VergesRome Architects
a professional architectural corporation

320 N. Carrollton Avenue, Suite 100, New Orleans, Louisiana 70119
VergesRome.com t. 504.488.7739 f. 504.488.7743

New 3 Section Elementary School at
Fisk-Howard School
211 South Lopez Street
New Orleans, LA 70119
Project No. 2011-0882-0001

NOTICE OF ADDENDUM NO. 1
Date: January 14, 2013

TO ALL BIDDERS:
Addendum No. 1 has been issued and is available for the work of this project and will be distributed to all current Plan Holders.

All Bid Documents and this Addendum are also available for review at the office of the Architect:

VergesRome Architects
320 N. Carrollton Avenue, Suite 100
New Orleans, LA 70119
(504) 488-7739 Office
(504) 488-7743 Fax

Attachments:
Attachment 01: Pre-Bid Meeting Minutes and Sign-In Sheet
Attachment 02: Geotechnical Soils Report Part 1
Attachment 03: Geotechnical Soils Report Part 2
Attachment 04: Change Order Forms
Attachment 05: Schedule of Values
Attachment 06: Section 017900 Demonstration and Training
Attachment 07: Section 018021 Facilities Exterior Enclosure Commissioning
Attachment 08: Section 088000 Glazing
Attachment 09: C1.02
Attachment 10: SK1/A0.12
Attachment 11: SK1/A1.06
Attachment 12: SK1/A1.07
Attachment 13: SK1/A2.01
Attachment 14: SK1/A2.02
Attachment 15: SK2/A2.02
Attachment 16: SK1/A3.12
Attachment 17: SK1/A3.14
Attachment 18: SK1/A6.07
Attachment 19: SK1/A8.12
Attachment 20: SK2/A8.12

VergesRome Architects
a professional architectural corporation

VergesRome

320 N. Carrollton Avenue, Suite 100, New Orleans, Louisiana 70119
VergesRome.com t. 504.488.7739 f. 504.488.7743

Attachment 21: SK1/FP.01
Attachment 22: SK1/P2.05
Attachment 23: SK1/P2.09
Attachment 24: SK1/P2.13
Attachment 25: SK1/M4.01
Attachment 26: SK1/M5.04
Attachment 27: SK1/M5.07
Attachment 28: SK2/M5.07
Attachment 29: SK3/M5.07
Attachment 30: SK1/M6.02
Attachment 31: SK1/M6.07
Attachment 32: SK2/M6.07
Attachment 33: SK1/M6.08
Attachment 34: SK2/M6.08
Attachment 35: SK1/E2.01
Attachment 36: SK1/E4.01
Attachment 37: SK2/E4.01
Attachment 38: SK1/E4.03
Attachment 39: SK2/E4.04
Attachment 40: SK1/E4.04
Attachment 41: SK1/E4.05
Attachment 42: SK1/E4.09
Attachment 43: SK1/E6.02
Attachment 44: SK1/E7.01
Attachment 45: SK2/E7.01
Attachment 46: SK1/E8.01
Attachment 47: SK1/E8.04
Attachment 48: SK1/E8.05
Attachment 49: SK2/E8.05
Attachment 50: SK3/E8.05
Attachment 51: SK4/E8.05

Sincerely,

David Glen Reed, AIA
VergesRome Architects
320 N. Carrollton Avenue, Suite 100
(504) 488-7739 Office
(504) 488-7743 Fax
david@vergesrome.com

ADDENDUM NUMBER 1
NEW 3 SECTION ELEMENTARY SCHOOL
AT
FISK-HOWARD SCHOOL
211 SOUTH LOPEZ STREET
NEW ORLEANS, LA 70119
RSD #2011-0882-0001
VRA No. 11085
JANUARY 14, 2013

VERGES ROME ARCHITECTS

This Addendum is issued in accordance with the Plans and Specifications dated December 7, 2012 and shall become part of the Contract Documents. Contractor shall be cognizant of all the items contained herein. This addendum supersedes information noted where applicable. Revisions noted for plans to correspondingly revise specifications accordingly, and vice versa.

GENERAL INFORMATION

ITEM NO. 01 PRE-BID MINUTES, SIGN-IN SHEET

See Attachment 01, Pre-Bid Minutes and Sign-In Sheet.

ITEM NO. 02 GEOTECHNICAL SOILS REPORTS

See Attachment 02 and Attachment 03 for the Geotechnical Soils Report Parts 1 and 2.

SPECIFICATIONS

ITEM NO. 03 SUMMARY 011000

ADD the following section 011000, 1.5, B, 2:

"2. Cisco controllers (access control and intrusion detection)."

ITEM NO. 04 CONTRACT MODIFICATION PROCEDURES 012600

In reference to sections 012600, 1.4, A, e and 012600, 1.4, B, 7; ADD Attachment 04, "Change Order Forms".

ITEM NO. 05 PAYMENT PROCEDURES 012900

In reference to section 012900, 1.4, A; ADD Attachment 05, "Schedule of Values".

ITEM NO. 06 PROJECT MANAGEMENT AND COORDINATION 013100

DELETE section 013100, 1.8, F (all F sub-sections to remain).

ADD the following section 013100, 1.8, F:

"F: Progress meetings: Conduct progress meetings at weekly intervals."

ITEM NO. 07 TEMPORARY FACILITIES AND CONTROLS 015000

DELETE section 015000, 3.3, H (all H sub-sections to remain).

ADD the following section 015000, 3.3, H:

"H: Project signs: Provide project signs as indicated. Unauthorized signs are not permitted. No contractor or subcontractor sign will be allowed without Owner approval."

ITEM NO. 08 EXECUTION 017300

DELETE section 017300, 1.4, B.

ADD the following section 017300, 1.4, B:

"B: Certificates: submit FEMA flood elevation certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements."

ITEM NO. 09 DEMONSTRATION AND TRAINING 017900

DELETE section 017900 "Demonstration and Training".

ADD Attachment 06, section 017900 "Demonstration and Training"

ITEM NO. 10 FACILITIES EXTERIOR ENCLOSURE COMMISSIONING 018021

DELETE section 018021 “Facilities Exterior Enclosure Commissioning”.

ADD Attachment 07, section 018021 “Facilities Exterior Enclosure Commissioning”.

ITEM NO. 11 SUBSTITUTION PROCEDURES 012500

ADD the following section 012500, 2.1, 1, j:

“J. Substitution for cause will not be allowed after the bid opening without approval from the Owner. The Owner will have final authority in all instances.”

ITEM NO. 12 METAL PAN STAIRS 055113

ADD the following section 055113, 2.8, B, 5:

“5. Exposed hangers shall not be permitted within the stairwells.”

ITEM NO. 13 THERMAL INSULATION 072100

ADD the following section 072100, 2.3, A, 4:

“4. Insulation must provide a minimum R-value of 6.3.”

ITEM NO. 14 GLAZING 088000

DELETE section 088000 “Glazing”.

ADD Attachment 08, section 088000 “Glazing”.

ITEM NO. 15 TILING 093000

DELETE the following section 093000, 2.2, C, 6, c:

“CT-6: Semi-gloss Q090 Pumpkin Spice”

ADD the following section 093000, 2.2, C, 6, c:

“CT-6: Semi-gloss Q012 Mustard”

ITEM NO. 16 RESILIENT TILE FLOORING 096519

DELETE the following section 096519, 2.2, F, 3:

"VCT-3: V-2619 Saffron"

ADD the following section 096519, 2.2, F, 3:

"VCT-3: V-261 Lemonade"

ITEM NO. 17 RESINOUS MATRIX TERRAZZO FLOORING 096623

DELETE the following section 096623, 2.1, A, 3, c:

"TER-3: TM #12-2017"

ADD the following section 096623, 2.1, A, 3, c:

"TER-3: TM #12-3161"

ITEM NO. 18 TILE CARPETING 096813

DELETE the following section 096813, 2.1, A, 1, 3, b:

"CPT-2: 01761 Pixel"

ADD the following section 096813, 2.1, A, 1, 3, b:

"CPT-2: 01530 Emit"

ITEM NO. 19 TILE CARPETING 096813

DELETE the following section 096813, 2.1, A, 1, 3, e:

"CPT-5: 04675 Lava"

ADD the following section 096813, 2.1, A, 1, 3, e:

"CPT-5: 04210 Marlite"

ITEM NO. 20 DOMESTIC WATER PACKAGED BOOSTER PUMPS 221124

REPLACE: existing section 221124 with revised Section 221124 included in this Addendum.

ITEM NO. 21 HVAC SEQUENCING OF OPERATION 230993

ADD the wording "isolation valve," after "control boiler staging" at subparargraph 1.5.H.3.

ADD Sub-subparargraph 1.5.H.6. e. as follows:

"e. When a boiler is off due to being lag boiler, isolation valve to be closed. If both boilers are off, isolation valves to be open.
1) When boiler is staged on, lag boiler to slowly shut isolation valve until fully closed.
2) When lag boiler is needed, slowly open isolation valve to allow flow through lag boiler. Isolation valve to open slowly so to not trip lead boiler on low flow. "

ITEM NO. 22 NETWORK LIGHTING CONTROLS 260943

CHANGE Section 260943 PART 2 – PRODUCTS, 2.2 item D to read as follows:

"D. Security Interface: The security cameras system will send a signal to the corridor lighting control system to turn on the general purpose lighting fixtures when motion is detected after normal occupied hours indicating an intrusion. Provide hardware and software to accept the signal provided by the cameras system to turn on the lighting fixtures in the area of motion. Division 26 shall also provide low voltage cabling from each security cameras normally open or normally closed contacts back to the corridor lighting control system for a proper operating system. Coordinate with the security camera contractor.

Hardwire Points
Monitoring: On-Off status.
Control: On-Off operation, with the B.A.S. and security cameras systems

Classroom lighting control: Refer to detail on drawings
Corridor general purpose lighting fixtures shall be turned on by a local low voltage switch and off by a signal from the B.A.S. system for normal operation. Coordinate interface between lighting system and B.A.S. and Security Camera systems for proper operation with each system
Group restrooms shall have the ability to be on when the adjacent corridor lights are on, the lights in the restrooms shall operate on/off during the day by a local water resistant occupancy sensor and shall be turned off at the end of the day by the B.A.S. system when the corridor lights are turned off."

ITEM NO. 23 SWITCHBOARDS 262413

CHANGE section 262413 PART 2 – PRODUCTS, 2.3, E item No. 9 "MSGH1" to "MSBH1".

CHANGE section 262413 PART 2 – PRODUCTS, 2.4, B item j. "article" to "protocols".

ITEM NO. 24 DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM 283111

CHANGE section 283111 PART 2 – PRODUCTS, 2.9, B item No. 3. "120-V ac" to "24-V dc"

ITEM NO. 25 DRIVEN PILES 316200

ADD the following section 316200, 2.1, E:

"E: Contractor shall include in his bid 25 additional treated timber piles (55 foot long sections) and 25 additional can sections (20 foot long sections), including concrete fill, to be used at pile cap locations and grade beam locations. Properties of can section shall be as specified herein."

ITEM NO. 26 DRIVEN PILES 316200

DELETE section 316200, 2.2, A, 1.

ADD the following section 316200, 2.2, A, 1:

"1. CONTRACTOR SHALL INCLUDE IN HIS BID 15 ADDITIONAL UNTREATED TIMBER SECTIONS (40 FOOT LONG SECTIONS) TO BE USED AT SLAB PILE LOCATIONS."

ITEM NO. 27 DRIVEN PILES 316200

DELETE section 316200, 2.2, B, 1.

ADD the following section 316200, 2.2, B, 1:

"1. CONTRACTOR SHALL INCLUDE IN HIS BID 15 ADDITIONAL CAN SECTIONS, INCLUDING CONCRETE FILL, TO BE USED AT SLAB PILE LOCATIONS."

DRAWINGS

CIVIL

ITEM NO. 28 GRADING PLAN C1.02

DELETE sheet C1.02.

ADD Attachment 09, C1.02.

ARCHITECTURAL

ITEM NO. 29 SECTION – CLEVELAND CANOPY 7/A0.12

DELETE drawing 7/A0.12.

ADD Attachment 10, SK-1/A0.12.

ITEM NO. 30 ROOF DETAIL 10/A1.06

DELETE drawing 10/A1.06.

ADD Attachment 11, SK-1/A1.06.

ITEM NO. 31 DOOR SILL / ROOF DETAIL 12/A1.07

DELETE drawing 12/A1.07.

ADD Attachment 12, SK-1/A1.07.

ITEM NO. 32 EXTERIOR BUILDING ELEVATIONS – S. RENDON STREET, WEST (PARTIAL) 2/A2.01

DELETE partial drawing 2/A2.01.

ADD Attachment 13, SK-1/A2.01.

ITEM NO. 33 EXTERIOR BUILDING ELEVATIONS – PALMYRA STREET, EAST (PARTIAL) 1/A2.02

DELETE partial drawing 1/A2.02.

ADD Attachment 14, SK-1/A2.02.

ITEM NO. 34 EXTERIOR BUILDING ELEVATIONS – S. LOPEZ STREET, SOUTH (PARTIAL) 2/A2.02

DELETE partial drawing 2/A2.02.

ADD Attachment 15, SK-2/A2.02.

ITEM NO. 35 WALL SECTION – UNIT C (PARTIAL) 1/A3.12

DELETE partial drawing 1/A3.12.

ADD Attachment 16, SK-1/A3.12.

ITEM NO. 36 FLOOD VENT DETAIL, TYP. 7/A3.14

DELETE drawing 7/A3.14.

ADD Attachment 17, SK-1/A3.14.

ITEM NO. 37 GYMNASIUM 6/A6.07

DELETE drawing 6/A6.07.

ADD Attachment 18, SK-1/A6.07.

ITEM NO. 38 CURTAIN WALL - SILL D/A8.12

DELETE drawing D/A8.12.

ADD Attachment 19, SK-1/A8.12.

ITEM NO. 39 CURTAIN WALL - HEAD L/A8.12

DELETE drawing L/A8.12.

ADD Attachment 20, SK-2/A8.12.

STRUCTURAL

ITEM NO. 40 GENERAL NOTES AND PILE CAP DETAILS S0.01

ADD the following General Note 1.A.12:

"Contractor shall include in his bid 25 additional treated timber piles (55 foot long sections) and 25 additional can sections (20 foot long sections), including concrete fill, to be used at pile cap locations and grade beam locations."

ITEM NO. 41 GENERAL NOTES AND PILE CAP DETAILS S0.01

ADD the following General Note 1.B.7:

"Contractor shall include in his bid 15 additional single composite piles, including concrete fill, to be used at slab pile locations."

ITEM NO. 42 DETAIL – 6 PILE CAP 3/S0.02

ADD the following note to 3/S0.02:

"6PB (T) configuration to be identical to the 6PB configuration shown above, with the exception of the following parameters:

A. Depth: 3'-9"
B. Replace pile symbols with tension pile symbols
C. Reinforcement running parallel with the long direction of the pile cap: 20-#8 bottom with 10-#8 top hooked.
D. Reinforcement running parallel with the short direction of the pile cap: 30-#8 bottom with 16-#8 top hooked."

ITEM NO. 43 DETAIL – TYPICAL VENT OPENING AT CONCRETE WALL 5/S5.01

DELETE from 5/S5.01 the height dimension of "2'-9" TYP".

ADD on 5/S5.01 the height dimension of "2'-9" TYP. @ ACCESS DOORS; 2'-1/2" TYP. @ VENTS".

PLUMBING AND FIRE PROTECTION

ITEM NO. 44 1ST FLOOR FIRE PROTECTION PLAN FP.01

RELOCATE fire department connection as indicated on Attachment 21, SK-1/ FP.01.

ITEM NO. 45 PLUMBING SYMBOLS AND ABBREVIATIONS P1.01

ADD "General Drawing Note" no. 22 as follows: "22. Provide water hammer arrester 'A' on water supplies to ice makers and washer drain."

ITEM NO. 46 1ST FLOOR UNIT A PLUMBING PLAN P2.02

ADD gas pressure regulator downstream of the gas meter with inlet pressure-5 psi, outlet pressure-2 psi and capacity-6,690,000 BTU/HR.

ITEM NO. 47 FOUNDATION UNIT B PLUMBING PLAN P2.05

ADD 4" area drain and piping in the crawl space as shown on Attachment 22, SK-1/P2.05.
Coordinate exact location of storm piping with site utility drawings.

ITEM NO. 48 FOUNDATION UNIT C PLUMBING PLAN P2.09

ADD 4" area drain and piping in the crawl space as shown on Attachment 23, SK-1/P2.09.
Coordinate exact location of storm piping with site utility drawings.

ITEM NO. 49 3RD FLOOR UNIT C PLUMBING PLAN P2.12

CHANGE "Plan Note" 11 as follows: "11. Provide final connection with shut-off valve after gas pressure regulator to emergency generator. Coordinate point of connection with equipment boxes."

ITEM NO. 50 FOUNDATION UNIT D PLUMBING PLAN P2.13

ADD 4" area drain and piping in the crawl space as shown on Attachment 24, SK-1/P2.13.
Coordinate exact location of storm piping with site utility drawings.

ITEM NO. 51 ENLARGED UNIT D MECH ROOM PLUMBING PLAN P4.01

ADD the second sentence to "Plan Note" 9: "Extend gas pressure regulator vent piping full size through roof, terminate with 180 deg. elbow at 12 inch above roof and screen."

ITEM NO. 52 ENLARGED KITCHEN 1ST FLOOR PLUMBING PLAN P4.03

ADD additional sentences to "Plan Note" 4: "Locate gas pressure regulator in accessible location just below the ceiling. Extend gas pressure regulator vent full size through roof, terminate with 180 deg. elbow at 12 inch above roof and screen."

ITEM NO. 53 ENLARGED 3RD FLOOR SCIENCE PLUMBING PLAN P4.05

ADD General Note No. 3 as follows: "3. Add signage adjacent to the door of science prep room 3027 to read: "Science Room Emergency Gas System Pressure regulator is located in room 2027E"."

MECHANICAL

ITEM NO. 54 MECHANICAL ROOM VENTILATION PLAN M4.01

ADD air flow monitoring station in Room M2031. Refer to Attachment 25, SK-1/M4.01.

ITEM NO. 55 HVAC SCHEDULES M5.01

ADD to "DOAU Schedule" note No. 10 as follows: "10. Minimum OA CFM - DOAU-C301 = 4,500 CFM, DOAU-D201 = 3,600 CFM."

ITEM NO. 56 MECHANICAL ROOM VENTILATION PLAN M5.04

CHANGE detail "9 Typical Cold Water Make-Up Detail" as indicated. Refer to Attachment 26, SK-1/M5.04.

ITEM NO. 57 HVAC HEATING WATER PIPING SCHEMATIC M5.07

DELETE isolation valve and ADD P/T ports on Boilers. Refer to Attachment 27, SK-1/M5.07.

REMOVE cold water detail. Refer to Attachment 28, SK-2/M5.07.

ADD P/T ports on pumps. Refer to Attachment 29, SK-3/M5.07.

ITEM NO. 58 2ND FLOOR TEMPERATURE CONTROL PLAN M6.02

ADD airflow monitoring station. Refer to Attachment 30, SK-1/M6.02.

ITEM NO. 59 CHILLED WATER CONTROL SCHEMATICS M6.07

ADD make up water information to "Points List". Refer to Attachment 31, SK-1/M6.07.

DELETE ice diverting valve and associated piping. Refer to Attachment 32, SK-2/M6.07.

ITEM NO. 60 BOILER PLANT CONTROL SCHEMATICS M6.08

ADD temperature sensor. Refer to Attachment 33, SK-1/M6.08.

ADD temperature sensor and water make up to "Points List" to coordinate with details. Refer to Attachment 34, SK-2/M6.08.

ELECTRICAL

ITEM NO. 61 ELECTRICAL DETAILS E1.03

DELETE Radio Tower Grounding Detail 3-E1.03 in its entirety.

ITEM NO. 62 ELECTRICAL SITE PLAN E2.01

CHANGE "Site Plan" note No. 2 from "schedule 40 PVC" to "schedule 80 PVC".

CHANGE "Site Plan" note No. 10 to read as follows: "Pole mounted light fixtures refer to details 4-E1.02 and 4-E1.03 for base requirements."

CHANGE lighting layout for covered walkway as shown on Attachment 35, SK-1/E2.01.

ITEM NO. 63 LIGHTING PLANS E4.01 – E4.11

CHANGE "Lighting Note" No. 8 for all lighting plans to read as follows: "8. Group restrooms shall work with the corridor lights and local dual technology occupancy sensors in the restrooms. Refer to the project manual 260943 for further direction."

ADD "Lighting Note" No. 37 for all lighting plans to read as follows: "37. In locker rooms the "OS" shall operate as a dual technology occupancy sensor to turn lights on by movement. Provide local switch as indicated. The lighting shall be a stand-alone system."

ITEM NO. 64 UNIT A FIRST FLOOR LIGHTING PLAN E4.01

CHANGE exterior lighting layout outside corridor C1000. Refer to Attachment 36, SK-1/E4.01.

CHANGE the way group restrooms 1033 and 1035 are circuited and controlled. Refer to Attachment 37, SK-2/E4.01 and Specification Section 260943.

ITEM NO. 65 UNIT C FIRST FLOOR LIGHTING PLAN E4.03

CHANGE the lighting layout in the exterior learning covered area. Refer to Attachment 38, SK-1/E4.03.

ITEM NO. 66 UNIT D FIRST FLOOR LIGHTING PLAN E4.04

CHANGE the way group restrooms 1048 and 1050 are circuited and controlled. Refer to Attachment 39, SK-2/E4.04 and Specification Section 260943.

CHANGE "Lighting Note" in locker rooms 1038 and 1044 from "8" to "37" (which was added in this Addendum).

CHANGE lighting layout at entrance outside corridor C1005. Refer to Attachment 40, SK-1/E4.04.

ADD The following note to the Stage Area 1034C: "Contractor to locate the Q-2 lights and support bar system not to interfere with the stage curtains, rigging and projection screen. Coordinate exact locations of all components with other contractors prior to installation."

ITEM NO. 67 UNIT A SECOND FLOOR LIGHTING PLAN E4.05

CHANGE the way group restrooms 2021 and 2023 are circuited and controlled. Refer to Attachment 41 SK-1/E4.05 and Specification Section 260943.

ITEM NO. 68 UNIT A THIRD FLOOR LIGHTING PLAN E4.09

CHANGE the way group restrooms 3021 and 3023 are circuited and controlled. Refer to Attachment 42 SK-1/E4.09 and Specification Section 260943.

ADD switch in corridor C3002 to control lights in corridor C3001. Refer to Attachment 42, SK-1/E4.09

ITEM NO. 69 UNIT A FIRST FLOOR POWER PLAN E5.01

CHANGE the power circuits serving the booster pumps in room 1047F from "AH1-7, 9, 11 & AH1-13, 15, 17" to "SBEMAH1-7, 9, 11 & SBEMAH1-13, 15, 17".

CHANGE the power circuit serving the elevator in room 1037C from "AH1-34, 36, 38" to "SBEMAH1-19, 21, 23".

ITEM NO. 70 UNIT D FIRST FLOOR POWER PLAN E5.04

CHANGE the location of the projection screen switch at the Platform (1034C) by moving it 10' to the East.

ITEM NO. 71 **ENLARGED MECH. & ELECTRICAL ROOM** **E6.02**

CHANGE the location of emergency power switch and increase the size of the detail text. Refer to Attachment 43, SK-1/E6.02.

ITEM NO. 72 **ELECTRICAL SINGLE LINE DIAGRAM** **E7.01**

CHANGE the power circuits as indicated on Attachment 44 SK-1/E7.01 and Attachment 45 SK-2/E7.01.

CHANGE the misspelling "Lenght" to "Length" in the note below "MSBH1 Switchboard".

ITEM NO. 73 **LUMINAIRE SCHEDULES** **E8.01**

ADD new lighting fixtures and general note as indicated on Attachment 46, SK-1/E8.01.

ITEM NO. 74 **PANELBOARD SCHEDULES** **E8.04**

CHANGE panelboard "AH1" as indicated on Attachment 47, SK-1/E8.04.

ITEM NO. 75 **PANELBOARD SCHEDULES** **E8.05**

CHANGE panelboards SBEMDH1, SBEMAH1, SBEMAL1 and SBEMDL1 as indicated on Attachment 48 SK-1/E8.05, Attachment 49 SK-2/E8.05, Attachment 50 SK-3/E8.05, and Attachment 51 SK-4/E8.05.

ITEM NO. 76 **PANELBOARD SCHEDULES** **E8.06**

DELETE panelboards "LSEMBH1, LSEMAH2, LSEMDL1".

Sincerely,

David Glen Reed, AIA
VergesRome Architects
320 N. Carrollton Avenue, Suite 100
(504) 488-7739 Office
(504) 488-7743 Fax
david@vergesrome.com

Attachments:

Attachment 01: Pre-Bid Meeting Minutes and Sign-In Sheet
Attachment 02: Geotechnical Soils Report Part 1
Attachment 03: Geotechnical Soils Report Part 2
Attachment 04: Change Order Forms
Attachment 05: Schedule of Values
Attachment 06: Section 017900 Demonstration and Training
Attachment 07: Section 018021 Facilities Exterior Enclosure Commissioning
Attachment 08: Section 088000 Glazing
Attachment 09: C1.02
Attachment 10: SK1/A0.12
Attachment 11: SK1/A1.06
Attachment 12: SK1/A1.07
Attachment 13: SK1/A2.01
Attachment 14: SK1/A2.02
Attachment 15: SK2/A2.02
Attachment 16: SK1/A3.12
Attachment 17: SK1/A3.14
Attachment 18: SK1/A6.07
Attachment 19: SK1/A8.12
Attachment 20: SK2/A8.12
Attachment 21: SK1/FP.01
Attachment 22: SK1/P2.05
Attachment 23: SK1/P2.09
Attachment 24: SK1/P2.13
Attachment 25: SK1/M4.01
Attachment 26: SK1/M5.04
Attachment 27: SK1/M5.07
Attachment 28: SK2/M5.07
Attachment 29: SK3/M5.07
Attachment 30: SK1/M6.02
Attachment 31: SK1/M6.07
Attachment 32: SK2/M6.07
Attachment 33: SK1/M6.08
Attachment 34: SK2/M6.08
Attachment 35: SK1/E2.01
Attachment 36: SK1/E4.01
Attachment 37: SK2/E4.01
Attachment 38: SK1/E4.03
Attachment 39: SK2/E4.04
Attachment 40: SK1/E4.04
Attachment 41: SK1/E4.05
Attachment 42: SK1/E4.09
Attachment 43: SK1/E6.02
Attachment 44: SK1/E7.01
Attachment 45: SK2/E7.01
Attachment 46: SK1/E8.01
Attachment 47: SK1/E8.04
Attachment 48: SK1/E8.05
Attachment 49: SK2/E8.05
Attachment 50: SK3/E8.05
Attachment 51: SK4/E8.05

END OF ADDENDUM NO. 1

VergesRome Architects
A professional architectural corporation

ATTACHMENT 01

320 N. Carrollton Avenue, Suite 100, New Orleans, Louisiana 70119
VergesRome.com t.504.488.7739 f. 504.488.7743

Pre-Bid Meeting Minutes

PROJECT:	VRA NO.
New 3 Section Elementary School at Fisk-Howard School 211 South Lopez Street New Orleans, LA 70119 RSD Project #: 2011-0882-0001	11085 DATE: 1.10.2013

PRESENT:
Steve Jones, Jacobs/CSRS
Mercy Hodge, Jacobs/CSRS
David Reed, VRA
Corey Brizzolara, VRA
Scott Kading, Farnsworth
John Mipro, MMI
Sombra Williams, RSD
Wade Fauntleroy, FHP Tectonics
Paul Loria, Citadel Builders
Greg Kantak, Gibbs Construction

1. Lines of communication. All questions submitted in writing to VergesRome Architects: By email to both David Reed (david@vergesrome.com) and Corey Brizzolara (corey@vergesrome.com) , or by U.S. Mail.

2. Distribution of the Contract Documents: Available through VRA and on-line at some Plan Rooms.

3. Performance Bond and Payment Bond are requirements of the project.

4. A Bid Bond is required.

5. Bidding Procedures are outlined in the Instructions to Bidders and are in accordance with current Louisiana Public Bid Laws.

6. Affidavit of E-Verify must be turned in by **all** bidders within (10) days of the Bid date.

7. Prior Approvals Deadline: January 17, 2013 @ 2:00 pm. Note: Instructions to Bidders states “at least 7 days prior to deadline for submission; Note this project sets a specific date. Specific Information is required for the review of prior approvals (see Section 002600 – Procurement Substitution Procedures).

8. Deadline for written questions or clarifications to VRA: January 17, 2013 @ 2:00 pm.

9. Completion Time: 487 consecutive calendar days. If there are any concerns over this length it should be brought to the Architect’s attention immediately.

The preceding sets forth the minutes as interpreted by the undersigned. If there are any exceptions taken, kindly notify the undersigned in writing within three (3) calendar days.
By: Corey Brizzolara

VergesRome Architects
A professional architectural corporation

320 N. Carrollton Avenue, Suite 100, New Orleans, Louisiana 70119
VergesRome.com t.504.488.7739 f. 504.488.7743

MINUTES OF MEETING (cont.)

10. Working hours: Between 7:00 am and 6:00 pm Monday through Saturdays. (No work on Sundays or holidays.)

11. Liquidate damages: $5,000.00/calendar day; Punch List Remaining Incomplete: $10,000.00/calendar day.

12. Permits: The Architect and Owner have submitted the Project to the City of New Orleans, Louisiana State Fire Marshal, Fire Prevention, Parks and Parkways, and the New Orleans Sanitation Department. Costs for the review of all mentioned regulatory agencies other than the City of New Orleans have been paid. Bidders will include in their bid the costs for the Building Permit with the City of New Orleans including all associated review fees.

13. DBE: - 25% good faith effort based on LAUCP.
- Preconstruction reports are required by the General Contractor and all Subcontractors at the pre-construction conference.
- DBE database is not all-encompassing.
- Submittals to go through Architect. Question go directly to RSD.

14. Commissioning, Farnsworth: - Role will include site visits and electronic checklists during the duration of construction up through M/E/P and building envelope testing.

15. This project is NOT CDBG.

16. This project is NOT Davis-Bacon.

17. This project is tax exempt; forms are provided in the project manual.

18. Certified Payrolls are required.

19. Test Pile Program soil reports will be issued by addendum.

End of Minutes.

The preceding sets forth the minutes as interpreted by the undersigned. If there are any exceptions taken, kindly notify the undersigned in writing within three (3) calendar days.

By: Corey Brizzolara

VergesRome Architects
a professional architectural corporation

320 N. Carrollton Avenue, Suite 100, New Orleans, Louisiana 70119
VergesRome.com t. 504.488.7739 f. 504.488.7743

ATTENDANCE LOG

PROJECT:
New 3 Section Elementary School at
Fisk-Howard School
211 South Lopez Street
New Orleans, Louisiana 70119 Project No. 2011-0882-0001

VRA NO.: 11085

DATE: 10 January 2013 @ 9:00 a.m.

TYPE OF MEETING: Pre-Bid Meeting

NAME:	COMPANY:	PHONE:	CELL:	EMAIL:
Steve Jones	Jacobs/CSRS	504.592.0159	225.223.0813	steve.jones@jacobscsrs.com
Mercy Hodge	Jacobs/CSRS	504.592.0144	504.342.5068	mercedes.hodge@jacobscsrs.com
Sombra Williams	RSD	504.592.0808	504.717.3243	sombra.williams@rsdla.net
David Reed	VergesRome Architects	504.488.7739	504.858.9071	david@vergesrome.com
Corey Brizzolara	VergesRome Architects	504.488.7739	504.400.8160	corey@vergesrome.com
John Mipro	Morphy Makofsky, Inc	504.488.1317	504.439.7069	j_mipro@mmi-eng.com
Scott Kading	Farnsworth Group	608.846.8015	608.692.1940	skading@f-w.com
Wade Fauntleroy	FHP Tectonic	504.592.9298	562.254.5426	cblake@fhpaschen.com
Paul Loria	Citadel Builders	504.888.9433 ext. 41	504.888.6997 (fax	ploria@citadelbuilders.com
Greg Kantak	Gibbs Construction	504.733.4336	504.737.0389 (fax	gkantak@gibbsconstruction.com

ATTACHMENT 02

STRATUM ENGINEERING, LLC
Geotechnical Engineering ♦ Testing and Inspection Services

April 25, 2012

VergesRome Architects
320 N. Carrollton Avenue
Suite 100
New Orleans, LA 70119

Attn: Mr. David Reed, AIA

Re: Geotechnical Engineering Report
Proposed Fisk-Howard Elementary School
211 S. Lopez Street
New Orleans, Louisiana
Project No. G12-004

Dear David:

Stratum Engineering, LLC (SE) is please to submit our Geotechnical Engineering Report for the above referenced project. This report includes our field data and laboratory test results, as well as recommendations for foundation and pavement design.

We appreciate the opportunity to perform this Geotechnical Study and look forward to working with you during the design and construction phases of this project. If you have any questions pertaining to this report, or if we may be of further service, please do not hesitate to call.

Respectfully submitted,
STRATUM ENGINEERING, LLC

William Dean McInnis, E.I.
Project Manager

Tony Y. Maroun, P.E.
Principal

STATE OF LOUISIANA
TONY Y. MAROUN
LIC. NO. 26198
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
4/25/12

WDM/TYM:wdm

TABLE OF CONTENTS

EXECUTIVE SUMMARY

An exploration and evaluation of the subsurface conditions have been completed for the proposed new Fisk-Howard Elementary School to be constructed at 211 S. Lopez Street in New Orleans, Louisiana.

The site of the proposed development was occupied by the previous Fisk-Howard Elementary School which was heavily damaged during Hurricane Katrina, and has since been demolished and removed from the site. However, signs of construction debris were noted in most of the borings which extended as deep as 6 feet below the surface. The property is currently a grassy vacant lot which encompasses an entire city block.

The project includes the construction of a new 3-story school building along with associated parking areas and drives. The facility will have a structural steel frame and load bearing walls having a footprint of approximately 53,000 square feet. Consideration will be given to a crawl space with a minimum clearance of about 3.5 feet.

Maximum column and wall loads for the new school were not available at the time this report was prepared. However, typical column and wall loads are anticipated to be on the order of 150 kips and 5 kips per linear foot, respectively. Based on limited grading information provided to us, we understand the existing ground surface elevation within the building area ranges from Elev. -2.7 feet to -4.0 feet. Considering a finished floor elevation (FFE) of 0.0 foot, about 0.5 foot to 2.5 feet of cut will be necessary to achieve the floor slab design grade.

The site was characterized by six (6) borings drilled to a depth of 85 feet across the building footprint, and six (6) borings drilled to a depth of 6 feet in the parking areas. Based on the borings, approximately 6 to 8 inches of topsoil with organics covered the surface underlain by stiff to very stiff sandy clay to sandy silty clay with construction debris extending to a depth of 4 to 6 feet. The sandy clay layer was followed by very soft to soft fat to organic clay extending to a depth of 10 to 18 feet. A stratum of soft to firm sandy clay to clayey sand was encountered between the depth of 18 and 26 feet. This was followed by very soft to firm greenish gray fat clay extending to a depth of 40 to 45 feet. The fat clay was underlain by greenish gray to blue-gray sandy clay and clayey sand extending to a depth of 50 feet. Dense to very dense silty or clayey sand to poorly graded sand followed the sandy clay and extended to a depth of 60 to 63 feet. The sand was underlain by alternating layers of soft to firm greenish gray lean and fat clay extending to the termination depth of 85 feet. Groundwater was measured at 7 to 14 feet upon completion of drilling operations. Furthermore, delayed groundwater was noted at about 2 ½ feet after 24 hours.

In addition, construction debris consisting of brick, concrete, and gravel was encountered across the site extending to an approximate depth of 6 feet below the existing ground surface. Considering the amount of debris encountered, the performance of a few test pits is warranted to verify the presence of unsuitable materials prior to construction.

The results of the exploration indicate that the near surface soils present at the site are poor in bearing quality and compressible in nature. Consequently, a pile foundation system was evaluated for support of the proposed building. Consideration was given to large treated timber piles and timber/concrete composite piles to support the structure including the floor slab. Furthermore, flexible and rigid pavements are being considered for the development. Details related to site development, foundation and pavement design, as well as construction considerations are included in subsequent sections of this report.

The owner/designer should not rely solely on this Executive Summary and must read and evaluate the entire contents of this report prior to utilizing our engineering recommendations in preparation of design/construction documents.

PROJECT INFORMATION

Project Authorization

Stratum Engineering, LLC (SE) has completed a geotechnical exploration for the proposed Fisk-Howard Elementary School to be constructed at 211 South Lopez Street in New Orleans, Louisiana. The exploration was accomplished in general accordance with SE Proposal No. G12-003 dated January 9, 2012.

Project Description

The Fisk-Howard Elementary School will encompass the majority of the site with a drive for the pick up and drop off of students located on the S. Rendon Street side and a parking area located at the northwest corner of the property. The building will be a 3-story structure with a steel frame and load bearing walls having a footprint of approximately 53,000 square feet. Detailed structural loading information was not available at the time this report was prepared. However, maximum column and wall loads are anticipated to be about 150 kips and 5 kips per linear foot, respectively. We understand that consideration will be given to providing a crawl space under the building with a minimum clearance of 3.5 feet to eliminate the need for fill and maximize the allowable capacity of the piles.

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If any of the noted information is incorrect, please inform SE in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. SE will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site to enable evaluation of acceptable foundation and pavement systems for the proposed elementary school. The scope of services included drilling six (6) borings to a depth of 85 feet in the school building area, and six (6) borings to a depth of 6 feet in the parking areas. Our scope of services also included a reconnaissance of the project site, drilling the soil borings, select laboratory testing, and preparation of this geotechnical report. The report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- Foundation type, allowable pile capacity, and an estimate of settlement;
- Seismic site classification;
- Flexible and rigid pavement recommendations;
- Site preparation, including subgrade preparation and compaction requirements;
- Factors influencing construction and performance of the proposed structure.

The scope of geotechnical services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, surface water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to development of this site, an environmental site assessment is advisable.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The site of the proposed development is the site of the old Fisk-Howard Elementary School which was damaged during Hurricane Katrina and has since been demolished and removed. The site is currently a vacant grassy parcel encompassing an entire city block which is bounded by South Rendon Street to the north, South Lopez Street to the south, Cleveland Avenue to the east and Palmyra Street to the west.

Detailed grading information was not available to us at the time this report was prepared. However, based on limited grading information provided to us by Duplantis Design Group, the civil engineers for the project, the existing ground surface elevation in the building area ranges from Elev. -2.7 feet to -4.0 feet. Considering a FFE of 0.0 foot, about 0.5 foot to 2.5 feet of cut will be required to achieve the floor slab design grade. The parking area is assumed to require minimal amount of fill to reach the design grades.

Field Exploration

The field exploration included a reconnaissance of the project site, drilling the requested soil test borings and recovering undisturbed and representative disturbed soil samples. Water level measurement of any groundwater encountered in the soil borings was also measured and recorded.

The borings were located in the field by a Stratum representative. The approximate locations of the borings are indicated on a plan included in the Appendix of this report, which is a reproduction of a conceptual site plan provided to us by VergesRome Architects.

Drilling and Sampling

The borings were drilled with an ATV mounted drill rig. Wet rotary and auger drilling techniques were used to advance the borings. Samples were generally obtained continuously from the ground surface to a depth of ten feet and at maximum five foot intervals thereafter. Drilling and sampling techniques were accomplished in general accordance with ASTM Standards.

Undisturbed samples of cohesive soils were generally obtained using thin-wall tube sampling procedures in general accordance with the procedures for "Thin-Walled Tube Geotechnical Sampling of Soils" (ASTM D1587). These samples were extruded in the field with a hydraulic ram and were wrapped in aluminum foil prior to placement in a plastic wrapping to preserve moisture. The samples were transported to the laboratory in containers to prevent disturbance.

For cohesionless soils and semi-cohesive soils, Standard Penetration Tests (SPT) were performed to obtain standard penetration values of the soil. The standard penetration value (N) is defined as the number of blows of a 140 pound hammer, falling 30 inches, required to advance the split-barrel sampler one (1) foot into the soil. Samples of granular soils were obtained utilizing a two (2) inch O.D. split-barrel sampler in general accordance with procedures for "Penetration Test and Split-Barrel Sampling of Soils" (ASTM D-1586). To perform the test and obtain a sample, the sampler is lowered to the bottom of the previously cleaned drill hole and advanced by blows from the hammer. The number of blows is recorded for each of three (3) successive increments of six (6) inches penetration. The "N" value is obtained by adding the second and third incremental numbers. The results of the standard penetration test indicate the relative density of cohesionless soils and thereby provide a basis for estimating the relative strength and compressibility of the soil profile components. The split spoon samples were identified according to the project number, boring number and depth, and were also placed in polyethylene plastic wrapping to protect against moisture loss.

The laboratory testing program included supplementary visual classification and water content tests on all of the soil samples. In addition, selected samples were subjected to unconfined compression testing, percent passing the #200 sieve and Atterberg Limits determination. Additional estimates of undrained shear strength and unconfined compressive strength were made using a torvane and a hand penetrometer, respectively. The laboratory testing was performed in general accordance with ASTM Standard Procedures.

Subsurface Conditions

The site was characterized by a total of twelve (12) borings drilled to depths of 6 to 85 feet in the building area, parking area and drives. Based on the borings, approximately 6 to 8 inches of topsoil with organics covered the surface underlain by stiff to very stiff sandy clay to sandy silty clay with construction debris extending to a depth of 4 to 6 feet. The sandy clay layer was followed by very soft to soft fat to organic clay extending to a depth of 10 to 18 feet. A stratum of soft to firm sandy clay to clayey sand was encountered between the depth of 18 and 26 feet. This was followed by very soft to firm greenish gray fat clay extending to a depth of 40 to 45 feet. The fat clay was underlain by greenish gray to blue-gray sandy clay and clayey sand extending to a depth of 50 feet. Dense to very dense silty or clayey sand to poorly graded sand followed the sandy clay and extended to a depth of 60 to 63 feet. The sand was underlain by alternating layers of soft to firm greenish gray lean and fat clay extending to the termination depth of 85 feet.

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the Appendix should be reviewed for specific information at the boring locations. These records include soil descriptions, stratification, penetration resistances, and locations of the samples and laboratory test data. The stratification shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratification represents the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on the boring logs. The samples, which were not altered by laboratory testing, will be retained for 60 days from the date of this report and then will be discarded.

Groundwater Conditions

Groundwater was encountered at an approximate depth of 7 to 14 feet upon completion of drilling operation. Furthermore, delayed groundwater measurement made after 24 hours at that time revealed the groundwater to be at a depth of 2.5 feet below the existing ground surface. It should be noted that groundwater levels will fluctuate with seasonal variations in rainfall or extended periods of drought and surface runoff. Perched water may be encountered between the interface of the granular soils, and the underlying natural low permeability cohesive soils. Therefore, it is recommended that the actual groundwater level at the site be determined by the contractor at the time of the construction activities.

IBC Site Classification

The International Building Code (IBC), 2003 edition, was reviewed to determine the site classification for seismic design. Based on the soils encountered in the upper 85 feet of the borings and our experience in the area, the site can be classified as Site Class "E", as outlined in Section 1615.1.1.

EVALUATION AND RECOMMENDATIONS

General

The type and depth of foundation suitable for a given structure primarily depends on several factors including the subsurface conditions, the function of the structure, the loads it may carry, the cost of the foundation and the criteria set by the Design Engineer with respect to vertical and differential movement which the structure can withstand without damage.

Although the previous school building was demolished and hauled off the site, the upper 4 to 6 feet of soil appear to be inundated with construction debris requiring the need to pre-drill or pre-punch through to minimize the potential damage to the new piles. Furthermore, it may be prudent to further investigate the upper soil conditions at the site by conducting a few test pits prior to construction.

Although stiff to very stiff sandy clay and sandy silty clay was encountered near the surface as a result of the previous development, soft fat clays and organic clays were noted below the surficial material and extended to at least 40 feet. Considering the building structural loads and the soft conditions encountered at the site, a pile foundation system consisting of large treated timber piles and timber/concrete composite piles was evaluated for the proposed structure. Details related to foundation and pavement design, as well as site preparation and development, are presented in subsequent sections of this report.

Site Preparation

Site preparation is expected to include, but not be limited to, undercutting any unsuitable material from the non-pile supported area and replacing it with compacted structural fill. Existing utility lines should be located and re-routed as necessary. Topsoil in the development area should be stripped and removed off the site. The actual stripping depth should be determined by a representative of the Geotechnical Engineer at the time of construction.

Consideration should be given to the presence of any existing foundations and their effect on the proposed construction. It is anticipated that the previous building was pile supported. Therefore, further investigation should be conducted to determine if any of the previous piles are in conflict with the new piles. If such a conflict exists, the existing piles could be left in-place and cut off at least two (2) feet below the new pile supported foundation. Additionally, any

existing piles located in the proposed pavement areas should be cut off at least three (3) feet below the subgrade.

The subgrade in the non-pile supported areas of the site should be proofrolled with a tandem axle dump truck or a similar heavily loaded rubber tired vehicle weighing 15 to 20 tons. Soils which are observed to rut or deflect excessively under the moving load should be undercut and replaced with properly compacted structural fill. The proofrolling and undercutting activities should be witnessed by a representative of the Geotechnical Engineer and should be performed during a period of dry weather.

After subgrade preparation and observation have been completed, the initial layer of structural fill should be placed in a relatively uniform horizontal lift and should be adequately keyed into the stripped and scarified soils. The structural fill should be free of organic or other deleterious materials. Locally available "pumped" river sand may be used as structural fill. The sand should have less than ten (10) percent passing the #200 sieve and should be compacted to at least 95 percent of the sand's maximum dry density as determined by ASTM D-698 (Standard Proctor).

Pile Foundation

Analyses were made based on the field data and laboratory test results with regard to a pile foundation for support of the proposed structure. Consideration was given to large treated timber piles and timber/concrete composite piles to support the elementary school including the respective floor slab and side walks.

Generally, a layer of dense to very dense sand was encountered in most of the borings at a depth of approximately 50 feet and extended to a depth of about 63 feet. Therefore, the piles at the site will generally derive their support through skin friction along their embedded lengths along with some end bearing when tipped in the dense sand.

Consequently, the piles should be driven into the dense sand to a minimum depth of about 55 feet below the existing ground surface to maximize the capacity of the pile. The large treated timber piles should have minimum tip and butt diameters of 7 and 12 inches, respectively. The timber piles should conform to ASTM D25 and the American Wood Preservers Association (AWPA) standards for quality and treatment, respectively.

The timber/concrete composite pile foundation system generally consists of untreated timber lower section (7" tip – 12" butt) and 12 inch diameter concrete filled steel can upper section. Typical composite can connectors do not transfer tensile loads to the timber portion of the composite piles, therefore, no tensile capacities are recommended.

The recommended pile lengths and corresponding capacities are from the existing ground surface and additional length of pile or reduction of pile length should be considered to account for the cut or fill thickness. The recommended pile lengths and the estimated corresponding allowable capacities are presented in the following table.

Estimated Allowable Single Pile Load Capacity in Tons* F.S. = 2.0 in Compression F.S. = 3.0 in Tension				
Pile Length in feet**	**Large Treated Timber Pile (7" tip – 12" butt)**		**Timber/Concrete Composite Pile**	
	Compression	**Tension**	**Compression**	**Tension**
50	22	8	22	--
55***	25+	11	25+	--
60	--	14	--	--
65	--	16	--	--

*** Capacities are soil-pile related capacities and consideration should be given to the structural integrity of the pile member.**

**** Pile lengths measured from the existing ground surface at the time of drilling.**

***** Pile tipped in dense sand.**

The estimated pile capacities include a factor safety of two (2) in compression and three (3) in tension. The capacities assume that no fill will be added in the building area and therefore neglect the effect of drag loads on the pile. Should any fill be added in the building area, the above pile capacities should be evaluated further to account for the negative skin friction imparted on the piles.

Floor Slab

The building floor slab, including sidewalks immediately adjacent to the building, should be pile supported. The slab should have an adequate number of joints to reduce cracking resulting from shrinkage and any differential movement. A vapor barrier consisting of polyethylene sheeting should be provided at the floor slab/fill soil interface. All utility lines in the building area should be hung from the slab. Hangers and connections used should be made of stainless steel, meeting the applicable Building Code. Flexible connections must be provided at the interface of pile supported and non-pile supported areas to accommodate at least 6 inches of settlement over the life of the structure.

Pile Settlement

It is estimated that long term settlement of piles loaded to their allowable capacities will be on the order of one (1) inch. This assumes that no fill will be added in the building area. Stratum Engineering should be contacted to evaluate the effect of drag loads imparted on the pile if more than 2 feet of fill will be added in the building area. Differential settlement is anticipated to be on the order of 50 percent of the total settlement.

Spacing and Group Effect

A group of piles subjected to vertical loads may not necessarily have the same capacity as the sum of the capacities of the individual piles. For axially loaded piles, published results indicate that the ratio of capacity per pile in a group to that of a single isolated pile typically ranges from 0.5 to 1.0. This efficiency factor depends on the spacing or distance between each pile. In planning groups of driven piles, a minimum center-to-center spacing of 3D (where D is the pile diameter) is recommended to avoid the reduction in capacity and maximize the pile group efficiency.

Pile Installation

Pile driving hammers used to drive foundation piles should be selected according to pile type, length, size and weight of pile, as well as potential vibrations resulting from pile driving operations. Care should be taken to assure that the hammer selected is capable of achieving the desired penetration without causing damage to the piles or causing excessive vibrations which could damage existing, nearby structures.

Hammers having a rated energy in the range of 15,000 to 20,000 foot-pounds are recommended for the large timber piles and composite piles. Consequently, driving refusal for the recommended piles and hammer should be 25 blows per foot to minimize structural damage to the piles. Each pile should be driven to the desired tip elevation and the driving resistance should be monitored without interruption in the driving operations.

Driving of the center piles in the cluster first will better facilitate the driving operations. Accurate records of the final tip elevation and driving resistances should be obtained during the pile driving operations. Some pile heaving may be experienced during installation of adjacent displacement type piles. It is therefore recommend that the tip elevation of the piles be recorded and if significant heave is noted after driving of subsequent piles, provisions must be made for reseating them.

Driving of the piles into the dense to very dense sands encountered in most of the borings at depths of about 50 feet could be met with high and erratic driving resistance. Therefore, pre-drilling to facilitate driving the piles below the sand layer may be required. Pre-drilling should be performed with a “fish-tail” bit no larger than 70 percent of the pile diameter and should extend no deeper than 10 feet from the pile tip elevation.

Pile Driving Monitoring

We recommend that the pile driving be monitored by the Geotechnical Engineer or his representative. Sometimes, premature refusal occurs due to poor performance of the hammer rather than from soil resistance. Any changes in hammer blow counts should be carefully examined before making any decisions about the pile penetration.

Pile Load Test

It is recommended that the pile capacities be verified by a field load test. It is recommended that at least four (4) test piles of the pile type used, be installed in the proposed building area with one pile load tested in compression as outlined by ASTM D1143. The pile load test should be performed under the guidance of the Geotechnical Engineer so that the data may be interpreted and the recommended pile capacity adjusted, if necessary, according to the load test results.

Vibration Monitoring

Thresholds of vibration induced cracking are generally site specific and depend on the type and age of the structure, the frequency of ground vibration, and the type of soil supporting the structure. Research by U.S. Bureau of Mines (USBM) and other investigative groups have established criteria relating the occurrence of structural damage to certain frequencies and level of ground motion. According to the USBM, within the range of four (4) to 12 hertz, the maximum particle velocity recommended to preclude the threshold damage to plaster-on-wood old structures is 0.5 inch per second (ips).

Peak particle velocities of 0.25 ips are perceived to be uncomfortable to humans. Furthermore, peak particle velocities in excess of 0.25 ips could densify near surface cohesionless soils resulting in cosmetic cracks in structures supported on these soils. Therefore, if sustained peak particle velocities exceed 0.25 ips, the construction activities causing these vibration levels should be halted and the construction procedures altered to maintain a safe level of vibration and minimize potential damage to adjacent structures.

Pavement Recommendations

The performance of pavements depends upon several factors including (1) the characteristics of the supporting soils: (2) the magnitude and frequency of wheel load applications; (3) quality of construction materials; (4) the contractor's placement and workmanship abilities, and (5) the desired period of design life.

Since the building pad will be mostly cut to provide a crawl space at an elevation of -3.5 feet, the paved areas will likely be undercut sufficiently to provide positive drainage away from the building. Detailed grading information was not available to us at the time this report was prepared. However, it was assumed that about 1 to 1.5 feet of cut and minimal amount of fill may be needed to achieve the parking lot design grades.

We understand that a bus pick up and drop off area will be provided at the intersection of S. Rendon and Palmyra Streets and a faculty/student parking area with about 20 stalls will be located at Palmyra and South Lopez. Therefore, traffic load is anticipated to consist of light passenger vehicles and heavy bus traffic along the drives and drop off/pick up location at a

frequency of 4 busses in the morning and 4 busses in the afternoon, 5 days per week for a design life of 20 years.

Our scope of services did not include extensive sampling for determination of Coefficient of Subgrade Reaction (K) or California Bearing Ratio (CBR) of the existing subgrade or potential sources of imported fill for the specific purpose of a detailed pavement analysis. Instead, we have assumed pavement related design parameters that are considered to be typical for the area soil types. A CBR Value of 3 and a modulus of subgrade reaction (K) of 100 psi/in was estimated for the near surface soils.

Specific parameters used in the pavement analyses are as follows:

CBR	3
Modulus of subgrade reaction, k	100 pci
Reliability	85%
Deviation	0.45 Asphalt
	0.35 Rigid
Initial Serviceability	4.5
Terminal Serviceability	2.0
Modulus of Rupture	550 psi
Modulus of Elasticity	3.4×10^6 psi
Load Transfer	3.2 Dowels or Keys
Drainage Coefficient	1.0
Design Life	20 Years
Layer Coefficients	0.41 Asphalt
	0.14 Base Course
	0.08 Structural Fill

The recommended pavement sections presented are considered typical and minimum for the assumed parameters in the general site area and anticipated traffic condition. We understand that budgetary considerations sometimes warrant thinner pavement sections than those presented. However, the owner, and the project designers should be aware that thinner pavement sections may result in increased maintenance costs and lower than anticipated pavement life. The pavement subgrade should be prepared as discussed in the site preparation section of this report.

The recommended flexible and rigid pavement sections are as follows:

FLEXIBLE PAVEMENT Recommended Minimum Thickness, inches		
Pavement Materials	**Light Duty**	**Heavy Duty**
Asphaltic Concrete Wearing Course	1.5	2
Asphaltic Concrete Binder Course	1.5	3
Compacted Class II Base	6	10
Compacted Structural Fill	12 min.	12 min.

RIGID PAVEMENT Recommended Minimum Thickness, inches		
Pavement Materials	**Light Duty**	**Heavy Duty**
Portland Cement Concrete	6	8
Compacted Granular Fill - Sand	12 min.	12 min.

The asphaltic concrete should meet the requirements of the latest edition of the Louisiana Standard Specifications for Roads and Bridges (LSSRB) and should be compacted to a minimum of 95 percent of the density of the laboratory molded specimen. The Class II base should meet LSSRB, Section 1003.03, and should be compacted to at least 95 percent of the aggregate's maximum dry density as determined by ASTM D698.

Portland Cement Concrete pavements should be utilized where waste disposal containers are located. The concrete paved area should be sufficiently large so that the front wheels of the collection trucks are supported on the rigid pavement. In this area, and in areas which will be accessed by heavy trucks (solid waste trucks, delivery trucks, etc.), a minimum concrete pavement thickness of eight (8) inches underlain by 12 inches of compacted structural fill is recommended.

Proper finishing of concrete pavement requires the use of appropriate construction joints to reduce the potential for cracking. Construction joints should be designed in accordance with current Portland Cement Association and the American Concrete Institute guidelines. Joints should be sealed to reduce the potential for water infiltration into pavement joints and subsequent infiltration into the supporting soils. Load transfer devices at the pavement joints should be designed in accordance with accepted codes. The concrete should have a minimum compressive strength of 4,000 psi at 28 days. The concrete should also be designed with 5±1 percent entrained air to improve workability and durability.

CONSTRUCTION CONSIDERATIONS

It is recommended that Stratum Engineering be retained to provide observation and testing of construction activities involved in the foundations, pavements, and related activities of this project. Stratum Engineering cannot accept any responsibility for any conditions which deviate from those described in this report, nor for the performance of the foundations and pavements, if not engaged to also provide construction observation and testing for this project.

Moisture Sensitive Soils/Weather Related Concerns

The upper soils encountered at this site are relatively sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, an increase in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

Drainage and Groundwater Concerns

Water should not be allowed to collect in the foundation excavations, floor slab area, or on the prepared subgrade in the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater, or surface runoff. Positive site surface drainage should be provided to reduce infiltration of surface water around the building.

Groundwater was encountered between 7 to 14 feet upon completion of drilling operations. However, it is possible that seasonal variations will cause fluctuations of the water table. Additionally, perched water may be encountered in discontinuous zones within the overburden. Any water accumulation should be removed from the excavations by pumping. If excessive and uncontrolled amounts of seepage occur, the Geotechnical Engineer should be consulted.

Excavations

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its “Construction Standards for Excavations, 29 CFR, part 1928, Subpart P”. This document was issued to better ensure the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavation, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. SE does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

REPORT LIMITATIONS

The recommendations submitted in this report are based on the available subsurface information obtained by SE and design details furnished by VergesRome Architects. If there are any revisions to the plans for this project, or if deviations from the subsurface conditions noted in this report are encountered during construction, SE should be notified immediately to determine if changes in the foundation recommendations are required. If SE is not notified of such changes, SE will not be responsible for the impact of those changes on the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the Geotechnical Engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated in to the design documents. If SE is not retained to perform these functions, SE will not be responsible for the impact of those conditions on the project. This report has been prepared for the exclusive use of VergesRome Architects for the specific application to the proposed Fisk-Howard Elementary School located at 211 S. Lopez Street in New Orleans, Louisiana.

ATTACHMENT 03

APPENDIX

STRATUM ENGINEERING, LLC

⊕ = BORING LOCATION

STRATUM ENGINEERING, LLC

BORING LOCATION PLAN

GEOTECHNICAL ENGINEERING SERVICES
PROPOSED FISK-HOWARD SCHOOL
NEW ORLEANS, LOUISIANA

STRATUM ENGINEERING, LLC

LOG OF BORING B-1

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			3.25			17			
			Very stiff brown and gray Sandy Lean Clay with construction debris			1.25			24			
5			Very soft black Organic Clay		0.17		0.20	45	113			
							0.10		211			
10			▽		0.14		0.15	46	125			
			Very soft gray Fat Clay				0.10		53			
15												
20			Loose greenish gray Clayey Sand				0.10	116	32			
			Soft greenish gray Fat Clay	2					53			
25												
30					0.13		0.30	71	58			
			Very soft greenish gray Silty Clay				0.05		43			
35												
40			Soft greenish gray Fat Clay		0.20		0.30	65	77			
45							0.20		68			
			Loose greenish gray Clayey Sand									
50					0.16		0.05	103	27			

DEPTH OF BORING: 85 feet **GROUNDWATER:** 10' Upon Completion
DATE: 2/23/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-1 (continued)

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
55			Dense to very dense gray Silty Sand with shell fragments	50+					27			12
60				24					25			
65			Soft greenish gray Fat Clay	WOH					59	70	43	99
70				3					41			
75				5					45			
80				3					38			
85			-becomes firm at 80'				0.30		56			
90			Boring terminated at 85 feet									
95												
100												

DEPTH OF BORING: 85 feet
DATE: 2/23/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-2

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			1.75			12			
			Stiff brown and gray Sandy Silty Clay									
			with construction debris			1.75			13			
5						1.75			24			
			Very soft greenish gray Fat Clay with organics				0.20		88			
			▽		0.16		0.10	91	41			
10												
			Very soft tannish gray Silty Clay									
			with sand layers									
15							0.10		35	29	6	86
			Soft tan and greenish gray Sandy Fat Clay									
20					0.39		0.15	100	29			
			Very soft bluish gray Fat Clay	WOH					55			
25												
				WOH					67			
30												
			-becomes soft and greenish gray at 33'				0.25		64			
35												
					0.27		0.15	64	67			
40												
			Very soft greenish gray Fat Clay with sand									
			and shell fragments				0.15		32			
45												
					0.16		0.10	70	56			
50												

DEPTH OF BORING: 85 feet **GROUNDWATER:** 8' Upon Completion
DATE: 2/14/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-2 (continued)

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			Soft greenish gray Fat Clay									
55			Dense to very dense greenish gray Clayey Sand with shell fragments	50+					34			31
60				23					26			
65			Stiff greenish gray Fat Clay with sand and shell fragments	8					47			73
70			-becomes firm at 68'	2					50			
75			Firm olive green Lean to Fat Clay with shell fragments			1.00		92	30			
80			Firm to stiff olive green Fat Clay with shell fragments				0.50		37			
85			-becomes very stiff at 85'			3.50			21			
90			Boring terminated at 85 feet									
95												
100												

DEPTH OF BORING: 85 feet
DATE: 2/14/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-3

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			4.50			19			
			Very stiff brown Sandy Lean Clay									
			-with gravel, concrete and brick fragments, 2' to 5'			4.50			18			
5					1.25	1.75		109	24			
			Soft gray Organic Clay				0.25		110			
10			-with trace of roots at 8'		0.29		0.20	63	76			
			Stiff to firm gray Sandy Clay									
15			▽			2.50			27			
20					0.66	1.75		93	30			
			Soft to firm blue-gray Fat Clay									
25							0.25		47			
30					0.51		0.25	80	52			
35							0.30		59			
40			-with sand lenses at 38'		0.33		0.35	63	66			
			Soft blue-gray Sandy Fat Clay				0.20		38			
45												
50			-becomes very soft with shell fragments at 48'		0.10		0.20	93	31			

DEPTH OF BORING: 85 feet **GROUNDWATER:** 14' Upon Completion
DATE: 2/15/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-3 (continued)

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			Soft blue-gray Sandy Fat Clay									
55			Very dense blue-gray poorly graded Sand	50+					24			10
60			-becomes medium dense at 58'	23					29			
65			Stiff blue-gray Fat Clay	7					61			98
70			Soft olive green Lean Clay with sand -becomes firm at 68'	2					37			
75			-becomes stiff at 73'		1.14	1.75		88	36			
80			Dense blue-gray Silty Sand	40					29			17
85				39					31			
90			Boring terminated at 85 feet									
95												
100												

DEPTH OF BORING: 85 feet
DATE: 2/15/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-4

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			2.50			19			
			Stiff brown Fat Clay with sand									
						1.50			26			
			-with brick fragments at 3'									
5						1.00			51			
			Very soft black Organic Clay									
			▽						107			
			-with roots, 8' to 10'		0.12		0.10	52	85			
10												
			Soft blue-gray Lean Clay with sand and shell fragments									
							0.20		36	32	11	
15												
			Soft gray Fat Clay with trace of roots									
					0.26		0.25	78	44			
20												
			Soft gray Sandy Clay									
							0.20		33			
25												
			Soft to firm gray Fat Clay									
					0.34		0.25	75	47			
30												
			-with sand lenses at 33'				0.15		64			
35												
					0.52		0.30	72	50			
40												
							0.40		68			
45												
			Soft blue-gray Sandy Lean Clay with shell fragments									
					0.10		0.25	100	28			
50												

DEPTH OF BORING: 85 feet **GROUNDWATER:** 7' Upon Completion
DATE: 2/14/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-4 (continued)

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			Soft blue-gray Sandy Lean Clay									
55			Very stiff blue-gray Sandy Fat Clay	30					57			56
60			Dense blue-gray Silty Sand	25					24			13
65			Soft blue-gray Fat Clay with trace of sand	WOH					50	72	42	86
70			Stiff blue-gray Silty Sandy Clay			1.00			36			
75			-becomes light gray at 73'				0.35		47			
80			Very dense gray Clayey Sand	46					27			37
85			-becomes medium dense with some clay at 83'	24					34			
90			Boring terminated at 85 feet									
95												
100												

DEPTH OF BORING: 85 feet
DATE: 2/14/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-5

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			2.25			24			
			Very stiff brown and gray Sandy Silty Clay with construction debris ▼	9					13			
5			-with a layer of crushed brick, 3' to 4'			1.00			28			
			Soft dark gray Fat Clay with organics				0.15		58			
							0.10		51			
10			-becomes greenish gray at 9'									
					0.20		0.15	75	46			
15												
20			Soft to firm greenish gray Sandy Clay		0.43	0.75		94	25			
25			Soft greenish gray Fat Clay				0.20		46			
					0.15		0.20	79	37	50	26	
30												
35							0.20		41			
					0.17		0.25	72	48			
40												
45			Soft greenish gray Sandy Clay				0.20		36			
					0.22		0.20	92	34			
50												

DEPTH OF BORING: 85 feet **GROUNDWATER:** 2.5' After 24 Hours
DATE: 2/13/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-5 (continued)

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
55			Very dense gray poorly graded Sand with shell fragments	50+					24			8
60			Dense gray Clayey Sand with shell fragments	22					25			19
65			Firm greenish gray Fat Clay	2					41			
70			Firm greenish gray Lean Clay		0.50		0.20	87	30			
75							0.20		31			
80					0.81	0.50		91	30			
85							0.35		29			
90			Boring terminated at 85 feet									
95												
100												

DEPTH OF BORING: 85 feet
DATE: 2/13/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-6

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			8" topsoil with organics			1.00			17			
			Stiff brown Sandy Silty Clay with organics									
			-with shell and sand layer at 2'			0.75			30			
5			Very soft to firm dark greenish gray Fat Clay with organics				0.30		89			
			-becomes black organic clay at 6'	WOH					126			
10			▽		0.11		0.15	55	63			
			Soft greenish gray Fat Clay with sand									
15							0.25		44			
20			Very soft dark gray Sandy Clay		0.16		0.15	91	30			
25			Soft greenish gray Fat Clay	WOH					50			
30					0.37		0.20	77	48			
35							0.20		47			
40					0.25		0.25	78	47			
			Very soft greenish gray Sandy Clay with shell fragments									
45							0.15		36			
50					0.16		0.20	87	33			

DEPTH OF BORING: 85 feet **GROUNDWATER:** 9' Upon Completion
DATE: 2/22/2012

STRATUM ENGINEERING, LLC

LOG OF BORING B-6 (continued)

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** BUILDING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
55			Very dense gray poorly graded Sand with shell fragments	50+					23			8
60				40					24			
65			Very soft greenish gray Fat Clay	WOH					61	75	41	98
70			Firm greenish gray Lean to Fat Clay	3					34			
75				4					39			
80					0.73		0.20	86	37			
85												
90			Boring terminated at 85 feet									
95												
100												

DEPTH OF BORING: 85 feet
DATE: 2/22/2012

STRATUM ENGINEERING, LLC

LOG OF BORING P-1

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: AUGER **LOCATION:** PARKING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics	11					22			
			Stiff dark gray Sandy Silty Clay with concrete and brick fragments	7					62			
5			Firm gray Fat Clay with concrete and brick fragments				0.30		63			
			Boring terminated at 6 feet									
10												
15												
20												
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 6 feet **GROUNDWATER:** Dry Upon Completion
DATE: 2/16/2012

STRATUM ENGINEERING, LLC

LOG OF BORING P-2

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: AUGER **LOCATION:** PARKING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics Stiff brown and gray Sandy Fat Clay with debris			**1.25**			**32**			
			Loose gray Clayey Sand	**6**					**40**			
5			Firm gray Fat Clay with sand, gravel, and brick fragments				**0.40**		**73**			
			Boring terminated at 6 feet									
10												
15												
20												
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 6 feet **GROUNDWATER:** Dry Upon Completion
DATE: 2/16/2012

STRATUM ENGINEERING, LLC

LOG OF BORING P-3

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: AUGER **LOCATION:** PARKING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			8" topsoil with organics			**4.50**			**16**			
			Very stiff brown and gray Silty Clay with sand and construction debris			**4.50**			**27**			
5			Stiff brown and gray Fat Clay with gravel and shell fragments			**1.00**			**52**			
			Boring terminated at 6 feet									
10												
15												
20												
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 6 feet **GROUNDWATER:** Dry Upon Completion
DATE: 2/16/2012

STRATUM ENGINEERING, LLC

LOG OF BORING P-4

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: AUGER **LOCATION:** PARKING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			**1.50**			**11**			
			Stiff brown and light gray Sandy Silty Clay with construction debris			**1.75**			**17**			
5			Firm gray Fat Clay with gravel and shell fragments				**0.25**		**53**			
			Boring terminated at 6 feet									
10												
15												
20												
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 6 feet **GROUNDWATER:** Dry Upon Completion
DATE: 2/13/2012

STRATUM ENGINEERING, LLC

LOG OF BORING P-5

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

TYPE OF BORING: AUGER **LOCATION:** PARKING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			8" topsoil with organics			**4.50**			**15**			
			Very stiff brown and gray Sandy Silty Clay with gravel, concrete, and brick fragments			**3.50**			**21**			
5			Very soft greenish gray Fat Clay with organics				**0.15**		**93**			
			Boring terminated at 6 feet									
10												
15												
20												
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 6 feet **GROUNDWATER:** Dry Upon Completion
DATE: 2/13/2012

STRATUM ENGINEERING, LLC

LOG OF BORING P-6

PROPOSED FISK-HOWARD ELEMENTARY SCHOOL
211 S. LOPEZ STREET
NEW ORLEANS, LOUISIANA

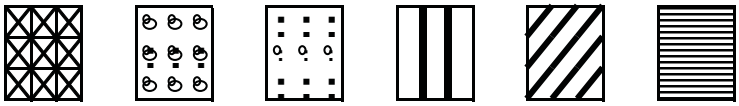
TYPE OF BORING: AUGER **LOCATION:** PARKING AREA **PROJECT NO.:** G12-004

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" topsoil with organics			4.50			19			
			Very stiff brown and gray Sandy Sitly Clay with construction debris				0.15		73			
5			Very soft dark gray Fat Clay with organics				0.15		80			
			Boring terminated at 6 feet									
10												
15												
20												
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 6 feet **GROUNDWATER:** Dry Upon Completion
DATE: 2/13/2012

KEY TO TERMS AND SYMBOLS USED ON LOGS

SOIL TYPE

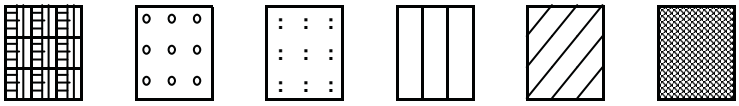


ROCK | GRAVEL | SAND | SILT | CLAY | PEAT

SAMPLER TYPE

NO SAMPLE | AUGER SAMPLE | SHELBY TUBE | SPLIT SPOON

MODIFIERS



STONE | GRAVELY | SANDY | SILTY | CLAYEY | FILL

NO RECOVERY | ROCK CORE | 2" SHELBY TUBE | TXDOT CONE

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

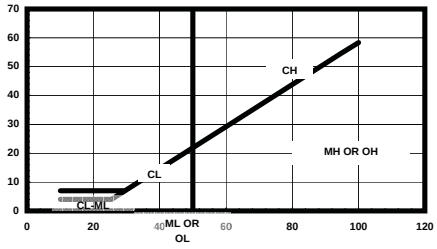
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS LESS THAN 50% PASSING NO. 4 SIEVE	GRAVEL & GRAVELY SOILS LESS THAN 50% PASSING NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR NO FINES	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		W/ APPRECIABLE FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN 50% PASSING NO. 4 SIEVE	CLEAN SANDS LITTLE FINES	SW	WELL GRADED SAND, GRAVELY SAND (LITTLE FINES)
			SP	POORLY GRADED SANDS, GRAVELY SAND (L.FINES)
		SANDS WITH APPREA. FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS,SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS & VERY FINE SANDS,ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILT W/ LOW PI
			CL	INORGANIC CLAY OF LOW TO MEDIUM PI LEAN CLAY GRAVELY CLAYS, SANDY CLAYS, SILTY CLAYS
			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PI
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS
			OH	ORGANIC CLAYS OF MED TO HIGH PI, ORGANIC SILT
HIGHLY ORGANIC SOIL			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS
UNCLASSIFIED FILL MATERIALS			ARTIFICIALLY DEPOSITED AND OTHER UNCLASSIFIED SOILS AND MAN-MADE SOIL MIXTURES	

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	SHEAR STRENGTH IN TONS/FT^2
VERY SOFT	0. TO 0.125
SOFT	0.125 TO 0.25
FIRM	0.25 TO 0.5
STIFF	0.5 TO 1.0
VERY STIFF	1.0 TO 2.0
HARD	> 2.0 OR 2.0+

RELATIVE DENSITY - GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0-4
LOOSE	4-9
MEDIUM DENSE	10-29
DENSE	30-49
VERY DENSE	> 50 OR 50+



ABBREVIATIONS

HP - HAND PENETROMETER
TV - TORVANE
MV - MINIATURE VANE
UC - UNCONFINED COMPRESSION TEST
UU - UNCONSOLIDATED UNDRAINED TRAIXIAL
CU - CONSOLIDATED UNDRAINED

NOTE: PLOT INDICATES SHEAR STRENGTH AS OBTAINED BY ABOVE TESTS

DELAYED GROUNDWATER LVL

LEVEL GROUNDWATER ENCOUNTERED

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)

6"	3"	3/4"	4	10	40	200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	76.2	19.1	4.76	2.0	0.42	0.074	0.002

GRAIN SIZE IN MM

Instructions for Change Order Back Up Forms

Change orders will typically contain one or more items of work. Each item of work will typically include work by the general contractor and/or one or more subcontractors. The documentation begins with a breakdown of the work of the contractor and each subcontractor. This is prepared using the form entitled "BREAKDOWN." One form for the General Contractor and one for each subcontractor. Each breakdown will be summarized on the form entitled "SUMMARY." Each item of work will, in turn, be summarized on the change order itself. This should be on the face of the change order.

GENERAL:

Forms - There are four forms to be used for all change order backup: SUMMARY, BREAKDOWN, BREAKDOWN COMMENT SHEET and UNIT PRICE BREAKDOWN. A CHANGE ORDER form may include one or more items of work, each of which is backed up by a SUMMARY. Each SUMMARY will be backed up with one or more BREAKDOWNs. Any unusual rates, unit costs or quantities may be explained on the COMMENT SHEET. The BREAKDOWN form must be used for the general contractor and any subcontractor, at any level, that is to get OH&P. Use as many as needed.

SUMMARY:

Item No.: Show the Item number as it will appear on the CHANGE ORDER Form. Note: This may be one of several items included in one CHANGE ORDER form.

RFI No.: Show the number of the request for information. This may be known by another name such as COR (Change Order Request,) CPR (Change Proposal Request,) etc.

Project No., Date, Project Name. Complete as appropriate.

Contractor: Name of General Contractor.

Description of Work: Give a brief description of the work included in this **Item**.

General Contractor Direct Costs: Show the total General Contractor Cost from the BREAKDOWN and show the Breakdown No. in the space provided.

General Contractor Total Cost: Show the total General Contractor Cost plus the General Contractor's overhead and profit. The overhead and profit shall not exceed 10% of the Direct Cost.

Subcontractor Cost Breakdowns: List each subcontractor, Breakdown No. and Total Direct Cost (in column "A") from the attached BREAKDOWN sheets. Show the subcontractor's overhead and profit percentage in column "B" and show the calculated total of the direct cost plus the percentage of the direct cost in column "C." If the electronic version of the form is being used, column "C" will be automatically calculated. The overhead and profit shall not exceed 10% of the Total Direct Cost.

Subcontractor Direct Costs Total: Sum of column "A." This will be used to calculate the General Contractor's overhead and profit on the subcontractors' work. If the electronic version is being used, this will be an automatic calculation.

Subcontractor Direct Costs + Subcontractor OH&P: Sum of column "C." This represents the total amount that subcontractors will be paid. Automatic calculation.

General Contractor OH&P on Subcontractor Direct Cost at ___%. The contractors overhead and profit on the subcontractors' direct cost (without subcontractor OH&P.) Enter the percentage of the contractor's OH&P on the subcontractors' work (not to exceed 10%) and show the calculated total of the subcontractors' direct cost plus the percentage of the direct cost in the space. Automatic calculation.

Total Subcontractor Costs: Total of the last two spaces.

Change Order Subtotal: Total of change order except bond.

Performance and Payment Bond at ____%: Enter bond percentage (from amount provided by the contractor at the Pre-Construction Conference) and calculate the amount for the bond.

Amount will be ☐ increased ☐ decreased ☐ unchanged by: Add bond and calculate total change order amount. Indicate "increase," "decrease" or "unchanged."

Days will be ☐ increased ☐ decreased ☐ unchanged by: Show the number of days to be added or deleted from the contract, if any, due to changes in scope, adverse weather, unusual delays or other factors. Note that a change in scope does not necessarily indicate a change in time. Indicate "increased," "decreased" or "unchanged."

BREAKDOWN:

Item No. Show the Item number as it will appear on the CHANGE ORDER Form and the SUMMARY. Note: This may be one of several items included in one CHANGE ORDER form.

RFI No.: Show the number of the request for information. This may be known by another name such as COR (Change Order Request,) CPR (Change Proposal Request,) etc.

Project No., Date, Project Name. Complete as appropriate.

Contractor: Name of General Contractor or Subcontractor.

Direct Cost of Work:

Check here if explained on the Comment Sheet: If rates, unit costs or quantities may appear unreasonable compared to standard costs or quantities the reasons may be explained on the attached comment sheet and the box checked to indicate that there is an explanation.

A. Labor: Include the "wages paid" hourly direct labor and/or foreman necessary to perform the required change. "Wages paid" is the amount actually paid the employee, not the fully burdened charge rate used in the bid, etc. Supervisory personnel in district or home office shall not be included. Do not include the project superintendent. Supervisory personnel on the job-site, but with broad supervisory responsibility shall not be included as Direct Labor. Typically there will be only one superintendent on the job and his/her time shall not be included. Typically all other employees are eligible for inclusion. List by job title each person employed on the work, his/her hourly rate, the number hours work and the extended Total Cost. Do not list crews unless the rates for them are readily available in standard cost estimating references such as R. S. Means. Add the labor burden that was provided at the Pre-Construction conference and total the amounts in LABOR TOTAL.

B. Material: Include the acquisition cost of all materials directly required to perform the required change. List each material used in the work, the price per unit, name of the unit, the number of units used and the extended Total Cost. Add the tax rate and tax and total the amounts in MATERIAL TOTAL.

C. Equipment: Include the rental cost of equipment items necessary to perform the change. For company-owned equipment items, include documentation of internal rental rates submitted at the pre-construction conference. Charges for small tools, and craft specific tools are not allowed. List each piece of equipment used in the work, the rate by units of time (hour, day, week, etc.,) number of units of time the piece was in service on the work and the extended total cost. Add the tax rate, calculate the tax and total the amounts in EQUIPMENT TOTAL.

TOTAL DIRECT COST FOR THIS BREAKDOWN: Total of A. Labor, B. Material and C. Equipment. This is the amount that will be carried forward to the SUMMARY Sheet. This amount does **NOT** include Overhead and Profit. This will be added on the SUMMARY Sheet.

COMMENTS SHEET:

The COMMENTS SHEET uses the same heading as the SUMMARY and BREAKDOWN.

The COMMENTS SHEET includes three sections, one each for A. Labor, B. Materials and C. Equipment. These correspond to the sections in the BREAKDOWN. Each comment should be entered in the section to which it corresponds on the BREAKDOWN and numbered to correspond to the appropriate line. Comments are to used only to explain unusual rates, costs or quantities.

UNIT PRICE BREAKDOWN:

The UNIT PRICE BREAKDOWN uses the same heading as the BREAKDOWN.

The UNIT PRICE BREAKDOWN is similar to the BREAKDOWN.

Unit Price Tabulation: Each unit price is listed along with its corresponding price and the number of units used in the work. The price and number of units are multiplied to provide the total cost of each unit price item. The pricing reference, such as the bid form for the project or a construction industry standard reference, must be cited for each unit price. This may be more fully described in "Reference Legend,"

Unit Price Total: Sum the unit prices to obtain the total cost for unit prices.

Construction Contract Change Order
SUMMARY

RFI No. (or COR, CPR, etc.) _____
Date: _____

Project No. _____
Project Name: _____

Contractor Name: _____

Description of Work: _____

General Contractor Direct Costs - Breakdown No. ____ _____
(See attached breakdown)

Total General Contractor Cost ____ % _____
(General Contract Direct Cost plus OH&P) (Max: 15%)

Subcontractor Cost Breakdowns
(See attached.)

Subcontractor Name	Breakdown No.	A Total Direct Cost	B OH&P (Max 15%)	C Total A+(A X B)
			%	
			%	
			%	
			%	
			%	
			%	
			%	
			%	

Subcontractor Direct Costs Total $ -
(Sum column A)

Subcontractor Direct Costs + Subcontractor OH&P
(Sum column C)

General Contractor OH&P on Subcontractor Direct Cost at ____ % _____
(Sum column A times General Contractor OH&P rate.) (Max: 10%)

Total Subcontractor Costs _____
(Subcontractor Direct Costs + OH&P + General Contractor OH&P)

Change Order Subtotal _____
(Sum of Total General Contractor Costs and Total Subcontractor Costs)

Performance and Payment Bond at ____ %
(Change Order Subtotal times Performance and Payment Bond rate)

Amount will be ☐ increased ☐ decreased ☐ unchanged by _____
(Sum of Change Order Subtotal and Performance and Payment Bond)

Days will be ☐ increased ☐ decreased ☐ unchanged by _____
(Attach supporting data such as meteorological reports)

Construction Contract Change Order

BREAKDOWN

RFI No. (or COR, CPR, etc.) _____

Project No.: _____ Date: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Direct Cost of Work :

A. Labor Check here if explained on the Comment Sheet ➘

		Hourly Wage Rate	Hours	Total Cost
1	☐			
2	☐			
3	☐			
4	☐			
5	☐			
6	☐			
7	☐			
	Add Labor Burden @		____ %	
	LABOR TOTAL			

B. Material

		Unit Price	Unit	Units	Total Cost
1	☐				
2	☐				
3	☐				
4	☐				
5	☐				
6	☐				
7	☐				
(Copies of invoices may be required.)		Add Tax @		____ %	
		MATERIAL TOTAL			

C. Equipment

		Unit Rate	Unit	Units	Total Cost
1	☐				
2	☐				
3	☐				
4	☐				
5	☐				
6	☐				
7	☐				
(Copies of invoices may be required.)		Add Tax @		____ %	
		EQUIPMENT TOTAL			

TOTAL DIRECT COST FOR THIS BREAKDOWN:
(Sum A, B & C)

Construction Contract Change Order

BREAKDOWN COMMENT SHEET

RFI No. (or COR, CPR, etc.) _____

Project No.: _____ Date: _____

Project Name: _____

Contractor/Subcontractor Name: _____

A. Labor

No. (From BREAKDOWN Sheet)

B. Material

C. Equipment

Construction Contract Change Order
UNIT PRICE BREAKDOWN

RFI No. (or COR, CPR, etc.) _____

Project No.: _____ Date: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Unit Price Tabulation

(Unit prices must be included in the bid or clearly defined in a standard, industry recognized pricing reference. The pricing reference shall be identified herein.)

Unit Price Description	Reference*	Unit Price	Units	Total

* Reference Legend: _____

Unit Price Total:
(Sum Total column)

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 1 – General Requirements								
	Builders Risk						$0.00	
	General Liability						$0.00	
	Owners Protective						$0.00	
	Bonds						$0.00	
	Project Schedule						$0.00	
	Project Management Team						$0.00	
	Labor Burden						$0.00	
	Project Executive						$0.00	
	Office Administration						$0.00	
	LEED Submittal Process Management						$0.00	
	Reprographics						$0.00	
	Surveying and Layout						$0.00	
	Temp Electricity						$0.00	
	Permanent Power						$0.00	
	Field Office Facilities						$0.00	
	Lot Rental						$0.00	
	Postage and Delivery						$0.00	
	Drinking Water						$0.00	
	Dumpster Fee						$0.00	
	LEED Waste management						$0.00	
	Temp Toilet						$0.00	
	Safety Rail Maintenance						$0.00	
	Project Signage						$0.00	
	General Cleaning						$0.00	
	Punch list						$0.00	
	Final Cleaning						$0.00	
	Permits						$0.00	
	Photographic Documentation						$0.00	
	Commissioning Process						$0.00	
	LEED Close out Process Management						$0.00	
	Training Videos						$0.00	
	O&M Manuals						$0.00	
	Record Drawings						$0.00	**$0.00**
Division 3 – Concrete								
	Pile caps & grade beams						$0.00	
	Concrete material						$0.00	
	Rebar material						$0.00	
	Slab on grade						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 3 – Concrete [Continued]								
	Elevated slab						$0.00	
	LEED Submittal Process Management						$0.00	
	LEED Close out Management						$0.00	**$0.00**
Division 4 – Masonry								
	Unit Masonry						$0.00	
	Area 1 - 1st Floor						$0.00	
	Area 1 - 2nd Floor						$0.00	
	Area 1 - 3rd Floor						$0.00	
	Gymnasium						$0.00	
	CMU Labor						$0.00	
	Area 1 - 1st Floor						$0.00	
	Area 1 - 2nd Floor						$0.00	
	Area 1 - 3rd Floor						$0.00	
	Gymnasium						$0.00	
	Brick Materials						$0.00	
	Area 1 Exterior						$0.00	
	Site work						$0.00	
	Brick Labor						$0.00	
	Area 1 Exterior						$0.00	
	Cast Stone Materials						$0.00	
	Continental Stone						$0.00	
	Cast Stone Labor						$0.00	
	Damproofing Materials						$0.00	
	Damproofing Labor						$0.00	
	Foam Fill Material						$0.00	
	Foam Fill Labor						$0.00	
	Rigid Insulation Material						$0.00	
	Rigid Insulation Labor						$0.00	
	Mobilization/ De-Mobilization						$0.00	
	Bond						$0.00	
	LEED Submittal Process Management						$0.00	
	LEED Close out Management						$0.00	**$0.00**
Division 5 – Metals								
	Detailing						$0.00	
	Embeds						$0.00	
	Erectable Misc. Metals - Section 1						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 5 – Metals {continued]								
	Ladders						$0.00	
	Misc.						$0.00	
	Railings						$0.00	
	Structural Steel Section 1, Floor 1						$0.00	
	Structural Steel Section 1, Floor 2						$0.00	
	Structural Steel Section 1, Floor 3						$0.00	
	Stairs						$0.00	
	Steel Joists Section 1, Floor 1						$0.00	
	Steel Joists Section 1, Floor 2						$0.00	
	Steel Joists Section 1, Floor 3						$0.00	
	Buy-Outs						$0.00	
	Erection Section 1, Floor 1						$0.00	
	Erection Section 1, Floor 2						$0.00	
	Erection Section 1, Floor 3						$0.00	
	Cold Formed Metal Framing Section 1, Floor 1						$0.00	
	Cold Formed Metal Framing Section 1, Floor 2						$0.00	
	Cold Formed Metal Framing Section 1, Floor 3						$0.00	
	LEED Submittal Process Management						$0.00	
	LEED Close out Management						$0.00	**$0.00**
Division 6 – Wood and Plastics								
	Miscellaneous Rough Carpentry						$0.00	
	Sheathing						$0.00	**$0.00**
Division 7 – Thermal and Moisture Protection								
	Crystalline Waterproofing						$0.00	
	Bentonite Waterproofing						$0.00	
	Metal Roof Panels						$0.00	
	Insulated Core Metal Walls Panels Section1 - south wall						$0.00	
	Insulated Core Metal Walls Panels Section 1 - west wall						$0.00	
	Insulated Core Metal Walls Panels Section 1 - north wall						$0.00	
	Insulated Core Metal Walls Panels Section 1 - east wall						$0.00	
	Modified Bituminous Membrane Roofing - Section 1						$0.00	
	Applied Fireproofing - Section 1						$0.00	
	Penetration Firestopping						$0.00	
	Joint Sealants						$0.00	
	LEED Submittal Process Management						$0.00	
	LEED Closeout Management						$0.00	**$0.00**

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 8 – Doors and Windows								
	Aluminum-Framed Entrances and Storefronts						$0.00	
	Bond						$0.00	
	Shop Drawings						$0.00	
	Mobilization						$0.00	
	Aluminum storefront Section 1 - Floor 1						$0.00	
	Aluminum storefront Section 1- Floor 2						$0.00	
	Aluminum storefront Section 1 - Floor 3						$0.00	
	Break metal						$0.00	
	Glass Section 1 - Floor 1						$0.00	
	Glass Section 1 - Floor 2						$0.00	
	Glass Section 1 - Floor 3						$0.00	
	Interior glass						$0.00	
	Caulking						$0.00	
	Anchors and shims						$0.00	
	Equip rental and misc.						$0.00	
	LABOR						$0.00	
	shop fabrication						$0.00	
	Field measure						$0.00	
	interior glazing labor						$0.00	
	INSTALLATION						$0.00	
	Floor 1						$0.00	
	Install framing						$0.00	
	Install glass						$0.00	
	face and caulk						$0.00	
	install doors						$0.00	
	Floor 2						$0.00	
	Install framing						$0.00	
	Install glass						$0.00	
	face and caulk						$0.00	
	Floor 3						$0.00	
	Install framing						$0.00	
	Install glass						$0.00	
	face and caulk						$0.00	
	Interior Frames and Glass						$0.00	
	Hollow Metal Doors and Frames Floor 1, Hollow Metal Frames						$0.00	
	Hollow Metal Doors and Frames Floor 1, Hollow Metal Doors						$0.00	
	Hollow Metal Doors and Frames Floor 2, Hollow Metal Frames						$0.00	
	Hollow Metal Doors and Frames Floor 2, Hollow Metal Doors						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 8 – Doors and Windows [Continued]								
	Hollow Metal Doors and Frames Floor 3, Hollow Metal Frames						$0.00	
	Hollow Metal Doors and Frames Floor 3, Hollow Metal Doors						$0.00	
	Door Hardware Floor 1						$0.00	
	Door Hardware Floor 2						$0.00	
	Door Hardware Floor 3						$0.00	
	Flush Wood Doors Floor 1						$0.00	
	Flush Wood Doors Floor 2						$0.00	
	Flush Wood Doors Floor 3						$0.00	
	Overhead Coiling Doors						$0.00	
	LEED Submittal Process Management						$0.00	
	LEED Closeout Management						$0.00	**$0.00**
Division 9 – Finishes								
	Gypsum Board Shaft Wall Assemblies Section 1, Floor 1						$0.00	
	Gypsum Board Shaft Wall Assemblies Section 1, Floor 2						$0.00	
	Gypsum Board Shaft Wall Assemblies Section 1, Floor 3						$0.00	
	Non- Structural Metal Framing Section 1, Floor 1						$0.00	
	Non- Structural Metal Framing Section 3, Floor 2						$0.00	
	Non- Structural Metal Framing Section 3, Floor 3						$0.00	
	Non- Structural Metal Framing Section 2, Floor 1						$0.00	
	Non- Structural Metal Framing Section 2, Floor 2						$0.00	
	Non- Structural Metal Framing Section 2, Floor 3						$0.00	
	Non- Structural Metal Framing Section 1, Floor 1						$0.00	
	Non- Structural Metal Framing Section 1, Floor 2						$0.00	
	Portland Cement Plastering Section 3, Floor 1						$0.00	
	Portland Cement Plastering Section 3, Floor 2						$0.00	
	Portland Cement Plastering Section 2, Floor 1						$0.00	
	Non- Structural Metal Framing Section 1, Floor 2						$0.00	
	Non- Structural Metal Framing Section 1, Floor 3						$0.00	
	Tile Materials - Section 1						$0.00	
	Tile Materials - Section 1						$0.00	
	Tile Labor Section 3						$0.00	
	Tile Labor Section 2						$0.00	
	Tile Labor Section 1						$0.00	
	Carpet Materials						$0.00	
	Carpet Labor						$0.00	
	Resilient Materials						$0.00	
	Resilient Labor						$0.00	
	Acoustical Panel Ceilings Section 3, Floor 1						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 9 – Finishes [Continued]								
	Acoustical Panel Ceilings Section 3, Floor 2						$0.00	
	Acoustical Panel Ceilings Section 1, Floor 1						$0.00	
	Acoustical Panel Ceilings Section 1, Floor 2						$0.00	
	Acoustical Panel Ceilings Section 1, Floor 3						$0.00	
	Acoustical Panel Ceilings Section 2, Floor 2						$0.00	
	Acoustical Panel Ceilings Section 2, Floor 3						$0.00	
	Acoustical Panel Ceilings Section 1, Floor 2						$0.00	
	Resinous Matrix Terrazzo Flooring Section 3, Floor 1 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 3, Floor 1 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Section 3, Floor 2 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 3, Floor 2 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Section 3, Floor 3 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 3, Floor 3 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Section 2, Floor 1 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 1, Floor 1 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Section 1, Floor 1 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 2, Floor 2 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Section 1, Floor 1 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 1, Floor 1 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Section 1, Floor 2 - Flooring						$0.00	
	Resinous Matrix Terrazzo Flooring Section 1, Floor 2 - Base						$0.00	
	Resinous Matrix Terrazzo Flooring Stair Treads & Landings						$0.00	
	Interior Painting Section 3, Floor 1						$0.00	
	Interior Painting Section 3, Floor 2						$0.00	
	Interior Painting Section 3, Floor 3						$0.00	
	Interior Painting Section 2, Floor 1						$0.00	
	Interior Painting Section 1, Floor 1						$0.00	
	Interior Painting Section 1, Floor 2						$0.00	
	Interior Painting Section 1, Floor 3						$0.00	
	Interior Painting Section 1, Floor 1						$0.00	
	Interior Painting Section 1, Floor 2						$0.00	
	Acoustical Wall Panels Section 2, Floor 2						$0.00	
	Acoustical Wall Panels Section 1, Floor 2						$0.00	
	LEED Submittal Process Management						$0.00	
	LEED Closeout Management						$0.00	**$0.00**
Division 10 – Specialties								
	Visual Display Surfaces						$0.00	
	Signage						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 10 – Specialties [Continued]								
	Toilet Compartments						$0.00	
	Operable Partitions						$0.00	
	Wall and Door Protection						$0.00	
	Fire Extinguisher Cabinets						$0.00	
	Metal Lockers						$0.00	
	Hat and Coat Racks						$0.00	
	Flagpoles						$0.00	
	Miscellaneous Specialties						$0.00	**$0.00**
Division 11 – Equipment								
	Loading Dock Equipment						$0.00	
	Residential Appliances						$0.00	
	Food Services Equipment						$0.00	
	T&S MIXING FAUCET						$0.00	
	LABOR						$0.00	
	MARS AIR CURTAIN						$0.00	
	LABOR						$0.00	
	CAMBRO SHELVING						$0.00	
	LABOR						$0.00	
	CAMBRO DUNNAGE RACKS						$0.00	
	LABOR						$0.00	
	WINHOLT CAN RACK						$0.00	
	LABOR						$0.00	
	NORLAKE WALK-IN						$0.00	
	LABOR						$0.00	
	RDT REFRIGERATION SYS						$0.00	
	ALL TEMP INSTALLATION						$0.00	
	LABOR						$0.00	
	CAMBRO MOBILE SHELVING						$0.00	
	LABOR						$0.00	
	CAMBRO DUNNAGE RACKS						$0.00	
	LABOR						$0.00	
	CAMBRO SHELVING						$0.00	
	LABOR						$0.00	
	ADVANCE FLOOR MOP SINK						$0.00	
	LABOR						$0.00	
	ACE POT/PAN SINK W/OVERSHELF						$0.00	
	T&S FAUCET						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 11 – Equipment [Continued]								
	LABOR						$0.00	
	ADVANCE HAND SINKS						$0.00	
	LABOR						$0.00	
	SPARE NUMBER						$0.00	
	METRO PROOFER/WARMER						$0.00	
	LABOR						$0.00	
	CRESCOR PAN RACKS						$0.00	
	LABOR						$0.00	
	ACE BAKER'S TABLE						$0.00	
	LABOR						$0.00	
	PIPER INGREDIENT BINS						$0.00	
	LABOR						$0.00	
	HOBART 60 QUART MIXER						$0.00	
	LABOR						$0.00	
	CAMBRO SHELVING						$0.00	
	LABOR						$0.00	
	ACE WORK TABLES						$0.00	
	LABOR						$0.00	
	BLODGETT CONV OVEN						$0.00	
	LABOR						$0.00	
	GROEN BRAISING PAN						$0.00	
	LABOR						$0.00	
	GROEN CONV STEAMER						$0.00	
	LABOR						$0.00	
	GARLAND 2 BURNER RANGE						$0.00	
	LABOR						$0.00	
	ALTO-SHAAM COMBI OVEN/STEAMER						$0.00	
	LABOR						$0.00	
	AVTEC UDS SYSTEM						$0.00	
	LABOR						$0.00	
	AVTEC HOOD						$0.00	
	LABOR						$0.00	
	R&M FIRE SUPP SYSTEM						$0.00	
	ACE DRAIN TROUGHS						$0.00	
	LABOR						$0.00	
	ACE WORKTABLE						$0.00	
	LABOR						$0.00	
	ACE WORKTABLE						$0.00	
	LABOR						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 11 – Equipment [Continued]								
	HOBART EQUIP STAND						$0.00	
	LABOR						$0.00	
	HOBART SLICER						$0.00	
	LABOR						$0.00	
	ACE PREP COUNTER						$0.00	
	T&S FAUCET						$0.00	
	LABOR						$0.00	
	ROBOT COUPE FOOD PROCESSOR						$0.00	
	LABOR						$0.00	
	MANITOWOC ICE MACHINE						$0.00	
	LABOR						$0.00	
	LAKESIDE UTILITY CARTS						$0.00	
	LABOR						$0.00	
	TRAULSEN REFRIGERATOR						$0.00	
	LABOR						$0.00	
	TRAULSEN WARMERS						$0.00	
	LABOR						$0.00	
	SHARP MICROWAVE OVEN						$0.00	
	LABOR						$0.00	
	ACE TRAY/SILVERWARE COUNTER						$0.00	
	LABOR						$0.00	
	ACE HOT FOOD COUNTERS						$0.00	
	APW HOT FOOD WELLS						$0.00	
	HATCO DISPLAY LAMPS						$0.00	
	LABOR						$0.00	
	ACE COLD FOOD CTRS						$0.00	
	DELFIELD COLD PANS						$0.00	
	LABOR						$0.00	
	TRUE MILK COOLERS						$0.00	
	LABOR						$0.00	
	ACE CASHIER COUNTERS						$0.00	
	LABOR						$0.00	
	POS SYSTEM - NIC						$0.00	
	SPARE NUMBER						$0.00	
	COOKSON DOOR						$0.00	
	LABOR						$0.00	
	ACE SOILED DISHTABLE						$0.00	
	T&S FAUCET						$0.00	
	LABOR						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 11 – Equipment [Continued]								
	HOBART DISHWASHER						$0.00	
	LABOR						$0.00	
	ACE PANT LEG DUCT AND EXHAUST DUCT						$0.00	
	LABOR						$0.00	
	ACE CLEAN DISHTABLE						$0.00	
	LABOR						$0.00	
	ACE STUDENT HAND SINKS						$0.00	
	T&S FAUCETS						$0.00	
	LABOR						$0.00	
	PERFORMANCE BOND						$0.00	
	Projection Screens						$0.00	
	Folding and Portable Stages						$0.00	
	Stage Curtains						$0.00	
	Gymnasium Equipment						$0.00	
	Interior Scoreboards						$0.00	**$0.00**
Division 12 – Furnishings								
	Horizontal Louver Blinds						$0.00	
	Manufactured Wood Casework						$0.00	
	Library Casework						$0.00	
	Laboratory Casework						$0.00	
	Entrance Floor Mats and Frames						$0.00	
	Telescoping Stands						$0.00	
	Site Furnishings						$0.00	**$0.00**
Division 14 – Convey Systems								
	Engineering / Pre-production Elevator 1						$0.00	
	Material Elevator 1						$0.00	
	Labor Elevator 1						$0.00	
	Engineering / Pre-production Elevator 2						$0.00	
	Material Elevator 2						$0.00	
	Labor Elevator 2						$0.00	**$0.00**
Division 21 – Fire Suppression								
	Submittals						$0.00	
	Material Section 1 first floor						$0.00	
	Labor Section 1 first floor						$0.00	
	Material Section 1 second floor						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 21 – [Fire Suppression Continued]								
	labor Section 1 second floor						$0.00	
	Material Section 2 first floor						$0.00	
	Labor Section 2 first floor						$0.00	
	Material Section 2 second floor						$0.00	
	Labor Section 2 second floor						$0.00	
	Material Section 2 third floor						$0.00	
	Labor Section 2 third floor						$0.00	
	Material Section 3 first floor						$0.00	
	Labor Section 3 first floor						$0.00	
	Material Section 3 second floor						$0.00	
	Labor Section 3 second floor						$0.00	
	Material Section 3 third floor						$0.00	
	Labor Section 3 third floor						$0.00	**$0.00**
Div. 22 & 23 - Plumbing - HVAC								
	Mobilize						$0.00	
	Fees						$0.00	
	Start-Up						$0.00	
	Submittals/Shop Drawings						$0.00	
	O&M'S/As-Builts						$0.00	
	Underground Piping Labor Section 1						$0.00	
	Underground Piping Material Section 1						$0.00	
	Plumbing Labor Section 1, Floor 1						$0.00	
	Plumbing Material Section 1, Floor 1						$0.00	
	HVAC Piping Labor Section 1, Floor 1						$0.00	
	HVAC Piping Material Section 1, Floor 1						$0.00	
	Sheet Metal Labor Section 1, Floor 1						$0.00	
	Sheet Metal Material Section 1, Floor 1						$0.00	
	Insulation Labor Section 1, Floor 1						$0.00	
	Insulation Material Section 1, Floor 1						$0.00	
	Plumbing Equipment Section 1, Floor 1						$0.00	
	HVAC Equipment Section 1, Floor 1						$0.00	
	Thimble and Insert Section 1, Floor 2						$0.00	
	Plumbing Labor Section 1, Floor 2						$0.00	
	Plumbing Material Section 1, Floor 2						$0.00	
	HVAC Piping Labor Section 1, Floor 2						$0.00	
	HVAC Piping Material Section 1, Floor 2						$0.00	
	Sheet Metal Labor Section 1, Floor 2						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Div. 22 & 23 - Plumbing - HVAC {Continued]								
	Sheet Metal Material Section 1, Floor 2						$0.00	
	Insulation Labor Section 1, Floor 2						$0.00	
	Insulation Material Section 1, Floor 2						$0.00	
	Plumbing Equipment Section 1, Floor 2						$0.00	
	HVAC Equipment Section 1, Floor 2						$0.00	
	Thimble and Insert Section 1, Floor 3						$0.00	
	Plumbing Labor Section 1, Floor 3						$0.00	
	Plumbing Material Section 1, Floor 3						$0.00	
	HVAC Piping Labor Section 1, Floor 3						$0.00	
	HVAC Piping Material Section 1, Floor 3						$0.00	
	Sheet Metal Labor Section 1, Floor 3						$0.00	
	Sheet Metal Material Section 1, Floor 3						$0.00	
	Insulation Labor Section 1, Floor 3						$0.00	
	Insulation Material Section 1, Floor 3						$0.00	
	Plumbing Equipment Section 1, Floor 3						$0.00	
	HVAC Equipment Section 1, Floor 3						$0.00	
	Controls Section 1, Floor 1						$0.00	
	Controls Section 1, Floor 2						$0.00	
	Controls Section 1, Floor 3						$0.00	
	Test & Balance Floor 1						$0.00	
	Test & Balance Floor 2						$0.00	
	Test & Balance Floor 3						$0.00	
	LEED Submittal Process						$0.00	**$0.00**
Division 26 – Electrical								
	Electrical Wall Rough-In Section 1, Floor 1						$0.00	
	Electrical Overhead Rough-In Section 1, Floor 1						$0.00	
	Install Light Fixtures Section 1, Floor 1						$0.00	
	Install Intercom Equipment Section 1, Floor 1						$0.00	
	Install Fire Alarm Section 1, Floor 1						$0.00	
	Electrical Trim-Out Section 1, Floor 1						$0.00	
	Pull Electrical Wire Section 1, Floor 1						$0.00	
	Install Cameras/Security Fixtures Section 1, Floor 1						$0.00	
	Electrical Wall Rough-In Section 1, Floor 2						$0.00	
	Electrical Overhead Rough-In Section 1, Floor 2						$0.00	
	Install Light Fixtures Section 1, Floor 2						$0.00	
	Install Intercom Equipment Section 1, Floor 2						$0.00	
	Install Fire Alarm Section 1, Floor 2						$0.00	
	Electrical Trim-Out Section 1, Floor 2						$0.00	

Division	Description	Labor	Materials	Equipment	O&HP	Ins/Bonds	Subtotal	Total
Division 26 – Electrical {Continued]								
	Pull Electrical Wire Section 1, Floor 2						$0.00	
	Install Cameras/Security Fixtures Section 1, Floor 2						$0.00	
	Electrical Wall Rough-In Section 1, Floor 3						$0.00	
	Install Chillers/Pumps/Mech Equip Section 1, Floor 3						$0.00	
	Set Electrical Panels and Equip Section 1, Floor 3						$0.00	
	Pull Electrical Wire Section 1, Floor 3						$0.00	
	Install Light Fixtures Section 1, Floor 3						$0.00	
	Set Generator Section 1 - Roof						$0.00	
	Electrical Penetrations Section 1 - Roof						$0.00	
	Electrical Site Utilities - Duct Bank to Transformer Site Work						$0.00	
	Electrical Underground Section 1 - Parking						$0.00	
	Electrical Underground Section 1						$0.00	
	Furnish & Delivery Lighting Fixtures Section 1, Floor 1						$0.00	
	Furnish & Delivery Lighting Fixtures Section 1, Floor 2						$0.00	
	Furnish & Delivery Lighting Fixtures Section 1, Floor 3						$0.00	
	Furnish & Delivery of Electrical Gear						$0.00	
	Furnish & Deliver Generator Set						$0.00	
	Furnish & Deliver Lightning Protection						$0.00	
	Direct Job Costs (Permit Fees, Mobilization, etc.)						$0.00	
	Temporary Power						$0.00	
	Submittals						$0.00	
	LEED Submittal Process						$0.00	**$0.00**
Div. 31 - Earthwork								
	Site work						$0.00	
	Termite Control						$0.00	
	Timber Piles Section 1						$0.00	
	Cut Piles						$0.00	**$0.00**
Div. 32 - Exterior Improvements								
	Decorative metal Fencing and Gates						$0.00	
	Tree Protection Material						$0.00	
	Tree Protection Labor						$0.00	
	Turf and Grasses material						$0.00	
	Turf and Grasses Labor						$0.00	
	Alt #1 Relocation and Installation of Playground Equipment						$0.00	**$0.00**

Grand Total	**$0.00**

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for instructing the Owner personnel in the operation and maintenance of systems, subsystems and equipment.

1.2 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

C. A/E: Architect / Engineer

D. Cx: Commissioning

E. CxP: Commissioning Provider (third party hired independently by the Owner)

1.3 SUBMITTALS

A. The Contractor shall be responsible to submit a formal training program to be utilized for each respective system under their responsibility 45 days prior to substantial completion to the A/E, Owner, and CxP. It is the Contractor's responsibility to work with Owner, A/E and other contractors to develop a cohesive training session schedule that complies with Owner's personnel availability, scheduling requirements of A/E and other contractor's sessions, and specifies completion of all training sessions prior to substantial completion. The training program shall include at a minimum the following:

1. Training Outline that summarizes all training sessions and their proposed dates, times, length of instruction, names of instructors, along with a summary learning objective for each training module.
2. Detailed Agenda for each training module that includes the following:
    a. Session title
    b. Proposed date of the session
    c. Intended audience
    d. List of systems and equipment to be reviewed
    e. Training objectives and topics by system and equipment
    f. Listed durations for each objective and topic
    g. Instructor, including name and affiliation, for each objective and topic
    h. Instructor qualifications for each instructor listed. The Contractor is responsible to ensure each instructor has an intimate knowledge of the system or equipment and the installation for this project. The Owner shall have the right of refusal to reject any proposed instructor that is not deemed qualified for provision of training.
3. Contractor contact sheet, including address, phone number, fax number and e-mail.
4. O&M data applicable to session.
5. Copy of as-builts.
6. Additional materials to be utilized including copies of any materials and/or video to be utilized during the session.

An example of a Sample Training Session Agenda recommended is shown in Annex A at the end of this section.

B. Sign-off sheets: Submit copies of proposed sign-off sheets for each training session a minimum of 14 days prior to the scheduled training. Sign-off sheets are to include the following information:

1. Name of training session
2. Date of training
3. Beginning/Ending time
4. Detailed, itemized summary listing all areas of training for that session.
5. Listing of hand-out materials distributed at the session.
6. Signature lines for Trainer, Contractor, and NOPS personnel being trained.
    a. Signature by NOPS personnel evidences training received only to the extent listed on the sign-off sheet summary.

C. Demonstration and Training DVD: Submit three (3) copies within seven days of end of each training module. Copies shall be of professional audio and video quality, including provision of CD/DVD menu structure and labeling.

1.4 QUALITY ASSURANCE

A. Instructor Qualifications: A factory-authorized service representative, experienced in operation and maintenance procedures and training.

1.5 COORDINATION

A. Coordinate instruction schedule with the Owner's operations and schedule through the Owner's Authorized Representative. Adjust schedule as required to minimize disrupting the Owner's operations and to ensure attendance by designated Owner representatives.

B. Coordinate content of training modules with content of emergency, operation, and maintenance manuals. Provide copies of this coordinated material at each training session. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

C. Completion of all training sessions must occur prior to substantial completion.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, or as outlined under the Training Program Matrix contained under Annex B, whichever is more stringent.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction and material for the system, equipment, or component following the module types below as noted under Annex B:

1. General Orientation for the system/equipment including the following:
    a. System, subsystem, and equipment descriptions
    b. Intended operation and function
    c. General use and function for typical user

2. Documentation: Review the following items in general:
   a. O&M manuals
   b. Project record documents

3. Technical Operation and Maintenance: Include the following, as applicable:
   a. System, subsystem, and equipment descriptions
   b. Intended operation and function
   c. Routine and normal operating instructions
   d. Control sequences
   e. Normal shutdown instructions
   f. Special operation and maintenance requirements

PART 3 - EXECUTION

3.1 GENERAL

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

B. Engage qualified instructors to instruct the Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
   1. The Owner's Authorized Representative will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times as approved in the training schedule matrix. For equipment that requires seasonal operation, provide similar instruction at start of each season.

   1. The training schedule will be coordinated through the Owner's Authorized Representative.

D. (Two) 2 days prior to the scheduled training session, Contractor shall notify CxP and participants of confirmation for training session.

E. All training sessions shall follow the approved agenda and shall be provided in the following format:
   1. Classroom session
   2. Site walk-through. Facility walkthrough shall identify general layout of system and equipment and provide visual reference to typical equipment of system.

F. Signoff Sheets: At the conclusion of each training module obtain sign-offs using the approved sign-off sheets. Executed sign-off sheets are to be submitted as part of the closeout documentation evidencing compliance with training requirements.

G. Demonstration and Training Videotape: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids.

   1. At beginning of each training module, record each chart containing learning objective and lesson outline.

H. Cleanup: Collect used and leftover educational materials and give to the Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

I. Re-training: The contractor is responsible for all expenses and time for all participants and consultants (A/E, CxP, etc) in attendance if one of the following occurs:
   1. If confirmation is received as required in 3.1-D (2 days before training session) and the training session is subsequently cancelled or the specified instructor does not show up.

2. If the Owner does not sign-off that the training meets the requirements previously submitted in the training outline and agenda.

3.2 OWNER DISCRETIONARY TRAINING

A. Provide a bank of forty (40) hours of additional training for use by Owner at their discretion within twelve (12) months of final acceptance. Dates and number of sessions requested shall be at Owner's discretion and shall be utilized for refreshing and/or enhancing previous training provided. Owner and contractor shall maintain log of sessions and total hours provided until bank of hours is depleted and/or Owner requests and purchases additional hours to be added to bank. Training bank shall be available and applicable to all disciplines, systems, equipment and contractors under this contract but shall be a total bank of hours and not a bank per each disciplines, systems, equipment or contractor.

ANNEX A – SAMPLE TRAINING SESSION AGENDA

I. TRAINING AGENDA

Training Agenda – [insert system name]

Project #: _____
Project Title: _____
Applicable Spec Sections: _____

Training Materials to be Provided:

SECTION 1: AUDIENCE AND GENERAL SCOPE

Intended Audience Type (check all that apply):	❑ Facilities Management Personnel ❑ Engineering and Operations Personnel ❑ A/E ❑ Users/Occupants

General Scope of Training (check all that apply):	❑ System & Operations Overview ❑ Basic Operations & Maintenance ❑ Detail Theory, Operations and Maintenance ❑ User Orientation

SECTION 2: INSTRUCTORS

ID	Instructor Name	Company
1.		
2.		
3.		
4.		
5.		

SECTION 3: OBJECTIVES

1.

SECTION 4: AGENDA

Part A – [insert title of part for session]

Topic/Demonstrations	Dates	Instructor ID	Duration (hr x freq)
1.			x
2.			x
3.			x
4.			x

Total Duration of Session Part (hrs): ____

ANNEX B – TRAINING PROGRAM MATRIX

The training program matrix defined below describes additional objectives/topics to be covered for training and demonstration. These objectives are in addition to those training requirements in this specification and stated in other specifications.

System/Equipment Type	Training Module Type(s)	Minimum Duration (hrs)
Coiling Counter Doors	General Orientation	0.5
Overhead Coiling Doors	General Orientation	0.5
Door Hardware, Keying and Key Control System	General Orientation	0.5
Automatic Door Operators	General Orientation	0.5
Visual Display Surfaces	General Orientation	0.5
Operable Partitions	General Orientation	0.5
Laundry Equipment	General Orientation	0.25
Loading Dock Equipment	General Orientation	0.5
Residential Appliances	General Orientation	0.5
Food Service Equipment	General Orientation	4
Front Projection Screens	General Orientation	0.5
Vocational Shop Equipment	General Orientation	0.5
Art Room Equipment	General Orientation	0.5
Theater and Stage Equipment	General Orientation	0.5
Folding and Portable Stages	General Orientation	0.5
Athletic Equipment	General Orientation	0.5
Interior Scoreboards	General Orientation	0.5
Horizontal Louver Blinds	General Orientation	0.25
Roller Window Shades	General Orientation	0.25
Telescoping Stands	General Orientation	0.5
Electric Traction Elevators	General Orientation	0.5
Fire Protection	General Orientation	0.5
Domestic Water/Packaged Booster Pump	General Orientation Documentation Technical Operation and Maintenance	1.5
Domestic Hot Water	General Orientation Documentation Technical Operation and Maintenance	1.5
Sanitary Waste	General Orientation	0.5
Storm Drainage	General Orientation	0.5
Chilled Water	Documentation Technical Operation and Maintenance	0.5
Heating Hot Water	Documentation Technical Operation and Maintenance	0.5
Supply Air	Documentation Technical Operation and Maintenance	0.5
Exhaust Air	Documentation Technical Operation and Maintenance	0.5
Energy Recovery	Documentation Technical Operation and Mainte-	0.5

System/Equipment Type	Training Module Type(s)	Minimum Duration (hrs)
	nance	
Split Systems/Fan Coil Units	Documentation Technical Operation and Maintenance	0.5
Miscellaneous HVACEquipment/Systems	Documentation Technical Operation and Maintenance	0.5
Variable Frequency Drive/Enclosed Motors	Documentation Technical Operation and Maintenance	0.5
Building Automation System	Documentation Technical Operation and Maintenance	8
Public Address and Music Equipment	General Orientation	0.5
Fire Alarm	General Orientation	0.5
Electrical Power	General Orientation	0.5
Emergency Power/Automatic Transfer Switch	General Orientation	0.5
Lighting and Controls/Classroom Lighting/Stage Lighting	General Orientation	0.5
Clock System	General Orientation	0.5
Intercom and Mass Notification, and Sound System	General Orientation	0.5
Telecom/Data/Structured Cabling	General Orientation	0.5
Security Systems/Intrusion Detection/Access Control/Video Surveillance	General Orientation	0.5
IP Video Surveillance	General Orientation	0.5
Landscaping	General Orientation	0.5

END OF SECTION 01 79 00

SECTION 018021 – FACILITIES EXTERIOR ENCLOSURE COMMISSIONING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements that apply to implementation of envelope commissioning including field testing requirements for the following systems.

1. Division 03 Section “Cast-In-Place Concrete.”
2. Division 04 Section “Unit Masonry.”
3. Division 07 Section “Fluid Applied Membrane Air Barriers.”
4. Division 07 Section “Modified Bitumen Roofing System.”
5. Division 07 Section “Sealants.”
6. Division 08 Section “Hollow Metal Doors and Frames.”
7. Division 08 Section “Aluminum-Framed Entrances and Storefront Framing.”
8. Division 08 Section “Glazed Aluminum Curtain Walls.”

1.3 DEFINITIONS

A. BoD: Basis of Design. A document that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

B. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.

C. CxP: Commissioning Provider.

D. OPR: Owner's Project Requirements. A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

E. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.

1.4 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:

1. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
2. Cooperate with the CxP for resolution of issues recorded in the Issues Log.

3. Attend commissioning team meetings as specified in Division 01 Section "Cx [Commissioning] Process.
4. Integrate and coordinate commissioning process activities with construction schedule.
5. Review and accept construction checklists provided by the CxP.
6. Complete construction checklists as Work is completed and provide to the Commissioning Authority as specified in Division 01 Section "Cx Pre-Functional Checklists.
7. Review and accept commissioning process test procedures provided by the CxP.
8. Complete commissioning process test procedures.

1.5 CxP'S RESPONSIBILITIES

A. Organize and lead the commissioning team.

B. Provide commissioning plan.

C. Convene commissioning team meetings.

D. Provide Project-specific construction checklists and commissioning process test procedures.

E. Verify the execution of commissioning process activities using random sampling. The sampling rate may vary from 1 to 100 percent. Verification will include, but is not limited to, construction checklists, tests, and test reports to verify compliance with the OPR. When a random sample does not meet the requirement, the CxP will report the failure in the Issues Log.

F. Prepare and maintain the Issues Log.

G. Prepare and maintain completed construction checklist log.

H. Witness systems, assemblies, equipment, and component startup.

I. Compile test data, inspection reports, and certificates; include them in the systems manual and commissioning process report.

1.6 TESTING AGENCY RESPONSIBILITIES

A. Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

B. All testing reports are to be submitted no more than 1 week following completion of testing.

1.7 COORDINATION

A. Contractor shall notify CxP of all required pre-installation conferences, coordination meetings, installation start-ups, inspections, and testing related to all systems to be commissioned under this specification.

1. Notify CxP of all meetings, conferences, tests, start-ups, and inspections as specified by A/E under all sections referenced in the summary section of this specification 2 weeks prior to scheduled date of event.

B. Contractor shall copy CxP on all required inspections and testing reports related to all systems to be commissioned under this specification.

1. Provide reports from all tests as specified by A/E under all sections referenced in the summary section of this specification

1.8 ACTION SUBMITTALS

A. Envelope Testing Plan, General: Submit an envelope testing plan within 30 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect and CxP. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's envelope testing quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

1. Testing and Identification: In envelope testing plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

a. Test Identification: provide name of test and testing agency name and number for each test as applicable.
b. Identify party responsible for each test: provide contact information for primary individual contact from each party responsible for testing
c. Construction Scheduling: provide expended dates and duration of testing for each test. Indicate where testing occurs within the sequence of the construction schedule.

1.9 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.10 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified, for testing indicated, according to the following:

1. ASTM C 1021 – Standard Practice for Laboratories Engaged in Testing of Building Sealants.
2. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Masonry.
3. ASTM E 329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.
4. ASTM E 699 - Standard Practice for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating of Building Components.
5. Accredited by IAS or ILAC Mutual Recognition Arrangement as complying with ISO/IEC Standard 17025.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Where required to obtain a manufacturer’s warranty, Engage a factory-authorized service representative to witness testing and inspect components, assemblies, and equipment installations, including connections.

C. Contractor shall notify CxP, Owner, and A/E firm at least 2 weeks prior to performing tests to allow test results to be witnessed by all parties

D. Sampling Rate: execute test per sampling rate as specified in this section or as specified by Architect in individual product specification sections whichever is greater.

E. Any additional testing required because of failure of the tested sample to meet specifications shall be paid for by the Contractor including time and materials rates for Owner, A/E, and CxP to witness test results.

F. Perform the following tests and inspections in the presence of the Owner, A/E, CxP, CM, and Manufacturer's representative:

1. Cast-In-Place Concrete:

a. ASTM F1869: Test for Moisture Vapor Emission: Contractor shall test 1 area in each unique pour of the first floor area of cast in place concrete slab on grade or slab over crawl space for moisture vapor emission per ASTM F 1869.

1) Testing shall occur after slab has cured but before installation of floor finish has begun.
2) If test produces results higher than floor finish manufacturer's written requirements per 24 hour period a second check test shall be performed immediately on another portion of the slab. If in the event of a second failure, the installation of the raised access floor shall be delayed at the discretion of the Owner and A/E firm until the slab has been dried to a level that passes the test.

2. Unit Masonry:

a. Cavity Water Test: Masonry Contractor shall water test cavity to verify all water is draining to the exterior through the weeps before continuing with exterior wythe before capping wall.

1) Do not precede more than 3 veneer courses above flashing without testing, A/E and CxP observation and digital documentation by contractor required.
2) Contractor shall hold water hose and with standard water pressure force water into the cavity at a cell vent so water can be observed coming out adjacent weeps for a period of at least 5 minutes. Contractor shall continue down the wall to the next cell vent where a weep did not indicate water wicking out and continue this process until the entire length of flashing is tested.
3) Where water is observed inside the building or outside the building away from the weeps, masonry units shall be removed and flashing re-inspected and repaired.
4) Water test shall be re-performed where flashing was repaired.
5) Provide a testing report outlining procedures, dates, and issues corrected with photographic evidence of the testing to the A/E and CxP for review

3. Fluid-Applied Membrane Air Barriers:

a. ASTM E1186: Contractor shall test first installation of fluid applied air barrier at each unique penetration, transition, and seam for leakage per ASTM E1186-03 method 4.1.7 Chamber depressurization and leak detection liquids.

1) Testing shall occur prior to installation of exterior finishes.
2) Wherever evidence of air leakage has occurred as a result of the test the contractor shall make the sample airtight in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should unacceptable leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect

b. ASTM D4541: Contractor shall test first installation of fluid applied air barrier on each unique substrate for pull-off strength per ASTM D4541.

1) Testing shall occur prior to installation of exterior finishes.
2) Wherever evidence of a failure has occurred as a result of the test the contractor shall review and repair the installation in a manner acceptable to the Owner/ Architect and in accordance with the manufacturer's written installation instructions. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should unacceptable leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/

4. SBS Modified Bituminous Membrane Roofing:
   a. FM 1-52: Roof installation shall be tested for uplift resistance following procedures for administering the test per Factory Mutual Field Uplift Test FM 1-52. Testing shall occur prior to final inspection of roof system. Passing criteria for the test shall be determined as follows:

      1) Uplift Pressures: per ASCE 7-05
      2) Deflection Limits: per FM 1-52

   b. Provide Electric Field Vector Mapping leak detection on waterproofing membrane for testing of capillary defects and/or breaches in the membrane. Testing is to be administered by a qualified testing agency.

      1) Low-Voltage Electric Field Vector Mapping
         a) Test entire roof on an area-by-area basis.
         b) Wet the entire membrane test area with water prior to the start of each test and maintain wet for the duration of testing. Verify integrity of the membrane at drains and penetrations by localized testing.

      2) High-Voltage Leak Detection Testing
         a) Test perimeter of entire roof and any other areas not able to be tested using low-voltage method
         b) Waterproofing membrane must be dry prior to and during high voltage testing
         c) Sweep the entire roof surface overlapping individual swept areas by a minimum of 3"

      3) If a breach is detected, the testing technician shall report to the roofing contractor immediately

      4) Defects found shall be immediately repaired by roofing contractor and retested by technician using high-voltage method

      5) All costs associated with the re-work shall be borne by the contractor responsible for the initial construction.

      6) Test shall occur prior to issuance of notice of substantial completion.

   c. The Owner reserves the right to request the CxP to perform a thermographic scan of the roof per ASTM C1153 to determine if any damp or wet materials have been installed

5. Exterior Joint Sealants:

   a. ASTM C794: Contractor shall test first installation of each unique sealant application used on the building envelope for durability per ASTM C794.

      1) Wherever sealant failure has occurred as a result of the test the contractor shall make review and revise the installation of the sample in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a

second test of the sample shall be conducted in the same manner as the first. Should failure still occur, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect.

b. ASTM C1193: Contractor shall test first installation of each unique sealant application used on the building envelope for durability per ASTM C1193.

1) Wherever sealant failure has occurred as a result of the test the contractor shall make review and revise the installation of the sample in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should failure still occur, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect.

6. Hollow Metal Doors and Frames:

a. AAMA 501.2: Contractor shall test a minimum of 25% of the installed hollow metal doors and frames joint between the frame and exterior wall construction for moisture penetration following procedures outlined in AAMA 501.2 and per testing criteria below

1) Testing shall occur after doors and frames are weather tight but prior to installation of interior finishes allowing for adequate viewing of potential leakage from both the interior and exterior of the building.

2) Blank off the operable door so that water intrusion cannot be detected through the joint between the door and frame.

3) Wherever water leakage has occurred as a result of the test the contractor shall make the sample watertight in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect.

7. Aluminum Entrance Doors:

a. AAMA 502: Once construction surrounding the door and frames is complete, but prior to the installation of interior finishes, the contractor shall test 10% of all installed door and frame systems on each elevation for air infiltration and moisture penetration per AAMA 502.

1) Minimum test pressures shall be as defined by AAMA 502 or as specified in individual material specification sections – whichever is greater.

2) Wherever water leakage has occurred or as a result of the test the contractor shall make the sample watertight in a manner acceptable to the Owner/Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/Architect.

3) Wherever air infiltration above acceptable limits has occurred as a result of the test the contractor shall implement corrective measures in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first.

Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect.

8. Aluminum Storefront Framing:

   a. AAMA 501.2: Contractor shall test the initial installation of aluminum storefront systems on each elevation for moisture penetration per AAMA 501.2.

      1) Testing shall occur after storefront system is weather tight but prior to installation of interior finishes allowing for adequate viewing of potential leakage from both the interior and exterior of the building.

      2) Wherever water leakage has occurred as a result of the test the contractor shall make the sample watertight in a manner acceptable to the Owner/Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/Architect.

   b. AAMA 503: Once initially installed system has passed the AAMA 501.2 testing and construction surrounding the frames is complete, but prior to the installation of interior finishes, the contractor shall test 10% of all installed storefront systems on each elevation for air infiltration and moisture penetration per AAMA 503.

      1) Minimum test pressures shall be as defined by AAMA 503 or as specified in individual material specification sections – whichever is greater.

      2) Wherever water leakage has occurred or as a result of the test the contractor shall make the sample watertight in a manner acceptable to the Owner/Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/Architect.

      3) Wherever air infiltration above acceptable limits has occurred as a result of the test the contractor shall implement corrective measures in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect.

9. Aluminum Curtain Walls

   a. AAMA 501.2: Contractor shall test the initial installation of aluminum curtain wall systems on each elevation for moisture penetration per AAMA 501.2.

      1) Testing shall occur after curtainwall system is weather tight but prior to installation of interior finishes allowing for adequate viewing of potential leakage from both the interior and exterior of the building.

      2) Wherever water leakage has occurred as a result of the test the contractor shall make the sample watertight in a manner acceptable to the Owner/Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further

remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/Architect.

b. AAMA 503: Once initially installed system has passed the AAMA 501.2 testing and construction surrounding the frames is complete, but prior to the installation of interior finishes, the contractor shall test 10% of all installed curtain wall systems on each elevation for air infiltration and moisture penetration per AAMA 503.

1) Minimum test pressures shall be as defined by AAMA 503 or as specified in individual material specification sections – whichever is greater.

2) Wherever water leakage has occurred or as a result of the test the contractor shall make the sample watertight in a manner acceptable to the Owner/Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/Architect.

3) Wherever air infiltration above acceptable limits has occurred as a result of the test the contractor shall implement corrective measures in a manner acceptable to the Owner/ Architect. Once measures have been put into place and the appropriate curing time has passed a second test of the sample shall be conducted in the same manner as the first. Should leakage still be found, further remedial measures shall be implemented and testing shall be repeated until the sample has been deemed acceptable by the Owner/ Architect.

G. Prepare test and inspection reports per requirements of this specification system and the requirements of each individual test specified.

3.2 FUNCTIONAL PERFORMANCE TESTING

A. Functional Performance Testing shall be executed in accordance with Division 01 Section “Cx Functional Performance Testing”

B. Contractor shall be responsible for participation in all Functional Performance Testing

C. Any additional testing required because of failure of the tested sample to meet specifications shall be paid for by the Contractor including time and materials rates for Owner, A/E, and CxP to witness test results

D. Air Barrier Integrity functional Performance Test

1. CxP will develop a Functional Performance Test of Air Barrier Assemblies in accordance with ASTM E 1186 using pressurization or depressurization.
2. Pressurization and depressurization shall be achieved by contractor through a combination of building controls manipulation, sealing off exhaust systems, and implementation of blower door equipment.
3. Test to occur after HVAC system has passed functional performance testing.

E. Thermal Imaging Functional Performance Test

1. CxP will develop and conduct a Thermal Imaging Functional Performance Test of the entire building envelope system in accordance with ASTM C 1060, ASTM E 1186, and ISO 6781.
2. Test will require access to project site during off hours and manipulation of building controls to maintain prescribed ambient temperature differences.

END OF SECTION 018021

ATTACHMENT 08

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.
2. Doors.
3. Glazed curtain walls.
4. Storefront framing.
5. Glazed entrances.
6. Sloped glazing.
7. Interior borrowed lites.

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. Interspace: Space between lites of an insulating-glass unit.

1.4 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Delegated Design: Design glass, including comprehensive engineering analysis according to ASTM E 1300 by a qualified professional engineer, using the following design criteria:

1. Design Wind Pressures: As indicated on Drawings.
2. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
3. Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass to resist each of the following combinations of loads:

    a. Outward design wind pressure minus the weight of the glass. Base design on glass type factors for short-duration load.
    b. Inward design wind pressure plus the weight of the glass plus half of the design snow load. Base design on glass type factors for short-duration load.

c. Half of the inward design wind pressure plus the weight of the glass plus the design snow load. Base design on glass type factors for long-duration load.

4. Probability of Breakage for Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.001.
5. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.
6. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Adhesion and Compatibility Testing: Test each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1. Testing will not be required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
3. Test no fewer than eight Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.6 ACTION SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. Glass Samples: For each type of the following products; 12 inches (300 mm) square.

1. Tinted glass.

C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installers manufacturers of insulating-glass units with sputter-coated, low-e coatings.

B. Product Certificates: For glass and glazing products, from manufacturer.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for coated glass, insulating glass, glazing sealants and glazing gaskets.

1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

D. Preconstruction adhesion and compatibility test report.

E. Warranties: Sample of special warranties.

F. LEED Submittals:

1. Product Data for Credit IEQ 4.1: For glazing sealants used inside the weatherproofing system, documentation including printed statement of VOC content.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.

B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

E. Source Limitations for Glass: Obtain tinted float glass, coated float glass, laminated glass and insulating glass from single source from single manufacturer for each glass type.

F. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

G. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."
3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

H. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or the manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

I. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F (250 deg C), and the fire-resistance rating in minutes.

J. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

K. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review temporary protection requirements for glazing during and after installation.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.10 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).

1.11 WARRANTY

A. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form in which laminated-glass manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

1. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.
2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened

glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.

C. Windborne-Debris-Impact Resistance: Provide exterior glazing that passes basic-protection testing requirements in ASTM E 1996 for Wind Zone 2 when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on the Project and shall be installed in same manner as glazing indicated for use on the Project.

1. Large-Missile Test: For glazing located within 30 feet (9.1 m) of grade.
2. Small-Missile Test: For glazing located more than 30 feet (9.1 m) above grade.

D. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 6.0 mm thick.
2. For laminated-glass lites, properties are based on products of construction indicated.
3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
4. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
5. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
6. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS

A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.

B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
2. For uncoated glass, comply with requirements for Condition A.
3. For coated vision glass, comply with requirements for Condition C (other coated glass).

C. Uncoated Tinted Float Glass: Class 2, complying with other requirements specified.

1. Basis-of-Design Product: Subject to compliance with requirements, provide SunGuard SNX 62/27 or comparable product by another manufacturer.

2. Tint Color: Green.

D. Ceramic-Coated Spandrel Glass: ASTM C 1048, Condition B, Type I, Quality-Q3, and complying with other requirements specified.

1. Glass: Clear float.
2. Ceramic Coating Color: As selected by Architect from manufacturer's full range.

2.3 LAMINATED GLASS

A. Windborne-Debris-Impact-Resistant Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, with "Windborne-Debris-Impact Resistance" Paragraph in "Glass Products,

General" Article, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with the following to comply with interlayer manufacturer's written recommendations:

    a. Polyvinyl butyral interlayer.

2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
3. Interlayer Color: Clear unless otherwise indicated.

B. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated-Glass Types" Article.

2.4 INSULATING GLASS

A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
2. Spacer: Manufacturer's standard spacer material and construction.
3. Desiccant: Molecular sieve or silica gel, or blend of both.

B. Glass: Comply with applicable requirements in "Glass Products" Article and in "Laminated Glass" Article as indicated by designations in "Insulating-Glass Types" Article and in "Insulating-Laminated-Glass Types" Article.

2.5 FIRE-PROTECTION-RATED GLAZING

A. Fire-Protection-Rated Glazing, General: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 for door assemblies.

B. Laminated Ceramic Glazing: Laminated glass made from 2 plies of clear, ceramic flat glass; 5/16-inch (8-mm) total nominal thickness; complying with testing requirements in 16 CFR 1201 for Category II materials.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

    a. Nippon Electric Glass Co., Ltd. (distributed by Technical Glass Products); FireLite Plus.
    b. Schott North America, Inc.; Laminated Pyran Crystal.
    c. Vetrotech Saint-Gobain; SGG Keralite FR-L.

2.6 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:

1. Neoprene complying with ASTM C 864.
2. EPDM complying with ASTM C 864.
3. Silicone complying with ASTM C 1115.
4. Thermoplastic polyolefin rubber complying with ASTM C 1115.

B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene or silicone gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.

1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.7 GLAZING SEALANTS

A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Sealants used inside the weatherproofing system, shall have a VOC content of not more than 250 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
4. Sealants used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
5. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; 791.
b. GE Advanced Materials - Silicones; SilPruf NB SCS9000.
c. May National Associates, Inc.; Bondaflex Sil 295.
d. Pecora Corporation; 864.
e. Sika Corporation, Construction Products Division; SikaSil-C995.
f. Tremco Incorporated; Spectrem 2.

C. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

2.8 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.9 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.10 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

2.11 MONOLITHIC-GLASS TYPES

A. Glass Type for Interior Lites: Clear heat-strengthened float glass and fully tempered float glass.

1. Thickness: 6.0 mm.
2. Provide safety glazing labeling.

2.12 LAMINATED-GLASS TYPES

A. Glass Type for Exterior Doors: Tinted laminated glass with two plies of fully tempered float glass with outer ply Class 2 (tinted) and inner ply Class 1 (clear).

1. Thickness of Each Glass Ply: 6.0 mm.
2. Interlayer Thickness: 0.090 inch (2.29 mm).
3. Winter Nighttime U-Factor: 0.23 maximum.
4. Summer Daytime U-Factor: 0.21 maximum.
5. Solar Heat Gain Coefficient: 0.20 maximum.
6. Provide safety glazing labeling.

2.13 INSULATING-LAMINATED-GLASS TYPES

A. Glass Type for Exterior Curtainwall and Windows: Tinted, insulating laminated glass.

1. Overall Unit Thickness: 1-5/16 inch (33 mm).
2. Thickness of Outdoor Lite: 6.0 mm.
3. Outdoor Lite: Heat-strengthened float glass, Class 2 (tinted).
4. Interspace Content: Air.
5. Indoor Lite: Clear laminated glass with two plies of heat-strengthened float glass.
    a. Thickness of Each Glass Ply: 6.0 mm.
    b. Interlayer Thickness: 0.090 inch (2.29 mm).
6. Visible Light Transmittance: 45 percent minimum.
7. Winter Nighttime U-Factor: 0.23 maximum.
8. Summer Daytime U-Factor: 0.21 maximum.
9. Solar Heat Gain Coefficient: 0.20 maximum.
10. Provide safety glazing labeling.

B. Glass Type for Exterior Curtainwall Spandrel Panels: Tinted, insulating laminated glass with ceramic coating.

1. Overall Unit Thickness: 1-5/16 inch (33 mm).
2. Thickness of Outdoor Lite: 6.0 mm.
3. Outdoor Lite: Heat-strengthened float glass, Class 2 (tinted).
4. Interspace Content: Air.
5. Indoor Lite: Clear laminated glass with two plies of heat-strengthened float glass.
    a. Thickness of Each Glass Ply: 6.0 mm.
    b. Interlayer Thickness: 0.090 inch (2.29 mm).
6. Ceramic coating on fourth surface.
7. Provide safety glazing labeling.
8. Fallout Resistance: Passes fallout-resistance test in ASTM C 1048 for an assembly of glass and adhered reinforcing material.

2.14 FIRE-PROTECTION-RATED GLAZING TYPES

A. Glass Type : 20-minute fire-rated glazing without hose-stream test; fire-protection-rated laminated glass.

1. Provide safety glazing labeling.

B. Glass Type : 60-minute fire-rated glazing; laminated ceramic glazing.

1. Provide safety glazing labeling.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.

4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.6 CLEANING AND PROTECTION

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.

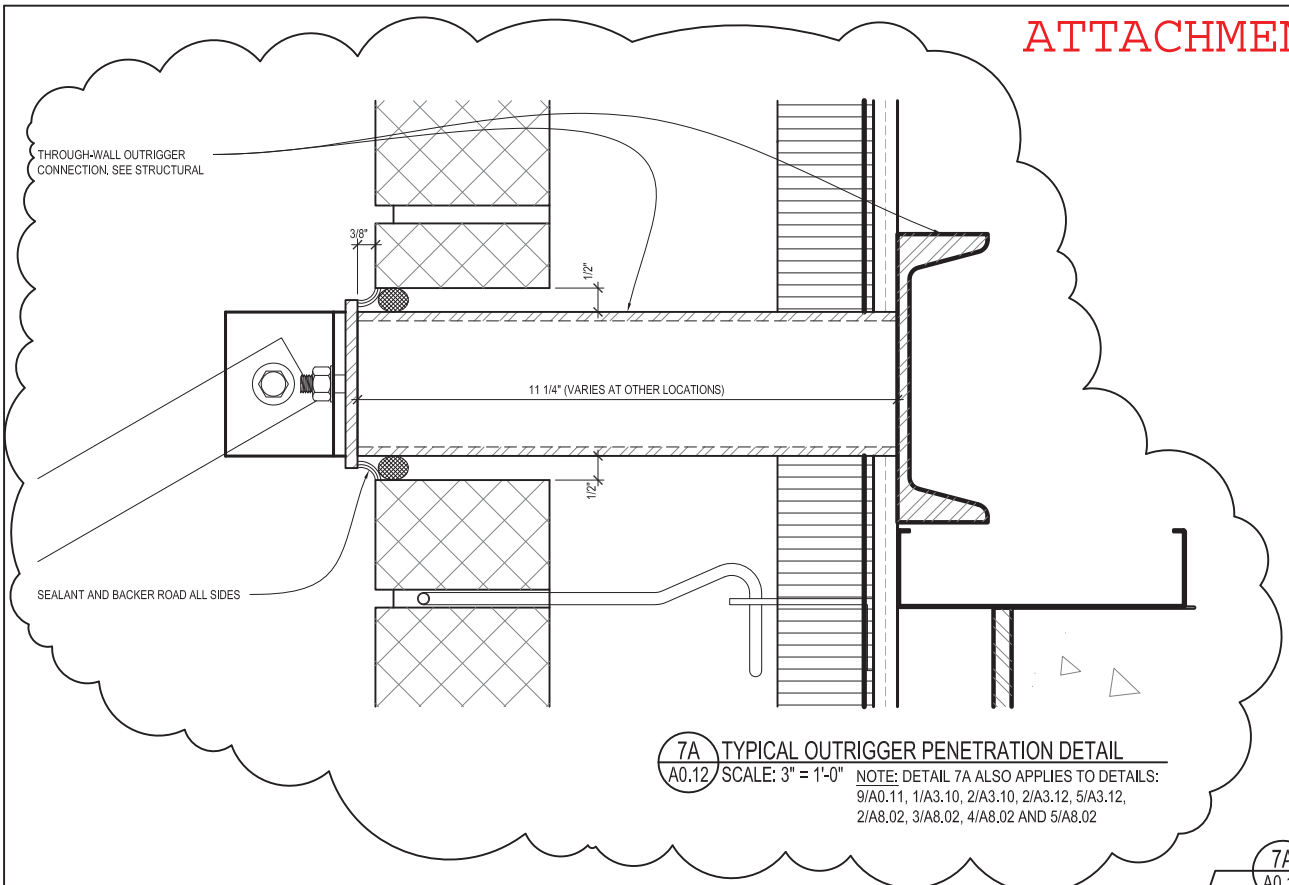
C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

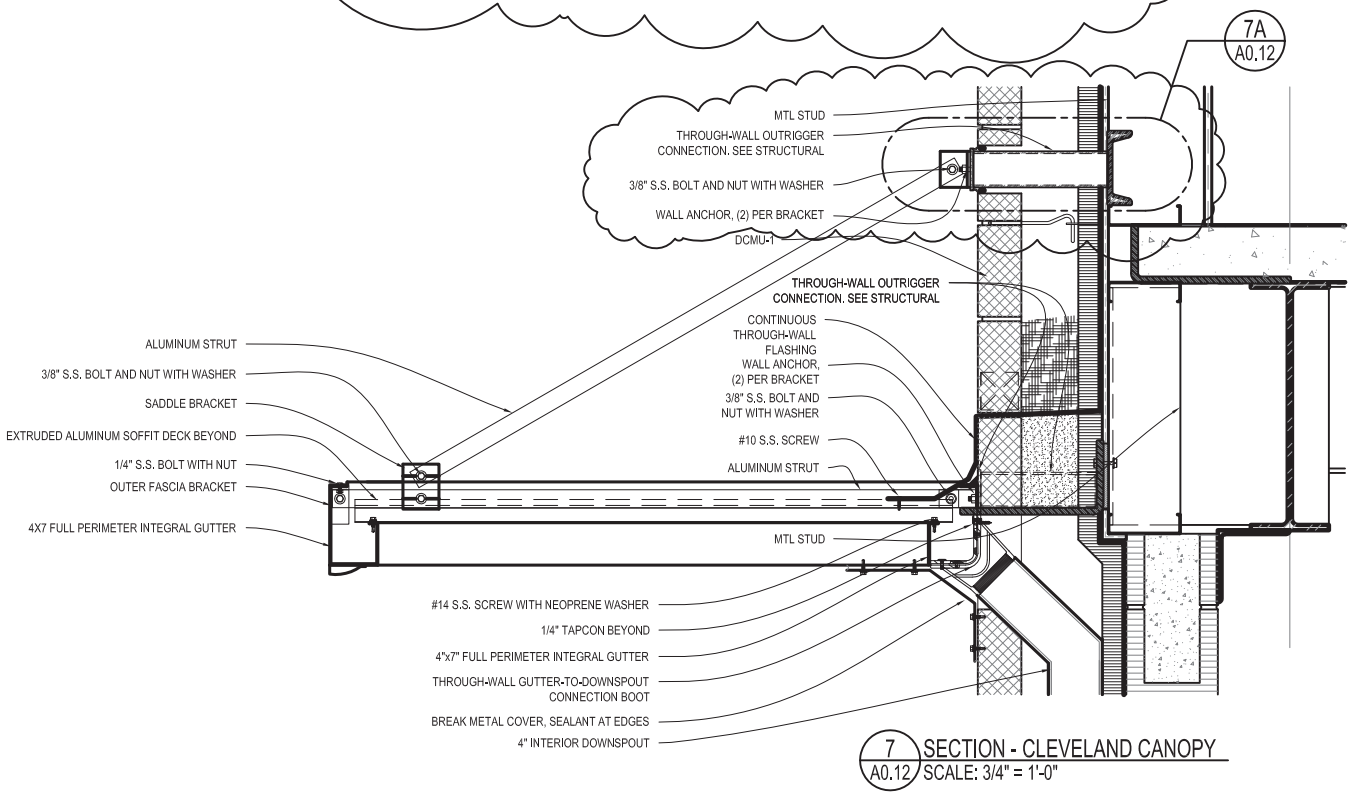
END OF SECTION 08 80 00

ATTACHMENT 10



7A / A0.12 TYPICAL OUTRIGGER PENETRATION DETAIL
SCALE: 3" = 1'-0"

NOTE: DETAIL 7A ALSO APPLIES TO DETAILS: 9/A0.11, 1/A3.10, 2/A3.10, 2/A3.12, 5/A3.12, 2/A8.02, 3/A8.02, 4/A8.02 AND 5/A8.02



7 / A0.12 SECTION - CLEVELAND CANOPY
SCALE: 3/4" = 1'-0"

11085

TITLE: REVISED SECTION "7" AND DETAIL "7A"

SHEET: SK-1/A0.12

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

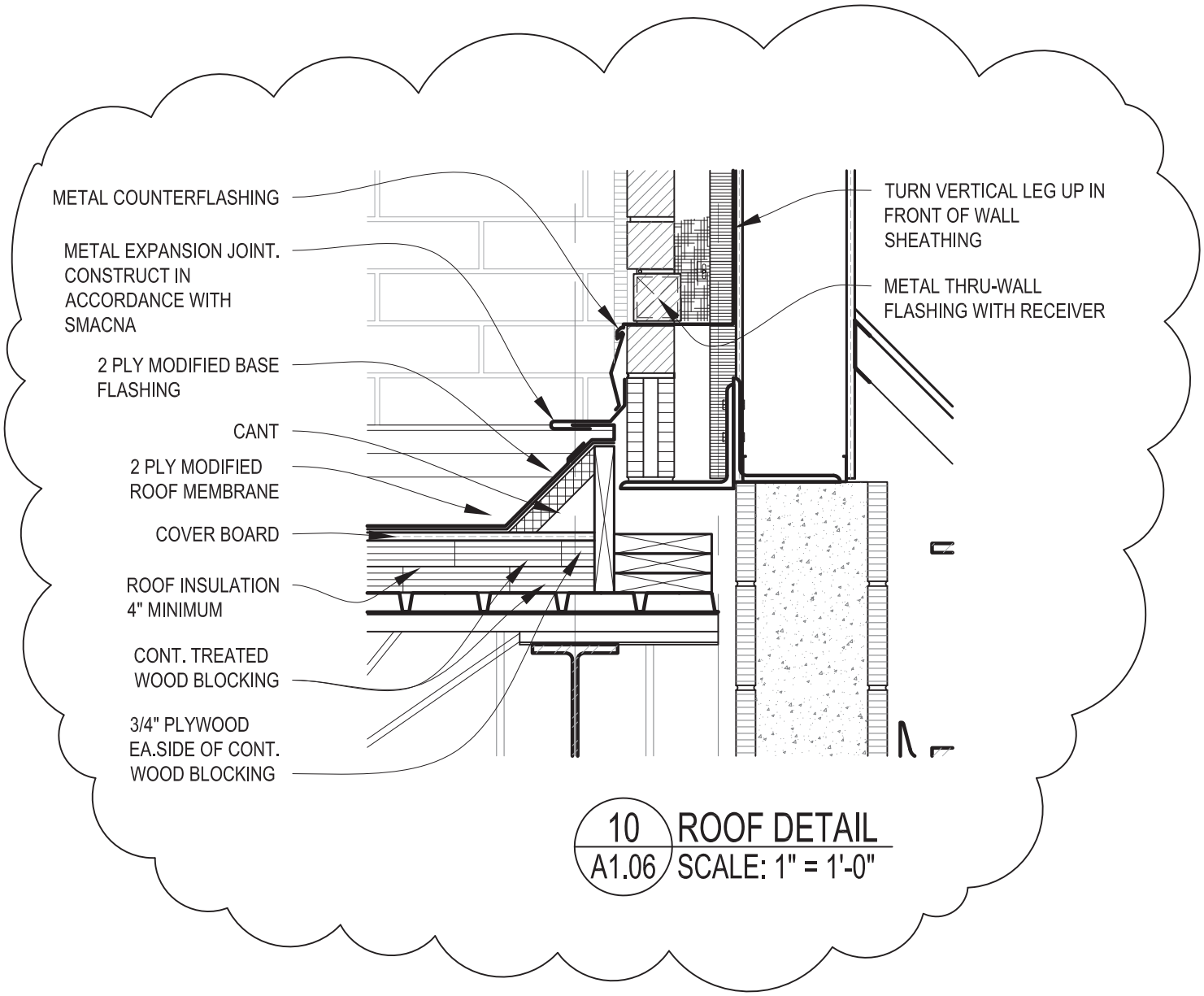
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 11



10 / A1.06 ROOF DETAIL
SCALE: 1" = 1'-0"

11085

TITLE: REVISED DETAIL "10"

SHEET: SK-1/A1.06

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

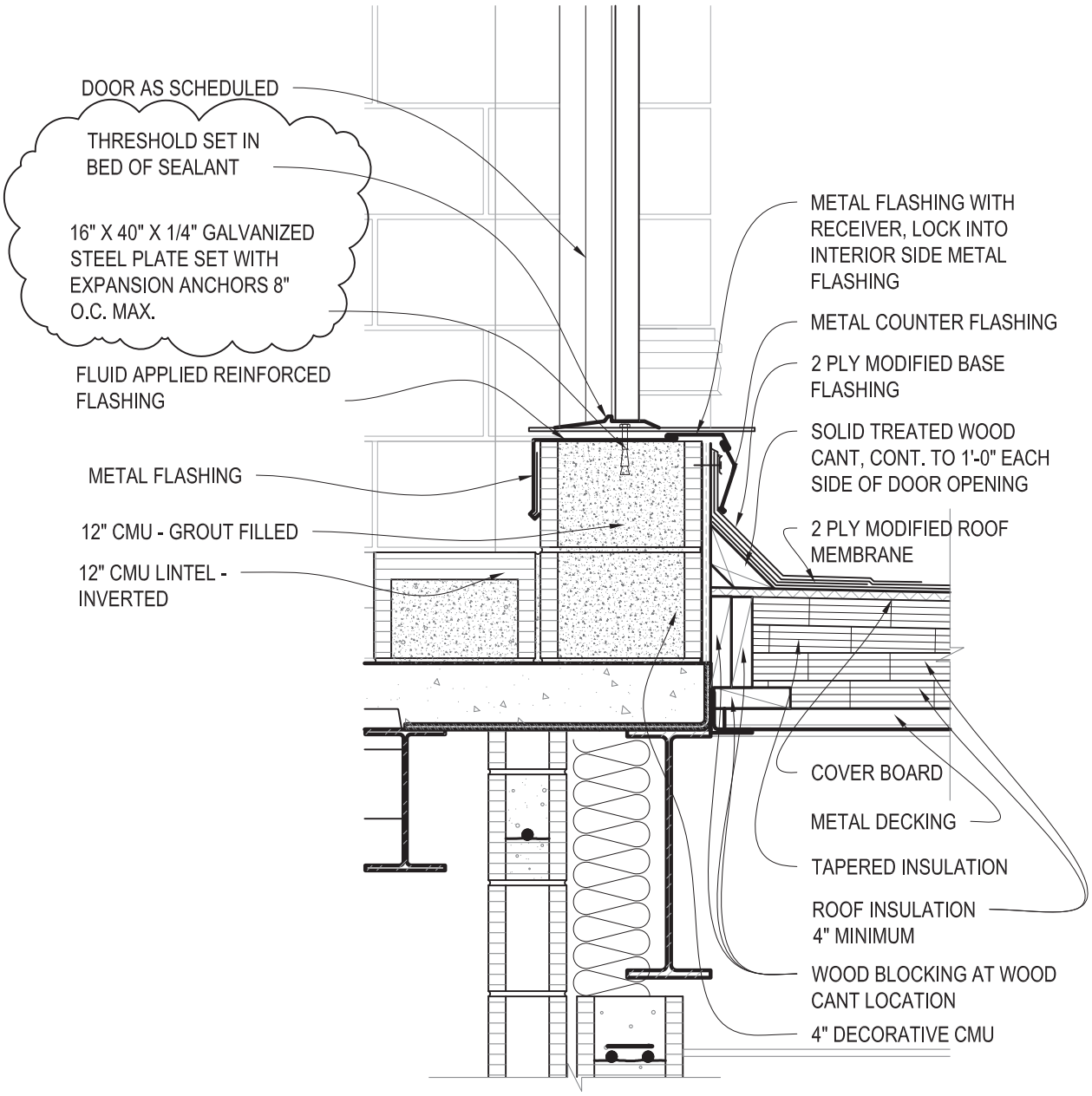
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 12



12 / A1.07 DOOR SILL / ROOF DETAIL
SCALE: 1" = 1'-0"

11085

TITLE: REVISED DETAIL "12"

SHEET: SK-1/A1.07

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

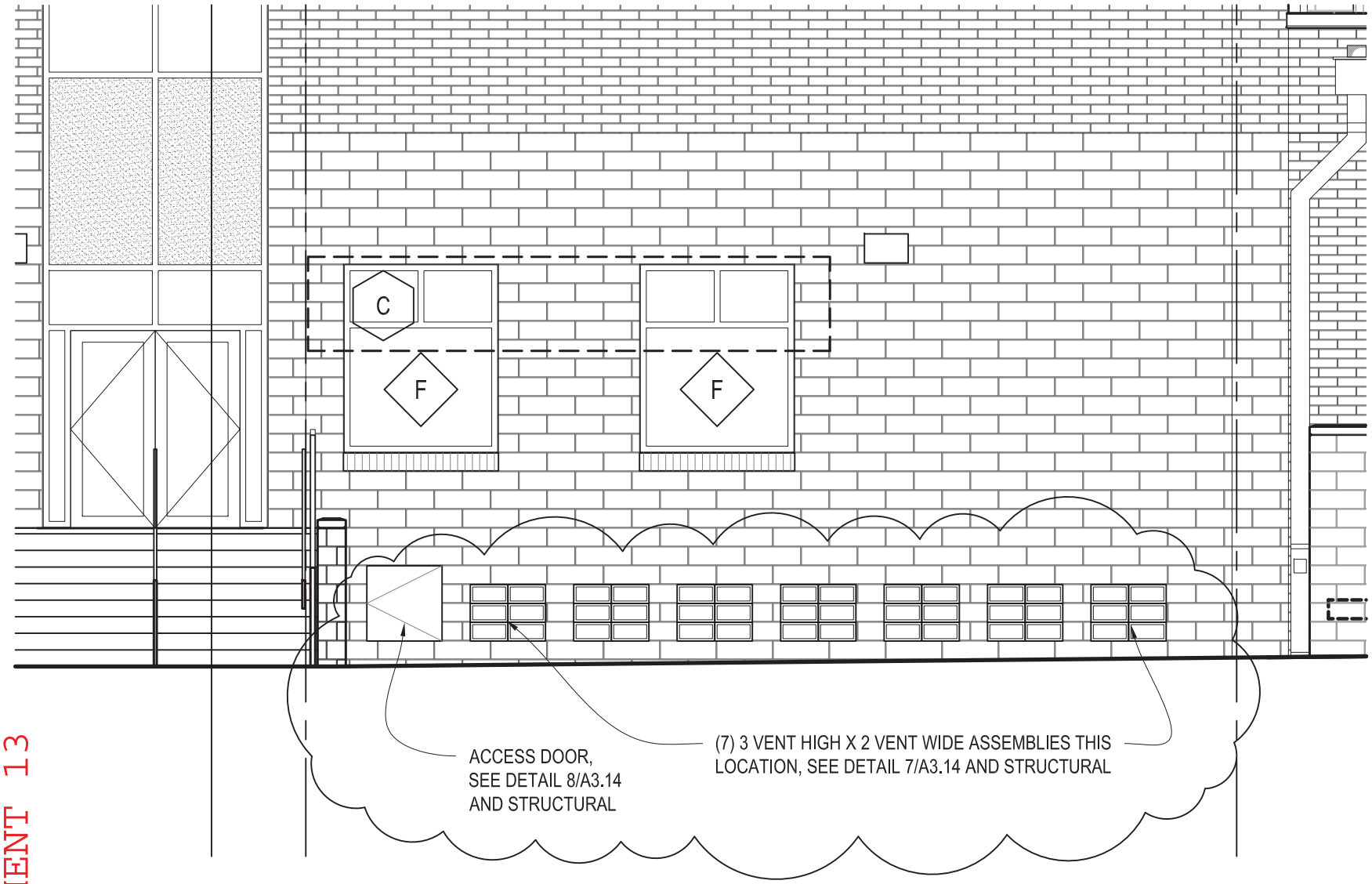
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 13



2 / A2.01 EXTERIOR BUILDING ELEVATION - S. RENDON STREET, WEST (PARTIAL)
SCALE: 3/16" = 1'-0"

VergesRome Architects
FANNING+HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.486.7739 f. 504.486.7743

NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL
RECOVERY SCHOOL DISTRICT
NEW ORLEANS, LOUISIANA 70119
211 S. LOPEZ STREET

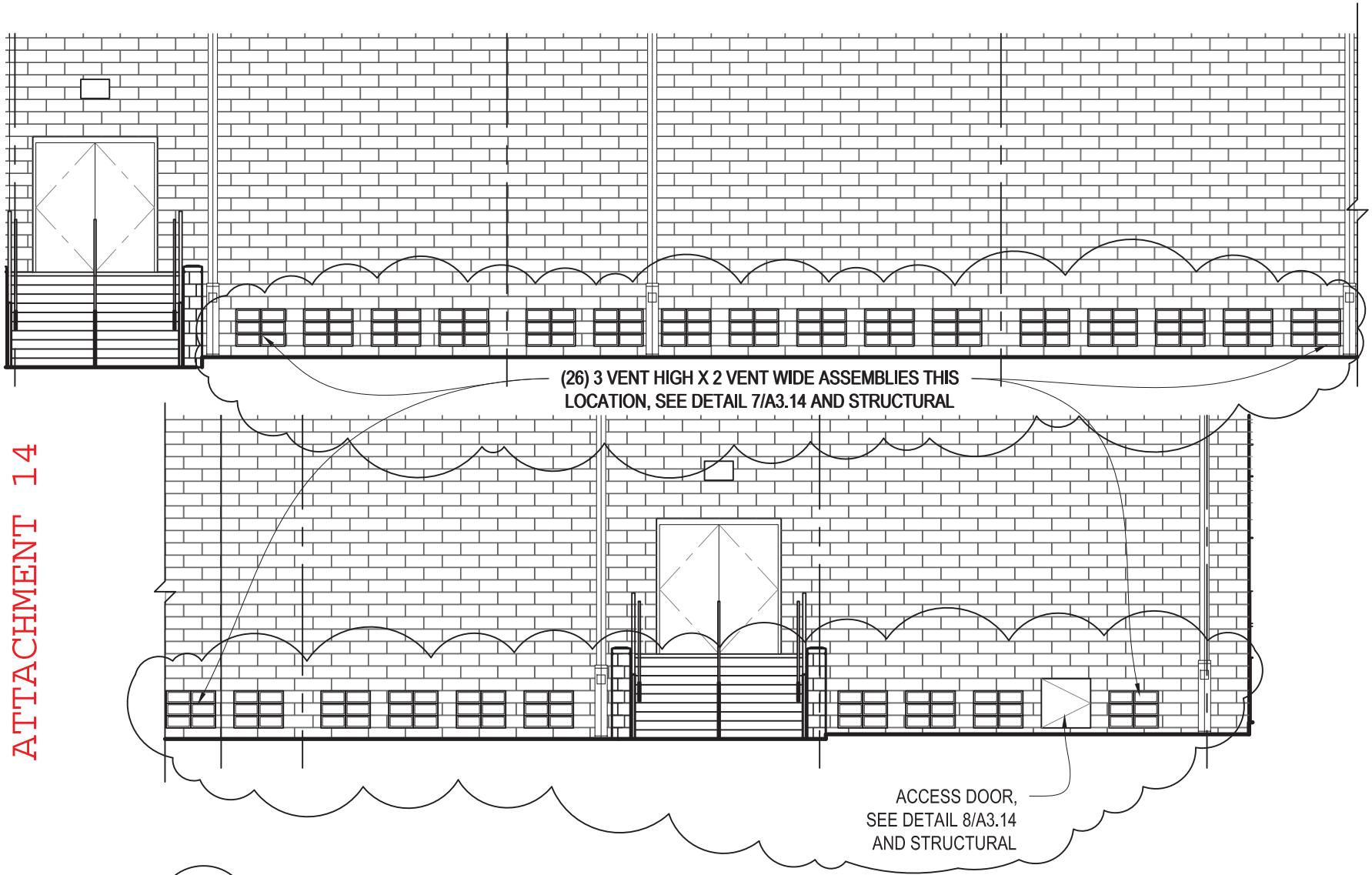
11085

TITLE: REVISED PARTIAL DETAIL "2"

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

SHEET: SK-1/A2.01

ATTACHMENT 14



1 / A2.02 EXTERIOR BUILDING ELEVATION - PALMYRA STREET, EAST (PARTIAL)
SCALE: 1/8" = 1'-0"

VergesRome Architects
FANNING+HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL
RECOVERY SCHOOL DISTRICT
NEW ORLEANS, LOUISIANA 70119
211 S. LOPEZ STREET

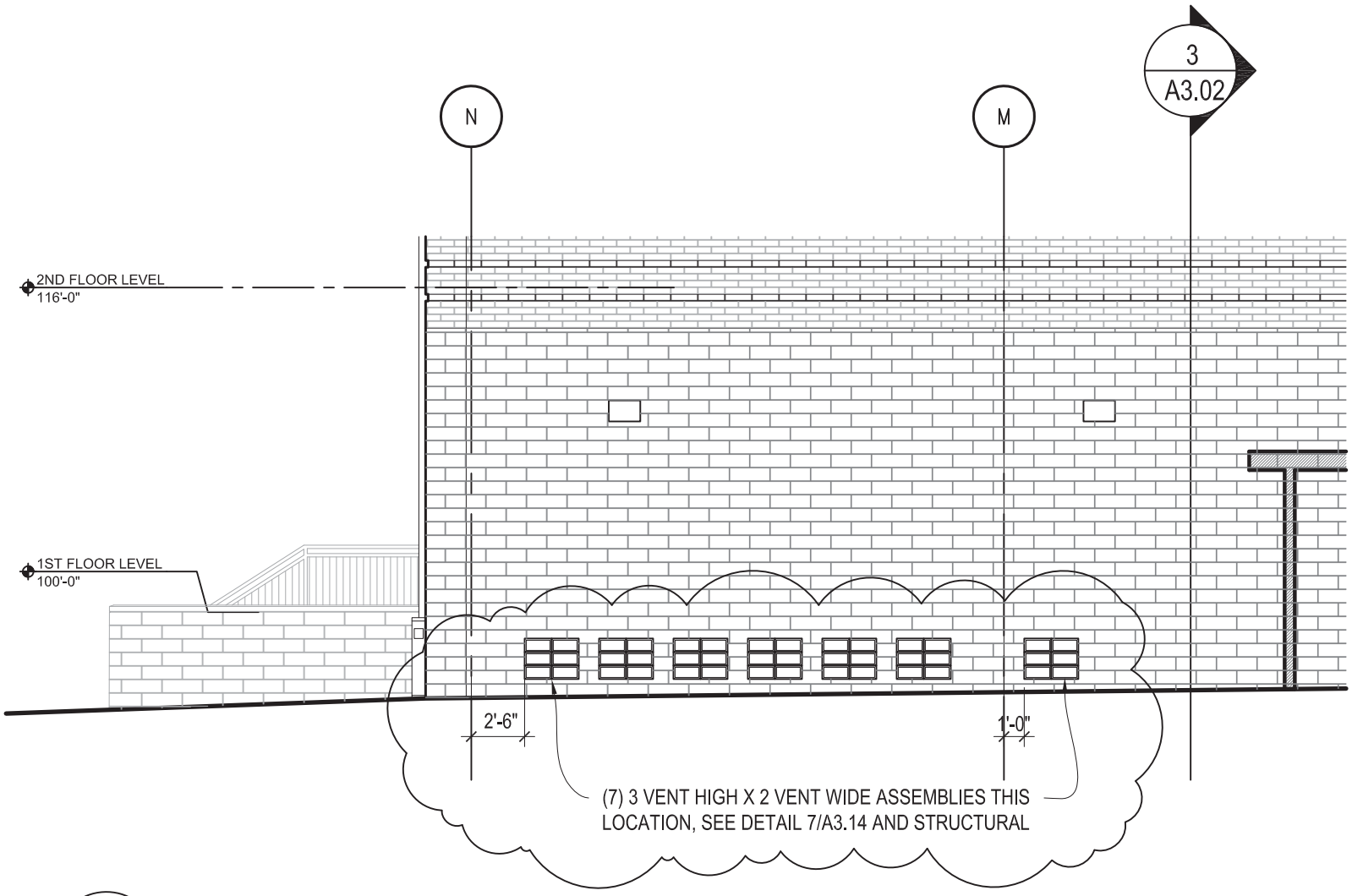
11085

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RRB
PHASE: BID DOCUMENTS

TITLE: REVISED PARTIAL DETAIL "1"

SHEET: SK-1/A2.02

ATTACHMENT 15



2 / A2.02 EXTERIOR BUILDING ELEVATION - S. LOPEZ STREET, SOUTH (PARTIAL)

SCALE: 1/8" = 1'-0"

VergesRome Architects
FANNING+HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.486.7739 f. 504.486.7743

NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL
RECOVERY SCHOOL DISTRICT
NEW ORLEANS, LOUISIANA 70119
211 S. LOPEZ STREET

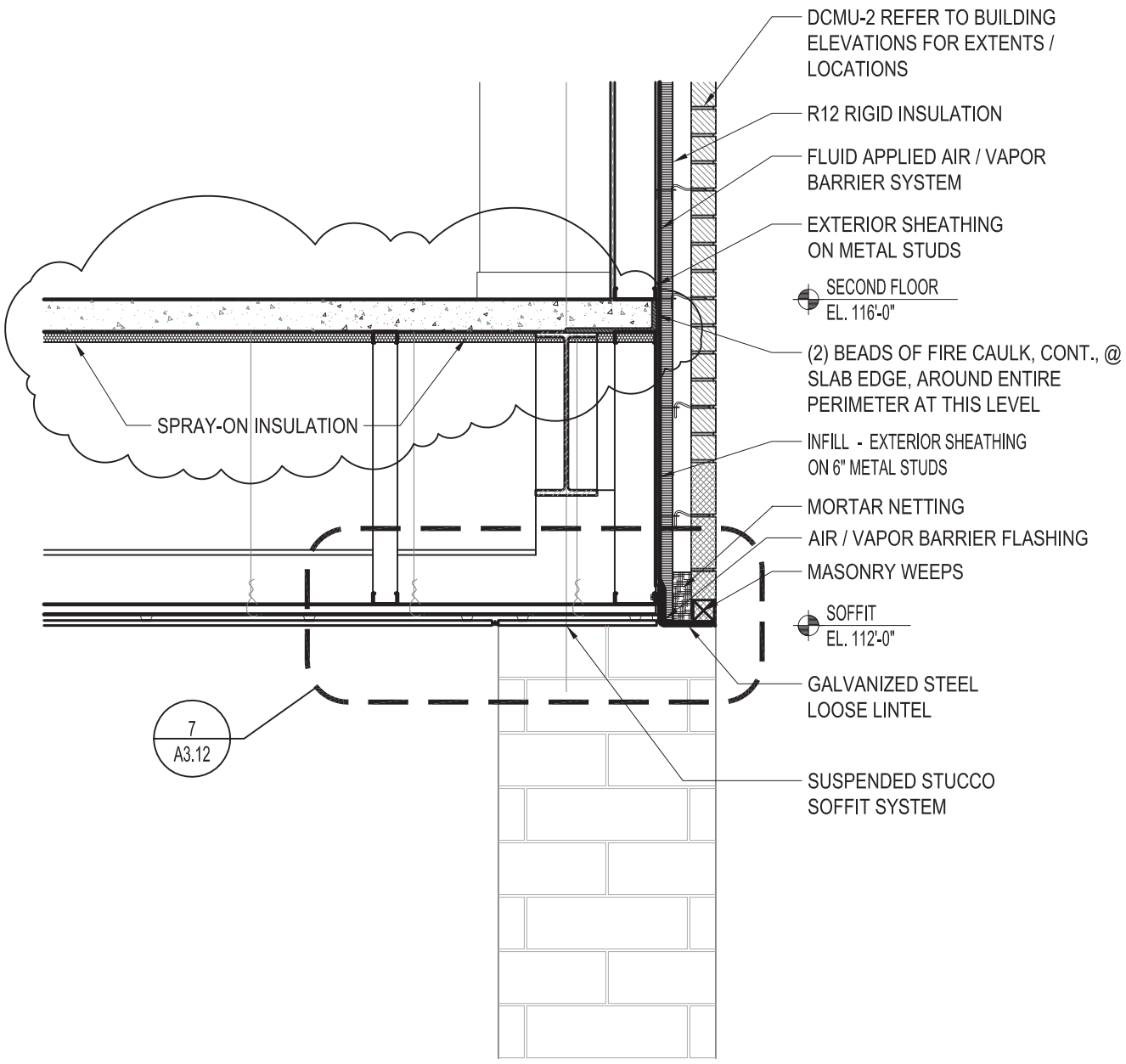
DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

11085

TITLE: REVISED PARTIAL DETAIL "2"

SHEET: SK-2/A2.02

ATTACHMENT 16



1 / A3.12 WALL SECTION - UNIT C (PARTIAL)
SCALE: 1/2" = 1'-0"

11085

TITLE: REVISION TO SECTION "1"

SHEET: SK-1/A3.12

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

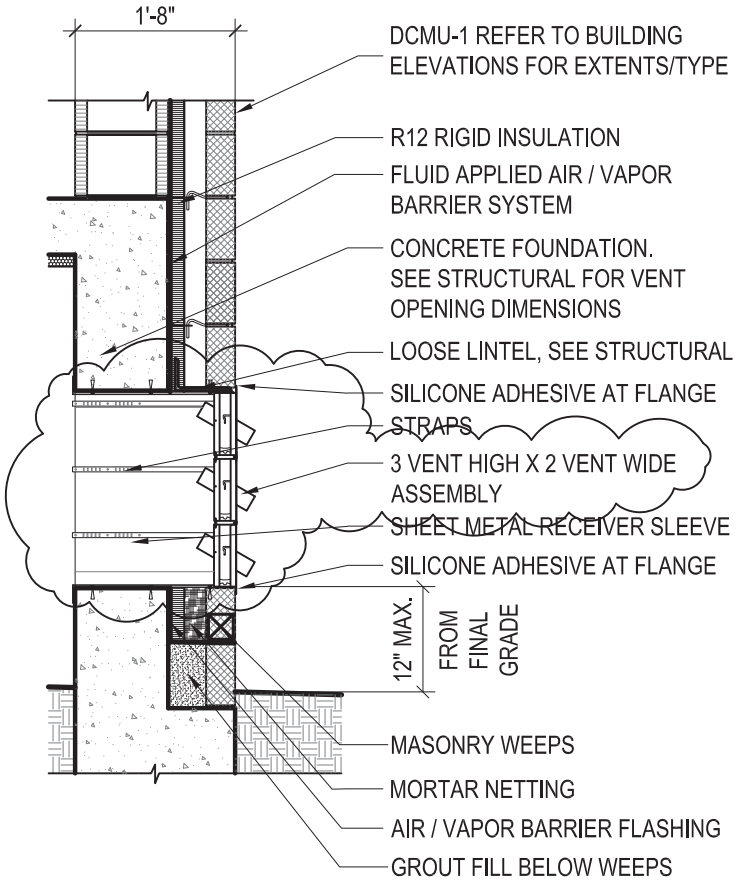
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 17



7 / A3.14 FLOOD VENT DETAIL, TYP.
SCALE: 1/2" = 1'-0"

11085

TITLE: REVISION TO SECTION "7"

SHEET: SK-1/A3.14

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

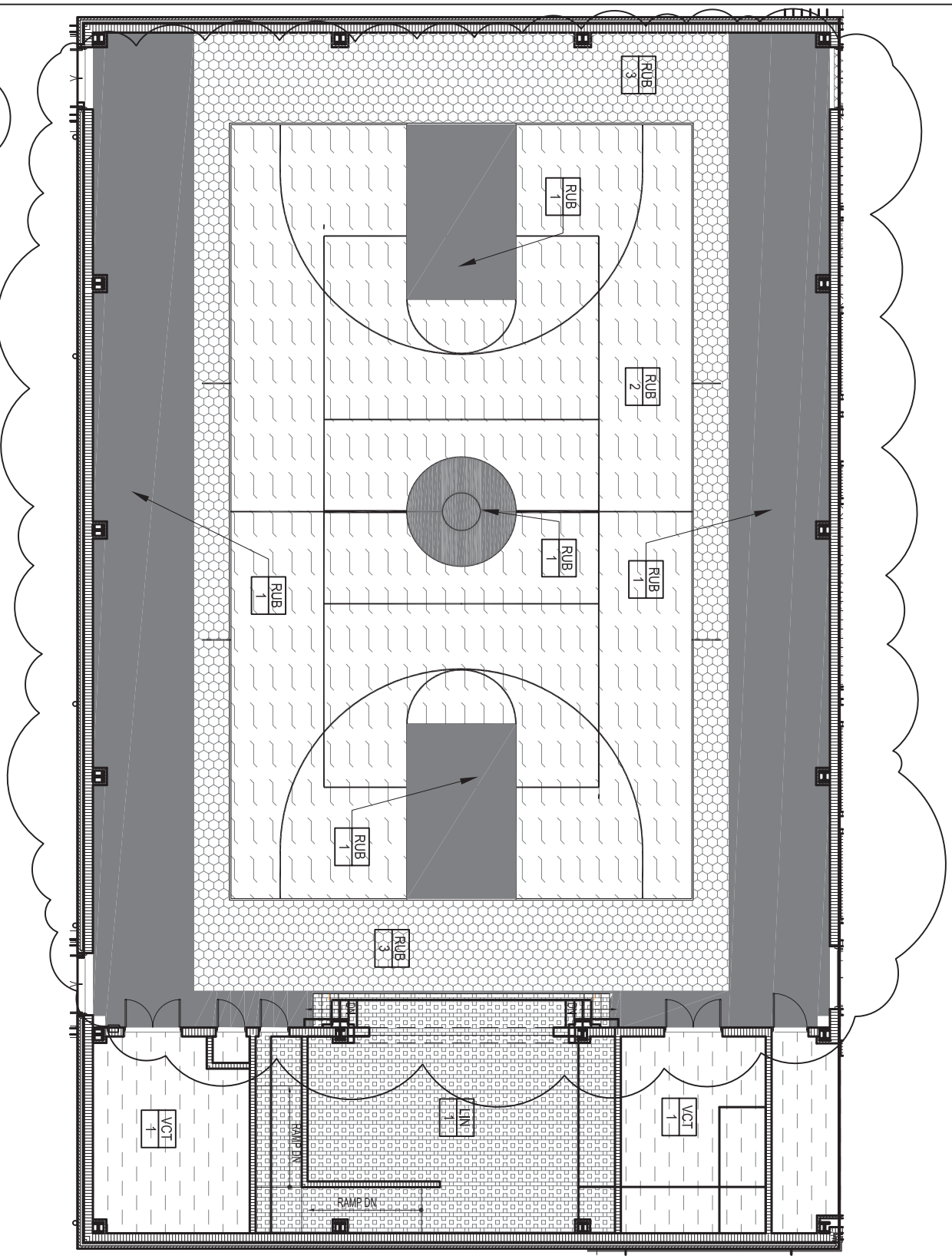
211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

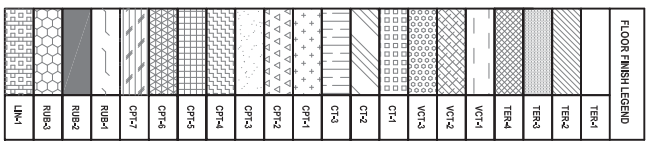
VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

6 A6.07

GYMNASIUM

SCALE: 1/8" = 1'-0"





ATTACHMENT 18

11085

TITLE: REVISED DETAIL "6"

SHEET: SK-1/A6.07

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

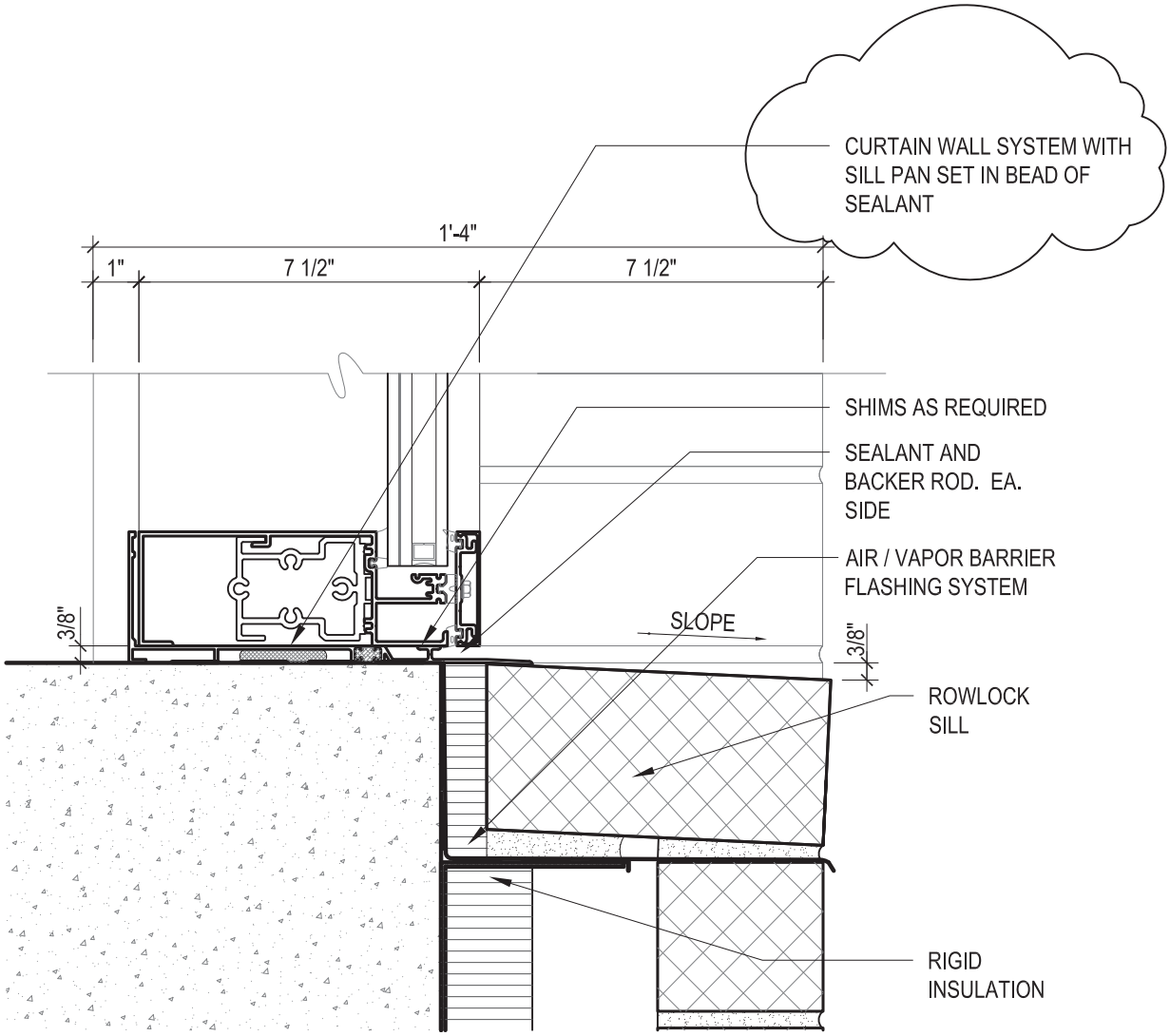
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

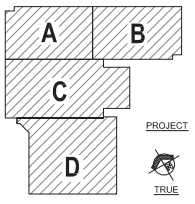
211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 19



D / A8.12 CURTAIN WALL - SILL
SCALE: 3" = 1'-0"



KEY PLAN

11085

TITLE: REVISED DETAIL "D"

SHEET: SK-1/A8.12

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

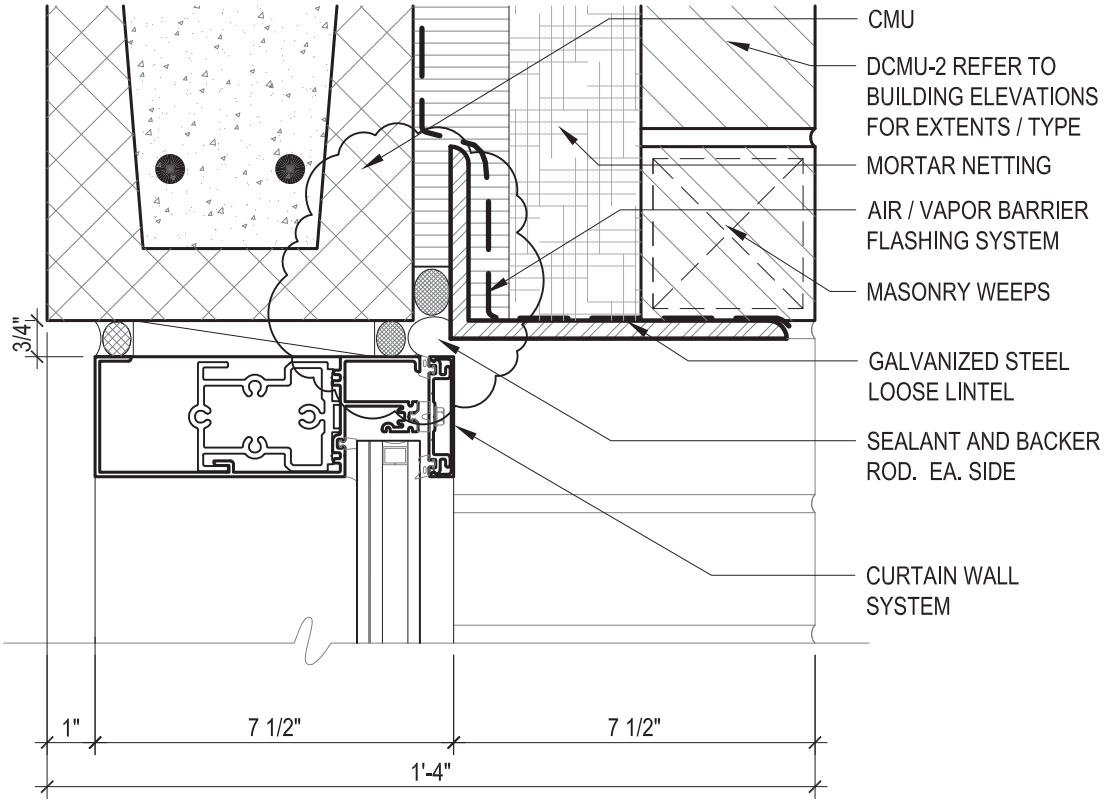
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

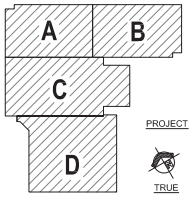
211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 20



L / A8.12 CURTAIN WALL - HEAD
SCALE: 3" = 1'-0"



KEY PLAN

11085

TITLE: REVISED DETAIL "L"

SHEET: SK-2/A8.12

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01 - 14 JANUARY 2013
REVISED:
REVISED:
REVISED:
CHECKED BY: RPB
PHASE: BID DOCUMENTS

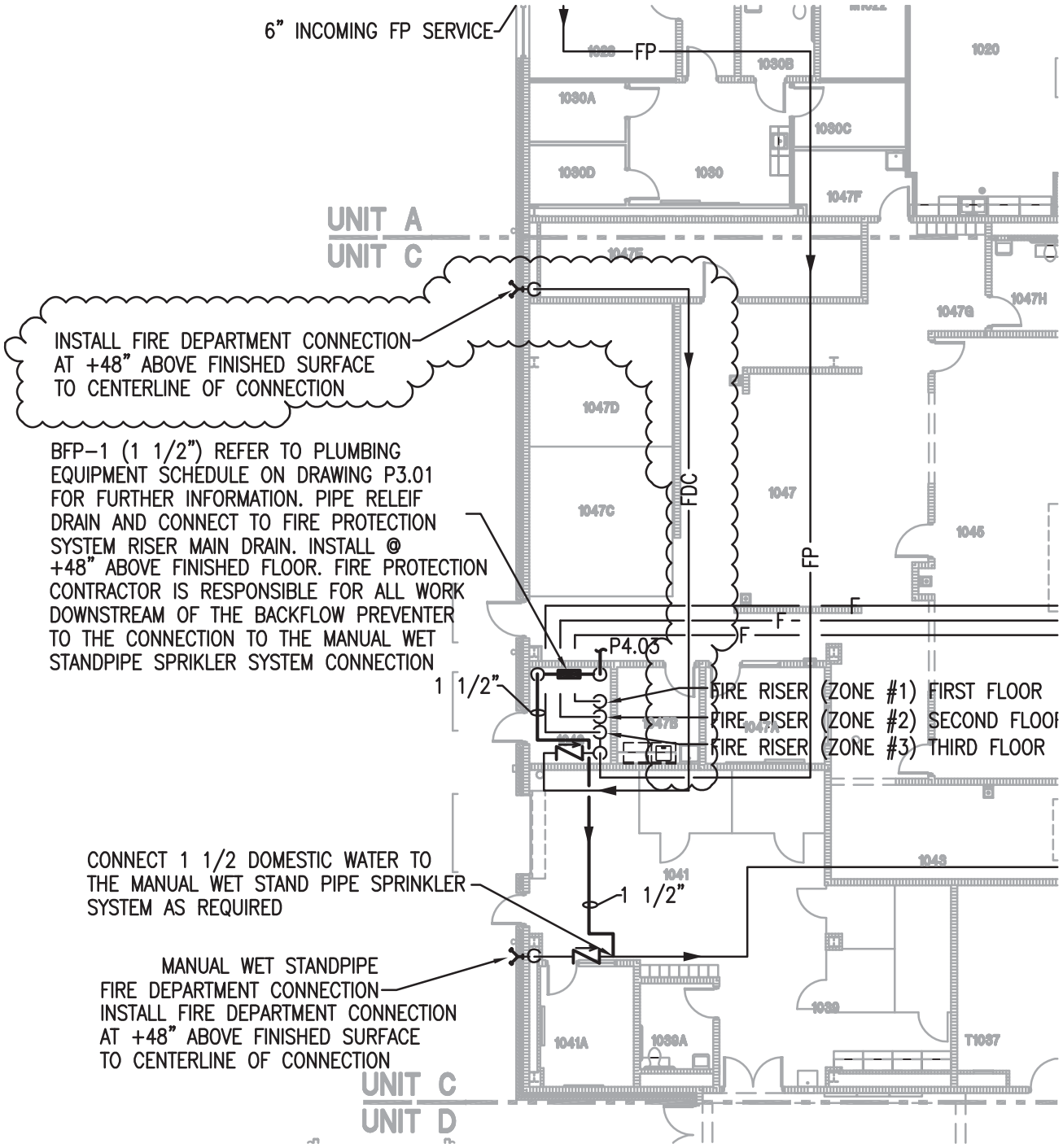
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

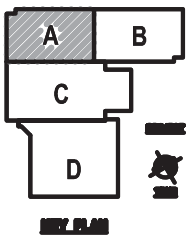
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 21





11085

TITLE:
1st Floor Fire Protection Plan

SHEET:
SK-1/FP.01

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: MJ
PHASE:
BID DOCUMENTS

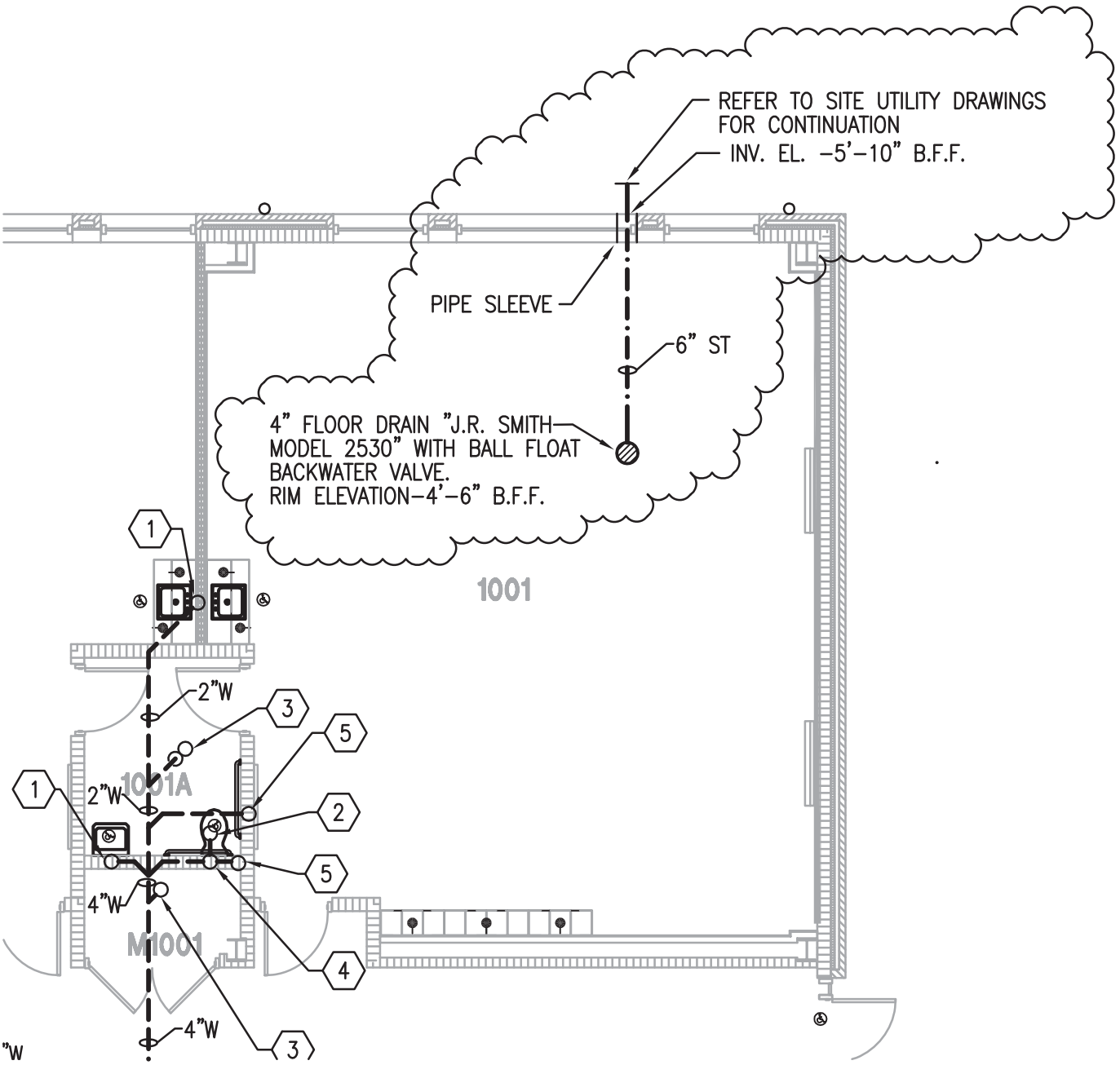
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

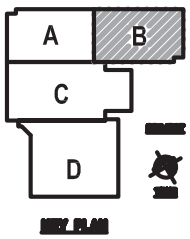
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 22





11085

TITLE: Foundation Unit B Plumbing Plan

SHEET: SK-1/P2.05

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01,14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: MJ
PHASE: BID DOCUMENTS

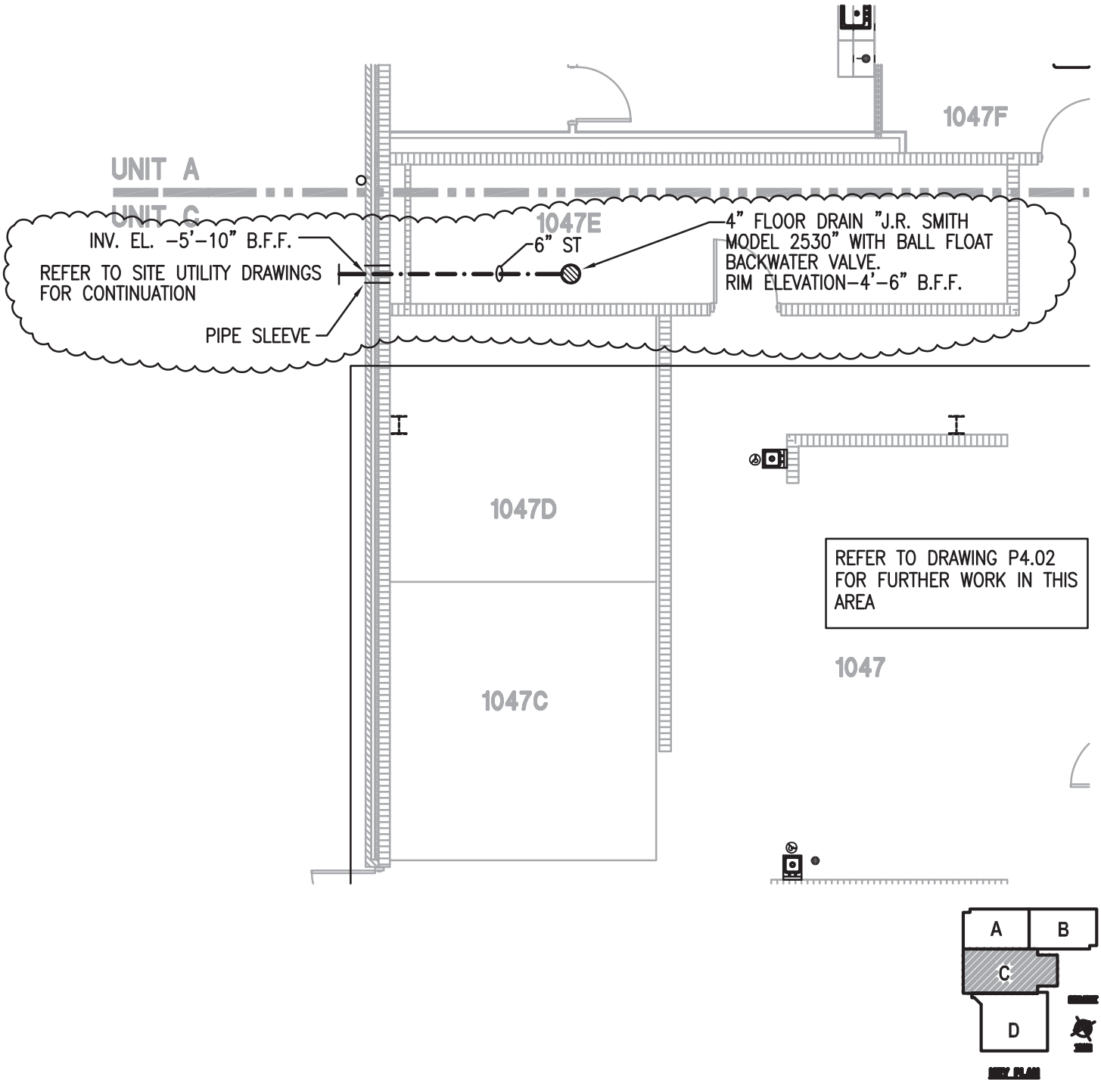
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 23



11085

TITLE: Foundation Unit C Plumbing Plan

SHEET: SK-1/P2.09

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: MJ
PHASE: BID DOCUMENTS

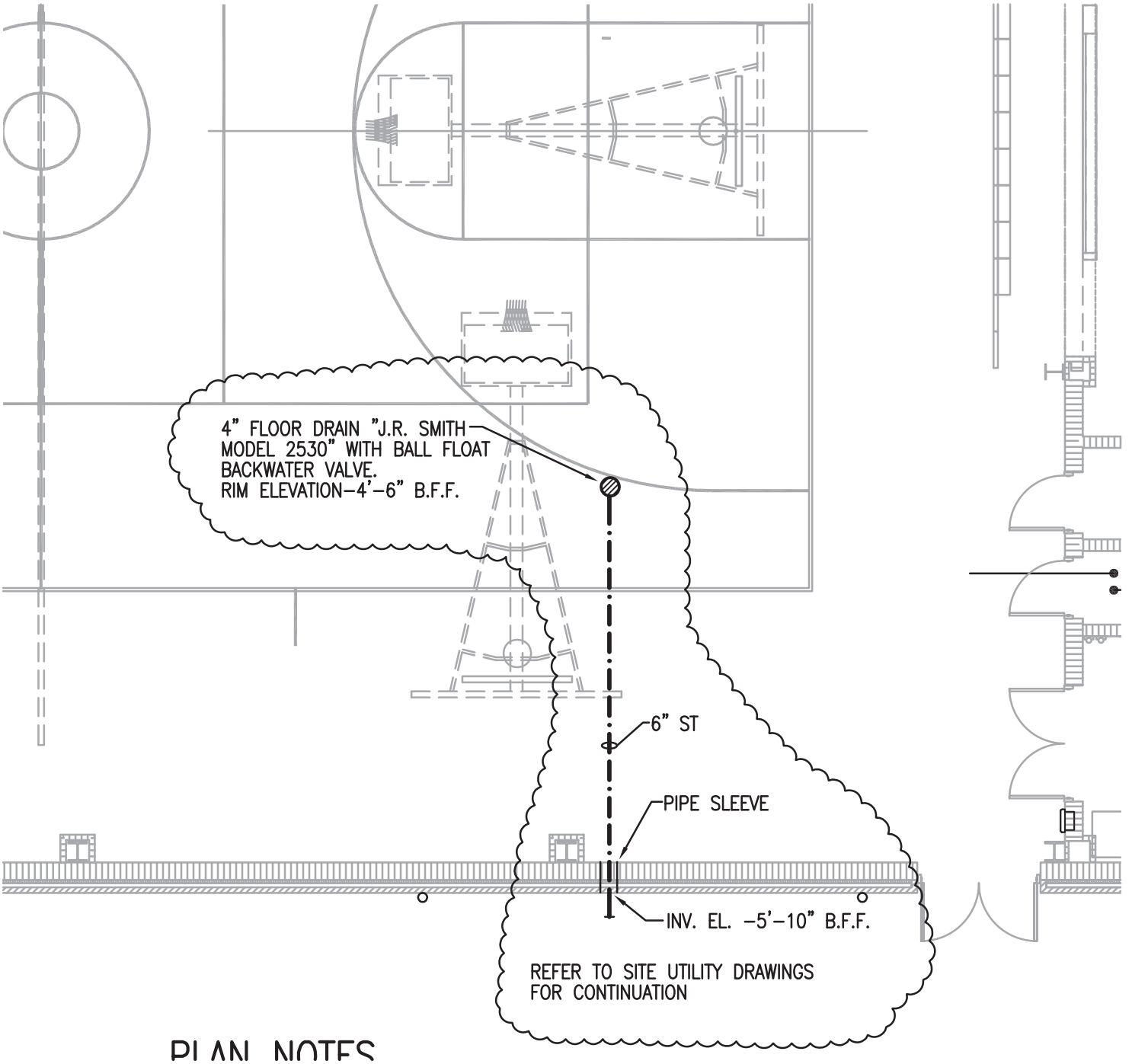
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

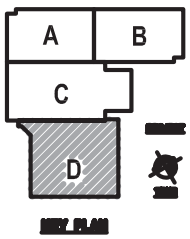
211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 24



PLAN NOTES



11085

TITLE:
Foundation Unit D Plumbing Plan

SHEET:
SK-1/P2.13

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: MJ
PHASE:
BID DOCUMENTS

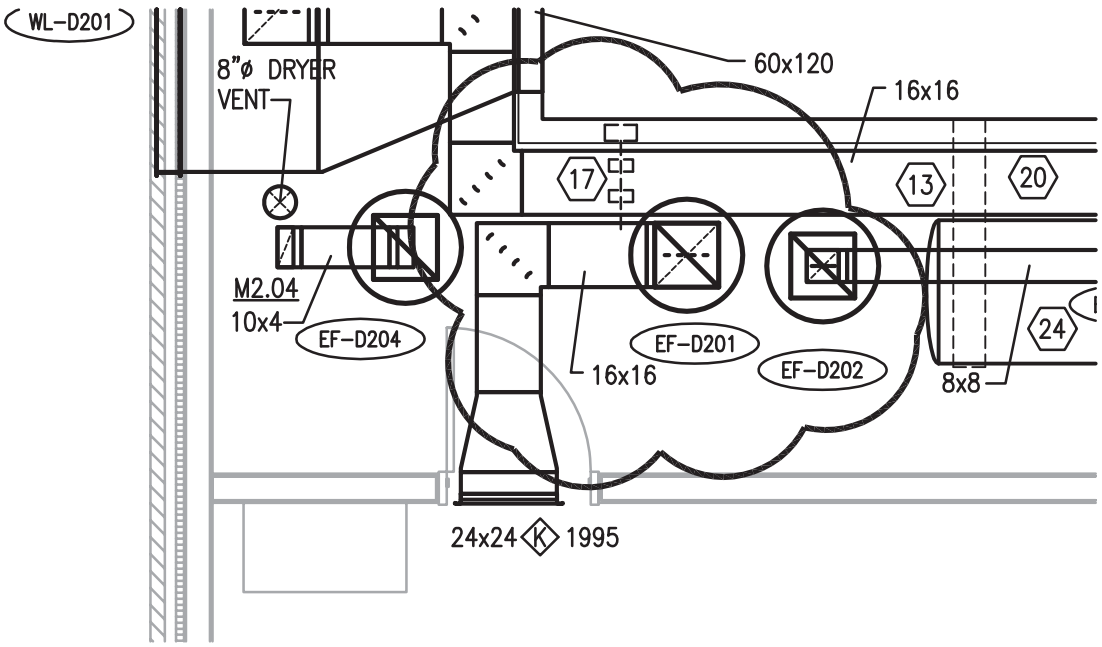
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

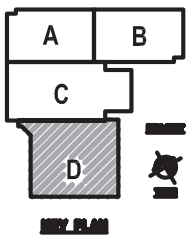
211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

Verges Rome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 25



ADDED AIR FLOW MONITORING STATION FOR DOAU-D202.



11085

TITLE: MECHANICAL ROOM VENTILATION PLAN

SHEET: SK-1/M4.01

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: LCB
PHASE: BID DOCUMENTS

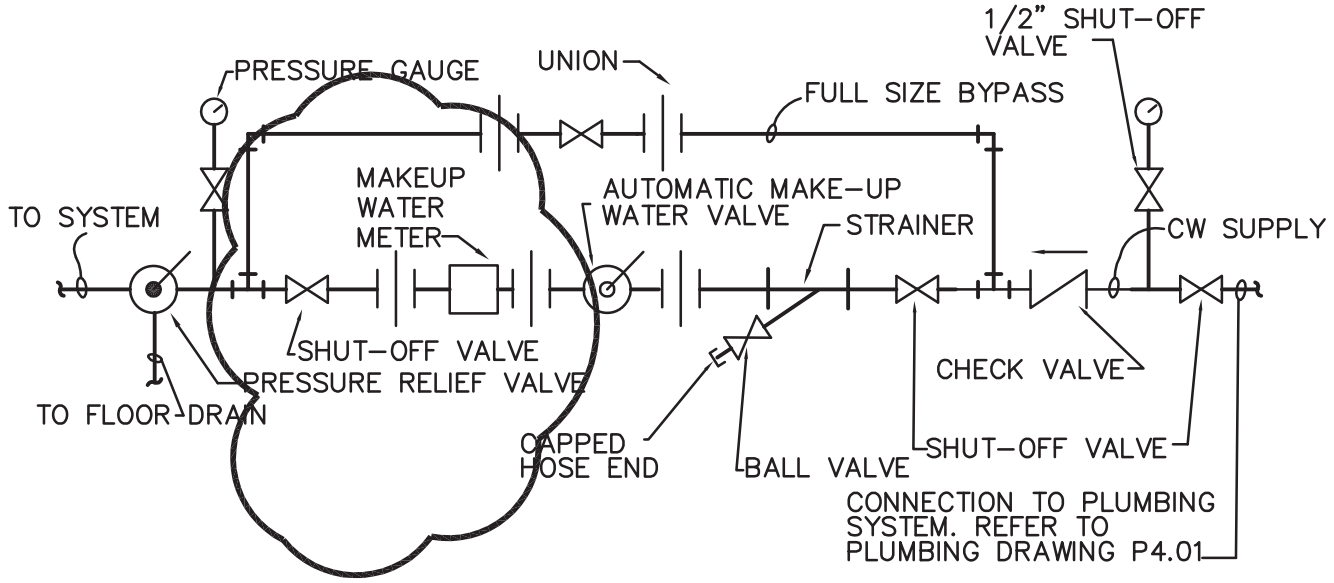
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 26



9 TYPICAL COLD WATER MAKE-UP DETAIL

NO SCALE

MAKEUP WATER DETAIL ON HEATING AND CHILLED WATER SCHEMATICS (M5.07 AND M5.08) HAS BEEN REMOVED AND THE WATER METER HAS BEEN SHOWN ON THIS DETAIL.

11085

TITLE: MECHANICAL DETAILS

SHEET: SK-1/M5.04

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: LCB
PHASE: BID DOCUMENTS

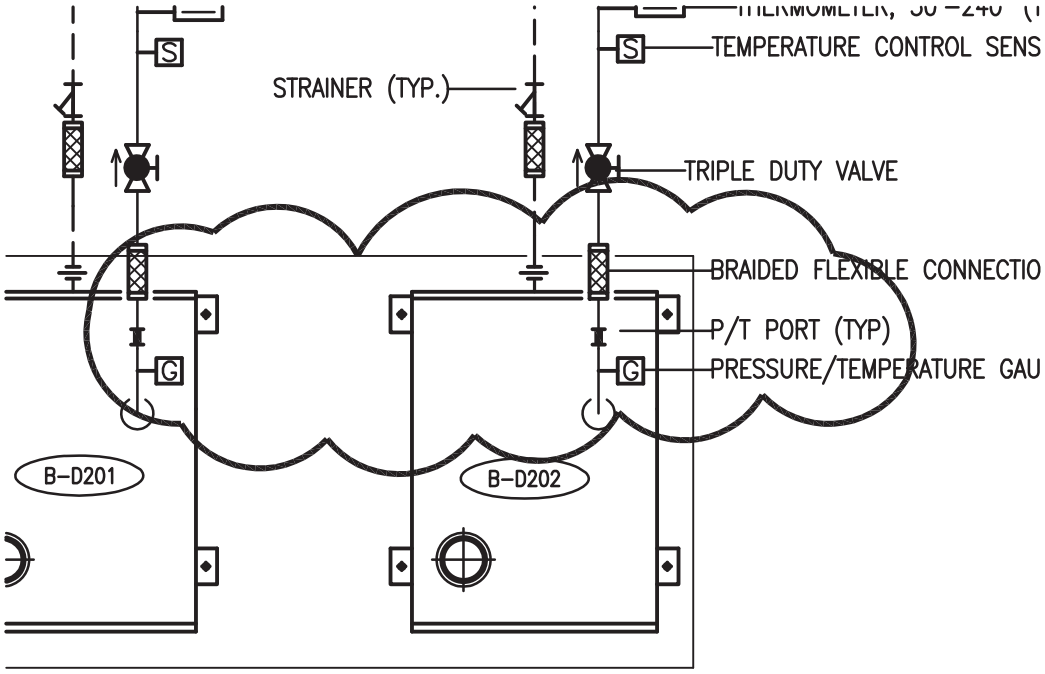
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

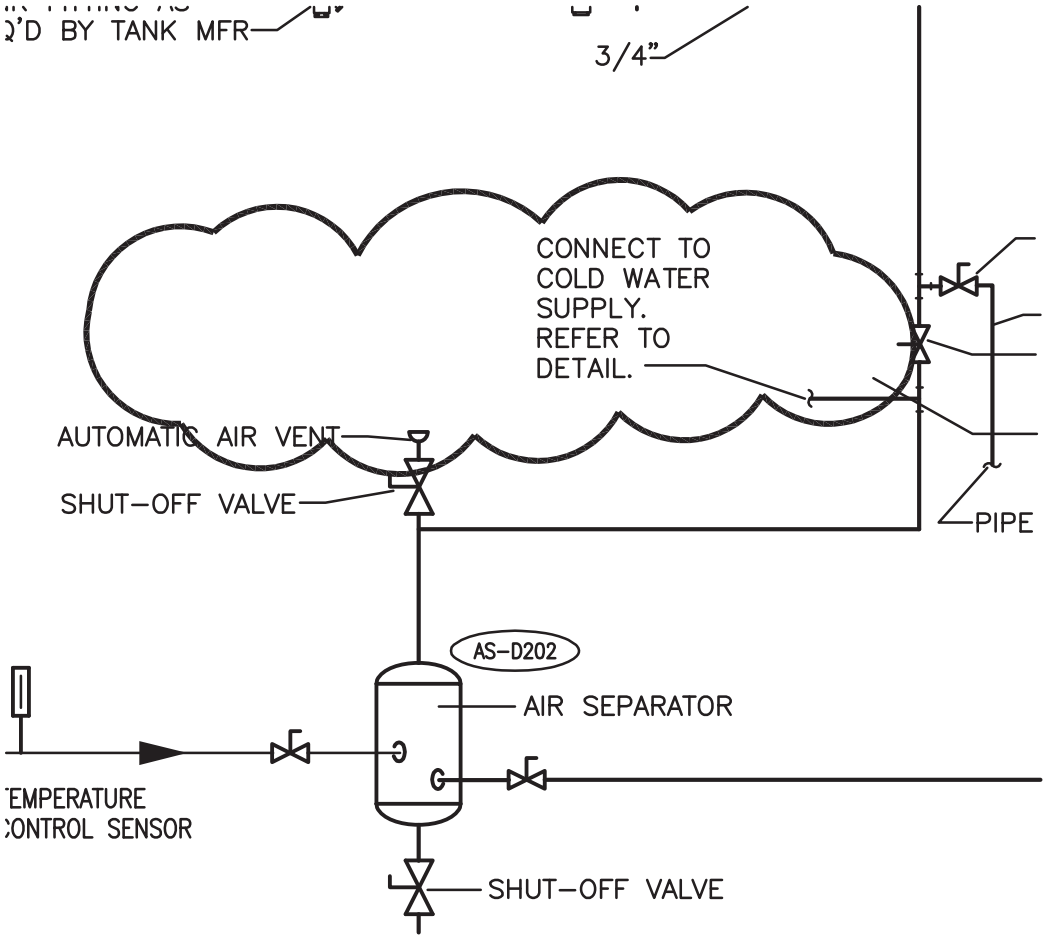
ATTACHMENT 27



REMOVED ISOLATION VALVE AND ADDED P/T PORTS.

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 28



REMOVE COLD WATER MAKEUP DETAIL ON THIS SHEET. REFER TO DETAIL ON M5.04. TYPICAL FOR HEATING WATER AND CHILLED WATER MAKE UP WATER SCHEMATICS.

11085

TITLE: HVAC HEATING WATER PIPING SCHEMATIC

SHEET: SK-2/M5.07

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: LCB
PHASE: BID DOCUMENTS

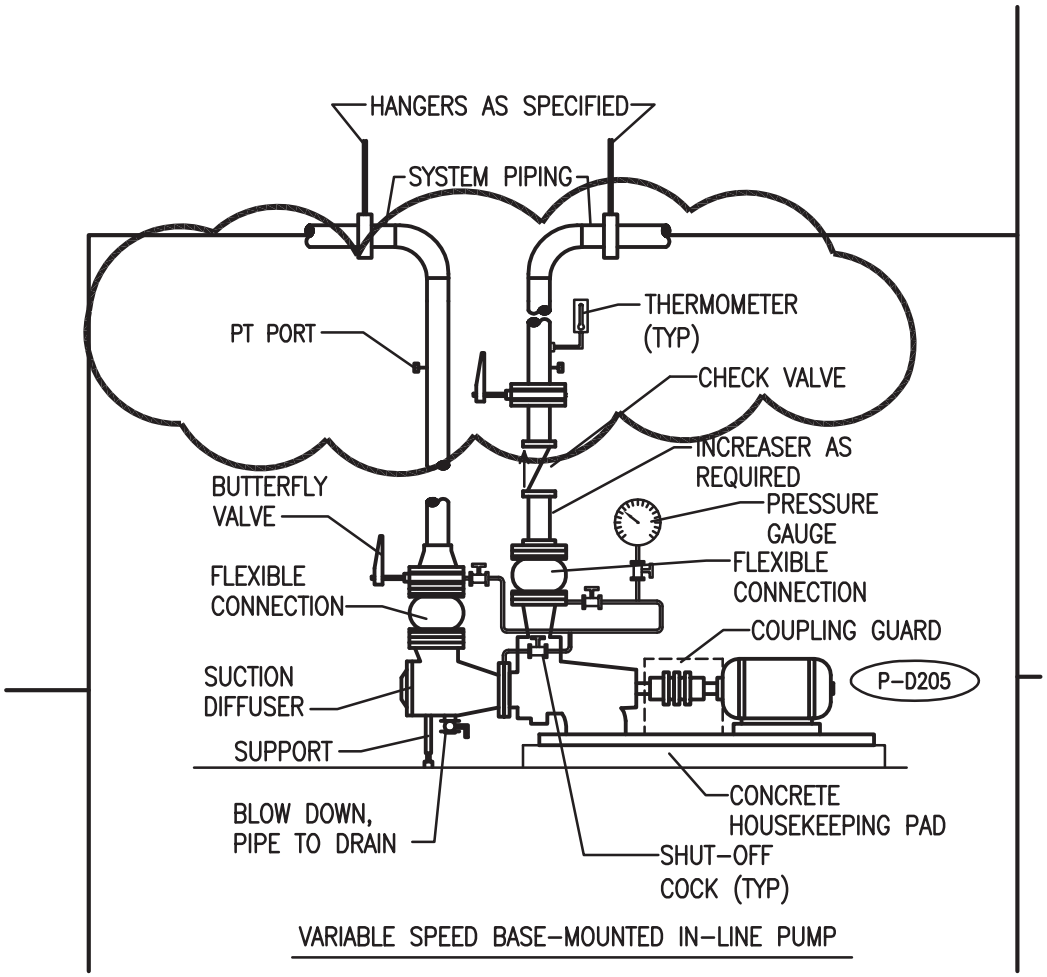
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 29

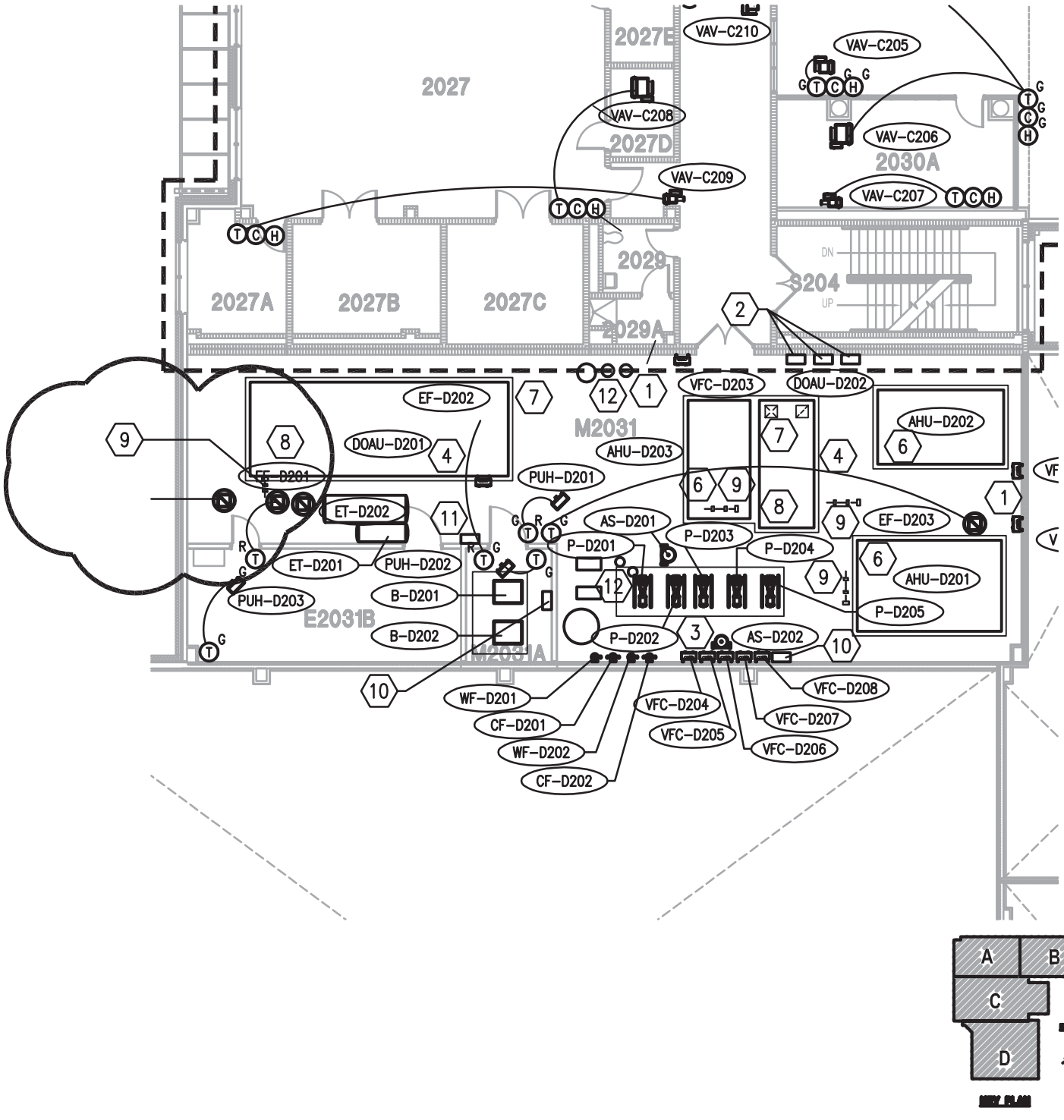


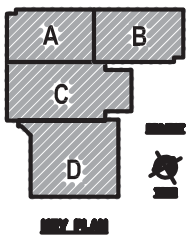
VARIABLE SPEED BASE-MOUNTED IN-LINE PUMP

ADDED P/T PORTS TO SUCTION AND DISCHARGE SIDE OF PUMPS.
TYPICAL FOR ALL VARIABLE SPEED BASE MOUNTED PUMPS.

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 30





11085

TITLE:
2ND FLOOR
TEMP. CONTROL PLAN

SHEET:
SK-1/M6.02

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: LCB
PHASE:
BID
DOCUMENTS

NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 31

AIN CHILLED WATER SUPPLY FLOW

CENTRAL COOLING PLANT CONTROLS POINTS LIST

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS					GRAPHIC	NOTES
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM		
CHILLER STATUS						X		X		X	(1)(10)
CHILLER ENABLE						X				X	(1)(10)
CHILLER KW	X							X		X	(1)
CHILLER RUNTIME					X			X		X	(1)(10)
CHILLER COMPRESSOR VFD SPEED					X			X		X	(1)(10)
CHILLER KW/TON					X			X		X	(1)
CHILLER FAILURE									X		(1)(2)
CHILLER RUNNING IN HAND									X		(1)(3)
CHILLER RUNTIME EXCEEDED									X		(1)(4)
EVAPORATOR ISOLATION VALVE STATUS			X							X	(1)
EVAPORATOR ISOLATION VALVE OPEN/CLOSE		X								X	(1)
EVAPORATOR ISOLATION VALVE FAILURE									X		(1)(2)
EVAPORATOR ISOLATION VALVE RUNNING IN HAND									X		(1)(3)
MAKEUP WATER METER	X							X	X	X	
MAKEUP WATER METER FAILURE									X		
CHILLED WATER FLOW	X							X		X	
CHILLED WATER FLOW MINIMUM SETPOINT					X					X	(11)
LOW CHILLED WATER FLOW									X		(5)
CHILLED WATER DIFFERENTIAL PRESSURE	X							X		X	
CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT					X			X		X	
HIGH CHILLED WATER DIFFERENTIAL PRESSURE									X		(6)
LOW CHILLED WATER DIFFERENTIAL PRESSURE									X		(5)
CHILLER LEAVING WATER TEMPERATURE	X							X		X	(1)
CHILLED WATER SUPPLY TEMPERATURE	X							X		X	
CHILLED WATER SUPPLY TEMPERATURE SETPOINT RESET		X						X		X	
HIGH CHILLED WATER SUPPLY TEMPERATURE									X		(7)
LOW CHILLED WATER SUPPLY TEMPERATURE									X		(8)
CHILLED WATER RETURN TEMPERATURE	X							X		X	(1)
CHILLED WATER PUMP STATUS			X			X		X		X	(1)(9)
CHILLED WATER PUMP START/STOP						X				X	(1)(9)
CHILLED WATER PUMP VFD SPEED					X			X		X	(1)(9)
CHILLED WATER PUMP VFD KW					X			X		X	(1)(9)
CHILLED WATER PUMP VFD MOTOR RUNTIME					X			X		X	(1)(9)
CHILLED WATER PUMP VFD FAULT					X			X	X	X	(1)(9)
CHILLED WATER PUMP FAILURE									X		(1)(2)
CHILLED WATER PUMP RUNNING IN HAND									X		(1)(3)
CHILLED WATER PUMP RUNTIME EXCEEDED									X		(1)(4)
CENTRAL COOLING PLANT KW/TON					X			X		X	

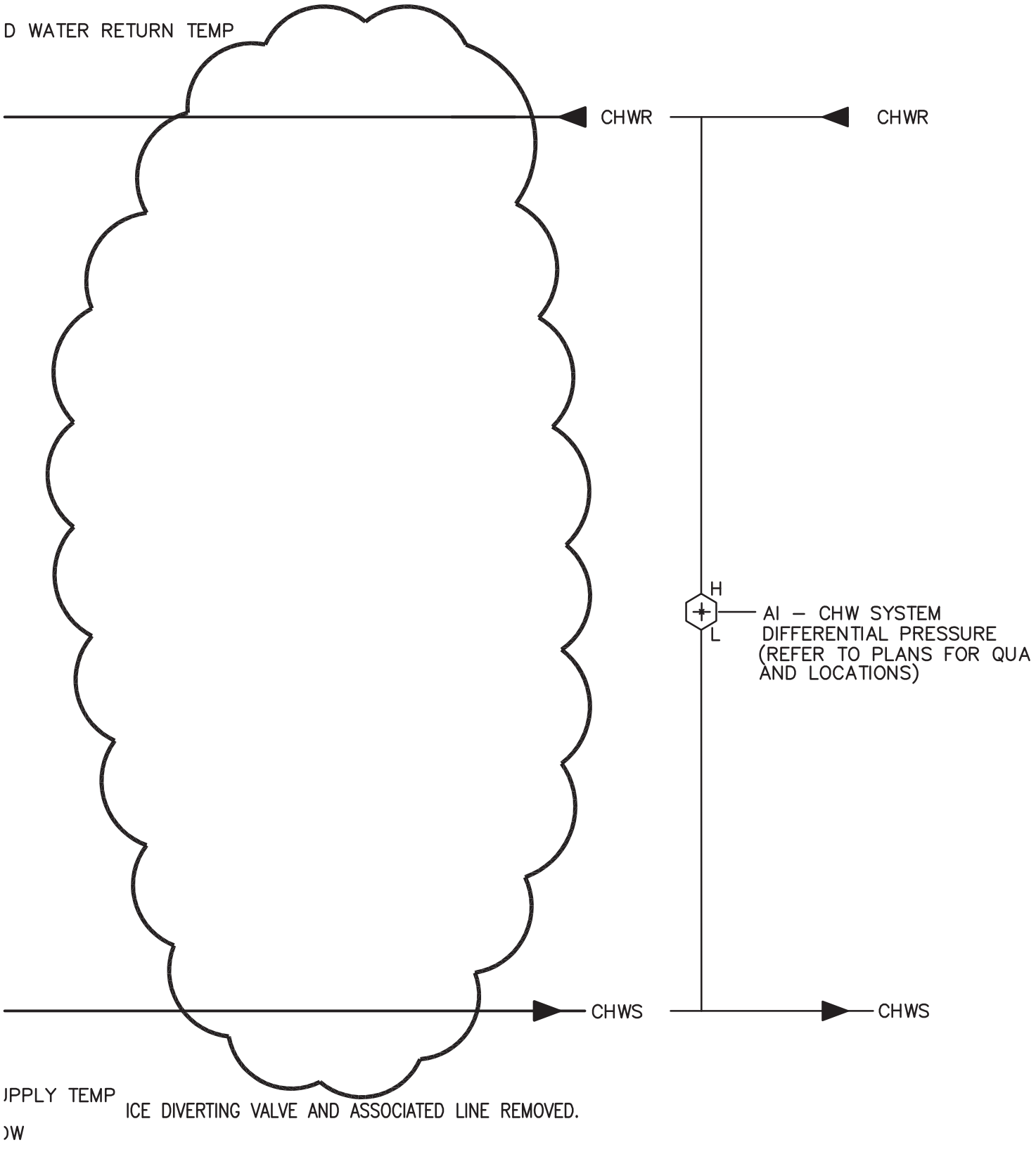
NOTES:

(1) EACH ITEM INDIVIDUALLY
(2) PROVIDE ALARM WHEN EQUIPMENT IS COMMANDED ON, BUT STATUS IS OFF.
(3) PROVIDE ALARM WHEN EQUIPMENT IS COMMANDED OFF, BUT STATUS IS ON.
(4) PROVIDE ALARM WHEN STATUS RUNTIME EXCEEDS USER DEFINABLE LIMIT.
(5) PROVIDE ALARM WHEN 20%(ADJ.) LOWER THAN SETPOINT.
(6) PROVIDE ALARM WHEN 20%(ADJ.) HIGHER THAN SETPOINT.
(7) PROVIDE ALARM WHEN 3 DEG. (ADJ.) HIGHER THAN SETPOINT
(8) PROVIDE ALARM WHEN 3 DEG. (ADJ.) LOWER THAN SETPOINT
(9) VFD INTERFACE POINT
(10) CHILLER CONTROLLER INTERFACE POINT
(11) PROVIDE 2 SETPOINTS (ONE AND TWO CHILLER OPERATION)

ADDED MAKE UP WATER INFORMATION.

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 32



11085

TITLE:
CHILLED WATER CONTROL SCHEMATICS

SHEET:
SK-2/M6.07

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY:
CHECKED BY: LCB
PHASE:
BID DOCUMENTS

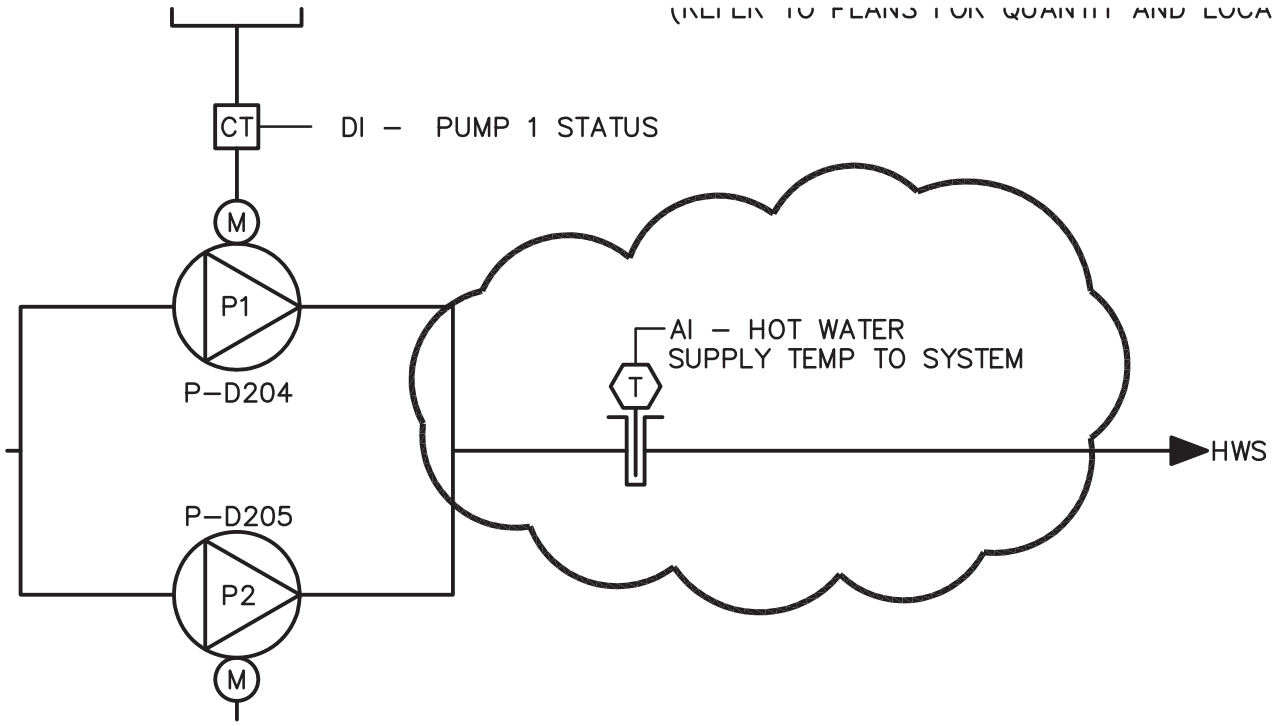
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 33



ADDED TEMPERATURE SENSOR TO SCHEMATIC TO MATCH DETAILS.

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 34

CENTRAL HEATING PLANT CONTROLS POINTS LIST

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS					GRAPHIC	NOTES
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM		
BOILER STATUS						X		X		X	(1)(9)
BOILER ENABLE						X		X		X	(1)(9)
BOILER RUNTIME					X			X		X	(1)(9)
BOILER FLOW STATUS						X		X		X	(1)(9)
BOILER ALARM STATUS						X			X	X	(1)(9)
BOILER FAILURE									X		(1)(2)(9)
BOILER RUNNING IN HAND									X		(1)(3)(9)
BOILER RUNTIME EXCEEDED									X		(1)(4)(9)
HOT WATER SUPPLY TEMPERATURE					X			X		X	
HOT WATER SUPPLY TEMPERATURE SETPOINT RESET					X			X		X	(9)
HOT WATER SUPPLY TEMPERATURE TO SYSTEM					X			X		X	(9)
BOILER ENTERING WATER TEMPERATURE					X			X		X	(1)(9)
BOILER LEAVING WATER TEMPERATURE					X			X		X	(1)(9)
BOILER ISOLATION VALVE STATUS			X							X	(1)
BOILER ISOLATION VALVE OPEN/CLOSE		X								X	(1)
BOILER ISOLATION VALVE FAILURE									X		(1)(2)
MAKEUP WATER FLOW RATE	X							X	X	X	
MAKE UP WATER METER FAILURE									X		
HIGH HOT WATER SUPPLY TEMPERATURE									X		(7)
LOW HOT WATER SUPPLY TEMPERATURE									X		(8)
HOT WATER RETURN TEMPERATURE					X			X		X	(9)
HOT WATER DIFFERENTIAL PRESSURE	X							X		X	
HOT WATER DIFFERENTIAL PRESSURE SETPOINT					X			X		X	
HIGH HOT WATER DIFFERENTIAL PRESSURE									X		(6)
LOW HOT WATER DIFFERENTIAL PRESSURE									X		(5)
HOT WATER PUMP STATUS						X		X		X	(1)(10)
HOT WATER PUMP START/STOP						X		X		X	(1)(10)
HOT WATER PUMP VFD SPEED					X			X		X	(1)(10)
HOT WATER PUMP VFD KW					X			X		X	(1)(10)
HOT WATER PUMP VFD MOTOR RUNTIME					X			X		X	(1)(10)
HOT WATER PUMP VFD FAULT					X				X	X	(1)(10)
HOT WATER PUMP VFD KW					X			X		X	(1)(10)
HOT WATER PUMP FAILURE									X		(1)(2)(10)
HOT WATER PUMP RUNNING IN HAND									X		(1)(3)(10)
HOT WATER PUMP RUNTIME EXCEEDED									X		(1)(4)(10)
HOT WATER FLOW	X							X		X	
OUTDOOR AIR TEMPERATURE					X			X		X	

NOTES:

(1) EACH ITEM INDIVIDUALLY

(2) PROVIDE ALARM WHEN EQUIPMENT IS COMMANDED ON, BUT STATUS IS OFF.

(3) PROVIDE ALARM WHEN EQUIPMENT IS COMMANDED OFF, BUT STATUS IS ON.

(4) PROVIDE ALARM WHEN STATUS RUNTIME EXCEEDS USER DEFINABLE LIMIT.

(5) PROVIDE ALARM WHEN 20%(ADJ.) LOWER THAN SETPOINT.

(6) PROVIDE ALARM WHEN 20%(ADJ.) HIGHER THAN SETPOINT.

(7) PROVIDE ALARM WHEN ABOVE 200 DEGREES (ADJ.).

(8) PROVIDE ALARM BELOW 100 DEGREES (ADJ.).

(9) BOILER INTERFACE POINT

(10) VFD INTERFACE POINT

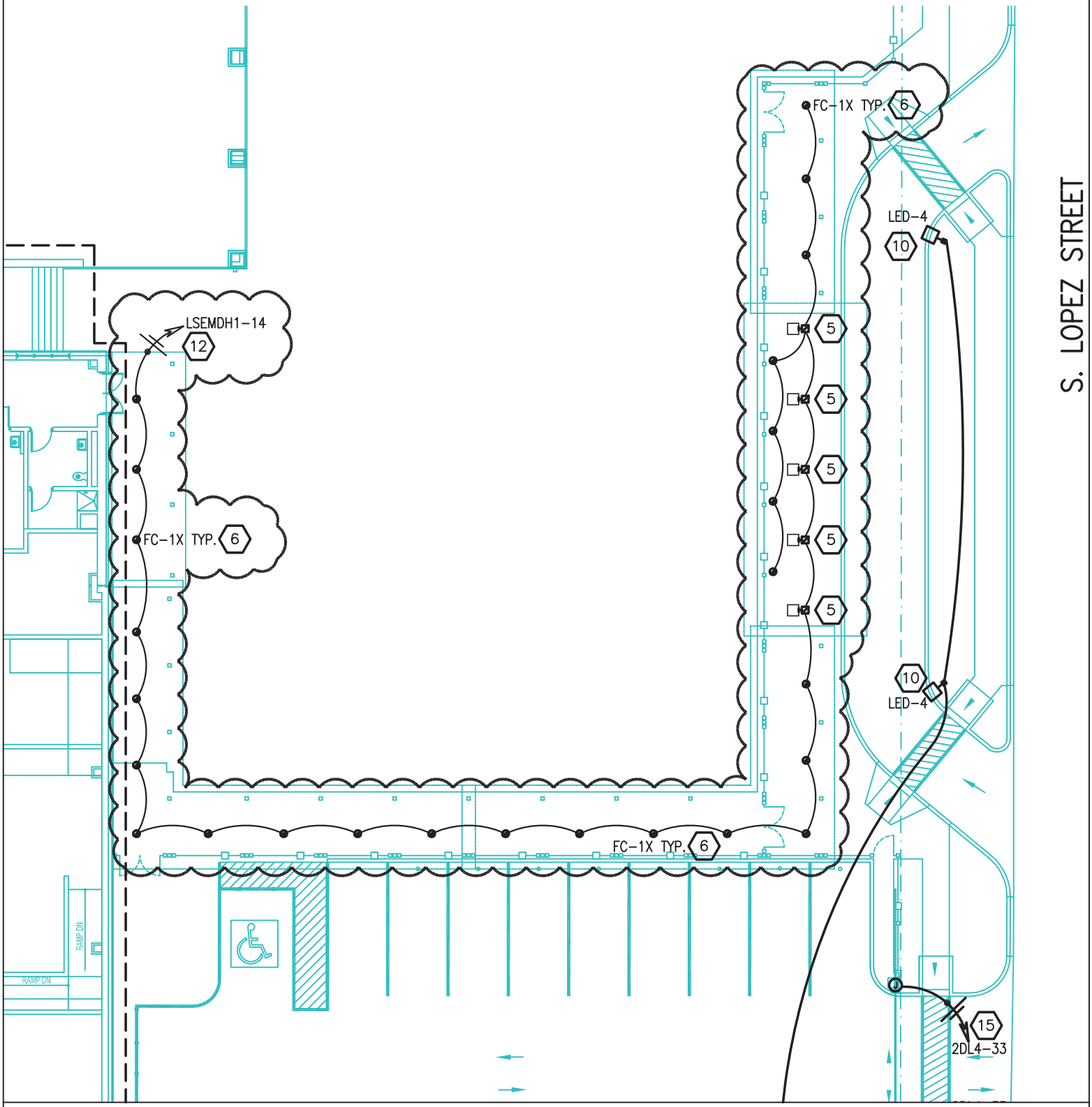
ADDED TEMPERATURE SENSOR TO MATCH DETAILS. ADDED MAKE UP WATER INFORMATION

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 35

SITE PLAN NOTES:

5 FW-1X LIGHT FIXTURE MOUNTED TO THE SIDE OF THE COLUMN, TOP OF FIXTURE JUST BELOW COLUMN CAP.



11085

TITLE: ELECTRICAL SITE PLAN

SHEET: SK-1/E2.01

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE: BID DOCUMENTS

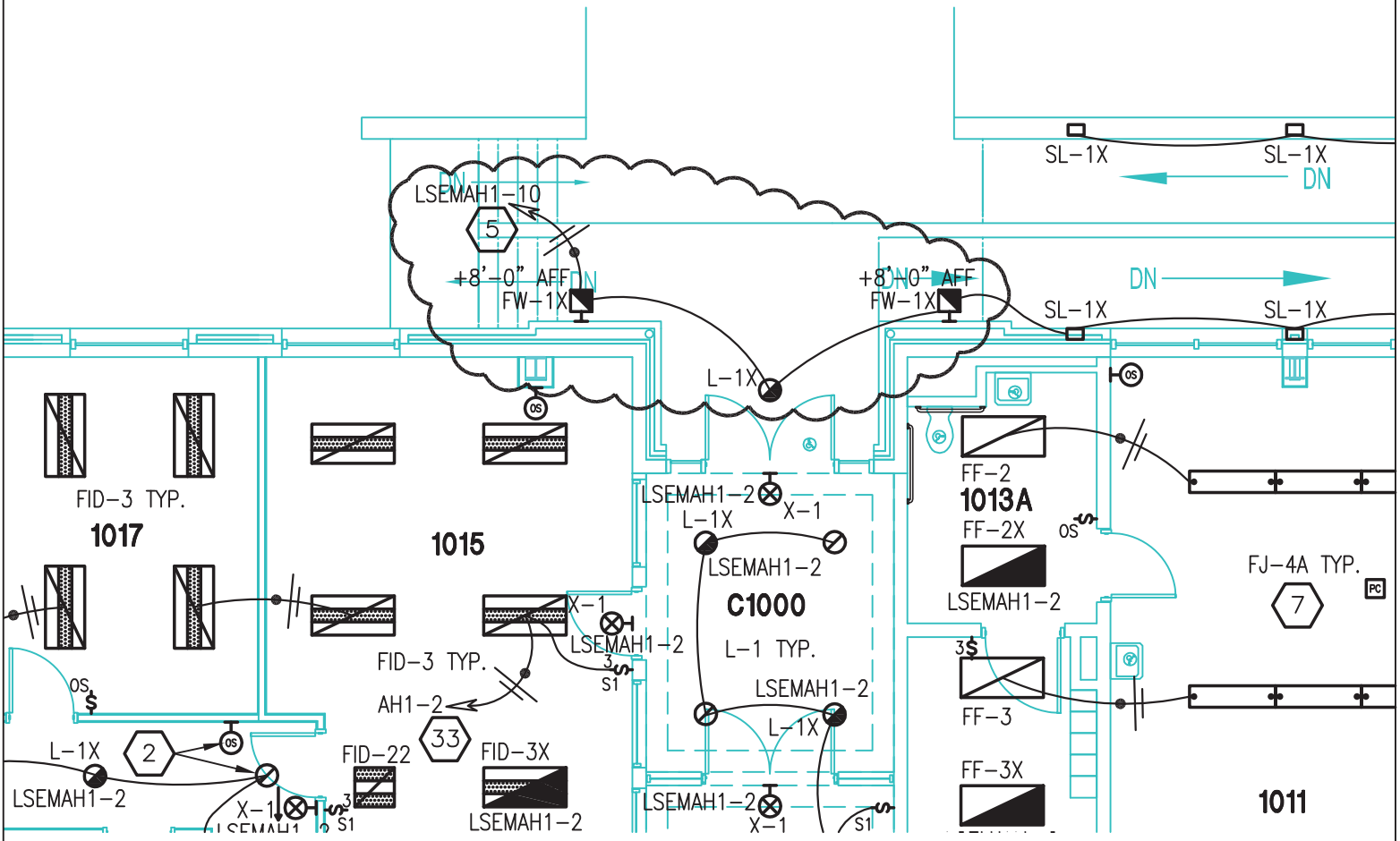
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

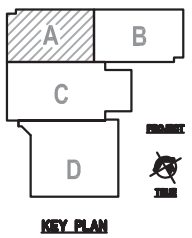
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 36





11085

TITLE:
UNIT A FIRST FLOOR LIGHTING PLAN

SHEET:
SK-1/E4.01

DATE ISSUED:	7 DECEMBER, 2012
REVISED:	ADDENDUM 01, 14 JANUARY, 2013
REVISED:	
REVISED:	
REVISED:	
DRAWN BY:	GLM
CHECKED BY:	CS
PHASE:	BID DOCUMENTS

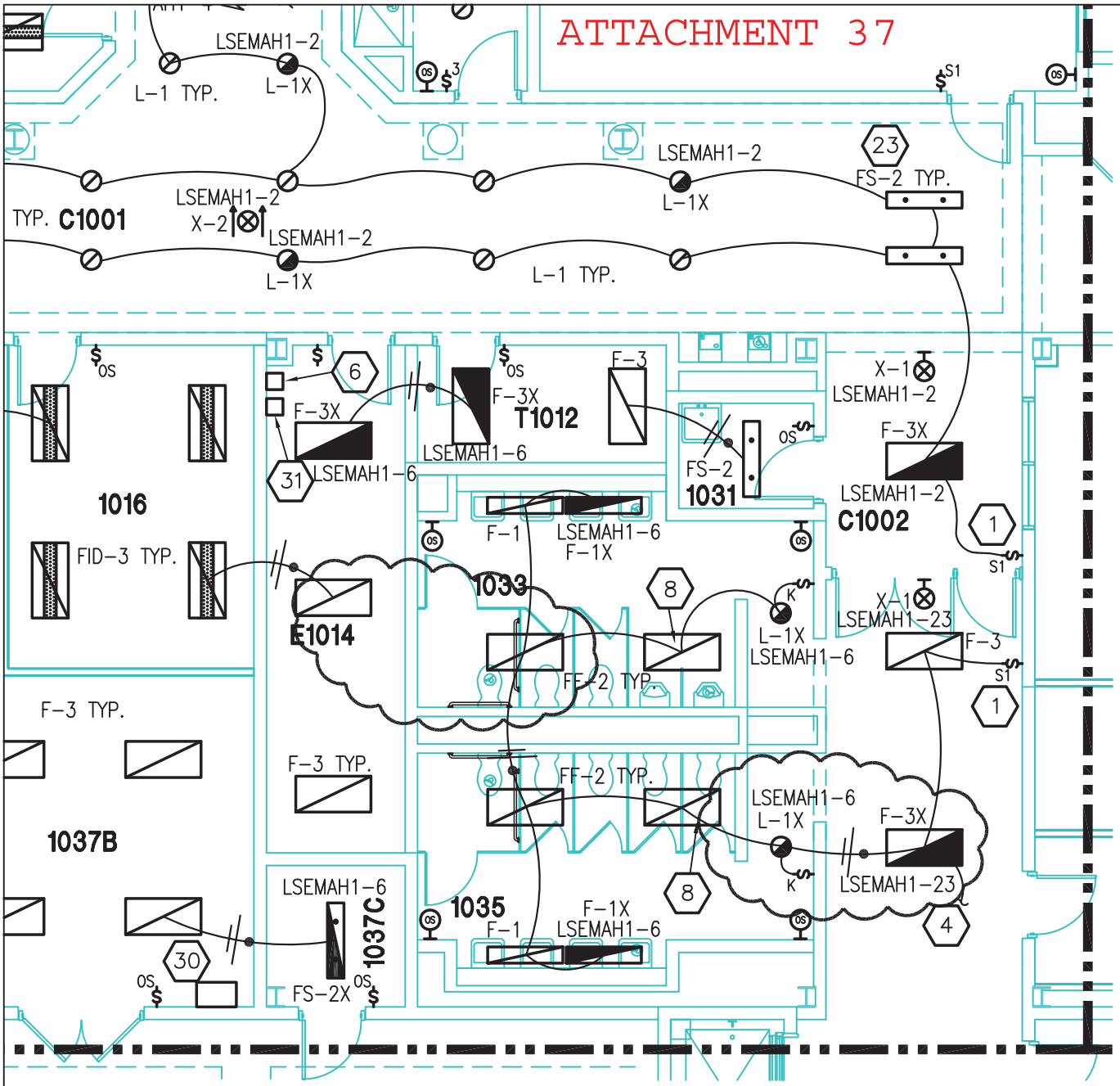
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

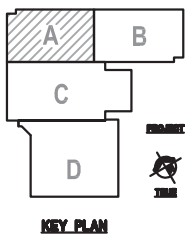
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 37





11085

TITLE: UNIT A FIRST FLOOR LIGHTING PLAN

SHEET: SK-2/E4.01

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE: BID DOCUMENTS

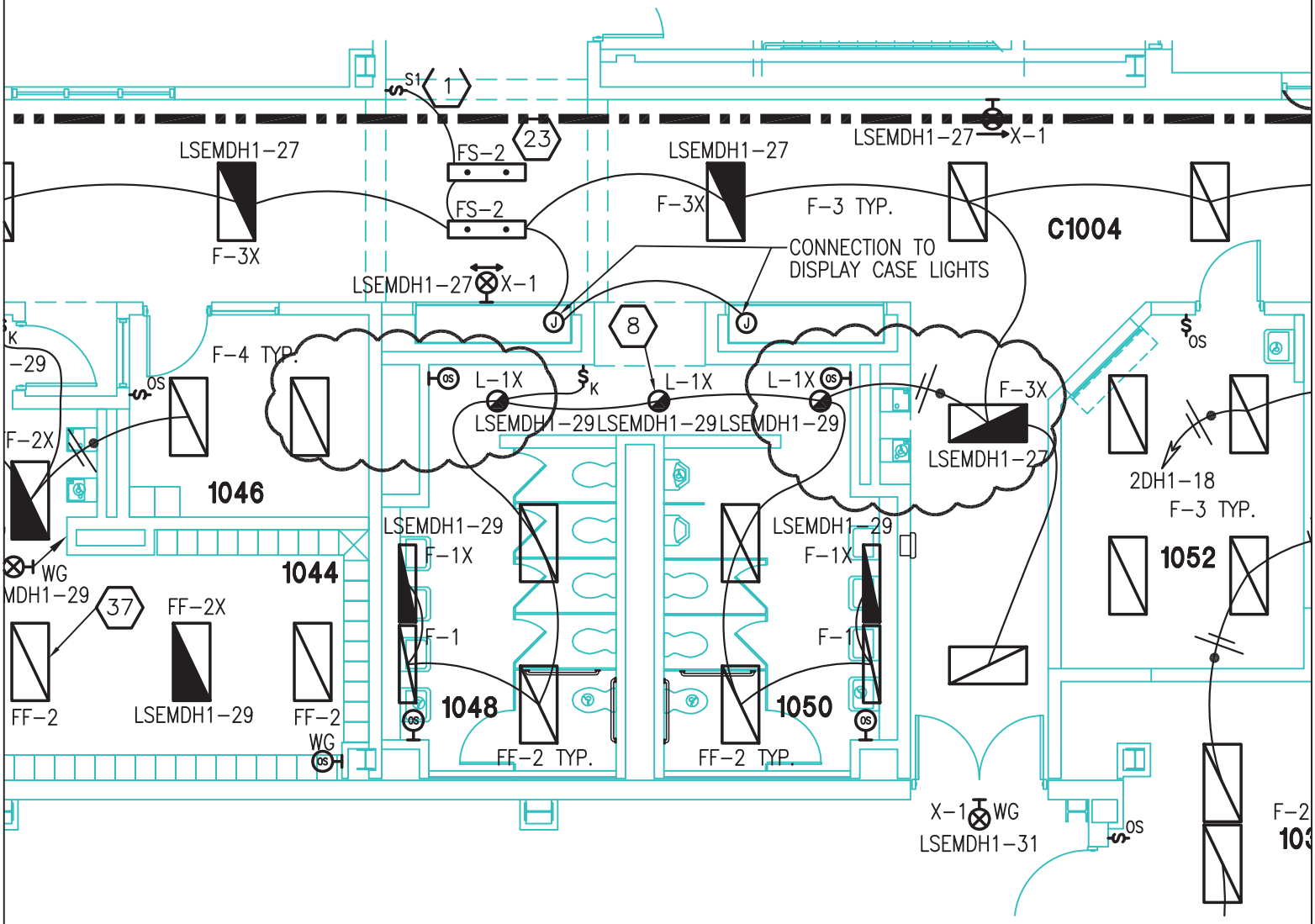
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

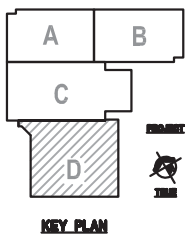
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 39





11085

TITLE:
UNIT D FIRST FLOOR LIGHTING PLAN

SHEET:
SK-2/E4.04

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE:
BID DOCUMENTS

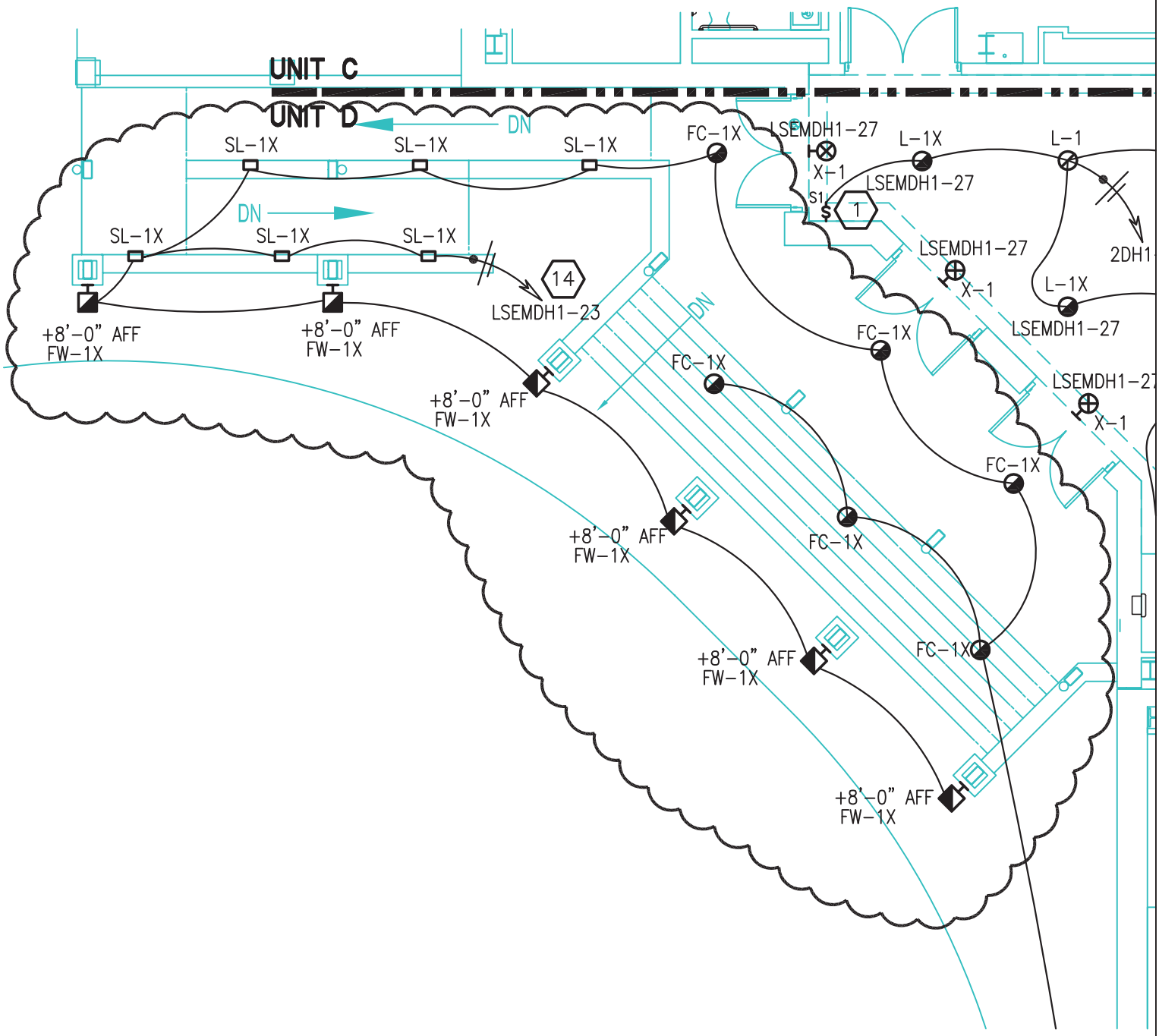
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

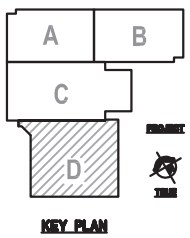
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 40





11085

TITLE:
UNIT D FIRST FLOOR LIGHTING PLAN

SHEET:
SK-1/E4.04

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE:
BID DOCUMENTS

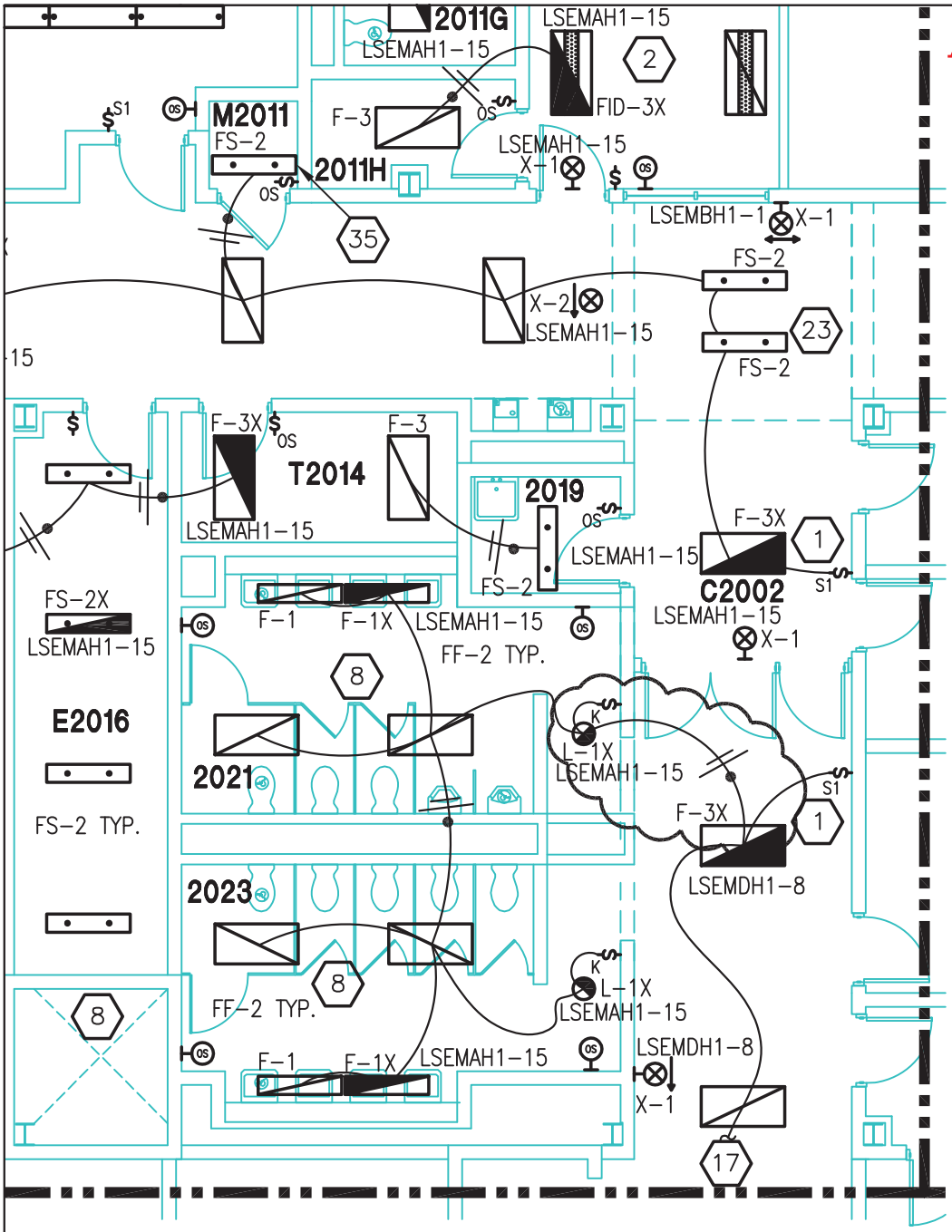
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

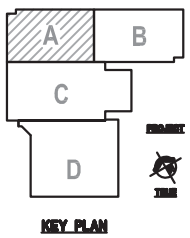
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 41





11085

TITLE:
UNIT A SECOND FLOOR LIGHTING PLAN

SHEET:
SK-1/E4.05

DATE ISSUED:	7 DECEMBER, 2012
REVISED:	ADDENDUM 01, 14 JANUARY, 2013
REVISED:	
REVISED:	
REVISED:	
DRAWN BY:	GLM
CHECKED BY:	CS
PHASE:	BID DOCUMENTS

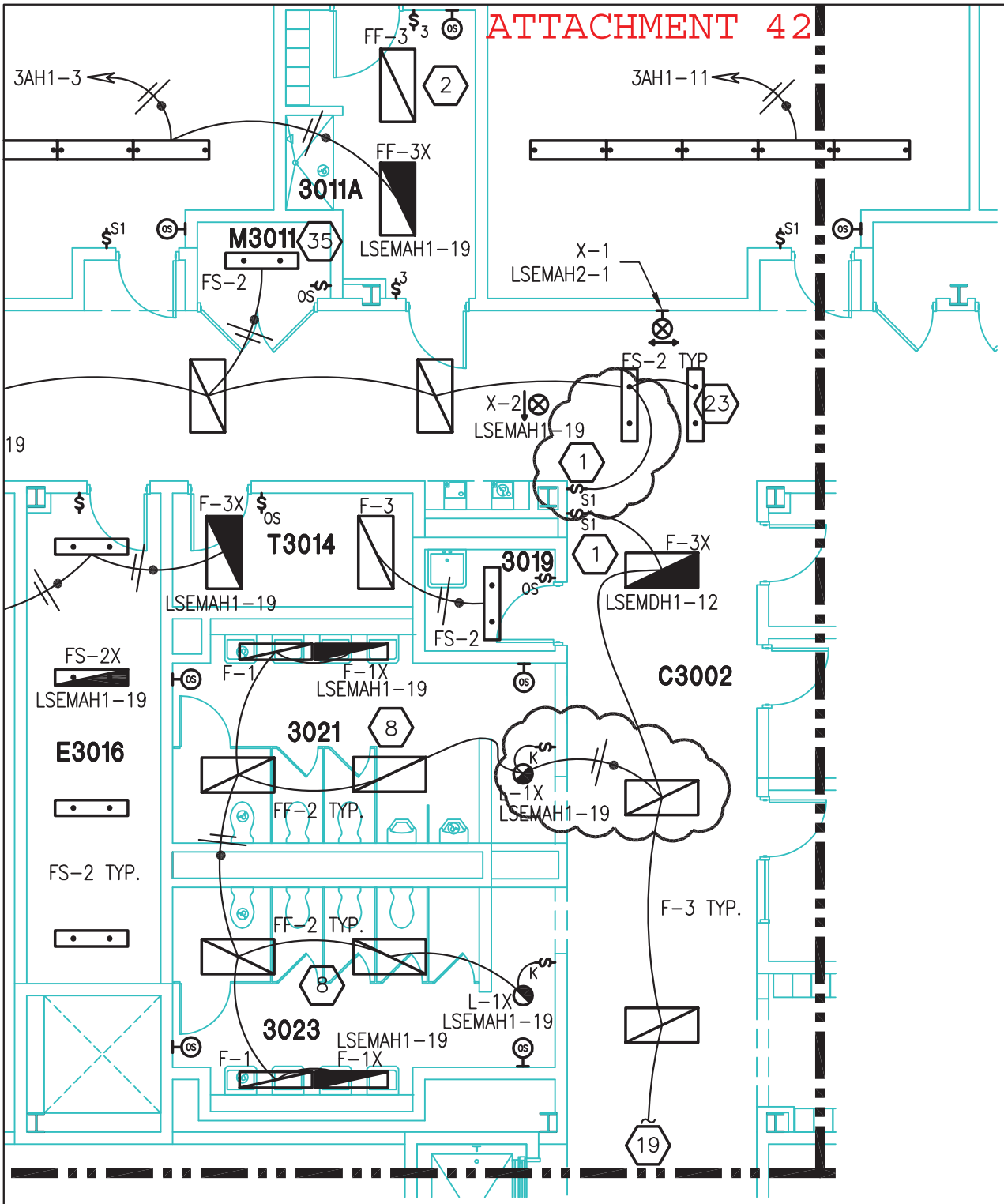
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

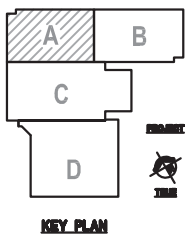
RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 42





11085

TITLE:
UNIT A THIRD FLOOR LIGHTING PLAN

SHEET:
SK-1/E4.09

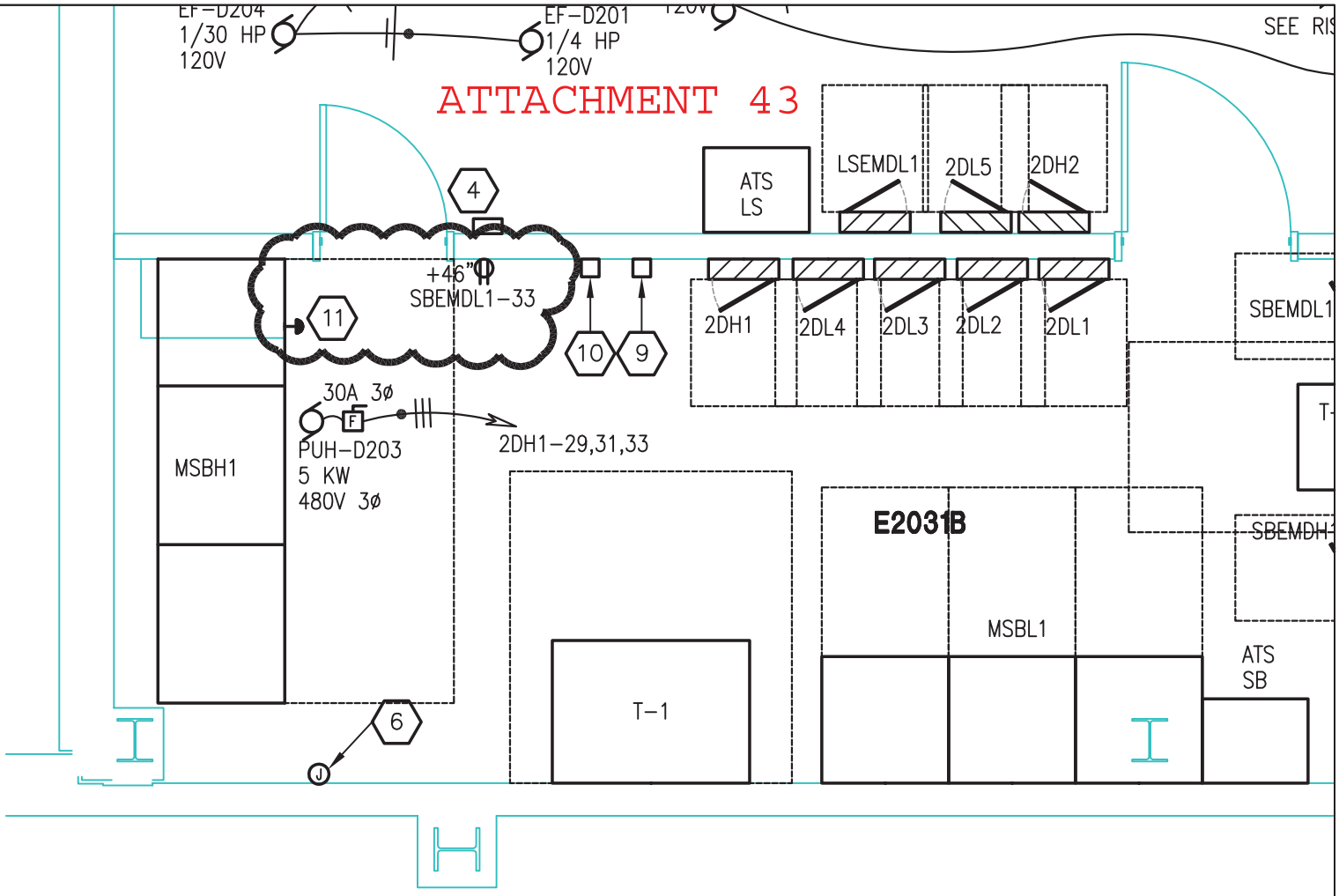
DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE:
BID DOCUMENTS

NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

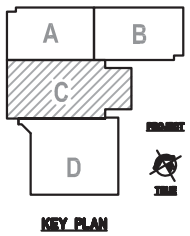


ENLARGED MECH. AND ELECT. ROOM

1/4" = 1'-0"

PLAN NOTES:

11 MAIN EMERGENCY BUILDING ELECTRICAL SHUT DOWN SWITCHES ON MSBH1 LOCATED BEHIND A CLEAR PLASTIC COVERS. REFER TO ELECTRICAL RISER.



11085

TITLE: ENLARGED MECH. & ELECTRICAL ROOM

SHEET: SK-1/E6.02

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE: BID DOCUMENTS

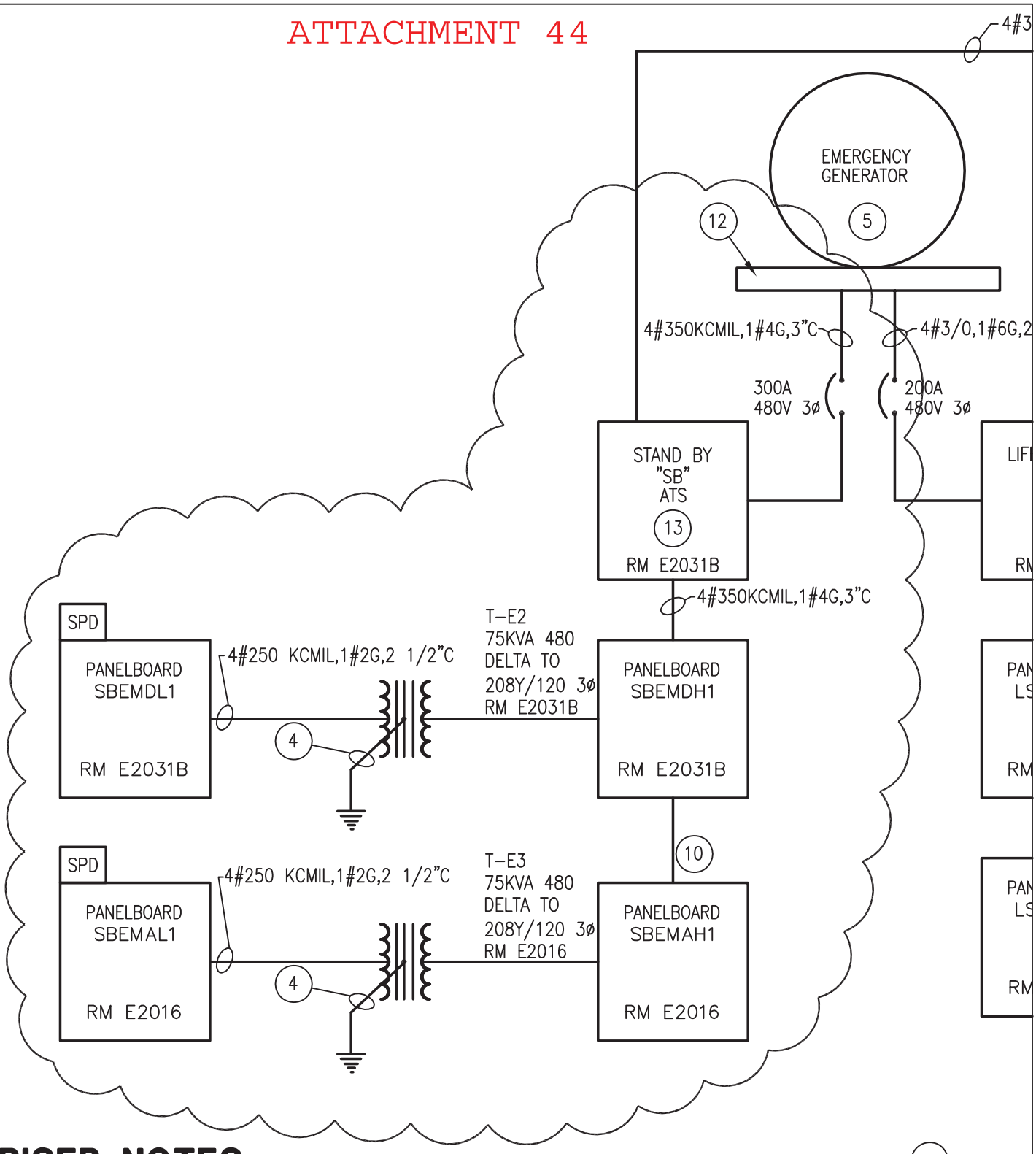
NEW 3 SECTION ELEMENTARY SCHOOL
AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 44



RISER NOTES:

5 300KW, 277/480 VOLT, 3 PHASE 4 WIRE NATURAL GAS EMERGENCY GENERATOR WITH OVERSIZED ALTERNATOR AND (2) DISTRIBUTION 3 PHASE BREAKERS. SIZE CONCRETE PAD PER MANUFACTURE'S RECOMMENDATIONS.

13 AUTOMATIC TRANSFER DEVICE SHALL BE 400 AMP 277/480 VOLT THREE PHASE 4 POLE

11085

TITLE: ELECTRICAL SINGLE LINE DIAGRAM

SHEET: SK-1/E7.01

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE: BID DOCUMENTS

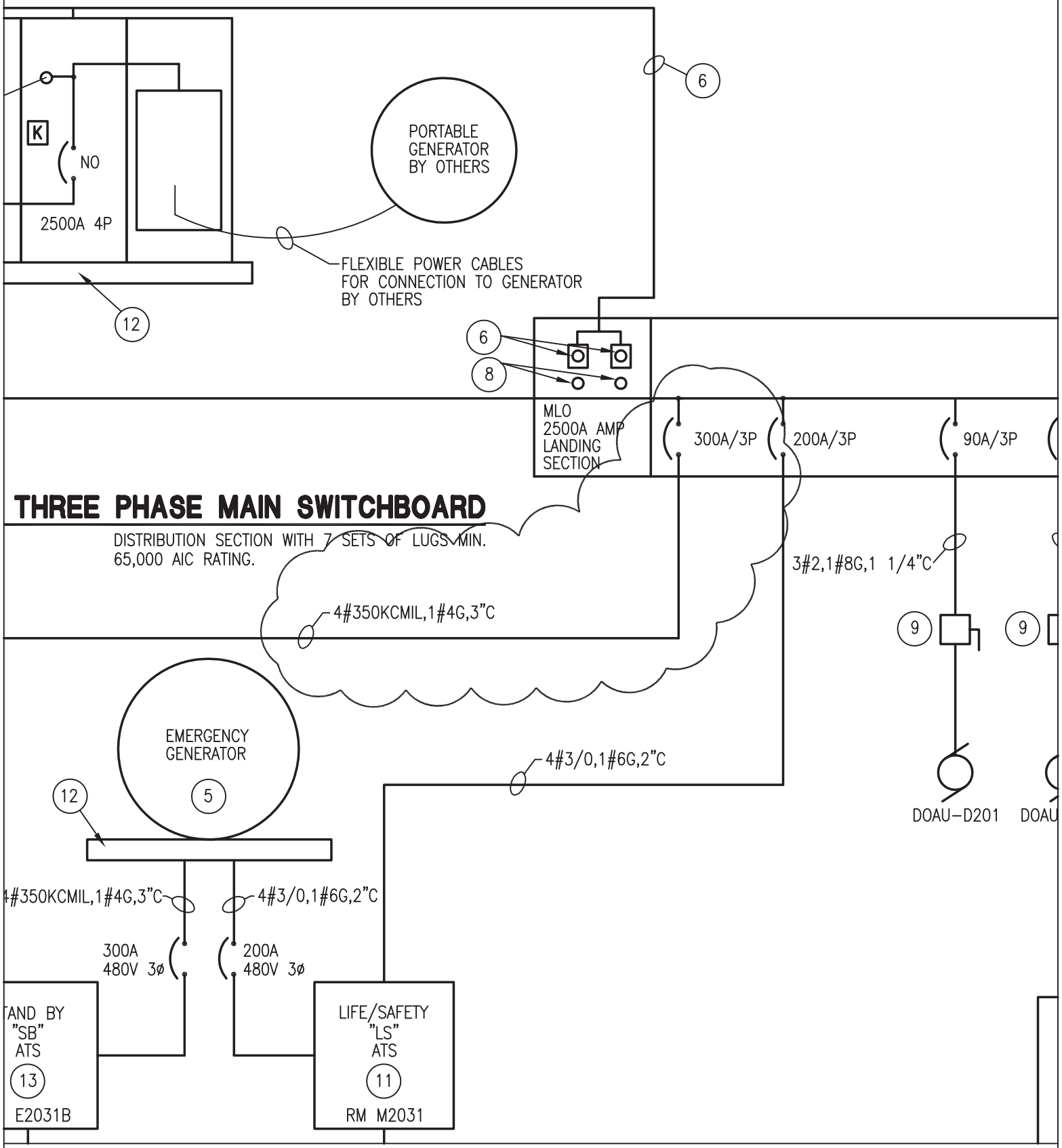
NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 45



11085

TITLE: ELECTRICAL SINGLE LINE DIAGRAM

SHEET: SK-2/E7.01

DATE ISSUED: 7 DECEMBER, 2012
REVISED: ADDENDUM 01, 14 JANUARY, 2013
REVISED:
REVISED:
REVISED:
DRAWN BY: GLM
CHECKED BY: CS
PHASE: BID DOCUMENTS

NEW 3 SECTION ELEMENTARY SCHOOL AT FISK-HOWARD SCHOOL

RECOVERY SCHOOL DISTRICT

211 S. LOPEZ STREET NEW ORLEANS, LOUISIANA 70119

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 46

NOTE:

2 "X" INDICATED FIXTURE IS ON AN EMERGENCY CIRCUIT WITH AN EMERGENCY TRANSFER DEVICE.

LIGHT FIXTURE SCHEDULE

PLAN TYPE	MANUFACTURER/CATALOG	MOUNTING	LAMPS			APPLIED VOLTAGE	DESCRIPTION
			NO.	WATTS	TYPE/LU		
FC-1X	LITHONIA VG05C-32TRT BEGA 2842P DAYBRITE VO-W-32C-C-C	CEILING	1 OR 2	32	32W TTT OR (2)13W CF	277	WET LOCATION, CEILING MOUNTED FLUORESCENT LIGHT FIXTURE WITH OPAL LENS. CROSS LENS GUARD. COLOR BY ARCHITECT. OVAL SHAPE. WITH EMERGENCY TRANSFER DEVICE.
FW-1X	ADVENT HARBOR AEW9980 COOPER 674-43-WP	WALL	2	21	2F21WT5	277	WET LOCATION WALL MOUNTED HALF CYLINDER. 36" TALL FLUORESCENT WALL SCONCE WITH OPAL LENS. STANDARD/PREMIUM COLOR BY ARCHITECT.

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 47

PANEL ID:	**AH1**	LOCATION:	E1014
CONFIGURATION:	480Y/277 V, 3-PHASE, 4-WIRE PLUS GROUND	ENCLOSURE:	NEMA 1
MAIN:	400 A, MLO	TRIM:	SURFACE
SCCR (Amps RMS Symm.):	14,000 A FULLY-RATED	MODIFICATIONS:	

CIRC. NO.	LOAD DESCRIPTION	NOTES	AMPS	POLES	PHASE A	PHASE B	PHASE C	POLES	AMPS	NOTES	LOAD DESCRIPTION	CIRC. NO.
1	AHU-A101 7.5 HP	3	20	3	3,000							
					2,505			1	20		LTS 1015, 1017, 1019, 1021 (UNIT A 1ST FL)	2
3						3,000						
						2,475		1	20	2	LTS C1001, C1001B, S102 (UNIT A 1ST FL)	4
5							3,000					
							2,130	1	20		LTS 1011, 1013, 1013A (UNIT A 1ST FL)	6
7	SPARE		20	1	0							
					3,115			1	20		LTS 1020, M1022, 1024 (UNIT A 1ST FL)	8
9	SPARE		20	1		0						
						2,900		1	20		LTS 1016, 1018, 1037B (UNIT A 1ST FL)	10
11	SPARE		20	1			0					
							3,400	1	20		LTS 1007, 1009 (UNIT B 1ST FL)	12
13	SPARE		20	1	0							
					3,680			1	20	2	LTS 1003, 1005 (UNIT B 1ST FL)	14
15	SPARE		20	1		0						
						1,725		1	20	2	LTS 1001 (UNIT B 1ST FL)	16
17	SPARE		20	1			0					
							3,130	1	20	2	LTS C1001, S101 (UNIT B 1ST FL)	18
19	FCU-A101		20	1	838							
					3,640			1	20	2	LTS 1002, 1004, 1002A (UNIT B 1ST FL)	20
21	FCU-B101		20	1		1,127						
						3,295		1	20	2	LTS 1006, 1006A, 1008 (UNIT B 1ST FL)	22
23	FCU-B102, B103		20	1			2,535					
							840	1	20		LTS 1010, 1010A, 1032 (UNIT B 1ST FL)	24
25	FCU-B104, B105		20	1	2,535							
					900			1	20		OUTDOOR LEARNING AREA	26
27	FCU-B106, B107		20	1		2,234						
						700		3	20	3	ELEVATOR SUMP PUMP	28
29	FCU-B108, B109		20	1			2,535					
							700	/	/		/	30
31	FCU-B110, B111		20	1	2,535							
					700			/	/		/	32
33	SPARE		20	1		0						
						0		1	20		SPARE	34
35	SPARE		20	1			0					
							0	1	20		SPARE	36
37	SPARE		20	1	22,524							
					0			1	20		SPARE	38
39	SPARE		20	1		22,524						
						0		1	20		SPARE	40
41	SPARE		20	1			22,524					
							0	1	20		SPARE	42
CONNECTED LOAD PER PHASE (VA):					45,972	39,980	40,794					

TOTAL CONNECTED LOAD (VA):	126,746
CONNECTED LOAD (AVG. AMPS PER PHASE):	152
TOTAL DEMAND LOAD (VA):	135,180
DEMAND LOAD (AVG. AMPS PER PHASE):	163

NOTES:

1. NOTE 1: SUBFEED 175 AMP BREAKER T-4 "DBAL1"
2. NOTE 2: 2#10, 1#10G, 1/2"C
3. NOTE 3 3#10,1#10G,3/4"C
4. NOTE 4 3#8,1#10G,3/4"C

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 48

PANEL ID:	**SBEMDH1**	LOCATION:	E2031B
CONFIGURATION:	480Y/277 V, 3-PHASE, 4-WIRE PLUS GROUND	ENCLOSURE:	NEMA 1
MAIN:	300 A, MCB	TRIM:	SURFACE
SCCR (Amps RMS Symm.):	42,000 A FULLY-RATED	MODIFICATIONS:	

CIRC. NO.	LOAD DESCRIPTION	NOTES	AMPS	POLES	PHASE A	PHASE B	PHASE C	POLES	AMPS	NOTES	LOAD DESCRIPTION	CIRC. NO.
1	PANEL SBEMAH1	4	150	3	28,376							
					3,240			3	20	2	ACCU-D101	2
3						30,696						
						3,240		/	/		/	4
5							26,204					
							3,240	/	/		/	6
7	SPARE		20	1	0							
					775			3	15	2	SCCU-D101	8
9	SPARE		20	1		0						
						775		/	/		/	10
11	SPARE		20	1			0					
							775	/	/		/	12
13	TRAN T-E2 "SBEMDL1"	1	125	3	20,476							
					0						SPACE	14
15						23,921						
						0					SPACE	16
17							17,881					
							0				SPACE	18
19	SPARE		20	1	0							
					0						SPACE	20
21	SPARE		20	1		0						
						0					SPACE	22
23	SPARE		20	1			0					
							0				SPACE	24
25	SPARE		20	1	0							
					0						SPACE	26
27	SPARE		20	1		0						
						0					SPACE	28
29	SPARE		20	1			0					
							0				SPACE	30
31	SPARE		20	1	0							
					0						SPACE	32
33	SPARE		20	1		0						
						0					SPACE	34
35	SPARE		20	1			0					
							0				SPACE	36
37	SPARE		20	1	0							
					0						SPACE	38
39	SPARE		20	1		0						
						0					SPACE	40
41	SPARE		20	1			0					
							0				SPACE	42
CONNECTED LOAD PER PHASE (VA):					52,867	58,632	48,100					

TOTAL CONNECTED LOAD (VA):	159,599
CONNECTED LOAD (AVG. AMPS PER PHASE):	192
TOTAL DEMAND LOAD (VA):	159,599
DEMAND LOAD (AVG. AMPS PER PHASE):	192

NOTES:

1. NOTE 1: 3#1, 1#6G, 1-1/2"C
2. NOTE 2 3#10,1#10G,1/2"C
3. NOTE 3 3#12,1#12G,1/2"C
4. NOTE 4 4#4/0,1#6G,2 1/2"C

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 49

PANEL ID:	**SBEMAH1**	LOCATION:	E2016
CONFIGURATION:	480Y/277 V, 3-PHASE, 4-WIRE PLUS GROUND	ENCLOSURE:	NEMA 1
MAIN:	150 A, MCB	TRIM:	SURFACE
SCCR (Amps RMS Symm.):	14,000 A FULLY-RATED	MODIFICATIONS:	

CIRC. NO.	LOAD DESCRIPTION	NOTES	AMPS	POLES	PHASE A	PHASE B	PHASE C	POLES	AMPS	NOTES	LOAD DESCRIPTION	CIRC. NO.
1	TRAN T-E3 "SBEMAL1"	1	125	3	18,724							
					0			1	20		SPARE	2
3						21,044						
						0		1	20		SPARE	4
5							17,052					
							0	1	20		SPARE	6
7	BOOSTER PUMP 5 HP	2	20	3	2,026							
					0						SPACE	8
9	/		/	/		2,026						
						0					SPACE	10
11	/		/	/			2,026					
							0				SPACE	12
13	BOOSTER PUMP 5 HP	2	20	3	2,026							
					0						SPACE	14
15	/		/	/		2,026						
						0					SPACE	16
17	/		/	/			2,026					
							0				SPACE	18
19	ELEVATOR 15 HP	3	40	3	5,600							
					0						SPACE	20
21	/		/	/		5,600						
						0					SPACE	22
23	/		/	/			5,600					
							0				SPACE	24
25	SPARE		20	1	0							
					0						SPACE	26
27	SPARE		20	1		0						
						0					SPACE	28
29	SPARE		20	1			0					
							0				SPACE	30
CONNECTED LOAD PER PHASE (VA):					28,376	30,696	26,704					

TOTAL CONNECTED LOAD (VA):	85,776
CONNECTED LOAD (AVG. AMPS PER PHASE):	103
TOTAL DEMAND LOAD (VA):	85,776
DEMAND LOAD (AVG. AMPS PER PHASE):	103

NOTES:

1. NOTE 1: 3#1, 1#6G, 1-1/2"C
2. NOTE 2 3#10,1#10G,3/4"C
3. NOTE 3 3#8,1#10G,3/4"C
4. NOTE 4

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 50

PANEL ID:	**SBEMDL1**	LOCATION:	E2031B
CONFIGURATION:	208Y/120 V, 3-PHASE, 4-WIRE PLUS GROUND	ENCLOSURE:	NEMA 1
MAIN:	250 A, MCB	TRIM:	SURFACE
SCCR (Amps RMS Symm.):	10,000 A FULLY-RATED	MODIFICATIONS:	

CIRC. NO.	LOAD DESCRIPTION	NOTES	AMPS	POLES	PHASE A	PHASE B	PHASE C	POLES	AMPS	NOTES	LOAD DESCRIPTION	CIRC. NO.
1	SPD	1	30	3	100							
					100			1	20		SMOKE DAMPER	2
3						100					COOLER	
						1,404		3	20	3	CONDESORS	4
5							100					
							1,404	/	/		/	6
7	UPS T1037	3	30	2	3,120							
					1,404			/	/		/	8
9						3,120						
						145		2	20	2	COOLER FANS	10
11	UPS T1037	3	30	2			3,120					
							145	/	/		/	12
13					3,120							
					800			1	20		COOLER LIGHTS	14
15	UPS T1037	3	30	2		3,120					FREEZER	
						1,992		3	20	3	CONDENSORS	16
17							3,120					
							1,992	/	/		/	18
19	UPS T1037	3	30	2	3,120							
					1,992			/	/		/	20
21						3,120						
						1,580		2	20	2	FREEZER FANS	22
23	TECH EQUIP T1037		20	1			500					
							1,580	/	/		/	24
25	TECH EQUIP T1037		20	1	500							
					800			1	20		FREEZER LIGHTS	26
27	UPS T1037	3	30	2		3,120						
						800		1	20		RECEPTS M2031	28
29							3,120					
							400	1	20		RECEPTS E2031B	30
31	UPS T1037	3	30	2	3,120						SMOKE DAMPERS	
					800			1	20		UNITS C +D 1ST FL	32
33						3,120					SMOKE DAMPERS	
						800		1	20		UNITS C +D 2ND FL	34
35	DOOR SECURITY 1041	2	20	1			500				SMOKE DAMPERS	
							400	1	20		UNITS C +D 3RD FL	36
37					0						HEAT TRACE TAPE	
	SPACE				0			1	20	4	CHILLER	38
39						0					HEAT TRACE TAPE	
	SPACE					0		1	20	4	CHILLER	40
41							0				HEAT TRACE TAPE	
	SPACE						0	1	20	4	CHILLER PIPING	42
43					0							
	SPACE				0			1	20		SPARE	44
45						0						
	SPACE					0		1	20		SPARE	46
47							0					
	SPACE						0	1	20		SPARE	48
49	SPARE		20	1	0							
					1,500			1	20		SPARE	50
51	SPARE		20	1		0						
						1,500		1	20		SPARE	52
53	SPARE		20	1			0					
							1,500	1	20		SPARE	54
CONNECTED LOAD PER PHASE (VA):					20,476	23,921	17,881					

TOTAL CONNECTED LOAD (VA):	62,278
CONNECTED LOAD (AVG. AMPS PER PHASE):	173
TOTAL DEMAND LOAD (VA):	63,803
DEMAND LOAD (AVG. AMPS PER PHASE):	177

NOTES:

1. NOTE 1: 4#10, 1#10G, 1/2"C
2. NOTE 2: 2#10, 1#10G, 3/4"C
3. NOTE 3 3#10,1#10G,3/4"C
4. NOTE 4: GFI BREAKER

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743

ATTACHMENT 51

PANEL ID:	**SBEMAL1**	LOCATION:	E2016
CONFIGURATION:	208Y/120 V, 3-PHASE, 4-WIRE PLUS GROUND	ENCLOSURE:	NEMA 1
MAIN:	250 A, MCB	TRIM:	SURFACE
SCCR (Amps RMS Symm.):	10,000 A FULLY-RATED	MODIFICATIONS:	

CIRC. NO.	LOAD DESCRIPTION	NOTES	AMPS	POLES	PHASE A	PHASE B	PHASE C	POLES	AMPS	NOTES	LOAD DESCRIPTION	CIRC. NO.
1	SPD	1	30	3	100							
					500			1	20		TECH RCPT T3014	2
3						100						
						3,120						4
5							100					
							3,120	2	30	1	UPS TECH T3014	6
7	UPS T1012	1	30	2	3,120							
					3,120							8
9						3,120						
						3,120		2	30	1	UPS TECH T3014	10
11	UPS T1012	1	30	2			3,120					
							1,248	2	15	2	ACCU-A301	12
13					3,120							
					1,248			/	/		/	14
15	RCPT T1012		20	1		400						
						1,248		2	15	2	ACCU-A201	16
17	RCPT 1017		20	1			1,000					
							1,248	/	/		/	18
19	RCPT 1015		20	1	800							
					1,248			2	15	2	ACCU-A103	20
21	UPS T2014	1	30	2		3,120						
						1,248		/	/		/	22
23							3,120					
							1,248	2	15	2	ACCU-A101	24
25	UPS T2014	1	30	2	3,120							
					1,248			/	/		/	26
27						3,120						
						1,248		2	15	2	ACCU-A102	28
29	TECH EQUIP T2014		20	1			500					
							1,248	/	/		/	30
31	RECPT T1012		20	1	500							
					600			1	20	2	SMOKE DAMPERS UNITS A +B 1ST FL	32
33	TECH EQUIP T2014		20	1		500						
						700		1	20	2	SMOKE DAMPERS UNITS A + B 2ND FL	34
35	DOOR SECURITY C1000	2	20	1			500					
							600	1	20	2	SMOKE DAMPERS UNITS A + B 3RD FL	36
37	SPACE				0							
					0			1	20		SPARE	38
39	SPACE					0						
						0		1	20		SPARE	40
41	SPACE						0					
							0	1	20		SPARE	42
43	SPACE				0							
					0			1	20		SPARE	44
45	SPACE					0						
						0		1	20		SPARE	46
47	SPACE						0					
							0	1	20		SPARE	48
49	SPARE		20	1	0							
					0			1	20		SPARE	50
51	SPARE		20	1		0						
						0		1	20		SPARE	52
53	SPARE		20	1			0					
							0	1	20		SPARE	54
CONNECTED LOAD PER PHASE (VA):					18,724	21,044	17,052					

TOTAL CONNECTED LOAD (VA):	56,820
CONNECTED LOAD (AVG. AMPS PER PHASE):	158
TOTAL DEMAND LOAD (VA):	56,820
DEMAND LOAD (AVG. AMPS PER PHASE):	158

NOTES:

1. NOTE 1: 3#10, 1#10G, 1/2"C
2. NOTE 2 2#10,1#10G,1/2"C
3. NOTE 3
4. NOTE 4

VergesRome Architects
FANNING HOWEY
A Joint Venture
320 N. Carrollton Avenue, Suite 100
New Orleans, Louisiana 70119
t. 504.488.7739 f. 504.488.7743