

CONNECTION	FRAMING SPACING (ft.)	ROOF SPAN (ft.)	U	L	S	NUM. OF 8d COM. NAILS OR 10d BOX NAILS IN EA. END OF 1 1/4" X 3d GAL. STRAP
ROOF ASSEMBLY TO WALL ASSEMBLY	16'-0" O.C.	11	396	246	109R	4
WALL ASSEMBLY TO WALL ASSEMBLY	16'-0" O.C.	11	396	246	109R	4
WALL ASSEMBLY TO FOUNDATION	16'-0" O.C.	11	110	185	436	4

### THERMAL COMPONENT CRITERIA (U-FACTOR AND R-VALUE)

MAX. GLAZING U-FACTOR	MINIMUM INSULATION R-VALUE			CEILING SPACE WALLS	CREAM SPACE WALLS
	CEILING	WALLS	FLOORS		
.75	R-26	R-13	R-11	R-5	R-5

### WINDBORNE DEBRIS PROTECTION FASTENING SCHEDULE FOR WOOD STRUCTURAL PANELS

FASTENER TYPE	FASTENER SPACING		
	PANEL SPAN 5.4 FOOT	4 FOOT PANEL SPAN 5	6 FOOT PANEL SPAN 5 & 6 FOOT
2"x12" #6 WOOD SCREWS	16"	12"	9"
D-12" #6 WOOD SCREWS	16"	16"	12"

MINIMUM IN BUILDINGS LOCATED IN AND BORNIE DEBRIS REGIONS SHALL HAVE GLAZED OPENINGS PROTECTED FROM AND BORNIE DEBRIS. ACCORDING TO STRUCTURAL PANELS WITH A MIN. THICKNESS OF 7/16" AND A MAX. SPAN OF 8 FEET SHALL BE PERMITTED FOR OPENING PROTECTION IN ONE AND TWO STORY BUILDINGS. PANELS SHALL BE PRECUT TO COVER THE GLAZED OPENINGS WITH ATTACHMENT HARDWARE PROVIDED.

### WALL SHEATH OR CLAD REQ. FOR WIND LOAD-EXPOSURE "B"

SHEATHING LOCATION	STUD SPACING	MAX. NAIL SPACING FOR 8d COMMON NAILS OR 10d BOX NAILS (INCHES, O.C.)	
		E	F
INTERIOR ZONE	12' O.C.	6	12
	16' O.C.	6	12
	24' O.C.	6	12
PERIMETER EDGE ZONE	12' O.C.	6	12
	16' O.C.	6	12
	24' O.C.	6	12

HEADER NAILING SCHEDULE			
DESCRIPTION	NUM. OF COM. NAILS	NUM. OF BOX NAILS	SPACING
HEAD TO HEAD (FACE-NAILING)	8d	10d	6" O.C. EDGES/ 12" O.C. FIELD

NOTE: ALL HEADERS SHALL HAVE SOLID BLOCKING

### ROOF UNDERLAYMENT APPLICATION

-FOR ROOF SLOPES FROM TWO UNITS VERTICAL IN 12 UNITS HORIZONTAL (17-PERCENT SLOPE), UP TO FOUR UNITS VERTICAL IN 12 UNITS HORIZONTAL (33-PERCENT SLOPE), UNDERLAYMENT SHALL BE TWO LAYERS APPLIED IN THE FOLLOWING MANNER:

-APPLY A 14 INCH STRIP OF UNDERLAYMENT FELT PARALLEL WITH AND STARTING AT THE EAVES, FASTENED SUFFICIENTLY TO HOLD IN PLACE. STARTING AT THE EAVE, APPLY 36 INCH WIDE SHEETS OF UNDERLAYMENT OVERLAPPING SUCCESSIVE SHEETS 14 INCHES, AND FASTENED SUFFICIENTLY TO HOLD IN PLACE.

-FOR ROOF SLOPES OF FOUR UNITS VERTICAL IN 12 UNITS HORIZONTAL (33-PERCENT SLOPE) OR GREATER, UNDERLAYMENT SHALL BE ONE LAYER APPLIED IN THE FOLLOWING MANNER:

UNDERLAYMENT SHALL BE APPLIED SINGLE PLY, PARALLEL TO AND STARTING FROM THE EAVE AND LAPPED 2 INCHES. FASTENED SUFFICIENTLY TO HOLD IN PLACE. END LAPS SHALL BE OFFSET BY 6 FEET.

ASPHALT STRIP SHINGLES SHALL HAVE A MINIMUM OF SIX FASTENERS PER SHINGLE WHERE THE ROOF IS IN ONE OF THE FOLLOWING CATEGORIES:  
1. THE BASIC AND SLOPE IS 10 MPH OR GREATER AND THE EAVE IS 20 FEET OR MORE FROM THE FOUNDATION.  
2. THE BASIC AND SLOPE IS 120 MPH OR GREATER.  
3. SPECIAL WIND ZONES.

### UPLIFT CONNECTIONS

ROOF ASSEMBLY TO WALL ASSEMBLY:  
UPLIFT CONNECTIONS SHALL BE FROM RAFTER OR TRUSS TO WALL STUD, WHEN RAFTERS OR TRUSSES ARE NOT LOCATED DIRECTLY ABOVE STUDS, RAFTERS SHALL BE ATTACHED TO THE WALL PLATE AND THE WALL TOP PLATE SHALL BE ATTACHED TO THE WALL STUD WITH UPLIFT CONNECTIONS. UPLIFT CONNECTIONS SHALL BE IN ACCORDANCE WITH TABLE.

WALL ASSEMBLY TO FOUNDATION:  
FIRST FLOOR WALL STUDS SHALL BE CONNECTED TO THE FOUNDATION SILL, PLATE OR BOTTOM PLATE. A MINIMUM OF A 1-1/4" X 20 GA. ASTM A653 GRADE 33 STEEL STRAP SHALL BE WELDED TO THE WALL STUDS AND HAVE A MINIMUM EMBEDMENT OF 1 INCHES IN CONCRETE FOUNDATIONS AND SLABS-ON-GRADE. 15 PERCENT OF THE STRAPS SHALL BE WELDED TO THE FOUNDATION SILL AND ANCHOR BOLT SPACINGS SHALL NOT EXCEED THE REQUIREMENTS. STEEL STRAPS EMBEDDED IN OR IN CONTACT WITH SLAB-ON-GRADE OR MASONRY BLOCK FOUNDATIONS SHALL BE HOT-DIPPED GALV. AFTER FABRICATION OR MANUF. FROM 6185 OR 2450 GALV. STL CONNECTIONS SHALL BE IN ACCORDANCE WITH TABLE.

### JACK STUD BEARING WALLS - INT. LOAD BEARING WALLS

HEADER SPAN (ft.)	ROOF SPAN (ft.)					
	12 FEET	15 FEET	18 FEET	24 FEET	36 FEET	48 FEET
2	1	1	1	1	1	1
4	1	1	1	1	1	1
6	1	1	1	1	1	1
8	1	1	1	1	1	1
10	1	1	1	1	1	1
12	1	1	1	2	2	2
14	2	1	1	2	2	2
16	2	1	1	2	2	2
18	2	1	1	2	2	2
20	2	1	1	2	2	2
22	2	1	1	2	2	2
24	2	1	1	2	2	2
26	2	1	1	2	2	2
28	2	1	1	2	2	2
30	2	1	1	2	2	2
32	2	1	1	2	2	2
34	2	1	1	2	2	2
36	2	1	1	2	2	2
38	2	1	1	2	2	2
40	2	1	1	2	2	2
42	2	1	1	2	2	2
44	2	1	1	2	2	2
46	2	1	1	2	2	2
48	2	1	1	2	2	2

### SILL OR BOTTOM PLATE TO END CONNECTIONS - RESISTING UPLIFT LOADS - 130MPH WINDS EXP "B"

BOTTOM PLATE TO END CONNECTION RESISTING UPLIFT LOADS	MAX. ANCHOR BOLT SPACING (ft.)	
	FOUNDATION SUPPORTING	INTERIOR ZONES
FOUNDATION SUPPORTING	1-3 STORES	28
FOUNDATION SUPPORTING	1-3 STORES	39

### SILL OR BOTTOM PLATE TO END CONNECTIONS - RESISTING SHEAR LOADS - 130MPH WINDS EXP "B"

BOTTOM PLATE TO END CONNECTION RESISTING SHEAR LOADS	MAX. ANCHOR BOLT SPACING (ft.)	
	FOUNDATION SUPPORTING	INTERIOR ZONES
FOUNDATION SUPPORTING	1-3 STORES	30
FOUNDATION SUPPORTING	1-3 STORES	45

### HEADER SPANS - INTERIOR LOAD BEARING WALLS

HEADER SPAN (ft.)	BLDG. WIDTH (ft.)		
	12	24	36
(2) 2x4/5	4'-4"	3'-11"	2'-6"
(2) 2x6/5	6'-5"	4'-6"	3'-0"
(2) 2x8/5	8'-11"	5'-4"	4'-0"
(2) 2x10/5	10'-2"	7'-0"	5'-4"
(2) 2x12/5	11'-6"	8'-11"	6'-7"
(3) 2x10/5	10'-2"	7'-2"	5'-10"
(3) 2x12/5	11'-6"	8'-4"	7'-2"
(4) 2x10/5	11'-6"	8'-3"	6'-4"
(4) 2x12/5	14'-4"	10'-11"	8'-3"
(4) 2x10/5	14'-4"	10'-11"	8'-3"
(2) 2x4/5	2'-10"	2'-11"	1'-6"
(2) 2x6/5	4'-2"	3'-11"	2'-6"
(2) 2x8/5	5'-4"	3'-11"	3'-3"
(2) 2x10/5	6'-6"	4'-4"	3'-11"
(2) 2x12/5	7'-6"	5'-6"	4'-7"
(3) 2x10/5	6'-0"	4'-0"	4'-0"
(3) 2x12/5	8'-11"	6'-0"	4'-11"
(4) 2x10/5	8'-5"	6'-11"	5'-4"
(4) 2x12/5	11'-0"	7'-0"	4'-6"
(4) 2x10/5	10'-10"	8'-0"	5'-0"
(4) 2x12/5	10'-10"	8'-0"	6'-1"

NOTE: \* MAX. SPAN EXCEEDS 16' (SPAN LMT TO 16')

### HEADER SPANS-EXPOSURE B FOR EXTERIOR LOAD BEARING WALLS

HEADER SIZE	SPAN	NUMBER FULL HEIGHT STUDS REQ. AT EA. END
(2) 2x4/5	4'-7"	2
(2) 2x6/5	5'-6"	2
(2) 2x8/5	6'-11"	3
(2) 2x10/5	6'-8"	3
(2) 2x12/5	7'-11"	3
(3) 2x10/5	7'-5"	3
(3) 2x12/5	8'-3"	3
(4) 2x10/5	8'-8"	3
(4) 2x12/5	10'-6"	3
(4) 2x10/5	10'-0"	4

NOTE: 1) BLDG. WIDTH IS MEASURED PERPENDICULAR TO THE SIDES FOR WIDTHS BETWEEN THOSE SHOWN. SPANS ARE PERMITTED TO BE INTERPOLATED. 2) ALL HEADERS SHALL HAVE SOLID BLOCKING.

### JACK STUD REQ. - EXP "B" FOR EXT. LOAD BEARING WALLS

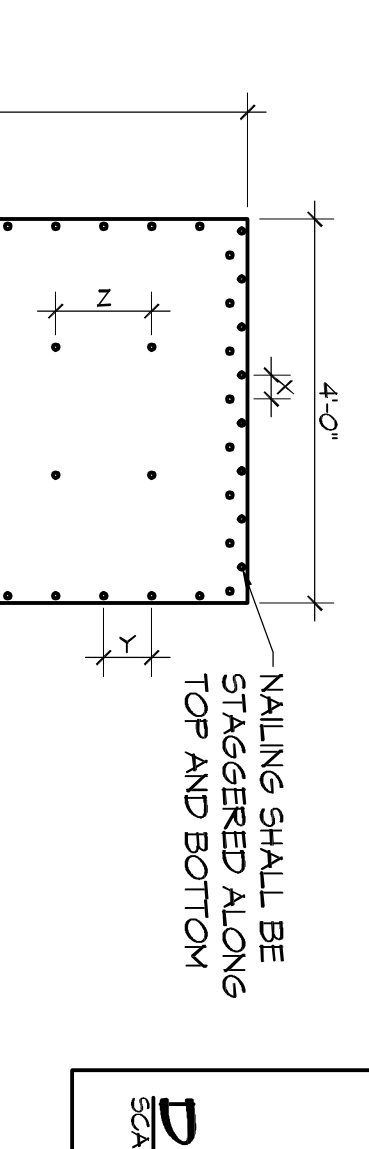
HEADER SUPPORTING	HEADER WIDTH				
	HEADER SPAN (ft.)	3'	4.5'	5'	6.5'
NO. JACK STUDS REQ.	2	1	1	1	1
ROOF AND CEILING	4	1	1	1	1
	6	2	2	2	2
	10	3	3	3	3
	12	4	4	4	4
	14	4	4	4	4
	16	4	4	4	4
	18	4	4	4	4
	20	4	4	4	4
	22	4	4	4	4
	24	4	4	4	4
	26	4	4	4	4
	28	4	4	4	4
	30	4	4	4	4
	32	4	4	4	4
	34	4	4	4	4
	36	4	4	4	4
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	40	4	4	4	4
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	92	4	4	4	4
	94	4	4	4	4
	96	4	4	4	4
	98	4	4	4	4
	100	4	4	4	4

NOTE: 1) BLDG. WIDTH IS MEASURED PERPENDICULAR TO THE SIDES FOR WIDTHS BETWEEN THOSE SHOWN. SPANS ARE PERMITTED TO BE INTERPOLATED. 2) ALL HEADERS SHALL HAVE SOLID BLOCKING.

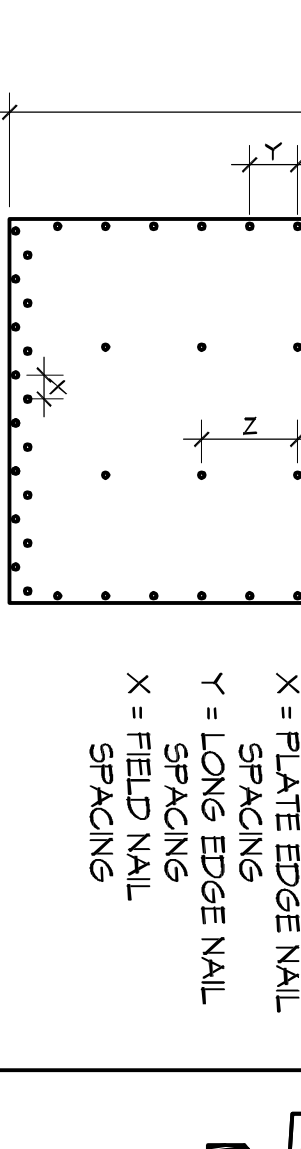
### HEADER NAILING SCHEDULE

DESCRIPTION	NUM. OF COM. NAILS	NUM. OF BOX NAILS	SPACING
HEAD TO HEAD (FACE-NAILING)	8d	10d	6" O.C. EDGES/ 12" O.C. FIELD

### HOLD DOWNS

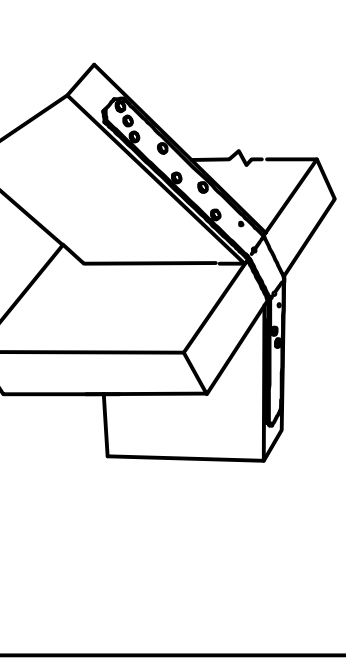


HOLD DOWNS ARE REQUIRED AT THE END OF EACH SEGMENTED SHEARWALL SEGMENT OR AT EACH END OF A PERFORATED SHEARWALL. WHEN FULL HEIGHT SHEARWALL SEGMENTS MEET AT A CORNER, A SINGLE HOLD-DOWN SHALL BE PERMITTED TO RESIST SHEAR. WHEN THE CORNER FRAMING IN THE ADJOINING WALL IS FASTENED TOGETHER TO TRANSFER THE UPLIFT LOAD, SEE CORNER HOLD-DOWN DETAIL.



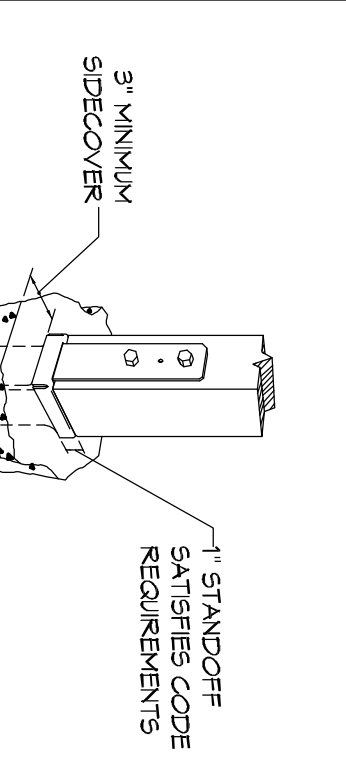
### DETAIL

SCALE: NTS



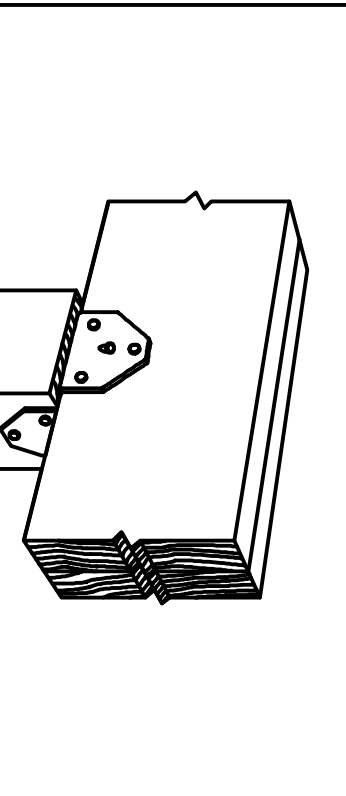
### DETAIL

SCALE: NTS



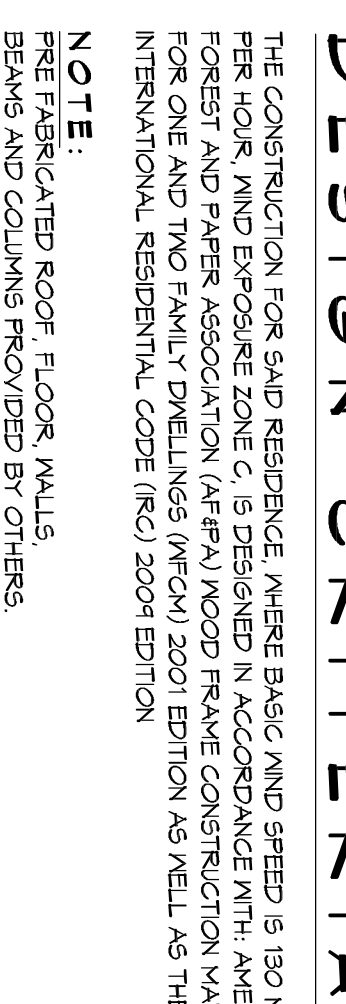
### DETAIL

SCALE: NTS



### DETAIL

SCALE: NTS



### DETAIL

SCALE: NTS

### DESIGN CRITERIA:

THE CONSTRUCTION FOR SAND RESERVE, ANNE ARBOR AND GREEK IS 130 MPH PER IBC AND EXPOSURE ZONE C IS DESIGNED IN ACCORDANCE WITH AMERICAN FOREST AND PAPER ASSOCIATION (AF&P) WOOD FRAME CONSTRUCTION MANUAL FOR ONE AND TWO FAMILY DWELLINGS (WFCM) 2001 EDITION AS WELL AS THE INTERNATIONAL RESIDENTIAL CODE (IRC) 2009 EDITION.

NOTE: FIBER FABRICATED ROOF FLOOR WALLS, BEAMS AND COLUMNS PROVIDED BY OTHERS.

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REVISIONS	DATE

50% SUBMITTAL  
NOT FOR CONSTRUCTION

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