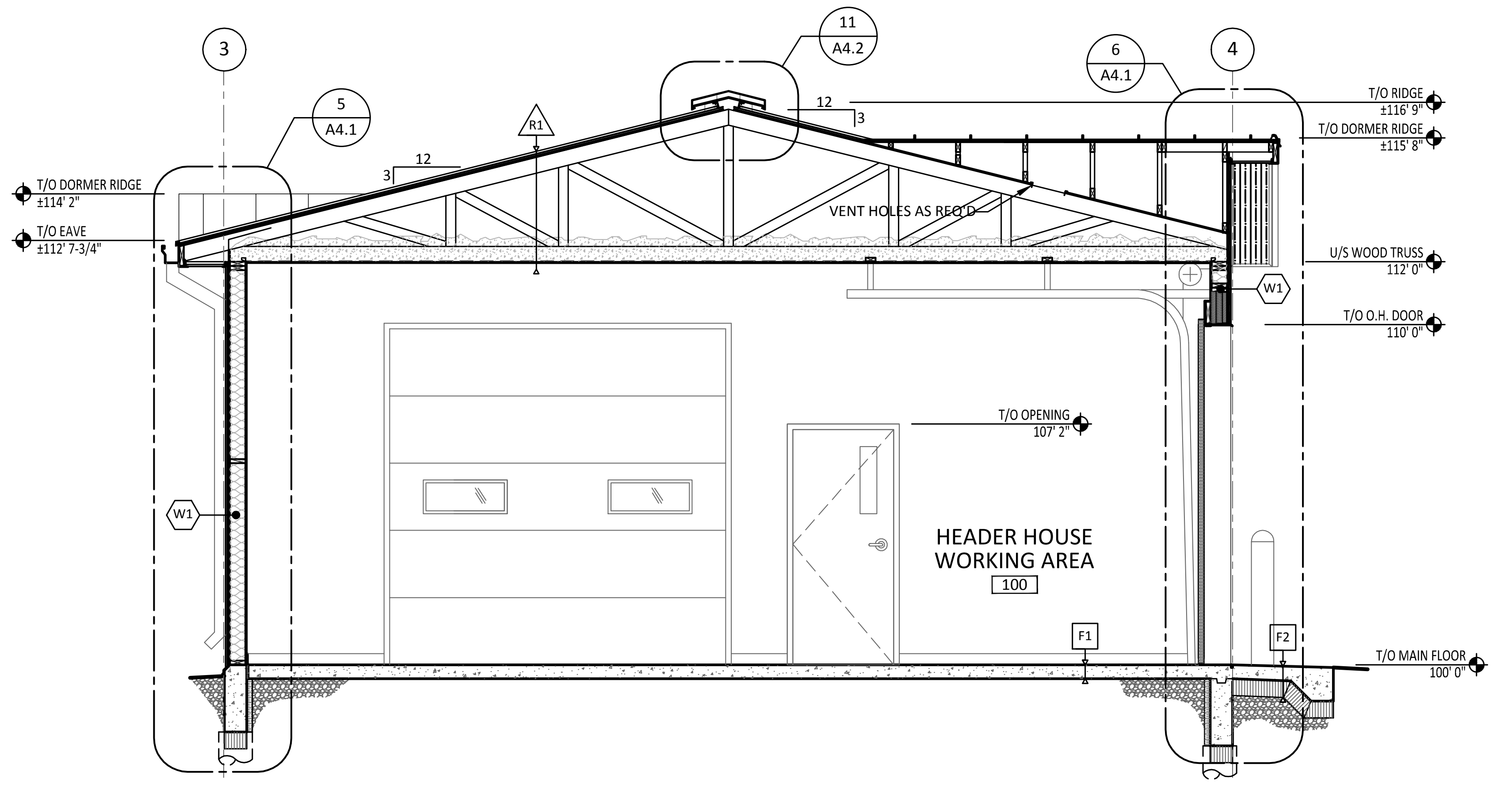
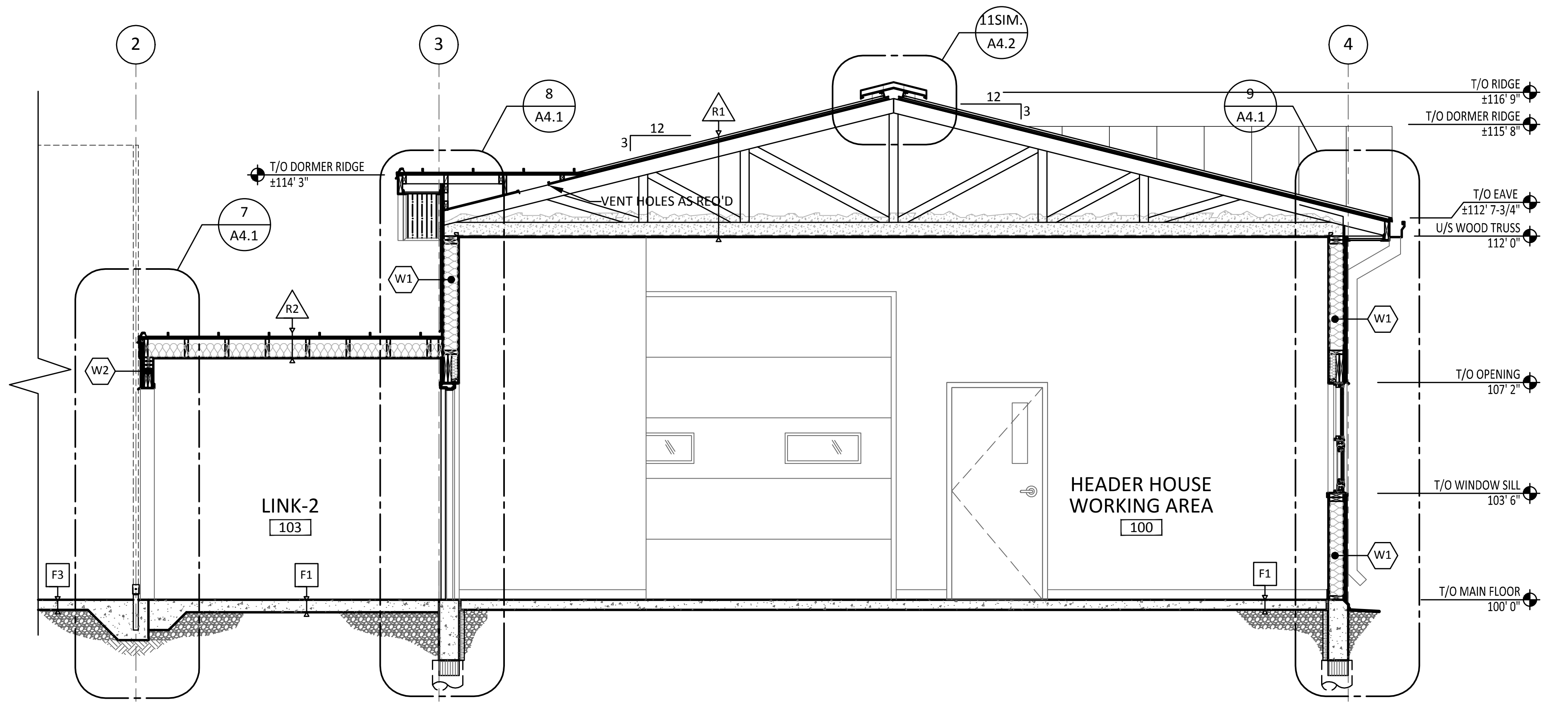
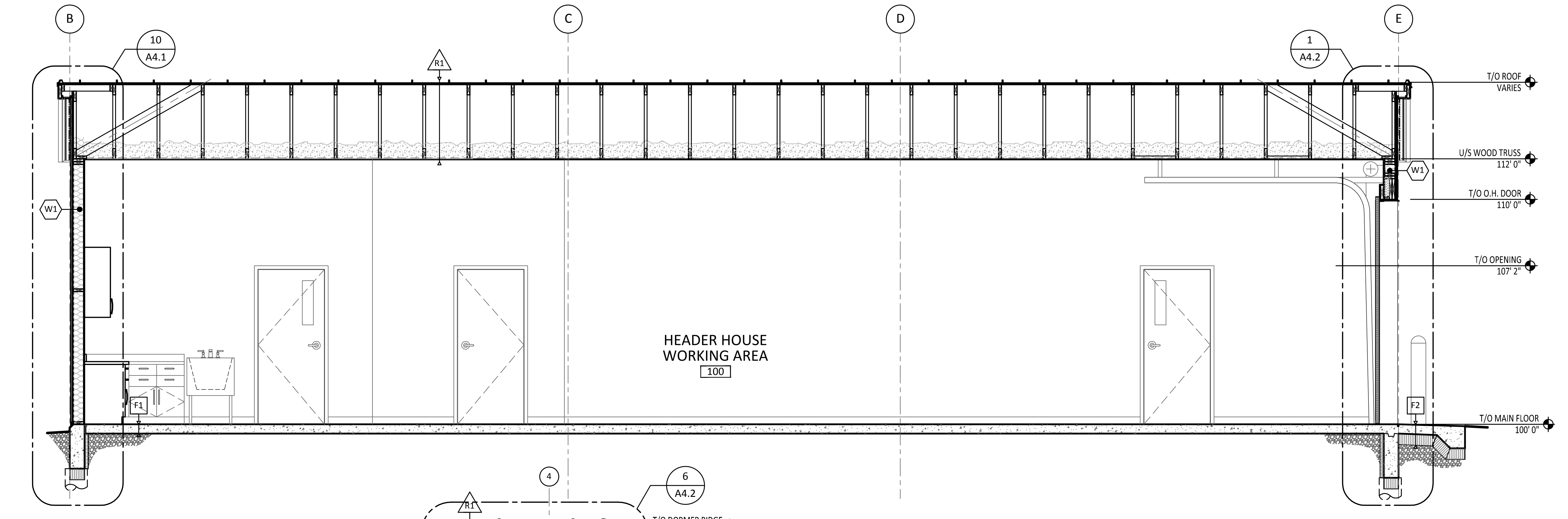


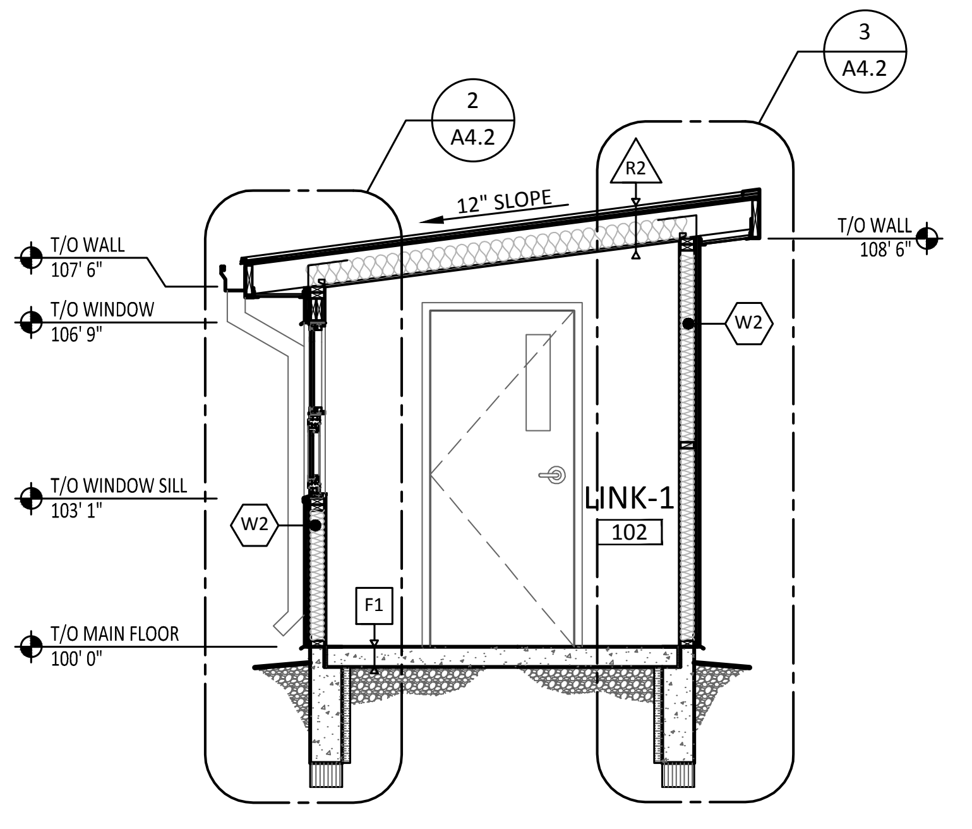
1 A4.1 **BUILDING SECTION**
SCALE 1/4" = 1' 0"



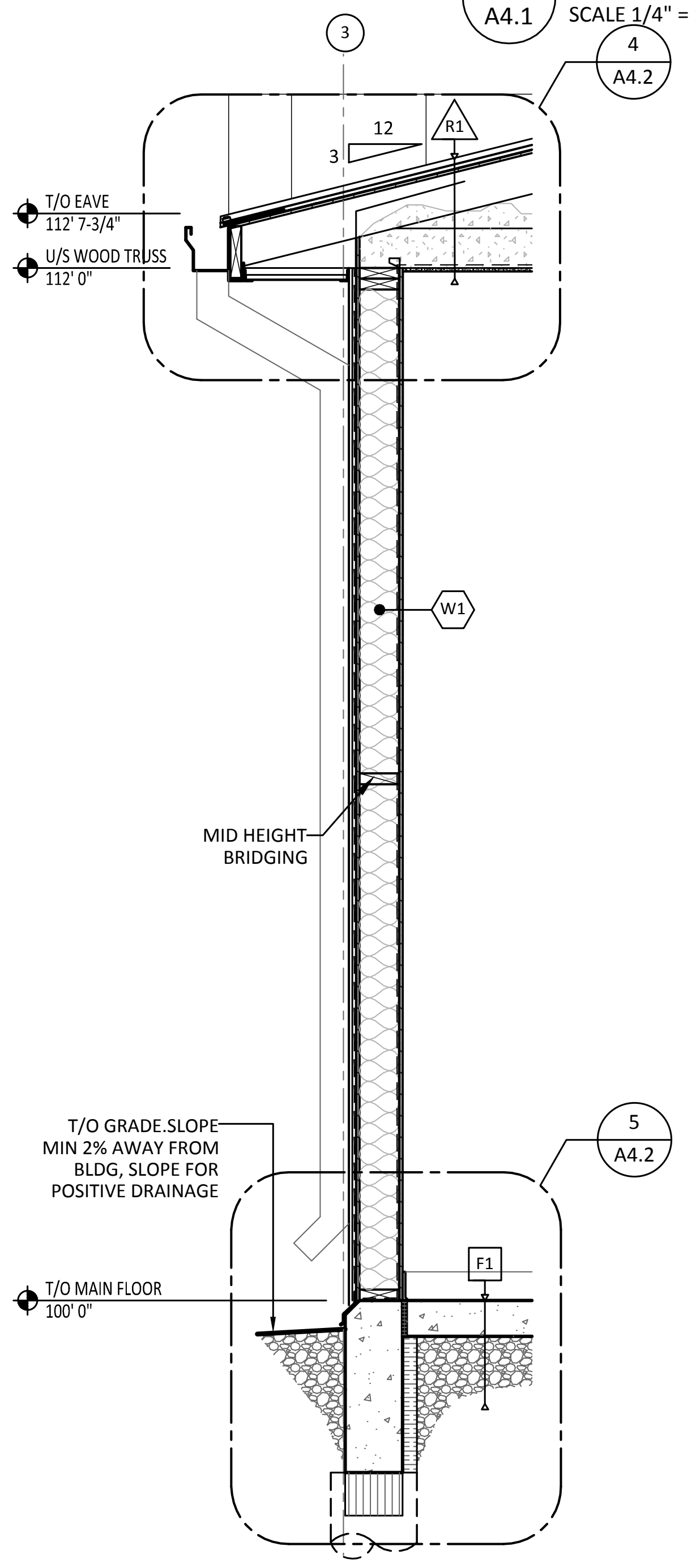
2 A4.1 **BUILDING SECTION**
SCALE 1/4" = 1' 0"



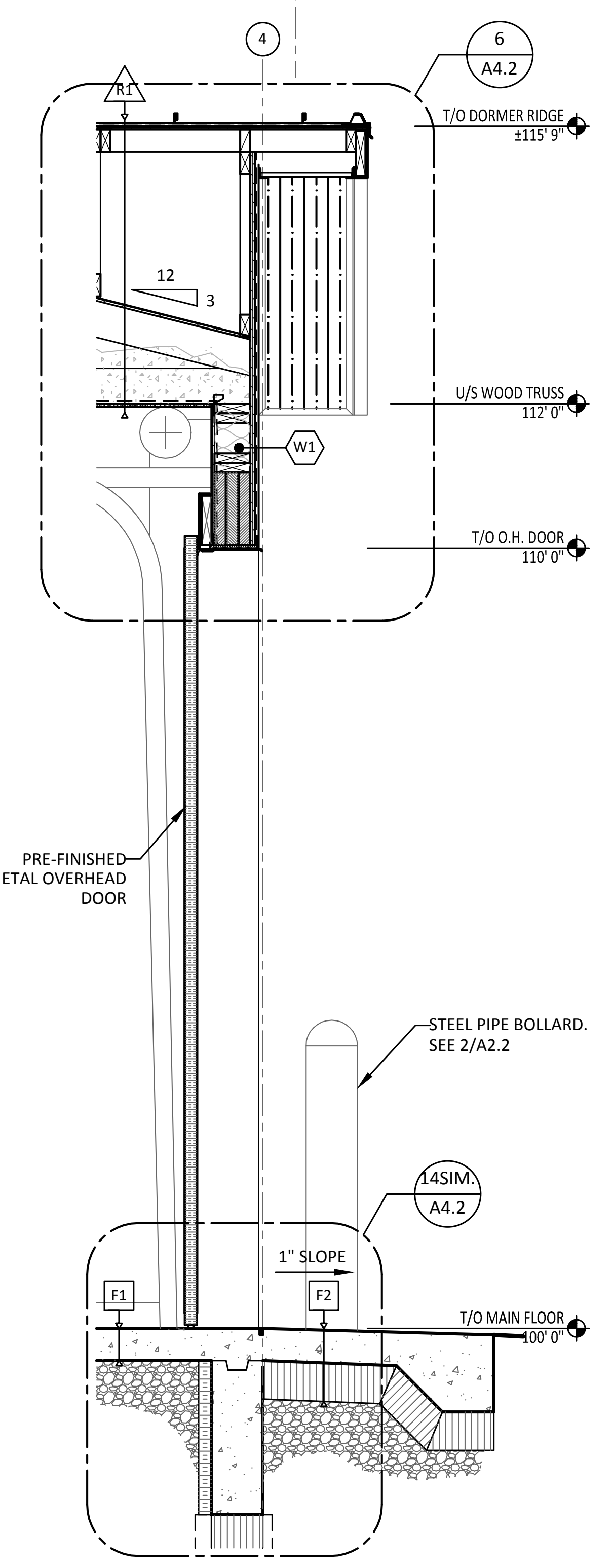
3 A4.1 **BUILDING SECTION**
SCALE 1/4" = 1' 0"



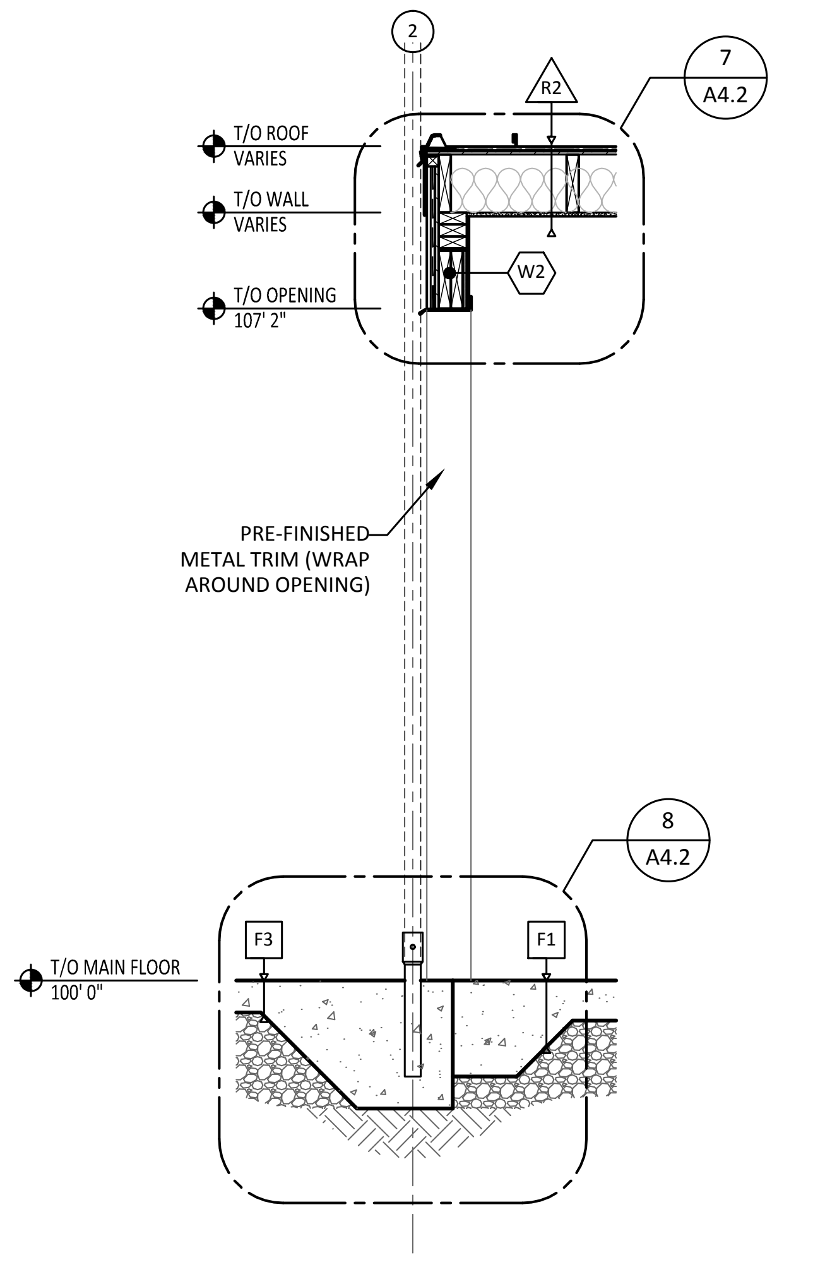
4 A4.1 **BUILDING SECTION**
SCALE 1/4" = 1' 0"



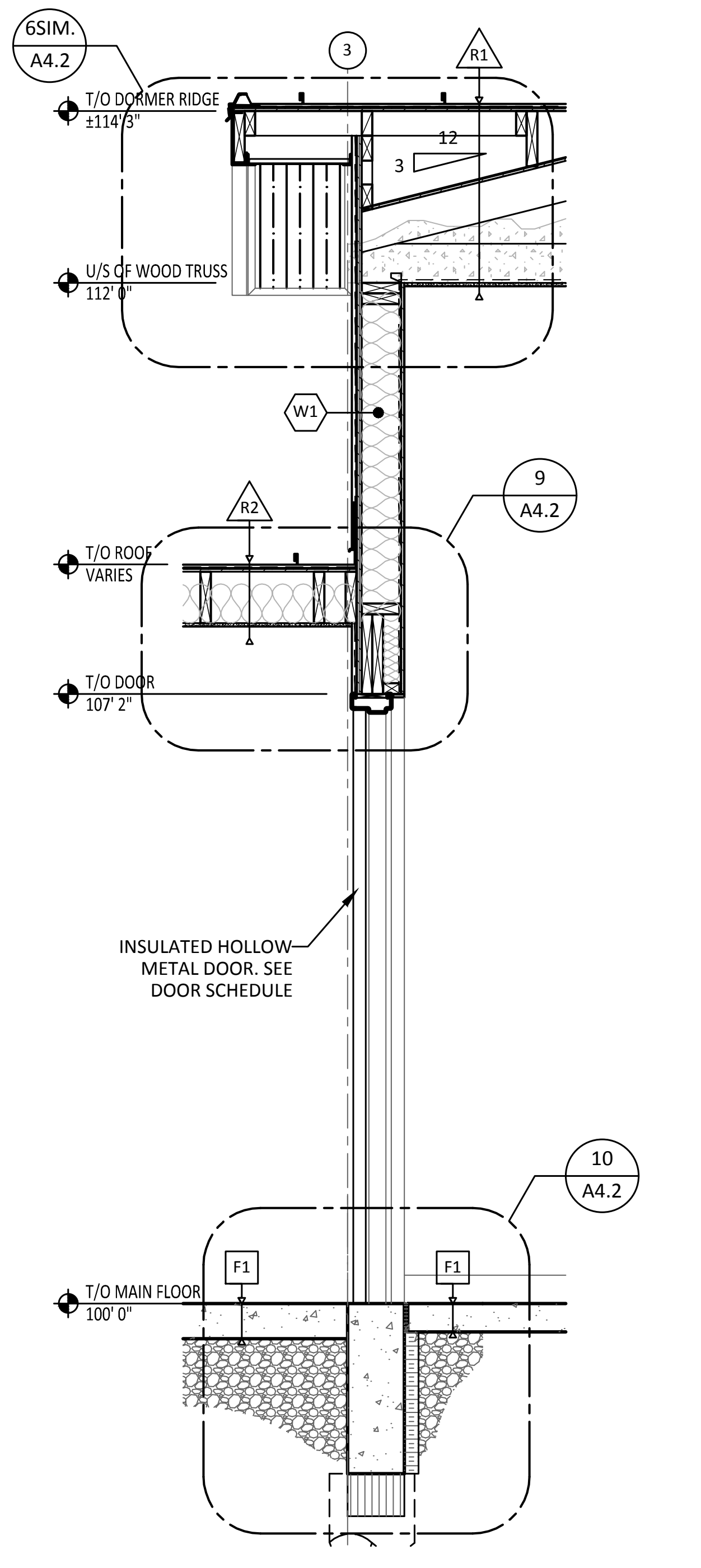
5 A4.1 **WALL SECTION**
SCALE 1/2" = 1' 0"



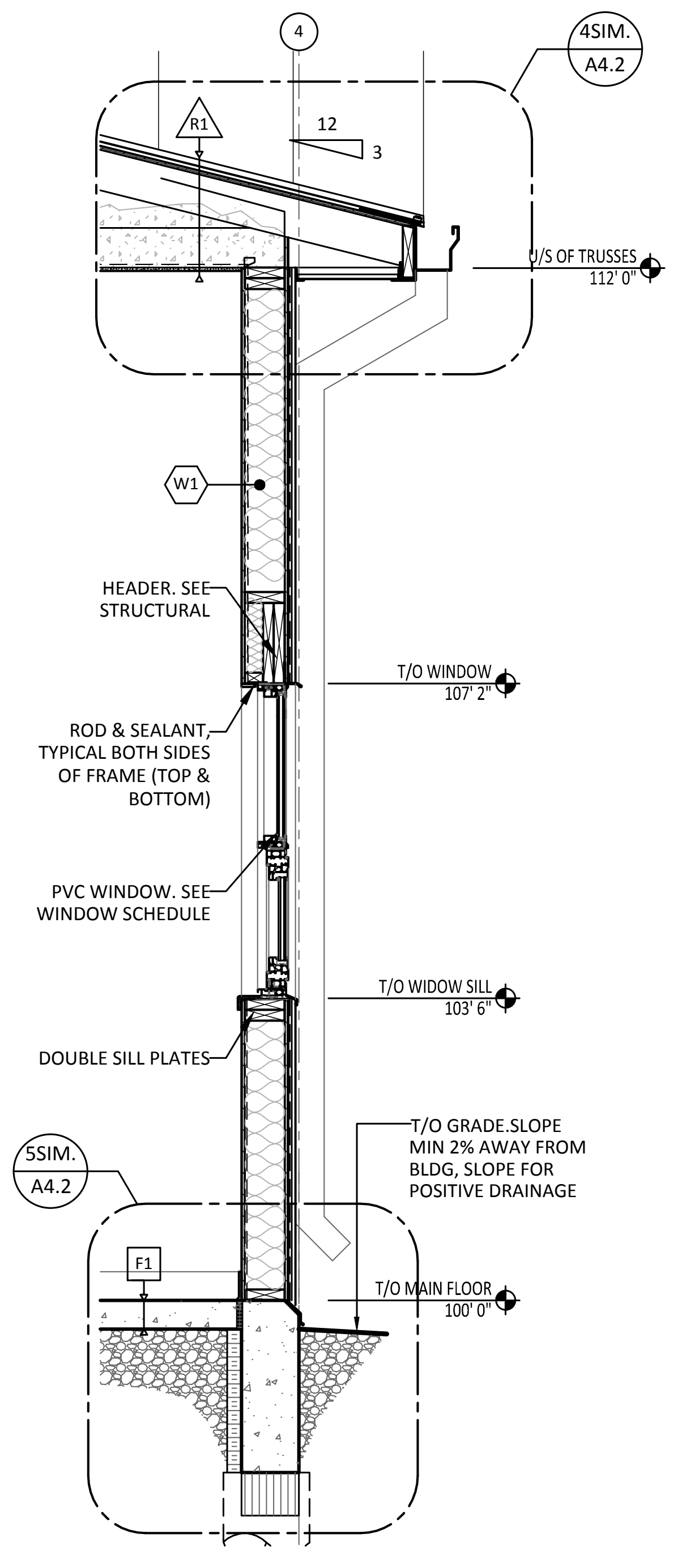
6 A4.1 **WALL SECTION**
SCALE 1/2" = 1' 0"



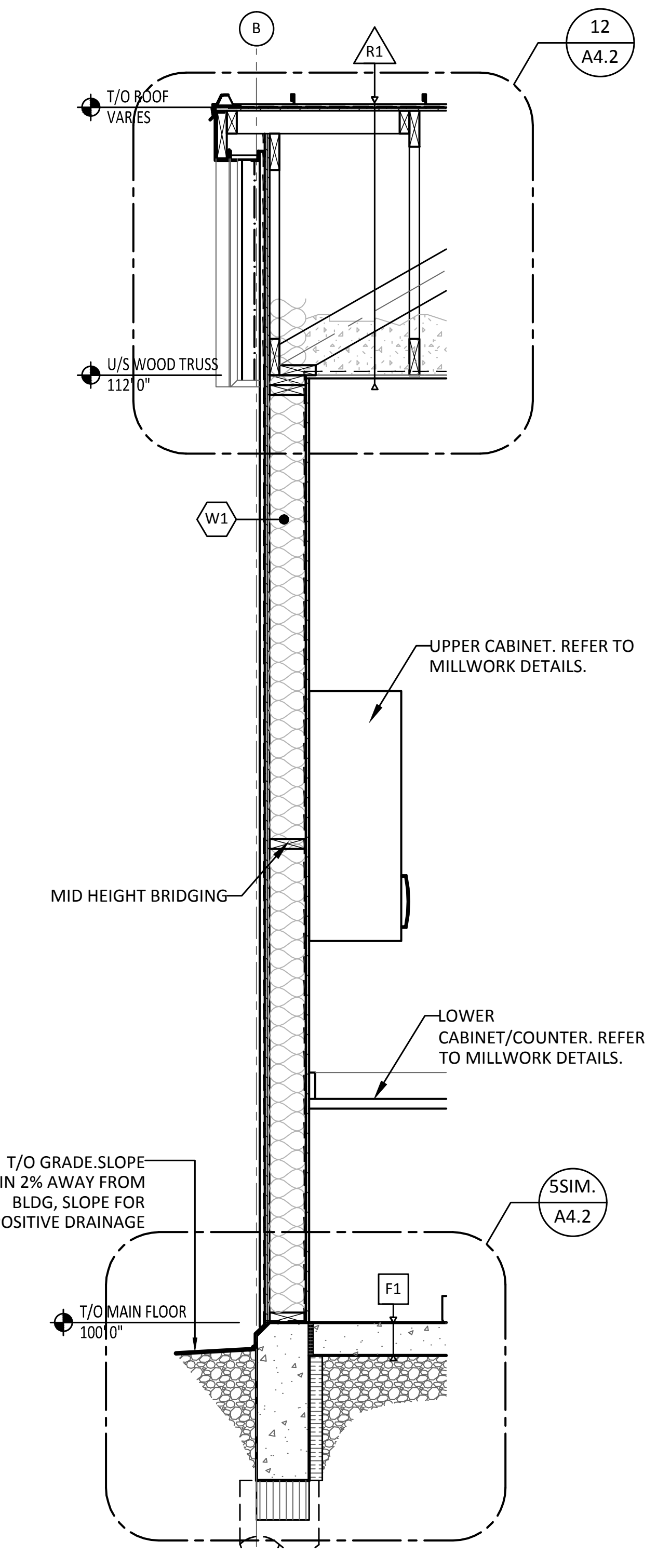
7 A4.1 **WALL SECTION**
SCALE 1/2" = 1' 0"



8 A4.1 **WALL SECTION**
SCALE 1/2" = 1' 0"



9 A4.1 **WALL SECTION**
SCALE 1/2" = 1' 0"



10 A4.1 **WALL SECTION**
SCALE 1/2" = 1' 0"

M:\Current Projects\4859 Header Building - Indian Head Research Farm\4859 DRAWINGS\4859 WORKING DRAWINGS\4859401

WALL ASSEMBLIES (PHASE 1)

W1 EXTERIOR WALL (LBW)
FRR: N/A, STC: N/A
- PRE-FINISHED METAL WALL CLADDING w/ METAL STRAPPING AS REQUIRED, COLOR SELECTION BY OWNER
- WATER & AIR BARRIER (TYVEK VP)
- 1/2" PLYWOOD SHEATHING
- 2x6 WD STUDS @ 16" o.c., FULL HT.
- 5 1/2" BATT INSULATION
- 6 mil POLY VAPOUR BARRIER
- 5/8" PLYWOOD SHEATHING, PAINTED

W2 LINKS EXTERIOR WALL (LBW)
FRR: N/A, STC: N/A
- PRE-FINISHED METAL WALL CLADDING w/ METAL STRAPPING AS REQUIRED, COLOR SELECTION BY OWNER
- WATER & AIR BARRIER (TYVEK VP)
- 1/2" PLYWOOD SHEATHING
- 2x4 WD STUDS @ 16" o.c., FULL HT.
- 3 1/2" BATT INSULATION
- METAL PANELS COLOR SELECTION BY OWNER

P1 INTERIOR WALL (FLOATED WALL)
FRR: N/A, STC: N/A
- 1/2" REGULAR GWB, PAINTED
- 2x6 STUDS @ 16" o.c. FULL HT. (FLOAT WALL 3", TYPICAL)
- ACOUSTIC INSULATION
- 1/2" REGULAR GWB, PAINTED

(FOR PLUMBING WALLS USE 2x6 STUDS @ 16" o.c. WITH MOISTURE RESISTANT GWB)

ROOF ASSEMBLIES (PHASE 1)

R1 ROOF, GENERAL
FRR: N/A STC: N/A
- PRE-FINISHED METAL CLAD ROOFING, STANDING SEAM (JSM)
- 1 LAYER ROOF FELT OR PREFERRED PEEL & STICK MEMBRANE
- 1/2" OSB ROOF SHEATHING DECK
- ROOF TRUSSES (REFER TO STRUCT)
- R50 BLOWN-IN INSULATION
- 6 mil POLY VAPOUR BARRIER
- 1 LAYER OF 5/8" GWB (PAINTED)

R2 ROOF, LINKS
FRR: N/A, STC: N/A
- PRE-FINISHED METAL CLAD ROOFING, STANDING SEAM (JSM)
- 1 LAYER ROOF FELT OR PREFERRED PEEL & STICK MEMBRANE
- 1/2" OSB ROOF SHEATHING DECK
- 2"X8" ROOF RAFTERS @16" O.C. (REFER TO STRUCT)
- FILL CAVITY WITH 6" BATT INSULATION
- 6 mil POLY VAPOUR BARRIER
- 5/8" GWB (PT) AT UNDERSIDE OF JOISTS

FLOOR ASSEMBLIES (PHASE 1)

F1 FLOOR SLABS & MAN DOOR APRONS
FRR: N/A, STC: N/A
- FLOOR FINISH AS PER ROOM FINISH SCHEDULE
- 5" CONCRETE SLAB-ON-GRADE c/w 10M @ 16"o/c EACH WAY
- 6 mil POLY V.B.
- COMPACTED GRANULAR AS PER KGS DRAWINGS

F2 SLABS @ O/H DOORS APRONS
FRR: N/A, STC: N/A
- 5" CONCRETE SLAB c/w 10M @ 12"o/c
- 6 mil POLY V.B.
- 6" GEOVOID
- COMPACTED GRANULAR AS PER KGS DRAWINGS

FLOOR ASSEMBLIES (PHASE 2)

F3 FLOOR SLAB @ GREENHOUSE #1
FRR: N/A, STC: N/A
- 4" CONCRETE SLAB ON-GRADE c/w 10M @ 16"o/c
- 6 mil POLY V.B.
- COMPACTED GRANULAR AS PER KGS DRAWINGS

F4 FLOOR @ GREENHOUSE #2
FRR: N/A, STC: N/A
- COMPACTED GRANULAR AS PER KGS DRAWINGS

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Professional Seal:
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Lawrence N. Carcoana
SAA #904 Regina, SK
15/12/21

Project Title:
HEADER BUILDING
AND
GREENHOUSES

INDIAN HEAD, SASKATCHEWAN

Notes:

Issue Record:
YY.MM.DD/Issued For/Issued To/Issued By

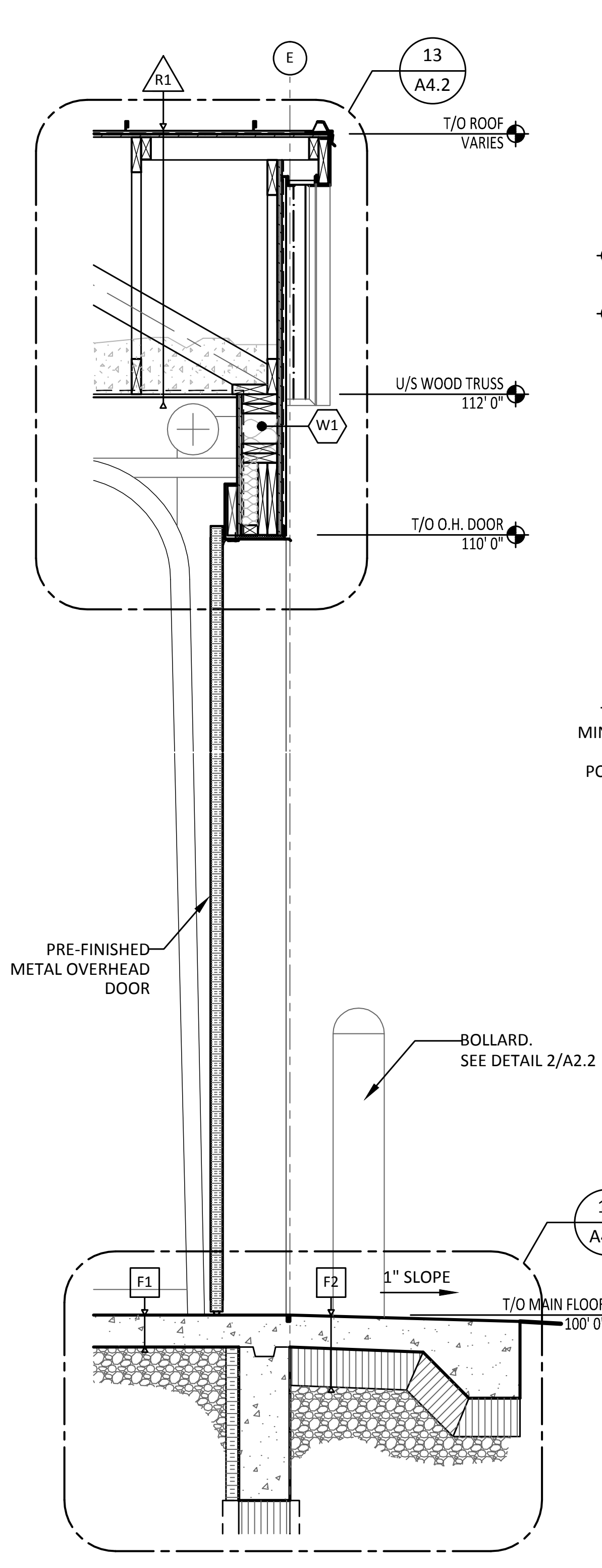
Revisions:
R# Brief Description/YY.MM.DD/Revised By

BUILDING SECTIONS & WALL SECTIONS

Designed By:	LC	Scale:	AS INDICATED
Drawn By:	ST/JS	Date:	2015.11.26
Checked By:	LC	Date:	2015.12.31
Project No.:	**4859**		

A4.1

Revision No.:	**R#**	Date:	YYYY.MM.DD
Issued For:	**TENDER**		
Date Issued:	2016.01.06		
Date Plotted:	2016.01.06		



1 A4.2 **WALL SECTION**
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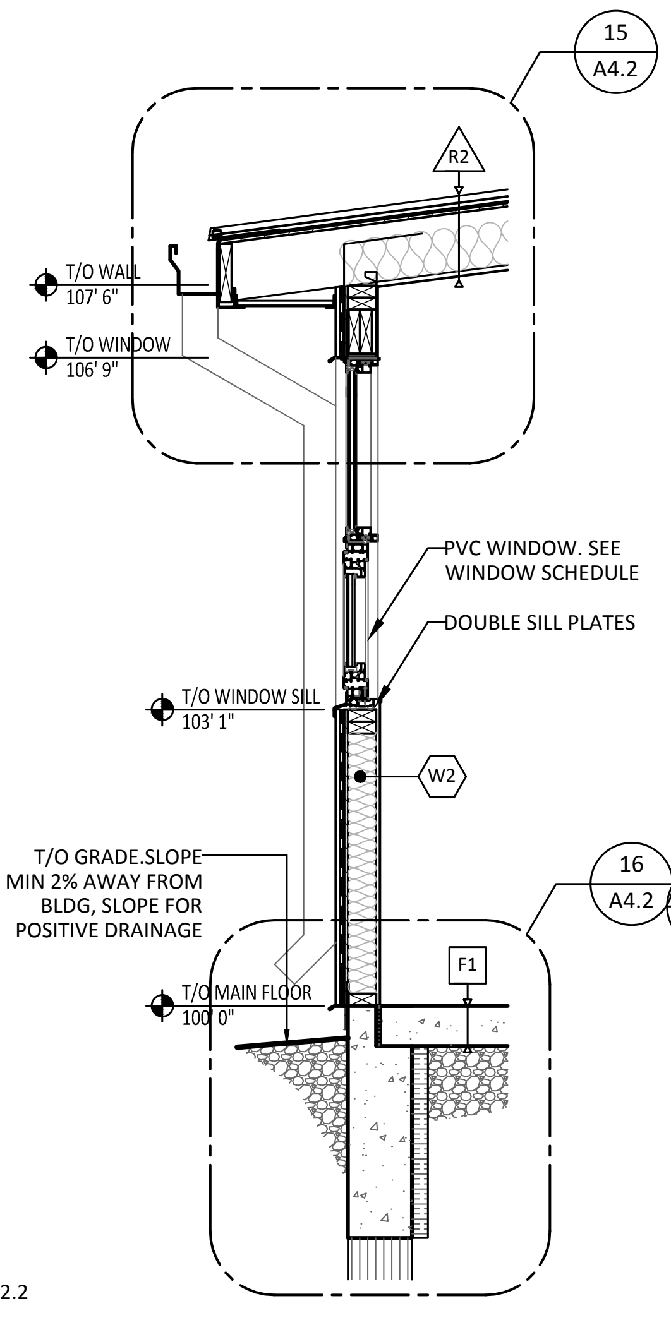

2 A4.2 **WALL SECTION**
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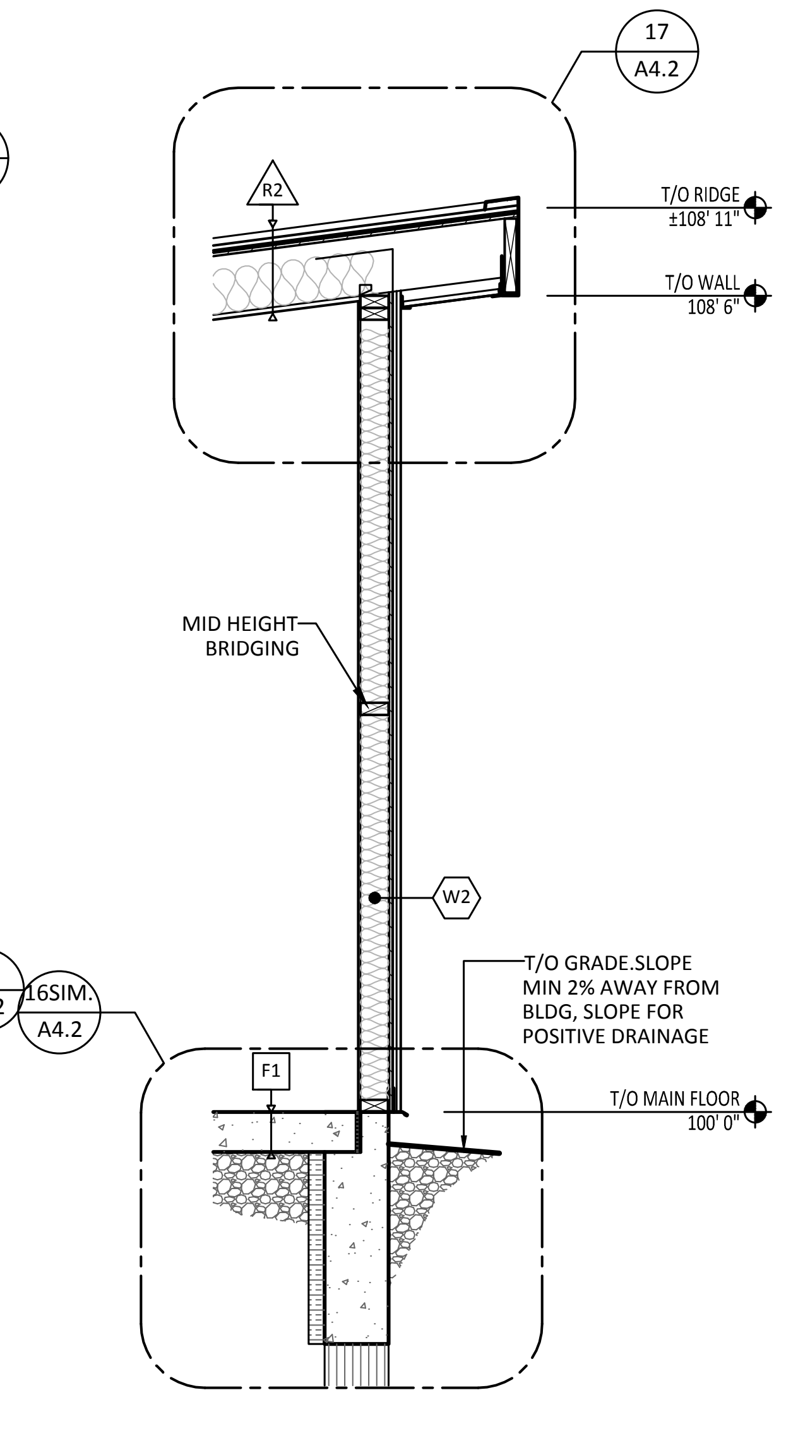

3 A4.2 **WALL SECTION**
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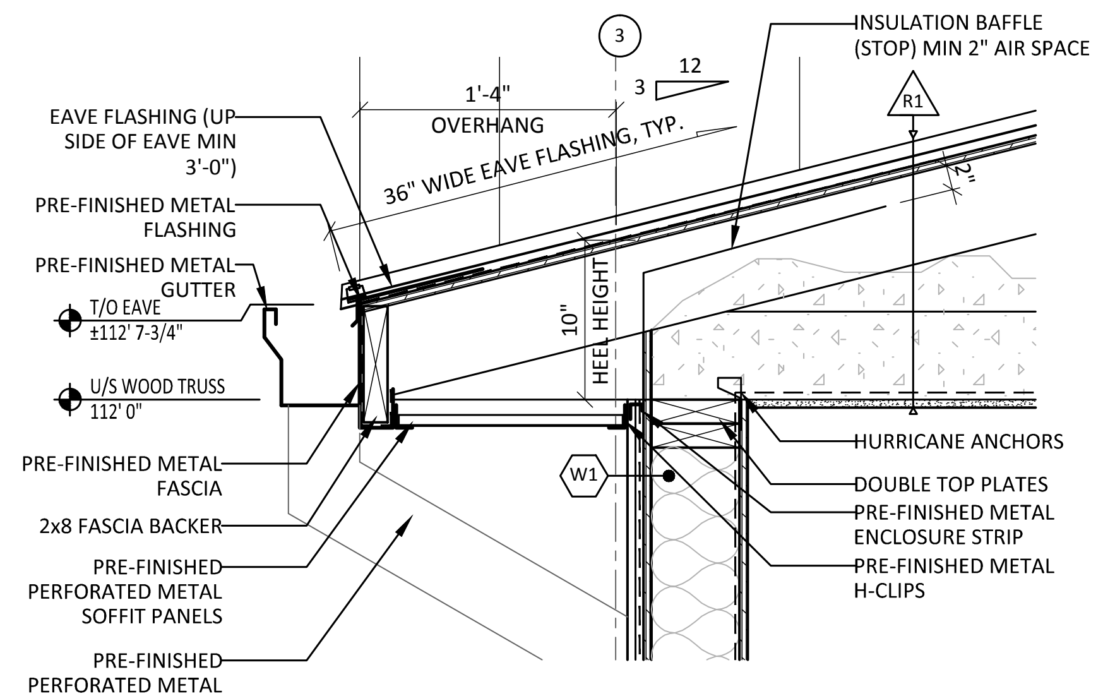
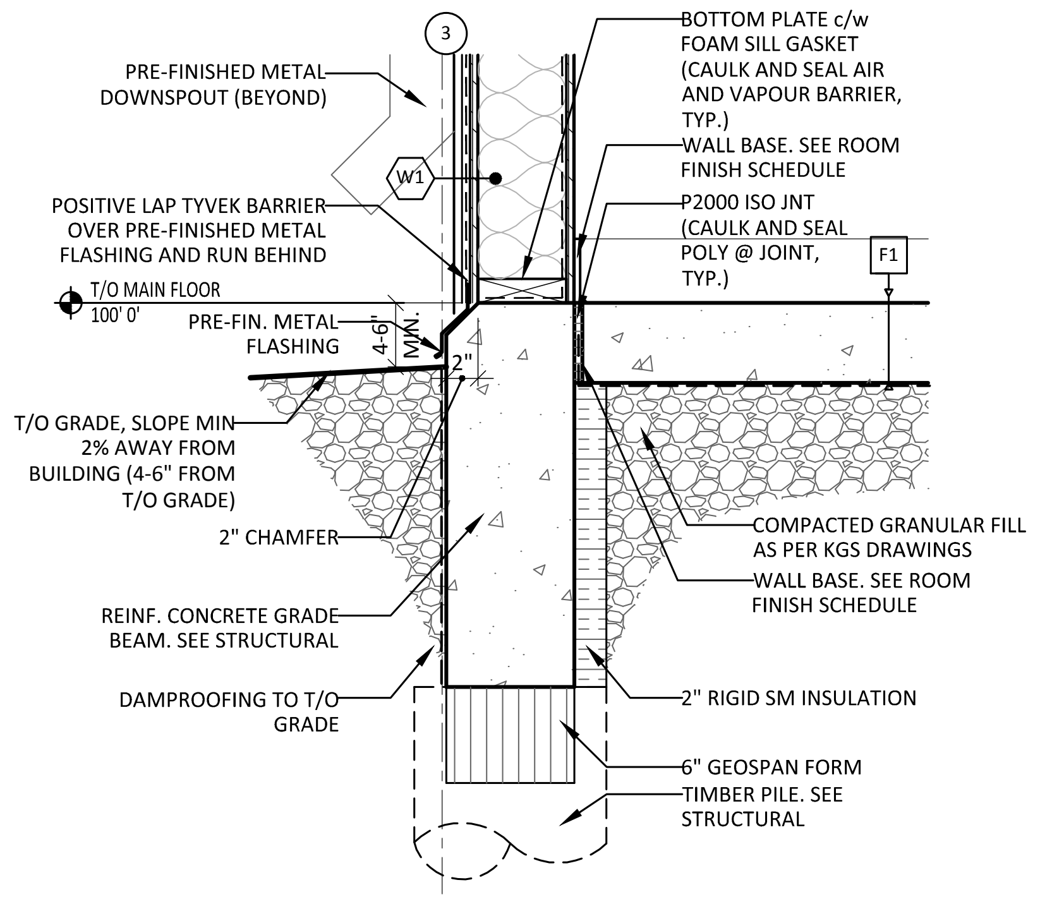


4 A4.2 **SECTION DETAIL**
SCALE 1" = 1' 0"



5 A4.2 **SECTION DETAIL**
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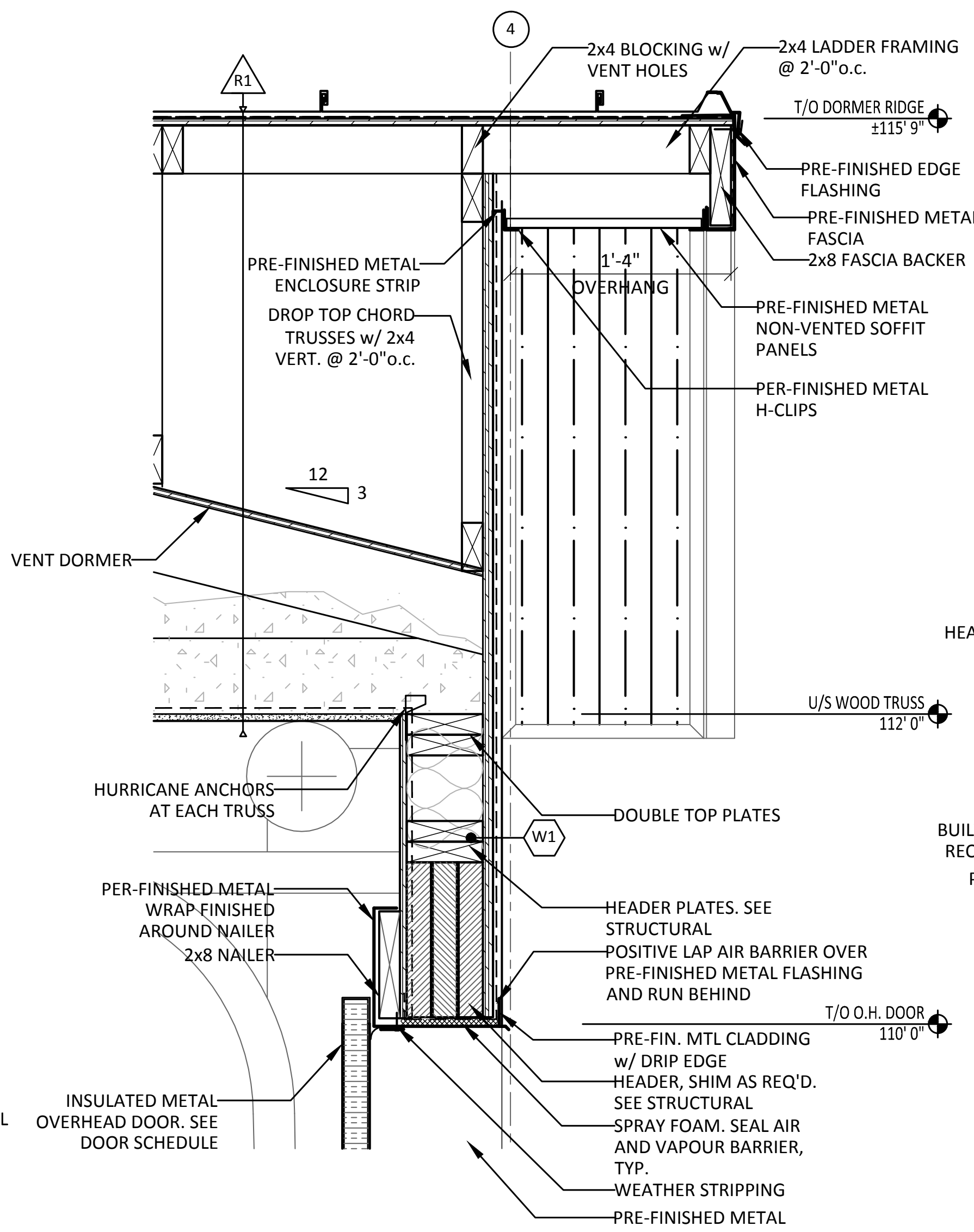

6 A4.2 **SECTION DETAIL**
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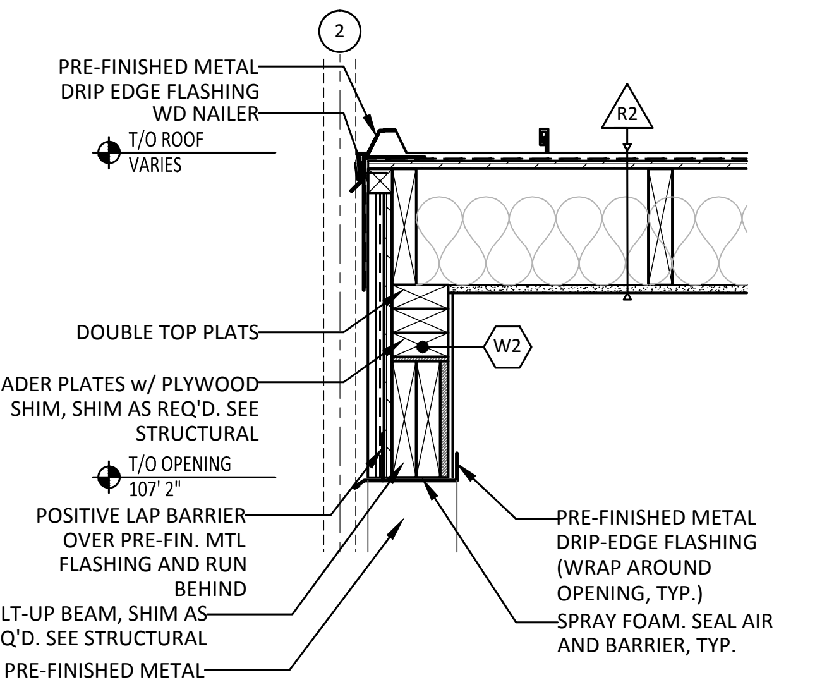
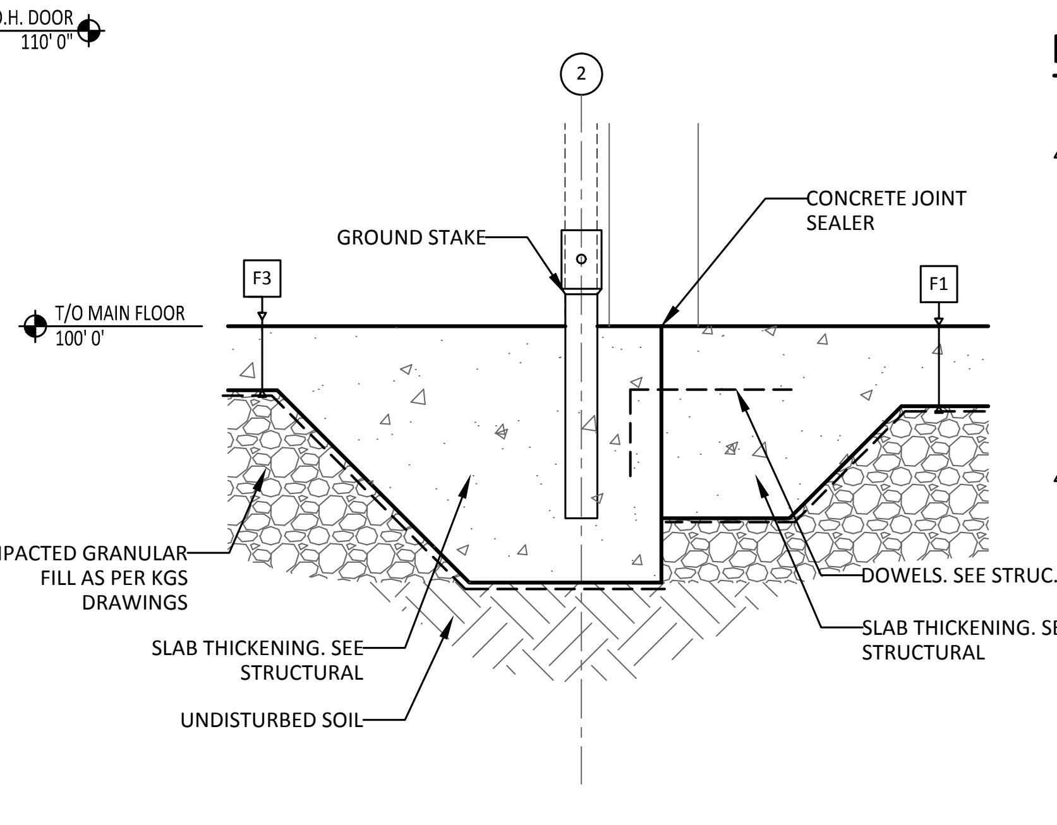


7 A4.2 **SECTION DETAIL**
SCALE 1" = 1' 0"



8 A4.2 **SECTION DETAIL**
SCALE 1" = 1' 0"

WALL ASSEMBLIES (PHASE 1)

W1 EXTERIOR WALL (LBW)
FRR: N/A, STC: N/A
- PRE-FINISHED METAL WALL CLADDING w/ METAL STRAPPING AS REQUIRED, COLOR SELECTION BY OWNER
- WATER & AIR BARRIER (TYVEK VP)
- 1/2" PLYWOOD SHEATHING
- 2x6 WD STUDS @ 16" o.c., FULL HT.
- 5 1/2" BATT INSULATION
- 6 mil POLY VAPOUR BARRIER
- 5/8" PLYWOOD SHEATHING, PAINTED

W2 LINKS EXTERIOR WALL (LBW)
FRR: N/A, STC: N/A
- PRE-FINISHED METAL WALL CLADDING w/ METAL STRAPPING AS REQUIRED, COLOR SELECTION BY OWNER
- WATER & AIR BARRIER (TYVEK VP)
- 1/2" PLYWOOD SHEATHING
- 2x4 WD STUDS @ 16" o.c., FULL HT.
- 3 1/2" BATT INSULATION
- METAL PANELS COLOR SELECTION BY OWNER

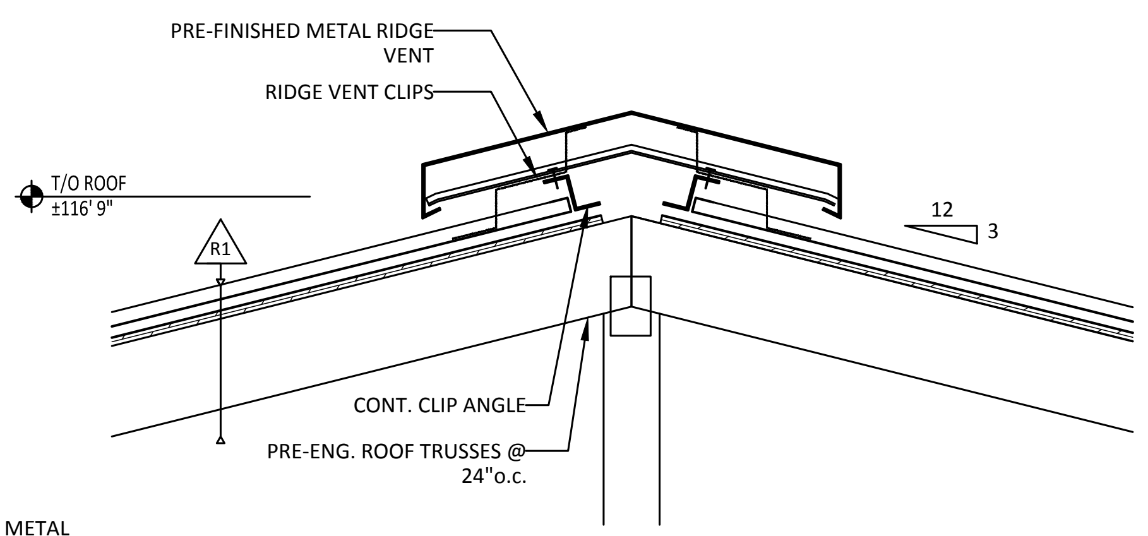
P1 INTERIOR WALL (FLOATED WALL)
FRR: N/A, STC: N/A
- 1/2" REGULAR GWB, PAINTED
- 2x6 STUDS @ 16" o.c. FULL HT. (FLOAT WALL 3", TYPICAL)
- ACOUSTIC INSULATION
- 1/2" REGULAR GWB, PAINTED

(FOR PLUMBING WALLS USE 2x6 STUDS @ 16" o.c. WITH MOISTURE RESISTANT GWB)

ROOF ASSEMBLIES (PHASE 1)

R1 ROOF, GENERAL
FRR: N/A STC: N/A
- PRE-FINISHED METAL CLAD ROOFING, STANDING SEAM (JSM)
- 1 LAYER ROOF FELT OR PREFERRED PEEL & STICK MEMBRANE
- 1/2" OSB ROOF SHEATHING DECK
- ROOF TRUSSES (REFER TO STRUCT)
- R50 BLOWN-IN INSULATION
- 6 mil POLY VAPOUR BARRIER
- 1 LAYER OF 5/8" GWB (PAINTED)

R2 ROOF, LINKS
FRR: N/A, STC: N/A
- PRE-FINISHED METAL CLAD ROOFING, STANDING SEAM (JSM)
- 1 LAYER ROOF FELT OR PREFERRED PEEL & STICK MEMBRANE
- 1/2" OSB ROOF SHEATHING DECK
- 2"X8" ROOF RAFTERS @16" O.C. (REFER TO STRUCT)
- FILL CAVITY WITH 6" BATT INSULATION
- 6 mil POLY VAPOUR BARRIER
- 5/8" GWB (PT) AT UNDERSIDE OF JOISTS



11 A4.2 **SECTION DETAIL**
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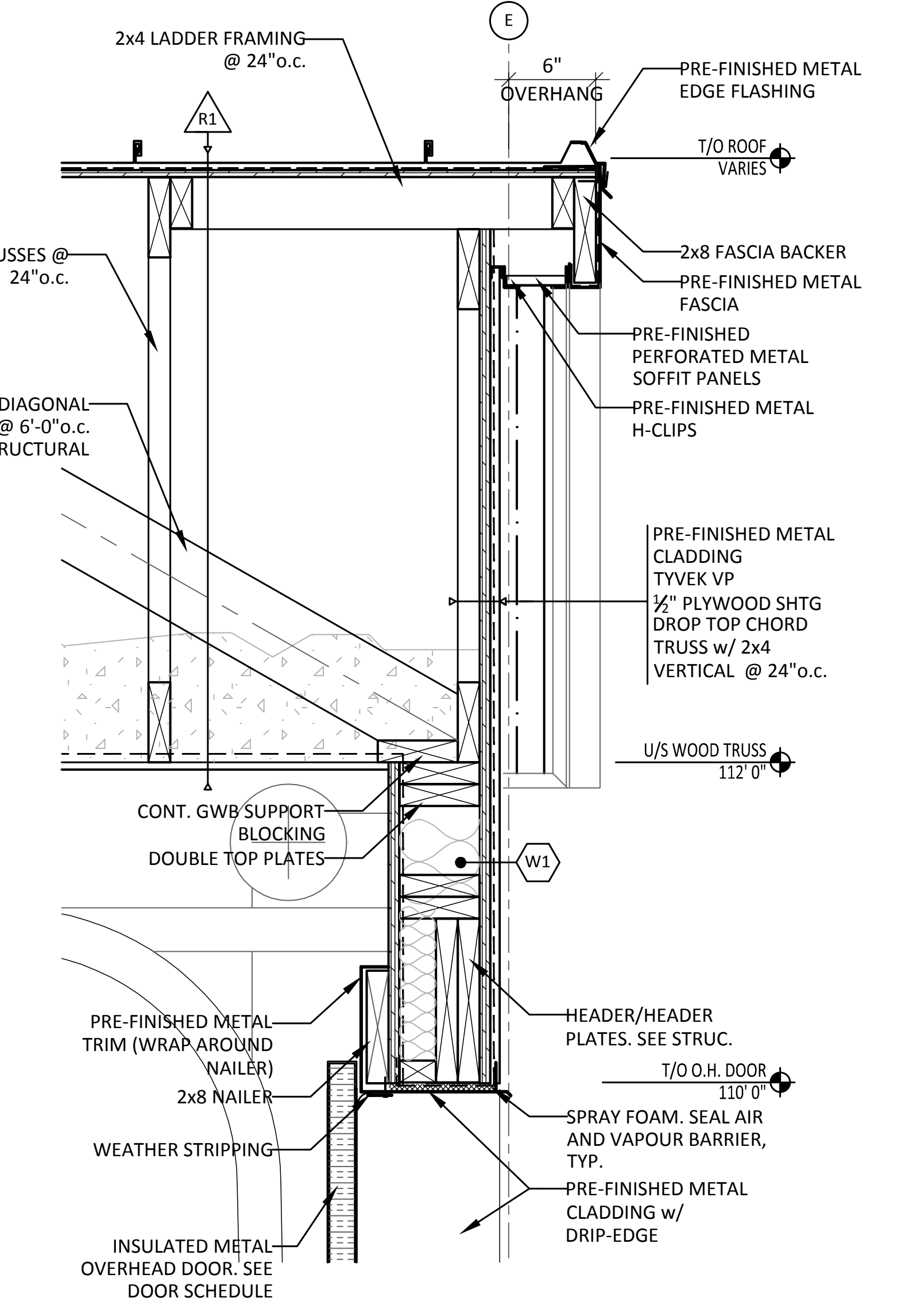

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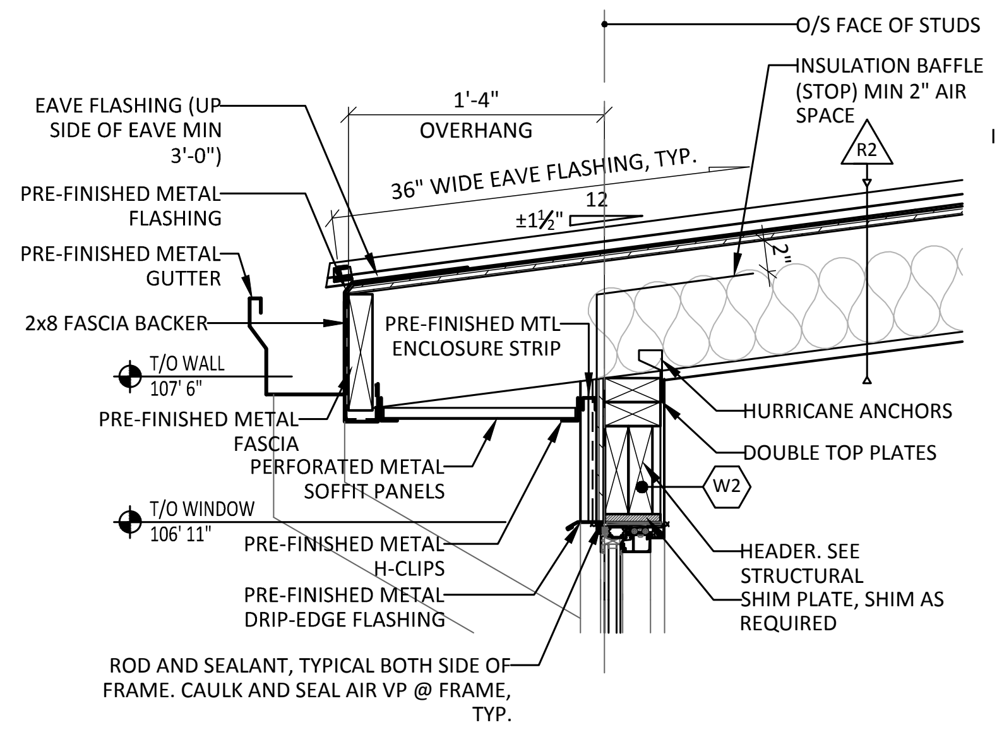

15 A4.2 **SECTION DETAIL**
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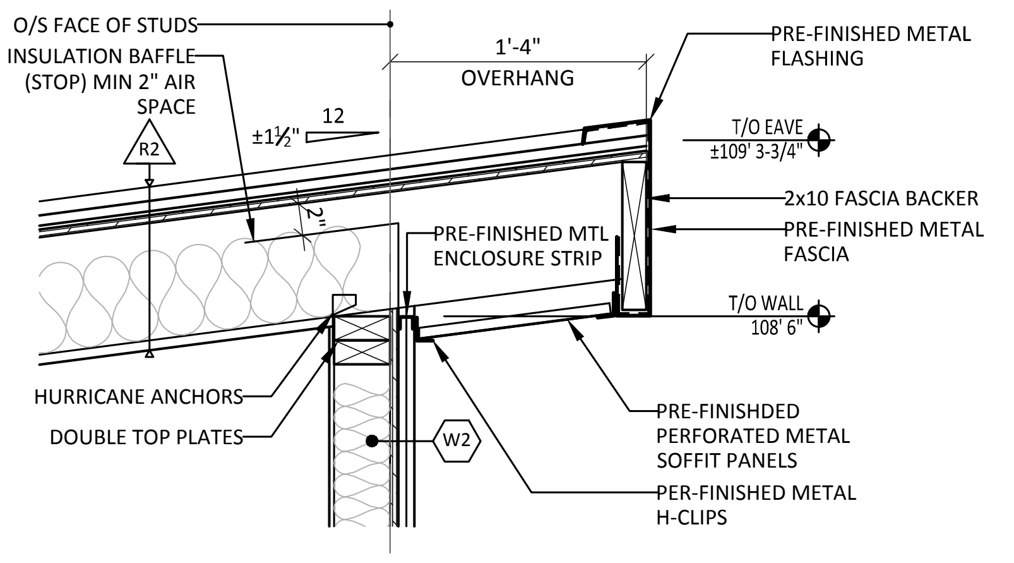


17 A4.2 **SECTION DETAIL**
SCALE 1" = 1' 0"

FLOOR ASSEMBLIES (PHASE 1)

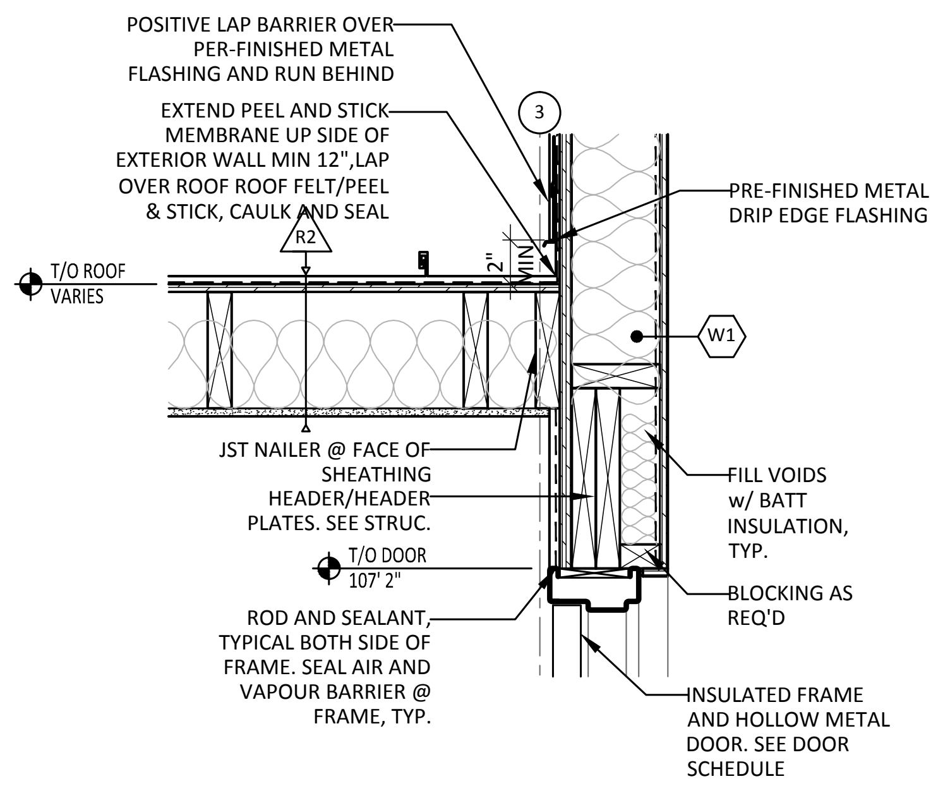
F1 FLOOR SLABS & MAN DOOR APRONS
FRR: N/A, STC: N/A
- FLOOR FINISH AS PER ROOM FINISH SCHEDULE
- 5" CONCRETE SLAB-ON-GRADE c/w 10M @ 16"o/c EACH WAY
- 6 mil POLY V.B.
- COMPACTED GRANULAR AS PER KGS DRAWINGS

F2 SLABS @ O/H DOORS APRONS
FRR: N/A, STC: N/A
- 5" CONCRETE SLAB c/w 10M @ 12"o/c
- 6 mil POLY V.B.
- 6" GEOVOID
- COMPACTED GRANULAR AS PER KGS DRAWINGS

FLOOR ASSEMBLIES (PHASE 2)

F3 FLOOR SLAB @ GREENHOUSE #1
FRR: N/A, STC: N/A
- 4" CONCRETE SLAB ON-GRADE c/w 10M @ 16"o/c
- 6 mil POLY V.B.
- COMPACTED GRANULAR AS PER KGS DRAWINGS

F4 FLOOR @ GREENHOUSE #2
FRR: N/A, STC: N/A
- COMPACTED GRANULAR AS PER KGS DRAWINGS



9 A4.2 **SECTION DETAIL**
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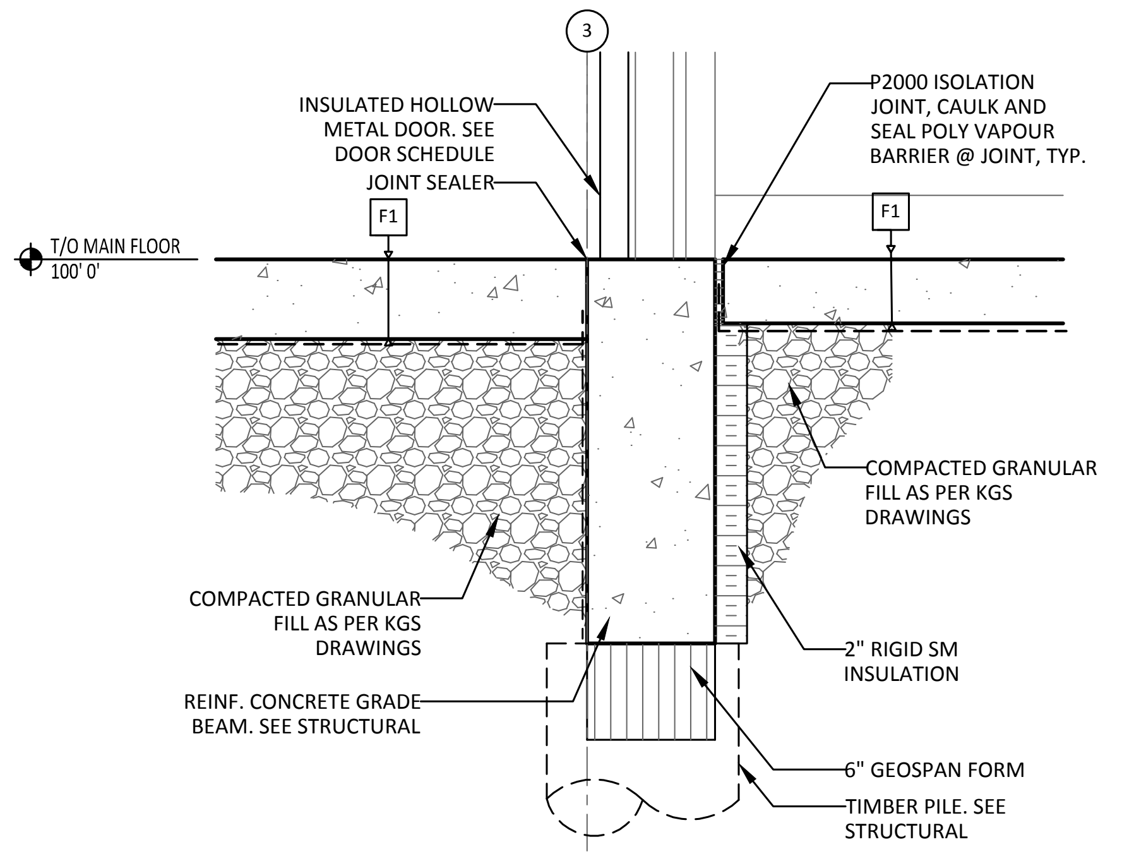

10 A4.2 **SECTION DETAIL**
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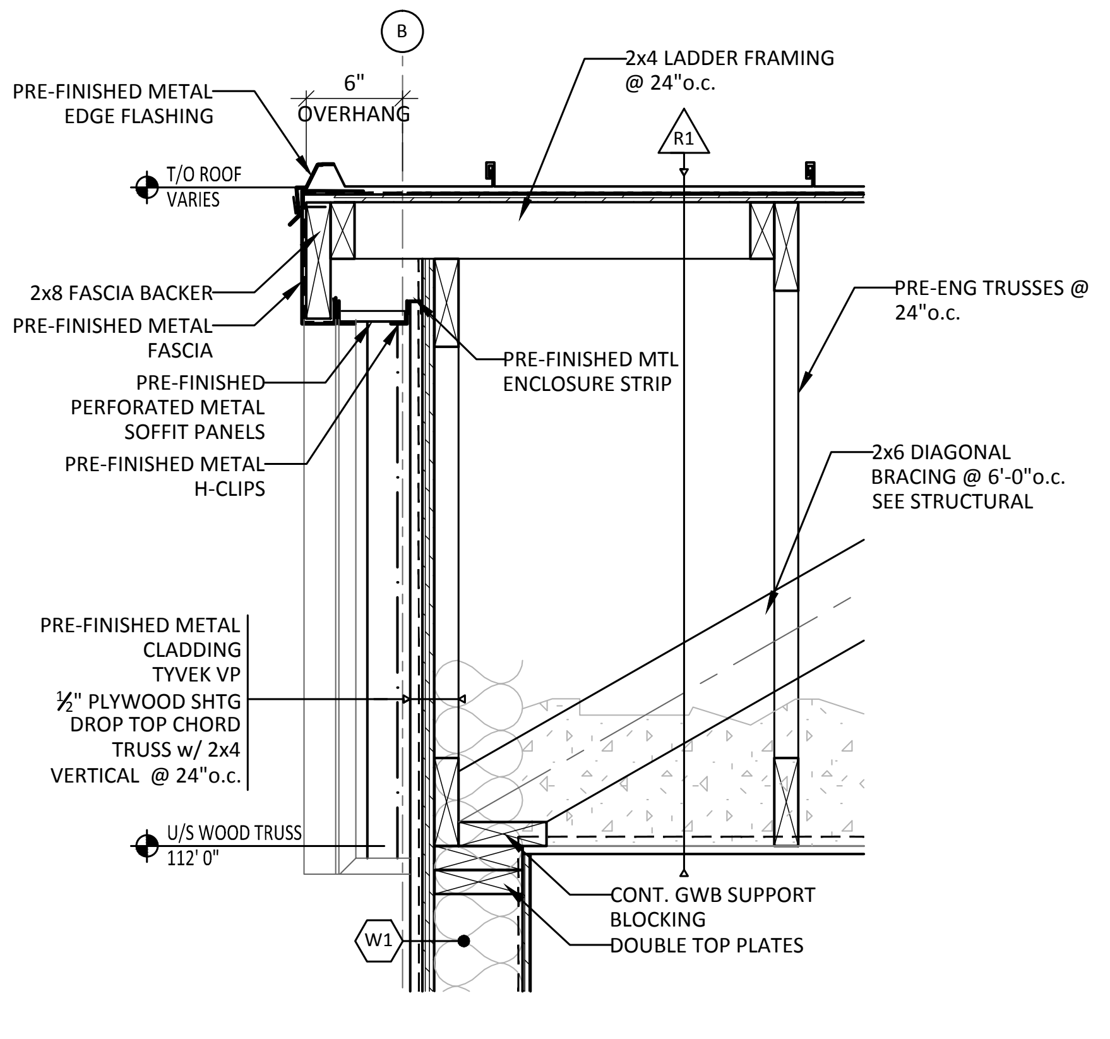

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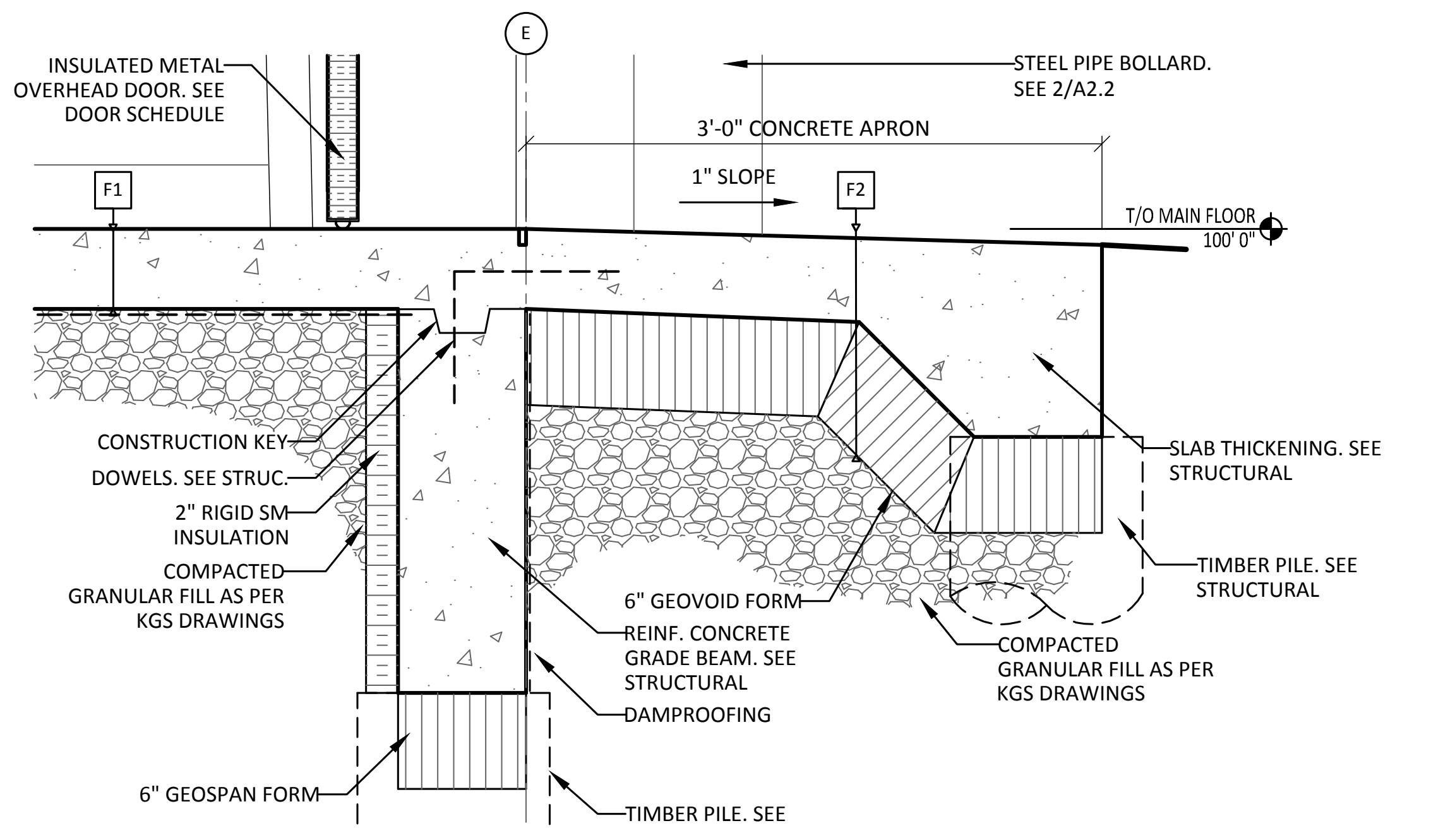

14 A4.2 **SECTION DETAIL**
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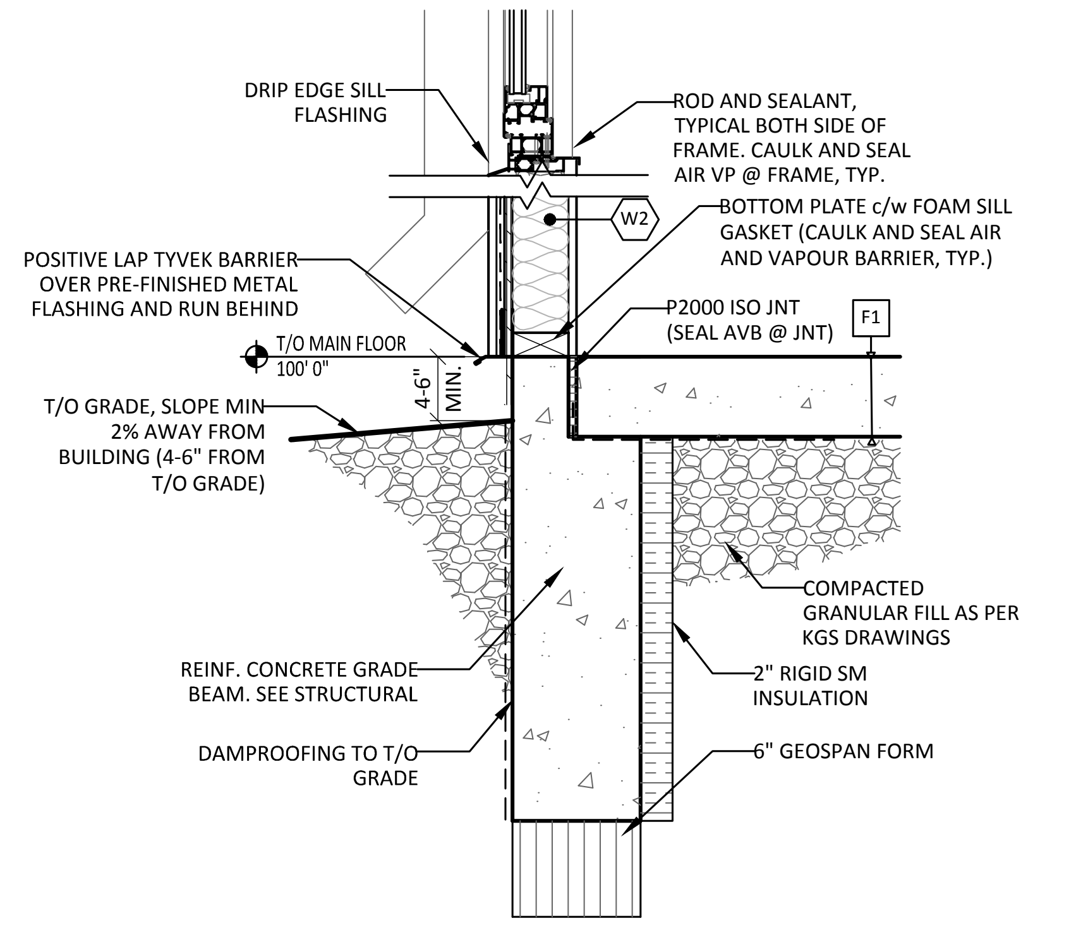

16 A4.2 **SECTION DETAIL**
SCALE 1" = 1' 0"

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1457 ALBERT STREET, REGINA,
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Professional Seal:
Lawrence N. Carcoana
SAA #904 Regina, SK
15/12/21

Project Title:
HEADER BUILDING
AND
GREENHOUSES

INDIAN HEAD, SASKATCHEWAN

Notes:

Issue Record:
YY.MM.DD/Issued For/Issued To/Issued By

Revisions:
R# Brief Description/YY.MM.DD/Revised By

WALL SECTIONS & DETAILS

Designed By:	LC	Scale:	AS INDICATED
Drawn By:	ST/JS	Date:	2015.11.26
Checked By:	LC	Date:	2015.12.31
Project No.:	**4859**		

A4.2

Revision No.:	**R#**	Date:	YYYY.MM.DD
Issued For:	**TENDER**		
Date Issued:	2016.01.06		
Date Plotted:	2016.01.06		

M:\Current Projects\4859 Header Building - Indian Head Research Farm\4859 DRAWINGS\4859 WORKING DRAWINGS\4859401

DRIVEN TIMBER PILE SCHEDULE

TYPE	DIAMETER	LENGTH	LOAD RANGE
P1	12"	20'–0"	0k–12k
P2	12"	25'–0"	12k–21.5k
P3	12" CONCRETE	4'–0"	–

FOR ALTERNATE SCREW PILES SEE PROPRIETERY PILE DESIGN NOTES

GRADE BEAM SCHEDULE

TYPE	WIDTH	DEPTH	TOP	MID	BTM	10M STIRRUPS
B1	8"	24"	2–15M	–	2–15M	REFER TO 4/S5.1
B2	8"	24"	2–20M	–	2–15M	

PROPRIETERY PILE DESIGN NOTES

DRIVEN TIMBER PILES

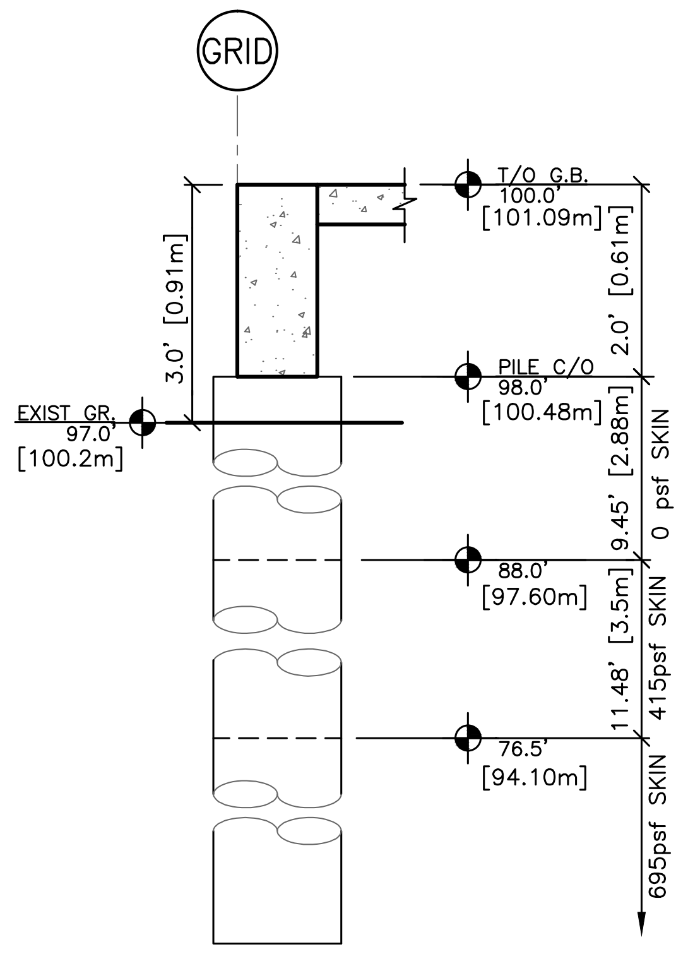
DESIGN IS IN ACCORDANCE WITH GROUND ENGINEERING LTD. REPORT GE–1518–2 AND SUBSEQUENT NOV. 27, 2015 E–MAIL. REFER TO SPECIFICATIONS FOR COPY OF ABOVE E–MAIL.

SCREW PILES

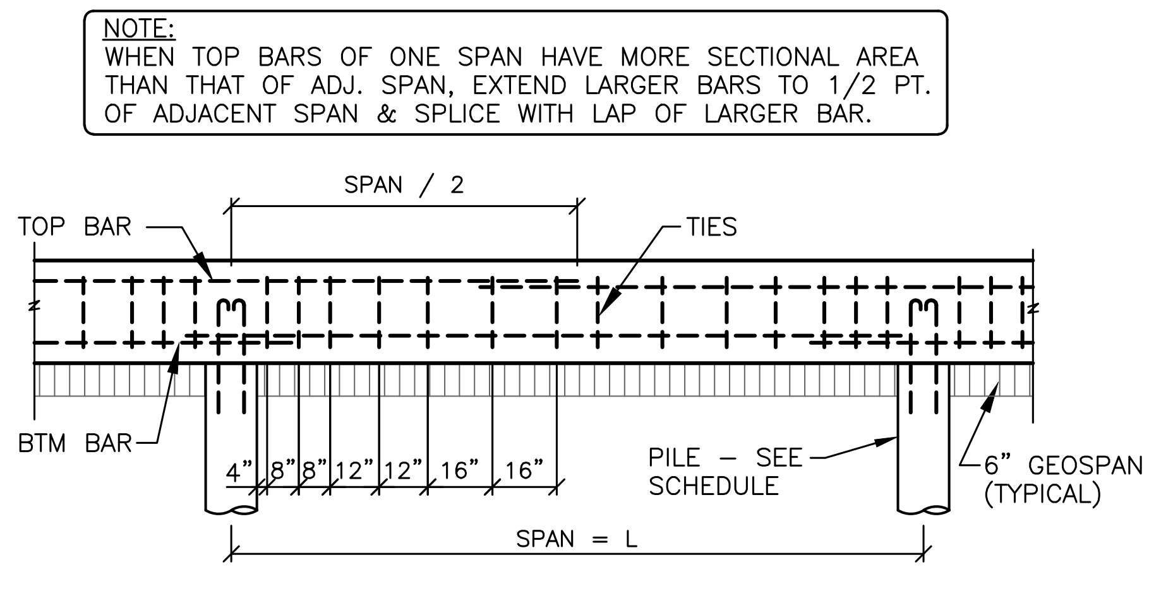
CONTRACTOR TO PROVIDE ALTERNATE DESIGN FOR SCREW PILES IN ACCORDANCE WITH GROUND ENGINEERING LTD. NOV. 27, 2015 FILE GE–1518–2. REFER TO SPECIFICATIONS FOR COPY OF ABOVE LETTER. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR SCREW PILES WITH P. ENG. SEAL.

NOT USED

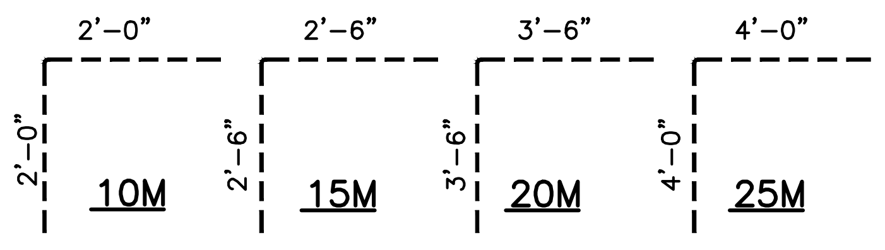
2 S5.1 **DETAIL**
SCALE 1/2" = 1'-0"



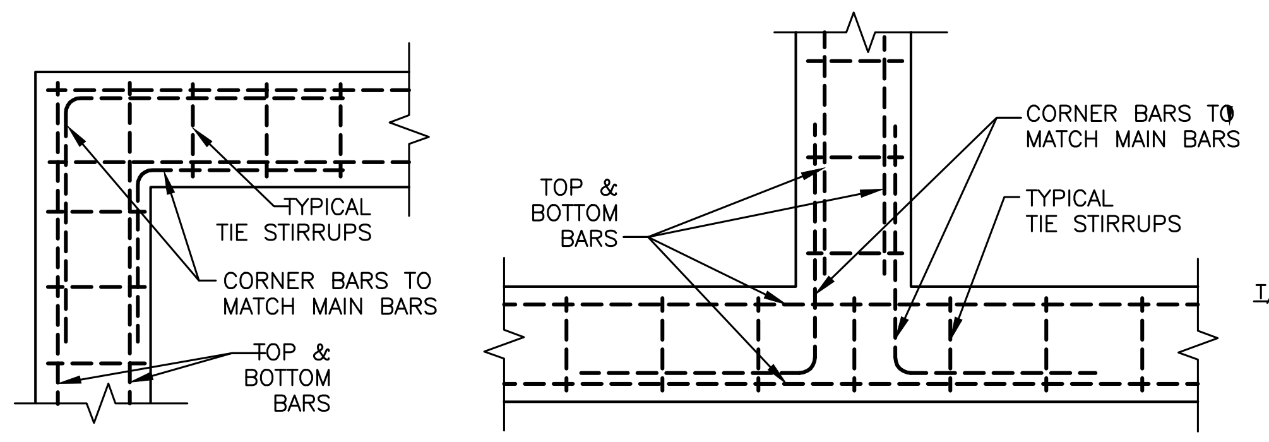
3 S5.1 **PILE DESIGN CRITERIA**
SCALE 1/2" = 1'-0"



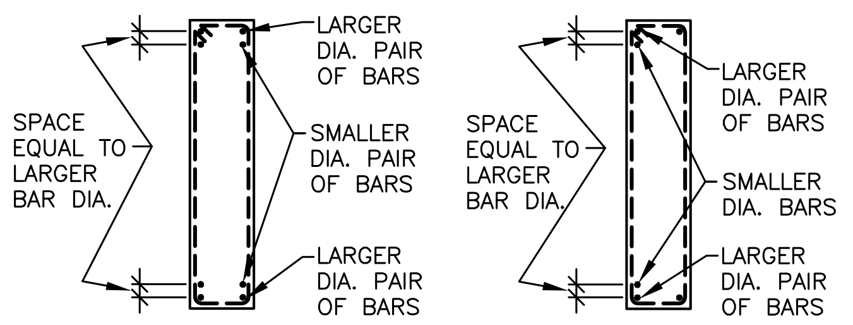
4 S5.1 **TYPICAL GRADE BEAM LONGITUDINAL SECTION**
SCALE 1/2" = 1'-0"



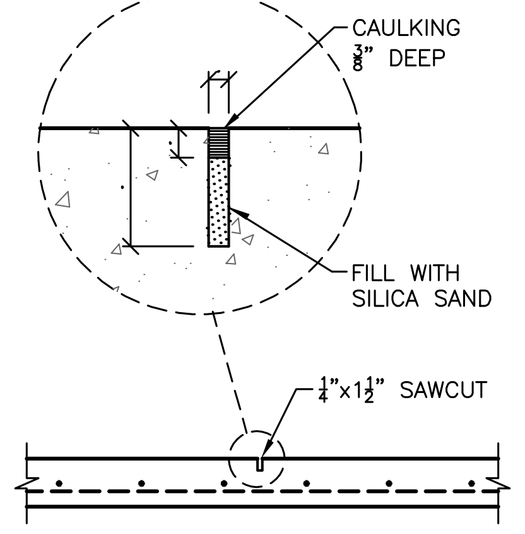
ADDITIONAL REBAR AT GRADE BEAM CORNERS



5 S5.1 **TYPICAL CORNER REINFORCING**
SCALE 1/2" = 1'-0"



6 S5.1 **TYPICAL GRADE BEAM SECTIONS**
SCALE 1/2" = 1'-0"



7 S5.1 **TYPICAL SAW CUT**
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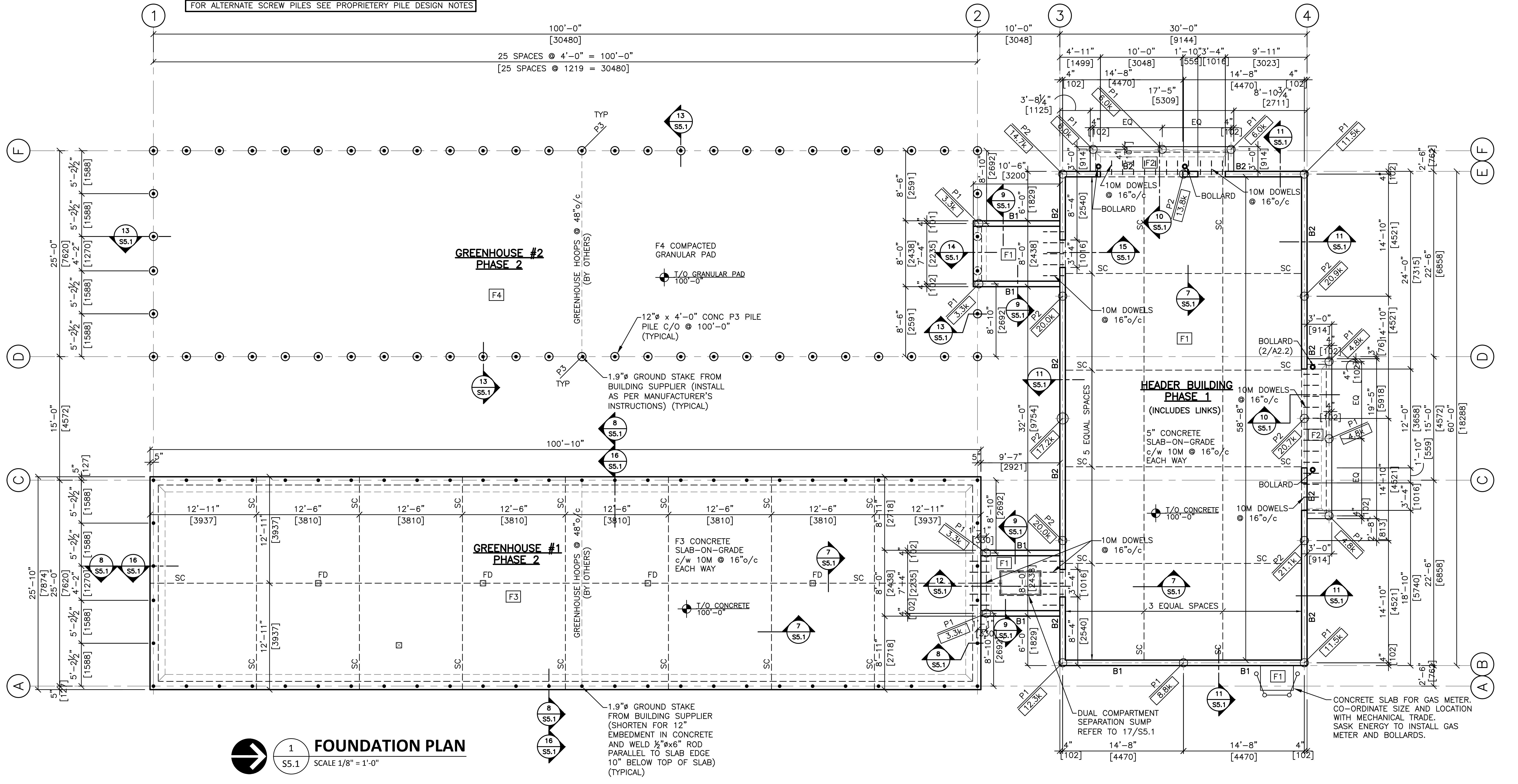

1 S5.1 **FOUNDATION PLAN**
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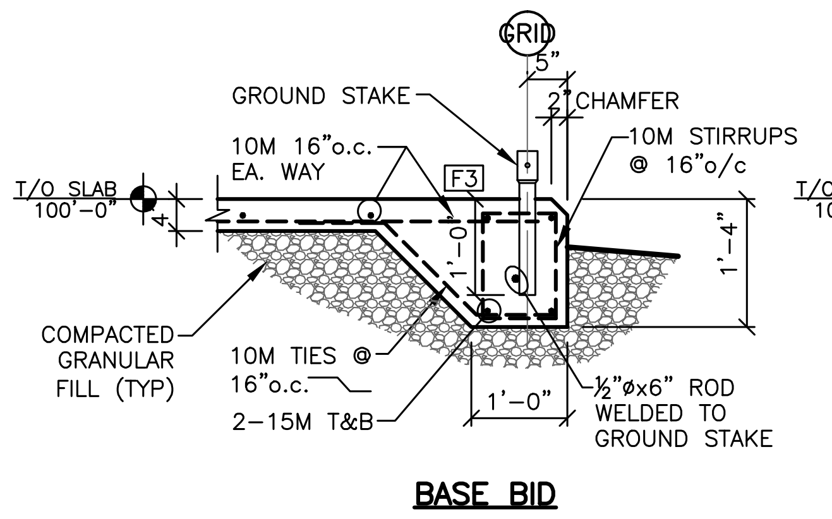
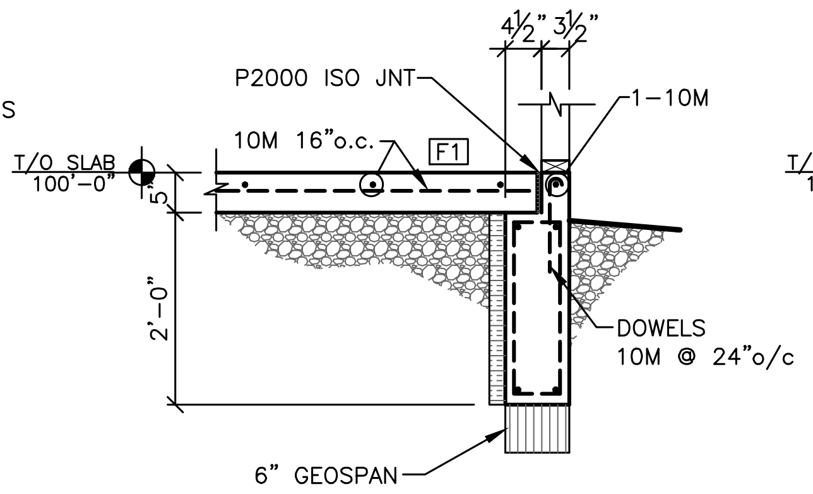
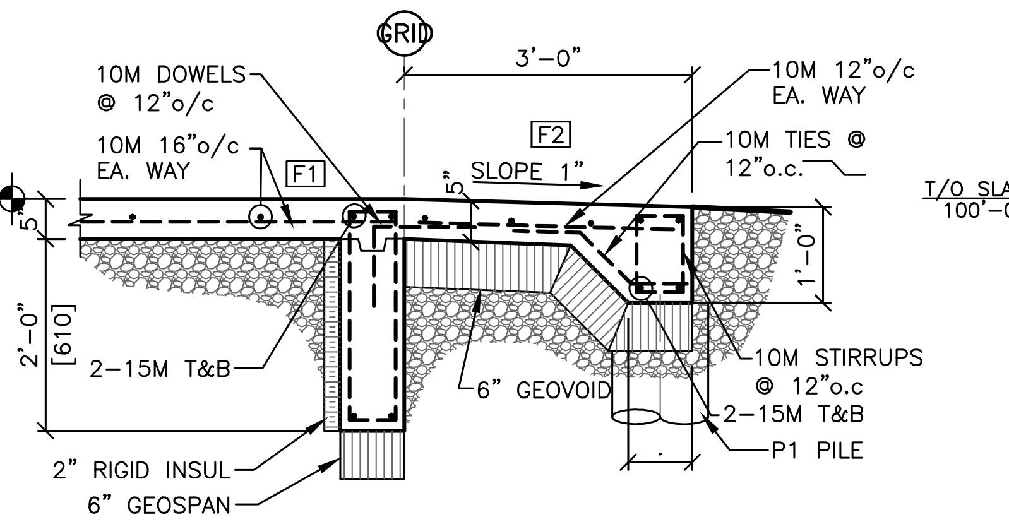


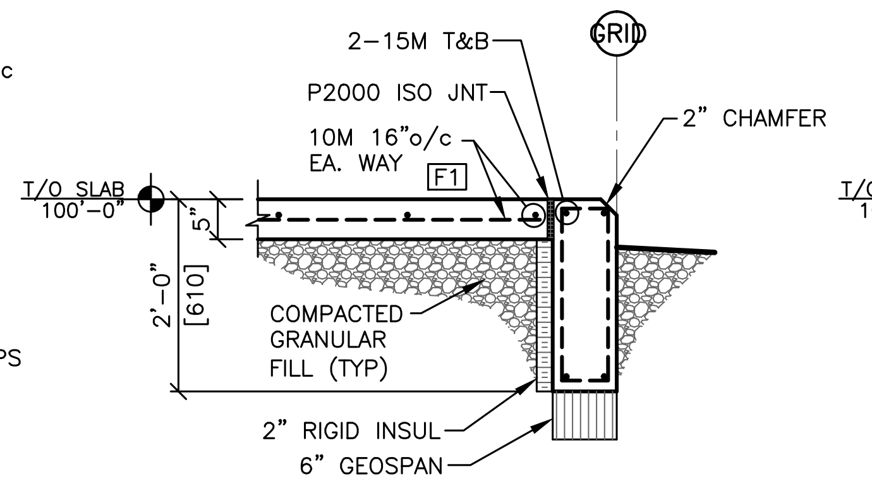
8 S5.1 **GREENHOUSE #1 SLAB THICKENING**
SCALE 1/2" = 1' 0"



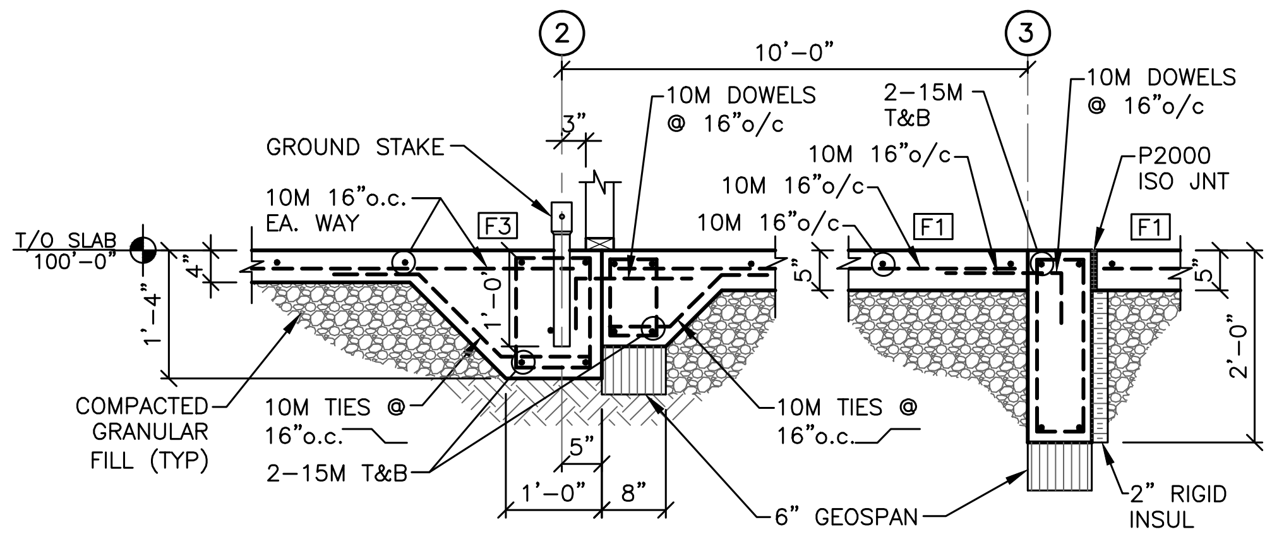
9 S5.1 **LINK GRADE BEAM**
SCALE 1/2" = 1' 0"



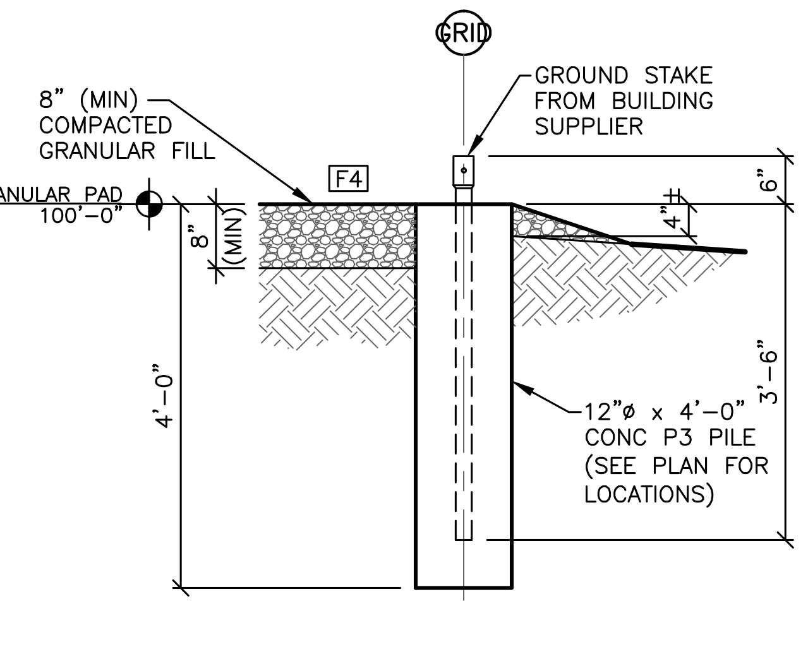
10 S5.1 **DOOR APRON SLAB**
SCALE 1/2" = 1' 0"



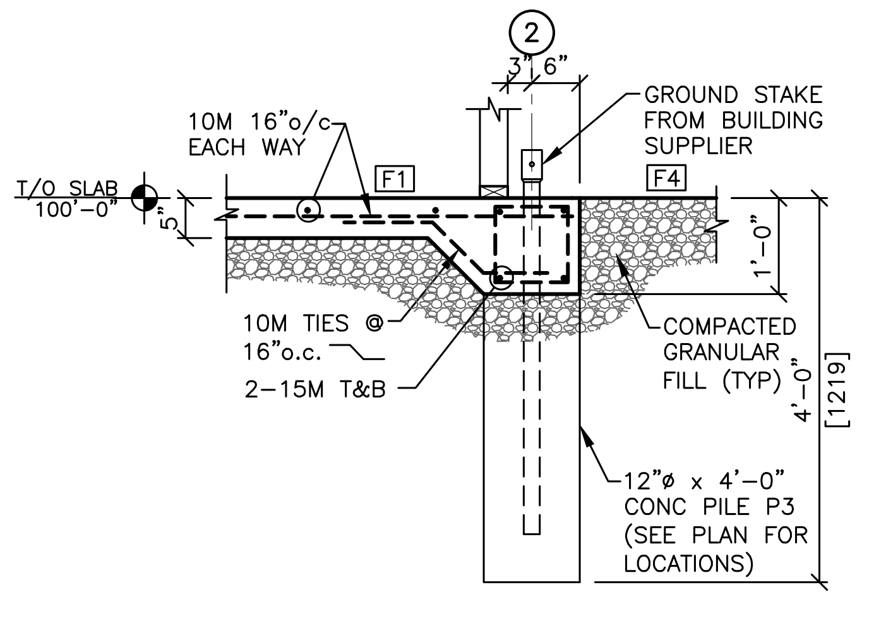
11 S5.1 **GRADE BEAM**
SCALE 1/2" = 1' 0"



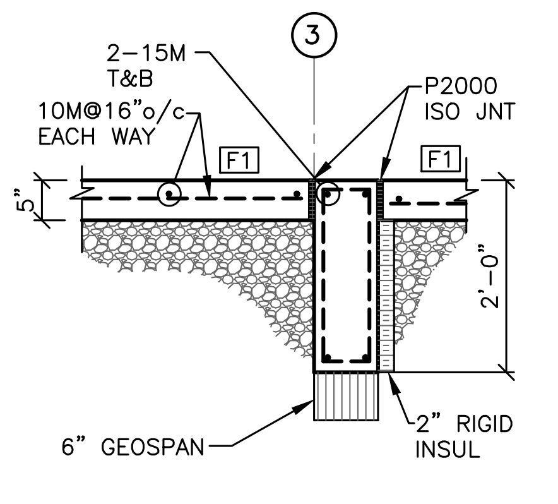
12 S5.1 **LINK SLAB FOR GREENHOUSE #1**
SCALE 1/2" = 1' 0"



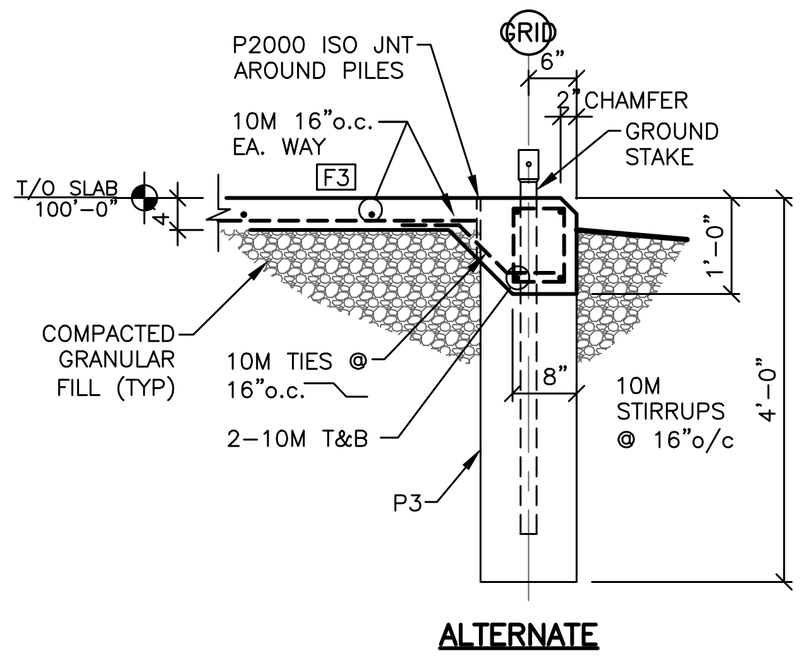
13 S5.1 **GREENHOUSE #2 PILES**
SCALE 1/2" = 1' 0"



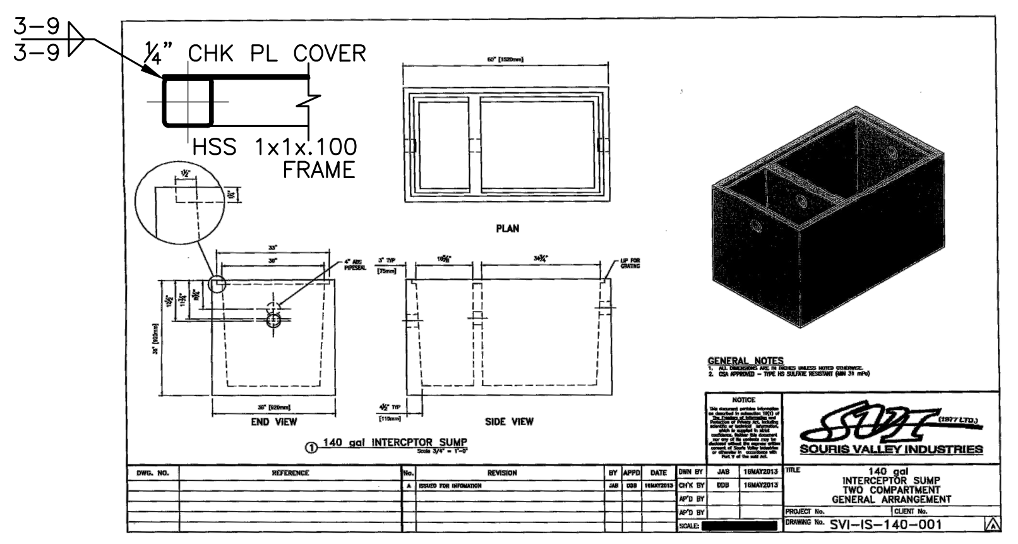
14 S5.1 **LINK SLAB THICKENING AT GREENHOUSE #2**
SCALE 1/2" = 1' 0"



15 S5.1 **LINK SLAB/GRADE BEAM GREENHOUSE #2**
SCALE 1/2" = 1' 0"



16 S5.1 **GREENHOUSE #1 SLAB THICKENING**
SCALE 1/2" = 1' 0"



17 S5.1 **DUAL COMPARTMENT SUMP**
SCALE - NTS

FLOOR ASSEMBLIES (PHASE 1)

F1
FLOOR SLABS & MAN DOOR APRONS
FRR: N/A, STC: N/A
- FLOOR FINISH AS PER ROOM FINISH SCHEDULE
- 5" CONCRETE SLAB-ON-GRADE c/w 10M @ 16"o/c EACH WAY
- 6 mil POLY V.B.
- COMPACTED GRANULAR AS PER KGS DRAWINGS

F2
SLABS @ O/H DOORS APRONS
FRR: N/A, STC: N/A
- 5" CONCRETE SLAB c/w 10M @ 12"o/c
- 6 mil POLY V.B.
- 6" GEOVOID
- COMPACTED GRANULAR AS PER KGS DRAWINGS

FLOOR ASSEMBLIES (PHASE 2)

F3
FLOOR SLAB @ GREENHOUSE #1
FRR: N/A, STC: N/A
- 4" CONCRETE SLAB ON-GRADE c/w 10M @ 16"o/c
- 6 mil POLY V.B.
- COMPACTED GRANULAR AS PER KGS DRAWINGS

F4
FLOOR @ GREENHOUSE #2
FRR: N/A, STC: N/A
- COMPACTED GRANULAR AS PER KGS DRAWINGS

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OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
W.T. McGINN & ASSOCIATES
No.: 124
Permission to Consult held by:

DISCIPLINE	SASK. REG. No.	SIGNATURE
Civil	3081	

Professional Seal:
2015/11/23
P. T. McGINN
REGINA

Project Title:

HEADER BUILDING AND GREENHOUSES

INDIAN HEAD, SASKATCHEWAN

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FOUNDATION PLAN AND DETAILS

Designed By:	PTM	Scale:	AS INDICATED
Drawn By:	DAW/JS	Date:	NOV 2015
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S5.1

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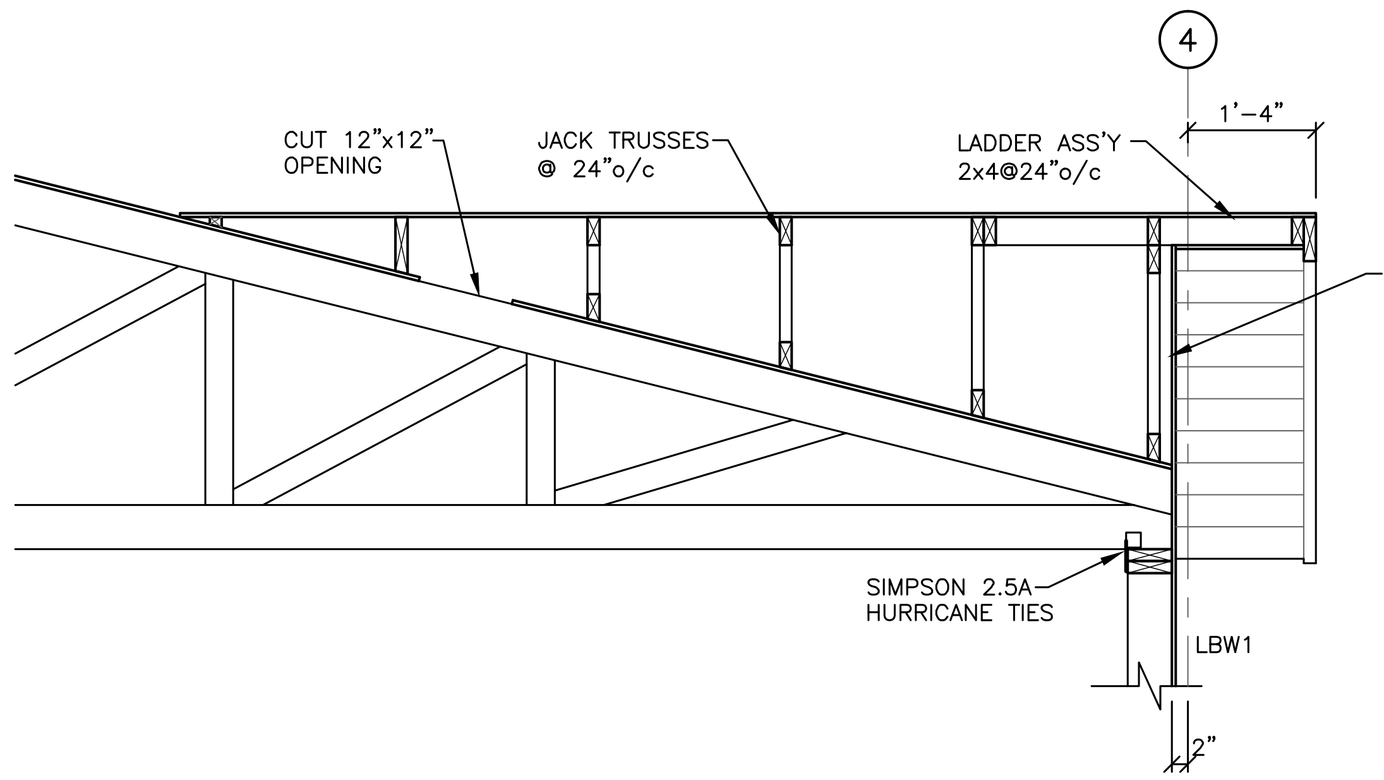
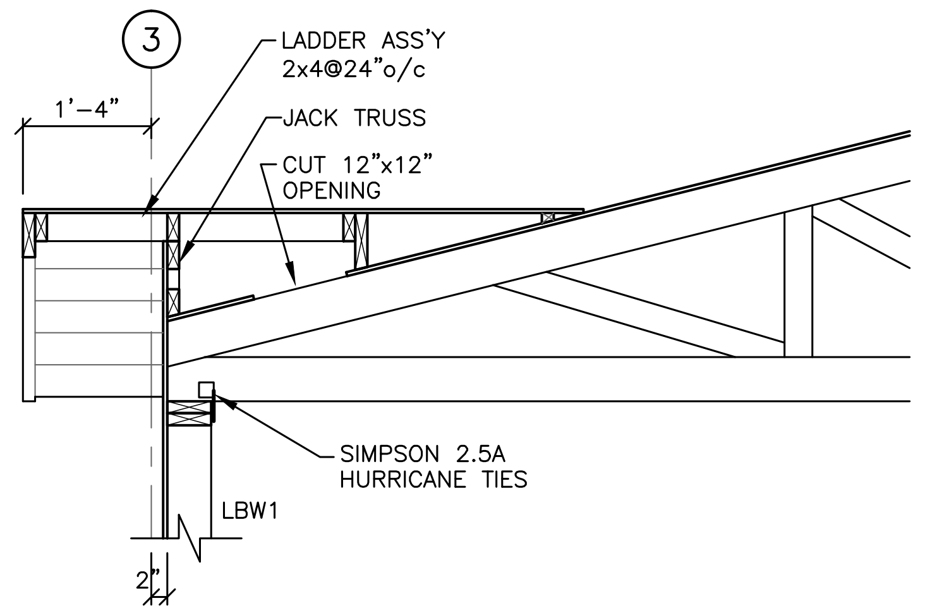
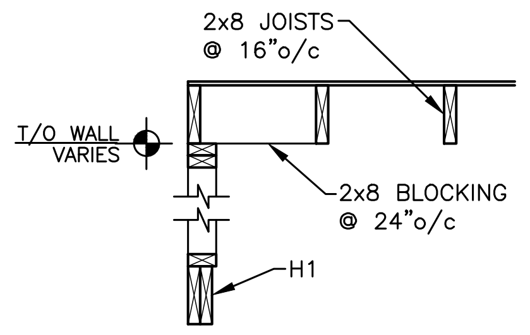
Date Plotted:	06/01/2016		



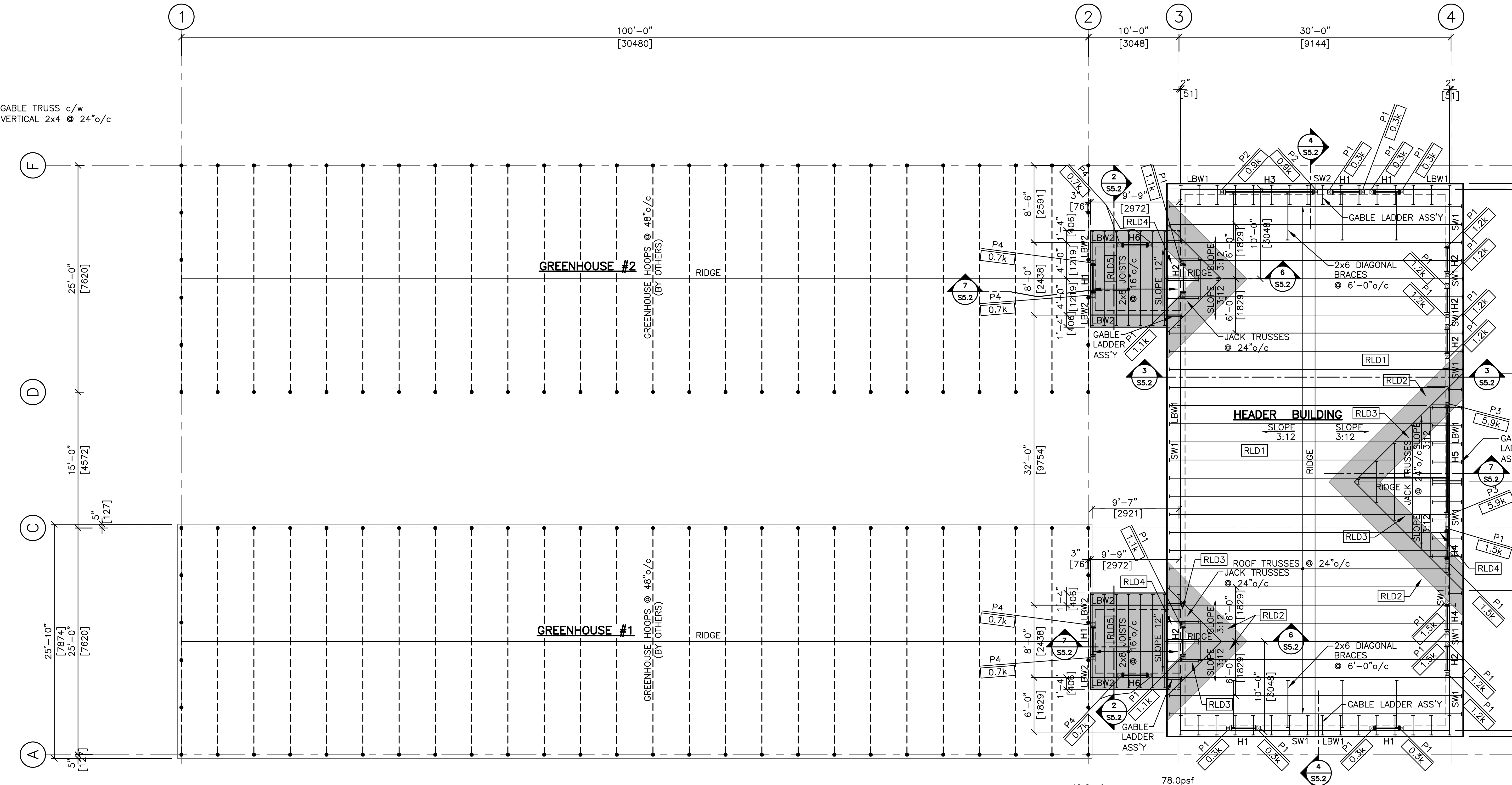
5 SECTION THRU FRONT DORMER
S5.2 SCALE 1/2" = 1'-0"

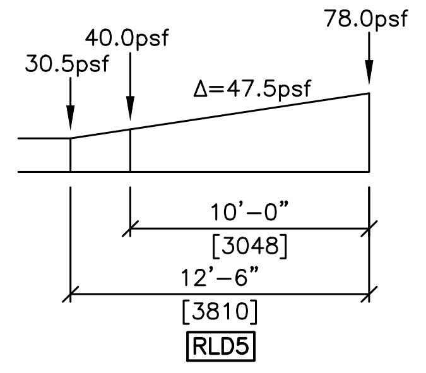


6 SECTION THRU LINK DORMERS
S5.2 SCALE 1/2" = 1'-0"

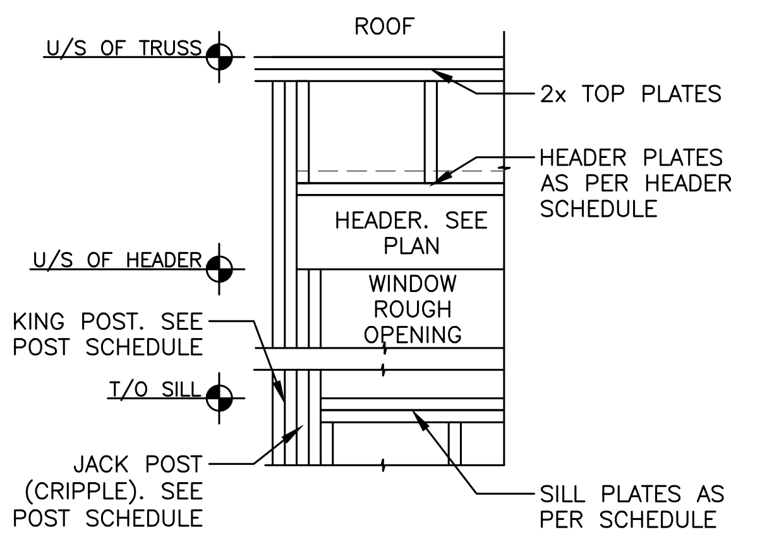


7 SECTION THRU LINK DORMERS
S5.2 SCALE 1/2" = 1'-0"

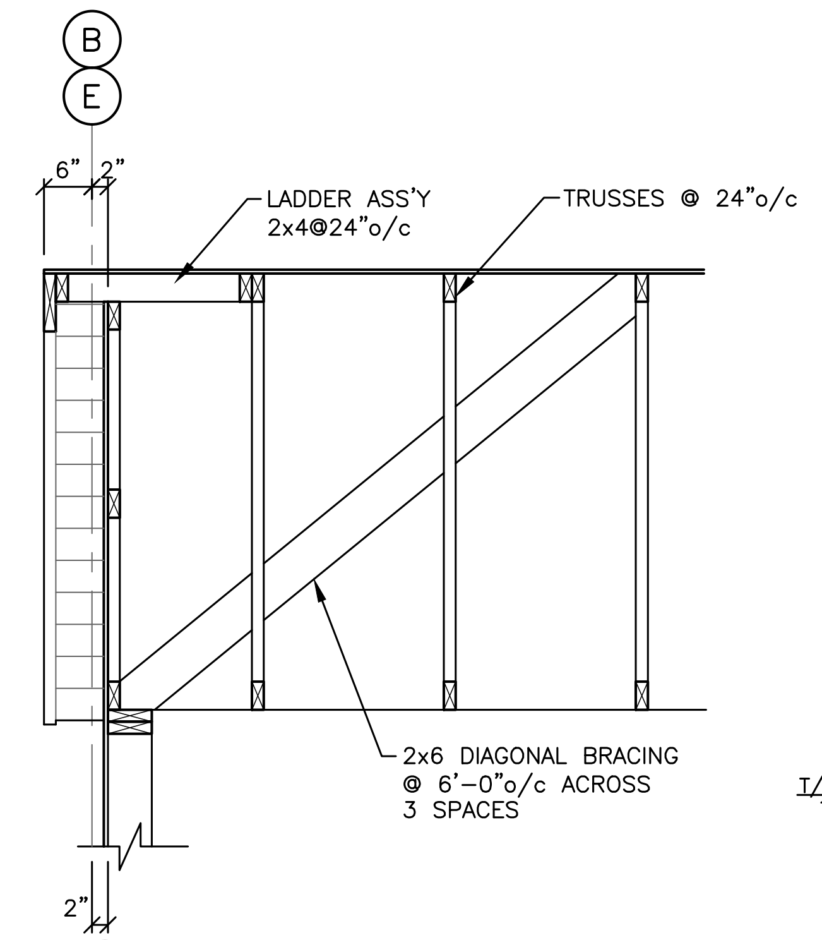




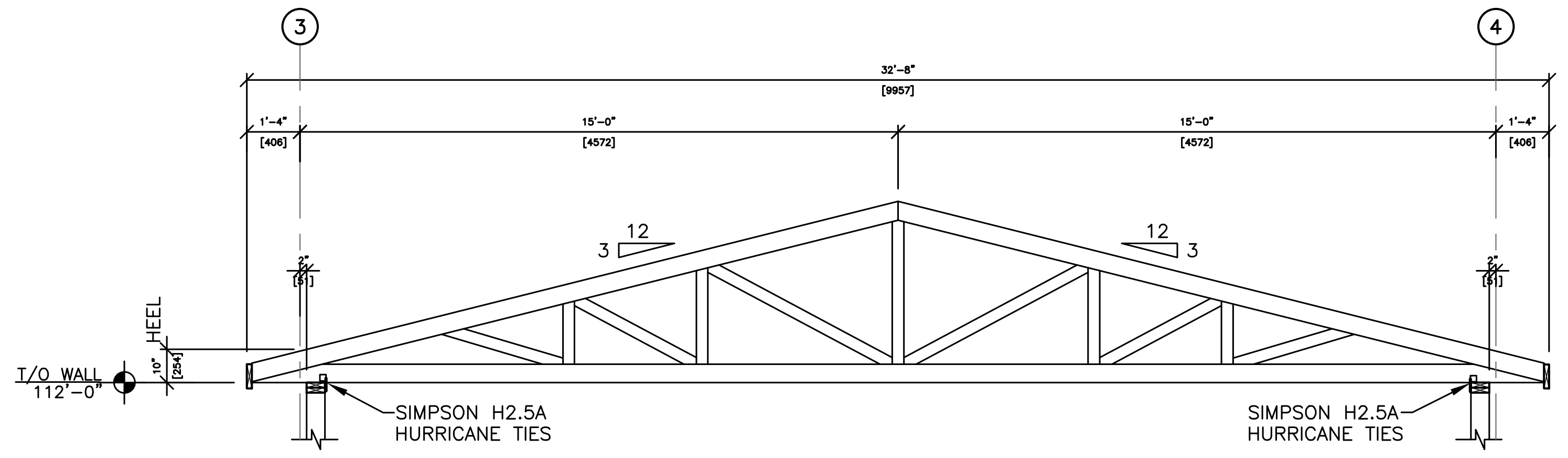
1 ROOF FRAMING PLAN
S5.1 SCALE 1/8" = 1'-0"



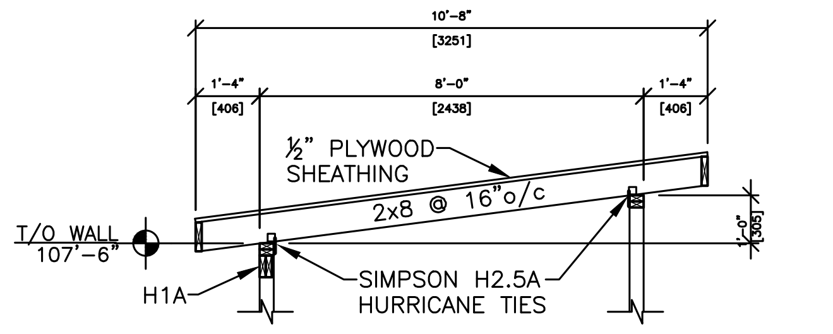
8 TYPICAL WINDOW OPENING
S5.2 SCALE 1/2" = 1'-0"



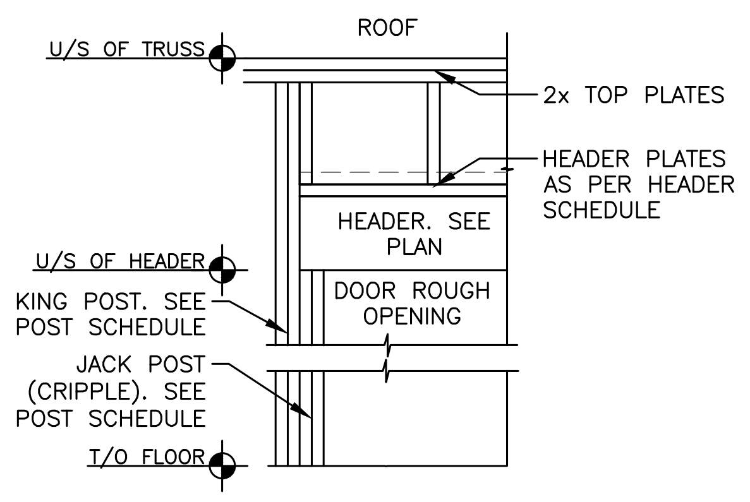
4 SECTION THRU GABLE
S5.2 SCALE 1/2" = 1'-0"



3 TYPICAL ROOF TRUSS PROFILE
S5.2 SCALE 1/4" = 1'-0"



2 LINK ROOF JOIST PROFILE
S5.2 SCALE 1/4" = 1'-0"



9 TYP. SECTION @ DOOR OPENING
S5.2 SCALE 1/2" = 1'-0"

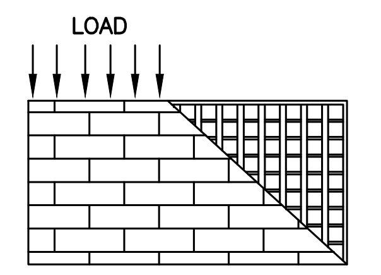
FACTORED BASIC SHEAR RESISTANCE TABLE

WOOD STRUCTURAL PANELS WITH S-P-F FRAMING ØVdKdKsfJsp (kN/m) FOR WIND AND SEISMIC LOADS				PANELS APPLIED DIRECTLY TO FRAMING[1,2]
MIN. NOMINAL PANEL THICKNESS mm	PANEL MARK[3]	MIN. NAIL PENETRATION IN FRAMING mm	COMMON NAIL LENGTH in.	NAIL SPACING AT PANEL EDGES (mm) 150
12.5 (½")	2R32/2F16/1F16	38	2.5	SW1–5.0 SW2–9.3

NOTE:

1. TABULATED VALUES FOR DRY SERVICE CONDITIONS. PANEL EDGES BACKED WITH 38mm OR WIDER FRAMING. PANELS APPLIED EITHER VERTICALLY OR HORIZONTALLY. SPACE NAILS AT 300mm ON CENTER ALONG INTERMEDIATE SUPPORTS.
2. FOR PANELS APPLIED OVER 12.7mm OR 15.9mm GYPSUM WALLBOARD, SPECIFIED SHEAR STRENGTH FOR THE SAME THICKNESS PANEL APPLIED DIRECTLY TO FRAMING MAY BE USED AS LONG AS MINIMUM NAIL PENETRATION IS SATISFIED.
3. FOR OSB PANELS RATED TO CSA STANDARD O325.0, THE MINIMUM NOMINAL THICKNESS MAY BE 0.5mm LESS THAN THE THICKNESS SHOWN.
4. THE VALUES FOR 9.5mm AND 11.0mm PANELS APPLIED DIRECTLY TO FRAMING MAY BE INCREASED TO VALUES SHOWN, RESPECTIVELY FOR 11.0mm AND 12.5mm PANELS, PROVIDED STUDS ARE SPACED A MAXIMUM OF 400mm ON CENTER.
5. FRAMING AT ADJOINING PANEL EDGES SHALL BE 64mm LUMBER (OR TWO 38mm WIDTH FRAMING MEMBERS CONNECTED TO TRANSFER THE FACTORED SHEAR FORCE), OR WIDER AND NAILS SHALL BE STAGGERED.
6. WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL AND NAIL SPACING IS LESS THAN 150mm ON CENTER ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT MEMBERS OR FRAMING SHALL BE 64mm OR THICKER AND NAILS ON EACH SIDE SHALL BE STAGGERED.
7. FOR POWER-DRIVEN NAILS WITH NAIL DIAMETERS LESS THAN THE COMMON NAILS, MULTIPLY TABULAR VALUES BY $(D_p/D_c)^2$, WHERE D_p IS THE DIAMETER OF THE POWER-DRIVEN NAIL AND D_c IS THE SPECIFIED DIAMETER OF THE COMMON NAIL.

ROOF DIAPHRAGM SHEAR RESISTANCE TABLE

S-P-F FRAMING FACTORED SHEAR RESISTANCE Vr (kN/m) FOR WIND AND SEISMIC LOADS						UNBLOCKED DIAPHRAGMS[1] NAIL SPACING AT 150mm MAXIMUM AT SUPPORT EDGES	CASE 1 VERTICAL FRAMING HORIZONTAL BLOCKING, IF USED 
COMMON NAIL LENGTH in.	MIN. NAIL PENETRATION IN FRAMING mm	MIN. NOMINAL PANEL THICKNESS mm	PANEL MARK	MIN. WIDTH OF FRAMING MEMBER mm		LOAD PERP. TO UNBLOCKED EDGES AND CONTINUOUS PANEL JOINTS (CASE 1)	
2½	38	12.5	2R32/2F16	38		4.6	

NOTE:

1. TABULATED VALUES FOR DRY SERVICE CONDITIONS. SPACE NAILS 300mm ON CENTER ALONG INTERMEDIATE FRAMING MEMBERS.
2. FRAMING AT ADJOINING PANEL EDGES SHALL BE 64mm (OR A BUILT-UP MEMBER COMPOSED OF TWO 38mm WIDE FRAMING MEMBERS CONNECTED TO TRANSFER THE FACTORED SHEAR FORCE), OR WIDER AND NAILS SHALL BE STAGGERED.
3. FRAMING AT ADJOINING PANEL EDGES SHALL BE 64mm (OR A BUILT-UP MEMBER COMPOSED OF TWO 38mm WIDE FRAMING MEMBERS CONNECTED TO TRANSFER THE FACTORED SHEAR FORCE), OR WIDER AND NAILS SHALL BE STAGGERED WHEN SPACED 75mm OR LESS ON CENTER.
4. FOR OSB PANELS RATED TO CSA STANDARD O325.0, THE MINIMUM NOMINAL THICKNESS MAY BE 0.5mm LESS THAN THE THICKNESS SHOWN.

LBW SCHEDULE

LBW1	2x6 @ 16"o/c SPF
LBW2	2x4 @ 16"o/c SPF

POST SCHEDULE

TYPE	KING POST	CRIPPLE
P1	2–2x6	2–2x6
P2	3–2x6	2–2x6
P3	4–2x6	2–2x6
P4	2–2x4	2–2x4

HEADER SCHEDULE

TYPE	HEADER	PLATES
H1	2–2x8	1–2x6 or 1–2x4
H2	2–2x12	1–2x6
H3	2–2x12	2–2x6
H4	3–2x12	1–2x6
H5	3–1¾x11¼ LVL	2–2x6
H6	2–2x6	2–2x4

ROOF LOADING

RLD1 (SS=1.7 SR=0.1)
SNOW = 30.5 psf
DEAD = 13.5 psf
TTL = 44.0 psf

RLD2 (IN VALLEY)
SNOW = 55.5 psf
DEAD = 13.5 psf
TTL = 69.0 psf

RLD3 (IN VALLEY @ DORMER)
SNOW = 55.5 psf
DEAD = 16.5 psf
TTL = 72.0 psf

RLD4 (DORMER)
SNOW = 30.5 psf
DEAD = 16.5 psf
TTL = 47.0 psf

RLD5 (LINKS)
SEE DIAGRAM

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No.: 124
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DISCIPLINE	SASK. REG. No.	SIGNATURE
Civil	3081	

Professional Seal:
2015/11/23
P. T. McGINN
REGINA

Project Title:

HEADER BUILDING AND GREENHOUSES

INDIAN HEAD, SASKATCHEWAN

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R# Brief Description/YY.MM.DD/Revised By

ROOF FRAMING PLAN & DETAILS

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Drawn By:	DAW/JS	Date:	NOV 2015
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Project No.:	4859		

S5.2

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Issued For:	TENDER		
Date Issued:	2015.01.06		
Date Plotted:	06/01/2016		

GENERAL NOTES

GENERAL

1. CONTRACTOR IS TO CHECK AND VERIFY ALL SITE CONDITIONS, DIMENSIONS. REPORT ANY VARIANCES ON OR AGAINST THE DRAWINGS TO THE ENGINEER.
2. CONTRACTOR IS TO CONFIRM ALL BUILDING GRADE ELEVATIONS ON SITE AGAINST THE DRAWINGS.
3. CONTRACTOR IS TO OBTAIN APPROVAL FROM THE GOVERNING JURISDICTION AND OBTAIN A BUILDING PERMIT.
4. CONSTRUCTION IS TO BE IN FULL COMPLIANCE WITH THE NATIONAL BUILDING CODE (2010).
5. ENGINEER IS ENGAGED BY THE OWNER, TO PROVIDE PERIODIC INSPECTIONS AND IS THUS TAKING RESPONSIBILITY FOR DESIGN AND CONSTRUCTION IN PLACE.
6. ANY CHANGES TO THE WOOD FRAME OR FOUNDATION DESIGN OR LAYOUT REQUIRES THE ENGINEERS REVIEW.
7. THE CONCRETE SLAB ON GRADE IS "FLOATING" ON COMPACTED GRANULAR BASE ON THE UNDERLYING UNDISTURBED SOIL &/OR COMPACTED FILL MATERIAL AND IS SUSCEPTABLE TO DIFFERENTIAL VERTICAL MOVEMENT WHICH MAY RESULT IN VERTICAL DISPLACEMENT OF 3" OR MORE AND SEVERE CRACKING TO THE FLOOR SLAB. INTERIOR PARTITION FRAMING SHOULD HAVE A MINIMUM OF 3" FLOAT SPACE IN ITS CONSTRUCTION.
8. CONTRACTOR IS TO GUARD AGAINST: EXCESSIVE DRYING OR WETNESS OF THE EXCAVATION PRIOR TO POURING CONCRETE SLABS & FOOTINGS; FREEZING OF EXCAVATED BASE; AND FREEZING OF CONCRETE ONCE IN PLACE.
9. GEOTECHNICAL ENGINEERING REPORT GE–1518–2 BY GROUND ENGINEERING LTD. 27 NOV. 2015 AND GROUND ENGINEERING E–MAIL LETTERS 25 NOV 2015 AND 27 NOV 2015 ARE THE BASIS FOR FOUNDATION DESIGN CRITERIA. OWNER IS REQUIRED TO CONTACT GEOTECHNICAL ENGINEER TO INSPECT THE SITE DURING EXCAVATION, TAKING SOIL SAMPLES AND CONDUCTING LABORATORY TESTING AS NECESSARY TO AFFIRM SUITABILITY OF FOUNDATION SOLUTION AND ITS DESIGN VALUES. OWNER IS TO CO–ORDINATE THE GEOTECHNICAL ENGINEER WITH THIS ENGINEER AND MAKE AVAILABLE THE GEOTECHNICAL ENGINEER FINDINGS FOR THIS ENGINEERS RE–EVALUATION OF FOUNDATION DESIGN IF NECESSARY.

1. FOUNDATIONS

.1 ALL NEW STRUCTURAL WORK, INCLUDING REQUIREMENTS FOR WIND, HAS BEEN DESIGNED IN ACCORDANCE WITH THE NATIONAL BUILDING CODE 2010.

.2 ALL CONCRETE STRENGTHS SPECIFIED ON PLAN ARE FOR STRUCTURAL REQUIREMENTS ONLY. CONCRETE MIX TO BE DESIGNED WTH A MAXIMUM PERMISSIBLE CEMENT–WATER RATIO IN ACCORDANCE TO WITH TABLE 7 OF CSA CAN3–A23.1–M90

.3 ALL FOUNDATIONS SHALL BE SYMETRICAL UNDER COLUMNS AND WALLS UNLESS OTHERWISE NOTED.

.4 REINFORCING STEEL IN FOUNDATIONS TO BE CSA G30.18 DEFORMED BARS. GRADE 600.

.5 BACKFILL BELOW SLAB–ON–GRADE TO BE GRANULAR MATERIALS COMPACTED TO 98% STANDARD PROCTOR DRY DENSITY. RESULTS OF COMPACTION TO BE REPORTED TO THIS OFFICE. ALSO SEE SOIL REPORT FOR RECOMMENDATIONS.

.6 DO NOT USE ADMIXTURES, STANDARD WATER REDUCERS OR SUPER PLASTICIZERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

.7 DO NOT ADD WATER TO THE CONCRETE ON SITE UNLESS AUTHORIZED BY THE ENGINEER.

.8 INSTALL CONSTRUCTION JOINTS AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.

.9 CONCRETE TESTING (AS SPECIFIED IN SECTION 03300)
TEST CONCRETE IN ACCORDANCE WITH CSA A23.2.

TYPE/LOCATION	STRENGTH F'c (MPa)	CEMENT SYMBOL	AGGREG MAX 9mm	SLUMP mm	TOTAL AIR %
Grade Beams	32	50	20	75±25	4–7
Structural Slabs (*1)	32	10	20	75±25	0
Grade Supported Slabs (Interior) (*1)	32	50	20	50–75	0
Grade Supported Slabs (Exterior) (*1)	32	50	20	50–75	4–7

NO AIR ENTRAINMENT ALLOWED IN INTERIOR SLABS WHERE POWER TROWELLING IS REQUIRED.
AIR ENTRAINMENT IS ACCEPTABLE FOR EXTERIOR CONCRETE SIDEWALKS, APRONS OR PADS. POWER TROWELLING IS NOT ACCEPTABLE.

CONCRETE STRENGTH FOR ALL CONCRETE INTERFACED WITH SOIL SHALL HAVE 32MPa STRENGTH TO SATISFY CSA REQUIREMENTS WHEN SOILS GEOTECHNICAL REPORT SPECIFIES SULPHATE RESISTANT CONCRETE.

(*1) CONCRETE FLOOR SLABS, EXTERIOR WALKS, PATIOS, ETC. THAT ARE SUPPORTED BY A GRANULAR BASE, IE. NOT DIRECTLY ON NATIVE SOIL, CONCRETE STRENGTH SHALL BE 25MPa. WHERE FLAT SLAB CONCRETE IS BEARING DIRECTLY ON NATIVE SOIL 32MPa CONCRETE STRENGTH IS REQUIRED WHEN SOILS GEOTECHNICAL REPORT SPECIFIES SULPHATE RESISTANT CONCRETE.

.10 CONSOLIDATE ALL CONCRETE USING MECHANICAL VIBRATORS.

.11 PROTECT CONCRETE FROM ADVERSE WEATHER CONDITIONS IN ACCORDANCE WITH CSA A23.1 OR AS DETERMINED BY THE ENGINEER.

.12 CONSTRUCT FORMWORK IN ACCORDANCE WITH WCB REGULATIONS AND CSA S269.3. FORMWORK DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR

.13 PROVIDE CONCRETE AND CO–OPERATE IN THE PREPARATION OF TEST CYLINDERS. TAKE THREE CYLINDERS FOR EVERY 75 CU METERS OR LESS OF CONCRETE PLACED. MINIMUM ONE TEST OF THREE CYLINDERS FOR EACH POUR.

.14 PLACE REINFORCEMENT TO CSA A23.1. TIE ALL BARS SECURELY IN PLACE TO PREVENT DISPLACEMENT. SUPPORT SLAB REINFORCEMENT ON SUITABLE CHAIRS OR SUPPORTS AT MAXIMUM 4 FT CENTERS. PROVIDE CORNER BARS TO MATCH HORIZONTAL BEAM REINFORCEMENT.

.15 THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES IN SOIL CONDITIONS DURING PILING AND EXCAVATION.

.16 CENTER PILES UNDER COLUMNS OR WALLS UNLESS NOTED OTHERWISE ON DWGS.

.17 TIE ALL DOWELS AND ANCHOR BOLTS IN PLACE BEFORE POURING CONCRETE. USE TEMPLATES TO ENSURE CORRECT PLACEMENT.

.18 SEE ARCHITECTURAL DRAWINGS FOR GROUND ELEVATIONS AND DRAINAGE SLOPES.

.19 SEE SITE PLAN FOR EXTERIOR CONCRETE ELEVATIONS.

.20 ALL CONCRETE SHALL COMPLY WITH ALL LOCAL CODES AND CAN3–A23.1

.21 NO CONCRETE POURING SHOULD BE UNDERTAKEN WITHOUT THE APPROVAL OF THE ENGINEER OR HIS REPRESENTATIVE.

.22 CO–ORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL OPENINGS, DIMENSIONS AND OTHER DATA FOR CATCH BASINS, TANKS, DRAINS, AND SLAB RECESS UNDER EQUIPMENT.

.23 INCORPORATE HIGH SULPHATE HYDRAULIC CEMENT, TYPE 50 HS OR HSB FOR ALL CONCRETE IN DIRECT CONTACT WITH SOIL. CLASS EXPOSURE S–2.

2. REINFORCEMENT

.1 NEW DEFORMED BARS TO CSA G30.18 GRADE 400. WELDED WIRE FABRIC TO CSA G30.5.

.2 PLACE REINFORCEMENT TO CSA A23.1. TIE ALL BARS SECURELY IN PLACE TO PREVENT DISPLACEMENT. SUPPORT SLAB REINFORCEMENT ON SUITABLE CHAIRS OR SUPPORTS AT MAXIMUM 4 FT CENTRES. PROVIDE CORNER BARS TO MATCH HORIZ. WALL REINFORCEMENT.

.3 PROVIDE CLEAR CONCRETE COVER FOR REINF'G AS FOLLOWS:
SURFACE POURED AGAINST GROUND 3" FORMED SURFACES EXPOSED TO GROUND OR WEATHER. 2" COLUMNS TO MAIN STEEL SLABS 1".

.4 SPLICE REINFORCEMENT AS FOLLOWS (UNLESS NOTED OTHERWISE):

BAR SIZE	10M	15M	20M	25M	30M
LAP SPLICE	18"	24"	30"	48"	56"

INCREASE LAP 20% FOR BAR SPACING LESS THAN 6".

3. WOOD

.1 WOOD FRAMING TO COMPLY WITH LATEST EDITIONS OF CAN/CSA–086.1 N.B. CODE 2010, LUMBER GRADING IS TO BE AS PER NLGA GRADING RULES AND IS TO HAVE A MINIMUM GRADE S.P.F. NO. 2 OR BETTER.

.2 FASTENING OF SHEATHING TO WOOD FRAMING TO USE STANDARD WIRE NAILS.

.3 USE PRESSURE PRESERVATIVE TREATED LUMBER WHERE EXPOSED TO WEATHER OR SOIL ON CONCRETE.

.4 OUTSIDE NAIL FASTENERS TO BUILT UP MEMBERS TO BE NAILED THROUGH THE EXTERIOR FACE WITH NAIL HEADS VISIBLE FROM BOTH SIDES OF THE BUILT UP MEMBER.

.5 FRAMING ANCHORS TO BE SIMPSON STRONG–TIE OR APPROVED EQUAL WITH ALL NAILS MEETING MINIMUM REQUIREMENTS OF THE HANGER MANUFACTURER IN LENGTH & SHANK DIAMETER.

.6 PROVIDE G185 HOT DIPPED GALVANIZED METAL FRAMING ANCHORS IN CONTACT WITH ANY PRESSURE TREATED WOOD, ALL IN ACCORDANCE WITH ASTM A652; ALL FASTENERS TO BE HOT DIP GALVANIZED TO CONFORM WITH ASTM A753.

.7 BUILT UP BEAMS TO BE S–P–F NO.2 OR BETTER.

.8 LUMBER FOR FLOOR JOISTS, HEADERS, LINTELS ETC. TO BE SPF NO.2 OR BETTER. WALL STUDS AND PLATES TO BE SPRUCE OR SPRUCE STUD GRADE.

.9 PLYWOOD SHEATHING TO CSA STANDARD 0121–M1978 DOUGLAS FIR SHEATHING GRADE UNLESS OTHERWISE NOTED.

GENERAL STRUCTURAL NOTES

(THE FOLLOWING APPLY UNLESS NOTED OTHERWISE ON DRAWINGS)

CRITERIA

ALL MATERIALS, WORKMANSHIP, DESIGN AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS AND THE NATIONAL BUILDING CODE OF CANADA (NBC). 2010 EDITION.

GENERAL CONDITIONS

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS WITH ARCHITECT'S DRAWINGS FOR COMPATIBILITY, AND SHALL NOTIFY ARCHITECT OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

IN THE EVENT OF CONFLICTS BETWEEN THE STRUCTURAL DRAWINGS AND THE PROJECT SPECIFICATIONS, THE STRUCTURAL DRAWINGS SHALL CONTROL.

SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH WALLS AND FLOORS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE AND OTHER FINISH DETAILS.

CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THESE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.

MATERIAL SUBSTITUTIONS FOR PRODUCTS SPECIFIED IN THE PLANS AND NOTES MAY BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. SUBSTITUTION SUBMITTALS SHALL IDENTIFY EXACTLY WHAT PRODUCTS ARE TO BE SUBSTITUTED, AND INCLUDE AN ICC EVALUATION SERVICE REPORT (OR EQUIVALENT) DEMONSTRATING EQUIVALENT OR GREATER LOAD CAPACITIES THAN THE SUBSTITUTED PRODUCT.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS. SHORING AND RESHORING SHALL BE DESIGNED BY A QUALIFIED DESIGNER AND THE ERECTED SHORING SHALL BE INSPECTED BY A REGISTERED STRUCTURAL ENGINEER EXPERIENCED IN THE DESIGN OF SHORING SYSTEMS, WHO SHALL SUBMIT AN INSPECTION REPORT TO THE ARCHITECT. FORM WORK SHALL NOT BE REMOVED UNTIL THE CONCRETE HAS REACHED ITS DESIGN STRENGTH AS INDICATED IN THE CONCRETE NOTES.

QUALITY CONTROL

SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW TWO WEEKS PRIOR TO FABRICATION.

SUBMITTAL	SUBMITTAL REQUIRED	STAMPED BY REGISTERED ENGINEER	ENGINEERING CALCULATIONS
CONCRETE REINFORCING	YES	NOT REQUIRED	NOT REQUIRED
MANUFACTURED LUMBER	YES	YES	NOT REQUIRED
PRE–ENGINEERED TRUSSES	YES	YES	YES

SHOP DRAWINGS OF BIDDER–DESIGN AND PRE–ENGINEERED COMPONENTS SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP, AS INDICATED ABOVE. THE ENGINEER SHALL BE REGISTERED IN THE PROVINCE IN WHICH THE PROJECT IS LOCATED. THE SUBMITTAL WILL BE SUBJECT TO A CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS. THE FOLLOWING CERTIFICATION SHALL BE INCLUDED ADJACENT TO THE ENGINEER'S STAMP ON ALL SUBMITTALS.

> I, ______________ A LICENSED ENGINEER IN THE PROVINCE IN WHICH THE PROJECT IS LOCATED DO HEREBY CERTIFY THAT I HAVE REVIEWED THE CONTRACT DOCUMENTS AND HAVE, TO THE BEST OF MY KNOWLEDGE, INCORPORATED ALL OF THE DESIGN CRITERIA CONTAINED HEREIN.

SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY. THE REPRODUCIBLE WILL BE MARKED AND RETURNED.

IN THE EVENT OF DEVIATIONS, DISCREPANCIES OR CONFLICTS BETWEEN APPROVED SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL.

ALL STRUCTURAL SYSTEMS COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION, IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

TRANSPORTATION AND SETTING, AND STRUCTURAL LOADING ASSOCIATED THEREWITH FOR MODULAR BUILDINGS SHALL BE DETERMINED AND ACCOUNTED FOR BY THE MANUFACTURER.

ANCHORAGE TO CONCRETE

CAST–IN–PLACE (CIP) ANCHORS SHALL HAVE A 90° HOOK WITH AN INSIDE RADIUS OF 3db PLUS AN EXTENSION OF 15 db AT THE FREE END. CIP ANCHORS IN MASONRY SHALL BE SECURED IN PLACE PRIOR TO GROUTING. PROVIDE 1" GROUT MINIMUM AROUND ALL BOLTS IN MASONRY.

CIP ANCHORS IN CONCRETE MAY BE PLACED WHILE THE CONCRETE IS IN A PLASTIC STATE WHEN: 1) THE ANCHORS ARE NOT DETAILED OR SPECIFIED AS HOOKED AROUND OR TIED TO REINFORCEMENT WITHIN THE CONCRETE; 2) THE ANCHORS ARE MAINTAINED IN THE CORRECT POSITION WHILE THE CONCRETE REMAINS PLASTIC, AND THE CONCRETE IS PROPERLY CONSOLIDATED AROUND THE ANCHOR.

EXPANSION BOLTS INTO CONCRETE SHALL BE 'KWIK BOLT TZ' AND THREADED EXPANSION INSERTS INTO CONCRETE SHALL BE SLEEVE ANCHORS, AS MANUFACTURED BY HILTI CORPORATION. INSTALL IN STRICT ACCORDANCE WITH ICC–ES REPORT ESR–1917, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS.

EPOXY–GROUTED ANCHORS (THREADED ROD OR REINFORCING BAR) SHALL BE GROUTED WITH 'SET–XP EPOXY ADHESIVE' BY SIMPSON STRONG–TIE. INSTALL IN STRICT ACCORDANCE WITH ICC–ES REPORT ESR–2508. HOLES FOR EPOXY ANCHORS SHALL BE THOROUGHLY CLEANED WITH A NYLON BRUSH AND PRESSURIZED AIR OR WATER, IN STRICT ACCORDANCE WITH ESR–2508.

ALL THREADED ROD ANCHORS SHALL CONFORM TO ASTM SPECIFICATION A36, Fy=248 MPA (36 KSI).

ANCHOR BOLT TYPES MAY BE SELECTED BY THE CONTRACTOR AS PER THE FOLLOWING CRITERIA AND THE REQUIREMENTS OF DIVISION 6.1 – CHEMICALLY TREATED WOOD AND CORROSION OF CONNECTORS AND FASTENERS.

TYPE OF ANCHORAGE	TYPE OF ANCHOR
POST & COLUMN BASES	CIP, EXPANSION* OR EPOXY
LEGDERS TO CONCRETE OR CMU	CIP, EXPANSION* OR EPOXY
WALL TIES TO CONCRETE OR CMU	CIP OR EPOXY
MUDSILL TO FOUNDATION	CIP, EXPANSION* OR EPOXY
HOLDOWN TO FOUNDATION	CIP OR EPOXY
HIGH–STRENGTH ANCHORAGE	CIP
EQUIPMENT ANCHORAGE	CIP OR EPOXY

* EXPANSION ANCHORS MAY NOT BE USED WHERE THE ANCHOR IS EXPOSED TO EARTH OR WEATHER

DIVISION 6B: TIMBER

FRAMING LUMBER SHALL BE KILN–DRIED OR MC–19 AND GRADED AND MARKED IN CONFORMANCE WITH NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER, LATEST EDITION, AND FURNISHED TO THE STANDARDS INDICATED ON THE PLANS, SCHEDULES AND DETAILS. THE DESIGN SHOWN IN THESE DRAWINGS IS BASED ON THE 'ENGINEERING DESIGN IN WOOD' MANUAL (CAN/CSA–086–01) PUBLISHED BY CSA, LATEST EDITION. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME SPECIES AND GRADE AS MEMBERS CONNECTED.

MANUFACTURED LUMBER PRODUCTS SPECIFIED IN THESE DRAWINGS ARE BASED ON LUMBER MANUFACTURED BY THE TRUS–JOIST CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. ALL JOIST HANGERS AND OTHER HARDWARE NOT SHOWN SHALL BE DESIGNED AND SUPPLIED BY THE MANUFACTURER. PROVIDE P. ENG. SEAL FOR THE PROVINCE IN WHICH THE PROJECT IS LOCATED FOR DESIGN OF MEMBERS ON SHOP DRAWINGS.

THE FOLLOWING LUMBER PRODUCTS SHALL BE MANUFACTURED TO AND EVALUATED FOR CHARACTERISTIC VALUES IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D5456. EACH PIECE SHALL BEAR THE MARK OF A CERTIFICATION ORGANIZATION (CO) INDICATING CERTIFICATION BY THE CO AS MEETING THE APPLICABLE REQUIREMENTS OF CLAUSES 19.4.2 TO 13.4.6 IN THE 'ENGINEERING DESIGN IN WOOD' MANUAL (CAN/CSA–086–01) PUBLISHED BY THE CSA.

STRUCTURAL COMPOSITE LUMBER PRODUCTS
1. LAMINATED VENEER LUMBER (LVL).

ADHESIVES USED IN THE MANUFACTURE OF STRUCTURAL COMPOSITE LUMBER SHALL CONFORM TO CSA STANDARD 0112.6, 0112.7 OR 0112.9.

PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH CLAUSE 10.8 OF THE 'ENGINEERING DESIGN IN WOOD' MANUAL (CAN/CSA–086–01) PUBLISHED BY THE CSA FOR THE SPANS AND CONDITIONS SHOWN ON THE DRAWINGS. TRUSS PLATES SHALL MEET THE STANDARD OF ASTM A653/A653M AND SHALL BE TESTED IN ACCORDANCE WITH CSA STANDARD S347.

WOOD TRUSSES SHALL UTILIZE APPROVED CONNECTOR PLATES (GANGNAIL OR EQUAL). PROVIDE FOR BEARING POINTS, INTERSECTIONS, ETC. AS SHOWN ON DRAWINGS. PROVIDE ALL TRUSS–TO–TRUSS AND TRUSS–TO–BEAM CONNECTION DETAILS AND REQUIRED CONNECTION MATERIALS. PROVIDE DETAILS FOR ALL TEMPORARY AND PERMANENT TRUSS BRACING AND BRIDGING.

ALL COMMON WIRE NAILS AND SPIKES, BOX NAILS, THREADED HARDENED–STEEL NAILS AND SPIKES AND STAPLES SHALL CONFORM TO THE NOMINAL SIZES SPECIFIED IN CSA BILL–1974. ALL NAILS SPECIFIED ON THESE DRAWINGS, EITHER DRIVEN WITH A HAMMER OR PNEUMATIC DEVICE, SHALL BE COMMON WIRE NAILS WITH THE PROPERTIES SHOWN ON THE FOLLOWING TABLE:

PENNY–WEIGHT	8d	10d	12d	16d	20d
DIAMETER (INCHES)[1]	0.113	0.148	0.148	0.148	0.192
LENGTH (INCHES)	2½	3	3¼	3½	4

NOTES:
1. TABULATED DIAMETERS APPLY TO NAILS PRIOR TO ANY PROTECTIVE COATING

FABRICATION AND INSTALLATION OF TIMBER FASTENERS SHALL CONFORM TO THE 'ENGINEERING DESIGN IN WOOD' MANUAL (CAN/CSA–086–01) PUBLISHED BY THE CSA, LATEST EDITION. DRILLED HOLES IN WOOD MEMBERS (EXCLUDING MFR. PLYWOOD WEB JOISTS) SHALL BE AS SHOWN IN THE FOLLOWING TABLE:

FASTENERS	LEAD HOLE DIAMETER	SHANK HOLD DIAMETER D–1/32" TO D+1/16"
BOLTS[4]	–	D
LAG SCREWS[2,3,4]	0.7D	0.88D
WOOD SCREWS[3]	0.88D_r	
NAILS (PRE–DRILLED ONLY)	0.75D	

NOTES
1. 'D' INDICATES THE SHANK DIAMETER OF THE FASTENER. D SHALL NOT EXCEED 1". Dr INDICATES THE ROOT DIAMETER.
2. THE CLEARANCE HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK AND THE SAME DEPTH OF PENETRATION AS THE LENGTH OF THE UNTHREADED SHANK.
3. LAG AND WOOD SCREWS SHALL BE INSTALLED BY TURNING OF A WRENCH OR SCREW DRIVER; NOT DRIVEN WITH A HAMMER.
4. ALL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A307, Fy = 248 MPA (36 KSI). LAG SCREWS SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1. WASHERS SHALL BE PLACED UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.

WOOD CONSTRUCTION CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE 'STRONG–TIE' BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG (LATEST EDITION). PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

UNLESS NOTED OTHERWISE, TYPICAL CONNECTIONS SHALL CONFORM TO THE FOLLOWING:

CONNECTION		MINIMUM LENGTH OF NAILS	MINIMUM NUMBER OR MAXIMUM SPACING
JOIST TO SILL OR GIRDER, TOENAIL		3½"	2
BRIDGING TO JOIST, TOENAIL EACH END		2¼"	2
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL TYP.		3½"	16" o/c
STUD TO PLATE (TOP OR SOLE) EACH END	TOENAIL	2½"	4
	END NAIL	3½"	2
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOENAIL		2½"	3
RIM JOIST TO TOP PLATE, TOENAIL		2½"	6" o/c
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL		3½"	2
RAFTER TO PLATE, TOENAIL		3½"	3

STUD WALL FRAMING SHALL BE 2x4 HF #2 STUDS AT 16" o.c. AT INTERIOR WALLS AND 2x6 HF #2 STUDS @ 16" o.c. AT EXTERIOR WALLS. STUD WALLS SHALL HAVE DOUBLE 2x TOP PLATES AND 2x SOLE OR SILL PLATES MATCHING STUD SIZE, SPECIES AND GRADE. ALL LOWER WOOD SOLE PLATES SHALL BE ATTACHED TO WOOD FRAMING BELOW WITH SIMPSON SOS525412 SCREWS @ 12" o.c.

TWO STUDS (MINIMUM) SHALL BE PROVIDED AT THE ENDS OF WALLS, AT EACH SIDE OF ALL OPENINGS, AND AT THE ENDS OF ALL BEAMS AND HEADERS. POSTS OF BUILT–UP 2x STUDS SHALL BE NAILED TO EACH OTHER PER THE POST SCHEDULE. SOLID BLOCKING FOR WOOD POSTS SHALL BE PROVIDED THROUGH ALL FLOORS TO SUPPORTING MEMBERS (FOUNDATION) BELOW. (2) 2x8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS.

FOR MANUFACTURED LUMBER ROOF FRAMING, ALL NECESSARY BRIDGING, BLOCKING, BLOCKING PANELS, STIFFENERS, ETC. SHALL BE DETAILED AND FURNISHED BY THE MANUFACTURER. INSTALLATION OF THE ABOVE ITEMS SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS THAT EXTEND OVER MORE THAN HALF THE JOIST SPAN AND AROUND ALL OPENINGS.

ROOF AND WALL SHEATHING SHALL BE IN CONFORMANCE WITH CLAUSE 7 OF 'THE ENGINEERING DESIGN IN WOOD' MANUAL (CAN/CSA–086–01) AND CSA STANDARD 0121 (FOR DOUGLAS–FIR PLYWOOD) OR CSA STANDARD CAN/CSA–0925.0 (FOR CONSTRUCTION SHEATHING OSB). SEE PLAN NOTES AND SCHEDULES FOR THICKNESS, SPAN RATING, BLOCKING AND NAILING REQUIREMENTS.

ROOF SHEATHING SHALL BE LAID UP WITH GRAIN PERPENDICULAR TO SUPPORTS. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF ROOF SHEATHING.

ALL WOOD SILL PLATES IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE–TREATED WITH AN APPROVED PRESERVATIVE. PROVIDE 2 LAYERS OF ASPHALT–IMPREGNATED BUILDING PAPER BETWEEN UNTREATED LEDGES, BLOCKING, ETC. AND CONCRETE OR MASONRY.

WOOD SILL PLATES SHALL BE BOLTED TO CONCRETE WITH ½" DIAMETER ANCHOR BOLTS (EMBED 4" MIN.) AT 7'6" o.c. WITH 3x3 PLATE WASHERS. THERE SHALL BE A MINIMUM OF (2) BOLTS PER PIECE WITH (1) BOLT LOCATED NOT MORE THAN 12" OR LESS THAN (7) BOLT DIAMETERS FROM EACH END OF EACH PIECE.

HOLD–DOWN AND DRAG STRAPS MAY BE INSTALLED OVER OR UNDER THE SHEATHING UNLESS SPECIFIED OTHERWISE.

SHRINKAGE COMPENSATING DEVICES SHALL BE EITHER EARTHBOUND 'SLACKJACK' PER ICC–ES REPORT SDR–2848, COMMINS MFR 'AT' AUTOMATIC TAKE–UP PER ICC–ES REPORT ESR–1344 OR SIMPSON 'TUD' PER ICC–ES REPORT ESR–2320. DEVICES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

DIVISION 6.1: CHEMICALLY TREATED WOOD AND CORROSION OF CONNECTORS AND FASTENERS

WOOD MATERIALS REQUIRED TO BE TREATED WITH A PRESERVATIVE PER NBC CLAUSE 9.3.2.9; SHALL BE TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF CSA 080.1, CSA 080.2, CSA 080.9, CSA 080.15, CSA 080.34, OR CSA 080.36. SUCH WOOD MATERIAL SHALL BE IDENTIFIED BY A MARK TO INDICATE ITS CONFORMANCE TO THE RELEVANT REQUIRED STANDARD.

TIMBER CONNECTORS AND FASTENERS IN CONTACT WITH PRESERVATIVE–TREATED OR FIRE–RETARDANT TREATED WOOD MEMBERS SHALL BE HOT–DIPPED ZINC COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.

A BARRIER BETWEEN PRESERVATIVE–TREATED OR FIRE RETARDANT TREATED MEMBERS CAN BE USED WHEN APPROVED BY THE ENGINEER AND ARCHITECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTION OF THE APPROPRIATE CONNECTOR AND FASTENER COATING BASED ON THE INTENDED END USE OF THE CONNECTOR OR FASTENER AND THE CHEMICAL PRESERVATIVE USED IN THE TREATMENT OF MEMBER FOR WHICH IT IS IN CONTACT.

THE FOLLOWING TABLE SHALL BE USED FOR SELECTION OF CONNECTORS BASED ON GALVANIZED COATING OR STAINLESS STEEL. FASTENERS USED SHALL BE MADE OF THE SAME MATERIAL AS THE CONNECTOR.

CHEMICAL[1] PRESERVATIVE / PRODUCT COATINGS	0.960 oz/sf (G90)	1.85 oz/sf (G185) HDG PER ASTM A653, A153 OR A123	STAINLESS STEEL
UNTREATED WOOD SBX CCA–C	YES	YES	YES
ACQ–C & ACQ–D CBA–A & CA–B NON–DOT	NO	YES	YES
ACZA	NO	NO	YES

NOTES
1. SBX = DOT SODIUM BORATE
   CCA–C = CHROMATED COPPER ARSENATE
   ACQ–C & ACQ–D = ALKALINE COPPER QUAT
   CBA–A & CA–B = COPPER AZOTE
   NON–DOT = OTHER BORATE
   ACZA = AMMONIACAL COPPER ZINC ARSENATE

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