Commonwealth of Massachusetts

Manufactured Buildings Program

Transmittal Form for all correspondences relating to Manufactured Buildings and Building Components

To: Linda McAlister factured Buildings Program	Phone Number:	Date Transmitted
Linda.McAlister e.ma.us	508-422-1955	7/12/17
Commonwealth of Massachusetts	Department of Public Safety	
Board of Building Regulations and Standards	50 Maple Street, Suite One	
Milford	Massachusetts	01757-3698

The person forwarding this material shall complete the following portion of this transmittal

Name of Person Transmitting Material	MC Number	TPIA Number
Brett Hebert	352	02

The following information is being transmitted to the Board of Building Regulations and Standards and / or the Department of Public Safety for reasons detailed below (Please check the appropriate box or give a further description of the transmitted items under the section labeled *other*. Be sure to identify the appropriate Use Group.)		Please indicate the Distinct Model and / or Serial Number pertaining to transmitted items	Use Group
Building Plans for Review and Approval	☐		
Building Plans forwarded as a record copy for your files (Review not required)	☒	ON#6861	R-3
Revised building plans for review. (Please clearly identify revisions on the plans.)	☐		
Revised Building Plans forwarded as a record copy for your files (Review not required - Please clearly identify revisions on the plans.)	☐		

Compliance Assurance Programs	Original Submission	☐	Modification to:		☐
Calculations Manual	Original Submission	☐	Modification to:		☐
Installation Manual	Original Submission	☐	Modification to:		☐
Systems Drawings	Original Submission	☐	Modification to:		☐

Other - Provide a detailed description of any other materials which are being transmitted. **Identify any revisions clearly along with BBRS number.** Also, identify the requested action.

Site Location: 10 HARBOR WAY, POCASSET, Ma 02559 (BARNSTABLE COUNTY)

The office transmitting this information has reviewed the above mentioned and attached materials and has found them, to the best of our knowledge and abilities, to be in compliance with the codes and \ or rules and regulations for the Commonwealth of Massachusetts' Manufactured Building Program, as applicable

Signed By for TPIA:	BBRS No: assigned by Mass.	Signed By for MASS:
Digitally signed by Harold Raup DN: cn=Harold Raup, o=PFSTECO, ou, email=harold.raup@pfsteco.com, c=US Date: 2017.07.20 06:51:23 -04'00'		

Print Form

DRAWING INDEX

SHEET#	DESCRIPTION
CV	COVER SHEET
EV1	FRONT ELEVATION
EV2	REAR ELEVATION
EV3	LEFT ELEVATION
EV4	RIGHT ELEVATION
FP1	1ST STORY FLOOR PLAN
FP2	2ND STORY FLOOR PLAN
SW1	1ST STORY SHEAR WALL PLAN
SW2	2ND STORY SHEAR WALL PLAN
EL1	1ST STORY ELECTRICAL PLAN
EL2	2ND STORY ELECTRICAL PLAN
ELC	ELECTRICAL LOAD CALCS
CS	CIRCUIT SCHEDULE
FND	FOUNDATION PLAN
TR1	12/12 RAFTER
TR2	12/12 RAFTER CONNECTIONS
TR3	4.5/12 SHED RAFTER
TR4	4.5/12 SHED RAFTER CONNECTIONS
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TR8	S/L HEADER DETAIL
SE1	12/12 CROSS SECTION
SE2	4.5/12 SHED CROSS SECTION
SE3	4.5/12 CROSS SECTION
SE4	HIGH WIND SECTION
SE5	HIGH WIND FASTENING
DWS	DOOR AND WINDOW SCHEDULE
PL1	PLUMBING DETAILS
PL2	PLUMBING DETAILS
PL3	PLUMBING NOTES
HL1	1ST STORY HEATLOSS
HL2	2ND STORY HEATLOSS
	RES CHECK
	HIGH WIND CALCS
	RAFTER CALCS

CLASSIFICATION

OCCUPANT LOAD:	SINGLE FAMILY
USE GROUP:	R-3
CONSTRUCTION TYPE:	VB WOOD FRAME UNPROTECTED

DESIGN LOADS

ROOF LIVE LOAD:	30 PSF GSL
ROOF DEAD LOAD:	10 PSF
CEILING DEAD LOAD:	10 PSF
CEILING LIVE LOAD:	20 PSF (STORAGE) / 30 PSF (HABITABLE)
FLOOR LIVE LOAD:	40 PSF
FLOOR DEAD LOAD:	10 PSF
HORIZONTAL WIND LOAD:	110 MPH @ 3 SEC GUST
EXPOSURE:	C
GROUND SNOW LOAD:	30 PSF
SEISMIC CATEGORY:	B

APPLICABLE CODES

MA 1&2 FAMILY DWELLING CODE -(780 CMR) 8TH EDITION
MA FUEL/GAS/PLUMBING (248 CMR)
2009 INTERNATIONAL MECHANICAL CODE W/ MA AMENDMENTS
2017 NATIONAL ELECTRICAL CODE W/ MA AMENDMENTS
2015 INTERNATIONAL ENERGY CONS. CODE W/ MA AMENDMENTS

INSULATION VALUES

ROOF TO EXTERIOR:	R-38
EXTERIOR WALLS TO EXTERIOR:	R-21 HIGH DENSITY
FLOOR TO BASEMENT OR CRAWL SPACE:	R-30 (ON-SITE)

THESE DRAWINGS ARE DESIGNED TO BE USED FOR THE CONSTRUCTION OF FACTORY BUILT HOUSING UNITS. THESE UNITS ARE DESIGNED IN ACCORDANCE WITH THE APPROVED SYSTEMS PACKAGE AND THE APPLICABLE STATE BUILDING CODES AS LISTED ABOVE ON THIS PAGE.

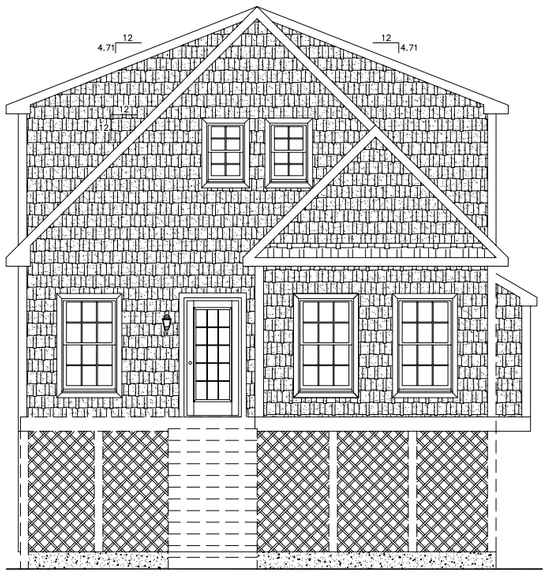
A 48 HOUR NOTIFICATION IS REQUIRED PRIOR TO THE SET. THE CSL ON RECORD WILL RELAY THIS TO THE LOCAL BUILDING AUTHORITY. IF ANY CONNECTIONS HAVE BEEN CONCEALED PRIOR TO INSPECTION, THE BUILDING OFFICIAL MAY REQUEST HAVING THE REMOVAL OF ELEMENTS THAT CONCEAL THE CONNECTIONS TO PROVIDE ACCESS. THIS WOULD NOT CONSTITUTE "DESTRUCTIVE DISSASSEMBLY". ALL CONNECTIONS ON SITE MUST BE INSPECTED BY THE LOCAL AUTHORITY.

ICON ★ LEGACY
Custom Modular Homes, LLC

Icon - Legacy Custom Modular Homes, LLC

246 SAND HILL ROAD
SELINSGROVE, PA 17870
PHONE 570-374-3280
FAX 570-374-1122
WWW.ICONLEGACY.COM

O#6861 FOUR BOX CAPE



ACCESS TO GRADE ON-SITE BY OTHERS

FRONT ELEVATION

R.A. AND P.E. STAMP

PFS CORPORATION
Approval Limited to Factory Built Portion Only

State: Massachusetts
Signature: *Harold Raup*
Title: Staff Plan Reviewer
Date: **7/20/17**

THIS BUILDING HAS BEEN EXTRACTED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

SERIAL #/ ORDER #
O#6861

PAGE #:
CV

246 SAND HILL ROAD
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CUSTOM MODULAR HOMES LLC
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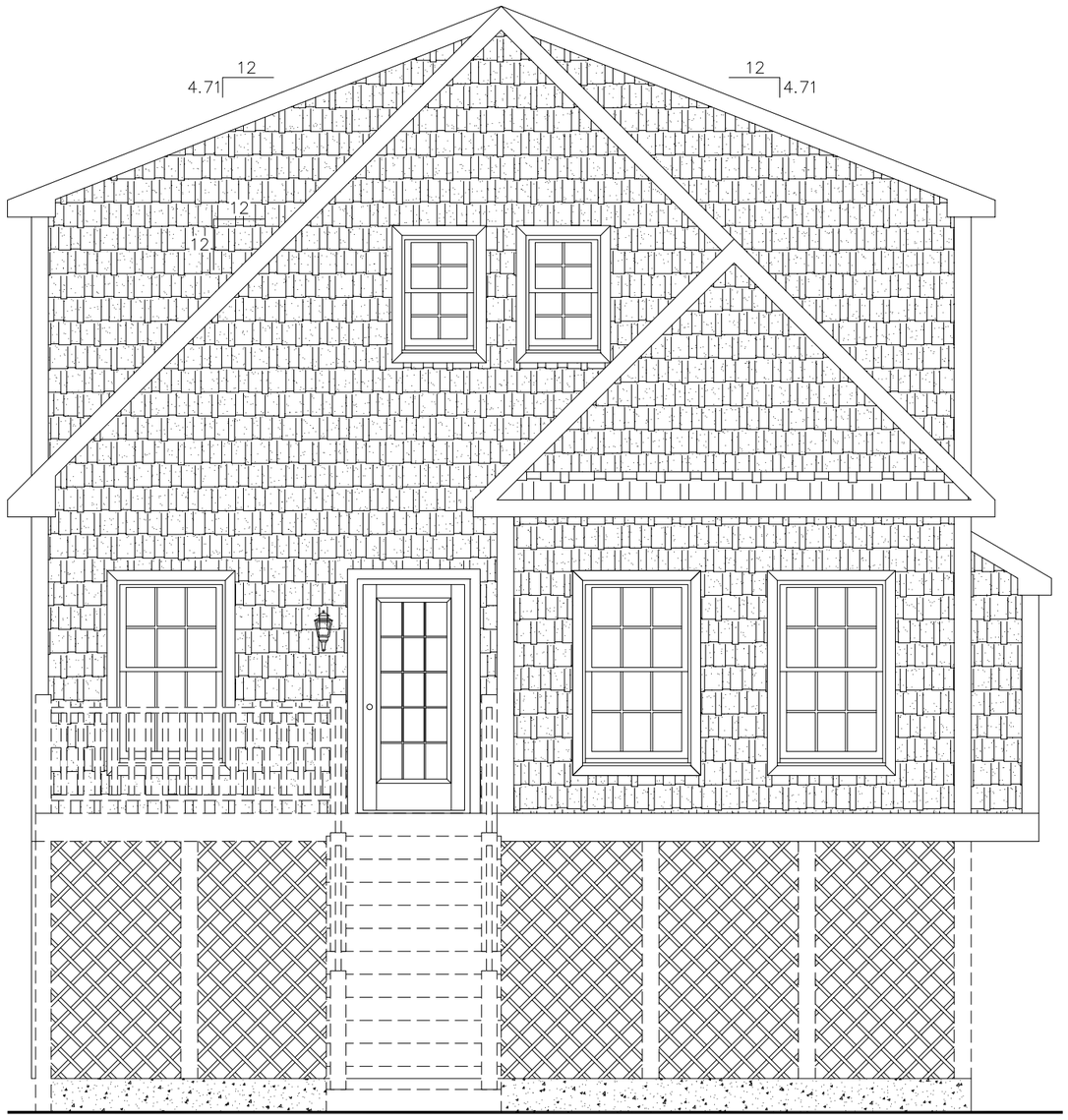
REVISION	DATE	BY
PRELIM	11/15/16	PIF
REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

BUILDER	PLEASANT BAY HOMES		
HOMEBUYER/PROJECT	ELIZABETH GILLIS 2		
ADDRESS	10 HARBOR WAY	ZIP	02559
CITY	POCASSET	STATE	MA
COUNTY	BARNSTABLE	SNOW LOAD (LBS)	30
ORDER NO	6861	SERIAL NO	
		SQFT	1,980
		WIND SPEED (MPH)	110
		TYPE	CAPE
FILE NAME	O#6861		

COVER PAGE

OMIT SIDING



29'-9⅝"
MEAN ROOF HEIGHT

8'-0"
CEILING HEIGHT

8'-0"
CEILING HEIGHT

1'-0"
FREEBOARD

17'-0"
BASE FLOOD ELEVATION

8'-0"
GRADE TO TOP OF SILL

10'-0"
SEA LEVEL TO GRADE

ACCESS TO GRADE ON-SITE BY OTHERS

FRONT ELEVATION

DECKS ON-SITE BY OTHERS

PFS Corporation
Northeast Region
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H Raup – 3
7/20/17
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DATE	REVISION	BY
11/15/16	PRELIM	PIF
02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

FRONT ELEVATION

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PAGE #:
EV1

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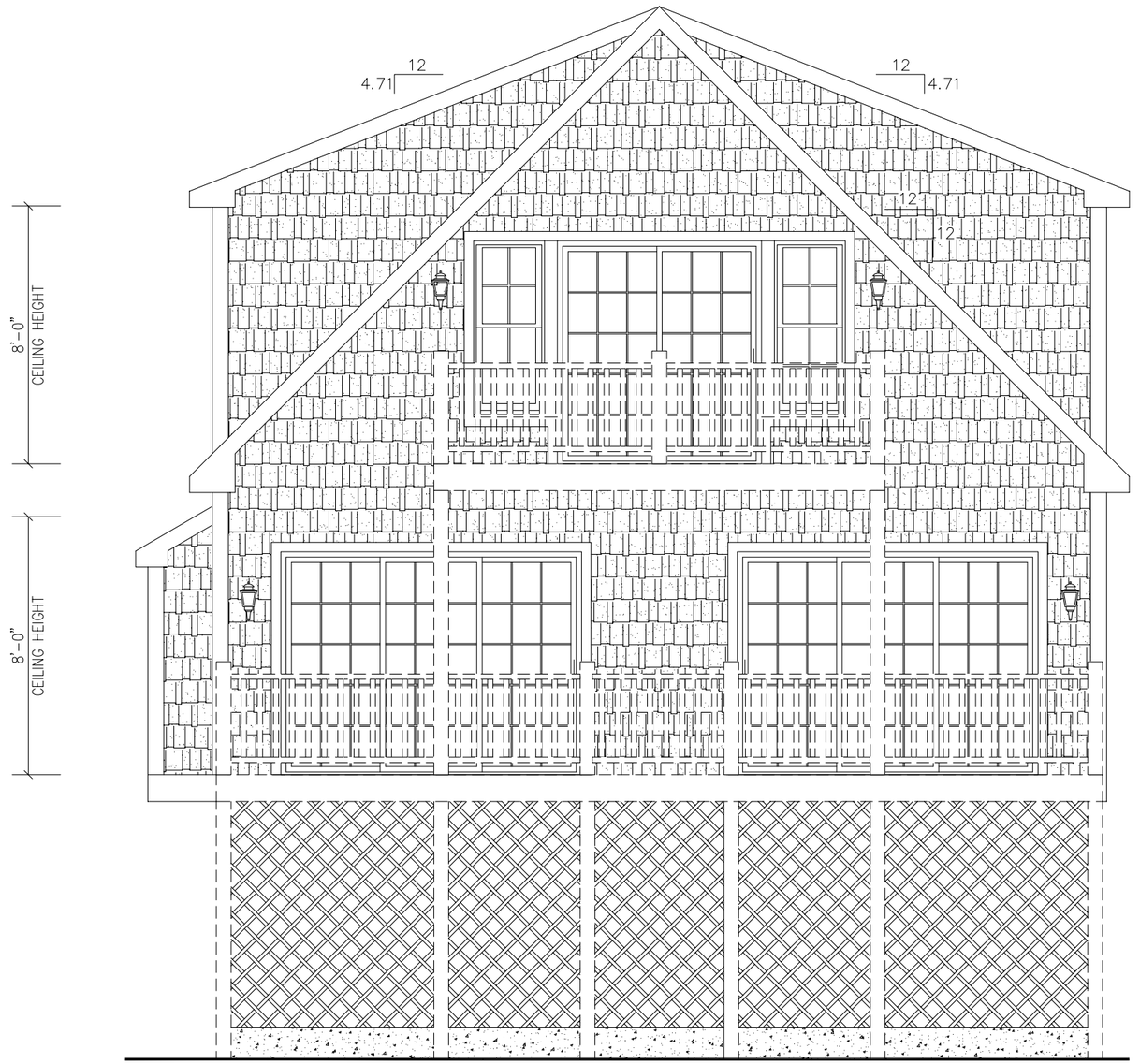

ACCESS TO GRADE ON-SITE BY OTHERS

REAR ELEVATION

DECKS ON-SITE BY OTHERS

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REAR ELEVATION

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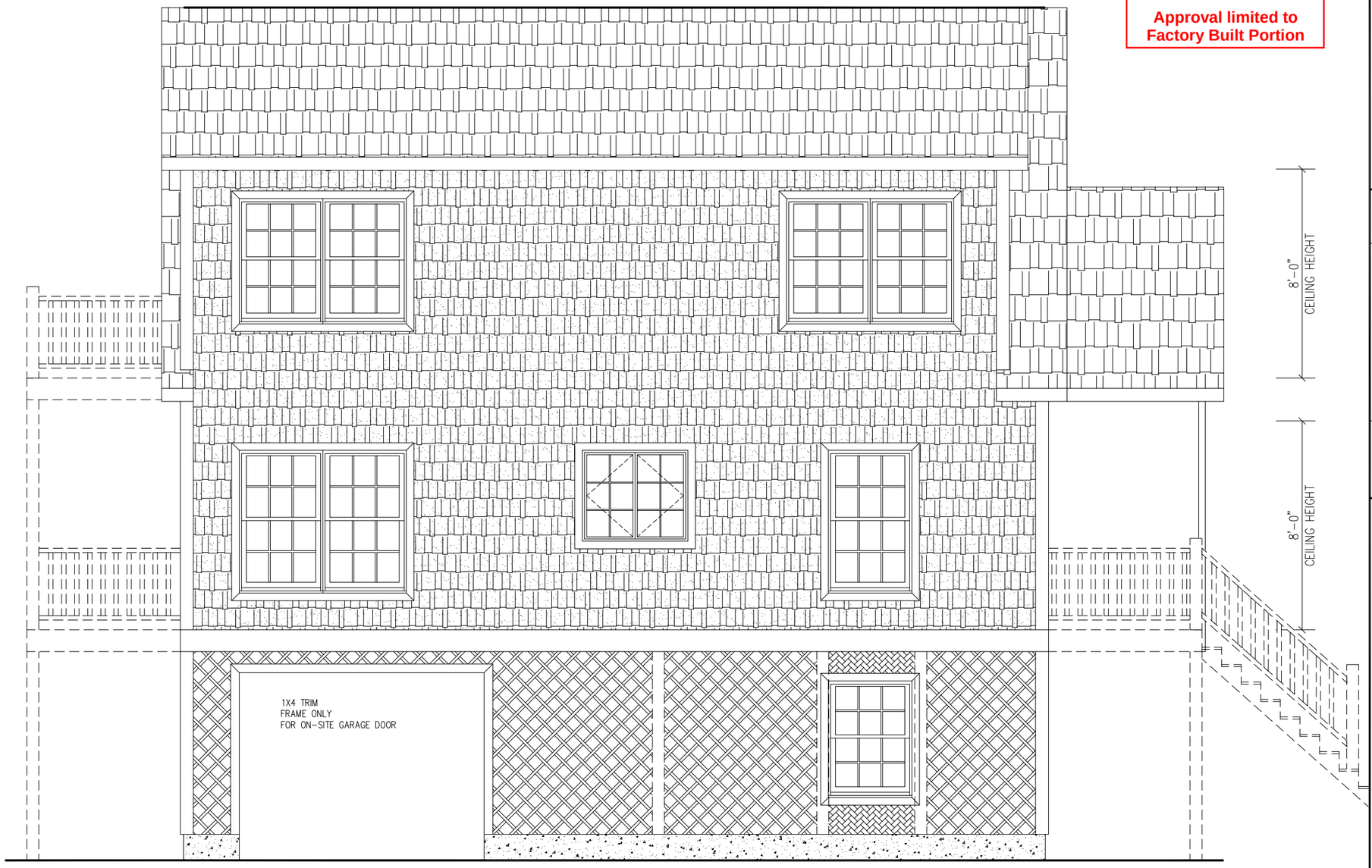

ACCESS TO GRADE ON-SITE BY OTHERS

LEFT SIDE ELEVATION

DECKS ON-SITE BY OTHERS

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DATE	REVISION	BY
11/15/16	PRELIM	PIF
02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
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SERIAL NO:
SQFT: 1,980
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FILE NAME: O#6861

LEFT ELEVATION

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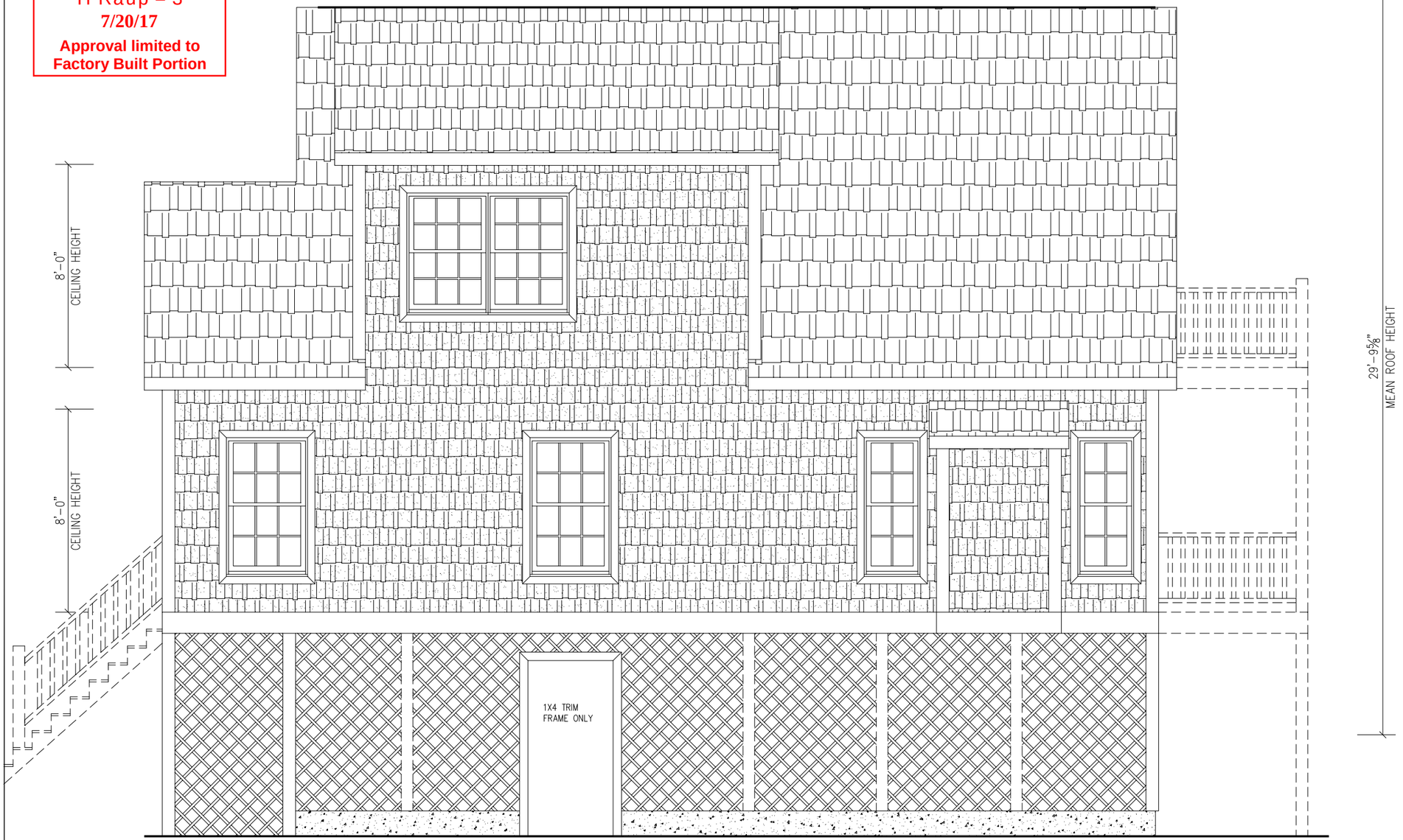

ACCESS TO GRADE ON-SITE BY OTHERS

RIGHT SIDE ELEVATION

DECKS ON-SITE BY OTHERS

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REVISION	DATE	BY
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REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

RIGHT ELEVATION

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BUILDER TO INSTALL & SUPPLY WHOLE HOUSE VENTILATION & TO BE APPROVED & INSPECTED ON-SITE BY LOCAL BUILDING OFFICAL

DUCT TIGHTNESS AND BLOWER DOOR TESTING DONE ON-SITE BY BUILDERS' HERS RATER

ALL CEILING GYP MUST BE MECHANICALLY FASTENED

THIS HOUSE IS NOT LOCATED IN A FLOOD ZONE

DRYER SHOWN TO BE ELECTRIC. IF A GAS DRYER IS SUBSTITUTED ON-SITE IT MUST BE LISTED AS BATHROOM USE (G2406)

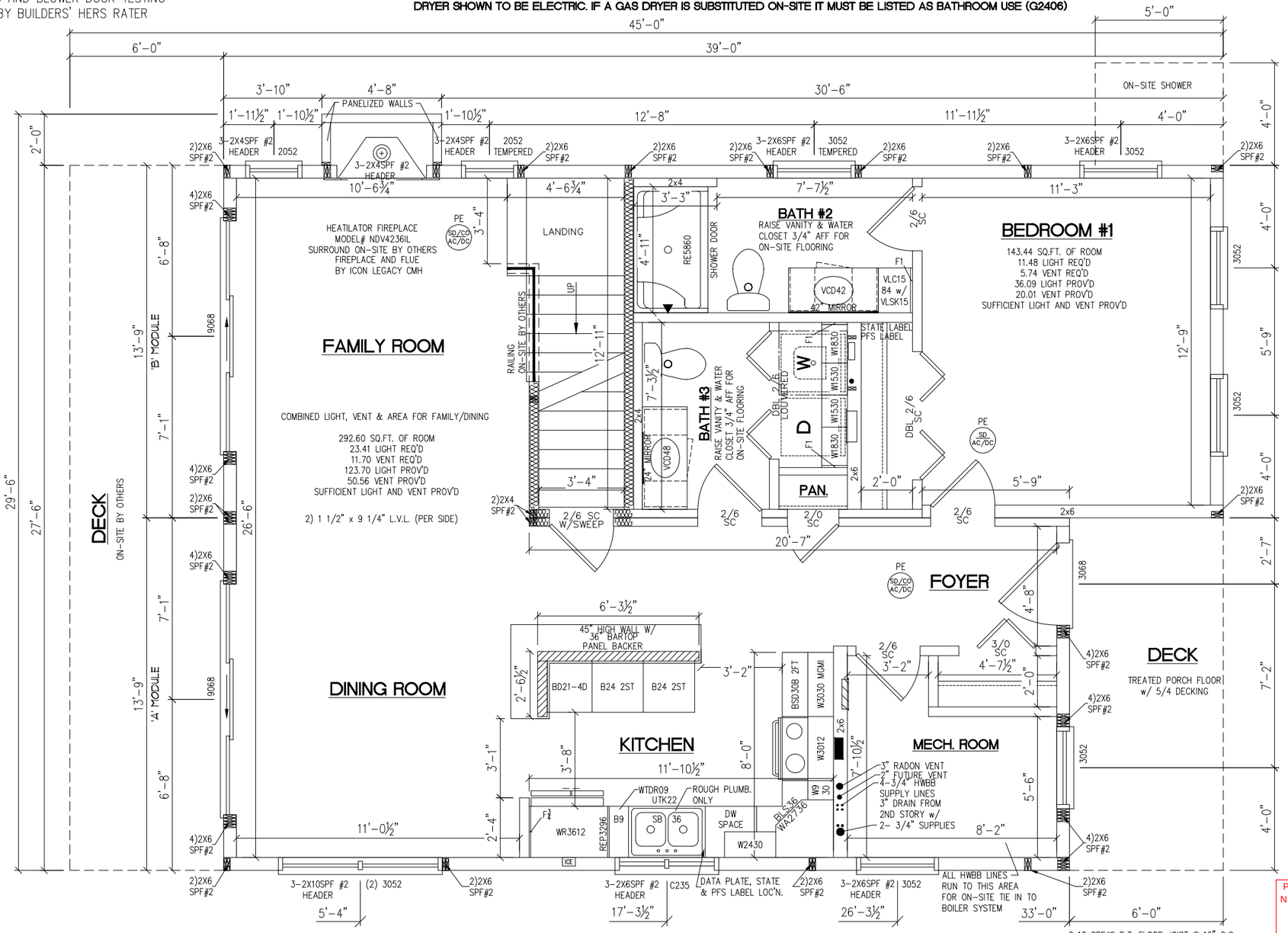
*TEMPERATURE CONTROL VALVE TO BE INSTALLED TO ALL TUBS AND SHOWERS

*BUILDER IS RESPONSIBLE TO COMPLY WITH R612.2 (WINDOW SILLS) OF THE 2015 IRC (DONE ON-SITE IF APPLICABLE)
- WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE FINISHED GRADE OR SURFACE BELOW
- WHERE THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED
- OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4 INCH DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 24 INCHES OF THE FINISHED FLOOR

SITE ADDRESS
10 HARBOR WAY
POCASSET, MA 02559

BUILDER:
256 PLEASANT BAY ROAD
HARWICH, MA 02645

RAISE ALL INTERIOR DOORS 3/4" TO ALLOW FOR ON-SITE FLOOR COVERING



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NOTES:
1. 2X6 EXTERIOR WALLS @ 16 O.C.
2. 2X4 MARRIAGE WALLS @ 16 O.C.
3. 8'-0" CEILING HEIGHT 1ST & 2ND FLOORS
4. ANDERSEN 400 TILT WASH DOUBLE HUNG WINDOWS
5. 48,000 TOTAL BTU HEAT LOSS
6. RAFTERS:
   - 12/12 STORAGE RAFTER @ 16 O.C.
   - 5/12 NON-STORAGE RAFTER @ 16 O.C.

MA STATE BUILDING CODE –(780 CMR) 8TH EDITION
MA FUEL/GAS/PLUMBING (248 CMR)
2009 INTERNATIONAL MECHANICAL CODE W/ MA AMENDMENTS
2017 NATIONAL ELECTRICAL CODE W/ MA AMENDMENTS
2015 INTERNATIONAL ENERGY CONS. CODE W/ MA AMENDMENTS

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FP1

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CUSTOM MODULAR HOMES LLC
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DATE	REVISION	BY
11/15/16	PRELIM	PJF
02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
FILE NAME: O#6861
SERIAL NO
ZIP: 02559
STATE: MA
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
TYPE: CAPE
SQFT: 1,980

1ST STORY FLOOR PLAN

RAISE ALL INTERIOR DOORS 3/4" TO ALLOW FOR ON-SITE FLOOR COVERING

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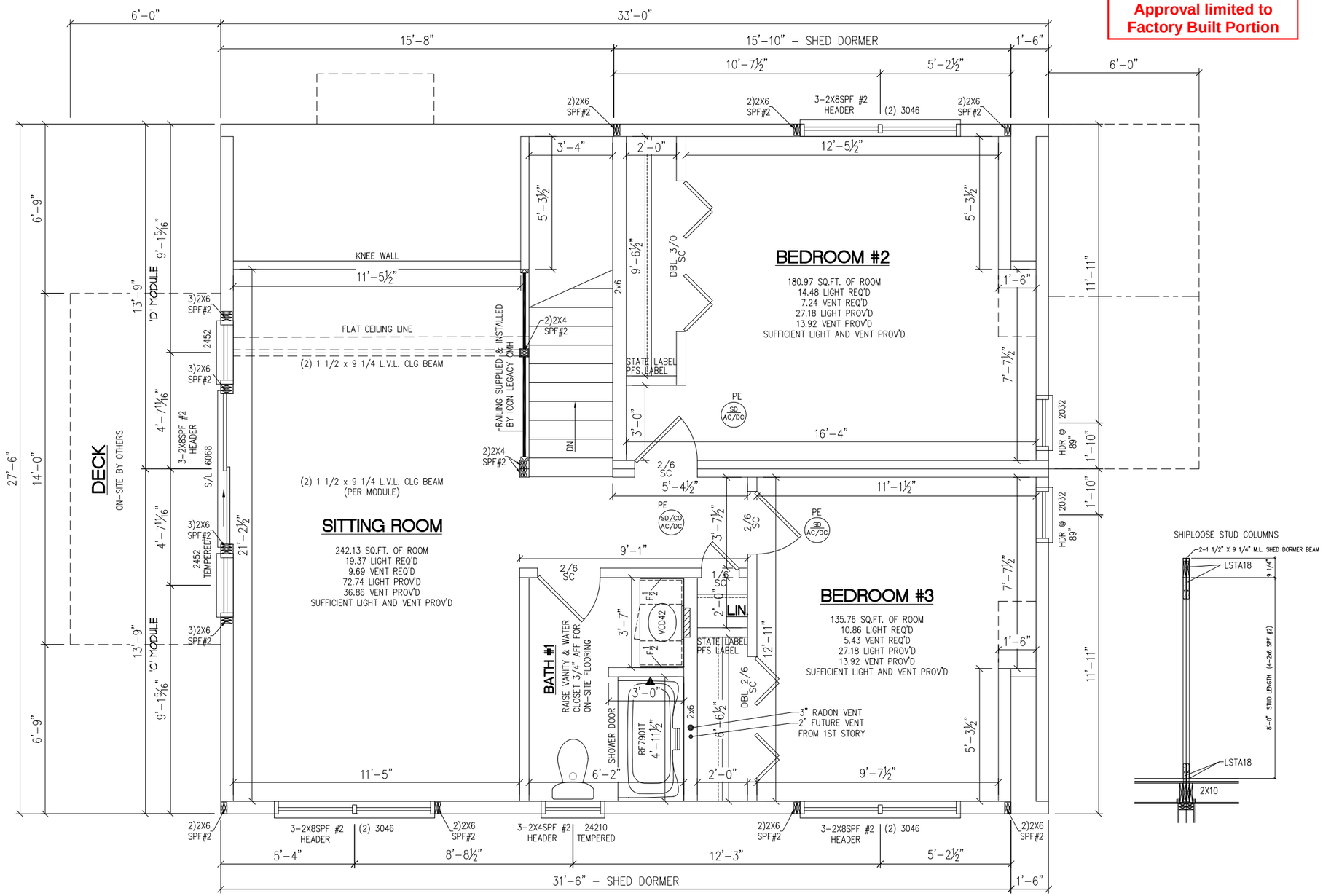

SHIPLOOSE STUD COLUMNS

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REVISION	DATE	BY
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BUILDER: PLEASANT BAY HOMES
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ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
SERIAL NO:
FILE NAME: O#6861

ZIP: 02559
STATE: MA
WIND SPEED (MPH): 110
SNOW LOAD (LBS): 30
TYPE: CAPE
SQFT: 1,980

2ND STORY FLOOR PLAN

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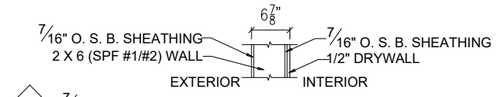
SERIAL #/ ORDER #: O#6861

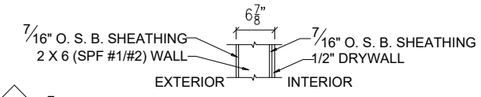
PAGE #: FP2

1ST LEVEL ENDWALL #1 (FAMILY / DINING)

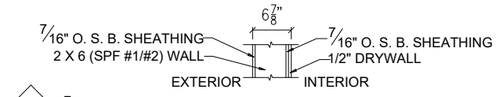


1 - 7/16" O. S. B. EXTERIOR (BLOCKED) w/ 7/16" O. S. B. INTERIOR. FASTEN O. S. B. WITH 8d NAILS @ 2" O. C. 1/2" GYPSUM ON INTERIOR. FASTEN GYPSUM W/ 5d NAILS @ 7" O.C. EDGE / 10" INTERMEDIATE. FRAMING AT PANEL EDGES TO BE 3" NOMINAL OR WIDER AND NAILS SHALL BE STAGGERED.

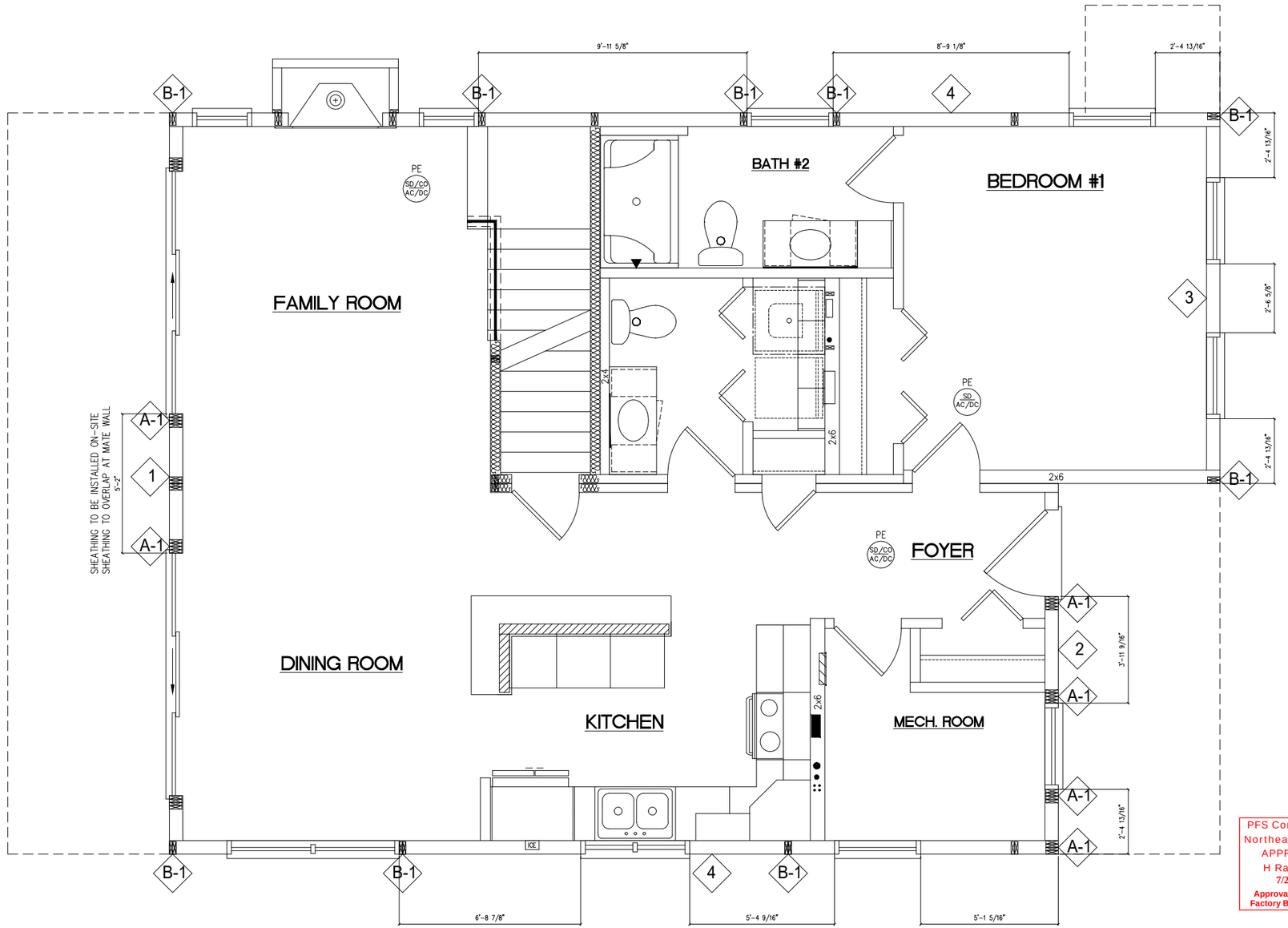
1ST LEVEL ENDWALL #2 (FOYER / MECH. ROOM)



2 - 7/16" O. S. B. EXTERIOR (BLOCKED) w/ 7/16" O. S. B. INTERIOR. FASTEN O. S. B. WITH 8d NAILS @ 3" O. C. 1/2" GYPSUM ON INTERIOR. FASTEN GYPSUM W/ 5d NAILS @ 7" O.C. EDGE / 10" INTERMEDIATE.



3 - 7/16" O. S. B. EXTERIOR (BLOCKED) w/ 7/16" O. S. B. INTERIOR. FASTEN O. S. B. WITH 8d NAILS @ 6" O. C. 1/2" GYPSUM ON INTERIOR. FASTEN GYPSUM W/ 5d NAILS @ 7" O.C. EDGE / 10" INTERMEDIATE.



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Northeast Region
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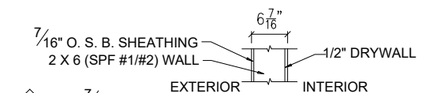
7/20/17
Approval limited to Factory Built Portion

1ST LEVEL SIDEWALL #1 / #2



4 - 7/16" O. S. B. EXTERIOR (BLOCKED) w/ 1/2" GYPSUM INTERIOR. FASTEN O. S. B. WITH 8d NAILS @ 6" O. C. OR 16 GA. STAPLES @ 3" O. C. PER ESR-1539 (JULY 2016). FASTEN GYPSUM W/ 5d NAILS @ 7" O.C. EDGE / 10" INTERMEDIATE.

A-1 - BUILDER INSTALLED HOLD DOWN FROM FOUNDATION TO STUDS > 13122 LBS. [SUGGESTED SIMPSON HD19 W/ 1 1/4" Ø ANCHOR OR EQUAL] MIN. (4) 2 X 6 WALL STUDS FASTEN TOGETHER W/ (2) ROWS OF 16d COMMON NAILS @ 2" O.C.

B-1 - BUILDER INSTALLED HOLD DOWN FROM FOUNDATION TO STUDS > 3685 LBS. [SUGGESTED SIMPSON STHD14RJ OR EQUAL] MIN. (2) 2 X 6 WALL STUDS FASTEN TOGETHER W/ (2) ROWS OF 16d COMMON NAILS @ 9" O.C.

NOTE: NO CORNER CONNECTION WILL BE REQUIRED IF SHEATHING COVERED ALL THE WAY TO THE CORNER EDGE. OTHERWISE, PROVIDE CONNECTION AS REQUIRED. MIN. CORNER STUD CONNECTION: (2) ROWS OF 16d COMMON NAILS @ 16" O. C. OR (6) 1/4" DIA. LAG SCREWS EQUALLY SPACED

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SW1

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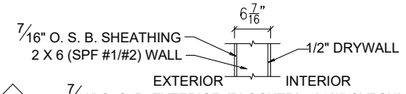
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 50
WIND SPEED (MPH): 110
SERIAL NO: 6861
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

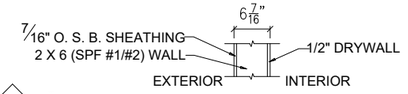
1ST STORY SHEAR WALLS

2ND LEVEL ENDWALL #1 & SIDEWALL #1 / #2



5 — 7/16" O. S. B. EXTERIOR (BLOCKED) w/ 1/2" GYPSUM INTERIOR. FASTEN O. S. B. WITH 8d NAILS @ 6" O. C. OR 16 GA. STAPLES @ 3" O. C. PER ESR-1539 (JULY 2016). FASTEN GYPSUM W/ 5d NAILS @ 7" O.C. EDGE / 10" INTERMEDIATE.

2ND LEVEL ENDWALL (BEDROOM #2 / #3)



6 — 7/16" O. S. B. EXTERIOR (BLOCKED) w/ 1/2" GYPSUM INTERIOR. FASTEN O. S. B. WITH 8d NAILS @ 4" O. C. FASTEN GYPSUM W/ 5d NAILS @ 7" O.C. EDGE / 10" INTERMEDIATE.

A-2 — SIMPSON CMSTC16 STRAP W/ (24) 16d SINKER NAILS EACH END OF STRAP (OR EQUAL CONN. 3685 LBS.) 2ND LEVEL STUDS TO 1ST LEVEL STUDS MIN. (2) 2 X 6 WALL STUDS FASTEN TOGETHER W/ (2) ROWS OF 16d COMMON NAILS @ 9" O. C.

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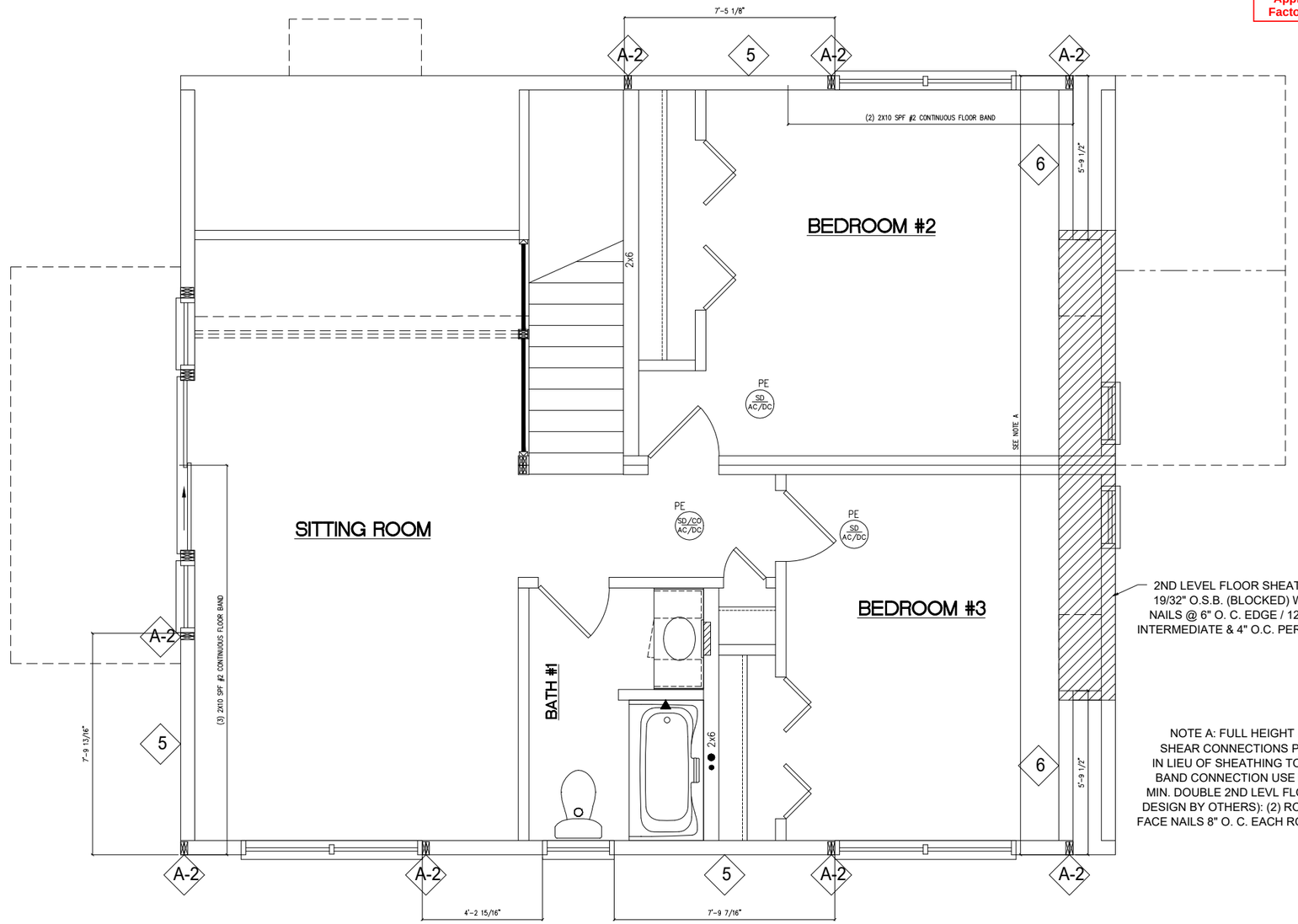

2ND LEVEL FLOOR SHEATHING
19/32" O.S.B. (BLOCKED) W/ 10d
NAILS @ 6" O. C. EDGE / 12" O. C.
INTERMEDIATE & 4" O.C. PERIMETER

NOTE A: FULL HEIGHT SHEATHING AND SHEAR CONNECTIONS PER SHEAR CALCS. IN LIEU OF SHEATHING TO 2ND LEVEL FLOOR BAND CONNECTION USE BOTTOM PLATE TO MIN. DOUBLE 2ND LEVL FLOOR JOIST (GRAVITY DESIGN BY OTHERS): (2) ROWS 16d (0.162" X 3.5") FACE NAILS 8" O. C. EACH ROW TO RESIST 560 PLF

NOTE: NO CORNER CONNECTION WILL BE REQUIRED IF SHEATHING COVERED ALL THE WAY TO THE CORNER EDGE. OTHERWISE, PROVIDE CONNECTION AS REQUIRED. MIN. CORNER STUD CONNECTION: (2) ROWS OF 16d COMMON NAILS @ 16" O. C. OR (6) 1/4" DIA. LAG SCREWS EQUALLY SPACED

THIS BUILDING HAS BEEN FABRICATED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

SERIAL #/ ORDER #
O#6861

246 SAND HILL ROAD
SELINSGROVE, PA 17870
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FAX: (570) 374-1122
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02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER	PLEASANT BAY HOMES		
HOMEBUYER/PROJECT	ELIZABETH GILLIS 2		
ADDRESS	10 HARBOR WAY		
CITY	POCASSET	STATE	MA
		ZIP	02559
COUNTY	BARNSTABLE	SNOW LOAD (LBS)	30
		WIND SPEED (MPH)	110
ORDER NO	6861	SQFT	1,980
SERIAL NO		TYPE	CAPE
FILE NAME	O#6861		

2ND STORY SHEAR WALLS

PAGE #:
SW2

ALL BRANCH CIRCUITS SUPPLYING 15 AND 20 AMPERE OUTLETS ARE TO BE PROTECTED BY AN ARC-FAULT CIRCUIT INTERRUPTER IN ACCORDANCE WITH THE 2017 NEC

ALL 125-VOLT, 15-20 AMPERE RECEPTS INSTALLED IN AREAS SPECIFIED BY 210.52 SHALL BE LISTED TAMPER-RESISTANT TYPE.

50# LIGHT BOXES REQUIRED

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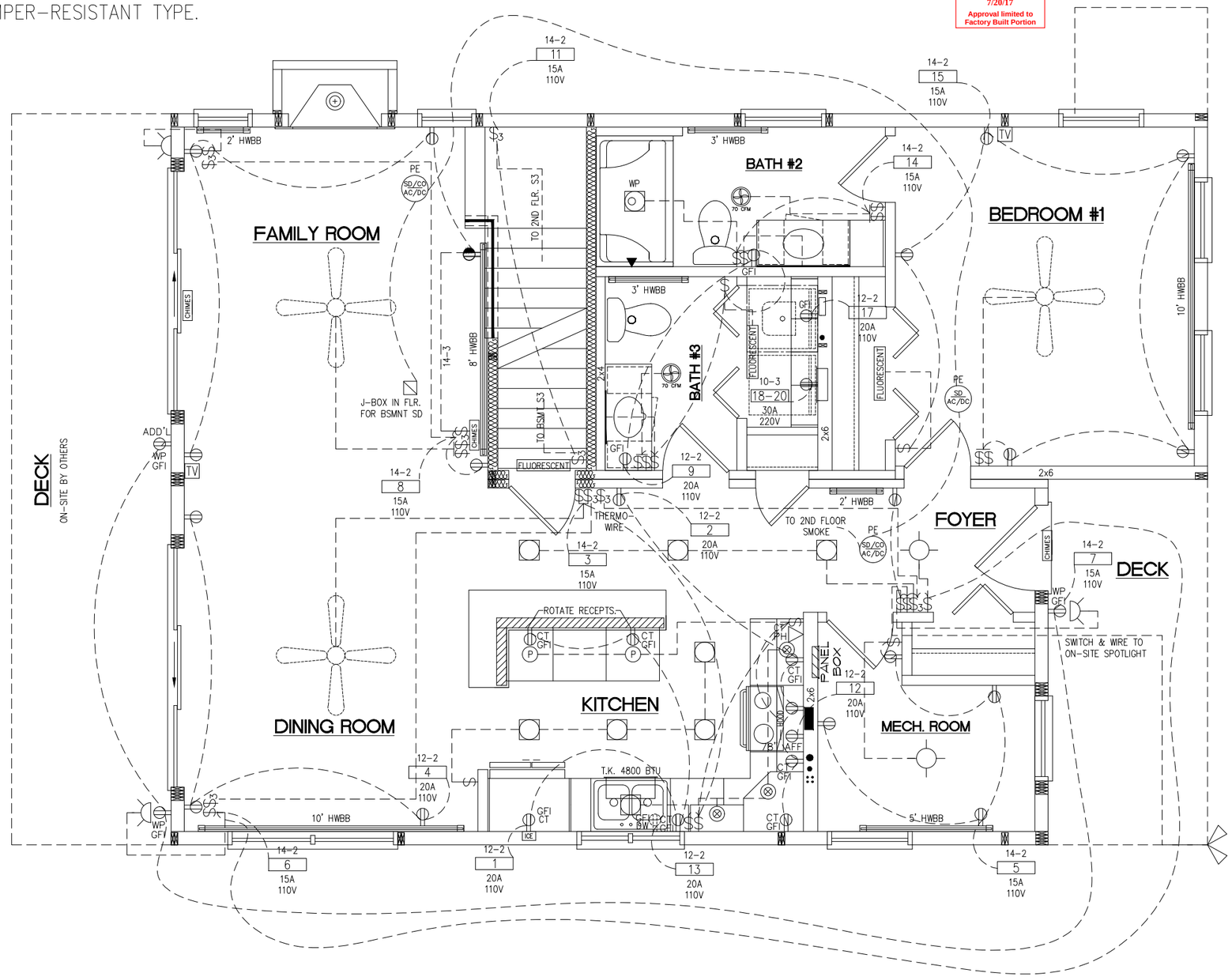

NOTES:
1. INSULATED STAPLES ARE REQUIRED TO SUPPORT ALL WIRING
2. 990 SQ. FT. PER FLOOR (SMOKE DETECTORS REQUIRED EVERY 1,200 SQ. FT.
3. SMOKE DETECTOR TYPE: PHOTOELECTRIC
4. SMOKE DETECTOR MUST BE INTERCONNECTED BETWEEN FLOORS.

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SERIAL #/ ORDER #
O#6861

PAGE #
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6/2/17	FINAL	HLB

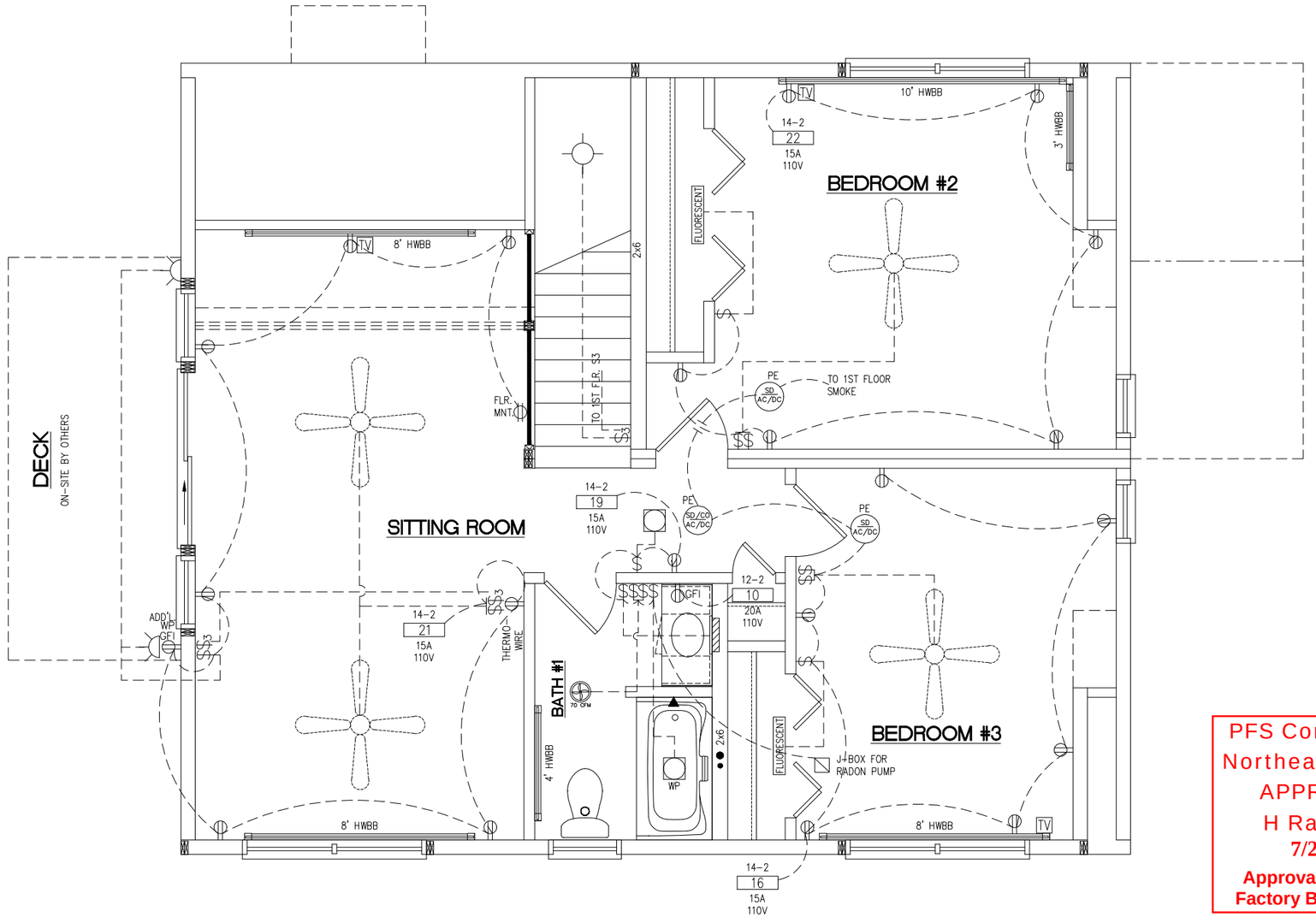
BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 50
WIND SPEED (MPH): 110
TYPE: CAPE
ORDER NO: 6861
SERIAL NO
SQFT: 1,980
FILE NAME: O#6661

1ST STORY ELECTRICAL PLAN

ALL BRANCH CIRCUITS SUPPLYING 15 AND 20 AMPERE OUTLETS ARE TO BE PROTECTED BY AN ARC-FAULT CIRCUIT INTERRUPTER IN ACCORDANCE WITH THE 2017 NEC

ALL 125-VOLT, 15-20 AMPERE RECEPTS INSTALLED IN AREAS SPECIFIED BY 210.52 SHALL BE LISTED TAMPER-RESISTANT TYPE.

50# LIGHT BOXES REQUIRED



NOTES:
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2. 990 SQ. FT. PER FLOOR (SMOKE DETECTORS REQUIRED EVERY 1,200 SQ. FT.
3. SMOKE DETECTOR TYPE: PHOTOELECTRIC
4. SMOKE DETECTOR MUST BE INTERCONNECTED BETWEEN FLOORS.

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02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

2ND STORY ELECTRICAL PLAN

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ELECTRICAL LOAD CALCULATION FOR ON#6861-MA

HOUSE SQFT: 0

AIR CONDITIONING AND HEAT

AIR CONDITIONING:	0 WATTS	0 WATTS
CENTRAL ELECTRIC SPACING HEATING:	0 WATTS (X 0.65)	0 WATTS
LESS THAN FOUR SEPARATELY CONTROLLED ELECTRIC SPACE HEATING UNITS:	0 WATTS (X 0.65)	0 WATTS
FOUR OR MORE SEPARATELY CONTROLLED ELECTRIC SPACE HEATING UNITS:	0 WATTS (X 0.45)	0 WATTS

*NOTE: USE THE LARGER OF THE AIR CONDITIONING OR THE DIVERSIFIED DEMAND OF THE HEATING LOAD.

OTHER LOADS

		WATTS OR VOLT-AMPS	CIRCUIT AMPACITY	WIRE SIZE
GENERAL LIGHTING:	(0 x 3)	0	15A	14-2
SMALL APPLIANCES:	(4 X 1,500)	6,000	20A	10-3
RANGE:		11,400	50A	8-3
DISHWASHER:		1,200	20A	12-2
GARBAGE DISPOSAL:		750	15A	14-2
WASHER:		1,500	20A	12-2
DRYER:		5,800	30A	10-3
FURNACE:		0	N/A	N/A
WATER HEATER:		5,500	30A	10-3
		32,150		

FIRST 10kW OF OTHER LOADS @ 100%:		=	10,000
REMAINDER OF OTHER LOADS @ 40%:	(22,150 x 0.40)	=	8,860
AIR CONDITIONING OR HEAT FROM ABOVE:		=	0
TOTAL CALCULATED LOAD::		=	18,860
REQUIRED SERVICE SIZE:	(18,860 / 240)	=	79 AMPS
INSTALLED PANEL SIZE:		=	200 AMPS

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ADDRESS: 10 HARBOR WAY
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STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS):
WIND SPEED (MPH):
ORDER NO: 6861
SERIAL NO:
SQFT:
TYPE:
FILE NAME: O#6861

ELECTRICAL LOAD CALC

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PAGE #: ELC

CIRCUIT SCHEDULE

*WIRE WITH GROUND ALL CIRCUITS

CRT	BRK	WIRE	LOCATION	VOLT	CRT	BRK	WIRE	LOCATION	VOLT
1	20A	12-2	SMALL APPLIANCE	110	2	20A	12-2	SMALL APPLIANCE	110
3	15A	14-2	GENERAL LIGHTING	110	4	20A	12-2	DINING ROOM	110
5	15A	14-2	MECH. ROOM	110	6	15A	14-2	GENERAL LIGHTING	110
7	15A	14-2	WP GFI EXTERIOR RECEPTS	110	8	15A	14-2	LIVING ROOM	110
9	20A	12-2	SMALL APPLIANCE	110	10	20A	12-2	BATH GFI	110
11	15A	14-2	GENERAL LIGHTING	110	12	20A	12-2	MICROWAVE	110
13	20A	12-2	DISHWSAHER	110	14	15A	14-2	GENERAL LIGHTING	110
15	15A	14-2	BEDROOM#1	110	16	15A	14-2	BEDROOM#3	110
17	20A	12-2	WASHER	110	18	30A	10-3	DRYER	220
19	15A	14-2	GENERAL LIGHTING	110	20				
21	15A	14-2	SITTING ROOM	110	22	15A	14-2	BEDROOM#2	110
23					24				
25					26				
27					28				
29					30				
31					32				
33					34				
35					36				
37					38				
39					40				

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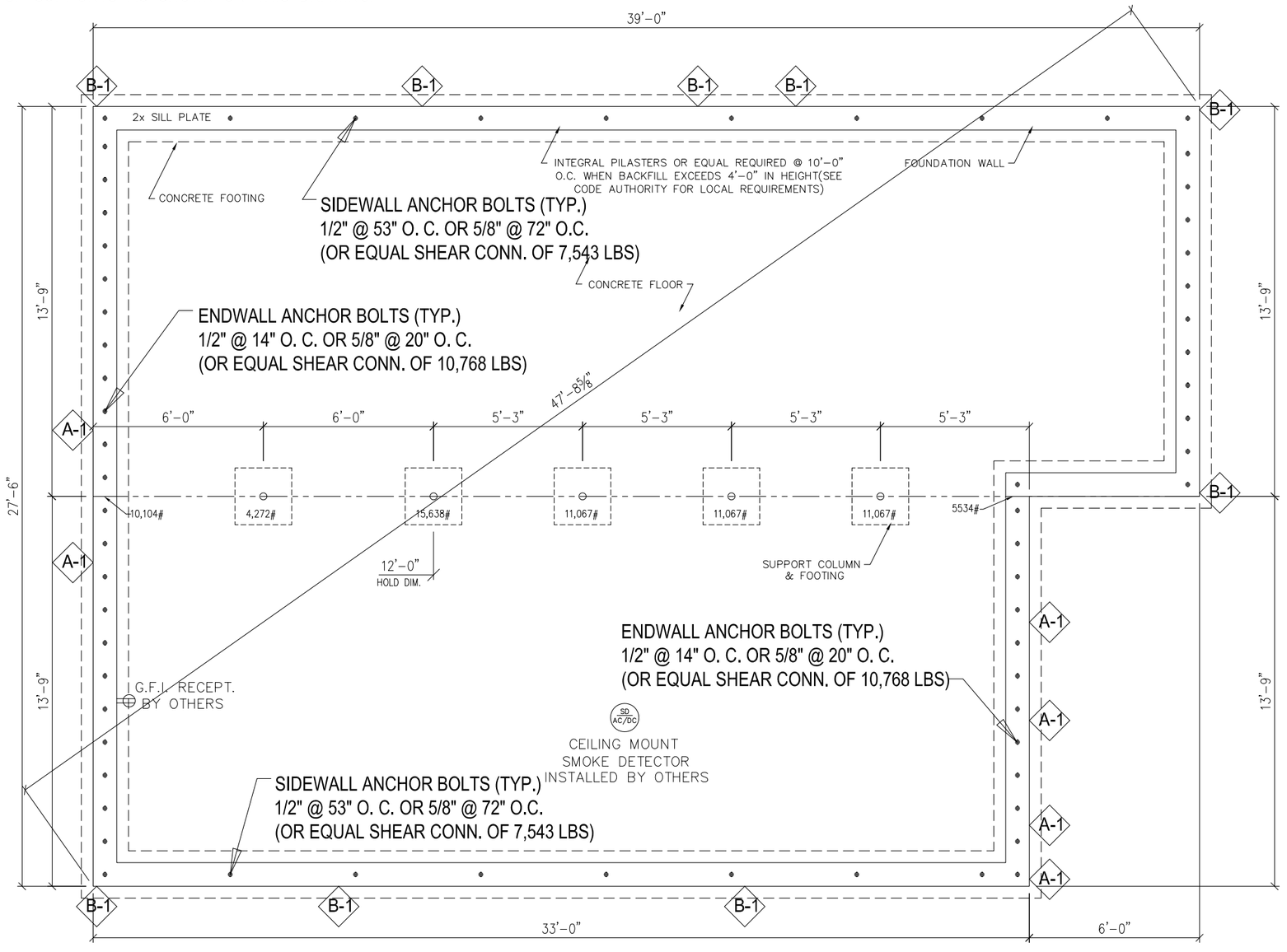
BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS)
WIND SPEED (MPH)
ORDER NO: 6861
SERIAL NO
SQFT
TYPE
FILE NAME: O#6861

CIRCUIT SCHEDULE

THIS FOUNDATION PLAN IS FOR DIMENSIONS ONLY. FOUNDATION WALLS, FOOTINGS, COLUMNS, PIERS, AND SLAB TO BE DESIGNED BY OTHERS TO MEET STATE AND/OR LOCAL CODES USING EXISTING SOIL ANALYSIS. MANUFACTURER. ASSUMES NO RESPONSIBILITY FOR ERRORS IN THE CONSTRUCTION OF THE FOUNDATION. ANY AND ALL DIMENSIONS ARE TO BE CHECKED AND VERIFIED (AGAINST THE FLOOR PLAN "BUILDER COPY") BY BUILDER/DEALER PRIOR TO FOUNDATION CONSTRUCTION. THE BUILDER/DEALER MUST CONTACT MANUFACTURER. WITH ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.

MANUFACTURER. WILL NOT ASSUME ANY RESPONSIBILITY IF BUILDER/DEALER/OWNER EXCEEDS MAXIMUM SPACING OF SUPPORTS AS SHOWN ON THIS DRAWING.

THE FOUNDATION TO BE DESIGNED AND SEALED BY MA PE OR RA AND MUST BE DESIGNED TO THE LOADS PROVIDED, INCLUDING HOLD DOWNS AND ALL FLOOD PLAIN REQUIREMENTS. FOUNDATION TO BE INSPECTED AND APPROVED BY LOCAL BUILDING INSPECTOR



A-1 — BUILDER INSTALLED HOLD DOWN FROM FOUNDATION TO STUDS > 13122 LBS. [SUGGESTED SIMPSON HD19 W/ 1 1/4" Ø ANCHOR OR EQUAL] MIN. (4) 2 X 6 WALL STUDS FASTEN TOGETHER W/ (2) ROWS OF 16d COMMON NAILS @ 2" O.C.

B-1 — BUILDER INSTALLED HOLD DOWN FROM FOUNDATION TO STUDS > 3685 LBS. [SUGGESTED SIMPSON STHD14RJ OR EQUAL] MIN. (2) 2 X 6 WALL STUDS FASTEN TOGETHER W/ (2) ROWS OF 16d COMMON NAILS @ 9" O.C.

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BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

FOUNDATION PLAN

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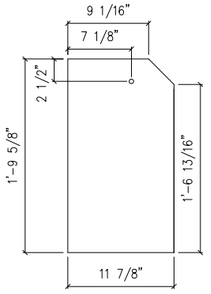

GUSSET PLATE

18" OVERHANG

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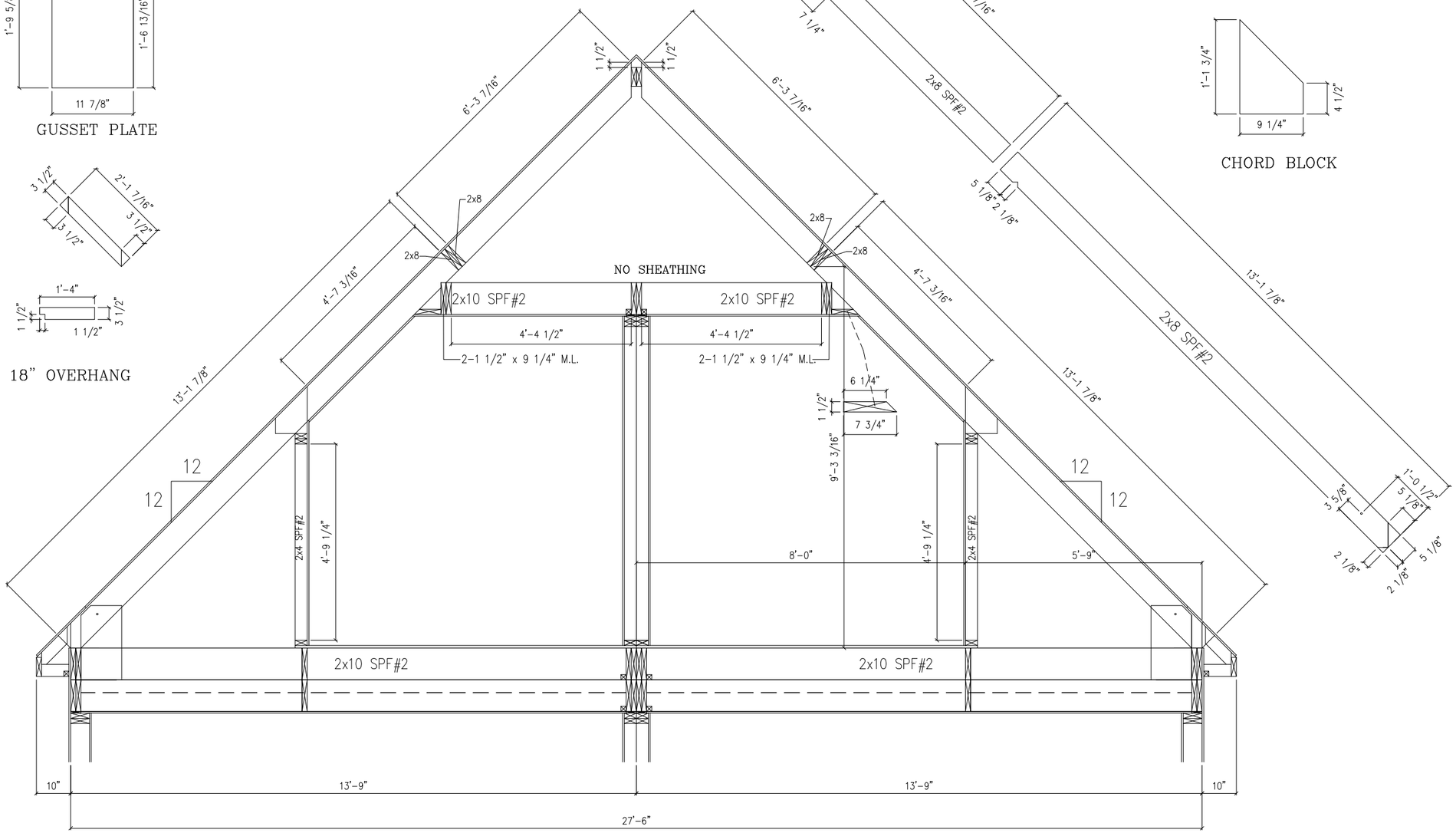
CHORD BLOCK



12/12 - 27'-6" WIDE - 30#GSL - 16" O.C.
STORAGE RAFTER

THIS TRUSS DESIGN MAY BE USED FOR LESSER SPANS PROVIDED
NO MEMBER HAS A GREATER LENGTH AND ALL CONNECTIONS ARE AS SPECIFIED.

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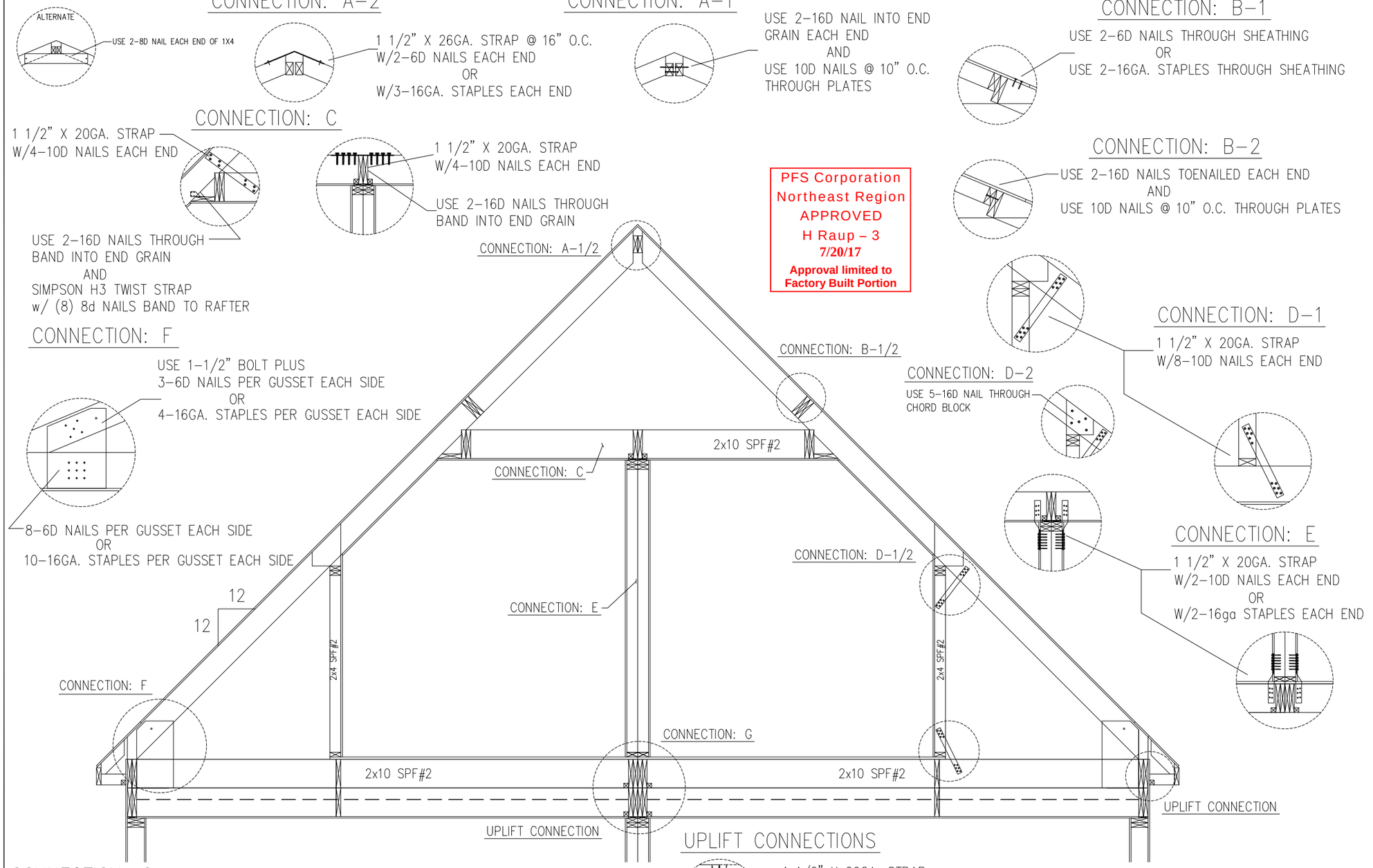
12/12 RAFTER



12/12 - 27'-6" WIDE - 30#GSL - 16" O.C.
STORAGE RAFTER

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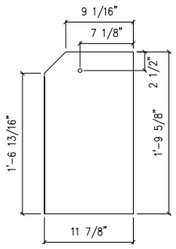
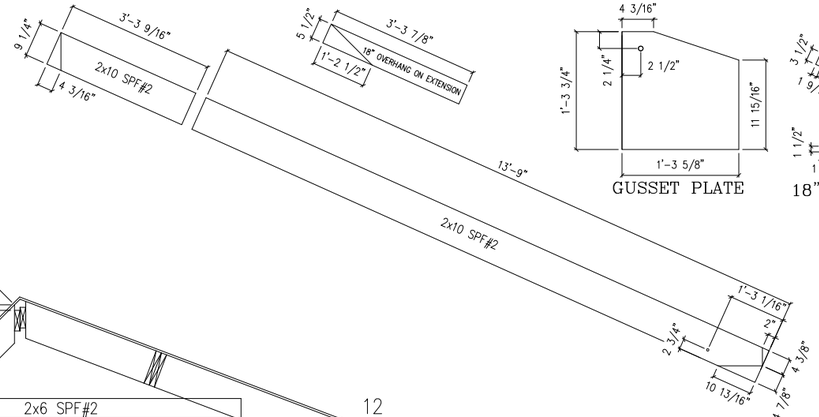
12/12 RAFTER CONNECTIONS

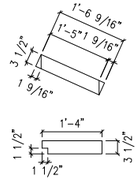


GUSSET PLATE

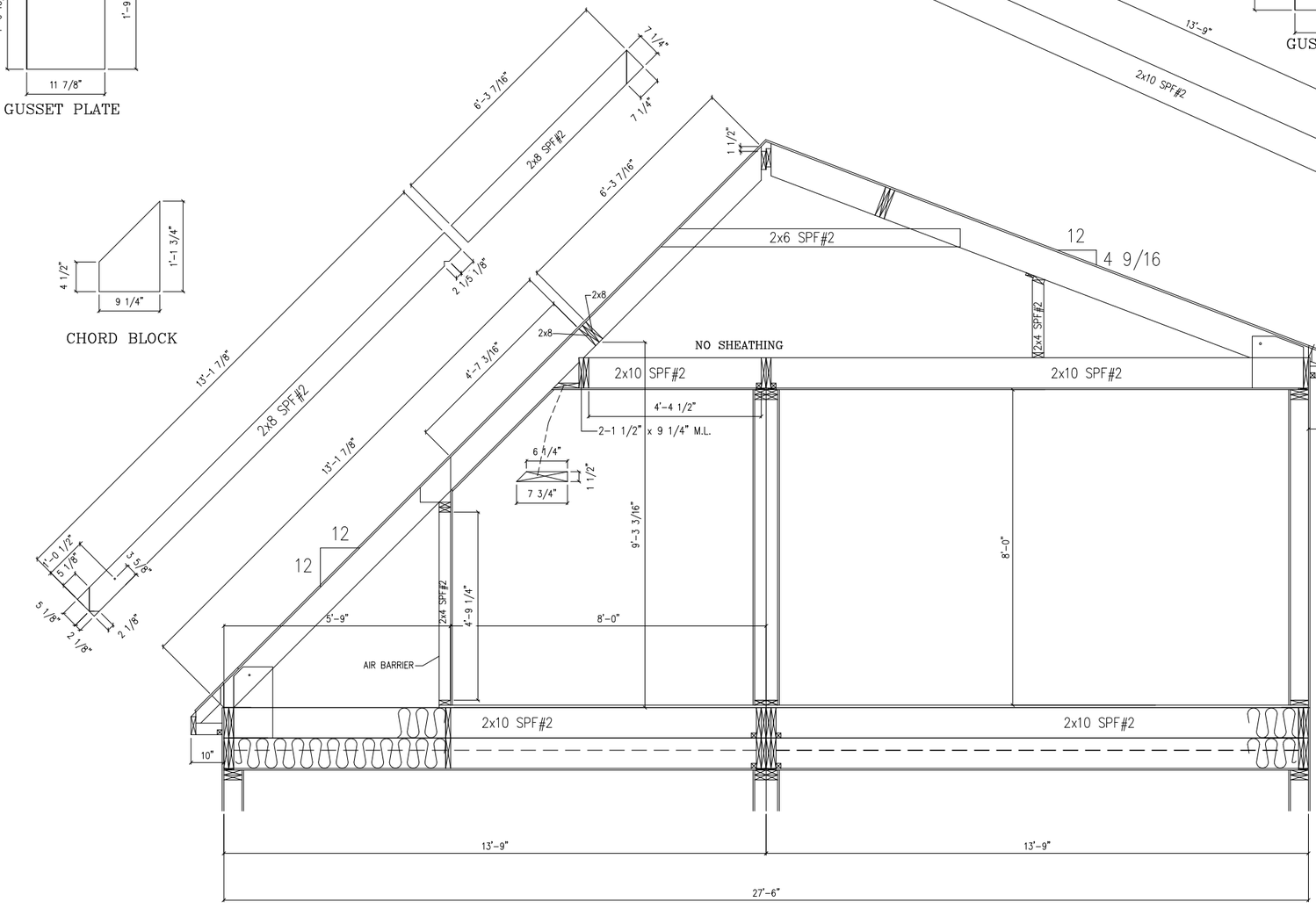
CHORD BLOCK



GUSSET PLATE



18" OVERHANG



4.5/12 SHED - 27'-6" WIDE - 30#GSL - 16" O.C.
STORAGE RAFTER

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7/20/17
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O#6861

PAGE #:
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PRELIM	PIF	11/15/16
REV. PRELIM	TLM	02/15/17
FINAL	HLB	6/2/17

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
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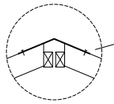
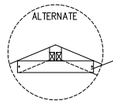
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

4.5/12 SHED RAFTER

CONNECTION: A-2

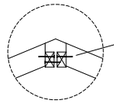


1 1/2" X 26GA. STRAP @ 16" O.C.
W/2-6D NAILS EACH END
OR
W/2-16GA. STAPLES EACH END



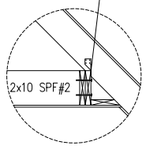
USE 2-8D NAIL EACH END OF 1X4

CONNECTION: A-1



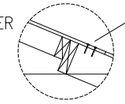
USE 2-16D NAIL INTO END GRAIN EACH END
AND
USE 10D NAILS @ 17" O.C. THROUGH PLATES

CONNECTION: G



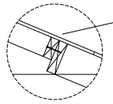
USE 2-16D NAILS THROUGH BAND INTO ENDGRAIN
AND
SIMPSON H3 TWIST STRAP
w/8-8d NAILS BAND TO RAFTER

CONNECTION: B-1



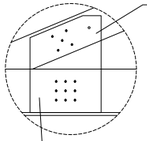
USE 5-6D NAILS THROUGH SHEATHING
OR
USE 8-16GA. STAPLES THROUGH SHEATHING

CONNECTION: B-2



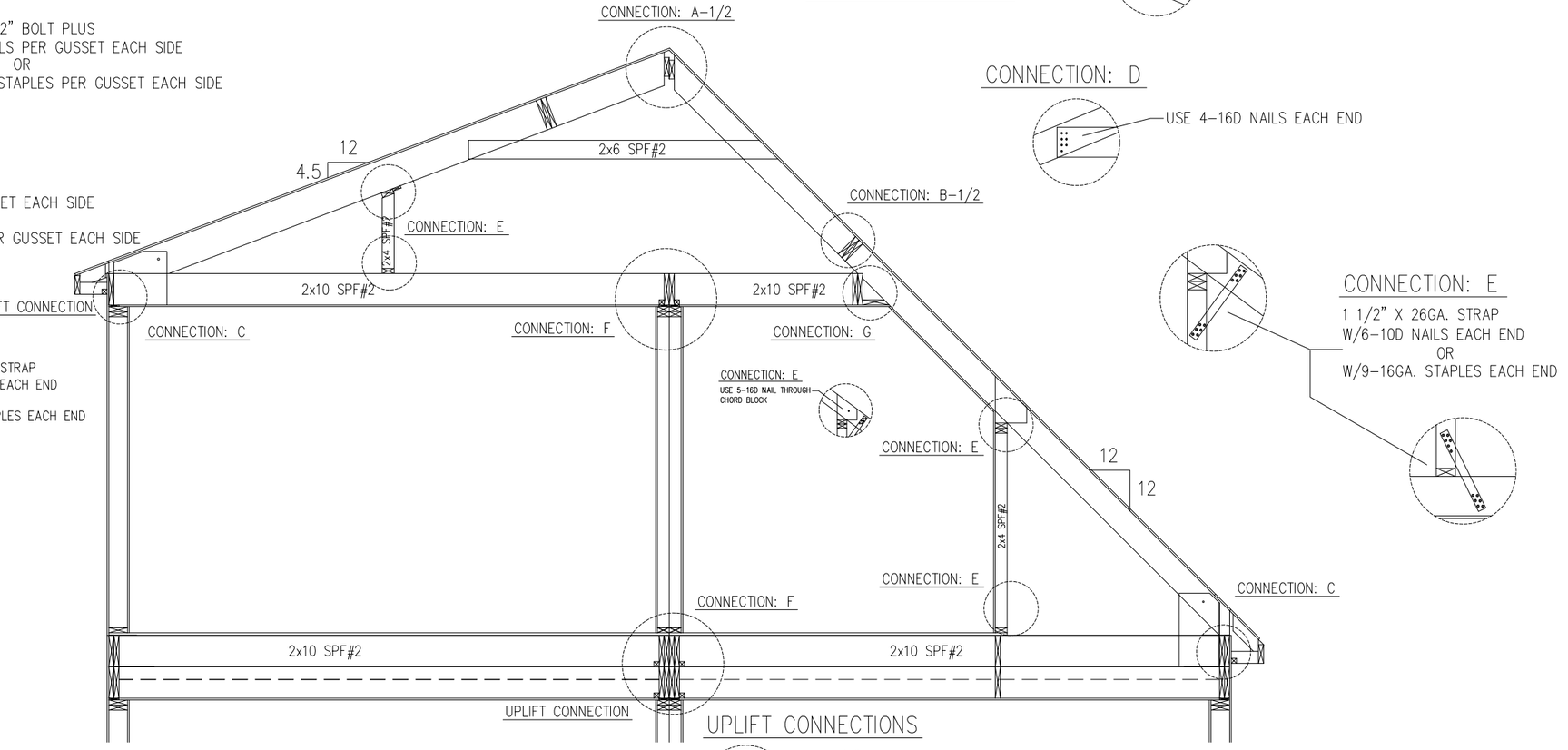
USE 2-16D NAILS TOENAILED EACH END
AND
USE 10D NAILS @ 17" O.C. THROUGH PLATES

CONNECTION: C

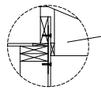


USE 1-1/2" BOLT PLUS
3-6D NAILS PER GUSSET EACH SIDE
OR
4-16GA. STAPLES PER GUSSET EACH SIDE

8-6D NAILS PER GUSSET EACH SIDE
OR
10-16GA. STAPLES PER GUSSET EACH SIDE



UPLIFT CONNECTIONS



1 1/2" X 26GA. STRAP
W/4-10D NAILS EACH END

W/5-16GA. STAPLES EACH END

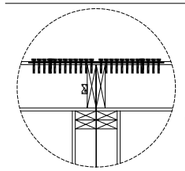
CONNECTION: D

USE 4-16D NAILS EACH END

CONNECTION: E

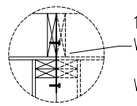
1 1/2" X 26GA. STRAP
W/6-10D NAILS EACH END
OR
W/9-16GA. STAPLES EACH END

CONNECTION: F



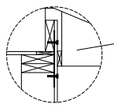
USE SIMPSON A34
AND
DBL 1 1/2" X 20GA. STRAP
W/8-10D NAILS EACH END

UPLIFT CONNECTIONS



1 1/2" X 26GA. STRAP
W/2-10D NAILS EACH END
OR
W/2-16GA. STAPLES EACH END

UPLIFT CONNECTIONS



1 1/2" X 26GA. STRAP
W/4-10D NAILS EACH END

W/7-16GA. STAPLES EACH END

4.5/12 - 27'-6" WIDE - 30#GSL - 16" O.C.
NON-STORAGE RAFTER

PFS Corporation
Northeast Region
APPROVED
H Raup – 3
7/20/17
Approval limited to
Factory Built Portion

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NO MEMBER HAS A GREATER LENGTH AND ALL CONNECTIONS ARE AS SPECIFIED.

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SERIAL #/ ORDER #
O#6861

PAGE #:
TR4

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SELINSGROVE, PA 17870
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REVISION	DATE	BY
PRELIM	11/15/16	PIF
REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

4.5/12 SHED RAFTER CONNECTIONS

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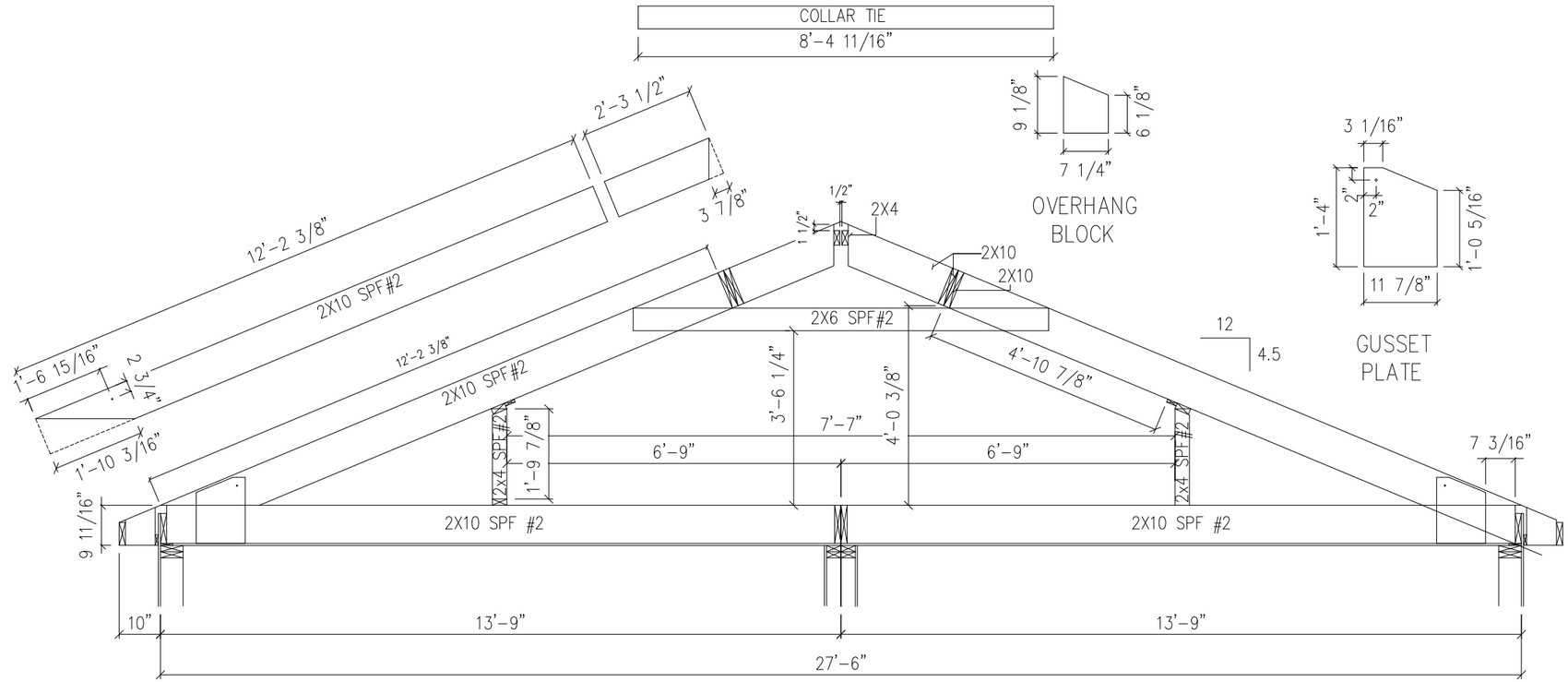

4.5/12 - 27'-6" WIDE - 30#GSL - 16" O.C.
NON-STORAGE RAFTER

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REVISION	DATE	BY
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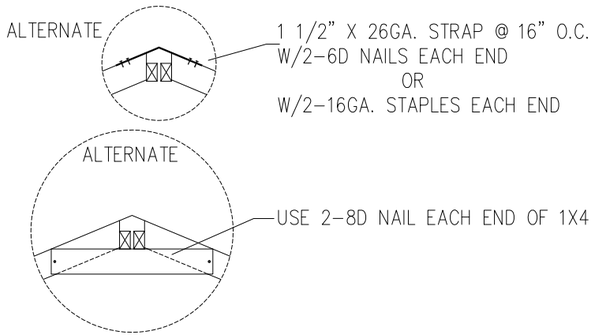
REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

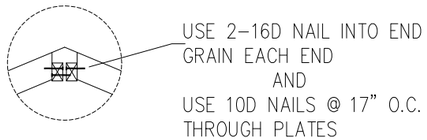
BUILDER: PLEASANT BAY HOMES
HOMER/ZTA PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
SERIAL NO:
FILE NAME: O#6861
STATE: MA
ZIP: 02559
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
SQFT: 1,980
TYPE: CAPE

4.5/12 RAFTER

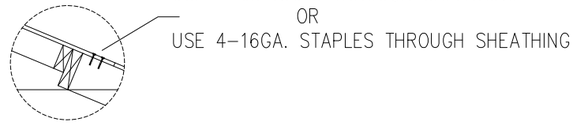
CONNECTION: A-2



CONNECTION: A-1



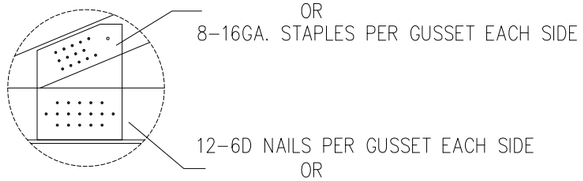
CONNECTION: B-1



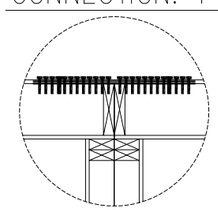
CONNECTION: B-2

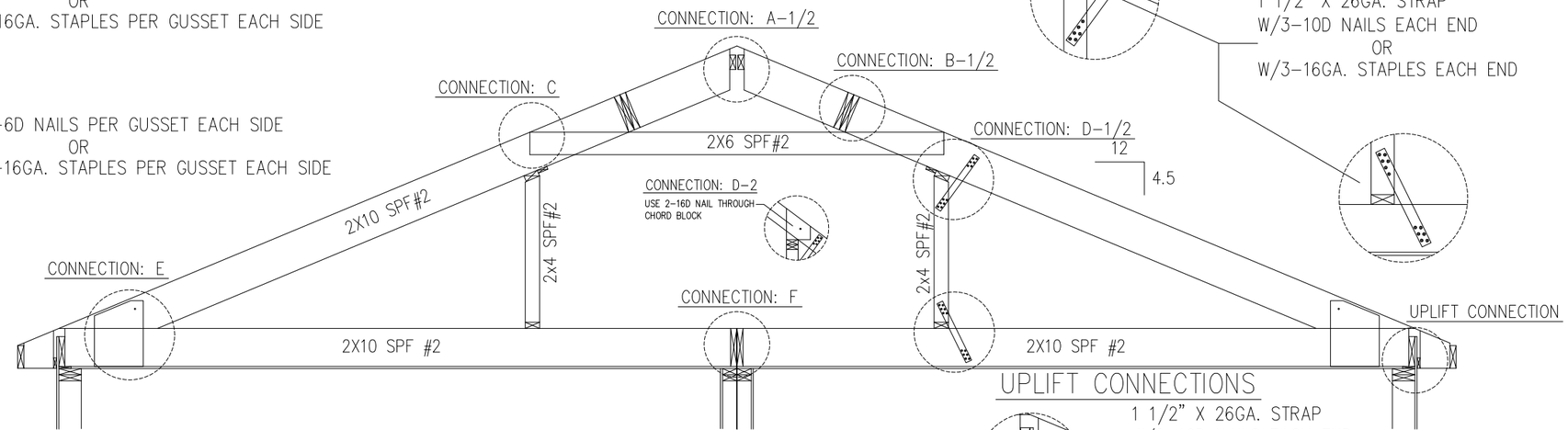
CONNECTION: C

CONNECTION: E

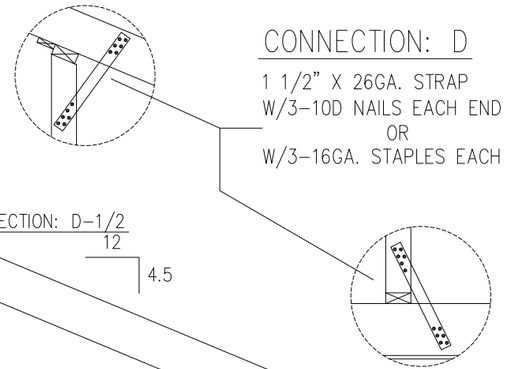


CONNECTION: F

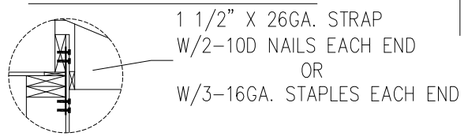




CONNECTION: D



UPLIFT CONNECTIONS



4.5/12 - 27'-6" WIDE - 30#GSL - 16" O.C.
NON-STORAGE RAFTER

PFS Corporation
Northeast Region
APPROVED
H Raup – 3
7/20/17
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O#6861

PAGE #:
TR6

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REVISION	BY	DATE
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REV. PRELIM	TLM	02/15/17
FINAL	HLB	6/2/17

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

4.5/12 RAFTER CONNECTIONS

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7/20/17
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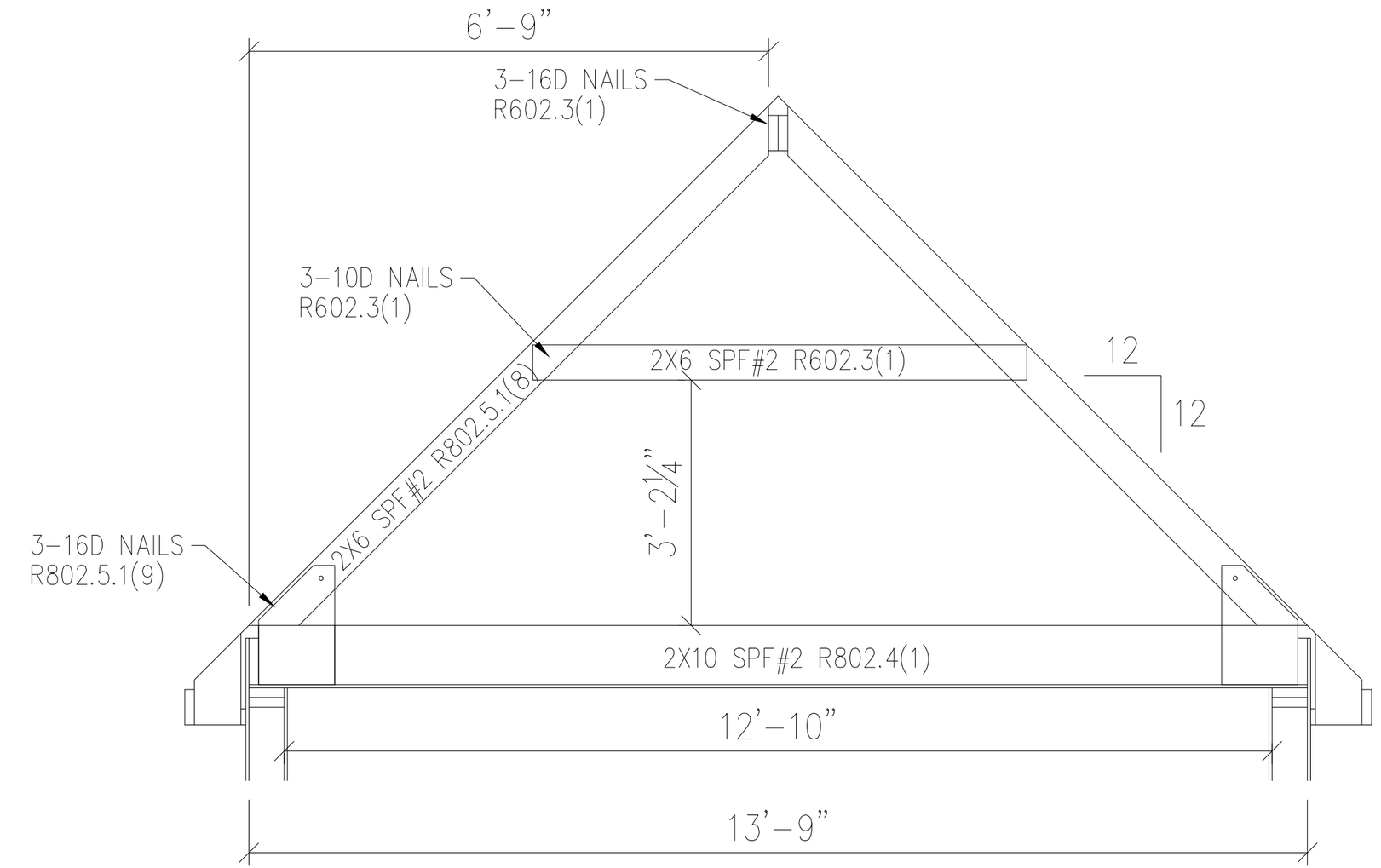

13'–9" WIDE – 12/12 – 30# SNOW

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BUILDER: PLEASANT BAY HOMES
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ADDRESS: 10 HARBOR WAY
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ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

12/12 RAFTER

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PAGE #: TR7

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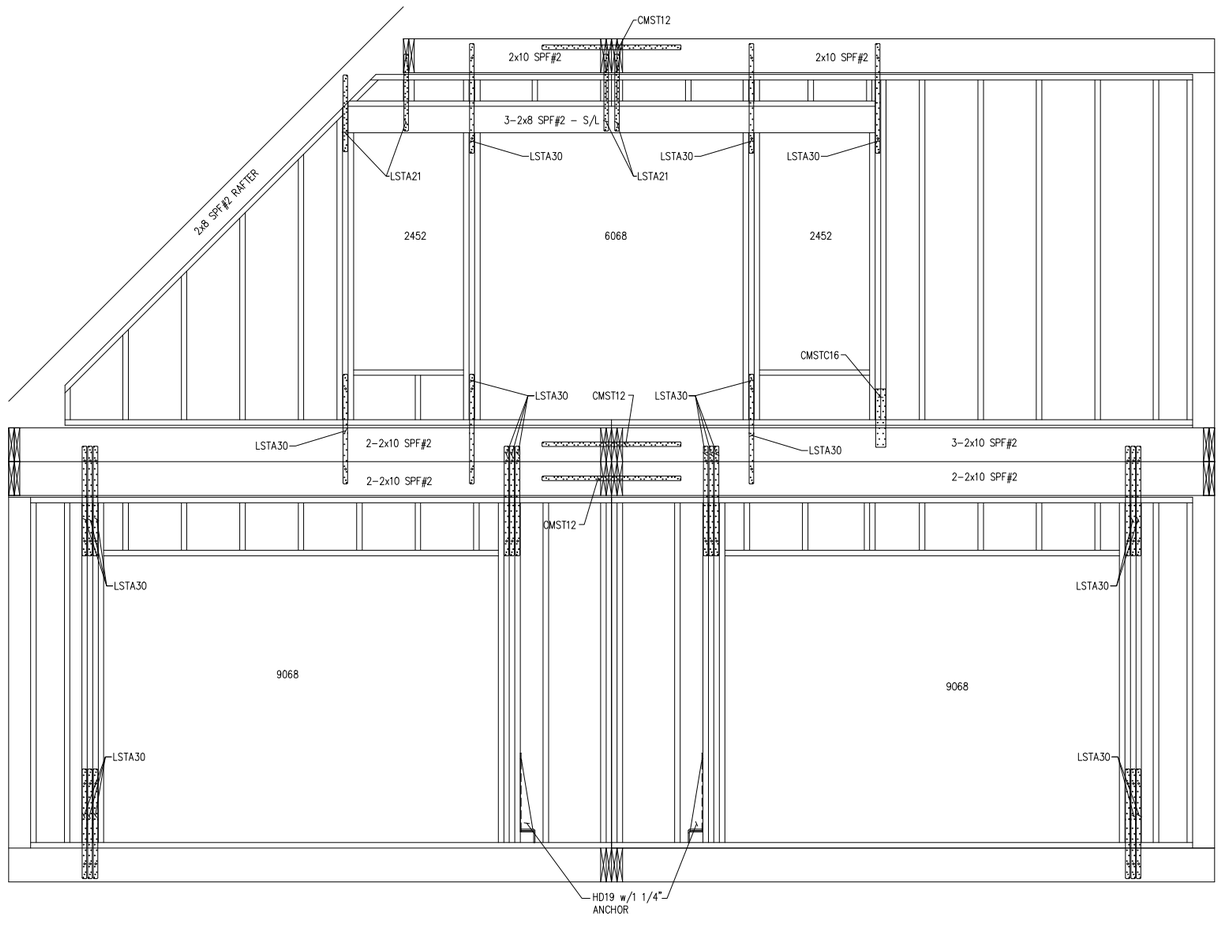

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	REV. PRELIM	TLM	02/15/17
	FINAL	HLB	6/2/17

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6661
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

45/12 HEADER DATA

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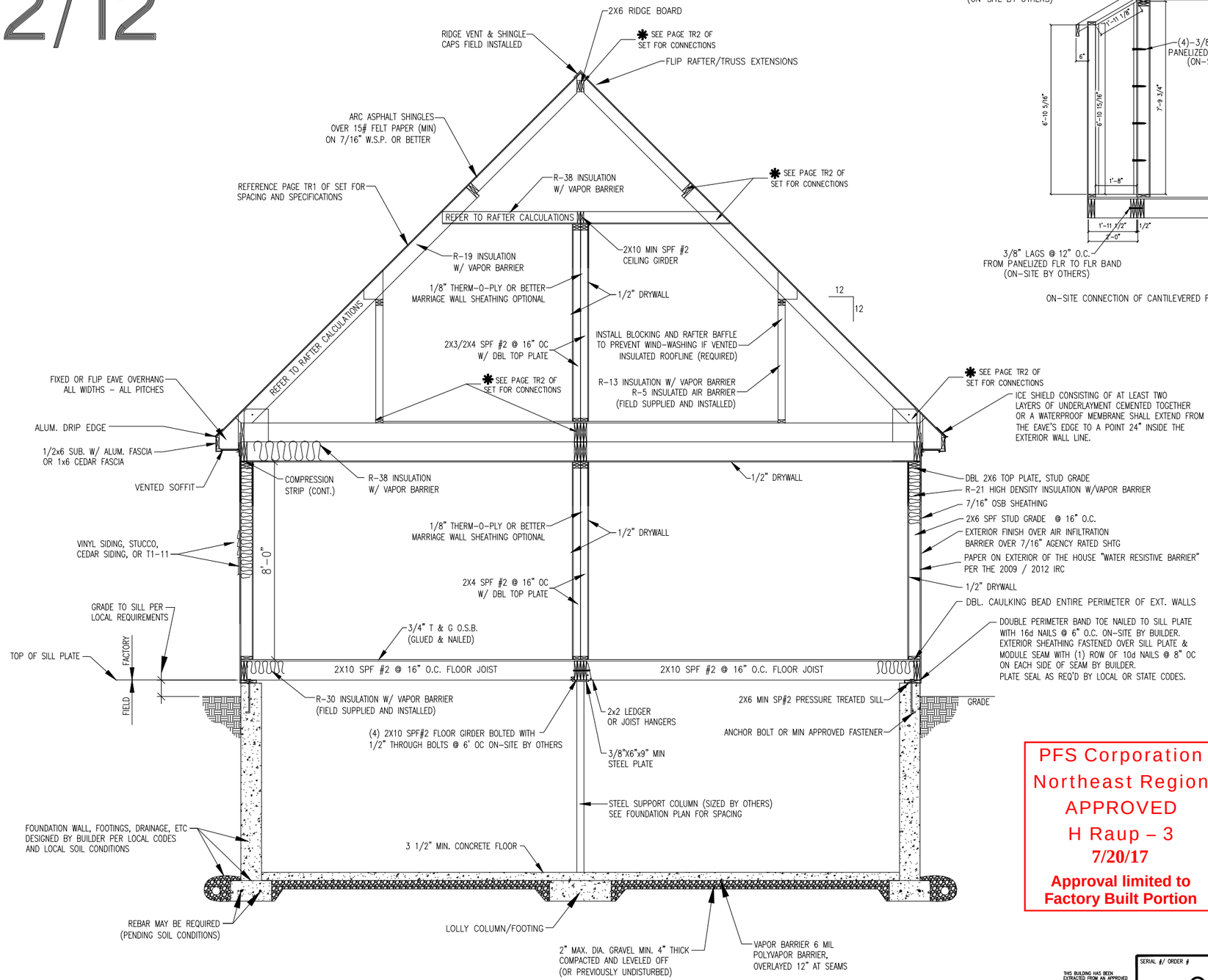
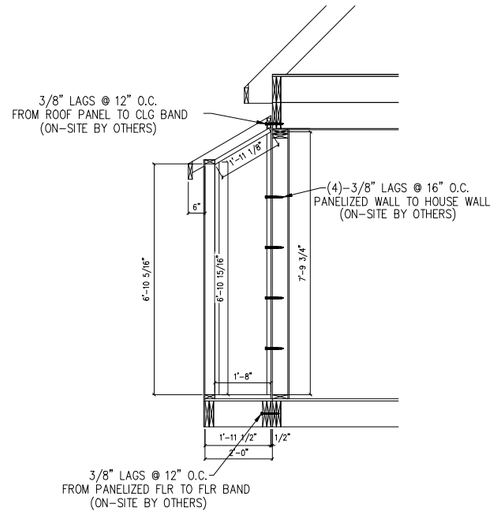
TR8

SEE PAGES FP1, FP2, SW1, SW2, TR1 - TR8 FOR ON-SITE CONNECTIONS

12/12

✱ ON-SITE CONNECTION REQUIRED





ON-SITE CONNECTION OF CANTILEVERED FIREPLACE

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SE1

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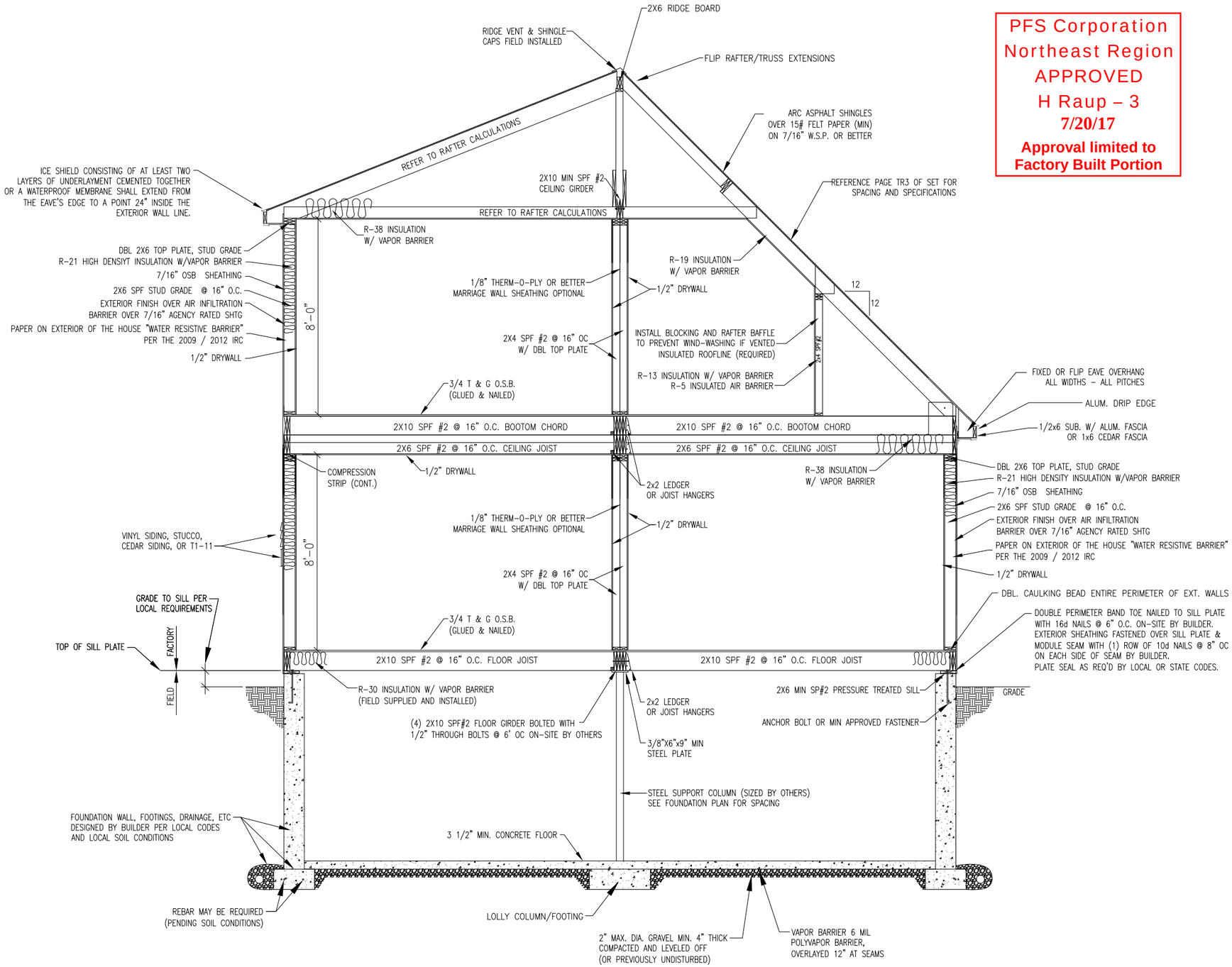
BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
TYPE: CAPE
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
FILE NAME: O#6861

CROSS SECTION / DETAIL #1

12/12



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REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
FILE NAME: O#6861
SERIAL NO:
STATE: MA
ZIP: 02559
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
SQFT: 1,980
TYPE: CAPE

CROSS SECTION / DETAIL #2

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PAGE #: SE2

4.5/12

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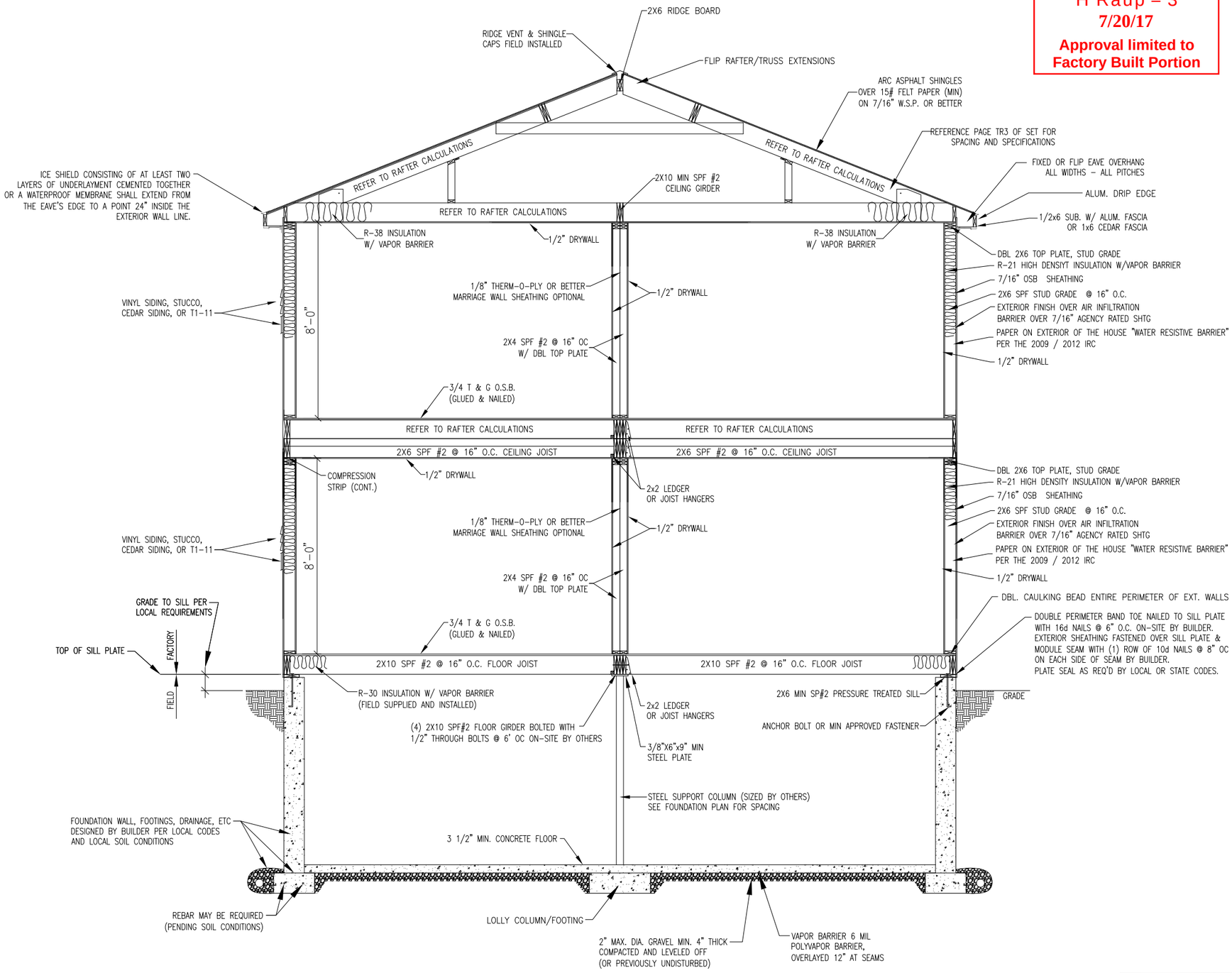

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FINAL	6/2/17	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
SERIAL NO:
FILE NAME: O#6861
ZIP: 02559
STATE: MA
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
SQFT: 1,980
TYPE: CAPE

CROSS SECTION / DETAIL #3

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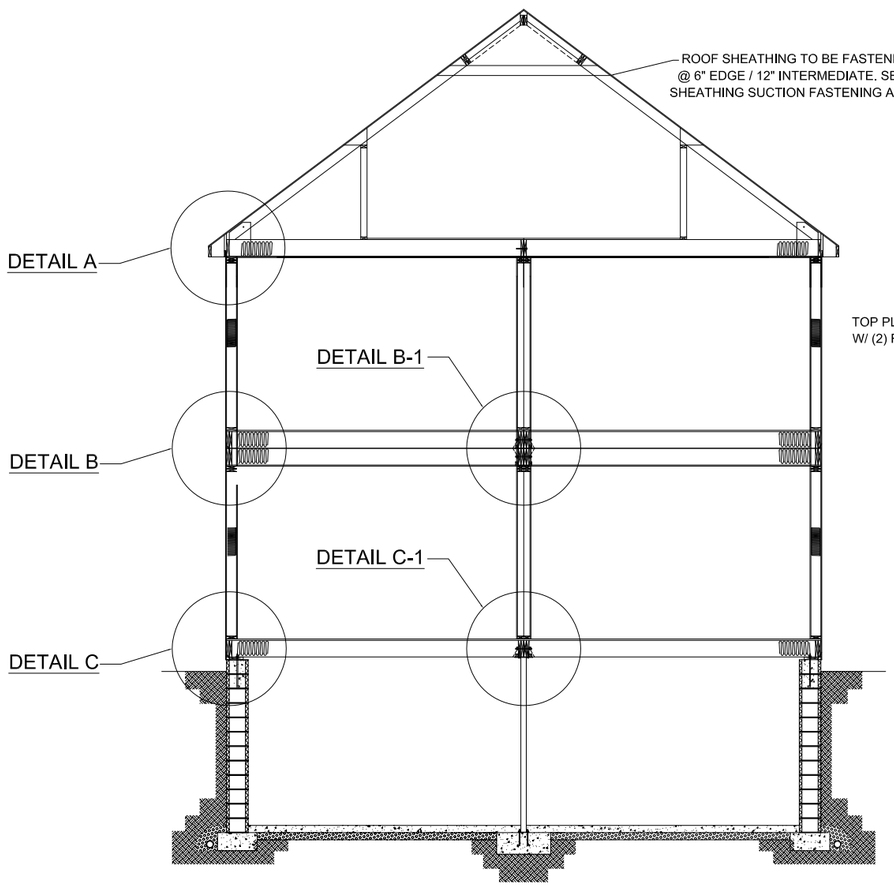
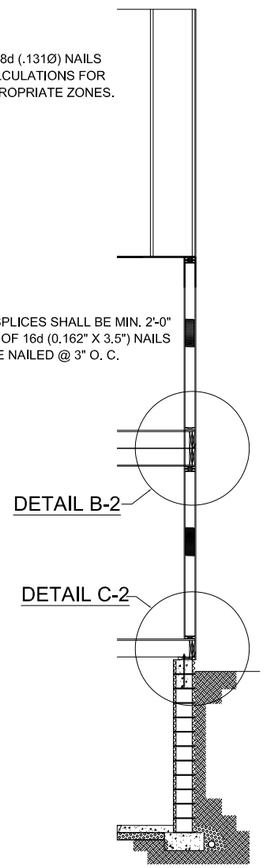
PAGE #: SE3

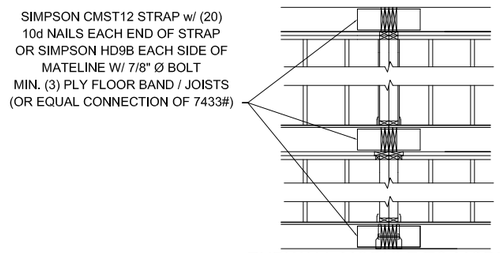
NOTE: (6) NAILS PER SHINGLE



SECTION DOWN
SIDEWALL



SECTION DOWN
ENDWALL



ENDWALL MODULE TO MODULE

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02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
HOMEOWNER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

HIGH WIND SECTION

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PAGE #: SE4

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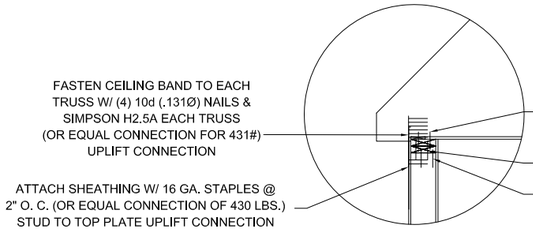
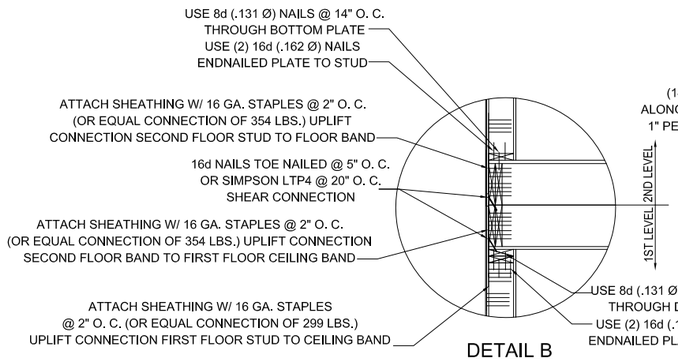


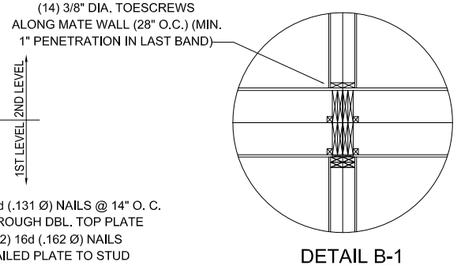
DETAIL A

(TRUSS CONNECTIONS)

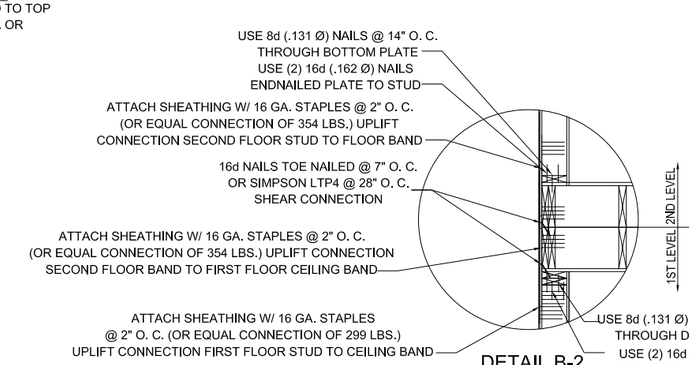
ENDWALL - FASTEN TRUSS BOTTOM CHORD TO TOP PLATE W/ 16d (0.162Ø) NAILS @ 16" O. C. OR SIMPSON LTP4 PLATES @ 63" O. C.



DETAIL B



DETAIL B-1



DETAIL B-2

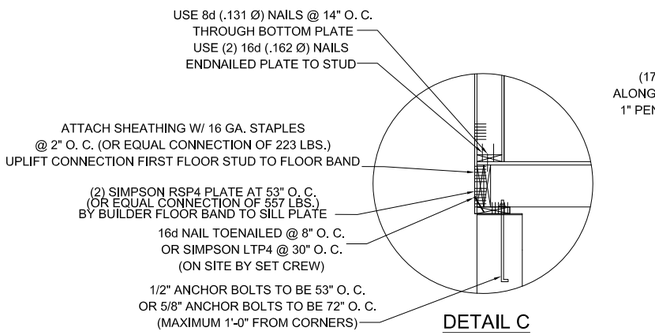
(SECOND LEVEL SIDEWALL CONNECTIONS)

FASTEN SHEATHING TO RIMBAND W/ (1) ROW OF 8d (.131Ø) NAILS @ 3" O. C.

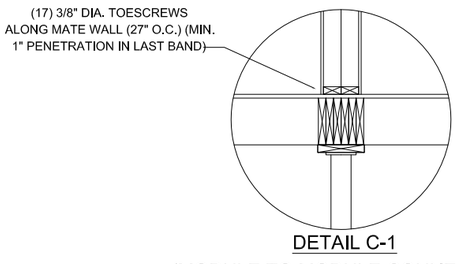
(SECOND LEVEL MODULE TO MODULE CONNECTION ALONG MATEWALL)

(SECOND LEVEL ENDWALL CONNECTIONS)

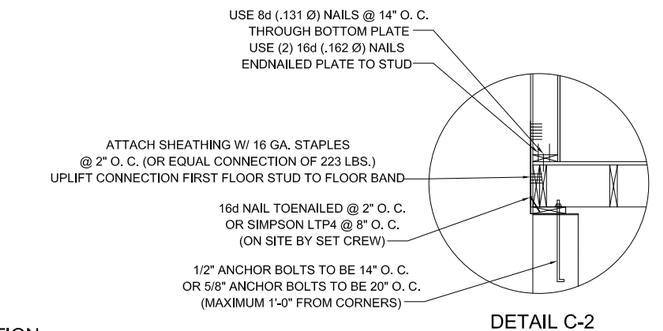
FASTEN SHEATHING TO RIMBAND W/ (1) ROW OF 8d (.131Ø) NAILS @ 2" O. C.



DETAIL C



DETAIL C-1



DETAIL C-2

(FIRST LEVEL SIDEWALL CONNECTIONS)

FASTEN SHEATHING TO RIMBAND W/ (1) ROW OF 8d (.131Ø) NAILS @ 2" O. C.

(MODULE TO MODULE CONNECTION ALONG MATEWALL)

(FIRST LEVEL ENDWALL CONNECTIONS)

FASTEN SHEATHING TO RIMBAND W/ (3) ROWS OF 8d (.131Ø) NAILS @ 2" O. C.

REVISION	DATE	BY
PRELIM	11/15/16	PIF
REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
SERIAL NO:
FILE NAME: O#6861

ZIP	STATE	WIND SPEED (MPH)	TYPE
02559	MA	110	CAPE
SNOW LOAD (LBS)		SQFT	
30		1,980	

HIGH WIND FASTENING

THIS BUILDING HAS BEEN EXTRACTED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

SERIAL #/ ORDER #: O#6861

PAGE #: SE5

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DOOR AND WINDOW SCHEDULE

WINDOWS DESCRIPTION	ROUGH OPENING	AREA	LIGHT	CLEAR OPENING WIDTH (EACH)	CLEAR OPENING HEIGHT (EACH)	VENT	U-FACTOR	QTY	TOTAL AREA
ANDERSEN 400 SERIES CASEMENT C235	48 1/2" X 41 3/8"	13.94	13.6	18.290	36.000	9.20	0.31	1	13.94
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW2032	26 1/8" X 40 7/8"	7.42	4.2	21.875	16.250	2.48	0.31	2	14.84
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW2052	26 1/8" X 64 7/8"	11.77	7.4	21.875	28.250	4.31	0.31	2	23.54
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW24210	30 1/8" X 36 7/8"	7.71	4.5	25.875	14.250	2.58	0.31	1	7.71
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW2452	30 1/8" X 64 7/8"	13.57	8.9	25.875	28.250	5.10	0.31	2	27.14
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW3046-2	75 7/8" X 56 7/8"	29.97	20.6	33.875	24.250	11.46	0.31	3	89.91
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW3052	38 1/8" X 64 7/8"	17.18	12.0	33.875	28.250	6.67	0.31	6	103.08
ANDERSEN 400 SERIES TILT-WASH DOUBLE HUNG TW3052-2	75 7/8" X 64 7/8"	34.18	24.1	33.875	28.250	13.34	0.31	1	34.18
							TOTAL AREA:		314.34

EXTERIOR DOORS DESCRIPTION	ROUGH OPENING	AREA	LIGHT	CLEAR OPENING WIDTH (EACH)	CLEAR OPENING HEIGHT (EACH)	VENT	U-FACTOR	QTY	TOTAL AREA
PLASTPRO 3068 (< 50% GLASS)	38 1/2" X 82 1/8"	21.96	0.0	0.000	0.000	20.00	0.17	1	21.96
PLY GEM PRO SERIES CLASSIC SLIDING PATIO DOOR 9068	108" X 80"	60.00	42.5	27.125	75.750	14.30	0.25	2	120.00
PLY GEM PRO SERIES CLASSIC SLIDING PATIO DOOR CLSPDR6068	72" X 80"	40.00	30.8	29.031	75.772	15.28	0.25	1	40.00
							TOTAL AREA:		181.96

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REVISION	DATE	BY
PRELIM	11/15/16	PIF
REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

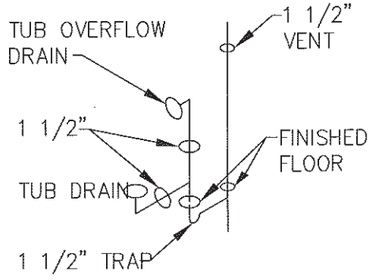
BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

DOOR & WINDOW SCHEDULE

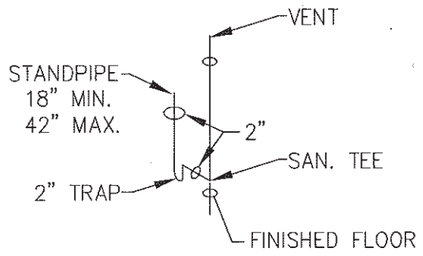
THIS BUILDING HAS BEEN EXTRACTED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

SERIAL #/ ORDER #
O#6861

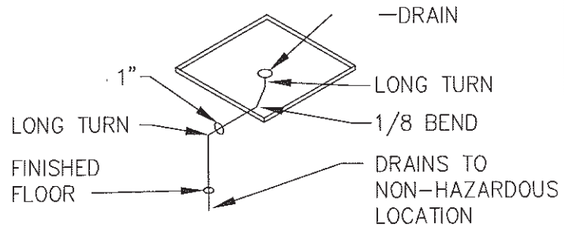
PAGE #:
DWS



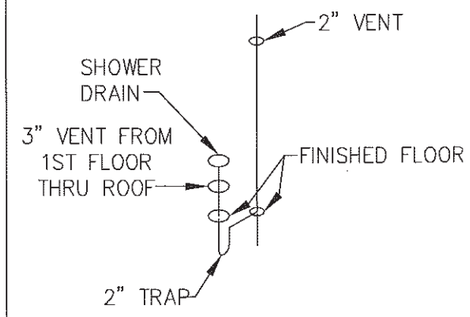
TUB/SHOWER



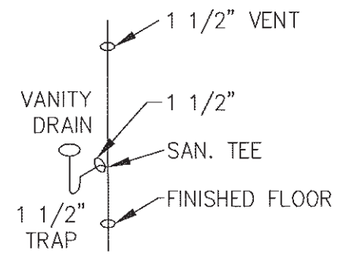
CLOTHES WASHER



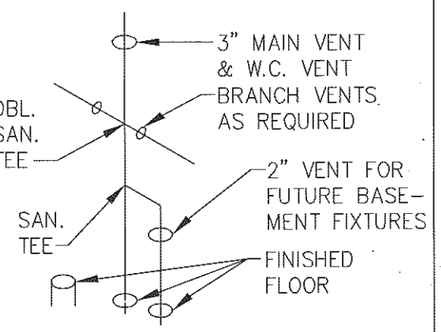
WASHER/WATER HEATER PAN USED WHEN CRAWL SPACE OR USED WHEN EITHER IS INSTALLED ON 2ND FLOOR



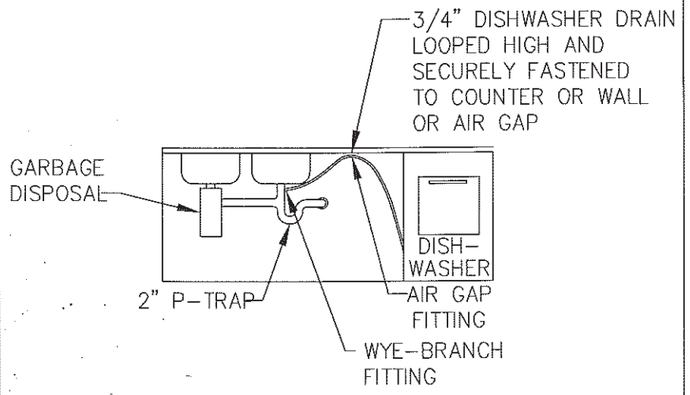
SHOWER



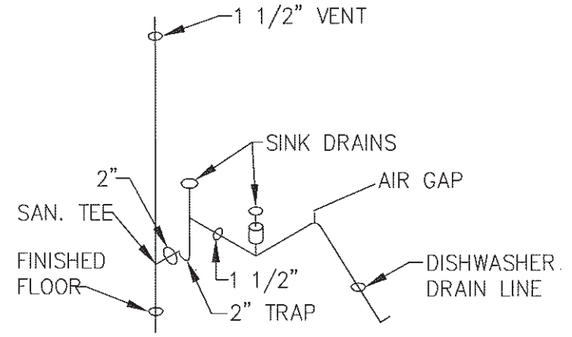
BATHROOM VANITY



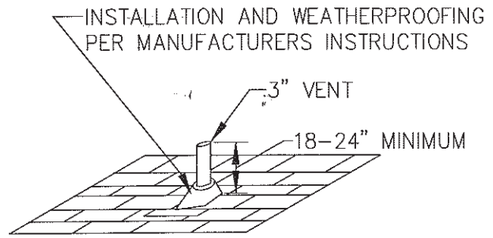
WATER CLOSET AND MAIN VENT



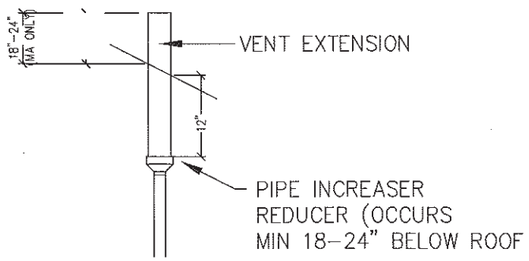
KITCHEN SINK/DISHWASHER/DISPOSAL



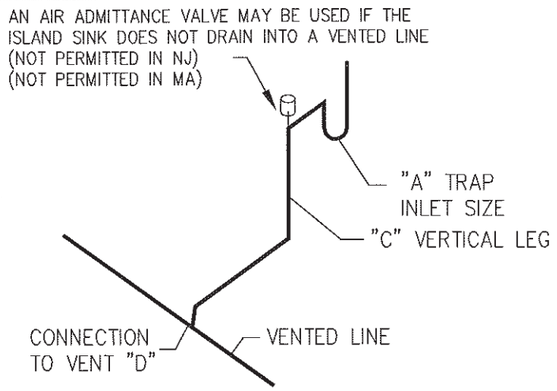
KITCHEN SINK/DISHWASHER DETAIL



VENT THRU ROOF DETAIL



FROST CLOSURE



THE VENT PIPE FROM A FIXTURE DRAIN, EXCEPT WATER CLOSETS AND SIMILAR SIPHONIC FIXTURES, SHALL NOT CONNECT BELOW THE TOP WEIR OF THE TRAP. THE VENT PIPE MAY BE CONNECTED AT A LOWER ELEVATION IF THE FOLLOWING ARE MET:

1. THE VERTICAL SECTION OF THE DRAIN PIPE SHALL BE AT LEAST ONE PIPE SIZE LARGER THAN THE TRAP INLET SIZE.
2. THE HORIZONTAL PIPE CONNECTED TO THE TRAP OUTLET SHALL BE AT LEAST TWO PIPE DIAMETERS LONG.
3. THE DEVELOPED LENGTH OF THE TRAP ARM SHALL NOT EXCEED THE VALUES STATED IN THE APPLICABLE PLUMBING CODES.

"A" – TRAP SIZE PER ALL APPLICABLE PLUMBING CODES
"B" – TRAP ARM LENGTHS:
1 1/4" TRAP – 3'-6"
1 1/2" TRAP – 5'-0"
3" TRAP – 10'-0"
4" TRAP – 12'-0"
"C" – SIZE IS ONE SIZE LARGE THAN TRAP SIZE
"D" – DISTANCE FROM CROWN WEIR AND VENT CONNECTION ACCORDING TO MAX. DISTANCE OF VENT FROM FIXTURE TRAP

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CUSTOMER/PROJECT: SYSTEMS DRAWINGS
BUILDER:

REV#	DATE	REVISIONS	BY
1	12/14/09	CODE UPDATES	BJH
2	12/10/10	REVISED SYSTEMS	SLW
3	1/4/2011	MA CODE UP-DATE	SLW
4	8/10/2011	Code up-date RI, VA, NJ.	SW

DRAWN BY: GLENCO/TH
DATE: 03/14/08
SCALE: NTS
CHECKED BY:

FILE:
SQ.FT.:
STATE:
TYPE:
MODEL:
DRAWING: PLUMBING DETAILS
SHEET: PL1

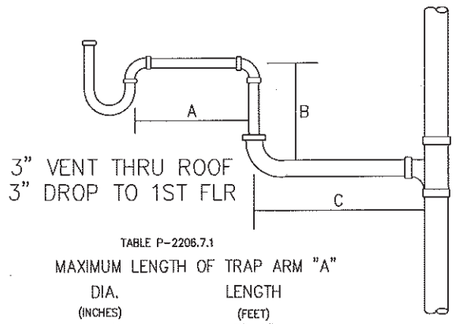


TABLE P-2206.7.1

MAXIMUM LENGTH OF TRAP ARM "A"

DIA. (INCHES)	LENGTH (FEET)
1-1/4	3'-6"
1-1/2	5'
2	8
3	10'
4	14'

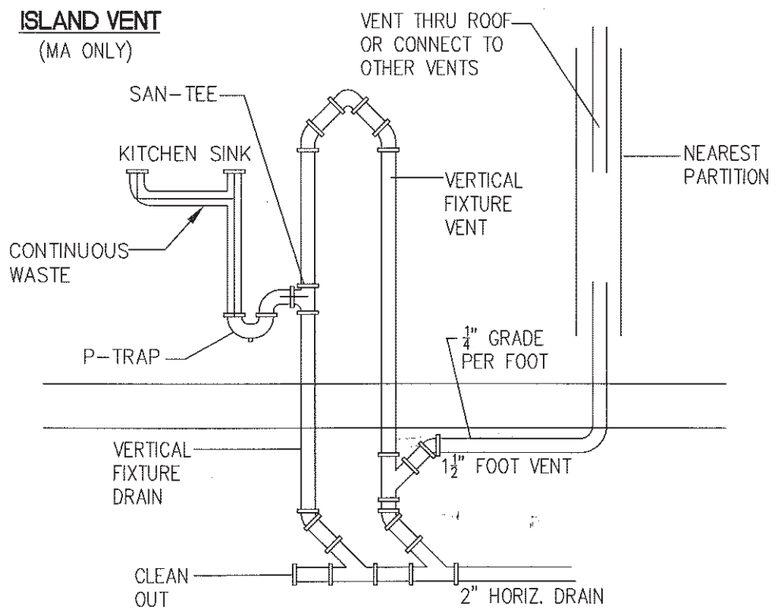
ALLOWABLE FALL IN TRAP ARM: THE TOTAL FALL IN TRAP ARM DUE TO PIPE SLOPE SHALL NOT EXCEED ONE PIPE DIAMETER, NOR SHALL THE VENT PIPE CONNECTION TO A FIXTURE DRAIN, EXCEPT FOR WATER CLOSETS AND SIMILAR FIXTURES, BE BELOW THE WEIR OF THE TRAP,

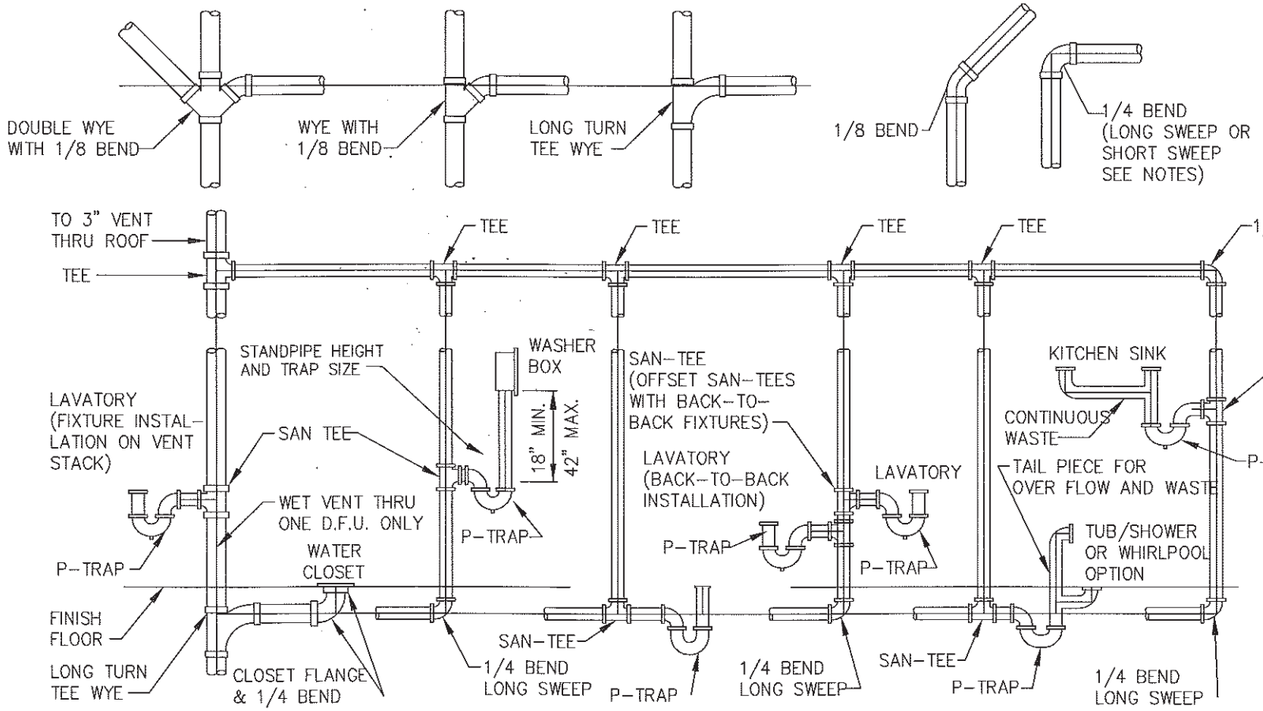
VERTICAL LEG FOR WASTE FIXTURE DRAINS: A VERTICAL LEG ("B" IN DIAGRAM) MAY BE INSTALLED IN THE TRAP ARM OF A WASTE-FIXTURE DRAIN IN LIEU OF THE USUAL TRAP ARM TO VENT CONNECTION. TYPICAL INSTALLATIONS INCLUDE ISLAND SINKS AND FIXTURES NOT ADJACENT TO A WALL. VERTICAL LEG TRAP ARM INSTALLATIONS SHALL MEET THE FOLLOWING CRITERIA:

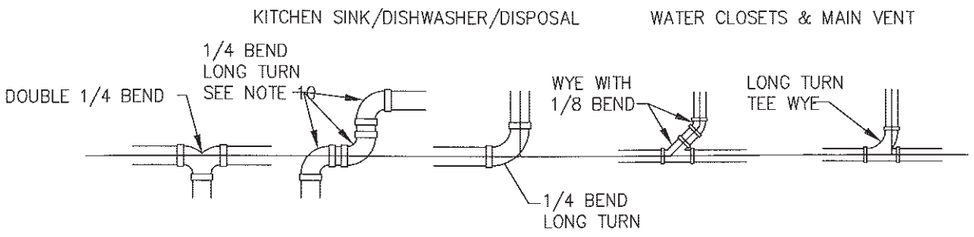
1. MINIMUM TRAP DIAMETER SHALL MEET CODES
2. THE DIAMETER OF SECTION "A" SHALL BE EQUAL TO THE DIAMETER OF THE TRAP.
3. THE LENGTH OF SECTION "A" SHALL BE NOT LESS THAN 8" AND IN ACCORDANCE WITH TABLE P-2206.7.1.
4. THE DIAMETER OF SECTION "B" SHALL BE ONE PIPE SIZE LARGER THAN THE DIAMETER OF SECTION :A".
5. THE LENGTH OF SECTION "B" SHALL BE NOT MORE THAN 36 INCHES
6. THE DIAMETER OF SECTION "C" SHALL BE ONE PIPE SIZE LARGER THAN THE DIAMETER OF SECTION "B".
7. THEIR IS NO RESTRICTION ON THE LENGTH OF SECTION "C".
8. BENDS SHALL BE THE DIAMETER OF THE LARGEST CONNECTED SECTION.

NOT PERMITTED IN MASSACHUSETTS

ISLAND VENT
(MA ONLY)







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CUSTOMER/PROJECT: SYSTEMS DRAWINGS

BUILDER:

REV#	DATE	REVISIONS	BY
1	12/14/09	CODE UPDATES	BJH
2	12/10/10	REVISED SYSTEMS	SLW
3	1/14/2011	MA CODE UP-DATE	SLW
4	5/10/2011	Code up-date RI, VA, NJ.	SW

DRAWN BY: GLENCO/TH | DATE: 03/14/08 | SCALE: NTS | CHECKED BY:

FILE:
SQ.FT.:
STATE:
TYPE:
MODEL:
DRAWING: PLUMBING DETAILS
SHEET: PL2

PLUMBING NOTES:

1. ALL PLUMBING CONSTRUCTION AND MATERIAL BELOW THE MODULAR FLOOR AND BETWEEN FLOORS IS THE RESPONSIBILITY OF THE BUILDER/CONSTRACTOR AND IS TO BE DONE IN ACCORDANCE W/STATE AND LOCAL CODES.
2. CONCEALED PIPING IN UNHEATED AREAS, INCLUDING OUTSIDE WALLS, SHALL BE PROTECTED AGAINST FREEZING IN PLANT. PIPING SHALL BE KEPT OUT OF UNHEATED AREAS WHERE POSSIBLE.
3. ALL WASTE AND VENT LINES IN MODULES ARE ABS OR PVC PIPE. ALL SUPPLY LINES IN MODULES ARE COPPER, PEX, OR CPVC.
4. PITCH ON HORIZONTAL WASTE LINES IS $\frac{1}{8}$" PER FOOT FOR GREATER THAN 3" DIAMETER PIPE, $\frac{1}{4}$" PER FOOT FOR 3" DIAMETER PIPE OR LESS.
5. WASTE LINES: INSTALL WYE WITH CLEANOUT PRIOR TO EXITING WALL FOR CONNECTION TO DISPOSAL SYSTEM. 4" MINIMUM WASTE LINE TO SEPTIC (BY BUILDER IN FIELD).
6. WASHER SHALL HAVE MINIMUM 2" TRAP.
7. REMOVABLE TRAPS UNDER ALL SINKS TO PROVIDE CLEANOUT ACCESS.
8. GARBAGE DISPOSAL MUST HAVE SEPARATE TRAP. DISHWASHER CANNOT DISCHARGE INTO GARBAGE DISPOSAL.
9. KITCHEN SINK SHALL HAVE 2" DRAIN WHEN A GARBAGE DISPOSAL OR DISHWASHER ARE CONNECTED.
10. HORIZONTAL TO HORIZONTAL AND VERTICAL TO HORIZONTAL DRAIN CHANGES IN DIRECTION SHALL BE 45° WYES, LONG SWEEP 90° ELBOWS, LONG SEEP TY'S, 6TH, 8TH, OR 16TH BENDS, APPROVED COMBINATIONS OF THESE OR EQUIVALENT LONG SWEEP FITTINGS. SHORT SWEEPS ARE PERMITTED IN SINGLE BRANCH HORIZONTAL TO VERTICAL CHANGES IN DIRECTION ON 3" PIPE AND LARGER.
11. ALL HORIZONTAL VENT BRANCH PIPING SHALL BE LOCATED A MINIMUM OF 6" ABOVE THE FLOOD LEVEL OF THE HIGHEST FIXTURE IN THAT BRANCH.
12. PVC–DWV PIPE SUPPORTS: AT BRANCHES, CHANGES IN DIRECTION, AND AT THE BASE, EACH FLOOR AND MID STORY (VERTICAL) MAXIMUM EVERY 4'–0" AT THE END OF BRANCHES, AND CHANGE OF DIRECTIONS OR ELEVATION,
13. PIPE PENETRATING FIRE RATED ASSEMBLIES INCLUDING FLOOR/CEILING SHALL BE FIRE STOPPED WHERE REQUIRED BY ALL CODES WITH MATERIAL EQUIVALENT TO CONSTRUCTION THROUGH WHICH IT PENENTRATES AND BE SUITABLE TO PIPE MATERIAL, OR USE METAL PIPE FROM A MINIMUM OF ABOVE THE FIRE RATED ASSEMBLY AND DOWN.
14. FIRE STOPPING SHALL BE PROVIDED AND VERIFIED BEFORE IT IS COVERED OR CONCEALED IN THE CONSTRUCTION PROCESS.
15. ANY STRUCTURAL MEMBER SUBJECT TO HOLE DRILLING, CUTTING, OR NOTHCING SHALL BE LEFT IN A SAFE STRUCTURAL CONDITIION BY BEING REINFORCED, REPAIRED, OR REPLACED IN ACCORDANCE WITH THE STRUCTURAL REQUIREMENTS OF THE CODE.
16. FIELD INSTALLED (ON–SITE) PIPING SHALL BE APPROVED BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICER. PIPING SHALL BE FIELD TESTED FOR LEAKS.
17. BATH TUBS, INCLUDING GARDEN TUBS, HYDRO–MASSAGE, AND HOT TUBS SHALL HAVE A 1 $\frac{1}{2}$" MIN OVERFLOW.
18. JOINTS AROUND PLUMBING FIXTURES SHALL BE MADE WATERPROOF AT FLOORS, WALLS, & COUNTERTOPS.
19. EACH FIXTURE SHALL BE INDIVIDUALLY DIRECT OR WET VENTED.
20. EACH DWELLING UNIT SHALL HAVE ONE MAIN 3" STACK FROM BUILDING DRAIN.
21. ALL VENTS THROUGH ROOF TO BE 3" MIN DIAMETER AND SHALL TERMINATE 18'–24" ABOVE THE ROOF.
22. BASEMENT MODELS SHALL BE PROVIDED IN FACTORY WITH A 2" VENT TO BASEMENT STUBBED BELOW THE FIRST FLOOR, THEN CAPPED AND LABELED. BASEMENT VENT MAY BE DELETED WHEN CLOTHES WASHER IS ON THE FIRST OR SECOND FLOOR.
23. ALL TRAP ARMS MUST BE SUPPORTED WITH $\frac{3}{4}$" MINIMUM BEARING.(MA ONLY)
24. ALL PLASTIC PIPE MUST BE SUPPORTED AT INTERVALS IN ACCORDANCE WITH APPLICABLE PLUMBING CODES.
25. TRAPS SHALL BE PLACED AS CLOSE AS POSSIBLE TO FIXTURE OUTLET. MAXIMUM VERTICAL DROP FROM FIXTURE OUTLET TO TRAP WEIR IS 24".
26. INACCESSIBLE TRAPS SHALL NOT HAVE UNIONS, CLEANOUTS OR SLIPJOINTS. ACCESSIBLE TRAPS SHALL BE REMOVABLE WITH UNION IN TRAP SEAL OR HAVE CLEANOUT OPENING SIZED THE SAME AS THE TRAP.
27. MAXIMUM DISTANCE OF FIXTURE TRAP WEIR TO VENT SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PLUMBING CODES.
28. PLASTIC PIPING SHALL BE PROTECTED WITH $\frac{1}{16}$" STEEL PLATE WHEN PIPE PASSES THROUGH WOOD MEMBERS LESS THAN 1 $\frac{1}{4}$" FROM EDGE OF MEMBER.
29. FIRST FLOOR FIXTURES SHALL CONNECT INTO HORIZONTAL BUILDING DRAIN MORE THAN 10 PIPE DIAMETERS DOWNSTREAM OF STACK BASE AND NOT CONNECT INTO SECOND FLOOR DRAIN STACK.
30. POTABLE WATER SYSTEM SHALL BE DISINFECTED ON SITE BY BUILDER IN ACCORDANCE WITH APPLICABLE STATE PLUMBING CODES.
31. ISLAND FIXTURE VENTING SHALL NOT BE PERMITTED FOR FIXTURES OTHER THAN SINKS AND LAVATURES.. (SEE ISLAND DETAILS).
32. ANTI–SIPHONING DEVICE, VACUUM BREAKDERS, AND AIR GAPS: FOR WATER DISTRICTUION SYSTEMS "PROTECTION OF POTABLE WATER SUPPLY".
    - 32.1. WATER HEATER LOCATED AT OR ON LIVING SPACE LEVEL MUST HAVE AN ANTI–SIPHONING DEVICE INSTALLED.
    - 32.2. CLOTHES WASHER MUST HAVE AN ANTI–SIPHONING DEVICE INSTALLED (IF NOT BUILT INTO THE APPLIANCE).
33. WATER HAMMER ARRESTORS SHALL BE INSTALLED WHERE QUICK CLOSING VALVES ARE UTLIZED. (I.E. WASHING MACHINES AND DISHWASHERS).
34. PIPE INSTALLED DOWNSTREAM OF THE POINT OF POINT OF DELIVERY SHALL NOT EXTEND THROUGH ANY TOWNHOUSE UNIT OTHER THAN THE UNIT SERVED BY SUCH PIPING.

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state approval stampe

architect seal

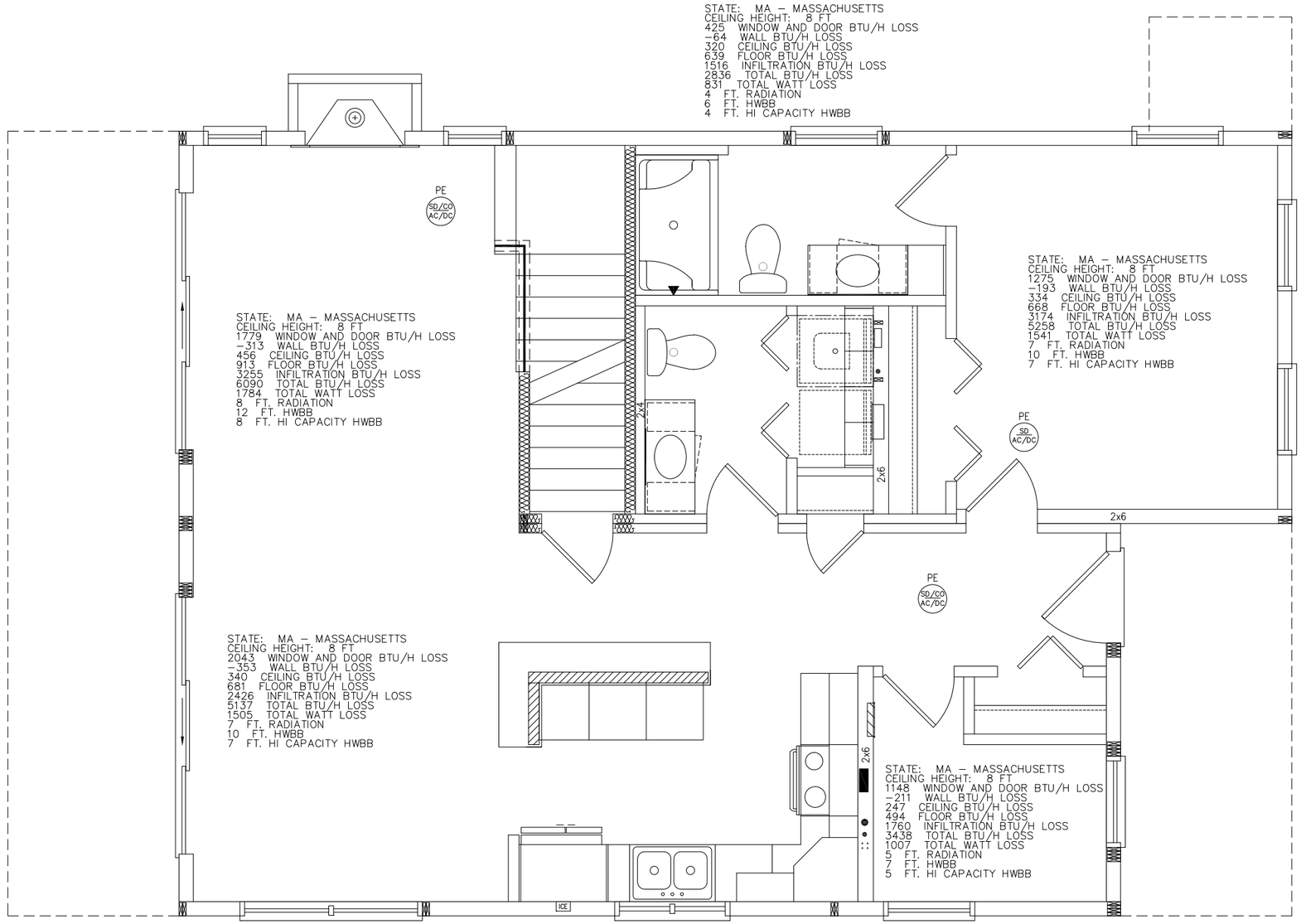
Icon – Legacy Custom Modular Homes, LLC
246 SAND HILL ROAD
SELINSGROVE, PA 17870
PHONE 570-374-2280
FAX 570-374-1122
WWW.ICONLEGACY.COM
Custom Modular Homes, LLC

CUSTOMER/PROJECT: SYSTEMS DRAWINGS
BUILDER:

REV#	DATE	REVISIONS	BY
1	12/14/09	CODE UPDATES	BJH
2	12/10/10	REVISED SYSTEMS	SLW
3	1/4/2011	MA CODE UP–DATE	SLW
4	5/10/2011	Code up–date RI, VA, NJ.	SW

DRAWN BY: GLENCO/TH | DATE: 03/14/08 | SCALE: NTS | CHECKED BY:

FILE:
SQ.FT.:
STATE:
TYPE:
MODEL:
DRAWING: PLUMBING NOTES
SHEET: PL3



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THIS BUILDING HAS BEEN EXTRACTED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

SERIAL #/ ORDER #
O#6861

PAGE #:
HL1

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SELINSGROVE, PA 17870
PHONE: (570) 374-3280
FAX: (570) 374-1122
WWW.ICONLEGACY.COM

ICON LEGACY
CUSTOM MODULAR HOMES LLC
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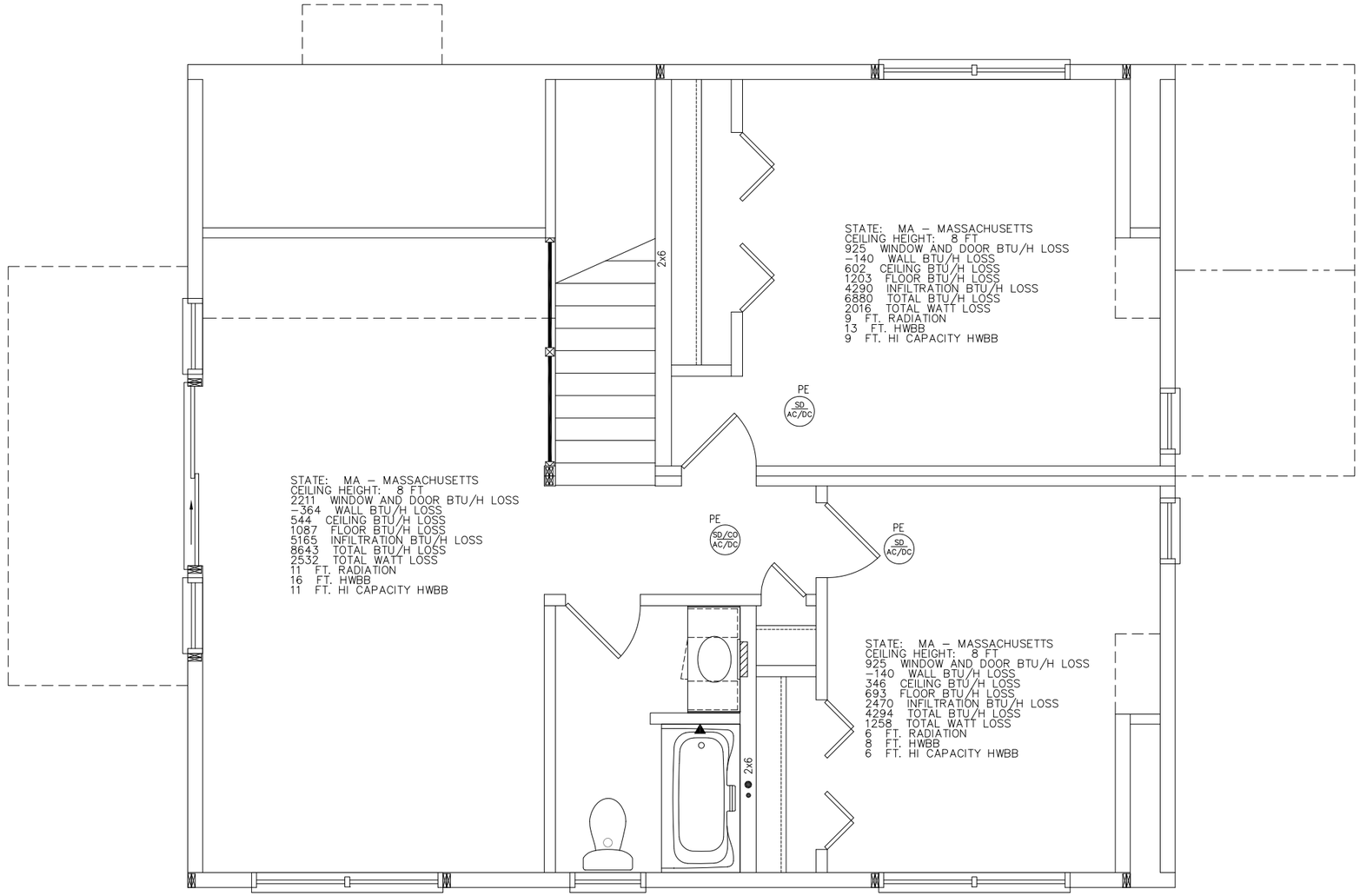
DATE	REVISION	BY
11/15/16	PRELIM	PIF
02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861

1ST STORY HEAT LOSS



STATE: MA – MASSACHUSETTS
CEILING HEIGHT: 8 FT
925 WINDOW AND DOOR BTU/H LOSS
-140 WALL BTU/H LOSS
602 CEILING BTU/H LOSS
1203 FLOOR BTU/H LOSS
4290 INFILTRATION BTU/H LOSS
6880 TOTAL BTU/H LOSS
2016 TOTAL WATT LOSS
9 FT. RADIATION
13 FT. HWBB
9 FT. HI CAPACITY HWBB

STATE: MA – MASSACHUSETTS
CEILING HEIGHT: 8 FT
2211 WINDOW AND DOOR BTU/H LOSS
-364 WALL BTU/H LOSS
544 CEILING BTU/H LOSS
1087 FLOOR BTU/H LOSS
5165 INFILTRATION BTU/H LOSS
8643 TOTAL BTU/H LOSS
2532 TOTAL WATT LOSS
11 FT. RADIATION
16 FT. HWBB
11 FT. HI CAPACITY HWBB

STATE: MA – MASSACHUSETTS
CEILING HEIGHT: 8 FT
925 WINDOW AND DOOR BTU/H LOSS
-140 WALL BTU/H LOSS
346 CEILING BTU/H LOSS
693 FLOOR BTU/H LOSS
2470 INFILTRATION BTU/H LOSS
4294 TOTAL BTU/H LOSS
1258 TOTAL WATT LOSS
6 FT. RADIATION
8 FT. HWBB
6 FT. HI CAPACITY HWBB

STATE: MA – MASSACHUSETTS
CEILING HEIGHT: 8 FT
191 WINDOW AND DOOR BTU/H LOSS
-29 WALL BTU/H LOSS
259 CEILING BTU/H LOSS
519 FLOOR BTU/H LOSS
1230 INFILTRATION BTU/H LOSS
2170 TOTAL BTU/H LOSS
636 TOTAL WATT LOSS
3 FT. RADIATION
4 FT. HWBB
3 FT. HI CAPACITY HWBB

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SERIAL #/ ORDER #
O#6861

PAGE #:
HL2

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SELINSGROVE, PA 17870
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REVISION	DATE	BY
PRELIM	11/15/16	PIF
REV. PRELIM	02/15/17	TLM
FINAL	6/2/17	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET | STATE: MA | ZIP: 02559
COUNTY: BARNSTABLE | SNOW LOAD (LBS): 30 | WIND SPEED (MPH): 110
ORDER NO: 6861 | SERIAL NO | SQFT: 1,980 | TYPE: CAPE
FILE NAME: O#6861

2ND STORY HEAT LOSS

REScheck Software Version 4.6.4

Compliance Certificate

Project ELIZABETH GILLIS

Energy Code:	**2015 IECC**
Location:	**Pocasset, Massachusetts**
Construction Type:	**Single-family**
Project Type:	**New Construction**
Conditioned Floor Area:	**1,898 ft2**
Glazing Area	**25%**
Climate Zone:	**5 (6297 HDD)**
Permit Date:	
Permit Number:	

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Construction Site:
10 HAROR WAY
POCESSET, MA 02559

Owner/Agent:
PLEASANT BAY HOMES
256 PLEASANT BAY ROAD
HARWICH, MA 02615

Designer/Contractor:
ICON LEGACY CMH
246 SAND HILL ROAD
SELINSGROVE, PA 17870

Compliance: Passes using UA trade-off

Compliance: **5.0% Better Than Code** Maximum UA: **299** Your UA: **284**

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules.
It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
ABOVE COLLAR TIE: Flat Ceiling or Scissor Truss	824	38.0	0.0	0.030	25
BEHIND KNEE WALL: Flat Ceiling or Scissor Truss	107	38.0	0.0	0.030	3
SLOPED CEILING: Cathedral Ceiling	49	19.0	0.0	0.052	3
KNEE WALLS: Wood Frame, 16" o.c.	73	13.0	5.0	0.057	4
HOUSE WALLS: Wood Frame, 16" o.c.	1,811	21.0	0.0	0.057	75
Window 1: Vinyl/Fiberglass Frame:Double Pane with Low-E	314			0.310	97
Door 1: Glass	160			0.250	40
Door 2: Solid	22			0.170	4
Floor 1: All-Wood Joist/Truss:Over Unconditioned Space	990	30.0	0.0	0.033	33

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2015 IECC requirements in RES*check* Version 4.6.4 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

ICON LEGACY CMH	*Brett Hebert*	7/12/17
Name - Title	Signature	Date

RES*check* Software Version 4.6.4

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the RES*check* software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PR3][1]	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2][2]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr_____ Cooling: Btu/hr_____	Heating: Btu/hr_____ Cooling: Btu/hr_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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Factory Built Portion

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Foundation Inspection	Complies?	Comments/Assumptions
303.2.1 [FO11]2	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.9 [FO12]2	Snow- and ice-melting system controls installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.4 [FR1][1]	Door U-factor.	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.1, 402.3.1, 402.3.3, 402.3.6, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.3 [FR4][1]	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.3 [FR20][1]	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.5 [FR16][2]	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3.5 [FR15][3]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][2]	HVAC piping conveying fluids above 105 ºF or chilled fluids below 55 ºF are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.3 [FR18][2]	Hot water pipes are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][2]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Additional Comments/Assumptions:

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Northeast Region
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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13][2]	All installed insulation is labeled or the installed R-values provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.6 [IN1][1]	Floor insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2, 402.2.7 [IN2][1]	Floor insulation installed per manufacturer's instructions and in substantial contact with the underside of the subfloor, or floor framing cavity insulation is in contact with the top side of sheathing, or continuous insulation is installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.5, 402.2.6 [IN3][1]	Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R-____ ☐ Wood ☐ Mass ☐ Steel	R-____ ☐ Wood ☐ Mass ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2 [IN4][1]	Wall insulation is installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

PFS Corporation
Northeast Region
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7/20/17
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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1][1]	Ceiling insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.1.1, 303.2 [FI2][1]	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft².			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.3 [FI22][2]	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =____	ACH 50 =____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2.3 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.1 [FI9][2]	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][2]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][2]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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7/20/17
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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25][2]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26][2]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.1 [FI28][2]	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.2 [FI29][2]	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.	PFS Corporation Northeast Region APPROVED H Raup – 3 7/20/17 Approval limited to Factory Built Portion		☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.2 [FI30][2]	Water distribution systems that have recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe have a demand recirculation water system. Pumps have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to 104ºF.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [FI31][2]	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6][1]	75% of lamps in permanent fixtures or 75% of permanent fixtures have high efficacy lamps. Does not apply to low-voltage lighting.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.1 [FI23][3]	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [FI7][2]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
303.3 [FI18][3]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	21.00
Below-Grade Wall	0.00
Floor	30.00
Ceiling / Roof	38.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.31	
Door	0.25	

Heating & Cooling Equipment	Efficiency
Heating System:_____	_____
Cooling System:_____	_____
Water Heater:_____	_____

Name: _____ **Date:**_____

Comments

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Northeast Region
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PFS APPROVED
DATE 7/20/17
PFS CORPORATION
Bloomsburg, PA

HIGH WIND CALCULATIONS
FOR

ICON - LEGACY
CUSTOM MODULAR HOMES, LLC

SELINSGROVE, PA

O#6861

ASCE 7-05, RISK CATEGORY II,
V_{asd} 110 MPH,
VELOCITY PRESSURE q = 25.81 psf
WIND EXPOSURE: C
MA

07/10/17

PREPARED BY:
BARLOW ENGINEERING, P.C.
6512 SIX FORKS RD, SUITE 203B
RALEIGH, NC 27615

170394

INDEX

07/10/17

PFS APPROVED
DATE 7/20/17
PFS CORPORATION
Bloomsburg, PA

NARRATIVE
170394
0278nec2017
Legacy O#6861
Two-Story
27.5' x 39'
Roof Slope: 4.71:12
Wind Speed: 110 mph V_{asd}
Risk Category II
Exposure C
MA
Ethan Loewenthal
7/6/17

PFS APPROVED
DATE 7/20/17
PFS CORPORATION
Bloomsburg, PA

It is assumed that the structure will be placed over a basement foundation system. The mean roof height (MRH) of the structure is adjusted per manufacturer drawings.

Ensure that the foundation is structurally adequate for the shear, uplift and downward point loads imposed at corner connections and similar locations.

The structure was analyzed using ASCE 7-05 basic wind speed (V_{asd} – nominal design 3 sec. gust mph) = 110 mph.

The house was modeled as a 5/12.

Where 2nd story overturning uplifts occur above 1st story openings, the 2nd floor band was designed to transfer the point loads to the edges of the openings on the 1st story.

A 1st story offset shearwall was designed. Because of the offset, tributary lengths were used to calculate the load on this offset wall, as well as the 1st story endwalls.

Where the 2nd story Endwall #2 does not align with the 1st story Endwall #2 below, the 2nd floor diaphragm was designed to transfer the shear load.

Tension connections were designed at ceiling and floor levels to carry shearwall loads across the matelines.

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Bloomsburg, PA

Section 1

ASCE 7-05 WIND LOAD CALCULATIONS

07/10/17

DESIGN INPUTS:

FIRST FLOOR WIDTH:	27.50	ft	NO. OF STORIES:	2	
SECOND FLOOR WIDTH:	27.50	ft	1st FLOOR WALL HEIGHT:	8.00	ft
THIRD FLOOR WIDTH:	0.00	ft	2nd FLOOR WALL HEIGHT:	8.00	ft
FOURTH FLOOR WIDTH:	0.00	ft	3rd FLOOR WALL HEIGHT:	0.00	ft
FIRST FLOOR LENGTH:	39.00	ft	4th FLOOR WALL HEIGHT:	0.00	ft
SECOND FLOOR LENGTH:	33.00	ft	WIND SPEED:	110	mph
THIRD FLOOR LENGTH:	0.00	ft	WIND EXPOSURE CASE:	C	
FOURTH FLOOR LENGTH:	0.00	ft			
ROOF SPAN (RS):	27.50	ft	(WIND BORNE DEBRIS PROTECTION		
STUD SPACING:	16	in	IS REQUIRED FOR		
TRUSS SPACING:	16	in	HURRICANE PRONE REGIONS)		
ROOF PITCH:	5	/ 12			
ROOF ANGLE (Θ):	22.62	°			
RAFTER LENGTH (L) =	14.90	ft			
z =	30.00	ft			
hr =	5.73	ft			
hr / 2 =	2.87	ft			
h =	**30.00**	ft	(IF ROOF SLOPE <= 10 DEGREES, USE EAVE HEIGHT)		
WALL EFFECTIVE WIND AREA = h_x x STUD SPACING =	21.33		(EFFECTIVE WIDTH NEED NOT BE LESS THAN 8ft / 3 = 2.66 ft)		
ROOF EFFECTIVE WIND AREA = L x TRUSS SPACING =	74.00	ft^2	(EFFECTIVE WIDTH NEED NOT BE LESS THAN 14.9ft / 3 = 4.96 ft)		
MIN. WALL & ROOF EFFECTIVE AREA FOR FASTENERS =	0.17	ft^2	(WORST CASE: 2" o.c. FASTENERS WITH 12" o.c. FRAMING)		

a = 10% OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 3 ft. (p. 54, FIG. 6-10, NOTATION 9.a)

a: 0.1W = 0.1 * 27.5 ft = 2.75 ft OR 0.4h = 0.4 * 30 ft = 12 ft

LESSER = 2.75 ft

AND NOT LESS THAN EITHER:

0.04W = 0.04 * 27.5 ft = 1.1 ft

OR 3 ft:

a = 3 ft

DETERMINE WIND LOADS PER ASCE 7-05:

MAIN WIND FORCE RESISTING SYSTEM :

CONSTANTS:

WIND VELOCITY (V):	110 mph	DIRECTIONALITY FACTOR (K_d):	0.85
VEL. PRESS. EXP. COEF. (K_h):	0.98		
VEL. PRESS. EXP. COEF. (K_z):	0.98	q_h: = .00256 x K_h x K_{zt} x Kd x V^2 =	25.81
MULT. for TOPO. FACTOR (K_1):	0.09	q_z: = .00256 x K_z x K_{zt} x Kd x V^2 =	25.81
MULT. for TOPO. FACTOR (K_2):	0		
MULT. for TOPO. FACTOR (K_3):	0	GUST EFFECT FACTOR (G):	0.85
K_{zt}: = $(1 + K_1 x K_2 x K_3)^2$ =	1	INTERNAL PRESS. COEF. (GC_{pi1}):	0.18
			-0.18

PER TABLE 6-6, ASCE 7-05, pp 49, "EXTERNAL PRESSURE COEFFICIENTS, Cp"

WALL PRESSURE COEFICIENTS

SURFACE		Cp	USE WITH
WINDWARD WALL	ALL	0.8	qz
LEEWARD WALL	SIDE	-0.5	qh
LEEWARD WALL	END	-0.4	qh
SIDE WALL	ALL	-0.7	qh

ROOF PRESSURE COEFICIENTS FOR USE WITH qh
NORMAL TO RIDGE (WIND FROM SIDEWALL)

Cp - WINDWARD WALL	-0.60
	-0.10
Cp - LEEWARD WALL	0.60

PARALLEL TO RIDGE (WIND FROM ENDWALL)

Cp - 0 TO h/2	-1.17
Cp - h/2 TO h	-1.17
Cp - h TO 2h	-1.17
Cp - > 2h	-1.17
Cp	-0.18

LATERAL LOADS:

EXTERNAL PRESSURE COEFFICIENTS:
22.62 ° ROOF

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CASE A - WIND FROM SIDE WALL:

SIDE WALL:	GC_{pf1} =	0.54	GC_{pf1E} =	0.77
SIDE WALL:	GC_{pf4} =	-0.41	GC_{pf4E} =	-0.60

LOAD CALCULATIONS (WIND FROM SIDE WALL):

P = q GCp - qi (GCpi)

EXAMPLE:

P = qh GCp - qi (GCpi) = (25.81 psf x 0.85 x 0.8) - (25.81 x 0.18) = 12.9 psf

P = qh GCp - qi (GCpi) = (25.81 psf x 0.85 x 0.8) - (25.81 x -0.18) = 22.2 psf

WINDWARD	P =	12.90	psf
WINDWARD	P =	22.20	psf
LEEWARD	P =	-15.60	psf
LEEWARD	P =	-6.30	psf

WINDWARD	P =	-6.84	psf
WINDWARD	P =	2.45	psf
LEEWARD	P =	8.52	psf
LEEWARD	P =	17.81	psf

WINDWARD SIDE:

USE	28.50	psf	WIND LOAD

ROOF SIDE:

USE	-5.91	psf	WIND LOAD

CASE B - WIND FROM END WALL:

ENDWALL:	GC_{pf1} =	0.4	GC_{pf1E} =	0.61
ENDWALL:	GC_{pf4} =	-0.29	GC_{pf4E} =	-0.43

LOAD CALCULATIONS (WIND FROM END WALL):

P = q GCp - qi (GCpi)

EXAMPLE:

P = qz GCp - qi (GCpi) = (25.81 psf x 0.85 x 0.8) - (25.81 x 0.18) = 12.9 psf

P = qz GCp - qi (GCpi) = (25.81 psf x 0.85 x 0.8) - (25.81 x -0.18) = 22.2 psf

WINDWARD	P =	12.90	psf
WINDWARD	P =	22.20	psf
LEEWARD	P =	-13.40	psf
LEEWARD	P =	-4.10	psf

WINDWARD SIDE:

USE	26.30	psf	WIND LOAD

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UPLIFT LOADS:

EXTERNAL PRESSURE COEFFICIENTS:
22.62 ° ROOF

CASE A - WIND FROM SIDE WALL:

ROOF:	GC_{pf2} =	-0.45	GC_{pf2E} =	-0.72
ROOF:	GC_{pf3} =	-0.47	GC_{pf3E} =	-0.65

LOAD CALCULATIONS (WIND FROM SIDE WALL):

P = q GCp - qi (GCpi)

EXAMPLE:

P = qh GCp - qi (GCpi) = (25.81 psf x 0.85 x -0.6) - (25.81 x 0.18) = -17.8 psf

P = qh GCp - qi (GCpi) = (25.81 psf x 0.85 x -0.6) - (25.81 x -0.18) = -8.5 psf

WINDWARD	P =	-17.80	psf	LEEWARD	P =	8.50	psf
WINDWARD	P =	-8.50	psf	LEEWARD	P =	17.80	psf
WINDWARD	P =	-6.80	psf				
WINDWARD	P =	2.50	psf				

WINDWARD SIDE:

USE	-17.80	psf	WIND LOAD
USE	2.50	psf	WIND LOAD

LEEWARD SIDE:

USE	8.50	psf	WIND LOAD

THE MAXIMUM UPLIFT LOAD FOR 110 mph CASE A - WIND FROM SIDE WALL (MWFRS) IS -17.80 psf.

CASE B - WIND FROM END WALL:

ROOF:	GC_{pf2} =	-0.69	GC_{pf2E} =	-1.07
ROOF:	GC_{pf3} =	-0.37	GC_{pf3E} =	-0.53

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LOAD CALCULATIONS (WIND FROM END WALL):

P = q GCp - qi (GCpi)

EXAMPLE:

P = qh GCp - qi (GCpi) = (25.81 psf x 0.85 x -1.17) - (25.81 x 0.18) = -30.3 psf

P = qh GCp - qi (GCpi) = (25.81 psf x 0.85 x -0.18) - (25.81 x -0.18) = -21 psf

WINDWARD	P =	-30.30	psf
WINDWARD	P =	-21.00	psf
LEEWARD	P =	-8.60	psf
LEEWARD	P =	0.70	psf

WINDWARD SIDE:

USE	-30.30	psf	WIND LOAD

LEEWARD SIDE:

USE	-8.60	psf	WIND LOAD

THE MAXIMUM UPLIFT LOAD FOR 110 mph CASE B - WIND FROM END WALL (MWFRS) IS -30.30 psf.

CALCULATE LOADING ON BUILDING

LATERAL LOADS FROM WIND:

WIND PERPENDICULAR TO RIDGE:
WINDWARD SIDE:

USE	28.50	psf	WIND LOAD

WIND PRESSURE (w) = 28.5 psf

MAX. WALL HEIGHT (H) = 8.00 ft

LAT = w * H / 2 = 28.5 psf * 8 ft / 2 =
LAT = 114 plf

WIND PARALLEL TO RIDGE:
WINDWARD SIDE:

USE	26.30	psf	WIND LOAD

WIND PRESSURE (w) = 26.3 psf

MAX. WALL HEIGHT (H) = 13.730 ft (INCLUDES GABLE)

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LAT = w * H / 2 = 26.3 psf * 13.73 ft / 2 =
LAT = 181 plf

UPLIFT LOADS FROM WIND:

WIND PERPENDICULAR TO RIDGE:

WINDWARD SIDE:

USE -17.80 psf WIND LOAD
USE 2.50 psf WIND LOAD

LEEWARD SIDE:

USE 8.50 psf WIND LOAD

WIND PRESSURE (w) = 17.8 psf

MAX. RAFTER LENGTH (L) = 14.90 ft

LAT = w * H / 2 = 17.8 psf * 14.9 ft / 2 =
LAT = 133 plf

WIND PARALLEL TO RIDGE:

WINDWARD SIDE:

USE -30.30 psf WIND LOAD

LEEWARD SIDE:

USE -8.60 psf WIND LOAD

WIND PRESSURE (w) = 30.3 psf
MAX. ROOF LENGTH (L) = 14.900 ft

LAT = w * H / 2 = 30.3 psf * 14.9 ft / 2 =
LAT = 226 plf

UPLIFT LOADING:

ROOF SPAN (RS) = 27.50
ROOF PITCH: 5 / 12 ft
WIND PRESSURE = 30.3 psf ft
UPLIFT = **WIND PRESSURE * COS()*ROOF SPAN/2** ft
= **384.609** / 12

THIS IS THE UPLIFT IN THE SIDEWALL FROM TRUSS/ROOF psf
FROM TRUSS/ROOF

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LATERAL LOADING:

		ft
		ft
MAX. FLOOR WIDTH (W) =	27.5	
MAX. FLOOR LENGTH (L) =	39.00	
ROOF SPAN (RS) =	27.50	
ROOF PITCH:	5	
ROOF ANGLE (θ) =	22.62	
MAX. WALL HEIGHT (H) =	8.00	psf
RIDGE ROOF HEIGHT (hr)=	5.73	
EDGE ROOF HEIGHT (he)=	2.5	28.5 psf * 8 ft=
		plf (w/ 0.6 FACTOR)

CALCULATE LATERAL PRESSURE AT FLOOR: (PERPENDICULAR TO RIDGE)

W_{LAT} = 28.5 psf

w_{FL} = W_{LAT} * H =

w_{FL} = 228 26.3 psf * 8 ft=

CALCULATE LATERAL PRESSURE AT FLOOR: (PARALLEL TO RIDGE)

W_{LAT} = 26.3

w_{FL} = W_{LAT} * H =

w_{FL} = 210 114 plf) (ASCE 7-10 FIGURE 27.4-1 NOTE 6)

CALCULATE LATERAL PRESSURE @ ROOF: (PERPENDICULAR TO RIDGE)

Sin () = 0.38443063

$w_{R\text{-}PER}$ = Wmax(roof) * hr*SIN() + w_{FL} / 2 =

$w_{R\text{-}PER}$ = 30.3 psf * 2.20279997301131 ft + 228 plf / 2 =

(BUT NO LESS THAN: 228 plf / 2 = 114 plf) (ASCE 7-10 FIGURE 27.4-1 NOTE 6)

$w_{R\text{-}PER}$ = 180.75 **plf**

CALCULATE LATERAL PRESSURE @ ROOF: (PARALLEL TO RIDGE)

GABLE AREA (A_T) = RS * hr / 2 =

A_T = 27.5 ft * 5.73 ft / 2 =

A_T = 78.79 lbs

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TOTAL WIND LOAD (P_w) = $(A_T - A_e) * w_{rf} + A_e * w_{re}$ =
P_w = (78.79 ft^2) * 26.3 psf =
P_w = 2072

$w_{R\text{-}PAR} = P_w / R + W_{fl} / 2$ = mph
$w_{R\text{-}PAR}$ = 2072 lbs / 27.5 ft + 210 plf / 2 =
$w_{R\text{-}PAR}$ = 180 **plf**

DIRECTIONALITY FACTOR (K_d): 0.85

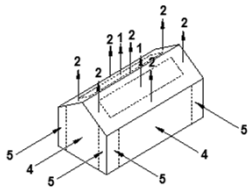
q_z: = .00256 x K_z x K_{zt} x Kd x V^2 = 25.81
$q_i = q_h = q_z$ = 25.81
GUST EFFECT FACTOR (G): 0.85
INTERNAL PRESS. COEF. (GC_{pi}): 0.18
-0.18

DETERMINE WIND LOADS PER ASCE 7-05 FOR ALL-HEIGHT BUILDINGS:

COMPONENTS AND CLADDING :

CONSTANTS:

WIND VELOCITY (V):	110
VEL. PRESS. EXP. COEF. (K_z):	0.98
MULT. for TOPO. FACTOR (K_1):	0.09
MULT. for TOPO. FACTOR (K_2):	0.00
MULT. for TOPO. FACTOR (K_3):	0.00
K_{zt}: = $(1 + K_1 \times K_2 \times K_3)^2$ =	1.00



LATERAL LOADS (COMPONENTS AND CLADDING):

EXTERNAL PRESSURE COEFFICIENTS:

SIDE WALL:	FIELD:	GC_{pf4} =	-1.00
	EDGE:	GC_{pf5} =	-1.16

LOAD CALCULATIONS:

$P = q_h \times (GC_{pf} - GC_{pi})$

EXAMPLE:

$P_{4i} = q_h \times (GC_{pf4} - GC_{pi4})$ = 25.81 psf * [(-1 - 0.18)] = -30.46 psf

$P_{4i} = q_h \times (GC_{pf4} - GC_{pi4})$ = 25.81 psf * [(-1 - -0.18)] = -21.17 psf

FIELD:	P_{4i} =	-30.46	psf
FIELD:	P_{4i} =	-21.17	psf
EDGE:	P_{5i} =	-34.59	psf
EDGE:	P_{5i} =	-25.30	psf

USE **-18.28** psf WIND LOAD FOR FIELD.
USE **-20.75** psf WIND LOAD FOR EDGE.
****(W/ 0.6 FACTOR)**

UPLIFT LOADS (COMPONENTS AND CLADDING):

EXTERNAL PRESSURE COEFFICIENTS:

ROOF:	FIELD:	GC_{pf1} =	-0.81
	EDGE:	GC_{pf2} =	-1.27
	OVERHANG:	GC_{pf3} =	-2.20
	DOWNWARD:	GC_{pf1-3} =	0.37

LOAD CALCULATIONS:

$P_h = q_h \times (GC_p - GC_{pi})$

EXAMPLE:

$P_h = q_h \times (GC_{pf1} - GC_{pi1})$ = 25.81 psf * [(-0.81 - 0.18)] = -25.56 psf

$P_{1i} = q_h \times (GC_{pf1} - GC_{pi1})$ = 25.81 psf * [(-0.81 - -0.18)] = -16.27 psf

FIELD:	P_{1i} =	-25.56	psf
FIELD:	P_{1i} =	-16.27	psf

USE **-15.34** psf WIND LOAD FOR FIELD.
USE **-22.46** psf WIND LOAD FOR EDGE.
USE **-36.86** psf WIND LOAD FOR OVERHANG.
USE **8.52** psf DOWNWARD WIND LOAD.
****(W/ 0.6 FACTOR)**

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EDGE:	P_{2i} =	-37.43	psf
EDGE:	P_{2i} =	-28.14	psf
OVERHANG:	P_{3i} =	-61.43	psf
OVERHANG:	P_{3i} =	-52.14	psf
DOWNWARD:	P_{1-3i} =	4.91	psf
DOWNWARD:	P_{1-3i} =	14.20	psf

mph

DIRECTIONALITY FACTOR (K_d): 0.85

q_z: = .00256 x K_Z x K_{Zi} x Kd x V^2 = 25.81

$q_i = q_h = q_z$ = 25.81

DETERMINE WIND LOADS PER ASCE 7-05 FOR ALL-HEIGHT BUILDINGS:

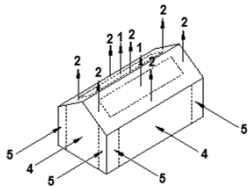
GUST EFFECT FACTOR (G): 0.85

INTERNAL PRESS. COEF. (GC_{pi}): 0.18

COMPONENTS AND CLADDING: FOR FASTENERS ONLY (EFFECTIVE AREA SHALL BE NO GREATER THAN FASTENER TRIBUTARY AR -0.18

CONSTANTS:

WIND VELOCITY (V):	110
VEL. PRESS. EXP. COEF. (K_Z):	0.98
MULT. for TOPO. FACTOR (K_1):	0.09
MULT. for TOPO. FACTOR (K_2):	0.00
MULT. for TOPO. FACTOR (K_3):	0.00
K_{Zi}: = $(1 + K_1 \times K_2 \times K_3)^2$ =	1.00



LATERAL LOADS (COMPONENTS AND CLADDING):

EXTERNAL PRESSURE COEFFICIENTS:

SIDE WALL: ↄ (ZONE 4):	GC_{pf4} =	-1.10
EDGE (ZONE 5):	GC_{pf5} =	-1.40

LOAD CALCULATIONS:

$P = q_h \times (GC_{pf} - GC_{pi})$

EXAMPLE:

$P_{4i} = q_h \times (GC_{pf4} - GC_{pi4})$ = 25.81 psf * [(-1.1 - 0.18)] = -33.04 psf

$P_{4i} = q_h \times (GC_{pf4} - GC_{pi4})$ = 25.81 psf * [(-1.1 - -0.18)] = -23.75 psf

FIELD (ZONE 4):	P_{4i} =	-33.04	psf
FIELD (ZONE 4):	P_{4i} =	-23.75	psf
EDGE (ZONE 5):	P_{5i} =	-40.78	psf
EDGE (ZONE 5):	P_{5i} =	-31.49	psf

USE	**19.82**	psf WIND LOAD FOR FIELD.
USE	**24.47**	psf WIND LOAD FOR EDGE.

****(W/ 0.6 FACTOR)**

UPLIFT LOADS (COMPONENTS AND CLADDING):

EXTERNAL PRESSURE COEFFICIENTS:

ROOF: ↄ (ZONE 1):	GC_{pf1} =	-0.90
EDGE (ZONE 2):	GC_{pf2} =	-1.70
CORNER (ZONE 3):	GC_{pf3} =	-2.60
CORNER OH (ZONE 3):	GC_{pf1-3} =	-3.70

LOAD CALCULATIONS:

$P_h = q_h \times (GC_p - GC_{pi})$

EXAMPLE:

$P_h = q_h \times (GC_{pf1} - GC_{pi1})$ = 25.81 psf * [(-0.9 - 0.18)] = -27.88 psf

$P_{1i} = q_h \times (GC_{pf1} - GC_{pi1})$ = 25.81 psf * [(-0.9 - -0.18)] = -18.59 psf

FIELD (ZONE 1):	P_{1i} =	-27.88	psf

USE	**16.73**	psf WIND LOAD FOR FIELD (ZONE 1).
USE	**29.12**	psf WIND LOAD FOR EDGE (ZONE 2).
USE	**43.06**	psf WIND LOAD FOR CORNER (ZONE 3).
USE	**60.09**	psf WIND LOAD FOR CORNER OH (ZONE 3).

****(W/ 0.6 FACTOR)**

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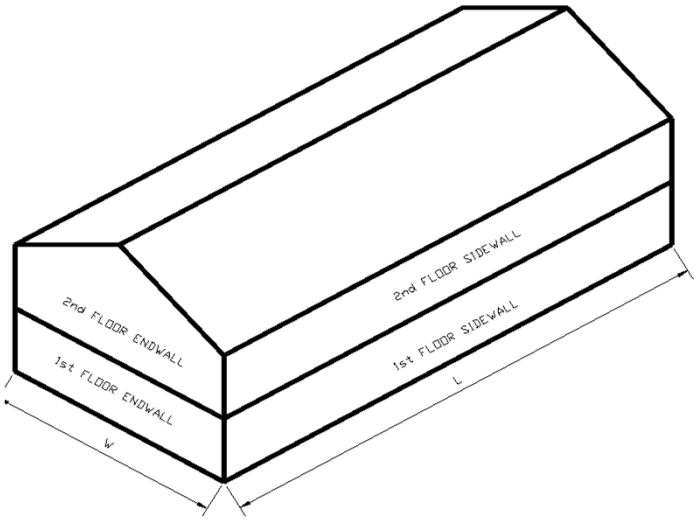
Section 2

SHEAR WALL CALCULATIONS

07/10/17



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BUILDING INFORMATION:

JOB NUMBER =	170394
PLAN NAME / NUMBER =	O#6861
FIRST FLOOR WIDTH (W_1) =	27.5 ft
SECOND FLOOR WIDTH (W_2) =	27.5 ft
FIRST FLOOR LENGTH (L_1) =	39 ft
SECOND FLOOR LENGTH (L_2) =	33 ft
ROOF SPAN =	27.5 ft
TRUSS SPACING (TOC)=	16 in
STUD SPACING (SOC) =	16 in
WIND SPEED (V3S) =	110 mph
EXPOSURE FACTOR =	C

SHEARWALL SUMMARY:

SHEATHING FASTENING MUST USE THE MORE RESTRICTIVE FASTENING OF THAT SPECIFIED FOR SHEARWALL SHEATHING FASTENING AND SHEATHING SUCTION FASTENING

FIRST FLOOR ENDWALL #1: 7/16" OSB EXTERIOR (BLOCKED) w/ 7/16" OSB INTERIOR (BLOCKED)
FAMILY / DINING WITH 8d COMMON NAILS SPACED AT 2" EDGE
***** SEGMENTED SHEARWALL - HOLDDOWNS REQUIRED AT EACH SEGMENT END *****
***** DOUBLE FRAMING MEMBERS AND DOUBLE BOTTOM PLATE REQUIRED AT PANEL EDGES. STAGGERED NAILING AT ALL PANEL EDGES ARE REQUIRED.**

FIRST FLOOR ENDWALL #2: 7/16" OSB EXTERIOR (BLOCKED) w/ 7/16" OSB INTERIOR (BLOCKED)
FOYER / MECH. ROOM WITH 8d COMMON NAILS SPACED AT 3" EDGE
***** SEGMENTED SHEARWALL - HOLDDOWNS REQUIRED AT EACH SEGMENT END *****

FIRST FLOOR OFFSET SHEARWALL: 7/16" OSB EXTERIOR (BLOCKED) w/ 7/16" OSB INTERIOR (BLOCKED)
BEDROOM #1 WITH 8d COMMON NAILS SPACED AT 6" EDGE

FIRST FLOOR SIDEWALL #1: 7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR
FAMILY / BEDROOM #1 WITH 8d COMMON NAILS SPACED AT 6" EDGE

FIRST FLOOR SIDEWALL #2: 7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR
DINING / MECH. ROOM WITH 8d COMMON NAILS SPACED AT 6" EDGE

SECOND FLOOR ENDWALL #1: 7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR
SITTING WITH 8d COMMON NAILS SPACED AT 6" EDGE

SECOND FLOOR ENDWALL #2: 7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR
BEDROOMS #2 & #3 WITH 8d COMMON NAILS SPACED AT 4" EDGE

SECOND FLOOR SIDEWALL #1: 7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR
BEDROOM #2 WITH 8d COMMON NAILS SPACED AT 6" EDGE

SECOND FLOOR SIDEWALL #2: 7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR
SITTING / BEDROOM #3 WITH 8d COMMON NAILS SPACED AT 6" EDGE

ROOF SHEATHING: 7/16" OSB (UN-BLOCKED) w/ 8d NAILING @ 6"/12"

CEILING SHEATHING: 1/2" GWB (UN-BLOCKED) w/ FASTENERS @ 7"/7"
FLOOR SHEATHING: 19/32" MIN. OSB (UN-BLOCKED) w/ 10d NAILING @ 6"/12"

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SHEATHING SUCTION FASTENING:

FOR ROOF ZONE 1: USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.
FOR ROOF ZONE 2: USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.
FOR ROOF ZONE 3 (CORNER): USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.
FOR ROOF ZONE 3OH (CORNER OVERHANG): USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 10 in o.c.
FOR WALL ZONE 4: USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.
FOR WALL ZONE 5: USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.
EDGE DIMENSION, a = 3 ft

CONNECTION SUMMARY: CONNECTIONS TO BE AS SPECIFIED OR EQUIVALENT

UPLIFT CONNECTIONS

REQUIRED TRUSS TIE DOWN: USE (4) 0.131" x 2.5" COMMON NAIL (ENDNAILED) CEILING BAND TO TRUSS
AND USE (1) SIMPSON H2.5A EACH TRUSS
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 431 lbs

2nd FLOOR STUD TO TOP PLATE / CEILING BAND: USE A 1.5" x 26 ga. STRAP EACH STUD WITH (6) 8d NAIL(S) EACH END
OR WITH (9) 16 ga. STAPLE(S) EACH END
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 430 lbs

2nd FLOOR STUD TO FLOOR BAND: USE A 1.5" x 26 ga. STRAP EACH STUD WITH (6) 8d NAIL(S) EACH END
OR WITH (9) 16 ga. STAPLE(S) EACH END
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 354 lbs

2nd FLOOR BAND TO 1st CEILING BAND: USE A 1.5" x 26 ga. STRAP EACH STUD WITH (6) 8d NAIL(S) EACH END
OR WITH (9) 16 ga. STAPLE(S) EACH END
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 354 lbs

1st FLOOR STUD TO CEILING BAND: USE A 1.5" x 26 ga. STRAP EACH STUD WITH (6) 8d NAIL(S) EACH END
OR WITH (9) 16 ga. STAPLE(S) EACH END
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 299 lbs

1st FLOOR STUD TO FLOOR BAND: USE A 1.5" x 26 ga. STRAP EACH STUD WITH (6) 8d NAIL(S) EACH END
OR WITH (9) 16 ga. STAPLE(S) EACH END
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 223 lbs

FLOOR BAND TO SILL PLATE CONNECTION: USE (2) SIMPSON RSP4(1) PLATE AT EACH ANCHOR BOLT LOCATION
TO CONNECT FLOOR BAND TO SILL PLATE
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 557 lbs

LATERAL CONNECTIONS

TRUSS TO TOP PLATE CONNECTION: USE (1) 0.131" x 2.5" COMMON NAIL (TOENAILED) PER TRUSS

PLATE TO PLATE CONNECTION: ATTACH WITH 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 14" ON CENTER

PLATE TO STUD CONNECTION: USE (2) 0.162" x 3.5" COMMON NAIL (ENDNAILED) PER STUD

BOTTOM PLATE TO FLOOR CONNECTION: ATTACH WITH 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 14" ON CENTER

TOP PLATE SPLICES

TOP PLATE SPLICES SHALL BE A MINIMUM OF 2 ft w/ (2) ROWS 16d (0.162" x 3.5" COMMON NAIL (FACE NAILED)) 3" o.c
OR A MINIMUM OF 5 ft w/ (2) ROWS 16d (0.162" x 3.5" COMMON NAIL (FACE NAILED)) 12" o.c

HORIZONTAL FLOOR DIAPHRAGM CONTINUITY

SECOND FLOOR
MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (ALONG MATE LINE)
USE A MIN. OF (5) 1/2" DIA.THRU BOLTS
OR USE A MIN. OF (14) 3/8" DIA. X 12" LAG TOE SCREWS (SPACED A MAX. OF 28" o.c.)

MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (AT ENDWALLS)
USE A 1.5" x 22 ga. STRAP WITH (5) 8d NAIL(S) EACH END
OR WITH (13) 16 ga. STAPLE(S) EACH END
TO ATTACH MODULE TO MODULE AT EACH ENDWALL
OR CONNECTION TO WITHSTAND A TENSILE FORCE OF 602 lbs

FIRST FLOOR
MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (ALONG MATE LINE)
USE A MIN. OF (6) 1/2" DIA.THRU BOLTS
OR USE A MIN. OF (17) 3/8" DIA. X 12" LAG TOE SCREWS (SPACED A MAX. OF 27" o.c.)

MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (AT ENDWALLS)
USE A 1.5" x 26 ga. STRAP WITH (5) 8d NAIL(S) EACH END
OR WITH (8) 16 ga. STAPLE(S) EACH END
TO ATTACH MODULE TO MODULE AT EACH ENDWALL
OR CONNECTION TO WITHSTAND A TENSILE FORCE OF 382 lbs

SHEAR CONNECTIONS

SECOND FLOOR ENDWALL

UNIT SHEAR SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
(AND SHEATHING TO TRUSS BOTTOM CHORD) OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 560 plf

UNIT UPLIFT SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 560 plf
ALTERNATE: FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE

TRUSS BOTTOM CHORD TO TOP PLATE CONNECTION: USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 16" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 63" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 2987 lbs

BANDS TO BANDS & BOTTOM / TOP PLATE CONNECTION: USE 0.162" x 3.5" COMMON NAIL (TOENAILED) AT 7" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 28" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 6749 lbs

SECOND FLOOR SIDEWALL

UNIT SHEAR SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 3" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 335 plf

UNIT UPLIFT SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 3" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 335 plf
ALTERNATE: FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE

BANDS TO BANDS & BOTTOM / TOP PLATE CONNECTION: USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 5" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 20" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 5377 lbs

FIRST FLOOR ENDWALL

UNIT SHEAR SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 3 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 1306 plf

UNIT UPLIFT SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 3 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 1306 plf
ALTERNATE: FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE

RIMBAND TO SILL PLATE CONNECTION: USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 2" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 8" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 10768 lbs

SILL PLATE TO FOUNDATION CONNECTION: USE 1/2" ANCHOR BOLTS @ 14" O.C
OR USE 5/8" ANCHOR BOLTS @ 20" O.C
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 10768 lbs (784 plf)

FIRST FLOOR SIDEWALL

UNIT SHEAR SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 404 plf

UNIT UPLIFT SHEATHING TO FLOOR BAND: USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 404 plf
ALTERNATE: FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE

RIMBAND TO SILL PLATE CONNECTION: USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 8" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 30" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 7543 lbs

SILL PLATE TO FOUNDATION CONNECTION: USE 1/2" ANCHOR BOLTS @ 53" O.C
OR USE 5/8" ANCHOR BOLTS @ 72" O.C
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 7543 lbs (229 plf)

DESIGN PARAMETERS

MEAN ROOF HEIGHT (MRH) =	30.00 ft
NUMBER OF STORIES =	2
FIRST FLOOR WIDTH (W_1) =	27.5 ft
SECOND FLOOR WIDTH (W_2) =	27.5 ft
FIRST FLOOR LENGTH (L_1) =	39 ft
SECOND FLOOR LENGTH (L_2) =	33 ft
BUILDING ASPECT RATIO (L/W) =	1.20
FLOOR JOIST DEPTH =	9.25 in
MAX. VERTICAL FLOOR OFFSET =	0 in
FLOOR ASPECT RATIO (L/W) =	1.20
MAX. FLOOR DIAPHRAGM OPENING WIDTH =	13.56 ft
MAX. FLOOR DIAPHRAGM OPENING LENGTH =	3.33 ft
FIRST FLOOR HEIGHT (H_1) =	8 ft
SECOND FLOOR HEIGHT (H_2) =	8 ft
CEILING ASPECT RATIO (L/W) =	1.20
MIN. SHEARWALL SEGMENT (H / 3.5) =	2.29 ft
ROOF PITCH =	5 /12

PFS APPROVED
DATE 7/20/17
PFS CORPORATION
Bloomsburg, PA

SEE ADDITIONAL CALCULATIONS

CONNECTION INFORMATION:

TRUSS TO PLATE CONNECTORS

	UPLIFT STRENGTH:		SHEAR STRENGTH:	
(1) SIMPSON H2.5A	U =	535 lbs	F_2 =	110 lbs
(2) SIMPSON H2.5A	U =	1070 lbs	F_2 =	220 lbs
(2) SIMPSON LS50	U =	0 lbs	F_2 =	1260 lbs
	200 psi MINIMUM CONSTRUCTION ADHESIVE		Z =	100 psi (END-GRAIN)
	200 psi MINIMUM CONSTRUCTION ADHESIVE		Z =	200 psi (FACE)

FLAT STRAPS			**FASTENERS:** 8d NAIL		16 ga. STAPLE
1.5" x 26 ga. STRAP	Z =	485 lbs	Z =	76.7	49.9 lbs
1.5" x 22 ga. STRAP	Z =	810 lbs	Z =	127.2	48.6 lbs
1.5" x 20 ga. STRAP	Z =	973 lbs	Z =	127.3	48.3 lbs
(2) 1.5" x 22 ga. STRAP	Z =	1620 lbs	Z =	129.4	46.4 lbs
(2) 1.5 x 20 ga STRAP	Z =	1946 lbs	Z =	131.4	46 lbs

HOLDDOWNS w/ 1 1/2" EDGE DISTANCE
MINIMUM 8" STEM WALL
ASSUME 3000 psi Fc CONCRETE

SIMPSON HHDQ11-SDS2.5	Z =	8505 lbs
SIMPSON HHDQ14-SDS2.5	Z =	10745 lbs
SIMPSON STHD14RJ	Z =	4430 lbs
SIMPSON HD12 W/(3) 2X6 STUDS	Z =	11055 lbs
1/2" DIA. THRU BOLT	Z =	623 lbs
1/2" ANCHOR BOLT	Z =	1056 lbs
5/8" ANCHOR BOLT	Z =	1488 lbs
3/8" DIA. X 12" LAG TOE SCREW	Z =	208 lbs
0.131" x 2.5" COMMON NAIL (FACE NAILED)	Z =	100 lbs
0.131" x 2.5" COMMON NAIL (TOENAILED)	Z =	83 lbs
0.131" x 2.5" COMMON NAIL (ENDNAILED)	Z =	67 lbs
0.162" x 3.5" COMMON NAIL (TOENAILED)	Z =	158 lbs
0.162" x 3.5" COMMON NAIL (FACE NAILED)	Z =	191 lbs
0.162" x 3.5" COMMON NAIL (ENDNAILED)	Z =	128 lbs
8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER	Z =	95 lbs
0.131" x 2.5" COMMON NAIL (FACE NAILED)	Z =	69 lbs (7/16" SIDE; WITHDRAWAL)
(1) SIMPSON LTP4 PLATE	Z =	575 lbs
SIMPSON RSP4(1) PLATE	Z =	285 lbs
1/2" GWB (UN-BLOCKED) w/ FASTENERS @ 7"/7"	Z =	70 plf
7/16" OSB (UN-BLOCKED) w/ 8d NAILING @ 6"/12"	Z =	296 plf
7/16" OSB (BLOCKED) w/ 8d NAILING @ 6"/12"	Z =	328 plf
19/32" MIN. OSB (UN-BLOCKED) w/ 10d NAILING @ 6"/12"	Z =	368 plf
19/32" MIN. OSB (BLOCKED) w/ 10d NAILING @ 6"/12"	Z =	412 plf
7/16" OSB (BLOCKED) w/ 8d NAILING @ 6"/12" & 4" o.c. @ PERIMETER	Z =	437 plf
19/32" OSB (BLOCKED) w/ 10d NAILING @ 6"/12" & 4" o.c. @ PERIMETER	Z =	548 plf
19/32" OSB (BLOCKED) w/ 10d NAILING @ 4"/12" & 2 1/2" o.c. @ PERIMETER, DOUBLE FRAMING	Z =	824 plf

NOTE: USP CONNECTORS & FASTEN VALUES ASSUME SPF FRAMING MATERIAL
ANCHOR BOLT VALUES ASSUME DF/SP VALUES

DESIGN UPLIFT LOADS

ROOF & CEILING ASSEMBLY DEAD LOAD =	15	psf
WALL DEAD LOAD (WDL) =	12	psf
FLOOR DEAD LOAD (FDL) =	10	psf
ROOF SPAN (RS)=	27.5	ft
TRUSS SPACING (TOC)=	16	in
STUD SPACING (SOC) =	16	in
FIRST FLOOR HEIGHT (H_1) =	8	ft
SECOND FLOOR HEIGHT (H_2) =	8	ft

UPLIFT CONNECTION LOAD:

PER ASCE 7-05: wup' = 385 plf
wup = wup' - 0.6 * RDL * RS / 4 =
wup = 385 plf - 0.6 * 15 psf * 27.5 ft / 4 = **323** plf

STANDARD TRUSS TO CEILING BAND CONNECTION:

(4) 0.131" x 2.5" COMMON NAIL (ENDNAILED) Z = 4 NAILS x 67 lbs / NAIL
Z = 268 lbs

USE (4) 0.131" x 2.5" COMMON NAIL (ENDNAILED) CEILING BAND TO TRUSS

ADDITIONAL TIE(S) REQUIRED FOR TRUSS TIE DOWN:

P_{up} = wup * TOC - 268 lbs
P_{up} = 323 plf * 16 in / 12 - 268 lbs =
P_{up} = 163 lbs

AND USE (1) SIMPSON H2.5A EACH TRUSS
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 431 lbs

REQUIRED SIDEWALL STUD TIE DOWN LOADING:

2nd FLOOR STUD TO TOP PLATE / CEILING BAND: $P_{2tp} = w_{up} * SOC =$ 323 * 16 / 12 = 430 lbs

2nd FLOOR STUD TO FLOOR BAND: $P_{2fb} = P_{2tp} - 0.6 * WDL * H_2 * SOC =$
P_{2fb} = 430 lbs - 0.6 * 12 psf * 8 ft * 16 in / 12 = 354 lbs

2nd FLOOR BAND TO 1st CEILING BAND: $P_{2f1c} = P_{2fb}$ = 354 lbs

1st FLOOR STUD TO CEILING BAND: $P_{1cb} = P_{2fb} - 0.6 * FDL * W_2 / 4 * SOC =$
P_{1cb} = 354 lbs - 0.6 * 10 psf * 27.5 ft / 4 * 16 in / 12 =
P_{1cb} = 299 lbs

1st FLOOR STUD TO FLOOR BAND: $P_{1fb} = P_{1cb} - 0.6 * WDL * H_1 * SOC =$
P_{1fb} = 299 lbs - 0.6 * 12 psf * 8 ft * 16 in / 12 = 223 lbs

CHECK FASTENERS: 8d NAIL Z = 76.7 lbs
430 lbs / 76.7 lbs / FASTENER = 5.61 FASTENERS
USE (6) 8d NAIL(S) EACH END

16 ga. STAPLE Z = 49.9 lbs
430 lbs / 49.9 lbs / FASTENER = 8.62 FASTENERS
USE (9) 16 ga. STAPLE(S) EACH END

USE A 1.5" x 26 ga. STRAP EACH STUD WITH (6) 8d NAIL(S) EACH END
OR WITH (9) 16 ga. STAPLE(S) EACH END
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 430 lbs

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SIDEWALL 1st FLOOR BAND TO SILL PLATE CONNECTION:

SIDEWALL UPLIFT AT SILL PLATE: $w_{sp} = P_{1fb} / SOC - 0.6 * FDL * W_1 / 4 =$

$w_{sp} = 223$ lbs * 12 / 16 in - 0.6 * 10 psf * 27.5 ft / 4 =

$w_{sp} = 126$ plf

CHECK STRAP AT ANCHOR BOLT LOCATIONS:

1/2" ANCHOR BOLT SPACING (BOC) = 53 in

$P_{sp} = w_{sp} * BOC = 126$ plf * 53 = 557 lbs

SIMPSON RSP4(1) PLATE Z = 285 lbs

$$\frac{557 \text{ lbs}}{285 \text{ lbs}} = 2 \text{ PLATES}$$

USE (2) SIMPSON RSP4(1) PLATE AT EACH ANCHOR BOLT LOCATION
TO CONNECT FLOOR BAND TO SILL PLATE
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 557 lbs

CHECK BENDING IN RIMBAND:

DBL. 2x10 SPF #2 RIMBAND DESIGN VALUES:

SECTION MODULUS (S) = 42.78 in^3

ALLOWABLE BENDING (fb) = 875 psi

$$M_{MAX} = \frac{w_{sp} * BOC^2}{8} =$$

$$M_{MAX} = \frac{126 \text{ plf} * (53 / 12)^{\wedge}2}{8} = 3687 \text{ in-lbs}$$

$$\text{APPLIED fb} = \frac{M_{MAX}}{S} = \frac{3687 \text{ in-lbs}}{42.78 \text{ in}^3} = 86 \text{ psi}$$

ALLOWABLE BENDING (fb) = 875 psi > APPLIED fb = 86 psi

DBL. 2x10 SPF #2 RIMBAND IS OK

LATERAL LOAD AT ROOF/CEILING DIAPHRAGM

ROOF SPAN = 27.5 ft
ROOF PITCH = 5 /12

WIND PERPENDICULAR TO RIDGE:

181 plf

WIND PARALLEL TO RIDGE:

181 plf

LATERAL LOAD AT FLOOR DIAPHRAGM

WIND PERPENDICULAR TO RIDGE:

228 plf

WIND PARALLEL TO RIDGE:

210 plf

LATERAL FRAMING CONNECTION LOADS FROM WIND:

(FOR ROOF-TO-PLATE, PLATE-TO-PLATE, PLATE-TO-STUD, AND PLATE-TO-FLOOR)

PER ASCE 7-10 WIND PRESSURE (w) = 21 psf

wl-wall' = w * H / 2 = 84 plf

TRUSS MULTIPLIER = 1.33

STUD MULTIPLIER = 1.33

TRUSS TO TOP PLATE CONNECTION:

$P_C = w_{l\text{-}wall} * M_{24}$ = 84 plf * 1.33 = 112 lbs

TRUSS CONNECTION: (1) SIMPSON H2.5A F_2 = 110 lbs

$P_C = P - F_2$ =

P_C = 112 lbs - 110 lbs =

P_C = 2 lbs

OF 0.131" x 2.5" COMMON NAIL (TOENAILED) REQUIRED = $\frac{P_C}{Z} = \frac{2 \text{ lbs}}{83 \text{ lbs}}$ = 1 NAILS

USE (1) 0.131" x 2.5" COMMON NAIL (TOENAILED) PER TRUSS

PLATE TO PLATE CONNECTION:

SPACING OF 0.131" x 2.5" COMMON NAIL (FACE NAILED) = $\frac{Z * 12}{w_{l\text{-}wall}} = \frac{100 \text{ lbs} * 12}{84 \text{ plf}}$ = 14 in O.C. (16" max)

ATTACH WITH 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 14" ON CENTER

PLATE TO STUD CONNECTION:

$P_C = w_{l\text{-}wall} * M_{16}$ = 84 plf * 1.33 = 112 lbs

OF 0.162" x 3.5" COMMON NAIL (ENDNAILED) REQUIRED = $\frac{P_C}{Z} = \frac{112 \text{ lbs}}{128 \text{ lbs}}$ = 2 NAILS

USE (2) 0.162" x 3.5" COMMON NAIL (ENDNAILED) PER STUD

BOTTOM PLATE TO FLOOR CONNECTION:

SPACING OF 0.131" x 2.5" COMMON NAIL (FACE NAILED) = $\frac{Z * 12}{w_{l\text{-}wall}} = \frac{100 \text{ lbs} * 12}{84 \text{ plf}}$ = 14 in O.C. (16" max)

ATTACH WITH 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 14" ON CENTER

TOP PLATE SPLICE LENGTH

STRUCTURE WIDTH (W) = 27.5 ft

STRUCTURE LENGTH (L) = 39 ft

0.162" x 3.5" COMMON NAIL (FACE NAILED) Z = 191 lbs

ROOF DIAPHRAGM LOADING (wl-per) = 181 plf

FLOOR DIAPHRAGM LOADING (FLl-per) = 228 plf

FLOOR DIAPHRAGM LOADING CONTROLS

CONTROLLING LOADING: 228 plf

DIAPHRAGM CHORD FORCE = $T = \frac{wl\text{-}per * L^2}{8 * W} = \frac{228 \text{ plf} * 39 \text{ ft} \wedge 2}{8 * 27.5 \text{ ft}}$ = 1577 lbs

REQUIRED SPLICE LENGTH (w/ (2) 16d 3" o.c.): $\frac{T * 3" / 12" / ft}{2 * Z} = \frac{1577 \text{ lbs} * 3" / 12" / ft}{2 * 191 \text{ lbs / NAIL}}$ = 2 ft

REQUIRED SPLICE LENGTH (w/ (2) 16d 12" o.c.): $\frac{T * 12" / 12" / ft}{2 * Z} = \frac{1577 \text{ lbs} * 12" / 12" / ft}{2 * 191 \text{ lbs / NAIL}}$ = 5 ft

TOP PLATE SPLICES SHALL BE A MINIMUM OF 2 ft w/ (2) ROWS 16d (0.162" x 3.5" COMMON NAIL (FACE NAILED)) 3" o.c
OR A MINIMUM OF 5 ft w/ (2) ROWS 16d (0.162" x 3.5" COMMON NAIL (FACE NAILED)) 12" o.c

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ROOF DIAPHRAGM SHEATHING REQUIREMENTS

ROOF SPAN (RS) =	27.5	ft
ROOF LENGTH (RL) =	33	ft
ROOF PITCH =	5	/12
ROOF ANGLE (RA) =	22.6	°
$w_{l\text{-}per}$ =	181	plf
STANDARD ROOF SHEATHING =	7/16" OSB (UN-BLOCKED) w/ 8d NAILING @ 6"/12"	
ROOF SHEATHING SHEAR CAPACITY (v_r') =	296	plf
STANDARD CEILING SHEATHING =	1/2" GWB (UN-BLOCKED) w/ FASTENERS @ 7"/7"	
CEILING SHEATHING SHEAR CAPACITY (v_c) =	70	plf

MAX DIAPHRAGM SHEAR (v) = $\frac{L * wl_{per} / 2}{RS} = \frac{33\text{ ft} * 181\text{ plf} / 2}{27.5\text{ ft}} = 109$ plf

NET DIAPHRAGM SHEAR CAPACITY (v_n) = $v_r + v_c$ = 296 plf + 70 plf = 366 plf

DIAPHRAGM SHEAR CAPACITY REQUIRED = 109 plf **<** **STANDARD ROOF/CEILING DIAPHRAGM CAPACITY = 366 plf**

STANDARD ROOF/CEILING DIAPHRAGM OK

FLOOR DIAPHRAGM SHEATHING REQUIREMENTS

BUILDING WIDTH (W) =	27.5	ft
BUILDING LENGTH (L) =	33	ft
$FL_{l\text{-}per}$ =	228	plf
STANDARD FLOOR SHEATHING =	19/32" MIN. OSB (UN-BLOCKED) w/ 10d NAILING @ 6"/12"	
FLOOR DIAPHRAGM SHEAR CAPACITY (v_f) =	368	plf

MAX FLOOR DIAPHRAGM SHEAR (v) = $\frac{L * FL_{l\text{-}per} / 2}{W} = \frac{33\text{ ft} * 228\text{ plf} / 2}{27.5\text{ ft}} = 137$ plf

DIAPHRAGM SHEAR CAPACITY REQUIRED = 137 plf **<** **STANDARD ROOF/CEILING DIAPHRAGM CAPACITY = 368 plf**

STANDARD FLOOR DIAPHRAGM OK

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SHEATHING SUCTION CONNECTION (PER ASCE 7-05 C-C PRESSURES, pp. 355-358)

TRUSS SPACING (TOC) =	16	in O.C.
STUD SPACING (SOC) =	16	in O.C.
0.131" x 2.5" COMMON NAIL (FACE NAILED)	69	lbs (7/16" SIDE MEMBER; WITHDRAWAL)
a =	3	ft

FOR ROOF ZONE 1 (FIELD):

p = 16.728 psf

TRUSS LOADING = 16.728 psf x 16" o.c. / 12" / ft = 22 plf

22 plf / 69 lbs / FASTENER = 0.4 FASTENERS / ft = 30 in O.C.

MAX ALLOWABLE SPACING: 12 in O.C.

USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.

FOR ROOF ZONE 2 (EDGE):

p = 29.118 psf

TRUSS LOADING = 29.118 psf x 16" o.c. / 12" / ft = 39 plf

39 plf / 69 lbs / FASTENER = 0.6 FASTENERS / ft = 20 in O.C.

MAX ALLOWABLE SPACING: 12 in O.C.

USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.

FOR ROOF ZONE 3 (CORNER):

p = 43.056 psf

TRUSS LOADING = 43.056 psf x 16" o.c. / 12" / ft = 57 plf

57 plf / 69 lbs / FASTENER = 0.9 FASTENERS / ft = 13 in O.C.

MAX ALLOWABLE SPACING: 12 in O.C.

USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.

FOR ROOF ZONE 3OH (CORNER OVERHANG):

p = 60.09 psf

TRUSS LOADING = 60.09 psf x 16" o.c. / 12" / ft = 80 plf

80 plf / 69 lbs / FASTENER = 1.2 FASTENERS / ft = 10 in O.C.

MAX ALLOWABLE SPACING: 12 in O.C.

USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 10 in o.c.

FOR WALL ZONE 4 (FIELD):

p = 19.824 psf

STUD LOADING = 19.824 psf x 16" o.c. / 12" / ft = 26 plf

26 plf / 69 lbs / FASTENER = 0.4 FASTENERS / ft = 30 in O.C.

MAX ALLOWABLE SPACING: 12 in O.C.

USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.

FOR WALL ZONE 5 (EDGE):

p = 24.468 psf

STUD LOADING = 24.468 psf x 16" o.c. / 12" / ft = 33 plf

33 plf / 69 lbs / FASTENER = 0.5 FASTENERS / ft = 24 in O.C.

MAX ALLOWABLE SPACING: 12 in O.C.

USE 0.131" x 2.5" COMMON NAIL (FACE NAILED) AT 12 in o.c.

SECOND FLOOR ENDWALL #1 SHEATHING LENGTH REQUIREMENTS
SITTING

FIRST FLOOR LENGTH (W_1) =	27.5	ft
SECOND FLOOR LENGTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR	
SHEATHING EDGE 8d NAIL SPACING =	6	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	436	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	7.83	ft
2nd FL. PERCENT FULL HEIGHT SHEATHING=	100	%
2nd FL. MAX. UNRESTRAINED OPENING HEIGHT =	0	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	1	(TABLE 2305.3.7.2, IBC)
2nd FL. NUMBER OF SHEARWALLS (N_{end}) =	2	
ADDITIONAL WALL LOAD =	0	lbs

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SHEARWALL REACTION (R_{end2}) = L_2 * $w_{l\text{-}per}$ / N_{end} + ADDITIONAL=
R_{end2} = 33 ft * 181 plf / 2 + 0 lbs = 2987 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{end2} / V = 2987 lbs / 436 plf = 6.85 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (ENDWALL) = L_{SW} / C_O = 6.85 ft / 1 = 6.86 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 6.86 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 7.83 ft**

ENDWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

SECOND FLOOR HORIZONTAL FLOOR DIAPHRAGM CONTINUITY:

MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (ALONG MATE LINE)
(DEEP BEAM HORIZONTAL SHEAR)

$V_f = \frac{(3 * F_{l\text{-}per} / 4) * L}{2} = \frac{3/4 * 228 \text{ plf} * 33 \text{ ft}}{2} = 2822$ lbs

1/2" DIA. THRU BOLT = $\frac{V_f}{Z_{1/2\ BOLT}} = \frac{2822 \text{ lbs}}{623 \text{ lbs}} =$ 5 BOLTS

3/8" DIA. X 12" LAG TOE SCREW = $\frac{V_f}{Z_{3/8\ LAG}} = \frac{2822 \text{ lbs}}{208 \text{ lbs}} =$ 14 SCREWS

SPACING = L_2 / # = 33 ft / 14 SCRE\ 28 in

USE A MIN. OF (5) 1/2" DIA.THRU BOLTS
OR USE A MIN. OF (14) 3/8" DIA. X 12" LAG TOE SCREWS (SPACED A MAX. OF 28" o.c.)
TO ATTACH MODULE TO MODULE ALONG MATE LINE

MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (AT ENDWALLS)
(CHORD FORCE CONTINUITY)

$T = \frac{F_{l\text{-}para} * W_2^2}{8 * L_2} = \frac{210 \text{ plf} * 27.5 \text{ ft} \wedge 2}{8 * 33 \text{ ft}} =$ 602 lbs

CHECK FASTENERS:

8d NAIL Z = 127.2 lbs
602 lbs / 127.2 lbs / FASTENER = 4.73 FASTENERS
USE (5) 8d NAIL(S) EACH END

16 ga. STAPLE Z = 48.6 lbs
602 lbs / 48.6 lbs / FASTENER = 12.39 FASTENERS
USE (13) 16 ga. STAPLE(S) EACH END

USE A 1.5" x 22 ga. STRAP WITH (5) 8d NAIL(S) EACH END
OR WITH (13) 16 ga. STAPLE(S) EACH END
TO ATTACH MODULE TO MODULE AT EACH ENDWALL
OR CONNECTION TO WITHSTAND A TENSILE FORCE OF 602 lbs

SECOND FLOOR ENDWALL #1: UPLIFT DUE TO OVERTURNING

FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	7.83 ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	1
SHEARWALL REACTION (R_{end2}) =	2987 lbs
WALL HEIGHT (H) =	8 ft

UPLIFT FORCE (U_{E2}) = $\frac{R_{end1} \times H}{\Sigma L_i \times C_O} =$

$U_{E2} = \frac{2987 \text{ lbs} \times 8 \text{ ft}}{7.83 \text{ ft} \times 1} =$ 3052 lbs

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SECOND FLOOR ENDWALL #2 SHEATHING LENGTH REQUIREMENTS
BEDROOMS #2 & #3

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR	
SHEATHING EDGE 8d NAIL SPACING =	4	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	590	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	11.58	ft
2nd FL. PERCENT FULL HEIGHT SHEATHING=	42	%
2nd FL. MAX. UNRESTRAINED OPENING HEIGHT =	8	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	0.461	(TABLE 2305.3.7.2, IBC)
2nd FL. NUMBER OF SHEARWALLS (N_{end}) =	2	
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{end2}) = $L_2 * w_{l\text{-}per} / N_{end}$ + ADDITIONAL=

R_{end2} = 33 ft * 181 plf / 2 + 0 lbs = 2987 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{end2} / V = 2987 lbs / 590 lbs = 5.06 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (ENDWALL) = L_{SW} / C_O = 5.06 ft / 0.461 = 10.99 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 10.99 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 11.58 ft**

ENDWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

SECOND FLOOR ENDWALL #2: UPLIFT DUE TO OVERTURNING

FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	11.58	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	0.461	
SHEARWALL REACTION (R_{end2}) =	2987	lbs
WALL HEIGHT (H) =	8	ft

$$U_{E2} = \frac{R_{end1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E2} = \frac{2987 \text{ lbs} \times 8 \text{ ft}}{11.58 \text{ ft} \times 0.461} = 4477 \text{ lbs}$$

SECOND FLOOR ENDWALL: SHEAR CONNECTIONS

SECOND FLOOR WIDTH (W_2) =	27.5	ft	
SECOND FLOOR LENGTH (L_2) =	33	ft	
$FL_{i\text{-}per}$ =	228	plf	
1/2" ANCHOR BOLT	Z =	1056	lbs
5/8" ANCHOR BOLT	Z =	1488	lbs
0.162" x 3.5" COMMON NAIL (TOENAILED)	Z =	158	lbs
0.162" x 3.5" COMMON NAIL (FACE NAILED)	Z =	191	lbs
(1) SIMPSON LTP4 PLATE	Z =	575	lbs

MAXIMUM SECOND FLOOR ENDWALL SHEAR LOAD = 2987 lbs

TRUSS BOTTOM CHORD TO TOP PLATE CONNECTION:

# TOENAILS PER FOOT =	V / Z / W = 2987 lbs / 158 lbs / 27.5 ft =		0.7	NAILS / ft
TOENAIL SPACING =	12 / # = 12 / 0.7 =	16	" O.C.	(16" MAX)
# MP4F PLATES PER FOOT =	V / Z / W = 2987 lbs / 575 lbs / 27.5 ft =		0.2	PLATES / ft
MP4F PLATE SPACING =	12 / # = 12 / 0.2 =	63	" O.C.	(72" MAX)

USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 16" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 63" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 2987 lbs

BANDS TO BANDS & BOTTOM / TOP PLATE CONNECTION:

V = MAX ENDWALL SHEAR + L_2 x $FL_{i\text{-}per}$ / 2 =
V = 2987 lbs + 33 ft x 228 plf / 2 = 6749 lbs

# TOENAILS PER FOOT =	V / Z / W = 6749 lbs / 158 lbs / 27.5 ft =		1.6	NAILS / ft
TOENAIL SPACING =	12 / # = 12 / 1.6 =	7	" O.C.	(16" MAX)
# MP4F PLATES PER FOOT =	V / Z / W = 6749 lbs / 575 lbs / 27.5 ft =		0.4	PLATES / ft
MP4F PLATE SPACING =	12 / # = 12 / 0.4 =	28	" O.C.	(72" MAX)

USE 0.162" x 3.5" COMMON NAIL (TOENAILED) AT 7" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 28" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 6749 lbs

CHECK SHEATHING TO RIMBAND CONNECTION:

UNIT SHEAR CHECK:

SHEAR FORCE (V) = $\frac{R_{end2}}{\Sigma L_i \times C_O}$ =

SECOND FLOOR ENDWALL #1: V = $\frac{2987 \text{ lbs}}{7.83 \text{ ft} * 1}$ = 382 plf

SECOND FLOOR ENDWALL #2: V = $\frac{2987 \text{ lbs}}{11.58 \text{ ft} * 0.461}$ = 560 plf

MAXIMUM SECOND FLOOR ENDWALL UNIT SHEAR = 560 plf

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{560 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 5.9 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 5.9 = 2.03 " O.C.

OF ROWS : 1 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 1 * SPACING 1 * 2.03 o.c. 2 " O.C.

USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 560 plf

UNIT UPLIFT CHECK: (EQUAL TO UNIT SHEAR)

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{560 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 5.9 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 5.9 = 2.03 " O.C.

OF ROWS : 1 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 1 * SPACING 1 * 2.03 o.c. 2 " O.C.

USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 560 plf

ALTERNATE SHEATHING CONNECTION FOR UNIT UPLIFT (GLUE):

V = 560 plf

200 psi MINIMUM CONSTRUCTION ADHESIVE Z = 200 psi (FACE)

WIDTH OF GLUE REQUIRED FOR SHEATHING CONNECTION ALONG FLOOR BAND:

WIDTH OF GLUE STRIP REQUIRED = $\frac{V}{Z} = \frac{560 \text{ plf}}{200 \text{ psi} * 12" / \text{ft}}$ = 1 "

FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE
PLUS (1) ROW OF 8d NAILS AT 6" o.c.

FIRST FLOOR ENDWALL #1 SHEATHING LENGTH REQUIREMENTS
FAMILY / DINING

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 7/16" OSB INTERIOR (BLOCKED)	
SHEATHING EDGE 8d NAIL SPACING =	2	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	1648	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	5.17	ft
1st FL. PERCENT FULL HEIGHT SHEATHING=	100	%
1st FL. MAX. UNRESTRAINED OPENING HEIGHT =	0	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	1	(TABLE 2305.3.7.2, IBC)
TRIBUTARY LENGTH (TL) =	16.5	ft
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{end1}) = TL * FL_{t-per} + R_{end2} + ADDITIONAL=

R_{end1} = 16.5 ft * 228 plf + 2987 lbs + 0 lbs = 6749 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{end1} / V = 6749 lbs / 1648 plf = 4.10 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (ENDWALL) = L_{SW} / C_O = 4.1 ft / 1 = 4.10 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 4.1 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 5.17 ft**

ENDWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

FIRST FLOOR HORIZONTAL FLOOR DIAPHRAGM CONTINUITY:

MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (ALONG MATE LINE)
(DEEP BEAM HORIZONTAL SHEAR)

$V_f = \frac{(3 * F_{t-per} / 4) * L}{2} = \frac{3 / 4 * 228 \text{ plf} * 39 \text{ ft}}{2} =$ 3335 lbs

1/2" DIA. THRU BOLT = $\frac{V_f}{Z_{1/2\ BOLT}} = \frac{3335 \text{ lbs}}{623 \text{ lbs}} =$ 6 BOLTS

3/8" DIA. X 12" LAG TOE SCREW = $\frac{V_f}{Z_{3/8\ LAG}} = \frac{3335 \text{ lbs}}{208 \text{ lbs}} =$ 17 SCREWS

SPACING = L_2 / # = 39 ft / 17 SCRE\ 27 in

USE A MIN. OF (6) 1/2" DIA.THRU BOLTS
OR USE A MIN. OF (17) 3/8" DIA. X 12" LAG TOE SCREWS (SPACED A MAX. OF 27" o.c.)
TO ATTACH MODULE TO MODULE ALONG MATE LINE

MODULE TO MODULE CONNECTION AT FLOOR RIMBAND: (AT ENDWALLS)
(CHORD FORCE CONTINUITY)

$T = \frac{3/4 * F_{t-para} * W_1^2}{8 * L_1} = \frac{3/4 * 210 \text{ plf} * 27.5 \text{ ft} \wedge 2}{8 * 39 \text{ ft}} =$ 382 lbs

CHECK FASTENERS:

8d NAIL Z = 76.7 lbs
382 lbs / 76.7 lbs / FASTENER = 4.98 FASTENERS
USE (5) 8d NAIL(S) EACH END

16 ga. STAPLE Z = 49.9 lbs
382 lbs / 49.9 lbs / FASTENER = 7.66 FASTENERS
USE (8) 16 ga. STAPLE(S) EACH END

USE A 1.5" x 26 ga. STRAP WITH (5) 8d NAIL(S) EACH END
OR WITH (8) 16 ga. STAPLE(S) EACH END
TO ATTACH MODULE TO MODULE AT EACH ENDWALL
OR CONNECTION TO WITHSTAND A TENSILE FORCE OF 382 lbs

FIRST FLOOR ENDWALL #1: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	5.17	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	1	
SHEARWALL REACTION (R_{end1}) =	6749	lbs
WALL HEIGHT (H) =	8	ft

UPLIFT FORCE (U_{E1}) = $\frac{R_{end1} \times H}{\Sigma L_i \times C_O} =$

$U_{E1} = \frac{6749 \text{ lbs} \times 8 \text{ ft}}{5.17 \times 1} =$ 10444 lbs

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PFS CORPORATION
Bloomsburg, PA

PREPARED BY:
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FIRST FLOOR ENDWALL #2 SHEATHING LENGTH REQUIREMENTS
FOYER / MECH. ROOM

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 7/16" OSB INTERIOR (BLOCKED)	
SHEATHING EDGE 8d NAIL SPACING =	3	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	1260	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	6.42	ft
1st FL. PERCENT FULL HEIGHT SHEATHING=	100	%
1st FL. MAX. UNRESTRAINED OPENING HEIGHT =	0	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	1	(TABLE 2305.3.7.2, IBC)
TRIBUTARY LENGTH (TL) =	19.5	ft
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{end1}) = TL * $FL_{i\text{-}per}$ + R_{end2} + ADDITIONAL=

R_{end1} = 19.5 ft * 228 plf + 2987 lbs + 0 lbs = 7433 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{end1} / V = 7433 lbs / 1260 plf = 5.90 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (ENDWALL) = L_{SW} / C_O = 5.9 ft / 1 = 5.90 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 5.9 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 6.42 ft**

ENDWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

FIRST FLOOR ENDWALL #2: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	6.42	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	1	
SHEARWALL REACTION (R_{end1}) =	7433	lbs
WALL HEIGHT (H) =	8	ft

$$\text{UPLIFT FORCE } (U_{E1}) = \frac{R_{end1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E1} = \frac{7433 \text{ lbs} \times 8 \text{ ft}}{6.42 \times 1} = 9263 \text{ lbs}$$

FIRST FLOOR OFFSET SHEARWALL SHEATHING LENGTH REQUIREMENTS
BEDROOM #1

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 7/16" OSB INTERIOR (BLOCKED)	
SHEATHING EDGE 8d NAIL SPACING =	6	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	436	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	7.42	ft
1st FL. PERCENT FULL HEIGHT SHEATHING=	54	%
1st FL. MAX. UNRESTRAINED OPENING HEIGHT =	5.35	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	0.684	(TABLE 2305.3.7.2, IBC)
TRIBUTARY LENGTH (TL) =	3	ft
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{end1}) = TL * $FL_{i\text{-}per}$ + ADDITIONAL=

R_{end1} = 3 ft * 228 plf + 0 lbs = 684 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{end1} / V = 684 lbs / 436 plf = 1.57 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (ENDWALL) = L_{SW} / C_O = 1.57 ft / 0.684 = 2.30 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 2.3 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 7.42 ft**

OFFSET SHEARWALL OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

FIRST FLOOR OFFSET SHEARWALL: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	7.42	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	0.684	
SHEARWALL REACTION (R_{end1}) =	684	lbs
WALL HEIGHT (H) =	8	ft

$$\text{UPLIFT FORCE } (U_{E1}) = \frac{R_{end1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E1} = \frac{684 \text{ lbs} \times 8 \text{ ft}}{7.42 \times 0.684} = 1079 \text{ lbs}$$

FIRST FLOOR ENDWALL: SHEAR CONNECTIONS

EFFECTIVE FIRST FLOOR WIDTH (W_1) =	13.75 ft		
FIRST FLOOR LENGTH (L_1) =	39 ft		
$FL_{t\text{-}per}$ =	228 plf		
1/2" ANCHOR BOLT	Z =	1056 lbs	
5/8" ANCHOR BOLT	Z =	1488 lbs	
0.162" x 3.5" COMMON NAIL (TOENAILED)	Z =	158 lbs	
(1) SIMPSON LTP4 PLATE	Z =	575 lbs	

MAXIMUM FIRST FLOOR ENDWALL SHEAR LOAD = 7433 lbs

RIMBAND TO SILL PLATE CONNECTION:

V = MAX ENDWALL SHEAR + L_1 x (3/4 * $FL_{t\text{-}per}$) / 2 =
V = 7433 lbs + 39 ft x (3/4 * 228 plf) / 2 = 10768 lbs

# TOENAILS PER FOOT =	V / Z / W =	10768 lbs / 158 lbs / 13.75 ft =	5.0	NAILS / ft
TOENAIL SPACING =	12 / # =	12 / 5 =	2 " O.C.	(16" MAX)
# LTP4 PLATES PER FOOT =	V / Z / W =	10768 lbs / 575 lbs / 13.75 ft =	1.4	PLATES / ft
LTP4 PLATE SPACING =	12 / # =	12 / 1.4 =	8 " O.C.	(72" MAX)

USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 2" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 8" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 10768 lbs

SILL PLATE TO FOUNDATION CONNECTION:

# 1/2" ANCHOR BOLTS =	V / Z =	10768 lbs / 1056 lbs =	11	BOLTS
BOLT SPACING =	(W - 2) / (N - 1) =	(13.75 ft - 2) / (11 - 1) =	14	in

USE 1/2" ANCHOR BOLTS @ 14" O.C
ANCHOR BOLTS TO BE A MIN. OF 4" AND A MAX. OF 1'-0" FROM CORNERS
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 10768 lbs (784 plf)

# 5/8" ANCHOR BOLTS =	V / Z =	10768 lbs / 1488 lbs =	8	BOLTS
BOLT SPACING =	(W - 2) / (N - 1) =	(13.75 ft - 2) / (8 - 1) =	20	in

USE 5/8" ANCHOR BOLTS @ 20" O.C
ANCHOR BOLTS TO BE A MIN. OF 4" AND A MAX. OF 1'-0" FROM CORNERS
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 10768 lbs (784 plf)

CHECK SHEATHING TO RIMBAND CONNECTION:

UNIT SHEAR CHECK:

SHEAR FORCE (V) = $\frac{R_{end1}}{\Sigma L_i \times C_O}$ =

FIRST FLOOR ENDWALL #1: V = $\frac{6749 \text{ lbs}}{5.17 \text{ ft} * 1}$ = 1306 plf

FIRST FLOOR ENDWALL #2: V = $\frac{7433 \text{ lbs}}{6.42 \text{ ft} * 1}$ = 1158 plf

FIRST FLOOR OFFSET SHEARWALL: V = $\frac{684 \text{ lbs}}{7.42\text{ft} * 0.684}$ = 135 plf

MAXIMUM FIRST FLOOR ENDWALL UNIT SHEAR = 1306 plf

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{1306 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 13.75 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 13.75 = 0.87 " O.C.

OF ROWS : 3 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 3 * SPACING 3 * 0.87 o.c. 2 " O.C.

USE SHEATHING CONNECTION WITH 3 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 1306 plf

UNIT UPLIFT CHECK: (EQUAL TO UNIT SHEAR)

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{1306 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 13.75 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 13.75 = 0.87 " O.C.

OF ROWS : 3 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 3 * SPACING 3 * 0.87 o.c. 2 " O.C.

USE SHEATHING CONNECTION WITH 3 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 1306 plf

ALTERNATE SHEATHING CONNECTION FOR UNIT UPLIFT (GLUE):

V = 1306 plf

200 psi MINIMUM CONSTRUCTION ADHESIVE Z = 200 psi (FACE)

WIDTH OF GLUE REQUIRED FOR SHEATHING CONNECTION ALONG FLOOR BAND:

WIDTH OF GLUE STRIP REQUIRED = $\frac{V}{Z} = \frac{1306 \text{ plf}}{200 \text{ psi} * 12\text{" / ft}}$ = 1 "

FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE
PLUS (1) ROW OF 8d NAILS AT 6" o.c.

SECOND FLOOR SIDEWALL #1 SHEATHING LENGTH REQUIREMENTS
BEDROOM #2

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR	
SHEATHING EDGE 8d NAIL SPACING =	6	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	436	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	7.43	ft
2nd FL. PERCENT FULL HEIGHT SHEATHING=	100	%
2nd FL. MAX. UNRESTRAINED OPENING HEIGHT =	0	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	1	(TABLE 2305.3.7.2, IBC)
2nd FL. NUMBER OF SHEARWALLS (N_{side}) =	2	
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{side2}) = $W_2 * w_{i\text{-}para} / N_{side}$ + ADDITIONAL =

R_{side2} = 27.5 ft * 181 plf / 2 + 0 lbs = 2489 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{side2} / V = 2489 lbs / 436 plf = 5.71 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (SIDEWALL) = L_{SW} / C_O = 5.71 ft / 1 = 5.71 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 5.71 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 7.43 ft**

SIDEWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

SECOND FLOOR SIDEWALL #1: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	7.43	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	1	
SHEARWALL REACTION (R_{end1}) =	2489	lbs
WALL HEIGHT (H) =	8	ft

$$\text{UPLIFT FORCE } (U_{E1}) = \frac{R_{side1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E1} = \frac{2489 \text{ lbs} \times 8 \text{ ft}}{7.43 \text{ ft} \times 1} = 2680 \text{ lbs}$$

SECOND FLOOR SIDEWALL #2 SHEATHING LENGTH REQUIREMENTS
SITTING / BEDROOM #3

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR	
SHEATHING EDGE 8d NAIL SPACING =	6	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	436	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	12	ft
2nd FL. PERCENT FULL HEIGHT SHEATHING=	82	%
2nd FL. MAX. UNRESTRAINED OPENING HEIGHT =	3.02	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	0.979	(TABLE 2305.3.7.2, IBC)
2nd FL. NUMBER OF SHEARWALLS (N_{side}) =	2	
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{side2}) = $W_2 * w_{i\text{-}para} / N_{side}$ + ADDITIONAL=

R_{side2} = 27.5 ft * 181 plf / 2 + 0 lbs = 2489 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{side2} / V = 2489 lbs / 436 plf = 5.71 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (SIDEWALL) = L_{SW} / C_O = 5.71 ft / 0.979 = 5.84 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 5.84 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 12 ft**

SIDEWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

SECOND FLOOR SIDEWALL #2: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	12	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	0.979	
SHEARWALL REACTION (R_{end1}) =	2489	lbs
WALL HEIGHT (H) =	8	ft

$$\text{UPLIFT FORCE } (U_{E1}) = \frac{R_{side1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E1} = \frac{2489 \text{ lbs} \times 8 \text{ ft}}{12 \text{ ft} \times 0.979} = 1695 \text{ lbs}$$

SECOND FLOOR SIDEWALL: SHEAR CONNECTIONS

SECOND FLOOR WIDTH (W_2) =	27.5 ft		
EFFECTIVE SECOND FLOOR LENGTH (L_2) =	15.83 ft		
$FL_{t\text{-}para}$ =	210 plf		
1/2" ANCHOR BOLT	Z =	1056 lbs	
5/8" ANCHOR BOLT	Z =	1488 lbs	
0.162" x 3.5" COMMON NAIL (TOENAILED)	Z =	158 lbs	
0.162" x 3.5" COMMON NAIL (FACE NAILED)	Z =	191 lbs	
(1) SIMPSON LTP4 PLATE	Z =	575 lbs	

MAXIMUM SECOND FLOOR SIDEWALL SHEAR LOAD = 2489 plf

BANDS TO BANDS & BOTTOM / TOP PLATE CONNECTION:

V = MAX SIDEWALL SHEAR + W_2 x $FL_{t\text{-}para}$ / 2 =
V = 2489 lbs + 27.5 ft x 210 plf / 2 = 5377 plf

# TOENAILS PER FOOT =	V / Z / L =	5377 lbs / 158 lbs / 15.83 ft =	2.1	NAILS / ft
TOENAIL SPACING =	12 / # =	12 / 2.1 =	5 " O.C.	(16" MAX)
#MP4F PLATES PER FOOT =	V / Z / W =	5377 lbs / 575 lbs / 15.83 ft =	0.6	PLATES / ft
MP4F PLATE SPACING =	12 / # =	12 / 0.6 =	20 " O.C.	(72" MAX)

USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 5" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 20" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 5377 lbs

CHECK SHEATHING TO RIMBAND CONNECTION:

UNIT SHEAR CHECK:

SHEAR FORCE (V) = $\frac{R_{side2}}{\Sigma L_i \times C_O}$ =

SECOND FLOOR SIDEWALL #1: V = $\frac{2489 \text{ lbs}}{7.43 \text{ ft} * 1}$ = 335 plf

SECOND FLOOR SIDEWALL #2: V = $\frac{2489 \text{ lbs}}{12 \text{ ft} * 0.979}$ = 212 plf

MAXIMUM SECOND FLOOR SIDEWALL UNIT SHEAR = 335 plf

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{335 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 3.53 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 3.53 = 3.39 " O.C.

OF ROWS : 1 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 1 * SPACING 1 * 3.39 o.c. 3 " O.C.

USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 3" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 335 plf

UNIT UPLIFT CHECK: (EQUAL TO UNIT SHEAR)

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{335 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 3.53 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 3.53 = 3.39 " O.C.

OF ROWS : 1 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 1 * SPACING 1 * 3.39 o.c. 3 " O.C.

USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 3" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 335 plf

ALTERNATE SHEATHING CONNECTION FOR UNIT UPLIFT (GLUE):

V = 335 plf

200 psi MINIMUM CONSTRUCTION ADHESIVE Z = 200 psi (FACE)

WIDTH OF GLUE REQUIRED FOR SHEATHING CONNECTION ALONG FLOOR BAND:

WIDTH OF GLUE STRIP REQUIRED = $\frac{V}{Z} = \frac{335 \text{ plf}}{200 \text{ psi} * 12" / \text{ft}}$ = 1 "

FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE
PLUS (1) ROW OF 8d NAILS AT 6" o.c.

FIRST FLOOR SIDEWALL #1 SHEATHING LENGTH REQUIREMENTS
FAMILY / BEDROOM #1

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR	
SHEATHING EDGE 8d NAIL SPACING =	6	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	436	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
FULL HEIGHT SHEATHING PROVIDED =	21.17	ft
1st FL. PERCENT FULL HEIGHT SHEATHING=	77	%
1st FL. MAX. UNRESTRAINED OPENING HEIGHT =	5.35	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	0.81	(TABLE 2305.3.7.2, IBC)
1st FL. NUMBER OF SHEARWALLS (N_{side}) =	2	
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{side1}) = W_1 * $FL_{t,para}$ / N_{side} + R_{side2} + ADDITIONAL =

R_{side1} = 27.5 ft * 210 plf / 2 + 2489 lbs + 0 lbs = 5377 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{side1} / V = 5377 lbs / 436 plf = 12.33 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (SIDEWALL) = L_{SW} / C_O = 12.33 ft / 0.81 = 15.23 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 15.23 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 21.17 ft**

SIDEWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

FIRST FLOOR SIDEWALL #1: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	21.17	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	0.81	
SHEARWALL REACTION (R_{end1}) =	5377	lbs
WALL HEIGHT (H) =	8	ft

$$UPLIFT\ FORCE\ (U_{E1}) = \frac{R_{side1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E1} = \frac{5377\ lbs \times 8\ ft}{21.17 \times 0.81} = 2509\ lbs$$

FIRST FLOOR SIDEWALL #2 SHEATHING LENGTH REQUIREMENTS
DINING / MECH. ROOM

FIRST FLOOR WIDTH (W_1) =	27.5	ft
SECOND FLOOR WIDTH (W_2) =	27.5	ft
FIRST FLOOR LENGTH (L_1) =	39	ft
SECOND FLOOR LENGTH (L_2) =	33	ft
SHEARWALL TYPE:	7/16" OSB EXTERIOR (BLOCKED) w/ 1/2" GWB INTERIOR	
SHEATHING EDGE 8d NAIL SPACING =	6	in O.C. (8d NAILS OR EQUIVALENT)
SHEARWALL STRENGTH (V) =	436	plf
MIN. SHEARWALL SEGMENT LENGTH =	2.3	ft
FULL HEIGHT SHEATHING PROVIDED =	17.25	ft
1st FL. PERCENT FULL HEIGHT SHEATHING=	70	%
1st FL. MAX. UNRESTRAINED OPENING HEIGHT =	5.35	ft
SHEAR ADJUSTMENT FACTOR (C_o) =	0.772	(TABLE 2305.3.7.2, IBC)
1st FL. NUMBER OF SHEARWALLS (N_{side}) =	2	
ADDITIONAL WALL LOAD =	0	lbs

SHEARWALL REACTION (R_{side1}) = W_1 * $FL_{t,para}$ / N_{side} + R_{side2} + ADDITIONAL =

R_{side1} = 27.5 ft * 210 plf / 2 +2489 lbs + 0 lbs = 5377 lbs

MIN. LENGTH SEGMENTED SHEARWALLS (L_{sw}) = R_{side1} / V = 5377 lbs / 436 plf = 12.33 ft

PERFORATED FULL HEIGHT SHEATHING LENGTH REQUIRED (SIDEWALL) = L_{SW} / C_O = 12.33 ft / 0.772 = 15.98 ft

PERFORATED FULL HEIGHT SHEATHING REQUIRED = 15.98 ft **<** **PERFORATED FULL HEIGHT SHEATHING PROVIDED = 17.25 ft**

SIDEWALL SHEARWALLS OK
ALL EXTERIOR SHEATHING TO BE BLOCKED UNO

FIRST FLOOR SIDEWALL #2: UPLIFT DUE TO OVERTURNING

SUM OF FULL HEIGHT SHEATHING PROVIDED (ΣL_i) =	17.25	ft
SHEARWALL ADJUSTMENT FACTOR (C_O) =	0.772	
SHEARWALL REACTION (R_{end1}) =	5377	lbs
WALL HEIGHT (H) =	8	ft

$$UPLIFT\ FORCE\ (U_{E1}) = \frac{R_{side1} \times H}{\Sigma L_i \times C_O} =$$

$$U_{E1} = \frac{5377\ lbs \times 8\ ft}{17.25 \times 0.772} = 3231\ lbs$$

FIRST FLOOR SIDEWALL : SHEAR CONNECTIONS

FIRST FLOOR WIDTH (W_1) =	27.5 ft		
EFFECTIVE FIRST FLOOR LENGTH (L_1) =	33 ft		
$FL_{1\text{-para}}$ =	210 plf		
1/2" ANCHOR BOLT	Z =	1056 lbs	
5/8" ANCHOR BOLT	Z =	1488 lbs	
0.162" x 3.5" COMMON NAIL (TOENAILED)	Z =	158 lbs	
(1) SIMPSON LTP4 PLATE	Z =	575 lbs	

MAXIMUM FIRST FLOOR SIDEWALL SHEAR LOAD = 5377 lbs

RIMBAND TO SILL PLATE CONNECTION:

V = MAX SIDEWALL SHEAR + W_1 x (3/4 * $FL_{1\text{-para}}$) / 2 =
V = 5377 lbs + 27.5 ft x (3/4 * 210 plf) / 2 = 7543 lbs

# TOENAILS PER FOOT =	V / Z / L_1 =	7543 lbs / 158 lbs / 33 ft =	1.4	NAILS / ft
TOENAIL SPACING =	12 / # =	12 / 1.4 =	8 " O.C.	(16" MAX)
# MP4F PLATES PER FOOT =	V / Z / W =	7543 lbs / 575 lbs / 33 ft =	0.4	PLATES / ft
MP4F PLATE SPACING =	12 / # =	12 / 0.4 =	30 " O.C.	(72" MAX)

USE 0.162" x 3.5" COMMON NAIL (TOENAILED) @ 8" ON CENTER
OR USE (1) SIMPSON LTP4 PLATE @ 30" ON CENTER
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 7543 lbs

SILL PLATE TO FOUNDATION CONNECTION:

# 1/2" ANCHOR BOLTS =	V / Z =	7543 lbs / 1056 lbs =	8	BOLTS
BOLT SPACING =	(L - 2) / (N - 1) =	(33 ft - 2) / (8 - 1) =	53	in

USE 1/2" ANCHOR BOLTS @ 53" O.C
ANCHOR BOLTS TO BE A MIN. OF 4" AND A MAX. OF 1'-0" FROM CORNERS
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 7543 lbs (229 plf)

# 5/8" ANCHOR BOLTS =	V / Z =	7543 lbs / 1488 lbs =	6	BOLTS
BOLT SPACING =	(L - 2) / (N - 1) =	(33 ft - 2) / (6 - 1) =	72	in

USE 5/8" ANCHOR BOLTS @ 72" O.C
ANCHOR BOLTS TO BE A MIN. OF 4" AND A MAX. OF 1'-0" FROM CORNERS
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 7543 lbs (229 plf)

CHECK SHEATHING TO RIMBAND CONNECTION:

UNIT SHEAR CHECK:

SHEAR FORCE (V) = $\frac{R_{side1}}{\Sigma L_i \times C_O}$ =

FIRST FLOOR SIDEWALL #1: V = $\frac{5377 \text{ lbs}}{21.17 \text{ ft} * 0.81}$ = 314 plf

FIRST FLOOR SIDEWALL #2: V = $\frac{5377 \text{ lbs}}{17.25 * 0.772}$ = 404 plf

MAXIMUM FIRST FLOOR SIDEWALL UNIT SHEAR = 404 plf

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{404 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 4.26 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 4.26 = 2.81 " O.C.

OF ROWS : 1 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 1 * SPACING 1 * 2.81 o.c. 2 " O.C.

USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 404 plf

UNIT UPLIFT CHECK: (EQUAL TO UNIT SHEAR)

CHECK # 8d NAILS REQUIRED FOR SHEATHING CONNECTION:

8d COMMON NAIL (FACE NAILED), 7/16" SIDE MEMBER Z = 95 lbs

OF 8d NAILS PER FOOT = $\frac{V}{Z} = \frac{404 \text{ plf}}{95 \text{ lbs / NAIL}}$

OF 8d NAILS PER FOOT = 4.26 NAILS PER FOOT

OVERALL 8d NAIL SPACING = 12 / # = 12 / 4.26 = 2.81 " O.C.

OF ROWS : 1 ROW(S)

8d NAIL SPACING WITHIN EACH ROW = 1 * SPACING 1 * 2.81 o.c. 2 " O.C.

USE SHEATHING CONNECTION WITH 1 ROW(S) OF 8d NAILS AT 2" O.C.
OR CONNECTION TO WITHSTAND A SHEAR FORCE OF 404 plf

ALTERNATE SHEATHING CONNECTION FOR UNIT UPLIFT (GLUE):

V = 404 plf

200 psi MINIMUM CONSTRUCTION ADHESIVE Z = 200 psi (FACE)

WIDTH OF GLUE REQUIRED FOR SHEATHING CONNECTION ALONG FLOOR BAND:

WIDTH OF GLUE STRIP REQUIRED = $\frac{V}{Z} = \frac{404 \text{ plf}}{200 \text{ psi} * 12" / \text{ft}}$ = 1 "

FASTEN SHEATHING TO BAND WITH 1" WIDE STRIP OF 200 psi MINIMUM CONSTRUCTION ADHESIVE
PLUS (1) ROW OF 8d NAILS AT 6" o.c.

SHEARWALL HOLDOWN DESIGN

SHEARWALL UPLIFT FROM EACH FLOORS

2nd FLOOR SIDEWALL #1	2680	lbs
2nd FLOOR SIDEWALL #2	1695	lbs
2nd FLOOR ENDWALL #1	3052	lbs
2nd FLOOR ENDWALL #2	4477	lbs
1st FLOOR SIDEWALL #1	2509	lbs
1st FLOOR SIDEWALL #2	3231	lbs
1st FLOOR ENDWALL #1	10444	lbs
1st FLOOR ENDWALL #2	9263	lbs
1st FLOOR OFFSET SHEARWALL	1079	lbs

DEAD LOAD	UNIT WEIGHT (PSF)
TRUSS DEAD	15
FLOOR DEAD	10
WALL DEAD	12

STORY HEIGHT	HEIGHT (ft)
1ST FLOOR	8
2nd FLOOR	8
2nd FLOOR	0

MODULAR WIDTH #1 (ft)	13.75
MODULAR WIDTH #2 (ft)	13.75

PFS APPROVED
DATE 7/20/17
PFS CORPORATION
Bloomsburg, PA

SPF #2 VALUE	COMPRESSION CAPACITY (lbs) (Cd = 1.0)	COMPRESSION CAPACITY (lbs) (Cd = 1.15)	COMPRESSION CAPACITY (lbs) (Cd = 1.6)	TENSION CAPACITY (lbs) (Cd = 1.6)
2X4 (8 FT)	2603	2660	2745	5670
2X4 (9 FT)	2115	2153	2203	5670
2X4 (10 FT)	1744	1771	1802	5670
2X6 (8 FT)	7494	8058	9141	7722
2X6 (9 FT)	6629	7005	7668	7722
2X6 (10 FT)	5792	6041	6453	7722

SIMPSON STRAP	CAPACITY		FASTENERS
SIMPSON CS16 COILED STRAP	1705	22	10d NAILS
SIMPSON CS14 COILED STRAP	2490	30	10d NAILS
SIMPSON CMSTC16 COILED STRAP	4585	58	16d SINKER NAILS
SIMPSON CMST14 COILED STRAP	6490	66	16d NAILS
SIMPSON CMST12 COILED STRAP	9215	84	16d NAILS

*** CAPACITY OBTAINED FROM SIMPSON STRONG-TIE 2015-16 WOOD CONSTRUCTION CONNECTIONS CATALOG

16d COMMON NAILS	191 lbs
1/4" LAG SCREWS	225 lbs
3/8" LAG SCREWS	295 lbs
1/2" LAG SCREWS	555 lbs
5/8" LAG SCREWS	789 lbs

** ALL WITH Cd = 1.6 FACTOR

HOLDOWN	CAPACITY (lbs)
SIMPSON PA51	2025
SIMPSON HD5B W/(2) STUDS	3785
SIMPSON STHD14RJ	4210
SIMPSON HDU8-SDS2.5 W/ (2) STUDS	4870
SIMPSON HD7B W/(3) STUDS	6245
SIMPSON HD9B W/(4) STUDS	8430
SIMPSON HD12 W/(4) STUDS W/ 1-1/8" ANCHOR BOLT	12690
SIMPSON HD19 W/(4) STUDS W/ 1-1/4" ANCHOR BOLT	16210

*** CAPACITY OBTAINED FROM SIMPSON STRONG-TIE 2015-16 WOOD CONSTRUCTION CONNECTIONS CATALOG

NET UPLIFT CALCULATIONS (UPLFIT - DEAD LOAD)

2nd FLOOR SIDEWALL #1

SHEARWALL LENGTH	7.43	ft
DEAD LOAD	443.849625	lbs
NET UPLIFT	**2236**	lbs
STUDS REQUIRED	1	2X6 STUDS

1st FLOOR SIDEWALL #1

SHEARWALL LENGTH	27.53	ft
DEAD LOAD	1360.67025	lbs
NET UPLIFT	**1148**	lbs
STUDS REQUIRED	2	2X6 STUDS

2nd FLOOR SIDEWALL #2

SHEARWALL LENGTH	14.56	ft
DEAD LOAD	869.778	lbs
NET UPLIFT	**825**	lbs
STUDS REQUIRED	1	2X6 STUDS

1st FLOOR SIDEWALL #2

SHEARWALL LENGTH	24.47	ft
DEAD LOAD	1209.42975	lbs
NET UPLIFT	**2847**	lbs
STUDS REQUIRED	2	2X6 STUDS

2nd FLOOR ENDWALL #1

SHEARWALL LENGTH	7.83	ft
DEAD LOAD	225.504	lbs
NET UPLIFT	**2826**	lbs
STUDS REQUIRED	1	2X6 STUDS

1st FLOOR ENDWALL #1

SHEARWALL LENGTH	5.17	ft
DEAD LOAD	148.896	lbs
NET UPLIFT	**13122**	lbs
STUDS REQUIRED	3	2X6 STUDS

2nd FLOOR ENDWALL #2

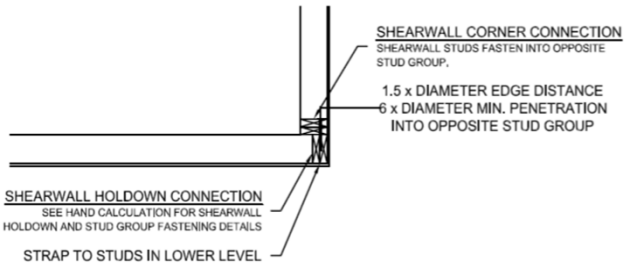
SHEARWALL LENGTH	27.5	ft
DEAD LOAD	792	lbs
NET UPLIFT	**3685**	lbs
STUDS REQUIRED	1	2X6 STUDS

1st FLOOR ENDWALL #2

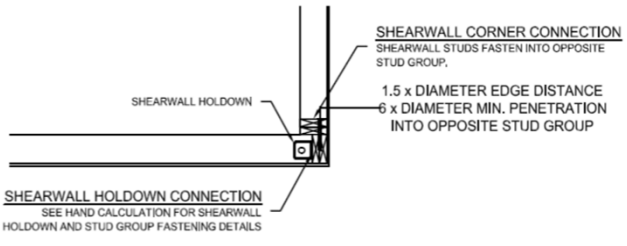
SHEARWALL LENGTH	2.42	ft
DEAD LOAD	69.696	lbs
NET UPLIFT	**12878**	lbs
STUDS REQUIRED	2	2X6 STUDS

1st FLOOR OFFSET SHEARWALL

SHEARWALL LENGTH	13.75	ft
DEAD LOAD	396	lbs
NET UPLIFT	**683**	lbs
STUDS REQUIRED	2	2X6 STUDS



UPPER STORY HOLDOWN @ CORNER DETAILS



1ST STORY HOLDOWN @ CORNER DETAILS

SECOND FLOOR SHEAR WALL HOLDOWN CONNECTION #1

NET UPLIFT =	3685	lbs	
STUDS REQUIRED =	2	2X6 STUDS	
SIMPSON STRAP =	SIMPSON CMSTC16 COILED STRAP		
STRAP REQUIRED =	1	STRAP	
TOTAL TENSION CAPACITY =	4585	lbs	**O.K.**
FASTENERS REQUIRED PER STRAP =	47	16d SINKER NAILS	
ROWS OF FASTENERS =	2	ROWS	
16d NAIL SPACING =	9	"O.C.	

USE (1) SIMPSON CMSTC16 COILED STRAP W/(47) 16d SINKER NAILS TOTAL @ EACH STRAP
STUDS ATTACHED TOGETHER W/ 2 ROWS OF 16d COMMON NAILS @ 9" ON CENTER
OR CONNECTION TO WITHSTAND 3685 lbs TENSION

FIRST FLOOR SHEAR WALL HOLDOWN CONNECTION #1

NET UPLIFT =	3685	lbs	
HOLDOWN =	SIMPSON STHD14RJ		
HOLDOWN CAPACITY =	4210	lbs	**O.K.**
STUDS REQUIRED =	2	2X6 STUDS	
ROWS OF FASTENERS =	2	ROWS	
16d NAIL SPACING =	9	"O.C.	

USE A SIMPSON STHD14RJ
SHEARWALL EDGE STUDS ATTACHED TOGETHER W/ 2 ROWS OF 16d COMMON NAILS @ 9" ON CENTER
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 3685 lbs

FIRST FLOOR SHEAR WALL HOLDOWN CONNECTION #2

NET UPLIFT =	13122	lbs	
HOLDOWN =	SIMPSON HD19 W/(4) STUDS W/ 1-1/4" ANCHOR BOLT		
HOLDOWN CAPACITY =	16210	lbs	**O.K.**
STUDS REQUIRED =	4	2X6 STUDS	
ROWS OF FASTENERS =	2	ROWS	
16d NAIL SPACING =	2	"O.C.	

USE A SIMPSON HD19 W/(4) STUDS W/ 1-1/4" ANCHOR BOLT
SHEARWALL EDGE STUDS ATTACHED TOGETHER W/ 2 ROWS OF 16d COMMON NAILS @ 2" ON CENTER
OR CONNECTION TO WITHSTAND AN UPLIFT FORCE OF 13122 lbs

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FIRST FLOOR FRAMING PLAN

* NO CORNER CONNECTION BEYOND THE MINIMUM WILL BE REQUIRED IF SHEATHING COVERED ALL THE WAY TO THE CORNER EDGE. OTHERWISE, PROVIDE CONNECTION AS REQUIRED.

* MIN CORNER CONNECTION
(2) ROWS 16d COMMON NAILS @ 16" O.C.
OR (6) 1/4" LAG SCREWS

UPLIFT = 3685 lbs
USE 2ND STORY SHEARWALL
CORNER CONNECTION #1
(2ND FLOOR BAND TO 1ST
STORY STUD)

UPLIFT = 3685 lbs
USE SHEARWALL
HOLDOWN
CONNECTION #1

SIDEWALL #1

OFFSET
SHEARWALL

UPLIFT = 13122 lbs
USE SHEARWALL
HOLDOWN
CONNECTION #2

ENDWALL #1

UPLIFT = 3685 lbs
USE 2ND STORY
SHEARWALL CORNER
CONNECTION #1 (2ND
FLOOR BAND TO 1ST
STORY STUD)

FASTEN 1ST FLOOR BANDS TOGETHER ACROSS MATELINE w/ (1) SIMPSON CMST12 w/ (40) 10d NAILS EACH END OF STRAP (CAP = 7522 LBS) OR (1) SIMPSON HD9B EACH SIDE OF MATELINE w/ $\frac{7}{8}$" BOLT AND THREE FRAMING MEMBERS EACH SIDE (CAP = 8435 LBS) TO RESIST MAX SHEAR LOAD OF 7433 LBS. SHALL BE IN LIEU OF DIAPHRAGM CONTINUITY CONNECTION SPECIFIED IN SHEARCALC

ENDWALL #2

SHEARWALL SEGMENT
MUST BE SHEATHED
ON SITE TO FORM
CONTINUOUS
SHEARWALL SEGMENT

SIDEWALL #2

UPLIFT = 3685 lbs
USE SHEARWALL
HOLDOWN
CONNECTION #2

UPLIFT = 13122 lbs
USE SHEARWALL
HOLDOWN
CONNECTION #1

PE
SD/CO
AC/DC

PE
SD
AC/DC

2x4

2x6

ICE

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246 SAND HILL ROAD
SELINSGROVE, PA 17870
PHONE: (570) 374-3280
FAX: (570) 374-1122
WWW.ICONLEGACY.COM

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DATE	REVISION	BY
11/15/16	PRELIM	PIF
02/15/17	REV. PRELIM	TLM
6/2/17	FINAL	HLB

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
COUNTY: BARNSTABLE
ORDER NO: 6861
SERIAL NO:
FILE NAME: O#6861-2004
STATE: MA
ZIP: 02559
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
SQFT: 1,980
TYPE: CAPE

THIS BUILDING HAS BEEN FABRICATED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

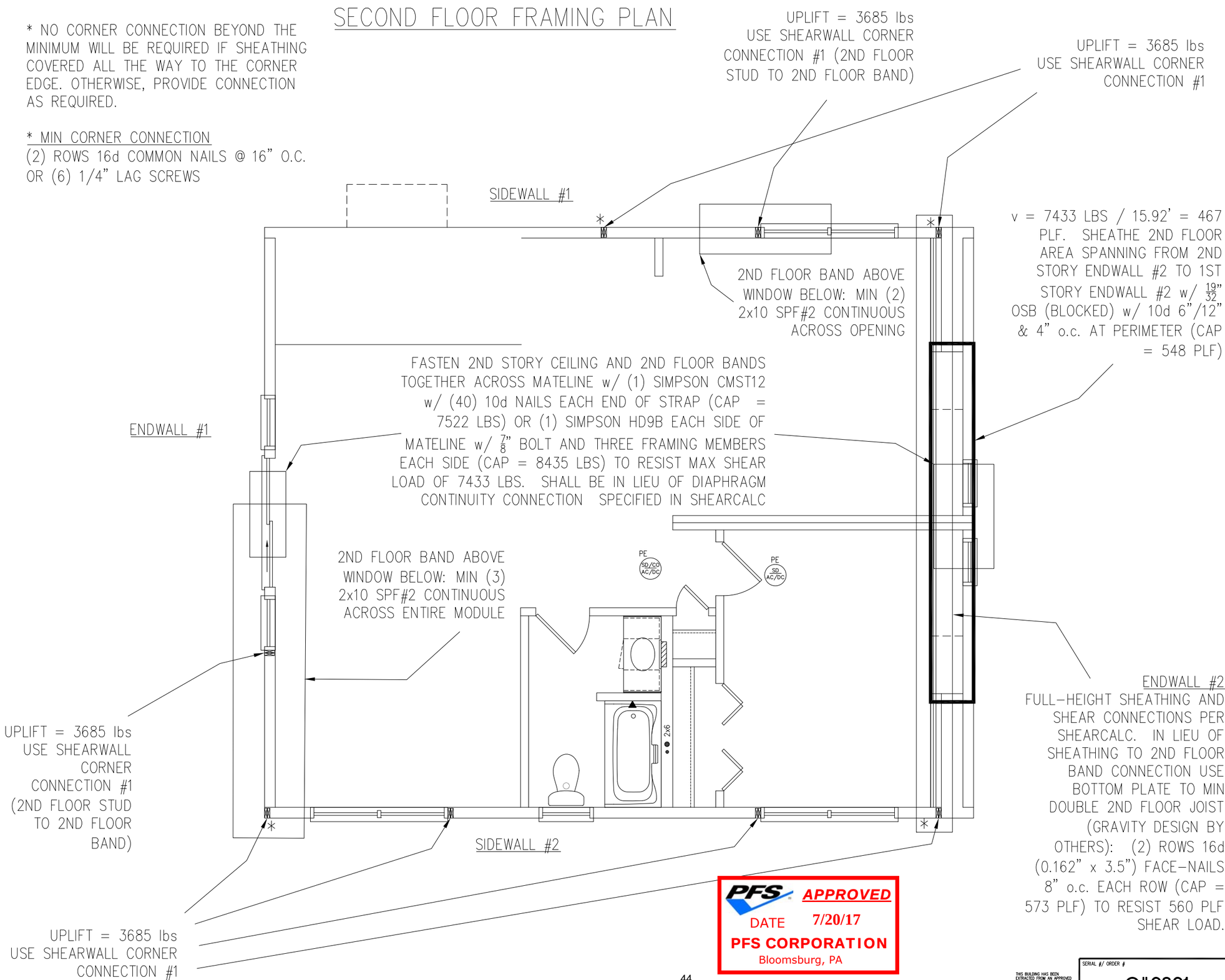
SERIAL #/ ORDER #: O#6861

PAGE #:

SECOND FLOOR FRAMING PLAN

* NO CORNER CONNECTION BEYOND THE MINIMUM WILL BE REQUIRED IF SHEATHING COVERED ALL THE WAY TO THE CORNER EDGE. OTHERWISE, PROVIDE CONNECTION AS REQUIRED.

* MIN CORNER CONNECTION
(2) ROWS 16d COMMON NAILS @ 16" O.C.
OR (6) 1/4" LAG SCREWS



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BY	REVISION	DATE
PIF	PRELIM	11/15/16
TLM	REV. PRELIM	02/15/17
HLB	FINAL	6/2/17

BUILDER: PLEASANT BAY HOMES
HOMEBUYER/PROJECT: ELIZABETH GILLIS 2
ADDRESS: 10 HARBOR WAY
CITY: POCASSET
STATE: MA
ZIP: 02559
COUNTY: BARNSTABLE
SNOW LOAD (LBS): 30
WIND SPEED (MPH): 110
ORDER NO: 6861
SERIAL NO:
SQFT: 1,980
TYPE: CAPE
FILE NAME: O#6861-2004

THIS BUILDING HAS BEEN EXTRACTED FROM AN APPROVED SYSTEMS OR PER MODEL APPROVAL
JLA

SERIAL #/ ORDER #: O#6861

PAGE #:

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Section 3

HAND CALCULATIONS

07/10/17

Project: BEAM CALCS

Location: 2ND FLOOR BAND-1
Multi-Loaded Multi-Span Beam
[2015 International Building Code(2012 NDS)]
(3) 1.5 IN x 9.25 IN x 11.29 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 27.8%
Controlling Factor: Deflection

Ethan Loewenthal
Barlow Engineering
6512 Six Forks Rd. Suite 203B
Raleigh, NC 27615

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CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	-0.29	IN L/460
Dead Load	0.01	in
Total Load	-0.29	IN L/471

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A	B
Live Load	-1925 lb	-901 lb
Dead Load	43 lb	43 lb
Total Load	-1882 lb	-858 lb
Uplift (1.5 F.S)	**-1896 lb**	**-873 lb**
Bearing Length	0.02 in	0.02 in

BEAM DATA	Center
Span Length	11.29 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	11.29 ft
Live Load Duration Factor	1.60
Notch Depth	0.00

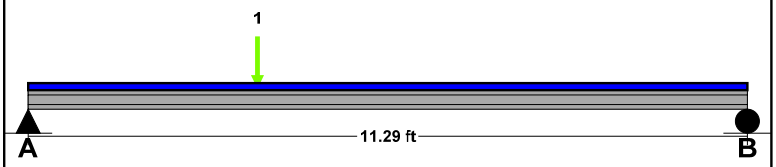
MATERIAL PROPERTIES
#2 - Spruce-Pine-Fir

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi	Fb' = 1730 psi
	Cd=1.60 Cl=0.98 CF=1.10 Cr=1.15	
Shear Stress:	Fv = 135 psi	Fv' = 216 psi
	Cd=1.60	
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425 psi	Fc - ⊥' = 425 psi

Controlling Moment: -6813 ft-lb
3.61 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1909 lb
3.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	47.26 in3	64.17 in3
Area (Shear):	13.25 in2	41.63 in2
Moment of Inertia (deflection):	232.26 in4	296.79 in4
Moment:	-6813 ft-lb	9251 ft-lb
Shear:	-1909 lb	5994 lb

LOADING DIAGRAM



UNIFORM LOADS	Center
Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	8 plf
Total Uniform Load	8 plf

POINT LOADS - CENTER SPAN	
Load Number	One
Live Load	-2826 lb
Dead Load	0 lb
Location	3.6 ft

NOTES

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Project: BEAM CALCS

Location: 2ND FLOOR BAND-2
Multi-Loaded Multi-Span Beam
[2015 International Building Code(2012 NDS)]
(2) 1.5 IN x 9.25 IN x 3.2 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 204.2%
Controlling Factor: Moment

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Barlow Engineering
6512 Six Forks Rd. Suite 203B
Raleigh, NC 27615

StruCalc Version 10.0.1.5 7/6/2017 7:36:17 PM

CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	-0.01	IN L/4033
Dead Load	0.00	in
Total Load	-0.01	IN L/4051

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A	B
Live Load	-1118 lb	-1118 lb
Dead Load	8 lb	8 lb
Total Load	-1110 lb	-1110 lb
Uplift (1.5 F.S)	**-1113 lb**	**-1113 lb**
Bearing Length	0.01 in	0.01 in

BEAM DATA	Center
Span Length	3.2 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	3.2 ft
Live Load Duration Factor	1.60
Notch Depth	0.00

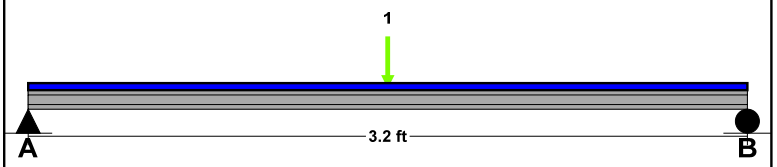
MATERIAL PROPERTIES
#2 - Spruce-Pine-Fir

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi	Fb' = 1521 psi
	Cd=1.60 Cl=0.99 CF=1.10	
Shear Stress:	Fv = 135 psi	Fv' = 216 psi
	Cd=1.60	
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425 psi	Fc - ⊥' = 425 psi

Controlling Moment: -1782 ft-lb
1.6 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1118 lb
2.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	14.06 in3	42.78 in3
Area (Shear):	7.76 in2	27.75 in2
Moment of Inertia (deflection):	17.66 in4	197.86 in4
Moment:	-1782 ft-lb	5422 ft-lb
Shear:	-1118 lb	3996 lb

LOADING DIAGRAM



UNIFORM LOADS	Center
Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	5 plf
Total Uniform Load	5 plf

POINT LOADS - CENTER SPAN	
Load Number	One
Live Load	-2236 lb
Dead Load	0 lb
Location	1.6 ft

NOTES

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Section 4

ALTERNATE CALCULATIONS

07/10/17

ALTERNATE CONNECTIONS

PROJECT NUMBER: **0278nec2017**

PER ESR-1539 (JULY 2016)

TABLE 8

	ALLOWABLE SHEAR VALUE (PLF)
7/16" O.S.B. Sheathing w/ 16, 15 & 14 GA. Staples @ 2" O. C.	324

* Staple must have a 7-16 -inch minimum crown width and must be installed with their crown parallel to the long direction of the framing member.

** Framing adjoining panel edge must be 3-inch nominal or wider

*** Shear value assumed fasteners attached along the total length of the framing member specified.

Required Sidewall Stud Tie Down

STUD SPACING 16 inch

1. 2nd Floor Stud to Top Plate

Load = 430 lbs

UNIFORM LOAD 323 plf

7/16" O.S.B. Sheathing w/ 16 GA. Staples @ 2" O. C.

2. 2nd Floor Stud to Floor Band – 2nd Floor Band to 1st Floor Ceiling Band

Load = 354 lbs

UNIFORM LOAD 266 plf

7/16" O.S.B. Sheathing w/ 16 GA. Staples @ 2" O. C.

3. 1st Floor Stud to Ceiling Band

Load = 299 lbs

UNIFORM LOAD 225 plf

7/16" O.S.B. Sheathing w/ 16 GA. Staples @ 2" O. C.

4. 1st Floor Stud to Floor Band

Load = 223 lbs

UNIFORM LOAD 168 plf

7/16" O.S.B. Sheathing w/ 16 GA. Staples @ 2" O. C.

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5. Second Floor Horizontal Floor Diaphragm Continuity

Module to Module (Along Mate Line)

Load = 2822 lbs

3/8" LAG SCREWS = 288 lbs

NUMBER OF SCREWS REQUIRED 10 SCREWS

Use (10) 3/8" lag screws to attach module to module along mate line.
(Minimum 1" penetration in last band)

6. First Floor Horizontal Floor Diaphragm Continuity

Module to Module (Along Mate Line)

Load = 3335 lbs

3/8" LAG SCREWS = 288 lbs

NUMBER OF SCREWS REQUIRED 12 SCREWS

Use (12) 3/8" lag screws to attach module to module along mate line.
(Minimum 1" penetration in last band)

STAPLES PROPERTIES:

SPECIES GROUP III

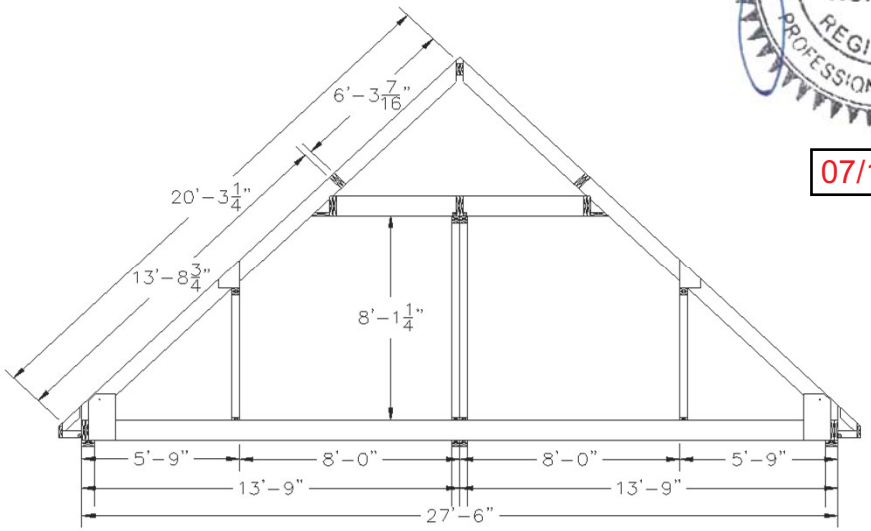
LOAD DURATION FACTOR CD 1.6 WIND DESIGN)

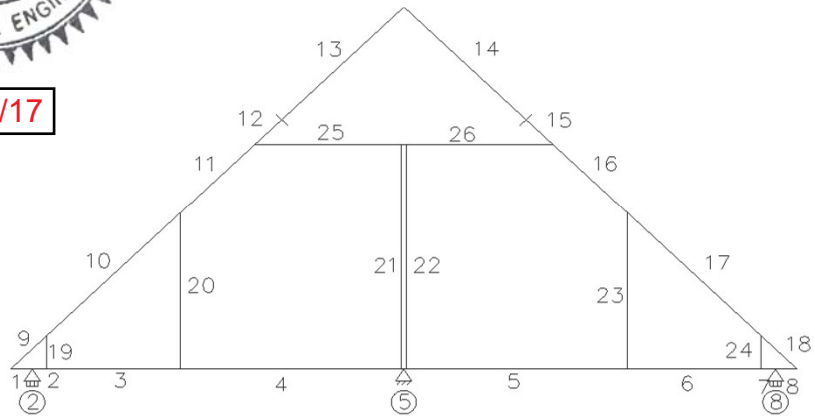
SPECIFIC GRAVITY 0.42

STAPLES	MIN CROWN (INCH)	WIRE DIA. (INCH)	MIN. PENETRATION (INCH)		LATERAL CAPACITY (LBS)		WITHDRAWN CAPACITY (LBS / IN PENETRATION)	
16, 15 & 14 GAGE	7/16	0.063	1		67		20	

TRUSS CALCULATIONS

LEGACY CUSTOM HOMES





COMMONWEALTH OF MASSACHUSETTS
JAMES J. BARLOW
CIVIL
NO. 49508
REGISTERED
PROFESSIONAL ENGINEER

07/10/17

TRUSS NO.: 4BOX-CAPE-27-6
JOB NO.: 170367
PITCH: 12/12
SPAN: 27'-6"
TRUSS CENTERS: 16 in O.C.

GROUND SNOW LOAD:	**30 psf**	**TC DL:**	10 psf
*** BALANCED SNOW LOAD:**	17.76 psf	**BC DL:**	10 psf
UNBALANCED SNOW LOAD:	47.51 psf	**BC LL:**	10 psf WHERE h < 42"
OPPOSITE SIDE UNB. SNOW LOAD:	5.328 psf	**BC LL:**	20 psf WHERE h ≧ 42"
UNBALANCED SNOW LOAD LENGTH:	4.432 ft	**BC LL:**	40 psf BETWEEN KNEEWALLS

APPLIED MWFRS UPLIFT: 33.61 psf WINDWARD AT 110 mph
19.09 psf LEEWARD AT 110 mph
APPLIED C & C UPLIFT: 33.61 psf AT 110 mph

MEMBER INFORMATION:

MEMBER	SIZE & SPECIES
1 - 8	2 x 10 SPF #2
9 - 12 & 15 - 18	2 x 10 SPF #2
13-14	2 x 8 SPF #2
19 - 24	2 x 4 SPF #2
25 - 26	2 x 6 SPF #2

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MAXIMUM SUPPORT REACTIONS (lbs):

	DEAD LOAD	DL + LL + 30 psf GSL	MWFRS 0.6 DL + 110 mph UPLIFT	C & C 0.6 DL + 110 mph UPLIFT
EXTERIOR WALL (2 & 8)	476	1299	-314	-357
MATING WALL (5)	154	648	-99	0

MAXIMUM INTERACTION & DEFLECTION:

	MAXIMUM CSI	MAXIMUM DEFLECTION (in)	l /
BOTTOM CHORD	0.903	0.54	318
TOP CHORD	0.925	1.331	182
WEB	0.415	0.00	*****

NOTES:

1. MATING WALL REACTIONS ARE TOTAL FOR BOTH SIDES.
2. WIND PER ASCE 7-05, 110 mph (Vasd), EXP. C.
3. SNOW PER ASCE 7-05 30 psf GSL, Ct = 1.1, Ce = 1.0
   DRIFTING LENGTH IS LATERAL DISTANCE FROM RIDGE.
4. COMPONENT DESIGN IS BASED ON C & C PRESSURES

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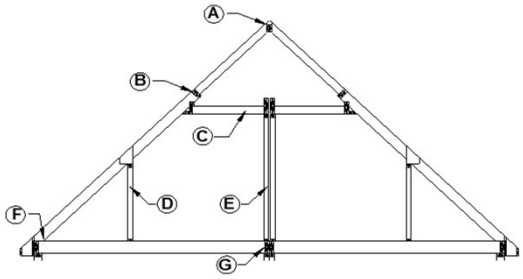
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **4BOX-CAPE-27-6**
TRUSS PITCH : **12/12**
TRUSS SPAN : **27'-6"**



UPLIFT CONNECTIONS (MWFRS LOADS):

110 mph										
EXTERIOR WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
314	WIND	1.6	OK	4	6	OK	3	6	OK	3
ALTERNATE: (4) 16 d NAILS TOENAILED THROUGH BC INTO BAND PLUS (3) 16 d NAILS THROUGH SHEATHING INTO BAND AND STUD										
MATING WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs / PER SIDE)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
50	WIND	1.6	OK	2	2	OK	2	2	OK	2
ALTERNATE: (2) 16 d NAILS TOENAILED THROUGH BC INTO BAND PLUS (2) 16 d NAILS THROUGH SHEATHING INTO BAND AND STUD										

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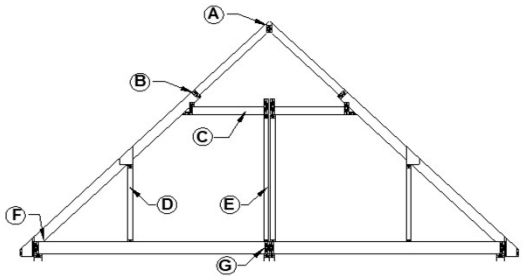
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **4BOX-CAPE-27-6**
TRUSS PITCH : **12/12**
TRUSS SPAN : **27'-6"**



MAXIMUM OF DL + LL + 30 psf GSL & 0.6 DL + 110 mph WIND

CONDITION "A" - RIDGE:			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
122	WIND	1.6	OK	2	3	OK	2	3	OK	2
		ALTERNATE:	USE (2) 8 d NAILS EACH END OF 1 x 4							
SHEAR (lbs)	CASE	CD								
173	SNOW	1.15	USE (2) 16 d NAILS INTO END GRAIN EACH END PLUS USE 10 d NAILS AT 10 in O.C. THROUGH PLATES							
CONDITION "B" - TOP CHORD FLIP:										
TENSION (lbs)	CASE	CD								
84	WIND	1.6	USE (2) 6 d NAILS THROUGH SHEATHING EACH SIDE							
		ALTERNATE:	USE (2) 16 ga STAPLE THROUGH SHEATHING EACH SIDE							
SHEAR (lbs)	CASE	CD								
173	SNOW	1.15	USE (2) 16 d NAILS TOENAILED EACH END PLUS USE 10 d NAILS AT 10 in O.C. THROUGH PLATES							
CONDITION "C" - COLLAR TIE:										
AT RAFTER			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
529	WIND	1.6	NO GOOD	N/A	N/A	OK	4	10	OK	4
SHEAR (lbs)	CASE	CD								
529	WIND	1.6	USE (2) 16 d NAILS THROUGH BAND INTO ENDGRAIN							
		AND	OK FOR SIMPSON H3 TWIST STRAP w/ (8) 8 d NAILS BAND TO RAFTER							
AT MATING WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
529	WIND	1.6	NO GOOD	N/A	N/A	OK	4	10	OK	4
SHEAR (lbs)	CASE	CD								
4	SNOW	1.15	USE (2) 16 d NAILS THROUGH BAND INTO ENDGRAIN							

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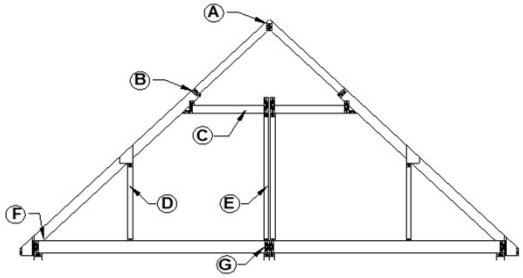
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **4BOX-CAPE-27-6**
TRUSS PITCH : **12/12**
TRUSS SPAN : **27'-6"**



CONDITION "D" - OUTER KNEE WALLS:			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
820	SNOW	1.15	NO GOOD	N/A	N/A	OK	8	16	OK	8
COMPRESSION (lbs)	CASE	CD								
572	SNOW	1.15	USE (5) 16 d NAILS THROUGH CHORD BLOCK							
CONDITION "E" - INNER KNEE WALLS:			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
0	SNOW	1.15	OK	2	2	OK	2	2	OK	2
CONDITION "F" - HEEL:										
TOP CHORD (lbs)	**CASE**	**CD**								
972	SNOW	1.15	USE (1) 1/2" BOLT (DOUBLE SHEAR; 3/8" SIDE PLATES)							
			PLUS (3) 6 d NAILS OR (4) 16 ga STAPLES PER GUSSET EACH SIDE							
		ALTERNATE:	USE (1) 3/4" BOLT (DOUBLE SHEAR; 1/2" SIDE PLATES)							
			PLUS NO ADDITIONAL FASTENERS REQUIRED							
BOTTOM CHORD (lbs)	**CASE**	**CD**								
786	SNOW	1.15	USE (8) 6 d NAILS OR (10) 16 ga STAPLES PER GUSSET EACH SIDE							
CONDITION "G" - BOTTOM CHORD AT MATING LINE:										
			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
786	SNOW	1.15	NO GOOD	N/A	N/A	OK	8	15	OK	8
		ALTERNATE:	USE (10) 16 d NAILS THROUGH DECKING EACH SIDE							

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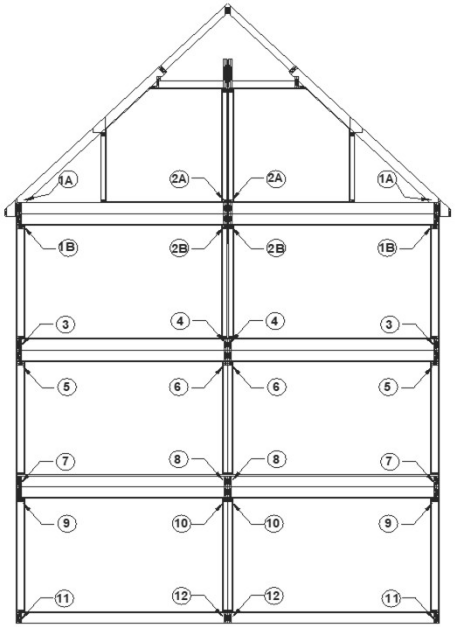
COMPONENT LOAD SUMMARY

EXTERIOR WALL DEAD LOAD =	12	psf	x	10	ft	=	120 plf
MATING WALL DEAD LOAD =	8	psf	x	10	ft	=	80 plf
FLOOR DEAD LOAD =	10	psf	x	13.75	ft / 2 =		68.75 plf
FLOOR LIVE LOAD =	40	psf	x	13.75	ft / 2 =		275 plf
CEILING DEAD LOAD =	5	psf	x	13.75	ft / 2 =		34.38 plf

LOCATION 1 =	EXT. WALL HEADER & EXT. WALL STUD
LOCATION 2 =	M. WALL HEADER & M. WALL STUD
LOCATION 3 =	PERIMETER BAND
LOCATION 4 =	CENTER GIRDER
LOCATION 5 =	EXT. WALL HEADER & EXT. WALL STUD
LOCATION 6 =	M. WALL HEADER & M. WALL STUD
LOCATION 7 =	PERIMETER BAND
LOCATION 8 =	CENTER GIRDER
LOCATION 9 =	EXT. WALL HEADER & EXT. WALL STUD
LOCATION 10 =	M. WALL HEADER & M. WALL STUD
LOCATION 11 =	PERIMETER BAND
LOCATION 12 =	CENTER GIRDER
LOCATIONS 3, 4, 7, 8, 11 & 12 MAY BE USED TO GENERATE FOUNDATION LOADS	

* CROSS SECTION IS FOR REFERENCE ONLY
AND MAY NOT REFLECT ACTUAL TRUSS



TRUSS 4BOX-CAPE-27-6, 12/12 PITCH, 27'-6" WIDTH

COMPONENT LOADS (lbs/ft)

30 psf GROUND SNOW (MATING WALL LOADS ARE PER SIDE OF LINE)

LOCATION	1A	1B	2A	2B	3	4	5	6	7	8	9	10	11	12
DEAD LOAD	357	391	58	92	546	207	580	241	769	390	803	424	992	573
LIVE LOAD	618	652	428	462	893	703	893	703	1168	978	1168	978	1443	1253
TOTAL LOAD	975	1044	486	555	1439	910	1473	944	1937	1368	1971	1402	2435	1826

C & C UPLIFT														
LOCATION	1A	1B	2A	2B	3	4	5	6	7	8	9	10	11	12
UPLIFT (0.6) DEAD LOAD	214	235	35	55	328	124	348	145	461	234	482	254	595	344
110 mph UPLIFT	-268	-33	0	-	-	-	-	-	-	-	-	-	-	-

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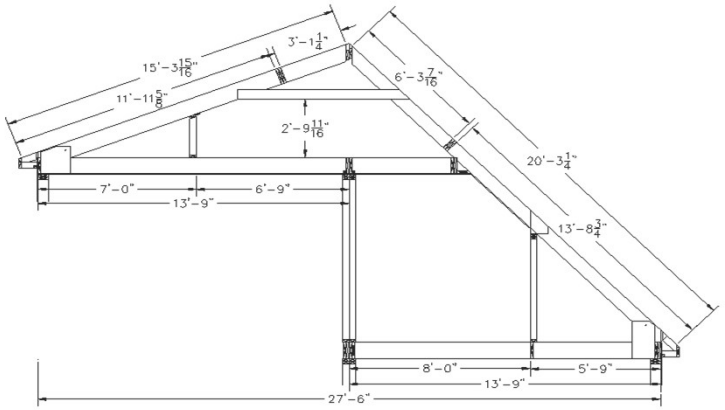
TRUSS CALCULATIONS

LEGACY CUSTOM MODULAR HOMES

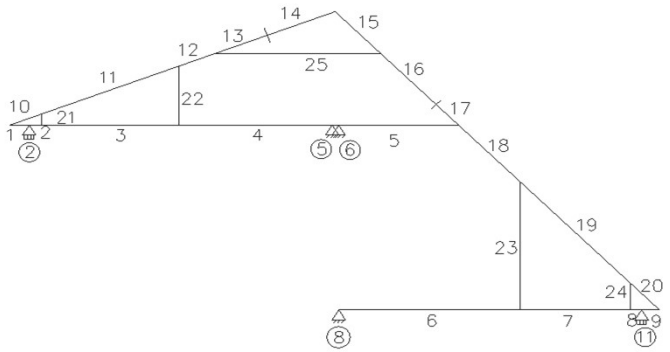


TRUSS NO.: VSHED-27-7
JOB NO.: 170367
HIGH SIDE PITCH: 4.5/12
LOW SIDE PITCH: 12/12
SPAN: 27'-7"

TRUSS CENTERS: 16 in O.C.

HIGH (4.5/12) SIDE

GROUND SNOW LOAD:	**30 psf**	
BALANCED SNOW LOAD:	23.1	psf
UNBALANCED SNOW LOAD:	41.289	psf
OPPOSITE SIDE UNB. SNOW LOAD:	6.93	psf
UNBALANCED SNOW LOAD LENGTH:	7.27	ft
APPLIED MWFRS UPLIFT:	32.76	psf WINDWARD AT 110 mph
	22.80	psf LEEWARD AT 110 mph
APPLIED C & C UPLIFT:	46.65	psf AT 110 mph



LOW (12/12) SIDE

*** BALANCED SNOW LOAD:**	17.76	psf
UNBALANCED SNOW LOAD:	47.51	psf
OPPOSITE SIDE UNB. SNOW LOAD:	5.33	psf
UNBALANCED SNOW LOAD LENGTH:	4.43	ft
APPLIED MWFRS UPLIFT:	33.61	psf WINDWARD AT 110 mph
	19.09	psf LEEWARD AT 110 mph
APPLIED C & C UPLIFT:	36.21	psf AT 110 mph

07/10/17

TC DL:	10 psf
BC DL:	10 psf
BC LL:	10 psf WHERE h < 42"
BC LL:	20 psf WHERE h ≧ 42"
LOWER BC LL:	40 psf BETWEEN KNEEWALLS

MEMBER INFORMATION:

MEMBER	SIZE & SPECIES
1 - 5 & 6 - 9	2 x 10 SPF #2
10 - 13 & 17 - 20	2 x 8 SPF #2
14 - 16	2 x 4 SPF #2
21 - 24	2 x 4 SPF #2
25	2 x 6 SPF #2

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MAXIMUM SUPPORT REACTIONS (lbs):

	DEAD LOAD	DL + LL + 30 psf GSL	MWFRS 0.6 DL + 110 mph UPLIFT	C & C 0.6 DL + 110 mph UPLIFT
HS EXT. WALL VERTICAL (1)	284	645	-263	-440
MATEWALL VERTICAL (5)	154	363	-140	-206
MATEWALL VERTICAL (6)	42	77	0	0
LS MATEWALL. WALL VERTICAL (8)	81	303	0	0
LS EXT. WALL VERTICAL(11)	529	1324	-338	-442

NOTES:
1. RIDGE BEAM REACTIONS ARE TOTAL FOR BOTH SIDES.
2. WIND PER ASCE 7-05, 110 mph (Vult), EXP. C.
3. SNOW PER ASCE 7-05, 30 psf GSL, Ct = 1.1, Ce = 1.0
   DRIFTING LENGTH IS LATERAL DISTANCE FROM RIDGE.
4. COMPONENT DESIGN IS BASED ON C & C PRESSURES
   TRUSS UPLIFT CONNECTIONS ARE BASED ON MWFRS PRESSURES.

MAXIMUM INTERACTION & DEFLECTION:

	HIGH SIDE MAXIMUM CSI	MAXIMUM DEFLECTION (in)	l /	LOW SIDE MAXIMUM CSI	MAXIMUM DEFLECTION (in)	l /
BOTTOM CHORD	0.970	0.385	609	0.404	0.121	1405
TOP CHORD	0.506	0.852	217	0.882	0.296	821
WEB	0.204	0.00	*****	N/A	N/A	N/A

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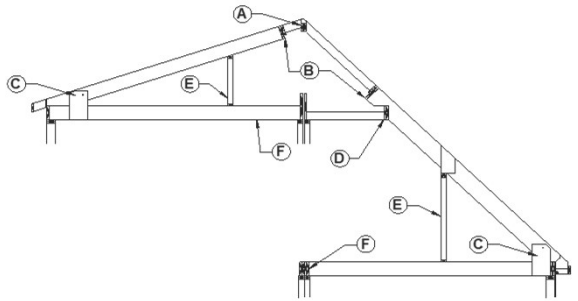
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **VSHED-27-7**
TRUSS PITCH : **4.5/12 & 12/12**
TRUSS SPAN : **27'-7"**



UPLIFT CONNECTIONS (MWFRS LOADS):

110 mph

HIGH SIDE EXTERIOR WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
263	WIND	1.6	OK	4	5	OK	2	5	OK	2
ALTERNATE: (3) 16 d NAILS TOENAILED THROUGH BC INTO BAND PLUS (2) 16 d NAILS THROUGH SHEATHING INTO BAND AND STUD										
LOW SIDE EXTERIOR WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs / PER SIDE)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
338	WIND	1.6	OK	4	7	OK	3	7	OK	2
ALTERNATE: (4) 16 d NAILS TOENAILED THROUGH BC INTO BAND PLUS (3) 16 d NAILS THROUGH SHEATHING INTO BAND AND STUD										
HIGH SIDE MATING WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs / PER SIDE)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
140	WIND	1.6	OK	2	3	OK	2	3	OK	2
ALTERNATE: (2) 16 d NAILS TOENAILED THROUGH BC INTO BAND PLUS (2) 16 d NAILS THROUGH SHEATHING INTO BAND AND STUD										

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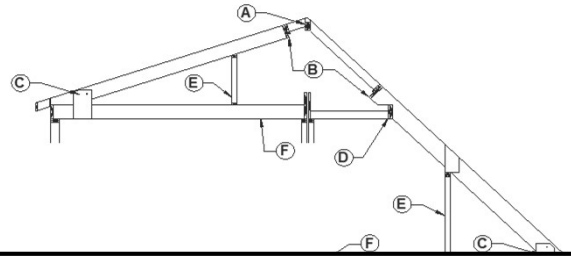
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **VSHED-27-7**
TRUSS PITCH : **4.5/12 & 12/12**
TRUSS SPAN : **27'-7"**



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MAXIMUM OF DL + LL + 30 psf GSL & 0.6 DL + 110 mph WIND

CONDITION "A" - RIDGE:			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
78	WIND	1.6	OK	2	2	OK	2	2	OK	2
	ALTERNATE:		USE (2) 8 d NAILS EACH END OF 1 x 4							
SHEAR (lbs)	CASE	CD								
104	SNOW	1.15	USE (2) 16 d NAILS INTO END GRAIN EACH END PLUS USE 10 d NAILS AT 17 in O.C. THROUGH PLATES							
CONDITION "B" - TOP CHORD FLIP:										
TENSION (lbs)	CASE	CD								
341	WIND	1.6	USE (5) 6 d NAILS THROUGH SHEATHING EACH SIDE							
	ALTERNATE:		USE (8) 16 ga STAPLE THROUGH SHEATHING EACH SIDE							
SHEAR (lbs)	CASE	CD								
104	SNOW	1.15	USE (2) 16 d NAILS TOENAILED EACH END PLUS USE 10 d NAILS AT 17 in O.C. THROUGH PLATES							
CONDITION "C" - HEEL:										
TOP CHORD (lbs)	CASE	CD								
992	SNOW	1.15	USE (1) 1/2" BOLT (DOUBLE SHEAR; 3/8" SIDE PLATES)							
			PLUS (3) 6 d NAILS OR (4) 16 ga STAPLES PER GUSSET EACH SIDE							
	ALTERNATE:		USE (1) 5/8" BOLT (DOUBLE SHEAR; DBL. 3/8" SIDE PLATES)							
			PLUS NO ADDITIONAL FASTENERS REQUIRED							
BOTTOM CHORD (lbs)	CASE	CD								
781	SNOW	1.15	USE (8) 6 d NAILS OR (10) 16 ga STAPLES PER GUSSET EACH SIDE							
CONDITION "D" - COLLAR TIE:										
AXIAL (lbs)	CASE	CD								
511	SNOW	1.15	USE (4) 16 d NAILS THROUGH TIE INTO RAFTER							
CONDITION "E" - KNEE WALL:										
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
470	WIND	1.6	OK	6	9	OK	4	9	OK	4
COMPRESSION (lbs)	CASE	CD								
597	SNOW	1.15	USE (5) 16 d NAILS THROUGH CHORD BLOCK							
CONDITION "F" - BOTTOM CHORD AT MATING LINE:										
SHEAR (lbs)	CASE	CD	SIMPSON A34							
363	SNOW	1.15	OK							
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
781	SNOW	1.15	NO GOOD	N/A	N/A	OK	8	15	OK	5

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COMPONENT LOAD SUMMARY

EXTERIOR WALL DEAD LOAD =	12	psf x	10	ft =	120	plf
MATING WALL DEAD LOAD =	8	psf x	10	ft =	80	plf
FLOOR DEAD LOAD =	10	psf x	13.75	ft / 2 =	69	plf
FLOOR LIVE LOAD =	40	psf x	13.75	ft / 2 =	275	plf
CEILING DEAD LOAD =	5	psf x	13.75	ft / 2 =	34	plf

LOCATION 1 = EXT. WALL HEADER & EXT. WALL STUD	LOCATION 14 = PERIMETER BAND
LOCATION 2 = INTERMEDIATE BEAM (VERTICAL & LATERAL)	LOCATION 15 = CENTER GIRDER
LOCATION 3 = EXT. WALL HEADER & EXT. WALL STUD	LOCATION 16 = CENTER GIRDER
LOCATION 4 = M. WALL HEADER & M. WALL STUD	LOCATION 17 = PERIMETER BAND
LOCATION 5 = EXT. WALL HEADER & EXT. WALL STUD	LOCATION 18 = EXT. WALL HEADER & EXT. WALL STUD
LOCATION 6 = PERIMETER BAND	LOCATION 19 = M. WALL HEADER & M. WALL STUD
LOCATION 7 = CENTER GIRDER	LOCATION 20 = M. WALL HEADER & M. WALL STUD
LOCATION 8 = CENTER GIRDER	LOCATION 21 = EXT. WALL HEADER & EXT. WALL STUD
LOCATION 9 = PERIMETER BAND	LOCATION 22 = PERIMETER BAND
LOCATION 10 = EXT. WALL HEADER & EXT. WALL STUD	LOCATION 23 = CENTER GIRDER
LOCATION 11 = M. WALL HEADER & M. WALL STUD	LOCATION 24 = CENTER GIRDER
LOCATION 12 = M. WALL HEADER & M. WALL STUD	LOCATION 25 = PERIMETER BAND
LOCATION 13 = EXT. WALL HEADER & EXT. WALL STUD	
LOCATIONS 6 - 9, 14 - 17 & 22 - 25 MAY BE USED TO GENERATE FOUNDATION LOADS	

* CROSS SECTION IS FOR REFERENCE ONLY
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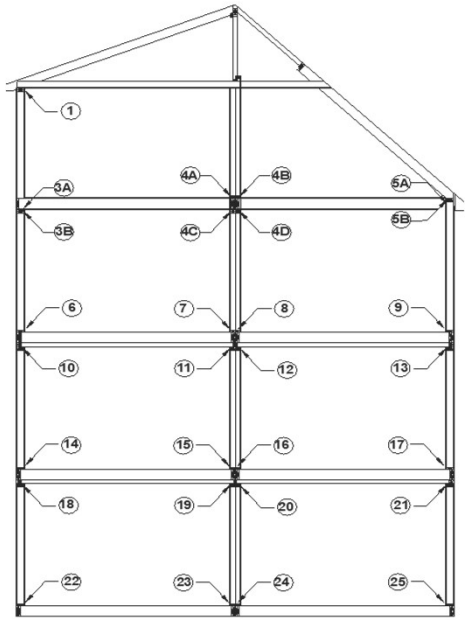

TRUSS VSHED-27-7, 4.5/12 PITCH, 27'-7" WIDTH

COMPONENT LOADS (lbs/ft)

30 psf GROUND SNOW (RIDGE BEAM LOADS ARE TOTAL FOR BOTH SIDES OF LINE, MATING WALL LOADS ARE PER SIDE OF LINE)

LOCATION	1	3A	3B	4A	4B	4C	4D	5A	5B	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
DEAD LOAD	213	436	470	219	172	253	206	61	95	625	368	321	250	659	402	355	284	848	551	504	473	882	585	538	507
LIVE LOAD	271	546	580	329	285	363	319	167	201	821	604	560	442	821	604	560	442	1096	879	835	717	1096	879	835	717
TOTAL LOAD	484	982	1050	548	458	616	526	228	296	1446	972	881	692	1480	1006	915	726	1944	1430	1339	1190	1978	1464	1373	1224

LOCATION	22	23	24	25
DEAD LOAD	1071	734	687	696
LIVE LOAD	1371	1154	1110	992
TOTAL LOAD	2442	1888	1797	1688

C & C UPLIFT

LOCATION	1	3A	3B	4A	4B	4C	4D	5A	5B	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
UPLIFT (0.6) DEAD LOAD	128	262	282	131	103	152	124	37	57	375	221	193	150	395	241	213	170	509	331	302	284	529	351	323	304
110 mph UPLIFT	-330	-196	-176	-9	0	0	0	-332	-312	-83	-	-	-219	-63	-	-	-199	-	-	-	-	-	-	-	-154

LOCATION	22	23	24	25
UPLIFT (0.6) DEAD LOAD	643	440	412	418
110 mph UPLIFT	-	-	-	-40

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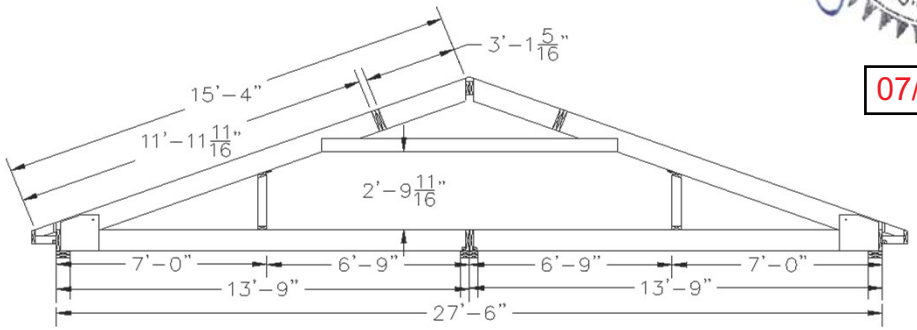
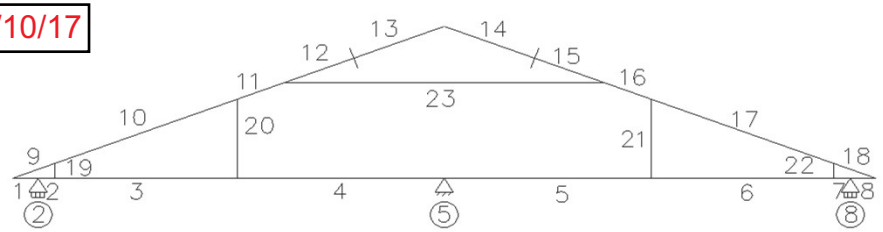
TRUSS CALCULATIONS

LEGACY CUSTOM HOMES

07/10/17





TRUSS NO.: TR4.5-27-6
JOB NO.: 170367
PITCH: 4.5/12
SPAN: 27'-6"
TRUSS CENTERS: 16 in O.C.

GROUND SNOW LOAD:	**30 psf**	**TC DL:**	10 psf
*** BALANCED SNOW LOAD:**	23.1 psf	**BC DL:**	10 psf
UNBALANCED SNOW LOAD:	41.289 psf	**BC LL:**	10 psf WHERE h < 42"
OPPOSITE SIDE UNB. SNOW LOAD:	6.93 psf	**BC LL:**	10 psf WHERE h ≧ 42"
UNBALANCED SNOW LOAD LENGTH:	7.27 ft	**BC LL:**	20 psf BETWEEN KNEEWALLS

APPLIED MWFRS UPLIFT: 32.77 psf WINDWARD AT 110 mph
22.81 psf LEEWARD AT 110 mph
APPLIED C & C UPLIFT: 32.77 psf AT 110 mph

MEMBER INFORMATION:

MEMBER	SIZE & SPECIES
1 - 8	2 x 10 SPF #2
9 - 12 & 15 - 18	2 x 10 SPF #2
13 & 14	2 x 6 SPF #2
19 - 22	2 x 4 SPF #2
23	2 x 6 SPF #2

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MAXIMUM SUPPORT REACTIONS (lbs):

	DEAD LOAD	DL + LL + 30 psf GSL	MWFRS 0.6 DL + 110 mph UPLIFT	C & C 0.6 DL + 110 mph UPLIFT
EXTERIOR WALL	413	900	-303	-350
MATING WALL	132	458	0	0

MAXIMUM INTERACTION & DEFLECTION:

	MAXIMUM CSI	MAXIMUM DEFLECTION (in)	l /
BOTTOM CHORD	0.584	0.182	948
TOP CHORD	0.212	0.362	510
WEB	0.360	0.00	*****

NOTES:
1. MATING WALL REACTIONS ARE TOTAL FOR BOTH SIDES.
2. WIND PER ASCE 7-05, 110 mph, EXP. C.
3. SNOW PER ASCE 7-05, 30 psf GSL, Ct = 1.1, Ce = 1.0
   DRIFTING LENGTH IS LATERAL DISTANCE FROM RIDGE.
4. COMPONENT DESIGN IS BASED ON C & C PRESSURES
   TRUSS UPLIFT CONNECTIONS ARE BASED ON MWFRS PRESSURES.
5. MEMBER 23 IS BRACED AT MIDPOINT

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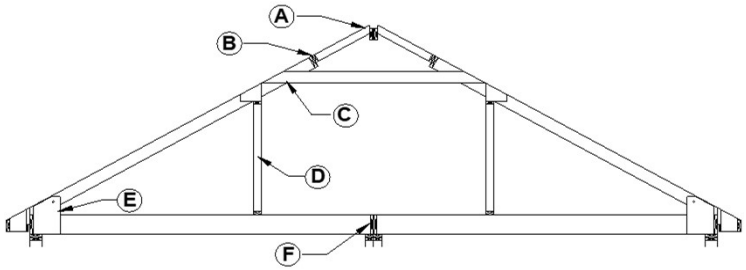
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **TR4.5-27-6**
TRUSS PITCH : **4.5/12**
TRUSS SPAN : **27'-6"**



UPLIFT CONNECTIONS (MWFRS LOADS):

110 mph										
EXTERIOR WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
303	WIND	1.6	OK	2	3	OK	2	3	OK	3
ALTERNATE: (4) 16 d NAILS TOENAILED THROUGH BC INTO BAND PLUS (3) 16 d NAILS THROUGH SHEATHING INTO BAND AND STUD										
MATING WALL			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
UPLIFT (lbs / PER SIDE)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
0	WIND	1.6	NO CONN REQ'D	N/A	N/A	NO CONN REQ'D	N/A	N/A	NO CONN REQ'D	N/A
ALTERNATE: NO CONN REQ'D										

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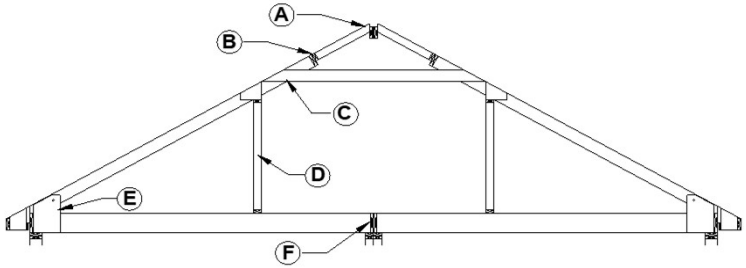
TRUSS CONNECTIONS

PROJECT NUMBER : **170367**
TRUSS NUMBER : **TR4.5-27-6**
TRUSS PITCH : **4.5/12**
TRUSS SPAN : **27'-6"**



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MAXIMUM OF DL + LL + 30 psf GSL & 0.6 DL + 110 mph WIND

CONDITION "A" - RIDGE:			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
150	WIND	1.6	OK	2	2	OK	2	2	OK	2
ALTERNATE:			USE (2) 8 d NAILS EACH END OF 1 x 4							
SHEAR (lbs)	CASE	CD								
105	SNOW	1.15	USE (2) 16 d NAILS INTO END GRAIN EACH END PLUS USE 10 d NAILS AT 17 in O.C. THROUGH PLATES							
CONDITION "B" - TOP CHORD FLIP:										
TENSION (lbs)	CASE	CD								
140	WIND	1.6	USE (2) 6 d NAILS THROUGH SHEATHING EACH SIDE							
ALTERNATE:			USE (4) 16 ga STAPLE THROUGH SHEATHING EACH SIDE							
SHEAR (lbs)	CASE	CD								
105	SNOW	1.15	USE (2) 16 d NAILS TOENAILED EACH END PLUS USE 10 d NAILS AT 17 in O.C. THROUGH PLATES							
CONDITION "C" - COLLAR TIE:										
AXIAL (lbs)	CASE	CD								
1099	SNOW	1.15	USE (8) 16 d NAILS EACH END							
CONDITION "D" - KNEE WALLS:			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS20 STRAP	10 d NAILS
290	SNOW	1.15	OK	3	3	OK	2	3	OK	3
COMPRESSION (lbs)	CASE	CD								
244	SNOW	1.15	USE (2) 16 d NAILS THROUGH CHORD BLOCK							
CONDITION "E" - HEEL:										
TOP CHORD (lbs)	CASE	CD								
1368	SNOW	1.15	USE (1) 1/2" BOLT (DOUBLE SHEAR; 3/8" SIDE PLATES)							
			PLUS (7) 6 d NAILS OR (8) 16 ga STAPLES PER GUSSET EACH SIDE							
		ALTERNATE:	USE (1) 3/4" BOLT (DOUBLE SHEAR; DBL. 3/8" SIDE PLATES)							
			PLUS NO ADDITIONAL FASTENERS REQUIRED							
BOTTOM CHORD (lbs)	CASE	CD								
1293	SNOW	1.15	USE (12) 6 d NAILS OR (16) 16 ga STAPLES PER GUSSET EACH SIDE							
CONDITION "F" - BOTTOM CHORD AT MATING LINE:										
			CHECK STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END	QTY / END	CHECK ALT. STRAP	QTY / END
TENSION (lbs)	CASE	CD	1 1/2" x 26ga STRAP	10 d NAILS	16 ga STAPLE	1 1/2" x 20 ga STRAP	10 d NAILS	16 ga STAPLE	SIMPSON CS14 STRAP	10 d NAILS
1293	SNOW	1.15	NO GOOD	N/A	N/A	NO GOOD	N/A	N/A	OK	11
ALTERNATE:			USE (10) 16 d NAILS THROUGH DECKING EACH SIDE							

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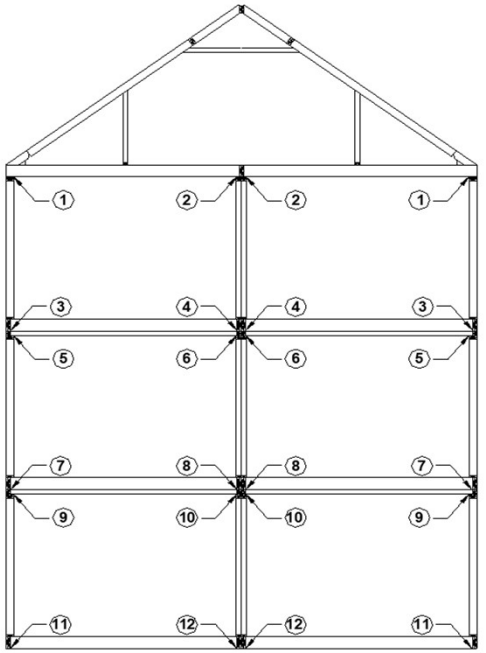
COMPONENT LOAD SUMMARY

EXTERIOR WALL DEAD LOAD =	12	psf	x	10	ft	=	120 plf
MATING WALL DEAD LOAD =	8	psf	x	10	ft	=	80 plf
FLOOR DEAD LOAD =	10	psf	x	13.75	ft / 2 =		68.75 plf
FLOOR LIVE LOAD =	40	psf	x	13.75	ft / 2 =		275 plf
CEILING DEAD LOAD =	5	psf	x	13.75	ft / 2 =		34.38 plf

LOCATION 1 =	EXT. WALL HEADER & EXT. WALL STUD
LOCATION 2 =	M. WALL HEADER & M. WALL STUD
LOCATION 3 =	PERIMETER BAND
LOCATION 4 =	CENTER GIRDER
LOCATION 5 =	EXT. WALL HEADER & EXT. WALL STUD
LOCATION 6 =	M. WALL HEADER & M. WALL STUD
LOCATION 7 =	PERIMETER BAND
LOCATION 8 =	CENTER GIRDER
LOCATION 9 =	EXT. WALL HEADER & EXT. WALL STUD
LOCATION 10 =	M. WALL HEADER & M. WALL STUD
LOCATION 11 =	PERIMETER BAND
LOCATION 12 =	CENTER GIRDER
LOCATIONS 3, 4, 7, 8, 11 & 12 MAY BE USED TO GENERATE FOUNDATION LOADS	

* CROSS SECTION IS FOR REFERENCE ONLY AND MAY NOT REFLECT ACTUAL TRUSS



TRUSS TR4.5-27-6, 4.5/12 PITCH, 27'-6" WIDTH

COMPONENT LOADS (lbs/ft)

30 psf GROUND SNOW (MATING WALL LOADS ARE PER SIDE OF LINE)

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12
DEAD LOAD	310	50	499	199	533	233	722	382	756	416	945	565
LIVE LOAD	365	122	640	397	640	397	915	672	915	672	1190	947
TOTAL LOAD	675	172	1139	596	1173	630	1637	1054	1671	1088	2135	1512

C & C UPLIFT												
LOCATION	1	2	3	4	5	6	7	8	9	10	11	12
UPLIFT (0.6) DEAD LOAD	186	30	299	119	320	140	433	229	454	250	567	339
110 mph UPLIFT	-263	0	-150	-	-129	-	-16	-	-	-	-	-

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UNIFORMLY LOADED
BEAM CHARTS

SITTING ROOM BEAM

NOTES:

1. LOADS ARE UNIFORM ALONG BEAM LENGTH.
2. DEFLECTION LIMITS: L/240
3. BEAMS ARE ASSUMED TO BE LATERALLY BRACED.
4. MULTIPLE PLIES ARE TO BE FASTENED PER MANFACTURER / CODE REQUIREMENTS.
5. DESIGNER TO ACCOUNT FOR REQUIRED BEARING AREA & SUPPORT STUDS.
6. SPANS ARE LIMITED BY THE MAXIMUM SPAN DUE TO BENDING, DEFLECTION, OR SHEAR.
7. SPLITS LIMITED TO 3/4 x DEPTH IN SOLID SAWN LUMBER.
8. DURATION FACTOR (Cd) = 1.15 & REPETITIVE FACTOR (Cr) = 1.0.
9. "-" DENOTES SPAN GREATER THAN 30'-0".
10. SINGLE MEMBER LVL'S GREATER THAN 14" DEEP ARE NOT TO BE USED EXCEPT FOR MATING WALL LOCATIONS WHERE ONE EACH SIDE ARE FASTENED TOGETHER TO FORM A DOUBLE MEMBER

UNIFORMLY LOADED BEAM (l/240)
SPAN CALCULATION

MEMBER	LOAD (plf)	QUANTITY	MAXIMUM SPAN	LIMITED BY	REQ'D BEARING (in^2)	QUANTITY	MAXIMUM SPAN	LIMITED BY	REQ'D BEARING (in^2)	QUANTITY	MAXIMUM SPAN	LIMITED BY	REQ'D BEARING (in^2)	QUANTITY	MAXIMUM SPAN	LIMITED BY	REQ'D BEARING (in^2)
2 x 4 SPF #2	250	1	3 ' - 6"	Lb	1.033	2	4 ' - 11"	Lb	1.46	3	5 ' - 10"	Ld	1.72	4	6 ' - 5"	Ld	1.893
2 x 6 SPF #2	250	1	5 ' - 1"	Lb	1.508	2	7 ' - 3"	Lb	2.133	3	8 ' - 10"	Lb	2.612	4	10 ' - 1"	Ld	2.975
2 x 8 SPF #2	250	1	6 ' - 6"	Lb	1.913	2	9 ' - 2"	Lb	2.706	3	11 ' - 3"	Lb	3.314	4	13 ' - 0"	Lb	3.826
2 x 10 SPF #2	250	1	7 ' - 11"	Lb	2.337	2	11 ' - 2"	Lb	3.305	3	13 ' - 9"	Lb	4.048	4	15 ' - 10"	Lb	4.674
2 x 12 SPF #2	250	1	9 ' - 2"	Lb	2.71	2	13 ' - 0"	Lb	3.833	3	15 ' - 11"	Lb	4.694	4	18 ' - 5"	Lb	5.42
1.5 x 5.5 LVL	250	1	7 ' - 2"	Ld	1.019	2	9 ' - 0"	Ld	1.284	3	10 ' - 4"	Ld	1.47	4	11 ' - 4"	Ld	1.618
1.5 x 7.25 LVL	250	1	9 ' - 5"	Ld	1.344	2	11 ' - 11"	Ld	1.693	3	13 ' - 7"	Ld	1.938	4	15 ' - 0"	Ld	2.133
1.5 x 9.25 LVL	250	1	12 ' - 0"	Ld	1.715	2	15 ' - 2"	Ld	2.16	3	17 ' - 4"	Ld	2.473	4	19 ' - 1"	Ld	2.722
1.5 x 11.25 LVL	250	1	14 ' - 8"	Ld	2.085	2	18 ' - 5"	Ld	2.627	3	21 ' - 2"	Ld	3.008	4	23 ' - 3"	Ld	3.31
1.5 x 12 LVL	250	1	15 ' - 7"	Ld	2.224	2	19 ' - 8"	Ld	2.803	3	22 ' - 7"	Ld	3.208	4	24 ' - 10"	Ld	3.531
1.5 x 14 LVL	250	1	18 ' - 3"	Ld	2.595	2	23 ' - 0"	Ld	3.27	3	26 ' - 4"	Ld	3.743	4	29 ' - 0"	Ld	4.119
1.5 x 16 LVL	250	1	20 ' - 10"	Ld	2.966	2	26 ' - 3"	Ld	3.737	-	-	-	-	-	-	-	-
1.5 x 18 LVL	250	1	23 ' - 5"	Ld	3.337	2	29 ' - 7"	Ld	4.204	-	-	-	-	-	-	-	-
1.5 x 20 LVL	250	1	26 ' - 1"	Ld	3.707	-	-	-	-	-	-	-	-	-	-	-	-
1.5 x 24 LVL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2 x 4 SPF #2	300	1	3 ' - 2"	Lb	1.131	2	4 ' - 6"	Lb	1.6	3	5 ' - 6"	Ld	1.943	4	6 ' - 0"	Ld	2.138
2 x 6 SPF #2	300	1	4 ' - 8"	Lb	1.652	2	6 ' - 7"	Lb	2.336	3	8 ' - 1"	Lb	2.861	4	9 ' - 4"	Lb	3.304
2 x 8 SPF #2	300	1	5 ' - 11"	Lb	2.096	2	8 ' - 4"	Lb	2.964	3	10 ' - 3"	Lb	3.63	4	11 ' - 10"	Lb	4.192
2 x 10 SPF #2	300	1	7 ' - 3"	Lb	2.56	2	10 ' - 3"	Lb	3.621	3	12 ' - 6"	Lb	4.434	4	14 ' - 6"	Lb	5.12
2 x 12 SPF #2	300	1	8 ' - 4"	Lb	2.969	2	11 ' - 10"	Lb	4.198	3	14 ' - 6"	Lb	5.142	4	16 ' - 9"	Lb	5.938
1.5 x 5.5 LVL	300	1	6 ' - 9"	Ld	1.151	2	8 ' - 6"	Ld	1.45	3	9 ' - 8"	Ld	1.66	4	10 ' - 8"	Ld	1.828
1.5 x 7.25 LVL	300	1	8 ' - 10"	Ld	1.518	2	11 ' - 2"	Ld	1.912	3	12 ' - 10"	Ld	2.189	4	14 ' - 1"	Ld	2.409
1.5 x 9.25 LVL	300	1	11 ' - 4"	Ld	1.936	2	14 ' - 3"	Ld	2.439	3	16 ' - 4"	Ld	2.793	4	18 ' - 0"	Ld	3.074
1.5 x 11.25 LVL	300	1	13 ' - 9"	Ld	2.355	2	17 ' - 4"	Ld	2.967	3	19 ' - 11"	Ld	3.396	4	21 ' - 11"	Ld	3.738
1.5 x 12 LVL	300	1	14 ' - 8"	Ld	2.512	2	18 ' - 6"	Ld	3.165	3	21 ' - 3"	Ld	3.623	4	23 ' - 4"	Ld	3.987
1.5 x 14 LVL	300	1	17 ' - 2"	Ld	2.93	2	21 ' - 7"	Ld	3.692	3	24 ' - 9"	Ld	4.226	4	27 ' - 3"	Ld	4.652
1.5 x 16 LVL	300	1	19 ' - 7"	Lb	3.34	2	24 ' - 9"	Ld	4.22	3	28 ' - 4"	Ld	4.83	-	-	-	-
1.5 x 18 LVL	300	1	21 ' - 11"	Lb	3.742	2	27 ' - 10"	Ld	4.747	-	-	-	-	-	-	-	-
1.5 x 20 LVL	300	1	24 ' - 3"	Lb	4.144	-	-	-	-	-	-	-	-	-	-	-	-
1.5 x 24 LVL	300	1	29 ' - 0"	Lb	4.944	-	-	-	-	-	-	-	-	-	-	-	-

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