GENERAL NOTES - STRUCTURAL

1. General Information

A. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.
B. The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on architectural, mechanical, or electrical drawings. In the case of work in an existing building the contractor shall scan existing structure to locate all rebar in the area of the new core/opening using ground penetrating radar and notify the engineer of record for review prior to coring/cutting. Conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the architect or engineer's attention for direction before proceeding.
C. All design and construction work for this project shall conform to the requirements of the following governing design codes:
1. International Residential Code (IRC 2018) and referenced standards as amended by the city of Lenexa, Kansas.
2. Minimum Design Loads for Buildings and Other Structures (ASCE7-16)
3. Specification for Structural Steel Buildings (AISC 360-16)
Member Design Basis is Allowable Stress Design (ASD)
Connection Design Basis is Allowable Stress Design (ASD)
4. Structural Welding Code (AWS D1.4/D1.4M - 2017)
5. Building Code Requirements for Structural Concrete (ACI 318-14)
6. Building Code Requirements for Masonry Structures (TMS 402-16)
7. North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100-16)
8. National Design Specification (NDS) for Wood Construction with 2018 Supplements (ANSI/AWC NDS-2018)
9. Special Design Provisions for Wind and Seismic (AWC SDPWS-2015)
D. These drawings are for this specific project and no other use is authorized.

2. Structural Load Design Criteria

A. Live Loads
a. Roofs = 25 psf
b. Floors = 40 psf
c. Balconies = 60 psf
d. *An allowance of 15psf has been made for partitions as a uniformly distributed live load where the live load stated above is 80psf or less
B. Roof Live = 20 psf
C. Snow: Pg = 20psf, Pf =14psf, Is = 1.0, Ce = 1.0, Ct = 1.0, Drift per ASCE/SEI 7
D. Rain: 15-Minute Rainfall Intensity = 7.62 in./h
60-minute Rainfall Intensity = 3.60 in./h
A. Lateral Loads:
1. Wind:
- V = 110 mph, Exposure C
- Occupancy [Risk] Category II, Iw=1.0 GCpi=+/-0.18
- Design wind pressures to be used for the design of exterior component and cladding materials on the designated zones of wall and roof surfaces shall be per section 30.7 and Table 30.7-2 of ASCE/SEI 7. Tabulated pressures shall be multiplied by effective area reduction factors, exposure adjustment factors, and topographic factors where applicable

2. Seismic:
- Ss = 0.095, S1 = 0.069
- Occupancy [Risk] Category II, Ie=1.0,
- Site Classification D; Sds = 0.101; Sd1 =0.110
- Seismic Design Category B
- Basic Seismic Force-resisting System:Light-Framed Walls with shear panels of all other materials
- Equivalent Lateral Force Procedure
- R = 2.0; V = 0.051*W; Omega = 2.5; Cd=2.0

B. This project is designed to resist the most critical effects resulting from the load combinations of section 1605.3 of the International Building Code.

3. Concrete

A. All concrete for foundations (walls, grade beams, footings and piers) shall develop minimum ultimate compressive design strength of 3500 psi in 28 days, but not less than 500 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 6 gallons of water per 100 pounds of cement, with 6% +/-1% air entrainment, and not over 4 inches of slump.
B. All concrete for interior flatwork shall develop minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 540 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5.40 gallons of water per 100 pounds of cement and not over 4 inches of slump. Concrete mix shop drawing shall contain testing data proving concrete design mix shrinkage is less than 0.034% at 28 days when tested according to ASTM C157 (air drying method only).
C. All concrete for exterior flatwork shall have a minimum design compressive strength of 4500 psi in 28 days, with not less than 560 pounds of cement per cubic yard of concrete, not over 5 gallons of water per 100 pounds of cement, with 6% +/- 1% air entrainment, and a maximum of 4 inches of slump.
D. The preceding minimum mix requirements may have water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates for improved workability.
E. The preceding minimum mix requirements may have up to 15% maximum of the cement content replaced with an approved ASTM C618 Class C fly ash, provided the total minimum cementitious content is not reduced.
F. Combined aggregate (coarse plus fine) for all concrete shall be well graded from coarsest to finest with no more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 and finer sieves. Submit this gradation report with the concrete mix design shop drawings.
G. All interior concrete slabs on grade shall be placed over 15 mil, Class A Vapor Barrier per ASTM E1745 with less than 0.01 perms, tested after mandatory conditioning. All joints shall be lapped and sealed per manufacturer's recommendations. All penetrations, as well as damaged vapor barrier material shall also be sealed per manufacturer's recommendation prior to concrete placement. Install barrier per manufacturer recommended details at all discontinuous edges (at interior columns, exterior edge of slab, etc.) to ensure terms of warranty are followed. The vapor barrier shall be placed over free-draining granular material as prescribed by the project soils report.
H. Basement foundation walls shall be braced at the base and top of wall by the contractor until the slab on grade at the base and the floor framing/slab at the top of wall is complete and the concrete has achieved 75% of the design strength. The contractor is responsible for engineering and design of the wall bracing, if required.
I. All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
J. Control joints in dirt formed slab to be as shown on plans. Where not shown, limit controlled areas to not more than 144 square feet, or 12 feet on any side. Slab panel side ratio shall not exceed 1 1/2 to 1.
K. Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement.
L. Construction joints in beams, slabs, and grade beams shall occur at midspan (middle third) unless noted otherwise. Provide 2 x 4 horizontal keys at construction joints for shear transfer.
M. No aluminum items shall be embedded in any concrete.

4. Reinforcing Steel

A. All reinforcing steel shall conform to the requirements of ASTM A615 or A706 grade 60 steel. Welded plain wire fabric shall be supplied in sheets and conform to the requirements of ASTM A185.
B. Clear coverage of concrete over reinforcing steel shall be as follows:
1. Concrete placed against earth: 3"
2. Formed concrete against earth: 2"
3. Slabs: 1"
4. Beams or Columns: 1-1/2"
5. Other 2"
All coverage shall be nominal bar diameter minimum.
C. All dowels shall be the same size and spacing as adjoining main bars (splice lap 48 bar diameters or 24" minimum unless noted otherwise).
D. At corners of all walls, beams, and grade beams supply corner bars (minimum 2'-0" in each direction or 48 bar diameters) in outside face of wall, matching size and spacing of horizontal bars. Where there are no vertical bars in outside face of wall, supply 3 - #4 vertical support bars for corner bars.
E. Bars marked continuous and all vertical steel shall be lapped 48 bar diameters (2'-0" minimum) at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted otherwise.
F. At all holes in concrete walls and slabs, add 2 - #5 bars (opening dimension plus 96 diameters long) at each of four sides and add 2 - #5 x 5'-0" diagonally at each of four corners of hole. Openings in 8" thick walls are reinforced similar, but with 1 - #5 instead of 2 - #5, respectively.
G. Unless otherwise covered on architectural plans or specifications, vertical control joints in concrete wall shall be spaced at a maximum of 20'-0" on center and coordinated with the architect. Every other horizontal wall reinforcing bar shall be discontinuous at control joints except heavy top and bottom bars unless noted otherwise. Provide base seal waterstop style number 772 (by Greenstreak Inc. or approved equal) on dirt face side of wall at all walls below grade.
H. Accessories shall be as specified in latest edition of the ACI Detailing Handbook and the concrete Reinforcing Steel Institute Design Handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces are to have plastic coated feet.
I. All slabs and stairs not shown otherwise shall be 6" thick with #4 bars at 12" on center each way. All exterior porches and stoops not otherwise detailed may be constructed in any standard manner, solid or hollow, but must be reinforced with #4 bars at 12" on center each way minimum. Porches shall be doweled to adjacent walls or grade beams with #4 bars at 12" on center, hooked or embedded 48 diameters into both members. Slope porches 1/8" per foot for drainage unless noted otherwise.
J. Allow 2.0 ton of reinforcing bars #4 or larger to be used as directed in the field for special conditions by the engineer of record (labor for placing same to be included).

5. Structural Steel

A. All structural steel beams and columns shall be ASTM A992, grade 50 steel and all miscellaneous steel shall be ASTM A36 grade steel (except at moment connections where plates shall be ASTM A572, grade 50). Hollow Structural Sections (HSS) shall be ASTM A500, grade C. Fabrication and erection shall be in accordance with AISC 303 "Code of Standard Practice for Steel Buildings and Bridges" in the referenced edition of the AISC Steel Construction Manual.
B. All welding shall conform to the recommendations of the AWS.
C. All exterior steel and connections, and brick relief angles shall be hot-dip galvanized.
D. All bolts not otherwise specified shall be 3/4" diameter high strength (ASTM A325-N). All bolts shall be fully pretensioned. All beam connections shall be designed per the AISC Manual of Steel Construction "Framed Beam Connections" for the indicated reactions or at least 0.4 x beam total shear capacity, Vn/Omega, shown in the maximum total uniform load tables, whichever is greater; and, shall account for eccentricity when the bolt line is more than 2" from the center of the support. All connections must be two bolt minimum. Additional connection elements may not be specifically shown in the conceptual details in this set but may be required by the final connection design, such as stiffener plates, doubler plates, supplement/reinforcing plates or other connection material. Connection design and shop drawing preparation shall be completed under the direct supervision of a professional engineer licensed in the state the project is located and shop drawings and connection calculations shall bear his/her seal.
E. All anchor bolts shall be 3/4" diameter, ASTM F1554, Grade 36 unless noted otherwise. Plate washers of minimum size and thickness for the given anchor diameter in Table 14-2 of the AISC Steel Construction Manual shall be provided at every column anchor bolt. Plate washers shall have a standard size hole for the anchor bolt. At braced frames, plate washers shall be welded all around to the column base plate with 3/16" fillet weld.
F. Loose lintels for support of masonry veneer over all openings up to 8'-0" wide in new and existing masonry walls not otherwise noted shall be one L 6x3 1/2x5/16 (LLV) with 8" bearing at each end. All exterior lintels shall be hot-dip galvanized.

6. Post-installed Anchors

A. Post-installed anchors shall be used only where specified on the drawings unless approved in writing by the engineer of record. See drawings for anchor diameter, spacing and embedment. Performance values of the anchors shall be obtained for specified products using appropriate design procedures and/or standards as required by the governing building code. Anchors installed in concrete shall have an ICC-ES Evaluation Service Report. Special inspection is required for all post installed anchors. The contractor shall coordinate an on-site meeting with the post installed anchor manufacturer field representative to educate the construction team on the anchor installation guidelines and requirements.
B. Mechanical anchors used in cracked and uncracked concrete shall have been tested and qualified for use in accordance with ACI 355.2 and ICC-ES AC193. All anchors shall be installed per the anchor manufacturer's written instructions.
C. Adhesive anchors used in cracked and uncracked concrete shall have been tested and qualified for use in accordance with ICC-ES AC308. All anchors shall be installed per the anchor manufacturer's written instructions.
D. Mechanical anchors used in solid grouted masonry shall have been tested and qualified for use in accordance with ICC-ES AC01. All anchors shall be installed per the anchor manufacturer's written instructions.
E. Adhesive anchors used in solid grouted masonry shall have been tested and qualified for use in accordance with ICC-ES AC58. All anchors shall be installed per the anchor manufacturer's written instructions.
F. Anchors used in hollow concrete masonry shall have been tested and qualified in accordance with ICC-ES AC106 or ICC-ES AC58 as appropriate. All anchors shall be installed per the anchor manufacturer's written instructions with appropriate screen tubes used for adhesives.

7. Foundations

A. The soil investigation was prepared by Kansas City Testing & Engineering (KCTE). The report number is G-15-175.
B. Spread footings, grade beams, and retaining walls are designed to bear on engineered fill or undisturbed soil capable of safely sustaining 2,500 psf.
C. Retaining walls are designed for an active lateral load of 45 pcf equivalent fluid pressure.
D. Basement walls are designed for an at rest lateral load of 60 pcf equivalent fluid pressure. See General Note 3.H for wall bracing requirements.
E. Contractor shall provide for dewatering at excavations from either surface water or seepage.
F. All foundation excavations shall be inspected by a qualified soil engineer, approved by the architect and/or structural engineer, prior to placement of steel or concrete. This inspection shall be at the owner's expense.
G. All concrete in the structural portion retaining the backfill shall have attained its design strength prior to being backfilled.
H. Moisture content in soils beneath building locations should not be allowed to change after footing excavations and after grading for slabs on grade are completed. If subgrade materials become desiccated or softened by water or other conditions, recompact materials to the density and water content specified for engineered fill. Do not place concrete on frozen ground.

8. Concrete Masonry Units

A. Concrete block used in exterior walls or load bearing walls shall meet the requirements of ASTM C90 and have a minimum net compressive strength of 2650 psi and laid up using type N mortar such that f'm equals 2000 psi. Mortar shall be volume proportion based cement lime mortar. Proportioning shall be completed by box measure. Any block in contact with earth shall be normal weight units, laid using type "S" mortar and grouted solid.
B. The contractor shall provide adequate temporary bracing for all masonry walls during construction.
C. All concrete block shall have 9 gage (or larger) horizontal joint reinforcing (ladder or truss) per architectural drawings and specifications (16" maximum vertical spacing).
D. Cavity wall construction shall be reinforced as designed for specific concrete block used. The horizontal joint reinforcing shall be of the ladder or truss style per specification and continuous between brick and block, as prescribed by the architectural drawings.
E. Concrete block shall be reinforced per schedule and/or details on the drawings. Where not otherwise noted, non-load-bearing interior partition walls shall be reinforced as follows in 6", 8", 10", and 12" walls:
1. Vertical reinforcing shall be a minimum of 1 - #4 bar in 6" and 8" walls and 2 - #4 bars in 10" and 12" walls at 4'-0" on center, at each corner, at each door and window jamb, each side of control joints and in the end void of each length of wall. Lap splices for masonry vertical reinforcing shall be 48 bar diameters, 24" minimum.
2. Horizontal reinforcing:
A. Horizontal joint reinforcing as noted above.
B. Continuous horizontal bars shall be included per section or detail in bond beam or optional running bond beam where noted. Where bond beams are continuous at corners of walls, supply corner bars matching size of horizontal bars (minimum 2'-0" or 40 bar diameters in each direction).
F. Grout, where noted above, shall have a minimum design ultimate compressive strength of 2500 psi at 28 day test and 3/8" maximum aggregate size.
G. Non-load bearing concrete block walls shall be isolated from adjacent structural elements with vertical 3/8" control joints and at the top of the wall with 1" air space or compressible material and support per architectural detail.
H. Unless otherwise covered on architectural plans or specifications, vertical control joints in masonry construction shall be 3/8" wide, full height of wall. Joints shall be spaced at a maximum of 24'-0" on center and coordinated with the architect. All horizontal joint reinforcing shall be discontinuous at control joints in masonry. All bond beam horizontal reinforcing shall be continuous through control joints.
I. Lintels over all openings up to 8'-0" wide in new and existing masonry walls not otherwise noted shall be one L 6x3 1/2x5/16 (LLV) for each 4" width of masonry. All exterior lintels shall be galvanized.
J. Walls shall be anchored top and bottom by dowels matching wall vertical reinforcing(unless noted otherwise) from floor slab bottom and bracing angles at the top, per details on the drawings.

9. Timber and Wood Framing

A. Quality and construction of wood framing members and their fasteners for load supporting purposes not otherwise indicated on the drawings shall be in accordance with the International Building Code.
B. All studs and top and bottom plates shall be Douglas Fir No. 2 grade visually graded lumber, with an allowable fiber stress in bending of 900 psi minimum and an elastic modulus of 1,600,000psi unless noted otherwise. All joist, truss members, and headers to be No. grade 2 (min.) unless noted otherwise. All lumber for exterior decks and balconies shall be treated Southern Yellow Pine No. 2 grade.
C. Blocking of stud bearing walls and shear walls shall be solid, matching sheathing joints.
D. Joist blocking and bridging shall be solid wood or cross bridging of either wood or metal straps. Spacing, in any case, shall not exceed 8'-0".
E. Wood members and sheathing shall be fastened with number and size of fasteners not less than that set forth in Table 2304.9.1 of the International Building Code. Floor sheathing shall be APA rated tongue and groove Sturd-I-Floor, exposure 1, glued and nailed with 8d ring shank nails or # 10 screws at 12" on center to all supports. Sheathing of shear walls or roof diaphragms shall be edge nailed with 8d common nails at 6" on center and nailed to intermediate framing and/or blocking members with 8d common nails at 12" on center unless otherwise noted on the drawings. All floor sheathing shall be installed with 1/8 inch gaps between panel edges and end joints.
F. Sill plates shall be bolted to concrete walls or steel beams with 1/2" diameter bolts at 32" on center. Sill plates in direct contact with concrete or masonry shall be treated lumber w/ hot-dip galvanized bolts.
G. Joist hangers shall have International Building Code approval and shall be equal to Simpson Strong-Tie "LUS" for wood application and "LB" for steel weld-on application.
H. Service condition - dry with moisture content at or below 19% in service.
I. Laminated veneer lumber (LVL) shall have an allowable flexural stress (Fb) of 2,600 psi (reduced by size factor) and an elastic modulus (E) of 1,900,000 psi.
J. Parallel Strand Lumber (PSL) shall have an allowable flexural stress (Fb) of 2,900 psi (reduced by size factor) and an elastic modulus (E) of 2,000,000 psi.
K. Pre-engineered wood trusses shall be designed in accordance with the Truss Plate Institute's national design standard for metal-plate connected wood truss construction (ANSI/TPI-1 latest edition). Trusses shall be designed and manufactured by an authorized member of the Wood Truss Council of America (WTCA). Truss design shall conform to specified codes, allowable stress increases, deflection limitations and other applicable criteria of the governing code.
L. Shop drawings showing complete erection and fabrication details and calculations (including connections) shall be submitted to the project architect/engineer for review prior to fabrication and/or erection. Such drawings shall bear the seal of a professional engineer, registered in the state of the project location. Shop drawings shall also be submitted to the local government controlling agency when requested by that agency.
M. All trusses shall be securely braced both during erection and permanently, as indicated on the approved truss design drawings and in accordance with TPI's commentary and recommendations for handling, installing and bracing metal-plate connected wood trusses (HIB-91, booklet) and the latest edition of ANSI/TPI-1.
N. The truss manufacturer shall supply all hardware and fasteners for joining truss members together and fastening truss members to their supports. Metal connector plates shall be manufactured by a member of the Wood Truss Council of America (WTCA) and shall be 20 gauge minimum. Connector plates shall meet or exceed ASTM A653, grade 33, with ASTM A924 galvanized coating designation G60.
O. Shipment, handling, and erection of trusses shall be by experienced, qualified persons and shall be performed in a manner so as not to endanger life or property. Apparent truss damage shall be reported to the truss manufacturer for evaluation prior to erection.Cutting or alteration of trusses is not permitted.
P. Contractor shall coordinate truss layout for openings and penetrations required by other trades including for plumbing, HVAC, electrical, roof access hatches, chases, etc.
Q. Pre-engineered floor truss and I-Joist design load and deflection criteria are as follows:
- Top Chord Dead Load = 20psf
- Top Chord Live Load = Per General Note 2A
- Bottom Chord Dead Load = 5psf
- Allowable Total Load Deflection = L/360
- Allowable Live Load Deflection = L/480; ½" maximum

R. Pre-engineered roof truss design load and deflection criteria are as follows:
- Top Chord Dead Load = 15psf
- Top Chord Live Load = 20psf
- Bottom Chord Dead Load = 10psf
- Allowable Total Load Deflection = L/300
- Allowable Live Load Deflection = L/360
- Roof trusses shall be designed for wind uplift loads indicated in Building Components & Cladding Wind Loads Diagram.

10. Shop Drawings and Deferred Submittals

A. Bob D. Campbell and Company, Inc. will review the General Contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by Bob D. Campbell and Company, Inc.
B. Deferred submittals shall be submitted to the architect of record for review who shall forward to the building official for review and approval. Design calculations for deferred sub mittals shall be submitted at the same time as the shop drawings for review. Design calculations shall be prepared and sealed by a Professional Engineer licensed in the state of the project. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by the building official.
C. Prior to submittal of a shop drawing or any related material to Bob D. Campbell and Company, Inc., the GC shall:
1. Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
2. Review and approve each submission.
3. Stamp each submission as approved.
D. Bob D. Campbell and Company, Inc. shall assume that no submission comprises a variation unless the GC advises Bob D. Campbell and Company, Inc. with written documentation.
E. Bob D. Campbell and Company, Inc. shall review shop drawings and related materials with comments provided that each submission has met the above requirements. Bob D. Campbell and Company, Inc. shall return without comment unrequired material or submissions without GC approval stamp.
F. Required shop drawings and related material (if any) are indicated below. Should Bob D. Campbell and Company, Inc. require more than ten (10) working days to perform the review, Bob D. Campbell and Company, Inc. shall so notify the GC.
1. Concrete mix designs and material certificates including admixtures and compounds applied to the concrete after placement.
2. Reinforcing steel shop drawings including erection drawings and bending details.Bar list will not be reviewed for correct quantities.
3. Construction and control joint plans and/or elevations.
4. Structural steel shop drawings including erection drawings and piece details. Include joist, decking and connector submittals. Include miscellaneous framing specified on the structural drawings, but do not submit framing specified on non-structural drawings for Bob D. Campbell and Company, Inc. review.
5. Deferred Submittal: Railings and guardrails
6. Deferred Submittal: Metal stair framing
7. Miscellaneous anchors shown on the structural drawings.
8. Deferred Submittal: Wood truss design calculations and detailed erection and fabrication drawings. Standard stick framing shop drawings need not be submitted.

11. Statement of Structural Special Inspections

A. The structural design for this project is based on completion of special inspections during construction in accordance with section 1704 of the International Building Code. The owner shall employ one or more qualified special inspectors to provide the required special inspections.
B. The special inspector shall furnish inspection reports to the building official, owner, architect and structural engineer, and any other designated person.
C. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority, building official and structural engineer.
D. The special inspector shall submit a final signed report stating that the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of the building code.
E. The following inspections and tests are required with the frequency (continuous or periodic) as defined within the referenced section or standard listed below. The General Contractor shall provide notification to the inspector when items requiring inspection are ready to be inspected and provide access for those inspections.
1. Shop Fabrication – structural steel per Section 1704.2.5 unless AISC certified shop
2. Shop Fabrication – pre-engineered wood trusses per Section 1704.2.5 unless TPI certified shop
3. Steel Construction per Section 1705.2 and the quality assurance requirements of AISC 341 Chapter J (as referenced by AISC 360)
4. Concrete Construction per Section 1705.3 and Table 1705.3
a. Reinforcing Steel Placement
b. Reinforcing Steel Welding
c. Cast in Place Anchors
d. Post Installed Anchors
e. Design Mix Verification
f. Concrete Sampling and Testing
g. Concrete Placement
h. Concrete Curing
i. Formwork Shape, Location and Dimensions
5. Masonry Construction per Section 1705.4 and the quality assurance requirements of TMS 402/ACI530/ASCE5 and TMS602/A530.1/ASCE6 Level 2
6. Wood Construction- Metal-Plate-Connected wood trusses spanning 60 feet or greater per Section 1705.5.2
7. Verification of Soils per Table 1705.6
8. Wood Lateral System (periodic)
a. Wood shearwalls (include sheathing, rim board and bottom plate attachments)
b. Portal frames
c. Shear wall and portal frame holdowns
d. Shear wall tension rod system
9. Wood Gravity Framing and Placement (adjust frequency of random sampling where indicated as required)
a. Heavy timber/SCL/glulam beams and supports (periodic)
b. Headers and jambs (random sampling)
c. Bearing walls (random sampling)
d. Connector/hardware installation (random sampling)
e. Floor and roof trusses (random sampling)

12. Copyright and Disclaimer

A. All drawings in the structural set (S-series drawings) are the copyrighted work of Bob D. Campbell and company, Inc. These drawings may not be photographed, traced, or copies in any manner without the written permission of Bob D. Campbell and Company, Inc. Exception: Original drawings may be printed for distribution to the owner, architect, and general contractor for coordination, bidding, and construction. Subcontractors may not reproduce these drawings for any purpose or in any manner.
B. I, Ryan M. Hagedorn, P.E., registered engineer and a representative of Bob D. Campbell and Company, Inc., do hereby accept professional responsibility as required by the professional registration laws of this state for the structural design drawings consisting of S-series drawings. I hereby disclaim responsibility for all other drawings in the construction document package, they being the responsibility of other design professionals whose seals and signed statements may appear elsewhere in the construction document package.

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES
NEW TOWNHOMES COMPLEX
LENEXA, KANSAS

RYAN HAGEDORN LICENSED 29613 08.12.2025 KANSAS PROFESSIONAL ENGINEER

REVISION:

DATE: 8/12/2025
JOB: 25-3990
SHEET NO.:

S0.1

SHEARWALL SCHEDULE

SHEARWALL TYPE		FLOOR			PLATE CONNECTION (SILL TO RIM BOARD & RIM BOARD TO TOP PLATE) (RE: NOTES 6 & 7)
		1st FLOOR WALLS	2nd FLOOR WALLS	3rd FLOOR WALLS	
SW-1	MATERIAL & THICKNESS	19/32" OSB SHEATHING EACH SIDE w/ EDGES BLOCKED	15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	**3rd FLR:** 16d NAILS @4"oc **2nd FLR:** 30d NAILS @ 2"oc
	NAIL SIZE & SPACING	10d NAILS 2/12	10d NAILS 3/12	10d NAILS 6/12	
	NO. OF STUDS AT HOLD-DOWN	(4)2x6	(3)2x6	(2)2x6	
	HOLD-DOWN TYPE	HDU14-SDS2.5 (RE: 11/S4.1)	HDU8-SDS2.5	HDU4-SDS2.5	
SW-2	MATERIAL & THICKNESS		**18"Lg SIMPSON STRONG WALL EACH SIDE OF GARAGE DOOR OPENING. FOLLOW MANUFACTURER REQUIREMENTS FOR ANCHORAGE AND ATTACHMENT TO STRUCTURE.**	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	
	NAIL SIZE & SPACING			8d NAILS 6/12	
	NO. OF STUDS AT HOLD-DOWN			(2)2x6	
	HOLD-DOWN TYPE			HDU8-SDS2.5	
SW-3	MATERIAL & THICKNESS		15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	
	NAIL SIZE & SPACING		10d NAILS 3/12	10d NAILS 4/12	
	NO. OF STUDS AT HOLD-DOWN		(4)2x6	(2)2x6	
	HOLD-DOWN TYPE		HDU11-SDS2.5	HDU11-SDS2.5	
SW-4	MATERIAL & THICKNESS	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	
	NAIL SIZE & SPACING	8d NAILS 6/12	8d NAILS 6/12	8d NAILS 6/12	
	NO. OF STUDS AT HOLD-DOWN	(2)2x6	(2)2x6	(2)2x6	
	HOLD-DOWN TYPE	HDU5-SDS2.5	HDU5-SDS2.5	HDU5-SDS2.5	
SW-5	MATERIAL & THICKNESS	15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	
	NAIL SIZE & SPACING	8d NAILS 3/12	8d NAILS 4/12	8d NAILS 6/12	
	NO. OF STUDS AT HOLD-DOWN	(2)2x6	(2)2x6	(2)2x6	
	HOLD-DOWN TYPE	HDU8-SDS2.5	HDU8-SDS2.5	HDU5-SDS2.5	
SW-6	MATERIAL & THICKNESS		15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	15/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	**3rd FLR:** 16d NAILS @4"oc **2nd FLR:** 30d NAILS @ 2"oc
	NAIL SIZE & SPACING		10d NAILS 2/12	10d NAILS 4/12	
	NO. OF STUDS AT HOLD-DOWN		(4)2x6	(3)2x6	
	HOLD-DOWN TYPE		HDU14-SDS2.5	HDU8-SDS2.5	
SW-7	MATERIAL & THICKNESS	19/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	19/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	19/32" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED	**3rd FLR:** 16d NAILS @4"oc **2nd FLR:** 30d NAILS @ 2"oc
	NAIL SIZE & SPACING	10d NAILS 2/12	10d NAILS 3/12	10d NAILS 6/12	
	NO. OF STUDS AT HOLD-DOWN	(4)2x6	(3)2x6	(2)2x6	
	HOLD-DOWN TYPE	HDU14-SDS2.5	HDU8-SDS2.5	HDU4-SDS2.5	
SW-8	MATERIAL & THICKNESS	7/16" OSB SHEATHING ONE SIDE w/ EDGES BLOCKED			
	NAIL SIZE & SPACING	8d NAILS 6/12			
	NO. OF STUDS AT HOLD-DOWN	(6)2x6			
	HOLD-DOWN TYPE	HDU5-SDS2.5			

NOTES:
1. NAILING SHALL BE TO ALL STUDS, TOP & BOTTOM PLATES, AND BLOCKING WHERE INDICATED. NAILS FOR GYPSUM SHEATHING ARE COOLER NAILS AND NAILS FOR OSB SHEATHING ARE COMMON NAILS. GYPSUM CAN BE ATTACHED WITH DRYWALL SCREWS AT SAME SPACING INDICATED FOR NAILS.
2. HOLDOWNS PER PLAN & SCHEDULE.
3. WHERE THE ENDS OF PERPENDICULAR SHEAR WALLS INTERSECT AND ONLY ON HOLDOWN SHOWN ON PLAN, FASTEN ALL STUDS TOGETHER PER SCHEDULE AND USE LARGER OF THE TWO HOLDOWNS SHOWN IN THE SHEARWALL SCHEDULE.
4. PROVIDE 2 WALL STUDS AT EACH HOLDOWN UNLESS NOTED OTHERWISE IN SCHEDULE.
5. NAIL AND STAPLE SPACING SHOWN AS (##) INDICATES FASTENERS SPACING IN INCHES AT THE EDGES/FIELD WHERE FIELD IS THE INTERMEDIATE MEMBERS.
6. TYPICAL SILL PLATE TO WOOD (RIM BOARD) AND WOOD (RIM BOARD) TO TOP PLATES SHALL BE 16d NAILS AT 12"oc UNLESS NOTED OTHERWISE IN SCHEDULE.
7. TYPICAL SILL PLATE TO CONCRETE SHALL BE 1/2"Ø x6" Lg SIMPSON TITEN HD ANCHOR:
   AT 2x4 WALLS SPACE AT 24"oc MAX WITH 1/4"x2 1/2"x2 1/2" PLATE WASHER OR SIMPSON BPS1/2-3 @ CONTRACTORS OPTION
   AT 2x6 WALLS SPACE AT 24"oc MAX WITH 1/4"x2 1/2"x4 1/2" PLATE WASHER OR SIMPSON BPS1/2-6 @ CONTRACTORS OPTION
   AT 2x8 WALLS STAGGER AT 18"oc MAX WITH 1/4"x2 1/4"x2 1/2" PLATE WASHER OR SIMPSON BPS1/2-3 @ CONTRACTORS OPTION
8. PLATE WASHERS TO MAINTAIN MAX OF 1/2" BETWEEN EDGE OF SILL PLATE AND EDGE OF PLATE WASHER.
9. OSB @ INTERIOR WALL SHALL BE IN ADDITION TO 5/8" GYP SHEATHING.
10. SHEARWALL SHEATHING CALLED OUT AT CORRIDOR WALLS SHALL BE LOCATED AT UNIT SIDE OF WALL.
11. REFER TO NOTE 10.T ON S0.01 FOR FIRE RETARDANT TREATED SHEATHING REQUIREMENTS.

FLOOR AND ROOF FRAMING HEADERS SCHEDULE

MARK	HEADER	JAMB STUDS (2x6 U.N.O.)	NOTES
H1	(3) 2x8	1 JACK / 1 KING	
H2	(3) 2x8	1 JACK / 2 KING	
H3	(3) 2x10	1 JACK / 1 KING	
H4	(3) 2x8	SEE PLAN	
H5	(3) 2x12	1 JACK / 1 KING	
H6	(3) 1¾"x14" LVL	2 JACK / 2 KING	
H7	(3) 1¾"x9½" LVL	3 JACK / 2 KING	
H8	(3) 1¾"x11-7/8" LVL	3 JACK / 2 KING	

NOTES:
1. JAMB STUDS SHALL MATCH SIZE & GRADE OF WALL STUDS U.N.O.
2. WHERE BEAM IS NOTED "UPSET", ALL JAMB STUDS NOTED WILL EXTEND TO DOUBLE TOP PLATE.
3. ALL EXTERIOR LUMBER TO BE TREATED. REFER TO NOTE 12.T ON SHEET S001 FOR FIRE RETARDANT TREATED HEADER AND STUD REQUIREMENTS.
4. PROVIDE SQUASH BLOCKS AT TRUSSES & BLOCKING FRAMING WHERE JAMBS OR STUD PACKS ARE DISCONT. QUANTITY TO MATCH JAMB OR STUD PACK ABOVE.
5. PROVIDE ½" PLYWOOD SPACER PLATES AT INTERIOR HEADERS CONSTRUCTED WITH 2x LUMBER.
6. AT CONTRACTOR'S OPTION, PROVIDE GLULAM IN LIEU OF PSL OF EQUAL OR GREATER STRENGTH.
7. REFER TO DETAIL 4/S002 FOR MULTI-PLY MEMBER CONNECTION REQUIREMENTS.
8. ATTACH JAMB & KING STUDS TOGETHER PER CONNECTION TYPE 24 ON NAILING SCHEDULE ON S001.

STRUCTURAL DECK & SLAB SCHEDULE

MARK	DESCRIPTION
SOG-1	4" CONCRETE ATOP 15 MIL VAPOR BARRIER PER GENERAL NOTES ATOP 4" FREE DRAINING GRANULAR LEVELING COURSE, ATOP 18" LOW VOLUME CHANGE MATERIAL PER GEOTECH REPORT. REINFORCE SLAB w/ 6x6-W2.9/W2.9 WWF. T/SLAB VARIES PER PLAN AND ARCH.
SOG-2	8" CONCRETE ATOP 15 MIL VAPOR BARRIER PER GENERAL NOTES ATOP 4" FREE DRAINING GRANULAR LEVELING COURSE, ATOP 18" LOW VOLUME CHANGE MATERIAL PER GEOTECH REPORT. REINFORCE SLAB w/ #5@8"oc EACH WAY. T/SLAB VARIES PER PLAN AND ARCH.
FD-1	3/4" T&G APA-RATED SHEATHING. SHEATHING SHALL BE GLUED AND NAILED w/ 8d NAILS @6"oc @ EDGES AND @12"oc @ FIELD OF PANEL.
RD-1	19/32" APA-RATED, EXP-1 SHEATHING ATTACHED w/ 8d NAILS @6"oc @EDGES AND @12"oc FIELD OF PANEL.

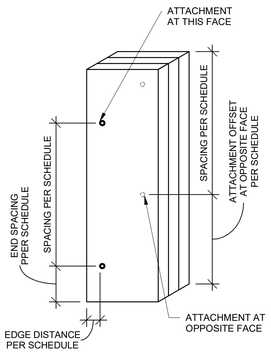
NOTES:
1. SOG = SLAB-ON-GRADE TYPE
2. FD = FLOOR DECK TYPE
3. RD - ROOF DECK TYPE

NAILING SCHEDULE (REFER TO NOTES #1 and #2)

CONNECTION	ATTACHMENTS	(REF NOTE #3 and #4)
JOIST TO SILL OR GIRDER	3- 3" x 0.131" NAILS-TOENAIL	3-8d NAILS-TOENAIL
BRIDGING TO JOIST	2- 3" x 0.131" NAILS-TOENAIL EACH END	2-8d NAILS-TOENAIL EACH END
SOLE PLATE TO JOIST OR BLOCKING	3" x 0.131" NAILS AT 8"o.c.- TYPICAL FACE NAIL 4-3" x 0.131" NAILS AT 6"o.c. BRACED WALL PANELS	16d BOX NAILS AT 16"o.c. MAX. FACE NAILING 3-16d BOX NAILS AT 16"o.c. BRACED WALL PANEL
TOP PLATE TO STUD	3- 3" x 0.131" NAILS-END NAIL	2-16d NAILS-END NAIL
STUD TO SOLE PLATE	4- 3" x 0.131" NAILS-TOENAIL OR 3- 3" x 0.131" NAILS-END NAIL	4-8d NAILS-TOENAIL OR 2-16d NAILS-END
DOUBLE STUDS	3" x 0.131" NAILS AT 8"o.c.-FACE NAIL	16d BOX NAILS AT 24"o.c. MAX. FACE NAIL
DOUBLED TOP PLATES	3" x 0.131" NAILS AT 12"o.c.-FACE NAIL	16d BOX NAILS AT 16"o.c. MAX. FACE NAIL
DOUBLE TOP PLATE LAPS AND INTERSECTIONS	12-3" x 0.131" NAILS	8-16d NAILS
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3-3" x 0.131" NAILS -TOENAIL	3-8d NAILS-TOENAIL
RIM JOIST TO TOP PLATE	3" x 0.131" NAILS AT 6"o.c.-TOENAIL	8d NAILS AT 6"o.c. MAX.-TOENAIL
TOP PLATE LAPS AND INTERSECTIONS	3- 3" x 0.131" NAILS-FACE NAIL	2-16d NAILS-FACE NAIL
CONTINUOUS HEADER, TWO PIECES	3" x 0.131" NAILS AT 10"o.c. ALONG EACH EDGE	16d NAILS AT 16"o.c. MAX. ALONG EACH EDGE-TOENAIL
CEILING JOISTS TO PLATE	5- 3" x 0.131" NAILS-TOENAIL	3-8d NAILS-TOENAIL
CONTINUOUS HEADER TO STUD	4- 3" x 0.131" NAILS-TOENAIL	4-8d NAILS-TOENAIL
CEILING JOISTS, LAPS OVER PARTITIONS	4- 3" x 0.131" NAILS-FACE NAIL	3-16d NAILS-FACE NAIL
CEILING JOISTS TO PARALLEL RAFTERS	4- 3" x 0.131" NAILS-FACE NAIL	3-16d NAILS-FACE NAIL
RAFTER TO PLATE	3- 3" x 0.131" NAILS-TOENAIL	3-8d NAILS-TOENAIL
1" BRACE TO EACH STUD AND PLATE	2- 3" x 0.131" NAILS-FACE NAIL	2-8d NAILS-FACE NAIL
BUILT-UP CORNER AND MULTIPLE STUDS	3" x 0.131" NAILS AT 16"o.c.	16d NAILS AT 24"o.c. MAX.
BUILT-UP GIRDER AND BEAMS	3" x 0.131" NAILS AT 24"o.c. FACE NAILED TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES 3- 3" x 0.131" NAILS AT ENDS AND EACH SPLICE	20d NAILS AT 32"o.c. MAX. TOP AND BOTTOM, STAGGERED ON OPPSITE SIDES. 2-20d NAILS AT ENDS AND EACH SPLICE
BUILT-UP LAMINATED VENEER LUMBER BEAMS	3" x 0.131" NAILS AT 6"o.c. TOP AND BOTTOM ALONG EDGE	16d NAILS AT 12"o.c. TOP AND BOTTOM ALONG EDGE
2" PLANKING	4- 3" x 0.131" NAILS AT EACH SUPPORT	16d NAILS AT EACH SUPPORT

NOTES:
1. ALL NAILS SHALL BE AS NOTED UNLESS OTHERWISE SPECIFIED ON STRUCTURAL DRAWINGS OR ALTERNATE PROVIDED BY ENGINEER IN WRITING.
2. CONDITIONS NOT SPECIFIED SHALL BE IN ACCORDANCE WITH CURRENT INTERNATIONAL BUILDING CODE.
3. ALL NAILS NOTED AS 8d, 10d, 16d, ETC. SHALL BE COMMON NAILS UNLESS NOTED BOX.
4. NAILING DESIGNATION:

4 - 3" x 0.131" NAILS
- 4 — DIAMETER IN INCHES
- 3" — NAIL LENGTH
- 0.131" — QUANITY



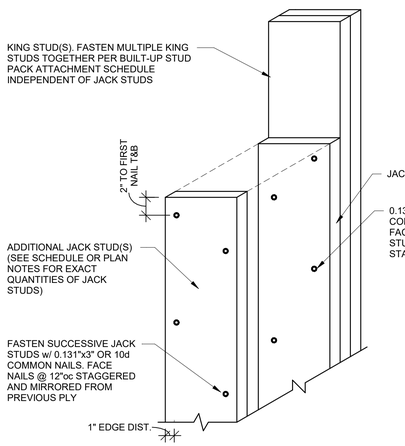
TYPICAL BUILT-UP STUD PACK CONNECTION

A DETAIL
1 1/2" = 1'-0"

BUILT-UP STUD PACK COLUMN ATTACHMENT SCHEDULE

NUMBER OF PLIES	ATTACHMENT AT JAMB STUD PACKS	ATTACHMENT AT WALL STUD PACKS
2-PLY MEMBERS	8d NAILS AT 12"oc, 1" FROM EDGE, w/ OPPOSITE EDGE NAILED FROM OPPOSITE SIDE OFFSET 6", @ 12"oc w/ FIRST NAIL 2" FROM EA. END	8d NAILS AT 12"oc, 1" FROM EDGE, w/ OPPOSITE EDGE NAILED FROM OPPOSITE SIDE OFFSET 6", @ 12"oc w/ FIRST NAIL 2" FROM EA. END
3-PLY MEMBERS	20d NAILS AT 16"oc, 1 1/2" FROM EDGE w/ OPPOSITE EDGE NAILED FROM OPPOSITE SIDE OFFSET 8", @ 16"oc w/ FIRST NAIL 4" FROM EA. END	8d NAILS AT 12"oc, 1" FROM EDGE, w/ OPPOSITE EDGE NAILED FROM OPPOSITE SIDE OFFSET 6", @ 12"oc w/ FIRST NAIL 2" FROM EA. END
4-PLY MEMBERS	SDWS22500 SCREWS AT 16"oc, 1 1/2" FROM EDGE w/ OPPOSITE EDGE SCREWED FROM OPPOSITE SIDE OFFSET 8", @ 16"oc w/ FIRST SCREW 4" FROM EA. END	3 PLIES ATTACHED PER 3-PLY ATTACHMENT w/ 4th PLY ATTACHED w/ 8d NAILS AT 12"oc IN 2 ROWS, 1 1/2" FROM EDGE, OFFSET ROW 6"
5-PLY MEMBERS	SDWS22600 SCREWS AT 12"oc, 1 1/2" FROM EDGE w/ OPPOSITE EDGE SCREWED FROM OPPOSITE SIDE OFFSET 6", @ 12"oc w/ FIRST SCREW 4" FROM EA. END	3 PLIES ATTACHED PER 3-PLY ATTACHMENT w/ 4th & 5th PLY ATTACHED w/ 8d NAILS AT 12"oc IN 2 ROWS, 1 1/2" FROM EDGE, OFFSET ROW 6"
6-PLY MEMBERS	SDWS22800 SCREWS AT 12"oc, 1 1/2" FROM EDGE w/ OPPOSITE EDGE SCREWED FROM OPPOSITE SIDE OFFSET 6", @ 12"oc w/ FIRST SCREW 4" FROM EA. END	3 PLIES ATTACHED PER 3-PLY ATTACHMENT w/ 4th PLY ATTACHED w/ 8d NAILS AT 12"oc IN 2 ROWS, 1 1/2" FROM EDGE, OFFSET ROW 6" AND 5th AND 6th PLIES ATTACHED w/ SDWS22500 SCREWS @ 12"oc IN 2 ROWS, 1 1/2" FROM EDGE, OFFSET ROSS 6"oc w/ FIRST SCREW 4" FROM EA. END

NOTES:
1. ALL BUILT-UP STUD PACKS MUST ALIGN FLOOR-TO-FLOOR WITH SOLID BLOCKING (SQUASH BLOCKS) AT FLOOR CAVITIES.
2. EXTEND ALL STUD PACKS TO LOWEST LEVEL UNLESS NOTED OTHERWISE.
3. ALL NAILS ARE COMMON NAILS UNLESS NOTED OTHERWISE.
4. JAMB STUD PACKS ARE STUDS SUPPORTING STRUCTURAL MEMBERS SUCH AS BEAMS, HEADERS, GIRDER TRUSSES, ETC.
5. WALL STUD PACKS ARE REPETITIVE STUDS BETWEEN WALL PLATES AS SCHEDULED IN THE "STUD BEARING WALL SCHEDULE".



TYPICAL JACK STUD ATTACHMENT

B DETAIL
1 1/2" = 1'-0"

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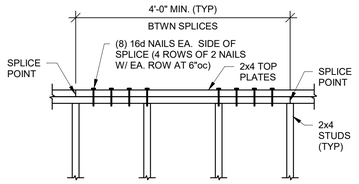
LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES
NEW TOWNHOMES COMPLEX
LENEXA, KANSAS

BRIAN HAGEDORN LICENSED 29613 08.12.2025 KANSAS PROFESSIONAL ENGINEER

REVISION:

DATE: 8/12/2025
JOB: 25-3990
SHEET NO.:

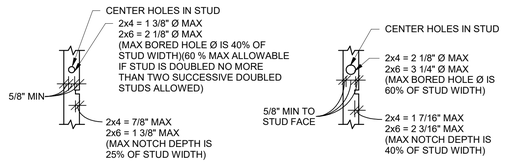
S0.2



(TYP)TOP PLATE SPLICE

NOTES:
1. INSTALL ENDS OF TOP PLATES TIGHT FOR COMPRESSION CHORD AXIAL FORCE.
2. PROVIDE STRAPS PER DETAIL 1A WHERE THIS DETAIL IS NOT SATISFIED.

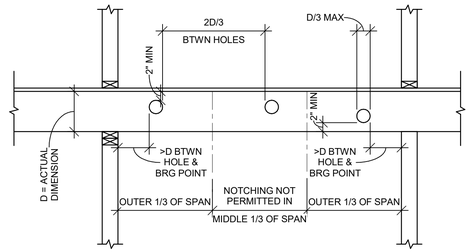
1 DETAIL
3/4" = 1'-0"



TYPICAL NOTES FOR BEARING WALLS
1. HOLES SHALL NOT BE LOCATED IN THE SAME STUD AS A CUT OR NOTCH.
2. CONTACT ARCHITECT PRIOR TO CUTTING OR NOTCHING TO VERIFY SIZE AND LOCATION IF HOLE IS GREATER THAN 20% STUD WIDTH OR NOTCHES GREATER THAN 10% STUD WIDTH ARE REQUIRED IN TWO OR MORE CONSECUTIVE STUDS.
3. NOTCHES OR HOLES ARE NOT PERMITTED IN JAMBS, STUD PACKS AND AT ENDS OF SHEARWALLS
4. STUD SHOES ARE NOT AN ACCEPTABLE REMEDIATION OF OVER-NOTCHED OR OVER-CUT STUDS WITHOUT PRIOR APPROVAL BY EOR.

ALLOWABLE HOLES/NOTCHES IN WALL STUDS

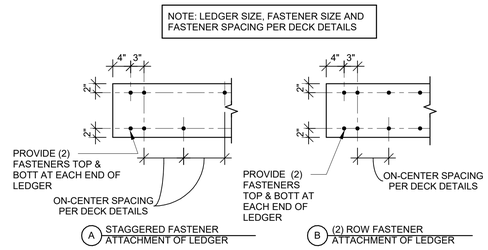
2 DETAIL
3/4" = 1'-0"



NOTES:
1. CONTACT ARCHITECT PRIOR TO CUTTING JOISTS TO VERIFY SIZE AND LOCATION.
2. DETAIL APPLIES TO 2x FRAMING ONLY. REFER TO ENGINEERED OR COMPOSITE LUMBER MANUFACTURER'S RECOMMENDATIONS AT PSL's, LVL's, LSL's & GLULAM's.

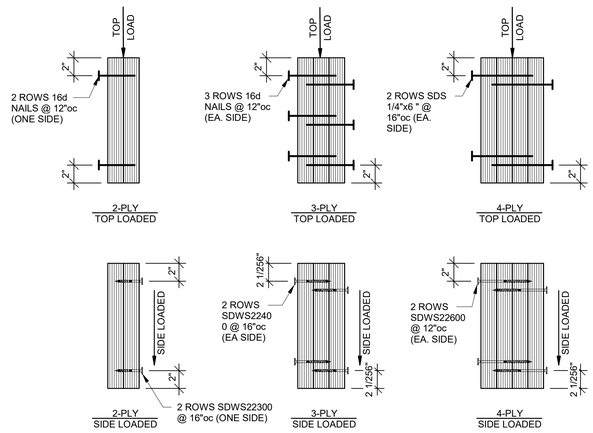
ALLOWABLE HOLES IN 2x JOIST FRAMING

3 DETAIL
3/4" = 1'-0"



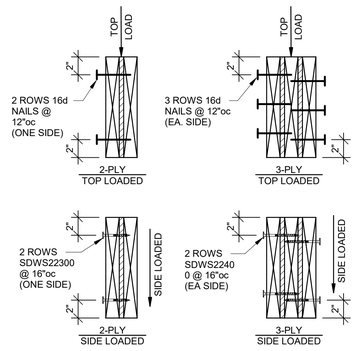
TYPICAL LEDGER CONNECTION

4 DETAIL
3/4" = 1'-0"



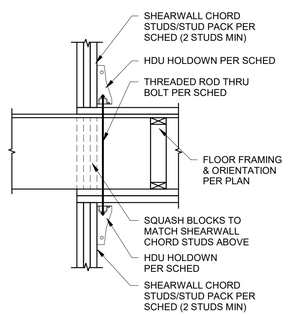
TYPICAL MULTI-PLY BEAM CONNECTION

5 DETAIL
1 1/2" = 1'-0"



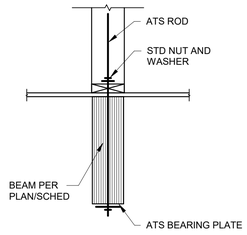
TYPICAL MULTI-PLY HEADER CONNECTION

6 DETAIL
1 1/2" = 1'-0"



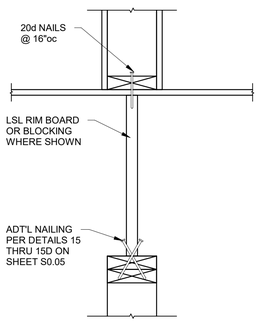
TYPICAL HDU FLOOR TO FLOOR HOLDOWN

7 SECTION
3/4" = 1'-0"



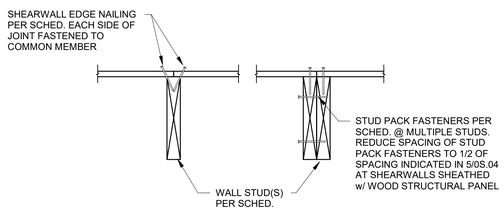
TYPICAL HOLDOWN ATOP WOOD BM

8 SECTION
1" = 1'-0"



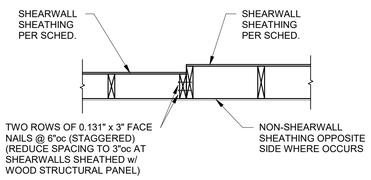
TYPICAL SHEARWALL SILL PL ATTACHMENT AT 2x SILL

9 SECTION
1 1/2" = 1'-0"



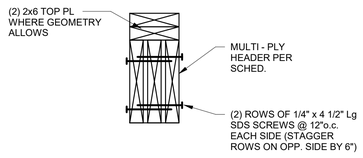
TYPICAL SHEARWALL SHEATHING JOINT

10 SECTION
1 1/2" = 1'-0"



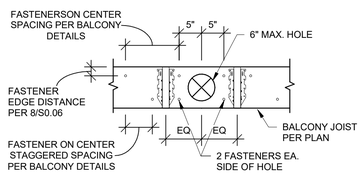
TYPICAL SHEARWALL DETAIL AT WALL STUD SIZE TRANSITION

12 SECTION
3/4" = 1'-0"



TYPICAL MULTI-PLY EXTERIOR ROOF HEADER WHERE GEOMETRY DOES NOT ALLOW 2x PL BELOW HEADER

11 SECTION
1 1/2" = 1'-0"



TYPICAL HOLE THRU LEDGER DETAIL

13 SECTION
3/4" = 1'-0"

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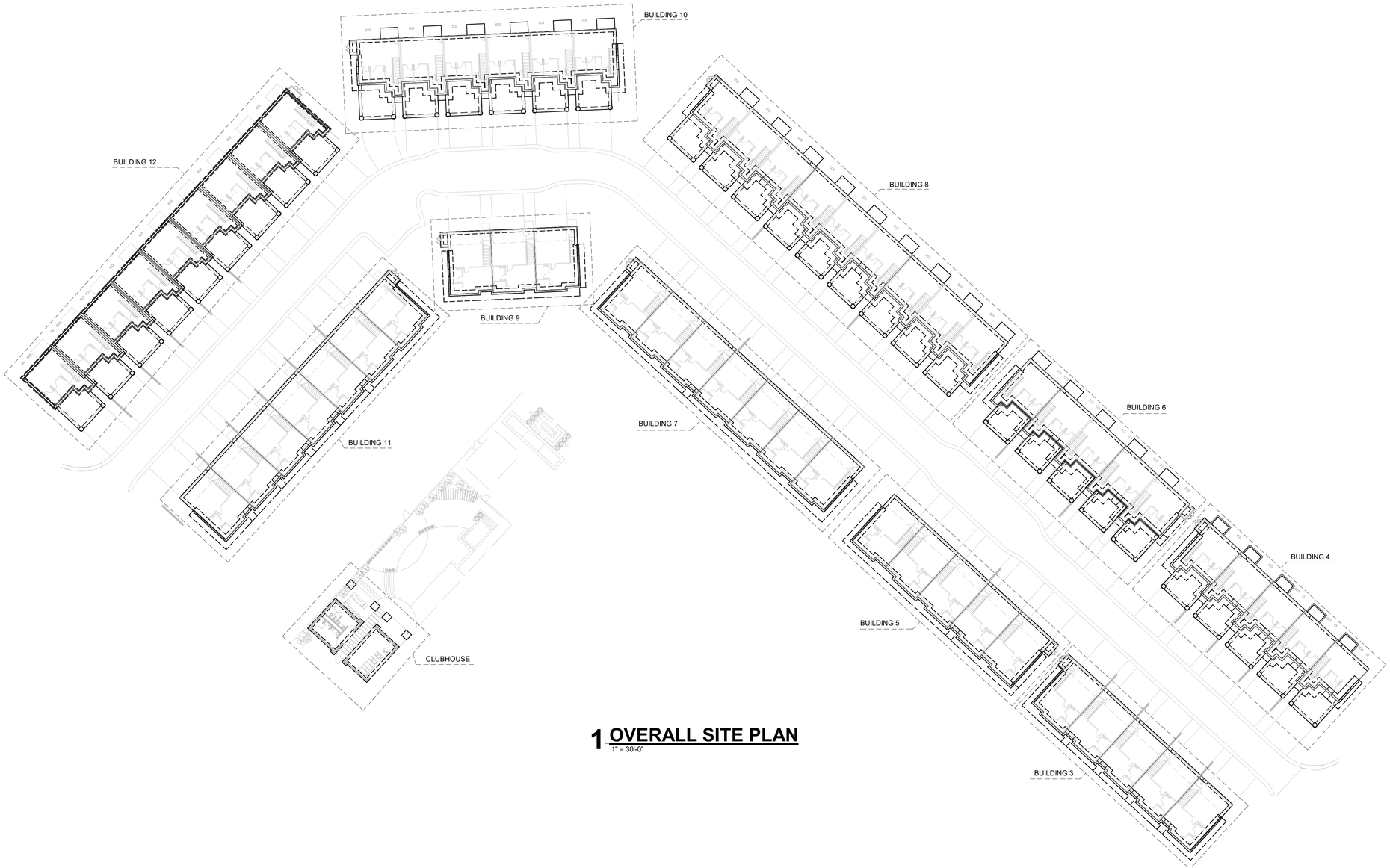

1 OVERALL SITE PLAN

1" = 30'-0"

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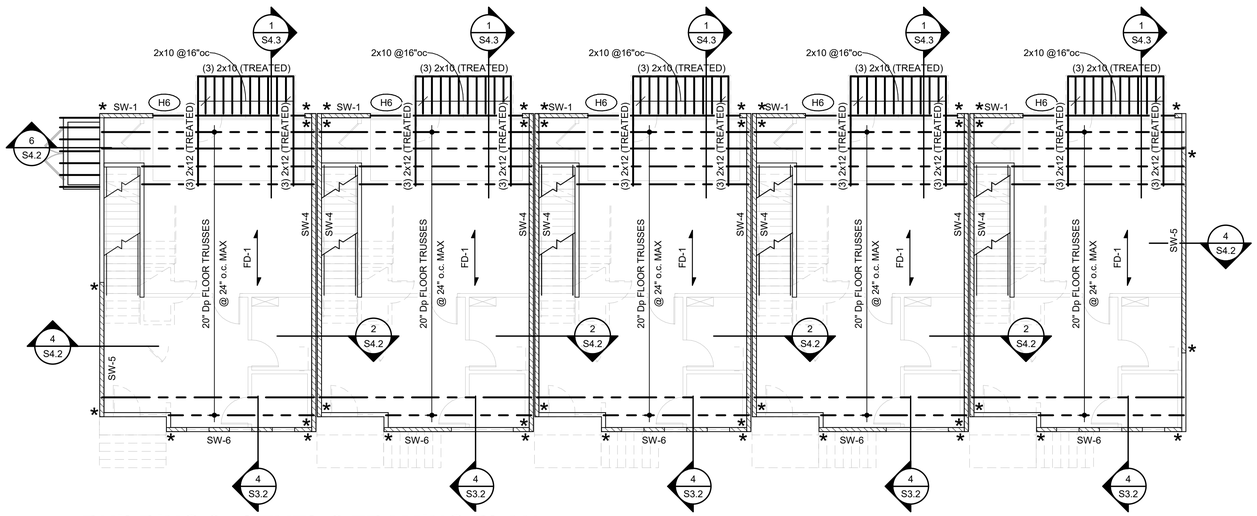
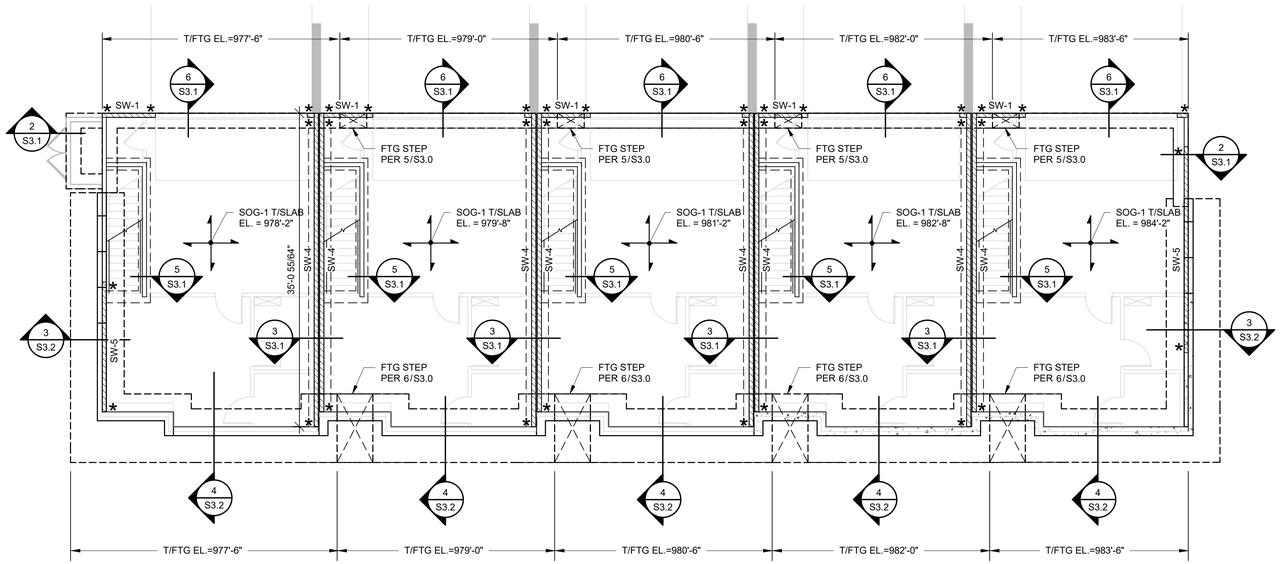


2 BUILDING 3 - LEVEL 2 FRAMING PLAN

1/8" = 1'-0"

NOTES:
1. REFER TO STRUCTURAL GENERAL NOTES ON SHEET S0.1
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
3. '*' DENOTES HOLD-DOWN LOCATION; RE: SHEAR WALL SCHEDULE.



1 BUILDING 3 - FOUNDATION PLAN

1/8" = 1'-0"

NOTES:
1. REFER TO STRUCTURAL GENERAL NOTES ON SHEET S0.1
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
3. '*' DENOTES HOLD-DOWN LOCATION; RE: SHEAR WALL SCHEDULE.

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES

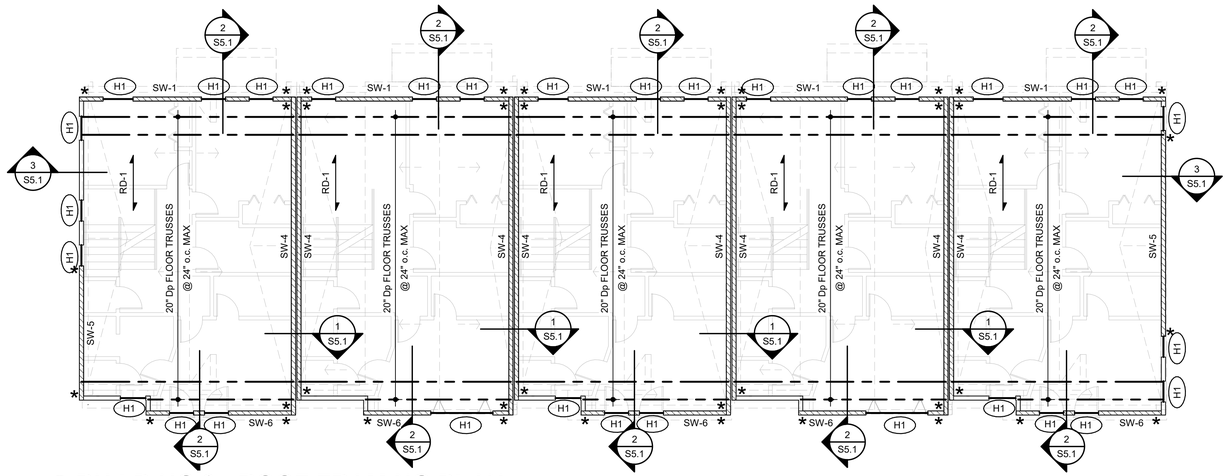
NEW TOWNHOMES COMPLEX

LENEXA, KANSAS

REVISION:

DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

S2.1

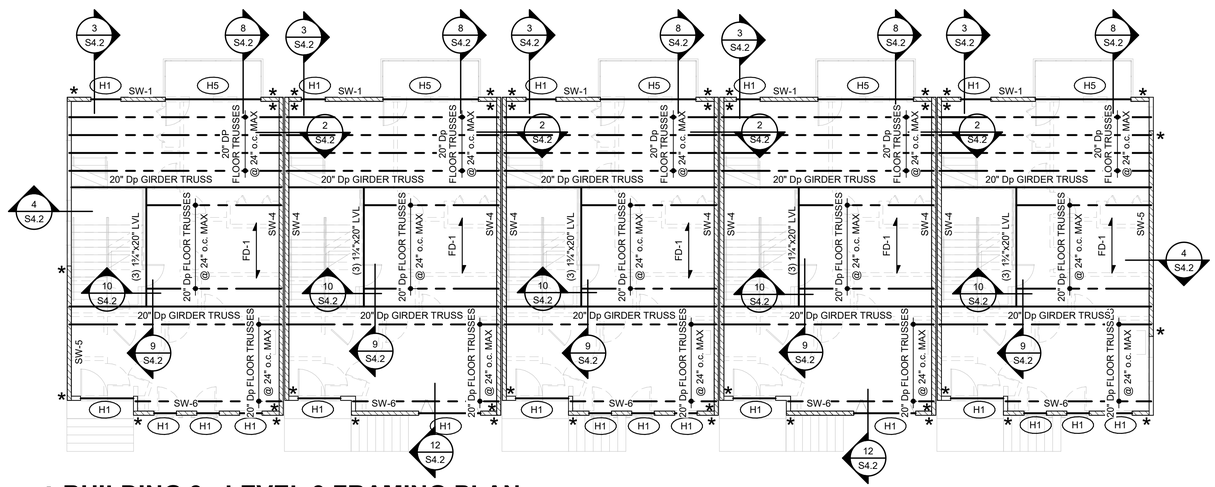


2 BUILDING 3 - ROOF FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. REFER TO STRUCTURAL GENERAL NOTES ON SHEET S0.1
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
3. '*' DENOTES HOLD-DOWN LOCATION; RE: SHEAR WALL SCHEDULE.



1 BUILDING 3 - LEVEL 3 FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. REFER TO STRUCTURAL GENERAL NOTES ON SHEET S0.1
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
3. '*' DENOTES HOLD-DOWN LOCATION; RE: SHEAR WALL SCHEDULE.

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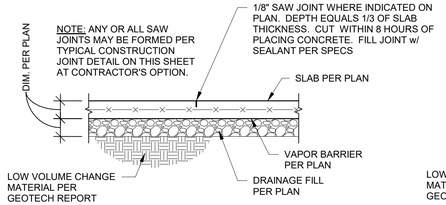
NEW TOWNHOMES COMPLEX

LENEXA, KANSAS

REVISION:

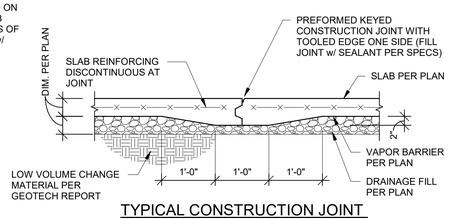
DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

S2.2



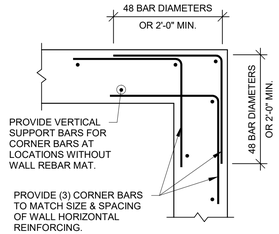
TYPICAL SAW JOINT
NOTED "SJ" ON PLAN

1 SECTION
3/4" = 1'-0"

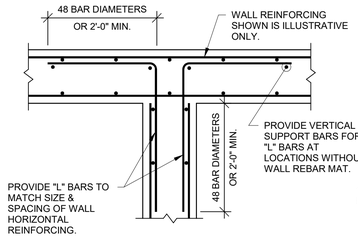


TYPICAL CONSTRUCTION JOINT
NOTED "CJ" ON PLAN

2 SECTION
3/4" = 1'-0"

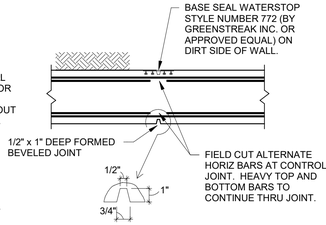


TYPICAL CORNER BARS AT
CONCRETE WALLS & FOUNDATIONS

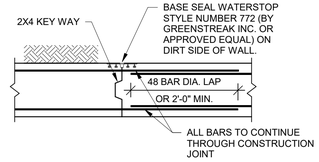


TYPICAL T-INTERSECTION REINFORCING
AT CONCRETE WALLS & FOUNDATIONS

TYPICAL INTERSECTING CONCRETE 3 WALL REINFORCING
3/4" = 1'-0"

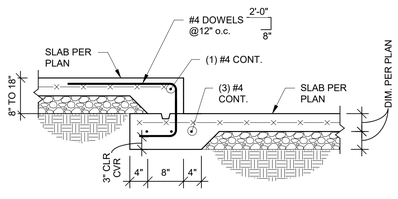


VERTICAL WALL CONTROL JOINT
MAXIMUM SPACING = 25'-0"
(COORDINATE LOCATIONS WITH ARCHITECT/ALIGN WITH MASONRY CONTROL/EXPANSION JOINTS ABOVE)



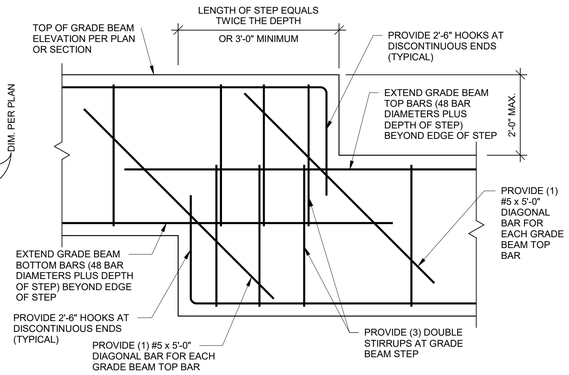
VERTICAL WALL CONSTRUCTION JOINT
MAXIMUM SPACING = 100'-0"

4 VERTICAL WALL CONTROL JOINT
3/4" = 1'-0"

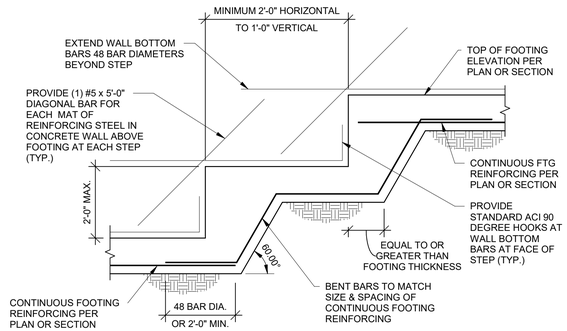


TYPICAL DEPRESSED SLAB

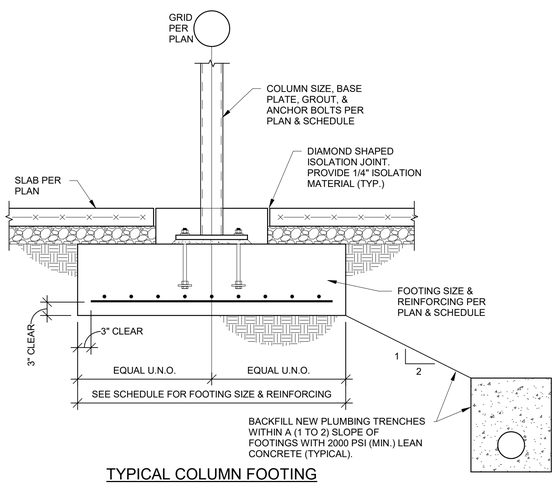
4A SECTION
3/4" = 1'-0"



5 TYPICAL GRADE BEAM STEP
3/4" = 1'-0"

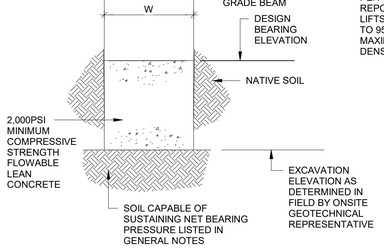


6 TYPICAL FOOTING STEP
1/2" = 1'-0"

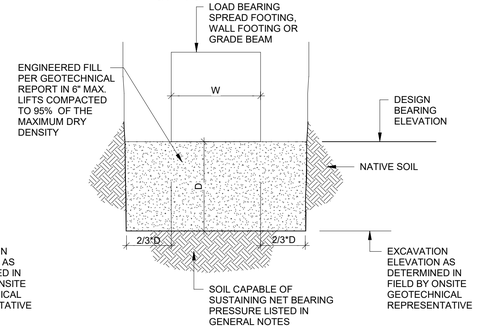


TYPICAL COLUMN FOOTING

9 SECTION
3/4" = 1'-0"

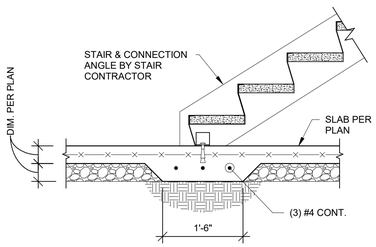


LEAN CONCRETE BACKFILL



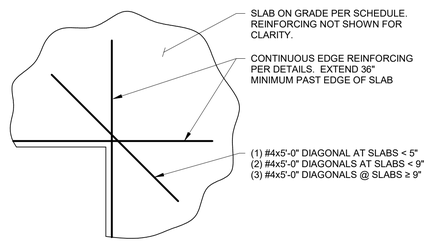
ENGINEERED FILL BACKFILL

8 OVEREXCAVATION DETAIL
3/4" = 1'-0"



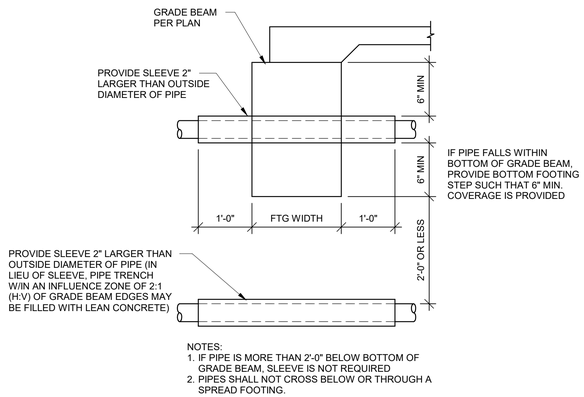
TYPICAL THICKENED SLAB AT BASE OF STAIR

7 SECTION
3/4" = 1'-0"



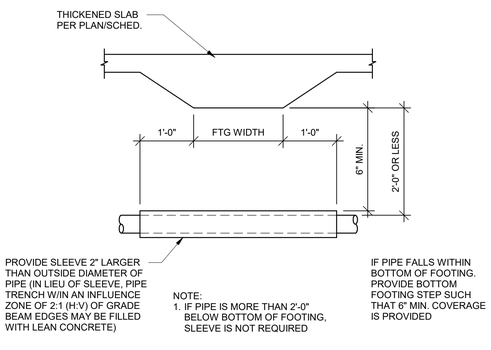
TYPICAL SLAB ON GRADE RE-ENTRANT CORNER BARS

18 DETAIL
1/2" = 1'-0"



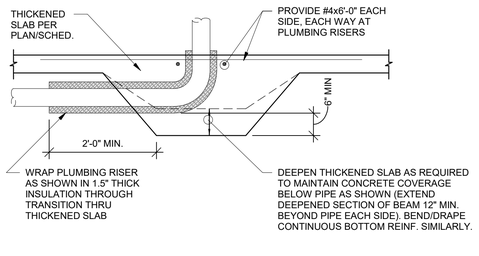
TYPICAL GRADE BEAM SLEEVE

10 SECTION
3/4" = 1'-0"



TYPICAL PLUMBING SLEEVE AT THICKENED SLAB

11 SECTION
3/4" = 1'-0"



TYPICAL PLUMBING RISER THRU THICKENED SLAB

12 SECTION
3/4" = 1'-0"

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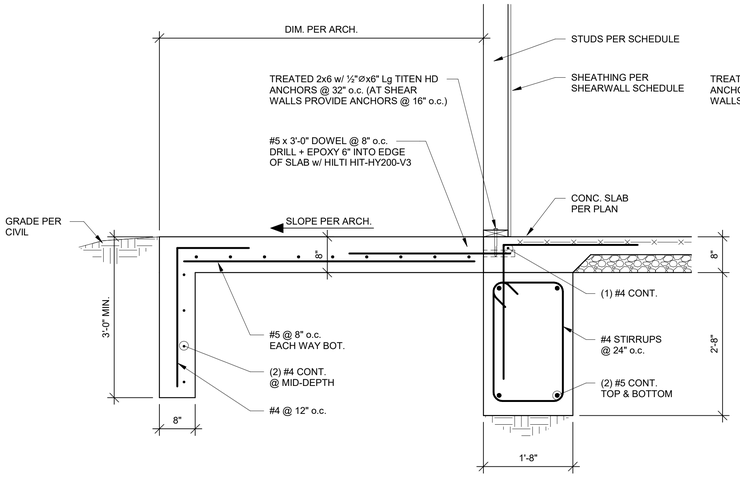
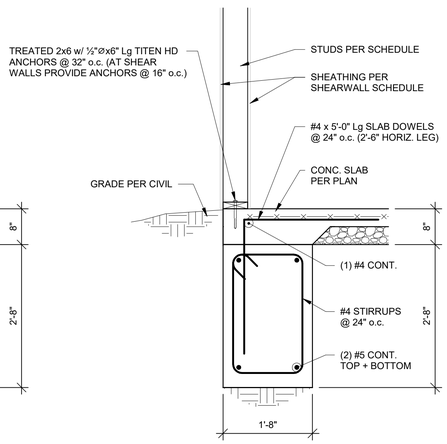
LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES
NEW TOWNHOMES COMPLEX
LENEXA, KANSAS

REVISION:

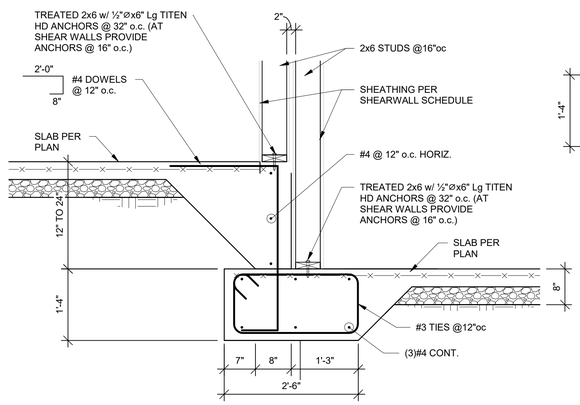
DATE: 8/12/2025
JOB: 25-3690
SHEET NO.:



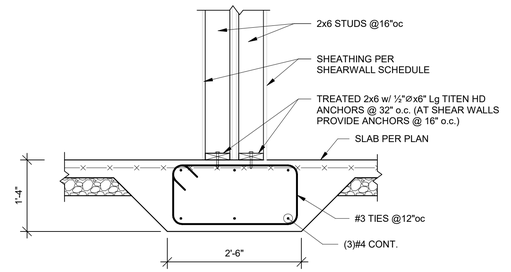
1 SECTION
3/4" = 1'-0"



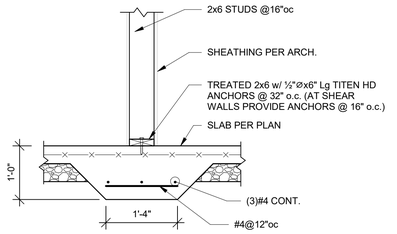
2 SECTION
3/4" = 1'-0"



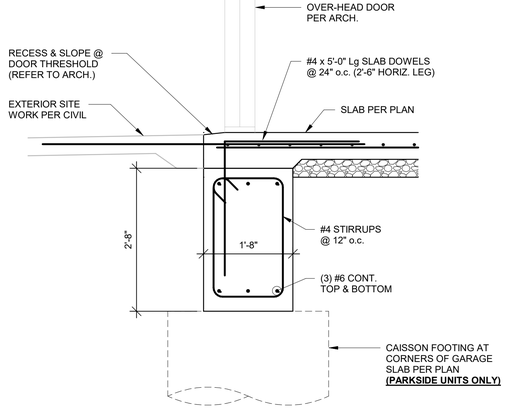
3 SECTION
3/4" = 1'-0"



4 SECTION
3/4" = 1'-0"



5 SECTION
3/4" = 1'-0"



6 SECTION
3/4" = 1'-0"

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES

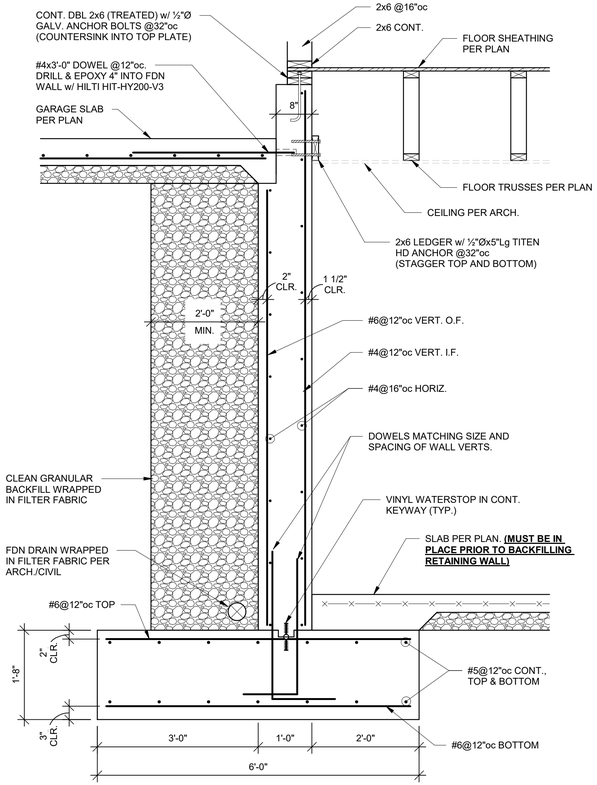
NEW TOWNHOMES COMPLEX

LENEXA, KANSAS

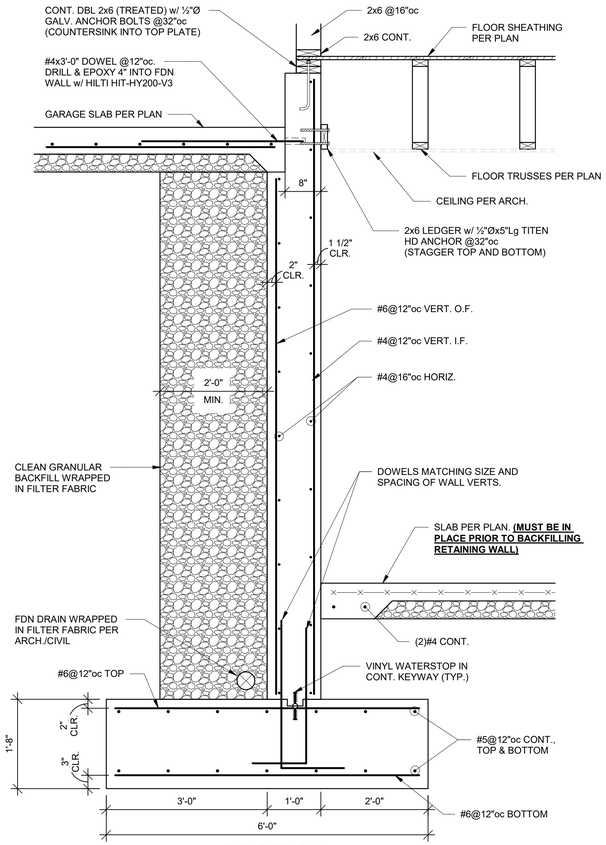
REVISION:

DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

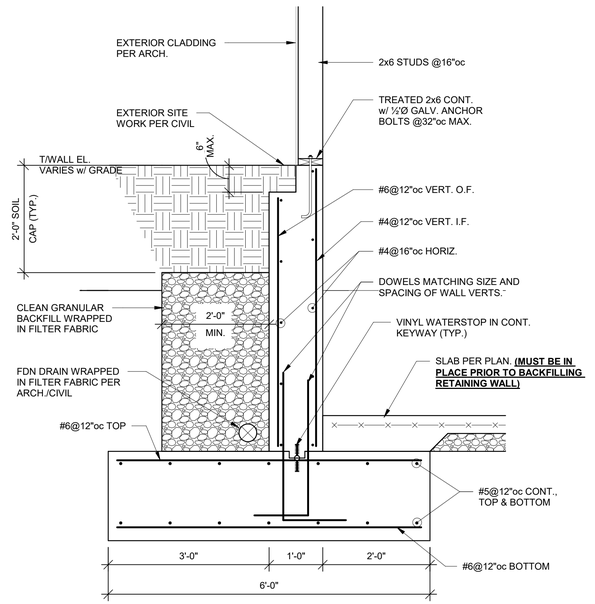
S3.1



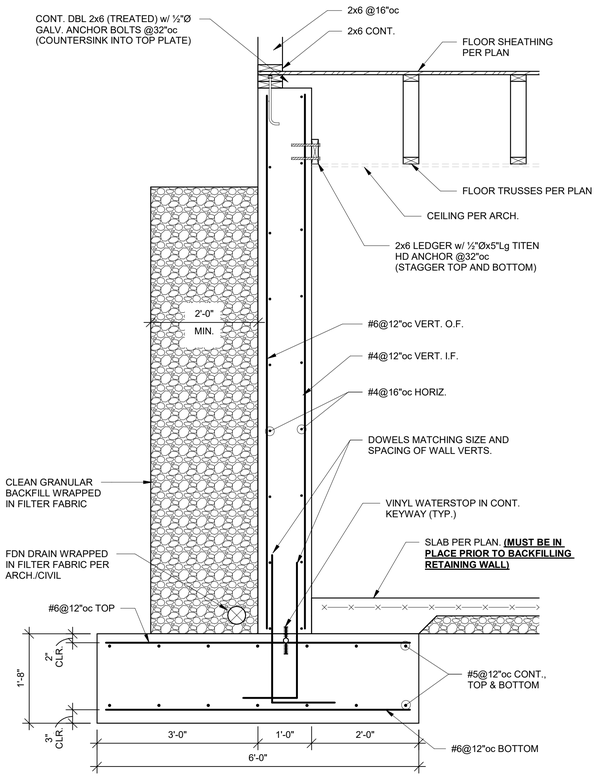
1 SECTION
3/4" = 1'-0"



2 SECTION
3/4" = 1'-0"



3 SECTION
3/4" = 1'-0"



4 SECTION
3/4" = 1'-0"

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES

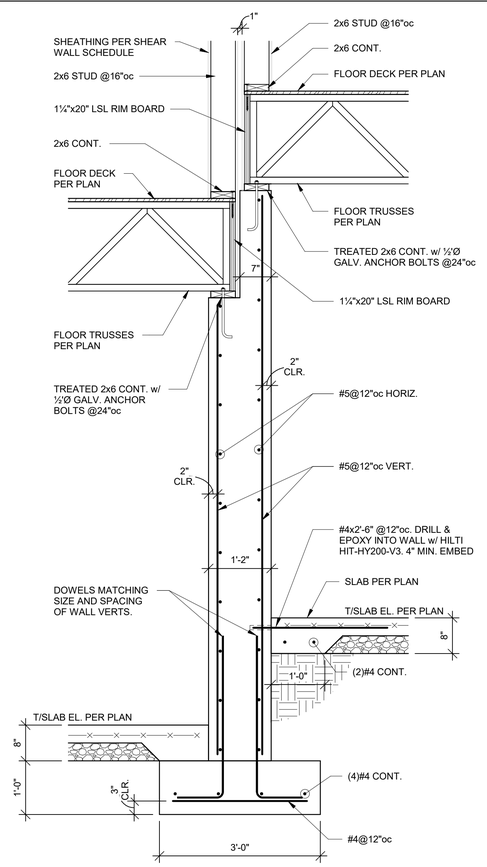
NEW TOWNHOMES COMPLEX

LENEXA, KANSAS

REVISION:

DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

S3.2



1 SECTION
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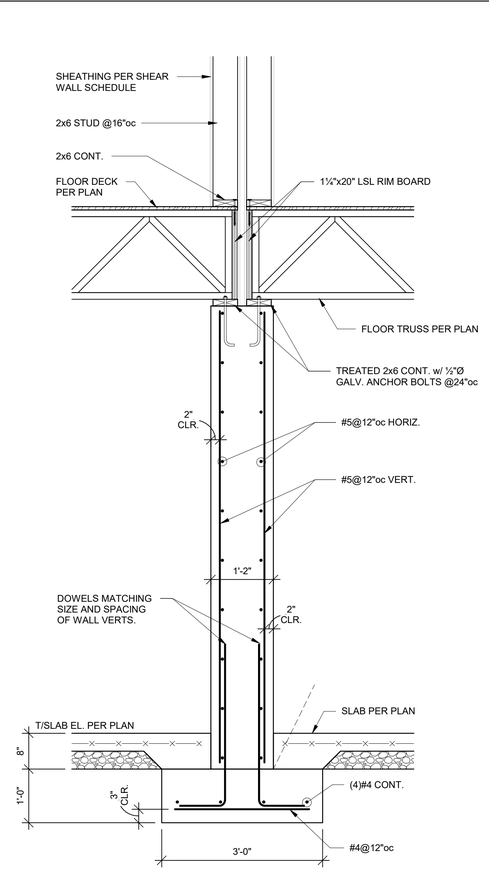
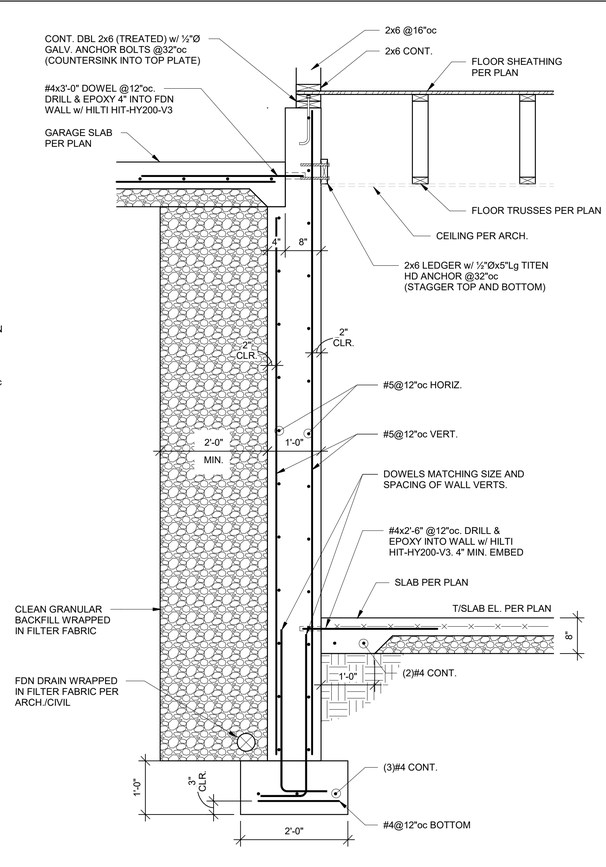
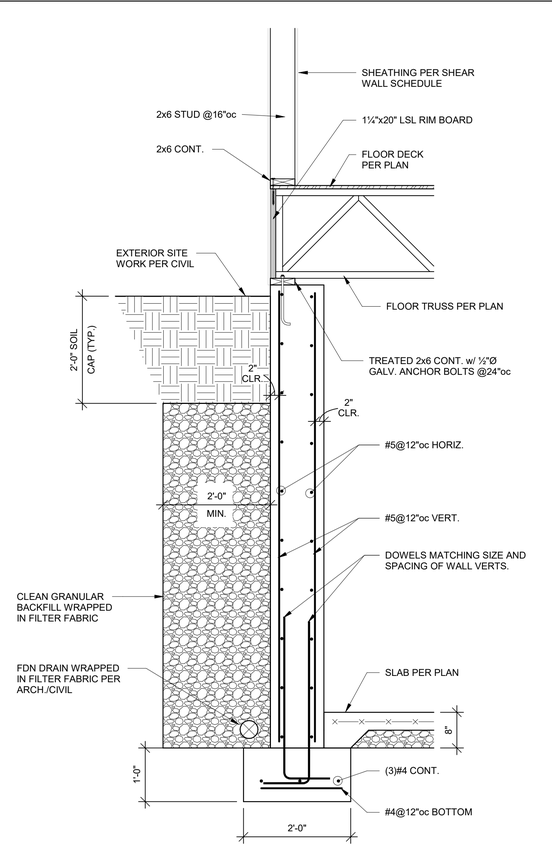


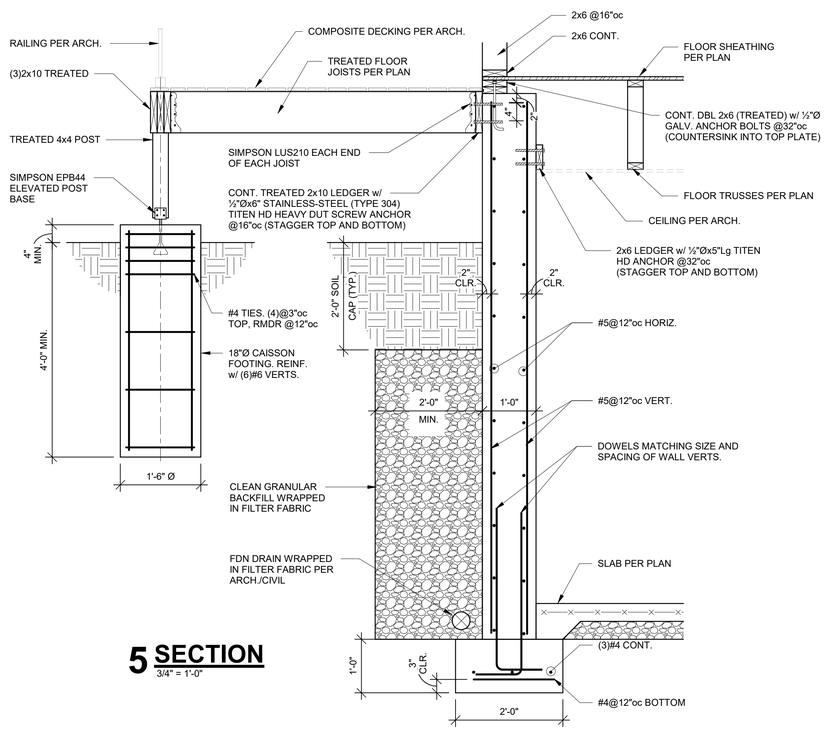
2 SECTION
3/4" = 1'-0"



3 SECTION
3/4" = 1'-0"



4 SECTION
3/4" = 1'-0"



5 SECTION
3/4" = 1'-0"

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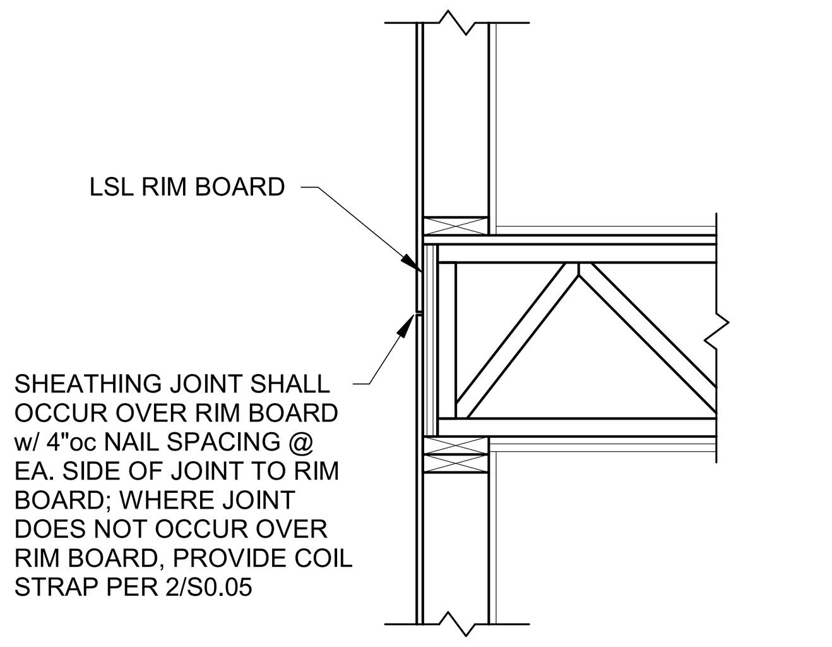
LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES
NEW TOWNHOMES COMPLEX
LENEXA, KANSAS

REVISION:

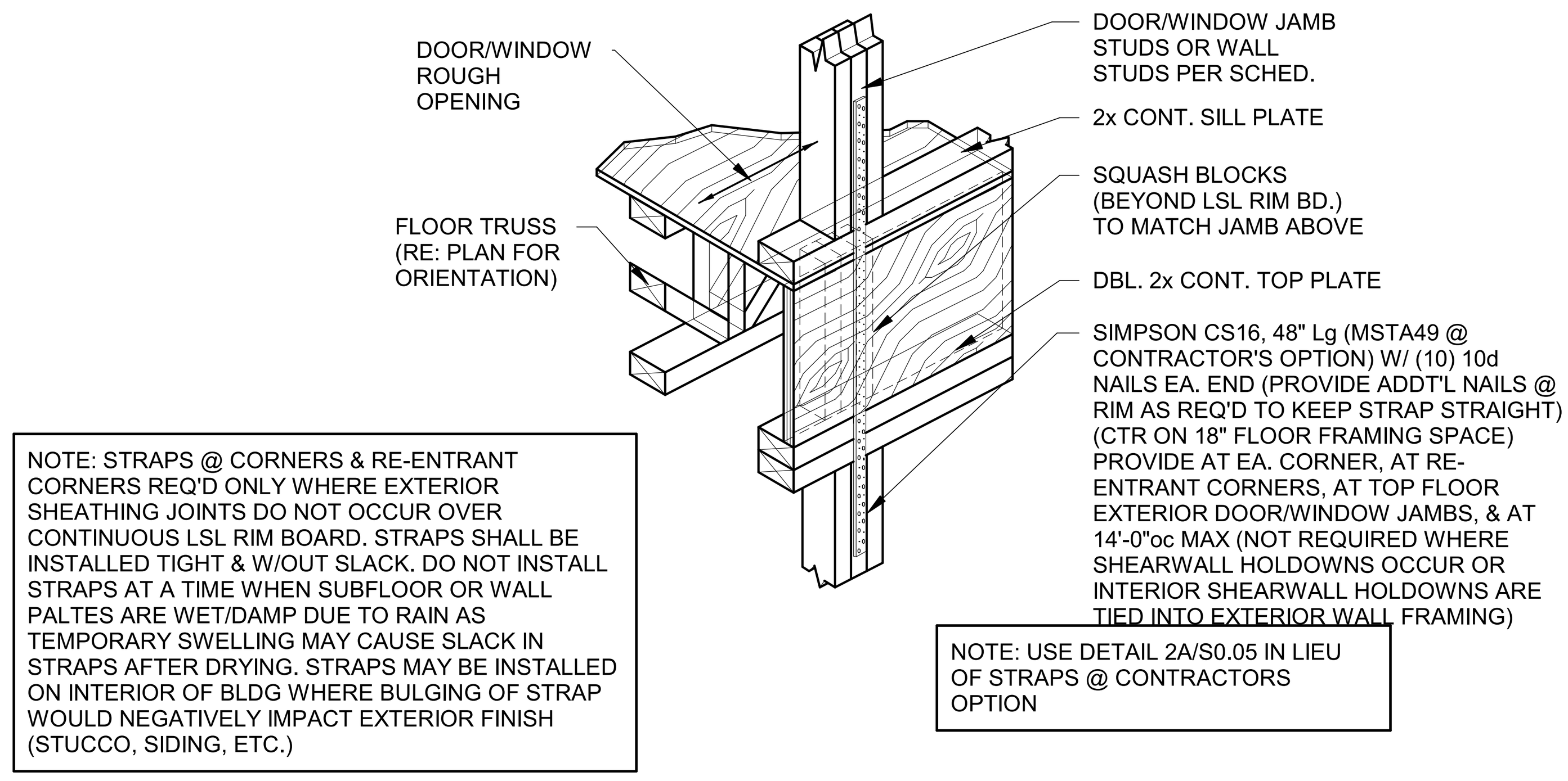
DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

S3.3



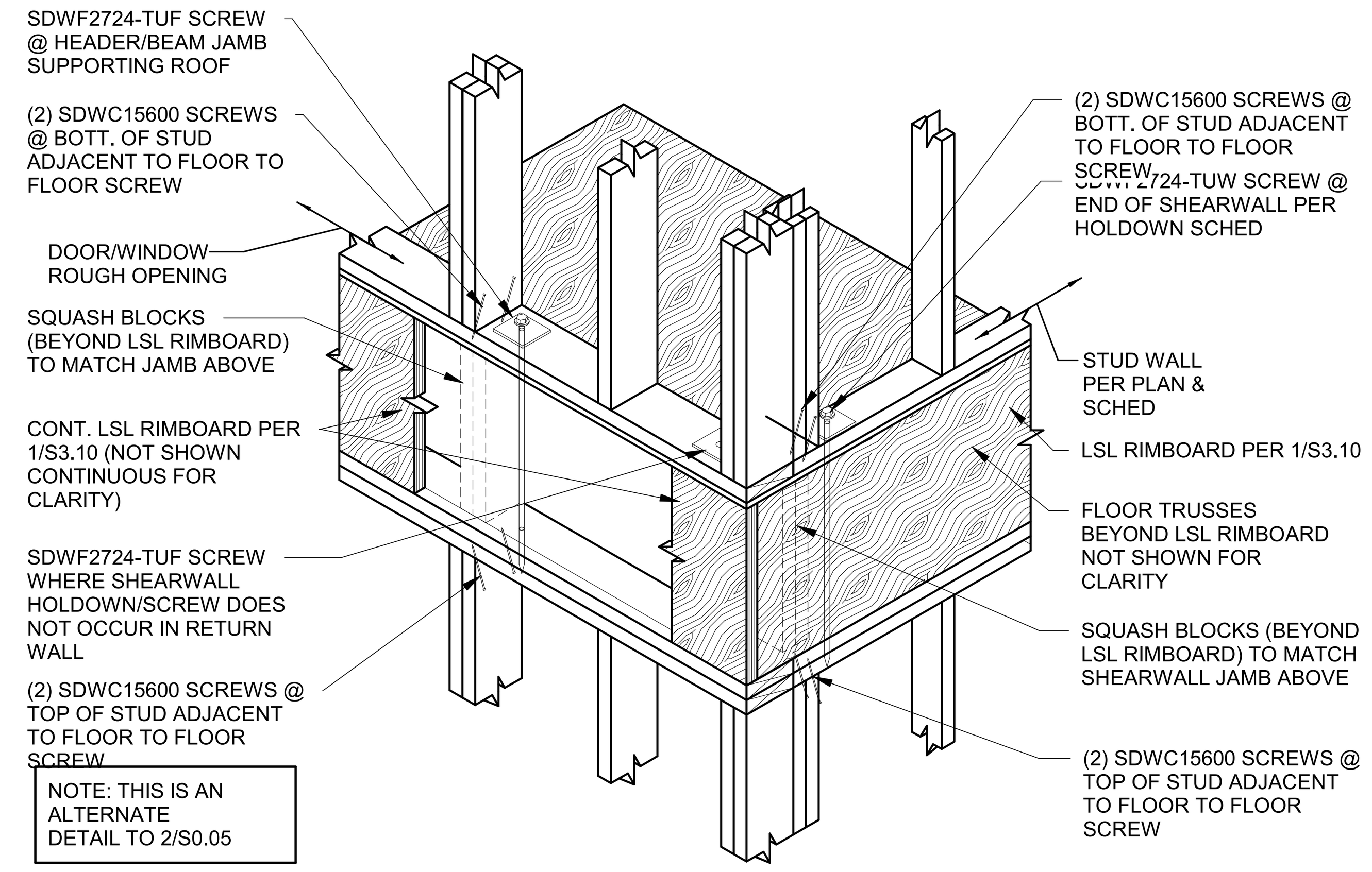
TYPICAL EXTERIOR SHEATHING JOINT

1 SECTION
3/4" = 1'-0"



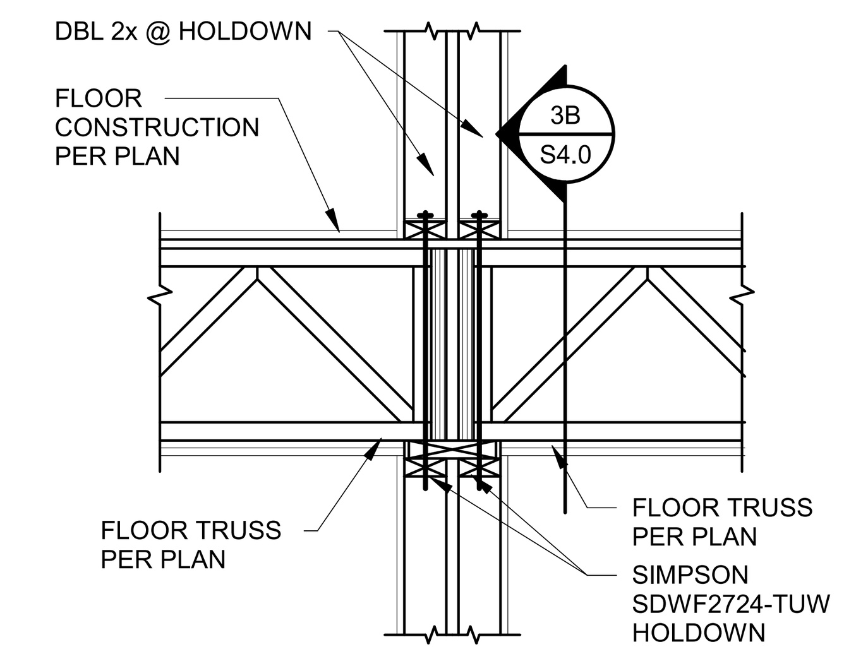
TYPICAL COIL STRAP @ EXTERIOR JAMBS SUPPORTING ROOF FRAMING AT FLOOR DIRECTLY BELOW ROOF AND FLOOR TO FLOOR TIES WHERE DETAIL 1/S0.05 IS NOT FOLLOWED

2 SECTION
3/4" = 1'-0"



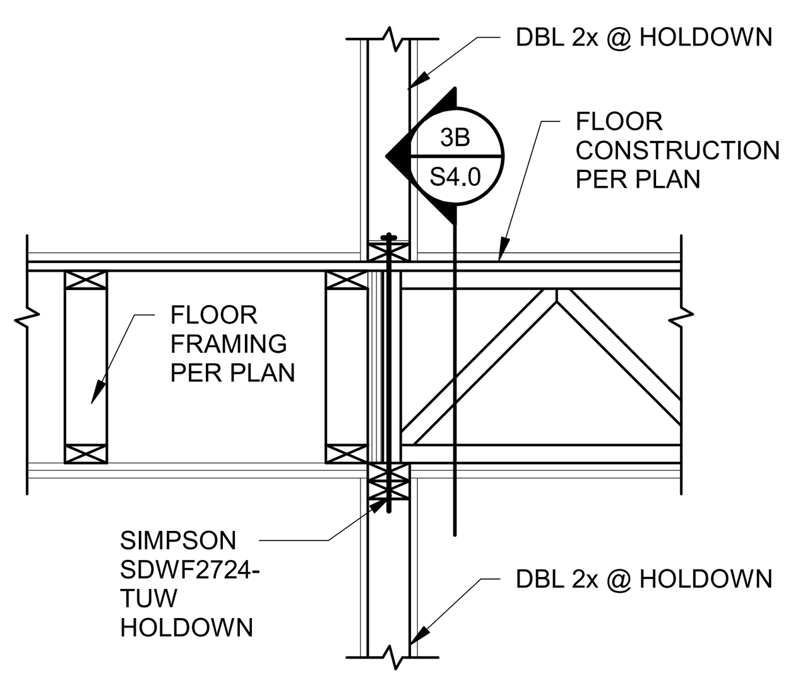
TYPICAL FLOOR-TO-FLOOR SCREW @ EXTERIOR JAMBS SUPPORTING ROOF FRAMING AT FLOOR DIRECTLY BELOW ROOF AND FLOOR TO FLOOR TIES WHERE DETAIL 1/S0.05 IS NOT FOLLOWED

2A SECTION
3/4" = 1'-0"



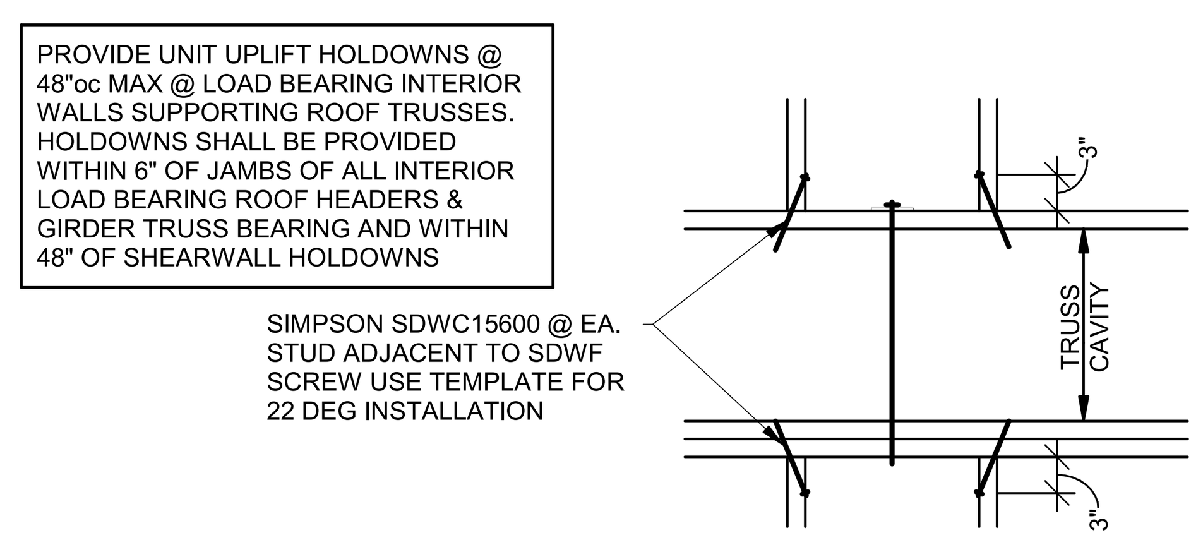
TYPICAL UNIT UPLIFT HOLDOWN DETAIL @ TOP FLOOR ROOF TRUSS BEARING WALLS

3 SECTION
3/4" = 1'-0"



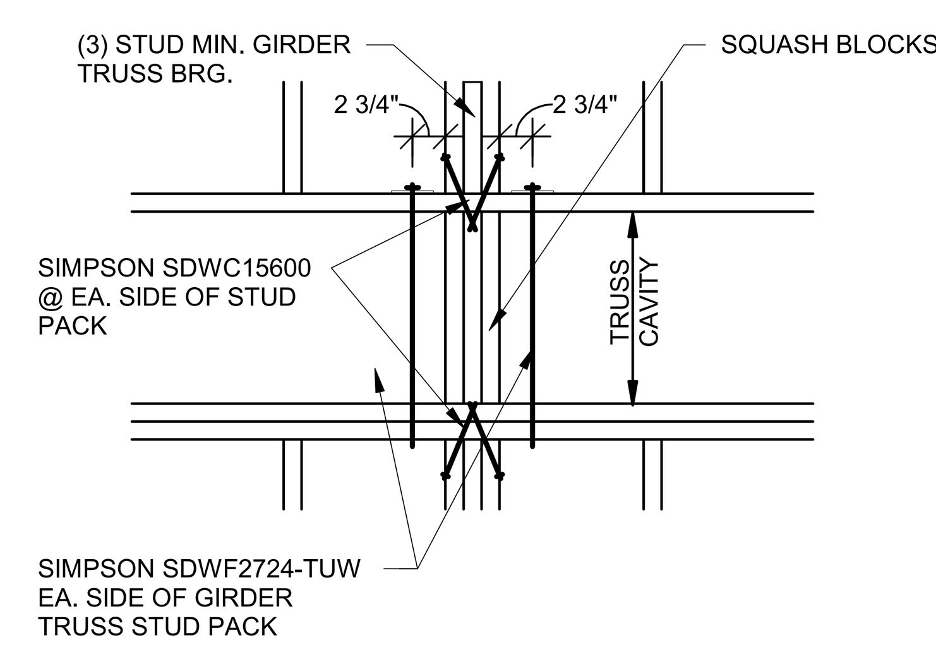
TYPICAL UNIT UPLIFT HOLDOWN DETAIL @ TOP FLOOR ROOF TRUSS BEARING WALLS

3A SECTION
3/4" = 1'-0"



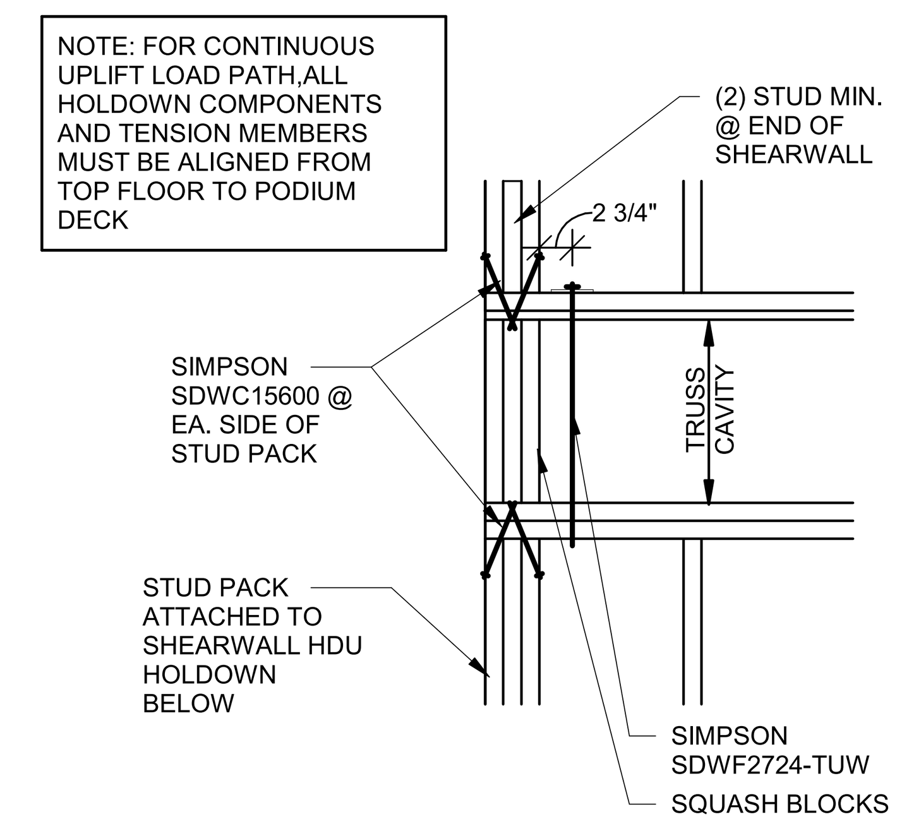
TYP SIDE VIEW AT DBL STUD SCREWS AT HOLDOWN

3B DETAIL
3/4" = 1'-0"



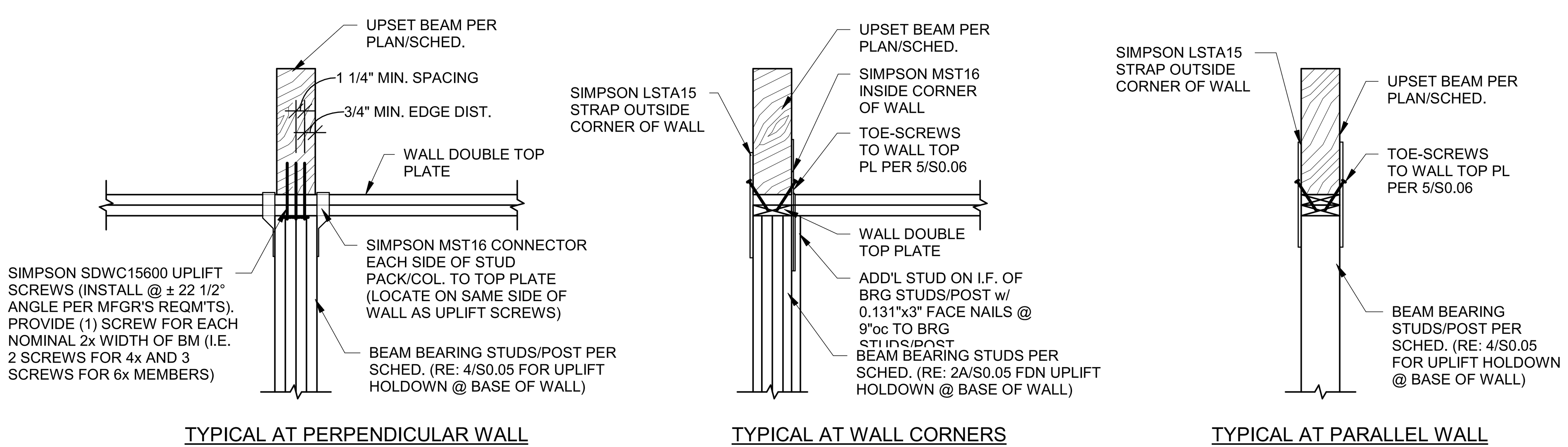
TYPICAL GIRDER TRUSS UPLIFT HOLDOWN DETAIL @ TOP FLOOR

4 SECTION
3/4" = 1'-0"



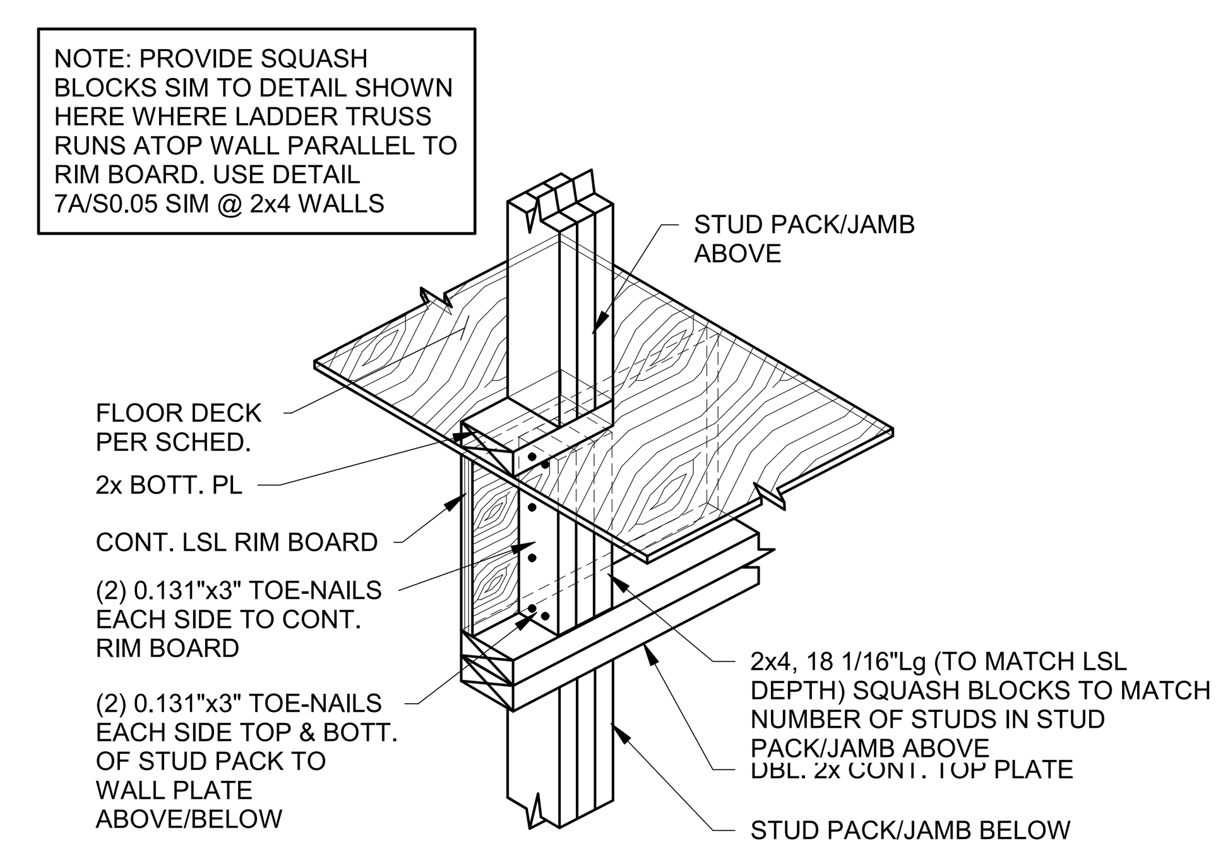
ALTERNATE FLOOR TO FLOOR TIE-DOWN AT END OF WALL

5 SECTION
3/4" = 1'-0"



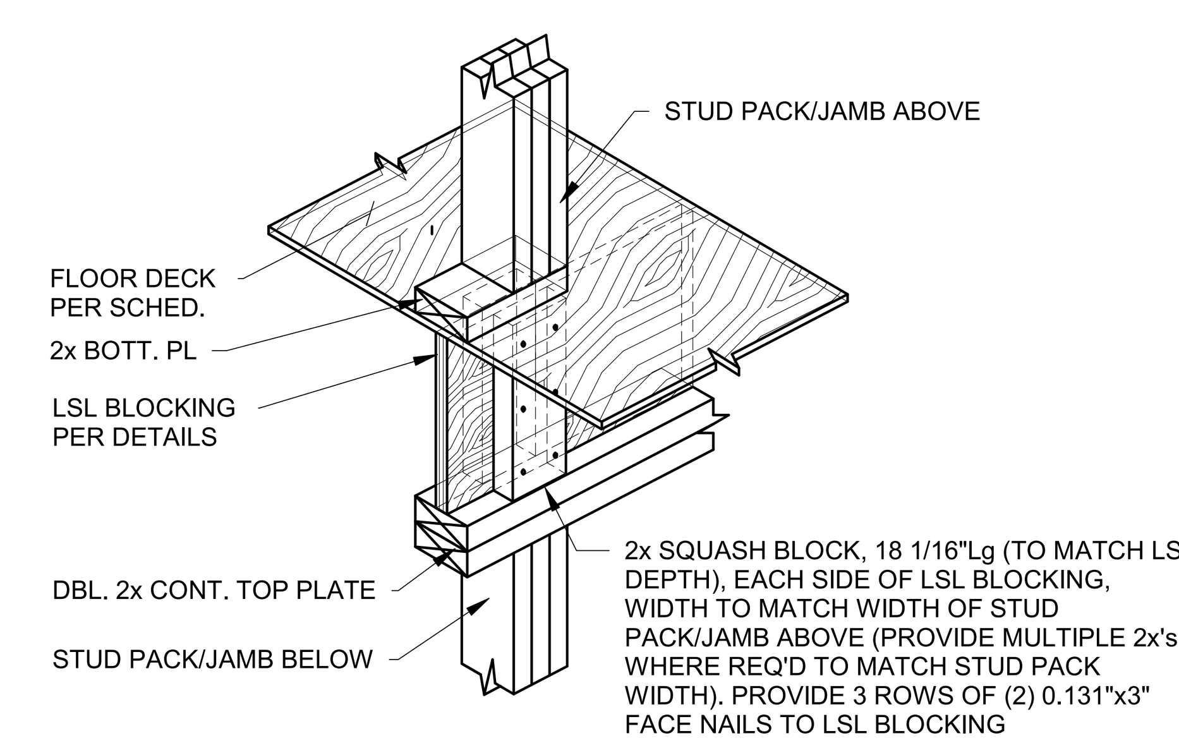
TYPICAL UPSET WOOD BEAM UPLIFT HOLDOWN AT BEAMS SUPPORTING ROOF TRUSS BEARING WALLS OR WHERE INDICATED

6 SECTION
3/4" = 1'-0"



TYPICAL SQUASH BLOCK DETAIL AT CONTINUOUS RIM BOARD

7 SECTION
3/4" = 1'-0"



TYPICAL SQUASH BLOCK DETAIL AT LSL BLOCKING

7A SECTION
3/4" = 1'-0"

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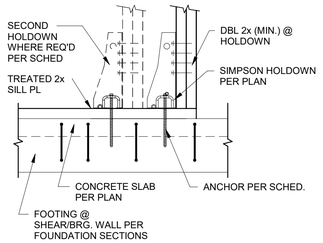
LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES
NEW TOWNHOMES COMPLEX
LENEXA, KANSAS

HAGEDORN
LICENSED
29613
08.12.2025
KANSAS
PROFESSIONAL ENGINEER

REVISION:

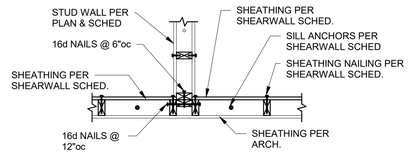
DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

S4.0



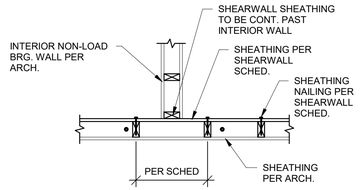
TYPICAL HDU HOLDOWN DETAIL

1 SECTION 3/4" = 1'-0"



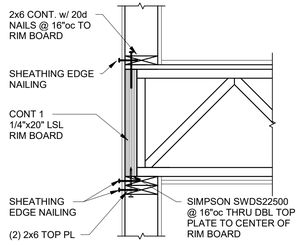
TYPICAL @ DISCONTINUOUS SHEARWALL SHEATHING

2 SECTION 3/4" = 1'-0"



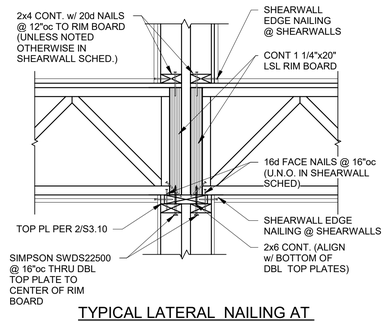
TYPICAL @ SHEARWALL SHEATHING CONTINUOUS PAST NON-LOAD BRG WALL

3 SECTION 3/4" = 1'-0"



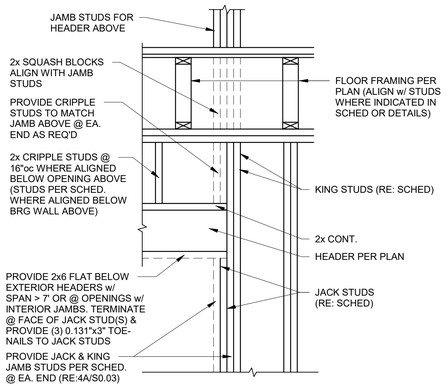
TYPICAL LATERAL NAILING AT EXTERIOR WALL WITH TRUSS BEARING

4 SECTION 1" = 1'-0"



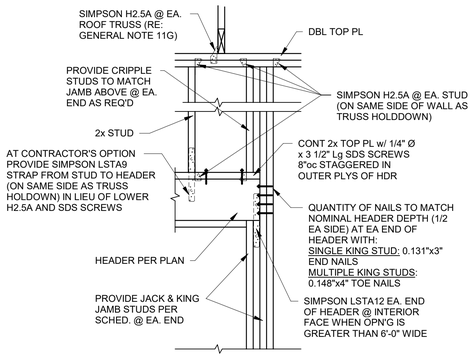
TYPICAL LATERAL NAILING AT DOUBLE UNIT DEMISING WALLS WITH TRUSS BEARING

5 SECTION 1" = 1'-0"



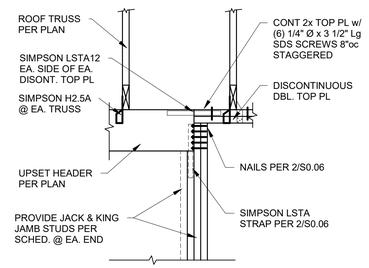
TYPICAL HEADER DETAIL

6 SECTION 3/4" = 1'-0"



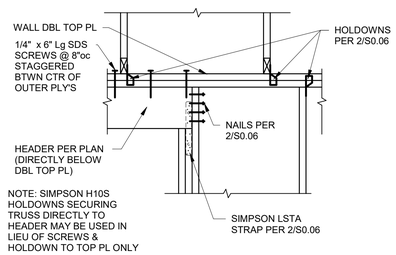
TYPICAL HEADER DETAIL @ ROOF TRUSS BRG LOCATIONS

7 SECTION 3/4" = 1'-0"



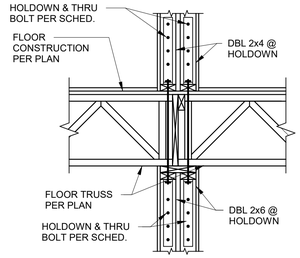
TYPICAL HEADER DETAIL AT DISCONTINUOUS TOP PLATE AT ROOF

8 SECTION 3/4" = 1'-0"



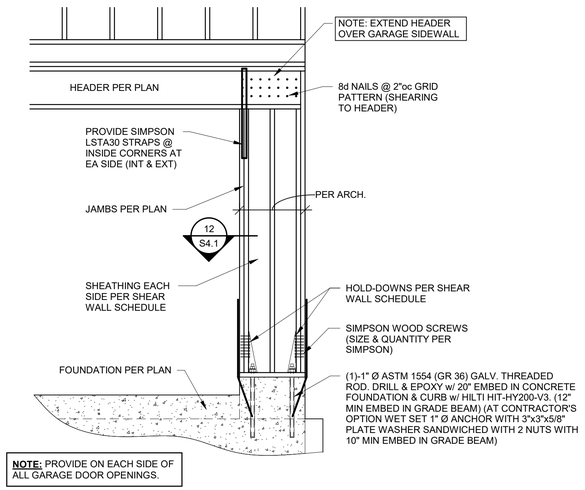
TYPICAL HEADER DEATIL AT ROOF TRUSS BRG LOCATIONS w/HEADER DIRECTLY BELOW DBL TOP PL

9 SECTION 3/4" = 1'-0"



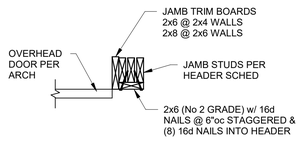
TYP HOLDOWN DETAIL

10 DETAIL 3/4" = 1'-0"



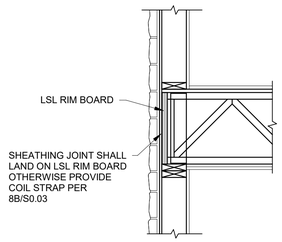
GARAGE PORTAL FRAMING DETAIL

11 DETAIL 1/2" = 1'-0"



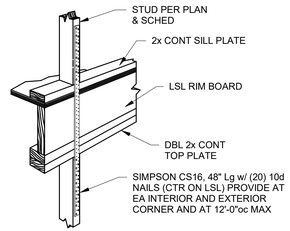
TYP GARAGE SILL DETAIL

12 DETAIL 3/4" = 1'-0"



TYPICAL EXTERIOR SHEATHING JOINT

13 DETAIL 3/4" = 1'-0"



TYP COIL STRAP AT EXTERIOR

14 DETAIL 3/4" = 1'-0"

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES

NEW TOWNHOMES COMPLEX

LENEXA, KANSAS

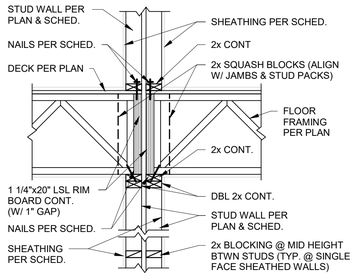
REVISION:

DATE: 8/12/2025

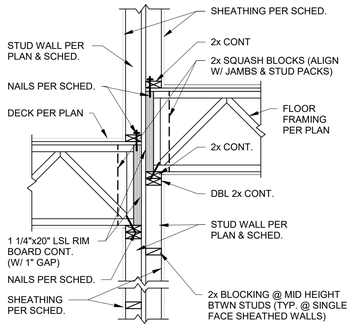
JOB: 25-3090

SHEET NO.:

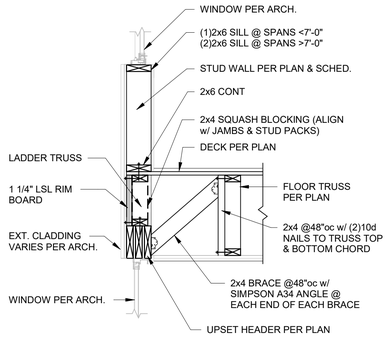
S4.1



1 SECTION
3/4" = 1'-0"



2 SECTION
3/4" = 1'-0"



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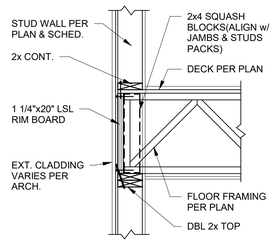
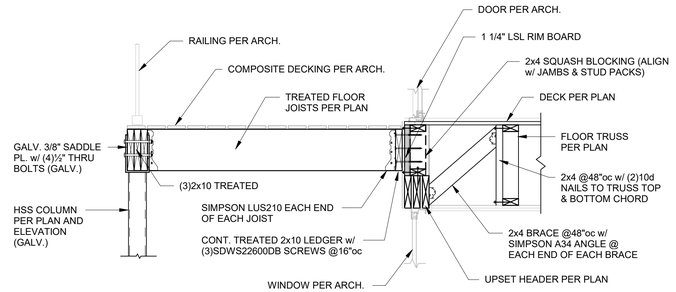
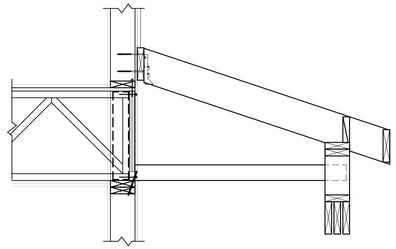
3/4" = 1'-0"



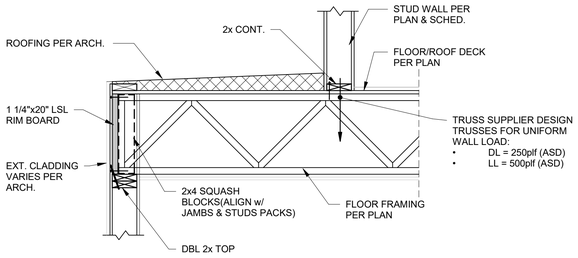
4 SECTION
3/4" = 1'-0"



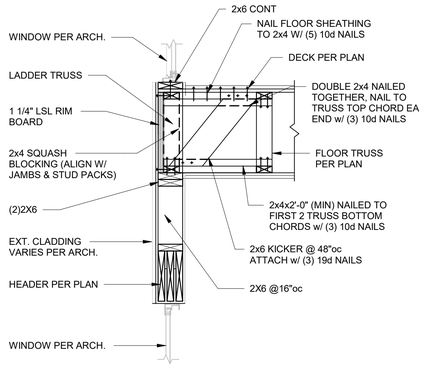
5 SECTION
3/4" = 1'-0"



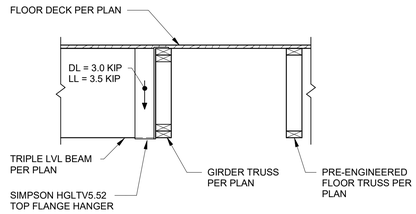
6 SECTION
3/4" = 1'-0"



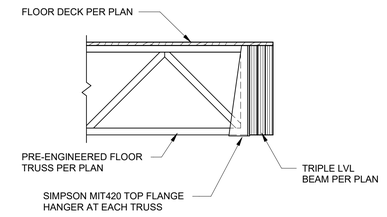
7 SECTION
3/4" = 1'-0"



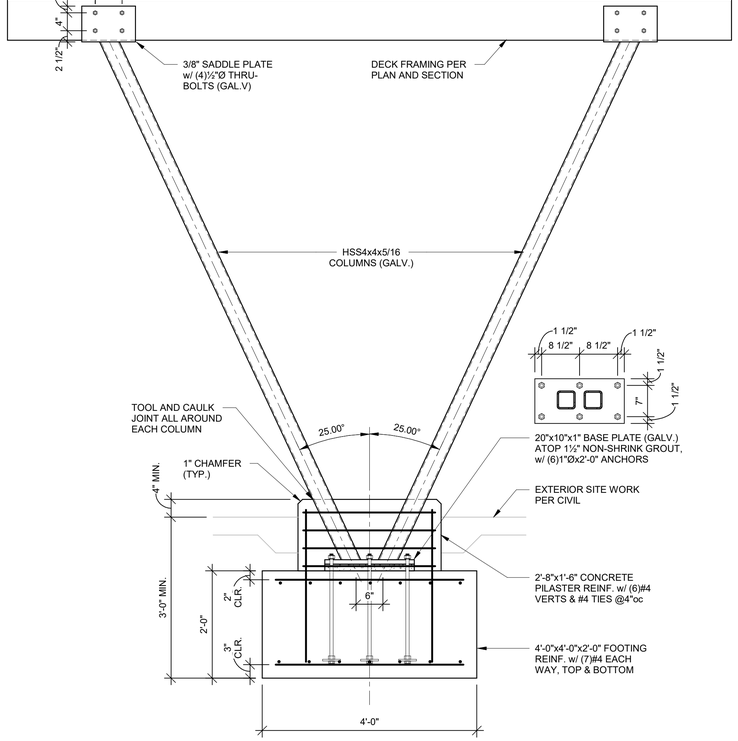
8 SECTION
3/4" = 1'-0"



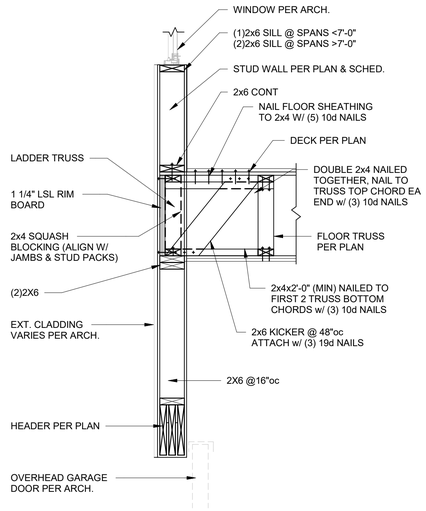
9 SECTION
3/4" = 1'-0"



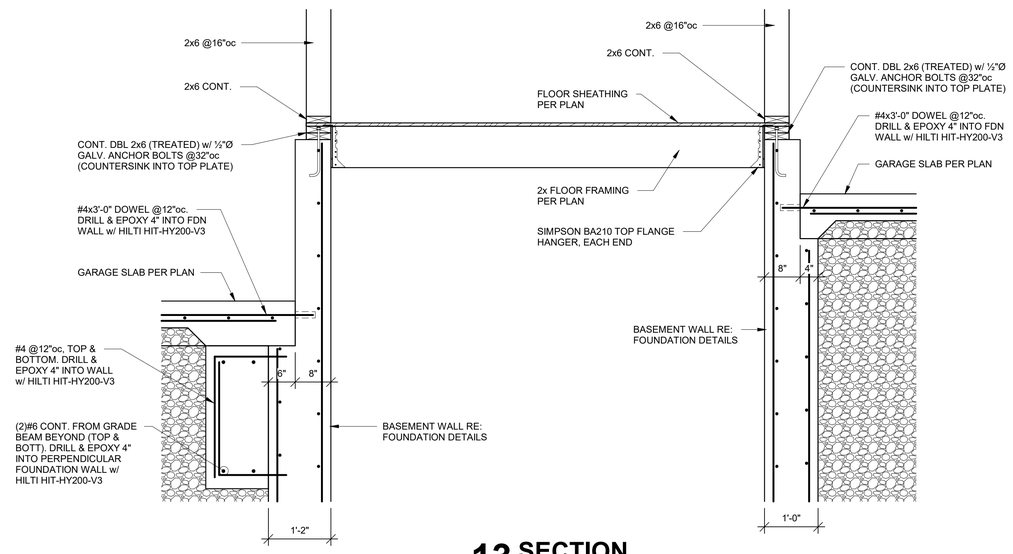
10 SECTION
3/4" = 1'-0"



11 SECTION
3/4" = 1'-0"



12 SECTION
3/4" = 1'-0"



13 SECTION
3/4" = 1'-0"

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES

NEW TOWNHOMES COMPLEX

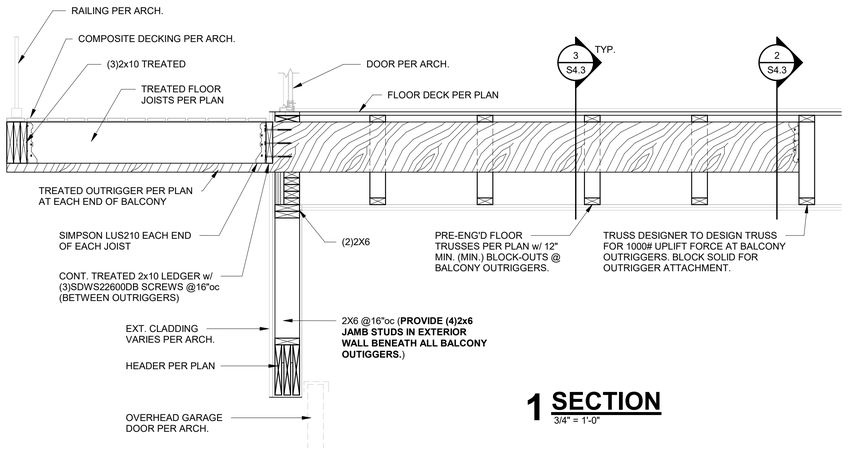
LENEXA, KANSAS

EVAN HAGEDORN LICENSED 29613 08.12.2025 KANSAS PROFESSIONAL ENGINEER

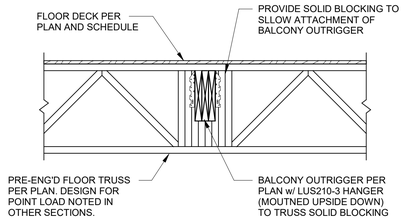
REVISION:

DATE: 8/12/2025
JOB: 25-3090
SHEET NO.:

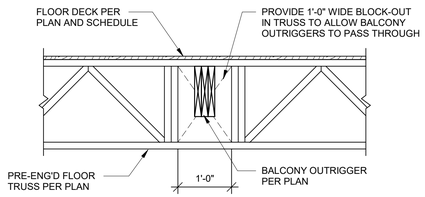
S4.2



1 SECTION
3/4" = 1'-0"



2 SECTION
3/4" = 1'-0"



3 SECTION
3/4" = 1'-0"

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LENEXA CITY CENTER _ NORTH VILLAGE TOWNHOMES

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LENEXA, KANSAS

BRIAN HAGEDORN LICENSED 29613 06.12.2025 KANSAS PROFESSIONAL ENGINEER

REVISION:

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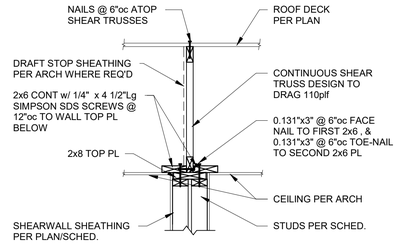
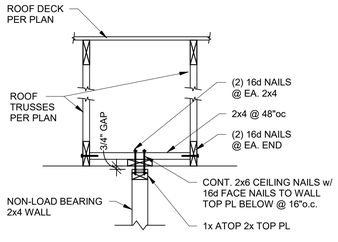
SHEET NO.:

S4.3



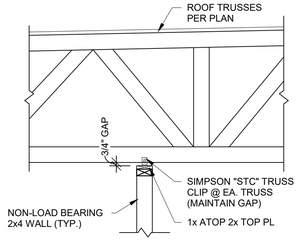
TYPICAL SHEAR TRUSS ATOP SHEARWALL

1 SECTION 3/4" = 1'-0"



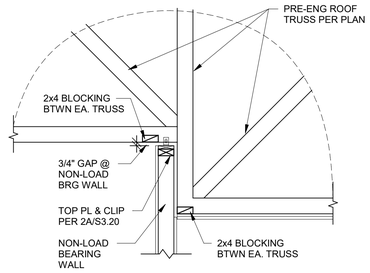
TYPICAL NON-LOAD BEARING WALL/TRUSS AT ROOF

2 SECTION 3/4" = 1'-0"

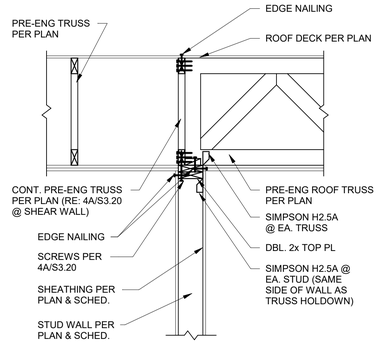


TYPICAL NON-LOAD BEARING WALL/TRUSS AT ROOF

2A SECTION 3/4" = 1'-0"

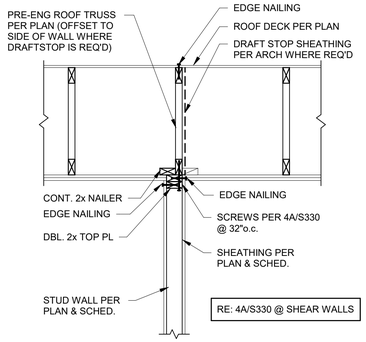


2B SECTION 3/4" = 1'-0"



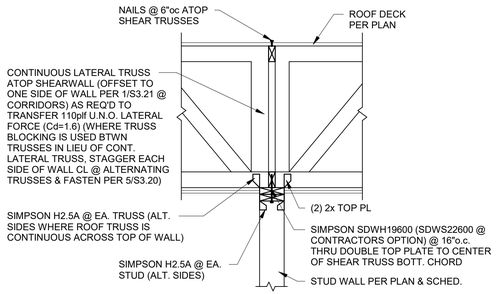
TYP. INTERSECTING ROOF TRUSSES @ BRG. WALL

3 SECTION 3/4" = 1'-0"



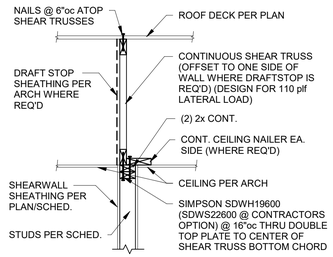
TYP. ROOF TRUSS PARALLEL W/ WALL

3A SECTION 3/4" = 1'-0"



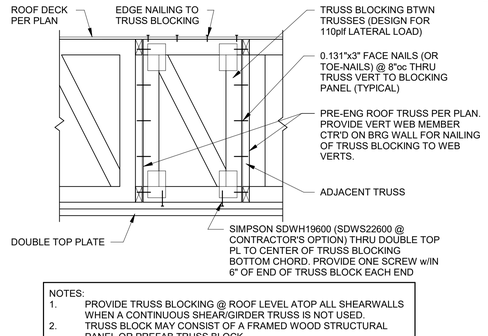
TYPICAL LATERAL TRUSS ATOP SHEARWALL PERPENDICULAR TO TRUSS SPAN

4 SECTION 3/4" = 1'-0"



TYPICAL LATERAL TRUSS ATOP PARALLEL SHEARWALL

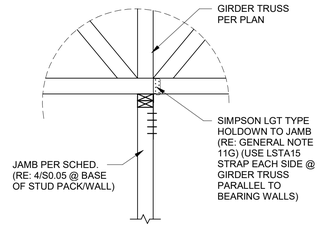
4A SECTION 3/4" = 1'-0"



NOTES:
1. PROVIDE TRUSS BLOCKING @ ROOF LEVEL ATOP ALL SHEARWALLS WHEN A CONTINUOUS SHEAR/GIRDER TRUSS IS NOT USED.
2. TRUSS BLOCK MAY CONSIST OF A FRAMED WOOD STRUCTURAL PANEL OR PREFAB TRUSS BLOCK.
3. TRUSS MANUFACTURER TO DESIGN PREFAB TRUSS BLOCK.

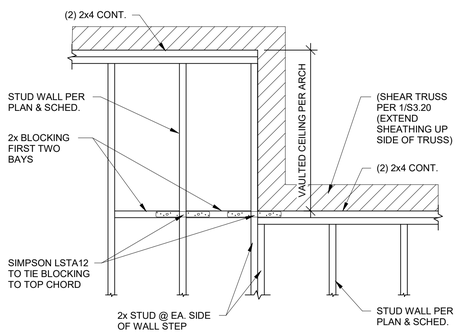
TYPICAL ROOF TRUSS BLOCKING AT SHEARWALLS

5 SECTION 3/4" = 1'-0"

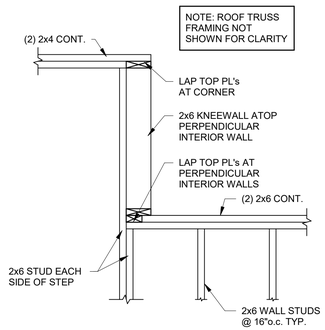


TYPICAL DETAIL AT ROOF GIRDER TRUSS BEARING

6 SECTION 3/4" = 1'-0"



7 SECTION 3/4" = 1'-0"



TYPICAL STEP IN PL HEIGHT AT ALIGNED EXTERIOR WALLS

8 SECTION 3/4" = 1'-0"

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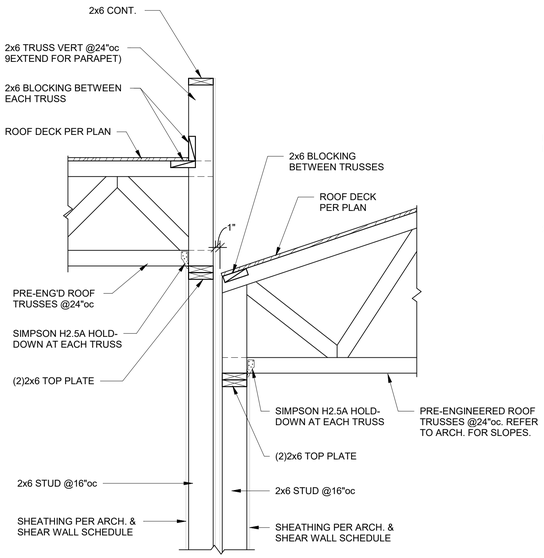
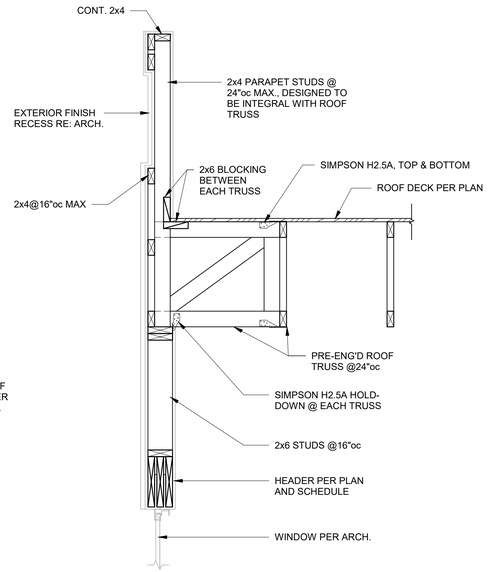
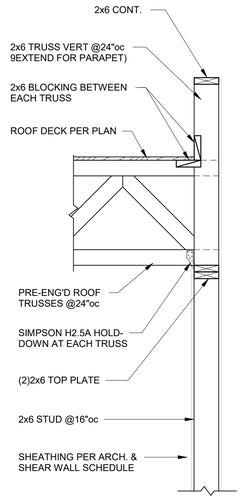


1 SECTION
3/4" = 1'-0"



2 SECTION
3/4" = 1'-0"



3 SECTION
3/4" = 1'-0"

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