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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

1659 JAVIER ST SE duplex
Plam Bay Fl 32909

Drawn By:
Michael Roberts

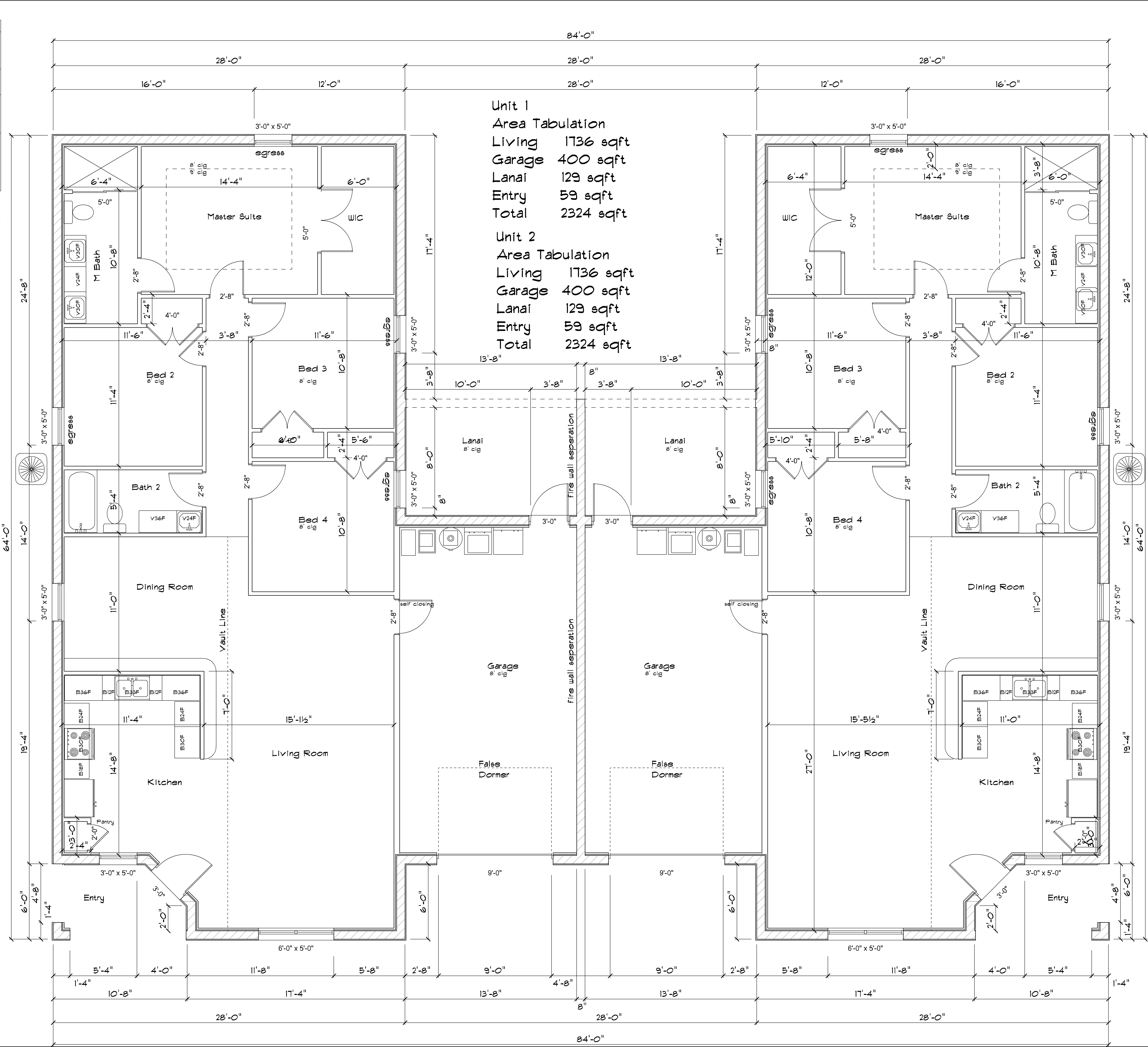
THIS STRUCTURE HAS BEEN DESIGNED
IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF
FBC 2023, 8TH EDITION, AND ASCE 7-22 FOR VULT.#160 MPH
WIND SPEED, V#80, #124 MPH
RISK CATEGORY II
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR = 1.0
WIND DIR. FACTOR K#0.85
FULLY ENCLOSED
INTERNAL PRESSURE COEFFICIENT: +/- 0.18
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

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

C-1

TABLE R302.6 DWELLING/GARAGE SEPERATION	
Separation	Material
From the residence and attic	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.



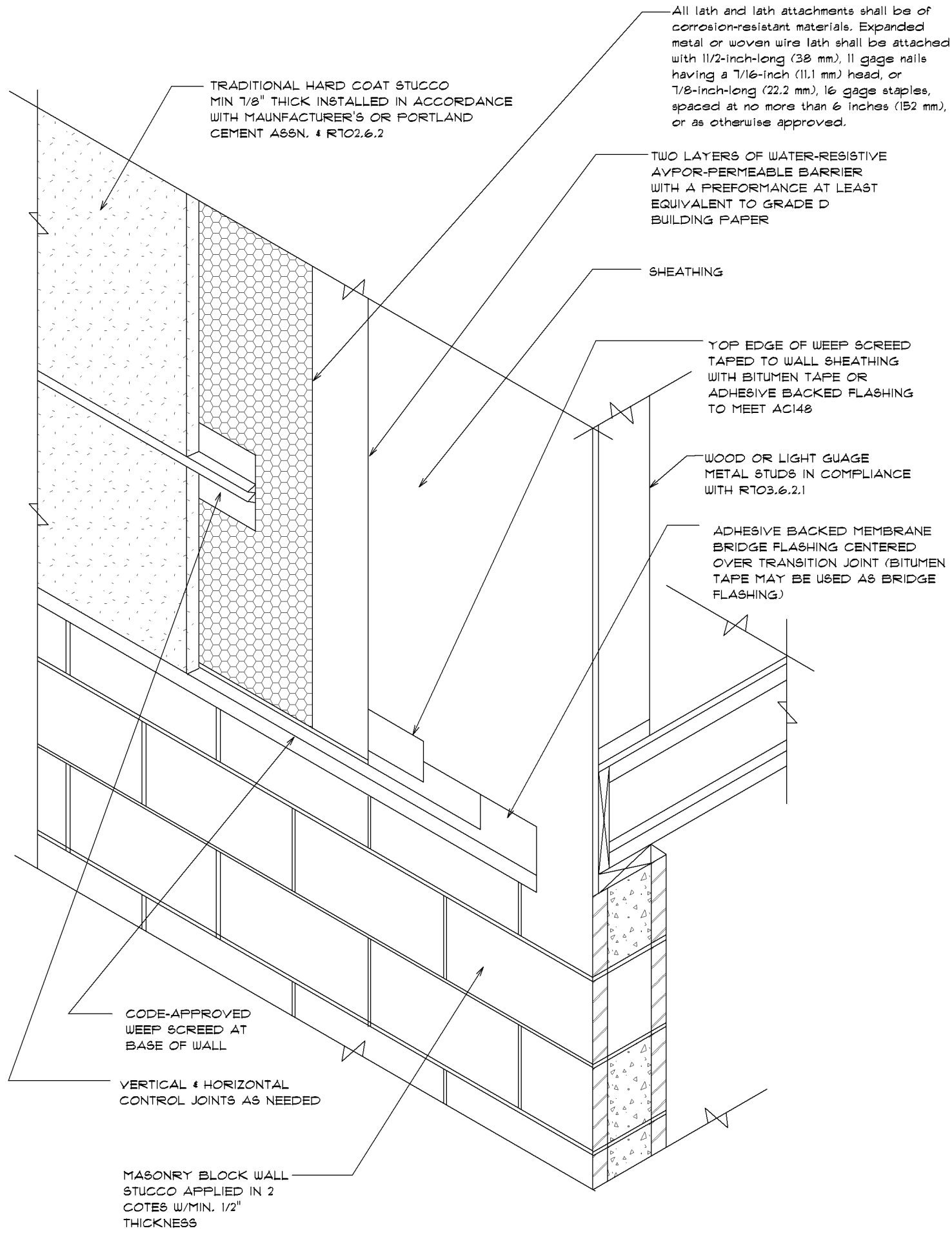
Unit 1
Area Tabulation
Living 1736 sqft
Garage 400 sqft
Lanai 129 sqft
Entry 59 sqft
Total 2324 sqft

Unit 2
Area Tabulation
Living 1736 sqft
Garage 400 sqft
Lanai 129 sqft
Entry 59 sqft
Total 2324 sqft

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_{WIND} = 124 MPH
RISK CATEGORY II
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR = 1.0
WIND DIR. FACTOR K_d = 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 = 20 PSF
FLOOR LIVE LOAD = 40 PSF
ROOF LIVE LOAD = 20 PSF

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D'Ann By
Michael Roberts

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



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)

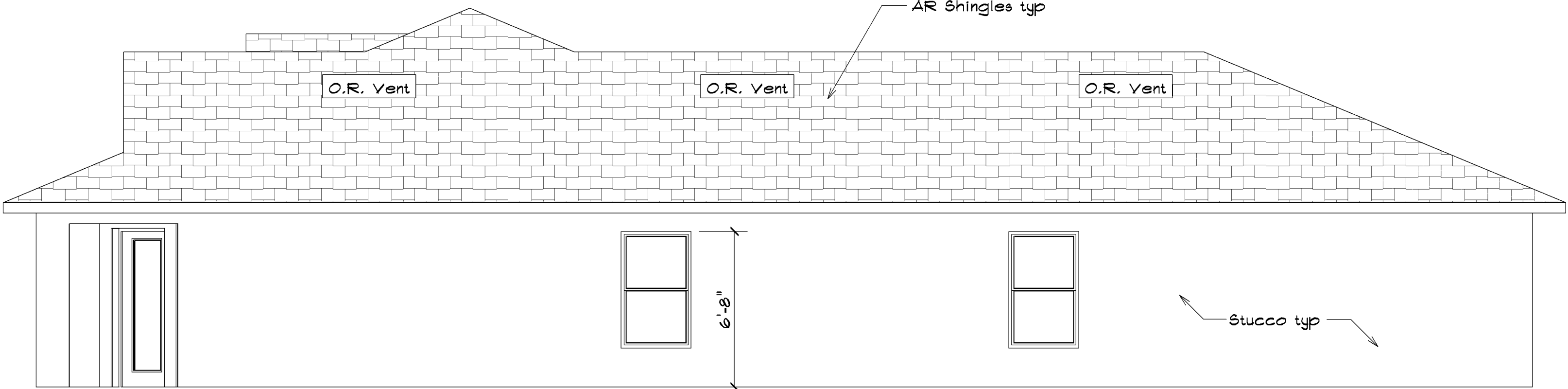
2000 - SINGLE HUNG - EGRESS (24E; 31" x 60-1/4") 2 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4*10/-151, PAN *NFL-29244.11 (Living Room)

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)

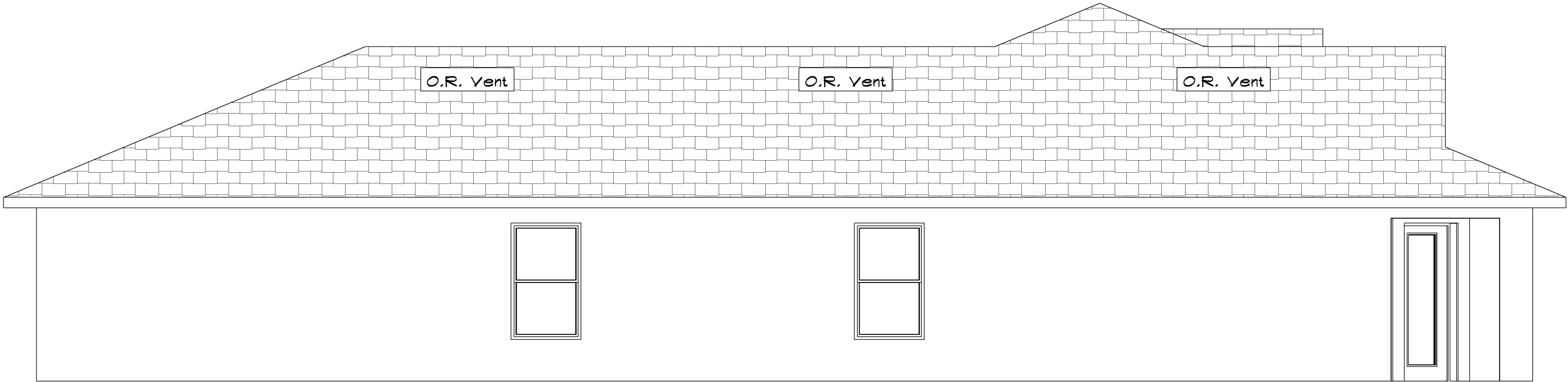
2000 - SINGLE HUNG - EGRESS (24E; 31" x 60-1/4") 5 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4*10/-151, PAN *NFL-29244.11 (Bedroom #2)

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)

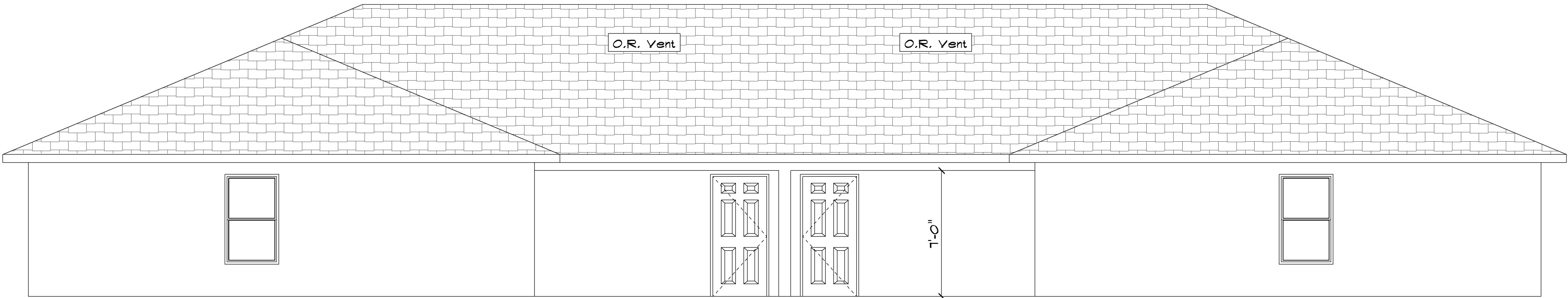
2000 - SINGLE HUNG - EGRESS (24E; 31" x 60-1/4") 7 STANDARD BRONZE, IMPACT, 5/16" - GRAY/GRAY, PVB INTERLAYER, FULL VIEW, SCREEN, SCREEN INCLUDED (LOOSE), CUSTOM MEETING RAIL LOCATION#28.125) SHGCKO.451, UFK1.061, VTHQ.321, DP4*10/-151, PAN *NFL-29244.11 (Bedroom #4)



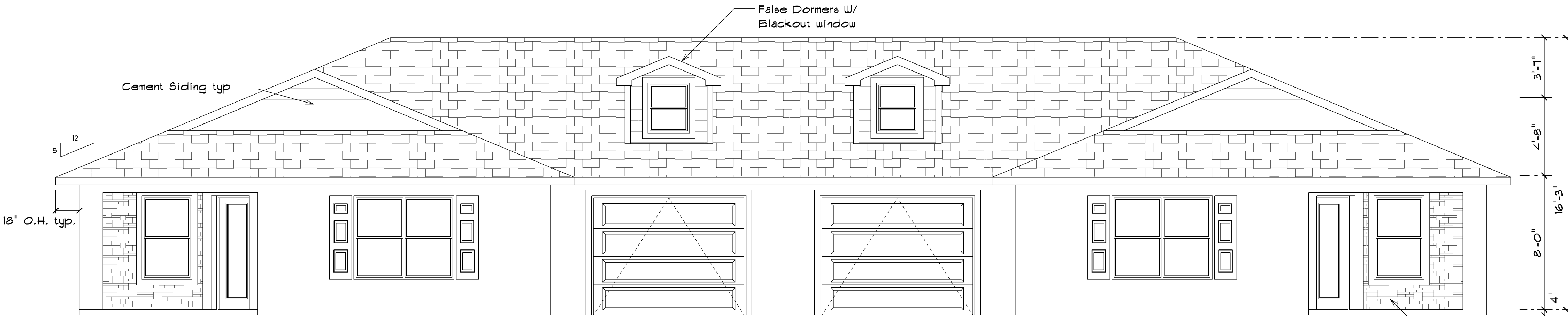
Right Elevation



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 GUST EFFECT, G=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

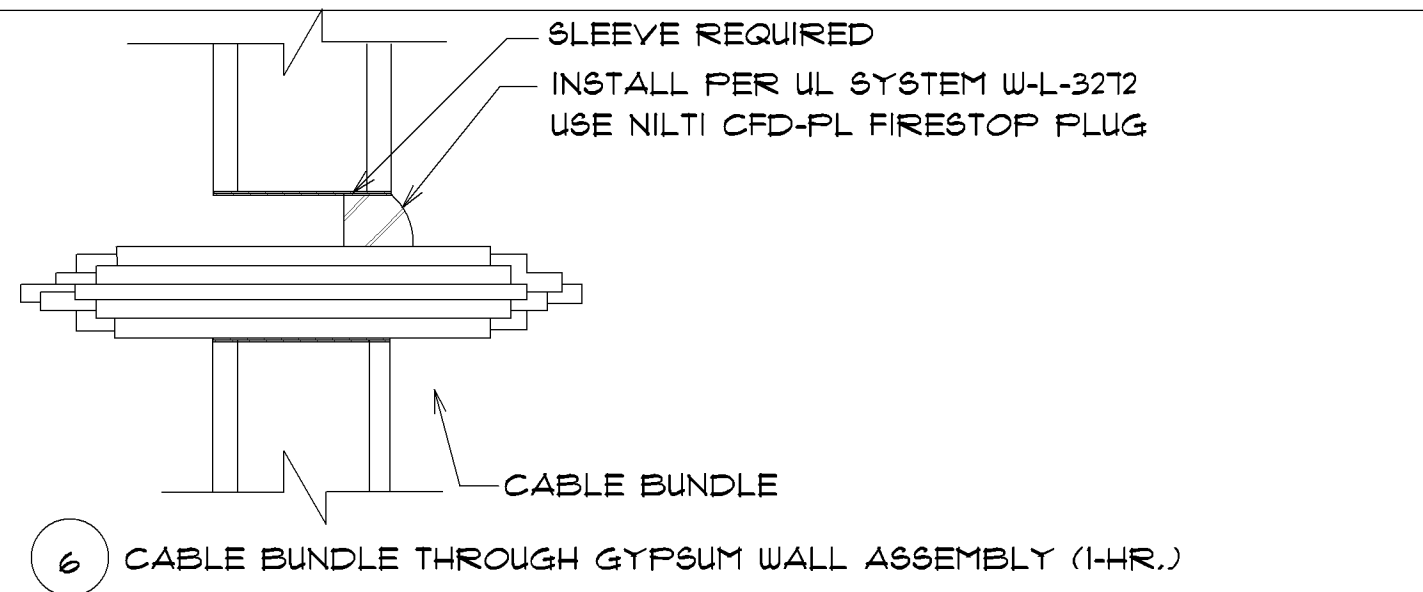
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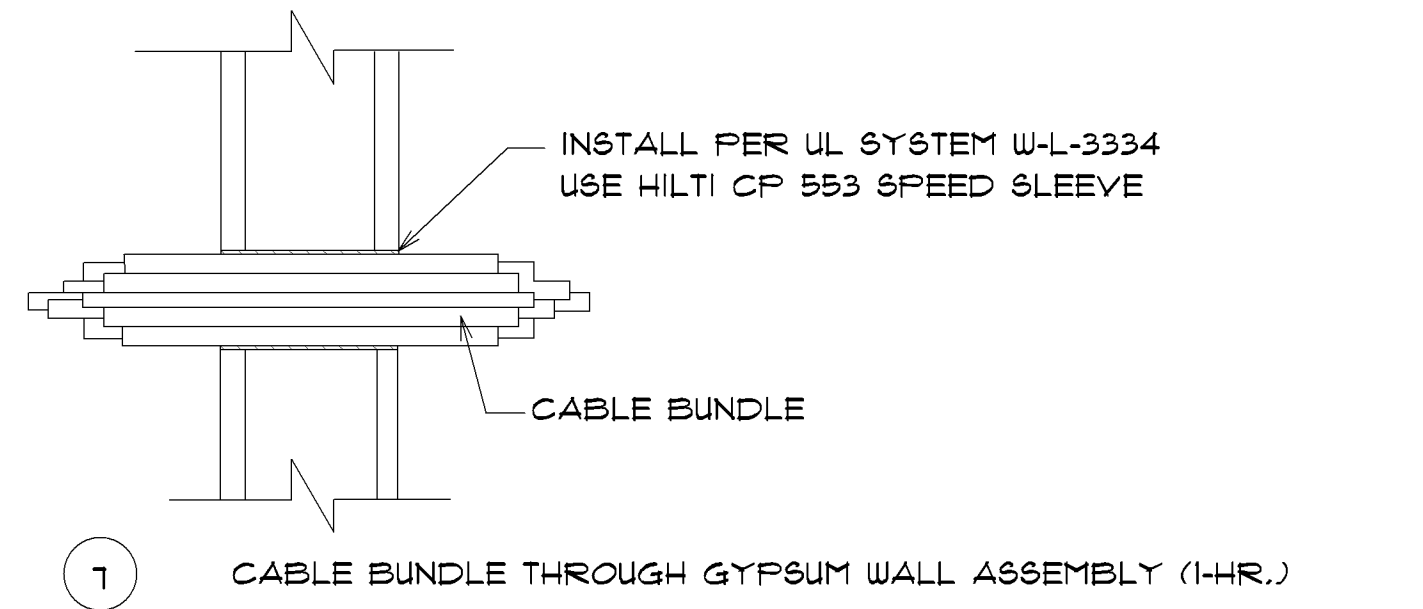
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1/4" scale on 24 x 36

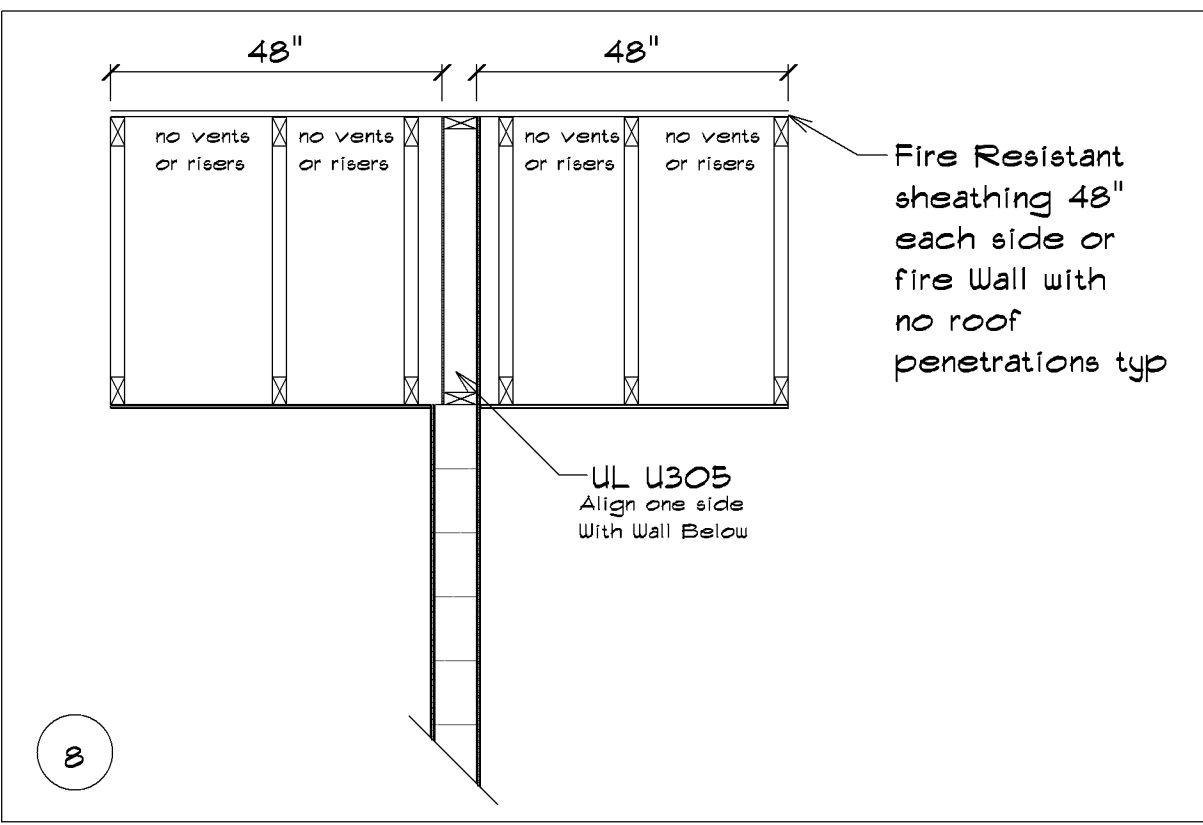
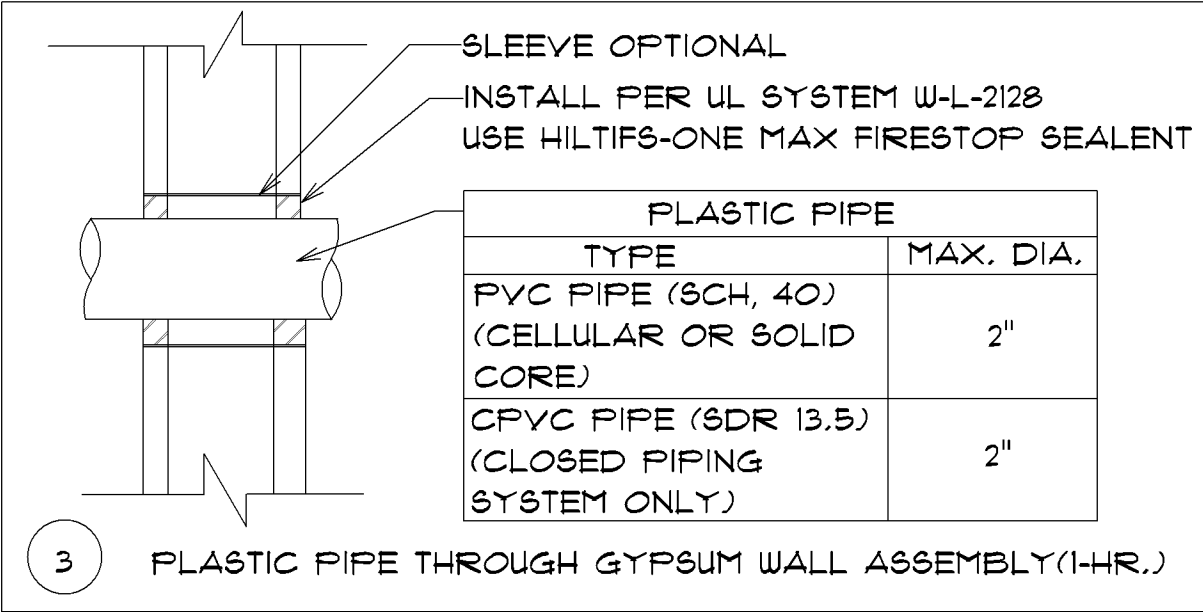
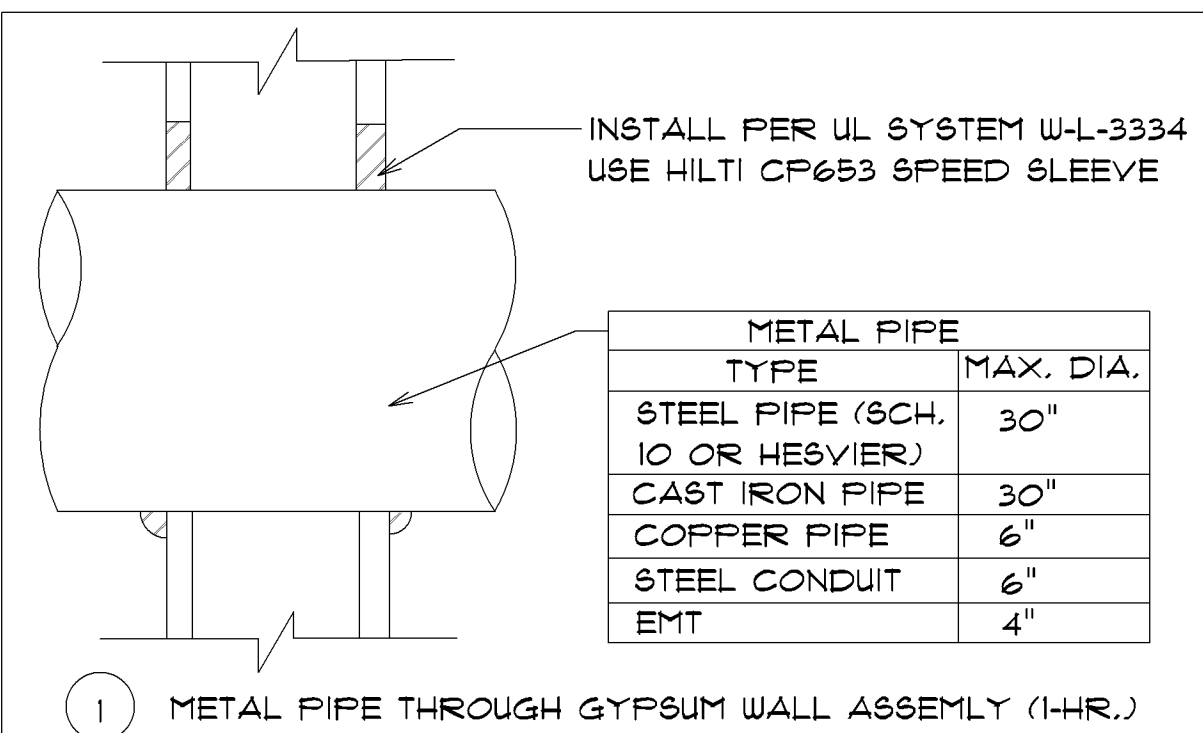
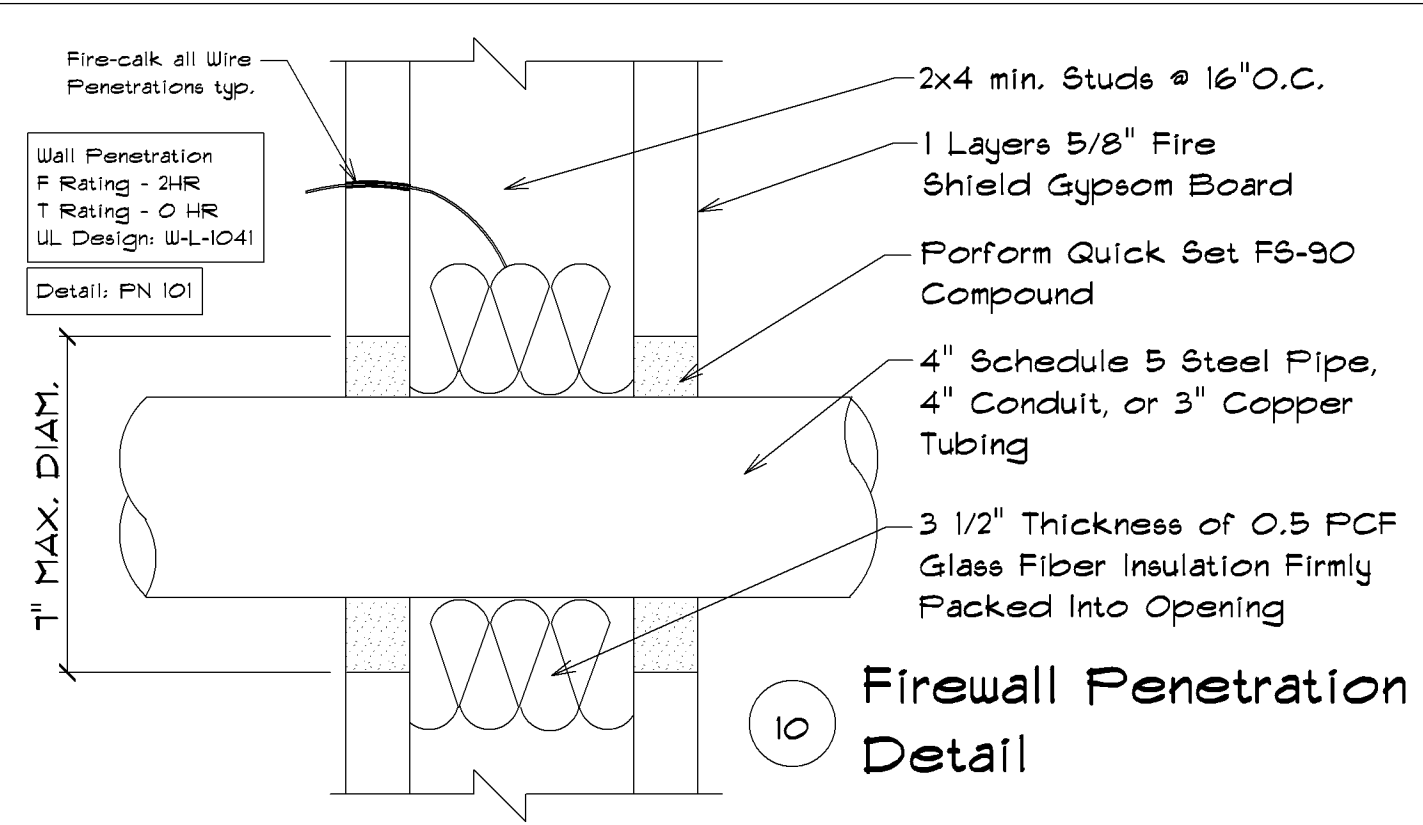
A-2



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"



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.		



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 89 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:

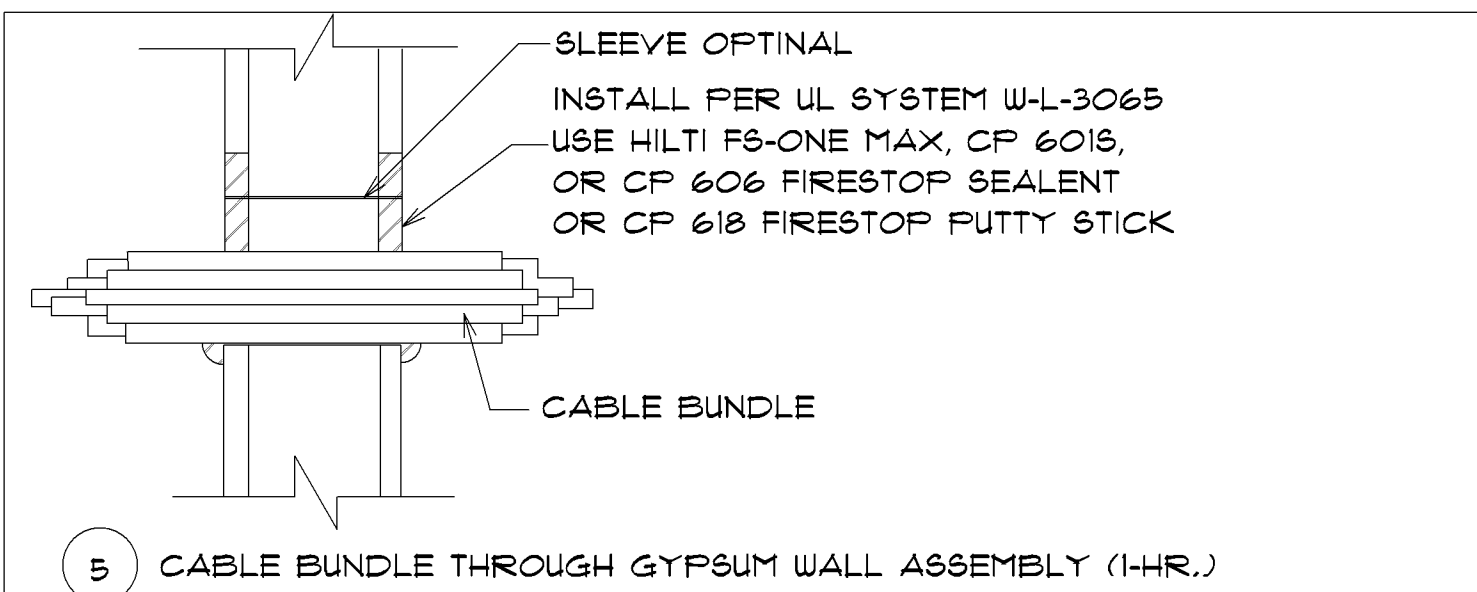
ISSUED: 11/01/2017

REVISION: 01/01/2018

SHEET INFORMATION:

W-P-1-MR-02

UL U305



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.
- 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.
- 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.
- References:

Volumes 1 & 2

NFPA 101 Life Safety Code

NFPA 70 - National Electric Code

All governing local and regional building codes
- 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.
- 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
- For outlet boxes requiring protection, use only wall opening protective Materials category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1).

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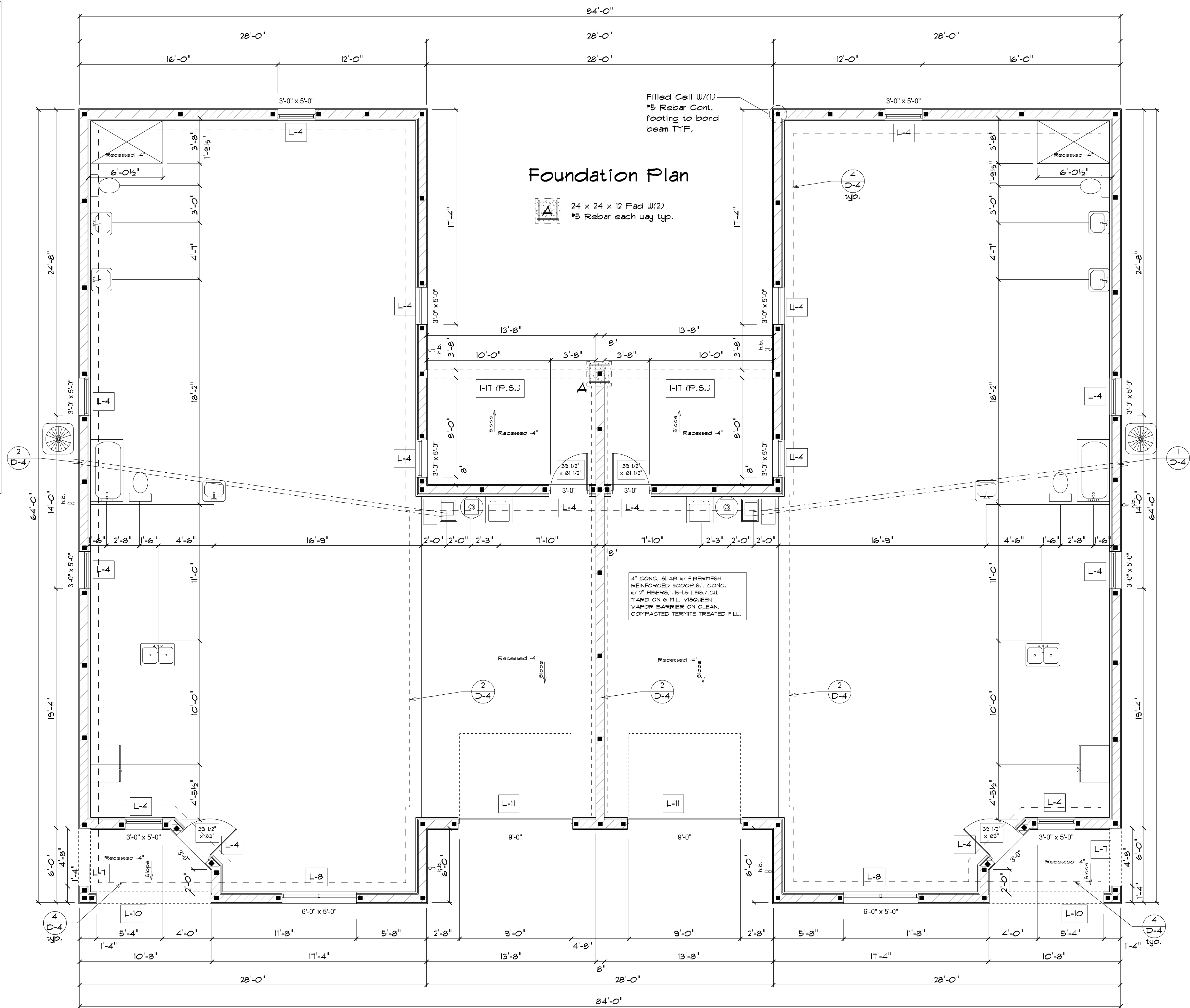
1/8" Scale on 11 x 17
or
1/4" scale on 24 x 36

S-3

Plumbing Riser & Layout

Drain lines sch. 40 water lines CPVC

From well or city water
Min 3/4" service line
3/4" meter



Drawn By
Michael Roberts

S-1

Pannel Schedule													
PANNEL A		BUS: 150A				VOLTAGE:120/240V, 1Ø, 3W							
MOUNTING SURFACE		POLES: 42											
LOCATION		REMARKS: 150A MLO											
DESCRIPTION	LOAD AMPS				CIRCUIT	LEG	CIRCUIT	POLES	TRIP	LOAD AMPS			
	A	B	TRIP	POLES						A	B	TRIP	POLES
KITCHEN RECEPT	6	20	1	1	A	2	2	40	32	20	1	1	A
KITCHEN RECEPT	20	20	1	3	B	4	2	40	32	20	1	3	B
DRYER	25	30		5	A	6	2	25	20	20		5	A
DRYER	25	30		7	B	8	2	25	20	20		7	B
BATHROOM	3	15	1	9	A	10	1	15	6	10	1	9	A
BATHROOM	3	15	1	11	B	12	1	15	3	10	1	11	B
MICROWAVE	6	20	1	13	A	14	1	15	6	20	1	13	A
SMOKE DETECTORS	3	15	1	15	B	16	1	15	6	15	1	15	B
DISHWASHER	6	20	1	17	A	18	1	15	6	20	1	17	A
	6	20	1	19	B	20	1	20	6	20	1	19	B
RECEPTICAL & LIGHTS BDRM	6	15	1	21	A	22	1	20	6	15	1	21	A
	6	15	1	23	B	24	1	20	6	15	1	23	B
RECEPTICAL & LIGHTS BDRM	6	15	1	25	A	26	1	20	6	15	1	25	A
LIGHTS KITCHEN	6	20	1	27	B	28	1	20	6	20	1	27	B
AIR HANDLER	32	40		29	A	30	2	35	28	32		29	A
AIR HANDLER	32	40		31	B	32	2	35	28	32		31	B

NOTE: WIRING TO MEET N.E.C. & ALAPPLICABLE LOCAL CODES

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

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 FBC-R E3103.3 "A Min of (1) 20A Circuit Shall Be Provided for Recepticals Located in & only serve the Laundry Area"

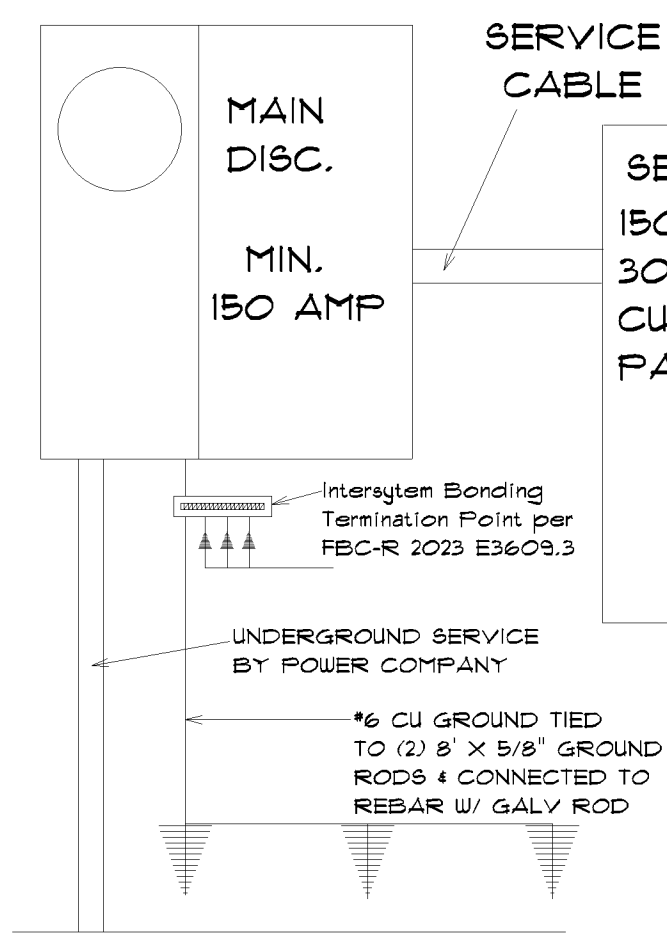
All GFCI & WPGFCI to comply with FBC-R 2023 E3901.9 "Circuit Separation"

drawings are in accordance with the NEC 2020 NFPA 70, FBC 101.2.1

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 230.67(a)

All 125-volt, through 250-volt receptacles installed in the locations specified in 210.8 (A)(1) through (A)(1) 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 EDO SECTION r 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



SERVICE 150 AMP. 30 - 40 CURCUIT PANEL

20 AMP. #12 COPPER TO APPLIANCES
20 AMP. #12 COPPER TO KITCH. & DINING
15 AMP. #14 COPPER TO LIGHTS & OUTLETS
30 AMP. #10 COPPER TO WASH. & DRYER
50 AMP. # 8 COPPER TO RANGE
30 AMP. #10 COPPER TO A/C & HEAT
20 AMP. #12 COPPER TO GFCI
20 AMP. #12 COPPER TO WPGFCI
20 AMP. #12 COPPER TO Well
20 AMP. #12 COPPER TO GFCI

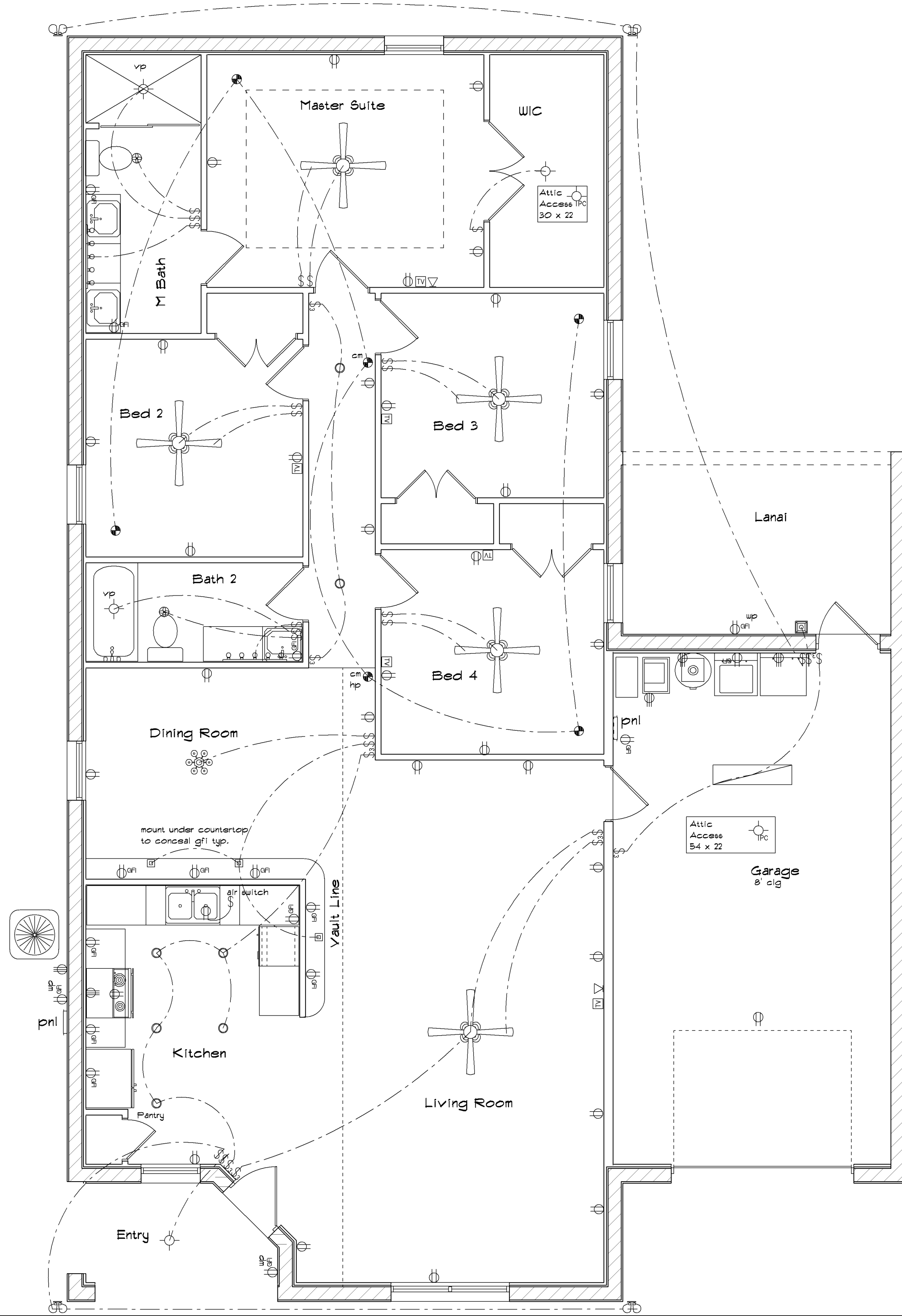
(seperation per FBC-R 2023 E3901.9)

ELECTRICAL RISER

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	
cabl 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 1 of 2)



THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF FBC 2023 8TH EDITION, AND ASCE 7-22 FOR VULT.#60 MPH WIND SPEED, V₈₀ = 124 MPH

RISK CATEGORY II

EXPOSURE CATEGORY C

TOPOGRAPHIC FACTOR = 1.0

WIND DIR. FACTOR K_z = 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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or
1/4" scale on 24 x 36

M-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 i only serve the Laundry Area"

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

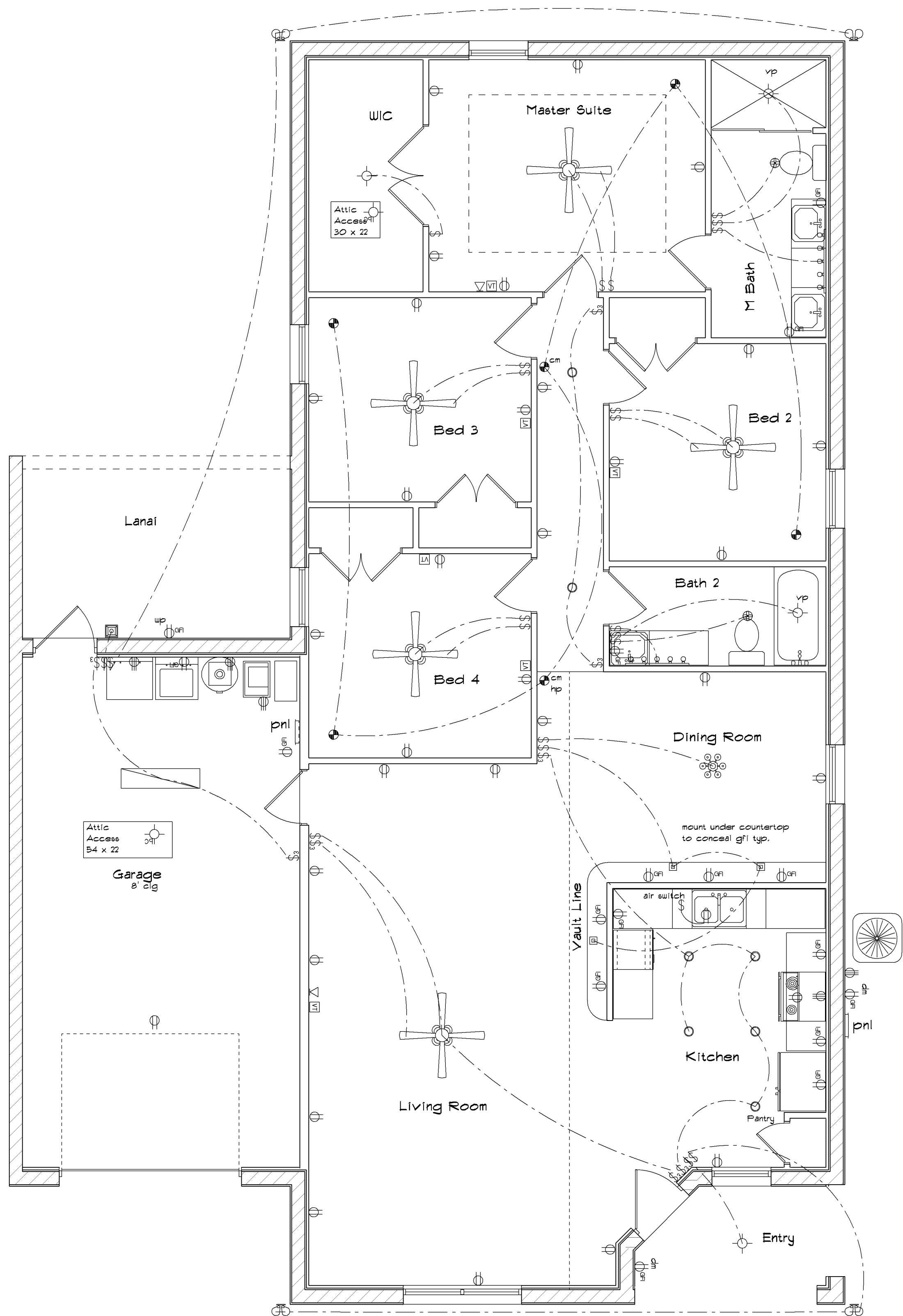
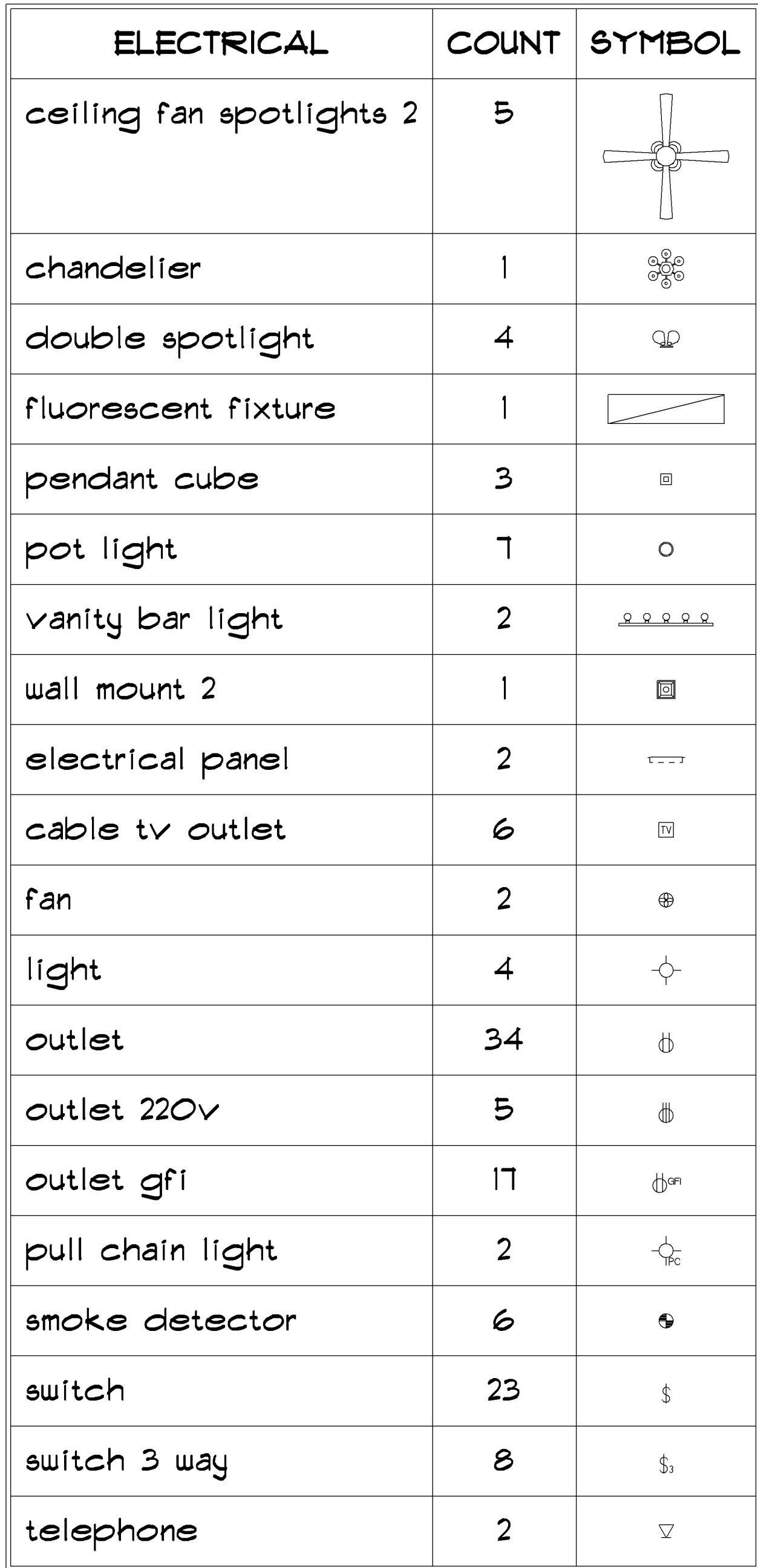
drawings are in accordance with the NEC 2020 NFPA 70, FBC 107.2.1

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 receptacles installed in the locations specified in 210.5 (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 EDI SECTION 7.404.1 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

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		General Lighting Demand Load	5,348 VA
Heat load >>>> watts			
3 ton	4,700 VA		
A/C #2	0 VA	Greater of Heat @ 100% vs. A/C @ 125%	5,875 VA
A/C #3	0 VA	Total A/C Load	5,875
A/C #4	0 VA		
STEP 3 Article 220-17		Appliance Demand Load	6,938 VA
1	Wtr Htrs @ 4500VA	4,500	
1	Refrigerator	1,400	
	Freezer	0	
1	Dishwasher	1,030	
1	Disposals	690	
	Trash compactor	0	
1	Microwave	1,630	
☐	Central Vac	0	
☐	Mini refrigerator	0	
☐		0	
☐		0	
☐		0	
☐	Ironing Center	0	
☐	select	0	
☐	select	0	
☐	select	0	
☐	select	0	
☐	select	0	
☐	select	0	
☐	Pool Equip. Panel	0	
☐		0	
☐		0	
☐		0	
		0 100% Demand	
		0 No Demand	
		0 No Demand	
		Total Appliance Load	9,250
		4 or more demand @ 75% plus 100% demand loads	6,938
STEP 4 Article 220-18			
Electric Clothes Dryers		5,000 VA	
STEP 5 Article 220-19			
Electric Ranges		11,600	
Number of appliances		Col. A. demand	8,000 watts
☐	Check Box for Gas Range	Cooktop	
		Cooktop	
		Oven(s)	
		Oven(s)	
Number of appliances		0	
		Cooktop & Oven Demand Load	0 watts
		Col C demand	
		Col C demand	
		Col C demand	
		Col C demand	
		0% 0% 0%	



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_{WIND} = 124 MPH
RISK CATEGORY II
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR = 1.0
WIND DIR. FACTOR K_d=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

ENGINEERING SERVICES GROUP, LLC
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1659 JAVIER ST SE duplex
Plam Bay Fl 32909

Drawn By
Michael Roberts

$1/8"$ scale on 11×17
or
 $1/4"$ scale on 24×36

E-2

DESIGN LOADS:

(THESE DESIGN LOADS BELOW ARE ALSO INTENDED TO SERVE AS INSTRUCTIONS TO THE DELEGATED (TRUSSES) ENGINEER FOR THIS PROJECT).

ROOF TRUSSES: LIVE LOAD = 20psf, DEAD LOAD = 7psf (TC) + 10psf (BC), (SHINGLES), ATTIC FLOOR: 20 SPF

FLOOR TRUSSES: LIVE LOAD = 40psf, DEAD LOAD = 10psf (TC) + 5psf (BC).

DESIGN WIND LOADS IN ACCORDANCE WITH SECTION R301 OF THE 2023 FLORIDA RESIDENTIAL

BUILDING CODE 8TH EDITION, AND ASCE 7-22:

WIND SPEED: VULT = 160 mph, VASD= 124 mph

RISK CATEGORY II

EXPOSURE LISTED ON PAGE C-1

FULLY ENCLOSED

TOPOGRAPHIC FACTOR = 1.0

WIND DIR. FACTOR KD = 0.85

GUST EFFECT, G = 0.85

DESIGN PRESSURE FOR WALL COMPONENTS AND CLADDING (WORST CASE) =33.1 PSF, -43.5 PSF

NOTE TO DELEGATED ENGINEER:

PRE-FABRICATED WOOD JOIST AND TRUSSES FOR ROOF ASSEMBLIES AND FLOOR SYSTEMS (IF APPLICABLE) SHALL BE DESIGNED AND MANUFACTURED IN CONFORMANCE TO ASTM D5055, ANSI/TPI 1-1995 AND WTCA 1-1995 AND SHALL BE CERTIFIED BY A FLORIDA REGISTERED ENGINEER AS EMPLOYED BY THE TRUSS MANUFACTURER (DELEGATED ENGINEER). ALL ROOF AND FLOOR TRUSSES SHALL BE DESIGNED TO RESIST THE WORST CASE LOAD COMBINATION WHICH RESULTS IN THE MAXIMUM STRESSES BEING PLACED ON THAT COMPONENT. GALVANIZED SEAT-PLATES ARE TO BE ATTACHED TO EACH TRUSS AS A PROTECTIVE BARRIER WHERE THEY BEAR ON CONCRETE OR CMU. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD, TO FABRICATION TO ENSURE CONFORMANCE TO THE DESIGN INTENT OF THE PROJECT.

SOIL:

FOOTINGS HAVE BEEN DESIGNED FOR 2000psf SOIL BEARING CAPACITY. ANY LESSER BEARING SHALL BE THE SOLE RESPONSIBILITY OF THE OWNER OR THE CONTRACTOR. WHERE THE SOIL BEARING CAPACITY IS NOT KNOWN OR IS IN QUESTION, THE SOIL SHALL BE TESTED BY A QUALIFIED GEOTECHNICAL ENGINEER, WHO SHALL ESTABLISH THE BEARING CAPACITY. SAID ENGINEERING SHALL COORDINATE WITH THE STRUCTURAL ENGINEER WHEN NECESSARY. COMPACTED SOIL SHALL BE TESTED TO A MINIMUM OF 95% MODIFIED PROCTOR IN ACCORDANCE ASTM D 1557.

SLAB ON GRADE:

SLAB SHALL BE OVER .006" POLYETHYLENE VAPOR RADON BARRIER SEALED ON TERMITE -TREATED SOIL WHICH HAS COMPACTED TO 95% MODIFIED PROCTOR IN ACCORDANCE WITH ASTM D 1557, OR UNDISTURBED SOIL SLABS SHALL BE AT A MINIMUM ELEVATION OF 8" ABOVE FINISHED GRADE. HIGHER ELEVATION MAYBE SUBSTITUTED OR REQUIRED.

REBAR EMBEDMENT AND

HOOK LENGTH / BEND RADIUS:

FOR #5 REBAR FOR 90deg HOOK SHALL BE 10", MINIMUM EMBEDMENT SHALL BE 1" AND BEND RADIUS SHALL BE 2"

CONNECTORS:

ALL METAL FASTENERS SHALL CONFORM TO ISANTA NER-212, AND SHALL BE GALVANIZED OR STAINLESS STEEL (WITHIN 3 MILES OF COASTAL SALT WATER AREA). FASTENERS SHALL NOT BE OVER-DRIVEN BY MORE THAN 1/8".

CONCRETE:

UNLESS OTHERWISE SPECIFIED, CAST IN PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000psi. CAST IN PLACE GROUT 2,000psi, PRECAST CONCRETE LINTELS 3000psi AND PRE-STRESSED CONCRETE LINTELS 5000psi, AT 28 DAYS. CONCRETE SHALL CONSIST OF 1" MAX AGGREGATE CONCRETE MIX SLUMP BETWEEN 6" AND 7" AT THE TIME OF PLACEMENT. SEE ASTM AND SPECIFICATIONS FOR ADDITIONAL CRITERIA. CONSTRUCTION JOINTS ARE TO BE PROVIDED IN ACCORDANCE WITH THE DESIGN CODES AND GUIDELINES AT THE ENGINEER'S DIRECTION. METHOD OF CONCRETE FORMING, PLACEMENT, AND CURING SHALL BE CONDUCTED IN ACCORDANCE WITH ACI AND ASTM SPECIFICATIONS.

CMU:

ALL CONCRETE MASONRY UNITS SHALL BE STANDARD WEIGHT BLOCK CONFORMING TO ASTM C-90, TYPE II NON-MOISTURE CONTROLLED AND SHALL HAVE A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 1,900psi.

PRECAST LINTELS:

ALL PRECAST LINTELS SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH PCI-MNL-116

MORTAR:

MORTAR SHALL BE EITHER TYPE M OR S IN ACCORDANCE WITH ASTM C 270 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000psi.

GROUT:

GROUT SHALL HAVE A MINIMUM COARSE AGGREGATE SIZE OF 3/8" PLACED AT AN 8" TO 10" SLUMP AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000psi AT 28 DAYS. SEE ACI AND ASTM SPECIFICATIONS FOR ADDITIONAL CRITERIA.

REINFORCING STEEL:

REINFORCING STEEL SHALL BE A MINIMUM OF GRADE 40 AND SHALL CONFORM TO ASTM A615 UNLESS OTHERWISE NOTED. ALL CONTINUOUS VERTICAL AND HORIZONTAL REBAR SHALL BE LAP SPliced WHERE NECESSARY BY WIRING TOGETHER. LAP SPICES SHALL BE CLASS B WITH A MINIMUM LAP OF 40 BAR DIAMETERS UNLESS SPECIFIED OTHERWISE. IN LIEU OF 6"x 6" WELDED WIRE MESH OF 10 GAUGE STEEL, CONCRETE MAY BE REINFORCED WITH AN APPROVED FIBERMESH PRODUCT AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. FIBER MANUFACTURER MUST DOCUMENT COMPLIANCE WITH ASTM C-1116. COVER FOR REINFORCING SHALL BE MEASURED FROM CENTER OF BAR AND BE AS FOLLOWS UNLESS NOTED OTHERWISE: CAST IN PLACE CONCRETE AGAINST EARTH = 3" CAST IN PLACE CONCRETE EXPOSED TO EXTERIOR =2" CAST IN PLACE CONCRETE NOT EXPOSED TO EXTERIOR = 1-1/2" GROUT FILLED MASONRY = 1-1/2" PRE-CAST AND RESTRESSED GROUT FILLED LINTELS = 1-1/2" STEEL REINFORCEMENT MAY NOT BE WELDED.

WELDED WIRE MESH:

WELDED WIRE MESH SHALL CONFORM TO ASTM A185. WELDED WIRE MESH SHALL BE SUPPLIED IN SHEETS NOT ROLLS.

ANCHOR BOLTS:

CAST IN PLACE ANCHOR BOLTS SHALL BE GALVANIZED AND MUST EXTEND 1" MINIMUM INTO CONCRETE UNLESS OTHERWISE NOTED.

RAILINGS:

RAILINGS (IF APPLICABLE) ARE TO BE DESIGNED TO RESIST A 200lb CONCENTRATED LOAD AT ANY POINT AND IN ANY DIRECTION.

TYPE OF LUMBER:

FOR WOOD FRAME CONSTRUCTION, USE #2 SPF FOR ALL EXTERIOR AND INTERIOR BEARING WALLS. ALL ROOF FRAMING MEMBERS TO BE #2 YELLOW PINE.

TREATED LUMBER:

ALL WOOD MEMBERS THAT ARE WITHIN 8" OF FINISHED GRADE LEVEL, ALL EXPOSED UNFINISHED WOOD AND ALL WOOD MEMBERS IN CONTACT WITH CONCRETE AND/OR OTHER MASONRY SHALL BE PRESERVATIVE TREATED WITH DISODIUM OCTABORATE TETRA HYDRATE TO A MINIMUM GRADE OF 0.40pcf RETENTION AND SHALL CONFORM AWPA STANDARD C1 THROUGH C23 DEPENDING ON THE APPLICATION.

ROOF DECKING:

UNLESS OTHERWISE SPECIFIED, ROOF SHEATHING SHALL BE INSTALLED WITH EDGE CLIPS IN EACH BAY. ALL SHEATHING SHALL BE APA RATED FOR THE USE INTENDED.

PREFABRICATED PRODUCTS:

LAMINATED VENEER LUMBER SHALL CONFORM TO ASTM D5456 STANDARD SPECIFICATION FOR EVALUATION OF STRUCTRAL COMPOSITE LUMBER PRODUCTS. ALL WOOD STRUCTURAL PANELS, INCLUDING BUT NOT LIMITED TO PLYWOOD, O.S.B, WAFER BOARD AND MEDIUM DENSITY FIBERBOARD (MFB) SHALL CONFORM TO PS-1 AND PS-2 PERFORMANCE STANDARDS FOR WOOD BASED STRUCTURAL USE PLYWOOD, MFD SHALL NOT BE USED IN ANY EXTERIOR APPLICATIONS. THE USE OF FORMALDEHYDE-BASED GLUES AND RESINS IS DISCOURAGED. ALL FINGER JOINTED LUMBER SHALL CONFORM TO NDS SECTION 4.1.6, AND SHALL BE USED IN A MANNER INCONSISTENT WITH THE LIMITATIONS OF FINGER-JOINTED LUMBER WITH RESPECT TO THE INTENDED APPLICATION. PREFABRICATED WOOD JOISTS AND TRUSSES SHALL BE DESIGNED AND MANUFACTURED IN CONFORMANCE TO ASTM D5055, ANSI/TPI 1-1995 AND WTCA 1-1995 AND SHALL BE CERTIFIED BY A FLORIDA REGISTERED ENGINEER (DELEGATED ENGINEER).

CONTRACTOR RESPONSIBILITIES:

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR START OF CONTRUCTION. WRITTEN DIMENSIONS SHALL TAKE PRECEDENT OVER SCALED DIMENSIONS. ANY DEVIATIONS OR DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE ENGINEER OF RECORD. CONTRACTOR SHALL MAKE ALL EFFORTS TO PROTECT THE STRUCTURE, THE WORK PERSONS, AND OTHER PEOPLE DURING CONSTRUCTION. HE SHALL SUPERVISE AND DIRECT THE WORK AND BE RESPONSIBLE FOR ALL CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ARCH ITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND CONSTRUCTION FOR ANCHORS, EMBEDS AND SUPPORTS OR ANY OTHER ITEMS WHICH AFFECT THE STRUCTURAL DRAWINGS. THERE SHALL NOT BE ANY CHANGES TO THESE CONSTRUCTION DOCUMENTS DURING THE DEVELOPMENT OF SHOP DRAWINGS OR DURING CONSTRUCTION WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER OF RECORD.

ENGINEERING SERVICES GROUP, LLC ASSUMES NO RESPONSIBILITY FOR THE ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, HVAC, FIRE PROTECTION OR FIRE CODE PROVISIONS, FABRICATION, INSTALLATION/ERECTION, SUPERVISION, PLAN DIMENSIONS, UNKNOWN FIELD CONDITIONS OR OTHER CONDITIONS NOT FULLY REPRESENTED IN THESE DRAWINGS.

GENERAL NOTES:

1. ALL CONNECTIONS HAVE BEEN CHECKED TO WITHSTAND ALL APPLICABLE LOADS.
2. ALL DETAILS AND SECTIONS SHOWN ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUCTED TO APPLY TO ANY SIMILAR SITUATION ON THE PROJECT UNLESS OTHERWISE NOTED.
3. ALL CONCRETE BLOCKS SHALL BE STANDARD WEIGHT BLOCKS CONFORMING TO ASTM C90, GRADE NI WITH FM=1,000psi, LAID IN RUNNING BOND WITH TYPE S MORTAR.
4. WHERE SHOWN, CORES OF CONCRETE BLOCK SHALL BE 1-#5 RE-BAR CONTINUOUS FROM FOUNDATION TO BOND BEAM AND FILLED WITH FEA GRAVEL CONCRETE. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,55psi @ 28 DAYS AND SLUMP EQUAL TO 8 TO 10 INCHES.
5. IN MASONRY HEADERS, EXTEND THE BOTTOM STEEL REINFORCEMENT A MINIMUM OF 6" INTO FILASTER OR POURED COLUMN AND WIRE TIE TO VERTICAL STEEL REINFORCEMENT (REBAR).
6. SOIL BORINGS HAVE NOT BEEN MADE. FOOTINGS HAVE BEEN DESIGNED FOR A SOIL BEARING CAPACITY OF 2,000psf. LESSOR SOIL BEARING CAPACITY IS THE RESPONSIBILITY OF THE BUILDING CONTRACTOR.
7. FOOTING SHALL BEAR ON SOIL COMPACTED TO A DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AND TREATED FOR TERMITES IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2023 FLORIDA RESIDENTIAL BUILDING CODE 8TH EDITION.
8. FILL UNDER THE FLOOR SLAB SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AND TREATED FOR TERMITES IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2023 FLORIDA RESIDENTIAL BUILDING CODE 8TH EDITION.
9. CONCRETE SHALL HAVE AN UNCONFIRMED COMPRESSIVE STRENGTH OF 2,500psi AT 28 DAYS.
10. THE BUILDING CONTRACTOR SHALL CHECK ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, SLAB DEPRESSIONS, DIMENSIONS, PITCH, AND OTHER RELATED ITEMS AND SHALL ASSUME RESPONSIBILITY FOR THEIR PROPER LOCATION, PLACEMENT, AND CONTINUITY.
11. ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM 615 GRADE 40.
12. ALL CONTINUOUS VERTICAL OR HORIZONTAL REBAR IN FOOTING, BEAMS AND OTHER CONCRETE SHALL BE SPliced WHERE NECESSARY OR DESIRABLE BY WIRING TOGETHER IN CONTACT. THE LENGTH OF ALL OVERLAPS SHALL BE A MINIMUM OF 40 BAR DIAMETERS.
13. THE PRECAST LINTEL SUPPLIER SHALL DESIGN THE LINTELS FOR ADEQUATE SUPER IMPOSED LOADS, THE DESIGN SHALL A.C.I. STANDARD AND THE STANDARD BUILDING CODES.
14. ALL FRAMING SHALL BE FABRICATED AND INSTALLED AS PER A.I.T.C., T.P.I., AND THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
15. ALL WOOD STRUCTURAL MEMBERS SHALL BE CONTROLLED STRESS GRADE LUMBER HAVING A FIBER STRESS OF AT LEAST 1200psi.
16. ALL WOOD MATERIALS ARE TO BE FASTENED IN ACCORDANCE WITH THE 2023 FLORIDA RESIDENTIAL BUILDING CODE 8TH EDITION TABLE 2306.1 UNLESS NOTED OTHERWISE.
17. CONCRETE SLABS WILL BE REINFORCED WITH EITHER 6X6 #10 WIRE MESH OR FIBER MESH CONCRETE.
18. SPECIFIED CONNECTORS MAY BE SUBSTITUTED WITH CONNECTORS FROM MANUFACTURERS WITH EQUAL OR GREATER VALUE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF FEB 2023, 8TH EDITION, AND ASCE 7-22 FOR Vult=160 MPH WIND SPEED, VASD, =124 MPH RISK CATEGORY II EXPOSURE ON PG. C-1 GUST EFFECT, G=0.85 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, -32.7 (WORST CASE) ROOF LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

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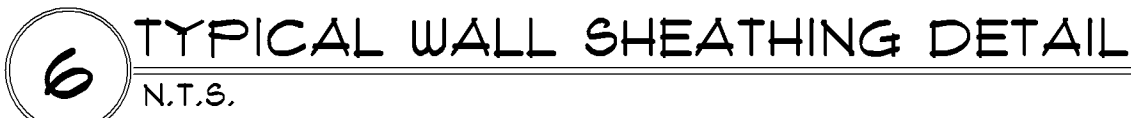
352-388-1735 J. Lee Smith, P.E. #36171

James Lee Smith / P.E.

Drawn By
Michael Roberts

Detail
Typical

General
Notes

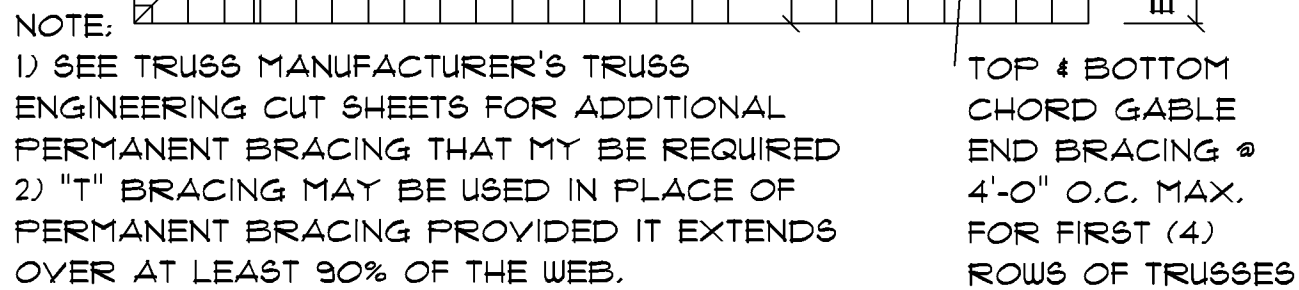


SIZE STUD MATERIAL AT O.C. SPACING	MAX. HEIGHT
2' X 4' SPF @ 24" O.C.	8' 0"
2' X 4' SPF @ 16" O.C.	9' 0"
2' X 4' SPF @ 12" O.C.	10' 0"
2' X 4' YP @ 24" O.C.	9' 0"
2' X 4' YP @ 16" O.C.	10' 3"
2' X 4' YP @ 12" O.C.	12' 4"
2' X 6' SPF @ 24" O.C.	11' 4"
2' X 6' SPF @ 16" O.C.	13' 3"
2' X 6' SPF @ 12" O.C.	16' 0"
2' X 6' YP @ 24" O.C.	13' 3"
2' X 6' YP @ 16" O.C.	17' 0"
2' X 6' YP @ 12" O.C.	19' 4"
2' X 8' SPF @ 24" O.C.	14' 3"
2' X 8' SPF @ 16" O.C.	18' 0"
2' X 8' SPF @ 12" O.C.	21' 0"
2' X 8' YP @ 24" O.C.	18' 0"
2' X 8' YP @ 16" O.C.	22' 3"
2' X 8' YP @ 12" O.C.	25' 3"

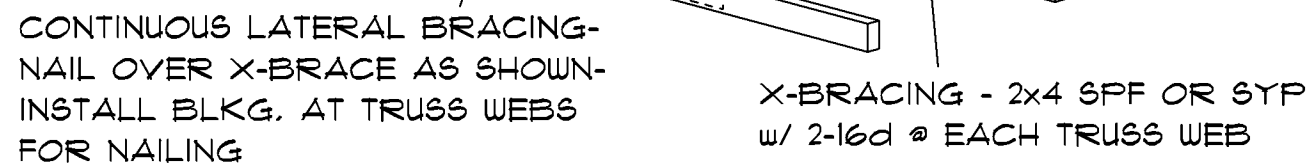
UNSUPPORTED WALL HEIGHT	STUD SPACING	NUMBER OF FULL LENGTH STUDS AT EACH END OF HEADER					
10' OR LESS	12"	2	2	3	3	3	3
	16"	2	2	3	3	3	3
	24"	2	2	2	2	2	2
GREATER THAN 10'	12"	2	2	3	4	5	5
	16"	2	2	3	3	4	4
	24"	2	2	2	2	3	3

MINIMUM WALL & HEADER STUD REQ.

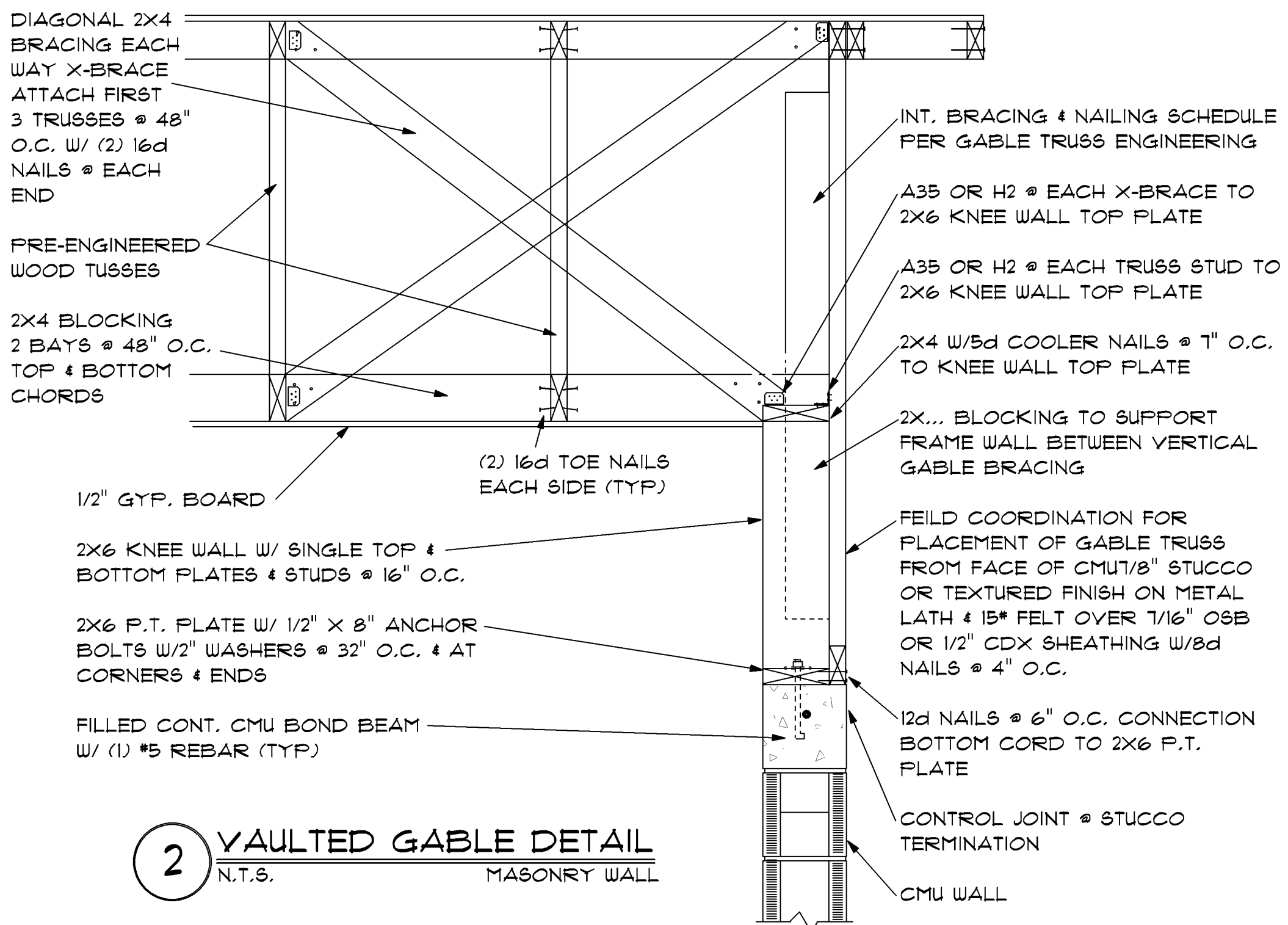
- In Compliance with ASTM D 7032



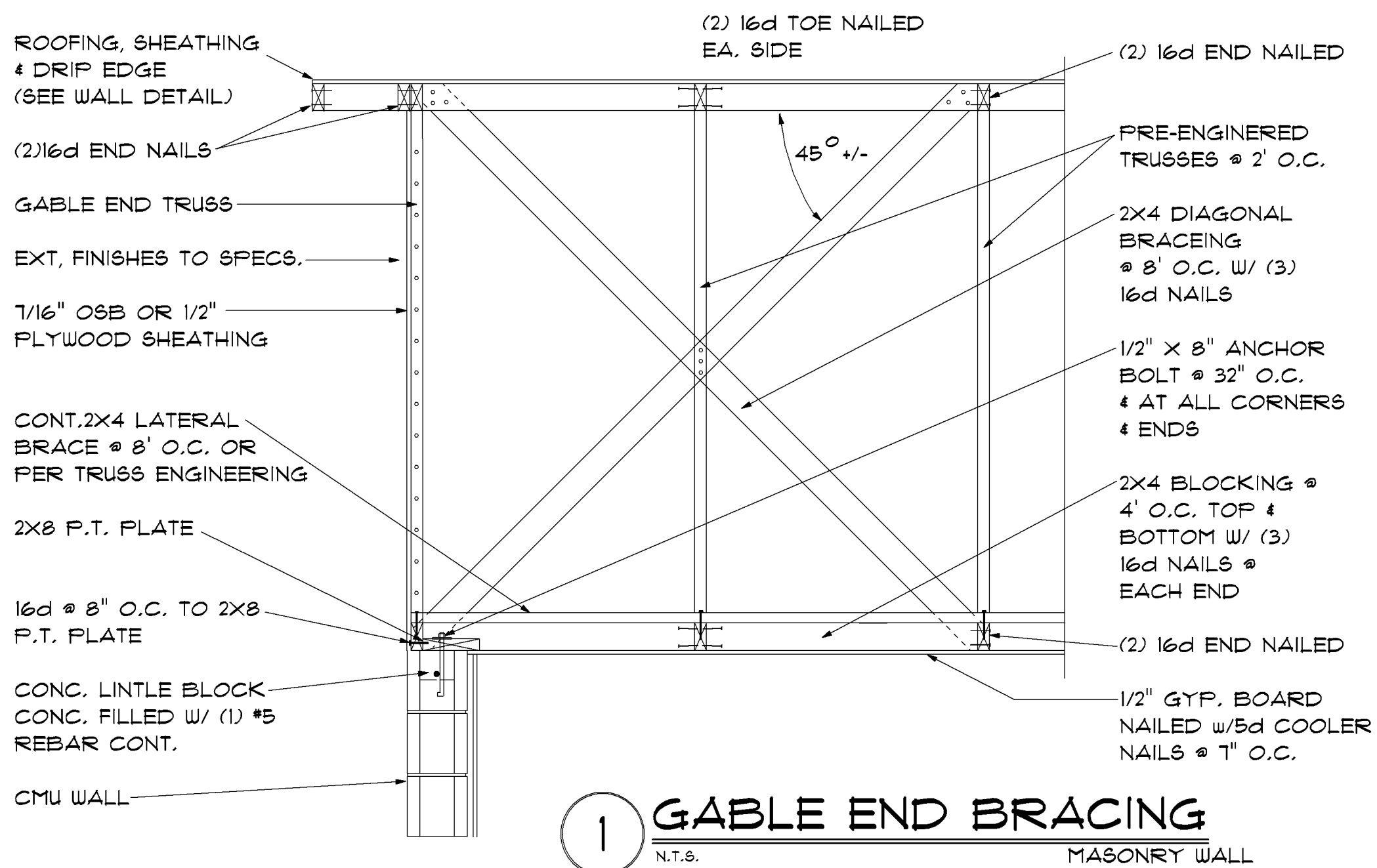
5 REQ. MIN. PERMANENT TRUSS BRACING
N.T.S.



4 CROSS BRACING DETAIL (TYP.)
N.T.S.



2 VAULTED GABLE DETAIL
N.T.S. MASONRY WALL



1 GABLE END BRACING
N.T.S. MASONRY WALL



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. $V_{ascd} = 124$ MPH
RISK CATEGORY II
EXPOSURE ON FG, C-1
GUST EFFECT, $G=0.85$
FULLY ENCLOSED
TOPOGRAPHIC FACTOR = 1.0
WIND DIR. FACTOR $K_{d=0.85}$
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)
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FLOOR LIVE LOAD = 20 PSF FLOOR LIVE LOAD = 40 PSF

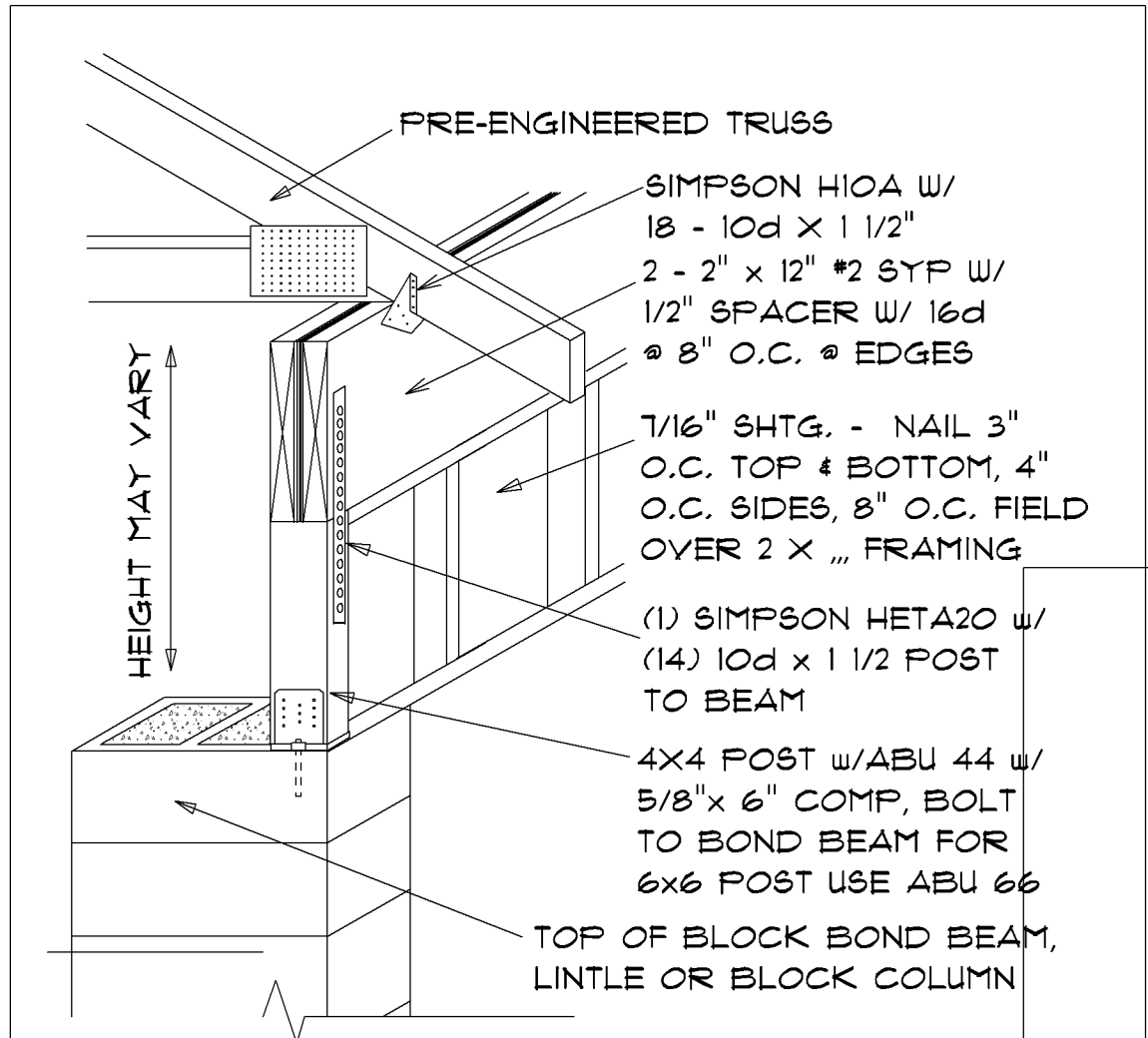
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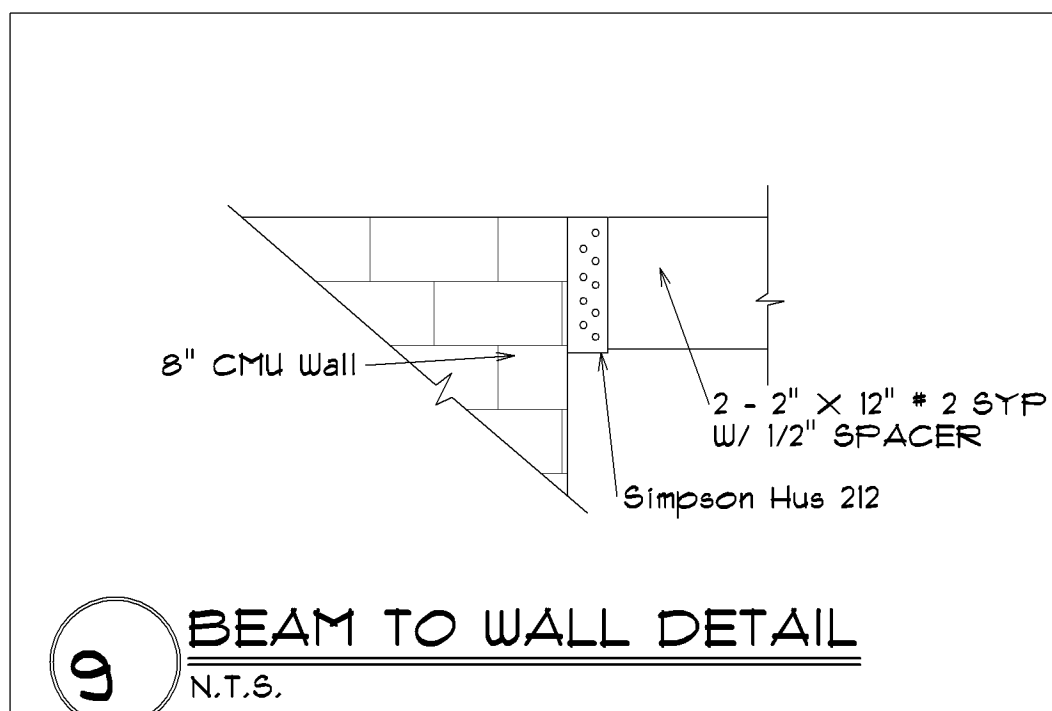
Drawn By
Michael Roberts

Detail

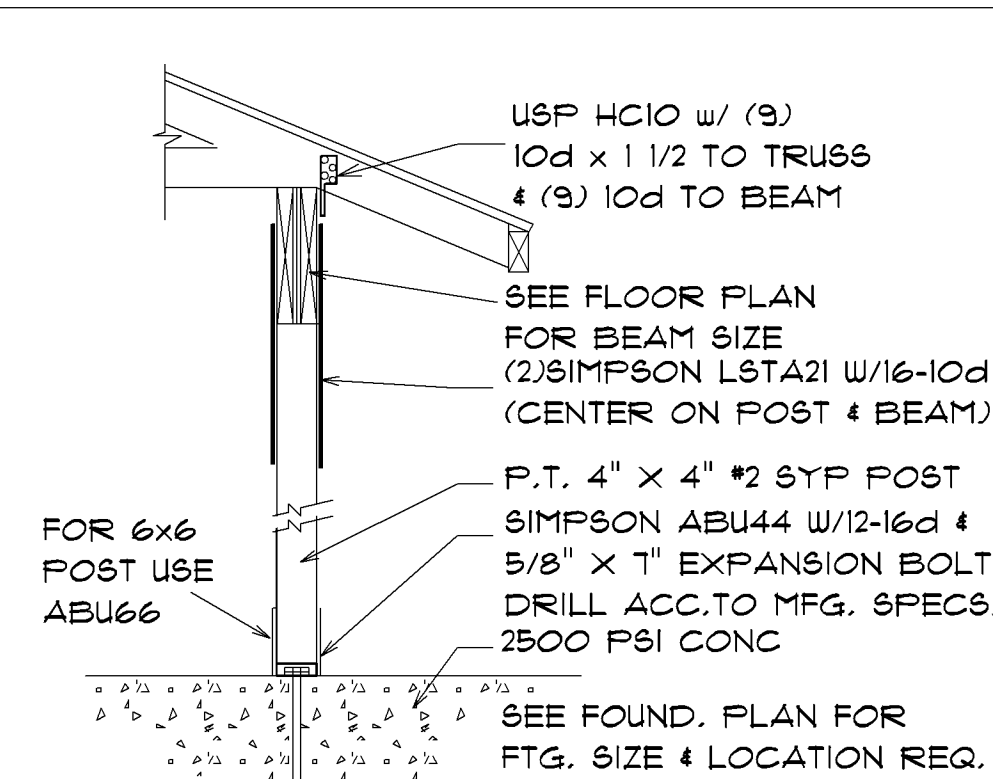
D-1



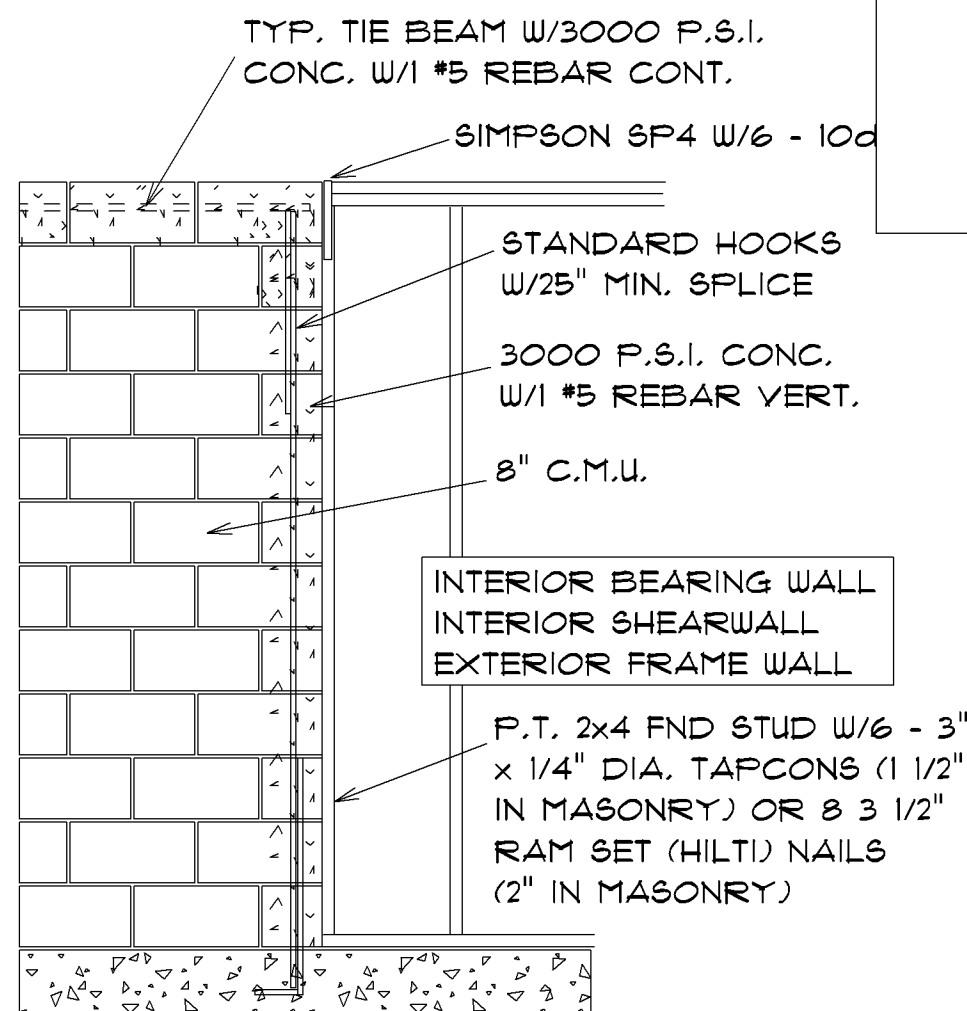
12 RAISED ENTRY DETAIL
N.T.S.



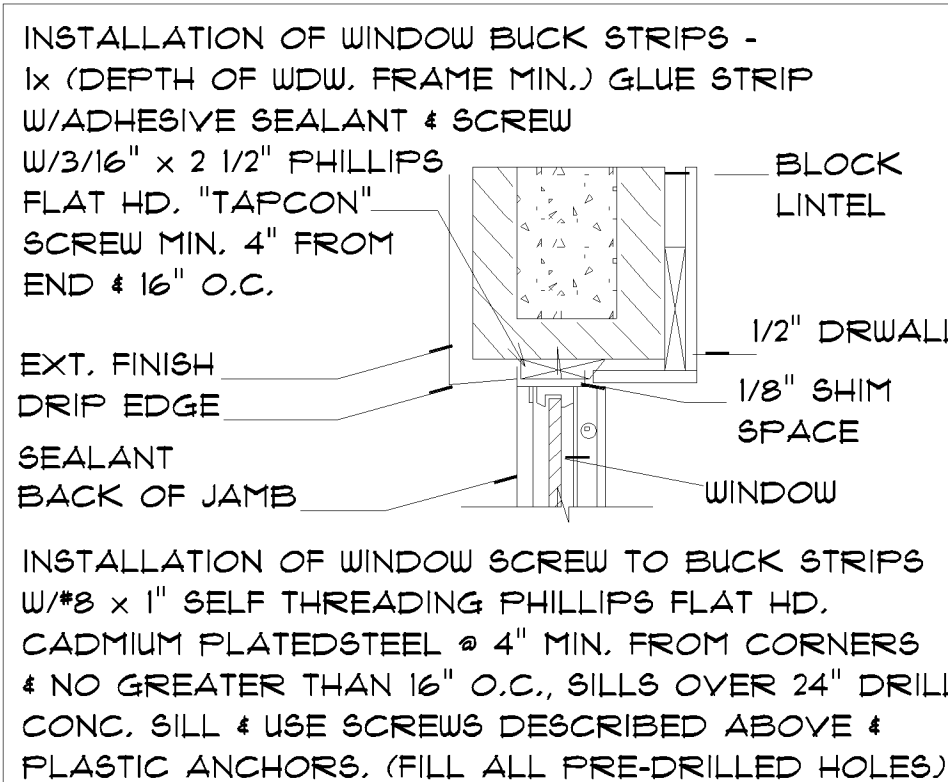
9 BEAM TO WALL DETAIL
N.T.S.



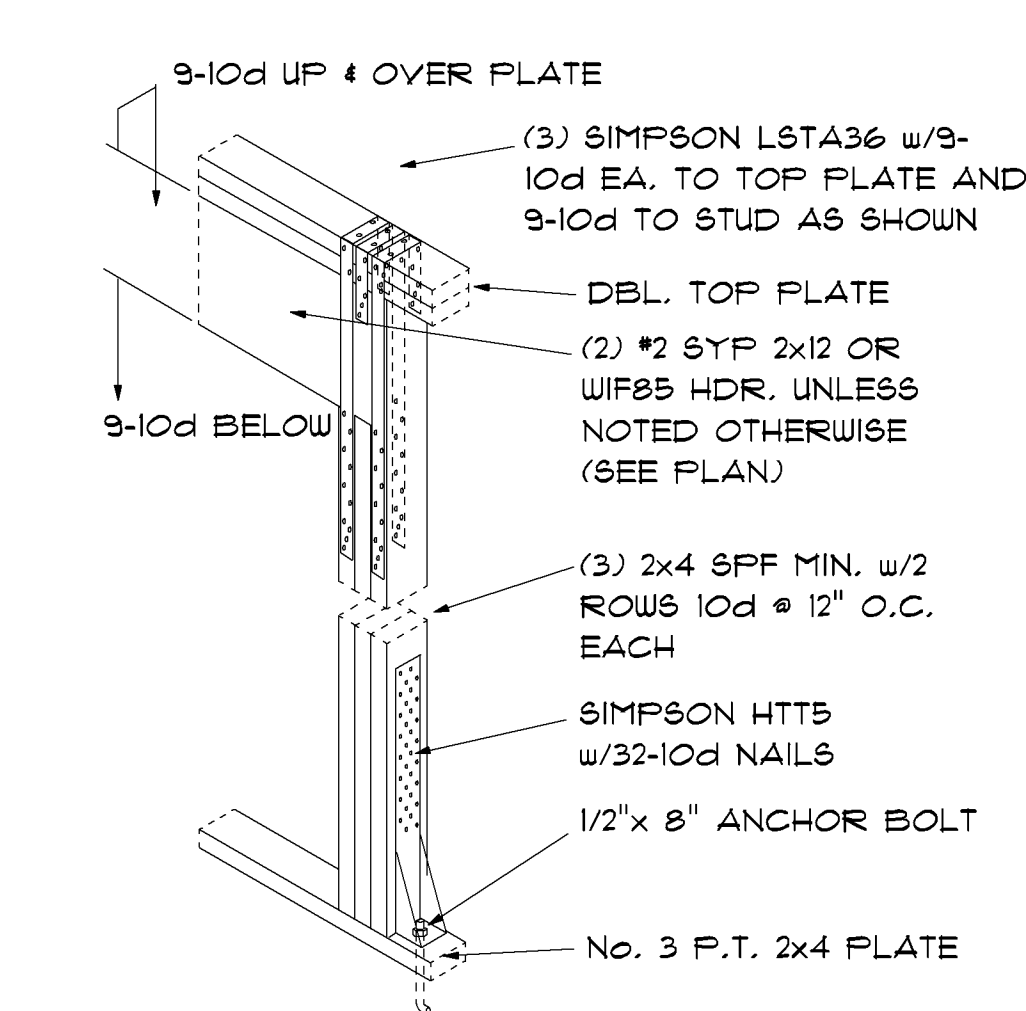
8 POST TO BEAM DETAIL
N.T.S. UPLIFT CAPACITY: 2200*



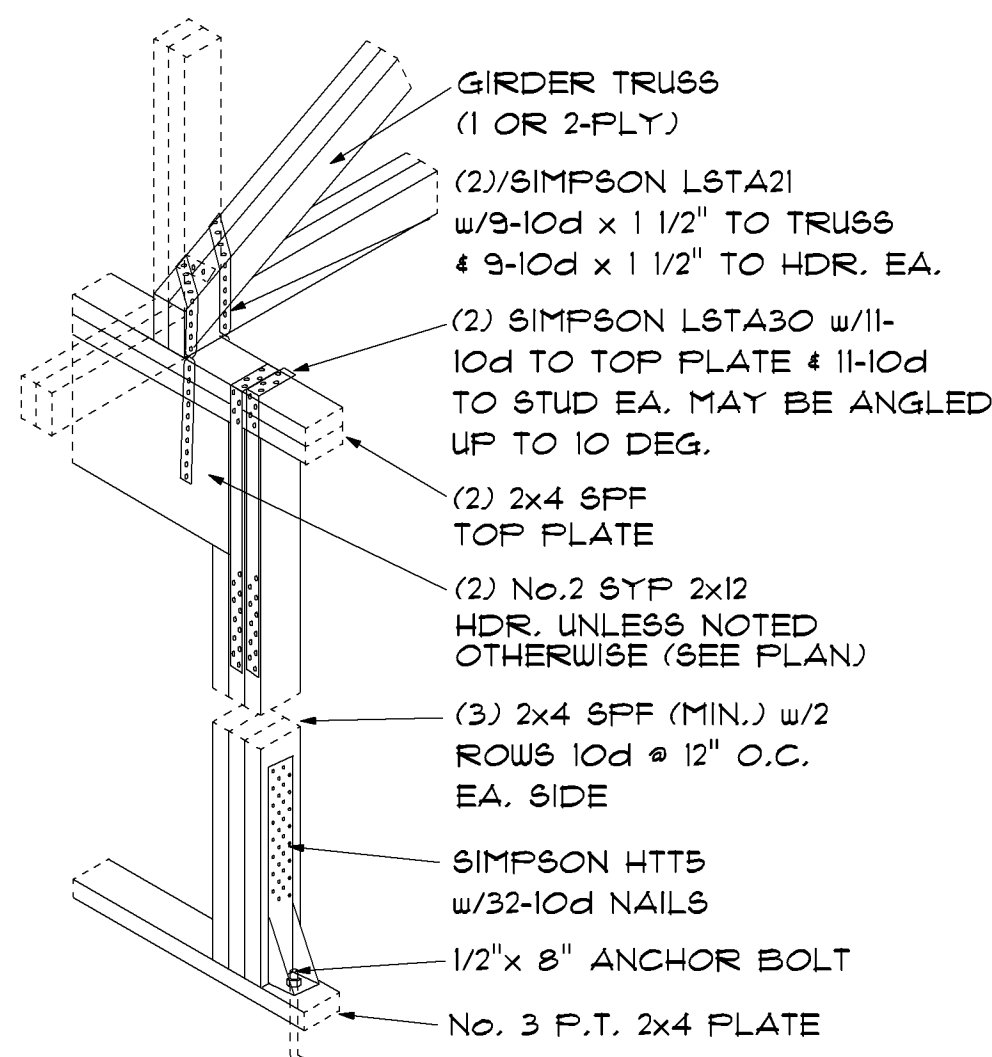
11 FRAME (EXT./BRG./SHEAR) WALL TO MASONRY DETAIL
N.T.S.



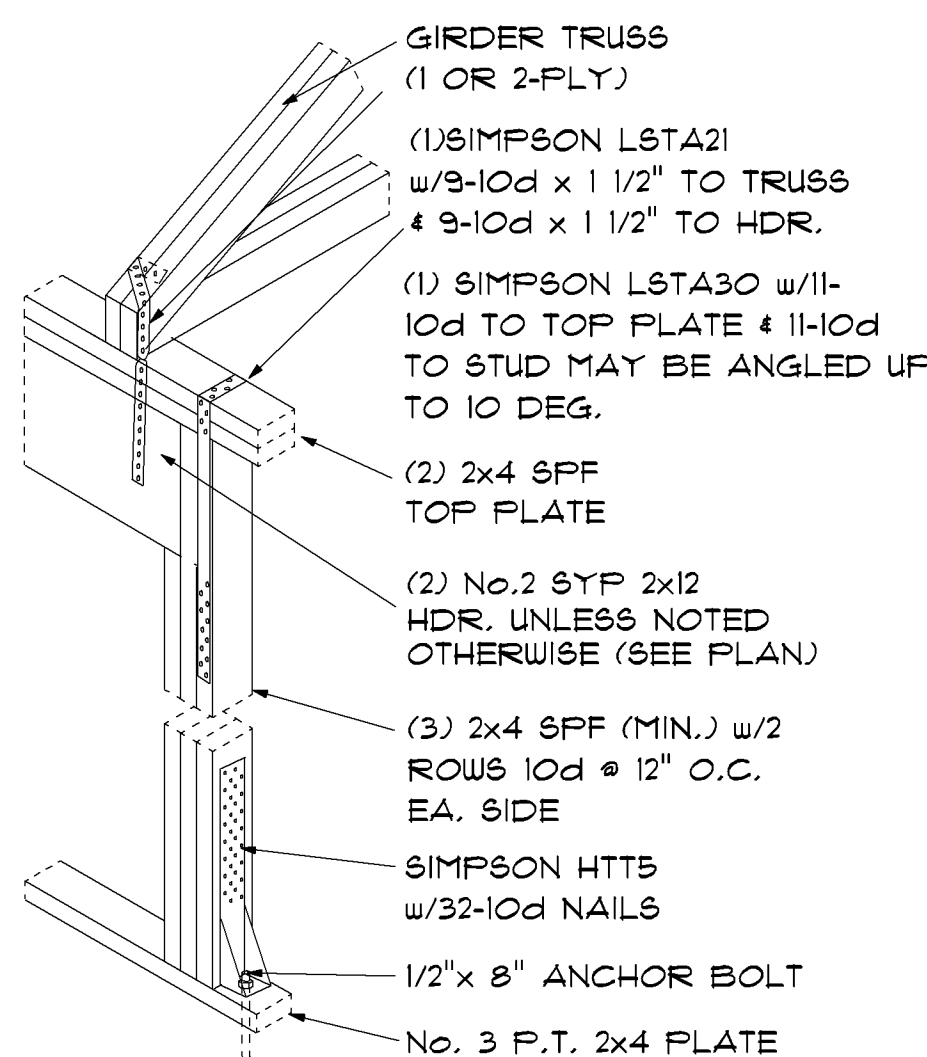
7 WINDOW INSTALLATION MASONRY OPENING
N.T.S.



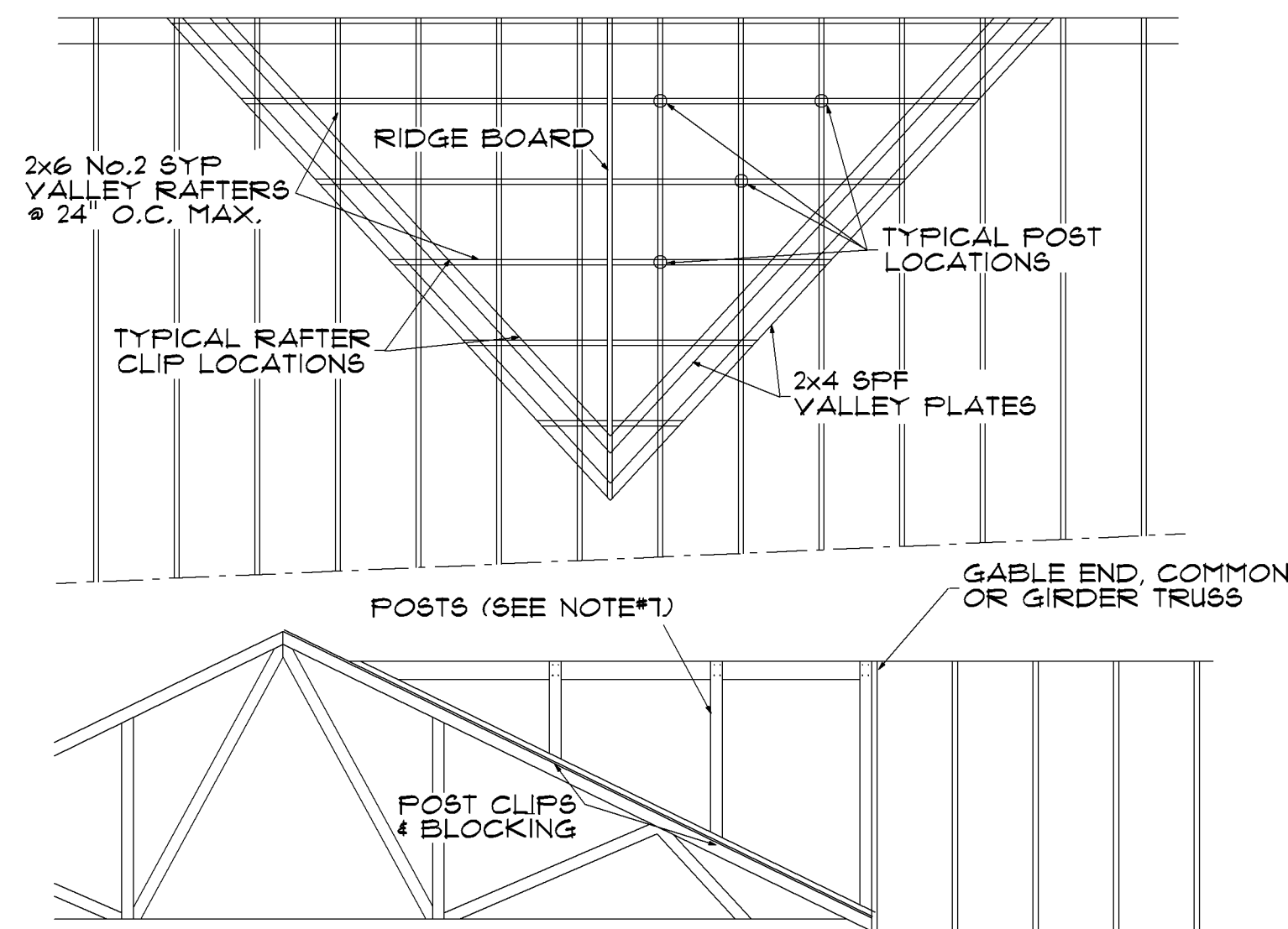
5 HEADER OPENING/ MED. UPLIFT
N.T.S. MAX. CAP. OF CONNECTION - 3885*



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

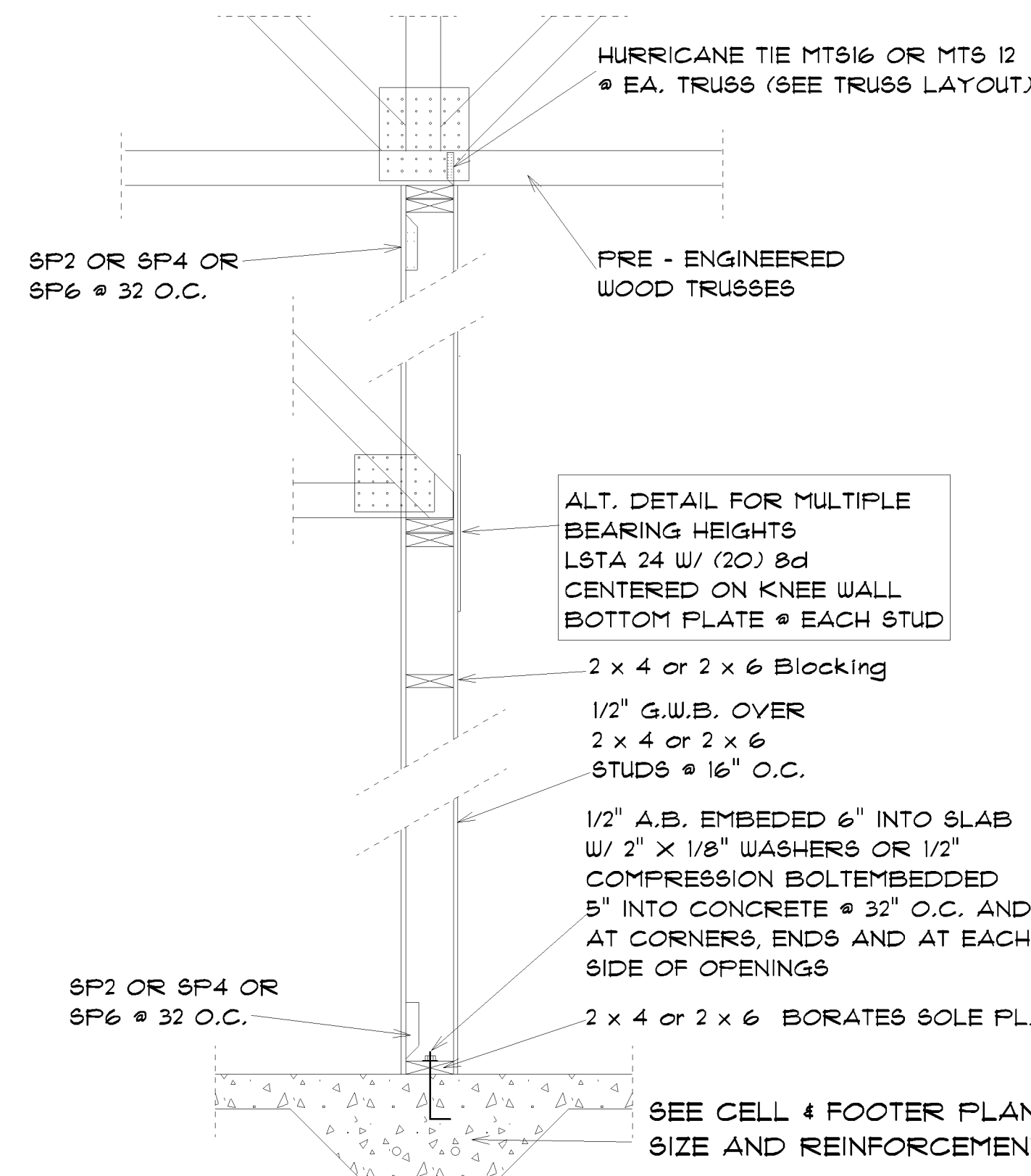


3 HEADER OPENING / LOW UPLIFT
N.T.S. MAX. CAP. OF CONNECTION - 1290*

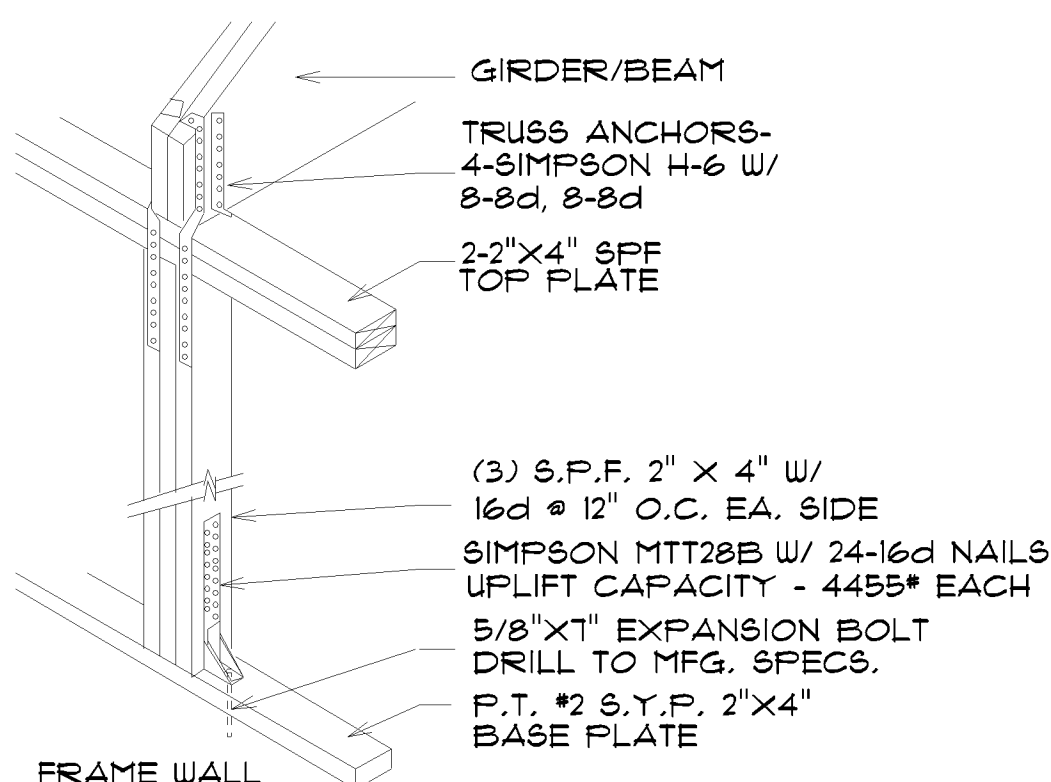


1. INSTALL BASE TRUSSES
2. APPLY SHEATHING TO TOP CHORD OF SUPPORTING TRUSSES. IF SHEATHING IS NOT APPLIED, PROVIDE 2x4 FURLINS AT 24" O.C. ON THE TOP CHORD OF THE SUPPORTING TRUSSES UNDER THE VALLEY FRAMING. CONNECT FURLINS TO EACH TRUSS WITH (2) 16d NAILS & (1) SIMPSON H2.5 OR EQUAL HURRICANE CLIP.
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 AT EACH CONNECTION.
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.

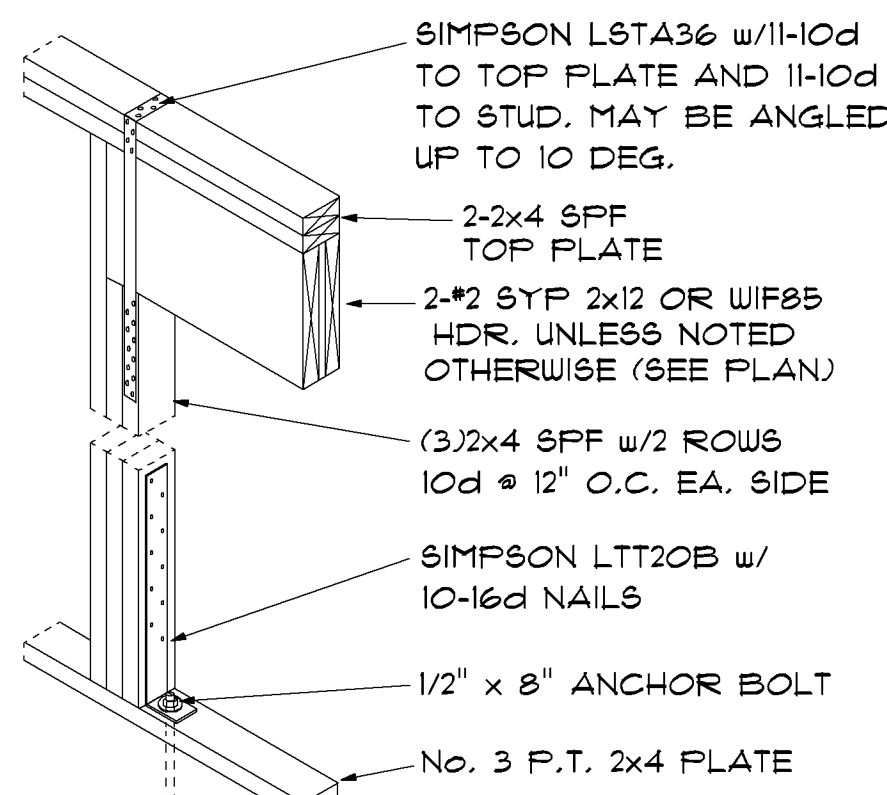
2 CONV. FRAMING & VALLEY DETAIL
N.T.S.



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



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



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

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_{max} = 124 MPH
RISK CATEGORY II
EXPOSURE ON PG. C-1
GUST EFFECT, G=0.85
TOPOGRAPHIC FACTOR = 1.0
WIND DIR. FACTOR K_z=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

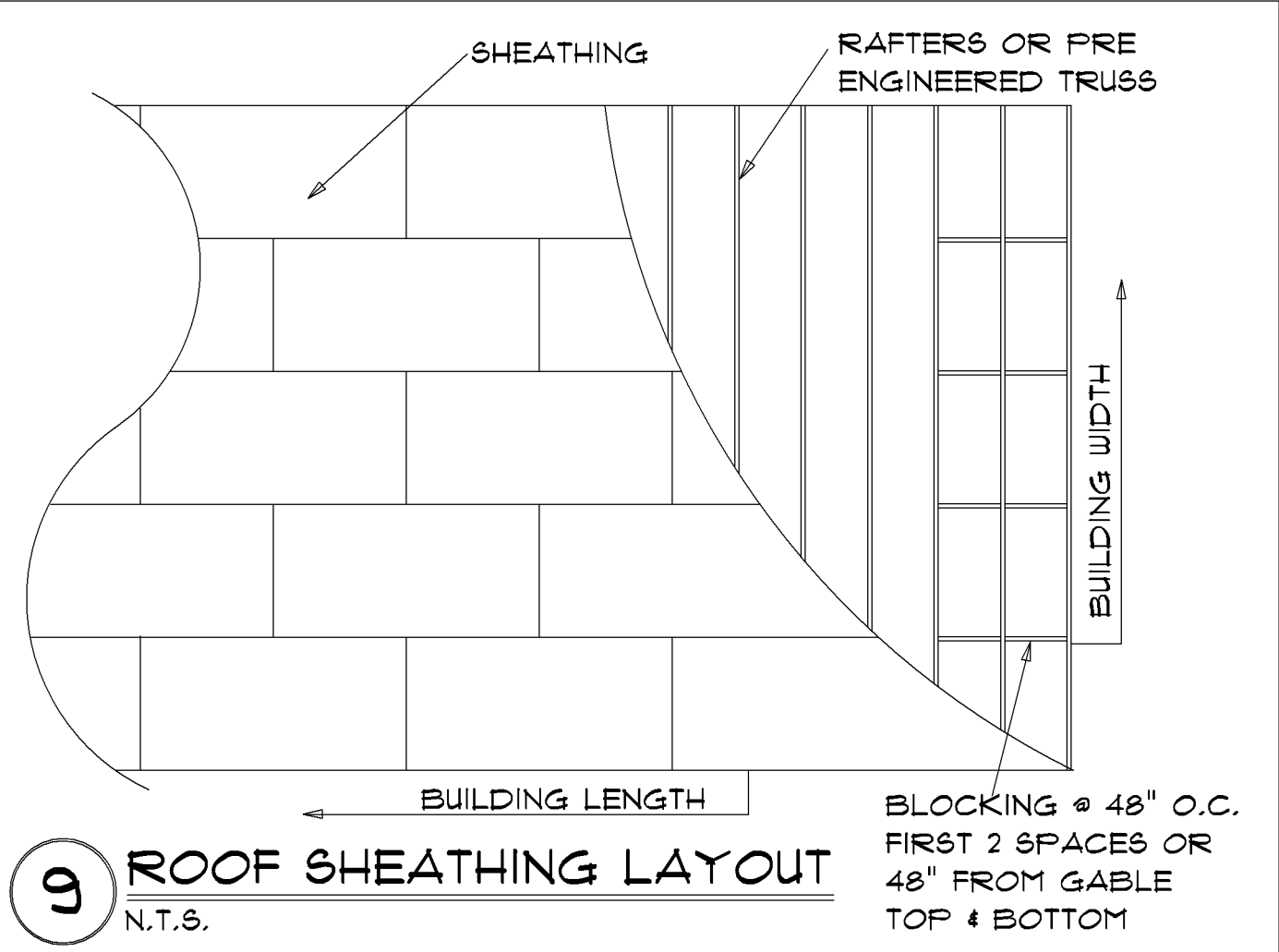
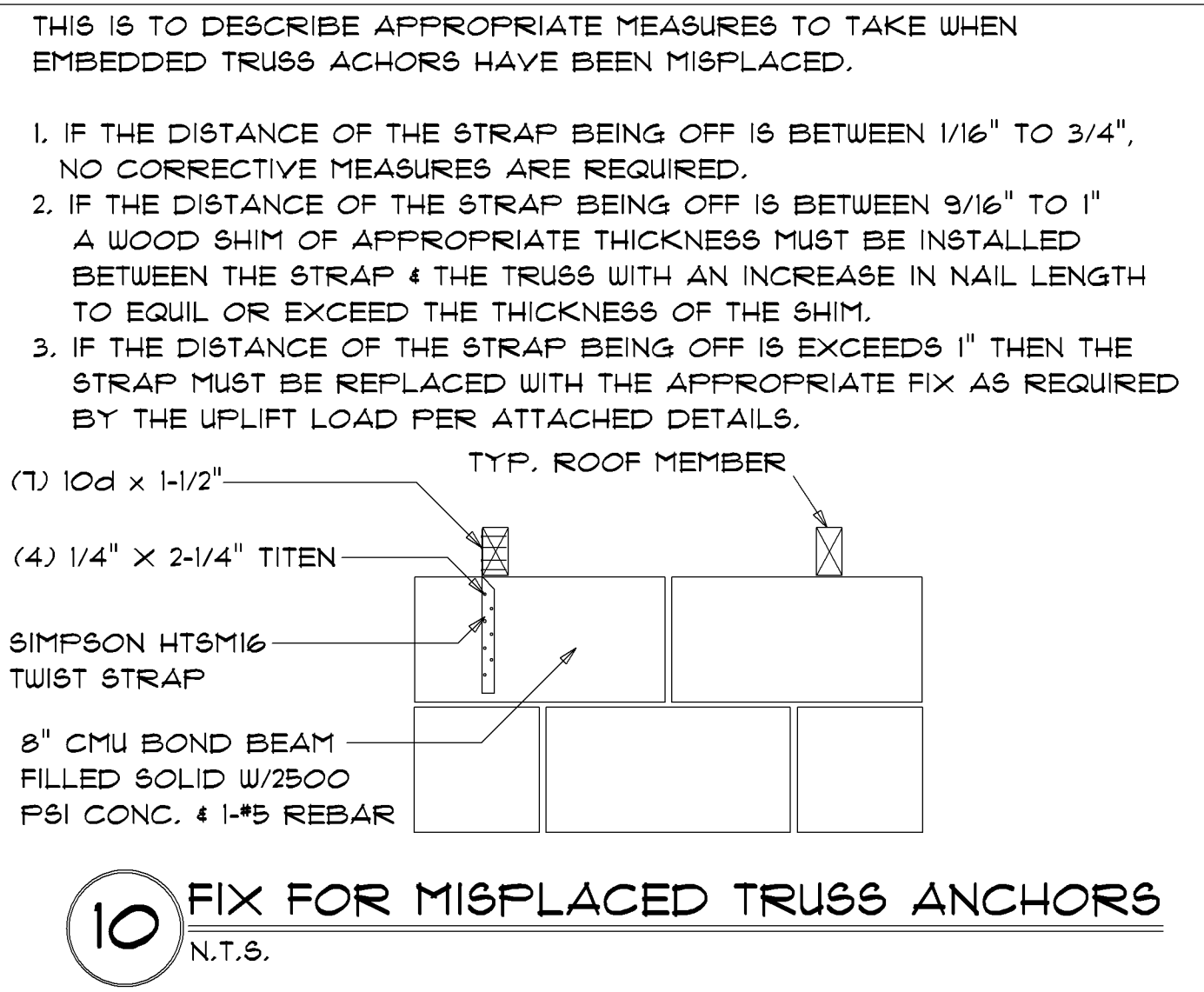
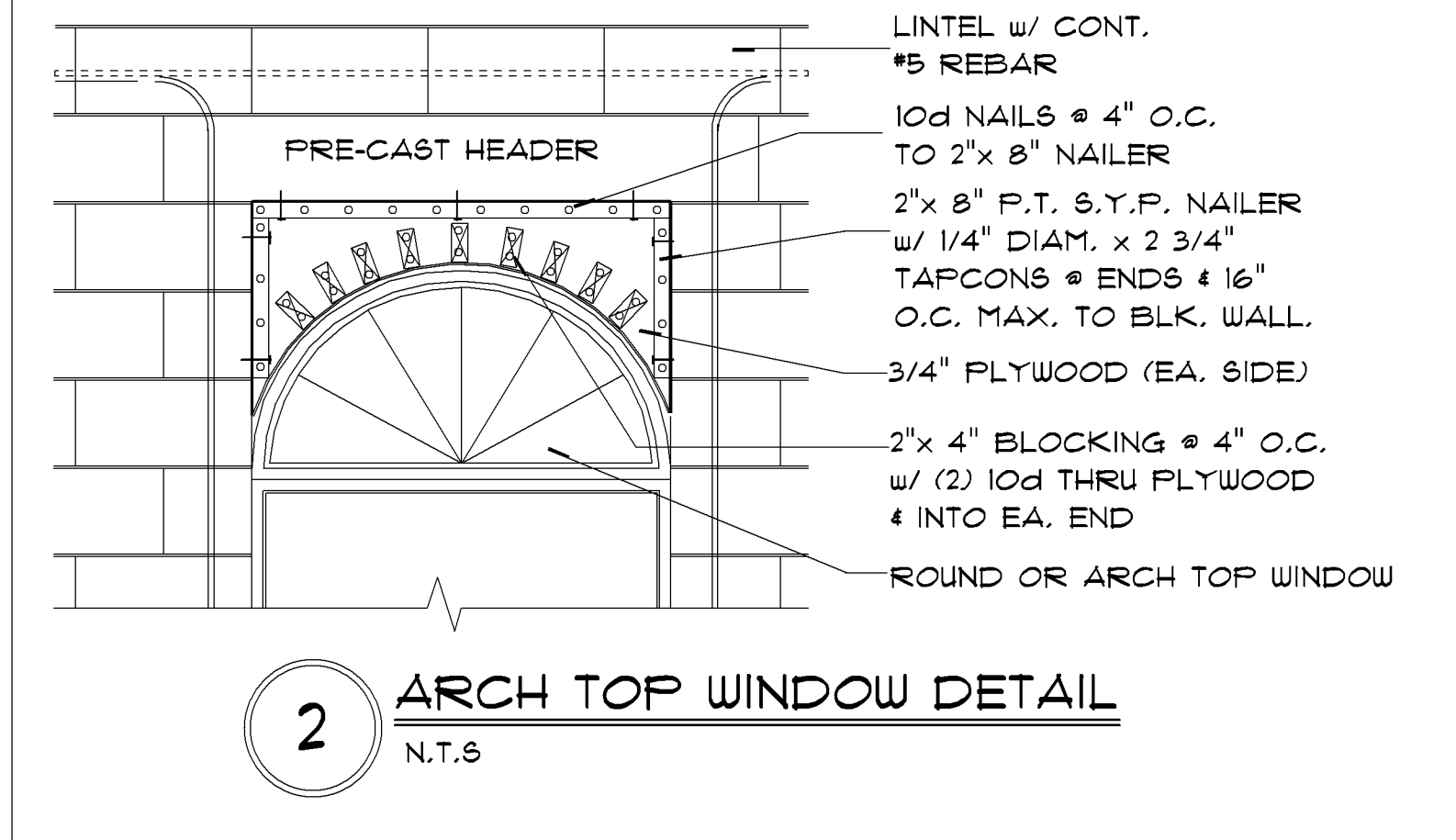
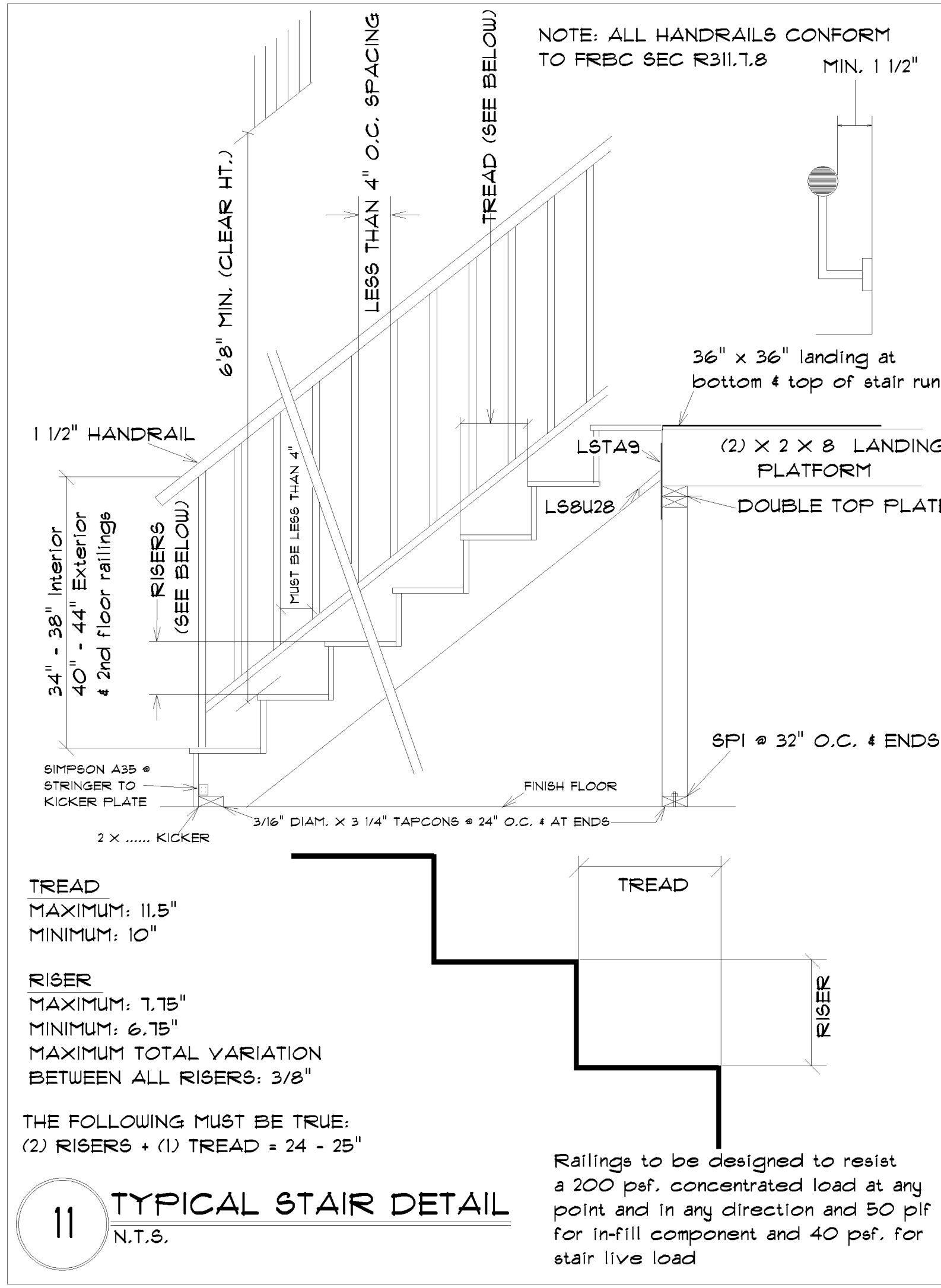
ENGINEERING SERVICES GROUP, LLC
391 W. Alfred St.
Tavares, FL 32718
352-388-1125 J. Lee Smith, P.E. #36177
CA#9886

James Lee Smith / P.E.

Drawn By
Michael Roberts

Detail
Typical

D-2



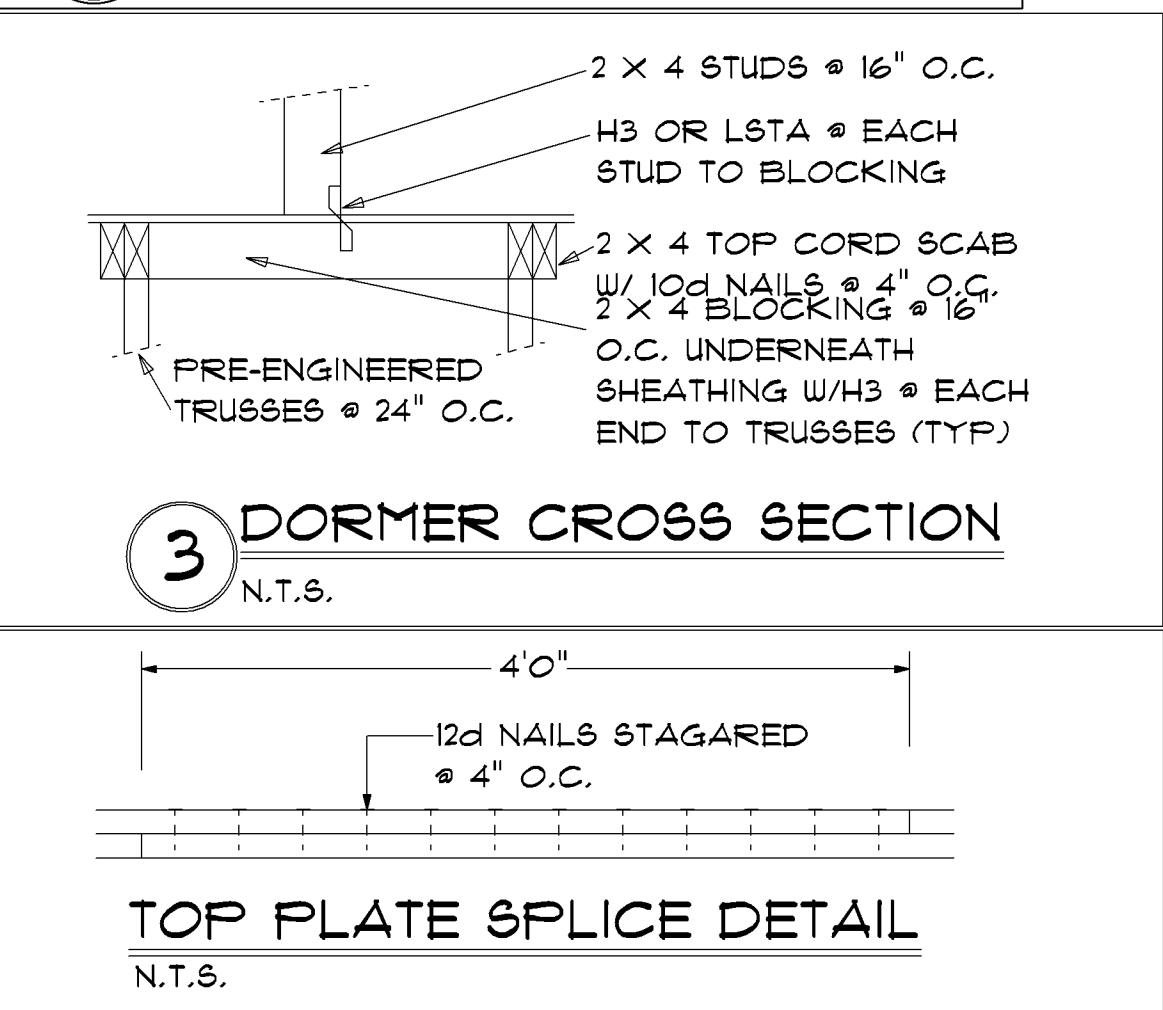
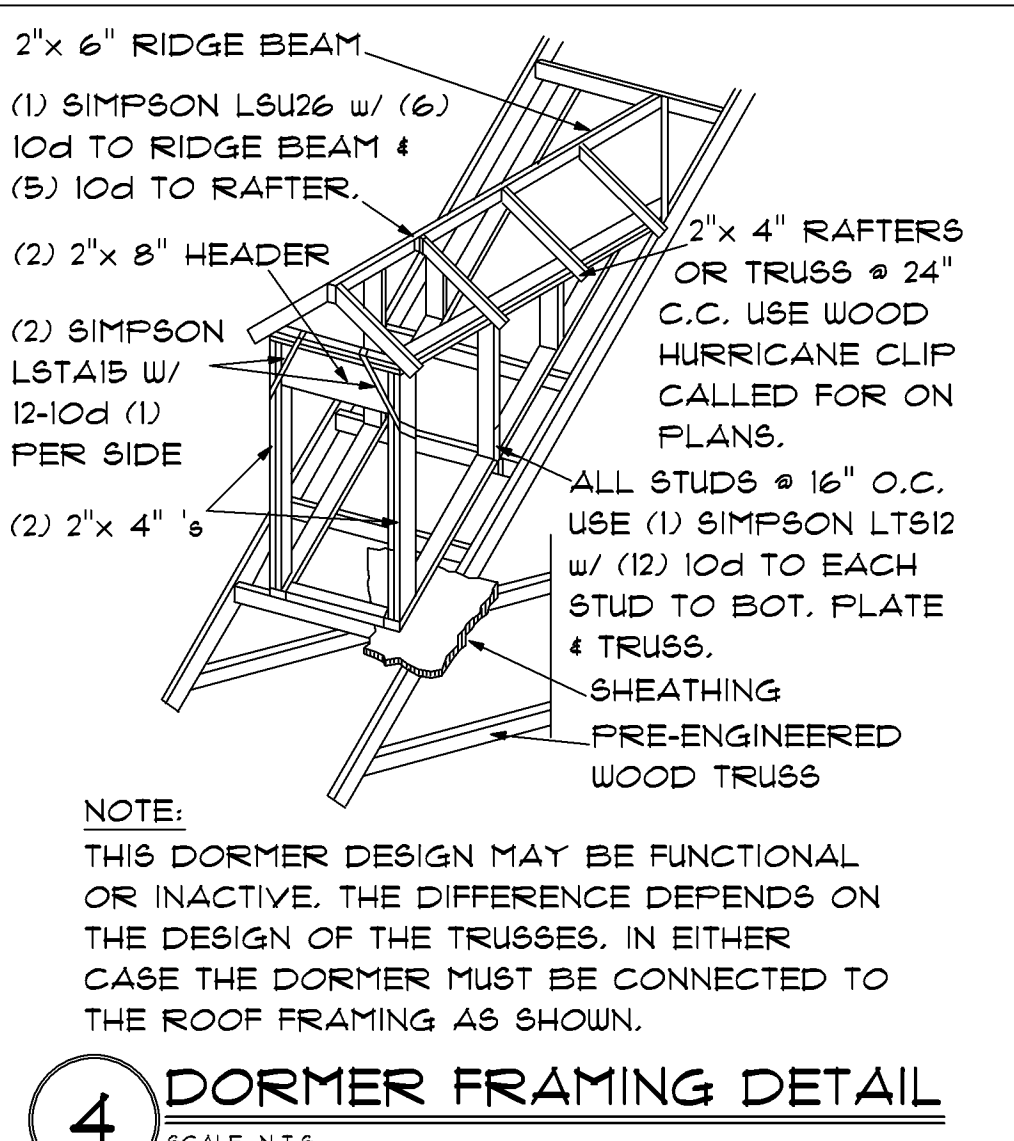
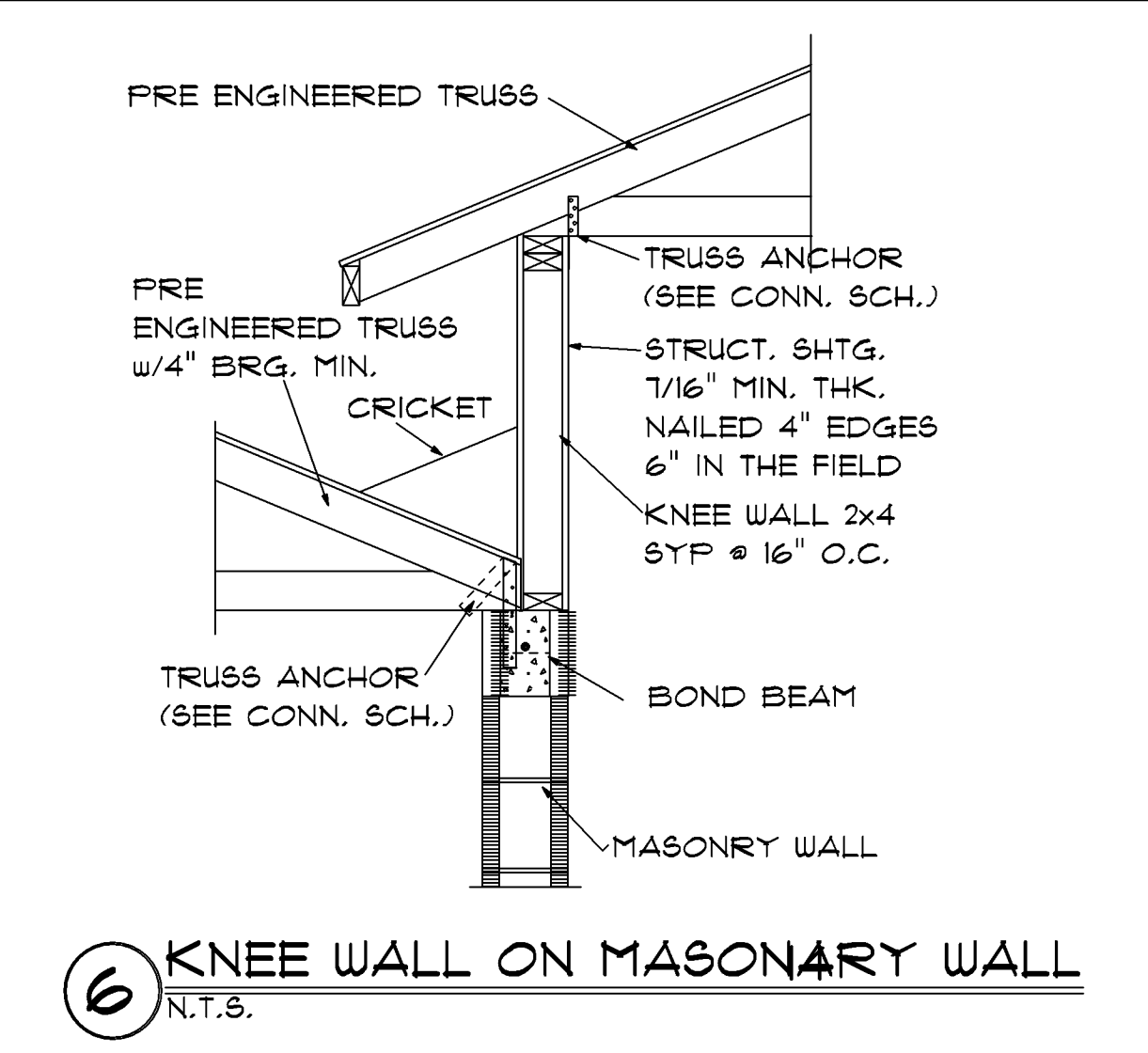
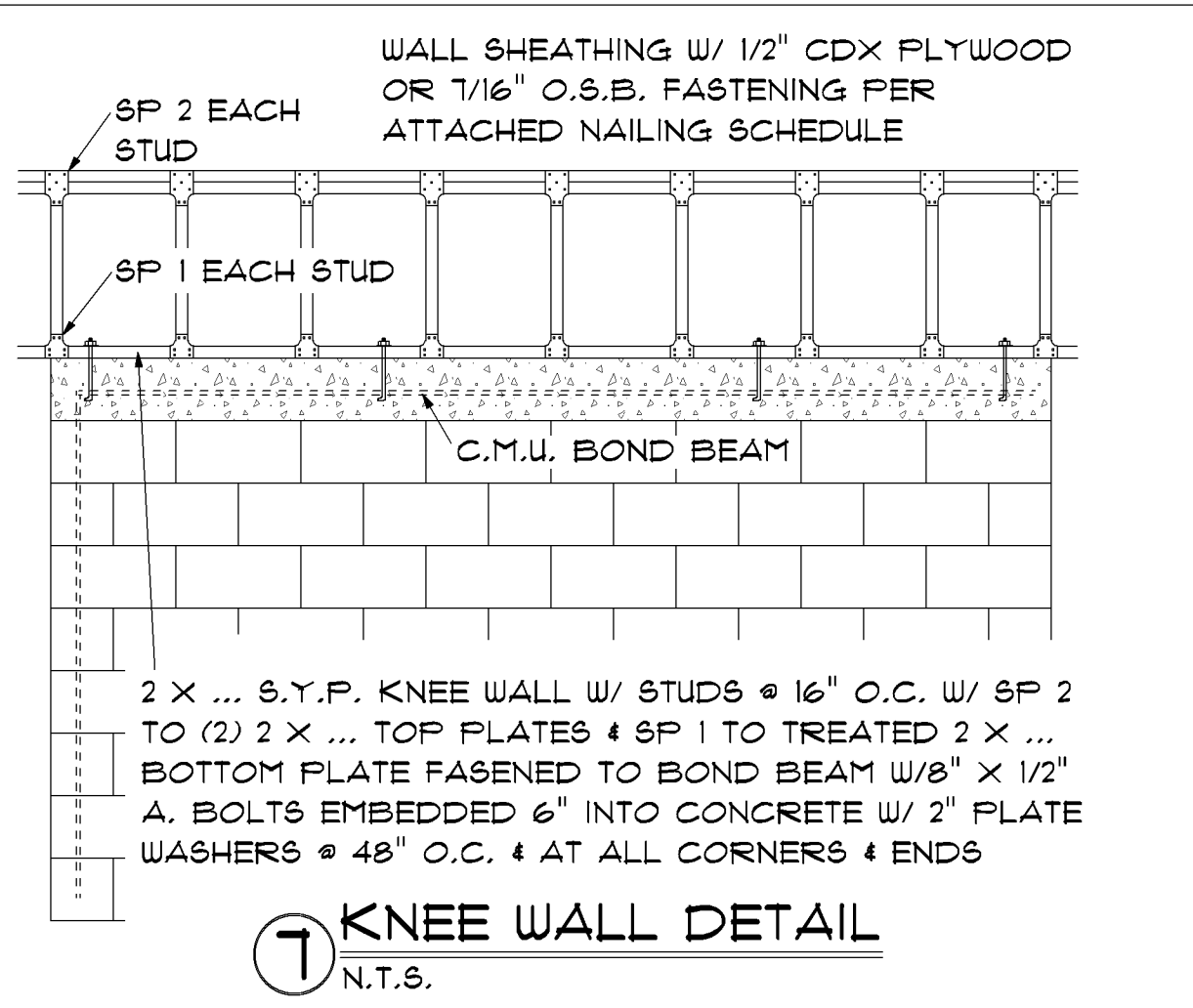
ROOF SHEATHING ATTACHMENT NAIL SPACING a, b

Rafter/Truss Spacing 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 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 (24/16)	7/16 (24/16)	7/16 (24/16)	7/16 (24/16)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)
Exposure B								
Minimum Sheathing Thickness, Inches (Panel Span Rating)	7/16 (24/16)	7/16 (24/16)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	23/32 (48/24)
Exposure C								
Minimum Sheathing Thickness, Inches (Panel Span Rating)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	23/32 (48/24)	23/32 (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_{basd} = 124 MPH

RISK CATEGORY II

EXPOSURE ON PG. C-1

TOPOGRAPHIC FACTOR = 1.0

GUST EFFECT, G=0.85

WIND DIR. FACTOR K_d=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

FLOOR LIVE LOAD = 40 PSF

ROOF LIVE LOAD = 20 PSF

ENGINEERING SERVICES GROUP, LLC
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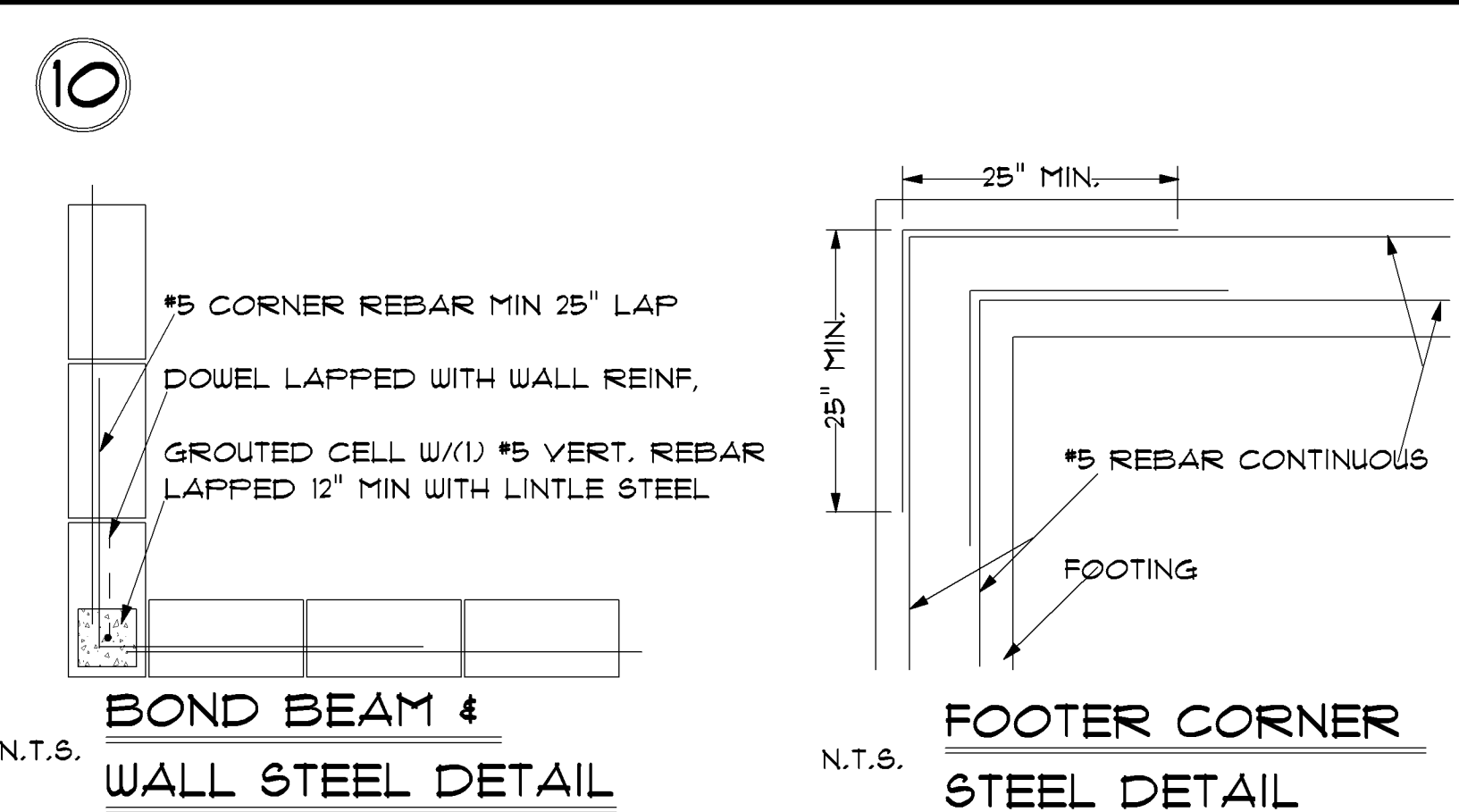
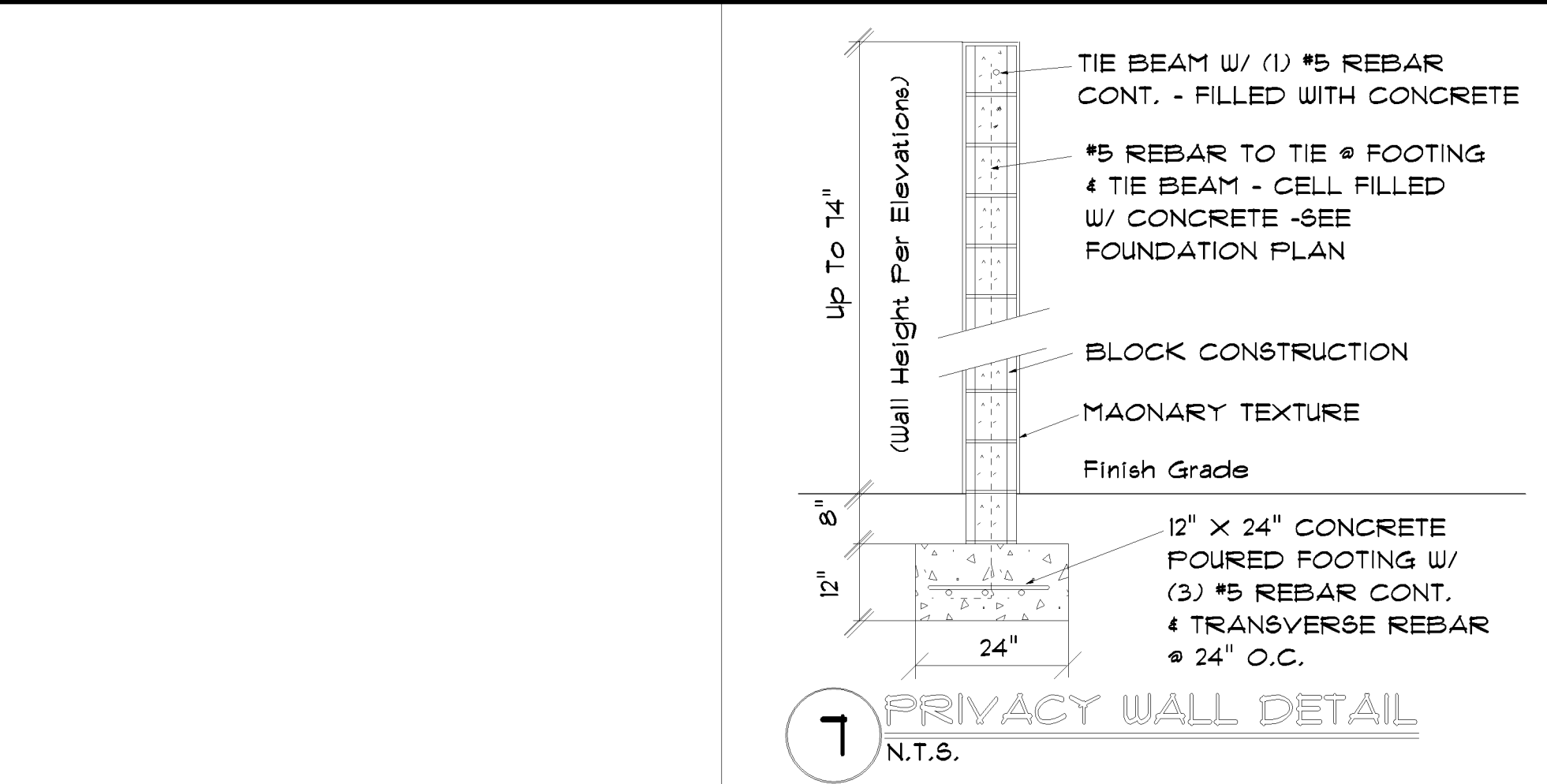
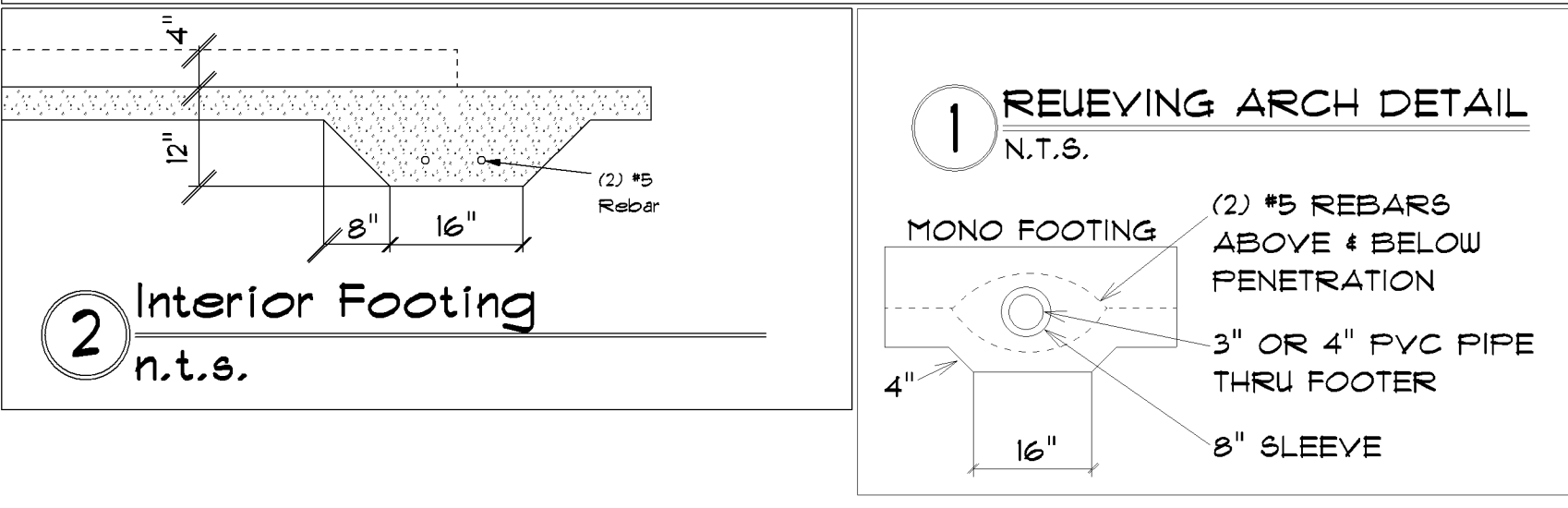
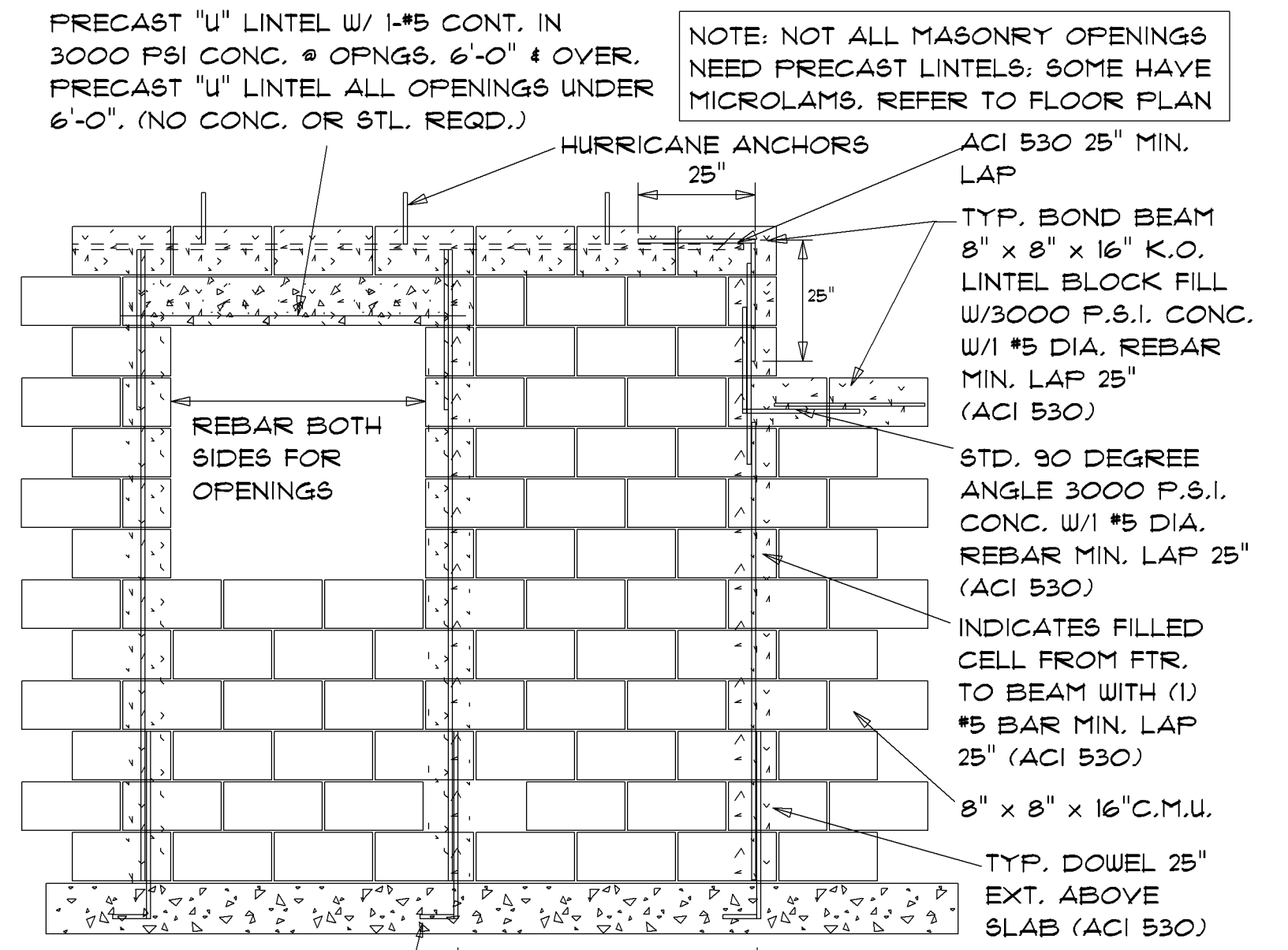
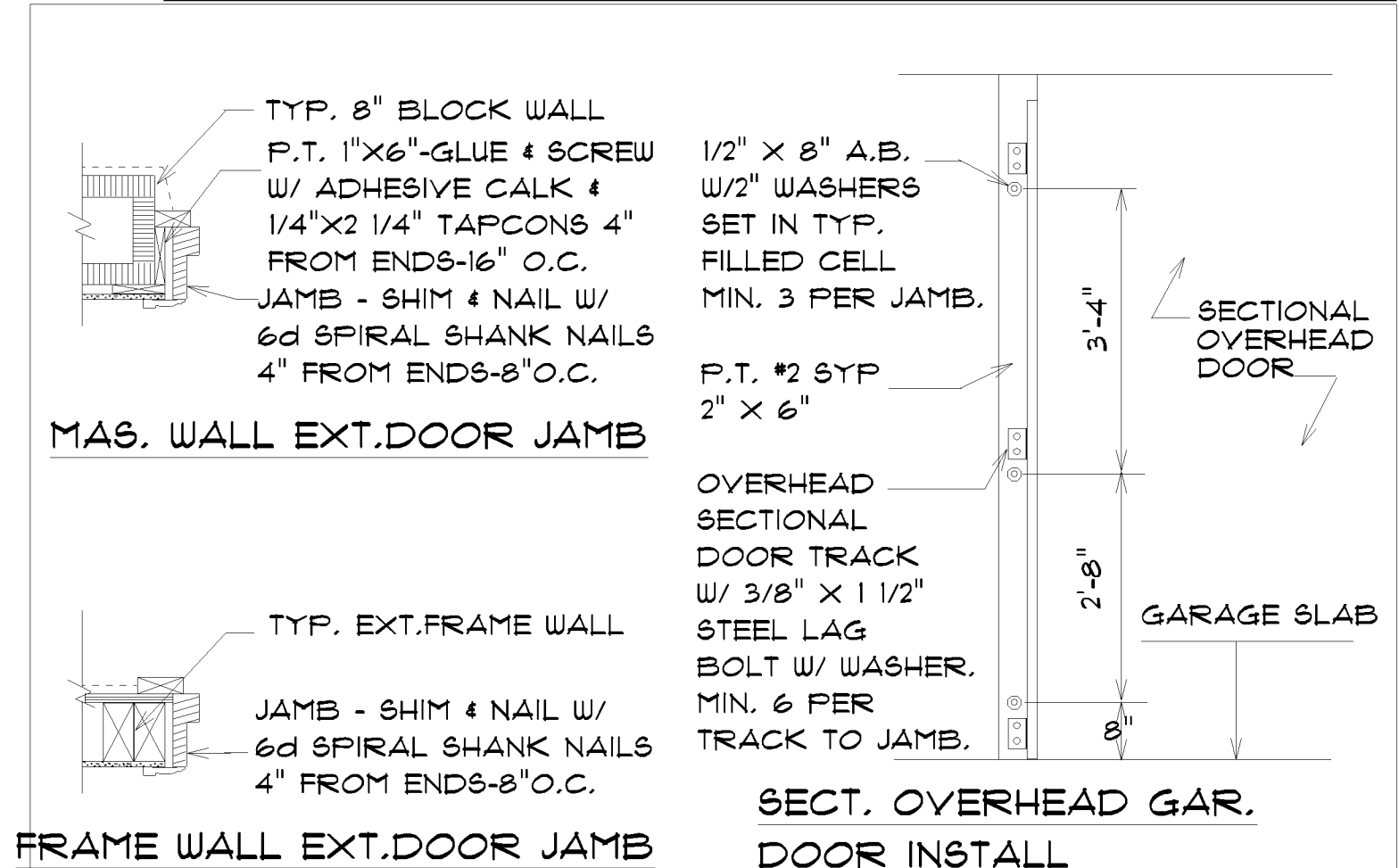
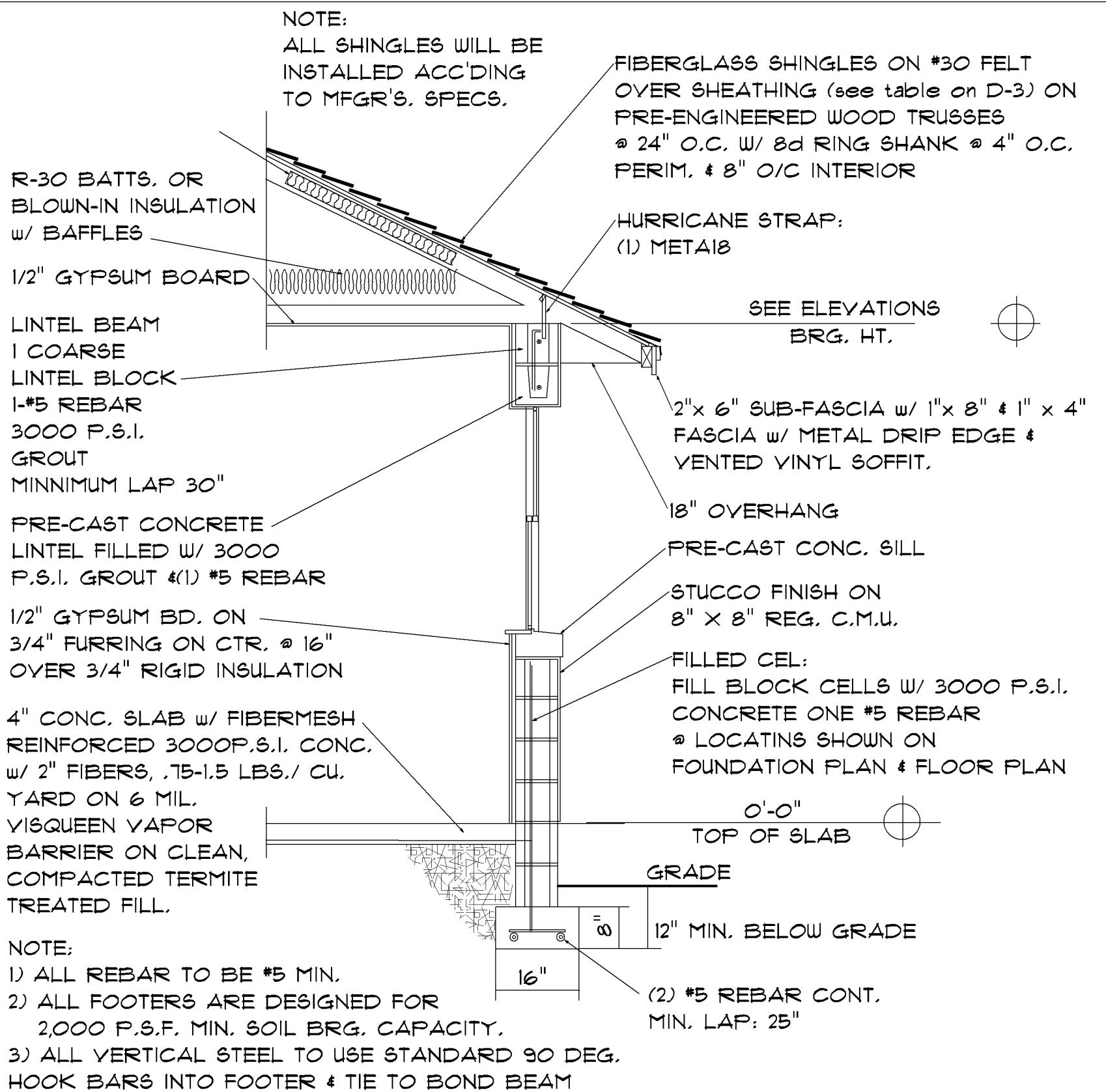
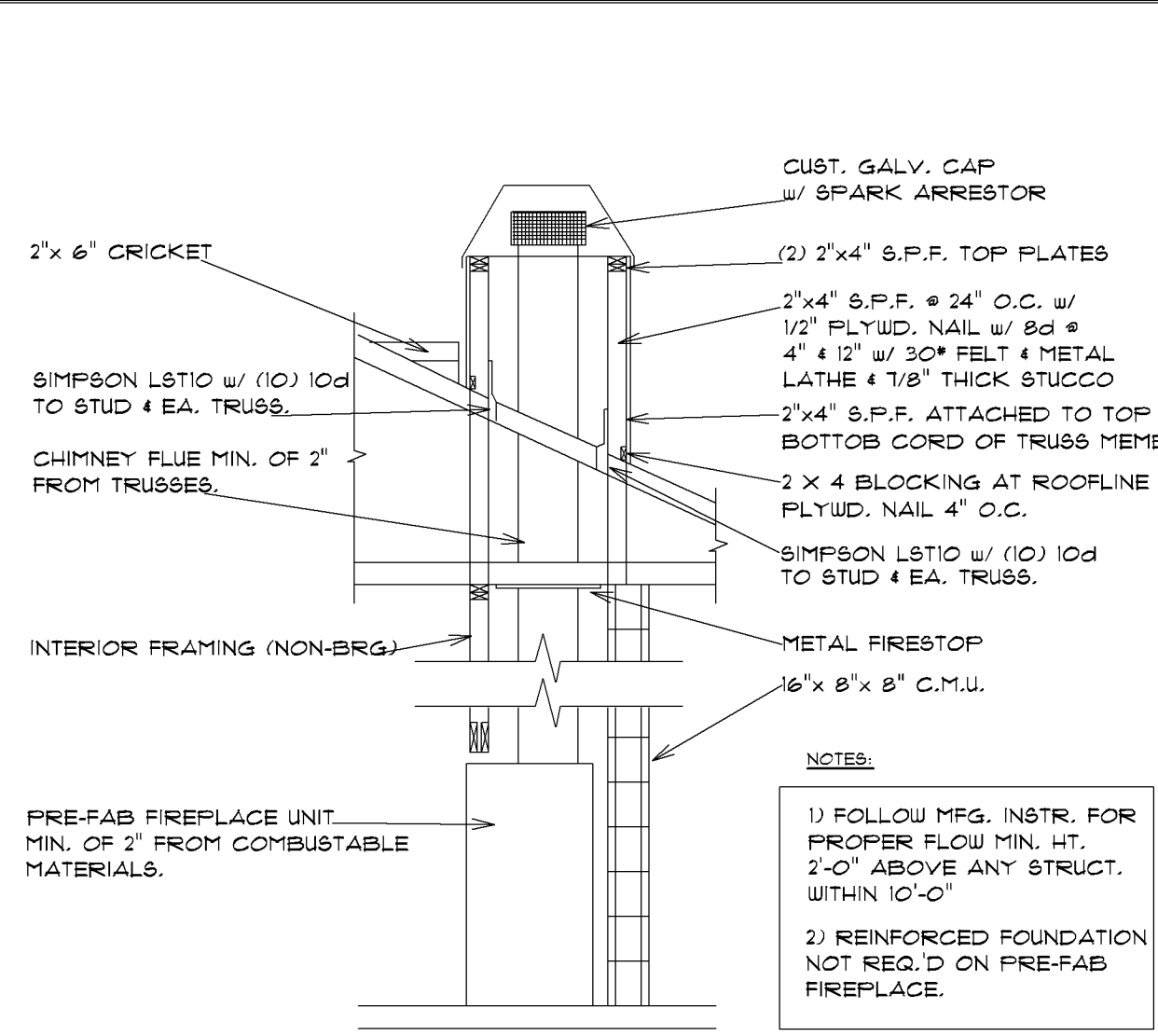
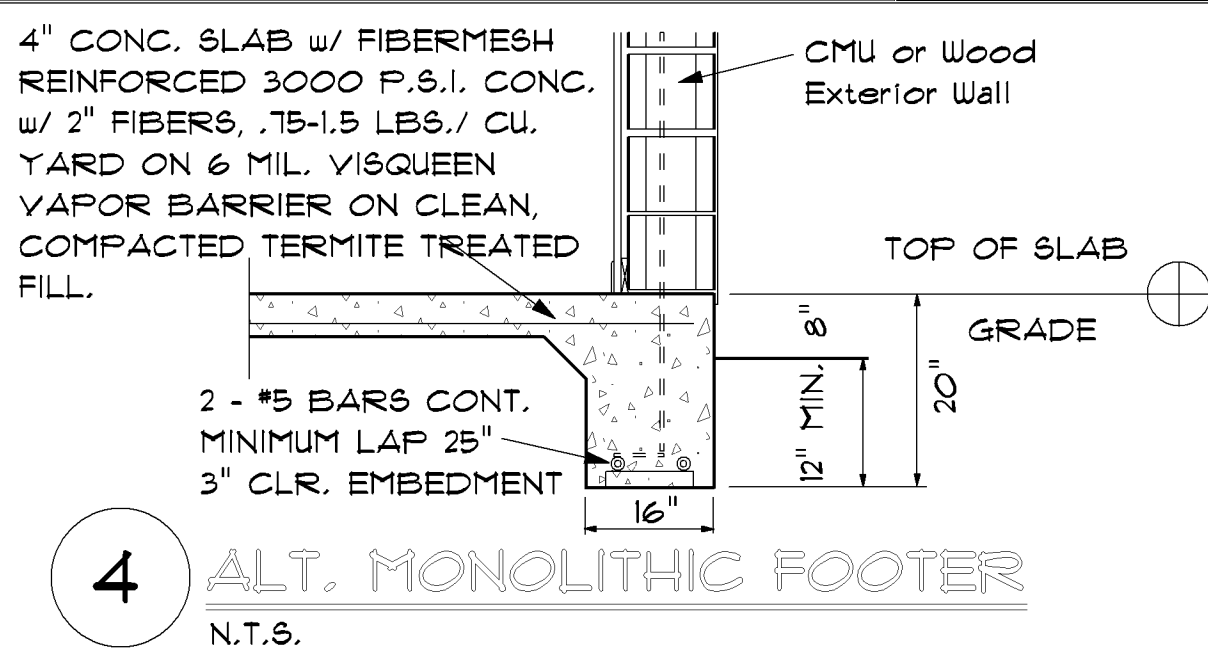
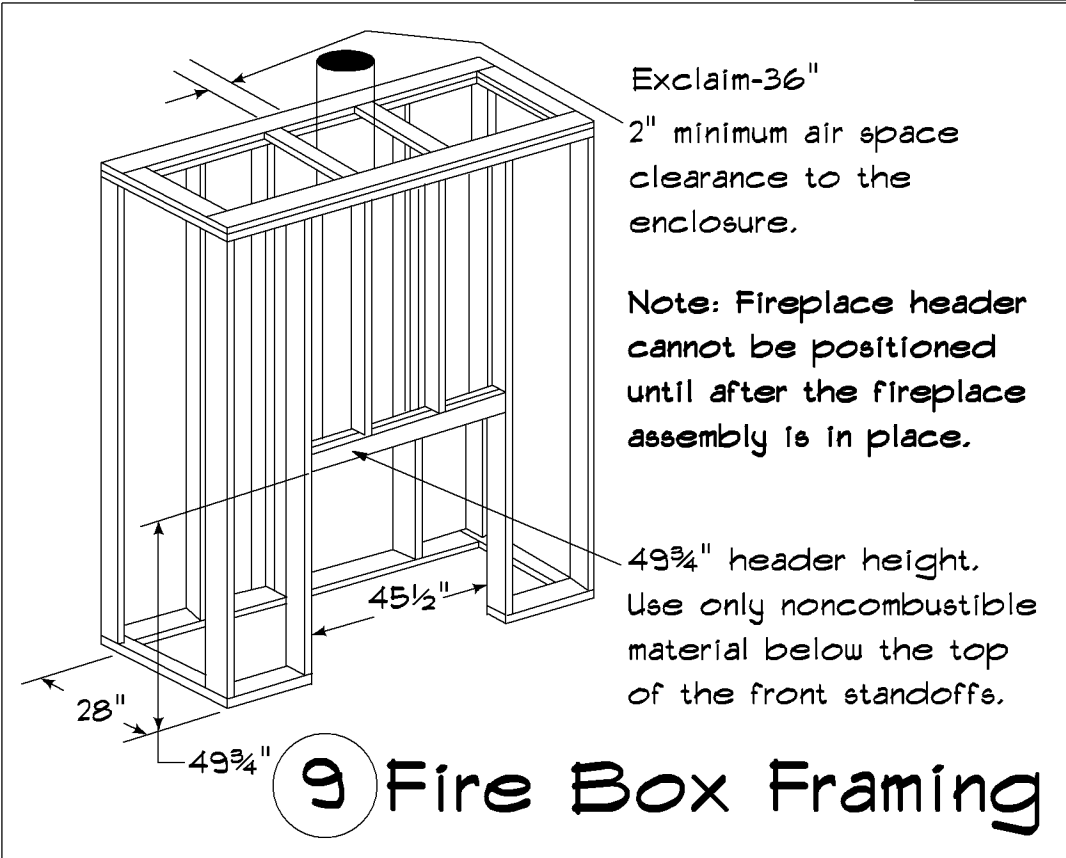
CA#8886

James Lee Smith / P.E.

Detail
Typical

D-3

Drawn By
Michael Roberts



FIX FOR MISSING OR MISPLACED DOWELS

THIS LETTER IS TO DESCRIBE ALTERNATIVES TO MITIGATE FOR CASTING REBAR VERTICAL REINFORCING AT AN INCORRECT LOCATION.

IF THE WALL HAS NOT BEEN BUILT DRILL A 1" DIAM. HOLE 6" DEEP INTO THICKENED EDGE OF SLAB AT THE CORRECT LOCATION. EPOXY A 30" LONG #5 REBAR INTO DRILLED HOLE. AS THE WALL IS BUILT, LAP REBAR A MINIMUM OF 25" & BEND VERTICAL BAR 90 DEG. TO ACHIEVE A 12" LONG LAP WITH THE CONTINUOUS REBAR IN THE TIE BEAM.

IF THE WALL HAS BEEN BUILT, OPEN WALL AT THE CORRECT LOCATION APPROX. 16" HIGH & 4" WIDE OFF THE FLOOR. DRILL HOLE & INSTALL REBAR AS DESCRIBED ABOVE, LAP VERTICAL STEEL AS DESCRIBED ABOVE INTO TIE BEAM, FORM WALL & POUR SOLID WITH 3000 PSI GROUT

FIX FOR MISSING OR MISPLACED ANCHOR BOLTS

THIS LETTER IS TO DESCRIBE ALTERNATIVES TO ANCHOR BOLTS IN THE SLAB & BOND BEAM.

IF THE BOLT TO BE INSTALLED MEETS THE MIN. CONCRETE EDGE DIST. AS SPECIFIED BY THE MFG. OR IS AT LEAST 2 3/4" FROM ANY EDGE FOR 1/2" BOLTS & 3 1/2" FOR 5/8" & 3/4" BOLTS, THEN A STANDARD EXPANSION BOLT EMBEDDED 6" MIN. & THE SAME DIAM. AS THE ANCHOR BOLT MAY BE USED.

IF THE BOLT TO BE INSTALLED DOES NOT MEET THE MIN. CONCRETE EDGE DIST. AS SPECIFIED ABOVE THEN INSTALL A EPOXY ANCHOR, EMBEDDED 6" MIN. & THE SAME SIZE AS THE ANCHOR BOLT TO BE REPLACED

FIX FOR CMU BLOW OUT AT BOND BEAM

THIS LETTER IS TO DESCRIBE ALTERNATIVES FOR BLOWN OUT CMU IN THE BOND BEAM

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF CBC 2023, 8th EDITION, AND ASCE 7-22 FOR VUL=160 MPH WIND SPEED, V_{max} = 124 MPH RISK CATEGORY II EXPOSURE ON PG. C-1 GUST EFFECT, G=0.85 FULLY ENCLOSED TOPOGRAPHIC FACTOR = 1.0 WIND DIR. FACTOR K_d=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

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James Lee Smith / P.E.

Drawn By
Michael Roberts

Detail
Typical

D-4

CONNECTOR SCHEDULE 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 (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		810 875 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.

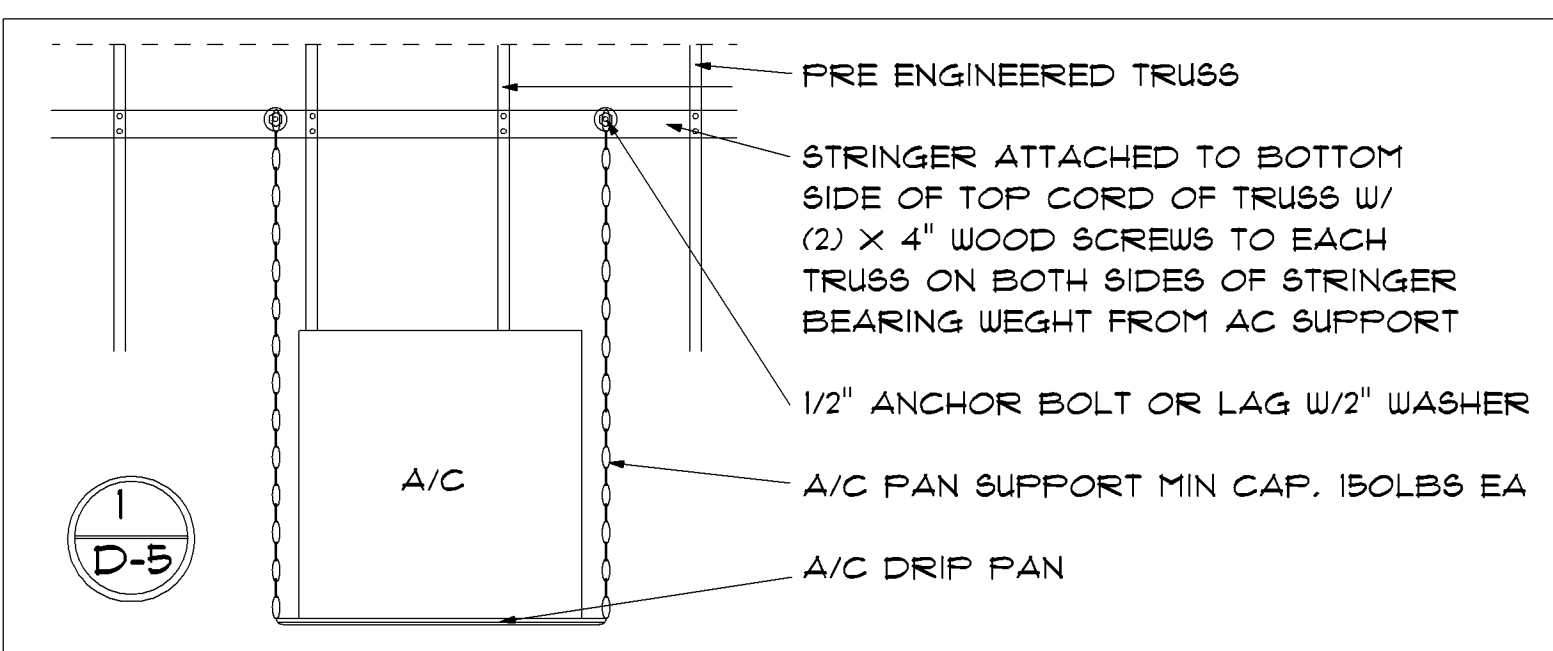
CONNECTOR SCHEDULE SIMPSON			
•	CONNECTOR	FASTNERS	UPLIFT (lbs)
1	META18	(8)10d X 1-1/2"-PLY (6) 16d X 3-1/2"2-3PLY	1,450
2	HETA20	1 PLY (9) 10d X 1.5 2/3 PLY (8) 16d X 3-1/2"	1,810
3	MTS12 OR MTS 16	(14)10d	990
4	H3	(8) 8d	400 UPLIFT 170 LATERAL
5	HD9B	7/8" ANCHOR BOLT (3) 7/8" BOLTS THRU	7,910
6	HTS20	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 (4) 10d X 3" TO PLATE	555
10	SP2	(6) 10d X 3" TO STUD (6) 10d X 3" TO PLATE	1,010
11	SP4	(6) 10d X 1.5 TO STUD	415 SIDE 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 (6) 16d X 3 1/2 TO JOIST	1,320
20	HGU548	(36) 16d X 3 1/2 TO FACE (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 (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 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)

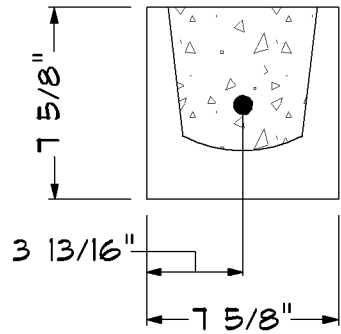
TOTAL ALLOWABLE SUPERIMPOSED LOAD - POUNDS PER LINEAR FOOR			
MARK NO.	NOMINAL CELAR SPAN	TOTAL LINTLE SIZE	FILLED (1) #5 T4B C
L-1	1'6"	2'10"	12374
L-2	2'2"	3'8"	8488
L-3	2'8"	4'0"	8868
L-4	3'2"	4'6"	5772
L-5	4'0"	5'4"	4546
L-6	4'6"	5'10"	4028
L-7	5'2"	6'8"	3382
L-8	6'2"	7'8"	2908
L-9	7'0"	8'4"	2548
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)

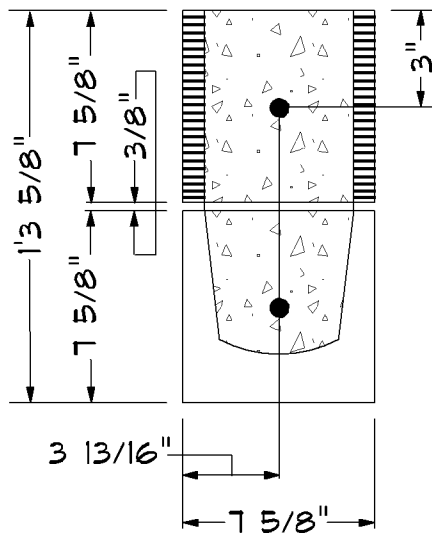
TOTAL ALLOWABLE SUPERIMPOSED LOAD - POUNDS PER LINEAR FOOR			
MARK NO.	NOMINAL CELAR SPAN	TOTAL LINTLE SIZE	FILLED (1) #5 T4B L
L-1	1'6"	2'10"	19724
L-2	2'2"	3'8"	13599
L-3	2'8"	4'0"	11004
L-4	3'2"	4'6"	9250
L-5	4'0"	5'4"	7287
L-6	4'6"	5'10"	6458
L-7	5'2"	6'8"	5548
L-8	6'2"	7'8"	4885
L-9	7'0"	8'4"	4089
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

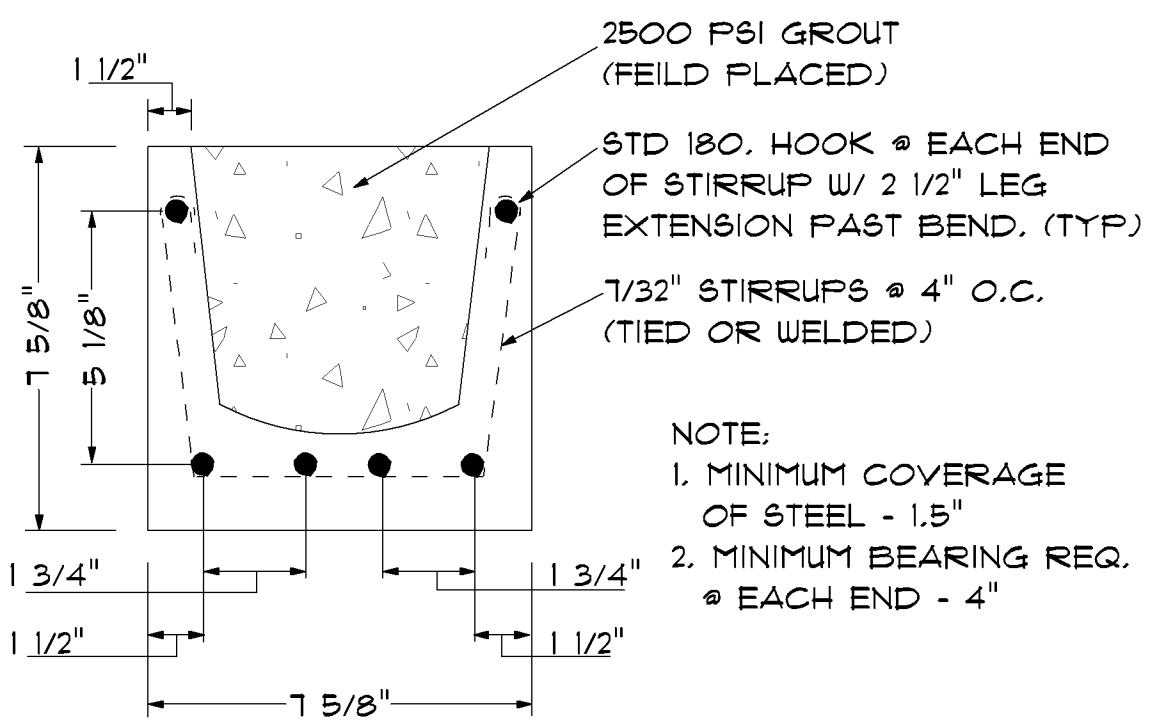


DETAIL C

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, 7TH EDITION, AND ASCE 7-10 FOR VULNERABLE WIND SPEED, V_{WIND} = 124 MPH
RISK CATEGORY II
EXPOSURE LISTED ON C-1
TOPOGRAPHIC FACTOR = 1.0
WIND DIR. FACTOR K_z = 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
352-388-1735 J. Lee Smith, P.E. #36177

James Lee Smith / P.E.

Drawn By
Michael Roberts

Detail
Typical

D-5