details: Gravel stop

Inspected by: Sean Tufts
Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area I
Inspection Date:	August 25, 2011
Square Footage:	298
# Stories:	4 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Roof Hatch
Leakage Reported:	No
Previous work done:	No
Work done by:	Unknown

Membrane / Flashing Deficiencies: Organic felts are deteriorated in system. Coal Tar still shows signs of being active. Wall flashing system is aged with exposed felts, crack and splits.

Composition: 4 ply organic rag felt coal tar pitch applied.

Core Data: Deck: Wood Deck
 Base Sheet: Fiberglass base sheet.
 Membrane System: 4 ply built-up-roof with gravel surfacing.
 Flashing System: Composition flashing.

Drainage: Thru-wall scupper.
 Flashing Details: Parapet wall with terra cotta coping (coping is waterproofed with composition flashing., flanged gravity vent, wall flashing with not termination

Inspected by: Sean Tufts
 Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area J
Inspection Date:	August 25, 2011
Square Footage:	64
# Stories:	4 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Roof Hatch
Leakage Reported:	No
Previous work done:	No
Work done by:	Unknown

Membrane / Flashing Deficiencies: Organic felts are deteriorated in system. Coal Tar still shows signs of being active. Wall flashing system is aged with exposed felts, crack and splits.

Composition: 4 ply organic rag felt coal tar pitch applied.

Core Data: Deck: Wood Deck
 Base Sheet: Fiberglass base sheet.
 Membrane System: 4 ply built-up-roof with gravel surfacing.
 Flashing System: Composition flashing.

Drainage: Thru-wall scupper.
 Flashing Details: Parapet wall with terra cotta coping (coping is waterproofed with composition flashing., flanged gravity vent, wall flashing with not termination

Inspected by: Sean Tufts
 Date: August 25, 2011

EXISTING ROOF DESCRIPTION

General Information:	Martin Manor 1501 N. Johnson New Orleans, LA 70116
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Roof Area:	Roof Area K
Inspection Date:	August 25, 2011
Square Footage:	279
# Stories:	3 Story
Approx. year Installed:	Unknown
Type of building:	Brick
Space sensitivity:	Yes
Roof access:	Ladder
Leakage Reported:	No
Previous work done:	No
Work done by:	

Membrane / Flashing Deficiencies: Roof deck is exposed on corner of the roof area.
Wall flashing is brittle, aging and is not properly terminated.

Composition: 4 ply fiberglass felts hot asphalt applied.

Core Data: Deck: Wood Deck, slope in structure.
Base Sheet: Asphalt fiberglass felt.
Membrane System: 4 ply built-up-roof with asphalt flood coat surfacing.
Flashing System: Composition flashing.

Drainage: Gutter to downspout.

Flashing Details: Wall flashing missing sheet metal counter flashing, gravel stop.

Inspected by: Sean Tufts

Date: August 25, 2011

SHEET METAL ROOFING**SECTION 07610****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Factory formed curved copper sheetmetal standing seam roof system, field assembled, concealed fastener system with 1 inch high seams with snap-on seam, fastened with stainless steel fasteners, and related gutters, downspouts, flashings and accessory components. See drawings for radius.
- B. Rubberized underlayment over existing wood deck for entire roof area.

1.02 RELATED SECTIONS

- A. Section 06100 - Carpentry: Wood blocking

1.03 REFERENCES

- A. ANSI/ASTM A167 - Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet, and Strip.
- B. ANSI/ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
- C. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- D. ANSI/ASTM E331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- E. American Iron & Steel Institute (AISI) Specification for the Design of Coldformed Steel Structural Members.
- F. SMACNA - Architectural Sheet Metal Manual.
- G. Building Materials Directory - Underwriter's Laboratories, Test Procedure 580.

1.04 SYSTEM DESCRIPTION

- A. Roofing System: Preformed custom fabricated copper metal 1 inch high standing seam concealed fastener .
 - 1. Basis fo Design: "Curved Tee-Panel" by Berridge Manufacturing Company or equal by Peterson aluminum and Architctural Metal Systems.

1.05 DESIGN REQUIREMENTS

- A. **Structural:** Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as required by and calculated in accordance with the International Building Code 2009 and Supplements (Jefferson Parish) and ASCE 7-05, measured in accordance with ANSI/ASTM E330 and when tested in accordance with ANSI/ASTM E330 as follows based on 130 mph wind speed; Importance Factor: 1.00, and Exposure B, and corners as defined in Code, and also 125 PSF uplift resistance with no permanent deformation.
1. Limit deflection to $L/240$.
- B. Provide roofing system complying with requirements of Underwriters Laboratory Label U.L. Standard 580 class 90 and FM Fire/Windstorm Classification: Class 1-90.
- C. **Air Infiltration:** Limit air leakage through assembly to 0.06 cfm/min/sq ft of wall area, measured at a reference differential pressure across assembly of 6.24 psf as measured in accordance with ANSI/ASTM E283.
- D. **Water Infiltration:** No uncontrolled leakage when measured in accordance with ASTM E331, with a test pressure difference of 20% of design loads, but not less than 10.00 lbf/sq. ft. with water rate of 5 gallons per hr. per sq. ft., nor any water leakage at a static pressure at an air stream equivalent to the static pressure specified, tested for dynamic water penetration (similar test to AAMA 501.1 with water rate of 5 gallons per hr. per sq. ft., at a pressure at an air stream equivalent of 85 miles per hour wind speed.
- E. System shall accommodate, without damage to components or deterioration of seals, movement within system, movement between system and peripheral construction, dynamic loading and release of loads and deflection of structural support framing.
- F. **Thermal Movements:** Provide metal roof panel assemblies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. **Temperature Change (Range):** 120 deg. F, ambient; 180 deg. F, material surfaces

1.06 SUBMITTALS

- A. **Product Data:** Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal roof panel and accessory Submit under provisions of Section 01300.
- B. **Shop Drawings:** Show fabrication and installation layouts of metal roof panels; details of edge conditions, joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.
- C. **Samples:** Submit two samples of prefinished roofing panel, 12 x 17 inch in size illustrating finish color, sheen and texture.

- D. Submit results indicating compliance with minimum requirements of the following performance tests:
 - 1. Air Infiltration ASTM E 283-84
 - 2. Water Infiltration ASTM E 331-86 and AAMA 501.1
 - 3. Wind Uplift - U.L. Standard 580 class 90, FM 1-90
- E. Submit calculations with Louisiana registered engineer seal, verifying roof panel and attachment method resists wind pressures imposed on it pursuant to applicable building codes.
- F. Coordination Drawings: Roof plans drawn to scale and coordinating penetrations and roof-mounted items. Show the following: Roof panels and attachments, purlins and rafters, and Roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs

1.07 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- B. Installer: Company specializing in performing the Work of this section with minimum ten years documented experience and approved in writing by roofing manufacturer.
- C. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- D. Source Limitations: Obtain each type of metal roof panels through one source from a single manufacturer.
- E. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal roof panels and are based on the specific system indicated. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- F. Surface-Burning Characteristics: Provide insulation material with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Flame-Spread Index: 25 or less
 - 2. Smoke-Developed Index: 450 or less

1.08 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing Work of this section. Before starting roof deck construction, conduct conference at Project site. Comply with requirements for pre-installation conferences in Section 01200. Review methods and procedures related to roof deck construction and metal roof panels including, but not limited to, the following;

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, metal roof panel Installer, metal roof panel manufacturer's representative, deck Installer, and installers whose work interfaces with or affects metal roof panels including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal roof panel installation, including manufacturer's written instructions.
4. Examine deck substrate conditions for compliance with requirements, including flatness and attachment to structural members.
5. Review structural loading limitations of deck during and after roofing.
6. Review flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
7. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600. Deliver components, sheets, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling. Unload, store, and erect metal roof panels in a manner to prevent bending, warping, twisting, and surface damage
- B. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- C. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting, or other surface damage
- D. Prevent contact with materials which may cause discoloration or staining including exposure to sunlight.
- E. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation

1.10 PROJECT CONDITIONS

- A. Verify that field measurements are as indicated on shop drawings.
- B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal roof panels to be performed according to manufacturers' written instructions and warranty requirements

1.11 WARRANTY

- A. Provide under provisions of Section 01700.
- B. Applicator shall furnish guarantee covering watertightness of the roofing system for the period of two (2) years from the date of substantial completion. See Maintenance Guarantee form following this Section.
- C. Manufacturer, along with the applicator, agree to repair or replace metal roof panel assemblies that fail to remain weathertight, including leaks for the period of ten (10) years from the date of Substantial Completion or longer period as allowed by law.

PART 2 - PRODUCTS

2.01 EXTERIOR SHEET METAL

- A. Copper: ASTM B 370; temper H00 (cold-rolled) except where temper 060 is required for forming; 16oz. (0.0216 inch thick) except as otherwise indicated.

2.02 ACCESSORIES

- A. Sealants: Manufacturer's standard type suitable for use with installation of system; non-staining, skinning, non-shrinking and non-sagging; ultra-violet and ozone resistant; color as selected as follows:
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
 - 2. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal roof panels and remain weathertight; and as recommended in writing by metal roof panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311
- B. Fasteners: Manufacturer's standard type to suit application (fully concealed); self-drilling or self-tapping 410 stainless steel.
- C. Field Touch-up Paint: As recommended by panel manufacturer.
- D. Bituminous Paint: Asphalt base.
- E. Rubberized Underlayment: Polyethylene-sheet-back rubberized asphalt membrane, 40 mils thick. Provide primer when recommended by underlayment manufacturer. Approved products as follows:
 - 1. "Bituthene Ice & Water Shield", W.R. Grace & Co.
 - 2. "Polyken 640 Underlayment Membrane", Polyken Technologies.
 - 3. "Polyguard Deck Guard", Polyguard Products, Inc.

2.03 COMPONENTS

- A. Panels shall have 12 3/4" on-center seam spacing with a seam height of 1".
- B. Panels shall be site-formed in continuous lengths with a 4' min. radius to conform to solid-sheathed curved substrate.
- C. Snap-on seams shall be 1" in height and shall contain factory-applied Extruded Vinyl Weather Seal Insert to prevent siphoning of moisture through the standing seam.
- D. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24" on center).
- E. Expansion Joints: Same material, thickness and finish as exterior sheets; of profile to suit system.
- F. Trim, Closure Pieces, Gutters, Caps and Flashings: Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Same material, thickness and finish as exterior sheets; brake formed to required profiles.
 - 1. Comply with SMACNA requirements.
 - 2. Hem all exposed edges of flashing on underside, 1/2 inch.
- G. Anchors: Stainless steel.
- E. Gutters: Form in sections not less than 8 ft. in length, complete with end pieces, outlet tubes, and any special pieces that may be required. Join sections with riveted and soldered or sealed joints. Unless otherwise indicated, provide expansion-type slip joint at the center of runs. Furnish gutter supports spaced at 48" o.c., constructed of same metal as gutters. Fabricate in minimum 96-inch- long sections, sized according to SMACNA's "Architectural Sheet Metal Manual." Material and finish to match roof panels.
- H. Downspouts: Formed in sections approximately 10 ft. long, complete with elbows and offsets. Join sections with minimum 1-1/2" telescoping joints. Provide fasteners for top, bottom, and 5' o.c. intermittently between, designed to securely hold downspouts not less than 1" away from walls. Material and finish to match roof panels.
- I. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge
 - 1. Clips: Panel clips designed to withstand negative-load requirements.
 - 2. Cleats: Mechanically seamed cleats formed from copper.
 - 3. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer

2.04 FABRICATION

- A. General: Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill

indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements. Form sections true to shape, accurate in size, square, and free from distortion or defects.

- B. Panels shall be roll-formed in continuous lengths from eave to ridge.
- C. Concealed 2 inch wide anchor clips shall be spaced a maximum of 12" on center, in consideration for the strength of copper or closer if required for specified wind loads and 1-90 uplift requirements.
 - 1. Clips shall allow roof panels to move as required to accommodate expansion and contraction of panels without contract with factory installed seam sealants.
 - 2. Any transverse seams shall be installed per SMACNA with full closure and have continuous cleating from standing seam to standing seam. Install sealant at the corners of the fold for a watertight condition.
- D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
- E. Where indicated or required, fabricate metal roof panel joints with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will minimize noise from movements within panel assembly

PART 3 - EXECUTION

3.01 GENERAL

- A. Verify substrate framing.
- B. Verify that roof deck is ready to received sheet metal roofing system.

3.02 INSTALLATION - SUBSTRATE

- A. Install rubberized underlayment, weather lapped sealed joints applied in strict accordance with manufactureres printed instructions. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof sheathing under metal roof panels. Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply over entire roof, in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.

3.03 INSTALLATION - SHEET METAL ROOFING

- A. General: Provide metal roof panels of full length from eave to ridge, unless otherwise indicated or restricted by shipping limitations. Anchor metal roof panels and other components of the Work securely in place, with provisions for thermal and structural movement. Comply with manufacturers printed instructions and/or conform to standards set forth in the Architectural Sheet Metal Manual published by SMACNA, in order to achieve a watertight installation.

1. Field cutting of metal roof panels by torch is not permitted
- B. Install panels in such a manner that horizontal lines are true and level and vertical lines are plumb.
- C. Install starter and edge trim before installing roof panels.
- D. Remove protective strippable film immediately prior to installation of roof panels.
- E. Fasten metal roof panels to supports with concealed clips at each standing-seam joint location, double fastening cleats, and with self-tapping fasteners recommended by manufacturer, spaced as specified and in accordance with approved shop drawings and required by loading.
- F. Crimp standing seams with manufacturer-approved motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged. Install sealants and/or butyl tape for preformed roofing panels as required for weathertightness.
- G. Do not allow panels or trim to come into contact with dissimilar materials.
- H. Do not allow traffic on completed roof. If required, provide cushioned walk boards.
- I. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.
- J. Remove and replace any panels or components which are damaged beyond successful repair.
- K. Install gutters and downspouts in accordance with SMACNA; slope gutters for positive drainage.
- L. Flash and seal panels with weather closures where metal soffit panels meet walls and at perimeter of all openings.
- M. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- N. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to

eave with gutter hangers spaced not more than 4 feet o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

- O. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 48 inches o.c. in between.
 - 1. Provide elbows at base of downspouts to direct water away from building.
 - 2. Tie downspouts to underground drainage system indicated

3.04 TOLERANCES

- A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
- B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch in 20 feet.

3.05 CLEANING

- A. Clean work under provisions of 01700.
- B. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction. Remove site cuttings from finish surfaces.
- C. Clean and wash pre-finished surfaces with mild soap and water, rinse with clean water.
- D. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

ROOFING GUARANTEE

OWNER: ARCHDIOCESE OF NEW ORLEANS

ADDRESS: BUILDING OFFICE
7887 WALMSLEY AVE.
NEW ORLEANS, LA. 70125

WHEREAS _____

Address _____

Telephone () _____, herein called the "Roofing Contractor", has performed roofing and flashing in accordance with the Contract Documents (Hereinafter called the "Work") under a Contract with the Owner.

Name of Project: _____

Parish or Institution _____

Location/Address

Name and type of Building (s)

Type (s) of Roof Deck (s):

Total Roof Area _____ SF, Flashing, Edge: _____ LF
Base: _____ LF

Date of Acceptance: _____ Guarantee
Period: 2 Years

Date of Expiration: _____

AND WHEREAS the Roofing Contractor has contracted to guarantee said work against water entry from faulty or defective materials and workmanship for the designated Guarantee period:

NOW THEREFORE the Roofing Contractor guarantees, subject to the terms and conditions herein set forth, that during the Guarantee Period he will at his own cost and expense make or cause to be made with approval procedures and materials such repairs to or replacements of said work resulting from water entry or faults or defects of said Work as are necessary to correct faulty and defective work and as are necessary to maintain said Work in watertight conditions and further to respond

on or within two (2) working days upon written notification of leaks or defects by the Owner. Furthermore, he will at his own cost and expense maintain the roof for (2) years after acceptance, in accordance with the current edition of the Roof Maintenance Manual published by the Roofing Industry Educational Institute. The roof shall be inspected a minimum of twice each year, and a report prepared documenting the conditions observed at each inspection. These inspections shall be made once during the months of April or May and once during the months of September and October. Two copies of each report shall be forwarded to the Owner.

This guarantee is made subject to the following terms and conditions:

1. Specifically excluded from this guarantee are damages to the Work, other parts of the building and building contents caused by: A) lightning, windstorm (includes hurricanes and tornados), hailstorm, earthquakes and other unusual phenomena of the elements; B) fire; and C) structural failures causing excessive roof deck, edgings and related roof components movement. When the Work has been damaged by any of the foregoing causes, the Guarantee will be null and void until such damage has been repaired by the Roofing Contractor, and until the cost and expense thereof has been paid by the Owner or another responsible party so designated.
2. During the Guarantee Period, if the Owner allows alteration of the Work by anyone other than a Contractor approved in writing by the Roofing Contractor, prior to the work being performed, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations, the Guarantee shall not become null and void, unless the Roofing Contractor, prior to proceeding with said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the Work, thereby reasonably justifying a termination of this Guarantee.
3. During the Guarantee Period, if the original use of the roof is changed and it becomes used for, but for which it was not originally designed or specified, as a promenade, work deck, spray-cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
4. During the Guarantee Period, if any building or area of a building is changed to uses creating extremes of interior temperature and/or humidity, but for which it was not originally designed And specified, without provisions and alterations made to the building which effectively contain or control these conditions, this Guarantee shall become null and void upon the date of said change.
5. The Owner shall promptly notify the Roofing Contractor in writing of observed known or suspected leaks, defects or deterioration and shall afford reasonable opportunity for the Roofing Contractor to inspect the Work, and to examine the evidence of such leaks, defects or deterioration.
6. This Guarantee is recognized to be the only guarantee of the Roofing Contractor on said work, and shall not operate to restrict or cut off the Owner from other remedies and recourses lawfully available to him in case of roofing failure. Specifically, this Guarantee shall not operate to relieve the Roofing Contractor of his responsibility for performance of the original work, regardless of whether the Contract was a Contract directly with the Owner or a Subcontract with the Owner's General Contractor.

IN WITNESS THEREOF, this instrument has been duly executed this day of _____, 201_____.

General Contractor's Signature: _____

Typed Name: _____

Representing: _____

Telephone No. _____

WITNESS: _____

Roofing Contractor's Signature: _____

Typed Name: _____

Representing: _____

Telephone No. _____

WITNESS: _____

FLASHING AND SHEET METAL**SECTION 07620****PART 1 - GENERAL****1.01 SECTION INCLUDES:**

- A. Copper gravel stops
- B. Copper copings
- C. Copper gutters and heavy gauge PVC downspouts of Brown color. PVC downspouts shall not have writing or graphic visible.
- D. Miscellaneous copper sheet metal flashings and accessories.
- D. Miscellaneous flexible sheet membrane flashings at exterior openings, etc.

1.02 RELATED SECTIONS

- A. Section 04200 - Unit Masonry which includes membrane type thru-wall flashing.
- B. Section 07310 - Shingle Roofing
- C. Section 07600 - Built-up roofing.
- D. Section 07610 - Sheetmetal Roofing
- D. Section 08520 - Aluminum Windows, which includes the metal sill flashings.

1.03 SUBMITTALS

- A. Manufacturer's Data: Submit two copies of specifications, installation instructions and sample warranty from the manufacturer for flashing and sheetmetal required. Include data substantiating compliance with the requirements.
- B. Sheetmetal Shop Drawings: Showing layout, profiles, methods of joining, and anchorages details. Provide layouts 1/4 inch scale and details at 3 inch scale.
- C. Samples of the following sheet metal and accessory items:
 - 1. 8 inch square samples of specified sheet materials to be exposed as finished surfaces.
 - 2. 12 inch long samples of factory-fabricated products exposed as finished work. Provide complete with specified factory finish.

1.04 QUALITY ASSURANCE

- A. Insurance Requirements: Provide fascia systems complying with Factory Mutual Loss Prevention Data Sheets 1-49 "Perimeter Flashing" requirements in either of the following categories and wind zones.
 - 1. Approval by Factory Mutual Research Corporation for use indicated.
- B. Industry Standards: Provide products which comply with applicable requirements of SMACNA "Architectural Sheet Metal Manual" except as otherwise indicated.

PART 2 - PRODUCTS

2.01 SHEET METAL MATERIALS AND ACCESSORIES

- A. Copper: ASTM B 370; temper H00 (cold-rolled) except where temper O60 is required for forming; weight as recommended in SMACNA "Formed Metal Copings - Design Data", Plate 76, Chart 12 but not less than 16 oz.
- B. Miscellaneous Materials and Accessories:
 - 1. Solder: For use with copper, provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.
 - 2. Fasteners: Same metal as flashing/sheet metal or, other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
 - 3. Bituminous Coating: SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
 - 4. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching material being installed, noncorrosive, size and gage required for performance but not less than item being anchored.
 - 5. Roofing Cement: ASTM D 2822, asphaltic.

2.02 SHEETMETAL FABRICATION

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated.

1. Exposed edges folded back to form hems.
 2. Exposed edges shall be neat and true with the line of the masonry face.
- B. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- C. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- D. Gutters: Form in sections not less than 8 ft. in length, complete with end pieces, outlet tubes, and any special pieces that may be required. Join sections with riveted and soldered or sealed joints. Unless otherwise indicated, provide expansion-type slip joint at the center of runs. Furnish gutter strap supports spaced at 36" o.c., constructed of same metal as gutters. Material and finish to match roof panels.
- F. Downspouts: Formed in sections approximately 10 ft. long, complete with elbows and offsets. Join sections with minimum 1-1/2" telescoping joints. Provide fasteners for top, bottom, and 5' o.c. intermittently between, designed to securely hold downspouts not less than 1" away from walls. Material and finish to match roof panels

2.03 MEMBRANE SHEET FLASHINGS

- A. Rubberized Asphalt Sheet Flashing: Manufacturer's standard composite flashing product consisting of a pliable and highly adhesive rubberized asphalt compound 32 mils thick, bonded completely and integrally to a high-density, cross-laminated polyethylene film, 8 mils (0.2 mm thick, to produce an overall thickness of 40 mils (1.0 mm), Perm-A Barrier by W.R. Grace and equal product by Sandal.
1. Primer: Flashing manufacturer's standard product or product recommended by flashing manufacturer for bonding flashing sheets to masonry and concrete

PART 3 - EXECUTION

3.01 SHEET METAL

- A. Furnish and install sheet metal roof edges, copings, flashing and counterflashing and protrusions in a manner indicated or implied by the Plans and Specifications and as recommended by the manufacturer and SMACNA. Metal edge securement shall be designed and installed in strict accordance with ANSI/SPRI ES-1, except basic wind speed shall be determined from Figure 1609 of the 2006 edition of the International Building Code. Nailer securement shall resist a vertical load of 200lb/Ft or the design load, whichever is greater. Bolts shall be staggered to avoid splitting the wood. Fasteners shall be located approximately 4 inches but not less than 3 inches from each end of the wood blocking Fasteners shall be staggered, spaced at a maximum 12 inches on center and penetrate the wood sufficiently to achieve the design pullout resistance. Spacing of fasteners shall be on maximum 6 inch centers in corner regions of the building

- B. Join sheet metal using a flat locked seam or lapped and securely soldered joints. For gravel guards butt ends together and furnish a joint cover 4" wide, fully bedded in flashing cement, and securely locked to the gravel guard. Make allowance at all joints for expansion and contraction. At exposed edges, sheet metal shall be hemmed and returned upon itself 1/2" for strength. At lap joints, make hems together so that one slides into the other. Nail down all metal flanges 3" on center.
- C. All corners shall be factory fabricated.
- D. All items passing through the roof whether shown or not shall be provided with collar and umbrella flashing or pipe penetration seals.
- E. Metal Pipe Flashings: Consist of a two (2) component assembly as follows:
 - 1. The first component shall be a galvanized metal roof jack having a minimum four (4) inch perimeter flange, and a sleeve opening to fit closely around the penetration without forcing, with a minimum eight (8) inch height. All metal laps shall be fastened and soldered.
 - 2. The second component shall be a galvanized metal, watertight umbrella, fabricated to be mechanically secured tightly by stainless steel drawband around the roof penetration and extended beyond the roof jack opening by a minimum radius of three (3) inches. The top edge of the watertight umbrella shall be caulked using an approved sealant.
- F. Set coping in a full bed of mastic using four (4) inch cover plates at joints, tightly fitted. Space joints equally and equal at ends. No section shall be smaller than 4'-0" in length.
 - 1. Where blocking is shown, provide treated wood continuous under the sheetmetal or fibrous tapered edge strip set in mastic and one layer of felt.
- G. Cleaning: Upon completion, all exposed sheet metal work shall be cleaned of all grease spots, oil, dirt, solder spatter, and the work shall be left in a clean and first class condition.
- H. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- I. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- J. Install counterflashing in reglets, either by snap-in seal arrangement or by welding in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.
- K. Nail flanges of expansion joint units to curb nailers, at maximum spacing of 6 inches o.c. Fabricate seams at joints between units with minimum 3 inch overlap, to form a continuous, waterproof system.

- L. Install continuous gutter guards on gutters, arranged as hinged units to swing open for cleaning gutters. Install "beehive"-type strainer-guard at conductor heads, removable for cleaning downspouts.
- M. Downspouts shall be installed with a minimum of three (3) straps for every 10 ft. of run.

3.02 RUBBERIZED SHEET MEMBRANE FLASHINGS

- A. Prepare substrate surfaces so that they are smooth and free from projections that could puncture flashing. Seal penetrations in flashing with adhesive/sealant/tape as recommended by flashing manufacturer. Prime if recommended by the manufacturer
- B. Install membrane and seal penetrations in strict accordance with the membrane manufacturers printed instructions. Turn up ends not less than 4" to form a continuous pan where installed horizontally. Roll edges and joints to eliminate "fishmouths"

END OF SECTION

ROOF ACCESSORIES**SECTION 07800****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Roof hatches.

1.02 RELATED SECTIONS

- A. Section 07600 - Roofing and Sheetmetal

1.03 SUBMITTALS

- A. Submit under provision of Section 01300.
- B. Product Data: Provide product data on system including flashing materials, and insulation.
- C. Shop Drawings: Submit shop drawings of units where Product Data does not adequately depict the units. Include roof plan indicating model numbers at required roof accessory locations.

1.04 PRE-INSTALLATION CONFERENCE

- A. Review procedures and coordination required with related Work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, sealed and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.

1.06 COORDINATION

- A. Coordinate the work with the installation of roofing and associated metal flashings, as the work of this section proceeds.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Zinc-Coated Steel: Commercial quality with 0.20% copper, ASTM A 525, G90 hot-dip galvanized, mill phosphatized.

- B. Insulation: Manufacturer's standard rigid or semi-rigid board of glass fiber of thickness indicated.
- C. Wood Nailers: Softwood lumber, pressure treated with water-borne preservatives for above-ground use, complying with AWPB LP-2; not less than 1-1/2" thick.
- D. Fasteners: Same metal as metals being fastened, or non-magnetic stainless steel or other non-corrosive metal as recommended by manufacturer. Match finish of exposed fasteners with finish of material being fastened.
 - 1. Where removal of exterior exposed fasteners affords access to building, provide non-removable fastener heads.

2.02 PRODUCTS AND FABRICATION, GENERAL

- A. Provide manufacturer's standard products except as otherwise indicated and comply with applicable recommendations and details of the "Architectural Sheet Metal Manual" by SMACNA for custom fabricated work.
- B. Fabricate units to withstand 40-lb. live loading, except for other superimposed loading as shown.

2.03 ROOF HATCHES

- A. Fabricate units of sizes shown, single-leaf type unless otherwise indicated, for 40 lbs. per sq. ft. external loading and 20 lbs. per sq. ft. internal loading pressure. Frame with integral-curb double-wall construction with 1-1/2" insulation and cap flashing (roofing counterflashing), with welded corner joints. Provide double-wall cover (lid) construction with 1" insulation core. Equip units with complete hardware set including hold-open devices, interior padlock hasps, and both interior and exterior latch handles. Provide gasketing for a watertight installation. Fabricate units of following materials:
 - 1. Metal: 14 gauge galvanized curb and hatch door, prime painted.
- B. Well Liner: Manufacturer's standard sheet metal well liner, primed for paint finish.

2.04 EXPOSED METAL FINISHES

- A. Shop Primed Metal: Except as otherwise indicated, prime metal surfaces of roof accessories by pretreatment (phosphate for zinc-coated steel and acid-chromate-phosphate for aluminum) followed by metal primer paint, 2 mil dry film thickness.
 - 1. Finish painting of primed metal surfaces is specified in Section 09900.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck surfaces are dry.

3.02 INSTALLATION

- A. General: Comply with manufacturer's printed instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, and with vapor barriers, roof insulation, roofing and flashing; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
 - 1. Except as otherwise indicated, install roof accessory items in accordance with construction details of "NRCA Roofing and Waterproofing Manual".
- B. Isolation: Where metal surfaces of units are to be installed in contact with non-compatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.
- C. Flange Seals: Except as otherwise indicated, set flanges of accessory units in a thick bed of roofing cement, to form a seal.
- D. Cap Flashing: Where cap, flashing is required as component of accessory, install to provide adequate waterproof overlap with roofing or roof flashing (as counter flashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.
- E. Operational Units: Test operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

3.03 MISCELLANEOUS FLASHINGS AND ACCESSORIES

- A. Comply with manufacturer's printed instructions and recommendations. Coordinate with installation of substrates to receive accessory units, roof insulation, roofing and flashing; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
 - 1. Except as otherwise indicated, install roof accessory items in accordance with construction details of "NRCA Roofing and Waterproofing Manual."

3.04 CLEANING

- A. In areas where finished surfaces are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

3.05 PROTECTION

- A. Protect building surfaces against damage from roofing work.

END OF SECTION

JOINT SEALERS**SECTION 07900****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Preparing substrate surfaces; removal of existing sealant in preparation for new sealants
- B. Sealant and joint backing for new walls, joints, openings, wall penetration, etc. Also, preformed compressible joint sealers at penetrations where indicated on the drawings.
- C. Recaulk all existing wall joints, openings, and miscellaneous penetrations, etc

1.02 RELATED SECTIONS

- A. Section 07270 - Firestopping: Sealants required in conjunction with firestopping.
- B. Section 07600 - Roofing and Sheet Metal: Sealants required in conjunction with roofing and flashing.
- C. Section 08800 - Glazing: Sealants required in conjunction with glazing methods.

1.03 REFERENCES

- A. ASTM C790 - Use of Latex Sealing Compounds.
- B. ASTM C804 - Use of Solvent-Release Type Sealants.
- C. ASTM C834 - Latex Sealing Compounds.
- D. ASTM C920 - Elastomeric Joint Sealants.
- E. ASTM C962 - Use of Elastomeric Joint Sealers.
- F. ASTM C1193 - Guide for Use of Joint Sealants.
- G. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and color availability.
- C. Samples: Submit two samples, 1/2" x 3" inch in size illustrating sealant colors for selection.

- D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.
- E. Test Reports: Submit the following test reports by the sealant manufacturer:
 - 1. Compatibility and adhesion test reports indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
 - 2. Preconstruction joint sealer-substrate test results including recommendations of joint sealer manufacturer for joint preparation and application of joint sealers applicable to project conditions.
 - 3. Certified test reports for elastomeric sealants evidencing compliance with requirements specified based on comprehensive testing of current product formulations within a 24-month period of preceding date of submission of test reports to Architect. Include test results for aged performances including hardness, stain resistance, adhesion and cohesion under cyclic movement (ASTM C719), low-temperature flexibility, modulus of elasticity at 100% strain, effects of heat aging, and effects of accelerated weathering.
 - 4. Preconstruction field test results reported by Installer indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.
- F. Certificates: Submit certificates from manufacturers of joint sealers attesting that their products comply with specification requirements, are compatible with all materials in contact with joint backers and sealants, and will not bleed into adjacent surfaces, and are suitable for the use indicated.

1.05 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants for exterior applications that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates and adjacent surfaces.
- B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain air tight continuous seals that are water resistant and cause no staining or deterioration of joint substrates and adjacent surfaces.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Maintain copies of each document on site.

- C. **Single Source Responsibility:** Obtain joint sealer materials from a single manufacturer for each different product required.
- D. **Testing Laboratory Qualifications:** To qualify for acceptance, an independent testing laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying progress of the work.
 - 1. All cost of testing laboratory services shall be borne by the Contractor.
- E. **Preconstruction Compatibility and Adhesion Tests:** Submit substrate materials representative of actual joint surfaces to be sealed to manufacturer of joint sealer products for laboratory testing of sealants for adhesion to primed and unprimed substrates and for compatibility with secondary seals, if required, as indicated below:
 - 1. Use test methods standard with manufacturer to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealers to joint substrates under environmental conditions that will exist during actual installation.
 - 2. Submit not less than 9 pieces of each type of material, including joint substrates, shims, joint sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analysis of results to prevent delay in the progress of the work.
 - 4. Investigate materials failing compatibility or adhesion tests and obtain joint sealant manufacturer's written recommendations for corrective measures, including use of specially formulated primers.
- F. **Preconstruction Field Tests:** Prior to installation of joint sealants, field-test adhesion to joint substrates as follows:
 - 1. Install joint sealants in 5-foot joint lengths using same materials and methods required for completed work. Allow sealants to cure before testing. Test adhesion to joint substrates by manually trying to pull joint sealant out of joint.
 - a. Make knife cuts horizontally from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 3 inch cuts. Place a mark 1 inch from top of 2 inch piece.
 - b. Use fingers to grasp 2 inch piece of sealant just above 1 inch mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
 - 2. Locate test joints where indicated or, if not indicated, as directed by Architect.

3. Perform field tests for each application as follows:
 - a. Each type of elastomeric sealant and joint substrate application indicated.
 - b. Perform tests in Architect's presence.
 4. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
 5. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
- G. Field-Constructed Mock-Ups: Prior to installation of joint sealers, apply elastomeric sealants to the following selected building joint as indicated below for further verification of colors selected from sample submittals and to represent completed work for qualities of appearance, materials and applications.
1. Joints in field-constructed mock-ups of assemblies specified in other sections which are indicated to receive elastomeric joint sealants as work of this section.
 2. Retain mock-up during construction as standard for judging completed work.

1.07 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in performing the work of this section with minimum 5 years documented experience and approved by manufacturer.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.09 COORDINATION

- A. Coordinate work.
- B. Coordinate the work with all sections referencing this section.

1.10 WARRANTY

- A. Provide three year warranty under provisions of Section 01700.

- B. **Warranty:** Include coverage for installed sealants and accessories which fail to achieve water tight seal or exhibit loss of adhesion or cohesion, or do not cure.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

- A. **Colors:** For exposed materials, provide color as selected by Architect from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.
- B. **Compatibility:** Before purchase of each required material, confirm its compatibility with each other material it will be exposed to and be in contact with in the joint system.
- C. **Size and Shape of Joint:** As shown, or if not shown, as recommended by the manufacturer for the type and condition of joint, and for the indicated joint performance or movement.

2.02 SEALANTS

- A. **Exterior Silicone Elastomeric Sealant (Type A):** One-Part Neutral-Curing, ASTM C 920, Type S; Grade NS, Class 25; Uses NT, G, A, and O as applicable to uses indicated, \pm 50% movement capability after 5 years, and complying with requirements for medium modulus as required for indicated application and recommended by the manufacturer.

- 1. 790; Dow Corning
- 2. Silpruf; G.E.

NOTE: Sealant must be tested and certified in writing not to stain or discolor adjacent surfaces.

- B. **Polyurethane Sealant (Type B):** ASTM C920, Type S, Grade NS, Class 25, Use NT, M, A and O, single component, chemical curing, non-staining, non-bleeding, non-sagging:

- 1. Sikaflex-1a; Sika Chemical Corp.
- 2. Sonolastic, NPI; Sonneborn/Contech, Inc.
- 3. Dymonic; Tremco
- 4. Vulken 921; Mameco International, Inc.

- C. **Polyurethane Sealant (Type C):** ASTM C920, Grade P/NS, Class 25, Type M/S; multi-component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, self-leveling type:

- 1. TCH-900/901; Tremco
- 2. Chem-Calk 550; Woodmont Products, Inc.
- 3. Sonolastic Pavement Joint Sealer; Sonneborn/Contech, Inc.
- 4. NR-200 Urexpan; Pecora Chemical Co.
- 5. Vulken 245; Mameco International, Inc.

- D. Butyl Sealant (**Type D**): ASTM C920, Grade single component, solvent release, non-skinning, non-sagging:
1. Elongation Capability 7 to 10 percent
 2. Service Temperature Range -13 to 180 degrees F.
 3. Shore A Hardness Range 10 to 30
- E. Acrylic Emulsion Latex (**Type E**): ASTM C834, single component:
1. AC20 Acrylic Latex Caulk; Pecora Chemical Co.
 2. Latex Caulk; DAP
 3. Chem-Calk 600; Woodmont Products, Inc.
 4. Acrylic Latex Caulk; Tremco
- F. Silicone Sanitary Sealant (**Type F**): ASTM C920, Grade P/NS, Class 25, single component, solvent curing, non-sagging, non-staining, fungus/mildew resistant, non bleeding.
1. Sanitary 1700; G.E.
 2. 786; Dow Corning

2.03 ACCESSORIES

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests and field tests.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: ASTM C962; round, closed cell, non absorbent to liquid water and gas, non-outgassing polyethylene foam rod; acceptable to the manufacturer, oversized 30 to 50 percent larger than joint width equal to:
1. Ethofoam by Dow Chemical Co.
 2. Minicel by Haveq Industries
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
- E. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.

- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Perform preparation in accordance with manufacturer's instructions.
- B. Immediately before installing sealants remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Protect elements surrounding the work of this section from damage or disfiguration.
 - 1. Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
- E. Prepare existing joints for sealants and caulking by removing existing sealant and backing material, foreign matter, such as dust, oil, grease, water, surface dirt or residue of previous caulking whether missing or removed as part of the preparation of the surfaces for new caulking. Porous surface shall be cleaned by grinding, abrading by hand or mechanical grinder or acid wash. Non-porous surfaces such as metal shall be cleaned mechanically or chemically, and all protective coats removed by solvent, leaving no residue. Do not allow to air dry without wiping.
 - 1. In addition to the joint depth, the midpoint depth of the sealant shall be one-half the width of the joint, with a maximum depth of 1/2" and a minimum of 1/4" except as maybe otherwise recommended by the sealant manufacturer

3.03 INSTALLATION

- A. Install sealant in accordance with manufacturer's printed instructions and ASTM C 1193.
- B. Measure joint dimensions and size materials to achieve width/depth ratios recommended by the manufacturer.
- C. Install backer rods of type indicated to provide support of sealants during application and at a position required to product uniform cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability. All joints shall be used 25 - 30% under compression.
 - 1. Do not leave gaps between ends of joint fillers.

2. Do not stretch, twist, puncture, or tear joint fillers.
 3. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
- D. Install bond breaker tape wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly and when backer rod cannot be implemented.
 - E. Install sealants to depths as shown or, if not shown, as recommended by the sealant manufacturer.
 - F. Apply sealant with sufficient pressure to completely fill the void space and to assure complete wetting of contact area to obtain uniform adhesion. During the application, keep the tip of nozzle at the bottom of joint, forcing sealant to fill from bottom to top. Move tip along joint at a rate as to completely fill the joint.
 - G. Install sealant free of air pockets, foreign embedded matter, ridges and sags.
 - H. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
 - I. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.04 CLEANING

- A. Clean work under provisions of 01700.
- B. Clean adjacent soiled surfaces.

3.05 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Section 01500.
- B. Protect sealants until cured.

3.06 SCHEDULE**A. Sealant Type A:** as follows:

1. Exterior Openings: Caulk perimeter joints of exterior openings, such as doors, louvers, windows, wall joints, penetrations, etc. and all penetrations to exclude water, i.e. handrail brackets, outlet boxes, fixture attachments, etc
2. Expansion and control Joints: Caulk all expansion and control joints in exterior wall construction.

B. Sealant Type B: As follows:

1. Interior Joints: Caulk all interior joints 3/8" wide or more.
2. Flashing at Roof: See section 07600, caulk all joints.

C. Sealant Type C: As follows:

1. Expansion Joints: Caulk all expansion joints of traffic-bearing decorative paving including exterior decorative paving where indicated "sealant" on the Drawings.

D. Sealant Type D: As follows:

1. Thresholds: Set thresholds in bed of sealant; where thresholds have weep holes, keep the weep clear and remove excess sealant.

E. Interior Caulking Type E: As follows:

1. Door Frames: Caulk perimeter joints of metal frames.
2. Casework: Caulk at contact with wall construction where gaps occur.
3. Joints: Caulk all joints 1/4" wide or less, except use Type B sealant at joints 3/8" wide or more.

F. Interior Sealant Type F: As follows:

1. Plumbing Fixtures: Caulk at contact with wall construction.
2. Expansion joints in tile finish.
3. Tops and fixtures in bathrooms and kitchens

END OF SECTION

STEEL DOORS AND FRAMES**SECTION 08112****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Standard steel doors and frames; interior and exterior.

1.02 RELATED SECTIONS

- A. Section 08300 – Acoustical Doors
- B. Section 08710 - Door Hardware
- C. Section 09900 - Painting: Field painting of doors

1.03 REFERENCES

- A. ANSI A117.1 - Specifications for Making Building and Facilities Accessible to an Usable by Physically Handicapped People
- B. ANSI/SDI-100 - Standard Steel Doors and Frames
- C. ASTM A224.1 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces.
- D. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
- E. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware
- F. ASTM E152 - Methods of Fire Tests of Door Assemblies
- G. NFPA 80 - Fire Doors and Windows
- H. NFPA 252 - Fire Tests for Door Assemblies
- I. UL 10B - Fire Tests of Door Assemblies

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300
- B. Product Data: Indicate frame configuration, anchor types and spacings, location of cut-outs for hardware, reinforcement.
- C. Manufacturer's Installation Instructions: Indicate special installation instructions.
- D. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-

outs for glazing, louvers, and finish.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of ANSI/SDI-100 by the Steel Door Institute and ANSI A117.1.
- B. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

1.07 REGULATORY REQUIREMENTS

- A. Fire Rated Construction: Conform to ASTM E152, NFPA 252 or UL 10B.
- B. Fire Rated Construction: Rate of rise of 450° F across door thickness at stairwells.
- C. Installed Assembly: Conform to NFPA 80 for fire rated class as scheduled.
- D. Exterior doors and frames shall comply with IBC code requirement for wind loads indicated on the drawings, and have labels affixed showing testing and compliance. Also, doors and frames shall comply with the large missile impact criteria per requirements of SBCCI SSTD-12, and ASTM E1886 and E1996

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Accept doors and frames on site in manufacturer's packaging. Inspect for damage.

1.09 COORDINATION

- A. Coordinate the work with frame opening construction, door and hardware installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Steelcraft Manufacturing Company
- B. Republic Steel Corporation
- C. Amweld Building Products Division
- D. Ceco Industries, Medallion Design
- E. Curries

- F. Amertex
- G. Pioneer Industries, Inc
- H. Metal Products Inc

2.02 MATERIALS

- A. Hot-Rolled Steel Sheets: Commercial quality carbon steel, pickled and oiled, complying with ASTM A1011 and ASTM A568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A1008 and ASTM A568.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A924 and ASTM A653, with ASTM A525 G90 zinc coating, mill phosphatized for preparation of paint coating..
- D. Supports and Anchors: Fabricate of not less than 18 gage galvanized sheet steel.
- E. Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A153, Class C or D as applicable.
- F. Shop Applied Paint: Rust-inhibitive primer, either air-drying or baking, suitable as a base for specified finish paints.

2.03 FRAMES

- A. Exterior Frames: 14 gauge thick galvanized steel material, base metal thickness.
- B. Interior Frames: 16 gauge thick cold-rolled or hot-rolled steel material, base metal thickness.

2.04 DOORS

- A. Exterior Doors: SDI-100 Level 3, (Extra Heavy Duty) Model 2 (Seamless Design) of 16 gauge galvanized steel.
- B. Interior Doors (Non-rated): SDI-100 Level 3, (Extra Heavy Duty) Model 2 (Seamless Design) of 16 gauge cold-rolled steel.
- C. Interior Doors (Fire Rated): SDI-100 Level 3, (Extra Heavy Duty) Model 2 (Seamless Design) of 16 gauge cold-rolled steel.
- D. Face: Steel sheet in accordance with ANSI/SDI 100 but not less than 16 gauge.
- E. Core: Manufacturers standard noncombustible hoeycomb core on interior doors, and solid insulation non-combustible core per ANSI A250.8, Section 2.3.2 at exterior doors.

2.05 ACCESSORIES

- A. Silencers: Resilient rubber fitted into drilled hole.
- B. Louvers:
 - 1. Material and Finish: Roll formed steel; 24 gauge; wipe coat of zinc.
 - 2. Louver Blade: Inverted V blade.
 - 3. Louver Free Area: 55 percent.
 - 4. Frame: 20 gauge steel frame

2.06 FABRICATION

- A. Fabricate frames as a single welded unit.
 - 1. Knock down frames are not acceptable.
- B. Fabricate frames with hardware reinforcement plates welded in place.
- C. Fabricate doors with hardware reinforcement welded in place.
- D. Reinforce frames wider than 48 with roll formed steel channels fitted tightly into frame head, flush with top.
- E. Prepare frame for silencers. Provide three single silencers for single doors on strike side. Provide two single silencers on frame head at double doors without mullions.
- F. Door shall be 1-3/4" thick unless otherwise indicated.
- G. Astragals for double doors: Steel, T-shaped, specifically for double doors.
- H. Close top edge of exterior doors with flush end closure. Seal joints watertight.

2.07 HARDWARE PREPARATION

- A. Mortise Hardware Preparation: Reinforce, drill and tap doors and frames to receive mortised hinges, locks, latches, flush bolts and concealed door closers as required. Preparation shall be in accordance with applicable requirements of ANSI A115.
- B. Surface Applied Hardware: Field drilling and/or tapping for surface applied hardware by others is standard.
- C. Reinforcings: Provide minimum hardware reinforcing gages as noted in SDI-107.
- D. Locate finish hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware", published by Door and Hardware Institute.

2.08 NOMINAL DESIGN CLEARANCES

- A. The nominal clearance between the door and frame head and jamb s shall be 1/8" in the case of both single swing and pairs of doors.
- B. The nominal clearance between the meeting edges of pairs of doors can range from 1/8" to 1/4" (1/8" for fire rated doors).
- C. The nominal clearance at the bottom shall be 3/4".
- D. The nominal clearance between the face of the door and door stop shall be 1/16".
- E. All clearances are subject to a tolerance of + or - 1/32".

2.09 STEEL SHEET FINISH

- A. Doors and frames leading to the exterior shall be galvanized in accordance with ASTM A525 G60.
- B. Primer: Air dried or baked complying with requirements for acceptance stated in ANSI A224.1 with minimum 1.2 dry mil thickness. Doors and frames shall be thoroughly cleaned, and chemically treated to insure maximum paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on. The finish shall meet the requirements for acceptance stated in ANSI/SDI A250.10 "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION

- A. Install doors and frames in accordance with ANSI/SDI-100 and DHI.
- B. Place frames in accordance with SDI-105 "Recommended Erection Instructions for Steel Frames", with a minimum of three (3) wall anchors per at hinge and strike levels and four (4) anchors for frames over 7'-6" in height.
- C. Doors shall be installed and fastened to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Doors shall be adjusted to maintain perimeter clearances specified. Shimming shall be performed by the installer as needed to assure the proper clearances are achieved
- D. Coordinate installation of doors and frames with installation of hardware specified in Section 08710.
- E. Coordinate with glass and glazing.
- F. Install fire rated assemblies in accordance with NFPA 80.

3.03 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.04 ADJUSTING

- A. Adjust door for smooth and balanced door movement.

END OF SECTION

ACCESS DOORS**SECTION 08305****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Standard size steel access doors.
- B. Oversized Fire Rated Access Panels for ceiling access.
- C. Provide fire rated doors when penetrating fire rated construction.

1.02 RELATED WORK

- A. Painting of Access Doors: Section 09900, Painting

1.03 FIRE RATING CLASSIFICATION

- A. Fire rated access doors shall bear the Underwriters Laboratories, Inc., 1-1/2 hour "B" Label (250 degrees rating).

1.04 SUBMITTALS

- A. In accordance with Section 01300.
- B. Shop Drawings: Access doors, each type, showing construction, location and installation details.
- C. Manufacturer's Literature and Data: Access doors, each type.

1.05 APPLICABLE PUBLICATIONS

- A. The National Association of Architectural Metal Manufacturers (NAAMM): Metal Finishes Manual (August, 1969)

1.06 MANUFACTURERS

- A. Approved Manufacturers: Babcock-Davis, The Bilco Co. and J.L. Industries

PART 2 - PRODUCTS

2.01 FABRICATION, GENERAL

- A. Fabricate components so as to be straight, square, flat and in same plane where required. Slightly round exposed edges and provide access without burrs, snags and sharp edges. Welds where exposed shall be continuous and ground smooth.
- B. Number of locks and non-continuous hinges shall be as required to maintain alignment of panel with frame, except for fire rated doors, the number shall be the same as required by the fire test.

- C. Provide anchors or make provisions in frame for anchoring to adjacent construction. Provide size, number and location of anchors as required to secure access door in opening and as required by fire test.

2.02 STANDARD SIZE ACCESS DOORS, FIRE RATED

- A. Door Panel: Form of 0.0359 inch thick galvanized steel sheet, insulated sandwich type construction.
- B. Frame: Form of 0.0598 inch thick galvanized steel sheet of depth and configuration to suit material and type of construction where installed. Provide frame flange at perimeter where installed in concrete and masonry openings. Weld exposed joints in flange and grind smooth.
- C. Automatic Closing Device: Provide automatic closing device for each door.
- D. Hinge: Continuous steel hinge with stainless steel pin.
- E. Lock: Self-latching, with provision for fitting flush a standard screw-in type lock cylinder. Lock cylinder is specified in Section 08710- Hardware. Provide latch release device operable from inside of door. Mortise lock case in door.

2.03 STANDARD SIZE ACCESS DOORS, FLUSH PANEL

- A. Door Panel: Form of 0.0747 inch thick galvanized steel sheet. Reinforce as required to maintain flat surface.
- B. Frame: Form of 0.0598 inch thick galvanized steel sheet of depth and configuration to suit material and type of construction where installed and to align flush with surrounding construction. Provide surface mounted units having frame flange at perimeter where installed in concrete or masonry construction. Weld exposed joints in flange and grind smooth.
 - 1. At drywall construction provide perforated portion of frame with bead for joint treatment flush with face of gypsum board; overlapping flange is not permitted.
- C. Hinge: Concealed spring hinge to allow panel to open 175 degrees. Provide removable hinge pin to allow removal of panel from frame.
- D. Lock: Flush, screwdriver operated cam lock.

2.04 FINISH

- A. Steel Surfaces: Baked-on prime coat over a protective phosphate coating.

2.05 SIZE

- A. Access doors shall be minimum 12 inches, unless otherwise shown.

2.06 OVERSIZED FIRE RATED ACCESS PANELS

- A. Oversized Fire Rated Access Panels for horizontal applications, equal to Nystrom FRD Series .Provide 2 hour Warnock Hersey label at horizontal applications
1. Sizes: 48 inch x 60 inch for horizontal applications.
 2. Door: Fabricate from 18-gauge galvanized steel, insulated sandwich type construction. 22 gauge liner.
 3. Frame: Fabricate from 16-gauge galvanized steel.
 - a. .875 flange at perimeter.
 4. Hinge: Concealed continuous rod opening to 100 degrees.
 5. Latching/Locking Mechanism: Factory installed flush ¼ inch allen key, self latching.
 6. Finish: White electrostatically applied rust inhibitive prime coat.
 7. Insulation: 1 ½ inches thick high temperature.
 8. Automatic Closure Device: Integral automatic spring closure device for each door, will close and latch all doors from an open position of approximately 90 degrees.
 9. Interior Latch Release: Mechanism to allow for panel to open from interior side-standard on all panels

PART 3 - EXECUTION

3.01 LOCATION

- A. Provide access panels or doors wherever any valves, traps, air splitter dampers, cleanouts and other control items of mechanical, and electrical work are concealed in wall, partition or ceiling construction.

3.02 INSTALLATION, GENERAL

- A. Install access doors in openings to have sides vertical in wall installations, and parallel to ceiling grid or side walls when installed in ceiling. Set frames so that edge of frames without flanges will finish flush with surrounding finish surfaces.

3.03 ANCHORAGE

- A. Secure frames to adjacent construction using anchors attached to the frames or by use of bolts or screws through the frame members. Type, size and number of anchoring device shall be suitable for the material surrounding the opening, and as required to maintain alignment and resist displacement during normal use of the access door and the building.
1. Anchors for fire rated access doors shall be as required by the fire test.

3.04 ADJUSTMENT

- A. Adjust hardware so that the door panel will open freely, and when closed the door panel will be centered within the frame.

END OF SECTION

OVERHEAD COILING DOORS**SECTION 08331****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Exterior overhead coiling insulated doors, factory finished, operating hardware, for manual operation.

1.02 RELATED SECTIONS

- A. Section 09900 - Painting: Field paint finish of guides.

1.03 REFERENCES

- A. ANSI/ASTM A526 - Steel Sheet, Zinc-coated (Galvanized) by the Hot-dip Process, Commercial Quality.
- B. ANSI/UL 325 - Door, Drapery, Gate, Louver, and Window Operators and Systems.
- C. ASTM A525 - General Requirements for Steel Sheet, Zinc-coated (Galvanized) by the Hot-dip Process.
- D. NEMA ICS 2 - Standards for Industrial Control Devices, Controllers and Assemblies.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details.
- C. Product Data: Provide general construction, component connections, details, and finishes.
 - 1. Provide operating instructions and maintenance information.
 - 2. Provide information describing fire-release system including electrical rough-in instructions.
- D. Manufacturer's Installation Instructions: Indicate installation sequence and procedures, adjustment and alignment procedures.
- E. Samples: Submit two (2) samples of finish on steel.

1.05 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Furnish each overhead coiling door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.

1. Furnish overhead coiling door units by one manufacturer for entire project.
- B. Insert and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry to install units. Provide setting drawings, templates, instructions, and directions to install anchorage devices. Coordinate delivery with other work to avoid delay.
 1. See concrete and masonry sections of these specifications regarding installation of inserts and anchorage devices.

1.06 MAINTENANCE DATA

- A. Submit under provisions of Section 01700.
- B. Maintenance Data: Indicate lubrication requirements and frequency, periodic adjustments required.

1.07 QUALITY ASSURANCE

- A. Furnish each overhead service door as a complete unit produced by one manufacturer, including hardware, accessories, mounting, and installation components.
- B. Wind Loading: Design and reinforce rolling doors to withstand a wind loading pressure with a maximum deflection of 1/120 of opening width, as follows:
 1. Wind Pressure: 130 mph base wind load per IBC 2009 and ASCE-7-05.
Door unit shall meet missile impact criteria per requirements of SBCCI SSTD-12, and ASTM E1886 and E1996, meeting requirements of the Large Missile Test of ASTM E 1996

1.08 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Stormtite 625 Series by Overhead Door Corp. or equal ds-357 by Wayne Dalton Corp., or J.G. Wilson.

2.02 MATERIALS

- A. Door Curtain: Fabricate overhead coiling door curtain of interlocking slats, designed to withstand required wind loading, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of material gage recommended by door manufacturer for size and type of door required, and as follows:

1. Slats: Flat face, interlocking, 22 gauge of ANSI/ASTM A526 steel, single thickness slat; G90 galvanized per ASTM A525 as follows:
 2. Nominal Slat Size: 2 inches wide x required length.
 3. Slat Ends: Each slat fitted with end locks to act as wearing surface in guides and to prevent lateral movement.
 4. Curtain Bottom: Fitted with angles to provide reinforcement and positive contact with floor in closed position.
 5. Fully insulated slats with manufacturer's standard CFC-free, foamed-in-place polyurethane insulation., full thickness of slats
- B. Guides: Galvanized structural steel angles (min. 3/16" thick), continuous, vertical mounted bolted to opening frame.
1. Guides shall be weatherstripped with vinyl at each jamb at exterior units.
 2. Secure continuous wall angle to wall framing with a minimum of 3/8 inch bolts at not more than 30 inches o.c., unless closer spacing recommended by door manufacturer. Extend wall angles above door opening head to support coil brackets, unless otherwise indicated. Place anchor bolts on exterior wall guides so they are concealed when door is in closed position. Provide removable stops on guides to prevent over-travel of curtain and a continuous bar for holding windlocks.
- C. Roller Shaft Counterbalance: Steel pipe and helical steel spring system, capable of producing torque sufficient to assure smooth operation of curtain from any position; with adjustable spring tension, deflection shall be limited .03" maximum per foot of door width.
1. Provide spring balance of one or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Provide cast steel barrel plugs to secure ends of springs to barrel and shaft.
 2. Fabricate torsion rod for counterbalance shaft of cold-rolled steel in size required to hold fixed spring ends and carry torsional load.
 3. Brackets: Provide mounting brackets of manufacturer's standard design, either cast iron or cold-rolled steel plate with bell mouth guide groove for curtain.
- D. Hood Enclosure and Fascia: Form to entirely enclose coiled curtain and operating mechanism at opening head and act as weather seal. Contour to suit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface-mounted hoods and any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.
1. Fabricate steel hoods for doors of not less than 20 gauge hot-dip galvanized steel sheet with G 90 zinc coating, complying with ASTM A 525.

- E. Endlocks: Malleable iron castings galvanized after fabrication, secured to curtain slats with galvanized rivets. Provide locks on alternate curtain slats for curtain alignment and resistance against lateral movement.
- F. Windlocks: Malleable iron castings secured to curtain slats with rivets.
- G. Bottom Bar: Consisting of two angles, each not less than 1½ by 1½ by 1/8 inch thick, either galvanized or stainless steel or aluminum extrusions to suit type of curtain slats.
- H. Weatherstripping: Vinyl weatherstripping on the bottom bar, exterior curtainside guide and hood baffle.

2.03 FINISHES

- A. Curtain Slats and Hood Enclosure: Precoated baked-on primer/paint finish rated for exterior exposure, color as selected by Architect, primer of epoxy polyester and finish powder coat electrostatically applied.

- 1. Color: Custom as selected by the Architect

2.04 OPERATION

- A. Manual Operation: Design counterbalance mechanism so that required lift or pull for shutter operation does not exceed 25 lbs. Adjust operating mechanism so that the curtain can be easily stopped at any point in its travel and to remain in position until movement is reactivated.
 - 1. Provide two (2) lift handles on inside bottom bar, of same material and finish as curtain.
 - 2. Provide two (2) slide bolt locks on inside bottom bar, of same material and finish as curtain

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify openings.
- B. Verify that opening sizes, tolerances and conditions are acceptable.

3.02 INSTALLATION

- A. Install door unit assembly in accordance with manufacturer's printed instructions.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Securely brace components suspended from structure.

- D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
- F. After completing installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion.

3.03 ERECTION TOLERANCES

- A. Maintain dimensional tolerances and alignment with adjacent work.
- B. Maximum Variation From Plumb: 1/16 inch
- C. Maximum Variation From Level: 1/16 inch
- D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 ft straight edge.

3.04 ADJUSTING AND TESTING

- A. Upon completion of installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for the entire perimeter.
- B. Train Owner's maintenance personnel on procedures and schedules related to door operation, servicing, preventive maintenance, and procedures for resetting closing devices after activation.

3.05 CLEANING

- A. Clean door and components.
- B. Remove labels and visible markings.

END OF SECTION

FIRE RATED SINGLE HUNG STEEL WINDOWS**SECTION 08513****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes: 3/4 Hour fire rated, operable, self closing, vertically hung, steel windows.
- B. Related sections:
 - 1. Section 07900 - Joint Sealers: Sealants and backing material for perimeter window joints.
 - 2. Section 08800 - Glazing: Glass for steel windows.

1.2 REFERENCES

- A. American National Standards Institute (ANSI): ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
 - 2. ASTM C864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
 - 3. ASTM C1281 - Preformed Tape Sealants for Glazing Applications.
 - 4. ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Difference Across Specimen.
 - 5. ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - 6. ASTM E331 - Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- C. Consumer Product Safety Commission (CPSC): CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- D. Flat Glass Marketing Association (FGMA): FGMA - Glazing Manual.
- E. ICBO UBC - Uniform Building Code (UBC) published by International Conference of Building Officials (ICBO).
- F. National Fire Protection Association (NFPA)
 - 1. NFPA 80 - Fire Doors and Windows.

2. NFPA 257 - Fire Test for Window and Glass Block Assemblies.

G. SWI: The Steel Window Institute.

1.3 PERFORMANCE REQUIREMENTS

A. Fire rating: 3/4 hour tested in accordance with NFPA 80 and NFPA 257.

B. Testing: Test each type and size of required window through a recognized testing laboratory or agency, in accordance with ASTM E 330 for structural performance, with ASTM E 283 for air infiltration and with both ASTM E 331 for water penetration. Provide certified test results. Installed windows must meet the following performance:

3. Structural Performance: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as required by and calculated in accordance with the International Building Code 2009 and Supplements (City of New Orleans Building Code) and ASCE 7-05, measured in accordance with ANSI/ASTM E330 and when tested in accordance with ANSI/ASTM E330, based on 130 mph wind speed, Exposure B and Importance Factor of 1.00, and corners as required by Codes.

- a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 330 at a static air pressure equal to structural test pressure with high pressure applied first on one side of the unit and then on the other side with no glass breakage or damage to make window inoperable.
- b. No member shall deflect more than $L/175$ of its span or permanent deflection exceeding .4% of its span at structural test pressure load, with full recovery of glazing materials.
- c. Test pressures required to measure deflection parallel to the plane of the wall shall be equal to 1.5 times the wind pressures specified above. Deflection of any member carrying its full dead load shall not exceed an amount that will reduce glass bite below 75 percent of the design dimension and shall not reduce the edge clearance between the member and the fixed panel, glass or other fixed member above to less than 1/8 inch. The clearance between the member and an operable door or window shall be at least 1/16 inch
- d. Glass and framing meeting missile impact criteria per requirements of SBCCI SSTD-12, and ASTM E1886 and E1996, meeting requirements of the Large Missile Test of ASTM E 1996 up to 30 foot of building height and meeting requirements of the Small Missile Test of ASTM E 1996 above 30 ft.

D. Maximum air infiltration rate tested @ 1.57 PSF (25 mph) static air pressure in accordance with ASTM E283:

3. Operable windows: 0.30 cfm/ft of air per minute per linear foot of vent perimeter.

E. Water leakage: None when tested in accordance with ASTM E331 at 6.0 PSF pressure difference.

1.4 SUBMITTALS

A. Submit in accordance with Section 01300 - Submittals:

1. Product data.
2. Shop drawings showing layout, configurations, profiles, dimensions, wall opening tolerances, hardware, self closing device, fasteners, and adjacent related work. Provide large scale details showing method of anchoring and sealing window units in rough openings.
3. Certificates that windows have been successfully tested in accordance with Paragraph 1.3.
4. Sample of finish.
5. Manufacturer's recommended installation and maintenance instructions.

1.1 QUALITY ASSURANCE

- A. Conform to ICBO applicable codes and regulations of authority having jurisdiction] for design and installation fire rated windows.
- B. Comply with Consumer Product Safety Commission 16 CFR 1201 and other applicable safety requirements. Each piece of safety glazing shall be permanently labeled with appropriate marking.

1.2 WARRANTY

A. Provide in accordance with Section 01700 - Closeout:

1. 3 years warranty for factory finish against cracking, peeling, and blistering under normal use.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Equal to Optimum Window Manufacturing Corporation, 28 Canal Street, Ellenville, New York 12428; 845-647-1900; www.optimumwindow.com.
- B. Basis of Design: Series 7650TSH (TSH=True Single Hung

2.2 MATERIALS

A. Framing sections:

1. Formed from cold rolled ASTM A653 low carbon steel with 20 gage minimum thickness.
2. Depth:

- a. Exterior frame: 3-5/8 inches [92 mm].
 - b. Sash frame: 1-5/8 inches [41 mm].
- B. Glass: As specified in Section 08800 - Glazing.
1. Type: Fire rated insulated units with inner lite of laminated glass with intumescent interlayer and listed by Underwriters Laboratories (UL) for 3/4 hour fire rated assembly.
 - a. In locations indicated on Drawings or where required by applicable regulations, glass shall comply with CPSC 16 CFR and ANSI Z97.1 to qualify as safety glass.
 2. Color: match exterior lites specified in Section 08800].
- C. Gaskets: Molded or extruded elastomeric type of profile and hardness required to maintain weathertight seal and complying with ASTM C864.
- D. Setting blocks: Neoprene or EPDM complying with ASTM C864.
- E. Glazing tape: Preformed, non-staining, coiled on release paper, and complying with ASTM C1281.
- F. Glazing sealants: As recommended by window manufacturer and compatible with materials and conditions.
- G. Anchorage devices: Manufacturer's recommended clips, anchors, fasteners, and shims required for secure installation of window units.
- H. Joint materials: As specified in Section 07900 - Joint Sealers.
1. Backing: Round polyethylene foam rod oversized 30 percent larger than joint width.
 2. Sealants: Silicone] type suitable for perimeter window joint size and Project conditions.

2.3 WINDOW UNITS

- A. Type: Fire rated, operable, self closing, [single] hung, steel framed window unit; Series 7650TSH as manufactured by Optimum Window Manufacturing Corporation.
- B. Grade: Heavy Monumental in accordance with SWI.
- C. Size, shape, and configuration: As indicated on Drawings.
- D. Frame corners: Coped, mechanically fastened, and sealed to prevent water leakage.
- E. Muntins: T sections mechanically fastened to perimeter frame with cross notched intersections.
- F. Glazing beads: Formed cold rolled steel bead with 3/4 inch edge bite, applied from interior, and designed for snap-in installation and securing with mechanical fasteners.

G. Hardware:

1. Support operating sashes on pair of heavy duty balances and equip with sweep locks.
2. Locking device: Cam type lock and strike. Provide two locks for sash greater than [36 inches] [914 mm] high.
3. Self closing hardware: Equip fire rated window windows with [gravity] operated, self closing device activated by fusible link during a fire.
4. Lift handles. Provide two handles for sash greater than [36 inches] [914 mm] high.

H. Weatherstripping: Factory apply EPDM and silicoated pile gaskets around entire perimeter.

I. Insect screens: Provide screens for all operable windows.

1. Frame: Aluminum with rigid corners to lie flat against window frame without bow or screen sag. Finish to match window color.
2. Screen: 18 by 16 aluminum mesh.

J. Trim: Provide mullion covers, attachment clips, and other trim required for complete, finished installation as detailed on Drawings and approved shop drawings.

K. Factory glaze windows in accordance product manufacturer's standard procedures.

2.4 FACTORY FINISH

A. Steel sections shall be hot-dip galvanized in accordance with ASTM A653 followed by skin pass smoothing procedure to eliminate roughness.

B. Primer: Thermoset epoxy-ureic paint with 3 mills minimum thickness.

C. Finish coat:

1. Electrostatically applied, colored, polyester powder coating heat cured at 325 to 385 degrees F for 15 minutes minimum to chemically bond finish to metal substrate.
2. Minimum average thickness: 3 - 6 mills thick.
3. Overall finish thickness (primer & final coat) 6-9 mills.

D. Color: Match windows specified in Section 08520

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that wall openings are ready to receive windows.

B. Insulate dissimilar metals to prevent electrolysis and other forms of corrosion with bituminous paint or non-absorptive gasket to prevent contact.

3.2 INSTALLATION

- A. Install fire rated windows in accordance with NFPA 80, approved shop drawings, and manufacturer's instructions.
- B. Use anchorage devices to securely attach window frame in rough openings. Align window units plumb, level, and free of warp or twist.
- C. Apply backing material and sealant in perimeter joints to ensure weathertight installation.
- D. Securely attach insect screens with clips and screws.
- E. Adjust operating hardware to provide smooth operation, tight fit, and weathertight closure.

3.3 CLEANING

- A. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.
- B. Exercise care in removing mortar, cementitious materials, and sand from glass and frames. Do not wipe surfaces in order to avoid scratching.
- C. Touch up damaged or abraded factory finish with enamel to match type and color of original finish.
- D. Wash exposed surfaces with solution of mild detergent applied with soft cloth. Take care to remove dirt from corners. Wipe surfaces clean.

END OF SECTION

ALUMINUM WINDOWS**SECTION 08520****PART 1 - GENERAL****1.01 WORK INCLUDED**

- A. Furnish all necessary material, labor and equipment for the complete installation of aluminum windows as shown on the Drawings and specified herein, complete with glass and glazing and sills for the following operation:
 - 1. Single hung and awning operable sash units and fixed sections, factory finished, complete with all operating hardware, aluminum insect screens in frames at each operable window and aluminum panning system, silicone adhered aluminum muntins as indicated on the drawings, glazed with insulated hurricane/impact resistant glass assembly rated for large missile specified in Section 08800

1.02 REFERENCE STANDARDS

- A. AAMA 101 - Specifications for Aluminum Prime Windows and Sliding Glass Doors.
- B. AAMA 606.1 - Specifications and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum.
- C. AAMA 607.1 - Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
- D. AAMA 608.1 - Specification and Inspection Methods for Electrolytically Deposited Color Anodic Finishes for Architectural Aluminum.
- E. ASTM A386 - Zinc Coating (Hot Dip) on Assembled Steel Products.
- F. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- G. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
- H. ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
- I. ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- J. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

1.03 DEFINITIONS

- A. Performance class number included as a part of the window designation system is the actual design pressure in pounds per sq. ft. used to determine the structural test pressure and water test pressure.

- B. Structural test pressure, windload test, is equivalent to 150 percent of the design pressure.

1.04 SYSTEM DESCRIPTION

- A. Design requirements: Comply with air infiltration, water penetration and structural performance requirements indicated in AAMA 101-93 for the type, grade and performance class of window units required.
- B. Windows: Tubular aluminum sections, shop fabricated, factory pre-finished, vision glass, sills, related flashings, anchorage and attachment devices.
- C. Configuration: Fixed non-operable and operable bottom sash as indicated on the drawings.

1.05 PERFORMANCE REQUIREMENTS

- A. Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall specified below:
- B. Testing: Test each type and size of required window through a recognized testing laboratory or agency, in accordance with ASTM E 330 for structural performance, with ASTM E 283 for air infiltration and with both ASTM E 331 for water penetration. Provide certified test results. Installed windows must meet the following performance:
 - 1. Structural Performance: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as required by and calculated in accordance with the International Building Code 2009 and Supplements (City of New Orleans Building Code) and ASCE 7-05, measured in accordance with ANSI/ASTM E330 and when tested in accordance with ANSI/ASTM E330, based on 130 mph wind speed, Exposure B and Importance Factor of 1.00, and corners as required by Codes.
 - a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 330 at a static air pressure equal to structural test pressure with high pressure applied first on one side of the unit and then on the other side with no glass breakage or damage to make window inoperable.
 - b. No member shall deflect more than $L/175$ of its span or permanent deflection exceeding .4% of its span at structural test pressure load, with full recovery of glazing materials.
 - c. Test pressures required to measure deflection parallel to the plane of the wall shall be equal to 1.5 times the wind pressures specified above. Deflection of any member carrying its full dead load shall not exceed an amount that will reduce glass bite below 75 percent of the design dimension and shall not reduce the edge clearance between the member and the fixed panel, glass or other fixed member above to less than 1/8 inch. The clearance between the member and an operable door or window shall be at least 1/16 inch
 - d. Glass and framing meeting missile impact criteria per requirements of SBCCI SSTD-12, and ASTM E1886 and E1996, meeting requirements of the Large

Missile Test of ASTM E 1996 up to 30 foot of building height and meeting requirements of the Small Missile Test of ASTM E 1996 above 30 ft.

2. Air Infiltration: Provide units with an air infiltration rate of not more than 0.20 cfm/sq.ft. of operable sash joint for a static air pressure tested at 6.24 lbs./sq. ft.
 3. Water Penetration: Provide units with no water penetration as defined in the test method at a static air pressure difference of 12.00 lbs./sq. ft. and also in addition to the aforementioned performance, unit no water penetration when equivalent static pressure is stabilized.
- C. Operating Force: Each sash shall be adjusted before any tests are performed so that they shall operate in either direction with a force not to exceed 45 lbs. after the sash is in motion.
1. This operating test must be completed with the specified glazing materials for this project unless the unit was tested with a glazing material of a heavier type of glazing.
- D. System to accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.
- E. Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

1.06 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 01300.
- B. Shop Drawings: Submit shop drawings for each type of window including information not fully detailed in the manufacturer's standard product data and the following:
1. Elevations of continuous work at 1/4" scale.
 2. Typical unit elevations at 3/4" scale.
 3. Full size section details of every typical composite member.
 4. Anchors.
 5. Hardware and Operators.
 7. Indicate pertinent dimensioning, general construction, component connections and locations, anchorage methods and locations, hardware locations, finishes and installation details.
- C. Product Data: Submit manufacturer's product specifications, technical product data, recommendations and standard details for each type of aluminum window unit required. Include the following information:
1. Fabrication methods.
 2. Finishing.
 3. Hardware.
 4. Accessories.
- D. Samples: Submit samples of the specified finish on 12" lengths of window members.
- E. Certification: Provide certification by the manufacturer showing that each type, grade and size of window unit complies with requirements where the manufacturer's standard window

units have been tested in accordance with specified tests and meet performance requirements specified. Where such testing has not been accomplished, perform required tests through a recognized testing laboratory or agency and provide certified test results.

1.07 WARRANTY

- A. Aluminum Commercial Window Warranty: Submit a written warranty, executed by the window manufacturer, agreeing to repair or replace window units that fail in materials or workmanship within the specified warranty period. Failures include but are not necessarily limited to:
 - 1. Structural failures including excessive deflection, excessive leakage, or air infiltration.
 - 2. Faulty operation of sash and hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- B. Warranty period: 3 years after date of Substantial Completion and ten (10) years for finish.
- C. The warranty shall not deprive the Owner of other rights or remedies that the Owner may have under other provisions of the Contract Documents and the law, and is in addition to and runs concurrent with other warranties made by the Contractor under requirements of the Contract Documents. Owner's signature shall not be required.

1.08 QUALITY ASSURANCE

- A. Standards: Requirements for aluminum windows, terminology and standards of performance, and fabrication workmanship are those specified and recommended in AAMA 101-85 and applicable general recommendation published by AAMA and AA.
 - 1. AAMA Designation: AW-65 (operable) and AW-100 (fixed)
- B. Single Source Responsibility: Provide aluminum windows produced by a single manufacturer capable of showing prior production of units similar to those required.
- C. Design Criteria: The drawings are based on a specific type and model of aluminum window by a single manufacturer. An equivalent type of window by another listed manufacturer may be accepted provided that deviations in dimensions and profiles are minor and do not materially detract from the design concept or intended performances as judged solely by the Architect.
 - 1. Quality Standard: Equal to "YOW-225TUH" by YKK AP America.

1.09 PROJECT CONDITIONS

- A. Field Measurements: Where possible, check actual window openings in construction work by accurate field measurement before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress as directed by the Contractor to avoid delay of work. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit of window units.

PART 2 - PRODUCTS**2.010 MATERIALS**

- A. Aluminum shall be of commercial quality and for window construction free from defects impairing strength and durability. All extruded sections shall be of 6063-T5 alloy temper complying with ASTM B221 and shall have a minimum ultimate tensile strength of 22,000 psi and a yield of 16,000 psi.
- B. Frame and Sash Members: Minimum .090" wall thickness.
- C. Subframes and Panning System: Same as main frame. Miter or cope corners, and weld and dress smooth with concealed mechanical joint fasteners.
- D. Fasteners: Provide aluminum, non-magnetic stainless steel, or other materials warranted by the manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors and other components of window units.
 - 1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed-in splined grommet nuts.
 - 2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match the finish of the member or hardware being fastened, as appropriate.
- E. Anchors, Clips and Window Accessories: Fabricate anchors, clips and window accessories of aluminum or non-magnetic stainless steel, Anchors, clips and window accessories fabricated of zinc-coated steel or iron complying with ASTM B 663 may be used for concealed work; provide sufficient strength to withstand design pressure indicated.
- F. Weatherstripping: Provide double compression-type weatherstripping of neoprene or EPDM.
- G. Sealant: For sealants required within fabricated window units, provide type recommended by the manufacturer for joint size and movement. Sealant shall remain permanently elastic, non-shrinking and non-migrating and comply with AAMA 803.3.
- H. Sills: Extruded aluminum sized and profiled to suit application; longest practical lengths.
- I. Glass: Manufacturers standard 1-1/16" insulated assembly meeting the specified wind load and rated for large missile impact with published test data, with Low-E coated performance characteristics specified in Section 08800.
- J. Glazing Materials: Manufacturer's standard dry glazed elastomer gaskets in accordance with ASTM C509, to suit locations and applications. Fixed and operable sash shall be glazed using aluminum glazing beads, finished to match frame.
- K. Bituminous paint: Acid and alkali resistant type, black.

2.02 HARDWARE

- A. General: Except to the extent that more specific or stringent requirements are indicated, provide the manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum and of sufficient strength to perform the function for which it is intended.
- B. Hardware having component parts which are exposed shall be of aluminum, stainless steel, or other corrosion-resistant material(s) compatible with aluminum and of sufficient strength to perform the functions for which they are used. Cadmium or zinc-plated steel, where used, shall be in accordance with ASTM A 165 or A 164.
- C. Awning Hardware: Provide the following equipment and operating hardware
 - 1. Locking: Key operated security lock and keeper.
 - 2. Hinges: Manufacture's standard heavy duty 4-bar hinges
- C. Awning Hardware: Provide the following equipment and operating hardware:
 - 1. Hinges: Manufacture's standard heavy duty concealed 4-bar hinges (2 per ventilator).
 - 2. Lock: Lift type cam action lock.
 - 3. Operating Device: Gear-type rotary operator located on the jamb at the sill.
- D. Single Hung Hardware: Provide the following equipment and operating hardware:
 - 1. Sash Balances: Equal to Ultra Lift® Balances by Caldwell.
 - 2. Lock: cam lock engaging into recessed receiver in the bottom rail of upper fixed sash.
 - 3. Lift Handle: Continuous integral sash lift bar on bottom rail of lower sash.
 - 4. Tilt Latches: surface mounted reinforced nylon

2.03 CONSTRUCTION

- A. General: Except to the extent that more specific or stringent requirements are indicated, provide manufacturer's standard fabrication that complies with indicated standards and that produces units that are reglazable without dismantling sash framing. Include a complete system for assembly of components and anchorage of window units, and prepare sash for glazing except where preglazing at the factory is indicated.
- B. Sizes and Profiles: Required sizes for window units and profile requirements are indicated on the Drawings. Variable dimensions are indicated along with maximum and minimum dimensions as required to achieve design requirements and coordination with other work.

1. Details shown are based upon standard details by one or more manufacturers. Similar details by other manufacturers will be acceptable, provided they comply with size requirements, minimum/maximum profile requirements, and performance standards as indicated or specified.
- C. Provide panning system if indicated on the Drawings.
- D. Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, in the manner indicated.
- E. Glazing: Factory glaze all units. Glass units shall be set in channel-type elastomer gaskets. ; materials compatible with aluminum which will not promote corrosion and shall be resistant to deterioration by all forms of weathering and shall be suitably retained to maintain a watertight seal between the glass and its surrounding frame. .Insulated units complying with section 08800.
- F. Weepholes: Provide weepholes and internal passage to conduct infiltrating water to the exterior.
- G. The windows shall be assembled in a secure and workmanlike manner to perform as herein specified and to assure neat and weathertight construction.
- H. Fabricate window units in conformance with ANSI A134.1.
- I. Fabricate aluminum windows to allow for adequate clearances and shim spacing around perimeter of assemblies to enable proper installation. Allow for thermal movement within window construction.
- J. Provide sufficient corrosion resistant anchorage devices to securely and rigidly fit windows in place.
- K. Frames, corners, and horizontal muntins are to be joined at corners and frames section by interlocking mechanical joints (tabbed) and sealed with joint sealant per AAMA 803.3-92.
- L. Accurately and rigidly fit together joints and corners. Match components carefully ensuring continuity of line and design. Ensure joints and connections are flush, hair line and weatherproof.
- M. Weatherstripping: Provide double-type weatherstripping at locations where sash rails meet the unit frame. Unless otherwise indicated, provide double compression-type weatherstripping at the non sliding ends.
- N. Provide internal reinforcing, with galvanized steel members; where required to maintain rigidity.
- O. Provide for moisture entering joints, and condensation occurring within frame construction to drain to exterior.

- P. Weepholes: Provide weepholes and internal water passages to conduct infiltrating water to the exterior
- Q. Sash shall be non-tilt type, but can be removed for service from the interior of the building.
- R. Apply coat of bituminous paint on concealed aluminum surfaces in contact with cementitious or dissimilar materials.

2.04 FINISHES

- A. Fluoropolymer Coating: High performance fluoropolymer coloring coating meeting AAMA 605.2 and containing thermocuring polyvinylidene fluoride (70% solids by weight) supplied under license by manufacturers listed below with minimum rated service life of 20 years as published by the manufacturer. Pre-treatment, epoxy primer, and finish coat(s) shall be factory baked-on of 1.0 - 1.25 dry mil thickness (minimum 0.2 - 0.3 dry mil primer and minimum 0.8 dry mil finish).
 - 1. Color: As selected by the Architect.
- B. Polyvinylidene Fluoride (PVDF) Resin Manufacturers:
 - 1. Hylar 5000™, Ausiomont USA, Inc.
 - 2. Kynar 500®, Elf Atochem North America, Inc.
- C. Coating Manufacturers: One of the following:
 - 1. Akzo Chemical, Trinar
 - 2. Lilly Co.; Nubelar
 - 3. Morton International; Fluoroceram
 - 4. PPG Industries, Inc.; Duranar
 - 5. Valspar Corp.; Fluoropon
- D. Performance Requirements: Provide applied coatings of color selected by the Architect that meet or exceed the criteria for the following tests using the test procedures specified in AAMA 605.2:
 - 1. Color Uniformity and Retention.
 - 2. Specular Gloss.
 - 3. Dry Film Hardness.
 - 4. Film Adhesion.
 - 5. Impact Resistance.
 - 6. Abrasion Resistance.
 - 7. Chemical Resistance.
 - 8. Corrosion Resistance.
 - 9. Weathering.
 - 10. Acid Resistance.
 - 11. Chalking
- E. Qualifications of Applicator: Licensed by the coating manufacturer. Use one applicator for all fluoropolymer coatings in the Project.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect openings before beginning installation. Verify that rough or masonry opening is correct and the sill plate is level.

3.02 INSTALLATION

- A. Comply with manufacturer's written specifications and recommendations for installation of window units, panning system, hardware, operators, and other components of the work.
- B. The windows shall be installed square, plumb, and level in a secure and professional manner to assure neat and weathertight construction in accordance with ANSI/ASTM Specification F-737 latest edition. A permanent weathertight joint shall be made at the junction of the sill and side frame members of the master frame with a good grade of sealant that shall meet AAMA Specification 803. Windows shall be properly caulked with a compound meeting AAMA 808, "Specifications for Exterior Perimeter Sealing Compounds", to accomplish a thoroughly weathertight installation around the perimeter of the window master frame.
- C. Set units plumb, level and true to line, without warp or rack of frames or sash. Provide proper support and anchor securely in place.
 - 1. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with the requirements specified under paragraph "Dissimilar Materials" in the Appendix to AAMA 101-85.
- D. Install sill flashings at abutting construction; turn up flashing a minimum of 1/2" to form a concealed continuous pan with soldered/sealed watertight joints including rear and end dams.
- E. Install sufficient corrosion resistant anchorage devices to securely and rigidly fasten windows to building, without causing detrimental effects to shape or performance.
- F. Set window sills level and uniform. Accurately and rigidly fit together joints. Ensure joints are flush, hairline and weatherproof.
- G. Install sealants and related backing materials around perimeter of windows in accordance with workmanship and installation requirements indicated in Section 07900.
- H. Protection and Cleaning: After installation, all metal surfaces shall be cleaned to remove any mortar, plaster, paint or other contaminants in accordance with AAMA 609-93. After cleaning, all work shall be protected against damage until it is accepted by the Contractor. Thereafter, it shall be the responsibility of the Contractor to maintain protection and provide final cleaning.

3.03 ADJUSTING

- A. Adjust operating sash and hardware to provide a tight fit at contact points and at weatherstripping, for smooth operation and a weathertight closure for an operating force of 25 lbs. in motion.

3.04 FIELD TESTS

- A. Build a mock-up replicating the wall construction with a window (fixed and operable assembly), metal stud, sheathing membrane barrier, flashings and sealant, etc. Field water tests the mock-up by static test method at design pressures per standard for 15 minutes in accordance with AAMA 502-08 with latest updates shall be performed on completed mock-up including window and surrounding wall by an approved independent testing laboratory Contractor shall include in his bid a \$8000 allowance for the cost of the testing. This allowance shall cover the direct cost of the testing agency. Remedial measures must maintain standards of quality and durability and are subject to review by the Architect. Provide powered scaffold, hose, and sufficient personnel to operate scaffold and hose

END OF SECTION

DOOR HARDWARE**SECTION 08710****PART 1 – GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following:
 - 1. Hinges
 - 2. Key control system
 - 3. Lock cylinders and keys
 - 4. Lock and latch sets
 - 5. Bolts
 - 6. Exit devices
 - 7. Push/Pull units
 - 8. Closers
 - 9. Overhead holders
 - 10. Miscellaneous door control devices
 - 11. Door trim units
 - 12. Protection plates
 - 13. Weatherstripping for exterior doors
 - 14. Astragals or meeting seals on pairs of doors
 - 15. Thresholds
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 08110: Steel Doors and Frames
 - 2. Section 08113: Steel Frames
 - 3. Section 08210: Wood Doors
 - 4. Division 16: Electrical
- D. Products furnished but not installed under this Section to include:
 - 1. Final replacement cores and keys to be installed by Owner.

1.3 REFERENCES

- A. Standards of the following as referenced:
 - 1. American National Standards Institute (ANSI)
 - 2. Door and Hardware Institute (DHI)
 - 3. Factory Mutual (FM)
 - 4. National Fire Protection Association (NFPA)

5. Underwriters' Laboratories, Inc. (UL)
 - a. UL 10C - Fire Tests Door Assemblies
 6. Warnock Hersey
- B. Regulatory standards of the following as referenced:
1. Department of Justice, Office of the Attorney General, *Americans with Disabilities Act*, Public Law 101-336 (ADA).
 2. CABO/ANSI A117.1: *Providing Accessibility and Usability for Physically Handicap People*, 1992 edition.

1.4 SYSTEM DESCRIPTION

- A. Refer to applicable "Headings" for system description for electric and electro-pneumatic hardware products.

1.5 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
- B. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements. For items other than those scheduled in the "Headings" of Section 3, provide catalog information for the specified items and for those submitted.
- C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - h. Keying information.
 - i. Cross-reference numbers used within schedule deviating from those specified.
 - 1) Column 1: State specified item and manufacturer.
 - 2) Column 2: State prior approved substituted item and its manufacturer.
 2. Submittal Sequence: Submit final schedule at earliest possible date particularly

- where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
3. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- D. Samples, if requested, of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.
1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.
- E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- F. Contract closeout submittals:
1. Operation and maintenance data: Complete information for installed door hardware.
 2. Warranty: Completed and executed warranty forms.

1.6 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
1. Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.
 2. Required supplier to meet with installer prior to beginning of installation of door hardware. (Pre-installation conference)
- C. The hardware manufacturer's representative(s) shall conduct a pre-installation conference with the Contractor's installer, a representative of the county planning and/or maintenance department, and a representative of the hardware supplier, to demonstrate product installation and adjustment in accordance with manufacturer's recommendations and Owner's requirements.
- D. Hardware manufacturers' representative shall inspect hardware installation to confirm that all products are installed and adjusted according to manufacturers recommendations. A certificate of compliance shall be submitted with the project closeout documents.

- E. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware shall comply with standards UBC 702 (1997) and UL 10C.
 - 1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

1.7 PRODUCT HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.8 WARRANTY

- A. Special warranties:
 - 1. Door Closers: Ten year period
 - 2. Exit Devices: Three year period
 - 3. Automatic Door Operators: Two year period
 - 4. Locks and Cylinders: Three year period

1.9 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

(*Denotes manufacturer referenced in the Hardware Headings)

A. Hinges:

1. Acceptable manufacturers:
 - a. Hager Hinge Company
 - b. Stanley Works
 - c. Ives
 - d. Bommer*
2. Characteristics:
 - a. Templates: Provide only template-produced units.
 - b. Screws: Provide Phillips flat-head screws complying with the following requirements:
 - 1) For metal doors and frames install machine screws into drilled and tapped holes.
 - 2) For wood doors and frames install threaded-to-the-head wood screws.
 - 3) For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
 - 4) Finish screw heads to match surface of hinges or pivots.
 - c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:
 - 1) Out-Swing Exterior Doors: Non-removable pins.
 - 2) Out-Swing Corridor Doors with Locks: Non-removable pins.
 - 3) Interior Doors: Non-rising pins.
 - 4) Tips: Flat button and matching plug. Finished to match leafs.
 - d. Size: Size hinges in accordance with specified manufacturer's published recommendations.
 - e. Quantity: Furnish one pair of hinges for all doors up to 5'0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof.

B. Cylinders:

1. Acceptable manufacturers:
 - a. Best
 - b. Sargent
 - c. Schlage*
2. Characteristics:
 - a. Standard System: Except as otherwise indicated, provide new master key system for Project.
 - b. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), either new or integrated with Owner's existing system.
 - c. Equip locksets with interchangeable core cylinders with auxiliary locking pin.
 - d. Furnish final cores and keys for installation by Owner.
 - e. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
 - f. Comply with Owner's instructions for master keying and, except as

otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.

- 1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE."
 - g. Key Material: Provide keys of nickel silver only.
 - h. Key Quantity: Furnish 3 change keys for each lock, 5 master keys for each master system, 5 grandmaster keys for each grandmaster system, and 5 control keys for interchangeable core series, 10 Constructions Master keys and 2 Construction Control Keys.
 - 1) Furnish one extra blank for each lock.
 - 2) Deliver keys to Owner.
- C. Locksets, Latchsets, Deadbolts:
1. Acceptable manufacturers:
 - a. Best - 16H Design, 16D Design,
 - b. Sargent - LNB Design, LLB Design,
 - c. Schlage* - 07A Design, ATH Design, Jazz Design
 2. Mortise Locksets and Latchsets: as scheduled.
 - a. Chassis: cold-rolled steel, handing field-changeable without disassembly.
 - b. Latchbolts: 3/4-inch throw stainless steel anti-friction type.
 - c. Lever Trim: through-bolted, accessible design, cast or solid rod lever as scheduled. Spindles: independent break-away.
 - d. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
 - e. Deadbolts: stainless steel 1-inch throw.
 - f. Electric operation: Manufacturer-installed continuous duty solenoid.
 - g. Strikes: 16 gage curved stainless steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
 - h. Scheduled Lock Series and Design: Schlage L series, 07A design.
 - i. Certifications:
 - 1) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - 2) ANSI/ASTM F476-84 Grade 30 UL Listed.
 3. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled, fastened with through-bolts.
 - a. Chassis: cylindrical design, corrosion-resistant plated cold-rolled steel.
 - b. Locking Spindle: stainless steel, interlocking design.
 - c. Latch Retractors: forged steel. Balance of inner parts: corrosion-resistant plated steel, or stainless steel.
 - d. Lever Trim: accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.
 - e. All lock functions: 7 year warranty, Vandalguard function outside lever is disengaged when in the locked mode.
 - f. Rosettes: minimum 3-7/16" diameter for coverage of ANSI/DHI A115.18, 1994 door preparation, through-bolt lugs on both spring cages to fully engage this pattern.
 - g. Springs: full compression type.

- h. Electric operation: Manufacturer-installed continuous duty solenoid.
 - i. Strikes: 16 gage curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
 - j. Lock Series and Design: Schlage ND series, Athens design.
 - k. Certifications:
 - 1) ANSI A156.2, Series 4000, Grade 1. Tested to exceed 3,000,000 cycles.
 - 2) UL listed for A label single doors up to 4 ft x 8 ft.
 - 4. Standard Duty Cylindrical Locks and Latches: as scheduled,
 - a. Chassis: cylindrical design - Tubular.
 - b. Latchbolt – Universal Backset (2-3/8 or 2-3/4).
 - c. Lever Trim: accessible design
 - d. Strikes: curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
 - e. Lock Series and Design: Schlage F series, JAZZ design.
 - f. Certifications:
 - 1) ANSI A156.2, Series 4000, Grade 2
 - 5. Offline Electronic Locks
 - a. Locks to be Battery Operated Cylindrical Design
 - b. Locks to a computer programmable offline lock that stores user rights on the magnetic stripe credential and captures an audit trail in lock
 - c. Locks to have a key override.
 - d. Furnish locks as listed in hardware sets.
 - e. Acceptable Manufacturers
 - 1) Schlage CO250 Series
- D. Exit Devices:
- 1. Acceptable manufacturers:
 - a. Von Duprin
 - b. Falcon*
 - c. Precision
 - d. Sargent
 - 2. Characteristics:
 - a. Exit devices shall be "UL" listed for life safety. All exit devices for fire rated openings shall have "UL" labels for "Fire Exit Hardware."
 - b. All exit devices mounted on labeled wood doors shall be mounted on the door per the door manufacturer's requirements.
 - c. All trim shall be thru-bolted to the lock stile case. Lever design to match locksets.
 - d. All exit devices shall be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
 - e. Provide glass bead conversion kits to shim exit devices on doors with raised glass heads.
 - f. All exit devices shall be one manufacturer. No deviation will be considered.
 - g. All exit devices shall be non-handed. Plastic touchpads are not acceptable. All latchbolts to be the deadlocking type.

- h. Lever trim shall be solid case material with a break-away feature to limit damage to the unit from vandalism.
 - i. Surface vertical rod devices shall be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices shall be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.
- E. Closers and Door Control Devices:
- 1. Acceptable manufacturers:
 - a. Falcon Dor-o-matic* SC70 Series, Sc80 Series
 - b. Sargent - 350 Series, 1430 Series
 - 2. Characteristics:
 - a. Door closers shall have fully hydraulic, full rack and pinion action.
 - b. All closers shall utilize a stable fluid withstanding temperature range of 120°F to -30°F without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
 - c. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed and back check.
 - d. All closers shall have solid forged steel main arms (and forearms for parallel arm closers) and where specified shall have a cast-in solid stop on the closer shoe. Where door travel on out-swing doors must be limited, use "CNS" or "S-CNS" type closers. Auxiliary stops are not required when cushion type closers are used.
 - e. All surface closers shall be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory. All closers (overhead, surface and concealed) shall be of one manufacturer and carry manufacturer's ten year warranty (electric closers to have two year warranty).
 - f. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.
 - g. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
 - h. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
 - i. Magnetic Door Holders to be heavy duty wall or floor mounted with metal housing and complete mounting hardware. Provide 24V holding coils unless otherwise scheduled.
- F. Power Operators:

1. Acceptable manufacturers:
 - a. LCN*
 2. Where low kinetic energy, as defined by ANSI Standard A1 56.19, power operators are indicated for doors required to be accessible to the disabled, provide electrically powered 4640 Series. operators complying with the 1990 ADA for opening force and time to close standards.
 3. All electrically powered operators shall include the following features or functions:
 - a. When an obstruction or resistance to the opening swing is encountered, the operator will pause at that point, then attempt to continue opening the door. If the obstruction or resistance remains, the operator will again pause the door.
 - b. Easily accessible main power and maintain hold open switches will be provided on the operator.
 - c. An electronically controlled clutch to provide adjustable opening force.
 - d. A microprocessor to control all motor and clutch functions.
 - e. An on-board power supply capable of delivering both 12V and 24V outputs up to a maximum of 1.0 ampere combined load.
 - f. All input and output power wiring shall be protected by slow blow fuses. These fuses shall be easily replaceable without special tools or component replacement.
 4. Actuators shall have a stainless steel touch plate that measures 4-1/2" in diameter and features a blue filled handicap symbol. The actuator shall be weather resistant and provide normally open momentary contacts. The actuator is designed to mount in a standard single gang box (2" wide, 4" high, and 2" deep).
 5. With reference to door closers, refer to "additional security" in Article E-20 of the General Conditions and extend the guarantee period to ten (10) years from the date of the Final Certificate of the Architect. Power door operators will provide a two (2) year warranty.
 6. The contractor shall furnish a certificate executed by a representative of the manufacturer of the door closers that all closers have been inspected and adjusted, are operating as designed and have been installed in accordance with the manufacturer's instructions.
 7. All low voltage switch hookups are the responsibility of the operator installer, as well as temporary wiring hookup to plug into wall outlet for test of system. Final hookup of 115VAC power will be handled by and coordinated with the general contractor's electrical contractor.
- G. Overhead Door Holders:
1. Acceptable manufacturers:
 - a. Glynn Johnson*
 - b. Rixson Firemark
 2. Characteristics:
 - a. Provide medium duty door holders, surface mounted of stainless steel.
 - b. Surface holders to be installed with the jamb bracket mounted on the stop.
- H. Floor Stops and Wall Bumpers:
1. Acceptable manufacturers:

- a. Trimco*
 - b. Ives*
 - c. Rockwood Manufacturing
 2. Characteristics: Refer to Hardware Headings.
- I. Door Bolts/Coordinators:
 1. Acceptable manufacturers:
 - a. Trimco
 - b. Ives*
 - c. Rockwood Manufacturing
 2. Characteristics:
 - a. Flush bolts to be forged brass 6-3/4" x 1", with 1/2" diameter bolts. Plunger to be supplied with milled surface one side that fits into a matching guide.
 - b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
 - c. Self-latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
 - d. Automatic flush bolts and self-latching flush bolts shall be UL listed for fire door application without bottom bolts (LBB).
 - e. Coordinator to be soffit mounted non-handed fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.
 - f. Provide filler pieced to close the header. Provide brackets as required for mounting of soffit applied hardware.
- J. Door Pulls:
 1. Acceptable manufacturers:
 - a. Trimco
 - b. Ives
 - c. Rockwood Manufacturing*
 2. Characteristics:
 - a. Provide concealed thru-bolted trim on back to back mounted pulls, but not for single units.
 - b. Material to be stainless steel.
 - c. Provide units sized as shown in Hardware Headings.
- K. Protective Plates:
 1. Acceptable manufacturers:
 - a. Trimco
 - b. Ives
 - c. Rockwood Manufacturing*
 2. Characteristics:
 - a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
 - b. Materials:

- 1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).
 - c. Fabricate protection plates not more than 2 inches less than door width on hinge side and not more than 1 inch less than door width on pull side.
 - d. Heights:
 - 1) Kick plates to be 8" inches in height.
 - 2) Kick Plates to be 6" inches in height. At Apartment entry

- L. Thresholds:
 - 1. Acceptable manufacturers:
 - a. National Guard Products, Inc.*
 - b. Reese Industries
 - c. Zero Weatherstripping Co., Inc.
 - 2. Types: Indicated in Hardware Headings.

- M. Door Seals/Gasketing:
 - 1. Acceptable manufacturers:
 - a. National Guard Products, Inc.*
 - b. Reese Industries
 - c. Zero Weatherstripping Co., Inc.
 - 2. Types: Indicated in Hardware Headings.

- N. Silencers:
 - 1. Acceptable manufacturers:
 - a. Hager
 - b. Ives*
 - c. Rockwood Manufacturing
 - 2. Three for each single doors; four for pairs of doors.

- O. Key Cabinet and System:
 - 1. Acceptable manufacturers:
 - a. Telkee, Inc.
 - b. Lund
 - c. MMF
 - 2. Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150 percent of the number of locks required for the Project.
 - a. Provide complete cross index system set up by key control distributor, and place keys on markers and hooks in the cabinet as determined by the final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.2 MATERIALS AND FABRICATION

- A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise

acceptable to Architect.

1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
 2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
 3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
 4. Do not use thru-bolts or sex bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware, or otherwise found in Headings. Coordinate with wood doors and metal doors and frames where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.3 HARDWARE FINISHES

- A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).
- B. Provide finishes that match those established by ANSI or, if none established, match the Architect's sample.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."
- E. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S.

finishes shown by certain manufacturers for their products.

1. Hinges (Exterior): 630 (US32D) Satin Stainless Steel
2. Hinges (Interior): 652 (US26D) Satin Chrome Plated Steel
3. Continuous Hinges: 628 (US28) Clear Anodized Aluminum
4. Flush Bolts: 626 (US26D) Satin Chrome Plated Brass/Bronze
5. Locks: 626 (US26D) Satin Chrome
6. Exit Devices: 630 (US32D) Satin Stainless Steel
7. Door Closers: 689 Powder Coat Aluminum
8. Pulls: 630 (US32D) Satin Stainless Steel
9. Protective Plates: 630 (US32D) Satin Stainless Steel
10. Door Stops: 626 (US26D) Satin Chrome Plated Brass/Bronze
11. Overhead Holders: 630 Satin Stainless Steel
12. Thresholds/Weatherstripping: 627/628 (US27/US28) Aluminum

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
 2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
 3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".
- F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper

operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Door Hardware Supplier's Field Service
1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
 2. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
 3. File written report of this inspection to Architect.
- D. Prior to project completion, representatives of the lock, exit device and overhead closer manufacturers shall inspect and adjust all units and certify that all units are installed in accordance with the manufacturer's instructions, and are regulated properly and functioning correctly. A written report shall be provided to the Architect as to the inspection and shall include appropriate certificates.

3.3 HARDWARE SCHEDULE

HW 01

DOOR NUMBERS:

APARTMENT ENTRY DOORS – EXTERIOR

EACH TO HAVE:

3	EA	HINGES	BB5000 OR BB5004 AS REQ	652
1	EA	ENTRY LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
2	EA	HINGE PIN DOOR STOP	73	619E
1	EA	KICK PLATE	K1050 6" X 2" LDW	630
1	EA	DOOR VIEWER	U698	626
1	EA	THRESHOLD	424	628
1	SET	GASKETING	2525B	BRN
1	EA	DOOR SWEEP	C627A	628

HW 02

DOOR NUMBERS:

APARTMENT ENTRY DOORS – INTERIOR

EACH TO HAVE:

3	EA	HINGES	BB5000 OR BB5004 AS REQ	652
1	EA	ENTRY LOCK	CO-250-CY-50-MS-ATH-JD	626

1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	CORE	23-030	626
1	EA	DOOR CLOSER	SC81	689
2	EA	HINGE PIN DOOR STOP	73	619E
1	EA	KICK PLATE	K1050 6" X 2" LDW	630
1	EA	DOOR VIEWER	U698	626
1	SET	GASKETING	2525B	BRN

HW 03

DOOR NUMBERS:
BEDROOMS AND BATHS (IN SWING)

EACH TO HAVE:

3	EA	HINGES	5000	652
1	EA	PRIVACY	F40 JAZZ	626
1	EA	DOOR STOP	519	626
3	EA	DOOR SILENCERS	SR66	GRY

HW 04

DOOR NUMBERS:
BEDROOMS AND BATHS (OUT SWING)

EACH TO HAVE:

3	EA	HINGES	5000	652
1	EA	PRIVACY	F40 JAZZ	626
2	EA	HINGE PIN STOP	73	619E
3	EA	DOOR SILENCERS	SR66	GRY

HW 05

DOOR NUMBERS:
CLOSETS – PAIRS

EACH TO HAVE:

6	EA	HINGES	5000	652
2	EA	ROLLER LATCHES	336B	626
2	EA	DUMMY LEVERS	F170 JAZZ	626
4	EA	HINGE PIN STOPS	73	619E
2	EA	DOOR SILENCERS	SR66	GRY

HW 06

DOOR NUMBERS:
CLOSETS – SINGLE

EACH TO HAVE:

3	EA	HINGES	5000	652
1	EA	PASSAGE	F10 JAZZ	626

1	EA	DOOR STOP	519	626
3	EA	DOOR SILENCERS	SR66	GRY

HW 07

DOOR NUMBERS:

D117, D145, D176, D177, D239, D245, D346

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	STORE ROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
1	EA	KICK PLATE	K1050 8" X 2" LDW	630
3	EA	DOOR SILENCERS	SR66	
1	EA	DOOR SWEEP	600A (DOOR D132-2)	628
1	SET	GASKETING	2525B (DOOR D132-2)	

HW 08

DOOR NUMBERS:

D121-1, D139-1, D150-1, D150-2, D151-1, D154-2

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	OFFICE LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	OVERHEAD STOP	450S	630
3	EA	DOOR SILENCERS	SR66	GRY

HW 09

DOOR NUMBERS:

D132-2

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS	689
1	EA	KICK PLATE	K1050 8" X 2" LDW	630
3	EA	DOOR SILENCERS	SR66	GRY

HW 10

DOOR NUMBERS:

D118, D127-1, D233, D242-1, D333, D342-1,

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	POWER TRANSFER	EPT-2	628
1	EA	EXIT DEVICE	EL-25-R-EO	630
1	EA	EXIT TRIM	CO-250-993R-MS ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	AUTO OPERATOR	4640	689
1	EA	THRESHOLD	896 V	626
1	SET	GASKETING	2525B	BRN
1	EA	POWER SUPPLY	PS914 X 900-2RS	
2	EA	ACTUATORS	856	630

ELECTRICAL CONNECTION REQUIRED

HW 11

DOOR NUMBERS:

D140-1, D140-2, D143-2, D158-1, D158-3, D149, D161, D179, D232, D238, D239, D247, D330-3, D332, D338, D345, D374-4, D375-4

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	KICK PLATE	K1050 8" X 2" LDW	630
1	EA	FLOOR STOP	1211	626
3	EA	DOOR SILENCERS	S464	GRY

HW 12

DOOR NUMBERS:

D163, D164, D168, D178, D180, D234-1, D241, D246, D334-1, D339

EACH TO HAVE:

6	EA	HINGES	BB5000	652
2	EA	FLUSH BOLTS	FB458	626
1	EA	DUST PROOF STRIKE	DP2	626
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS (ACT LEAF)	689
1	EA	OVERHEAD STOP	450S (INACT LEAF)	630
1	SET	ASTRAGAL	600A	628
4	EA	DOOR SILENCERS	SR64	GRY

HW 13

DOOR NUMBERS:

D125, D126, D151-2

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	PASSAGE SET	AL10S JUP	626
1	EA	DOOR CLOSER	SC81 REG/PA	689
1	EA	KICK PLATE	K1050 6" X 2" LDW	630
1	EA	FLOOR STOP	1211	626
1	EA	OVERHEAD STOP	450S (DR D151-2)	630
3	EA	DOOR SILENCERS	SR64	GRY

HW 14

DOOR NUMBERS:

D144, D153

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	PRIVACY	AL40S JUP	626
1	EA	DOOR CLOSER	SC81DS	689
3	EA	DOOR SILENCERS	SR66	GRY

HW 15

DOOR NUMBERS:

D147-1, D154-1, D155

EACH TO HAVE:

3	EA	HINGES	BB5002 N	630
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS	689
1	EA	THRESHOLD	896V	689
1	SET	GASKETING	2525B	BRN

HW 15A

DOOR NUMBERS:

D143-1

EACH TO HAVE:

3	EA	HINGES	BB5002 N	630
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS	689
1	EA	THRESHOLD	425	628
1	EA	DOOR SWEEP	C627A	628
1	SET	GASKETING	2525B	BRN

HW 16

DOOR NUMBERS:

D135, D141

EACH TO HAVE:

3	EA	HINGES	BB5002 N	630
1	EA	EXIT DEVICE	25-R-EO	630
1	EA	EXIT TRIM	C0-250-993R-MS- ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS	689
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN

HW 17

DOOR NUMBERS:

D134, D165-1, D165-2, D274-2, D274-3, D275-2, D275-3, D374-2, D374-3, D375-2, D375-3

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	EXIT DEVICE (PASSAGE)	F25-R-L-BE AVLON	630
1	EA	DOOR CLOSER	SC81DS	689
3	EA	DOOR SILENCERS	SR66	GRY
1	SET	GASKETING	2525B	BRN

HW 18

DOOR NUMBERS:

D158-2, D162

EACH TO HAVE:

6	EA	HINGES	BB5002 N	630
2	EA	FLUSH BOLTS	FB458	626
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORES	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN
1	SET	ASTRAGAL	600A	628

HW 19

DOOR NUMBERS:

D122-1, D122-2, D142, D157-1, D244, D344

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	KICK PLATE	K1050 8" X 2" LDW	630
1	EA	FLOOR STOPS	1211	626
3	EA	DOOR SILENCERS	SC66	GRY

HW 20

DOOR NUMBERS:

D119-1

EACH TO HAVE:

3	EA	HINGES	BB5002N	630
1	EA	EXIT DEVICE	25-R-EO	630
1	EA	EXIT TRIM	C0-250-993R-MS- ATH-JD	626
1	EA	CORES	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS	689
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN

HW 21

DOOR NUMBERS:

D128

EACH TO HAVE:

6	EA	HINGES	BB5000	652
2	EA	EXIT DEVICES	F25-V-EO- LBR	630
2	EA	EXIT DEVICE TRIM	C0-250-993S-MS- ATH-JD	626
2	EA	CORES	23-030	626
2	EA	CONSTRUCTION CORE	23-030 ICX	
2	EA	DOOR CLOSER	SC81 PA	689
2	EA	STOP/HOLDERS	491	626
4	EA	DOOR SILENCERS	SR66	GRY

HW 22

DOOR NUMBERS:

D130-1

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	OFFICE LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
1	EA	KICKDOWN DOOR STOP	461	626
3	EA	DOOR SILENCERS	SR66	GRY

HW 23

DOOR NUMBERS:

D214-5, D314-5, D222-2

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	ENTRY LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	OVERHEAD STOP	450S	630
1	EA	THRESHOLD	896S	628
1	SET	GASKETING	2525B	BRN

HW 24

DOOR NUMBERS:

D230-2, D330-2

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	ENTRY LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
1	EA	THRESHOLD	896S	628
1	SET	GASKETING	2525B	BRN

HW 25

DOOR NUMBERS:

D275-1, D274-1, D375-1, D374-1

EACH TO HAVE:

3	EA	HINGES	BB5002N	630
1	EA	ENTRY LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	THRESHOLD	425	628
1	EA	DOOR SWEEP	C627A	628
1	SET	GASKETING	2525B	BRN

HW 26

DOOR NUMBERS:

G190-1, G191-1, G191-2, G193-1, C196-2, C197-1

EACH TO HAVE:

3	EA	HINGES	BB5002N	630
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1	EA	OFFICE LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	FLOOR STOP	1211	626
1	EA	THRESHOLD	425	628
1	EA	DOOR SWEEP	C627A	628
1	SET	GASKETING	2525B	BRN

HW 27

DOOR NUMBERS:

G190-2

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	OFFICE LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR STOP	1211	626
3	EA	DOOR SILENCERS	SR66	GRY

HW 28

DOOR NUMBERS:

G193-2, G195-1

EACH TO HAVE:

3	EA	HINGES	BB5002N	630
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	FLOOR STOP	1211	626
1	EA	THRESHOLD	425	628
1	EA	DOOR SWEEP	C627A	628
1	SET	GASKETING	2525B	BRN

HW 29

DOOR NUMBERS:

G193-3

EACH TO HAVE:

6	EA	HINGES	BB5002N	630
2	EA	FLUSH BOLTS	FB458	626
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689

2	EA	FLOOR STOP	1211	626
1	EA	THRESHOLD	425	628
1	EA	DOOR SWEEP	C627A	628
1	SET	GASKETING	2525B	BRN

HW 30

DOOR NUMBERS:
G194-1

EACH TO HAVE:

3	EA	HINGES	BB5002N	630
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	THRESHOLD	425	628
1	SET	GASKETING	2525B	BRN
1	EA	DOOR SWEEP	C627A	628

HW 31

DOOR NUMBERS:
C198-1, C198-2

EACH TO HAVE:

4	EA	ACORN STRAP HINGES	IHLBP	BLK
2	EA	ACORN CANE BOLTS	RLCBP	BLK
1	EA	HASP	ALCBP	
1	EA	PADLOCK	KEYED TO SYSTEM	

HW 32

DOOR NUMBERS:
D124-1, D124-2, D127-2, D127-3, D157-2

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 REG/PA	689
1	EA	KICKDOWN DOOR STOP	461	626
3	EA	DOOR SILENCERS	SR66	GRY

HW 33

DOOR NUMBERS:
D129-2

EACH TO HAVE:

3	EA	HINGES	BB5000	652
1	EA	EXIT DEVICE	F25-R-EO	630
1	EA	EXIT DEVICE TRIM	C0-250-993S-MS- ATH-JD	626
1	EA	CORE	23-030	
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
3	EA	DOOR SILENCERS	SR66	GRY
1	SET	GASKETING	2525B	BRN

HW 34

DOOR NUMBERS:

D237-1, D337-1

3	EA	HINGES	BB5000	626
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	ELECTRIC STRIKE	6210 X FSE	630
1	EA	CORE	23-030	626
1	EA	AUTO OPERATOR	4630	689
1	EA	THRESHOLD	425	628
1	SET	GASKETING	2525B	BRN
1	EA	KEY SWITCH	653-04	
2	EA	ACTUATORS	856	630

ELECTRICAL CONNECTION REQUIRED

OPERATION: WHEN EITHER ACTUATORS IS PRESSED THE ELECTRIC STRIKE RELEASES AND DOOR WILL OPEN. WHEN DOOR IS LOCKED ON EXTERIOR SIDE, THE OUTSIDE ACTUATOR IS TURNED OFF BY KEYSWITCH. ENTRY TO ELEVATOR LOBBY IS BY KEY ONLY. EGRESS FROM ELEVATOR LOBBY AT ALL TIME. PRESSING ACTUATOR IN ELEVATOR LOBBY, THE ELECTRIC STRIKE RELEASES AND DOOR WILL OPEN.

HW 34A

DOOR NUMBERS:

D337-2

EACH TO HAVE:

3	EA	HINGES	BB5000	626
1	EA	CLASSROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	FLOOR STOP	1211	626
1	EA	THRESHOLD	425	628
1	SET	GASKETING	2525B	BRN

HW 35

DOOR NUMBERS:

D115, D230-1, D330-1

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	EXIT DEVICE	F25-R-EO	630
1	EA	DOOR CLOSER	SC81DS	689
1	EA	THRESHOLD	425	628
1	SET	GASKETING	2525B	BRN

HW 36

DOOR NUMBERS:

D159, D160

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	EXIT DEVICE	25-R-EO	630
1	EA	EXIT DEVICE TRIM	C0-250-993R-MS- ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN

HW 37

DOOR NUMBERS:

D116-1

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	EXIT DEVICE	25-R-EO	630
1	EA	EXIT TRIM	C0-250-993R ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81 DS	689
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN

HW 38

DOOR NUMBERS:

D173

EACH TO HAVE:

6	EA	HINGES	BB5002 NRP	630
2	EA	POWER TRANSFER	EPT-2	628
2	EA	EXIT DEVICES	EL-25-V-EO	630
1	EA	EXIT TRIM	CO-250-993S-MS- ATH-JD	626
1	EA	CORE	23-030	626

1	EA	CONSTRUCTION CORE	23-030 ICX	
2	EA	AUTO OPERATORS	4640	689
1	EA	THRESHOLD	896V	628
2	EA	ACTUATORS	856	630
1	EA	POWER SUPPLY	PS914 X 900-2PS	

ELECTRICAL CONNECTION REQUIRED

HW 39

DOOR NUMBERS:

D123, D129-1, D174, D175

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	EXIT DEVICE	F25-R-EO	630
1	EA	EXIT TRIM	CO-250-993R-MS- ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81DS	689
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN

HW 40

DOOR NUMBERS:

D132-1

EACH TO HAVE:

6	EA	HINGES	BB5006 NRP	630
1	SET	FLUSH BOLTS	FB61P	630
1	EA	ENTRY LOCK	CO-250-CY-50-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
2	EA	DOOR CLOSERS	SC81 PA	689
2	EA	STOP/HOLDERS	490	626
1	EA	THRESHOLD	424	628
1	SET	GASKETING	2525B	BRN
1	SET	ASTRAGAL	600A	628

HW 41

DOOR NUMBERS:

D121-2

EACH TO HAVE:

DOORS TO BE IN FIXED POSITION

HW 42

DOOR NUMBERS:

M100

EACH TO HAVE:

3	EA	HINGES	BB5002	630
1	EA	STOREROOM LOCK	CO-250-CY-70-MS-ATH-JD	626
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	DOOR CLOSER	SC81	689
1	EA	FLOOR STOP	1211	626
1	EA	THRESHOLD	425	628
1	EA	DOOR SWEEP	C627A	628
1	SET	GASKETING	2525B	BRN

HW 43

DOOR NUMBERS:

Z1-16

EACH TO HAVE:

3	EA	HINGES	BB5002 NRP	630
1	EA	PADLOCK	KS43D3200	606
1	EA	CORE	23-030	626
1	EA	CONSTRUCTION CORE	23-030 ICX	
1	EA	HASP	994848	
1	EA	PUSH PLATE	70C	630
1	EA	PULL PLATE	110 X 70C	630
1	EA	THRESHOLD	896V	628
1	SET	GASKETING	2525B	BRN

HW 44

1	EA	SOFTWARE	SMS SELECT
1	EA	HAND HELD READER	HHD KIT
1	EA	ENCODER	CL-ENCODER-2
500	EA	MAGNETIC STRIPE CARD	MAG1

END OF SECTION

GLAZING**SECTION 08800****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. The required applications of glass and glazing include but are not necessarily limited to the following:
1. Glazing window units (Section 08520).
 2. Glazing wood and metal doors.
 3. Glazing interior partitions and miscellaneous interior glazing.
 4. Mirror glazing, excluding packaged mirror units in Section 10800.
- B. Generally glass types required are as follows unless otherwise indicated on the Drawings:
1. Exterior Vision Lites: Insulated units, Low-E coating on no.2 surface of 1/4" exterior HS clear lite, 1/2" air space and interior lite of 9/16" thick laminated unit of 1/4" clear HS glass, .09" PVB interlayer and 1/4" clear HS glass.
 - a. For the exterior transom windows, provide 5/16" clear laminated glass, outboard lite of 1/8" heat strengthened, inner layer .090 PVB, and inboard lite of 1/8" heat strengthened. Replace any existing putty glazing with new bentwood stops. For the door sidelites, provide above 9/16" laminated glass, outboard lite of 1/4" heat strengthened, inner layer .090 PVB, and inboard lite of 1/4" heat strengthened
 2. Glass and framing meeting missile impact criteria per requirements of SBCCI SST-12, and ASTM E1886 and E1996, meeting requirements of the Large Missile Test of ASTM E 1996 up to 30 foot of building height and meeting requirements of the Small Missile Test of ASTM E 1996 above 30 ft
 3. Interior: 1/4" monolithic units or thicker where indicated on the drawings, clear; tempered where safety glazing is required.

1.02 RELATED SECTIONS

- A. Section 07900 - Joint Sealers: Sealant and back-up material.
- B. Section 08112 - Steel Doors.
- C. Section 08211 - Wood Doors.
- D. Section 08500 – Exterior Windows

1.03 REFERENCES

- A. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- B. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Used in Buildings.
- C. ASTM C1036 - Flat Glass.
- D. ASTM C1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
- E. ASTM E546 - Test Method For Frost Point of Sealed Insulating Glass Units.
- F. ASTM E576 - Test Method For Dew/Frost Point of Sealed Insulating Glass Units in Vertical Position.
- G. ASTM E773 - Test Method for Seal Durability of Sealed Insulating Glass Units.
- H. ASTM E774 - Sealed Insulating Glass Units.
- I. FGMA - Glazing Manual.
- J. FGMA - Sealant Manual.
- K. FS DD-G-45ID - Glass, Plate, Sheet, Figure (Flat, for Glazing, Mirrors and other Uses).
- L. FS TT-C-00598 - Caulking Compound, Oil and Resin Base Type.
- M. FS TT-S-001657 - Sealing Compound, Single Component, Butyl Rubber Based, Solvent Release Type.
- N. FS TT-S-00227 - Sealing Compound, Rubber Base, Two Component.
- O. FS TT-S-00230 - Sealing Compounds, Synthetic-Rubber Base, Single Component, Chemically Curing.
- P. FS TT-S-01543 - Sealing Compound, Silicone Rubber Base.
- Q. FS TT-G-410 - Glazing Compound, Sash (Metal) for Back Bedding and Face Glazing (Not for Channel or Stop Glazing).
- R. Laminators Safety Glass Association - Standards Manual.
- S. SIGMA - Sealed Insulated Glass Manufacturers Association.

1.04 PERFORMANCE REQUIREMENTS

- A. Provide glass and glazing that has been produced, fabricated and installed to withstand normal thermal movement, wind loading and impact loading (where applicable), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and

airtight, deterioration of glass and glazing materials and other defects in the work.

- B. Glass and glazing materials of this Section shall provide continuity of building enclosure.
 - 1. To utilize the inner pane of multiple pane sealed units for the continuity of the air and vapor seal.
 - 2. Maintain continuous air and vapor barrier throughout glazed assembly from glass pane to heel bead of glazing sealant.
- C. Provide thickness and/or heat treatment of glass as required to meet the wind loads (pounds/square foot) and large missile criteria specified in section 08520, required in sections specifying the systems in which glass is included, but not less than 1/4" thick; based on wind loading duration of 60 seconds, maximum allowable breakage probability at initial occurrence of design load of 8 lites/1000 (design safety factor of 2.5), and 1 lite/thousand and at overhead glazing.
- D. Limit glass deflection to 1/200 or flexure limit of glass, with full recovery of glazing materials, whichever is less.

1.05 SUBMITTALS

- A. Product Data on Glass Types Specified: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- B. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- C. Product Data for Credit 5.C4(EQ 4.1): For sealants, including printed statement of VOC content and chemical components
- D. Samples: Submit two (2) samples, 12 x 12 inch in size, illustrating glass units; also glass units incorporated in curtainwall sample.
- E. Samples: Submit 12 inch long bead of glazing gaskets, color as selected.
- F. Manufacturer's Installation Instructions: Indicate special precautions required.
- G. Manufacturer's Certificate: Certify that sealed insulated glass, meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with FGMA Glazing Manual, FGMA Sealant Manual, SIGMA and Laminators Safety Glass Association - Standards Manual for glazing installation methods.
 - 1. Maintain one copy of each document on site.
- B. Safety Glazing Standards: Where safety glass is indicated or required by authorities having jurisdiction, provide type of products indicated which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials, dated January 6, 1977 (The Consumer Product Safety Commission), i.e. doors, sidelights, etc.

- C Insulating Glass Certification Program: Provide insulating glass units permanently marked either on spacers or at least one component pane of units with appropriate certification label or inspecting and testing organization indicated below:
 - 1. Insulating Glass Certification Council (IGCC).
- D. Single Source Responsibility for Glass: To ensure consistent quality of appearance and performance, provide materials produced by a single manufacturer or fabricator for each kind and condition of glass indicated and composed of primary glass obtained from a single source for each type an class required.

1.07 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this Section; see Section 01200.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.09 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop Drawings and as instructed by the manufacturer.

1.10 COORDINATION

- A. Coordinate the work with glazing frames.

1.11 WARRANTY

- A. Manufacturer's Warranty on Insulating Glass Products: Provide written warranty signed by manufacturer of insulating glass agreeing to furnish f.o.b. point of manufacturer, freight allowed to project site, within specified warranty period indicated below, replacements for those insulating glass units which develop manufacturing defects. Manufacturing defects are defined as failure of hermetic seal of air space (beyond that due to glass breakage) as evidenced by intrusion of dirt or moisture, internal condensation or fogging at temperature above 20°F (-29°C), and other visual indications of seal failure or performance.
 - 1. Warranty Period: Manufacturer's standard but not less than 10 years after date of substantial completion. Owner's signature shall not be required
- B. Manufacturer's Warranty on Laminated Glass: Provide written warranty signed by manufacturer of laminated glass agreeing to furnish f.o.b. point of manufacture, freight allowed project site, within specified warranty period indicated below, laminated glass units which develop manufacturing defects. Manufacturing defects are defined as edge separation or delamination which materially obstructs vision through glass.

1. Warranty Period: Manufacturer's standard but not less than 5 years after date of substantial completion. Owner's signature shall not be required

PART 2 - PRODUCTS

2.01 GLASS PRODUCTS, GENERAL:

- A. Primary Glass Standard: Provide primary glass which complies with ASTM C 1036 requirements, including those indicated by reference to type, class, quality, and, if applicable, form, finish, mesh and pattern.
- B. Heat-Treated Glass Standard: Provide heat-treated glass which complies with ASTM C 1048 requirements, including those indicated by reference to kind, condition, type, quality, class, and, if applicable, form, finish, and pattern.
- C. Sizes: Fabricate glass to sizes required for glazing openings indicated, with edge clearances and tolerances complying with recommendations of glass manufacturer. Provide thicknesses indicated or, if not otherwise indicated, as recommended by glass manufacturer for application and performance indicated.

2.03 PRIMARY GLASS PRODUCTS

- A. Clear Float Glass: Type I, Class 1 (transparent), quality q3 (glazing select).
- B. Mirror Glass: Clear float type with copper and silver coating, organic overcoating, square and lapped edges, 1/4 inch thick minimum.

2.04 HEAT-TREATED PRODUCTS

- A. Manufacturing Process: Manufacture heat-treated glass as follows:
 1. Horizontal (roller hearth) process with minimal roll wave distortion parallel with bottom edge of glass as installed to eliminate tong marks.
 2. Tempered glass shall be strengthened in bending to not less than 4.5 times annealed glass strength.
 3. Heat-strengthened glass shall be strengthened in bending to not less than 2.0 times annealed glass strength.
- B. Tolerances: Heat strengthened and tempered glass shall be examined by the glass manufacturer to detect and discard any lights which exceed the following tolerances: 1/16" bow in 2 feet; 1/8" bow in 5 feet; 1/4" bow in 10 feet; 3/8" bow in 15 feet. Where the strengthening process results in essentially parallel ripples or waves, the deviation from flatness at any peak shall not exceed .005 inch, and the difference between adjacent peaks shall not exceed .003 inch. Where bow tolerance and wave tolerance differ, the stricter requirement shall govern.
- C. Clear Tempered Float Glass: Grade B (fully tempered), style I (uncoated surfaces), type 1 (float), quality q3 (glazing quality), class 1 (transparent).

- D. Clear Heat-Strengthened Float Glass: Grade A (heat strengthened), style I (uncoated surfaces), type 1 (float), quality q3 (glazing select), class 1 (transparent).

2.05 COATED GLASS PRODUCTS

- A. General: Performance characteristics designated for coated glass products below are based on manufacturer's published test data for 1/4" thick glass products, unless otherwise indicated. Refer to primary and heat-treated glass requirements relating to properties of glass products to which coatings are applied.
1. Provide heat-strengthened coated float glass except provide tempered units where coated safety glass is indicated or required for performance and loads.
- B. Coating shall be subject to the following criteria:
1. Pinholes with diameter greater than 1/16 inch are not permitted.
 2. Individual pinholes with diameter 1/16 inch or less are permitted only within three (3) inches of an edge.
 3. Cluster of pinholes (regardless of diameter or location) visible at 6 feet are not permitted.
 4. Scratches, rub marks or other gaps in the coating are not permitted where any portion thereof could include a circle of diameter exceeding 1/16 inch. Where the included circle is 1/16 inch or less, scratches, rub marks or other gaps visible at 10 feet are permitted only within three (3) inches of an edge.
 5. Streaks or splotches resulting from nonuniformity of the coating which are visible from the building interior or exterior are not permitted.
 6. Color range must fall within the limits established by approved samples.

2.06 LAMINATED GLASS

- A. Plastic Interlayer: Provide glass fabricator's standard clear polyvinyl butyral interlayer for laminating sheet of glass, with a proven record of showing no tendency to bubble, discolor or lose physical or mechanical properties after laminating and installation, in colors and of thickness indicated.
1. Product: Subject to compliance with requirements, provide "Saflex" by Monsanto Co. or equal.
- B. Laminating Process: Fabricate laminated glass using laminator's standard heat-plus-pressure process to produce glass free from foreign substance and air/glass pockets.
- C. Laminated Safety Glass: Two sheets of glass laminated together with a 0.090" thick plastic interlayer, heat treated if required for specified loads and large missile requirements, and complying with requirements indicated below:

1. Exterior Sheet: 1/4" coated glass.
 2. Interior Sheet: 1/4" clear glass.
 3. Overall Thickness: 9/16".
- D. 9/16" thick clear laminated glass, with glass and framing meeting large missile impact criteria per requirements of SSTD-12, hurricane/impact resistance complying with 2006 IBC Code. Two sheets of glass laminated together with a minimum 0.090" thick plastic interlayer or thicker if required to meet SSTD-12 and ASTM E1886 and E1996.

2.07 SEALED INSULATING GLASS UNITS

- A. Insulating Glass: Provide two (2) sheets of heat strengthened glass complying with ASTM E 774 as follows, and 1/2" dry air or gas-filled space with -20°F dew point, with Class A sealant-type edge construction to maintain a hermetic seal as certified by the Insulating Glass Certification Council (I.G.C.C.) with silicone secondary seal at structural silicone joints; fabricated to provide the following overall performance characteristics:
1. Exterior Sheet: Low -E (Sputtered) Coated glass 1/4" thick clear glass, with coating placed on No. 2 surface.
 2. Interior Sheet: 9/16" thick clear laminated clear glass with .09" interlayer.
 3. **Note: Heat strengthen each lite as required to meet wind loads and missile requirements**
 4. Performance: As follows:
 - a. Visible Light Transmittance: 68 percent.
 - b. Visible Light Reflectance Outdoors: 11 percent.
 - c. U-Value: 0.29.
 - d. Shading Coefficient: 0.43
 - e. Solar Heat Gain Coefficient: .38.
 - i. Light to Solar Gain: 1.80
 - j. Approved: Equal to "SunGuard SN 68 on clear" by Guardian
 5. Edge Construction: Twin primary seals of polyisobutylene; tubular aluminum or galvanized steel spacer-bar frame with welded or soldered sealed corners, and filled with dessicant; and secondary seal outside of bar, bonded to both sheets of glass and bar, of polysulfide, silicone or hot-melt butyl elastomeric sealant (fabricator's option).

2.08 GLAZING ACCESSORIES

- A. General: All glazing accessories shall be compatible with all sealants within the system and with sealant at edge of insulated glass units.
- B. Setting Blocks: Neoprene, EPDM or Silicone as recommended by the glazing manufacturer, 80 - 90 Shore A durometer hardness, length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- C. Spacers: Neoprene, EPDM or Silicone 50 - 60 Shore A durometer hardness, minimum 3 inch long x one-half the height of the glazing stop x thickness to suit application.

- D. Edge Blocks: Neoprene, EPDM or Silicone extruded shape of size and hardness required to limit lateral movement (side-walking) of glass.
- E. Butyl Rubber Glazing Tape: Partly-vulcanized, self-adhesive, non-staining, elastomeric butyl rubber tape, 98% solids, intended for 35% compression, no appreciable deterioration for 3000 hour test in Atlas Weathermeter.
- F. Mirror Attachment Accessories: Stainless steel clips for the bottom edge and mirror adhesive, chemically compatible with mirror coating and wall substrate equal to products by Palmer Products Corporation.

2.09 GLAZING GASKETS

- A. See Sections 08900 for requirements for gaskets.
- B. Dense Elastomeric Compression Seal Gaskets: Molded or extruded neoprene or EPDM gaskets of profile and hardness required to maintain watertight seal; complying with ASTM C 864, Option 1.
- C. Cellular Elastomeric Preformed Gaskets: Extruded or molded closed cell, integral-skinned neoprene of profile and hardness required to maintain watertight seal; complying with ASTM C 509, Type II; black.

2.10 GLAZING SEALANT/COMPOUNDS

- A. Provide exposed glazing materials of color selected by the Architect from manufacturer's standard colors. Provide hardness of materials as recommended by the manufacturer for the required application and condition of installation in each case. Provide only compounds which are proved to be fully compatible with surfaces contacted.
- B. Silicone Rubber Glazing Sealant: Silicone rubber, one-part elastomeric sealant, complying with FS TT-S-001543, Class A, high modulus silicone glazing compound, acid curing. One of the following:
 - 1. Dow Corning 999; Dow Corning Corp.
 - 2. SCS 1200; General Electric Co.
 - 3. Proglaze; Tremco

2.11 STRUCTURAL SILICONE SEALANT

- A. Structural Silicone Sealant: Type recommended by sealant and system manufacturers that complies with ASTM C 1184 requirements, is compatible with system components with which it comes in contact, and is specifically formulated and tested for use as a structural and weatherseal sealant as follows:
 - 1. "Ultraglaze SSG 4000" by G.E.
 - 2. "983 SSG" by Dow.
- B. Color: As selected by Architect from manufacturer's full range of colors.

- C. Tensile Strength: 100 psi (689.5 kPa) minimum.
- D. Provide sealant with high modulus of elasticity that will not allow movement of more than 25 percent of joint width, unless less movement is required by structural-sealant-glazed systems' design.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.02 PREPARATION

- A. Pre-Installation Meeting: At Contractor's direction, Glazier, sealant and gasket manufacturers' technical representatives, glass framing erector and other trades whose work affects glass and glazing shall meet at project site to review procedures and time schedule proposed for glazing and coordination with other work.
- B. Clean glazing channels and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

3.03 GLAZING

- A. Watertight and airtight installation of each piece of glass is required. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors) without failure of any kind including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the work.
- B. Comply with "Glazing Manual" by Flat Glass Marketing Association except as shown and specified otherwise, and except as specifically recommend otherwise by the manufacturers of the glass and glazing materials.
 - 1. Provide a minimum nominal glass bite as required by ASTM F 2248.
- C. Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.
- D. Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- E. Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with

a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.

- F. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- G. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6" from each corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.
- H. Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except sealant tape use thickness slightly less than final compressed thickness of tape.
- I. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- J. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- K. Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.
- L. Where wedge-shaped gaskets are driven into one side of the channel to pressurize the gasket on the opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs, or by proven adhesives, including embedment of gasket tail in cured heel bead.
 - 1. Miter cut and permanently bond gasket ends together by vulcanized process or silicone adhesive at corners so that gaskets will not pull away from the corners and result in voids or leaks in the glazing system.

3.04 MISCELLANEOUS INTERIOR GLAZING

- A. Install glazing tape in accordance with manufacturer's instructions.
- B. Cut glazing tape to length; install on glazing pane. Seal corners by butting spline and sealing junctions with manufacturer's recommended sealant.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- D. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
- E. Install removable stops without displacing glazing tape. Exert pressure for full continuous

contact.

3.05 INSTALLATION - MIRRORS

- A. Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions except lower edge of mirror shall be set with clips. Anchor rigidly to wall construction.
 - 1. Unless otherwise recommended by mirror manufacturer, limit mastic coverage to 25% of mirror back where mirror is permanently supported on bottom edge, otherwise limit coverage to 60 - 80%. Press mirror into positions, checking for plumb and true position.

3.06 MANUFACTURER'S FIELD SERVICES

- A. Glass product manufacturers to provide field surveillance of the installation of their products.
- B. Monitor and report installation procedures, and unacceptable conditions.

3.07 CLEANING

- A. Clean work under provisions of 01700.
- B. Remove glazing materials from finish surfaces.
- C. Remove labels after work is complete.
- D. Clean glass and mirrors.

3.08 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. After installation, mark pane with an 'X' by using removable plastic tape or paste.

END OF SECTION

