SUNRISE VILLAGE DUPLEXES

BUILDING 2, TYPE 1

GENERAL NOTES

GENERAL STRUCTURAL NOTES

1. FOUNDATION AND FRAMING PLANS PREPARED WITH ARCHITECTURAL PLANS PROVIDED BY **M-A ARCHITECTS**, FOR **SUNRISE VILLAGE DUPLEXES,** DATED **FEBRUARY 2, 2021**.
2. DETAILS IN THE PLANS ARE INTENDED TO SHOW GENERAL REQUIREMENTS THROUGHOUT THE STRUCTURE. ANY ITEMS NOT COVERED IN THE PLAN OR DETAILS SHALL BE COMPLETED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE.
3. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, SPECIFICATIONS AND CODE, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. THE GENERAL CONTRACTOR SHALL VERIFY THE DIMENSIONS AND SITE CONDITIONS PRIOR TO STARTING WORK. THE ARCHITECT/STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
4. THE CONTRACTOR SHALL COORDINATE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL WORKS WITH THE STRUCTURAL CONTRACT DOCUMENTS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
5. REFER TO THE ARCHITECTURAL DOCUMENTS FOR ALL DIMENSIONS NOT SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS. DO NOT SCALE THE STRUCTURAL CONTRACT DOCUMENTS.
6. FIELD ALTERATIONS TO ANY STRUCTURAL MEMBER SHALL NOT BE EXECUTED WITHOUT APPROVAL FROM THE ENGINEER.
7. ENGINEER'S APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS.
8. THE STRUCTURAL ENGINEER SHALL NOT HAVE CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES.
9. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION MEANS AND/OR SEQUENCING. THE DESIGN AND INSTALLATION OF ANY REQUIRED TEMPORARY BRACING SHALL BE BY THE CONTRACTOR

SPECIAL INSPECTIONS

1. THE OWNER SHALL EMPLOY AND PAY FOR THE SERVICES OF A LICENSED SPECIAL INSPECTOR. THE SERVICES PROVIDED SHALL BE IN ACCORDANCE WITH THE 2018 IRC CODE REQUIREMENTS AND CORRSPONDING GOVERNEMENT BUILDING DEPARTMENT.

DESIGN PARAMETERS

1. ALL REFERENCES TO CODES, STANDARDS, AND SPECIFICATIONS SHALL MEAN THE LATEST VERSION OF THE REFERENCED MATERIAL PUBLISHED AT THE DATE OF THE CONSTRUCTION DOCUMENTS.
2. DESIGN CODES
   - 2.1. ICC – INTERNATIONAL RESIDENTIAL CODE 2018 (IRC)
   - 2.2. 2018 CITY CODE REVISIONS FOR ARVADA
   - 2.3. ACI 318 – BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE
   - 2.4. AWC – NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION
   - 2.5. AISC – STEEL CONSTRUCTION MANUAL
3. FLOOR LOADS LIVE = **40** PSF DEAD = **15** PSF
4. ROOF LOADS LIVE = **30** PSF DEAD = **20** PSF (5 PSF SOLAR)
5. DECK LOADS LIVE = **40** PSF DEAD = **10** PSF
6. GROUND SNOW LOAD = **30** PSF ROOF SNOW LOAD = **30** PSF
7. WIND LOADS **136** MPH ULTIMATE WIND SPEED EXPOSURE **C**
8. SEISMIC DESIGN CATEGORY **B**
9. LATERAL EARTH PRESSURE = **60** PCF

FOUNDATIONS

1. FOUNDATION DESIGN BASED UPON RECOMMENDATIONS SET FORTH IN THE SOIL AND FOUNDATION INVESTIGATION BY **CTL THOMPSON**. DATED **JANUARY 21, 2021. PROJECT NUMBER DN49,355.001-120-R1** FOR THE SUBJECT ADDRESS REFERENCE THIS SOILS REPORT FOR INFORMATION AND REQUIREMENTS.
2. FOOTING WITH MINIMUM DEAD LOAD SHALL BE DESIGNED FOR:
   - A. MAXIMUM ALLOWABLE PRESSURE = **2500** PSF
   - B. MINIMUM DEAD LOAD PRESSURE = **800** PSF
3. FOOTINGS SHALL BE CONSTRUCTED A MINIMUM 3'-0" BELOW FINAL GRADE FOR FROST COVER.
4. FOOTINGS SHALL BE CONSTRUCTED A MINIMUM OF 12" BELOW THE ORIGINAL GRADE ON UNDISTURBED SOIL WHICH IS RELATIVELY LEVEL AND FREE OF VEGETATION AND DEBRIS. FOOTINGS SHALL NOT BE CONSTRUCTED ON FROZEN OR SATURATED SOIL.
6. THE SOIL SUPPORTING THE FOOTINGS SHALL BE INSPECTED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO TO VERIFY THE BEARING CAPACITY PRIOR TO PLACING CONCRETE.
7. FOUNDATION ANCHOR BOLTS SHALL BE 1/2" DIAMETER X 12" WITH WASHER AND NUT (3/4" DIAMETER EXPANSION BOLT). INSTALL WITH MINIMUM 7" EMBEDMENT IN FOUNDATION WALL, SPACED 3'-0" ON-CENTER AND 12" MAXIMUM. 4" MINIMUM FROM ALL CORNERS AND SILL PLATE SPLICES. ALL SILL PLATE SECTIONS SHALL HAVE A MINIMUM 2 ANCHOR BOLTS.
8. FOUNDATION DRAINAGE AND DAMP PROOFING SHALL BE ACCORDANCE WITH THE SOIL REPORT.
9. COMPACTION SHALL BE IN ACCORDANCE WITH THE SOIL REPORT.
10. DO NOT PLACE BACKFILL AGAINST FOUNDATION UNTIL CONCRETE OR GROUT HAS CURED AND FOUNDATION IS ADEQUATELY BRACED.
11. WHERE FOUNDATION WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, PLACE FILL SIMULTANEOUSLY SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF WALL.
12. REFER TO SOIL REPORT FOR ADDITIONAL RECOMMENDATIONS.

CONCRETE

1. CONCRETE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE BUILDING CODE (ACI-318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI-301).
2. ALL CONCRETE SHALL BE MADE WITH TYPE II PORTLAND CEMENT AND STONE AGGREGATE UNLESS NOTED OTHERWISE. CONCRETE SHALL HAVE A WATER TO CEMENT RATIO OF .5 OR LESS AND AIR ENTRAINMENT OF 6%+/-1.5%.
   MINIMUM CONCRETE 28 DAY STRENGTH SHALL BE AS FOLLOWS:
   - A. FOOTINGS AND FOUNDATION WALLS **4000** PSI
   - B. INTERIOR SLAB ON GRADE **4000** PSI
   - C. EXTERIOR FLAT WORK AND SITE WALLS **4000** PSI
   - D. ALL OTHER CONCRETE **4000** PSI
3. THE CONCRETE SHALL BE APPROVED BY THE SOIL ENGINEER. REFER TO SOIL REPORT FOR ADDITIONAL CONCRETE REQUIREMENTS.
4. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, CHAMFERS, ORNAMENTS, CLIPS, OR GROUNDS REQUIRED BE ENCASED IN CONCRETE AND FOR LOCATION AND DETAILS OF FLOOR FINISHES, ELEVATIONS, AND SLAB DEPRESSIONS.
5. ALL CONCRETE SLABS ON GRADE SHALL BE ISOLATED FROM FOUNDATIONS, WALLS, STEEL COLUMNS AND OTHER STRUCTURAL ELEMENTS AND CONSTRUCTED IN ACCORDANCE WITH THE SOIL REPORT.
6. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS BEFORE PLACING CONCRETE. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING OF CONCRETE IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER.
7. CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING PROPOSED CONSTRUCTION JOINT LOCATIONS AND CASTING SEQUENCE TO THE ENGINEER FOR REVIEW.
8. WHERE CONSTRUCTION JOINTS ARE NOTED AS "ROUGHENED" ON THE DRAWINGS, THE ENTIRE JOINT SURFACE SHALL BE MECHANICALLY ROUGHENED TO A 1/4" AMPLITUDE AND THOROUGHLY CLEANED. THE ROUGHENING SHALL EXPOSE THE COARSE AGGREGATE IN THE HARDENED CONCRETE AND ALL LOOSE MATERIAL SHALL BE REMOVED.
9. ALL DOWELS, BOLTS, AND EMBEDDED PLATES SHALL BE SECURED IN PLACE TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.

REINFORCING

1. REINFORCING SHALL CONFORM TO A.S.T.M. A615, GRADE 60. REINFORCING THAT IS REQUIRED TO BE WELDED SHALL BE GRADE 40 WITH A MAXIMUM CARBON CONTENT OF 0.30 PERCENT AND MAXIMUM MANGANESE CONTENT OF 0.60 PERCENT. NO WELDING OF REINFORCING SHALL BE PERMITTED UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY THE STRUCTURAL ENGINEER. WHERE PERMITTED, WELDED SHALL BE IN CONFORMANCE AWS D1.4, LATEST EDITION.
2. WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH A.S.T.M. A-185.
3. ALL REINFORCING SHALL BE SECURED IN PLACE TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.
4. PROVIDE CORNER BARS TO MATCH THE SIZE AND QUANTITY OF ALL HORIZONTAL REINFORCING IN CAST-IN-PLACE WALLS. REINFORCING SHALL BE CONTINOUS AROUND CORNERS.
5. ALL REINFORCING BAR LAP SPLICES SHALL BE A MINIMUM OF 48 BAR DIAMETERS. WELDED WIRE FABRIC SHALL HAVE A MINIMUM LAP SPLICE OF 8 INCHES.
6. ALL REINFORCING STEEL AND ACCESSORIES SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE A.C.I. DETAILING MANUAL. BAR PLACER IS TO FAMILIARIZE THEMSELVES WITH ALL DETAILS SHOWN ON THE STRUCTURAL DRAWINGS AND SHALL USE THESE DRAWINGS IN CONJUNCTION WITH APPROVED SHOP DRAWINGS FOR PLACEMENT OF REINFORCING.
7. ALL REINFORCING BAR BENDS SHALL BE MADE IN THE FABRICATOR'S SHOP UNLESS APPROVED BY THE ENGINEER.
8. REINFORCEMENT PROTECTION:
   - 8.1. CONCRETE PLACED AGAINST EARTH 3"
   - 8.2. CONCRETE PLACED IN FORMS BUT EXPOSED TO WEATHER OR EARTH
     - 8.2.1. #5 BARS AND SMALLER 1 1/2"
     - 8.2.2. #6 BARS AND LARGER 2"
   - 8.3. SLABS ON GRADE 3/4"

WOOD

1. ALL WOOD FOR STRUCTURAL FRAMING SHALL BE HEM-FIR VISUALLY GRADED PER "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" BY THE AMERICAN WOOD COUNCIL.
   - 1.1. ALL DIMENSIONAL LUMBER SHALL BE S4S USED AT MOISTURE CONTENT = 19% MAXIMUM.
   - 1.2. WOOD STUDS:
     - 1.2.1. 2" TO 4" THICK, 4" WIDE: HEM-FIR NO. 2 OR BETTER
     - 1.2.2. 2" TO 4" THICK, 6" AND WIDER: HEM-FIR NO. 2 OR BETTER
   - 1.3. WOOD JOISTS AND BEAMS:
     - 1.3.1. 2" TO 4" THICK, 6" AND WIDER: HEM-FIR NO. 2 OR BETTER
   - 1.4. POSTS AND TIMBERS: HEM-FIR NO. 1 OR BETTER
   - 1.5. STAIR STRINGERS: HEM-FIR NO. 1 OR BETTER
2. DO NOT USE FINGER JOINTED MATERIAL
3. WOOD CONNECTORS CALLED FOR ON THE DRAWINGS ARE AS MANUFACTURED BY SIMPSON STRONG TIE. CONNECTORS BY OTHER MANUFACTURERS MAY BE USED IF THE LOAD CAPACITY IS EQUAL TO OR GREATER THAN THE CONNECTOR SPECIFIED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. FASTEN ALL WOOD MEMBERS WITH COMMON NAILS ACCORDING TO THE IRC SCHEDULE UNLESS OTHERWISE NOTED. ALL FASTENERS IN CONTACT PRESSURE TREATED WOOD MEMBERS SHALL BE TREATED FOR CONTACT WITH PRESSURE TREATED WOOD.
5. FLOOR JOIST SHALL BE TJI-210, BCI 6000 1.8 OR EQUIVALENT FLOOR TRUSSES. INSTALLATION AND CONNECTIONS SHALL BE AS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE RIMBOARD MATCHING HEIGHT OF FLOOR JOISTS AT ENTIRE PERIMETER OF FLOOR UNLESS NOTED OTHERWISE.
6. PRE-ENGINEERED FLOOR TRUSSES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO. PROVIDE SHOP DRAWINGS LOCATING ALL TRUSSES, DESIGN CALCULATIONS, CONNECTION PLATE SIZES AND CAPACITIES, AND SIZE AND GRADES OF ALL LUMBER USED. THE TRUSS MANUFACTURER SHALL PROVIDE ALL BLOCKING PANELS, BRIDGING, AND HARDWARE REQUIRED FOR THE COMPLETE INSTALLATION OF THE FLOOR SYSTEM.TRUSSES SHALL BE SHIPPED, STORED AND ERECTED IN A VERTICAL ALIGNMENT.
7. FLOOR SHEATHING SHALL BE 23/32" APA RATED STURD-1-FLOOR O.S.B. WITH SPAN RATING OF 24" ON-CENTER, EXPOSURE 1, T&G. SECURE O.S.B. WITH 2 1/2" WOOD SUBFLOOR SCREWS THE APPROVED EQUAL OR BETTER THAN 8d COMMON NAILS, AT 6" ON-CENTER AT PANEL EDGES AND 12" ON-CENTER AT INTERMEDIATE SUPPORTS. APPLY WOOD GLUE NO FARTHER AHEAD THAN WILL BE IMMEDIATELY NAILED. INSTALL TruFloor SUBFLOORING MANUFACTURED BY NORBORD AT CLIENTS REQUEST.
8. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING 32/16 EXPOSURE 1. SECURE WITH 8d COMMON NAILS AT 6" ON-CENTER AT ALL PANEL EDGES & 12" ON-CENTER AT ALL INTERMEDIATE SUPPORTS, EXCEPT WITHIN 4'-0" OF ROOF EDGE AND RIDGE SECURE AT 6" ON-CENTER AT ALL PANEL EDGES AND ALL INTERMEDIATE SUPPORTS.. PROVIDE PSCL SHEATHING CLIPS AT 2'-0" ON-CENTER BETWEEN SUPPORTS.
9. EXTERIOR SHEATHING SHALL BE 7/16" APA RATED SHEATING WITH A SPAN RATING OF $\frac{24}{16}$ EXPOSURE 1. SECURE SHEATHING WITH 8d COMMONS AT 6" ON-CENTER FOR EDGES AND 12" ON-CENTER INTERMEDIATE STUDS. REFER TO THE SHEARWALL SCHEDULE FOR ADDITIONAL WALL SHEATHING REQUIREMENTS.
10. ALL WOOD EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE SHALL BE PRESSURE PRESERVATIVE TREATED OR EXTERIOR GRADE.
11. LVL SHALL BE MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL AND HAVE THE MINIMUM FOLLOWING PROPERTIES:

Fb	Fv	E
2600 PSI	**285** PSI	**2,000,000** PSI

12. PRE-ENGINEERED ROOF TRUSSES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO. PROVIDE SHOP DRAWINGS LOCATING ALL TRUSSES, DESIGN CALCULATIONS, CONNECTION PLATE SIZES AND CAPACITIES, AND SIZE AND GRADES OF ALL LUMBER USED. THE TRUSS MANUFACTURER SHALL PROVIDE ALL BLOCKING PANELS, BRIDGING, AND HARDWARE REQUIRED FOR THE COMPLETE INSTALLATION OF THE ROOF SYSTEM. TRUSSES SHALL BE SHIPPED, STORED AND ERECTED IN A VERTICAL ALIGNMENT IN ACCORDANCE WITH MANUFACTURES RECCOMMENDATIONS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL MEMBERS SHALL CONFORM TO THE FOLLOWING MINIMUM YIELD STRENGTH AND ASTM SPECIFICATIONS:

1.1. WIDE FLANGE SHAPED STRUCTURAL STEEL	**50** KSI	A-572 OR A-992
1.2. STRUCTURAL STEEL CHANNELS AND ANGLES	**36** KSI	A36
1.3. STRUCTURAL STEEL PLATES AND BARS	**36** KSI	A36
1.4. SQUARE AND RECTANGULAR HHS	**46** KSI	A-500 GRADE B
1.5. ROUND PIPE (STANDARD)	**36** KSI	A36
1.6. ANCHOR RODS	**36** KSI	

2. STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (A.I.S.C.) SPECIFICATIONS AND CODE OF STANDARD PRACTICE INCLUDING HOT WORK SAFETY POLICY.
3. 3" DIAMETER-11GA. ADJUSTABLE PIPE COLUMNS SHALL BE RATED AT 14.7 KIPS MINIMUM.
4. 3" DIAMETER-SCHEDULE 40 ADJUSTABLE PIPE COLUMNS SHALL BE RATED AT 33.4 KIPS MINIMUM.
5. BOLTS FOR STEEL TO STEEL STRUCTURAL CONNECTIONS SHALL BE 3/4" DIAMETER ASTM A325.
6. ALL BOLTS SHALL CONFORM TO ASTM A325, EXCEPT ANCHOR BOLTS, WHICH SHALL CONFORM TO ASTM A307, UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.
7. ALL WELDS SHALL BE MADE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY CODE D1.1, LATEST EDITION. MINIMUM WELDS SHALL BE PER AS REQUIRED PER AISC, BUT NOT LESS THAN 3/16" FILLET.
8. WELDERS SHALL HAVE IN POSSESSION CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS.
9. THE FABRICATOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ADEQUACY OF ALL CONNECTIONS THAT ARE NOT DESIGNED OR FULLY DETAILED ON THE CONTRACT DOCUMENTS.
10. DO NO CUTTING, DRILLING, OR MODIFYING OF STRUCTURAL MEMBERS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
11. FABRICATOR SHALL PREPARE SHOP DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. ALL STEEL COLUMNS, PLATES, ANGLES, BEAMS, BOLTS, AND WELDS SHALL BE PRIMED WITH RUST INHIBITING PRIMER.

PRE-ENGINEERED SYSTEMS AND COMPONENTS

1. THE DESIGN OF THE PRE-ENGINEERED SYSTEMS AND COMPONENTS SPECIFIED IN THE CONTRACT DOCUMENTS THAT ARE DESIGNED BY OTHERS IS THE SOLE RESPONSIBILITY OF THE SUPPLIER AND THE MANUFACTURER'S DESIGN ENGINEER LICENSED IN THE PROJECT STATE. SUBMITTALS OF SUCH SYSTEMS TO THE STRUCTURAL ENGINEER OF RECORD SHALL BE REVIEWED FOR CONFORMANCE WITH THE INTERPRETATION OF THE CONTRACT DOCUMENTS WITH REGARD TO THE ARRANGEMENT, AND/OR SIZES OF MEMBERS. SUCH REVIEW BY THE STRUCTURAL ENGINEER SHALL NOT IMPLY ANY RESPONSIBILITY FOR THE ACTUAL DESIGN OF SUCH SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIMENSIONAL ACCURACY AND CONFORMANCE WITH ALL INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS.
2. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, GENERAL NOTES, SPECIFICATIONS, AND CODE OF PRACTICE SPECIFIED BY AISC, ACI, SJI, OR OTHER STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

SUBMITTALS

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR CONCRETE MIX DESIGNS, CONCRETE REINFORCING, STRUCTURAL STEEL, MASONRY WALL REINFORCING, AND METAL PLATE CONNECTED WOOD TRUSSES FOR ENGINEER'S REVIEW PRIOR TO FABRICATION. ANY FABRICATION DONE PRIOR TO RETURN OF SHOP DRAWINGS WILL BE AT CONTRACTOR'S RISK. REQUIRED CALCULATIONS AND SHOP SHOP DRAWINGS SHALL BE SUBMITTED THROUGH THE ARCHITECT FOR DISTRIBUTION UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE, SO AS TO ALLOW 5 WORKING DAYS REVIEW TIME BY THE STRUCTURAL ENGINEER.
2. REPRODUCTION OF THE CONTRACT DOCUMENTS FOR ERECTION AND/OR SHOP DRAWINGS WILL NOT BE PERMITTED.
3. REVIEW OF THE SUBMITTALS AND/OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER OF RECORD DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS PRIOR TO SUBMITTING THEM. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
4. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE.

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SUNRISE VILLAGE DUPLEXES, LLC

SUNRISE VILLAGE DUPLEXES
BUILDING 2, TYPE 1
GENERAL NOTES
11047 AND 11045 WEST 72ND PLACE
LOT 4 AND 3
ARVADA, COLORADO

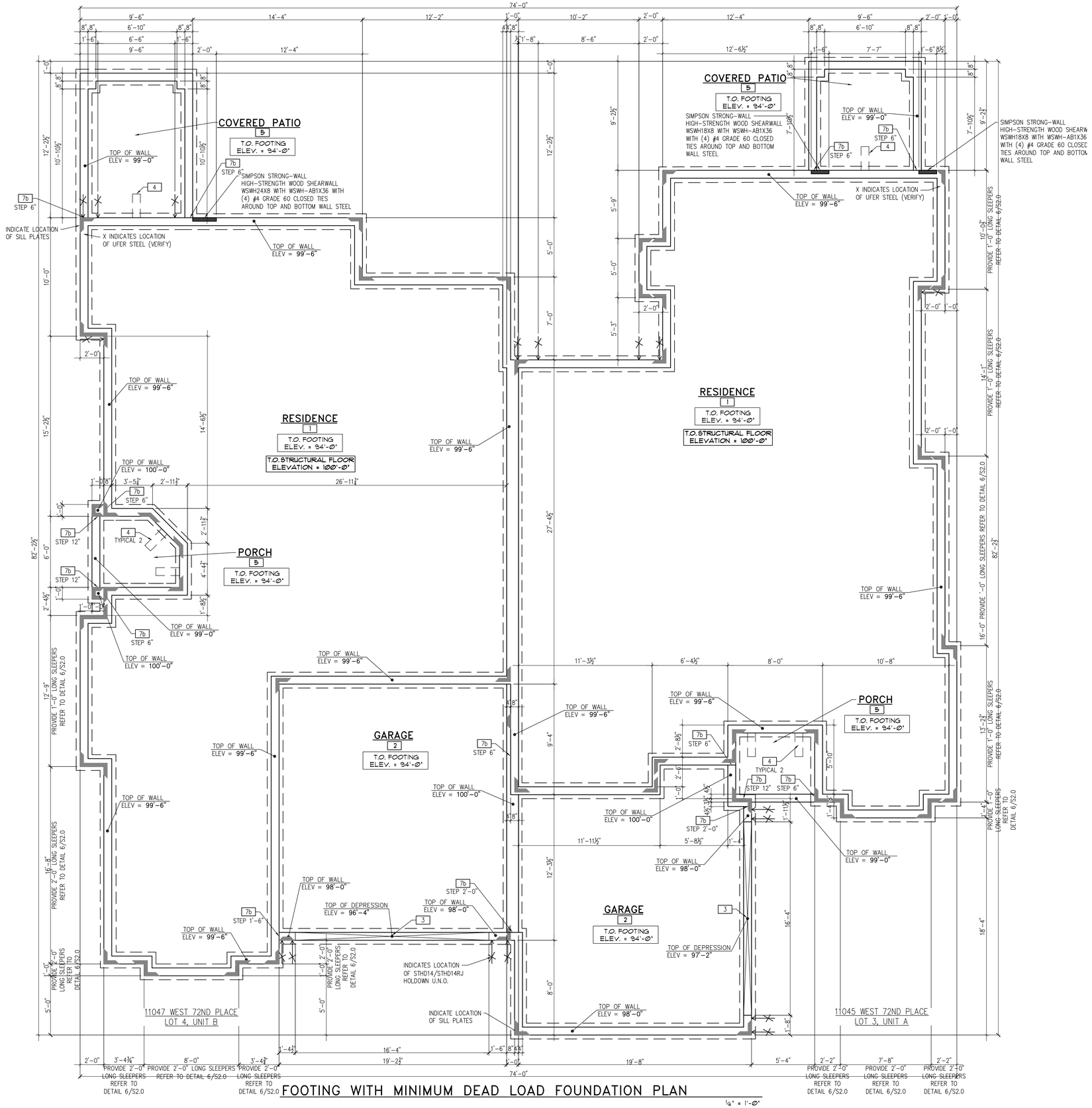
CITY OF ARVADA — ANY CHANGE OR DEVIATION FROM THESE PLANS MUST BE APPROVED BY ARVADA BUILDING DEPARTMENT

THIS SET OF PLANS IS TO STAY ON THE JOB SITE AT ALL TIMES — REVIEWED FOR CODE COMPLIANCE — 2018 IRC — 2020 NEC

Gabriel Andrews, P.E.
Digitally signed by Gabriel Andrews, P.E.
DN: C=US, E=gandrews@mnaengineering.com, O="MNA, Inc.", CN="Gabriel Andrews, P.E."
Date: 2021.06.14 08:13:32-06'00'

COLORADO REGISTERED PROFESSIONAL ENGINEER — GABRIEL ANDREWS — 39278
6/14/2021

proj. no.	SVDB2
date	4/23/2021
design / drawn	GJA/SA
check by	GJA
sheet	S-0.0



FOOTING WITH MINIMUM DEAD LOAD FOUNDATION PLAN

¼" = 1'-0"

PLAN NOTES

1. CONCRETE STRUCTURAL FLOOR ON VOID, REFER TO: S1.1
2. 4" CONCRETE SLAB-ON-GRADE HOLD TOP OF SLAB DOWN 3" MINIMUM FROM TOP OF WALL AT REAR OF GARAGE, SLOPE SLAB ¼" PER FOOT TOWARDS DOOR, REFER TO SOILS REPORT FOR ADDITIONAL INFORMATION
3. DEPRESS TOP OF WALL 12" MINIMUM AT DOOR AND FOUR SLAB OVER WALL
4. BOLT ON HAUNCH, REFER TO MANUFACTURES RECOMMENDATION FOR INSTALLATION
5. 4" CONCRETE SLAB-ON-GRADE PROVIDE MINIMUM ½" ISOLATION JOINT MATERIAL AT SLAB EDGES AGAINST WALL, THICKEN EXTERIOR EDGE OF SLAB TO 12" DEEP AND PROVIDE #4 REINFORCING AT 1'-6" ON-CENTER BOTH DIRECTIONS.
6. NOT USED
7a. STEP BOTTOM OF FOUNDATION WALL
7b. STEP TOP OF FOUNDATION WALL
8. 1'-7" X 1'-7" X 3'-0" DEEP FOOTING WITH (4) #5 VERTICAL AND (3) #5 EACH WAY TOP AND BOTTOM AT OPTIONAL ARCHITECTURAL COLUMN
9. 1'-0" DIAMETER X 3'-0" DEEP PIER WITH (3) #5 VERTICAL CAGED TOP AND BOTTOM

FOUNDATION NOTES

1. EXTERIOR FOUNDATION WALLS TO BE 8" WIDE AND INTERIOR DEMISING WALLS TO BE 12" WIDE UNLESS NOTED OTHERWISE
2. FOOTINGS SHALL BE 16" WIDE x 8" DEEP UNLESS NOTED OTHERWISE
3. PROVIDE MINIMUM 8" WIDE VOID AT MAXIMUM 15' ON-CENTER
4. TOP OF FOUNDATION WALL ELEVATION = 100'-0" = 5518.00 U.N.O.
5. BOTTOM OF FOOTING ELEVATION SHALL BE MINIMUM 3'-0" BELOW EXTERIOR FINISH GRADE OR GARAGE SLAB. WALL HEIGHT SHALL BE MINIMUM 2'-4". STEP BOTTOM AND TOP OF FOUNDATION WALLS AS REQUIRED
6. VOID SPACE SHOWN IN FOOTINGS ARE FOR WALL STEPS OR VOID PLACEMENT, VOIDS SHALL BE 4" DEEP TYPICAL.
7. SEE SHEET S-2.0 FOR SECTIONS AND DETAILS

NOTE:
PLANS PREPARED WITHOUT FINAL ROOF TRUSS PLAN. ROOF TRUSS PLANS MUST BE PROVIDED PRIOR TO CONSTRUCTION. FOOTING SIZES AND LOCATIONS WILL BE REVISED WHEN ROOF TRUSS PLANS ARE COMPLETED.

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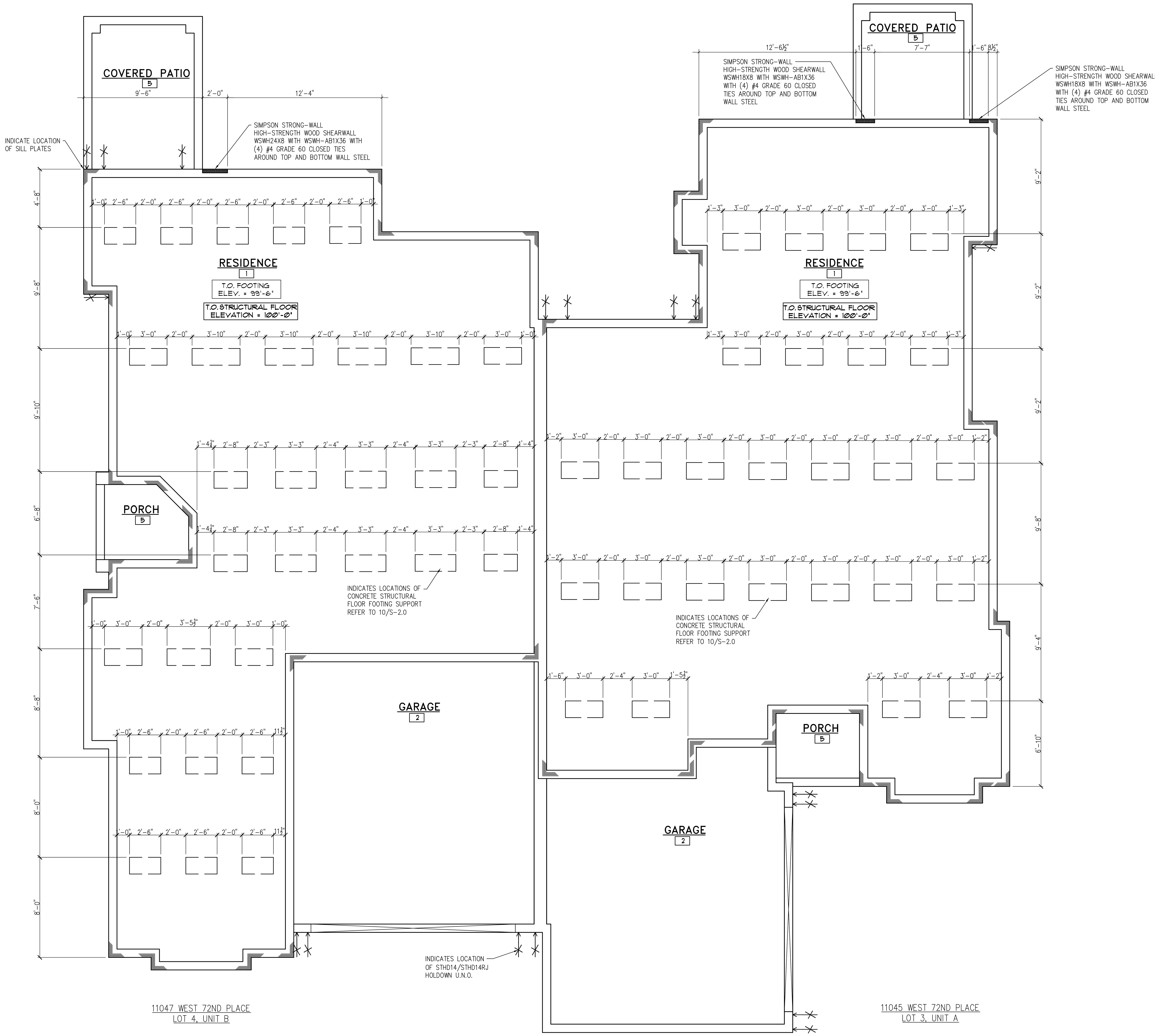
LOT 4 AND 3
ARVADA, COLORADO

THESE DOCUMENTS ARE THE PROPERTY OF MNA ENGINEERING AND ARE NOT TO BE USED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF MNA ENGINEERING

COLORADO REGISTERED
GABRIEL ANDRES
39278
PROFESSIONAL ENGINEER
6/14/2021

proj. no.	SVDB2
date	4/23/2021
design / drawn	GJA/BA
check by	GJA
sheet	S-1.0



CONCRETE STRUCTURAL FLOOR PLAN

¼" = 1'-0"

PLAN NOTES

1. CONCRETE STRUCTURAL FLOOR ON VOID, REFER TO: S1.1
2. 4" CONCRETE SLAB-ON-GRADE HOLD TOP OF SLAB DOWN 3" MINIMUM FROM TOP OF WALL AT REAR OF GARAGE, SLOPE SLAB ¼" PER FOOT TOWARDS DOOR, REFER TO SOILS REPORT FOR ADDITIONAL INFORMATION
3. DEPRESS TOP OF WALL 12" MINIMUM AT DOOR AND POUR SLAB OVER WALL
4. BOLT ON HAUNCH, REFER TO MANUFACTURES RECOMMENDATION FOR INSTALLATION
5. 4" CONCRETE SLAB-ON-GRADE PROVIDE MINIMUM ½" ISOLATION JOINT MATERIAL AT SLAB EDGES AGAINST WALL. THICKEN EXTERIOR EDGE OF SLAB TO 12" DEEP AND PROVIDE #4 REINFORCING AT 1'-6" ON-CENTER BOTH DIRECTIONS.
6. NOT USED

7a. STEP BOTTOM OF FOUNDATION WALL

7b. STEP TOP OF FOUNDATION WALL

8. 1'-7" X 1'-7" X 3'-0" DEEP FOOTING WITH (4) #5 VERTICAL AND (3) #5 EACH WAY TOP AND BOTTOM AT OPTIONAL ARCHITECTURAL COLUMN
9. 1'-0" DIAMETER X 3'-0" DEEP PIER WITH (3) #5 VERTICAL CAGED TOP AND BOTTOM

FOUNDATION NOTES

1. EXTERIOR FOUNDATION WALLS TO BE 8" WIDE AND INTERIOR DEMISING WALLS TO BE 12" WIDE UNLESS NOTED OTHERWISE
2. FOOTINGS SHALL BE 16" WIDE x 8" DEEP UNLESS NOTED OTHERWISE
3. PROVIDE MINIMUM 8" WIDE VOID AT MAXIMUM 15' ON-CENTER
4. TOP OF FOUNDATION WALL ELEVATION = 100'-0" = 5518.00 U.N.O.
5. BOTTOM OF FOOTING ELEVATION SHALL BE MINIMUM 3'-0" BELOW EXTERIOR FINISH GRADE OR GARAGE SLAB. WALL HEIGHT SHALL BE MINIMUM 2'-4". STEP BOTTOM AND TOP OF FOUNDATION WALLS AS REQUIRED
6. VOID SPACE SHOWN IN FOOTINGS ARE FOR WALL STEPS OR VOID PLACEMENT, VOIDS SHALL BE 4" DEEP TYPICAL.
7. SEE SHEET S-2.0 FOR SECTIONS AND DETAILS

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STRUCTURAL
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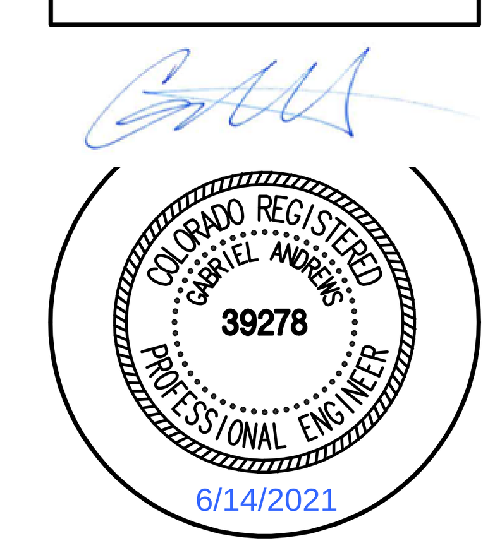
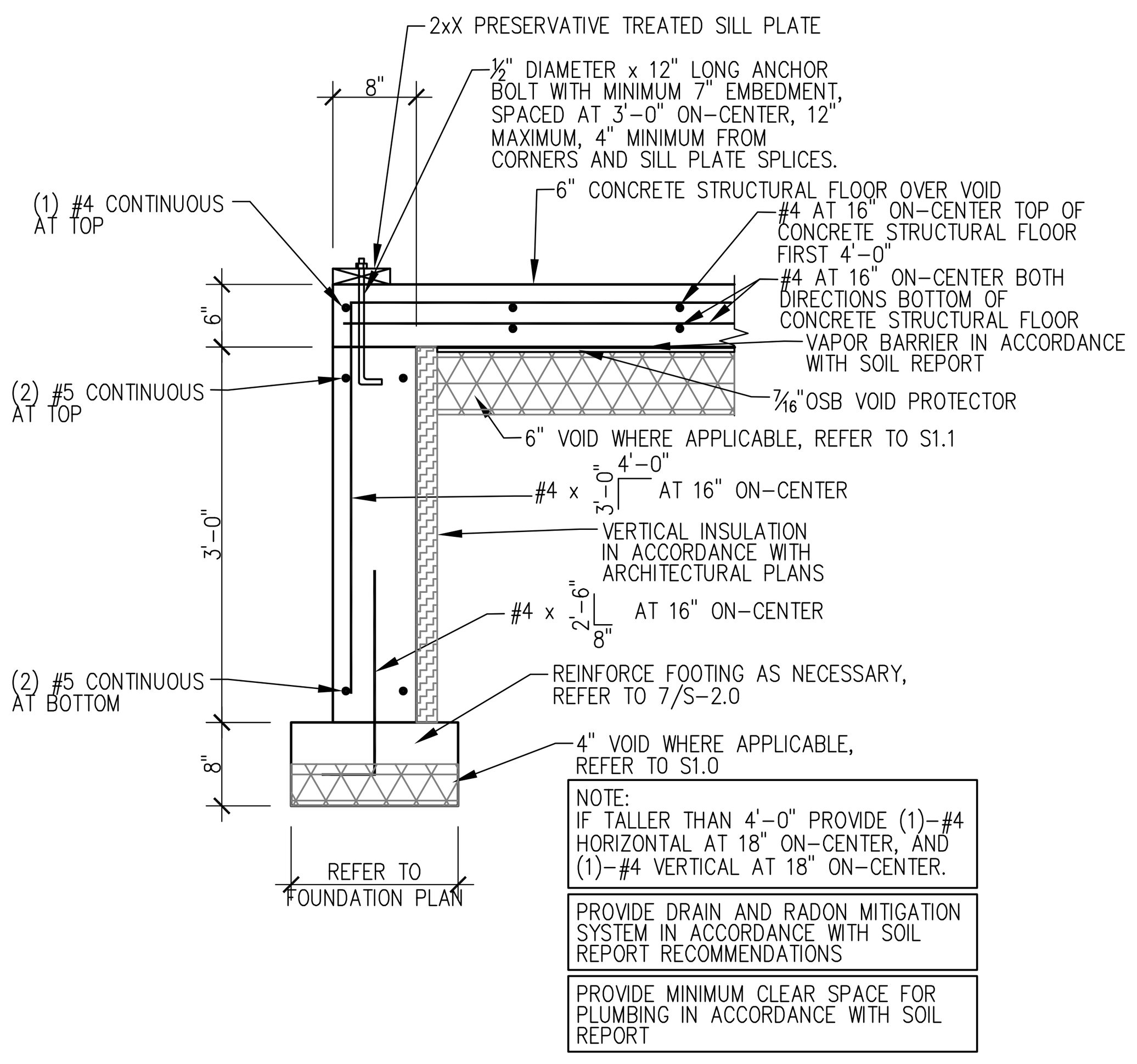
SUNRISE VILLAGE DUPLEXES, LLC

SUNRISE VILLAGE DUPLEXES
BUILDING 2, TYPE 1
STRUCTURAL CONCRETE SLAB ON VOID PLAN
11047 AND 11045 WEST 72ND PLACE
LOT 4 AND 3
ARVADA, COLORADO

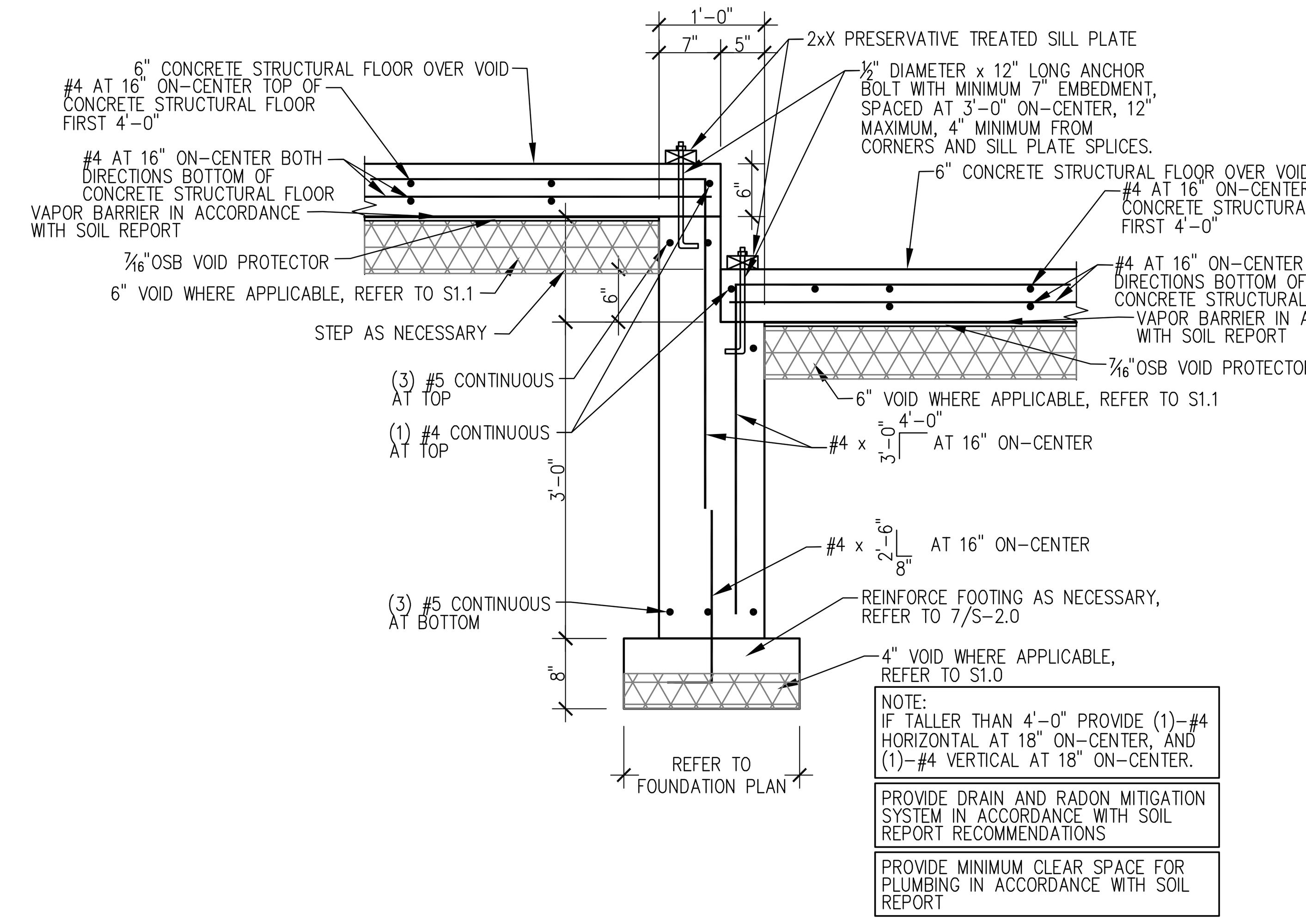
ARVADA — ANY CHANGE OR DEVIATION FROM THESE PLANS MUST BE APPROVED BY ARVADA BUILDING DEPARTMENT
THIS SET OF PLANS IS TO STAY ON THE JOB SITE AT ALL TIMES
REVIEWED FOR CODE COMPLIANCE
2018 IRC
2020 NEC



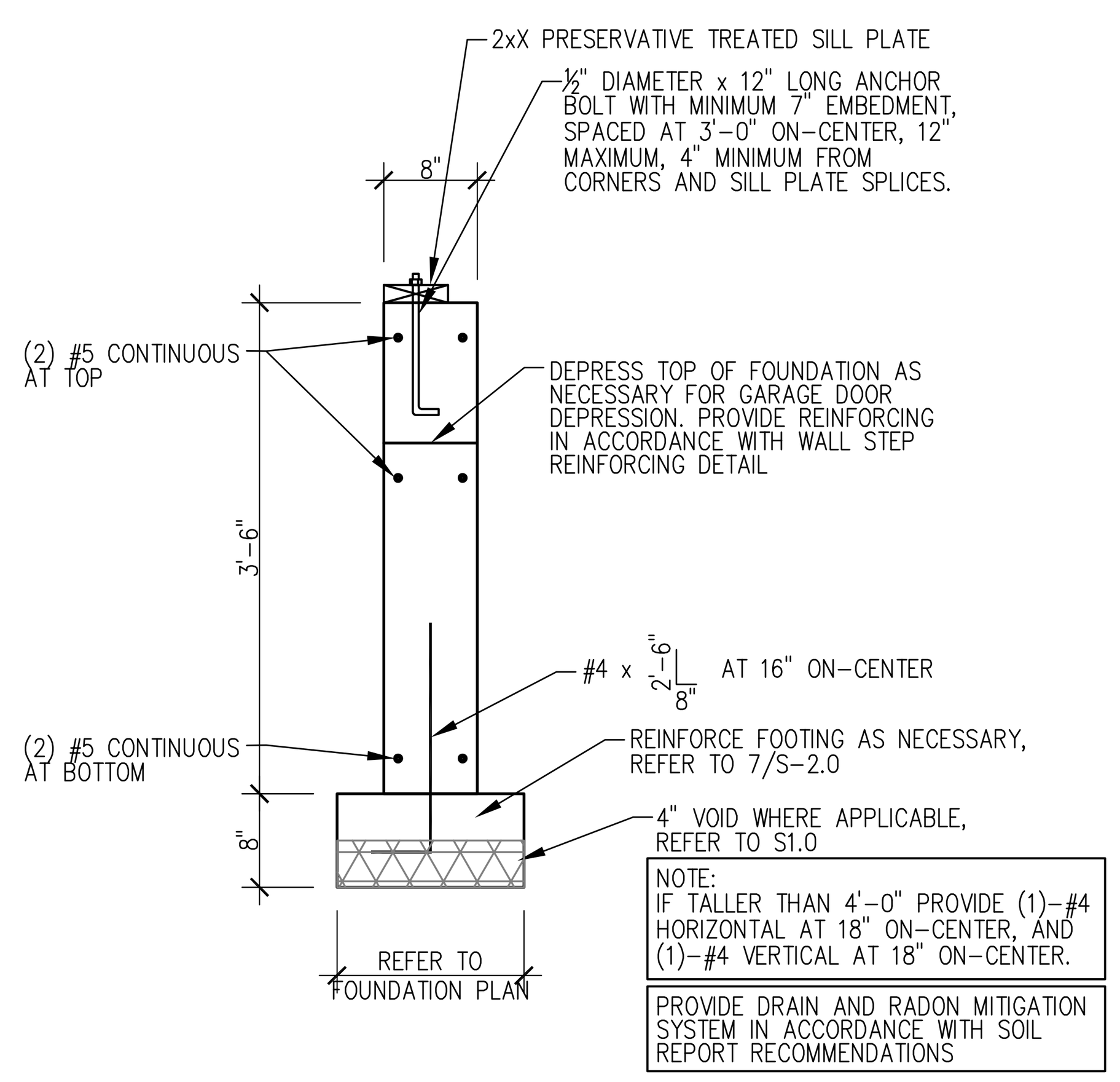
proj. no.	SVDB2
date	4/23/2021
design / drawn	GJA/SA
check by	GJA
sheet	S-1.1



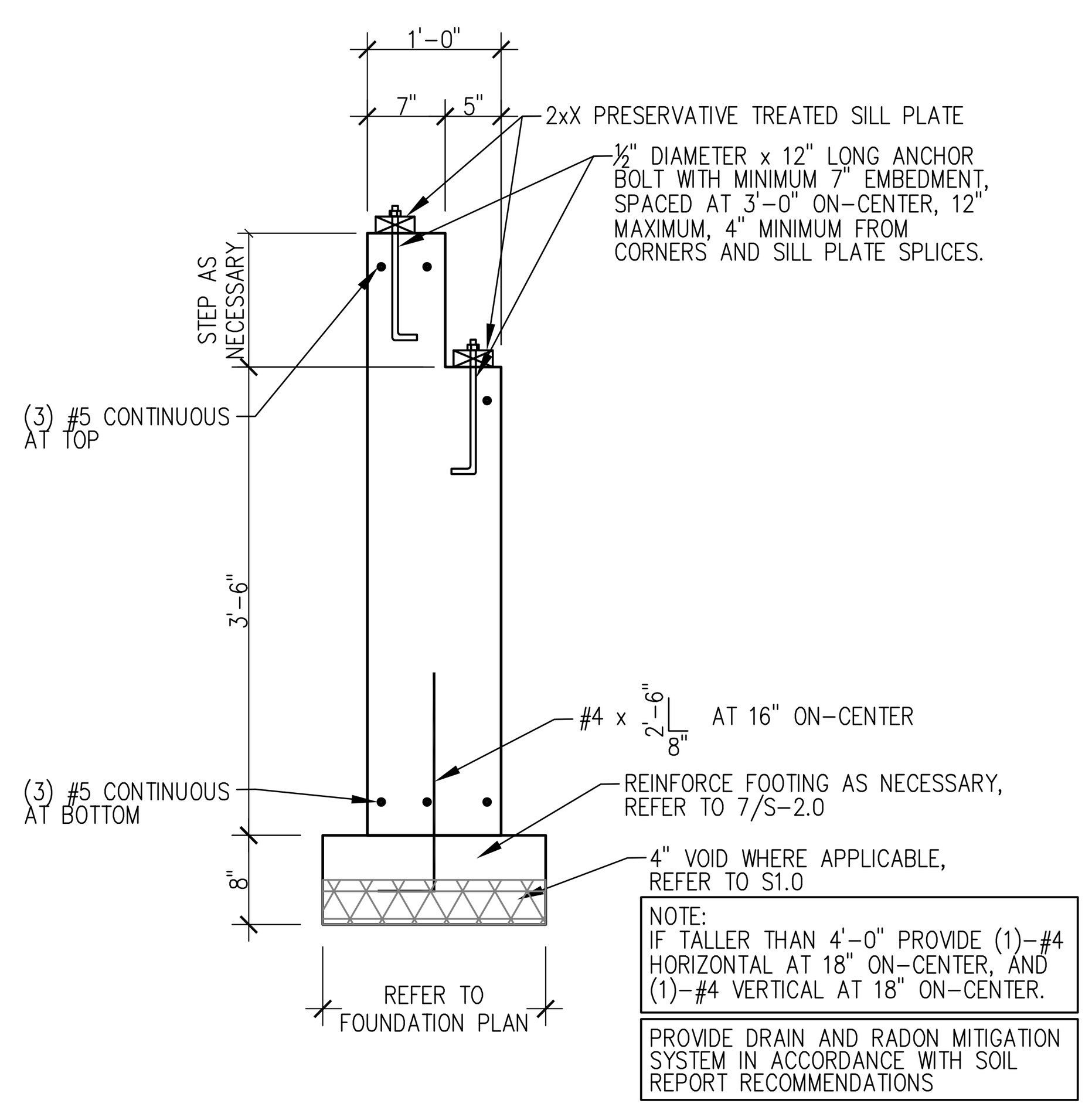
1 FOUNDATION WALL SECTION
¾" = 1'-0"



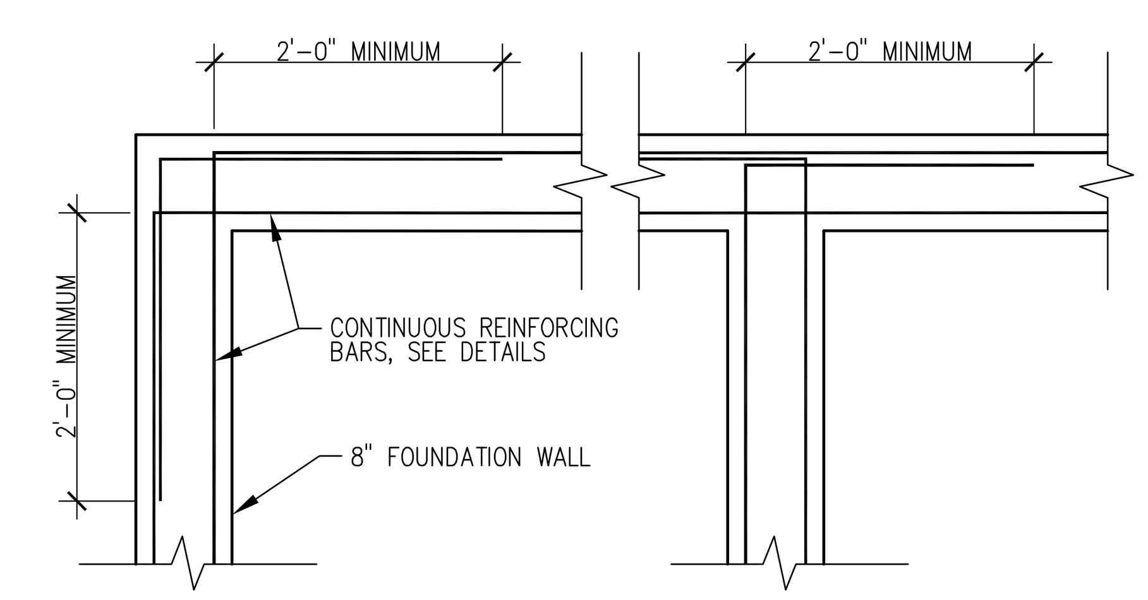
2 FOUNDATION WALL SECTION
INTERIOR DEMISING WALL
¾" = 1'-0"



3 GARAGE FOUNDATION WALL SECTION
¾" = 1'-0"



4 GARAGE FOUNDATION WALL SECTION
AT DEMISING WALL
¾" = 1'-0"



5 CORNER REINFORCEMENT DETAIL
¾" = 1'-0"

GENERAL STRUCTURAL NOTES

1. FOUNDATION AND FRAMING PLANS PREPARED WITH ARCHITECTURAL PLANS PROVIDED BY **M-A ARCHITECTS**, FOR **SUNRISE VILLAGE DUPLEXES,** DATED **FEBRUARY 2, 2021**.
2. DETAILS IN THE PLANS ARE INTENDED TO SHOW GENERAL REQUIREMENTS THROUGHOUT THE STRUCTURE. ANY ITEMS NOT COVERED IN THE PLAN OR DETAILS SHALL BE COMPLETED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE.
3. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, SPECIFICATIONS AND CODE, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. THE GENERAL CONTRACTOR SHALL VERIFY THE DIMENSIONS AND SITE CONDITIONS PRIOR TO STARTING WORK. THE ARCHITECT/STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
4. THE CONTRACTOR SHALL COORDINATE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL WORKS WITH THE STRUCTURAL CONTRACT DOCUMENTS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
5. REFER TO THE ARCHITECTURAL DOCUMENTS FOR ALL DIMENSIONS NOT SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS. DO NOT SCALE THE STRUCTURAL CONTRACT DOCUMENTS.
6. FIELD ALTERATIONS TO ANY STRUCTURAL MEMBER SHALL NOT BE EXECUTED WITHOUT APPROVAL FROM THE ENGINEER.
7. ENGINEER'S APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS.
8. THE STRUCTURAL ENGINEER SHALL NOT HAVE CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES.
9. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION MEANS AND/OR SEQUENCING. THE DESIGN AND INSTALLATION OF ANY REQUIRED TEMPORARY BRACING SHALL BE BY THE CONTRACTOR

DESIGN PARAMETERS

1. ALL REFERENCES TO CODES, STANDARDS, AND SPECIFICATIONS SHALL MEAN THE LATEST VERSION OF THE REFERENCED MATERIAL PUBLISHED AT THE DATE OF THE CONSTRUCTION DOCUMENTS.
2. DESIGN CODES
   - 2.1. ICC – INTERNATIONAL RESIDENTIAL CODE 2018 (IRC)
   - 2.2. 2018 CITY CODE REVISIONS FOR ARVADA
   - 2.3. ACI 318 – BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE
   - 2.4. AWC – NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION
   - 2.5. AISC – STEEL CONSTRUCTION MANUAL
3. FLOOR LOADS LIVE = **40** PSF DEAD = **15** PSF
4. ROOF LOADS LIVE = **30** PSF DEAD = **20** PSF (5 PSF SOLAR)
5. DECK LOADS LIVE = **40** PSF DEAD = **10** PSF
6. GROUND SNOW LOAD = **30** PSF ROOF SNOW LOAD = **30** PSF
7. WIND LOADS **136** MPH ULTIMATE WIND SPEED EXPOSURE **C**
8. SEISMIC DESIGN CATEGORY **B**
9. LATERAL EARTH PRESSURE = **60** PCF

FOUNDATIONS

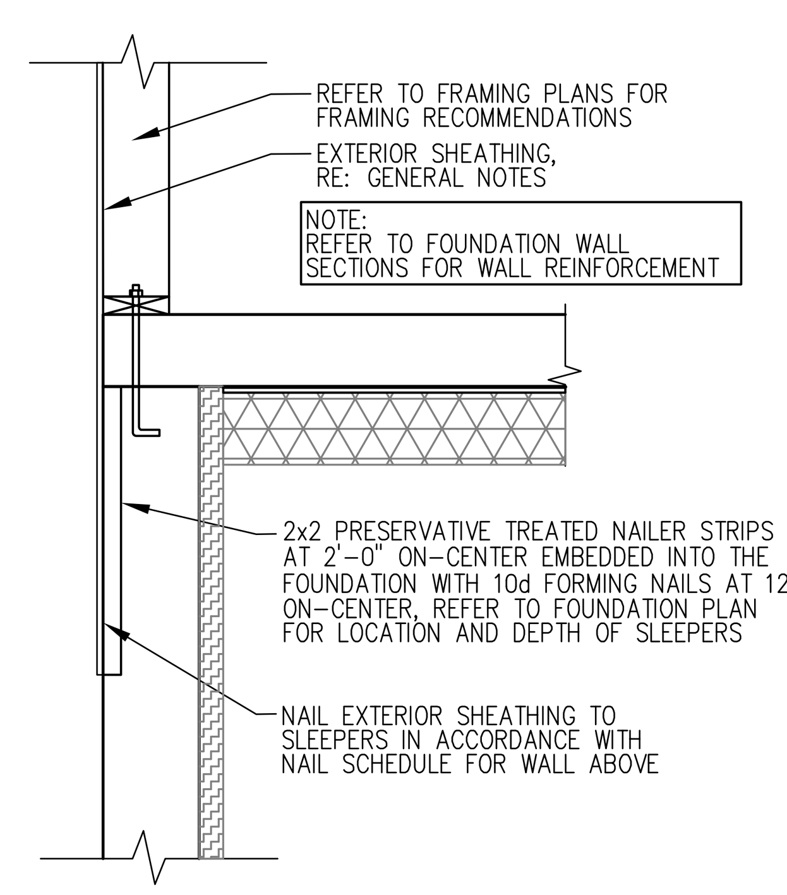
1. FOUNDATION DESIGN BASED UPON RECOMMENDATIONS SET FORTH IN THE SOIL AND FOUNDATION INVESTIGATION BY **CTL THOMPSON**. DATED **JANUARY 21, 2021. PROJECT NUMBER DN49,355.001-120-R1** FOR THE SUBJECT ADDRESS REFERENCE THIS SOILS REPORT FOR INFORMATION AND REQUIREMENTS.
2. FOOTING WITH MINIMUM DEAD LOAD SHALL BE DESIGNED FOR:
   - A. MAXIMUM ALLOWABLE PRESSURE = **2500** PSF
   - B. MINIMUM DEAD LOAD PRESSURE = **800** PSF
3. FOOTINGS SHALL BE CONSTRUCTED A MINIMUM 3'-0" BELOW FINAL GRADE FOR FROST COVER.
4. FOOTINGS SHALL BE CONSTRUCTED A MINIMUM OF 12" BELOW THE ORIGINAL GRADE ON UNDISTURBED SOIL WHICH IS RELATIVELY LEVEL AND FREE OF VEGETATION AND DEBRIS. FOOTINGS SHALL NOT BE CONSTRUCTED ON FROZEN OR SATURATED SOIL.
6. THE SOIL SUPPORTING THE FOOTINGS SHALL BE INSPECTED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO TO VERIFY THE BEARING CAPACITY PRIOR TO PLACING CONCRETE.
7. FOUNDATION ANCHOR BOLTS SHALL BE 1/2" DIAMETER X 12" WITH WASHER AND NUT (3/4" DIAMETER EXPANSION BOLT). INSTALL WITH MINIMUM 7" EMBEDMENT IN FOUNDATION WALL, SPACED 3'-0" ON-CENTER AND 12" MAXIMUM. 4" MINIMUM FROM ALL CORNERS AND SILL PLATE SPLICES. ALL SILL PLATE SECTIONS SHALL HAVE A MINIMUM 2 ANCHOR BOLTS.
8. FOUNDATION DRAINAGE AND DAMP PROOFING SHALL BE ACCORDANCE WITH THE SOIL REPORT.
9. COMPACTION SHALL BE IN ACCORDANCE WITH THE SOIL REPORT.
10. DO NOT PLACE BACKFILL AGAINST FOUNDATION UNTIL CONCRETE OR GROUT HAS CURED AND FOUNDATION IS ADEQUATELY BRACED.
11. WHERE FOUNDATION WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, PLACE FILL SIMULTANEOUSLY SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF WALL.
12. REFER TO SOIL REPORT FOR ADDITIONAL RECOMMENDATIONS.

CONCRETE

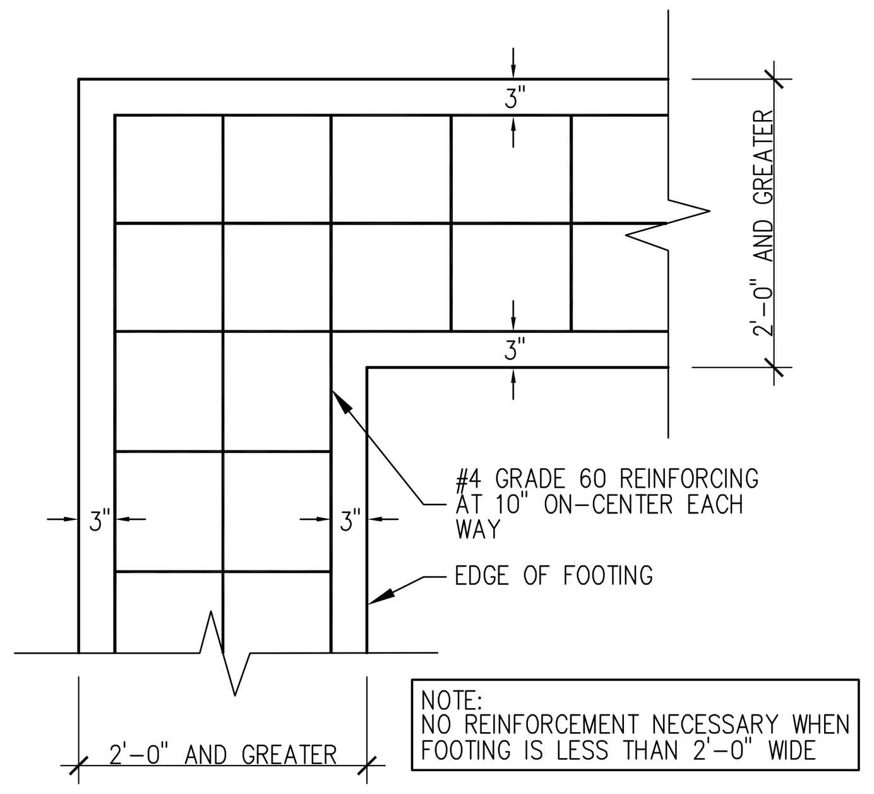
1. CONCRETE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE BUILDING CODE (ACI-318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI-301).
2. ALL CONCRETE SHALL BE MADE WITH TYPE II PORTLAND CEMENT AND STONE AGGREGATE UNLESS NOTED OTHERWISE. CONCRETE SHALL HAVE A WATER TO CEMENT RATIO OF .5 OR LESS AND AIR ENTRAINMENT OF 6%+/-1.5%.
   MINIMUM CONCRETE 28 DAY STRENGTH SHALL BE AS FOLLOWS:
   - A. FOOTINGS AND FOUNDATION WALLS **4000** PSI
   - B. INTERIOR SLAB ON GRADE **4000** PSI
   - C. EXTERIOR FLAT WORK AND SITE WALLS **4000** PSI
   - D. ALL OTHER CONCRETE **4000** PSI
3. THE CONCRETE SHALL BE APPROVED BY THE SOIL ENGINEER. REFER TO SOIL REPORT FOR ADDITIONAL CONCRETE REQUIREMENTS.
4. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, CHAMFERS, ORNAMENTS, CLIPS, OR GROUNDS REQUIRED BE ENCASED IN CONCRETE AND FOR LOCATION AND DETAILS OF FLOOR FINISHES, ELEVATIONS, AND SLAB DEPRESSIONS.
5. ALL CONCRETE SLABS ON GRADE SHALL BE ISOLATED FROM FOUNDATIONS, WALLS, STEEL COLUMNS AND OTHER STRUCTURAL ELEMENTS AND CONSTRUCTED IN ACCORDANCE WITH THE SOIL REPORT.
6. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS BEFORE PLACING CONCRETE. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING OF CONCRETE IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER.
7. CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING PROPOSED CONSTRUCTION JOINT LOCATIONS AND CASTING SEQUENCE TO THE ENGINEER FOR REVIEW.
8. WHERE CONSTRUCTION JOINTS ARE NOTED AS "ROUGHENED" ON THE DRAWINGS, THE ENTIRE JOINT SURFACE SHALL BE MECHANICALLY ROUGHENED TO A 1/4" AMPLITUDE AND THOROUGHLY CLEANED. THE ROUGHENING SHALL EXPOSE THE COARSE AGGREGATE IN THE HARDENED CONCRETE AND ALL LOOSE MATERIAL SHALL BE REMOVED.
9. ALL DOWELS, BOLTS, AND EMBEDDED PLATES SHALL BE SECURED IN PLACE TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.

REINFORCING

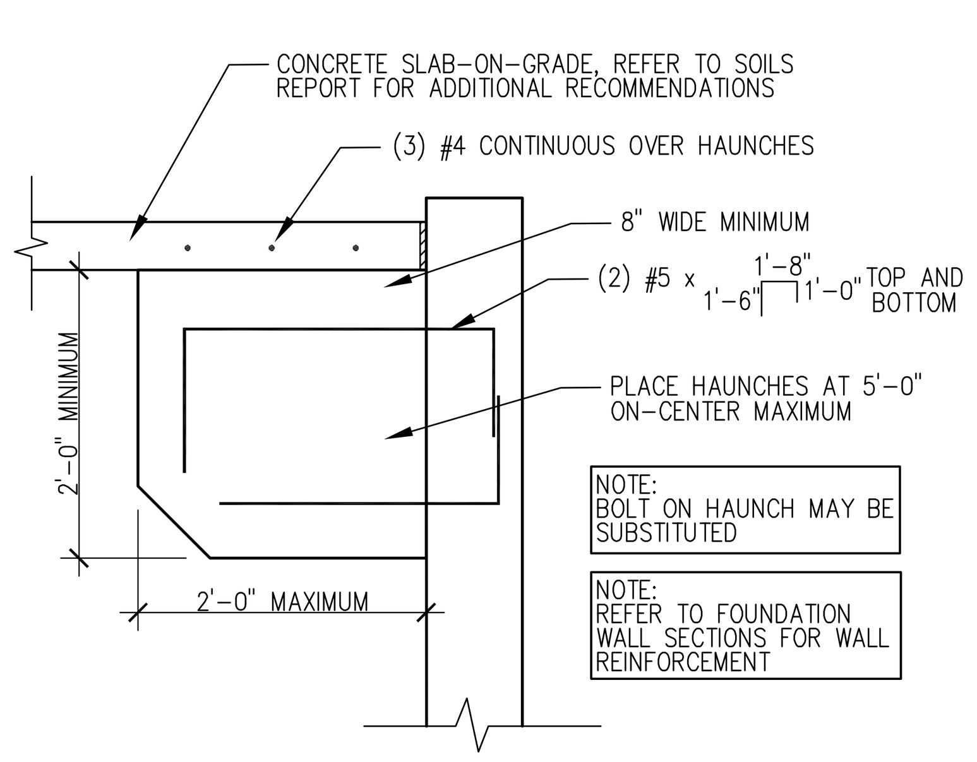
1. REINFORCING SHALL CONFORM TO A.S.T.M. A615, GRADE 60. REINFORCING THAT IS REQUIRED TO BE WELDED SHALL BE GRADE 40 WITH A MAXIMUM CARBON CONTENT OF 0.30 PERCENT AND MAXIMUM MANGANESE CONTENT OF 0.60 PERCENT. NO WELDING OF REINFORCING SHALL BE PERMITTED UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY THE STRUCTURAL ENGINEER. WHERE PERMITTED, WELDED SHALL BE IN CONFORMANCE AWS D1.4, LATEST EDITION.
2. WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH A.S.T.M. A-185.
3. ALL REINFORCING SHALL BE SECURED IN PLACE TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.
4. PROVIDE CORNER BARS TO MATCH THE SIZE AND QUANTITY OF ALL HORIZONTAL REINFORCING IN CAST-IN-PLACE WALLS. REINFORCING SHALL BE CONTINOUS AROUND CORNERS.
5. ALL REINFORCING BAR LAP SPLICES SHALL BE A MINIMUM OF 48 BAR DIAMETERS. WELDED WIRE FABRIC SHALL HAVE A MINIMUM LAP SPLICE OF 8 INCHES.
6. ALL REINFORCING STEEL AND ACCESSORIES SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE A.C.I. DETAILING MANUAL. BAR PLACER IS TO FAMILIARIZE THEMSELVES WITH ALL DETAILS SHOWN ON THE STRUCTURAL DRAWINGS AND SHALL USE THESE DRAWINGS IN CONJUNCTION WITH APPROVED SHOP DRAWINGS FOR PLACEMENT OF REINFORCING.
7. ALL REINFORCING BAR BENDS SHALL BE MADE IN THE FABRICATOR'S SHOP UNLESS APPROVED BY THE ENGINEER.
8. REINFORCEMENT PROTECTION:
   - 8.1. CONCRETE PLACED AGAINST EARTH 3"
   - 8.2. CONCRETE PLACED IN FORMS BUT EXPOSED TO WEATHER OR EARTH
     - 8.2.1. #5 BARS AND SMALLER 1 1/2"
     - 8.2.2. #6 BARS AND LARGER 2"
   - 8.3. SLABS ON GRADE 3/4"



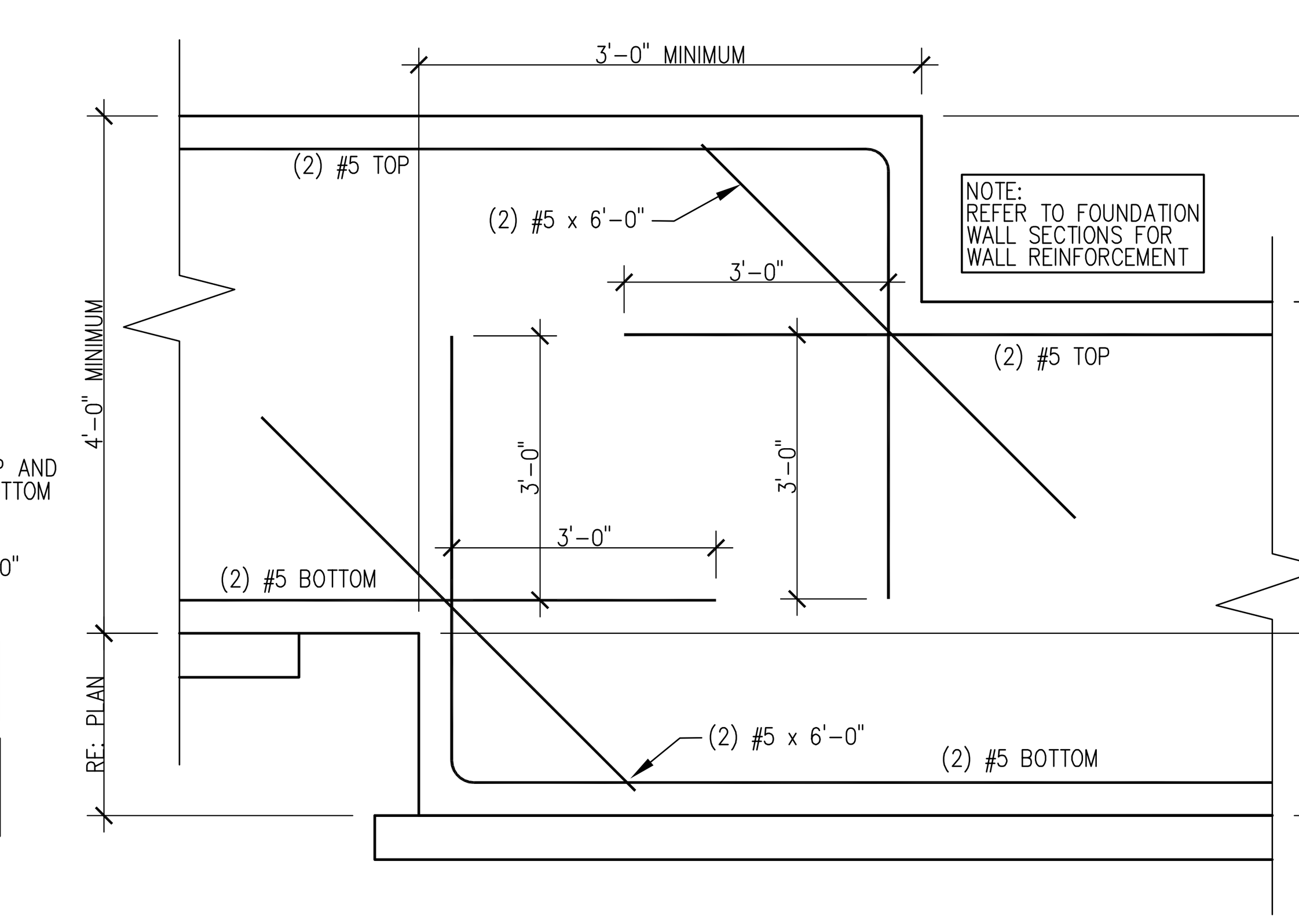
6 FOUNDATION SLEEPER DETAIL
¾" = 1'-0"



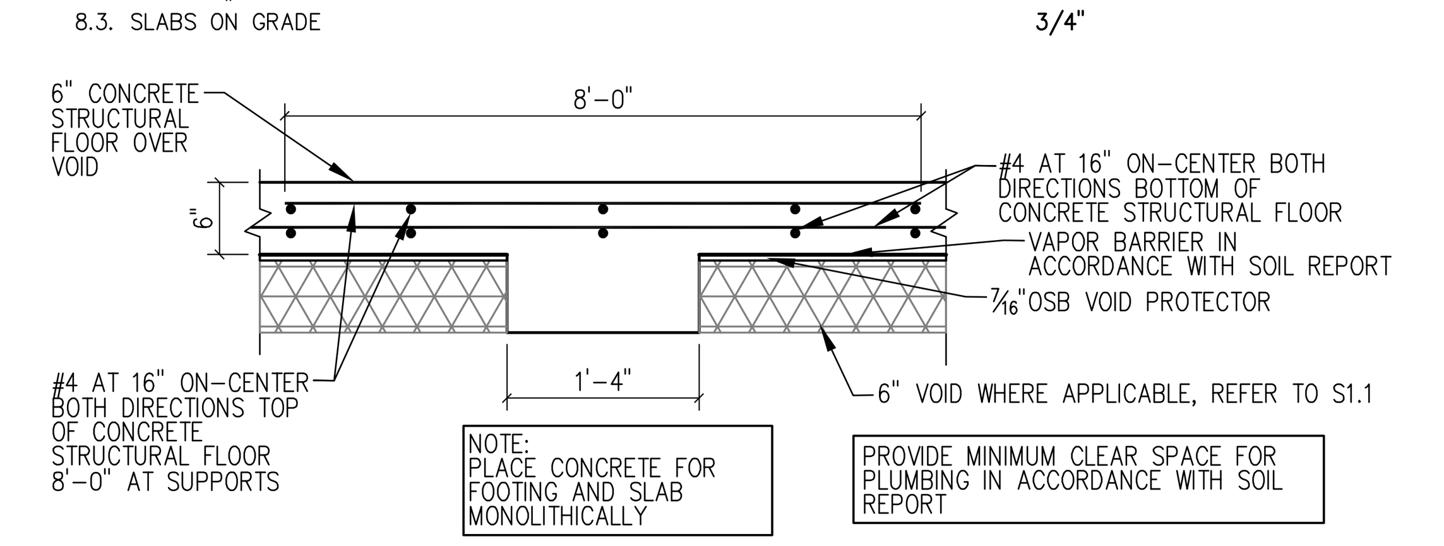
7 2'-0" AND GREATER FOOTING REINFORCEMENT DETAIL
¾" = 1'-0"



8 TYPICAL HAUNCH DETAIL
¾" = 1'-0"



9 FOUNDATION WALL STEP REINFORCING DETAIL
¾" = 1'-0"



10 CONCRETE STRUCTURAL FLOOR
INTERIOR FOOTING SUPPORTS
¾" = 1'-0"

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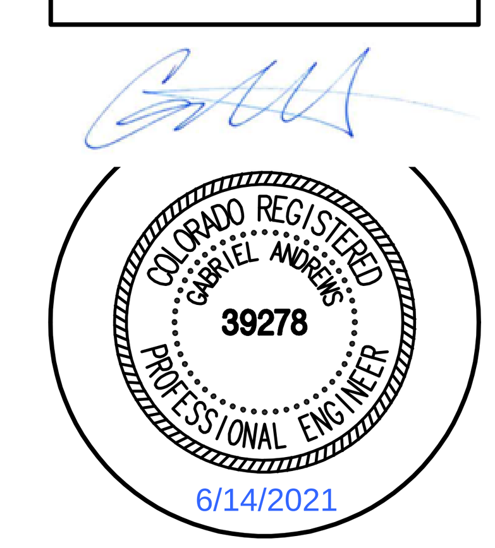

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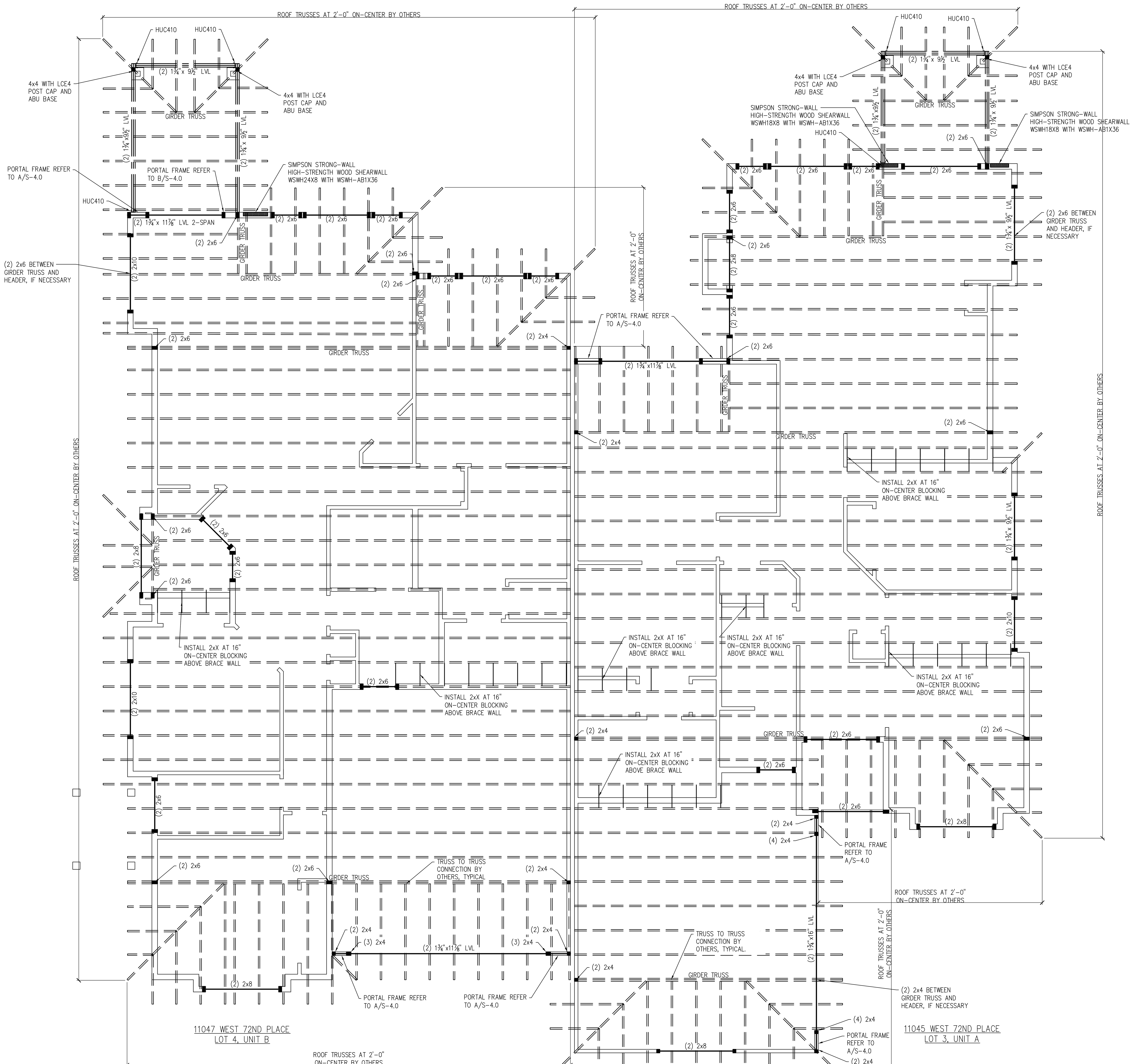

ROOF FRAMING PLAN

¼" = 1'-0"

FRAMING NOTES:

1. FLOOR JOISTS SHALL BE 14" MANUFACTURED FLOOR TRUSSES BY OTHERS.
2. PROVIDE MINIMUM (2)-2x6 or (2)-1¾"x5½" LVL MINIMUM HEADER UNLESS OTHERWISE NOTED WITH (1)-2xX TRIMMER STUD AND (1)-2xX KING STUD - UNLESS NOTED OTHERWISE
3. PROVIDE MINIMUM (2)-2x4 OR (2)-2x6 POST AT ALL BEAM, HIPMASTER, GIRDER TRUSS, OR HIP JACK BEARINGS, TYPICAL, UNLESS NOTED OTHERWISE.
4. PROVIDE MINIMUM SIMPSON H2.5T OR USP RT7 HURRICANE TIES AT ALL ROOF TRUSSES AND RAFTERS. ADDITIONAL AT ALL GIRDER TRUSSES, REFER TO TRUSS PLANS
5. DENOTES INTERIOR LOAD BEARING WALL.
   DENOTES ROOF OVERFRAME AREAS.
   OVERFRAMING TO BE COMPLETED AS FOLLOWS:
   a. 2x6 @ 24" ON-CENTER FOR SPANS 7'-6" OR LESS
   b. 2x8 @ 24" ON-CENTER FOR SPANS BETWEEN 7'-7" AND 10'-8"
   c. OVERFRAME TRUSS FOR SPANS OVER 10'-9"
   d. OVERFRAMING MEMBERS TO BEAR DIRECTLY OVER THE TRUSSES OR SOLID BLOCKING BETWEEN TRUSSES.
   e. USE ONE SIZE LARGER RIDGE RAFTER THAN THE LARGEST COMMON RAFTER.
   f. PLACE (2)-1x4 VALLEY PLATES SIDE BY SIDE FOR OVERFRAMING MEMEBERS TO BEAR ON.
   g. ATTACH 2x4 VERTICAL MEMBERS BETWEEN OVERFRAMING MEMBERS AND ROOF TRUSSES AT 4'-0" ON-CENTER WITH (3)-10d NAILS EACH SIDE.
6. SOLID BLOCK UNDER ALL (2)-2xX AND LARGER POSTS TO FOUNDATION OR SUPPORTING BEAM. SQUASH BLOCKS ARE NOT SHOWN ON PLAN FOR CLARITY.
7. PROVIDE 1⅛" x (MATCH FLOOR JOIST HEIGHT)" DEEP OSB AT RIM BOARD AT PERIMETER OF FLOOR FRAMING.
8. BUILT UP MEMBERS SHALL BE SECURED TOGETHER IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND THE 2018 IRC
9. ENGINEERED WOOD BEAMS SHALL HAVE A MINIMUM BEARING OF 3½" OR MATCH THE WIDTH OF SUPPORTING POSTS. HEADERS MUST HAVE BEARING LENGTH EQUAL TO WIDTH OF SPECIFIED TRIMMERS.
10. ALL 2x6 EXTERIOR WALL STUDS AND INTERIOR LOAD BEARING WALL STUDS SHALL BE SPACED AT 16" ON-CENTER. ALL 2x4 EXTERIOR WALL STUDS AND INTERIOR LOAD BEARING WALL STUDS SHALL BE SPACED AT 16" ON-CENTER. ALL INTERIOR NON-LOAD BEARING WALL STUDS SHALL BE SPACED AT 24" ON-CENTER, TYPICAL, UNLESS NOTED OTHERWISE.
11. REFER TO SHEET S-5.0 FOR GENERAL FRAMING NOTES AND DETAILS.
12. KING STUDS ARE NOTED AS "K" AND TRIMMER STUDS ARE NOTED AS "T".
13. ALL BEAMS SHALL BE FLUSH, UNLESS NOTED OTHERWISE.
14. ALL HEADERS SHALL BE DROPPED UNLESS NOTED OTHERWISE.
15. ALL ROOF TRUSSES AND RAFTERS SHALL BE SPACED 24" ON-CENTER, TYPICAL, UNLESS NOTED OTHERWISE. REFER TO TRUSS PLANS FOR ADDITIONAL INFORMATION.
16. REFER TO S-4.X FOR WALL BRACING REQUIREMENTS

KING AND TRIMMER STUD SCHEDULE (UNO)

OPENING	KING (K)	TRIMMER (T)
LESS THAN 4'-11"	(1)-2x4 or (1)-2x6	(1)-2x4 or (1)-2x6
5'-0" TO 6'-5"	(2)-2x4 or (1)-2x6	(1)-2x4 or (1)-2x6
6'-6" TO 7'-11"	(2)-2x4 or (2)-2x6	(2)-2x4 or (1)-2x6
8'-0" TO 9'-11"	(3)-2x4 or (2)-2x6	(2)-2x4 or (2)-2x6
10'-0" TO 12'-5"	(3)-2x4 or (3)-2x6	(2)-2x4 or (2)-2x6
12'-6" TO 16'-6"	(4)-2x4 or (3)-2x6	(3)-2x4 or (2)-2x6

FACE MOUNT HANGER SCHEDULE (UNO)

MEMBER	SIMPSON	USP
(1)-14" LVL	HU14	HD17112
(2)-14" LVL	HU416	HD412
(1)-2x8 or (1)-2x10	U28	SUH28
(2)-2x10	HU210-2 or HUC210-2	HD210-2 or HD210-21F

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GABRIEL ANDREWS
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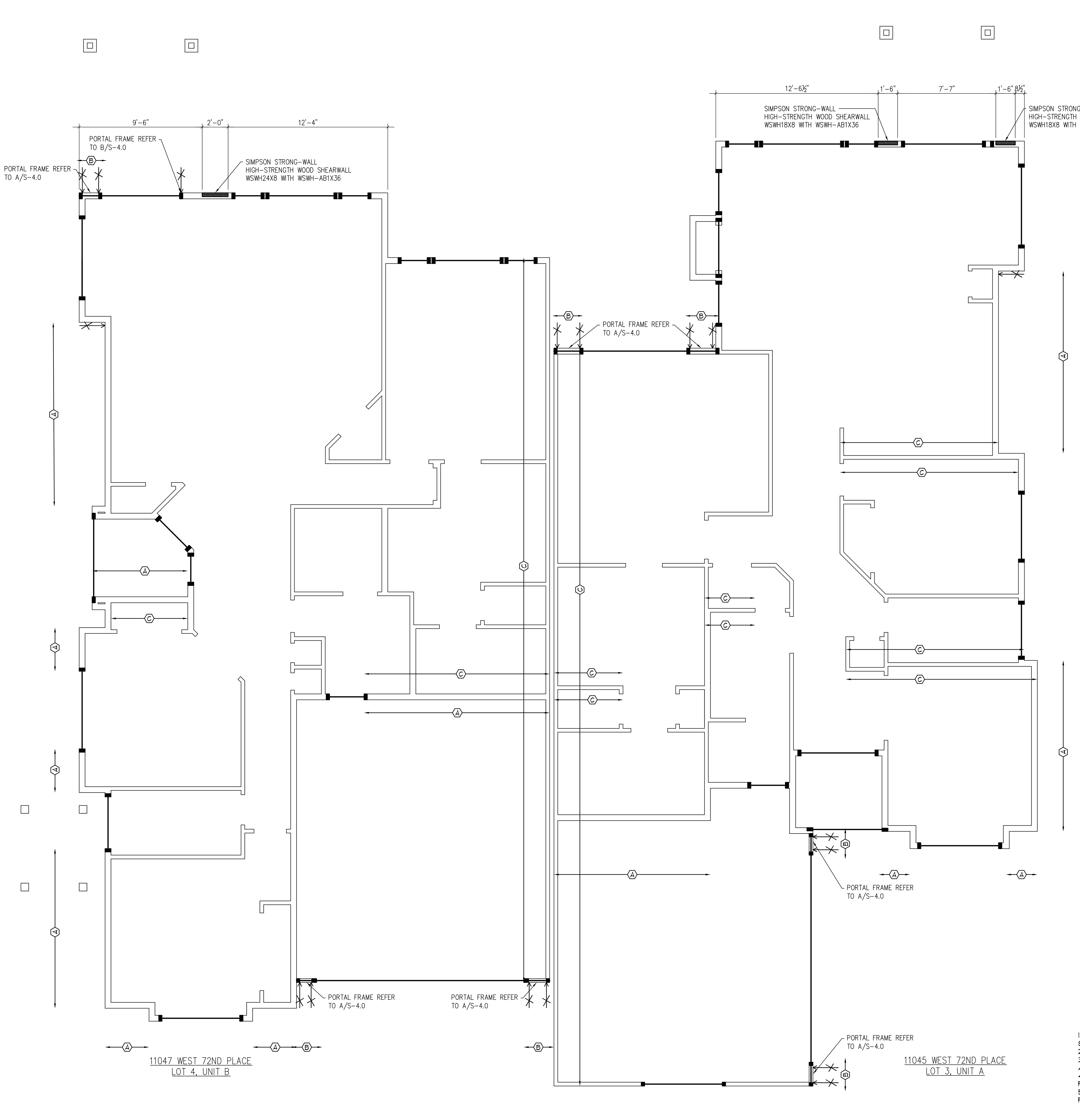
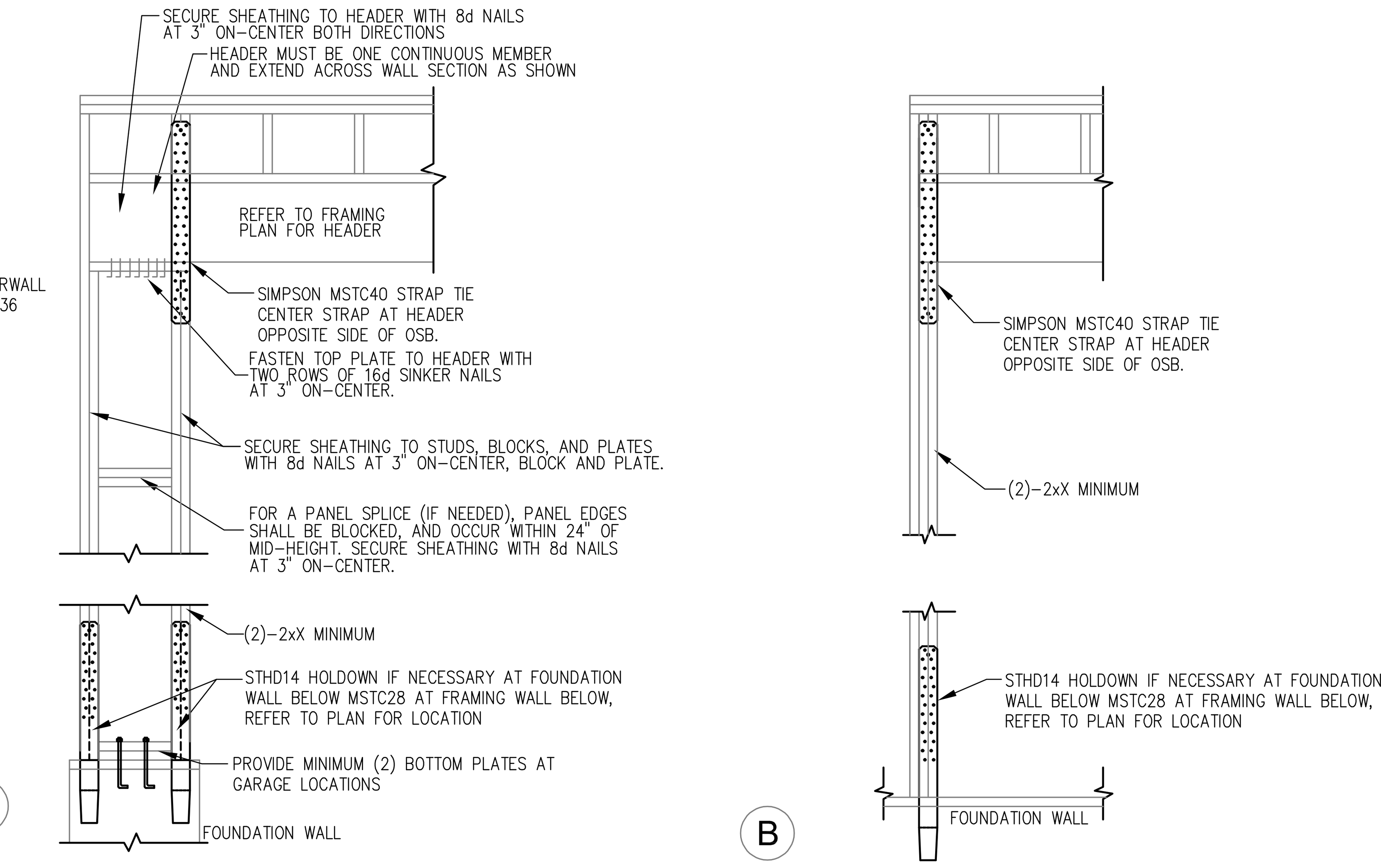


MAIN LEVEL WALL BRACING PLAN

¼" = 1'-0"



PORTAL FRAME DETAILS

N.T.S.

SHEAR WALL SCHEDULE					
⬡	SHEATHING	NAILS AT PANEL EDGES	NAILS AT INT. SUPPORTS	ANCHOR BOLTS OR NAILING	REMARKS
A	7/16" APA RATED SHEATHING	8d @ 6" O.C.	8d @ 12" O.C.	J-BOLT @ 3'-0" O.C. OR 16d @ 4" O.C.	WALLBOARD IS APPLIED ON ONE SIDE OF WALL AND BLOCKED
B	7/16" APA RATED SHEATHING	8d @ 3" O.C.	8d @ 12" O.C.	J-BOLT @ 3'-0" O.C. OR 16d @ 4" O.C.	WALLBOARD IS APPLIED ON ONE SIDE OF WALL AND BLOCKED
C	1/2" or 5/8" GYPSUM WALLBOARD REFER TO ARCHITECTURAL PLAN	5d @ 7" O.C.	5d @ 7" O.C.	J-BOLT @ 3'-0" O.C. OR 16d @ 4" O.C.	WALLBOARD IS APPLIED ON ONE SIDE OF WALL AND BLOCKED
D	1/2" or 5/8" GYPSUM WALLBOARD REFER TO ARCHITECTURAL PLAN	5d @ 4" O.C.	5d @ 7" O.C.	J-BOLT @ 3'-0" O.C. OR 16d @ 4" O.C.	WALLBOARD IS APPLIED ON ONE SIDE OF WALL AND BLOCKED

(⬡) -INDICATES SHEAR WALL TO BE CONSTRUCTED IN ACCORDANCE WITH SHEAR WALL SCHEDULE.

(✱) -INDICATES LOCATION OF SIMPSON STHD14 HOLDDOWN OR POST INSTALLED HTT5 TENSION TIE. INSTALL HOLDDOWN OR TENSION TIE IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS, SECURE TO (2)-2xX STUDS FULL HEIGHT OF FRAMING WALL.

(◆) -MSTC28 AT ALL FLOOR TO FLOOR SHEAR WALLS UNLESS NOTED OTHERWISE. INSTALL STRAP TIE IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS, SECURE TO (2)-2xX STUDS FULL HEIGHT OF FRAMING WALL.

1) EXTERIOR WALL SHEATHING TO BE 7/16" APA RATED SHEATHING WITH 8d NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS, U.N.O. WITH ⬡ AS SHOWN ON PLAN
2) PROVIDE ANCHOR BOLTS INTO FOUNDATION BELOW MAIN FLOOR SHEAR WALLS. APPLY NAILS BELOW UPPER FLOOR SHEAR WALLS
3) ALL INTERIOR WALLS SHALL HAVE 1/2" GYPSUM BOARD ON ONE FACE OF STUD. SECURE WITH 5d COOLER NAILS AT 7" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS.
4) AT SOFFIT/DROPPED CEILING ADJACENT TO STUD WALL GYPSUM BOARD SHALL BE INSTALLED CONTINUOUS FULL HEIGHT OF WALL PRIOR TO FRAMING SOFFIT/DROPPED CEILING.
5) PROVIDE FLOOR JOIST, RIM-BOARD, OR SOLID BLOCKING ABOVE AND BELOW ALL BRACE WALLS, BLOCKING MUST BE SAME HEIGHT AS FLOOR FRAMING.
   a. SECURE TO BRACE WALL TOP PLATE WITH 8d NAILS AT 6" O.C.
   b. SECURE TO BRACE WALL BOTTOM PLATE WITH 16d NAILS AT 6" O.C.

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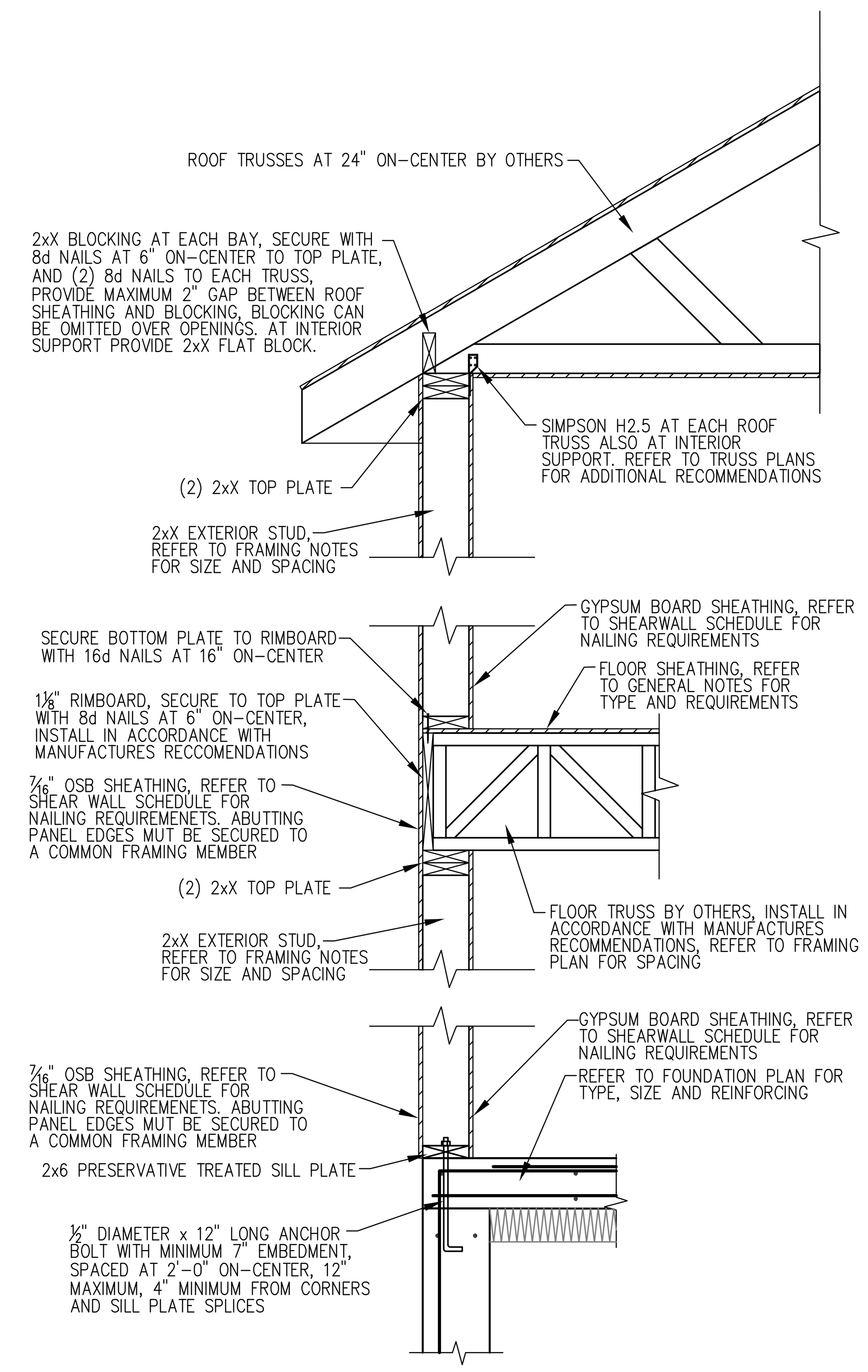
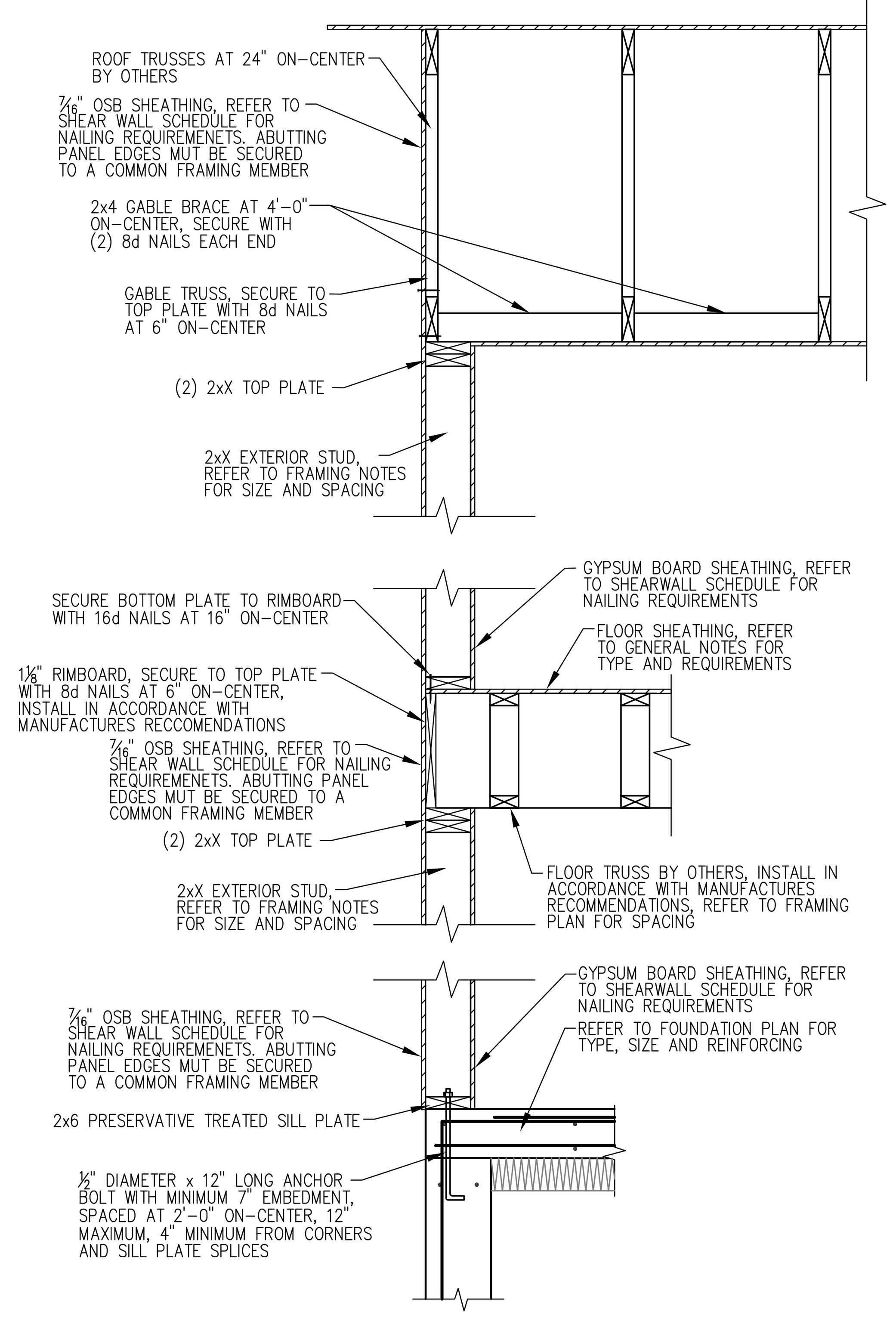
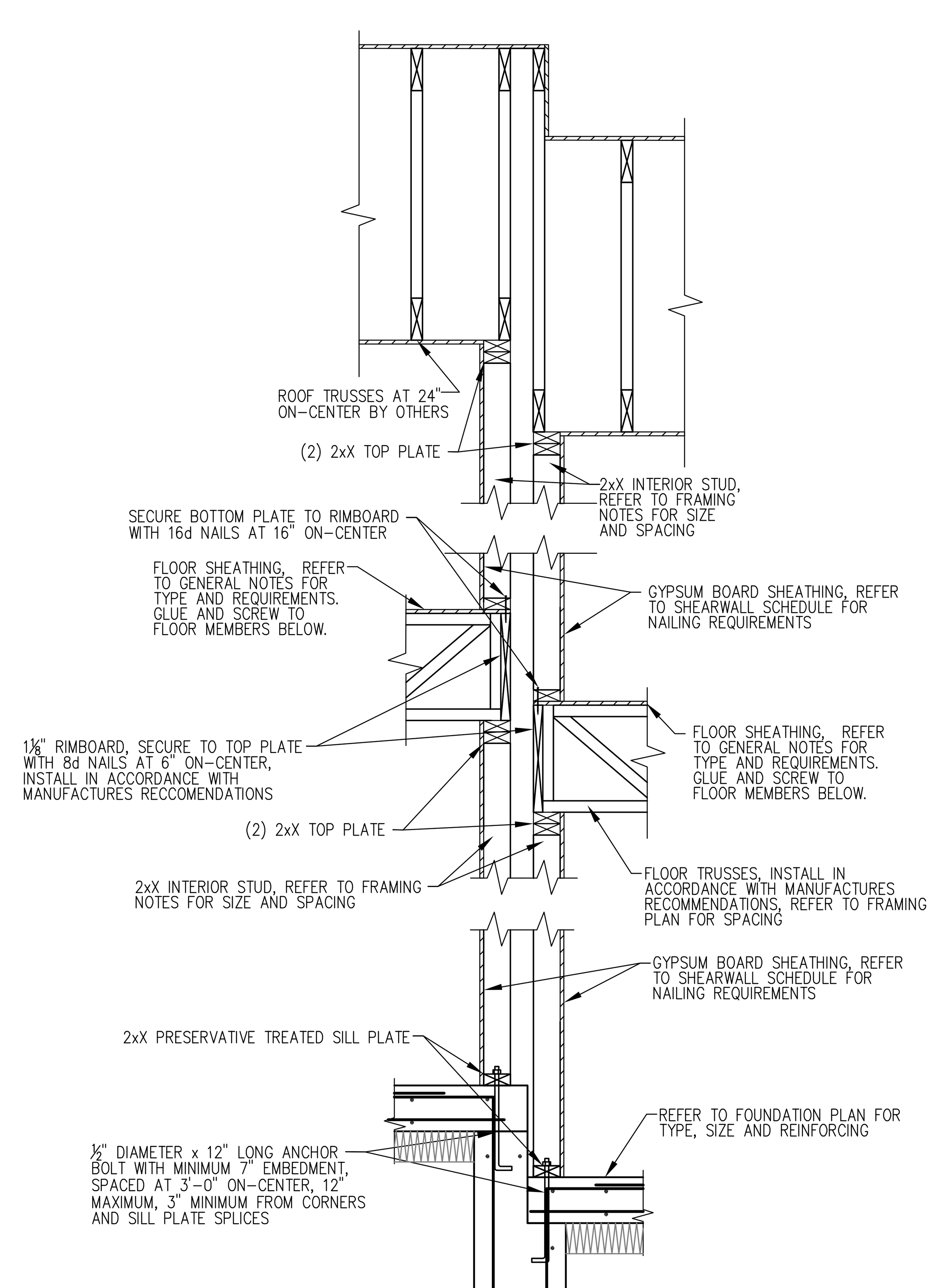
sheet	S-4.0



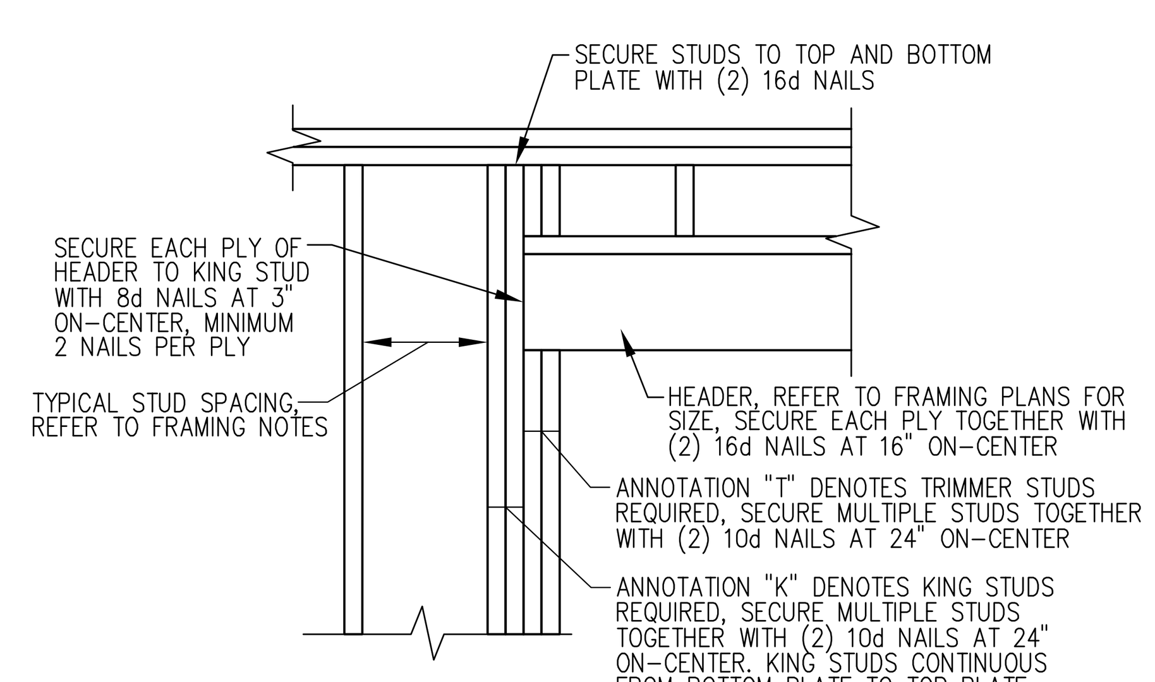
A — EXTERIOR WALL FRAMING PERPENDICULAR TO TRUSSES / FLOOR — 3/4" = 1'-0"



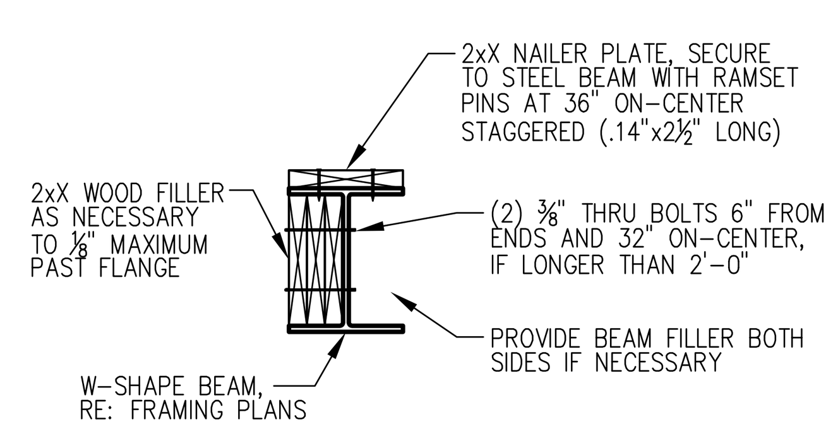
B — EXTERIOR WALL FRAMING PARALLEL TO TRUSSES / FLOOR — 3/4" = 1'-0"



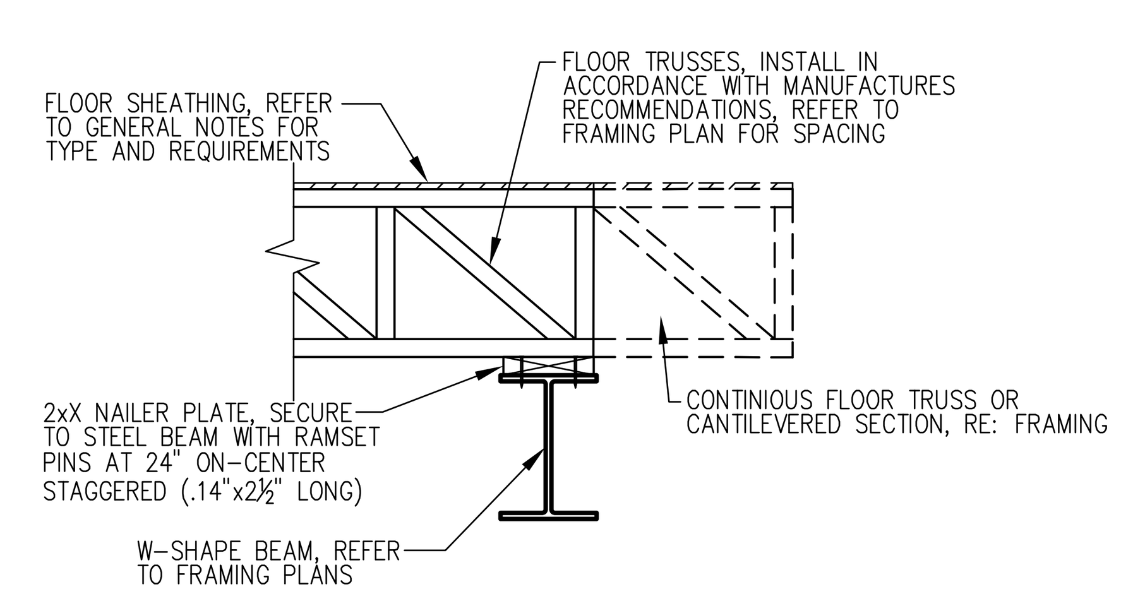
C — INTERIOR DEMISING WALL FRAMING — 3/4" = 1'-0"



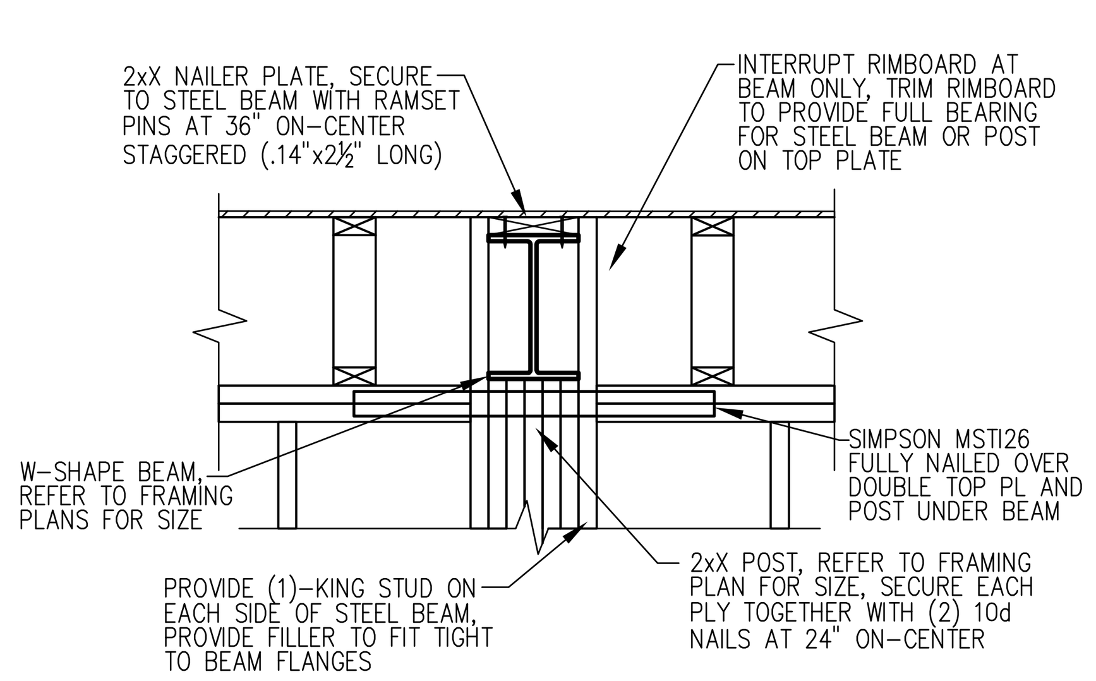
D — HEADER AT OPENING DETAIL — 3/4" = 1'-0"



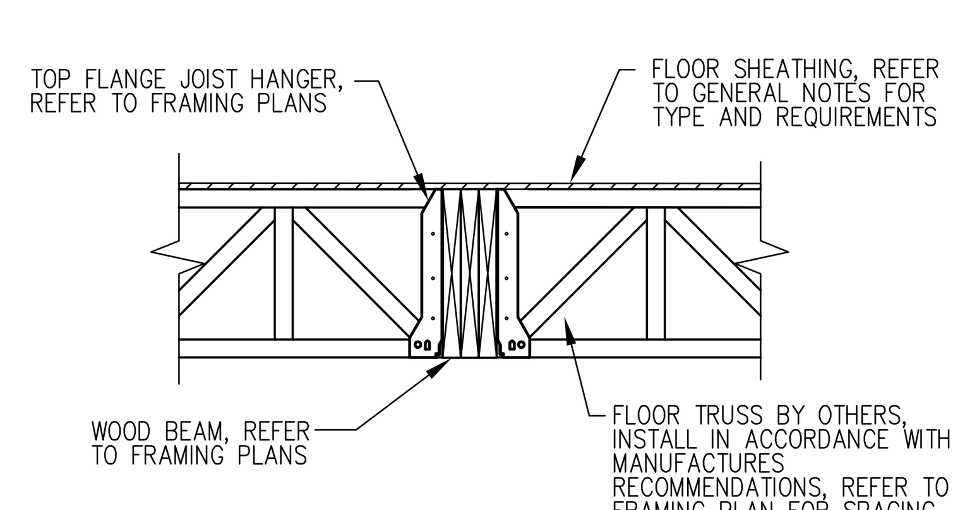
E — BEAM FILLER DETAIL — 3/4" = 1'-0"



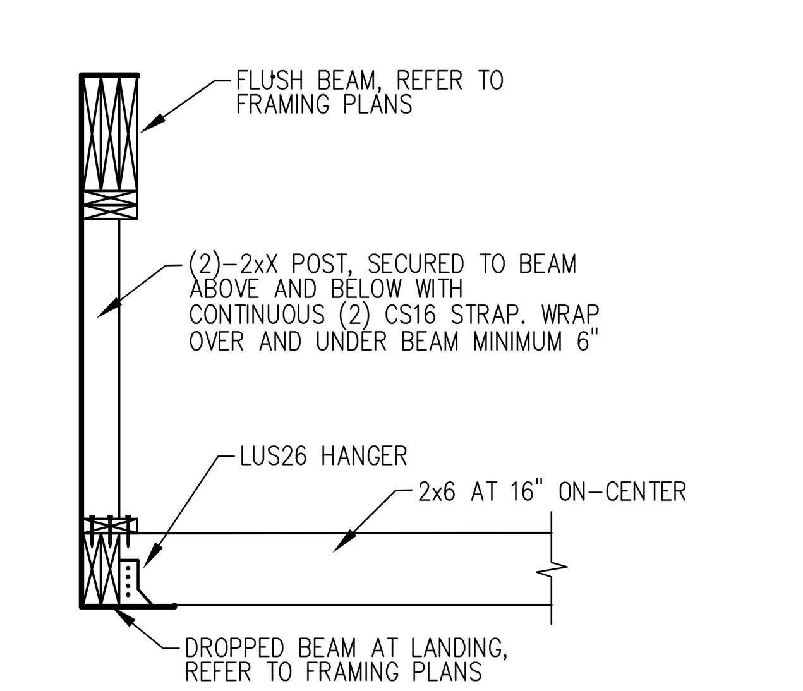
F — JOIST CONNECTION AT DROPPED STEEL BEAM (WITH CANTELIVER) — 3/4" = 1'-0"



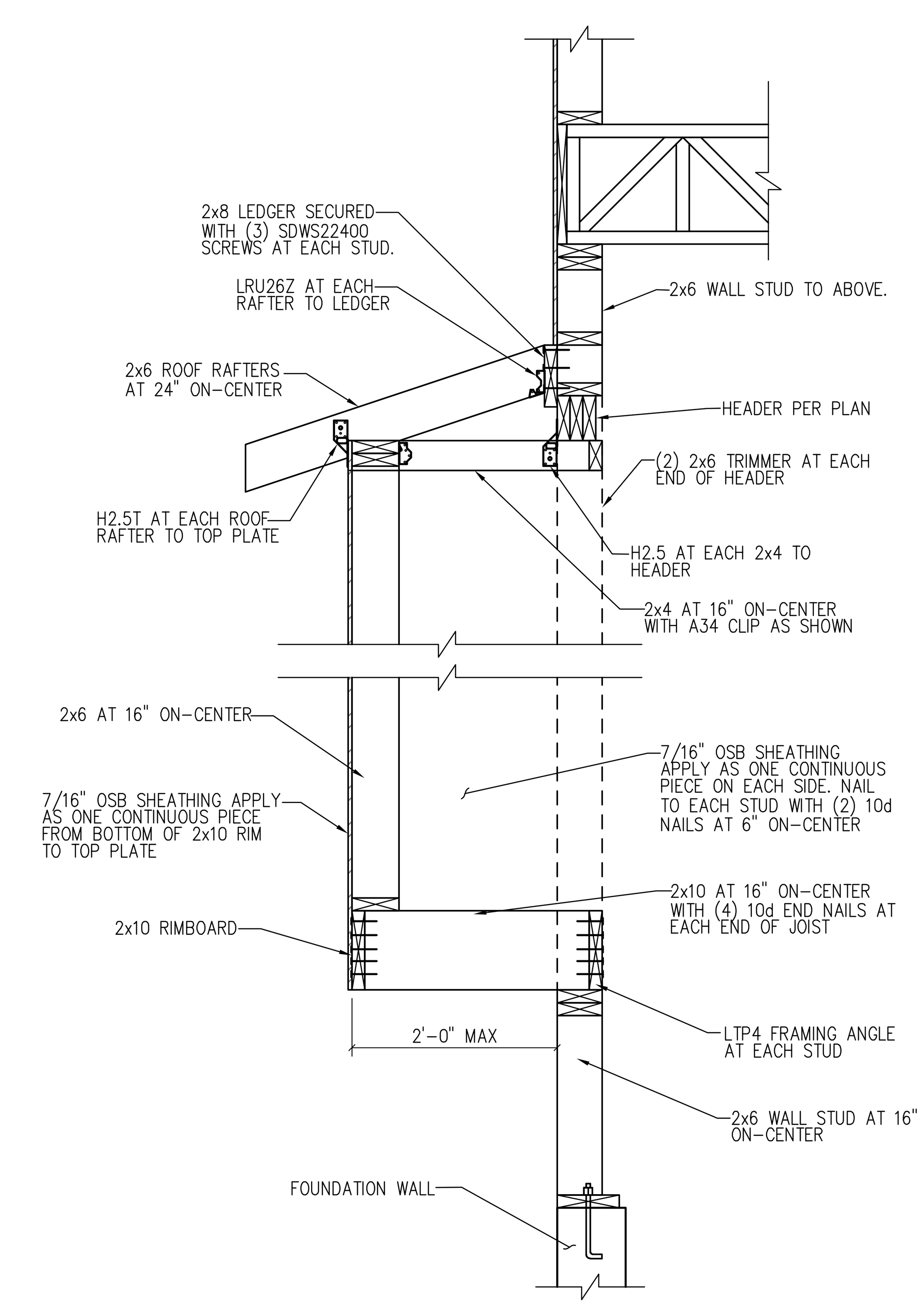
G — STEEL BEAM BEARING ON FRAME WALL — 3/4" = 1'-0"



H — JOIST CONNECTION AT FLUSH BEAM — 3/4" = 1'-0"



I — LANDING BEAM HANGER DETAIL — 3/4" = 1'-0"



J — POP-OUT WINDOW DETAIL — 3/4" = 1'-0"

GENERAL STRUCTURAL NOTES

1. FOUNDATION AND FRAMING PLANS PREPARED WITH ARCHITECTURAL PLANS PROVIDED BY **M-A ARCHITECTS**, FOR **SUNRISE VILLAGE DUPLEXES**, DATED **FEBRUARY 2, 2021**.
2. DETAILS IN THE PLANS ARE INTENDED TO SHOW GENERAL REQUIREMENTS THROUGHOUT THE STRUCTURE. ANY ITEMS NOT COVERED IN THE PLAN OR DETAILS SHALL BE COMPLETED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE.
3. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, SPECIFICATIONS AND CODE, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. THE GENERAL CONTRACTOR SHALL VERIFY THE DIMENSIONS AND SITE CONDITIONS PRIOR TO STARTING WORK. THE ARCHITECT/STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
4. THE CONTRACTOR SHALL COORDINATE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL WORKS WITH THE STRUCTURAL CONTRACT DOCUMENTS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
5. REFER TO THE ARCHITECTURAL DOCUMENTS FOR ALL DIMENSIONS NOT SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS. DO NOT SCALE THE STRUCTURAL CONTRACT DOCUMENTS.
6. FIELD ALTERATIONS TO ANY STRUCTURAL MEMBER SHALL NOT BE EXECUTED WITHOUT APPROVAL FROM THE ENGINEER.
7. ENGINEER'S APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS.
8. THE STRUCTURAL ENGINEER SHALL NOT HAVE CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES.
9. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION MEANS AND/OR SEQUENCING. THE DESIGN AND INSTALLATION OF ANY REQUIRED TEMPORARY BRACING SHALL BE BY THE CONTRACTOR

DESIGN PARAMETERS

1. ALL REFERENCES TO CODES, STANDARDS, AND SPECIFICATIONS SHALL MEAN THE LATEST VERSION OF THE REFERENCED MATERIAL PUBLISHED AT THE DATE OF THE CONSTRUCTION DOCUMENTS.
2. DESIGN CODES
   - 2.1. ICC – INTERNATIONAL RESIDENTIAL CODE 2018 (IRC)
   - 2.2. 2018 CITY CODE REVISIONS FOR ARVADA
   - 2.3. ACI 318 – BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE
   - 2.4. AWC – NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION
   - 2.5. AISC – STEEL CONSTRUCTION MANUAL
3. FLOOR LOADS LIVE = **40** PSF DEAD = **15** PSF
4. ROOF LOADS LIVE = **30** PSF DEAD = **20** PSF (5 PSF SOLAR)
5. DECK LOADS LIVE = **40** PSF DEAD = **10** PSF
6. GROUND SNOW LOAD = **30** PSF ROOF SNOW LOAD = **30** PSF
7. WIND LOADS **136** MPH ULTIMATE WIND SPEED EXPOSURE **C**
8. SEISMIC DESIGN CATEGORY **B**
9. LATERAL EARTH PRESSURE = **60** PCF

WOOD

1. ALL WOOD FOR STRUCTURAL FRAMING SHALL BE HEM-FIR VISUALLY GRADED PER "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" BY THE AMERICAN WOOD COUNCIL.
   - 1.1. ALL DIMENSIONAL LUMBER SHALL BE S4S USED AT MOISTURE CONTENT = 19% MAXIMUM.
   - 1.2. WOOD STUDS:
     - 1.2.1. 2" TO 4" THICK, 4" WIDE: HEM-FIR NO. 2 OR BETTER
     - 1.2.2. 2" TO 4" THICK, 6" AND WIDER: HEM-FIR NO. 2 OR BETTER
   - 1.3. WOOD JOISTS AND BEAMS:
     - 1.3.1. 2" TO 4" THICK, 6" AND WIDER: HEM-FIR NO. 2 OR BETTER
   - 1.4. POSTS AND TIMBERS: HEM-FIR NO. 1 OR BETTER
   - 1.5. STAIR STRINGERS: HEM-FIR NO. 1 OR BETTER
2. DO NOT USE FINGER JOINTED MATERIAL
3. WOOD CONNECTORS CALLED FOR ON THE DRAWINGS ARE AS MANUFACTURED BY SIMPSON STRONG TIE. CONNECTORS BY OTHER MANUFACTURERS MAY BE USED IF THE LOAD CAPACITY IS EQUAL TO OR GREATER THAN THE CONNECTOR SPECIFIED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. FASTEN ALL WOOD MEMBERS WITH COMMON NAILS ACCORDING TO THE IRC SCHEDULE UNLESS OTHERWISE NOTED. ALL FASTENERS IN CONTACT PRESSURE TREATED WOOD MEMBERS SHALL BE TREATED FOR CONTACT WITH PRESSURE TREATED WOOD.
5. FLOOR JOIST SHALL BE TJI-210, BCI 6000 1.8 OR EQUIVALENT FLOOR TRUSSES. INSTALLATION AND CONNECTIONS SHALL BE AS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE RIMBOARD MATCHING HEIGHT OF FLOOR JOISTS AT ENTIRE PERIMETER OF FLOOR UNLESS NOTED OTHERWISE.
6. PRE-ENGINEERED FLOOR TRUSSES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO. PROVIDE SHOP DRAWINGS LOCATING ALL TRUSSES, DESIGN CALCULATIONS, CONNECTION PLATE SIZES AND CAPACITIES, AND SIZE AND GRADES OF ALL LUMBER USED. THE TRUSS MANUFACTURER SHALL PROVIDE ALL BLOCKING PANELS, BRIDGING, AND HARDWARE REQUIRED FOR THE COMPLETE INSTALLATION OF THE FLOOR SYSTEM.TRUSSES SHALL BE SHIPPED, STORED AND ERECTED IN A VERTICAL ALIGNMENT.
7. FLOOR SHEATHING SHALL BE 23/32" APA RATED STURD-1-FLOOR O.S.B. WITH SPAN RATING OF 24" ON-CENTER, EXPOSURE 1, T&G. SECURE O.S.B. WITH 2 1/2" WOOD SUBFLOOR SCREWS THE APPROVED EQUAL OR BETTER THAN 8d COMMON NAILS, AT 6" ON-CENTER AT PANEL EDGES AND 12" ON-CENTER AT INTERMEDIATE SUPPORTS. APPLY WOOD GLUE NO FARTHER AHEAD THAN WILL BE IMMEDIATELY NAILED. INSTALL TruFloor SUBFLOORING MANUFACTURED BY NORBORD AT CLIENTS REQUEST.
8. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING 32/16 EXPOSURE 1. SECURE WITH 8d COMMON NAILS AT 6" ON-CENTER AT ALL PANEL EDGES & 12" ON-CENTER AT ALL INTERMEDIATE SUPPORTS, EXCEPT WITHIN 4'-0" OF ROOF EDGE AND RIDGE SECURE AT 6" ON-CENTER AT ALL PANEL EDGES AND ALL INTERMEDIATE SUPPORTS.. PROVIDE PSCL SHEATHING CLIPS AT 2'-0" ON-CENTER BETWEEN SUPPORTS.
9. EXTERIOR SHEATHING SHALL BE 7/16" APA RATED SHEATING WITH A SPAN RATING OF 24/16 EXPOSURE 1. SECURE SHEATHING WITH 8d COMMONS AT 6" ON-CENTER FOR EDGES AND 12" ON-CENTER INTERMEDIATE STUDS. REFER TO THE SHEARWALL SCHEDULE FOR ADDITIONAL WALL SHEATHING REQUIREMENTS.
10. ALL WOOD EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE SHALL BE PRESSURE PRESERVATIVE TREATED OR EXTERIOR GRADE.
11. LVL SHALL BE MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL AND HAVE THE MINIMUM FOLLOWING PROPERTIES:

Fb	Fv	E
2600 PSI	**285** PSI	**2,000,000** PSI

12. PRE-ENGINEERED ROOF TRUSSES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO. PROVIDE SHOP DRAWINGS LOCATING ALL TRUSSES, DESIGN CALCULATIONS, CONNECTION PLATE SIZES AND CAPACITIES, AND SIZE AND GRADES OF ALL LUMBER USED. THE TRUSS MANUFACTURER SHALL PROVIDE ALL BLOCKING PANELS, BRIDGING, AND HARDWARE REQUIRED FOR THE COMPLETE INSTALLATION OF THE ROOF SYSTEM. TRUSSES SHALL BE SHIPPED, STORED AND ERECTED IN A VERTICAL ALIGNMENT IN ACCORDANCE WITH MANUFACTURES RECCOMMENDATIONS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL MEMBERS SHALL CONFORM TO THE FOLLOWING MINIMUM YIELD STRENGTH AND ASTM SPECIFICATIONS:

1.1. WIDE FLANGE SHAPED STRUCTURAL STEEL	**50** KSI	A-572 OR A-992
1.2. STRUCTURAL STEEL CHANNELS AND ANGLES	**36** KSI	A36
1.3. STRUCTURAL STEEL PLATES AND BARS	**36** KSI	A36
1.4. SQUARE AND RECTANGULAR HHS	**46** KSI	A-500 GRADE B
1.5. ROUND PIPE (STANDARD)	**36** KSI	A36
1.6. ANCHOR RODS	**36** KSI	

2. STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (A.I.S.C.) SPECIFICATIONS AND CODE OF STANDARD PRACTICE INCLUDING HOT WORK SAFETY POLICY.
3. 3" DIAMETER-11GA. ADJUSTABLE PIPE COLUMNS SHALL BE RATED AT 14.7 KIPS MINIMUM.
4. 3" DIAMETER-SCHEDULE 40 ADJUSTABLE PIPE COLUMNS SHALL BE RATED AT 33.4 KIPS MINIMUM.
5. BOLTS FOR STEEL TO STEEL STRUCTURAL CONNECTIONS SHALL BE 3/4" DIAMETER ASTM A325.
6. ALL BOLTS SHALL CONFORM TO ASTM A325, EXCEPT ANCHOR BOLTS, WHICH SHALL CONFORM TO ASTM A307, UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.
7. ALL WELDS SHALL BE MADE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY CODE D1.1, LATEST EDITION. MINIMUM WELDS SHALL BE PER AS REQUIRED PER AISC, BUT NOT LESS THAN 3/16" FILLET.
8. WELDERS SHALL HAVE IN POSSESSION CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS.
9. THE FABRICATOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ADEQUACY OF ALL CONNECTIONS THAT ARE NOT DESIGNED OR FULLY DETAILED ON THE CONTRACT DOCUMENTS.
10. DO NO CUTTING, DRILLING, OR MODIFYING OF STRUCTURAL MEMBERS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
11. FABRICATOR SHALL PREPARE SHOP DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. ALL STEEL COLUMNS, PLATES, ANGLES, BEAMS, BOLTS, AND WELDS SHALL BE PRIMED WITH RUST INHIBITING PRIMER.

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SUNRISE VILLAGE DUPLEXES, LLC

SUNRISE VILLAGE DUPLEXES
BUILDING 2, TYPE 1
FRAMING DETAILS
11047 AND 11045 WEST 72ND PLACE
LOT 4 AND 3
ARVADA, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER GABRIEL ANDREWS 39278
6/14/2021

proj. no.	SVDB2
date	4/23/2021
design / drawn	GJA/SA
check by	GJA
sheet	S-5.0