



| Square Footage  |            |
|-----------------|------------|
| <b>Heated</b>   |            |
| First Floor     | 1366 Sq Ft |
| Second Floor    | 1633 Sq Ft |
| Total           | 2999 Sq Ft |
| <b>Unheated</b> |            |
| Garage          | 502 Sq Ft  |
| Front Porch     | 224 Sq Ft  |
| Rear Porch      | 175 Sq Ft  |
| Total           | 901 Sq Ft  |

| Symbols Legend: |                                |  |                          |
|-----------------|--------------------------------|--|--------------------------|
|                 | STONE CLADDING                 |  | WOOD                     |
|                 | CONCRETE BLOCK                 |  | PLYWOOD                  |
|                 | CONCRETE                       |  | WOOD ROUGH FRAMING       |
|                 | ARCHITECTURAL PRECAST CONCRETE |  | GIPS                     |
|                 | FORMFILL                       |  | BATT INSULATION          |
|                 | CAST IN                        |  | RIGID INSULATION         |
|                 | METAL                          |  | FIRE SAFING              |
|                 | GYPSUM WALLBOARD               |  | IMPREGNATED FOAM SEALANT |
|                 | GWB SOFFIT OR CEILING          |  | SEALANT AND BACKER ROD   |

**General Notes:**

- Design Loads: Local
- Materials
  - Brick Face Brick Standard: ASTM C216-84, Grade SW. Brick type and color to be chosen by owner.
  - Mortar ASTM C270, Type S. Mortar style and color consult owner. Do not use calcium chloride in mortar.
  - Brick Ties ASTM A82 steel wire, hot dip galvanized after fabrication to ASTM A 153/A 153M, Class B
  - Insulation ASTM C865; pre-formed glass fiber batt (R-19)
  - Wood Framing No. 2 Southern Pine
  - Waterproofing #15 asphalt felt
  - Roof Shingles Match existing
- Masonry
  - Install mortar in accordance with premix mortar instructions or in accordance with ASTM C780.
  - Clean mortar off exposed finished surfaces immediately following placement.
  - Conform to the applicable code requirements for masonry construction and guidelines outlined by the Brick Institute of America.
  - Provide brick ties.
  - Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges.
  - Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with adhesive/sealant/tape as recommended by flashing manufacturer before covering with mortar.
  - Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashings as follows:
    - Keep head joints free and clear of mortar.
    - Space weep holes 24 inches o/c.
  - Weep Holes
    - After wall construction is complete, clean brick with a non-acidic solution recommended by masonry unit manufacturer.
- Insulation
  - Verify that adjacent materials and insulation materials are dry.
  - Install insulation per manufacturer's instructions.
  - Tape seal tears or cuts in vapor retarder.

- Wood Framing
  - All field nailing will comply with the North Carolina State Building Code Fastening Schedule Table 2304.9.1 unless noted otherwise. All nails are to be common nails.
  - Miscellaneous framing not shown on the structural drawings may be required in some areas. Contractor will provide all framing required to complete the project.
  - Exterior Wall Sheathing:
    - Sheathing will be 1/2" plywood APA rated sheathing with an exterior exposure 1 durability rating.
    - Place long dimension of sheathing perpendicular to studs in a staggered arrangement. Fasten to studs with 10d common nails 6"o/c at all panel edges and 12"o/c at intermediate supports. Block all unsupported edges.
    - Leave 1/4" space at all panel edge joints and 1/8" space at all panel end joints unless otherwise recommended by manufacturer.
  - Plywood Roof Sheathing
    - Roof sheathing is to be APA rated with an exterior exposure 1 rating and a panel span rating of 32/16. Thickness of sheathing is to match existing roof sheathing thickness.
    - Place long dimension of sheathing perpendicular to outriggers. Remove sections of existing sheathing and stagger every other new plywood sheet back to the 2nd interior roof truss. Fasten to trusses and outriggers with 10d common nails, 6"o/c at all panel edges and 12"o/c at intermediate supports. Block all unsupported edges.
    - Leave 1/4" space at all panel edge joints and 1/8" space at all panel end joints unless otherwise recommended by the manufacturer.
  - Do not cut or notch new or existing framing unless required on this drawing.
- Miscellaneous
  - The contractor will be responsible for properly guying and bracing the structure to resist live, dead, wind and construction loads during construction.
  - Verify all existing building dimensions, elevations and details with the field conditions.

| Climate Zone               | Zone 3 | Zone 4 | Zone 5 |
|----------------------------|--------|--------|--------|
| Fenstration U-Factor       | 0.35   | 0.35   | 0.35   |
| Skylight U-Factor          | 0.65   | 0.60   | 0.60   |
| Glazed Fenstration SHGC    | 0.30   | 0.30   | 0.30   |
| Ceiling R-Value            | 30     | 38     | 38     |
| Wall R-Value               | 15     | 15     | 19     |
| Floor R-Value              | 19     | 19     | 30     |
| *Basement Wall R-Value     | 10/13  | 10/13  | 10/13  |
| **Slab R-Value             | 0      | 10     | 10     |
| **Crawl Space Wall R-Value | 5/13   | 10/13  | 10/13  |

\*10/13 means R-10 sheathing insulation or R-13 cavity insulation  
\*\* Insulation depth with monolithic slab 18" or from inspenation gap to bottom of footing; Insulation dept with stem wall slab 24" or to bottom of foundation wall.

| Design Pressure for Doors and Window<br>Positive and Negative in PSF |                       |    |    |
|----------------------------------------------------------------------|-----------------------|----|----|
|                                                                      | Mean Roof Height (FT) |    |    |
| Velocity (MPH)                                                       | 15                    | 25 | 35 |
| 90                                                                   | 15                    | 17 | 19 |
| 100                                                                  | 20                    | 23 | 25 |
| 110                                                                  | 25                    | 29 | 32 |
| Assumed Mean Roof Height 25'-9"                                      |                       |    |    |

Designed for windspeed of 110 MPH,  
3 Second Gust (95 Fastest Mile) Exposure "B"

**NOTICE TO CONTRACTOR**  
All construction must comply with current NC Building Codes and is subject to field inspection and verification.

**APPROVED**  
Limited building only review  
Permit holder responsible for  
full compliance with the code

08/06/2025

*Boyle*



**PROPERTY OF TPDCLLC**

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR (IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAN AND VIA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence

Enter address here

Graves Residence

Cover Sheet

Revisions:

SCALE:

DATE:

August 5, 2025

Project number

1108240000

Drawn by

TP

Checked by

TP

C

Floor Plan Notes:

1. All structural information shown is for reference purposes only. Contractor shall have licensed structural engineer review and design all structural elements such as all framing walls, beams, connections, headers, joists and rafters.
2. All dimensions are from center line of stud to face of exterior stud unless noted otherwise.
3. Window sizes indicated on plans are noted by approximate rough opening size. Refer to plans and exterior elevations for window types.
4. Coordinate location of utility meters with site plan and locate away from public view visual impact shall be minimized, i.e. mount as low as possible.
5. Prefabricated fireplace construction shall meet or exceed all applicable codes regarding use of fire separations, clearances, etc. It is all items and contractor's responsibility to ensure that all items and construction meet or exceed the applicable code. Overall flue height shall be coordinated to match height shown on plans and shall not exceed the top of chimney chase as constructed.
6. Contractor shall coordinate all closet shelving requirements.
7. Do not scale drawings. Follow dimensions only.
8. Contractor shall field verify all cabinet dimensions before fabrication.
9. Bedroom windows shall have a minimum net clear opening of 5.7 sq. ft. A minimum net clear openable width of 20". A minimum net clear openable height of 24" and have a maximum finish sill height of 43" from finish floor.
10. All glass located within 18" of floor, 12" of a door of located within 60" of floor at bathtubs, whirlpools, showers, saunas, steam rooms or hot tubs shall be tempered.
11. All exposed insulation shall have a flame spread rating of less than 25 and a smoke density rating of less than 450.
12. Provide combustion air vents, with screen and back damper, for fireplaces, wood stoves and any appliance with an open flame.
13. Bathrooms and utility rooms shall be vented to the outside with a minimum of a 90 cfm fan. Range hoods shall also be vented to outside.
14. Attic HVAC units shall be located within 20'-0" of its service opening. Return air grilles shall not be located within 10'-0" of a gas fired appliance.
15. All walls and ceilings in garage and garage storage areas to have 5/8" Type-X gyp. brd. with 1-Hour fire rating. All exterior doors in garage to be metal or solid core doors including doors entering heat/cooled portion of residence.
16. All fireplace chase walls shall be insulated inside and outside. Provide horizontal "Draft Stops" at each floor level by packing 6" (R-19) insulation between 2X4 joists.
17. All interior walls shall be covered with 1/2" gyp. brd., with metal corner reinforcing, tape float and sand. (3 coats) use 5/8" gyp. brd. on ceilings when supporting members are 24" O.C. or greater. Use 1/2" gyp. brd. on ceiling members less than 24" O.C.
18. All bath and toilet area walls and ceiling shall have water resistant gyp. brd.

Dwelling/Garage Separation

REFER TO SECTIONS R302.5, R302.6, AND R302.7

**Walls.** A minimum 1/2" gypsum board must be installed on all walls supporting floor/ceiling assemblies used for separation required by this section.

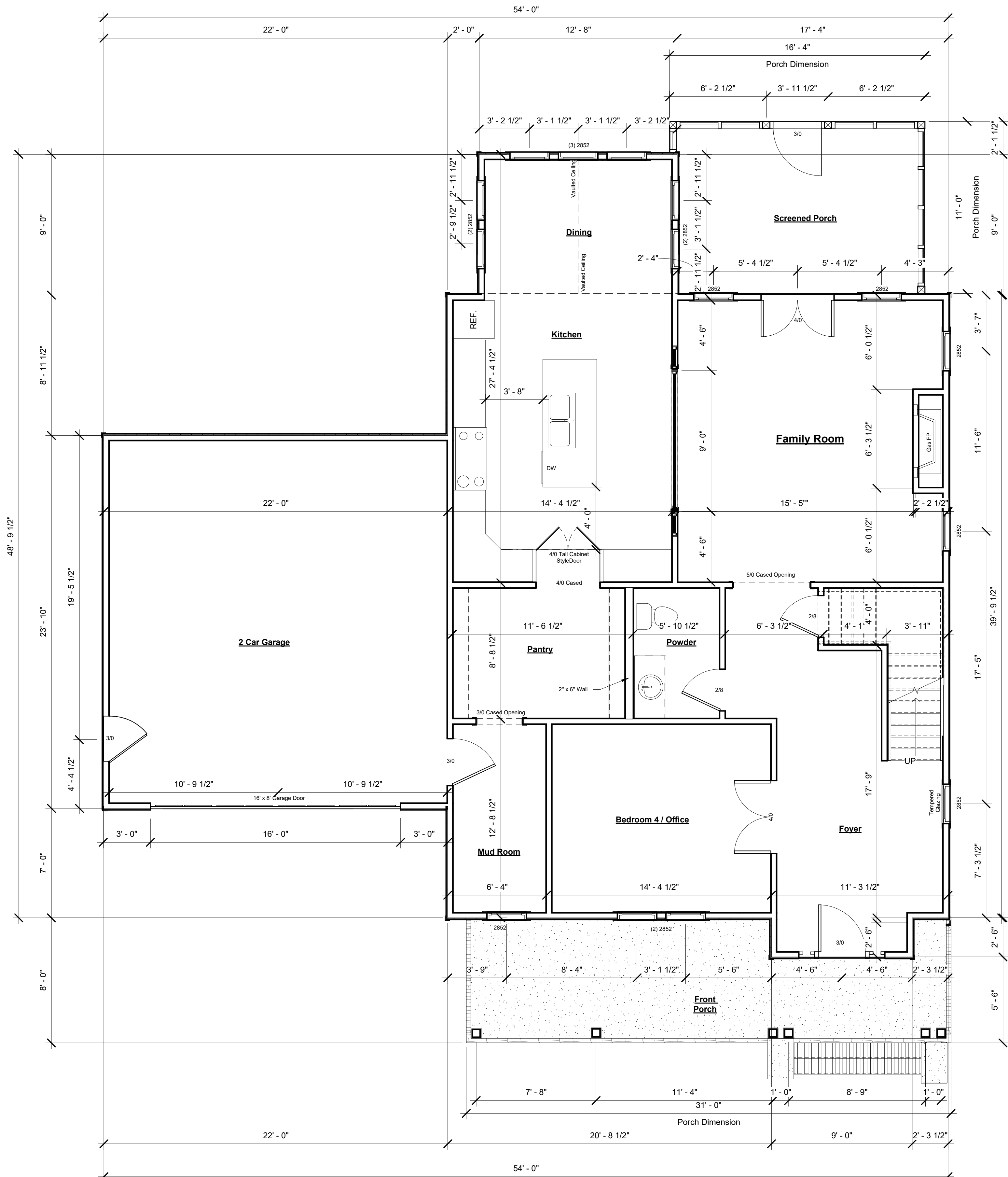
**Stairs.** A minimum of 1/2" gypsum must be installed on the underside and exposed sides of all stairways.

**Ceilings.** A minimum of 1/2" gypsum must be installed on the garage ceiling if there is no habitable room above. If a habitable room is above, a minimum of 5/8" Type X gypsum board must be installed on the the garage ceiling.

**Opening Penetrations.** Openings between the garage and the residence shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches thick, or 20-minute fire-rated doors.

**Duct Penetrations.** Ducts in the garage and ducts penetrating the walls or ceilings sparation the dwelling from the garage shall be constructed of a minimum No. 26 gage sheet steel or other approved material and shall have no openings into the garage.

**Other Penetrations.** Penetrations through the separation required in Section R302.6 shall be protected as required by Section R302.11, Item 4.



General Notes:

1. All dimensions are given from the exterior face of the stud to the interior face of interior studs unless otherwise noted.
2. All work shall be performed in conformance with the 2018 NC Building Code for One and Two Family Dwellings and all referenced standards.
3. All finishes, appliances, equipment and fixtures shall be coordinated by Owner and G.C.
4. G.C. to field verify all existing dimensions and conditions prior to commencing work.
5. Drawings are an instrument to communicate intent of construction. Do not scale drawings.
6. All doors and windows to be selected by Owner and provided and installed by G.C.
7. All casework to be selected by Owner and provided and installed by G.C.

1 First Floor Plan  
1/4" = 1'-0"

PROPERTY OF TPDCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SMI AND VIA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
First Floor Plan

Revisions:

SCALE:

1/4" = 1'-0"

DATE:

August 5, 2025

Project number

1108240000

Drawn by

DFS

Checked by

TP

PROPERTY OF TPDCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAA AND VIA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
Second Floor Plan

Revisions:

SCALE:  
1/4" = 1'-0"

DATE:  
August 5, 2025

Project number  
1108240000

Drawn by DFS  
Checked by TP

Floor Plan Notes:

- All structural information shown is for reference purposes only. Contractor shall have licensed structural engineer review and design all structural elements such as all framing walls, beams, connections, headers, joists and rafters.
- All dimensions are from center line of stud to face of exterior stud unless noted otherwise.
- Window sizes indicated on plans are noted by approximate rough opening size. Refer to plans and exterior elevations for window types.
- Coordinate location of utility meters with site plan and locate away from public view visual impact shall be minimized, i.e. mount as low as possible.
- Prefabricated fireplace construction shall meet or exceed all applicable codes regarding use of fire separations, clearances, etc. It is all items and contractor's responsibility to ensure that all items and construction meet or exceed the applicable code. Overall flue height shall be coordinated to match height shown on plans and shall not exceed the top of chimney chase as constructed.
- Contractor shall coordinate all closet shelving requirements.
- Do not scale drawings. Follow dimensions only.
- Contractor shall field verify all cabinet dimensions before fabrication.
- Bedroom windows shall have a minimum net clear opening of 5.7 sq. ft. A minimum net clear openable width of 20". A minimum net clear openable height of 24" and have a maximum finish sill height of 43" from finish floor.
- All glass located within 18" of floor, 12" of a door or located within 60" of floor at bathtubs, whirlpools, showers, saunas, steam rooms or hot tubs shall be tempered.
- All exposed insulation shall have a flame spread rating of less than 25 and a smoke density rating of less than 450.
- Provide combustion air vents, with screen and back damper, for fireplaces, wood stoves and any appliance with an open flame.
- Bathrooms and utility rooms shall be vented to the outside with a minimum of a 90 cfm fan. Range hoods shall also be vented to outside.
- Attic HVAC units shall be located within 20'-0" of its service opening. Return air grilles shall not be located within 10'-0" of a gas fired appliance.
- All walls and ceilings in garage and garage storage areas to have 5/8" Type-X gyp. brd. with 1-Hour fire rating. All exterior doors in garage to be metal or solid core doors including doors entering heat/cooled portion of residence.
- All fireplace chase walls shall be insulated inside and outside. Provide horizontal "Draft Stops" at each floor level by packing 6" (R-19) insulation between 2X4 joists.
- All interior walls shall be covered with 1/2" gyp. brd., with metal corner reinforcing, tape float and sand. (3 coats) use 5/8" gyp. brd. on ceilings when supporting members are 24" O.C. or greater. Use 1/2" gyp. brd. on ceiling members less than 24" O.C.
- All bath and toilet area walls and ceiling shall have water resistant gyp. brd.

Smoke Alarms

Section R314

**R314.1 Smoke Detection and Notification.** All smoke alarms shall be listed in accordance with UL 217 and installed in accordance with provisions of this code and the household fire warning equipment provisions to NFPA 72.

**R314.2 Smoke Detection Systems.** Household fire alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required by this section for smoke alarms. Where a household fire warning system is installed using a combination of smoke detector and audible notification device(s), it shall become a permanent fixture of the occupancy and owned by the homeowner. The system shall be monitored by and approved supervising station and be maintained in accordance with NFPA72.

Exception:

Where smoke alarms are provided meeting the requirements of Section R314.4.

**R314.3 Location.** Smoke alarms shall be installed in the following locations.

- In each sleeping room.
- Outside each separate sleeping area in the immediate vicinity of the bedrooms.
- On each additional story of the dwelling, including basements and habitable attics (finished) but not including crawl spaces, uninhabitable (unfinished) attics and uninhabitable (unfinished) attic-stories. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.

**R314.4 Power Source.** Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnection switch other than those required for overcurrent protection. Smoke alarms shall be interconnected.

Carbon Monoxide Alarms

Section R315

**R315.1 Carbon Monoxide Alarms.** Inn new construction, dwelling units shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) as directed by the alarm manufacturer.

**R315.2 Where Required In Existing Dwellings.** In existing dwellings, where interior alterations, repairs, fuel-fired appliance replacements, or additions requiring a permit occurs, or where one or more sleeping rooms are added or created, carbon monoxide alarms shall be provided in accordance with Section R315.1.

**R315.3 Alarm Requirements.** The required carbon monoxide alarms shall be audible in all bedrooms over background noise levels with all intervening doors closed. Single station carbon monoxide alarms shall be listed as complying with UL2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

Attic Access

Section R807

**R807.1 Attic Access.** An attic access opening shall be provided to attic areas that exceed 400 square feet and have a vertical height of 60 inches or greater. The net clear opening shall not be less than 20 inches by 30 inches and shall be located in the hallway or other unobstructed area. Headroom in the attic space shall be provided at some point above the access opening. See Sectio M1305.1.3 for access requirements where mechanical equipments located above attics.

Exceptions:

- Concealed areas not located over the main structure including porches, areas behind knee walls, dormers, bay windows, etc. are not required to have access.
- Pull down stair treads, stringers, handrails, and hardware may protrude into the net clear area

FINISHES

- SEAL AROUND WINDOW AND DOOR OPENINGS WITH PAINT GRADE SEALANT. WHERE COUNTERTOPS AND BACK SPLASHES BUTT WALLS, PROVIDE A BEAD OF CLEAR SILICONE CAULK. AT PLUMBING FIXTURES, PROVIDE ANTI-FUNGAL CAULK.
- ALL GYPSUM BOARD TO BE 1/2" TYPE X
- CEILINGS THROUGHOUT TO BE GYPSUM BOARD. PATCH CEILING WHERE AFFECTED BY DEMOLITION AND MATCH FINISH, TEXTURE, AND PAINT OF ADJOINING CEILING.
- PRIOR TO ORDERING FINISHES, VERIFY/CONSULT WITH OWNER, CONFIRM COLOR & STYLE.
- ALL METAL TO RECEIVE BASE COAT AND 2 COATS SEMI-GLOSS LATEX PAINT. GWB TO RECEIVE ONE COAT PRIMER & TWO COATS PAINT. WOOD DOORS TO BE FACTORY STAINED.
- ALL CABINETRY TO BE PLASTIC LAMINATE FACED, FLUSH OVERLAY DESIGN. ALL HARDWARE TO BE INTERMEDIATE DUT. FIELD VERIFY ROOM DIMENSIONS AND APPLIANCE SIZES PRIOR TO FABRICATION. GC TO PROVIDE BLOCKING IN WALLS.

Walls & Thicknesses

All walls are 3 1/2" thick 2x4 nominal studs SYP or SPF #2 @ 16" O.C. unless otherwise noted.

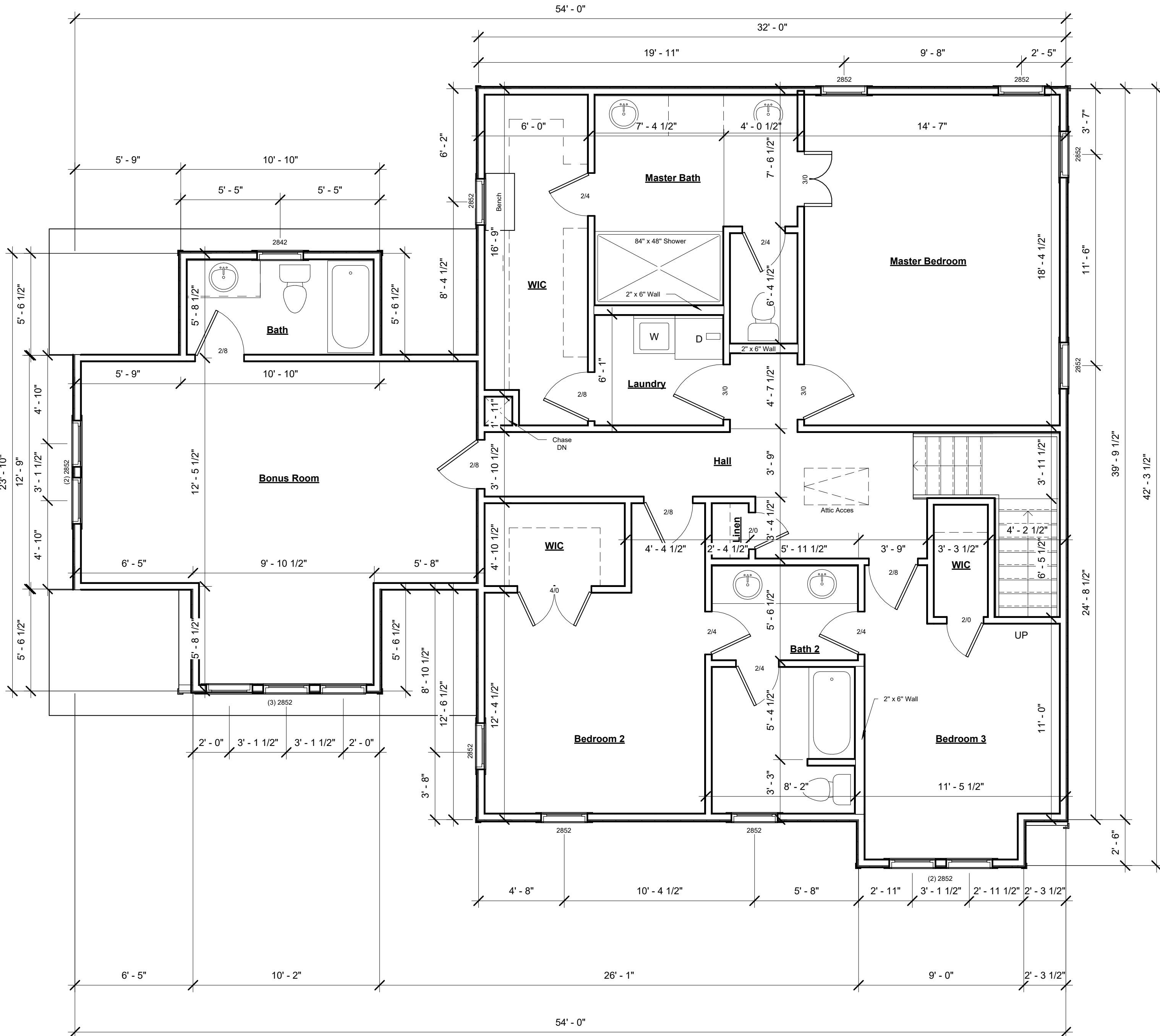
**Exterior walls** are drawn to actual dimensions to include both interior and exterior finishes. Measurements to exterior walls are to the exterior face of wall stud.

**Garage walls** are drawn to actual dimensions. Measurements to exterior walls are to the exterior face of wall stud. Measurements to walls between the residence and the garage a to the face of the stud on the garage side.

**Interior walls** are drawn to actual dimension. Measurements to interior walls are to the center line of the wall.

General Notes:

- All dimensions are given from the exterior face of the stud to the centerline of interior studs unless otherwise noted.
- All work shall be performed in conformance with the 2018 NC Building Code for One and Two Family Dwellings and all referenced standards.
- All finishes, appliances, equipment and fixtures shall be coordinated by Owner and G.C.
- G.C. to field verify all existing dimensions and conditions prior to commencing work.
- Drawings are an instrument to communicate intent of construction. Do not scale drawings.
- All doors and windows to be selected by Owner and provided and installed by G.C.
- All casework to be selected by Owner and provided and installed by G.C.



1 Second Floor Plan  
1/4" = 1'-0"

PROPERTY OF TPCCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER OR OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES AND ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAA AND VAA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Elevation Notes:

- Gutters and downspouts are not shown for clarity, downspouts shall be located towards the front and rear of the house. Locate downspouts in non-visually offensive locations. General contractor shall verify existing grades and coordinate any necessary drainage requirements with owner.
- Plumbing and HVAC vents shall be grouped in attic to limit roof penetrations and to be located away from public view and shall be primed and painted to match roof color where necessary.
- Provide attic ventilation per local code requirements.
- Exterior flashing shall be correctly installed at all connections between roofs, walls, chimneys, projections and penetrations as required by approved construction practices.
- Contractor shall provide adequate attic ventilations/roof vents per local governing code. Install continuous ridge ventilation and match to roof. Provide appropriate soffit ventilation at overhangs.

Exterior Windows And Doors

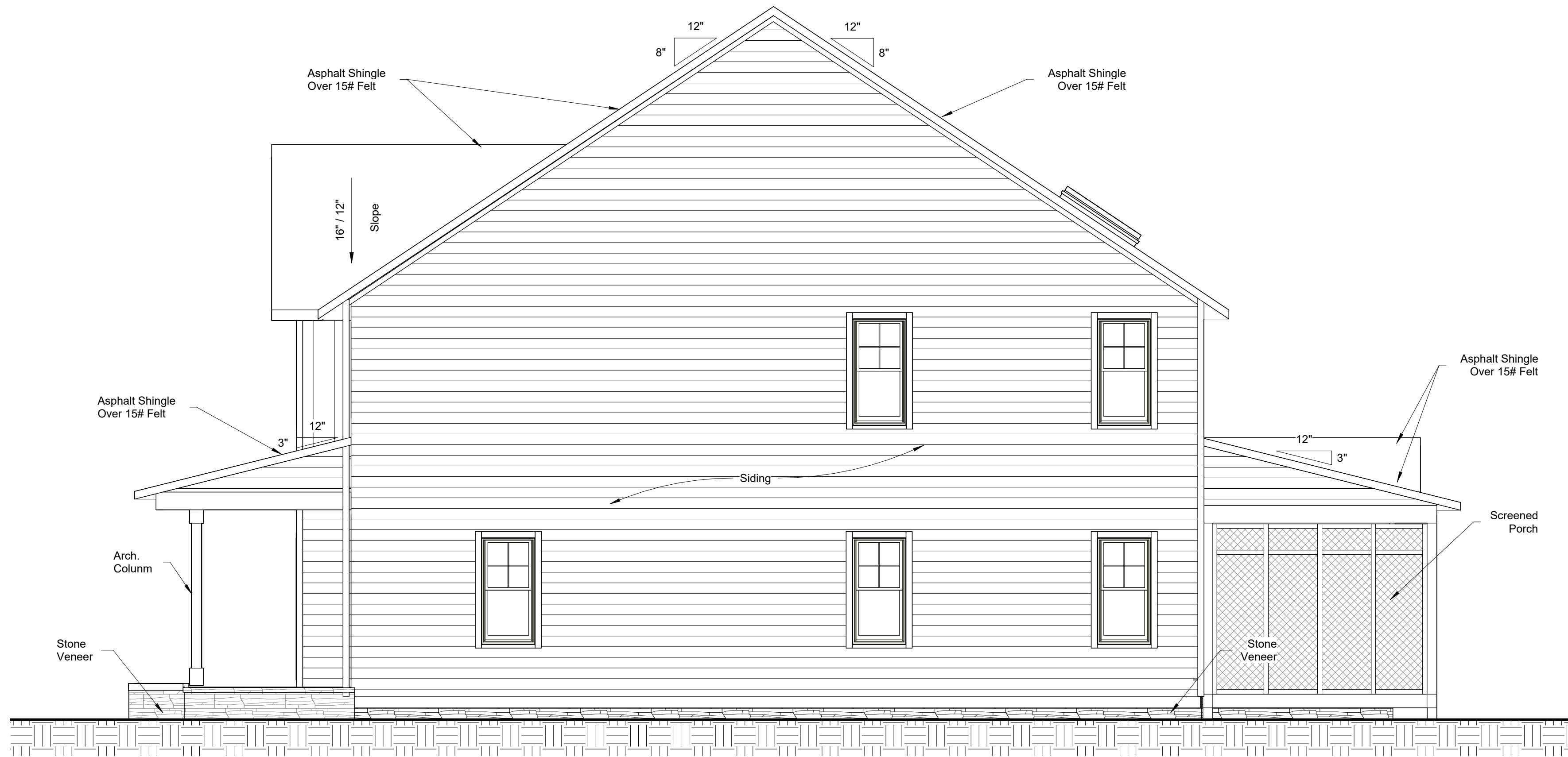
Section R612

**R612.1 General.** This section prescribes performance and construction requirements for exterior windows and doors installed in exterior walls. Windows and doors shall be installed and flashed according with the manufacturer's installation requirements for fenestration protection. Window and door openings shall be flashed in accordance with Section R703.8. Written installation instructions shall be provided by the fenestration manufacturer for each new window and door installed.

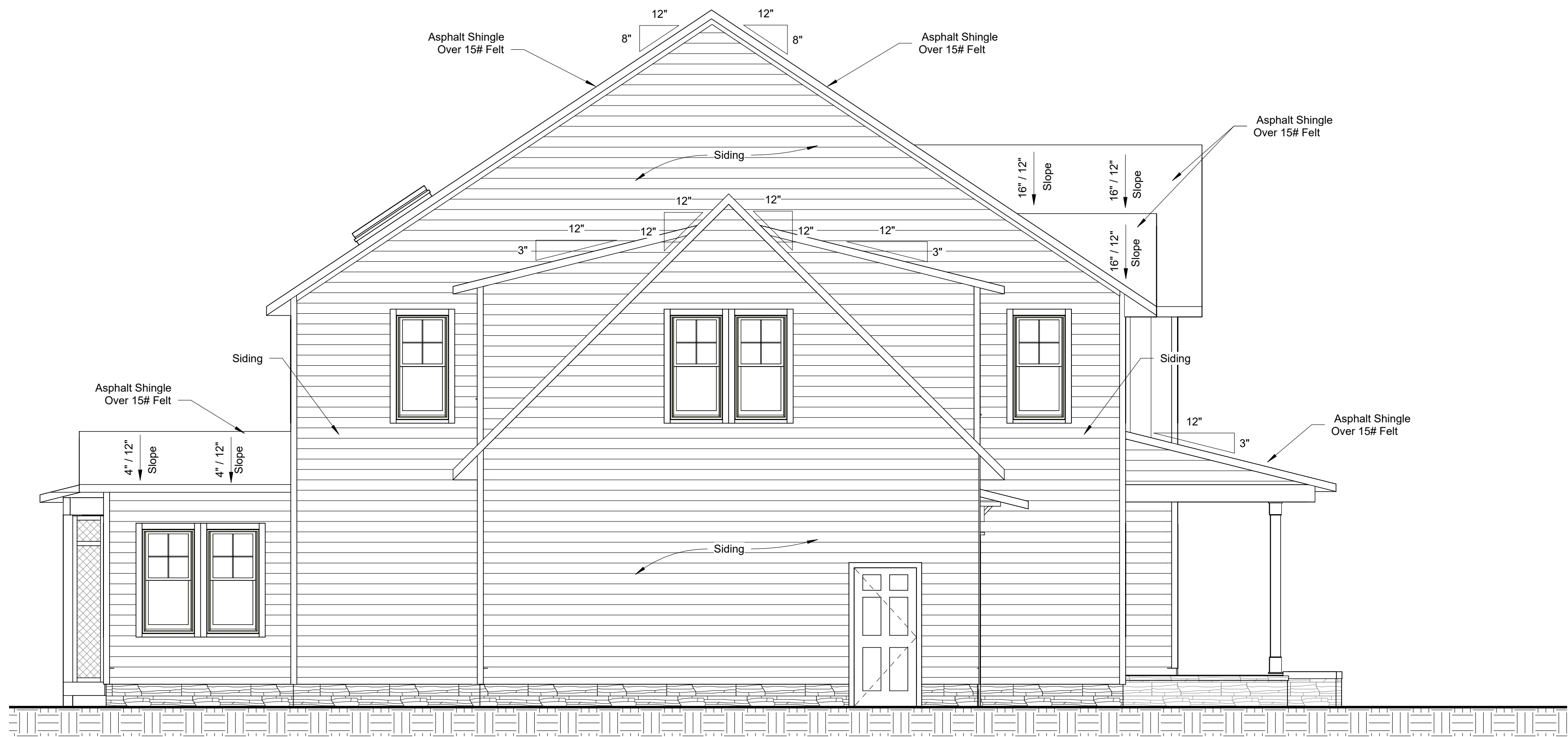
**R612.2 Window Sills.** In dwelling units, where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow th passage of a 4 inch diameter sphere where such openings are located within 24 inches of the finished floor.

Exceptions:

- Windows whose openings will not allow a 4 inch diameter sphere to pass through the opening when the opening is in its largest opened position.
  - Openings that are provided with window fall prevention devices that comply with R612.3.
  - Openings that are provided with window fall prevention devices that comply with ASTM F 2090.
  - Opening that are provided with openin limiting devices that comply with section R612.4.
- R612.3 Window Fall Prevention Devices.** Window fall prevention devices and window guards, where provided, shall comply with the requirements of ASTM F 2090.



① Right View  
1/4" = 1'-0"



② Left View  
1/4" = 1'-0"

Graves Residence

Enter address here

Graves Residence

Elevations

Revisions:

SCALE:

1/4" = 1'-0"

DATE:

August 5, 2025

Project number

1108240000

Drawn by

DFS

Checked by

TP

3

PROPERTY OF TPDCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES AND ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAH AND VA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
Elevations Countined

Revisions:

SCALE:  
1/4" = 1'-0"

DATE:  
August 5, 2025

Project number  
1108240000

Drawn by TP  
Checked by TP



① Front View  
1/4" = 1'-0"



② Rear View  
1/4" = 1'-0"

PROPERTY OF TPCCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAI AND VA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
Sections & Details

Revisions:

SCALE:  
As indicated

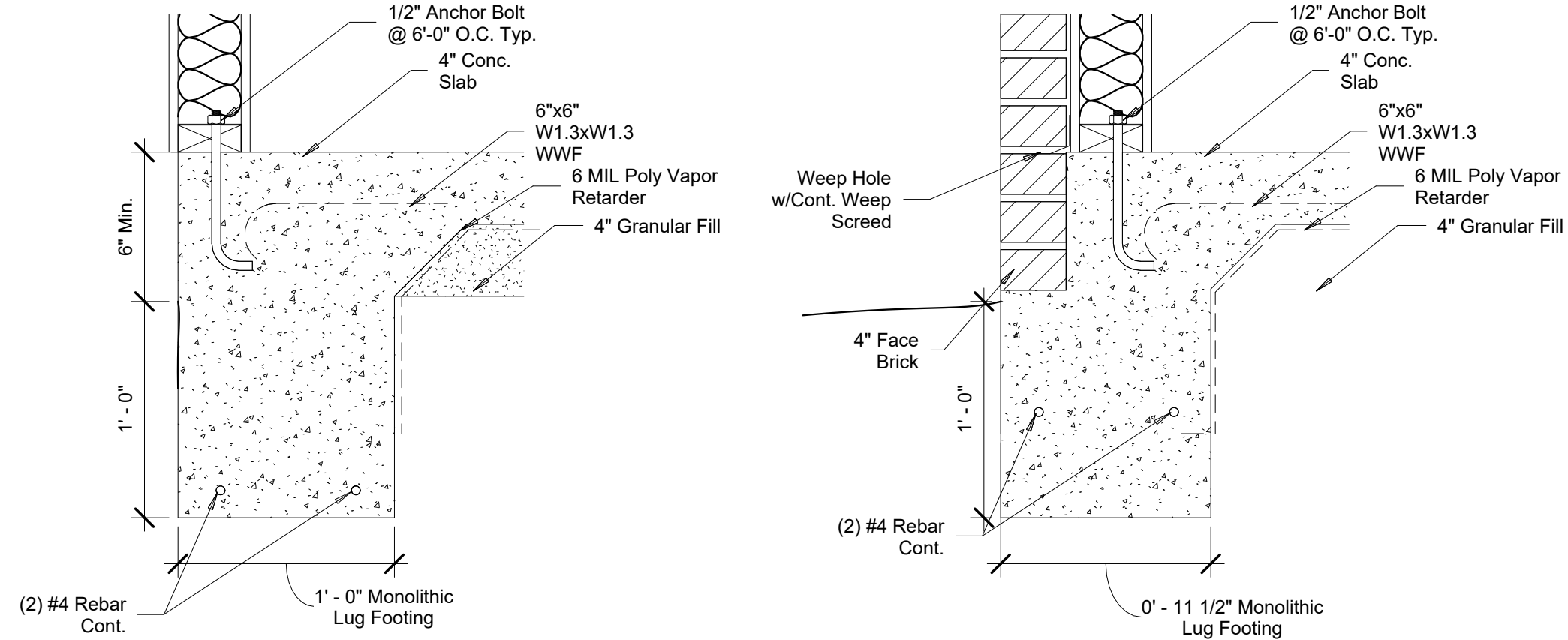
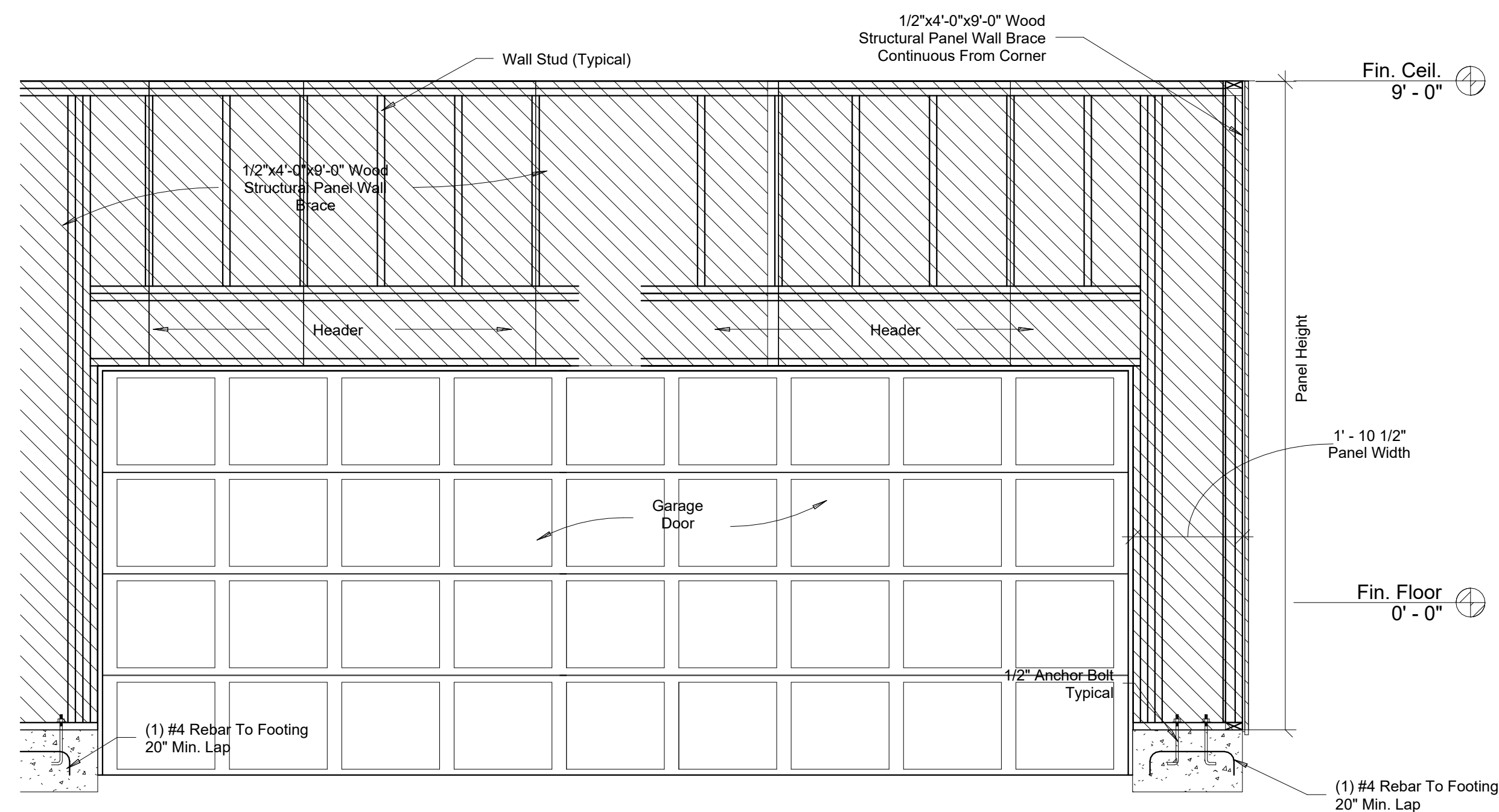
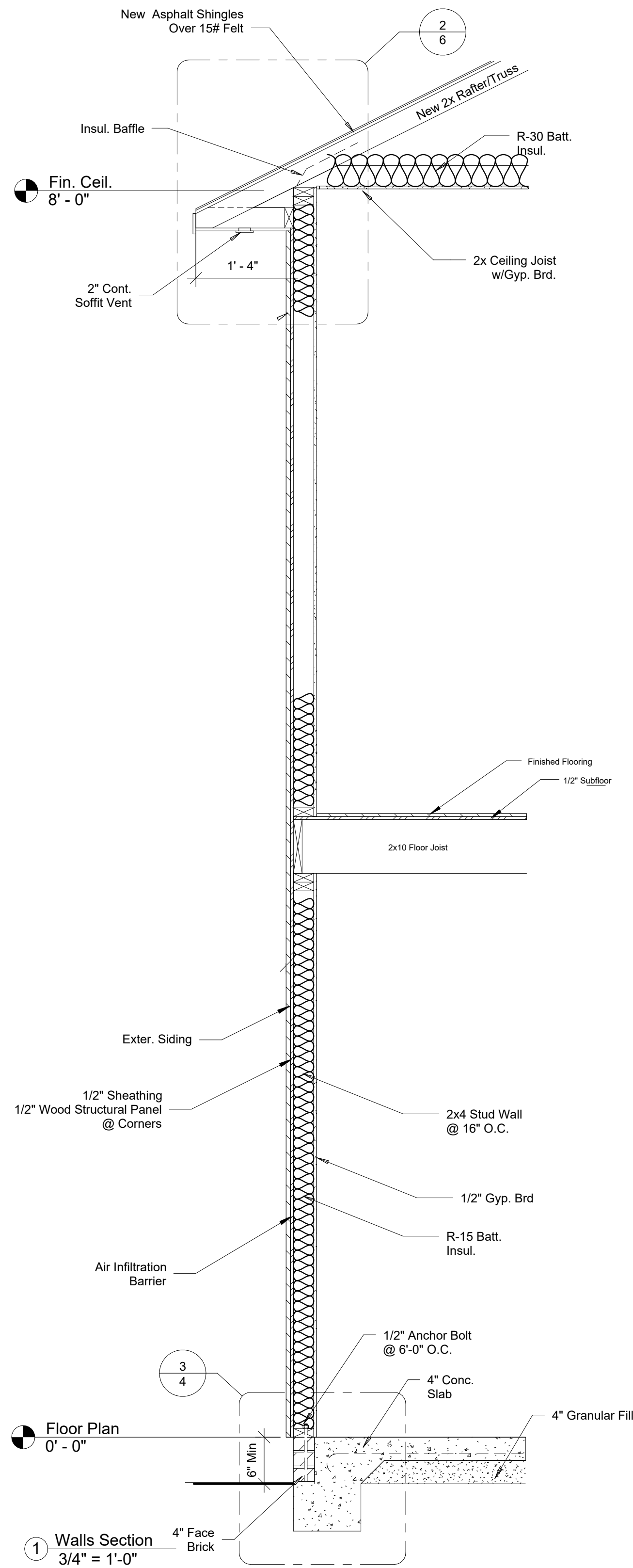
DATE:  
August 5, 2025

Project number  
1108240000

Drawn by  
Checked by

TP  
TP

5

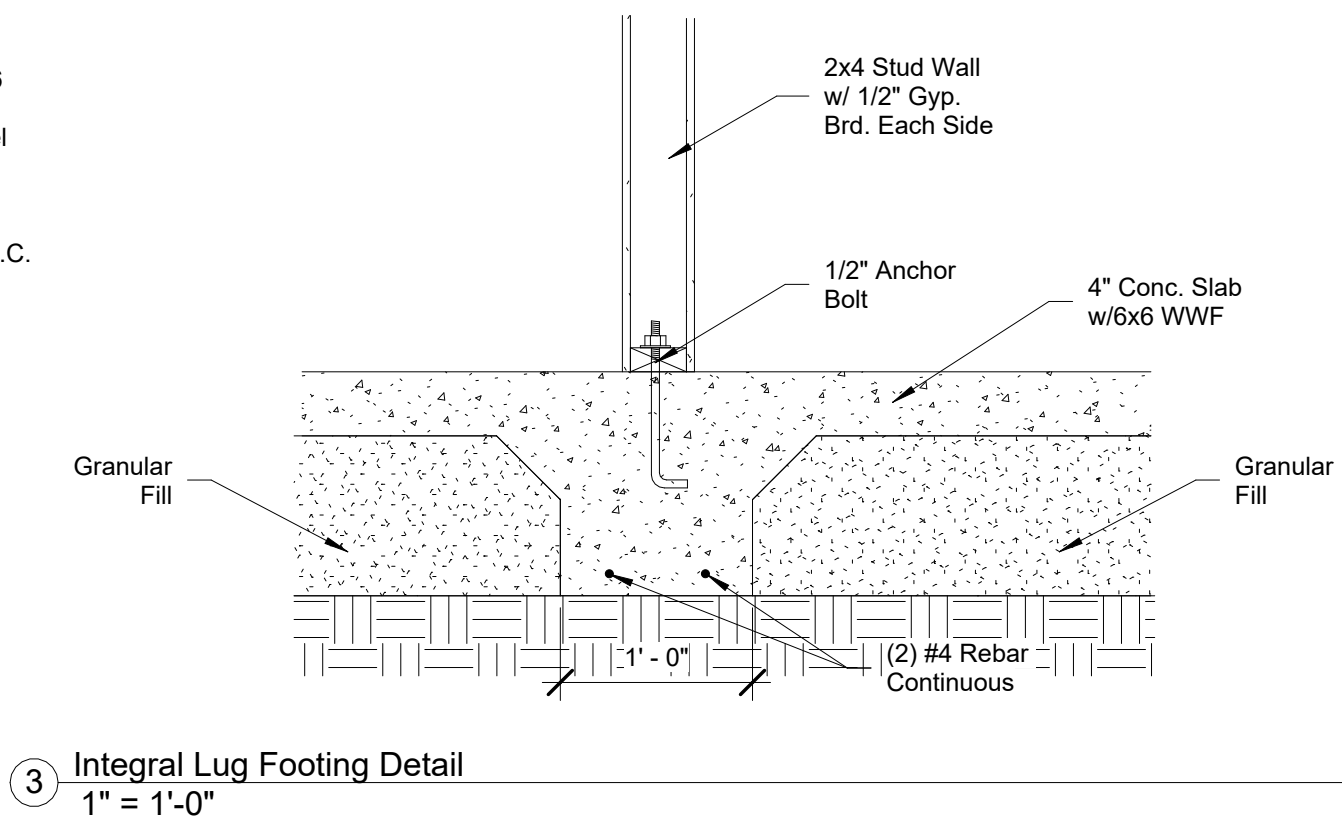


3 Lug Footing Detail  
1 1/2" = 1'-0"

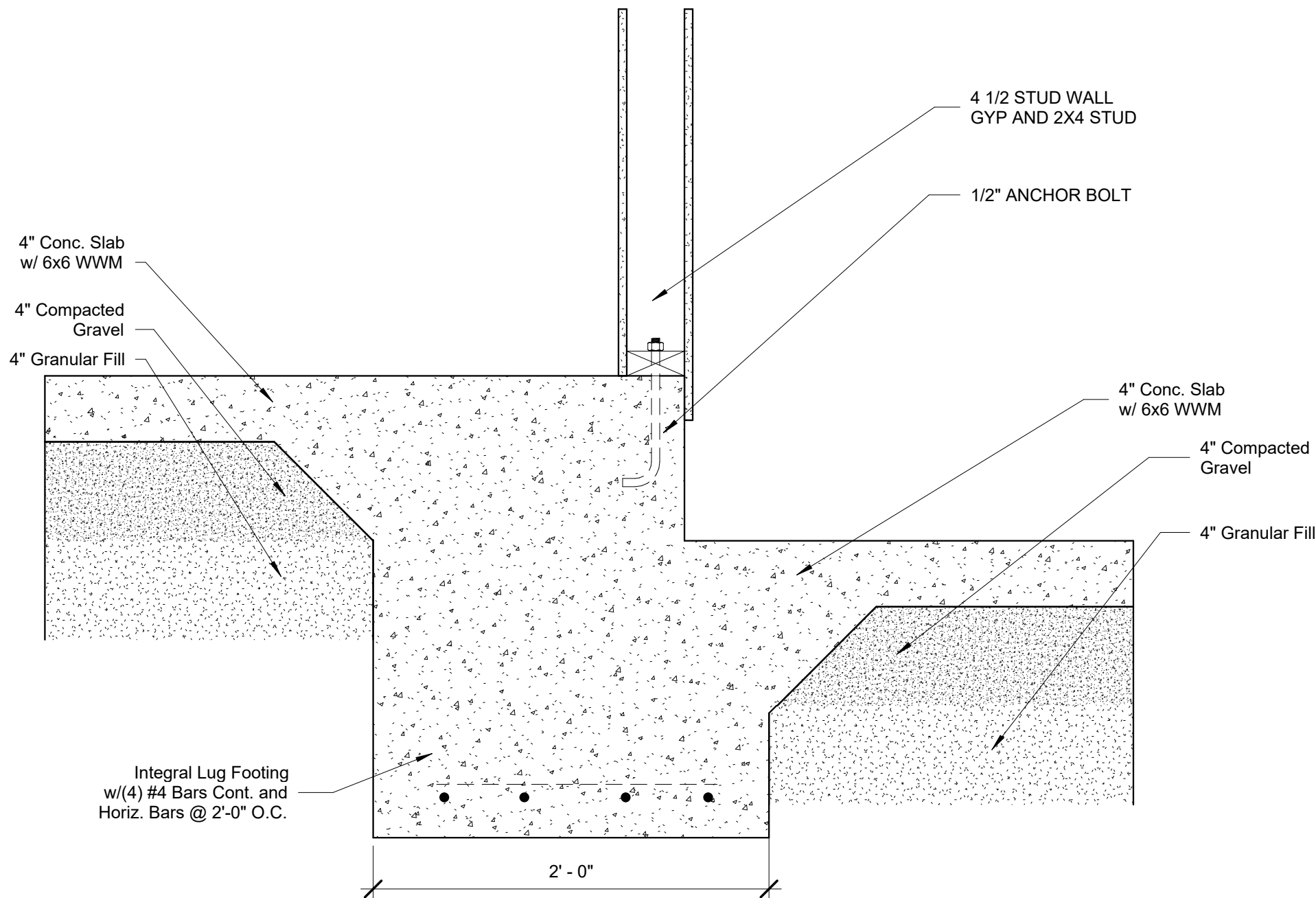
2 Portal Frame Detail  
1/2" = 1'-0"

MASONRY NOTES:

- Concrete dimensions are typically to face of wall.
- All concrete slabs shall be minimum 4" thick, with 6 x 6 1/4 W.W.M welded wire fabric placed over 6 mil poly vapor barrier over a minimum 6" bed of compacted gravel
- Provide Anchor Bolts sizes as indicated (min. 1/2"dia) on these drawings, at top of concrete foundation walls at a minimum of 1'-0" from corners and maximum 6'-0" O.C. for balance of perimeter walls, two per plate minimum.
- All concrete footings shall bear on undisturbed virgin soil with presumptive bearing capacity of 4000 psf.
- All concrete frost walls to have bottom of footing at minimum 1'-6" below finished grade.
- Concrete foundation walls that exceed 8'-0" in height must be reinforced with steel designed by a licensed Structural Engineer.
- All Concrete shall have the minimum 28 day strength:  
Garage Slab 3500 psi  
Basement Slab 3000 psi  
Crawl Space Slab 3000 psi  
Exterior Slab 3500 psi  
Foundation Slab 3000 psi

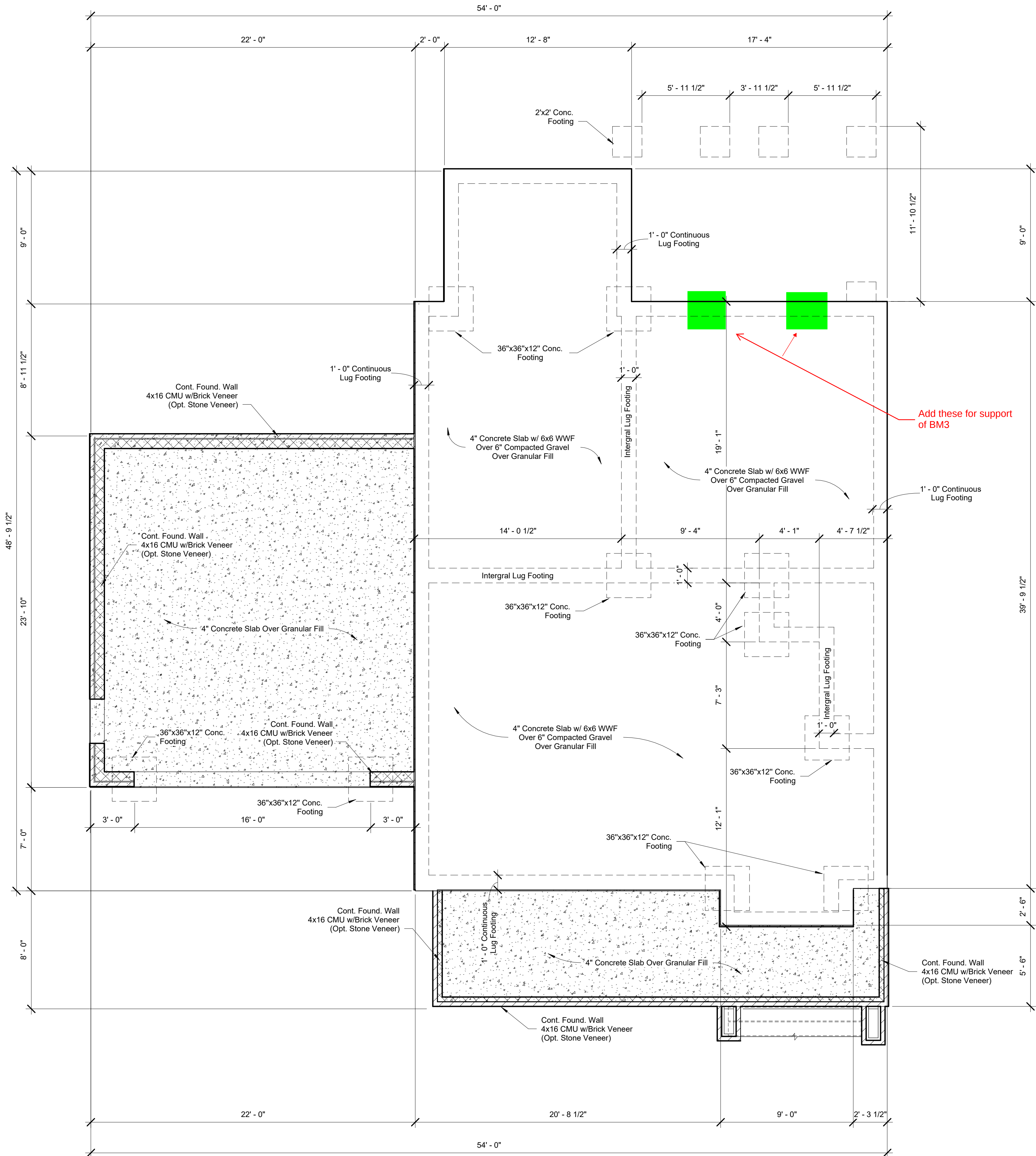


③ Integral Lug Footing Detail  
1" = 1'-0"



② Step Down Slab Detail  
1 1/2" = 1'-0"

① Foundation Plan  
1/4" = 1'-0"



PROPERTY OF TPCCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAA AND VAA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
Foundation Plan

Revisions:

SCALE:  
As indicated

DATE:  
August 5, 2025

Project number  
1108240000

Drawn by  
Checked by

DFS  
TP

PROPERTY OF TPCCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER OR OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES AND ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAA AND VA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
Roof Plan

Revisions:

SCALE:  
As indicated

DATE:  
August 5, 2025

Project number  
1108240000

Drawn by  
Checked by

DFS  
TP

7

Roofing Ventilation

Section R806

**R806.1 Ventilation Required.** Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of the roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilation openings shall have a least dimension of 1/16 inch minimum nad 1/4 inch maximum. Ventilation opening having a least dimension larger than 1/4 inch shall be provided with corrosion-resistant wire cloth screening, hardware cloth, or similar material with openings having a least dimension of 1/16 inch minimum and 1/4 inch maximum. Openings in roof framing members shall conform to the requirements of Section 802.7.

**R806.2 Minimum Area.** The total net free ventilating area shall not be less than 1/150 of the area of the space ventilated except that reduction of the total area to 1/300 is permitted provided that at least 50 percent and not more than 80 percent of the required ventilating area is provided by ventilators located in teh upper portion of the space to be ventilated at least 3 feet above the eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents. As an alternative, the net free cross-ventilation area may be reduced to 1/300 when Class I or Class II vapro retarder is installed on the warm-in-winter side of the ceiling.

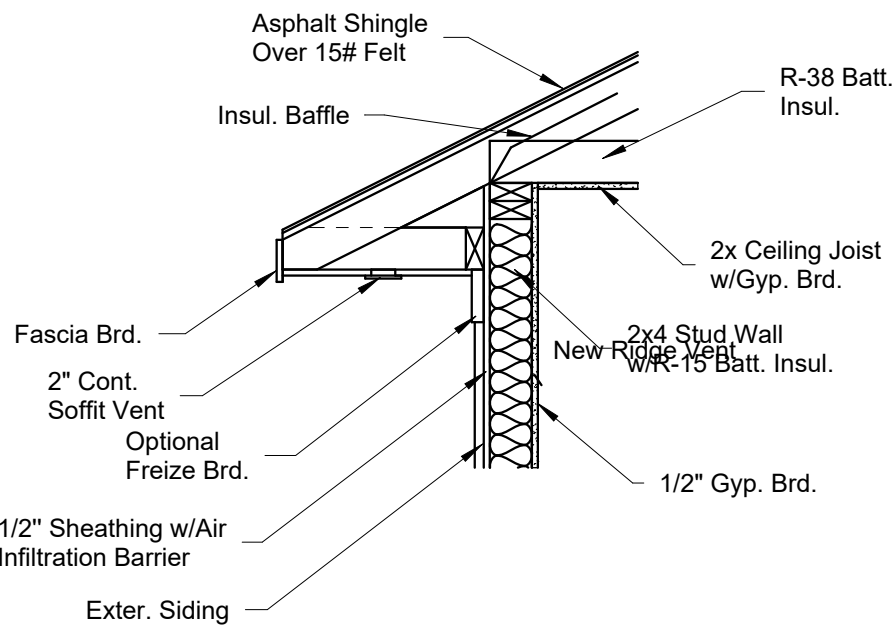
Exceptions:

1. Enclosed attic/rafter spaces requiring less than 1 square foot of ventilation may be vented with continuous soffit ventilation only.
2. Enclosed attic/rafter spaces over unconditioned space may be vented with continuous soffit ventilation only.

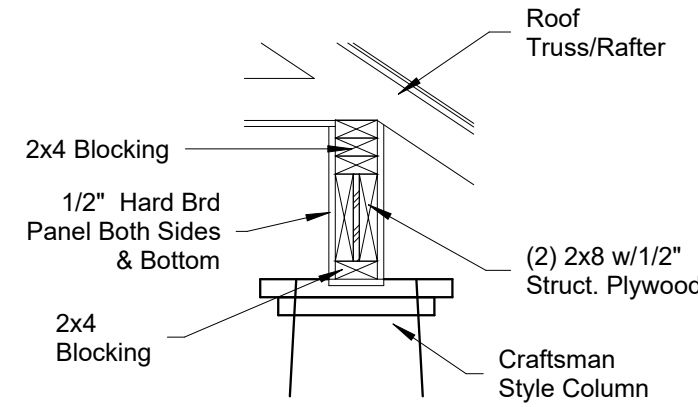
**Square Footage Being Ventilated:** 4,410 Sq. Ft.

**Net Free Cross Ventilation Needed:**

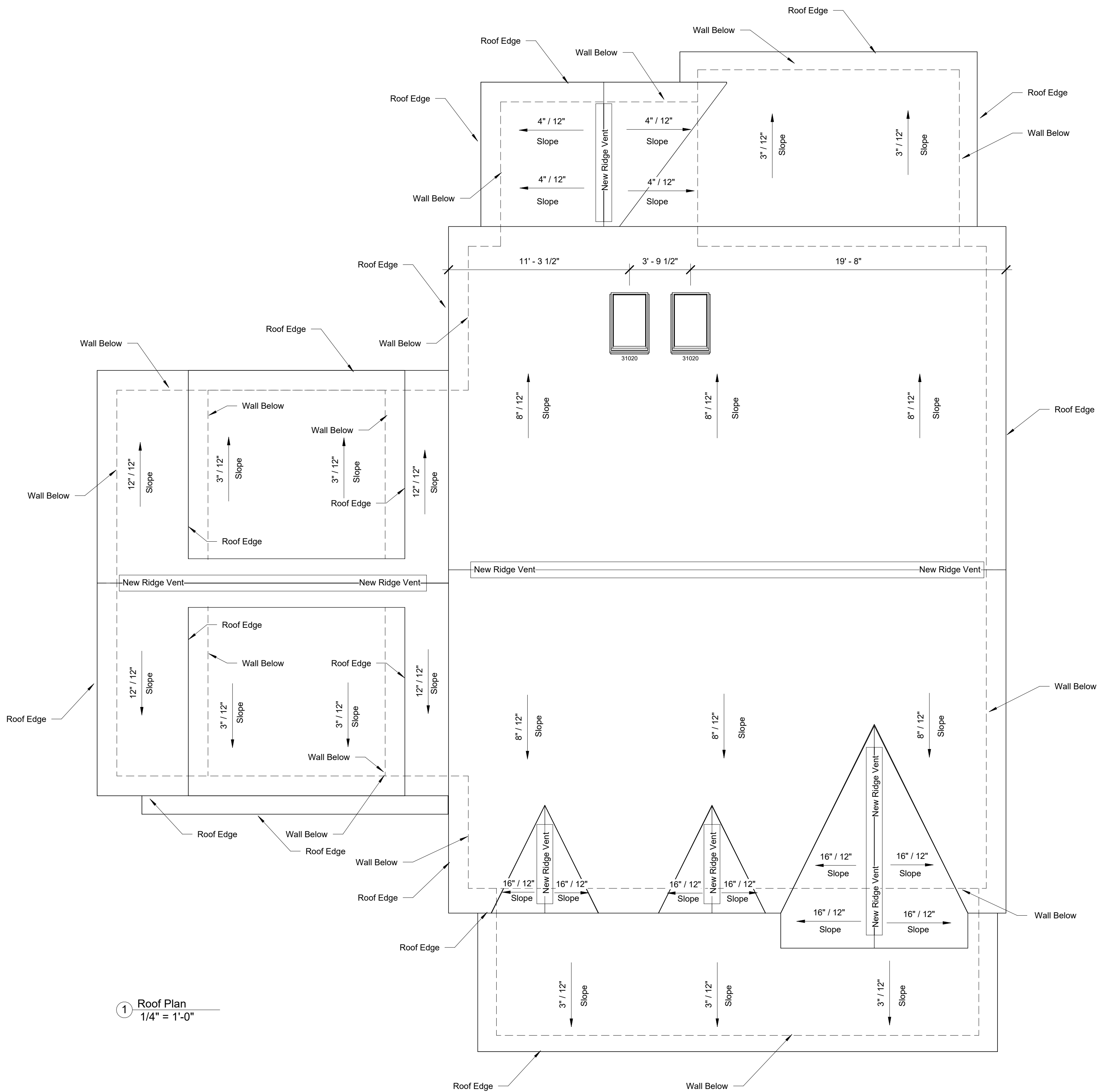
- Without 50% to 80% of venting 3'-0" Above Eave: 29.4 Sq. Ft.
- With 50% to 80% of venting 3'-0" above eave or Class I or ClassII Vapor Retarder : 14.7 Sq. Ft



2 Detail - Cornice Typical  
3/4" = 1'-0"



3 Detail - Porch Header  
3/4" = 1'-0"



1 Roof Plan  
1/4" = 1'-0"

All construction shall conform to the latest requirements of the 2018 North Carolina Residential Building Code, plus all local codes and regulations. This document in no way shall be construed to supersede the code.

**Job Site Practice and Safety.** The designer assumes no liability for contractor practices and procedures or safety plan. The designer takes no responsibility for failure to carry out construction work in accordance with contract documents. All members shall be framed, anchored, and braced in accordance with good construction safety practices and according to the code.

**Truss Design.** Trusses to be designed and engineered in accordance with these drawings. Any variation with these drawings must be brought to the Designer's attention prior to commencing construction.

**Knee Wall and Ceiling Heights.** All finished knee wall heights and ceiling heights are shown furred down 10" from the decking for the insulation. If for any reason the truss manufacturer fails to meet or exceed designated heel heights, finished knee wall heights of finished ceiling heights shown on these plans the finished square footage may vary. Any discrepancies must be brought to the attention of the designer for a suitable solution prior to commencing construction.

**Anchorage.** All required anchors for trusses due to uplift or bearing shall meet the requirements as specified by the truss manufacturer's schematics.

**Bearing.** All trusses shall be designed for bearing on SPF #2 plates or ledgers unless otherwise noted.

**Plate Heights & Floor Systems.** See Elevations and Sections for plate heights and floor thicknesses.

All non treated framing lumber shall be SPF #2 or SYP #2 and all treated lumbe shall be SYP #2 unless otherwise noted

Laminated Veneer Lumber (LVL) =  $F_b=2600$  psi,  $F_v=285$  psi,  $E=1.9 \times 10^6$  psi  
Parallel Strand Lumber (PSL) =  $F_b=2900$  psi,  $F_v=295$  psi,  $E=2.0 \times 10^6$  psi  
Laminated Strand Lumber (LSL) =  $F_b=2250$  psi,  $F_v=400$  psi,  $E=1.55 \times 10^6$  psi  
Install all connections per manufacturer's specifications.

**Truss and I-Joist Members.**  
All roof truss and I-Joist layouts shall be prepared in accordance with this document. Trusses and I-Joists shall be installed according to manufacturer's specifications.

Brick lintels shall be 3 1/2" x 3 1/2" x 1/4" steel angle for up to 6'-0" and 6" x 4" x 5/16" steel angle with 6" leg vertical for spans up to 9'-0" unless otherwise noted.

**Concrete & Soils.**  
See Foundation Notes

**Exterior Walls.** All exterior walls shall be sheathed with CS-WSP or CS-SFB in accordance with Section R602.10.3 unless otherwise noted.

**Gypsum.** All interior sides of exterior walls and both sides of interior walls shall have 1/2" gypsum board installed. When not using med GB gypsum to be fastened per table R702.3.5. Method GB to be fastened per R602.10.1.

**Required Length of Bracing.** Required brace wall length for each side of the circumscribed rectangle are interpolated per table R602.10.3. Methods CS-WSP and SC-SFB contribute their actual length. Method GB contributes 0.5 its actual length. Method PF contributes 1.5 times its actual length.

**HD.** 800 bls hold down devices fastened to the edge of the brace wall panel closest to the corner.  
Methods Per table R602.10.1

**CS-WSP.** Shall be a minimum of 3/8" OSB or CDX nailed at 6" O.C. at edges and 12" O.C. at intermediate supports with 6d common nails or 8d (2 1/2" long x 0.11 diameter).

**CS-SFB.** Shall be a minimum 1/2" structural fiber board nailed at 3" O.C. at edges and 3" O.C. at intermediate supports with 1 1/2" x 0.12" diameter galvanized roofing nails.

**GB.** Interior walls shown as GB are to have a minimum 1/2" gypsum board applied to both sides of the wall fastened at 7" O.C. at edges and along intermediate

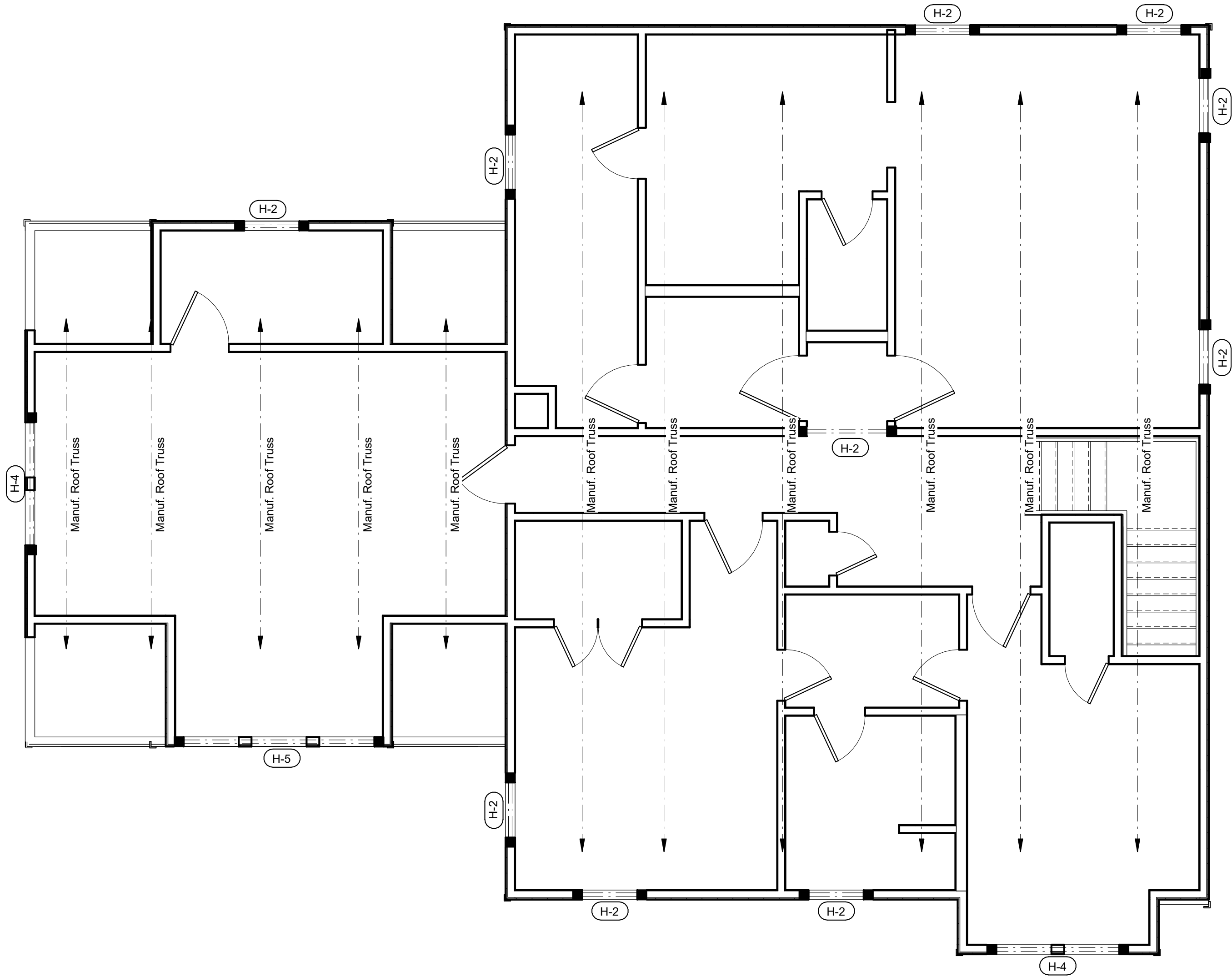
supports with minimum 5d common nails or #6 screws.  
**PF.** Portal Frame per Portal Frame Detail.

| Side               | Perp. Distance | Required | Provided     |
|--------------------|----------------|----------|--------------|
| 1                  | 40'-0"         | 18'-2"   | 24'-8"       |
| 2                  | 40'-0"         | 18'-2"   | 19'-8"       |
| 3                  | 39'-0"         | 17'-9"   | 25'-3"       |
| 4                  | 39'-0"         | 17'-9"   | 34'-2"       |
| Wall Height: 9'-0" |                | Roof +1  | Eave: 13'-0" |

| Header | Size                | Columns       |
|--------|---------------------|---------------|
| H-1    | (2) 2x4             | 1 Jack 1 King |
| H-2    | (2) 2x6             | 1 Jack 1 King |
| H-3    | (2) 2x8             | 1 Jack 1 King |
| H-4    | (2) 2x10            | 2 Jack 1 King |
| H-5    | (2) 2x12            | 2 Jack 1 King |
| H-5    | (2) 1.75"x9.25" LVL | 2 Jack 1 King |

All non load bearing headers to be ladder framed or (2) 2x4 with 1 Jack and 1 King Stud unless otherwise noted

Upper Story Bracing Not  
Shown Per R602.10.3.2 (5)&(6)



② Second Floor Structural Plan  
1/4" = 1'-0"

4x4 PT Post or Equiv. Typical  
Attach Rafters To Header With Hurricane  
Connectors (Simpson H2.5 or Equiv.)  
Attach Header To Post And Post To Base  
With Post Cap, Metal Straps, And/OR Post Base.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/ OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR (IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAH AND VA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

|                  |                 |
|------------------|-----------------|
| Graves Residence | Structural Plan |
|------------------|-----------------|

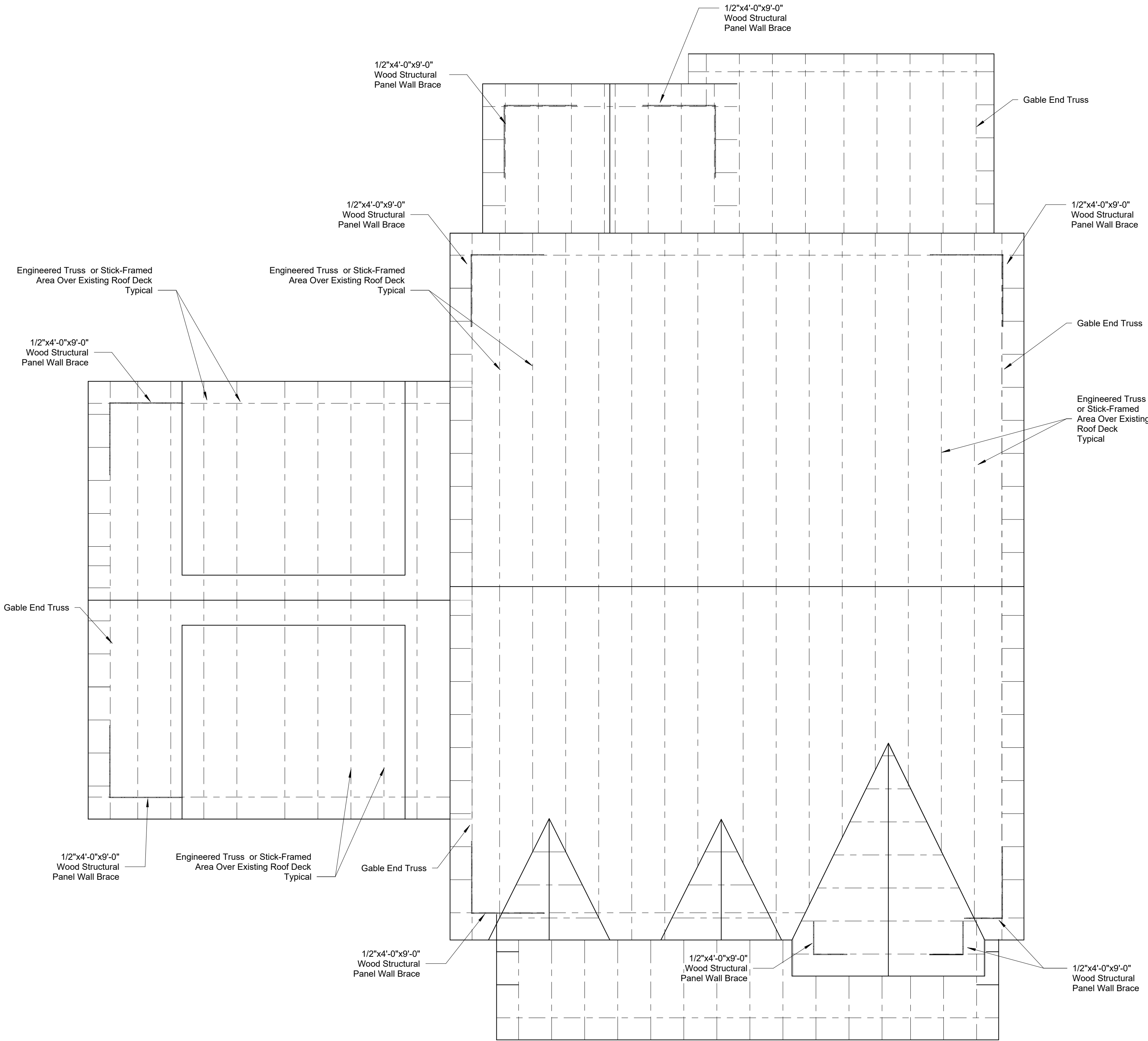
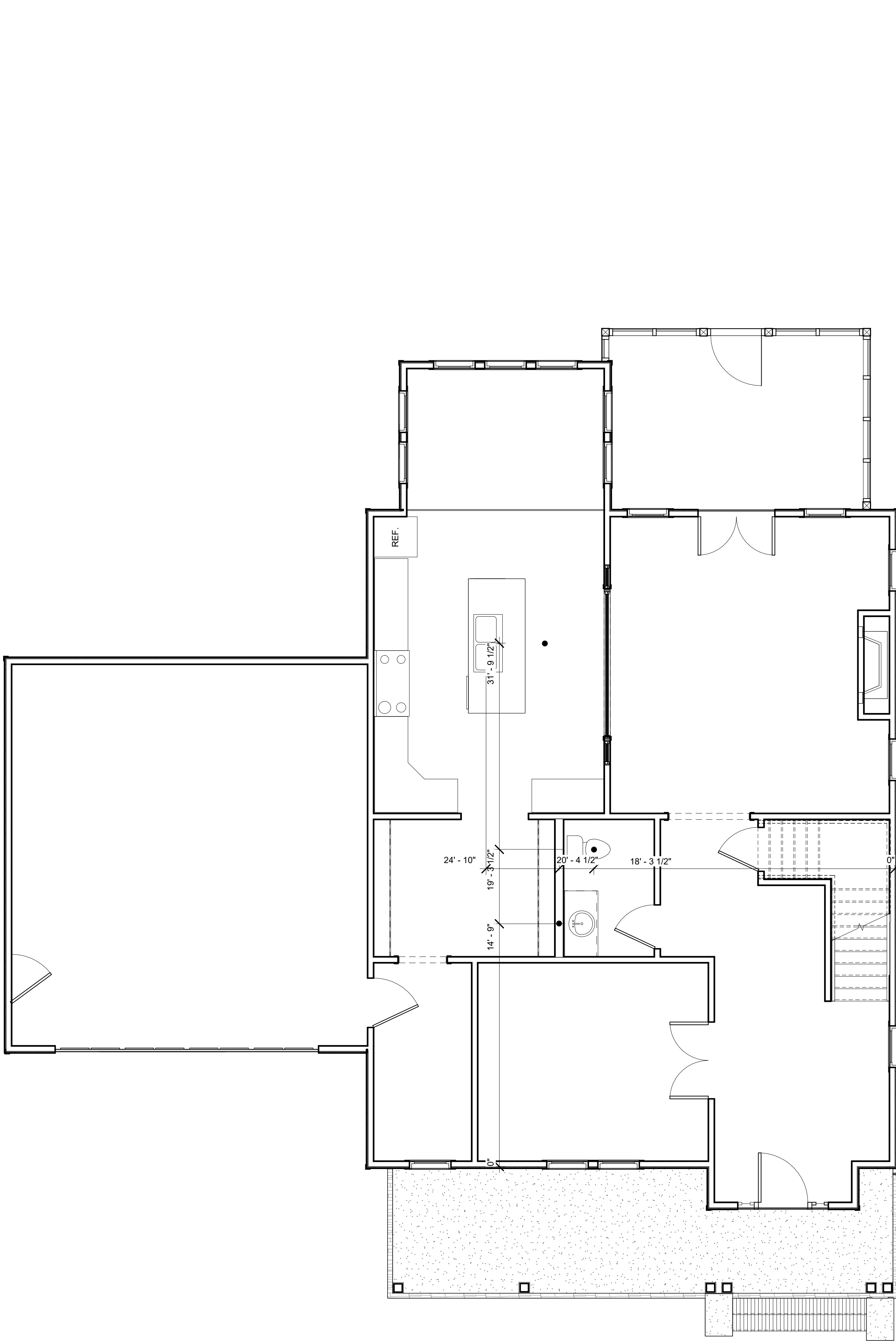
Revisions:

SCALE:  $1/4" = 1'-0"$

DATE: August 5, 2025

|                |            |
|----------------|------------|
| Project number | 1108240000 |
|----------------|------------|

|            |     |
|------------|-----|
| Drawn by   | DFS |
| Checked by | TP  |



1 Plumbing Rough-in  
1/4" = 1'-0"

2 Roof Framing  
1/4" = 1'-0"

PROPERTY OF TPDCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAH AND VA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
Plumbing Rough-In & Roof Framing Plans

Revisions:

SCALE:  
1/4" = 1'-0"

DATE:  
August 5, 2025

Project number  
1108240000

Drawn by DFS  
Checked by TP

PROPERTY OF TPDCLLC

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN PROPERTY OF THE DESIGNER WHETHER THE PROJECT FOR WHICH THEY ARE MADE FOR IS EXECUTED OR NOT. THE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY THE OWNER ON OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS EXCEPT BY AGREEMENT IN WRITING WITH THE APPROPRIATE COMPENSATION TO THE DESIGNER.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR BUILDER TO CONFORM TO ALL STANDARDS, PROVISIONS, REQUIREMENTS, METHODS OF CONSTRUCTION AND USES OF MATERIALS, IN BUILDING CODES ANY OTHER LOCAL AGENCIES AND IN ACCORDANCE WITH GOOD ENGINEERING AND CONSTRUCTION PRACTICES.

I CERTIFY THAT THE CONSTRUCTION EXHIBITS FOR IDENTIFICATION OF THE PROPERTY BY HOUSE TYPE, LOT, LOCK, SUBDIVISION NAME, AND SO ON) MEET ALL LOCAL CODE REQUIREMENTS AND ARE IN SUBSTANTIAL CONFORMITY WITH BOTH SAA AND VIA MINIMUM PROPERTY REQUIREMENTS. ALL BUILDING STANDARDS AS SET FORTH BY THE INTERNATIONAL CODE COUNCIL (ICC) AND FEDERAL SAFE DRINKING WATER PLUMBING STANDARD.

Graves Residence  
Enter address here

Graves Residence  
3D Views

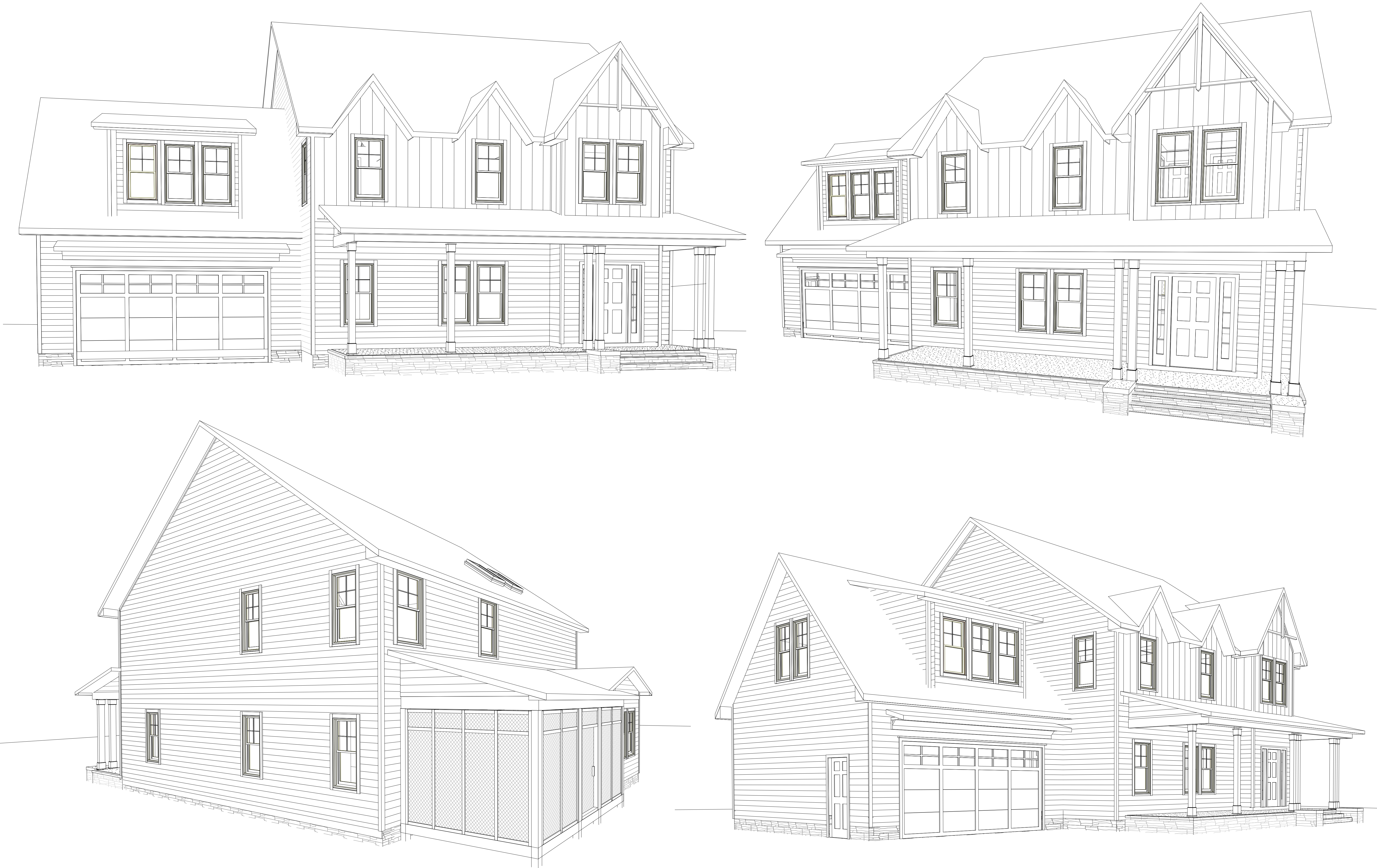
Revisions:

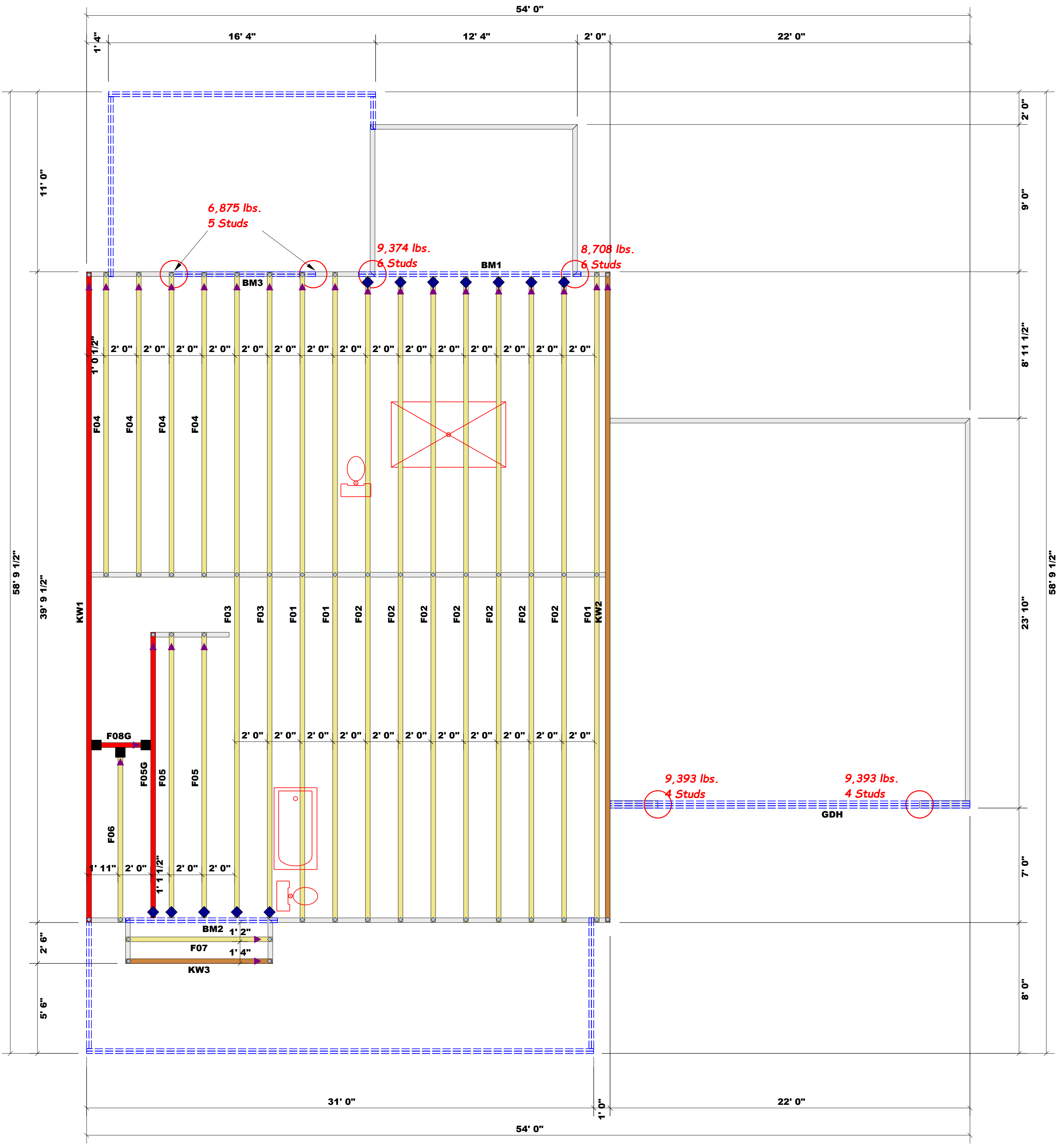
SCALE:

DATE: August 5, 2025

Project number 1108240000

Drawn by DFS  
Checked by TP





▲ = Denotes Left End of Truss  
(Reference Engineered Truss Drawing)  
Do Not Erect Trusses Backwards

All Truss Reactions are Less  
than 3,000 lbs. Unless Noted Otherwise.

-- Denotes Reaction Greater than 3,000 lbs.

Truss Placement Plan  
SCALE: 1/4" = 1'

### HANGER LEGEND

|   |                                 |
|---|---------------------------------|
| ■ | = USP MSH422 / Strap Hanger     |
| ◆ | = USP JUS414 / Single 4x Hanger |

### Beam Legend

| PlotID | Length | Product                     | Plies | Net Qty | Fab Type |
|--------|--------|-----------------------------|-------|---------|----------|
| BM3    | 9' 0"  | 1-3/4"x 11-7/8" LVL Kerto-S | 2     | 2       | FF       |
| GDH    | 22' 0" | 1-3/4"x 16" LVL Kerto-S     | 3     | 3       | FF       |
| BM1    | 14' 0" | 1-3/4"x 16" LVL Kerto-S     | 2     | 2       | FF       |
| BM2    | 10' 0" | 1-3/4"x 16" LVL Kerto-S     | 2     | 2       | FF       |

### LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))  
NUMBER OF JACK STUDS REQUIRED @ EA END OF  
HEADS/GUDES

| END REACTION<br>(UP TO) | END REACTION<br>(UP TO) | END REACTION<br>(UP TO) |
|-------------------------|-------------------------|-------------------------|
| 1700                    | 2550                    | 3400                    |
| 3400                    | 5100                    | 6800                    |
| 5100                    | 7650                    | 10200                   |
| 6800                    | 10200                   | 13600                   |
| 8500                    | 12750                   | 17000                   |
| 10200                   | 15300                   |                         |
| 11900                   |                         |                         |
| 13600                   |                         |                         |
| 15300                   |                         |                         |

|           |                    |            |                      |
|-----------|--------------------|------------|----------------------|
| BUILDER   | Weaver Homes, Inc. | CITY / CO. | Lillington / Harnett |
| JOB NAME  | Graves Residence   | ADDRESS    | Site Address         |
| PLAN      | Custom             | MODEL      | Floor                |
| SEAL DATE | Seal Date          | DATE REV.  | 05/16/25             |
| QUOTE #   | Quote #            | DRAWN BY   | Curtis Quick         |
| JOB #     | J0425-2359         | SALES REP. | Lenny Norris         |

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.  
These trusses are designed as individual building components to be incorporated into  
the building design at the specification of the building designer. See individual design  
sheets for each truss design identified on the placement drawing. The building designer  
is responsible for temporary and permanent bracing of the roof and floor system and for  
the overall structure. The design of the truss support structure including headers, beams,  
walls, and columns is the responsibility of the building designer. For general guidance  
regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package  
or online @ sbcindustry.com

Bearing reactions less than or equal to 3000# are deemed to comply with the  
prescriptive Code requirements. The contractor shall refer to the attached Tables  
( derived from the prescriptive Code requirements ) to determine the minimum  
foundation size and number of wood studs required to support reactions greater  
than 3000# but not greater than 15000#. A registered design professional shall  
be retained to design the support system for any reaction that exceeds those  
specified in the attached Tables. A registered design professional shall be  
retained to design the support system for all reactions that exceed 15000#.

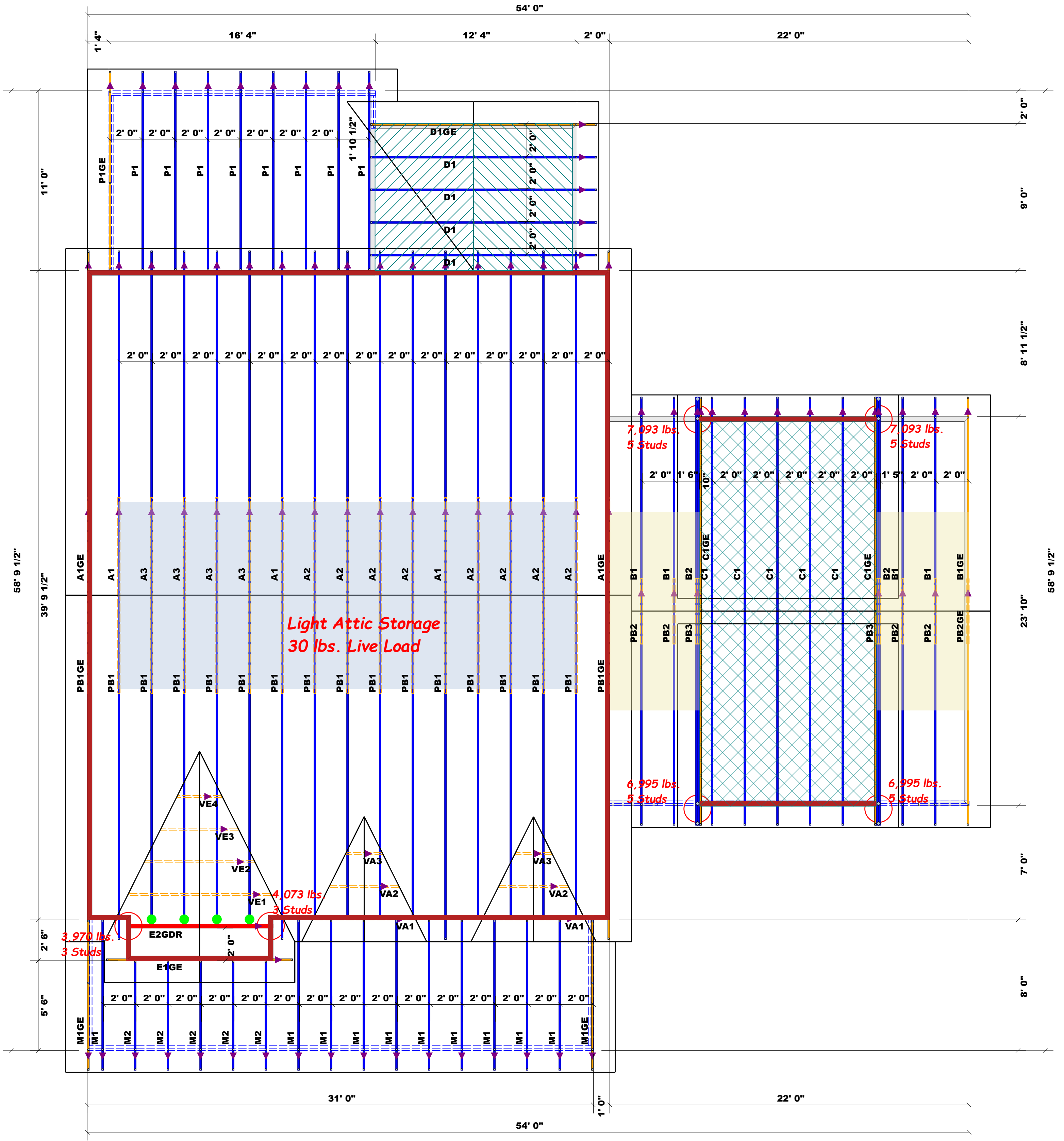
Signature Curtis Quick  
Curtis Quick



### ROOF & FLOOR TRUSSES & BEAMS

Reilly Road Industrial Park  
Fayetteville, N.C. 28309  
Phone: (910) 864-8787  
Fax: (910) 864-4444





▲ = Denotes Left End of Truss  
(Reference Engineered Truss Drawing)  
Do Not Erect Trusses Backwards

All Truss Reactions are Less  
than 3,000 lbs. Unless Noted Otherwise.

-- Denotes Reaction Greater than 3,000 lbs.

Truss Placement Plan  
SCALE: 1/4" = 1'

| Hatch Legend |                                                   |
|--------------|---------------------------------------------------|
|              | 2nd Floor Bearing Walls @ 8' 1-1/2"               |
|              | Bonus Room, 40 lbs. Live Load                     |
|              | Floor In This Area To Be Ladder Framed By Builder |
|              | Vaulted Ceiling                                   |

| HANGER LEGEND |                                |
|---------------|--------------------------------|
|               | = USP HUS26 / Single 2x Hanger |

LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (2))  
NUMBER OF JACK STUDS REQUIRED @ EA END OF  
HEADS/GUDES

| END REACTION<br>(UP TO) | END REACTION<br>(UP TO) | END REACTION<br>(UP TO) | END REACTION<br>(UP TO) |
|-------------------------|-------------------------|-------------------------|-------------------------|
| 1700                    | 2550                    | 3400                    |                         |
| 3400                    | 5100                    | 6800                    |                         |
| 5100                    | 7650                    | 10200                   |                         |
| 6800                    | 10200                   | 13600                   |                         |
| 8500                    | 12750                   | 17000                   |                         |
| 10200                   | 15300                   |                         |                         |
| 11900                   |                         |                         |                         |
| 13600                   |                         |                         |                         |
| 15300                   |                         |                         |                         |

|           |                    |
|-----------|--------------------|
| BUILDER   | Weaver Homes, Inc. |
| JOB NAME  | Graves Residence   |
| PLAN      | Custom             |
| SEAL DATE | Seal Date          |
| QUOTE #   | Quote #            |
| JOB #     | J0425-2358         |

|            |                      |
|------------|----------------------|
| CITY / CO. | Lillington / Harnett |
| ADDRESS    | Site Address         |
| MODEL      | Roof                 |
| DATE REV.  | 05/05/25             |
| DRAWN BY   | Curtis Quick         |
| SALES REP. | Lenny Norris         |

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.  
These trusses are designed as individual building components to be incorporated into  
the building design at the specification of the building designer. See individual design  
sheets for each truss design identified on the placement drawing. The building designer  
is responsible for temporary and permanent bracing of the roof and floor system and for  
the overall structure. The design of the truss support structure including headers, beams,  
walls, and columns is the responsibility of the building designer. For general guidance  
regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package  
or online @ sbcindustry.com

Bearing reactions less than or equal to 3000# are deemed to comply with the  
prescriptive Code requirements. The contractor shall refer to the attached Tables  
( derived from the prescriptive Code requirements ) to determine the minimum  
foundation size and number of wood studs required to support reactions greater  
than 3000# but not greater than 15000#. A registered design professional shall  
be retained to design the support system for any reaction that exceeds those  
specified in the attached Tables. A registered design professional shall be  
retained to design the support system for all reactions that exceed 15000#.

Signature Curtis Quick  
Curtis Quick

**ROOF & FLOOR  
TRUSSES & BEAMS**  
Reilly Road Industrial Park  
Fayetteville, N.C. 28309  
Phone: (910) 864-8787  
Fax: (910) 864-4444



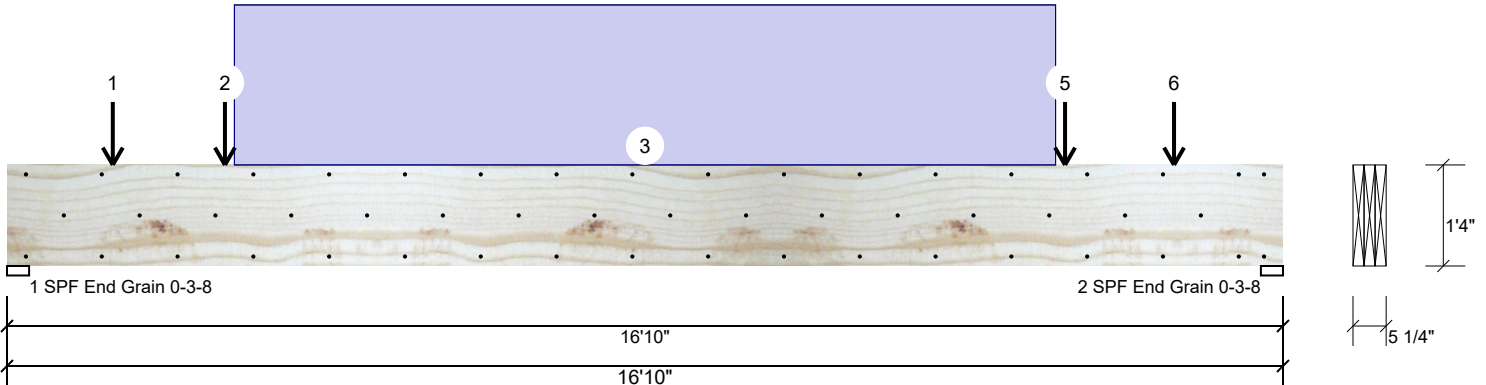
Client: Weaver Homes  
Project:  
Address:

Date: 5/16/2025  
Input by: Curtis Quick  
Job Name: Graves Residence Beams  
Project #:

Page 1 of 9

**GDH Kerto-S LVL 1.750" X 16.000" 3-Ply - PASSED**

Level: Level



### Member Information

|                     |               |                |             |
|---------------------|---------------|----------------|-------------|
| Type:               | Girder        | Application:   | Floor       |
| Plies:              | 3             | Design Method: | ASD         |
| Moisture Condition: | Dry           | Building Code: | IRC 2018    |
| Deflection LL:      | 480           | Load Sharing:  | Yes         |
| Deflection TL:      | 360           | Deck:          | Not Checked |
| Importance:         | Normal - II   |                |             |
| Temperature:        | Temp <= 100°F |                |             |

### Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1   | Vertical  | 0    | 5100 | 4293 | 0    | 0     |
| 2   | Vertical  | 0    | 5096 | 4289 | 0    | 0     |

### Bearings

| Bearing           | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.500" | Vert | 61%  | 5100 / 4293  | 9393  | L        | D+S       |
| 2 - SPF End Grain | 3.500" | Vert | 61%  | 5096 / 4289  | 9385  | L        | D+S       |

### Analysis Results

| Analysis     | Actual         | Location  | Allowed       | Capacity     | Comb. | Case |
|--------------|----------------|-----------|---------------|--------------|-------|------|
| Moment       | 24679 ft-lb    | 8'5 3/8"  | 62010 ft-lb   | 0.398 (40%)  | D+S   | L    |
| Unbraced     | 24679 ft-lb    | 8'5 3/8"  | 24766 ft-lb   | 0.996 (100%) | D+S   | L    |
| Shear        | 9157 lb        | 15'2 1/2" | 20608 lb      | 0.444 (44%)  | D+S   | L    |
| LL Defl inch | 0.175 (L/1127) | 8'5 1/16" | 0.410 (L/480) | 0.426 (43%)  | S     | L    |
| TL Defl inch | 0.410 (L/479)  | 8'5 1/16" | 0.547 (L/360) | 0.751 (75%)  | D+S   | L    |

### Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6". Nail from both sides.
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be laterally braced at a maximum of 7'2 1/16" o.c.
- 7 Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width.

| ID | Load Type      | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|----------------|----------|------------|------|----------|--------|-----------|----------|-------------|----------|
| 1  | Point          | 1-4-12   |            | Top  | 793 lb   | 0 lb   | 793 lb    | 0 lb     | 0 lb        | B1       |
|    | Bearing Length | 0-3-8    |            |      |          |        |           |          |             |          |
| 2  | Point          | 2-10-8   |            | Top  | 3498 lb  | 0 lb   | 3498 lb   | 0 lb     | 0 lb        | B2       |
|    | Bearing Length | 0-3-8    |            |      |          |        |           |          |             |          |

Continued on page 2...

### Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

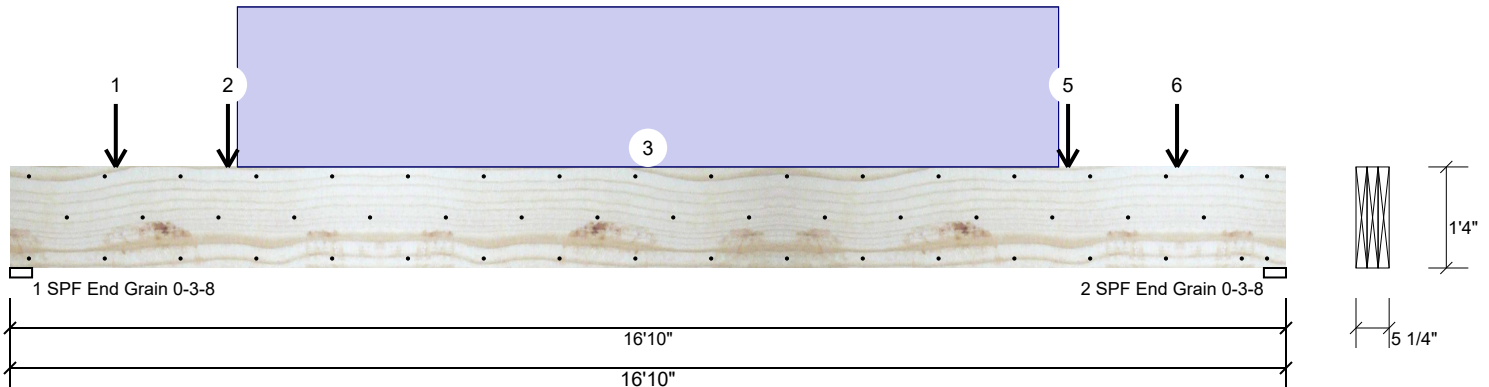
This design is valid until 6/28/2026

### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)

**GDH Kerto-S LVL 1.750" X 16.000" 3-Ply - PASSED**

Level: Level



...Continued from page 1

| ID | Load Type      | Location         | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|----------------|------------------|------------|------|----------|--------|-----------|----------|-------------|----------|
| 3  | Part. Uniform  | 3-0-0 to 13-10-0 |            | Top  | 120 PLF  | 0 PLF  | 0 PLF     | 0 PLF    | 0 PLF       | Wall     |
| 5  | Point          | 13-11-8          |            | Top  | 3498 lb  | 0 lb   | 3498 lb   | 0 lb     | 0 lb        | B2       |
|    | Bearing Length | 0-3-8            |            |      |          |        |           |          |             |          |
| 6  | Point          | 15-4-12          |            | Top  | 793 lb   | 0 lb   | 793 lb    | 0 lb     | 0 lb        | B1       |
|    | Bearing Length | 0-3-8            |            |      |          |        |           |          |             |          |
|    | Self Weight    |                  |            |      | 19 PLF   |        |           |          |             |          |

#### Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

#### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

#### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 6/28/2026

#### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)



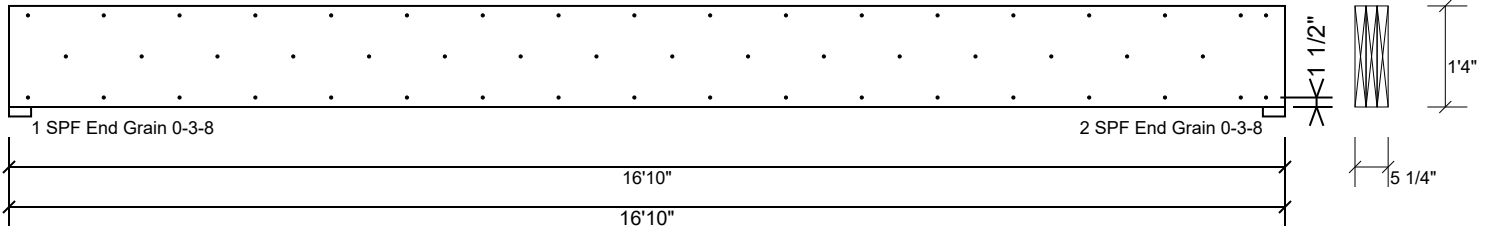
Client: Weaver Homes  
Project:  
Address:

Date: 5/16/2025  
Input by: Curtis Quick  
Job Name: Graves Residence Beams  
Project #:

Page 3 of 9

**GDH Kerto-S LVL 1.750" X 16.000" 3-Ply - PASSED**

Level: Level



### Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed 6".

|                          |           |
|--------------------------|-----------|
| Capacity                 | 0.0 %     |
| Load                     | 0.0 PLF   |
| Yield Limit per Foot     | 245.6 PLF |
| Yield Limit per Fastener | 81.9 lb.  |
| C <sub>m</sub>           | 1         |
| Yield Mode               | IV        |
| Edge Distance            | 1 1/2"    |
| Min. End Distance        | 3"        |
| Load Combination         |           |
| Duration Factor          | 1.00      |

### Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

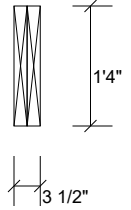
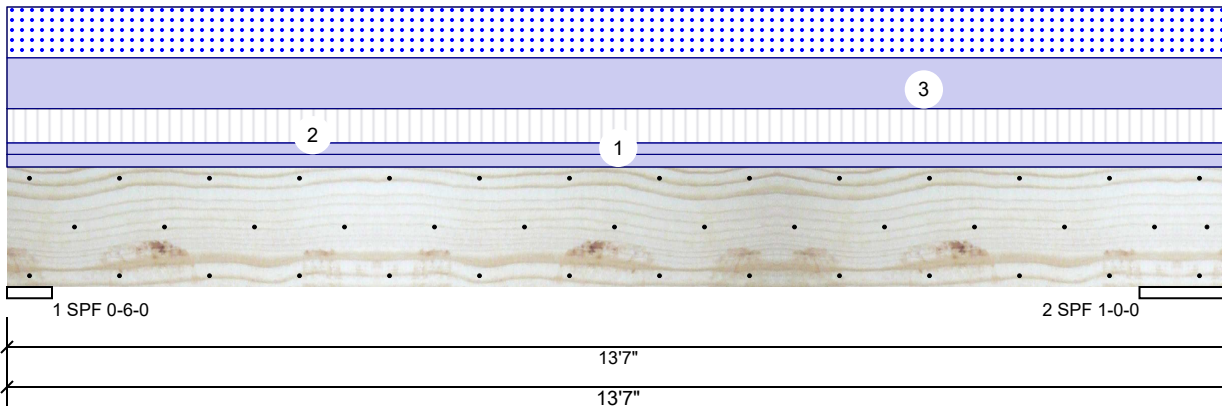
### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)

This design is valid until 6/28/2026

# BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



## Member Information

Type: Girder  
Plies: 2  
Moisture Condition: Dry  
Deflection LL: 480  
Deflection TL: 360  
Importance: Normal - II  
Temperature: Temp <= 100°F

Application: Floor  
Design Method: ASD  
Building Code: IRC 2018  
Load Sharing: No  
Deck: Not Checked

## Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1   | Vertical  | 2133 | 4739 | 3160 | 0    | 0     |
| 2   | Vertical  | 2296 | 5101 | 3401 | 0    | 0     |

## Bearings

| Bearing | Length  | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.   |
|---------|---------|------|------|--------------|-------|----------|-------------|
| 1 - SPF | 6.000"  | Vert | 98%  | 4739 / 3969  | 8708  | L        | D+0.75(L+S) |
| 2 - SPF | 12.000" | Vert | 53%  | 5101 / 4273  | 9374  | L        | D+0.75(L+S) |

## Analysis Results

| Analysis     | Actual        | Location | Allowed       | Capacity     | Comb.       | Case |
|--------------|---------------|----------|---------------|--------------|-------------|------|
| Moment       | 24885 ft-lb   | 6'6 1/2" | 39750 ft-lb   | 0.626 (63%)  | D+0.75(L+S) | L    |
| Unbraced     | 24885 ft-lb   | 6'6 1/2" | 24898 ft-lb   | 0.999 (100%) | D+0.75(L+S) | L    |
| Shear        | 6756 lb       | 11'3"    | 13739 lb      | 0.492 (49%)  | D+0.75(L+S) | L    |
| LL Defl inch | 0.151 (L/971) | 6'6 1/2" | 0.306 (L/480) | 0.494 (49%)  | 0.75(L+S)   | L    |
| TL Defl inch | 0.332 (L/443) | 6'6 1/2" | 0.408 (L/360) | 0.813 (81%)  | D+0.75(L+S) | L    |

## Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at a maximum of 4'6 3/4" o.c.
- Bottom must be laterally braced at end bearings.
- Lateral slenderness ratio based on single ply width.

| ID | Load Type   | Location | Trib Width | Side      | Dead 0.9 | Live 1  | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|
| 1  | Uniform     |          |            | Top       | 120 PLF  | 0 PLF   | 0 PLF     | 0 PLF    | 0 PLF       | Wall     |
| 2  | Uniform     |          |            | Near Face | 109 PLF  | 326 PLF | 0 PLF     | 0 PLF    | 0 PLF       | F02      |
| 3  | Uniform     |          |            | Top       | 483 PLF  | 0 PLF   | 483 PLF   | 0 PLF    | 0 PLF       | A2       |
|    | Self Weight |          |            |           | 12 PLF   |         |           |          |             |          |

## Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

## Lumber

- Dry service conditions, unless noted otherwise
- LVL not to be treated with fire retardant or corrosive chemicals

chemicals

## Handling & Installation

- LVL beams must not be cut or drilled
- Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
- Damaged Beams must not be used
- Design assumes top edge is laterally restrained
- Provide lateral support at bearing points to avoid lateral displacement and rotation

- For flat roofs provide proper drainage to prevent ponding

This design is valid until 6/28/2026

## Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
www.metsawood.com/us



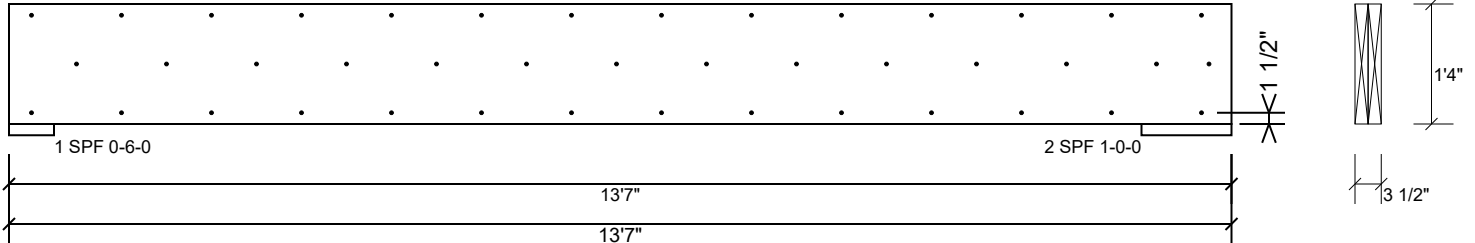
Client: Weaver Homes  
Project:  
Address:

Date: 5/16/2025  
Input by: Curtis Quick  
Job Name: Graves Residence Beams  
Project #:

Page 5 of 9

**BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED**

Level: Level



### Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

|                          |           |
|--------------------------|-----------|
| Capacity                 | 88.6 %    |
| Load                     | 217.5 PLF |
| Yield Limit per Foot     | 245.6 PLF |
| Yield Limit per Fastener | 81.9 lb.  |
| C <sub>m</sub>           | 1         |
| Yield Mode               | IV        |
| Edge Distance            | 1 1/2"    |
| Min. End Distance        | 3"        |
| Load Combination         | D+L       |
| Duration Factor          | 1.00      |

### Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 6/28/2026

### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)



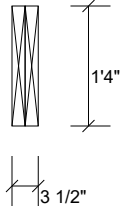
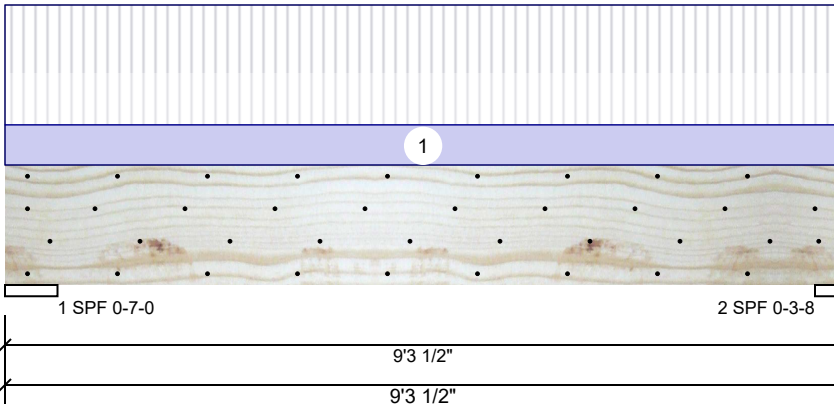
Client: Weaver Homes  
Project:  
Address:

Date: 5/16/2025  
Input by: Curtis Quick  
Job Name: Graves Residence Beams  
Project #:

Page 6 of 9

## BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



### Member Information

Type: Girder  
Plies: 2  
Moisture Condition: Dry  
Deflection LL: 480  
Deflection TL: 360  
Importance: Normal - II  
Temperature: Temp <= 100°F

Application: Floor  
Design Method: ASD  
Building Code: IRC 2018  
Load Sharing: No  
Deck: Not Checked

### Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1   | Vertical  | 1917 | 702  | 0    | 0    | 0     |
| 2   | Vertical  | 1800 | 659  | 0    | 0    | 0     |

### Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 7.000" | Vert | 25%  | 702 / 1917   | 2618  | L        | D+L       |
| 2 - SPF | 3.500" | Vert | 47%  | 659 / 1800   | 2459  | L        | D+L       |

### Analysis Results

| Analysis     | Actual         | Location | Allowed       | Capacity    | Comb. | Case |
|--------------|----------------|----------|---------------|-------------|-------|------|
| Moment       | 5008 ft-lb     | 4'9 1/2" | 34565 ft-lb   | 0.145 (14%) | D+L   | L    |
| Unbraced     | 5008 ft-lb     | 4'9 1/2" | 13831 ft-lb   | 0.362 (36%) | D+L   | L    |
| Shear        | 2300 lb        | 7'8"     | 11947 lb      | 0.192 (19%) | D+L   | L    |
| LL Defl inch | 0.028 (L/3698) | 4'9 1/2" | 0.214 (L/480) | 0.130 (13%) | L     | L    |
| TL Defl inch | 0.038 (L/2707) | 4'9 1/2" | 0.285 (L/360) | 0.133 (13%) | D+L   | L    |

### Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top must be laterally braced at end bearings.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type   | Location | Trib Width | Side     | Dead 0.9 | Live 1  | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|----------|----------|---------|-----------|----------|-------------|----------|
| 1  | Uniform     |          |            | Far Face | 134 PLF  | 400 PLF | 0 PLF     | 0 PLF    | 0 PLF       | F05      |
|    | Self Weight |          |            |          | 12 PLF   |         |           |          |             |          |

### Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 6/28/2026

### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)



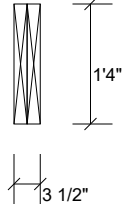
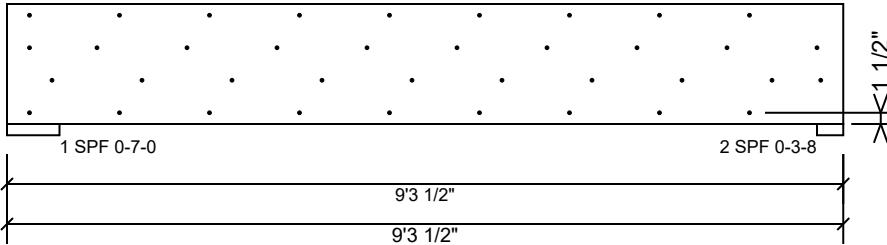
Client: Weaver Homes  
Project:  
Address:

Date: 5/16/2025  
Input by: Curtis Quick  
Job Name: Graves Residence Beams  
Project #:

Page 7 of 9

## BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



### Multi-Ply Analysis

Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

|                          |           |
|--------------------------|-----------|
| Capacity                 | 81.5 %    |
| Load                     | 267.0 PLF |
| Yield Limit per Foot     | 327.4 PLF |
| Yield Limit per Fastener | 81.9 lb.  |
| C <sub>m</sub>           | 1         |
| Yield Mode               | IV        |
| Edge Distance            | 1 1/2"    |
| Min. End Distance        | 3"        |
| Load Combination         | D+L       |
| Duration Factor          | 1.00      |

#### Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

#### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

#### chemicals

#### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

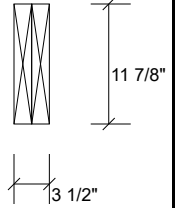
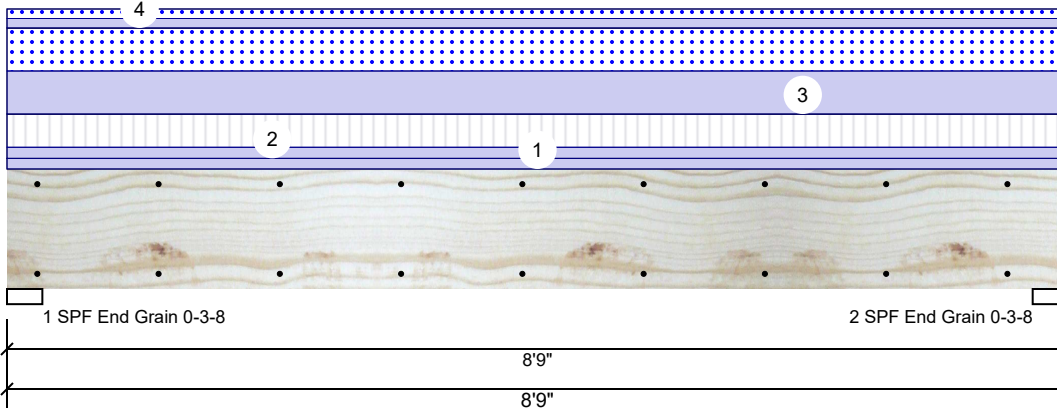
This design is valid until 6/28/2026

#### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)

# BM3 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



## Member Information

Type: Girder  
Plies: 2  
Moisture Condition: Dry  
Deflection LL: 480  
Deflection TL: 360  
Importance: Normal - II  
Temperature: Temp <= 100°F

Application: Floor  
Design Method: ASD  
Building Code: IRC 2018  
Load Sharing: No  
Deck: Not Checked

## Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1   | Vertical  | 1641 | 3702 | 2590 | 0    | 0     |
| 2   | Vertical  | 1641 | 3702 | 2590 | 0    | 0     |

## Bearings

| Bearing           | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.   |
|-------------------|--------|------|------|--------------|-------|----------|-------------|
| 1 - SPF End Grain | 3.500" | Vert | 67%  | 3702 / 3173  | 6875  | L        | D+0.75(L+S) |
| 2 - SPF End Grain | 3.500" | Vert | 67%  | 3702 / 3173  | 6875  | L        | D+0.75(L+S) |

## Analysis Results

| Analysis     | Actual         | Location  | Allowed       | Capacity     | Comb.       | Case |
|--------------|----------------|-----------|---------------|--------------|-------------|------|
| Moment       | 13505 ft-lb    | 4'4 1/2"  | 22897 ft-lb   | 0.590 (59%)  | D+0.75(L+S) | L    |
| Unbraced     | 13505 ft-lb    | 4'4 1/2"  | 13522 ft-lb   | 0.999 (100%) | D+0.75(L+S) | L    |
| Shear        | 4871 lb        | 1'3 3/8"  | 10197 lb      | 0.478 (48%)  | D+0.75(L+S) | L    |
| LL Defl inch | 0.096 (L/1034) | 4'4 9/16" | 0.207 (L/480) | 0.464 (46%)  | 0.75(L+S)   | L    |
| TL Defl inch | 0.209 (L/477)  | 4'4 9/16" | 0.276 (L/360) | 0.754 (75%)  | D+0.75(L+S) | L    |

## Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at a maximum of 6'3" o.c.
- Bottom must be laterally braced at end bearings.
- Lateral slenderness ratio based on single ply width.

| ID | Load Type   | Location | Trib Width | Side | Dead 0.9 | Live 1  | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|------|----------|---------|-----------|----------|-------------|----------|
| 1  | Uniform     |          |            | Top  | 120 PLF  | 0 PLF   | 0 PLF     | 0 PLF    | 0 PLF       | Wall     |
| 2  | Uniform     |          |            | Top  | 125 PLF  | 375 PLF | 0 PLF     | 0 PLF    | 0 PLF       | F04      |
| 3  | Uniform     |          |            | Top  | 485 PLF  | 0 PLF   | 485 PLF   | 0 PLF    | 0 PLF       | A3       |
| 4  | Uniform     |          |            | Top  | 107 PLF  | 0 PLF   | 107 PLF   | 0 PLF    | 0 PLF       | P1       |
|    | Self Weight |          |            |      | 9 PLF    |         |           |          |             |          |

## Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

## Lumber

- Dry service conditions, unless noted otherwise
- LVL not to be treated with fire retardant or corrosive

chemicals

## Handling & Installation

- LVL beams must not be cut or drilled
- Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
- Damaged Beams must not be used
- Design assumes top edge is laterally restrained
- Provide lateral support at bearing points to avoid lateral displacement and rotation

- For flat roofs provide proper drainage to prevent ponding

This design is valid until 6/28/2026

## Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
www.metsawood.com/us



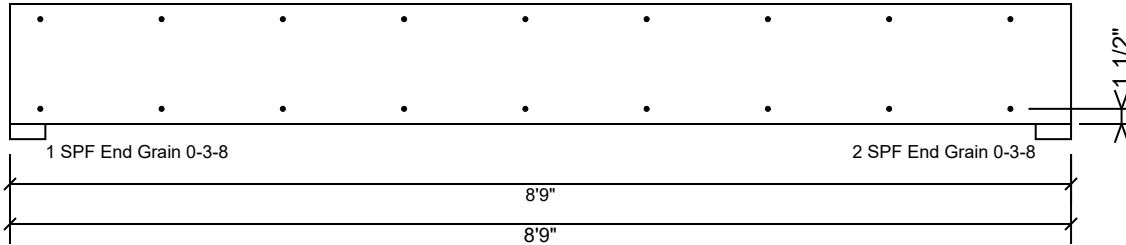
Client: Weaver Homes  
Project:  
Address:

Date: 5/16/2025  
Input by: Curtis Quick  
Job Name: Graves Residence Beams  
Project #:

Page 9 of 9

## BM3 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



### Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

|                          |           |
|--------------------------|-----------|
| Capacity                 | 0.0 %     |
| Load                     | 0.0 PLF   |
| Yield Limit per Foot     | 163.7 PLF |
| Yield Limit per Fastener | 81.9 lb.  |
| C <sub>m</sub>           | 1         |
| Yield Mode               | IV        |
| Edge Distance            | 1 1/2"    |
| Min. End Distance        | 3"        |
| Load Combination         |           |
| Duration Factor          | 1.00      |

#### Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

#### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

#### chemicals

#### Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 6/28/2026

#### Manufacturer Info

Metsä Wood  
301 Merritt 7 Building, 2nd Floor  
Norwalk, CT 06851  
(800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)