

Drawing Index

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Building Data

Building Type: Single  
Family Residence unsprinkled

Occupancy Classification:  
Residential Group R-3

Exposure Catagory C

Construction Type: V

Number of Stories: 1

Building Height: 16'-3"

Area Tabulation:

| Area Tabulation |           |
|-----------------|-----------|
| Unit A          |           |
| Living          | 1736 sqft |
| Garage          | 400 sqft  |
| Lanai           | 129 sqft  |
| Entry           | 59 sqft   |
| Total           | 2324 sqft |

| Unit B |           |
|--------|-----------|
| Living | 1736 sqft |
| Garage | 400 sqft  |
| Lanai  | 129 sqft  |
| Entry  | 59 sqft   |
| Total  | 2324 sqft |

ENGINEERING SERVICES GROUP, LLC  
391 W. Alfred St.  
Tavares, FL 32778  
352-386-1735 J. Lee Smith, P.E. #36177

2600 Hester Ave  
Plam Bay Fl 32909

Drawn By:  
Michael Roberts

1/8" Scale on 11 x 17  
or  
1/4" scale on 24 x 36

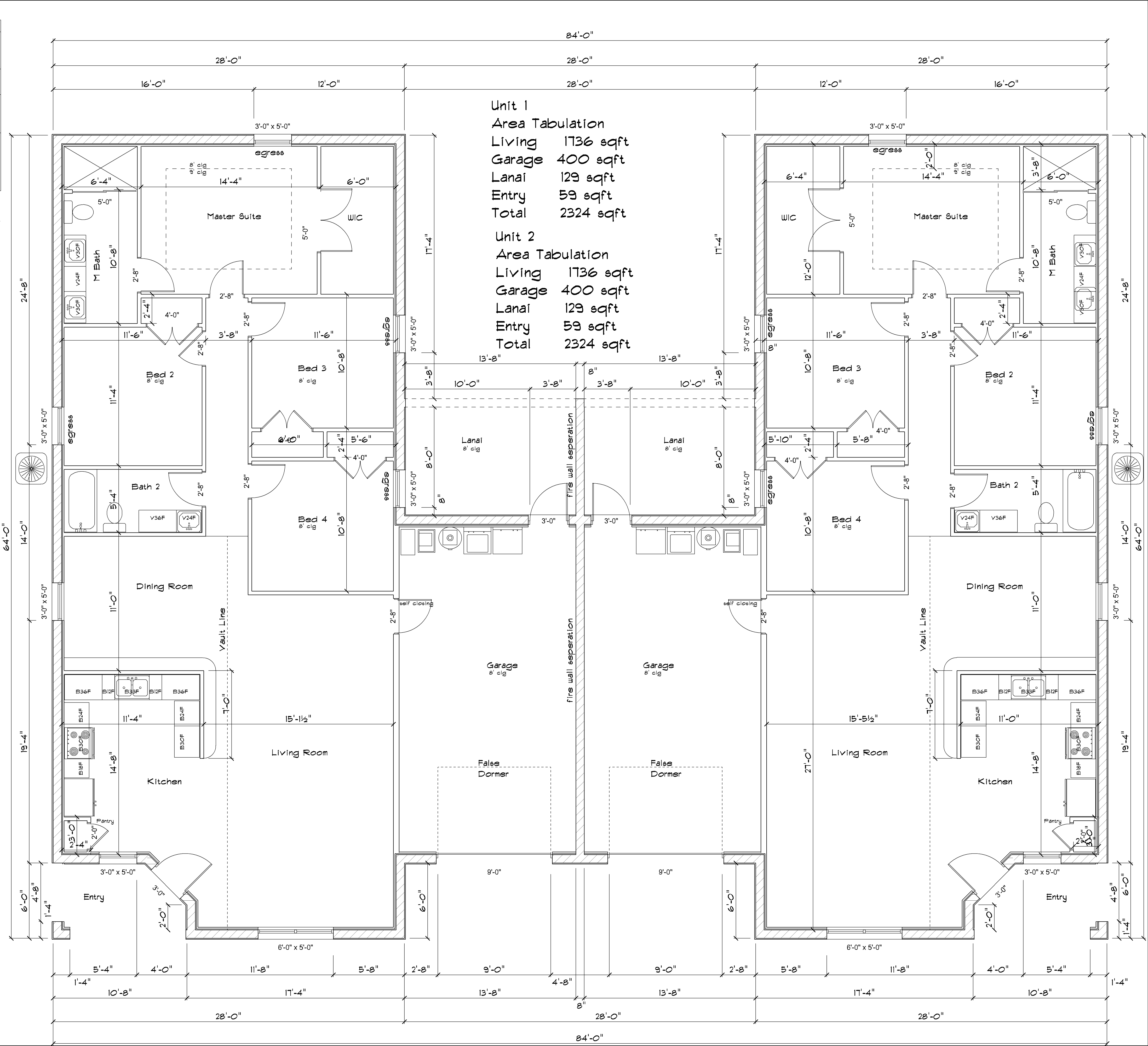
C-1

THIS STRUCTURE HAS BEEN DESIGNED  
IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF  
FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VULT.#160 MPH  
WIND SPEED, V#80, #124 MPH  
RISK CATEGORY II EXPOSURE CATEGORY C  
TOPOGRAPHIC FACTOR = 1.0 GUST EFFECT, G#0.85  
WIND DIR. FACTOR K#0.85 FULLY ENCLOSED  
INTERNAL PRESSURE COEFFICIENT: +/- 0.18  
DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING  
(WORST CASE) #33.1 PSF #43.8 PSF  
GARAGE DOOR DESIGN PRESSURE = #28.9, -32.7 (WORST CASE)  
ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF



| TABLE R302.6 DWELLING/GARAGE SEPERATION                                                       |                                                                                                                            |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Separation                                                                                    | Material                                                                                                                   |
| From the residence and attica                                                                 | Not less than 1/2-inch gypsum board or equivalent applied to the garage side                                               |
| From all habitable rooms above the garrage                                                    | Not less than 5/8- inch Type X gypsum board or equivalent                                                                  |
| Structure(s) supporting floor/ceiling assemblies used for seperation required by this section | Not less than 1/2-inch gypsum board or equivalent                                                                          |
| Garrages located less than 3 feet from a dwelling unit on the same lot                        | Not less than 1/2 inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area |

R302.5.1 Opening protection.  
Openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches(35mm) in thickness, solid or honeycomb core steel doors not less than 13/8 inches (35mm) thick, or 20-minute fire-rated doors with self closing hinge.



ENGINEERING SERVICES GROUP, LLC  
391 W. Alfred St.  
Tavares, FL 32778  
352-568-1755 J. Lee Smith, P.E. #36177

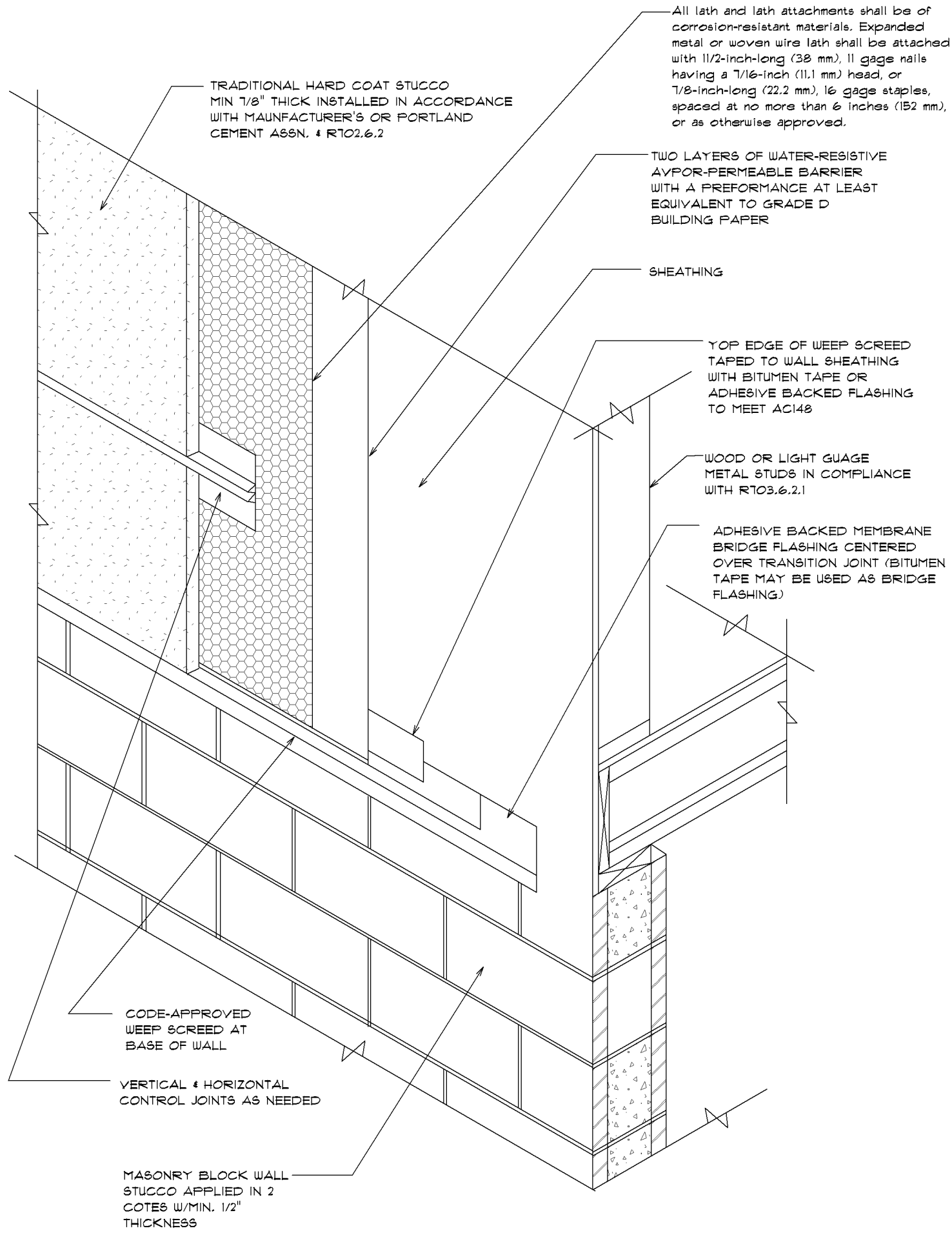
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Dawn Bui  
Michael Roberts

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or  
1/4" scale on 24 x 36

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF  
FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VULT, 160 MPH  
WIND SPEED, V<sub>WIND</sub> = 124 MPH  
RISK CATEGORY II  
TOPOGRAPHIC FACTOR = 1.0  
WIND DIR. FACTOR K<sub>d</sub> = 0.85  
INTERNAL PRESSURE COEFFICIENT: +/- 0.18  
DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING  
(WORST CASE) = 33.1 PSF - 43.8 PSF  
GARAGE DOOR DESIGN PRESSURE = 20 PSF  
FLOOR LIVE LOAD = 40 PSF  
ROOF LIVE LOAD = 20 PSF





2000 - SINGLE HUNG - EGRESS (24E: 31" x 60-1/4") 1 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4\*10/-151, PAN \*NFL-29244.11 (Kitchen)

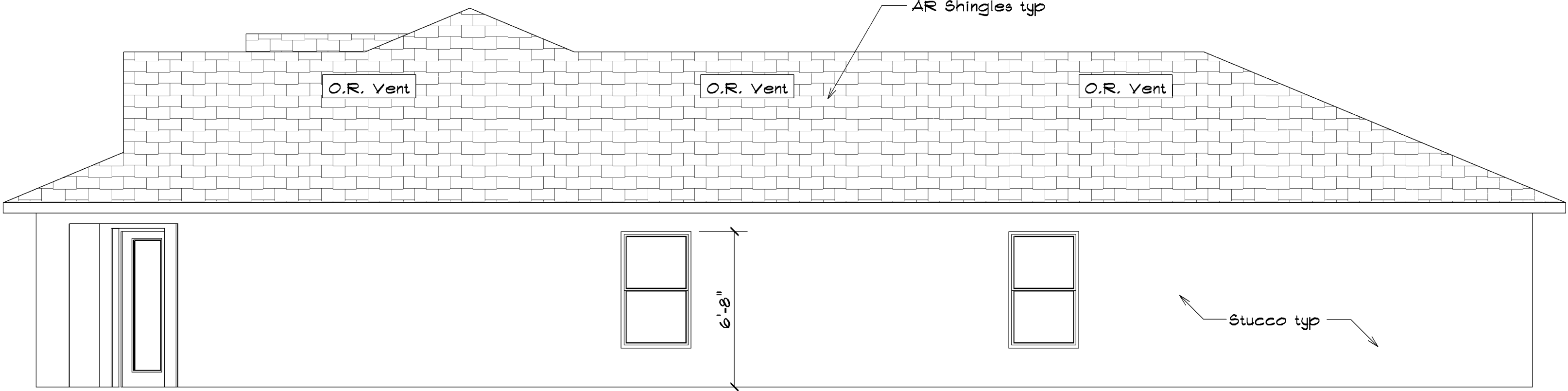
2000 - SINGLE HUNG - EGRESS (24E: 31" x 60-1/4") 2 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4\*10/-151, PAN \*NFL-29244.11 (Living Room)

2000 - SINGLE HUNG - EGRESS (24E: 31" x 60-1/4") 4 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4\*10/-151, PAN \*NFL-29244.11 (Dining Room)

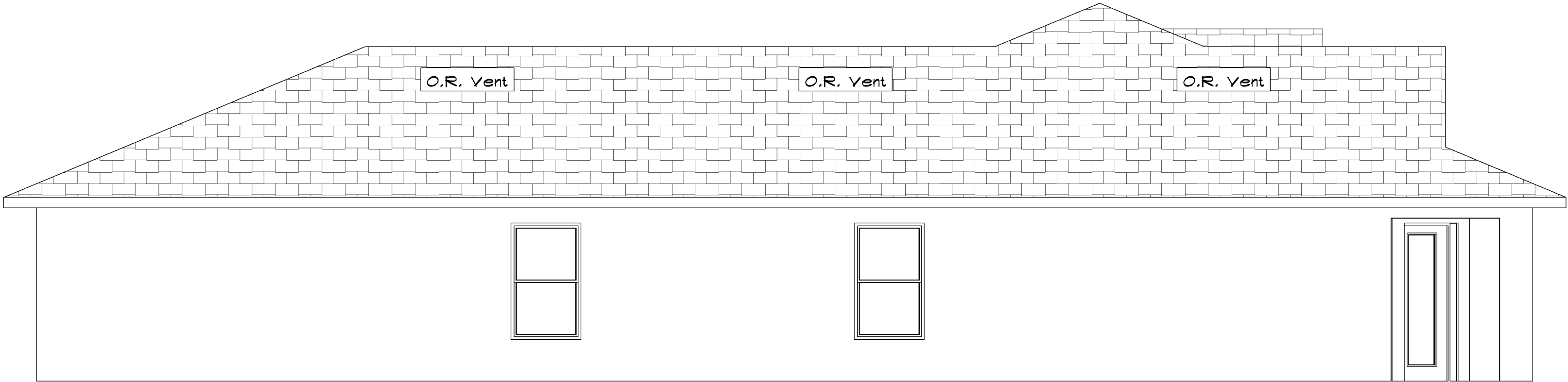
2000 - SINGLE HUNG - EGRESS (24E: 31" x 60-1/4") 5 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4\*10/-151, PAN \*NFL-29244.11 (Bedroom #2)

2000 - SINGLE HUNG - EGRESS (24E: 31" x 60-1/4") 6 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4\*10/-151, PAN \*NFL-29244.11 (Bedroom #3)

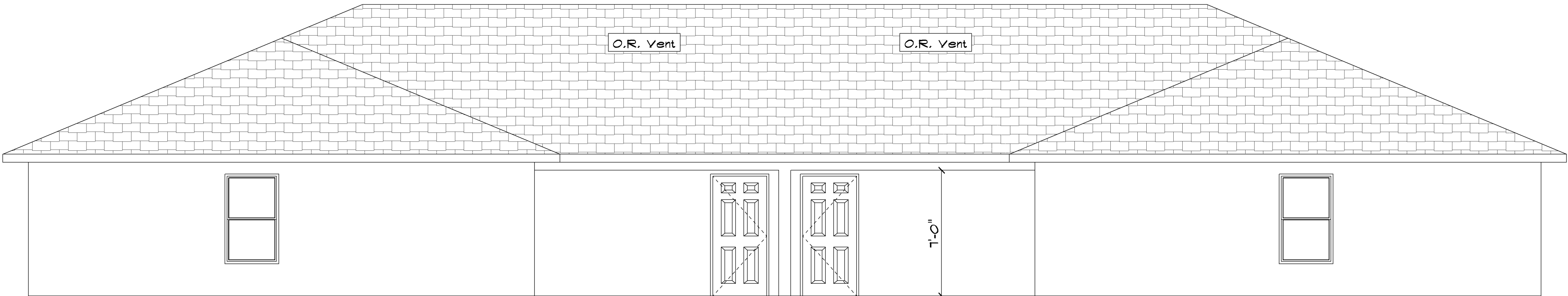
2000 - SINGLE HUNG - EGRESS (24E: 31" x 60-1/4") 7 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4\*10/-151, PAN \*NFL-29244.11 (Bedroom #4)



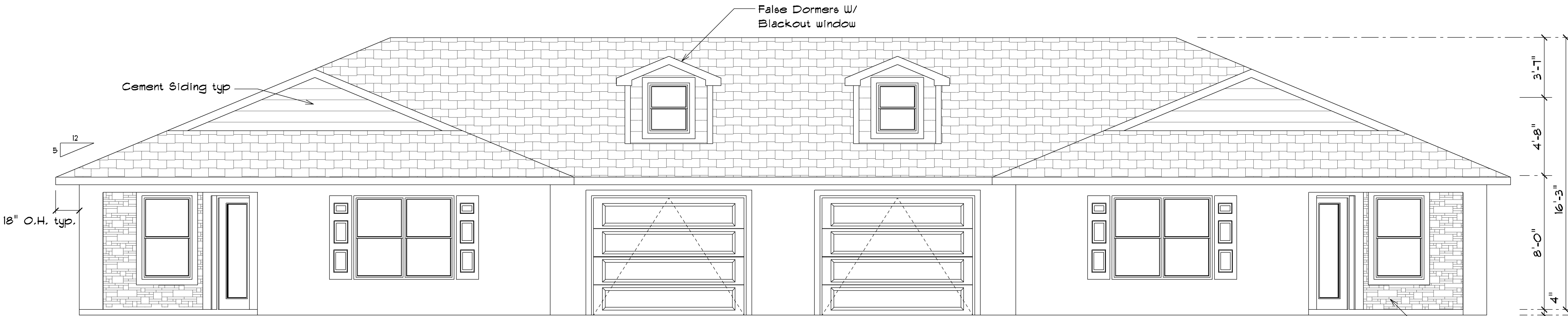
Right Elevation



Left Elevation



Rear Elevation



Front Elevation

Roof Ventilation Calculations  
Per the Florida Building Code Section R806 ROOF VENTILATION

Determine the sq.ft. of attic floor space 2324 SF  
Divide by Code Formula 1/300 for NFA 300  
NFA = Net Free Area sf / 300 = 7.75 sq. ft.  
Multiply NFA by 144" (1 SF) X 144 = 1115.52 sq. in NFA  
Divide result by 2 for equal Intake/exhaust / 2 = 557.76 sq.in.in NFA  
Intake or exhaust (Intake provided by vented soffits)  
Product used: Lomanco T10 D = 140 sq. in.  
divide sq. in. exhaust by 140 sq. in. provided 3.984 vent boxes needed

TOTAL OFF RIDGE VENTS NEEDED OR 4 OFF RIDGE VENTS NEEDED

(Install off ridge vents at least three feet above eaves and minimum two feet below ridge to be field located.)

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VUL=60 MPH WIND SPEED, V80ed, #124 MPH EXPOSURE CATEGORY C FULLY ENCLOSED TOPOGRAPHIC FACTOR = 1.0 WIND DIR. FACTOR Kd=0.85 INTERNAL PRESSURE COEFFICIENT, +/- 0.18 DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING (WORST CASE) +33.1 PSF -43.8 PSF GARAGE DOOR DESIGN PRESSURE = +28.9, -32.1 (WORST CASE) ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

ENGINEERING SERVICES GROUP, LLC  
391 W. Alfred St.  
Tavares, FL 32718  
352-388-1735 J. Lee Smith, P.E. #36171

2600 Hester Ave  
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Drawn By  
Michael Roberts

1/8" Scale on 11 x 17  
or  
1/4" scale on 24 x 36

A-2



SLEEVE REQUIRED  
INSTALL PER UL SYSTEM W-L-3272  
USE HILTI CFD-PL FIRESTOP PLUG

CABLE BUNDLE

6 CABLE BUNDLE THROUGH GYPSUM WALL ASSEMBLY (1-HR.)

CABLE BUNDLE CONSISTS OF:

| TYPE                            | MAX                 | TYPE                                 | MAX            |
|---------------------------------|---------------------|--------------------------------------|----------------|
| TELEPHONE CABLE WITH PVC JACKET | 300 PAIR NO. 24 AWG | FIBER OPTIC CABLE (MAX. 24 FIBER)    | 1/2" DIA.      |
| POWER CABLE WITH PVC JACKET     | 750 KC ML           | METAL-CLAD CABLE WITH PVC JACKET     | 3/4 NO. 12 AWG |
| POWER CABLE WITH PVC JACKET     | 1/4 NO. 12 AWG      | METAL-CLAD TEK CABLE WITH PVC JACKET | 1"             |

INSTALL PER UL SYSTEM W-L-3334  
USE HILTI CP 553 SPEED SLEEVE

CABLE BUNDLE

7 CABLE BUNDLE THROUGH GYPSUM WALL ASSEMBLY (1-HR.)

CABLE BUNDLE CONSISTS OF:

| TYPE                                                                  | MAX                              | TYPE                                                                                                              | MAX             |
|-----------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|
| TELEPHONE CABLE WITH PVC JACKET                                       | 100 PAIR NO. 24 AWG              | SHIELDED PRINTER CABLE WITH PVC JACKET                                                                            | 20/C NO. 18 AWG |
| COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION | 1/4 NO.12 AWG                    | POWER OR NON-POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT METAL JACKET (MAN. BY AFC CABLE SYSTEMS, INC.)        | 2/C NO. 18 AWG  |
| TYPE RHH GROUND CABLE                                                 | 4/0 AWG                          | S-VIDEO CABLE CONSISTING OF TWO MAX. 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET   | 1/4" DIA.       |
| COMPUTER CABLE                                                        | 4 PAIR NO. 22 AWG CAT 5 OR CAT 6 | METAL-CLAD CABLE                                                                                                  | 3/4 NO. 12 AWG  |
| COAXIAL CABLE                                                         | RG 6/U                           | ANY CABLES, METAL-CLAD CABLES, OR ARMORED CABLES CURRENTLY LISTED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY | "               |
| FIBER OPTIC CABLE (24 FIBER) WITH PVC OR PE JACKET AND INSULATION     | 1/2" DIA.                        |                                                                                                                   |                 |

Fire-calk all Wire Penetrations typ.

Wall Penetration  
F Rating - 2HR  
T Rating - 0 HR  
UL Design: W-L-1041  
Detail: PN 101

2x4 min. Studs @ 16" O.C.

1 Layers 5/8" Fire Shield Gypsum Board

Perform Quick Set FS-90 Compound

4" Schedule 5 Steel Pipe, 4" Conduit, or 3" Copper Tubing

3 1/2" Thickness of 0.5 PCF Glass Fiber Insulation Firmly Packed Into Opening

10 Firewall Penetration Detail

1 METAL PIPE THROUGH GYPSUM WALL ASSEMBLY (1-HR.)

INSTALL PER UL SYSTEM W-L-3334  
USE HILTI CP553 SPEED SLEEVE

| METAL PIPE                      |           |
|---------------------------------|-----------|
| TYPE                            | MAX. DIA. |
| STEEL PIPE (SCH. 10 OR HEAVIER) | 30"       |
| CAST IRON PIPE                  | 30"       |
| COPPER PIPE                     | 6"        |
| STEEL CONDUIT                   | 6"        |
| EMT                             | 4"        |

SLEEVE OPTIONAL  
INSTALL PER UL SYSTEM W-L-2128  
USE HILTI FS-ONE MAX FIRESTOP SEALANT

| PLASTIC PIPE                                     |           |
|--------------------------------------------------|-----------|
| TYPE                                             | MAX. DIA. |
| PVC PIPE (SCH. 40) (CELLULAR OR SOLID CORE)      | 2"        |
| CPVC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM ONLY) | 2"        |

3 PLASTIC PIPE THROUGH GYPSUM WALL ASSEMBLY (1-HR.)

2 MULTIPLE METAL PIPES THROUGH GYPSUM WALL ASSEMBLY (1-HR.)

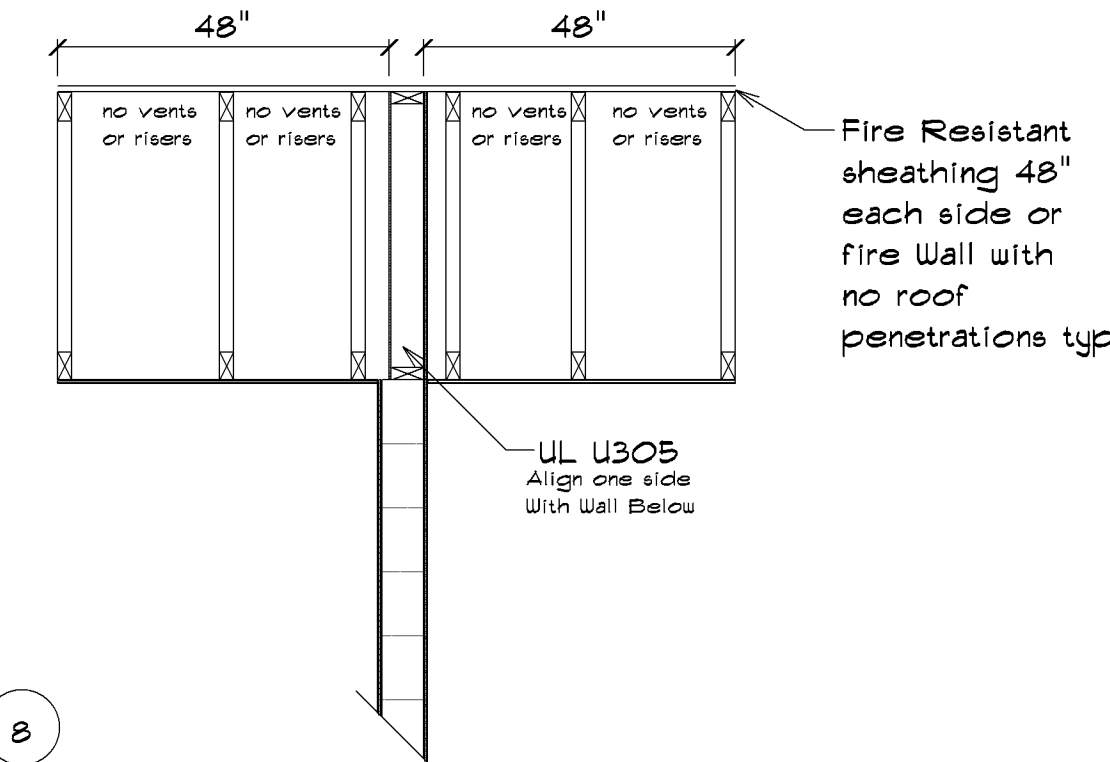
INSTALL PER UL SYSTEM W-L-1389 USE HILTI FS-ONE MAX FIRESTOP SEALANT

| METAL PIPE                     |          |
|--------------------------------|----------|
| TYPE                           | MAX DIA. |
| STEEL PIPE (SCH. 5 OR HEAVIER) | 2"       |
| STEEL CONDUIT                  | 2"       |
| EMT                            | 2"       |

INSTALL PER UL SYSTEM W-L-2165 USE HILTI FS-ONE MAX FIRESTOP SEALANT

| OPTICAL FIBER RACEWAY OR ENT      |          |
|-----------------------------------|----------|
| TYPE                              | MAX DIA. |
| OPTICAL FIBER RACEWAY (INNERDUCT) | 2"       |
| ENT                               | 2"       |

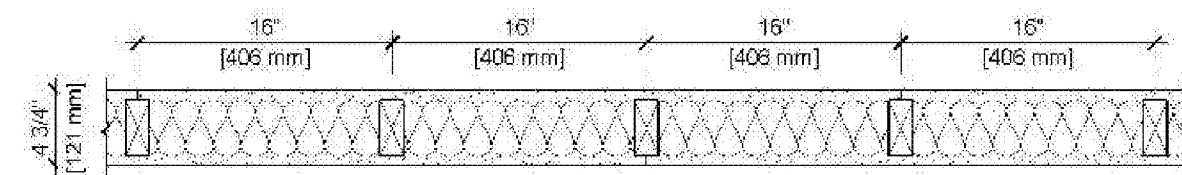
4 OPTICAL FIBER RACEWAY OR ENT THROUGH GYPSUM WALL ASSEMBLY (1-HR.)



8

DESIGN NO. UL U305

FIRE RATING: 1 HOUR  
STC RATING: 34  
SOUND TEST: RAL TL11-130  
SYSTEM THICKNESS: 4-3/4" (121 MM)  
LOCATION: INTERIOR  
FRAMING TYPE: WOOD STUD (LOAD-BEARING)



ASSEMBLY REQUIREMENTS:

GYPSUM PANELS: ONE LAYER 5/8" (15.9 MM) SHEETROCK® GYPSUM PANEL MOLD TOUGH® (UL TYPE SCX)  
WOOD STUDS: 2" X 4" (38 X 86 MM) WOOD STUDS, 16" (406 MM) O.C.  
INSULATION: 3-1/2" (89 MM) FIBERGLASS INSULATION  
GYPSUM PANELS: ONE LAYER 5/8" (15.9 MM) SHEETROCK® GYPSUM PANEL MOLD TOUGH® (UL TYPE SCX)

GENERAL WALL NOTES:

- REFER TO APPLICABLE CODES REQUIREMENTS TO ENSURE COMPLIANCE PRIOR TO CONSTRUCTION.
- FOR THE MOST UP-TO-DATE DETAILS, INCLUDING CONSTRUCTION VARIATIONS, REFER TO THE PUBLISHED DESIGN.
- WHERE DESIGN NO. INDICATES "TYP", THE FIRE RATING IS BASED ON LABORATORY TEST DATA OF THE REFERENCED SIMILARLY CONSTRUCTED ASSEMBLIES.
- STUD SIZES AND INSULATION THICKNESS ARE MINIMUM UNLESS OTHERWISE STATED IN THE PUBLISHED ASSEMBLY.
- STUD AND FASTENER SPACINGS ARE MAXIMUM UNLESS OTHERWISE STATED IN THE PUBLISHED ASSEMBLY.
- PANEL ORIENTATION SHALL BE AS SPECIFIED IN THE PUBLISHED DESIGN.
- FIRE RATINGS ARE FROM BOTH SIDES UNLESS OTHERWISE STATED.
- FIRE RATINGS ARE MAINTAINED WITH ONE OR MORE OF THE FOLLOWING MODIFICATIONS: INCREASE STUD DEPTH, INCREASE STUD MATERIAL THICKNESS, DECREASE STUD SPACING, DECREASE FASTENER SPACING, INCREASE INSULATION THICKNESS UP TO CAVITY DEPTH.
- WHERE ACOUSTICAL PERFORMANCE IS PROVIDED IN AN ESTIMATED RANGE, THE VALUES ARE BASED ON LABORATORY TEST DATA OF SIMILARLY CONSTRUCTED ASSEMBLIES.
- SOUND RATINGS ARE MAINTAINED WITH ONE OR MORE OF THE FOLLOWING MODIFICATIONS: INCREASE STUD DEPTH, DECREASE STUD MATERIAL THICKNESS, INCREASE STUD SPACING, INCREASE FASTENER SPACING, INCREASE INSULATION THICKNESS UP TO CAVITY DEPTH. MODIFICATIONS MUST NOT EXCEED LIMITATIONS OF FIRE RATING.

ISSUE RECORD:

REVISION DATE

SHEET INFORMATION:

W-P-1-MR-02

SLEEVE OPTIONAL  
INSTALL PER UL SYSTEM W-L-3065  
USE HILTI FS-ONE MAX, CP 6018, OR CP 606 FIRESTOP SEALANT OR CP 618 FIRESTOP PUTTY STICK

CABLE BUNDLE

5 CABLE BUNDLE THROUGH GYPSUM WALL ASSEMBLY (1-HR.)

CABLE BUNDLE CONSISTS OF:

| TYPE                              | MAX                  | TYPE                                                                                                              | MAX                              |
|-----------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------|
| POWER CABLE WITH PVC JACKET       | 1/4 NO. 12 AWG       | COPPER GROUND CABLE WITH OR WITHOUT PVC JACKET                                                                    | 3/4" DIA.                        |
| TELEPHONE CABLE WITH PVC JACKET   | 25 PAIR NO 24 AWG    | SINGLE OR MULTIPLE CONDUCTOR TYPE MI CABLE (MIN. 1/8" SEPERATION BETWEEN MI CABLES AND ANY OTHER TYPES OF CABLE)  | 1-1/4" DIA                       |
| COAXIAL CABLE WITH PVC JACKET     | 1/2" DIA RG/U        | ANY CABLES, METAL-CLAD CABLES, OR ARMORED CABLES CURRENTLY LISTED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY |                                  |
| METAL-CLAD CABLE                  | 3/4 NO. 8 AWG        | ALUMINUM SER CABLE                                                                                                | 4/4 (+GND) NO. 300 KCMIL         |
| COPPER COND. CABLE (ROMEX)        | 3/4 (+ GND) NO. 8AWG | CABLE                                                                                                             | 4 PAIR NO. 22 AWG CAT 5 OR CAT 6 |
| FIBER OPTIC CABLE WITH PVC JACKET | 5/8" DIA.            | COAXIAL CABLE WITH FLUORINATED ETHYLENE JACKET                                                                    | RG 6/U                           |

Notes

- Refer to the following specifications for firestopping:
  - 01 84 00
  - 01 84 13 Penetration Firestopping
  - 22 00 00 Plumbing
  - 23 00 00 HVAC
  - 26 00 00 Electrical
  - 27 06 31 Communication

For Quality Control requirements, refer to the Quality Control portion of the specification.

2. Details shown are typical details, containing general information only. Always refer to the full UL system detail for complete system requirements. If field conditions do not match requirements of details, approved alternate details shall be utilized. Design requirements, field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:

Fire Rating (F-Rating)  
Temperature Rating (T-Rating)  
Leakage Rating (L-Rating)  
Water Rating (W-Rating)  
Annular Space  
Percent Fill  
Movement  
Type and thickness of rated construction.

3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Contact Hilti Inc. for alternative systems or engineering judgment. (800-875-8000) Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.

4. References:  
Volumes 1 & 2  
NFPA 101 Life Safety Code  
NFPA 70 - National Electric Code  
All governing local and regional building codes

5. Firestop System installation must meet requirements of ASTM E-814 (UL 1479) tested assemblies that provide a fire rating equal to that of construction being penetrated

6. All rated through-penetration assemblies shall be prominently labeled with a Hilti Firestop Label equipped with a QR code with the following information:  
Warnings - Do Not Disturb  
Through Penetration Firestop System  
UL System Product(s) used  
Hourly Rating (Rating)  
Installation Date  
Contractor's Name

7. For outlet boxes requiring protection, use only wall opening protective Materials category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1).

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VULNERABILITY WIND SPEED, V<sub>WIND</sub> = 124 MPH EXPOSURE CATEGORY C TOPOGRAPHIC FACTOR = 1.0 GUST EFFECT, G = 0.85 WIND DIR. FACTOR K<sub>z</sub> = 0.85 FULLY ENCLOSED INTERNAL PRESSURE COEFFICIENT, +/- 0.18 DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING (WORST CASE) = 33.1 PSF -43.8 PSF GARAGE DOOR DESIGN PRESSURE = +28.9, -32.7 (WORST CASE) ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

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Tavares, FL 32778  
352-3886-1735 J. Lee Smith, P.E. #36177

2600 Hester Ave  
Plain Bay FL 32909

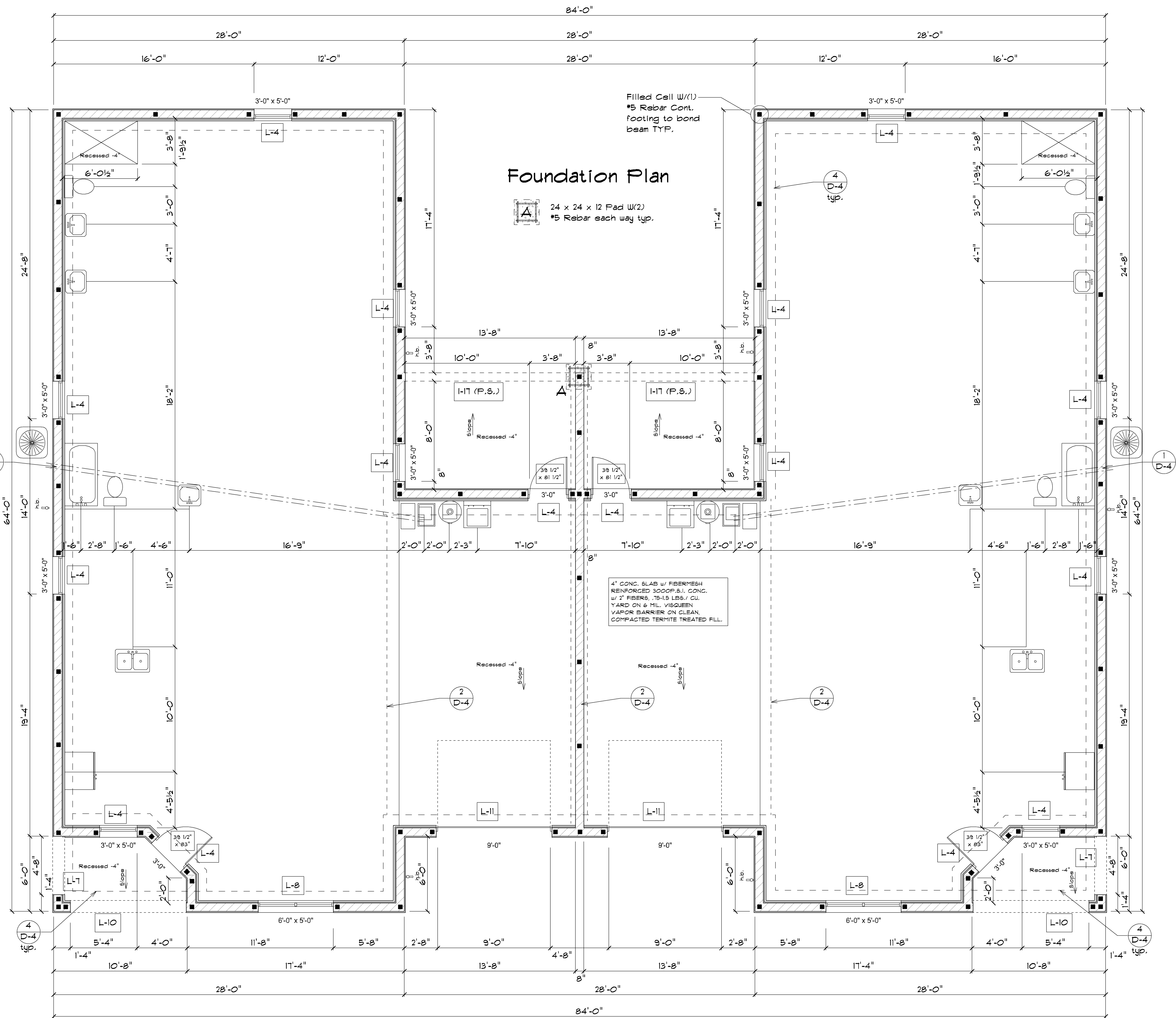
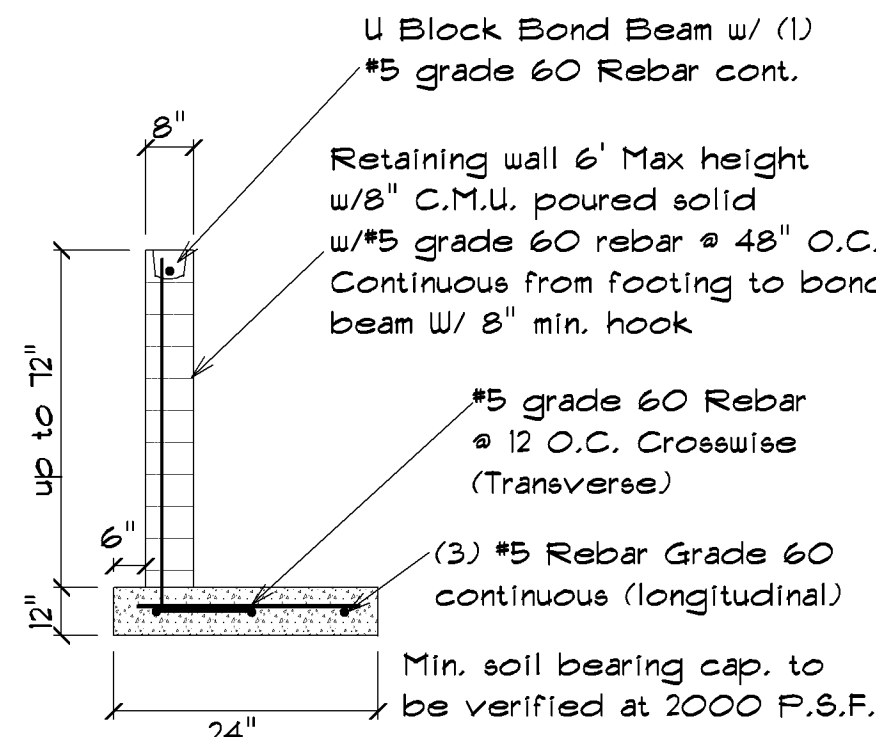
Dylan By  
Michael Roberts

1/8" Scale on 11 x 17  
or  
1/4" scale on 24 x 36

S-3



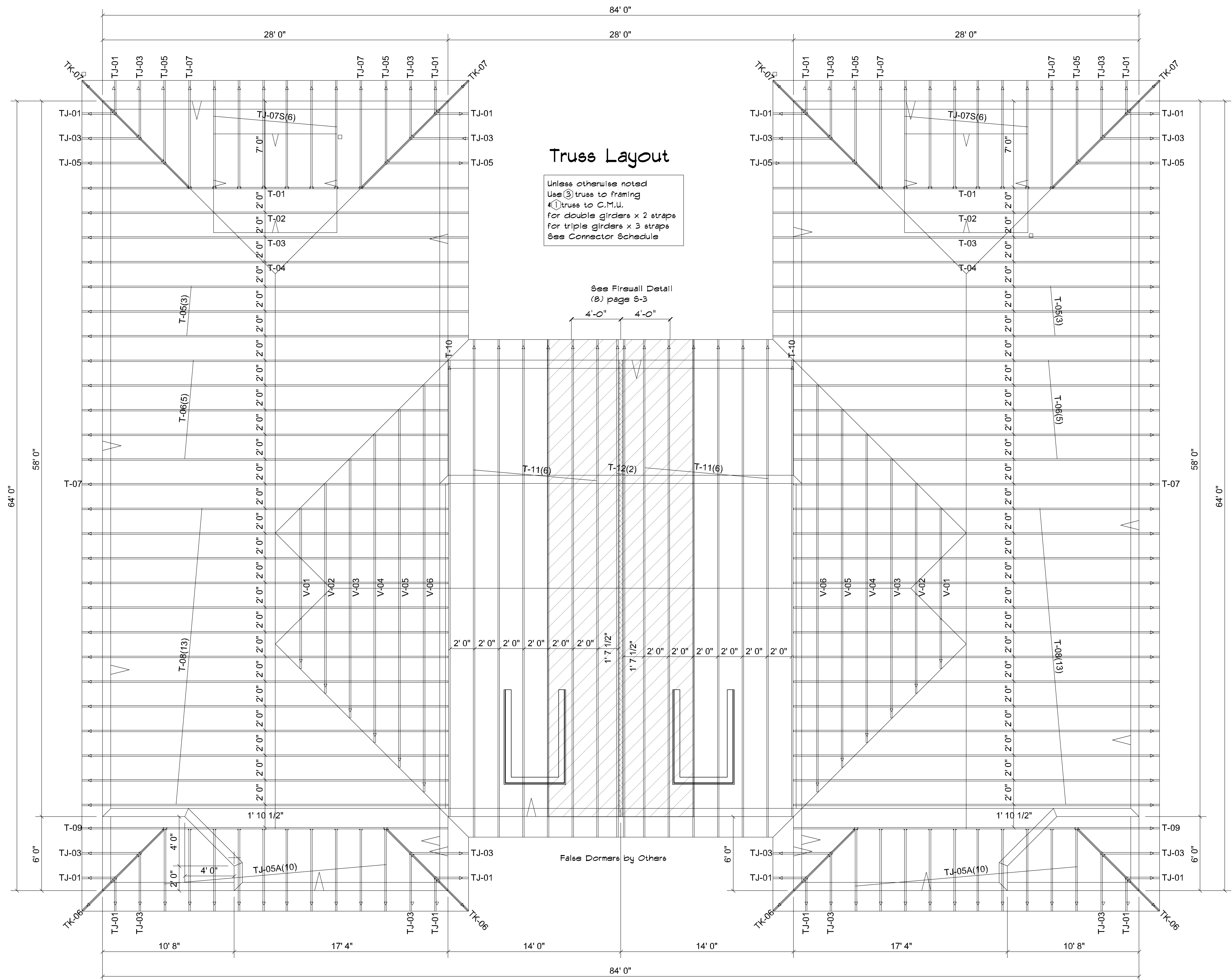
## Foundation / Stem Wall Detail



Drawn By  
Michael Roberts

S-1











NOTE: WIRING TO MEET N.E.C. • APPLICABLE LOCAL CODES

IN ALL AREAS SPECIFIED IN NEC 2020 210.52 • FBC-R 2023 8th edition, ALL 125V 15 • 20 AMP RECEPTICALS SHALL BE LISTED TAMPER RESISTANT RECEPTICALS

FBC-R 2023 E3902.16 Arc-fault circuit-interrupter protection.  
Branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sun-rooms, recreations rooms, closets, hallways, laundry areas and similar

USE C.M. DETECTORS WHERE REQUIRED • STANDARD SMOKE DETECTOR IN ALL OTHER AREAS REQUIRED

All GFCI to Comply with FBCR E3103.3 "A Min of (1) 20A Circuit Shall Be Provided for Recepticals Located in • only serve the Laundry Area"

All GFCI • WPGFCI to comply with FBC-R 2023 E3901.9 "Circuit Separation"

drawings are in accordance with the NEC 2020 NFPA 70. FBC 107.2.1

All service supplying dwelling units shall be provided with a surge-protector device (SPD), an SPD integral shall be part of the service equipment. NEC 2020 230.61(a)

All 125 -volt, through 250-volt recepticals installed in the locations specified in 210.8 (A)(1) through (A)(11) and supplied by a single-phase branch circuits rated 150 volts or less to ground shall have ground-fault circuit-interrupter protection for personnel. NEC 210.8.(A)

Per 2023 FBC EC (8th EDC SECTION • 404.1 all permanently installed luminaires, excluding those in kitchen appliances, shall have an efficacy of at least 45 lumens per watt or shall utilize lamps with an efficacy of not less than 65 lumens per Watt

Form

# Residential Standard Calculation

STEP 1 Article 220-11 and 16 (a) & (b)

|      |                       |       |
|------|-----------------------|-------|
| 1736 | General Lighting load | 5,208 |
| 2    | Small Appliance       | 3,000 |
| 1    | Laundry circuit       | 1,500 |

Gen Lgh., Sm App & Laun. Load      9,708

|                |                    |
|----------------|--------------------|
| 3,000 @ 100% = | 3,000 volt-amperes |
| 6,708 @ 35% =  | 2,348 volt-amperes |
| 0 @ 25% =      | 0 volt-amperes     |

STEP 2 Article 220-14 & 15

Heat load >>>>> \_\_\_\_\_ watts

3 ton ▾ 4,700 VA

A/C #2 ▾ 0 VA

A/C #3 ▾ 0 VA

A/C #4 ▾ 0 VA

STEP 3 Article 220-17

\_\_\_\_\_ Wtr Htrs @ 4500VA      4,500

\_\_\_\_\_ Refrigerator      1,400

\_\_\_\_\_ Freezer      0

\_\_\_\_\_ Dishwasher      1,030

\_\_\_\_\_ Disposals      690

\_\_\_\_\_ Trash compactor      0

\_\_\_\_\_ Microwave      1,630

☐ Central Vac      0

☐ Mini refrigerator      0

☐ \_\_\_\_\_      0

☐ \_\_\_\_\_      0

☐ Ironing Center      0

☐ select ▾ Jacuzzi Tub      0

☐ select ▾ Sprinkler Pump      0

☐ select ▾ Well Pump      0

select ▾      0

select ▾      0

Pool Equip. Panel      0

☐ \_\_\_\_\_      0 No Demand

☐ \_\_\_\_\_      0 No Demand

STEP 4 Article 220-18

Electric Clothes Dryers      5,000 VA

STEP 5 Article 220-19

Electric Ranges      11,600 Col A demand      8,000 watts

Number of appliances \_\_\_\_\_

☐ Check Box for Gas Range

|                      |                             |
|----------------------|-----------------------------|
| Cooktop              | _____<br>Col C demand       |
| Cooktop              | _____<br>Col C demand       |
| Oven(s)              | _____<br>Col C demand       |
| Oven(s)              | _____<br>Col C demand       |
| Number of appliances | _____ 0<br>Dum Factor    0% |

Cooktop & Oven Demand Load      0 watts

General Lighting Demand Load

5,348 VA

Greater of Heat @ 100% vs.A/C @ 125%

5,875 VA

Total A/C Load      5,875

Appliance Demand Load

6,938 VA

Dryer Demand Load

5,000 VA

Range Demand Load

8,000 watts

Service Demand

31,160 VA

Demand Load

130 Ampere

Neutral Demand

75 Ampere

Min.Service Req.

150 Brker

Min. Feeder size

1

Min. Neutral size

4

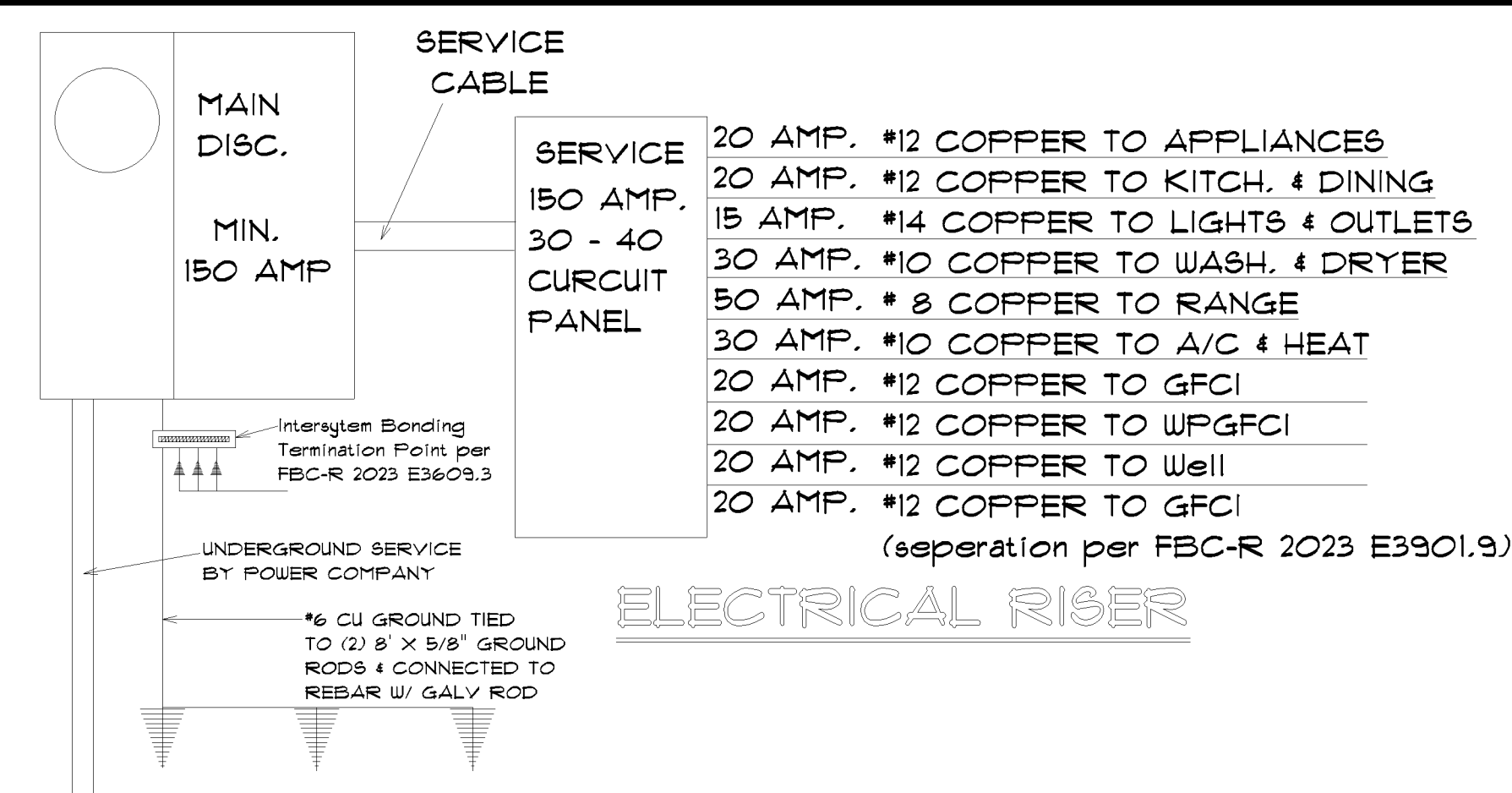
Eg. Grding Cond.

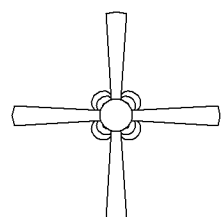
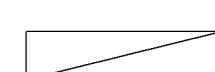
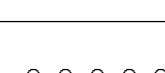
6

☐ Copper

Total Appliance Load      9,250

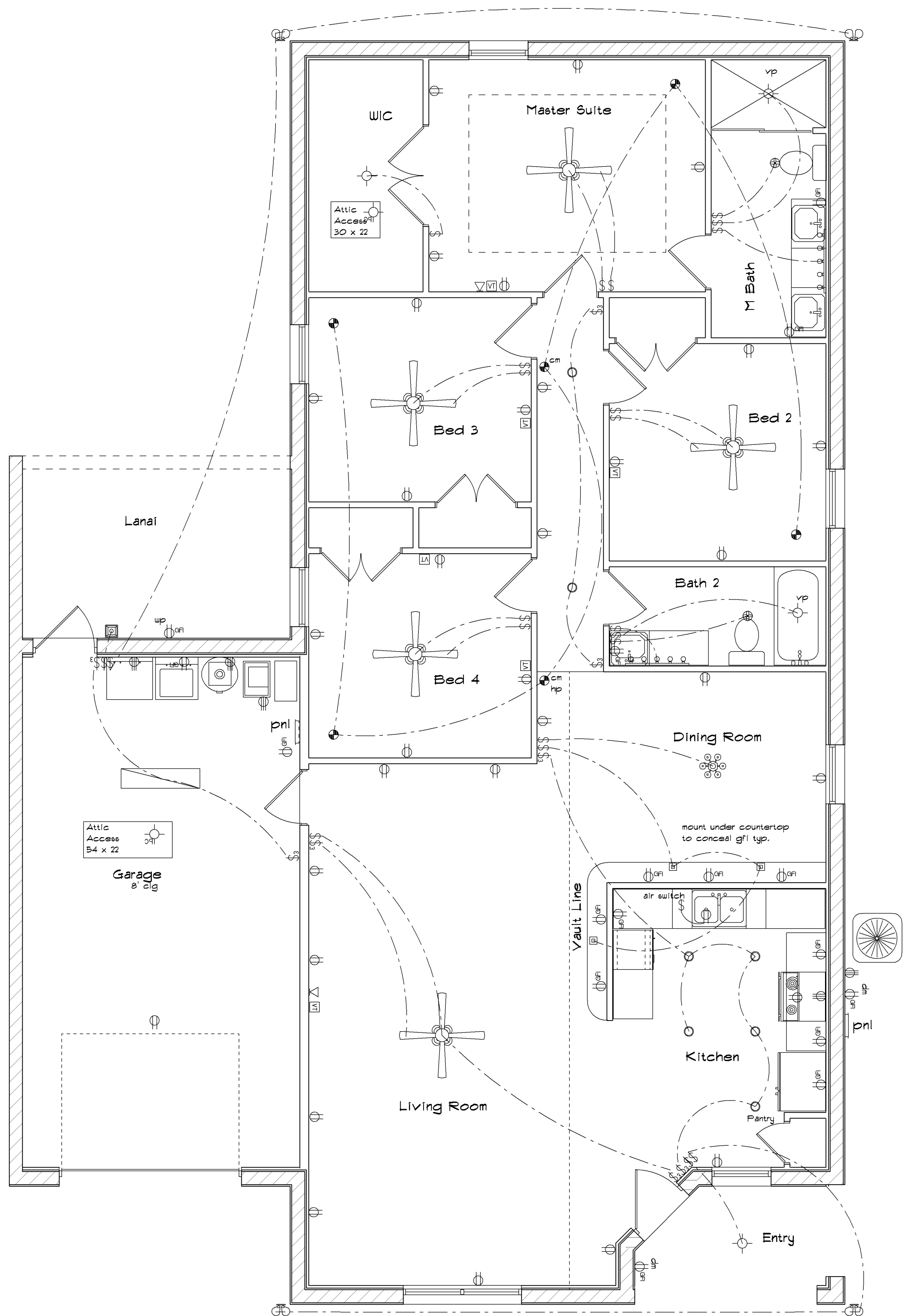
4 or more demand @ 75% plus 100% demand loads      6,938



| ELECTRICAL               | COUNT | SYMBOL                                                                                |
|--------------------------|-------|---------------------------------------------------------------------------------------|
| ceiling fan spotlights 2 | 5     |    |
| chandelier               | 1     |    |
| double spotlight         | 4     |    |
| fluorescent fixture      | 1     |    |
| pendant cube             | 3     |    |
| pot light                | 7     |    |
| vanity bar light         | 2     |    |
| wall mount 2             | 1     |  |
| electrical panel         | 2     |  |
| cable tv outlet          | 6     |  |
| fan                      | 2     |  |
| light                    | 4     |  |
| outlet                   | 34    |  |
| outlet 220v              | 5     |  |
| outlet gfi               | 17    |  |
| pull chain light         | 2     |  |
| smoke detector           | 6     |  |
| switch                   | 23    |  |
| switch 3 way             | 8     |  |
| telephone                | 2     |  |

# Electrical Layout

(Unit 2 of 2)



ENGINEERING SERVICES GROUP, LLC  
391 W. Alfred St.  
Tavares, FL 3278  
352-388-1735 J. Lee Smith, P.E. #36177  
CA#8886

2600 Hester Ave  
Plam Bay Fl 32909

Drawn By  
Michael Roberts

THIS STRUCTURE HAS BEEN DESIGNED  
IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF  
FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VULT-160 MPH  
WIND SPEED. V<sub>ad</sub> = 124 MPH

RISK CATEGORY II

TOPOGRAPHIC FACTOR = 1.0

WIND DIR. FACTOR K<sub>d</sub> = 0.85

INTERNAL PRESSURE COEFFICIENT: +/- 0.18

DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING  
(WORST CASE) = 33.1 PSF - 43.8 PSF

GARAGE DOOR DESIGN PRESSURE = +28.9, -32.7 (WORST CASE)  
ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

$\frac{1}{8}$ " Scale on  $11 \times 17$  or  $\frac{1}{4}$ " scale on  $24 \times 36$

**E-2**

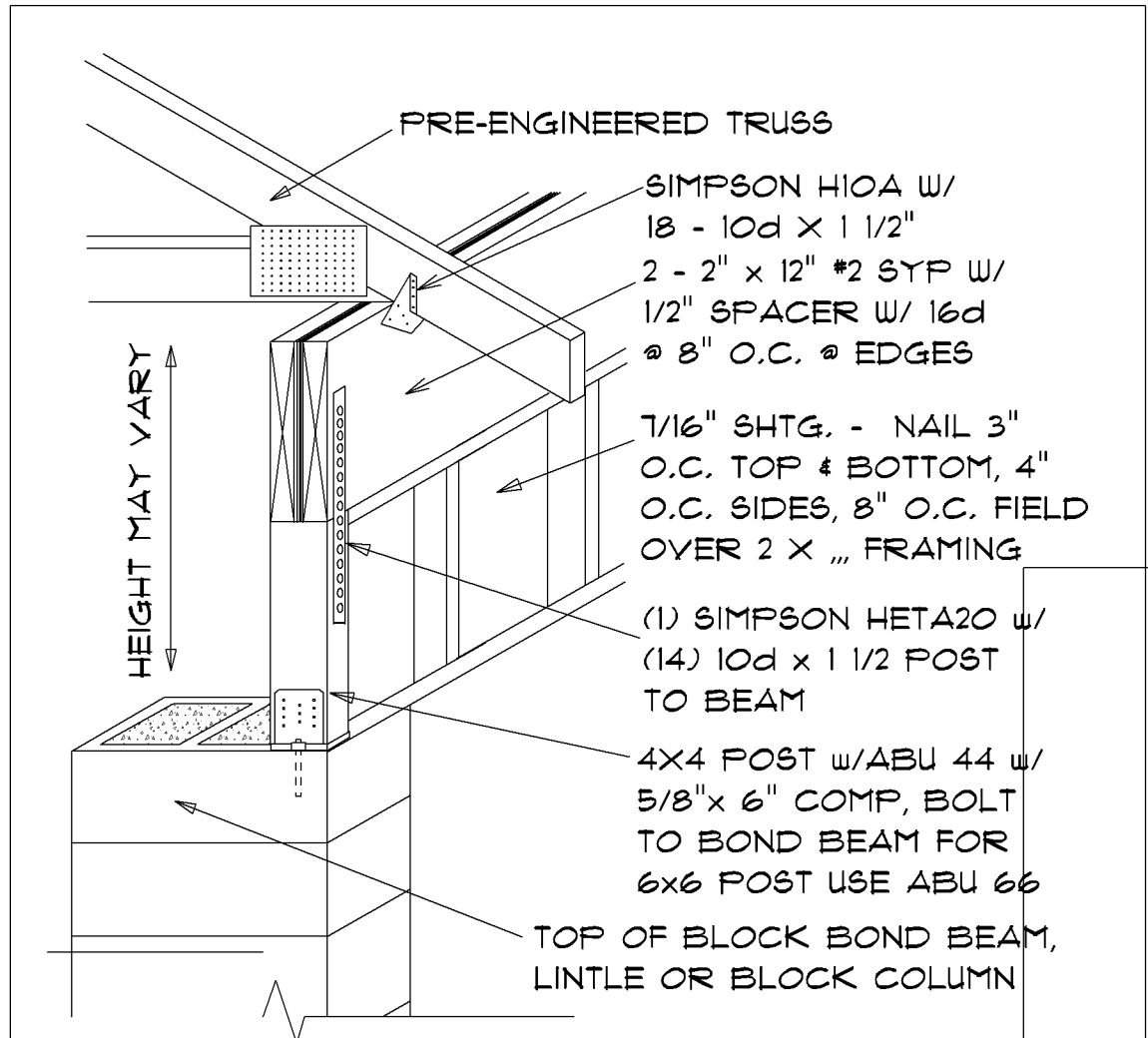




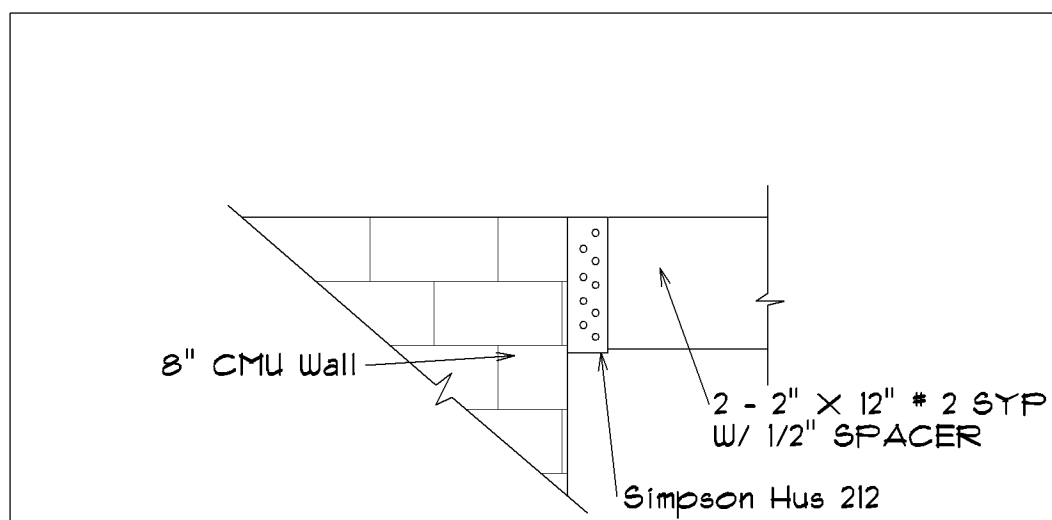




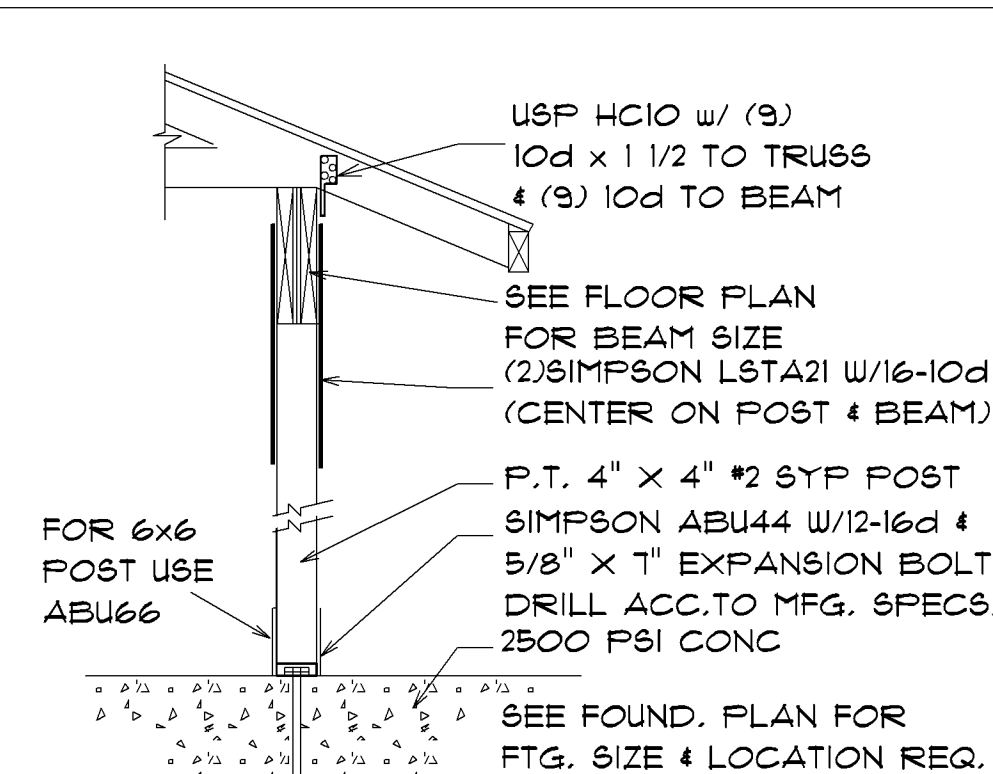




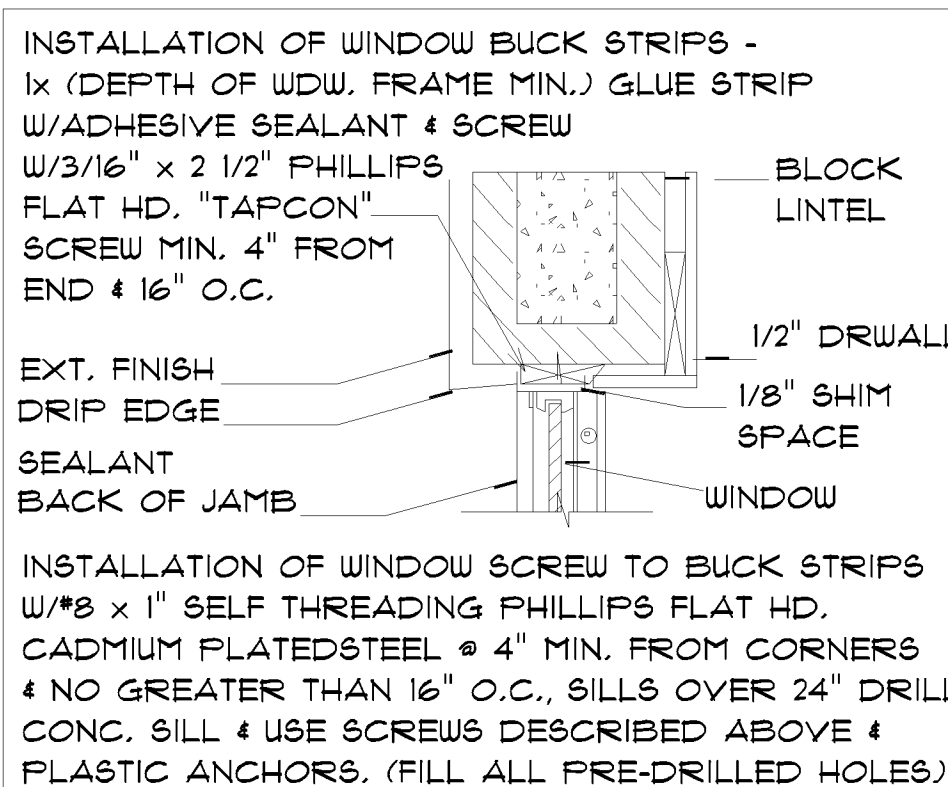
**12** RAISED ENTRY DETAIL  
N.T.S.



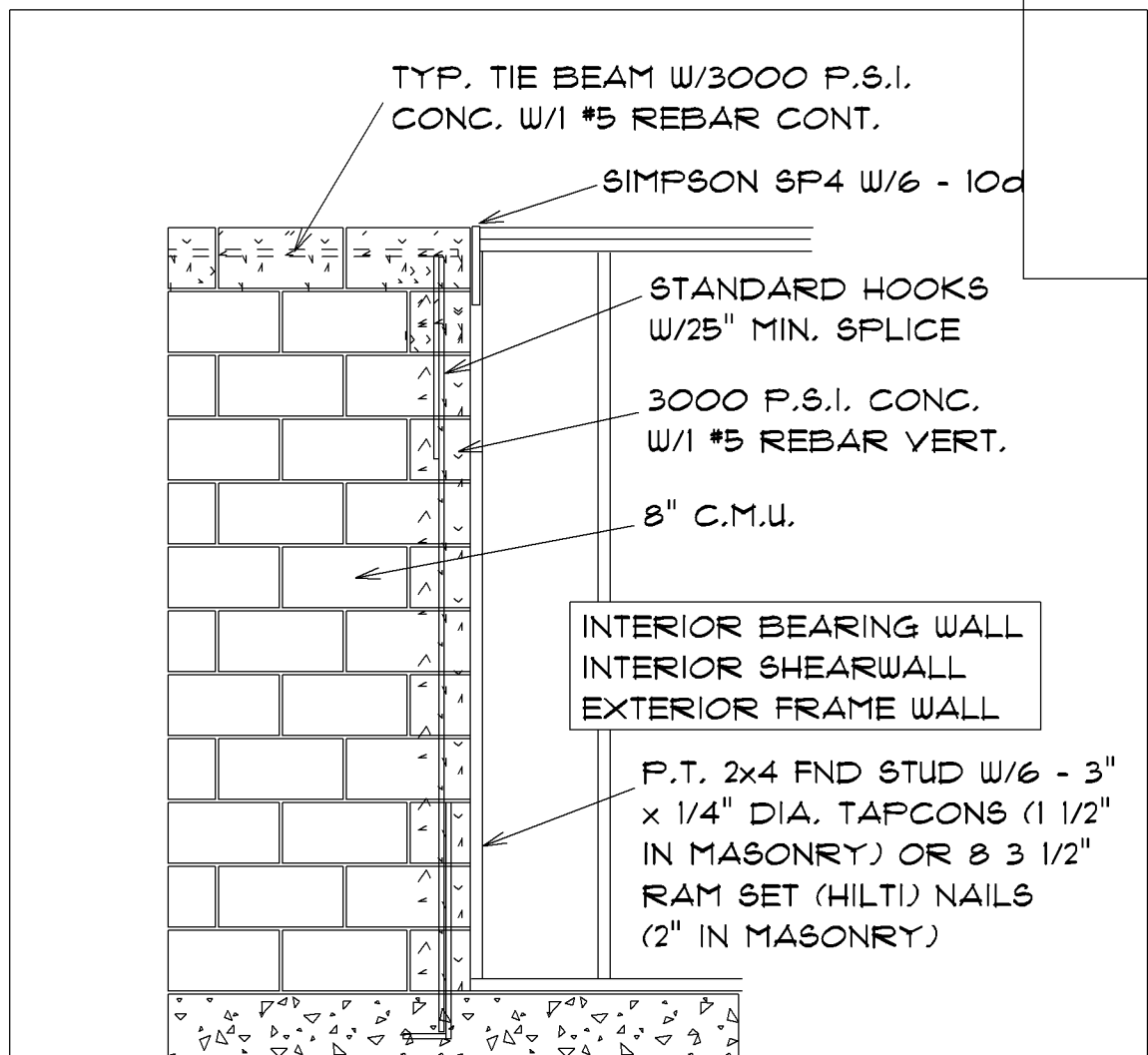
**9** BEAM TO WALL DETAIL  
N.T.S.



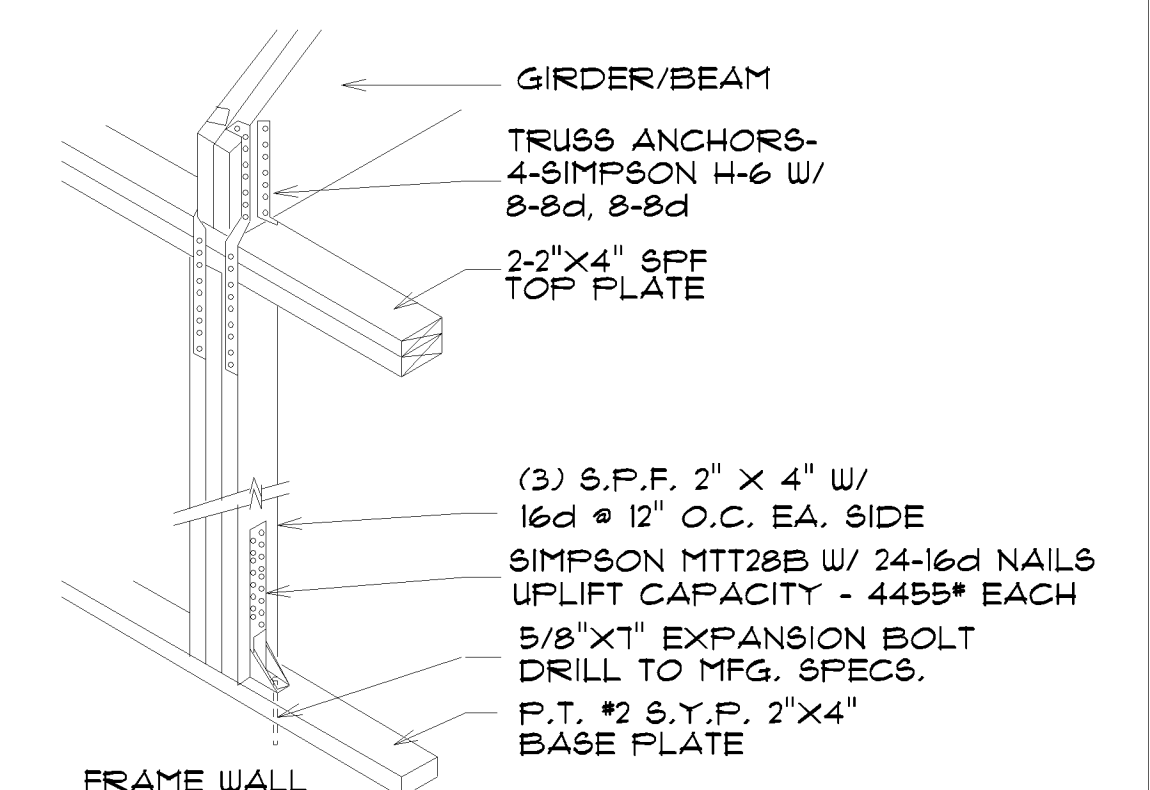
**8** POST TO BEAM DETAIL  
N.T.S. UPLIFT CAPACITY: 2200\*



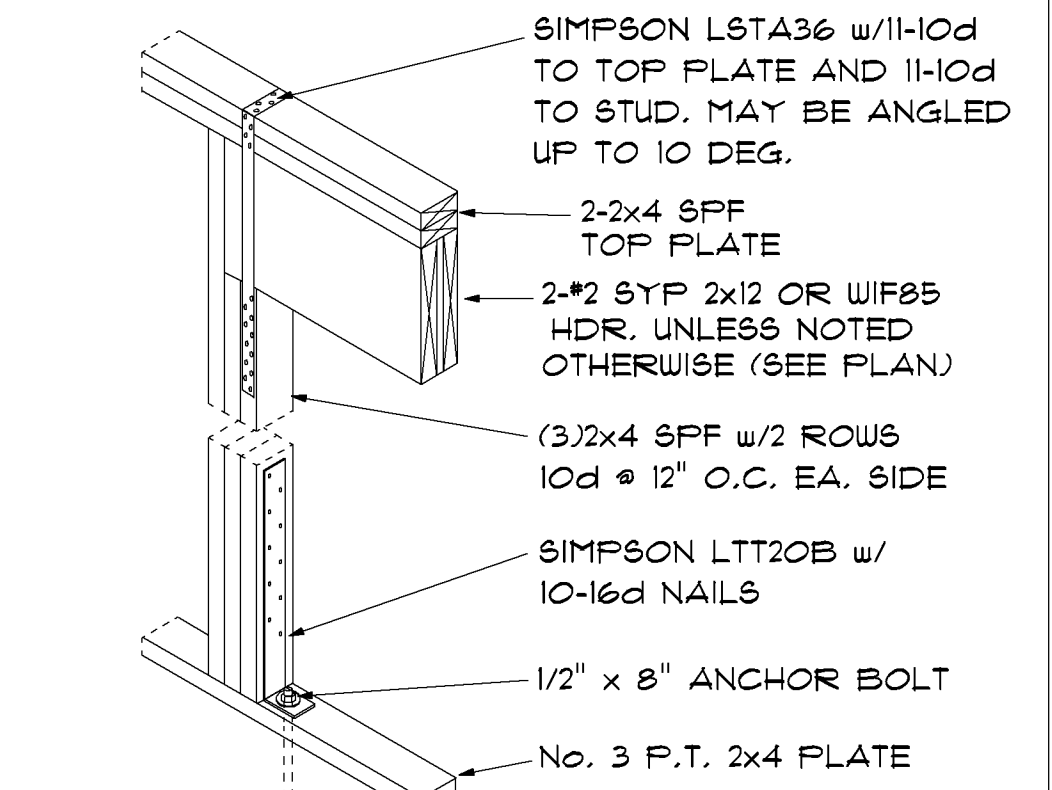
**7** WINDOW INSTALLATION MASONRY OPENING  
N.T.S.



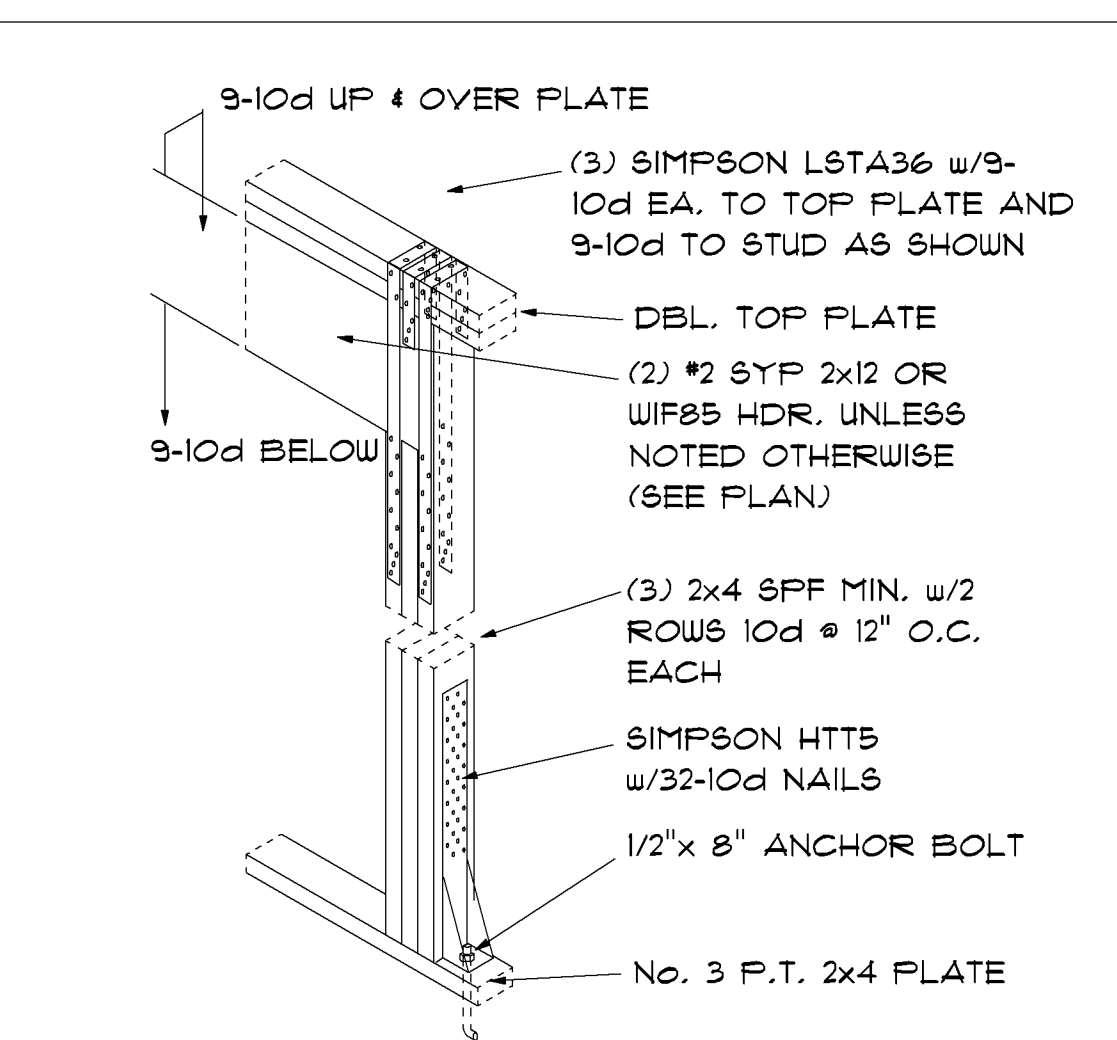
**11** FRAME (EXT./BRG./SHEAR) WALL TO MASONRY DETAIL  
N.T.S.



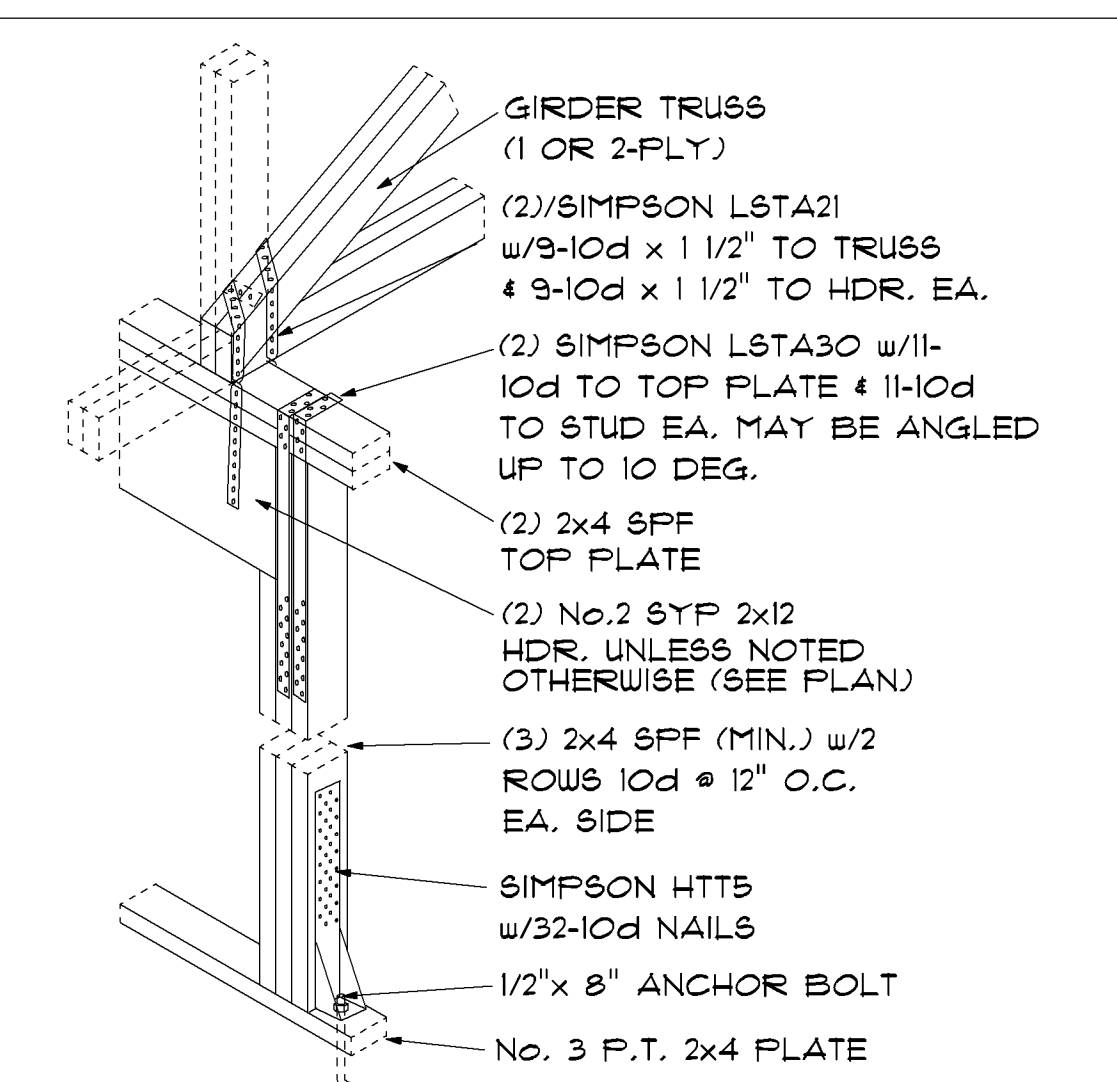
**10** GIRDER/BAM CONN.  
N.T.S. UPLIFT 3040 \*



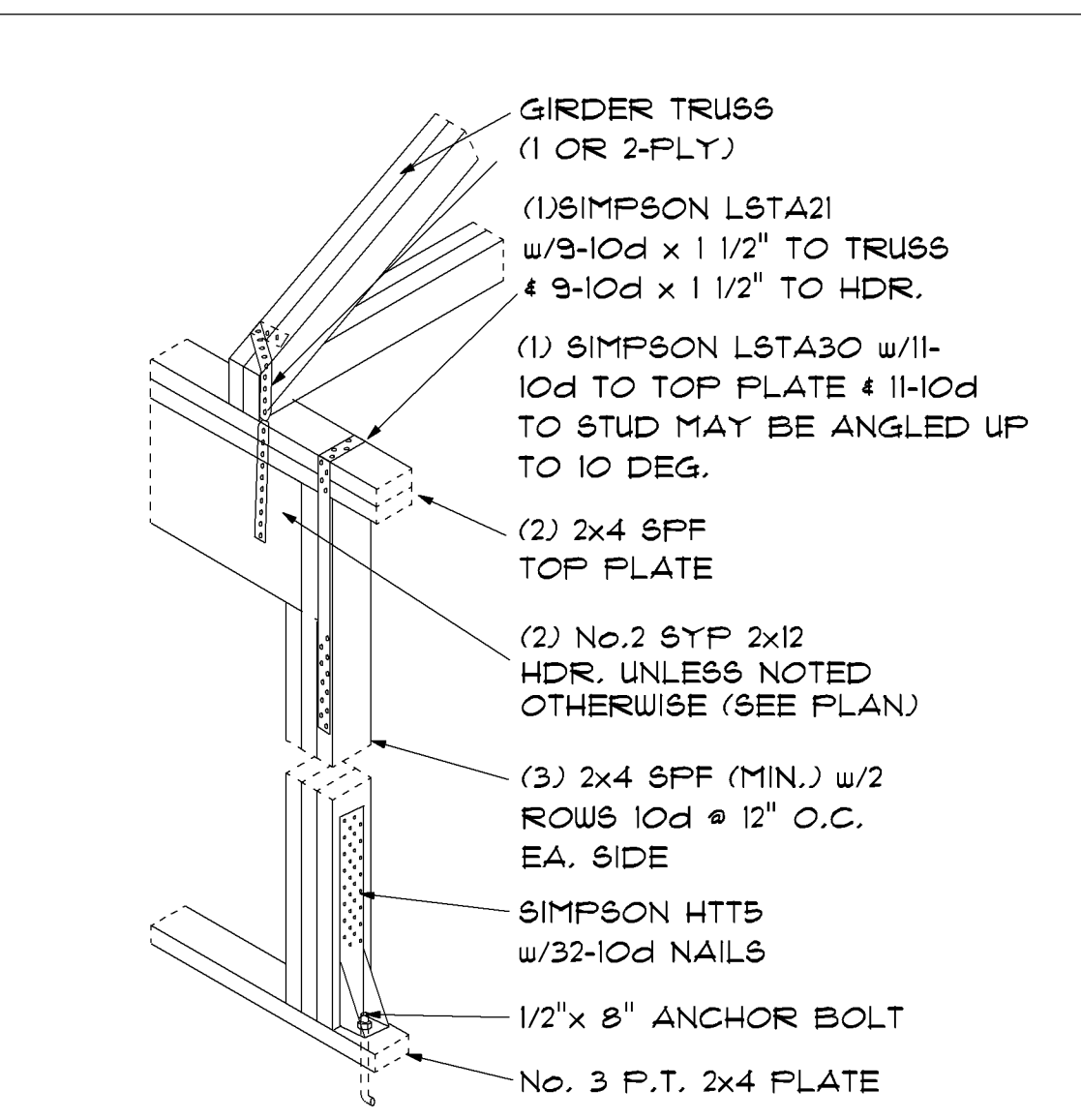
**6** HEADER OPENING/ LOW U.L.  
N.T.S. MAX. CONNECTION UPLIFT CAP. 1715\*



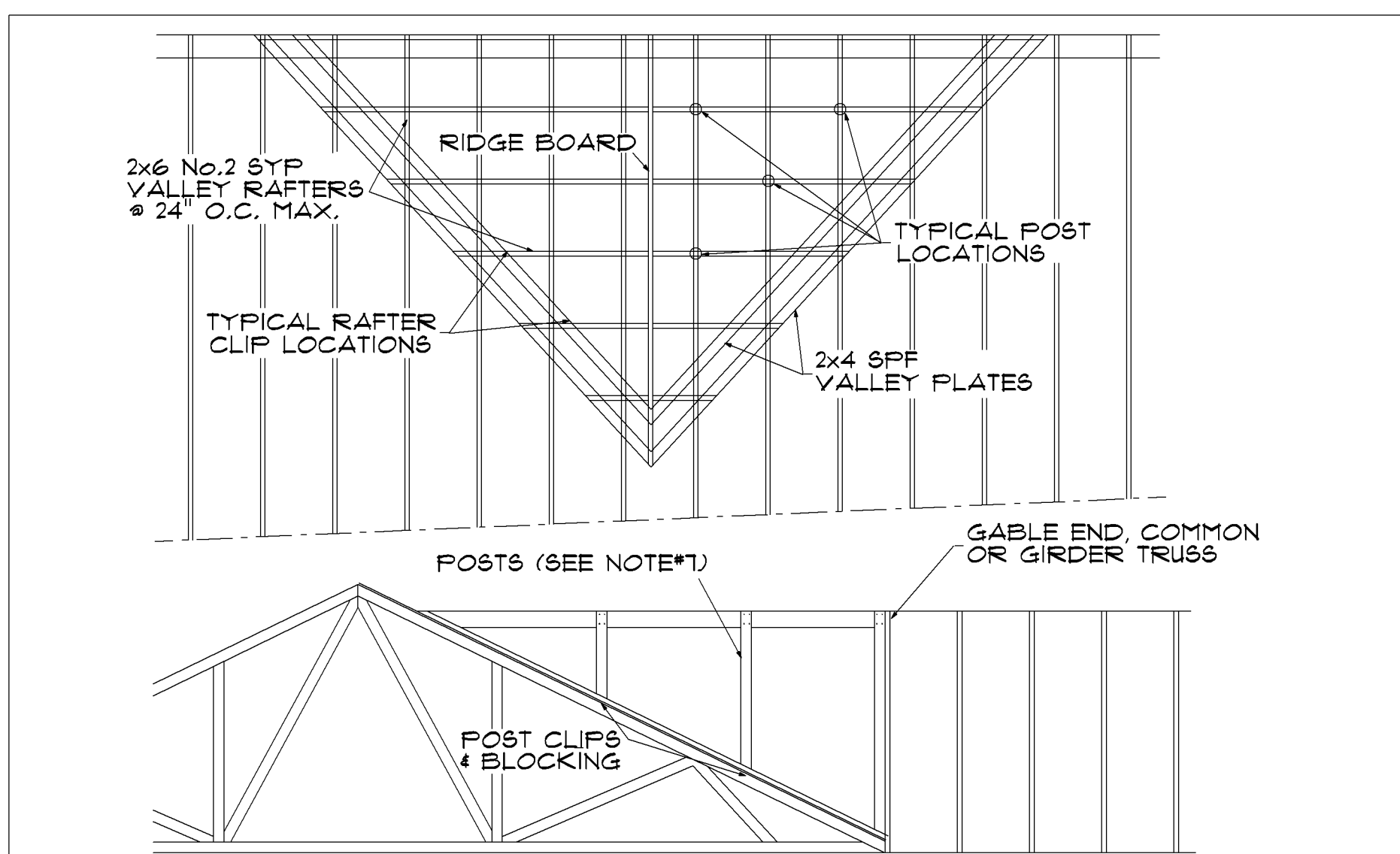
**5** HEADER OPENING/ MED. UPLIFT  
N.T.S. MAX. CAP. OF CONNECTION - 3885\*



**4** HEADER OPENING/ MED U.L.  
N.T.S. MAX. CAP. OF CONNECTION - 2580\*

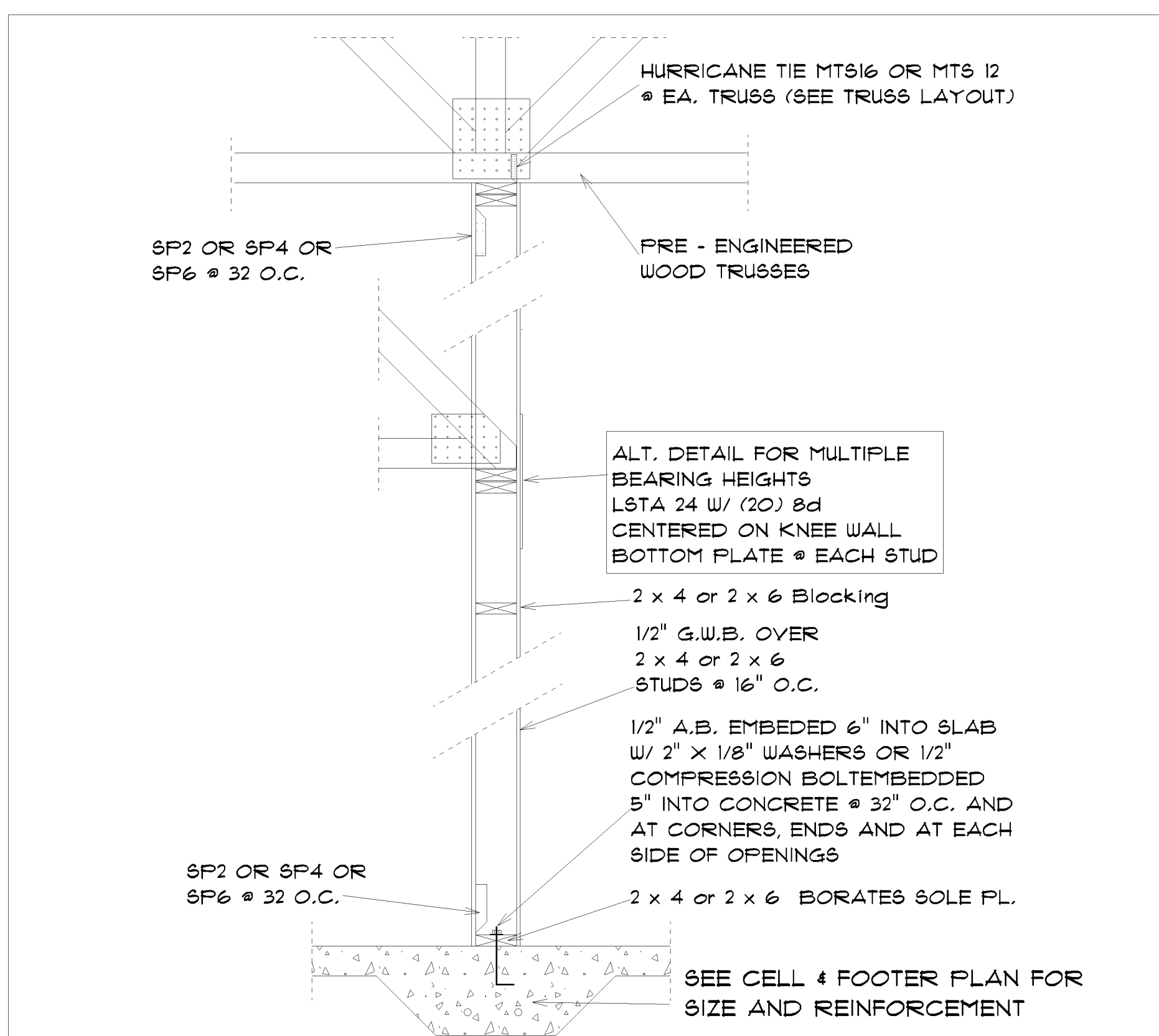


**3** HEADER OPENING / LOW UPLIFT  
N.T.S. MAX. CAP. OF CONNECTION - 1290\*



1. INSTALL BASE TRUSSES
2. APPLY SHEATHING TO TOP CHORD OF SUPPORTING TRUSSES. IF SHEATHING IS NOT APPLIED, PROVIDE 2x4 FURLINS AT 24" O.C. ON THE TOP CHORD OF THE SUPPORTING TRUSSES UNDER THE VALLEY FRAMING. CONNECT FURLINS TO EACH TRUSS WITH (2) 16d NAILS & (1) SIMPSON H2.5 OR EQUAL HURRICANE CLIP.
3. INSTALL 2x4 VALLEY PLATES AS SHOWN ON PLAN VIEW. FASTEN TO EACH SUPPORTING TRUSS WITH (2) 16d NAILS. INSIDE VALLEY PLATE SHOULD BE ALIGNED WITH THE HEELS OF THE RAFTERS.
4. DEFINE VALLEY RIDGE BY RUNNING A LEVEL STRING FROM THE INTERSECTING RIDGE OF THE (a.) GABLE END (b.) COMMON TRUSS TO THE ROOF SHEATHING.
5. SET 2x6 min. No.2 SYP RIDGE BEAM. SUPPORT WITH 2x4 min. POSTS SPACED 48" O.C.. BEVEL BOTTOM OF POST TO SET EVENLY ON THE SHEATHING. INSTALL 2x4 SYP BLOCKING UNDER POSTS BETWEEN TRUSSES AND AT INTERSECTION OF RIDGE BOARD WITH ROOF. FASTEN POST TO RIDGE WITH (4) 10d NAILS. FASTEN POST TO BLOCKING WITH (3) 10d TOE NAILS & (1) SIMPSON H3 OR EQUAL HURRICANE CLIP OR TWIST STRAP.
6. FRAME VALLEY RAFTERS FROM VALLEY PLATES TO RIDGE. MAXIMUM RAFTER SPACING IS 24" O.C.. FASTEN VALLEY RAFTER TO RIDGE BEAM AND TO VALLEY PLATE WITH (3) 16d TOE NAILS & (1) SIMPSON H3 OR EQUAL HURRICANE CLIP AT EACH CONNECTION.
7. SUPPORT THE VALLEY RAFTERS WITH 2x4 POSTS 48" O.C. (OR LESS) ALONG EACH RAFTER. INSTALL POSTS IN A STAGGERED PATTERN AS SHOWN ON PLAN DRAWING. ALIGN POSTS WITH TRUSSES BELOW. FASTEN VALLEY RAFTER TO POST WITH (4) 10d NAILS. FASTEN POST TO TRUSS WITH (3) 10d TOE NAILS & (1) SIMPSON H3 OR EQUAL CLIP. FOR FURLIN APPLICATIONS, CONNECT 2x4 POST TO FACE OF TOP CHORD WITH (4) 10d NAILS.
8. Ridge Board to be one size larger in depth than rafters typ.

**2** CONV. FRAMING & VALLEY DETAIL  
N.T.S.



**1** Interior Bearing Wall - One Story  
N.T.S.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF  
FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VUL-160 MPH  
WIND SPEED. V<sub>WIND</sub> = 124 MPH  
RISK CATEGORY II  
EXPOSURE ON PG. C-1  
GUST EFFECT, G=0.85  
TOPOGRAPHIC FACTOR = 1.0  
FULLY ENCLOSED  
WIND DIR. FACTOR K<sub>d</sub>=0.85  
INTERNAL PRESSURE COEFFICIENT: +/- 0.18  
DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING  
(WORST CASE) -33.1 PSF -43.8 PSF  
GARAGE DOOR DESIGN PRESSURE = +28.9, -32.7 (WORST CASE)  
ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

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CA#9886

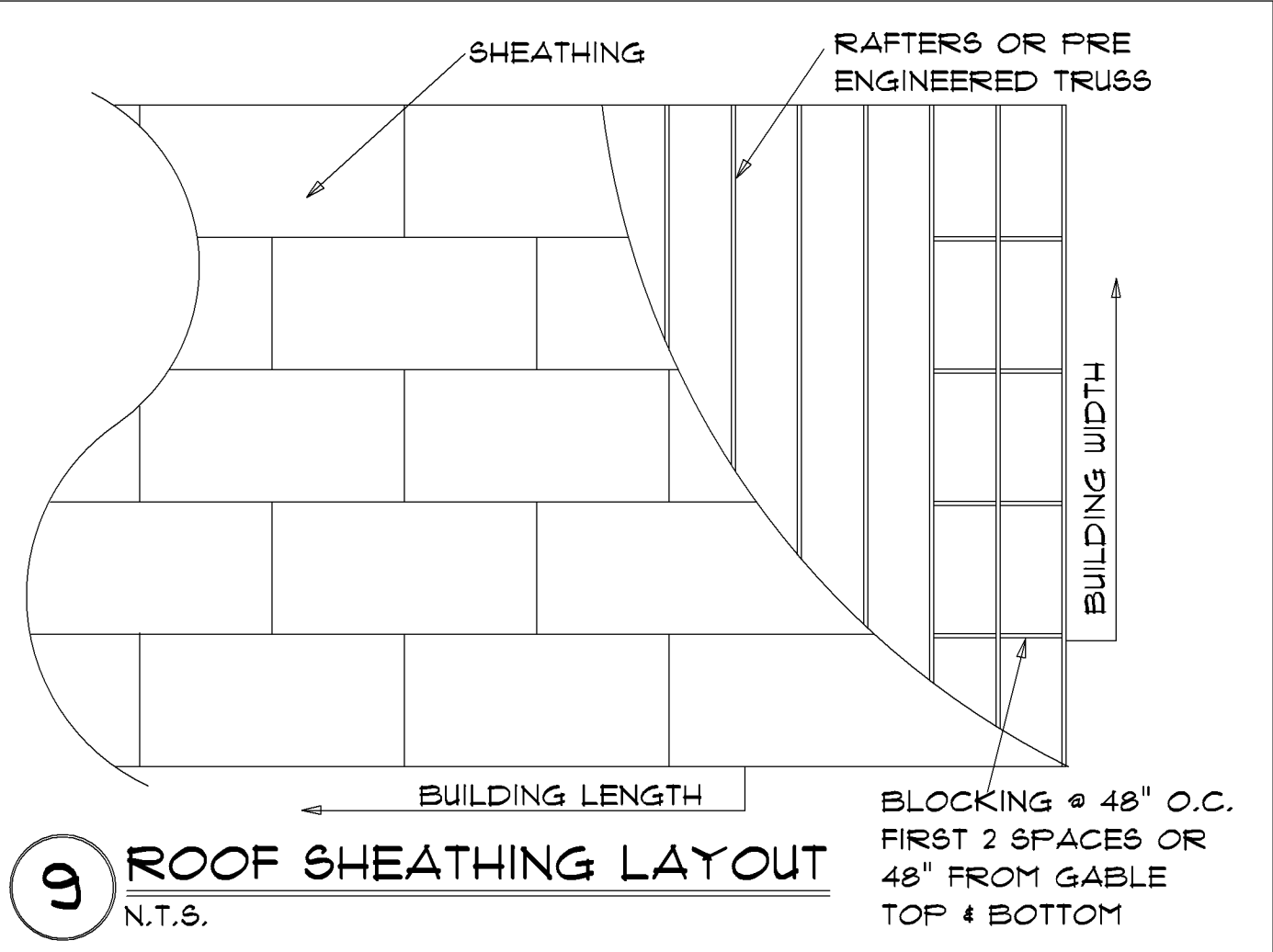
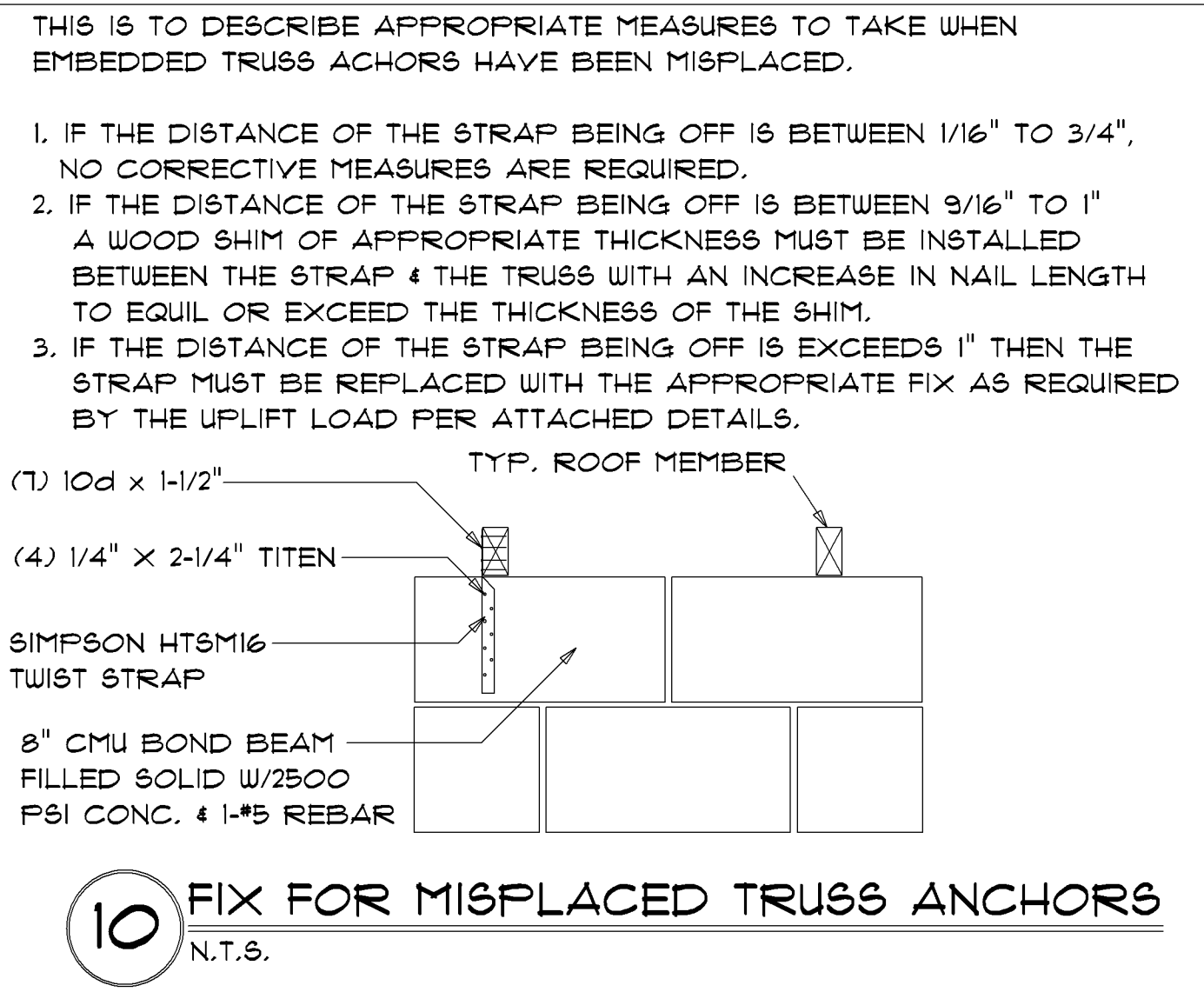
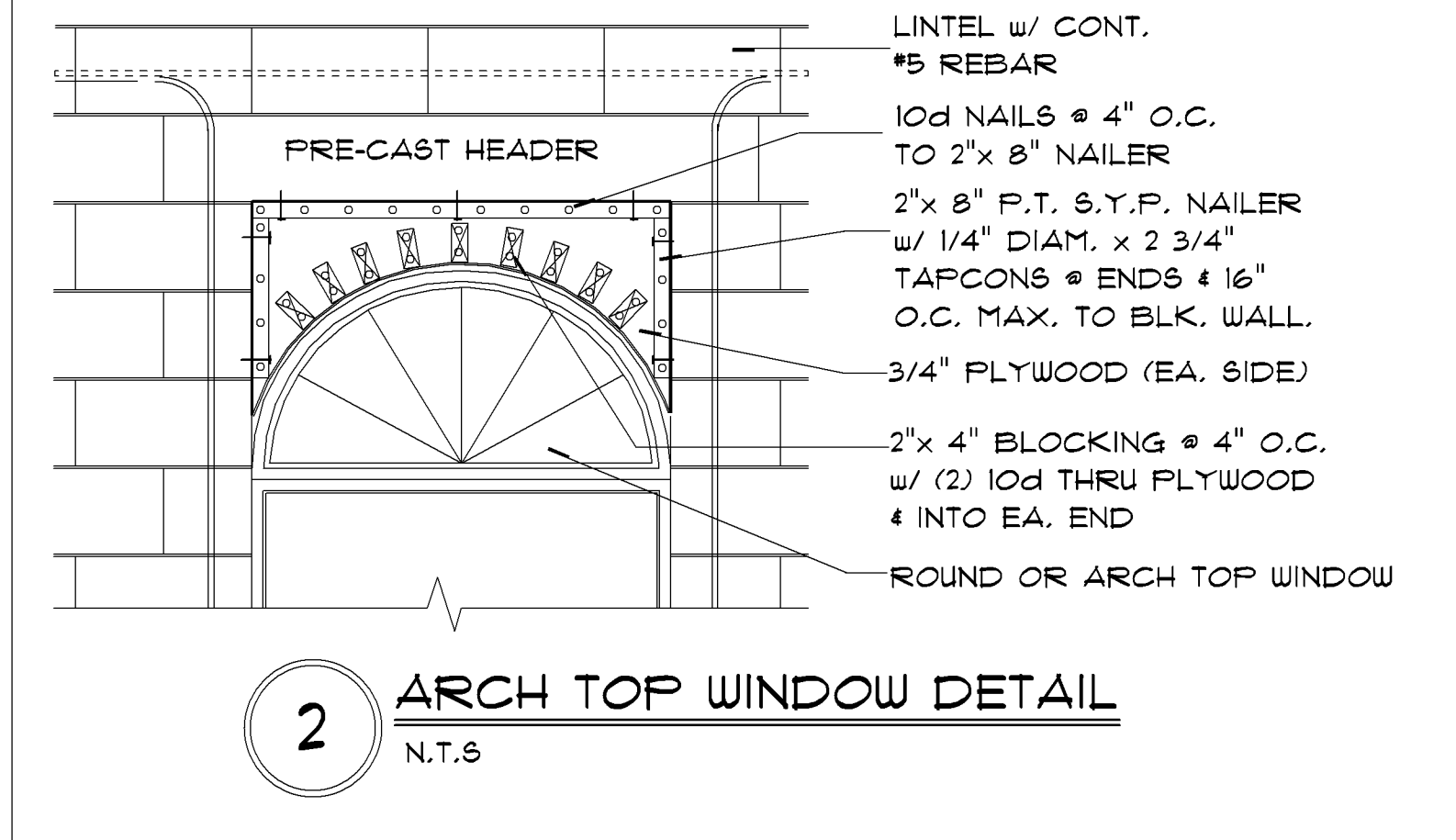
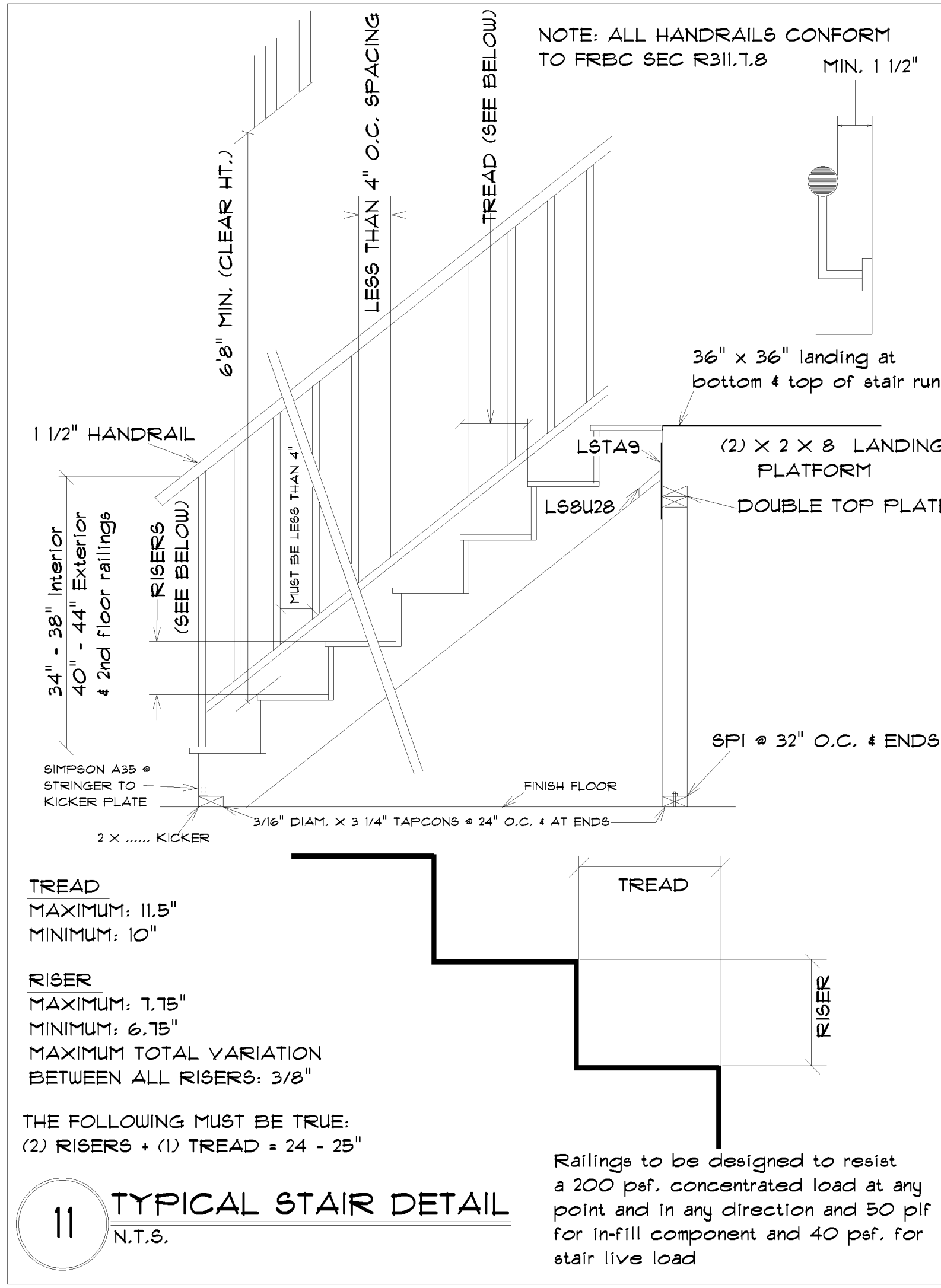
James Lee Smith / P.E.

Drawn By  
Michael Roberts

Detail  
Typical

D-2





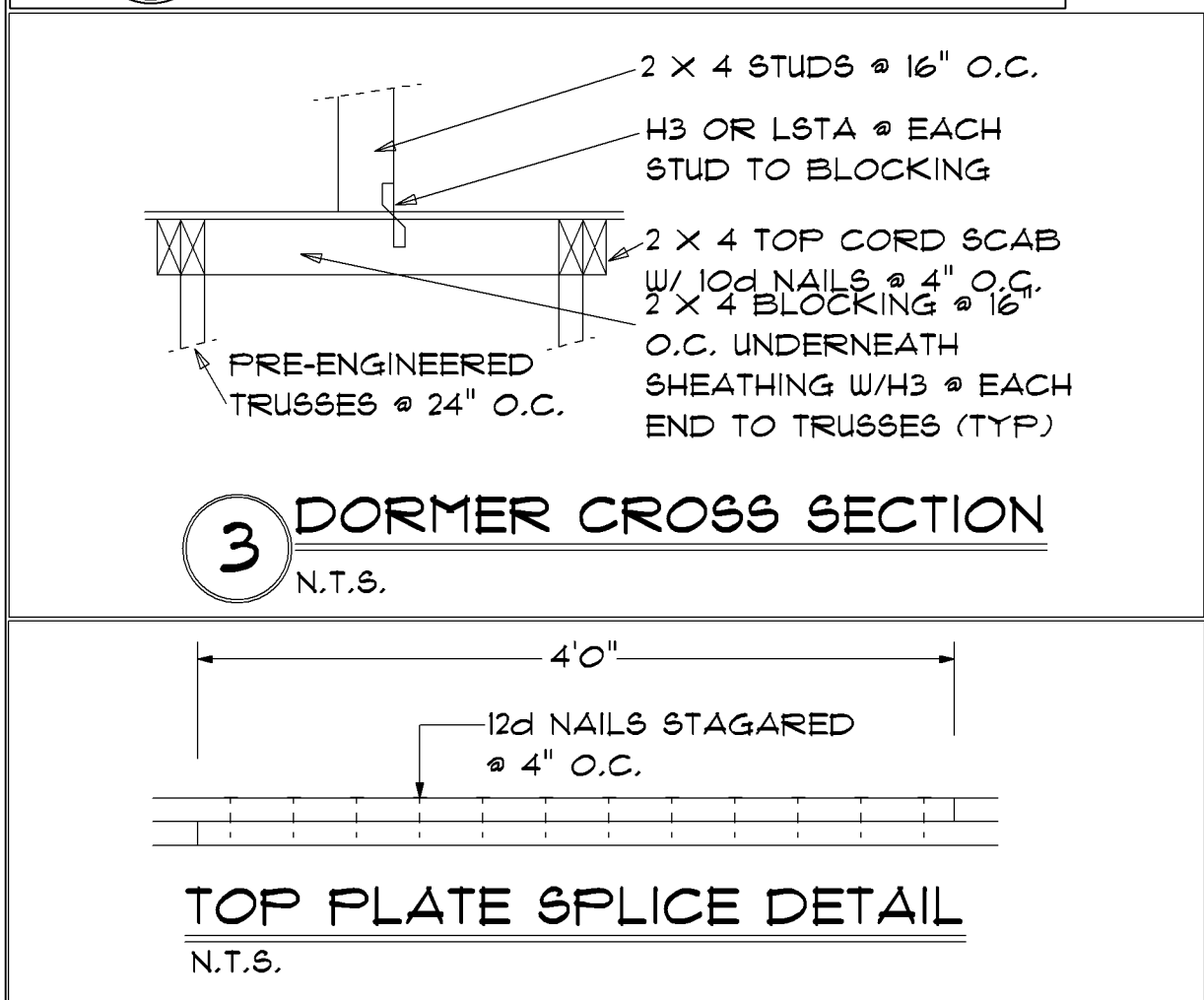
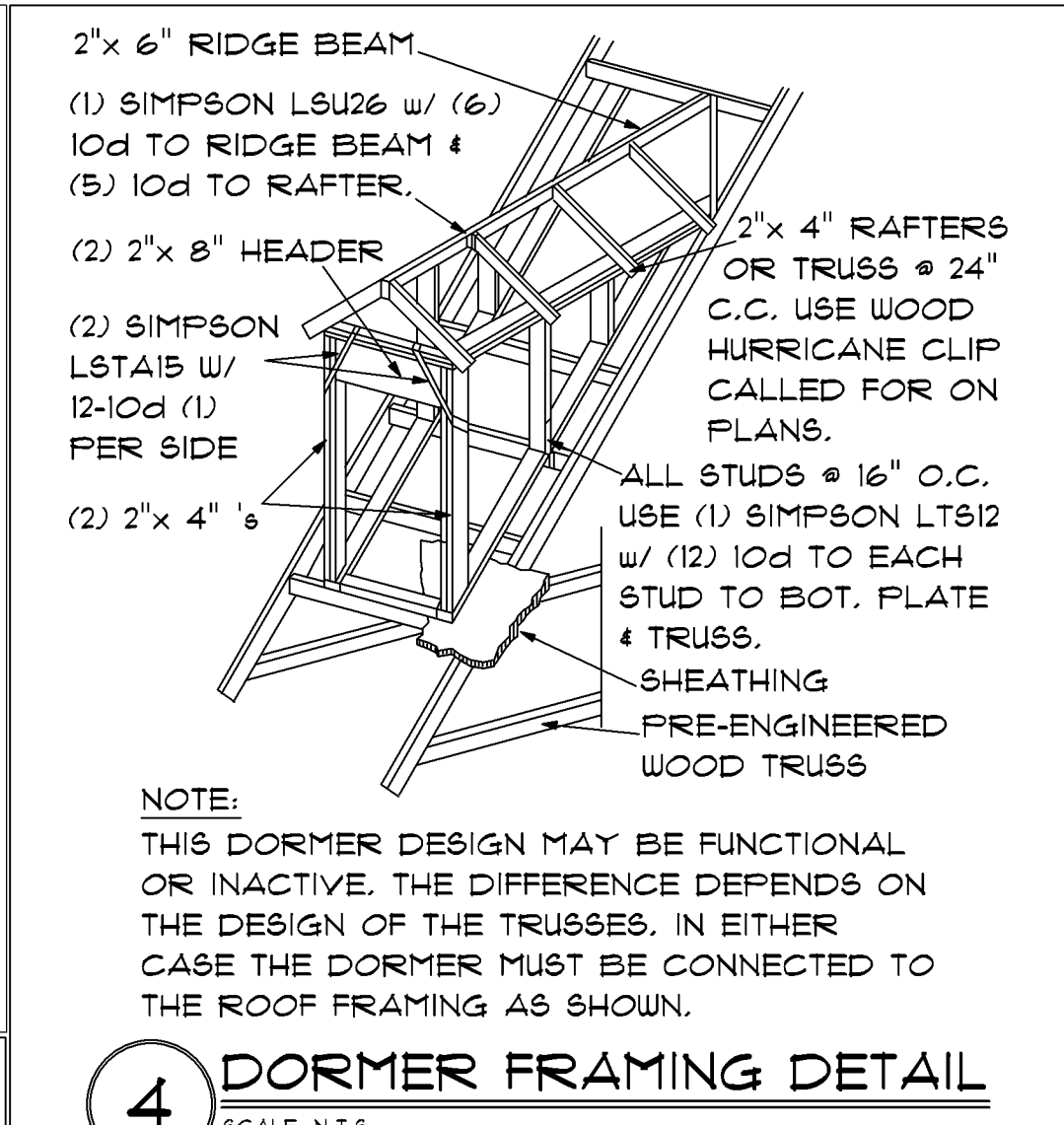
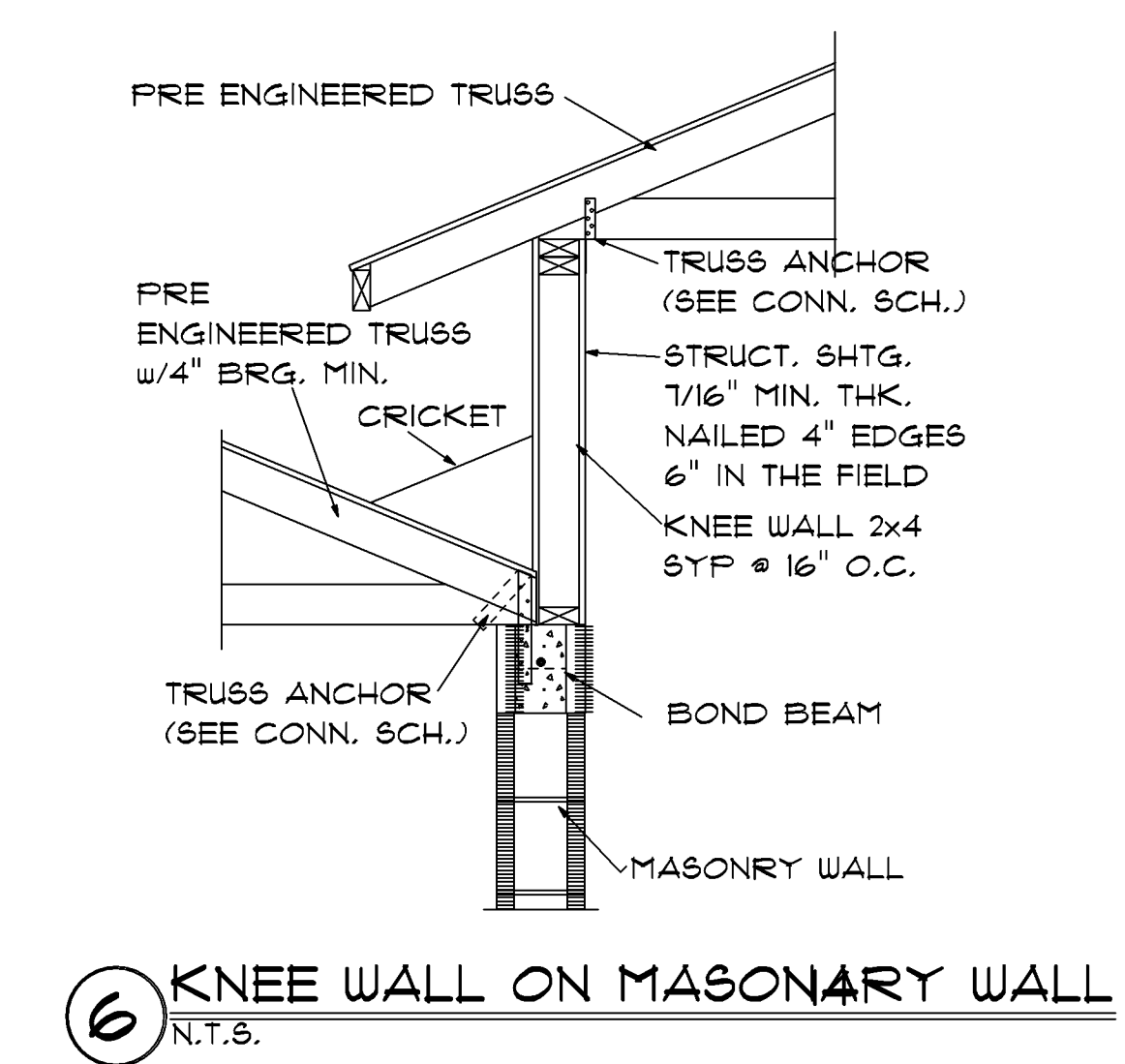
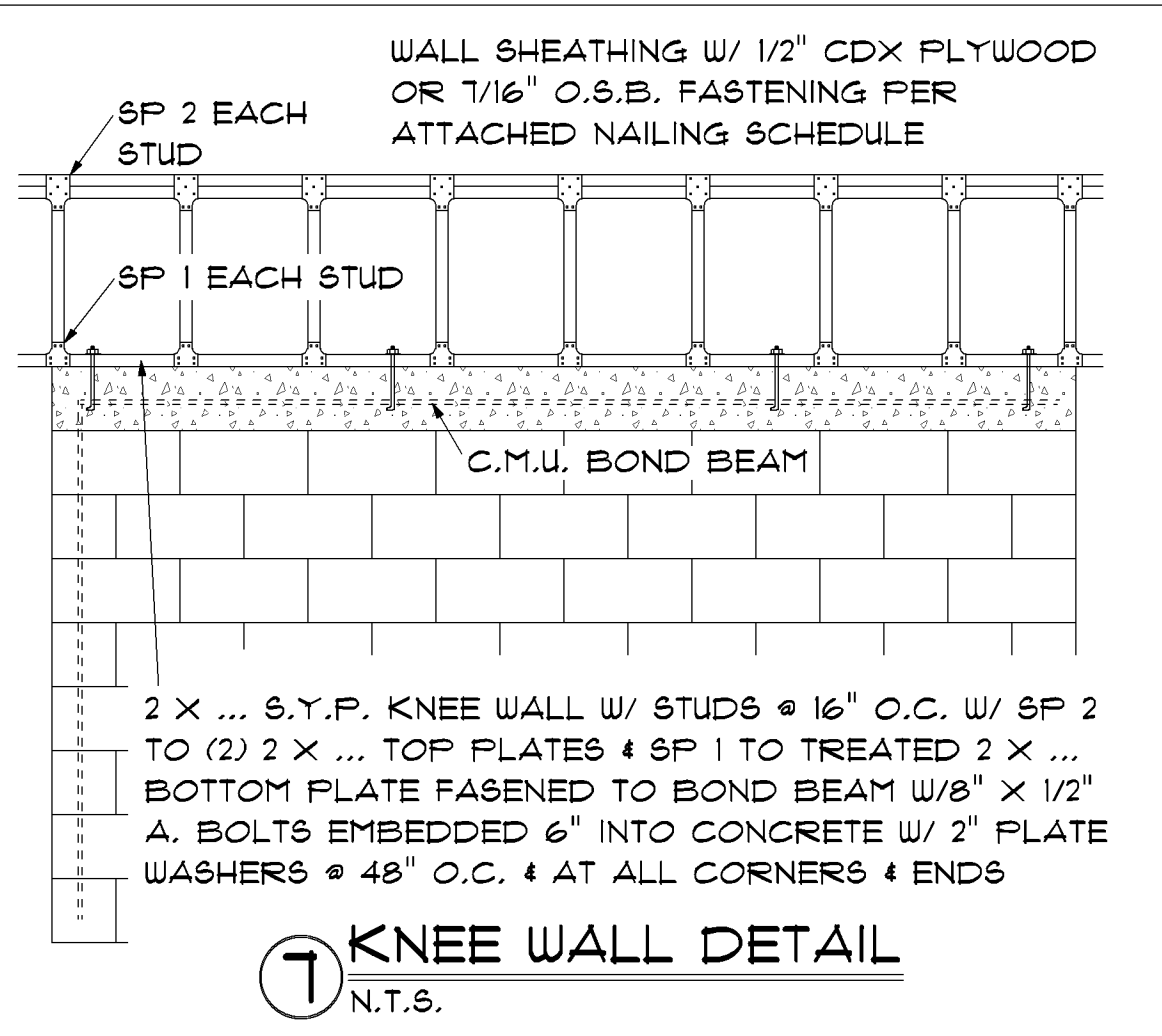
ROOF SHEATHING ATTACHMENT NAIL SPACING a, b

| Rafter/Truss Spacing<br>24 in. o.c. | WIND SPEED |    |         |    |         |   |         |   |         |   |         |   |         |   |         |   |
|-------------------------------------|------------|----|---------|----|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|
|                                     | 115 mph    |    | 120 mph |    | 130 mph |   | 140 mph |   | 150 mph |   | 160 mph |   | 170 mph |   | 180 mph |   |
|                                     | E          | F  | E       | F  | E       | F | E       | F | E       | F | E       | F | E       | F | E       | F |
| Exposure B                          |            |    |         |    |         |   |         |   |         |   |         |   |         |   |         |   |
| Rafter/Truss SG = 0.42              | 6          | 6  | 6       | 6  | 6       | 6 | 6       | 6 | 6       | 6 | 4       | 4 | 4       | 4 | 4       | 4 |
| Rafter/Truss SG = 0.49              | 6          | 12 | 6       | 12 | 6       | 6 | 6       | 6 | 6       | 6 | 6       | 6 | 6       | 6 | 6       | 6 |
| Exposure C                          |            |    |         |    |         |   |         |   |         |   |         |   |         |   |         |   |
| Rafter/Truss SG = 0.42              | 6          | 6  | 6       | 6  | 6       | 6 | 4       | 4 | 4       | 4 | 4       | 4 | 3       | 3 | 3       | 3 |
| Rafter/Truss SG = 0.49              | 6          | 6  | 6       | 6  | 6       | 6 | 6       | 6 | 6       | 6 | 6       | 6 | 4       | 4 | 4       | 4 |
| Exposure D                          |            |    |         |    |         |   |         |   |         |   |         |   |         |   |         |   |
| Rafter/Truss SG = 0.42              | 6          | 6  | 6       | 6  | 4       | 4 | 4       | 4 | 4       | 4 | 3       | 3 | 3       | 3 | 3       | 3 |
| Rafter/Truss SG = 0.49              | 6          | 6  | 6       | 6  | 6       | 6 | 6       | 6 | 4       | 4 | 4       | 4 | 4       | 4 | 4       | 4 |

E = Nail spacing along panel edges (inches)  
F = Nail spacing along intermediate supports in the panel field (inches)  
SG=0.42 (Hemlock Fir or Spruce Pine Fir)  
SG=0.49 (Douglas Fir or Southern Pine)

a. For sheathing located a minimum of 4 feet from the perimeter edge of the roof, including 4 feet on each side of ridges and hips, nail spacing is permitted to be 6 inches on center along panel edges and 6 inches on center along intermediate supports in the panel field.

b. Where rafter/truss spacing is less than 24 inches on center, roof sheathing fastening is permitted to be in accordance with the AWC WFCM or the AWC NDS.



MINIMUM WOOD STRUCTURAL PANEL ROOF SHEATHING THICKNESS

| Rafter/Truss Spacing<br>24 in. o.c.                     | WIND SPEED       |                  |                  |                  |                  |                  |                  |                  |
|---------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                                         | 115 mph          | 120 mph          | 130 mph          | 140 mph          | 150 mph          | 160 mph          | 170 mph          | 180 mph          |
| Minimum Sheathing Thickness, Inches (Panel Span Rating) | 7/16<br>(24/16)  | 7/16<br>(24/16)  | 7/16<br>(24/16)  | 7/16<br>(24/16)  | 15/32<br>(32/16) | 19/32<br>(40/20) | 19/32<br>(40/20) | 19/32<br>(40/20) |
| Exposure B                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| Minimum Sheathing Thickness, Inches (Panel Span Rating) | 7/16<br>(24/16)  | 7/16<br>(24/16)  | 15/32<br>(32/16) | 19/32<br>(40/20) | 19/32<br>(40/20) | 19/32<br>(40/20) | 19/32<br>(40/20) | 23/32<br>(48/24) |
| Exposure C                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| Minimum Sheathing Thickness, Inches (Panel Span Rating) | 15/32<br>(32/16) | 19/32<br>(40/20) | 19/32<br>(40/20) | 19/32<br>(40/20) | 19/32<br>(40/20) | 19/32<br>(40/20) | 23/32<br>(48/24) | 23/32<br>(48/24) |
| Exposure D                                              |                  |                  |                  |                  |                  |                  |                  |                  |

\* SHEATHING LESS THAN 15/32" SHALL BE FASTENED W/ ASTM F1667 R3R3-01 (2-3/8" x 0.113") NAILS

\* SHEATHING GREATER THAN 15/32" SHALL BE FASTENED W/ ASTM F1667 R3R3-03 (2-1/2" x 0.13") NAILS OR ASTM F1667 R3R3-04 (3" x 0.131") NAILS

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF FBC 2023, 8th EDITION, AND ASCE 7-22 FOR VUL=160 MPH WIND SPEED. V<sub>basd</sub> = 124 MPH

RISK CATEGORY II

EXPOSURE ON PG. C-1

TOPOGRAPHIC FACTOR = 1.0

GUST EFFECT, G=0.85

WIND DIR. FACTOR K<sub>d</sub>=0.85

FULLY ENCLOSED

INTERNAL PRESSURE COEFFICIENT: +/- 0.18

DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING (WORST CASE) -33.1 PSF

DESIGN PRESSURE FOR ROOF COMPONENTS & CLADDING (WORST CASE) -43.8 PSF

GARAGE DOOR DESIGN PRESSURE = +28.9, -32.1 (WORST CASE)

ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

ENGINEERING SERVICES GROUP, LLC  
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352-388-1735 J. Lee Smith, P.E. #36177

CA#8886

James Lee Smith / P.E.

Detail  
Typical

D-3

Drawn By  
Michael Roberts







| CONNECTOR SCHEDULE<br>SIMPSON |                     |                                                                                                                   |                 |
|-------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|
| •                             | CONNECTOR           | FASTNERS                                                                                                          | UPLIFT (lbs)    |
| 30                            | MTSM16              | (7) 10d X 1-1/2" NAILS & (4) 1/4" X 1-1/2" TITEN Z                                                                | 830             |
| 31                            | HTSM20              | (10) 10d X 1-1/2 NAILS & (4) 1/4" X 3" TITEN Z                                                                    | 1,110           |
| 32                            | MSTAM24             | (9) 10d X 5" NAILS & (5) 1/4" X 3" TITEN Z                                                                        | 1,375           |
| 33                            | MSTAM36             | (13) 10d X 3" NAILS & (8) 1/4" X 3" TITEN Z                                                                       | 1,870           |
| 34                            | MSTCM40             | (26) 10d X 3-1/4" NAILS & (10) 1/4" X 3" TITEN Z                                                                  | 2,800           |
| 35                            | CS16-R (CUT TO FIT) | (11) 10d X 15 NAILS & (8) 3/16" X 1-1/4" TITEN Z                                                                  | 1,650           |
| 36                            | H16S INV. HANGER    | (2) 10d X 1-1/2 NAILS & (6) 1/4" X 3" TITEN Z                                                                     | 1,370           |
| 37                            | HUC410 MASONRY      | (18) 1/4" X 2 1/4" TITEN 2 ISSUE                                                                                  | 1,135           |
| 38                            | HUC412 MASONRY      | (22) 1/4" X 2 1/4" TITEN 2 ISSUE                                                                                  | 1,800           |
| 39                            | MBHA MASONRY        | (1) 3/4" THREADED ROD + TOP & FACE<br>(4) 1/4"X 2 3/4" TITEN Z TO MASONARY & (4) 1/4"X 1-1/2" SDS SCREWS TO TRUSS | 3475            |
| 40                            | HGAM10              |                                                                                                                   | 810<br>875 IAT. |
| 41                            | HGU548              | (24) 3/16" X 2 1/4" TAPCONS                                                                                       | 2300            |
| 42                            | HGU5550/10          | (24) 3/16" X 2 1/4" TAPCONS                                                                                       | 2300            |

| TYPICAL CONNECTIONS & DETAILS |                                                                                                                                               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| A                             | (2) STUDS / (15) X 2 OR (6) X 2 @ TOP & (23) @ BASE TYP. @ 1 STORY                                                                            |
| B                             | (3) STUDS / (15) X 3 OR (6) X 3 @ TOP & (23) @ BASE TYP. @ 1 STORY                                                                            |
| C                             | (2) STUDS / (15) X 2 OR (6) X 2 @ TOP & (15) X 2 OR 6 X 2 @ LOWER BEAM OR RIMBOARD                                                            |
| C1                            | (3) STUDS / (15) X 2 OR (6) X 2 @ TOP & (15) X 2 OR 6 X 2 @ LOWER BEAM OR RIMBOARD                                                            |
| D                             | (4) STUDS OR 6X6 P.T. POST / (28) X 2 @ TOP & (5) @ BASE                                                                                      |
| E                             | (2) STUDS / (15) X 2 OR (6) X 2 @ TOP + (12) X 2 - 52" LONG @ FLOOR & (22) @ BASE                                                             |
| F                             | (3) STUDS / (15) X 3 OR (6) X 3 @ TOP + (12) X 2 - 52" LONG @ FLOOR & (23) @ BASE                                                             |
| G                             | (2) STUDS / (15) X 2 OR (6) X 2 @ TOP + (12) X 2 - 52" LONG @ BASE W/ (13) 10d NAILS TO STUDS & (10) 3/16" X 2 1/4" TAPCONS TO GROUTED C.M.U. |
| H                             | (3) STUDS / (15) X 3 OR (6) X 3 @ TOP + (12) X 3 - 52" LONG @ BASE W/ (13) 10d NAILS TO STUDS & (10) 3/16" X 2 1/4" TAPCONS TO GROUTED C.M.U. |
| I                             | 5 1/4" X 5 1/4" PARALAM POST W/ (21) X 2 POST / BEAM / (23) @ BASE (TYP)                                                                      |
| J                             | 2nd FLOOR STUDS TO FLOOR SYSTEM W/ LSTA36 @ 32" O.C. & AT OR CS16-R LONG @ 32 32" O.C. & AT CORNERS, ENDS & (2) AT EACH SIDE OF OPENINGS      |
| K                             | 2 X 10 LEDGER BOARD W/ (3) 1/4" X 4" WOOD SCREWS AT 16" O.C. AT FRAME OR 1/2"x 8" TITEN ANCHOR BOLTS @ 24" O.C.                               |
| K1                            | (2) 2X12 P.T. LEDGER BOARD DOUBLE STAGGERED ROW OF 1/2"x 8" TITEN ANCHOR BOLTS @ 16" O.C. TO GROUTED CMU OR CONCRETE                          |
| L                             | 5 1/4" X 5 1/4" PARALAM POST W/ (21) X 2 POST / BEAM / (23) @ BASE (TYP)                                                                      |
| M                             | 6X6 P.T. POST W/ (21) X 2 POST/BEAM / (23) @ BASE (TYP)                                                                                       |
| N                             | 4X4 P.T. POST W/ (14) X 2 POST/BEAM / (24) @ BASE (TYP)                                                                                       |
| O                             | 4X4 P.T. POST W/ (16) X 3 POST/BEAM / (23) @ BASE (TYP)                                                                                       |

CMU WALL SYSTEM AS WELL AS ICF SEGMENTS WHICH HAVE AN UNINTERRUPTED LENGTH OF 4'0" OR MORE SHALL BE CONSIDERED SHEER WALLS

S.W.S + SHEERWALL SEGMENTS (SEE ATTACHED DETAILS)

ROOF LIVE LOAD = 20 P.S.F.

FLOOR LIVE LOAD = 40 P.S.F.

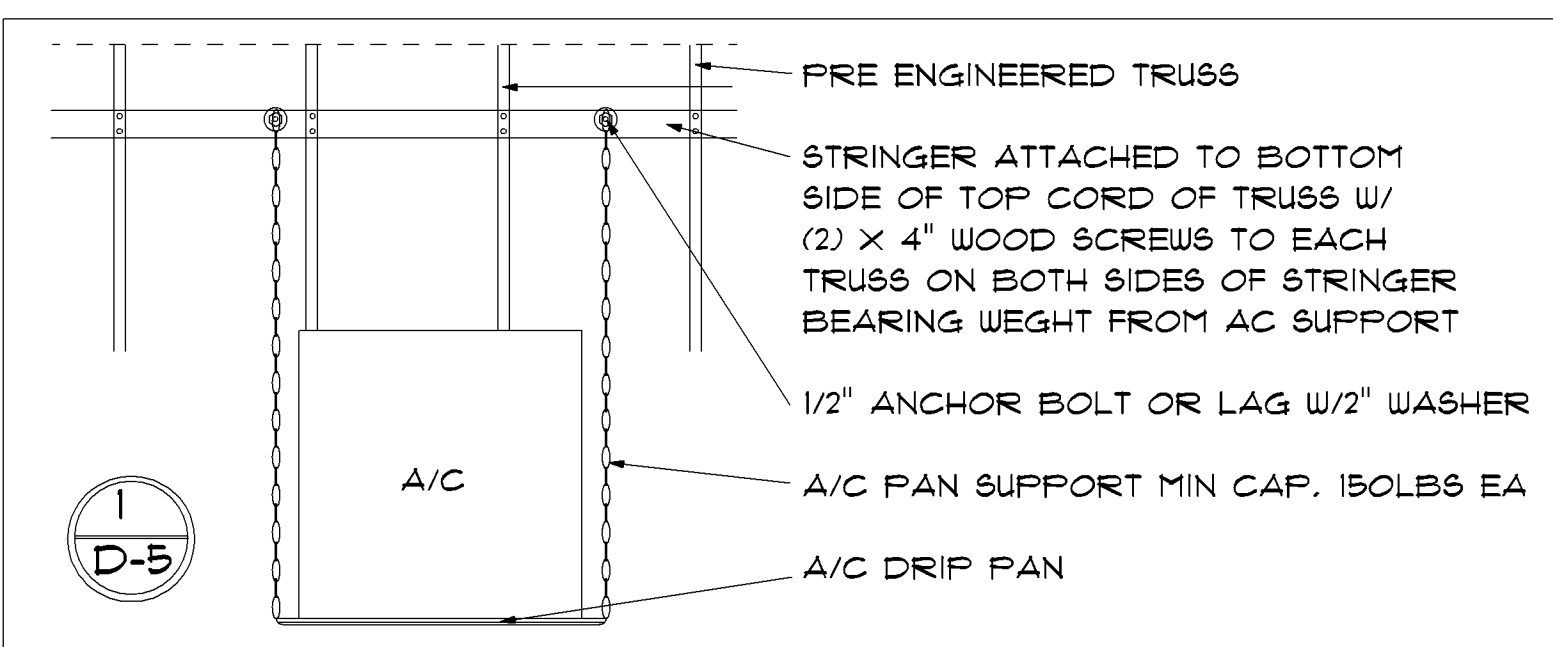
| CONNECTOR SCHEDULE<br>SIMPSON |                 |                                                        |                           |
|-------------------------------|-----------------|--------------------------------------------------------|---------------------------|
| •                             | CONNECTOR       | FASTNERS                                               | UPLIFT (lbs)              |
| 1                             | META18          | (8)10d X 1-1/2"-PLY<br>(6) 16d X 3-1/2"2-3PLY          | 1,450                     |
| 2                             | HETA20          | 1 PLY (9) 10d X 1.5 2/3 PLY (8) 16d X 3-1/2"           | 1,810                     |
| 3                             | MTS12 OR MTS 16 | (14)10d                                                | 990                       |
| 4                             | H3              | (8) 8d                                                 | 400 UPLIFT<br>170 LATERAL |
| 5                             | HD9B            | 7/8" ANCHOR BOLT<br>(3) 7/8" BOLTS THRU                | 7,910                     |
| 6                             | HTS20           | 24- 10d X 1.5                                          | 1,310                     |
| 7                             | HHETA20         | 1 PLY (10) 10d X 1.5 2-3 PLY (9) 16d X 3-1/2"          | 2,120                     |
| 8                             | HGT-2 OR HGT-3  | (2) 3/4" ANCHORS TO CMU & (16) 10d X 3" TO GIRDER      | 10,690                    |
| 9                             | SP1             | (6) 10d X 3" TO STUD<br>(4) 10d X 3" TO PLATE          | 555                       |
| 10                            | SP2             | (6) 10d X 3" TO STUD<br>(6) 10d X 3" TO PLATE          | 1,010                     |
| 11                            | SP4             | (6) 10d X 1.5 TO STUD                                  | 415 SIDE<br>825 CENTER    |
| 12                            | CS16-R          | (22) 10d X 2 1/2"                                      | 1,705                     |
| 13                            | LSTA12          | (10) 10d X 2 1/2"                                      | 925                       |
| 14                            | LSTA24          | (18) 10d X 2 1/2"                                      | 1,235                     |
| 15                            | LSTA30          | (22) 10d X 2 1/2"                                      | 1,640                     |
| 16                            | LSTA36          | (24) 10d X 2 1/2"                                      | 1,640                     |
| 17                            | MSTA36          | (26) 10d X 2 1/2"                                      | 2,050                     |
| 18                            | HETA16          | 1 PLY (9) 10d X 1.5 2 PLY (8) 16d X 3 1/3              | 1,810                     |
| 19                            | HUS26           | (14) 16d X 3 1/2 TO HEADER<br>(6) 16d X 3 1/2 TO JOIST | 1,320                     |
| 20                            | HGU548          | (36) 16d X 3 1/2 TO FACE<br>(12) 16d X 3 1/2 TO JOIST  | 3,235                     |
| 21                            | RTPGA824        | (24)16d                                                | 1,500                     |
| 22                            | HTTT16          | (18) 16d + 5/8" A.BOLT                                 | 4,175                     |
| 23                            | HTT22           | (32) 16d + 5/8" A.BOLT                                 | 5,250                     |
| 24                            | ABU44           | (12) 16d + 5/8" A.BOLT                                 | 1,900                     |
| 25                            | ABU66           | (12) 16d + 5/8" A.BOLT                                 | 2,475                     |
| 26                            | H10A            | (9) 10d X 1.5 TO TRUSS<br>(9) 10d X 1 1/2" TO PLATE    | 855                       |
| 27                            | MST21           | (30) 16d X 2 1/2"                                      | 3,700                     |
| 28                            | MST148          | (48) 10d X 1.5                                         | 5,070                     |
| 29                            | MGT             | (1) 5/8" BOLT TO LINTLE & (22) 10d NAILS TO TRUSS      | 3,965                     |

### UNLESS NOTED OTERWISE:

- WHERE CONNECTOR NOT NOTED FOR TRUSS TO FRAME USE (3) / TRUSS TO NEW CMU USE (1) /TRUSS TO EXISTING CMU USE (50)
- ALL INTERIOR BEAMS USE(6) X 2 ON FRAME AND (2) X 2 ON BLOCK
- ALL CONVENTIONALLY FRAMED MEMBERS USE (4) 10d TOE NAILS @ EACH END OF MEMBERS
- USE HUS26 AS 1 PLY HANGER & HGU545 AS 2 PLY HANGER
- MINIMUM OF 6" EMBEDMENT FOR ANCHOR BOLTS TO SLAB
- WHERE USED WITH WOOD FRAME WALLS, ALSO MUST USE (2) INVERTED HTT22 UNDER PLATES

STAIRS = 100 P.S.F.

DECKS & BALCONIES = 60 P.S.F.



### 8X8 PRECAST LINTLE (FILLED & UNFILLED)

| TOTAL ALLOWABLE SUPERIMPOSED<br>LOAD - POUNDS PER LINEAR FOOR |                    |                   |                  |                 |
|---------------------------------------------------------------|--------------------|-------------------|------------------|-----------------|
| MARK NO.                                                      | NOMINAL CELAR SPAN | TOTAL LINTLE SIZE | NO FILL NO STEEL | FILLED (1) #5 A |
| L-1                                                           | 1'6"               | 2'10"             | 6191             | 7845            |
| L-2                                                           | 2'2"               | 3'8"              | 4277             | 5413            |
| L-3                                                           | 2'8"               | 4'0"              | 3466             | 4383            |
| L-4                                                           | 3'2"               | 4'6"              | 2917             | 3686            |
| L-5                                                           | 4'0"               | 5'4"              | 2304             | 2906            |
| L-6                                                           | 4'6"               | 5'10"             | 2045             | 2577            |
| L-7                                                           | 5'2"               | 6'8"              | 1722             | 2167            |
| L-8                                                           | 6'2"               | 7'8"              | 1484             | 1885            |
| L-9                                                           | 7'0"               | 8'4"              | 1304             | 1836            |
| L-10                                                          | 8'0"               | 9'4"              | 1138             | 1425            |
| L-11                                                          | 9'2"               | 10'8"             | 989              | 1236            |
| L-12                                                          | 10'0"              | 11'4"             | 904              | 1128            |
| L-13                                                          | 11'2"              | 12'8"             | 807              | 1004            |
| L-14                                                          | 12'0"              | 13'4"             | 749              | 931             |
| L-15                                                          | 12'8"              | 14'0"             | 708              | 783             |
| L-16 (P.S.)                                                   | 13'4"              | 14'8"             | 548              | 760             |
| L-17 (P.S.)                                                   | 14'0"              | 15'4"             | 491              | 687             |
| L-18 (P.S.)                                                   | 16'0"              | 17'4"             | 332              | 521             |
| L-19 (P.S.)                                                   | 18'0"              | 19'4"             | 233              | 406             |
| L-20 (P.S.)                                                   | 18'8"              | 20'0"             | 208              | 376             |
| L-21 (P.S.)                                                   | 20'8"              | 21'4"             | 188              | 302             |
| L-22 (P.S.)                                                   | 22'8"              | 24'0"             | 111              | 237             |

NOTE: (P.S.) = PRECAST LINTLES PRESTRESSED USING (2) 7/16" DIAM. PRESTRESSING STRANDS

### 8X16 PRECAST LINTLE (COMPOSIT)

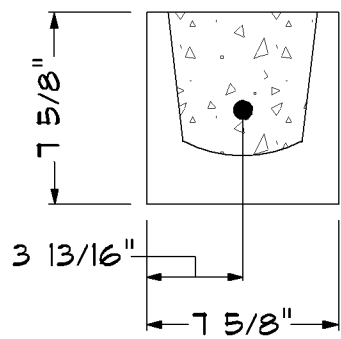
| TOTAL ALLOWABLE SUPERIMPOSED<br>LOAD - POUNDS PER LINEAR FOOR |                    |                   |                     |
|---------------------------------------------------------------|--------------------|-------------------|---------------------|
| MARK NO.                                                      | NOMINAL CELAR SPAN | TOTAL LINTLE SIZE | FILLED (1) #5 T4B C |
| L-1                                                           | 1'6"               | 2'10"             | 12374               |
| L-2                                                           | 2'2"               | 3'8"              | 8488                |
| L-3                                                           | 2'8"               | 4'0"              | 8868                |
| L-4                                                           | 3'2"               | 4'6"              | 5772                |
| L-5                                                           | 4'0"               | 5'4"              | 4546                |
| L-6                                                           | 4'6"               | 5'10"             | 4028                |
| L-7                                                           | 5'2"               | 6'8"              | 3382                |
| L-8                                                           | 6'2"               | 7'8"              | 2908                |
| L-9                                                           | 7'0"               | 8'4"              | 2548                |
| L-10                                                          | 8'0"               | 9'4"              | 2216                |
| L-11                                                          | 9'2"               | 10'8"             | 1918                |
| L-12                                                          | 10'0"              | 11'4"             | 1749                |
| L-13                                                          | 11'2"              | 12'8"             | 1554                |
| L-14                                                          | 12'0"              | 13'4"             | 1438                |
| L-15                                                          | 12'8"              | 14'0"             | 1356                |
| L-16 (P.S.)                                                   | 13'4"              | 14'8"             | 1395                |
| L-17 (P.S.)                                                   | 14'0"              | 15'4"             | 1326                |
| L-18 (P.S.)                                                   | 16'0"              | 17'4"             | 1153                |
| L-19 (P.S.)                                                   | 18'0"              | 19'4"             | 1019                |
| L-20 (P.S.)                                                   | 18'8"              | 20'0"             | 980                 |
| L-21 (P.S.)                                                   | 20'8"              | 21'4"             | 880                 |
| L-22 (P.S.)                                                   | 22'8"              | 24'0"             | 740                 |

NOTE: (P.S.) = PRESTRESSED LINTLES USING (2) 7/16" DIAM. PRESTRESSING STRANDS

### 8X24 PRECAST LINTLE (COMPOSIT)

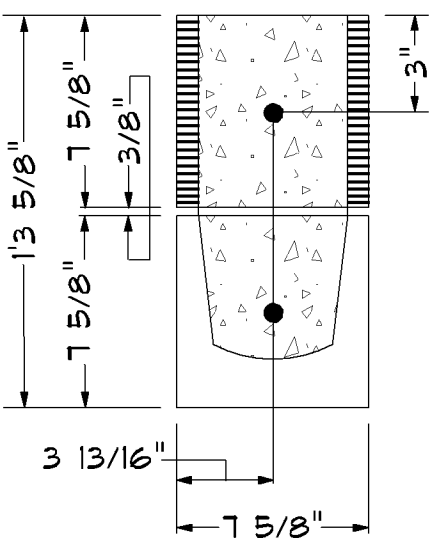
| TOTAL ALLOWABLE SUPERIMPOSED<br>LOAD - POUNDS PER LINEAR FOOR |                    |                   |                     |
|---------------------------------------------------------------|--------------------|-------------------|---------------------|
| MARK NO.                                                      | NOMINAL CELAR SPAN | TOTAL LINTLE SIZE | FILLED (1) #5 T4B L |
| L-1                                                           | 1'6"               | 2'10"             | 19724               |
| L-2                                                           | 2'2"               | 3'8"              | 13599               |
| L-3                                                           | 2'8"               | 4'0"              | 11004               |
| L-4                                                           | 3'2"               | 4'6"              | 9250                |
| L-5                                                           | 4'0"               | 5'4"              | 7287                |
| L-6                                                           | 4'6"               | 5'10"             | 6458                |
| L-7                                                           | 5'2"               | 6'8"              | 5548                |
| L-8                                                           | 6'2"               | 7'8"              | 4885                |
| L-9                                                           | 7'0"               | 8'4"              | 4089                |
| L-10                                                          | 8'0"               | 9'4"              | 3558                |
| L-11                                                          | 9'2"               | 10'8"             | 3081                |
| L-12                                                          | 10'0"              | 11'4"             | 2809                |
| L-13                                                          | 11'2"              | 12'8"             | 2497                |
| L-14                                                          | 12'0"              | 13'4"             | 2312                |
| L-15                                                          | 12'8"              | 14'0"             | 2180                |
| L-16 (P.S.)                                                   | 13'4"              | 14'8"             | 1956                |
| L-17 (P.S.)                                                   | 14'0"              | 15'4"             | 1857                |
| L-18 (P.S.)                                                   | 16'0"              | 17'4"             | 1611                |
| L-19 (P.S.)                                                   | 18'0"              | 19'4"             | 1412                |
| L-20 (P.S.)                                                   | 18'8"              | 20'0"             | 1368                |
| L-21 (P.S.)                                                   | 20'8"              | 21'4"             | 1223                |
| L-22 (P.S.)                                                   | 22'8"              | 24'0"             | 1106                |

NOTE: (P.S.) = PRESTRESSED LINTLES USING (2) 7/16" DIAM. PRESTRESSING STRANDS



DETAIL A

Unless otherwise noted use Lintle "DETAIL C" for all C.M.U. Openings

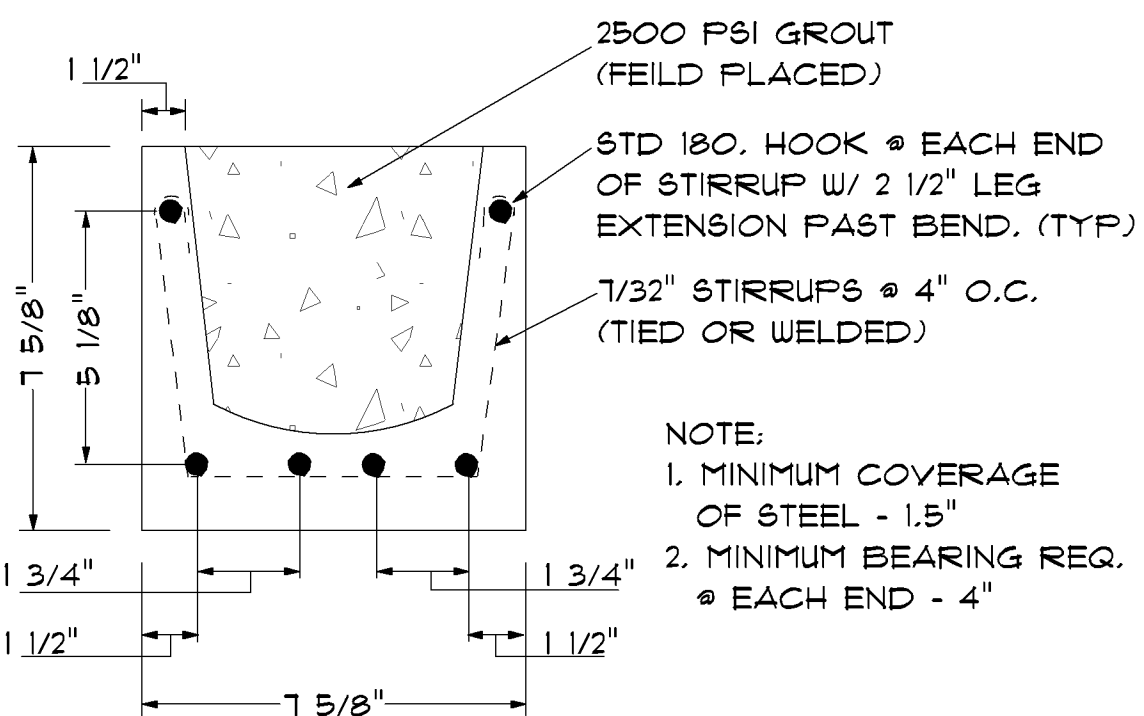


DETAIL C

### GENERAL NOTES:

- 1) CODES
  - 1.1 FLORIDA BUILDING CODE
  - 1.2 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318).
  - 1.3 AMERICAN SOCIETY OF CIVIL ENGINEERS MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES (ASCE 7-16).
- 2) CONCRETE
  - 2.1 CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS:
    - 2.1.1 PRE-CAST W/STANDARD REINFORCEMENT - 3500 PSI.
    - 2.1.2 PRE-CAST W/PRESTRESSED REINFORCEMENT - 5000 PSI.
    - 2.1.3 CONCRETE FILL (FIELD PLACED) - 2500 PSI
  - 2.2 REINFORCING BARS:
    - 2.1.1 STEEL PLACED IN PRECAST LINTLE @ TIME OF FABRICATION ASTM A615 (GRADE 60).
    - 2.1.2 STEEL IN LINTLE & KNOCK OUT BLOCK (FIELD PLACED) ASTM A615 (GRADE 40).
  - 2.3 PRESTRESSED STRANDS ASTM A416 7-WIRE.
  - 2.4 DETAIL REINFORCEMENT IN ACCORDANCE WITH ACI 315
  - 2.5 CONCRETING OPERATIONS SHALL COMPLY WITH ACI STANDARDS.
- 3) MASONRY:
  - 3.1 DESIGN & CONSTRUCTION SHALL CONFORM TO THE SPECIFICATION OF THE NATIONAL CONCRETE MASONRY ASSOCIATION @ ACI 530/TM6402
  - 3.2 MINIMUM MASONRY UNIT STRENGTH: 1250 PSI.
  - 3.3 MORTAR SHALL BE TYPE S.
- 4) STRUCTURAL:
  - 4.1 SAFE LOAD VALUES ARE BASEDON LINTLES HAVING A BEARING 8"

### DETAIL L



- NOTE:
1. MINIMUM COVERAGE OF STEEL - 1.5"
  2. MINIMUM BEARING REQ. @ EACH END - 4"

### TYPICAL PRECAST LINTLE

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF  
FBC 2020, 17th EDITION, AND ASCE 7-10 FOR VULNERABLE WIND SPEED, V<sub>WIND</sub> = 124 MPH  
RISK CATEGORY II  
EXPOSURE LISTED ON C-1  
TOPOGRAPHIC FACTOR = 1.0  
WIND DIR. FACTOR K<sub>z</sub> = 0.85  
INTERNAL PRESSURE COEFFICIENT: +/- 0.18  
DESIGN PRESSURE FOR WALL COMPONENTS & CLADDING (WORST CASE) = 33.1 PSF  
GARAGE DOOR DESIGN PRESSURE = +28.9, -32.7 (WORST CASE)  
FLOOR LIVE LOAD = 40 PSF

ENGINEERING SERVICES GROUP, LLC  
391 W. Alfred St.  
Tavares, FL 32718  
352-388-1135 J. Lee Smith, P.E. #36177

James Lee Smith / P.E.

Drawn By  
Michael Roberts

Detail  
Typical

D-5