



June 27, 2022

Mr. Mike Hamm, P.E.  
Chief Building Code Consultant  
North Carolina Department of Insurance - OSFM  
325 North Salisbury Street  
Raleigh, NC 27603

RE: Champion Home Builders #23  
Lillington, NC  
Model: 23-3276-07 062322

Dear Mr. Hamm:

Enclosed is one set of PFS accepted documents for the above referenced manufacturer. PFS has reviewed these documents and to the best of our knowledge have found them to conform to the North Carolina codes:

2018 NC Residential Code w/Amendments (includes plumbing, mechanical, & energy codes – Chapter 11)  
2017 NC Electrical Code w/Amendments

If you have any questions, please contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Ian Lehrer".

Ian Lehrer, P.E.  
Agency Engineer

Enclosure: As Stated

cc: Ryan Duke  
File

Mr. Mike Hamm, P.E.  
June 27, 2022  
Page Two

PFS Corporation has reviewed and approved the above referenced material and to the best of our knowledge these documents conform to the referenced codes.



Construction Review  
Ian Lehrer, P.E.



Structural Review  
Ian Lehrer, P.E.



Plumbing Review  
Ian Lehrer, P.E.



Mechanical Review  
Ian Lehrer, P.E.



Electrical Review  
Ian Lehrer, P.E.

N/A

Quality Control Review  
Ian Lehrer, P.E.



ADDITIONAL OR MODIFIED ACCEPTANCE (MODULARS/PANELIZED)

This form is to be used only when the manufacturer is seeking acceptance of an additional model, modified model or model name change which uses a previously accepted building system.

Current PFS Building System Acceptance #: 21-002679  
 Model Name/ No. 23-3276-07 062322  
 Manufacturer's Name: Champion Home Builders, Inc  
 Plant(s) at which model will be produced Division 023, Lillington North Carolina

Check One:  NEW MODEL  Revised Model\*

TECHNICAL DATA			
	Conforms		
	Yes	No	N/A
Floor Plan Showing:			
Braced Wall Method or Shearwalls	X		
Building Size (LxW Dimensions)	X		
Room Sizes, Light & Ventilation Schedule	X		
Exit Requirements	X		
Electrical Outlet Spacing & Smoke Detector	X		
Location of Labels & Data Plates	X		
Use Group, Type Const., Total Sq.Ft. Area	X		
Plumbing System Design or Reference No. ( <u>PL-101, PL-102</u> )	X		
Heat Loss Calculations or Reference No. ( <u>MANUAL D &amp; J</u> )	X		
HVAC/Furnace Size/Model No. ( <u>MANUAL D &amp; J/ 10KW FURNACE INSTALL IN PLANT - NORDYNE E7</u> )	X		
Thermal Performance Calculations or Reference No. ( <u>Attached-(Appendix E)</u> )	X		
Electrical Load Calculations or Reference No. ( <u>E-101</u> )	X		
Service Size and Location ( <u>200A/Utility, E-101</u> )	X		
Applicable Building Codes <u>CS-101</u>	X		
Submit model to the following states: <u>North Carolina</u>			
*Description of Modification: <u>New model</u>			
Requested by: <u>Brian Herring</u> Date: <u>06/25/22</u> (designer)			

For PFS Use

Staff Plan Reviewer Tim Busche IBC Certification #: B5002446 R3 Date: 6-27-2022

Structural Calculation(s) Reviewed By: \_\_\_\_\_ P.E. #: \_\_\_\_\_ Date: \_\_\_\_\_

Remarks: \_\_\_\_\_

*\*\* (1) copy sent to IBC within 15 days of approval.*

VERBAL APPROVAL GIVEN  By Whom: \_\_\_\_\_ To Whom: \_\_\_\_\_ Date: \_\_\_\_\_

MODEL WAS DEVIATED  Revision Number: \_\_\_\_\_

THIS FORM SHALL BE FILLED OUT COMPLETELY WITH EACH MODEL ACCEPTANCE OR MODIFICATION PRIOR TO SUBMITTAL TO PFS.

cc: file, NC





**NORTH CAROLINA**  
**MODULAR PLANS REVIEW CHECKLIST**

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revised June 2018

**Plan Sheet Page # and NOTES**

**MECHANICAL**

Design calculations	N/A, BY OTHERS
Installed unit capacity	N/A, BY OTHERS
Supply and returns (locations and sizes)	N/A, BY OTHERS
Duct sizes	N/A
Specifications (units, ducts)	N/A
All appliances furnished by mfg. shown on plans	A-101

**ELECTRICAL**

Plan	E-101
Location of all electrical boxes	E-101
Electrical panel location	E-101
Note regarding main disconnect (if applicable)	E-101
Exterior lighting and receptacles	E-101
Ground level receptacles (if applicable)	E-101
Smoke detector location(s)	E-101
Electrical load calculations	E-101
Electrical panel layout (breaker and wire sizes, circuit schedule)	E-101
Panel and service entrance sizes	E-101
All fixtures furnished by mfg. shown on plans	E-101

**ACCESSIBILITY**

**(for other than 1 & 2 family dwellings)**

Entrances and means of egress	N/A
Doors, doorways, and door hardware	N/A
Stairs and handrails	N/A
Toilet rooms, plumbing fixtures, grab bars, etc	N/A
Bathrooms and shower rooms	N/A
Occupancy specific requirements	N/A
Multi-family dwellings: Type A and B units	N/A

**FLOOR X-SECTION**

Joists and beam sizes and spacing	XS-101
Materials species and grade	XS-101
Sheathing, decking, and concrete as applicable	SXS101
Fastening instructions	SU-101 TO SU-103
Insulation	XS-101 / APPENDIX E
Details as required for clarification	SU-101 TO SU-103

**WALL X-SECTION**

Stud and column sizes and spacing	STR-101
Materials species and grade	XS-101 / STR-101
Sheathing and bracing	XS-101, STR-101, SU-101 TO SU-103
Headers and lintels	STR-101
Finishes	XS-101
Fastening instructions	SU-101 TO SU-103
Insulation	XS-101
Details as required for clarification	XS-101, SU-101 TO SU-103

**NORTH CAROLINA**  
**MODULAR PLANS REVIEW CHECKLIST**

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revised June 2018

**Plan Sheet Page # and NOTES**

**CEILING / ROOF X-SECTION**

Truss, rafter, and beam spacing	XS-101, SU-101 TO SU-103
Lumber species and grade	XS-101
Sheathing and decking	XS-101, SU-101 TO SU-103
Finishes	XS-101
Fastening instructions	SU-101 TO SU-103
Insulation	XS-101
Details including NC sealed truss designs or manual reference	ATTACHED (TRUSS PAGES)

**FOUNDATION PLAN**

Footings, pier, and curtain wall locations and specifications	PF-101
X-sections with dimensions	FD-01.01 - FD-2.04
Anchorage - sill plate to piers and curtain wall	PF-101
Anchorage - building to sill plate	PF-101
Anchorage - tie downs (lateral and longitudinal)	N/A
Soil bearing capacity	PF-101
Minimum concrete compressive strength	PF-101
Mortar type	PF-101
Ventilation requirements (with and without vapor barrier)	PF-101
Crawl space access requirements	PF-101

**ENERGY COMPLIANCE**

Demonstrated compliance	APPENDIX E
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**SET-UP INSTRUCTIONS**

Floor and ceiling connections	SU-101 TO SU-103
Marriage wall connections	SU-101 TO SU-103
Roof set-up and connection	SU-101 TO SU-103
Plumbing connections	PL-101
Mechanical connections	CS-102 (SEE MECHANICAL NOTES)
Electrical connections	E-101, CS-102 (SEE ELECTRICAL NOTES)
Fire stopping	CS-101, CS-102 (SEE PLUMBING NOTES)
Air infiltration elimination	CS-101, CS-102 (SEE PLUMBING NOTES)
Notice to inspections department attachment if set-up instructions are by attachment	CS-101, CS-102, ALSO SU-101 TO SU-103

**ITEMS NOT INSPECTED IN PLANT**

List of items not inspected by 3rd. Party	CS-101, CS-102
Notice to inspections department	CS-101, CS-102, ALSO SEE SU-101 TO SU-103

# North Carolina

2018 N.C. Residential Code

2017 N.C. Electrical Code w/ Amendments

DRAWING INDEX			
SHEET	DESCRIPTION	SHEET	DESCRIPTION
CS-101	COVER SHEET	XS-101	CROSS SECTION
CS-102	COVER SHEET CONT.	SU-101 TO SU-103	SITE WORK DETAILS 3 PAGES
A-101	FLOOR PLAN	EV-101	ELEVATION
STR-101	STRUCTURAL	PL-101	DWV
BW-101	PRESCRIPTIVE BRACED WALL	PL-102	WATER
E-101	ELECTRICAL	HVAC LAYOUT & SUMMARY	MECHANICAL DETAILS PAGES 1-7
		PF-101	FOUNDATION
		FD-01.01 & FD-02.04	FOUNDATION DETAILS PGS 1 TO 2
ATTACHED SHEETS			
7/12 TRUSS CERTIFICATES	PAGES 1-2	RF-03.04	CAPE RIDGE BEAMS
APPENDIX E	PAGES 1-21		

## ATTENTION LOCAL INSPECTIONS DEPARTMENT

THE FOLLOWING ITEMS HAVE NOT BEEN COMPLETED BY CHAMPION HOME BUILDERS, HAVE NOT BEEN INSPECTED BY THE THIRD PARTY INSPECTORS (PFS), AND ARE NOT INCLUDED IN THE STATE MODULAR CERTIFICATION LABEL. CODE COMPLIANCE MUST BE DETERMINED AT THE LOCAL LEVEL.

- SEE CS-102 FOR ADDITIONAL INSPECTIONS LIST
- ALL UTILITY CONNECTIONS
  - Electrical connections onsite (pages 26-29 setup manual)
  - Plumbing connections onsite (pages 24-25 setup manual)
- ALL ASPECTS OF SOIL AND SITE PREP
- SITE CONNECTIONS OF UNITS
  - Roofs, Floors, Walls (Setup manual pages 11-13, pages A-101, SU-101, XS-101, PF-101.. PILING DETAILS ONSITE BY OTHERS.)
- SITE CONNECTIONS OF WATER AND DRAIN LINES
- SITE INSTALLED INSULATION DUE TO PLUMBING OR MISC SITE WORK
  - .3/4" HOT WATER LINES TO BE INSULATED WITH R-3 MIN ONSITE PER N1103.5.3
- SITE INSTALLED APPLIANCES (EXAMPLE: DRYER AND VENT ETC.)
- ENTIRETY OF FOUNDATION INCLUDING DESIGN EXCEPT ADDITIONAL HOLD DOWNS AS REQUIRED PER PAGE SW-101 IF INCLUDED OTHERWISE PRESCRIPTIVE USED
- ENTIRETY OF SITE BUILT SPACES SUCH AS BASEMENTS, FINISHED ATTICS, ETC.
- SITE BUILT COMPONENTS SUCH AS PORCHES, DECKS, EXTERIOR STAIRS
- INSPECTION OF BASEMENT/PILING INSULATED DOOR REQUIRED TO BE SITE INSTALLED AND INSPECTED
- SITE INSTALLED HVAC COMPONENTS
  - 4x10 REGISTERS/BOOTS PROVIDED IN TYPICAL LOCATIONS (MANUAL D)
  - TRUNKLINE, MANUAL D & J SHOULD BE RECALCULATED BY OTHERS ON SITE IF SYSTEM DIFFERS FROM THAT PROVIDED.
  - DRYER VENTING BY OTHERS (PAGE 21 SET-UP MANUAL)
  - BLOWER DOOR TESTING TO BE COMPLETED BY OTHERS ON SITE
- SEE PRESCRIPTIVE ENERGY CODE (APPENDIX E) FOR FACTORY COMPLETED ITEMS AND SITE COMPLETED ITEMS
  - RODENT PROOFING PER RP-101 (HOME OWNERS PACKET)QAMan.(SECT. 5 Page 36)
  - WINDBORNE DEBRIS PROTECTION OF WINDOWS AND DOORS, IF REQ'D
  - SCREEN DOOR REQUIRED FOR VENTING INSTALLED AND VERIFIED.
  - SPRINKLER SYSTEM NOT REQUIRED, FIRE EXTINGUISHER TO BE PROVIDED AND INSTALLED BY OTHERS ON SITE
  - ANY FALL PROTECTION DEVICES REQ'D BY R312.2 TO BE PROVIDED AND INSTALLED ON SITE BY OTHERS
  - ATTIC ACCESS SHOWN ON A-101
  - ON BASEMENT ENTRY HOMES, FLOOR INSULATION IS NOT PROVIDED BY FACTORY. ALL BASEMENT WORK, INCLUDING FOUNDATION DESIGN, STAIRS, HVAC AND CONNECTION OF SMOKE DETECTOR AND REQUIRED OUTLETS PROVIDED BY OTHERS ON SITE.
    - PROVISIONS FOR EGRESS FROM BASEMENT PROVIDED BY OTHERS ON SITE.
    - ALL ENERGY COMPLIANCE FOR BASEMENTS ON SITE BY OTHERS.

Building Description		
Use Group	Detached single family dwelling	<b>INSULATION</b>
Construction type	VB	OMITTED FLOOR INSULATION: R-19 MIN.
Area of 1st floor	2305 Square Feet	WALLS: R-18
Area of 2nd floor	N/A	ROOF: R-30
Stories above grade	1	
Finished floor height above grade < 6'-0"	Yes	U-VALUES AND SHGC typ. wdws
Occupancy	Single Family	SHGC: 29
Located in flood zone?	No	U-VALUE: 34
Foundation Type	Crawl Space	see A-101 for others
Sprinklers required?	No	
Climate Zone	4A	

METHOD OF COMPLIANCE: PER NC PRESCRIPTIVE / APPENDIX E MEASURES

Structural Loads	
TCLL	23.1 PSF
Ground snow load	30 PSF
Roof dead load	15 PSF
Uninhabitable attic live load with limited storage	20 PSF
Attic dead load	15 PSF
1st floor live load	40 PSF
Floor dead load	10 PSF
wind speed	120 MPH
Wind exposure	C
Seismic Design	C
Elevation	<252' Feet A.S.L.
fire rating exterior wall	0 Hrs.
tenant separation	0 Hrs.
max mean roof ht.	20.00'

**HOMEOWNER SITE LOCATION**  
**178 SKEET RANGE RD.**  
**COATS, NC 27521**

LOCATION OF BUILDING ON LOT: > 5'-0" FROM LOT LINE  
 ANY EXISTING STRUCTURE TO BE REMOVED

## ATTENTION LOCAL INSPECTIONS DEPARTMENT:

SET-UP INSTRUCTIONS INCLUDED ON THE PLAN SHEETS AND SET UP MANUAL INCLUDED WITH HOME. SEE NOTES, CROSS SECTION, SET-UP AND FOUNDATION PAGES. PLAN SET IS INCOMPLETE WITHOUT INSTALLATION MANUAL

**THIS MODEL NOT TO BE LOCATED IN A COASTAL HIGH HAZARD OR OCEAN HAZARD AREA.**

STRUCTURES TO BE PLACED ON FLOOD PLAINS, PILINGS, IN MOUNTAIN REGION, OR COASTAL HIGH HAZARD SITE MUST BE DESIGNED FOR ACTUAL SITE CONDITIONS

### ATTENTION LOCAL INSPECTIONS DEPARTMENT:

This unit must be connected to a public water supply and sewer system if these are available

## ATTENTION LOCAL INSPECTIONS DEPARTMENT:

SET UP PAGES HAVE BEEN INCLUDED TO ASSIST IN THE ON-SITE INSPECTION. PLEASE SEE PAGES CS-102, AND SU-101 TO SU-103

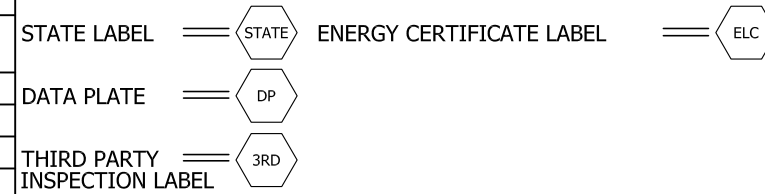
## THIRD PARTY INSPECTION AGENCY

PFS CORPORATION

417 CENTRAL ROAD SUITE #2 BLOOMSBURG, PA

17815 (570) 784-8396

## MODULAR LABELS SEE A-101 FOR LOCATIONS:



\*\*\* THIS APPROVAL PACKAGE IS USED IN CONJUNCTION WITH CHAMPION HOMES CALCULATIONS MANUAL AND DESIGN MANUAL ON FILE WITH THE STATE AND PFS THIRD PARTY AGENCY. PFS APPROVAL 06/18/20 PFS ID #002689 ITEMS NOT DIRECTLY REFERENCED MAY BE FOUND IN THIS DOCUMENT \*\*\*

## MATERIAL SPECIFICATIONS

- LUMBER SPECIFICATION SHALL BE : (UNLESS NOTED OTHERWISE IN THIS DRAWING PACKAGE)
- STUDS = STUD GRADE OR EQUAL FLOOR
- CEILING JOISTS = PER TRUSS PRINT.
- EXTERIOR FINISH MATERIALS SHALL BE : VINYL SIDING UNLESS DIFFERENT TYPE IS SPECIFIED IN THESE PLANS
- FIBERGLASS ROOF SHINGLES, CLASS C MIN. UNLESS DIFFERENT TYPE IS SPECIFIED IN THESE PLANS. - SEE ORDER FORM FOR EXTENT OF MATERIALS AND INSTALLATION PROVIDED BY CHAMPION HOME BUILDERS, INC. (DIVISION 23).
- THE BUILDER SHALL BE RESPONSIBLE FOR INSTALLING ANY VINYL SIDING NOT INSTALLED BY CHAMPION HOME BUILDERS, INC. AS SHOWN
- INTERIOR FINISHES OF UNITS MIN.

**PFS CORPORATION**  
**Approval Limited to Factory Built Portion Only**  
 State: North Carolina  
 Signature: *Tim Bueckle*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22

## GENERAL NOTES

- THE BUILDER SHALL BE RESPONSIBLE FOR PROVIDING ALL SITE REQUIRED ELEMENTS OF EGRESS.
- THE BUILDER SHALL BE RESPONSIBLE FOR ALL APPLICABLE UTILITY CONNECTIONS ON SITE
- THE BUILDER IS RESPONSIBLE FOR ENTIRETY OF FOUNDATION DESIGN AND CONSTRUCTION
- SITE WORK SHALL BE SUBJECT TO LOCAL BUILDING DEPARTMENT INSPECTION. THIS DRAWING SET INCLUDES THE MODULAR PORTION OF THIS PROJECT ONLY. THE BUILDER SHALL BE RESPONSIBLE FOR DESIGN AND ENGINEERING OF ALL SITE CONSTRUCTED ELEMENTS.
- THE BUILDER SHALL BE RESPONSIBLE FOR INSTALLING THE HEAT (ON SITE) TO INCLUDE: TYPE, CHASES AND ALL PLUMBING (IF REQ'D.)
- THE BUILDER IS RESPONSIBLE FOR INSTALLING ALL ITEMS LISTED ON CHAMPION HOME BUILDER, INC. MODULAR HOMES SHIP LOOSE LIST PER INSTALLATION PROCEDURES (IF APPLICABLE).
- THE ROOF SYSTEM IS OF THE ENGINEERED TRUSS NATURE TO BE ERECTED ON SITE BY CERTIFIED INSTALLATION CREW PER CHAMPION HOME BUILDERS, INC MODULAR HOME SITE INSTALLATION PROCEDURES MANUAL.
- ALL PENETRATIONS THROUGH FLOOR OR CEILING TO BE FIRE STOPPED

**CHAMPION**

MANUFACTURED BEAUTIFULLY™

4055 Hwy. 401 South Lillington, NC 27546

**CHAMPION**

MANUFACTURED BEAUTIFULLY™

755 W. BIG BEAVER ROAD, SUITE 1000 TROY, MI 48064  
 PHONE: 248-614-8200

BUILDER:

**GIG HOUSING**

CUSTOMER/PROJECT:

**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL

PROJECT:

**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:

**COVER SHEET**  
**CS-101**

DRAWN BY: Staff

DATE: 05-20-21

SCALE:

23-3276-07 062322 NC NEW

SHEET:

PROPRIETARY AND CONFIDENTIAL  
 THESE DRAWINGS AND SPECIFICATIONS ARE ORIGINAL,  
 PROPRIETARY AND CONFIDENTIAL MATERIALS OF CHAMPION.  
 COPYRIGHT © 1976-2022 BY CHAMPION

**ATTENTION LOCAL BUILDING DEPARTMENT**

THE FOLLOWING ITEMS HAVE NOT BEEN COMPLETED BY THE MANUFACTURER, HAVE NOT BEEN INSPECTED BY THE THIRD PARTY INSPECTORS, AND ARE NOT INCLUDED IN THE STATE MODULAR CERTIFICATION LABEL. CODE COMPLIANCE MUST BE DETERMINED AT THE LOCAL LEVEL.

- ALL UTILITY CONNECTIONS
- ALL ASPECTS OF SOIL AND SITE PREP
- SITE CONNECTIONS OF UNITS
- SITE CONNECTIONS OF WATER AND DRAIN LINES
  - INSULATION ON WATER LINES PER N1103.5.3
- SITE INSTALLED INSULATION (FLOOR)
- SITE INSTALLED APPLIANCES
- ENTIRETY OF FOUNDATION INCLUDING DESIGN
- ENTIRETY OF SITE BUILT SPACES SUCH AS BASEMENTS, FINISHED ATTICS, ETC.
- SITE BUILT COMPONENTS SUCH AS PORCHES, DECKS, EXTERIOR STAIRS
- SITE INSTALLED HVAC COMPONENTS
- BLOWER DOOR TESTING
- RODENT PROOFING AND FIRE BLOCKING VERIFICATION AFTER DWV COMPLETION
- WINDBORNE DEBRIS PROTECTION OF WINDOWS AND DOORS, IF REQ'D
- SPRINKLER SYSTEM NOT REQUIRED, FIRE EXTINGUISHER TO BE PROVIDED AND INSTALLED BY OTHERS ON SITE
- ANY FALL PROTECTION DEVICES REQ'D BY R612.2 TO BE PROVIDED AND INSTALLED ON SITE BY OTHERS
- CERTAIN PARTS OF APPENDIX E OF NC AMENDMENTS. SEE PAGES THIS APPROVAL
- CERTAIN PARTS OF RESCHECK INSPECTION CHECKLIST . SEE PAGES THIS APPROVAL

**Notice:**

- THIS UNIT MUST BE CONNECTED TO PUBLIC WATER AND SEWAGE SYSTEM IF THESE SERVICES ARE AVAILABLE
- THIS PLAN MAY BE FLIPPED END TO END OR MIRRORRED DRYER TO BE VENTED IN ACCORDANCE WITH IRC M1502
- STAIRWALLS EXPOSED TO UNCONDITIONED SPACE MUST BE INSULATED TO A MINIMUM OF R13 WALLS AND R5 DOOR
- IF FACTORY PROVIDES AND/OR INSTALLS WATER HEATER TO BE A MINIMUM OF 50 GALLON CAPACITY AND INSTALLED IN ACCORDANCE WITH IRC CHAPTER 28
- ALL OPERABLE WINDOWS, ATRIUM OR SLIDING DOORS TO INCLUDE INSECT SCREENS
- IF HOME IS EQUIPPED WITH WOOD BURNING FIREPLACE SEE PAGE 22 OF SET UP MANUAL AND MANUFACTURE'S INSTALLATION MANUAL FOR SITE INSTALLATION
- MANUFACTURER MUST BE INFORMED IF THIS HOUSE IS TO GO INTO CITY OF CHARLESTON S.C OR INTO A SPECIAL MOUNTAIN REGION
- HOMES GOING INTO RADON AREAS WILL HAVE A 3" VTR AND SWITCH LEG TO SWITCH LABELED "RADON" ON TRIM PLATE. LOCATION MAY VARY PER MODEL
- THIS HOME DESIGNED FOR UP TO CLIMATE ZONE 4 FOR NC & SC AND CLIMATE ZONE 4A FOR VA. MANUFACTURER MUST BE INFORMED IF HOME TO BE LOCATED IN A HIGHER CLIMATE ZONE.

**Fastening:** ALL FASTENING TO BE PERFORMED IN ACCORDANCE WITH TABLE R602.3(1), R602.3(2), & R602.3(3) OF THE IRC CODE ABOVE UNLESS ALTERNATE CALCULATIONS ARE PROVIDED

**GENERAL NOTES FOR BUILDER RESPONSIBILITY**

- THE BUILDER SHALL BE RESPONSIBLE FOR PROVIDING ALL SITE REQUIRED ELEMENTS OF EGRESS.
- THE BUILDER SHALL BE RESPONSIBLE FOR ALL APPLICABLE UTILITY CONNECTIONS ON SITE
- THE BUILDER IS RESPONSIBLE FOR ENTIRETY OF FOUNDATION DESIGN AND CONSTRUCTION
- SITE WORK SHALL BE SUBJECT TO LOCAL BUILDING DEPARTMENT INSPECTION. THIS DRAWING SET INCLUDES THE MODULAR PORTION OF THIS PROJECT ONLY. THE BUILDER SHALL BE RESPONSIBLE FOR DESIGN AND ENGINEERING OF ALL SITE CONSTRUCTED ELEMENTS.
- THE BUILDER SHALL BE RESPONSIBLE FOR INSTALLING THE HEAT (ON SITE) TO INCLUDE: TYPE, CHASES AND ALL PLUMBING (IF REQ'D.)
- THE BUILDER IS RESPONSIBLE FOR INSTALLING ALL ITEMS LISTED ON CHAMPION HOME BUILDER , INC. MODULAR HOMES SHIP LOOSE LIST PER INSTALLATION PROCEDURES (IF APPLICABLE).
- THE ROOF SYSTEM IS OF THE ENGINEERED TRUSS NATURE TO BE ERECTED ON SITE BY CERTIFIED INSTALLATION CREW PER CHAMPION HOME BUILDERS, INC MODULAR HOME SITE INSTALLATION PROCEDURES MANUAL.
- ALL PENETRATIONS THROUGH FLOOR OR CEILING TO BE FIRE BLOCKED PER R302.11

SET-UP INSTRUCTIONS INCLUDED ON THE PLAN SHEETS, "SU-101 TO SU-103" PAGES OF THIS APPROVAL AND SET UP MANUAL INCLUDED WITH HOME. SEE NOTES, CROSS SECTION, SET-UP AND FOUNDATION PAGES. PLAN SET IS INCOMPLETE WITHOUT INSTALLATION MANUAL

STRUCTURES TO BE PLACED ON PILINGS, IN MOUNTAIN REGION, OR COASTAL HIGH HAZARD SITE MUST BE DESIGNED FOR ACTUAL SITE CONDITIONS

**ATTENTION LOCAL BUILDING DEPARTMENT**

**ELECTRICAL NOTES:**

- MULTI-SECTION UNITS WILL HAVE ELECTRICAL CROSSOVERS EITHER NEAR THE ENDS OF THE MARRAIGE LINE OR ACROSS FROM THE PANEL BOX NEAR MARRAIGE LINE.
- LOCATE THE JUNCTION BOXES OR QUICK CONNECTORS. THE CONDUCTORS SHOULD BE COLOR CODED OR MARKED FOR EASY IDENTIFICATION. DO NOT INTERCONNECT CIRCUITS OR CROSS CONDUCTORS.
- ALL CIRCUITS AND EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE APPROPRIATE ARTICLES OF THE NATIONAL ELECTRIC CODE (NEC)
- WHEN LIGHT FIXTURES ARE INSTALLED IN CLOSETS THY SHALL BE SURFACE MOUNTED OR RECESSED AND BE 6" MIN. FROM STORAGE AREA. INCANDESCENT FIXTURES SHALL HAVE COMPLETELY ENCLOSED LAMPS AND BE A MINIMUM OF 12 INCHES FROM "STORAGE" AREA AS DEFINED BY NEC.
- WHEN WATER HEATERS, DISHWASHERS, AND WALL OVENS ARE INSTALLED THEY SHALL BE PROVIDED WITH READILY ASSESSIBLE DISCONNECTS ADJACENT TO THE WATER HEATERS SERVED. THE BRANCH CIRCUIT SWITCH OR CIRCUIT BREAKER SHALL BE PERMITTED TO SERVE AS THE DISCONNECTING MEANS ONLY WHERE THE SWITCH OR CIRCUIT BREAKER IS WITHIN SIGHT FROM THE WATER HEATER OR IS CAPABLE OF BEING LOCKED IN THE OPEN POSITION.
- HVAC EQUIPMENT SHALL BE PROVIDED W/ READILY ASSESSIBLE DISCONNECTS ADJACENT TO THE EQUIPMENT SERVED. A UNIT SWITCH WITH A MARKED "OFF" POSITION THAT IS PART OF THE HVAC EQUIPMENT AND DISCONNECTS ALL UNGROUNDED CONDUCTORS SHALL BE PERMITTED AS THE DISCONNECTING MEANS WHERE OTHER DISCONNECTING MEANS ARE ALSO PROVIDED BY A READILY ASSESSIBLE CIRCUIT BREAKER
- PRIOR TO ENERGIZING THE ELECTRICAL SYSTEM THE INTERRUPTING RATING OF THE MAIN BREAKER MUST BE DESIGNED AND VERIFIED AS BEING IN COMPLIANCE WITH THE NEC BY LOCAL ELECTRICAL CONSULTANT.
- THE MAIL ELECTRICAL PANEL (DISCONNECT) AND FEEDERS ARE DESIGNED BY OTHERS, SITE INSTALLED AND SUBJECT TO LOCAL JURISDICTION APPROVAL.
- SMOKE DETECTORS SHALL BE WIRED SO THAT THE OPERATION OF ANY ONE SMOKE DETECTOR WILL CAUSE SIMULTANEOUS ACTIVATION OF ALL OTHERS.
- ALL CIRCUITS CROSSING OVER MODULE MATING LINE(S) SHALL BE SITE CONNECTED IN APPROVED ACCESSIBLE JUNCTION BOXES OR WITH APPROVED CABLE CONNECTIONS.
- ALL WIRING SHALL BE NMC
- ANY STRIP RECEPT MOUNTED BENEATH A COUNTER TOP SHALL BE WITH IN 6" OF THE EDGE
- ALL BRANCH CIRCUITS SUPPLYING 15 & 20 AMP OUTLETS IN LIVING AREAS ARE PROTECTED BY AN ARC-FAULT CIRCUIT INTERRUPTER IN ACCORDANCE WITH SECTION 210.12 NEC
- ALL ELECTRICAL FIXTURES/WIRING SHALL COMPLY WITH SECTION E3303.3 (SC & VA)
- IT IS THE BUILDERS RESPONSIBILITY TO PROVIDE ELECTRICAL PROVISIONS FOR ANY "MOBILE" WORKSTATION IF IT IS PERMANENTLY MOUNTED.
- CO/SMOKE DETECTORS COMPLIES WITH UL 217 AND UL 2034 (FIRST ALERT MODEL #SC9120B)

**ATTENTION LOCAL BUILDING DEPARTMENT**

**PLUMBING NOTES:**

- ALL P-TRAPS AT TUBS,SHOWERS, AND TUB/SHOWERS MUST BE RODENT PROOFED AND FINAL DRAFT STOPPING COMPLETED ONSITE BY OTHERS AFTER COMPLETION OF ALL PLUMBING TESTS. ALL OTHER RODENT PROOFING AND FIRE BLOCKING AT FLOOR LEVEL DONE AT FACTORY. THIS SHOULD BE SITE VERIFIED UPON COMPLETION OF DWV INSTALL (SEE PAGE AE-101 IN SETUP MANUAL IN HOME FOR DETAILS. SECTION 5, STARTING PAGE 25 QA MANUAL) (SEE Q/A MANUAL FOR APPROVED PLUMBING FIXTURES SECTION 4 PAGE 5)
- LOCATE AND CONNECT WATER LINE
- CROSS-OVERS LOCATED UNDER THE FLOOR AT THE MARRAIGE LINE. TURN THE WATER ON AND CHECK FOR LEAKS.
- DRAIN LINES:
- CONNECT DRAIN DROP OUTS TO THE MAIN DRAIN. BE SURE ALL CONNECTIONS ARE MADE TO COMPLY WITH LOCAL PLUMBING CODES.
- BUILDING AND DRAIN AND CLEANOUTS ARE DESIGNED AND SITE INSTALLED BY OTHERS. SUBJECT TO LOCAL JURISDICTION APPROVAL.
- TUB ACCESS PROVIDED UNDER HOME UNLESS OTHERWISE NOTED.
- SHAOOWER STALLS SHALL BE COVERED
- W/NON-ABSORBANT MATERIAL TO A HEIGHT OF 72" ABOVE FINISH FLOOR.
- T&P RELIEF VALVE W/DRAIN TO EXTERIOR AND SHUT-OFF WITH-IN 3" OF WATER SUPPLY AT WATER HEATER
- EXPANSION TANK SHALL BE INSTALLED ONSITE BY OTHERS WHEN REQUIRED PER PLUMBING CODE 607.3
- AIR ADMITTANCE VALVES SHOULD BE INSTALLED ON-SITE AFTER TESTING

**ON-SITE GAS CONNECTIONS (IF APPLICABLE)**

- LOCATE "QUICK DISCONNECT" AND CONNECT. THE "QUICK DISCONNECT" IS LOCATED UNDER THE FLOOR AT THE MARRAIGE LINE. VERIFY THAT ALL CONNECTIONS ARE TIGHT AND HAVE BEEN CHECKED FOR LEAKS.

**ATTENTION LOCAL BUILDING DEPARTMENT**

**MECHANICAL NOTES**

(NORTH CAROLINA):

- ALL AIR SUPPLY REGISTERS ARE ADJUSTABLE EXCEPT WHERE OTHERWISE SPECIFIED.
- INTERIOR DOORS SHALL BE UNDERCUT 1" MIN. ABOVE FINISHED FLOOR FOR AIR RETURN.
- BATHROOMS SHALL BE PROVIDED WITH A WINDOW OR MIN 50 CFM VENT FAN, (VA REQUIRES A MINIMUM .35 AIR CHANGE EVERY HOUR).
- BATH VENT FANS SHALL BE DUCTED TO THE EXTERIOR AND TERMINATE AT AN APPROVED VENT CAP.
- HVAC EQUIPMENT SHALL BE EQUIPPED WITH OUTSIDE FRESH AIR INTAKES.
- HVAC SUPPLY DUCTS AND CALCULATIONS ARE PROVIDED IN THE MANUAL D&J. IT IS RECOMMENDED THAT A NEW MANUAL D&J BE RE-FIGURED WHEN SYSTEM IS COMPLETED BY OTHERS ONSITE IF ANY VARIATION TO PROVIDED SYSTEM OCCURS.
- ALL DUCTS SHALL HAVE A MIN. OF R-8 INSULATION
- ALL RETURN GRILLS BY FACTORY UNLESS SPECIFIED.
- \*\*\* SUPPLEMENTAL AIR HANDLER/FURNACE IS FOR HEAT ONLY \*\*\* (SEE Q/A MANUAL SECTION 4 PAGE 31)
- \*\*\* AIR HANDLER/FURNACE TO BE FACTORY INSTALLED. FURNACE MODEL IS NORDYNE E7-KW SIZING PER MANUAL J PROVIDED AND TO BE VERIFIED BY OTHERS IF SITE HVAC SYSTEM DIFFERS FROM PROVIDED MANUAL D&J.
- AIR HANDLER/FURNACE USED FOR HEATING ONLY. FOR OPTIMAL EFFICIENCY A HEAT PUMP SHOULD BE INSTALLED.
- \*\*\* CHAMPION HOMES ASSUMES NO RESPONSIBILITY FOR THE HVAC SYSTEM. CHAMPION PROVIDES A GENERIC MANUAL D&J. THAT IF SYSTEM IS INSTALLED PER THAT DESIGN WILL WORK FOR THE HOME. CHAMPION RECOMMENDS THAT A NEW MANUAL D&J BE GENERATED AFTER ACTUAL HVAC SYSTEM IS INSTALLED AND BEFORE LOCAL INSPECTION IS COMPLETED.

**ON-SITE DUCT CONNECTIONS:**

- FOR CEILING/ATTIC CROSSOVER DUCT INSTALLATIONS.
- SLIDE EACH END OF THE CROSSOVER DUCT OVER THE DROP OUT UNDERNEATH EACH SECTION. SECURE AS REQUIRED.
- WRAP/CPVER ALL SEAMS AND JOINTS WITH UL181 DUCT TAPE/MASTIC TO REDUCE AIR LEAKAGE
- WRAP/COVER EXPOSED METAL WITH FIBERGLASS INSULATION TO REDUCE HEAT LOSS.
- INTEGRITY OF MARRAIGE LINE RIDGE BEAM SHALL NOT BE COMPROMISED UNLESS SPECIFICALLY DESIGNED FOR AND SHOWN ON APPROVED PLANS

**ATTENTION LOCAL BUILDING DEPARTMENT**

**STRUCTURAL NOTES:**

- FOR SITE CONNECTIONS REFER TO SU-101 TO SU-103 SECTION DRAWINGS FOUNDATION PLANS AND TIE DOWN PLANS (ON-FRAME)
  - ADDITIONAL DETAILS MAY BE REFERENCED IN SET-UP MANUAL.
  - MANUFACTURE INSTALLATION INSTRUCTIONS MAY ALSO BE REFERENCED WHERE APPLICABLE.
- TWO-STORY DESIGNS:**
- SOME 2 STORY MODELS WILL REQUIRE ADDITIONAL VERTICAL CONNECTIONS. SEE PLAN SHEETS FOR LOCATIONS AND ACCESS POINTS

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PHONE: 248-614-8200

BUILDER:

**GIG HOUSING**

CUSTOMER/PROJECT:

**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

**PFS CORPORATION**  
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State: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

North Carolina  
**PFS** *Tim Busche*  
Staff Plan Reviewer  
**6/27/22**

MODIFICATIONS

PROJECT:

**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:

**LOCAL INSPECTIONS DEPT**

DRAWN BY: Staff

DATE: 05-20-21

SCALE:

23-3276-07 062322 NC NEW

SHEET:

**CS-102**



- ALL WINDOW OPENINGS WHICH ARE 72" ABOVE THE FINISHED GRADE, WITH THE BOTTOM OF THE CLEAR OPENING LESS THAN 24" ABOVE THE FINISHED FLOOR, SHALL BE PROVIDED WITH FIELD SUPPLIED AND INSTALLED WINDOW GUARDS PER R312.2.
- GAS LINES (IF REQUIRED) TO BE PROVIDED, SIZED, AND INSTALLED ON SITE BY OTHERS IN ACCORDANCE WITH PREVAILING CODE.
- SEE QA MANUAL MATERIALS SECTION 4 PAGE 13 FOR WINDOW SPECIFICATIONS
- SEE QA MANUAL MATERIALS SECTION 4 STARTING PAGE 2 FOR APPLIANCES
- DRYER VENT TO BE INSTALLED ONSITE
- SEE EV-101 FOR ATTIC VENTILATION
- SEE QA MANUAL SECTION 6 FOR ATTIC ACCESS DETAILS PAGE 36.
- THIS UNIT DOES NOT HAVE SOFFIT OVER CABINETS
- TUBS AND SHOWERS INSTALLED PER APPENDIX E
- SEE STR-101 FOR HEADER DETAILS
- SEE SECTION EX-01.01 TO EX-03.01 OF DESIGN MANUAL FOR PORCH DETAILS
- WIND VELOCITY SHEARWALLS REFERENCED TO ATTACHED CALCULATIONS SEE PAGES SW-101 TO SW-103. CALCULATIONS PAGES 11-17 IN THIS PACKAGE IF REQUIRED BEYOND PRESCRIPTIVE TUB SUPPORTED BY FLOOR JOIST CALC PER QA MANUAL SECTION 6 PAGE 26
- FLOOR JOIST DESIGN MANUAL REF: FL-02-01A
- ATTIC PULL DOWN STAIRS:
  - INSTALLED PER N1102.2.4 AND MANUF. INSTALLATION INSTRUCTIONS. INSULATED AND GASKET PER EXCEPTION #2

**GENERAL NOTES**

- ALL GLAZING WITHIN 24 INCH ARC OF DOORS, WHOSE BOTTOM EDGE IS LESS THAN 60 INCHES ABOVE THE FLOOR, AND ALL GLAZING IN DOORS SHALL BE SAFETY, TEMPERED or ACRYLIC PLASTIC SHEET.
- OCCUPANT LOAD IS BASED ON 1 PERSON PER 200 SQUARE FEET OF FLOOR AREA.
- ALL STEEL STRAPS REFERENCED ON FLOOR PLAN SHALL BE Minimum 1.5 INCH x 26 GA. MIN.
- CEILING FANS SHALL BE 80 INCHES MIN. FROM BOTTOM OF BLADES TO FINISH FLOOR.
- MINIMUM CORRIDOR WIDTH IS 36 INCHES
- ALL WINDOWS SHALL BE DOUBLE GLAZED.
- FIRE STOPPING AND AIR INFILTRATION BARRIER BETWEEN UNITS SHALL BE PROVIDED BY DRAFTSTOP BRAND NONCOMBUSTIBLE FILLER COMPOUND OR EQUAL MEETING ASTM-E136

WOOD BURNING FIREPLACE TO BE SUPERIOR MHW36CB/MHW36R OR EQUIVALENT (VENT STACK TO BE INSTALLED ON SITE BY OTHERS PER MANUFACTURERS INSTALLATION INSTRUCTIONS)

OR

\*VENTLESS GAS FIREPLACE TO BE INTERTHERM VRT2536WS OR EQUIVALENT W/ VFGL-18VSP GAL LOGS (14,000 - 25,000 BTHU)

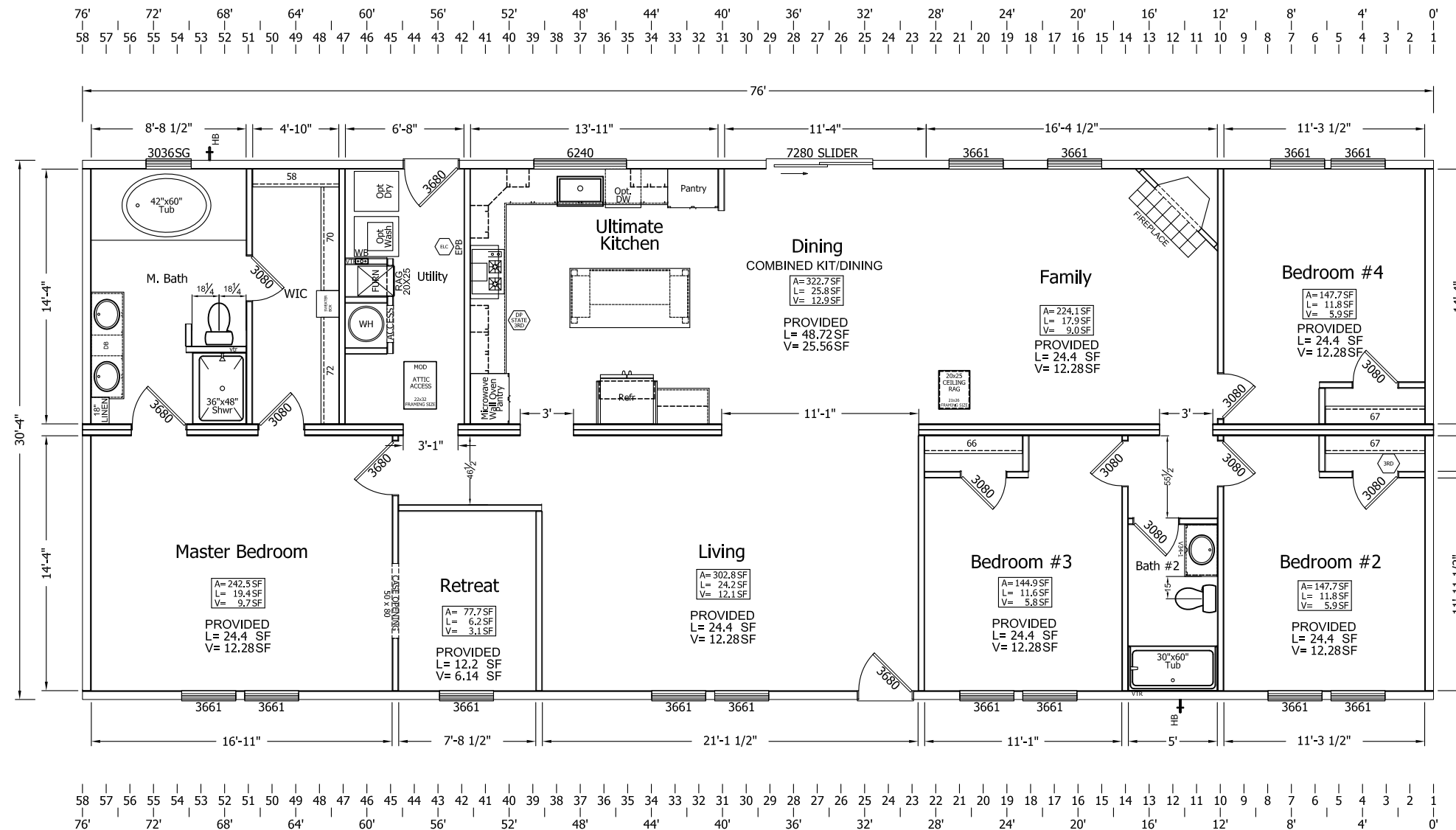
FIREPLACE VENT AREA  
 224 sq ft TOTAL AREA x 8 = 1792.8 cu ft  
 1792.8 / 50 = 35.9 or 35,856 BTU/H  
 35,856 - 25,000 = 10,856 REMAINING GAS LOGS  
 NO ADDITION FRESH AREA REQUIRED  
 CALCULATIONS BASED FROM PAGE 4 OF FIREPLACE INSTALLATION INSTRUCTIONS

DESCRIPTION	GLAZED SQ. FT.	VENTING SQ. FT.	DESIGN PRESSURE	SHGC	U-VALUE	MANUFACTURER
WINDOW SCHEDULE						
3661 36" x 61" EGRESS opt, SAFETY GLAZED	12.2	6.14	DP 50 / DP 66	.29	.34	KINRO (9750 series)
3061 30" x 61"	9.95	5.85	DP 50	.29	.34	KINRO (9750 series)
3036 30" x 36" opt, SAFETY GLAZED	5.55	2.76	DP 66	.29	.34	KINRO (9750 series)
4661 46" x 61" EGRESS	16.07	8.01	DP 25	.29	.34	KINRO (9750 series)
3072 30" x 72" FIXED PANEL SAFETY GLAZED	13.1	0	DP 66	.35	.32	KINRO (9750 series)
2448 24" x 48" opt, SAFETY GLAZED	4.85	2.44	DP 66	.29	.34	KINRO (9750 series)
1440 14" x 40" opt, SAFETY GLAZED	2.48	1.29	DP 66	.32	.34	KINRO (9750 series)
4234 34" x 42" BLOCK GLASS	6.28	0	DP 50	.56	.45	HY-LITE
6240 62" x 40"	14.35	6.11	DP 50	.29	.34	KINRO (9750 series)
4638 46" x 38" ARCH SAFETY GLAZED	8.26	3.58	DP 50	.32	.34	KINRO (9750 series)
3008 30" x 8" TRANSOM	1.3	0	DP 66	.35	.32	KINRO (9750 series)
3608 36" x 8" TRANSOM (MAY FLIP)	1.7	0	DP 66	.35	.32	KINRO (9750 series)
7208 72" x 8" TRANSOM	2.9	0	DP 66	.35	.32	KINRO (9750 series)
DOOR SCHEDULE						
3680 36" x 80" EXTERIOR DOOR	0	19.45	DP 50	.01	.17	LIPPETT
3680 36" x 80" EXTERIOR DOOR WITH 9 LITE WINDOWS	4.40	19.45	DP 50	.09	.29	LIPPETT
3680 36" x 80" EXTERIOR DOOR WITH 15 LITE WINDOWS	14.68	19.45	DP 50	.17	.28	LIPPETT
7280 72" x 80" SLIDING GLASS	34.37	19.45	DP 50	.29	.32	LIPPETT
7480 74" x 80" ATRIUM DOOR WITH 15 LITE WINDOWS	24.96	19.45	DP 50	.30	.35	LIPPETT
3280 32" x 80" INSULATED DOOR WITH WEATHER STRIPS	4.40	19.45	DP 50	.01	.24	LIPPETT
3080 30" x 80" INTERIOR				N/A		
2480 24" x 80" INTERIOR				N/A		
3680 36" x 80" INTERIOR				N/A		
4980 49" x 80" INTERIOR DOUBLE DOORS				N/A		
6080 60" x 80" INTERIOR DOUBLE DOORS				N/A		

\*\*Note: EXTERIOR DOORS WILL NOT BE GENERALLY USED FOR LIGHT AND VENT PURPOSES. WHEN THEY ARE USED THE DISTINCTION BETWEEN WHICH TYPE WILL BE REQUIRED FOR PLAN REVIEWER VERIFICATION\*\*

**108" MAX SIDEWALL HEIGHT**

DRYER VENT TO BE INSTALLED ONSITE



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 Signature: *Tim Busche*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22

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CUSTOMER/PROJECT:  
**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL

**PFS**  
 North Carolina  
*Tim Busche*  
 Staff Plan Reviewer  
 6/27/22

MODIFICATIONS

PROJECT:  
**23-3276-07 062322**  
**30'-4" x 76' 4" BD 2 BTH**

TITLE:  
**FLOOR PLAN A-101**

DRAWN BY: Staff  
 DATE: 05-20-21  
 SCALE:  
 23-3276-07 062322 NC NEW

SHEET:

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7-12 MHT-1 TRUSS  
 EXTERIOR WALL HEADER  
 1-1/2, LOWER LEVEL 2 STORY  
 182" WIDE 7/12 ROOF  
 FOR 30lb/SF GROUND SNOW LOAD

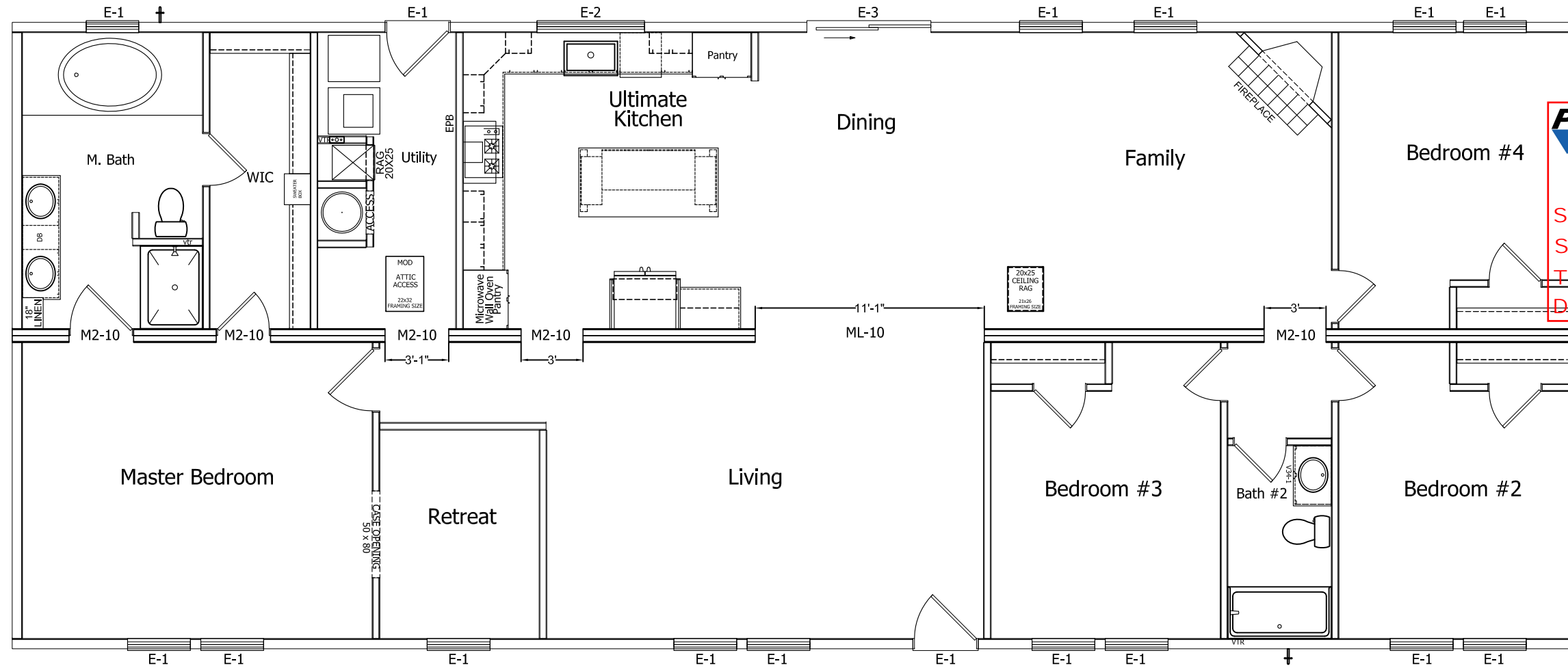
MEMBER	SPAN	# of JACK STUDS	Design manual Ref.
E-1	3- #2 SPF 2x4 3'-8" (44")	1-2x6 #2 SPF Min	WA-05.02
E-2	3- #2 SPF 2x6 5'-4" (64")	1-2x6 #2 SPF Min	WA-05.02
E-3	3- #2 SPF 2x8 7'-1" (85")	1-2x6 #2 SPF Min	WA-05.02

- MURPHY LVL (2.0E) OR EQUIVALENT LISTED AS ALTERNATE MATERIAL IN QA MANUAL SECTION 4A PAGE 45
- LUMBER BEAMS DERIVED FROM SECTION MW-105 OF CALC MANUAL
- DESIGN MANUAL REF: WA.05.02, CAPE (1 1/2) STORY RESPECTIVELY

7-12 MHT-1 TRUSS  
 MATING WALL HEADER  
 1-1/2, LOWER LEVEL of 2 STORY  
 182" WIDE 7/12 ROOF STANDARD  
 FOR 30lb/SF GROUND SNOW LOAD

MEMBER	SPAN	# of JACK STUDS	Design manual or calcs Ref.
M2-10	1-2" x 10" LUMBER 7'-3" (87") @ 24" O.C.	1-2x4 #2 SPF Min	RF-03.04
ML-10	1-1 1/2" x 9-1/4" LVL 12'-8"(152") @ 24" O.C.	2-2x4 #2 SPF min	RF-03.04

- MURPHY LVL (2.0E) OR EQUIVALENT
- LVL BEAMS DERIVED FROM ATTACHMENT REF. PAGE RF-03.04
- 7-12 (MHT-1) 182" TRUSS MAX GRAV: 819
- LUMBER BEAMS DERIVED FROM ATTACHMENT PAGE RF-03.04



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 Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

**PFS** *Tim Busche*  
 Staff Plan Reviewer  
 6/27/22

BUILDER:  
**GIG HOUSING**

CUSTOMER/PROJECT:  
**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL

MODIFICATIONS

PROJECT:  
 23-3276-07 062322  
 30'-4" x 76' 4 BD 2 BTH

TITLE:  
**FLOOR PLAN  
 STRUCTURAL  
 STR-101**

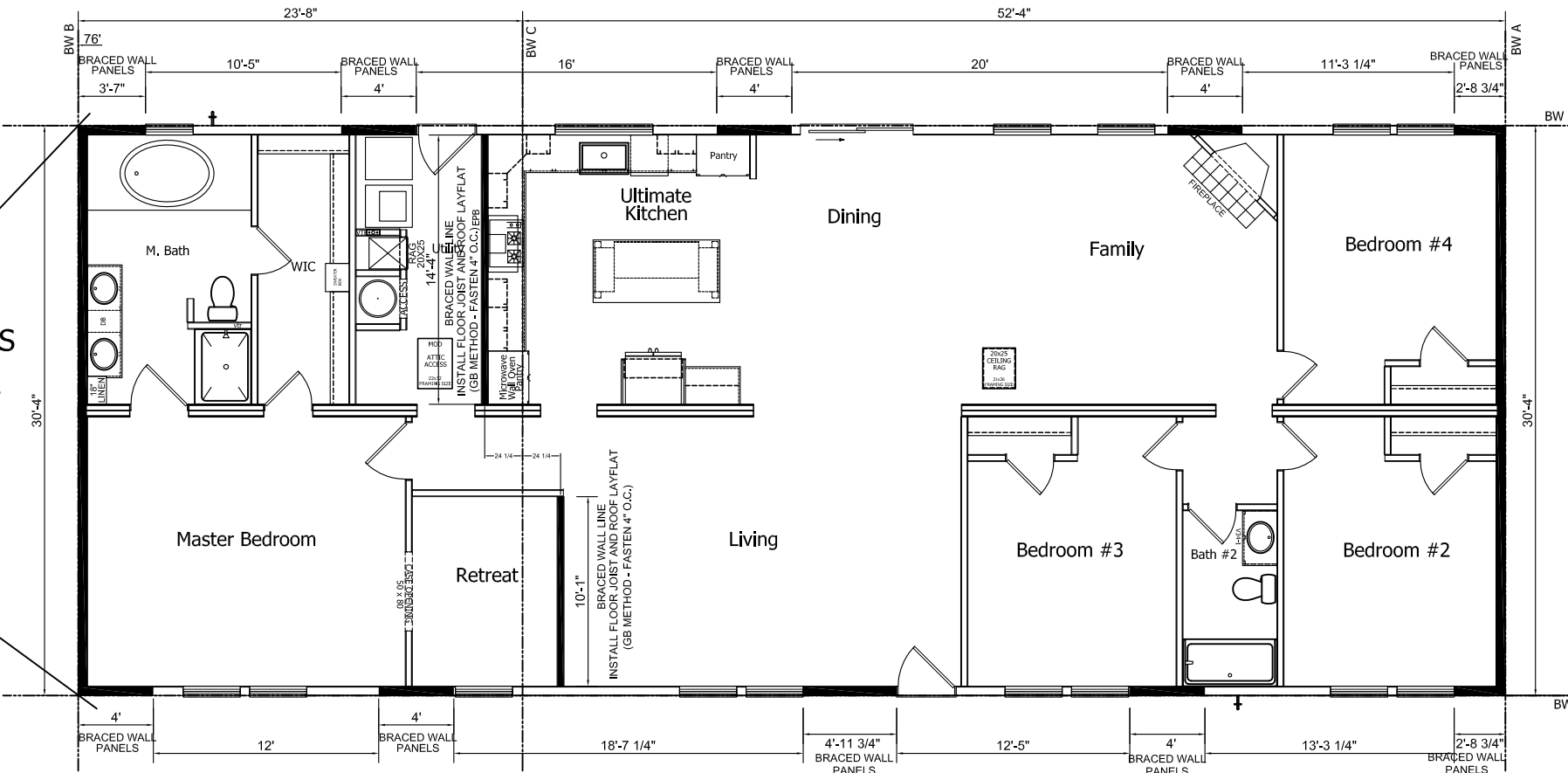
DRAWN BY: Staff  
 DATE: 05-20-21  
 SCALE:  
 23-3276-07 062322 NC NEW

SHEET:

**NOTES:**

- BRACED WALL LENGTH IN ACCORDANCE WITH 2015 IRC SECTION 602.10.3
- REQUIREMENTS OF TABLE 602.3(3) MUST BE FOLLOWED IF WOOD STRUCTURAL PANELS ARE TO BE USED TO RESIST WIND PRESSURES EQUAL TO OR GREATER THAN 130 MPH
- Design Manual Ref: SW-01.01 to SW-02.05

BLOCKS REQUIRED BETWEEN TRUSS HEELS DUE TO THE OVER 9 1/4" HEEL HEIGHT. FOR EACH CS-WSP SIDEWALL SEGMENT



NUMBER OF BRACED WALL LINES IS A TOTAL NUMBER INDICATOR FOR LEFT TO RIGHT BRACED WALL

BW 1&2 ARE SIDEWALL SEGMENTS

BW A&B ARE ENDWALL SEGMENTS  
BW C IS THE INTERIOR SEGMENT

**2015 IRC BRACED WALL LINE PRESCRIPTIVE MEASURES**

Wind Speed = **120** mph  
Exposure = **C**  
No. of Stories = **1**  
No. of modules = **2** per story  
Eave to Ridge Ht. = 114 in.  
Panel Uplift Load = 136 plf

Module Width = **182** in.  
Home Length = **76.00** ft.  
Roof Pitch = **7** :12  
Overhang, OH = **12** in.  
1st Floor Wall Ht, H = **108** in.  
#8x4" Toe-screw **1** per truss

**1ST FLOOR END WALL REQUIREMENTS**

Sheathing Method = **CS-WSP**  
Block Seams = **Yes**  
Number of Braced Wall Lines = **3**  
Braced Wall Line Spacing = **52.33** ft.  
Block Seams = **1.00**  
No. Braced Wall Lines = **1.30**  
GB Method 4" o.c. = **1.00** **No**

**1ST FLOOR SIDE WALL REQUIREMENTS**

Sheathing Method = **CS-WSP**  
Block Seams = **Yes**  
Number of Braced Wall Lines = **2**  
Braced Wall Line Spacing = **30.33** ft.

1st Floor Factors:  
Exposure = **1.20**  
Wall Height = **0.95**  
Block Seams = **1.00**  
Eave to Ridge Ht. = **0.97** (Interpolated)  
No. Braced Wall Lines = **1.00**  
GB Method 4" o.c. = **1.00** **No**

1st Floor Required Wall Length: 5.05 ft. = **5 ft - 1in.** (Interpolated)  
[From Table R602.10.3(1)]

Factored Required Wall Length: 5.58 ft. = **5 ft - 8in.** Required

Largest Opening on Sidewall = **80** in. Min. Panel Width = **30** in.

1st Floor Required Wall Length: 8.35 ft. = **8 ft - 5in.** (Interpolated)  
[From Table R602.10.3(1)]

Factored Required Wall Length: 12.00 ft. = **12 ft - 1in.** Required

Largest Opening on Endwall = **0** in. Min. Panel Width = **27** in.

**1ST FLOOR INTERIOR WALL REQUIREMENTS**

Sheathing Method = **GB**  
Block Seams = **Yes**  
Number of Braced Wall Lines = **3**  
Braced Wall Line Spacing = **52.33** ft.

Block Seams = **1.00**  
GB Method 4" o.c. = **0.70** **Yes**

1st Floor Required Wall Length: 17.20 ft. = **17 ft - 3in.** (Interpolated)  
[From Table R602.10.3(1)]

Factored Required Wall Length: 17.31 ft. = **17 ft - 4in.** Required

Largest Opening = **0** in. Min. Panel Width = **48** in.



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Title:

Date:

North Carolina  
**Tim Busche**  
Staff Plan Reviewer  
6/27/22

ROOF DIAPHRAGM		
THE ROOF DIAPHRAGM TRANSFERS APPLIED LOADS TO BRACED WALL LINES. ROOF DIAPHRAGMS SHALL BE CONSTRUCTED ACCORDING TO IRC REQUIREMENTS. ROOF SHEATHING IS TYPICALLY 7/16" OSB SHEATHING FASTENED AS SHOWN IN THE TABLE BELOW		
FASTENER	EDGES (IN.)	NAIL (IN.)
.131 X 2 1/2" NAIL (SEE NOTE A)	6	12
15GA X 1 3/4" STAPLE (SEE NOTE B)	4	8
.097 X 2 1/4" NAIL (SEE NOTE B)	3	6
16GA X 1 3/4" STAPLE (SEE NOTE B)	3	6
STAPLES HAVE A MIN. CROWN WIDTH OF 7/16"		
<b>NOTE A:</b> WHERE THE BASIC WIND SPEED IS EQUAL TO OR GREATER THAN 130 MPH THEN INTERMEDIATE FASTENING SHALL BE FASTENED AT THE SAME SPACING AS EDGE FASTENING		
<b>NOTE B:</b> THESE FASTENERS SHALL ONLY BE USED IN WIND ZONES LESS THAN 130 MPH PER IRC TABLE R602.3(2) NOTE G.		
Design Man Ref: SW-02.02		

MINIMUM FASTENERS										
SIZE	PENETRATION	MIN. PANEL SPAN RATING	MIN. PANEL THICKNESS	MAX. STUD SPACING	PANEL NAIL SPACING			MAX. DESIGN SPEED (MPH)		
					EDGES	FIELD	B	C	D	WIND EXPOSURE CATEGORY
0.113 x 2"	1 1/2"	2%	3/8"	16	6	12	140	X	X	
0.131 x 2 1/2"	1 3/4"	2 3/8%	7/16"	16	6	12	170	140	135	
THERMO-PLY RED STRUCTURAL SHEATHING (NOT ALLOWED W/ 2 PART ADHESIVE ON GYP PANELS)										
16 ga 1 1/2" crown x 1 1/2" staple	1"	16"/24" o.c. stud spacing	0.113"	16	3	3	130	130	N/A	
0.120 X 1 1/4"	1"	16"/24" o.c. stud spacing	0.113"	16	3	3	130	130	N/A	
*INTERIOR DRYWALL SECUREMENT FOR THERMO-PLY RED SHEATHING PER IRC R702.3.5 (INTERIOR GYPSUM CANNOT BE SECURED WITH FOAM ADHESIVE. MUST BE EITHER SCREW OR NAIL PER R702.3.5)**										
1 3/8" MIN DRYWALL SCREW TYP. USED	16" o.c. stud spacing	1/2"	16	8	16					
PER TABLE R702.3.5: (13 gage, 1 3/8" long, 19/64" head; 0.098" diameter, 1 1/4" long, annular-ridged; 5d cooler nail, 0.086" diameter, 1 5/8" long, 15/64" head; or gypsum board nail, 0.086" diameter, 1 5/8" long, 9/32" head.)										

**MODIFICATIONS**

PROJECT: **23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE: **BRACED WALLS BW-101**

DRAWN BY: Staff  
DATE: 05-20-21  
SCALE:  
23-3276-07 062322 NC NEW

SHEET:

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# ELECTRICAL LEGEND

	P.C. DENOTES PULL CHAIN		
		1. SMOKE DETECTORS ARE INTERCONNECTED. FOR MODEL WITH BASEMENT, A #14/3 WIRE IS RUN FROM UPSTAIRS SMOKE DETECTOR TO UNDER FLOOR JUNCTION BOX (ON SITE CONNECTION TO BASEMENT SMOKE DETECTOR).	
		2. ELECTRICAL: 200 AMP MAIN & SERVICE IS STANDARD.	
	W.P. DENOTES WEATHERPROOF		

CIR #	BRKR	NOMENCLATURE	VOLTS	WIRE
1	GFI	20 AF	PORTABLE APPLIANCE	120 12/2
2	GFI	20 AF	PORTABLE APPLIANCE	120 12/2
3	GFI	20 AF	PORTABLE APPLIANCE	120 12/2
4	GFI	20 AF	WASHER	120 12/2
5	AF	15	KIT/UTL.M.BATH	120 14/2
6	AF	15	DIN.FAM.	120 14/2
7	AF	15	BEDROOM #4/SD	120 14/2
8	AF	15	M.BEDRM/RETREAT	120 14/2
9	GFI	20 AF	REFRIGERATOR	120 12/2
10	GFI	20	BATH GFIs	120 12/2
11		30	DRYER	240 10/3
12		40	WALL OVEN	240 8/3
13	GFI	15 AF	DISH WASHER	120 14/2
14		25	WATER HEATER	240 10/2
15		30	COUNTER TOP RANGE	PER MANUF
16		15 OPT	FURNACE (GAS)	120 14/2
17		60/35	FURNACE (ELECTRIC)	240 6/6/8
18		20 OPT	TRASH COMPACTOR	120 12/2
19		15 OPT	DISPOSAL	120 14/2

CIR #	BRKR	NOMENCLATURE	VOLTS	WIRE
24	AF	15	LMING ROOM	120 14/2
25	AF	15	BEDR #2/BTH #2/BEDR #3	120 14/2
26	OPT GFI		OUTDOOR HYDRO MASSAGE SPA	PER MANUF
27	GFI	20 OPT	FREEZER	120 12/2
28	AF	15	RANGE HOOD	120 14/2
29	GFI	20 OPT	INDOOR HYDRO MASSAGE SPA	PER MANUF.
33	AF	20	MICROWAVE	120 12/2

WIRE SIZING MAY INCREASE DUE TO DISTANCE FROM PANEL BOX

\*GFI GROUND FAULT PROTECTED  
 \*AF ARC FAULT PROTECTED  
 \*SD SMOKE DETECTOR  
 \*OPT OPTIONAL

\* OTHER CIRCUITS MAY BE ADDED AS NECESSARY.  
 FURNACE NOTE: 10KW NORDYNE E7 FURNACE

- SERVICE ENTRANCE DISCONNECT TO BE PROVIDED AND INSTALLED ON SITE BY OTHERS.
- ALL 120-VOLT, SINGLE PHASE, 15- AND 20- AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHEN, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY ANY OF THE MEANS DESCRIBED IN 210.12 (A).(NEC) BOXES USED AT LUMINARIES OR LAMPHOLDER OUTLETS. OUTLET BOXES OR FITTINGS DESIGNED FOR THE SUPPORT OF LUMINARIES AND LAMPHOLDERS, AND INSTALLED AS REQUIRED BY 314.23, SHALL BE PERMITTED TO SUPPORT A LUMINAIRE OR LAMPHOLDER.
- ALL RECEPTACLES ARE TO BE TAMPER PROOF.
- ALL BATH VENT FANS TO BE 50 CFM MIN.
- RANGE HOOD TO BE 100 CFM MIN.
- SEE QA MANUAL SECTION 4 PAGE 4 FOR FIXTURES LIST
- ALL ELECTRICAL FIXTURES/WIRING SHALL COMPLY WITH SECTION E3303.3 (SC & VA)
- ALL WIRING SHALL BE NMC
- FACTORY INSTALLED SUB PANEL SHALL HAVE A 2" MINIMUM CONDUIT FOR FEEDERS
- FURNACE INSTALLED IS PROVIDED FOR SUPPLEMENTAL HEAT AND SHOULD HAVE ITS KW SIZE VERIFIED BY ON-SITE MANUAL D AND J IF SYSTEM DIFFERS FROM THAT PROVIDED. SEE QA MANUAL SECTION 4 PG 18 FOR FURNACE DETAILS
- SEE QA MANUAL SECTION 4 PAGE 4 FOR APPROVED ELECTRICAL FIXTURES
- BREAKER LOCKOUT TO BE INSTALLED FOR WATER HEATER AND DISHWASHER
- NC-MODS NOTE: PER IECC A MINIMUM OF 75% LAMPS INSTALLED IN PERMANENTLY INSTALLED FIXTURES MUST BE HIGH EFFICIENT LAMPS (EXAMPLE, CFLS) ALL BULBS TO BE PROVIDED ON-SITE BY OTHERS

## FEEDER AND SERVICE LOAD CALCULATION:

MODEL PLAN NUMBER: 23-3276-07 062322  
 UNIT SERIAL NUMBER:  
 First Story Size (feet): 30'-4" x 76'  
 Second Story Size (feet): x

### ELECTRICAL SERVICE PANEL SIZING: ( kW or kVA )

TOTAL FLOOR AREA:	2305 SF x 3 Watt / 1000	=	6.915
3 Small Appliance Circuits at 1500 VA /1000 per Circuit		=	4.5
1 Laundry Circuits at 1500 VA /1000 per Circuit		=	1.5

Standard Appliances:		Watts	=	
0 Range With Oven:	9600	Watts	=	0
1 Range Hood Vent Fan:	1440	Watts	=	1.44
1 Refrigerator	1800	Watts	=	1.8
1 Microwave	1632	Watts	=	1.632
1 Dishwasher:	1188	Watts	=	1.188
0 Waste Food Disposal:	804	Watts	=	0
1 Clothes Washer	1500	Watts	=	1.5
1 Clothes Dryer:	5760	Watts	=	5.76
1 Electric Water Heater:	6000	Watts	=	6
2 Bathroom Vent Fan(s):	96	Watts	=	0.192
0 Hydro-Massage Tub:	720	Watts	=	0

Miscellaneous Items:		Watts	=	
1 Furnace Blower w/ Gas Option:	1440	Watts	=	1.44
0 Whole House Vent fan	96	Watts	=	0
1 Oven	9600	Watts	=	9.6
1 Cook Top	7900	Watts	=	7.9
0 ( Enter Item #s : )	0	Watts	=	0

**TOTAL LOAD:** 51.367

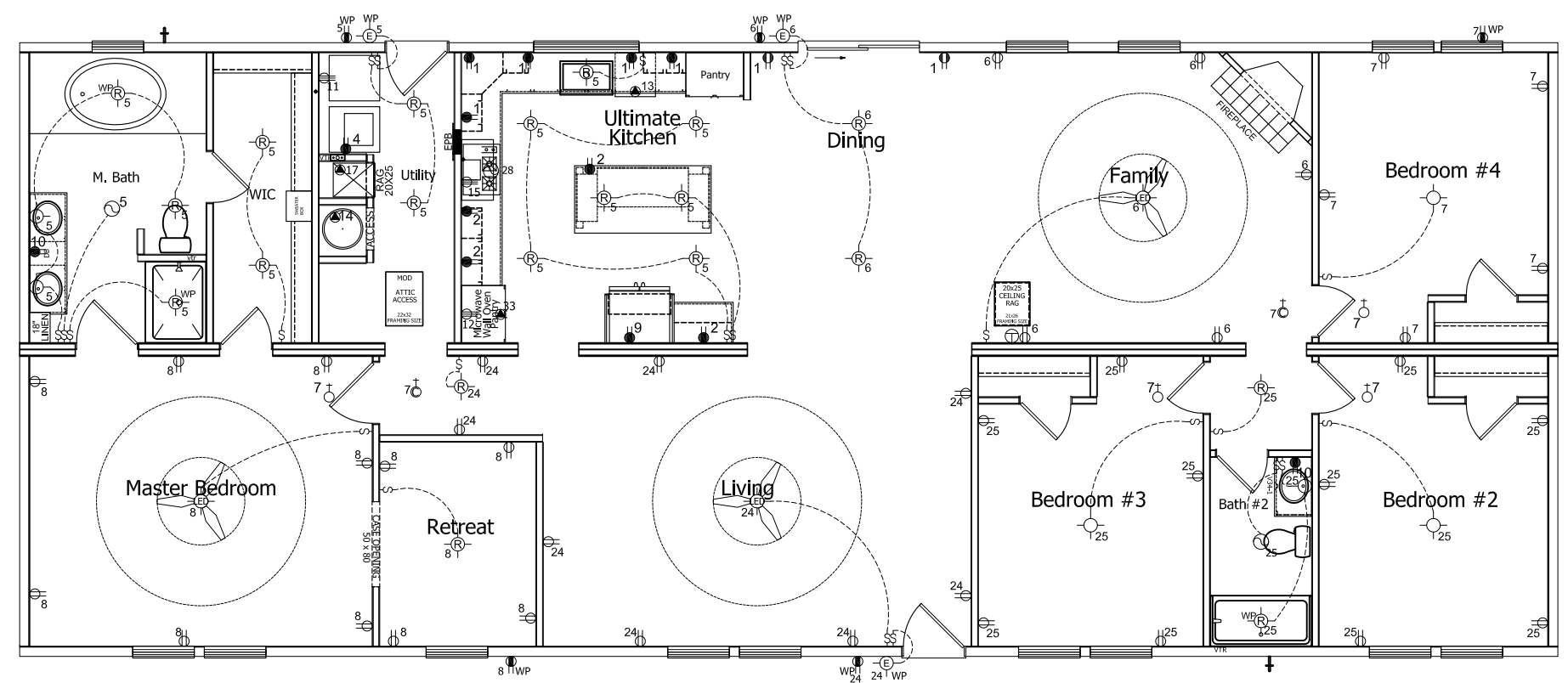
1 Heating Equipment:	15385	Watts (at 65%)	=	10.000
0 Cooling Equipment:	9600	Watts (at 100%)	=	0.000

**Calculate Total Electrical Design Load:**  
 FIRST 10 kVA of TOTAL LOAD at 100% = 10.000  
 REMAINDER of TOTAL LOAD at 40% = 16.547  
 HVAC EQUIPMENT (Maximum: Heating or Cooling) = 10.000

**Design Total:** 36.547 kVA

REQUIRED AMPERAGE [ (Design Total / 240-Volts) x 1000 ] = 152.3 Amps

- INSTALL: 200 AMP PANEL, 120/240-Volt, SINGLE PHASE, ELECTRICAL SERVICE PANEL
- THIS FEEDER AND SERVICE LOAD CALCULATION MAY INCLUDE SOME OPTIONAL NOT CURRENTLY PART OF THIS HOME. THESE ITEMS ARE INCLUDED TO SHOW FUTURE ITEMS COULD IMPACT THE PANEL AND STILL ALLOW FOR ENOUGH GROWTH TO MAINTAIN COMPLIANCE.



**PFS CORPORATION**  
 Approval Limited to Factory Built Portion Only

State:  
 Signature:  
 Title:  
 Date:

North Carolina  
*Tim Busche*  
 Staff Plan Reviewer  
 6/27/22

### MODIFICATIONS

PROJECT:  
 23-3276-07 062322  
 30'-4" x 76' 4 BD 2 BTH

TITLE:  
**ELECTRICAL E-101**

DRAWN BY: Staff  
 DATE: 05-20-21  
 SCALE:  
 23-3276-07 062322 NC NEW

SHEET:



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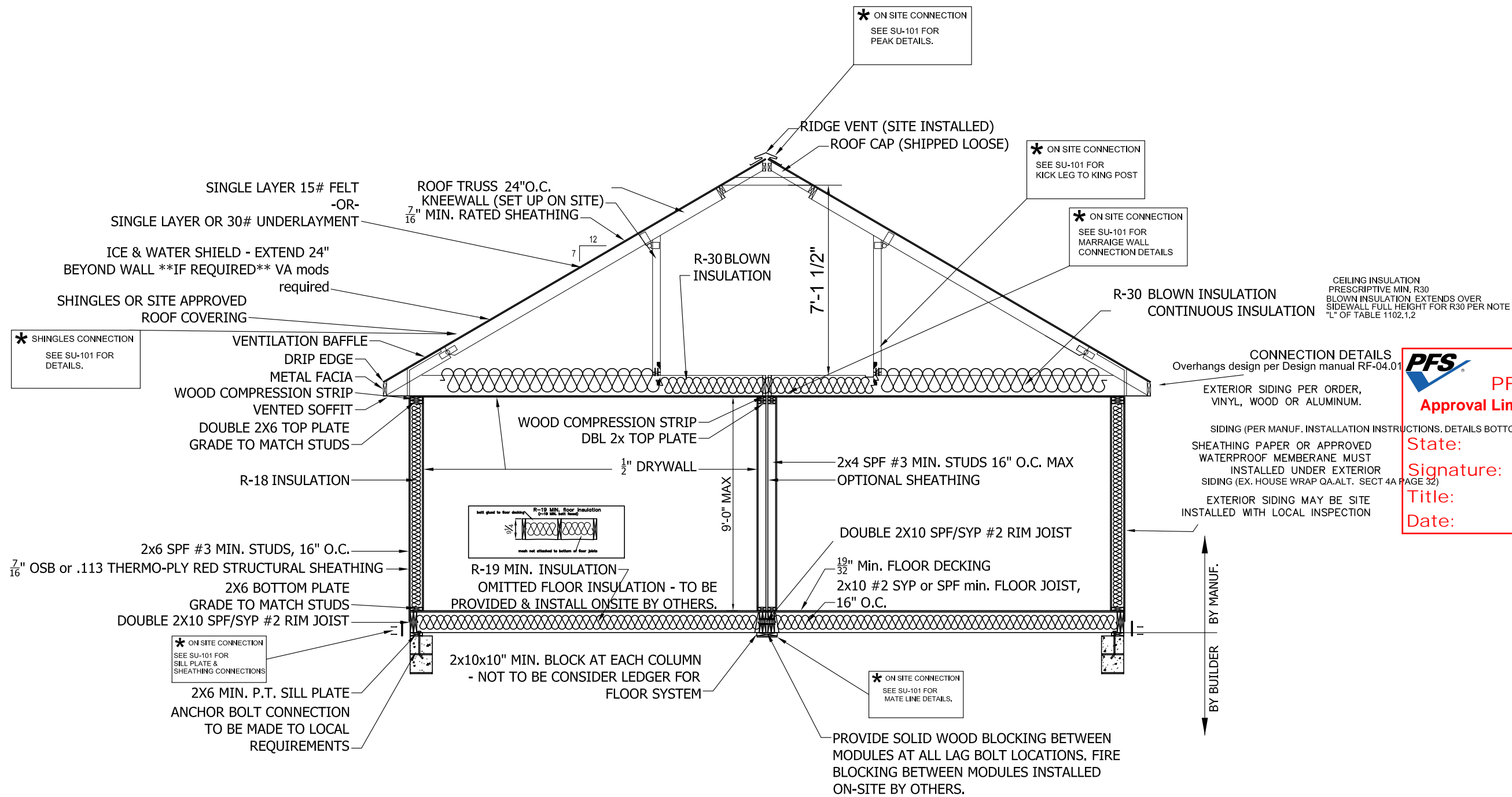
BUILDER:

GIG HOUSING

CUSTOMER/PROJECT:

CARROLL

ENGINEER'S / ARCHITECT'S SEAL



CEILING INSULATION  
 PRESCRIPTIVE MIN. R30  
 BLOWN INSULATION EXTENDS OVER  
 SIDEWALL FULL HEIGHT FOR R30 PER NOTE  
 "L" OF TABLE 1102.1.2



APPROVERS SEAL  
**PFS CORPORATION**  
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 Title: Staff Plan Reviewer  
 Date: 6/27/22

LOCATION 7A: SHINGLES - SHINGLES INSTALLED PER MANUF. LOCATED ON EACH WRAPPER FOR INSTALLATION INSTRUCTIONS - IKO CAMBRIDGE OR TAMCO HERITAGE ARCHITECTURAL "OR EQUAL" - (HIGH WIND requires 6 fasteners per shingle -130MPH OR GREATER)  
 LOCATION 7B: VINYL SIDING - INSTALLED PER MANUF. INSTALLATION INSTRUCTIONS -PLYGEM TRUE WALL BRAND "OR EQUAL" (FASTENER SPACING-16"o.c. Horizontal vinyl 12" o.c. vertical vinyl and accessories at 8" to 10" o.c. ALL WIND SPEEDS)

MODIFICATIONS

PROJECT:  
 23-3276-07 062322  
 30'-4" x 76' 4 BD 2 BTH

TITLE:  
 CROSS SECTION  
 7-12  
 XS-101

DRAWN BY: Staff  
 DATE: 05-20-21  
 SCALE:  
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LOCATION 1: ROOF CAP (FLIPS) - #8 X 3" SCREWS @ 16" O.C./ADD A MIN. 26 GA STRAP EACH TRUSS TOP CORD TO FLIP TO PROVIDE FOR TENSION CONNECTION (6) .113 X 2" NAILS EACH SIDE OR EQUIVALENT Design manual ref: RF-05.03 and RF-08.01

LOCATION 2: COLLAR TIE - (9) .148 X 3" NAILS or (13) #8 X 3" SCREWS EACH END Design Manual Sec: RF-08.04

LOCATION 3: ROOF KNEE WALL - (4) #10x4" toe screws rail into bottom chord at each kneewall leg. OR uplift strap at every truss (use 2 at multiply trusses) strap capacity per tension load on truss drawing. 1x4 min, ledger nailed with (2) .120x3" nails each end each bay. Design Manual Sec: RF-08.01

LOCATION 4: CENTERLINE FLOOR BAND -  $\frac{5}{16}$ " X 7" LAGS(min.) @ 36" O.C or  $\frac{1}{2}$ " X 8" (min) CARRIAGE BOLT @ 72" O.C. Ref: RF-05.04 of Design Manual

LOCATION 5: MARRAIGE WALL CEILING Same as location 12  
SEE SU-102 PAGE FOR THE TENSION CONNECTION \*\*STRAP REQUIRED

LOCATION 6: MARRAIGE WALL ENDS 12"o.c. #10x5" Screws DESIGN MANUAL SEC. WA-03.01

LOCATION 7A: SHINGLES - SHINGLES INSTALLED PER MANUF. LOACATED ON EACH WRAPPER FOR INSTALLATION INSTRUCTIONS - IKO CAMBRIDGE OR TAMCO HERITAGE ARCHITECTURAL "OR EQUAL" - (HIGH WIND requires 6 fasteners per shingle)

LOCATION 7B: VINYL SIDING - INSTALLED PER MANUF. INSTALLATION INSTRUCTIONS -PLYGEM TRUE WALL BRAND "OR EQUAL" (FASTENER SPACING-16"o.c. Horizontal vinyl 12" o.c. vertical vinyl and accesories at 8" to 10" o.c. ALL WIND SPEEDS)

LOCATION 8: GABLE ENDWALLS (3) #8x4  $\frac{1}{2}$ " wood screws per 16" gable wall stud cavity Ref: Design manual RF-05.01

LOCATION 9: GABLE END SHEATHING - PER BW-101 OR SW-101  
THERMO-PLY RED 3" oc Edge & Field REF: Design Manual SW-02.03  
THERMO-PLY RED STRUCTURAL SHEATHING

LOCATION 10: DORMER DETAILS IF REQUIRED- Per RF-06.01-02 OR RF-08.03A of the Design Manual. Also Approved drawings in set up manual package

LOCATION 11: PERIMETER SHEATHING - .131X 2  $\frac{1}{2}$ " NAILS @ 6" O.C. ONE ROW IN RIM JOIST ONE ROW IN SILL PLATE Ref: Design manual FD-01.02, To Be installed per edge fastening BW-101 or SW-101 section (Which ever is applicable to package) / THERMO-PLY PER TER REPORT 1004-01

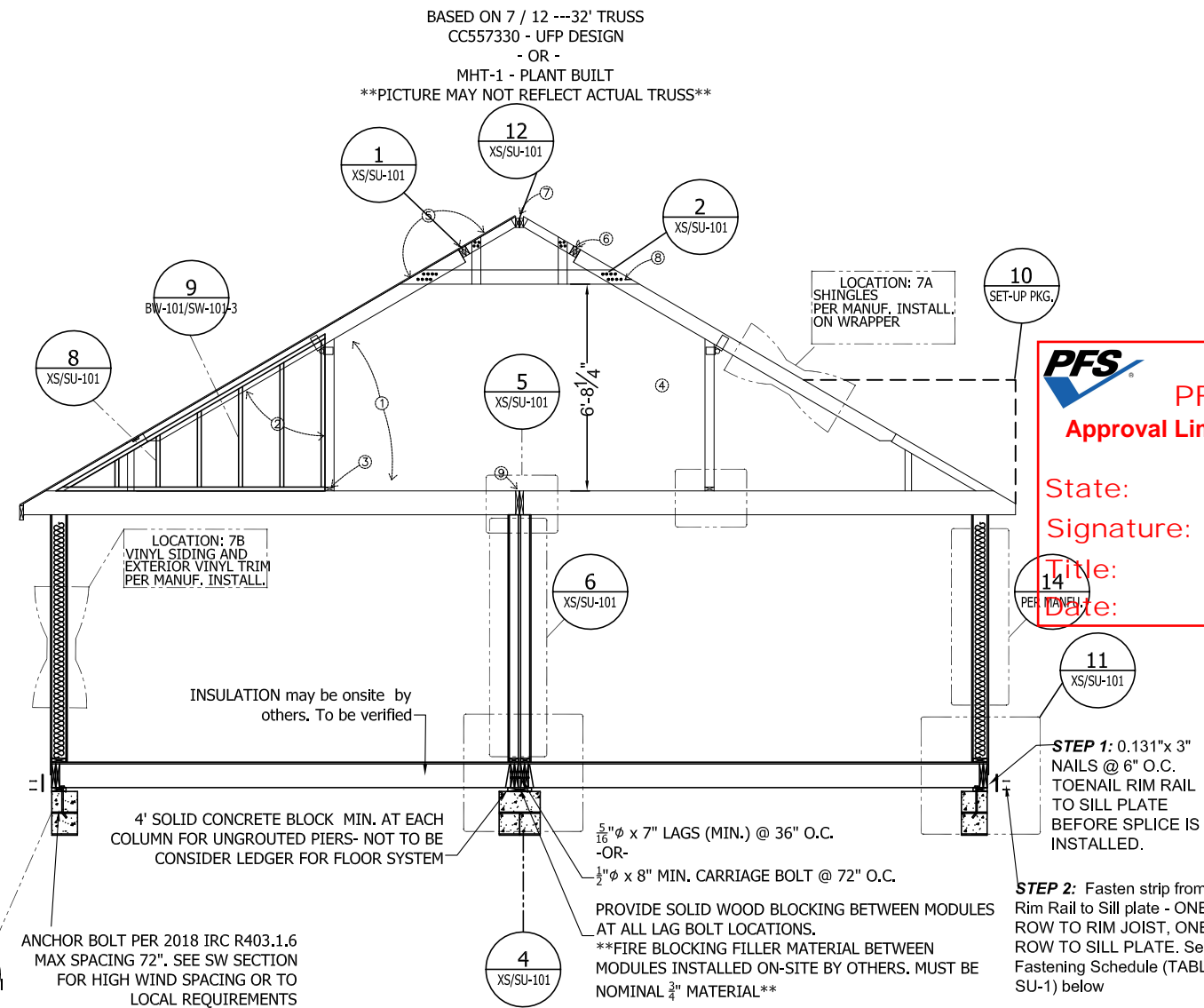
LOCATION 12: ROOF PEAK -  $\frac{5}{16}$ " X 5" LAGS(MIN.) @ 7" O.C. ALTERNATING SIDES or #10 X 5" SCREWS 4" O.C. ALTERNATING SIDES UP TO 140 MPH Ref: RF-05.04 of Design Manual

LOCATION 13: FOUNDATION - SHOULD BE INSTALLED PER IRC CHAPTER 4 OR CHAPTER 45(HIGH WIND). SEE FD-01.01 TO FD-02.05 FOR TYPICAL FOUNDATION DETAILS AND SUBJECT TO LOCAL JURISDICTION.

LOCATION 14: VINYL SIDING OR OTHER EXTERIOR COSMETICS SHOULD BE INSTALLED PER MANUFACTURER INSTALLATION INSTRUCTIONS FOR WIND OR OTHER SITE CONDITIONS

**ATTENTION LOCAL INSPECTIONS DEPARTMENT:  
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GUIDE FOR ITEMS COMPLETED BY THE HOME SETUP  
CREW. THESE DETAILS ILLUSTRATE SITE CONNECTIONS.**

\*\*\*IT IS THE INTENT THAT THIS DOCUMENT WILL ASSIST THE LOCAL INSPECTIONS DEPARTMENT BY OFFERING AN EASILY ACCESSIBLE LOCATION FOR ALL TYPICAL CONNECTIONS. ANY CONNECTIONS NOT LISTED MAY BE FOUND ON THE APPROPRIATE PAGES OF THIS PLAN SET. SEE INDEX\*\*



(TABLE SU-1) FASTENING SCHEDULE for SHEATHING		
SHEATHING	FASTENER	SPACING
WOOD RATED SHEATHING	0.131" x 2 $\frac{1}{2}$ " NAILS	6"
THERMO-PLY RED STRUCTURAL SHEATHING	0.120" x 1 $\frac{1}{2}$ " NAILS	3"
	16 ga. $\frac{15}{16}$ " CROWN x 1 $\frac{1}{2}$ " STAPLE	

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ENGINEER'S / ARCHITECT'S SEAL



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**PFS Tim Busche**  
Staff Plan Reviewer  
6/27/22

State:  
Signature:  
Title:  
Date:

MODIFICATIONS

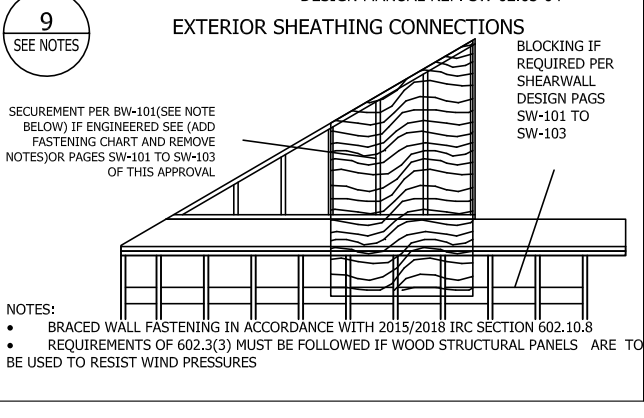
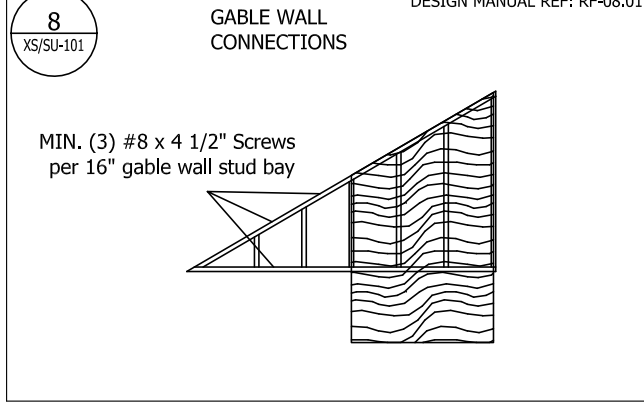
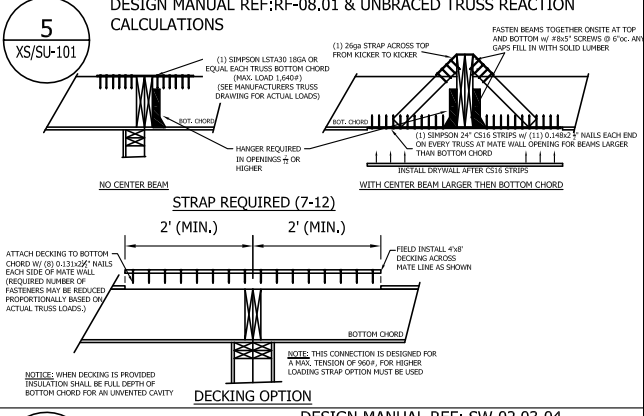
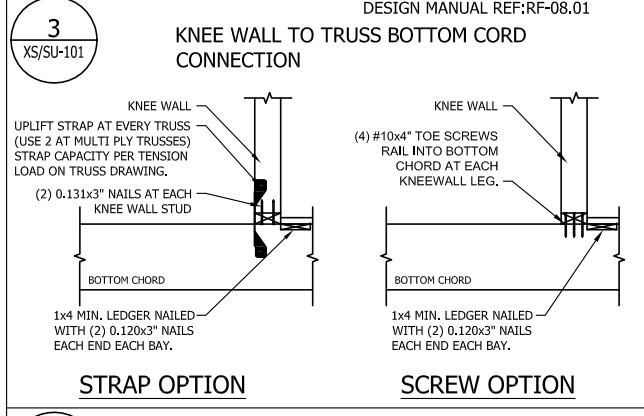
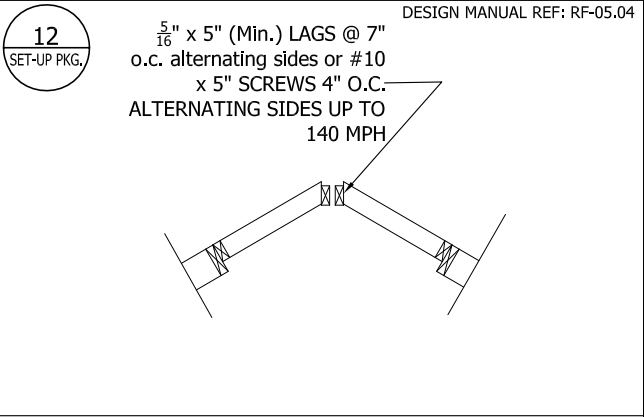
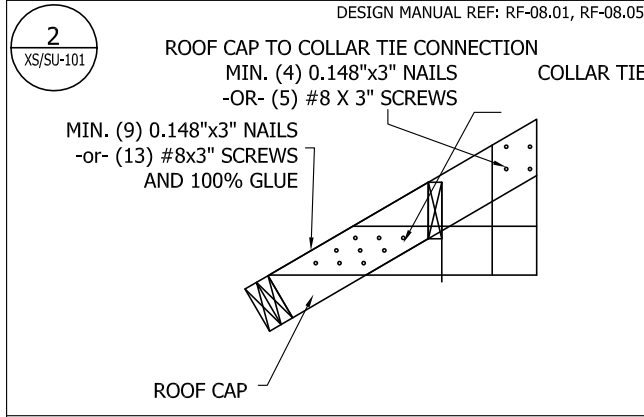
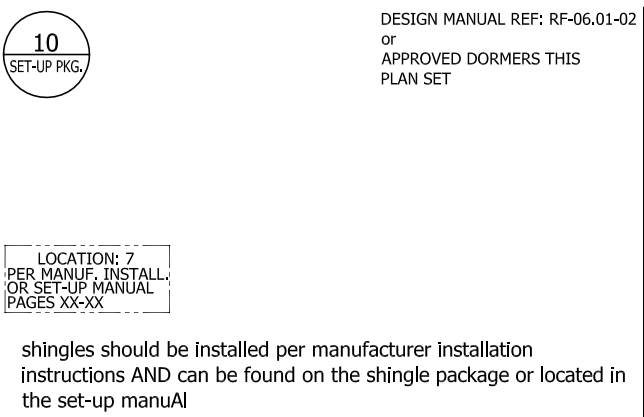
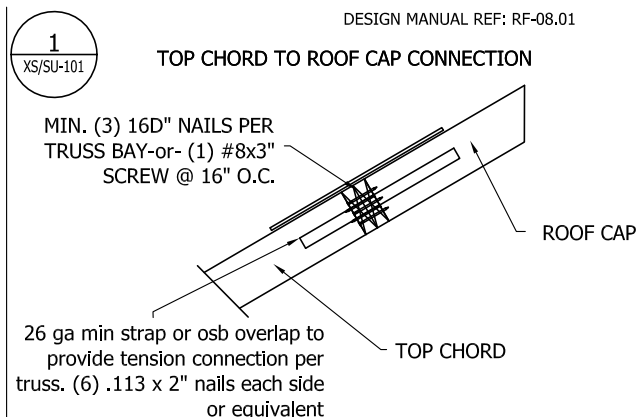
PROJECT:  
**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:  
**LOCAL INSPECTIONS**

DRAWN BY: Staff  
DATE: 05-20-21  
SCALE:  
23-3276-07 062322 NC NEW

SHEET:  
**SU-101**

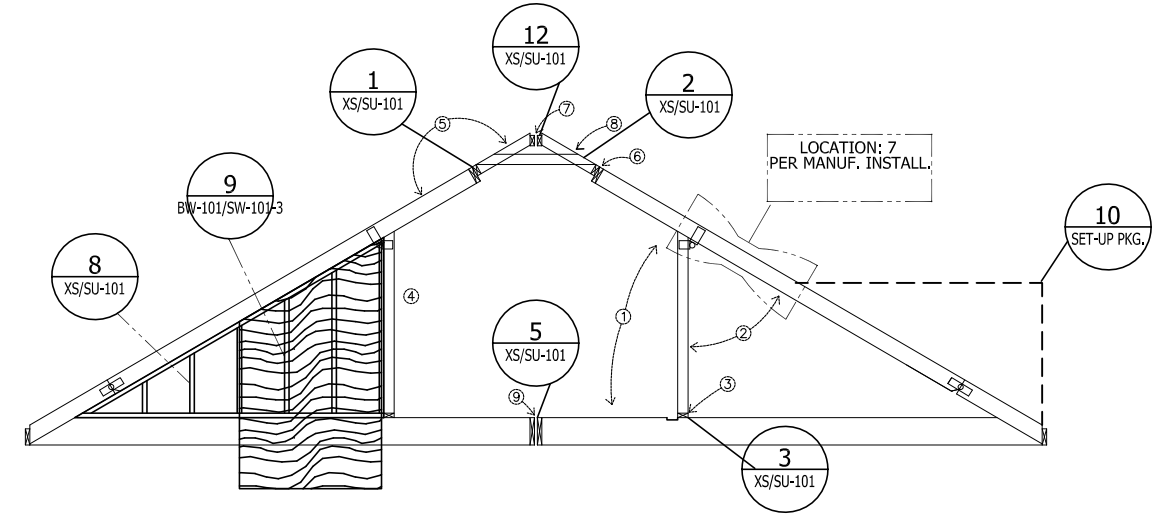
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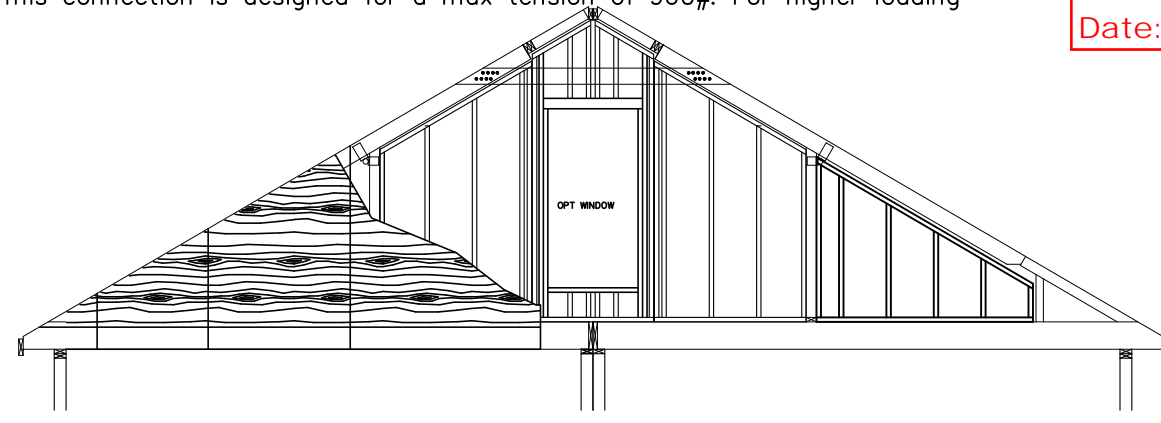
**Gable End Framing**  
7/12 - 32' wide Storage  
161.7 square ft  
7/12 - 28' wide Storage  
131.47 square ft

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- Step 1, Raise Front Module Top chord
- Step 2, Lower Front Module Kneewall to Sit On Bottom Chord
- Step 3, Secure Hinged Kneewall to Bottom Chord w/ (4) 16d "Toe-Nails" OR (4) #10 X 4" Toe Screws See Strap option in panel to left for additional option.
- Step 4, Repeat steps one through three for rear module
- Step 5, Flip Top chord Extension Into Place & Secure
- Step 6, Secure Top chord Extension w/ (12) #10x3" Screw @ 16" O.C. or (3) 16d nails each side on every truss at hate wall opening for beams larger than bottom chord
- Step 7, Secure Ridge With 5/16 x 5 Lag Screws @ 7" O.C. Alternating Sides upto 140 mph See SW pages for winds above 140 MPH
- Step 8, Install Collar Tie w/ (9) 16d Nails Ea. End or (13) #8X3" Screws each end.
- Step 9, Connect Bottom Chords w/ 4' sheathing lap 2' per module fasten with (8) x .131 x 2 1/2" nails each side of matewall This connection is designed for a max tension of 960#. For higher loading



**RATED/STRUCTURAL SHEATHING**

ALL SHEATHING SHALL BE INSTALLED ON THE ENTIRE EXTERIOR OF THE HOME.

ALL SHEATHING TO BE FASTENED WITH SPECIFIED FASTENERS. SEE NOTE BELOW. OR USE SW PAGES IN PLAN SET.

NOTES:

- BRACED WALL FASTENING IN ACCORDANCE WITH 2015/2018 IRC SECTION 602.10.8
- REQUIREMENTS OF 602.3(3) MUST BE FOLLOWED IF WOOD STRUCTURAL PANELS ARE TO BE USED TO RESIST WIND PRESSURES
- THEROM-PLY SEE (TABLE-SU-1) FOR FASTENING SCHEDULE

**GABLE END FILLERS**

2X4 GABLE END WALLS ARE ASSEMBLED AT THE PLANT

INSTALL WALL SECTIONS IN PLACE AS SHOWN ON EACH END OF HOME. SECURE BOTTOM AND TOP PLATES OF WALL SECTIONS TO FLOOR AND ROOF WITH 16d NAILS OR #8 X 3 1/2" WOOD SCREWS AT 12" O.C.. SECURE WALL SECTIONS TOGETHR WITH 16d NAILS OR #8 X 3 1/2" WOOD SCREWS AT 12" O.C.

ANY GAPS THAT MAY EXIST BETWEEN WALL SECTIONS OR BETWEEN SECTIONS AND FLOOR OR ROOF WILL NEED TO BE SHIMED. SHIM TIGHT WITH DIMENSIONAL LUMBER, OSB, OR EQUIVALENT.

NOTE:  
IF WALL IS TOO TALL, STUDS MAY BE CUT DOWN TO FIT BY REMOVING TOP PLATE OR BOTTOM PLATE. REATTACHMENT IS PER IRC

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(TABLE SU-1) FASTENING SCHEDULE for SHEATHING		
SHEATHING	FASTENER	SPACING
WOOD RATED SHEATHING	0.131" x 2 3/8" NAILS	6"
THERMO-PLY RED STRUCTURAL SHEATHING	0.120" x 1 3/8" NAILS	3"
	16 ga. 15/16" CROWN x 1 1/4" STAPLE	

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CUSTOMER/PROJECT:

**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

**PFS CORPORATION**

Approval Limited to Factory Built Portion Only

State: North Carolina

Signature: *Tim Busche*

Title: Staff Plan Reviewer

Date:

MODIFICATIONS 6/27/22

APPROVERS SEAL

PROJECT:

**23-3276-07 062322**

**30'-4" x 76' 4 BD 2 BTH**

TITLE:

**LOCAL INSPECTIONS-2**

DRAWN BY: Staff

DATE: 05-20-21

SCALE:

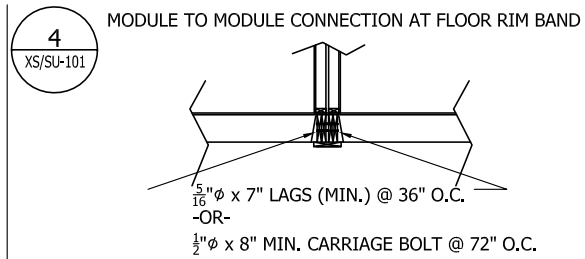
23-3276-07 062322 NC NEW

SHEET:

**SU-102**

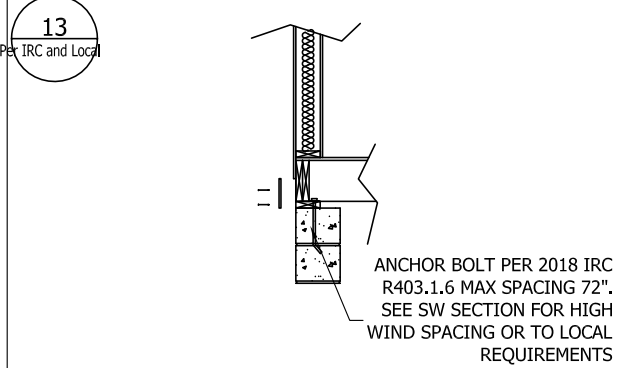
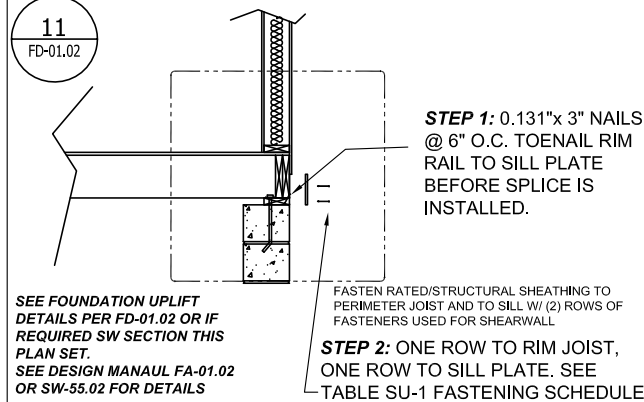
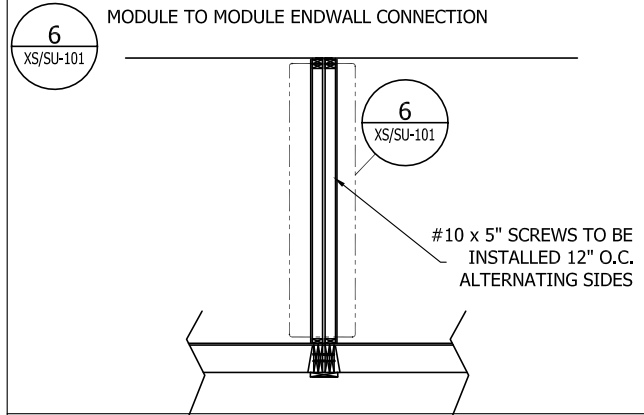
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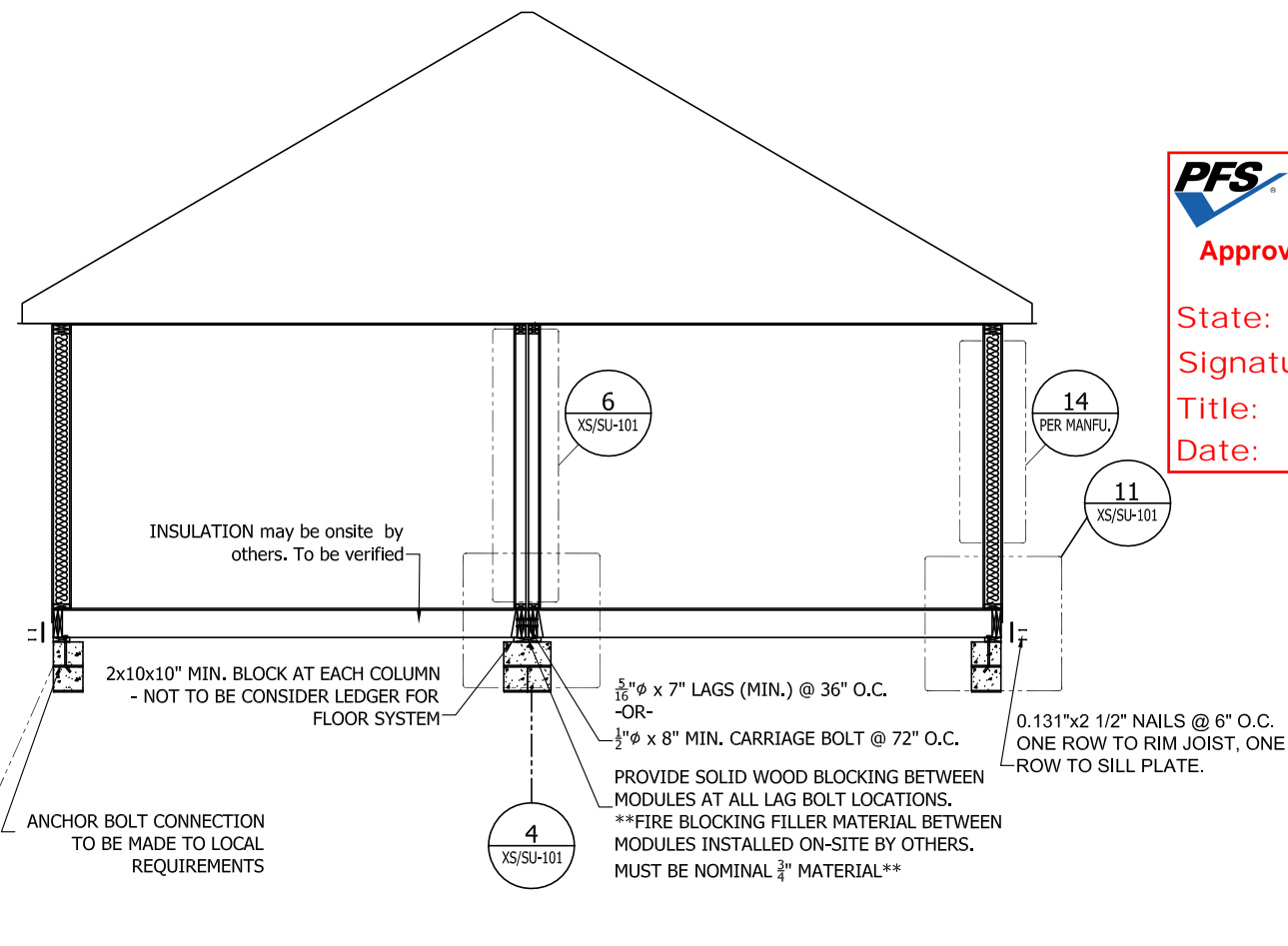
**14**  
PER MANFU.

PROVIDE SOLID WOOD BLOCKING BETWEEN MODULES AT ALL LAG BOLT LOCATIONS. PROVIDED AND INSTALLED ONSITE BY OTHERS  
\*\*FIRE BLOCKING FILLER MATERIAL BETWEEN MODULES INSTALLED ON-SITE BY OTHERS. MUST BE NOMINAL 3/4" MATERIAL\*\*



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**PFS CORPORATION**  
 Approval Limited to Factory Built Portion Only  
 State: North Carolina  
 Signature: *Tim Busche*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22

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BUILDER:  
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CUSTOMER/PROJECT:  
**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

MODIFICATIONS

PROJECT:  
**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:  
**LOCAL INSPECTIONS-2**

DRAWN BY: Staff  
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 23-3276-07 062322 NC NEW

SHEET:  
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ACCESS TO GRADE AT ALL DOORS TO BE PROVIDED AND INSTALLED ON SITE, BY OTHERS IN COMPLIANCE WITH PREVAILING CODE

**North Carolina Required Ventilation**

Floor Length:  ft.

Floor Type

28 Wide  32 Wide  Triple Wide  T-Ranch

Check if pod

**Manufacturer Specifications**  
 Ridge Vent: 18 sq. in. per lf.  
 Soffit Vent: 5.89 sq. in. per lf.

**House Required Ventilation**

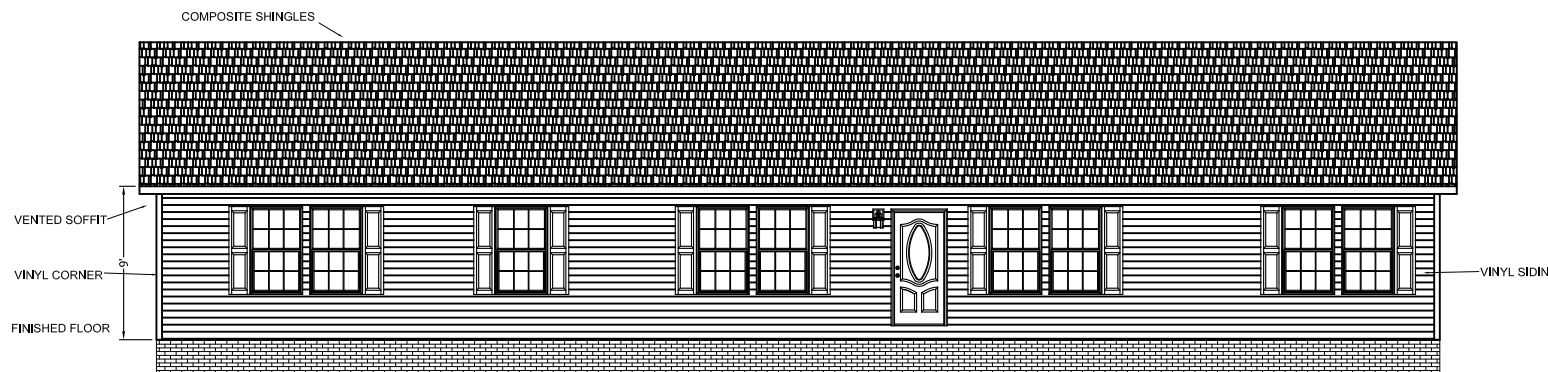
Required Ventilation for House:	1108.56	sq. in.
Inches Required for Soffit Ventilation:	553.28	sq. in.
Inches Required for Ridge Ventilation:	553.28	sq. in.
Number of Ridge Vents Required:	7.684444	pc.
	30.73778	lf. of Ridge Vent

**Ventilation in House**

Soffit Ventilation in house:	874	sq. in.
Ridge Ventilation in house:	576	sq. in.
Number of Ridge Vents in house:	8	pc.
	32	lf. of Ridge Vent
		52.05% through Ridge Vent

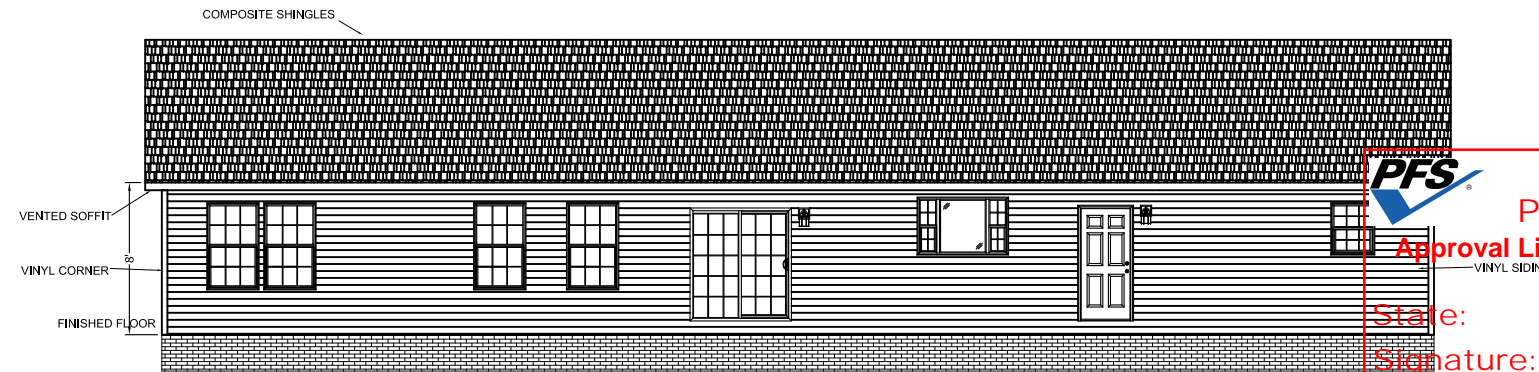
Code can be found at R806.2 in the IRC

ELEVATION IS TO SHOW CHAMPION HOMES PORTION OF THE STRUCTURE. FOUNDATION IS A REPRESENTATION ONLY AND MAY NOT REFLECT ACTUAL SITE CONDITIONS.



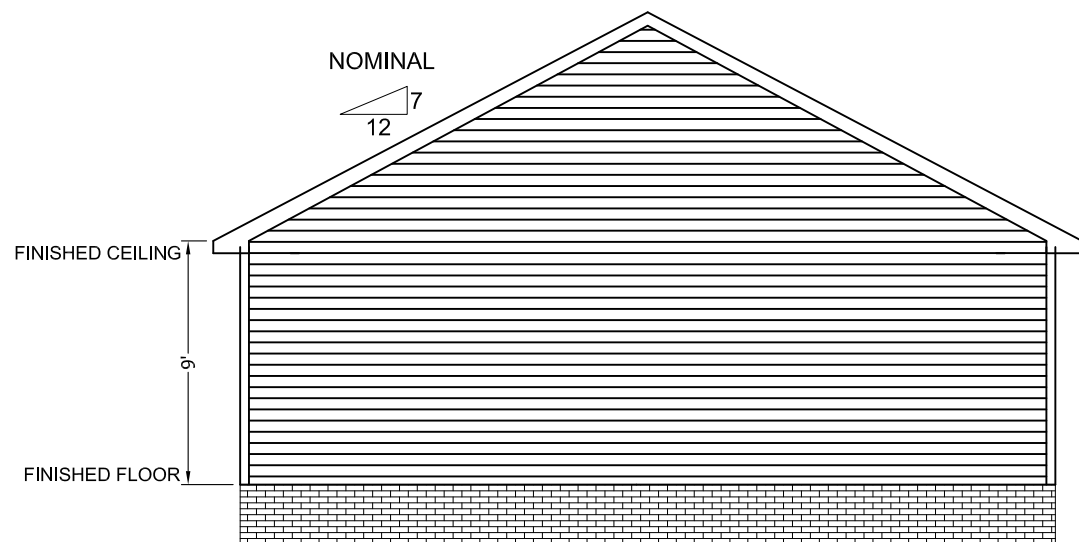
FRONT ELEVATIONS

FOUNDATIONS, STEPS, PORCHES AND RAILS DONE ON SITE BY OTHERS

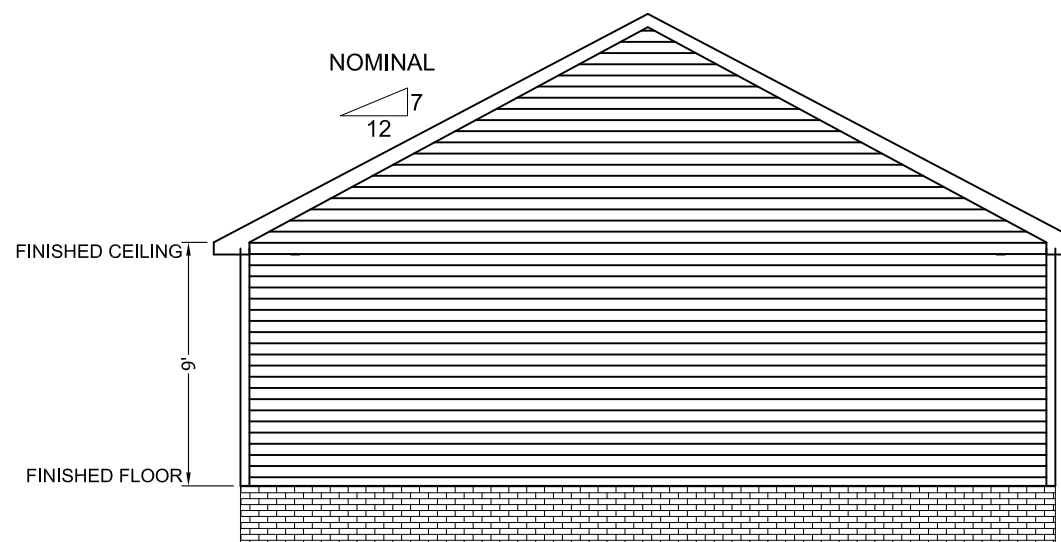


REAR ELEVATIONS

FOUNDATIONS, STEPS, PORCHES AND RAILS DONE ON SITE BY OTHERS



LEFT ELEVATION



RIGHT ELEVATION

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755 W. BIG BEAVER ROAD, SUITE 1000 TROY, MI 48084  
 PHONE: 248-614-8200

BUILDER:

**GIG HOUSING**

CUSTOMER/PROJECT:

**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL

**PFS CORPORATION**

Approval Limited to Factory Built Portion Only

State:

Signature:

Title:

Date:

North Carolina

**PFS** *Jim Busche*

Staff Plan Reviewer

6/27/22

MODIFICATIONS

PROJECT:  
 23-3276-07 062322  
 30'-4" x 76' 4 BD 2 BTH

TITLE:  
**ELEVATION  
 EV-101**

DRAWN BY: Staff  
 DATE: 05-20-21  
 SCALE:  
 23-3276-07 062322 NC NEW

SHEET:

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PHONE: 248-614-8200

BUILDER:

**GIG HOUSING**

CUSTOMER/PROJECT:

**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL

MODIFICATIONS

PROJECT:

**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:

**DRAIN LINE**  
**PL-101**

DRAWN BY: Staff

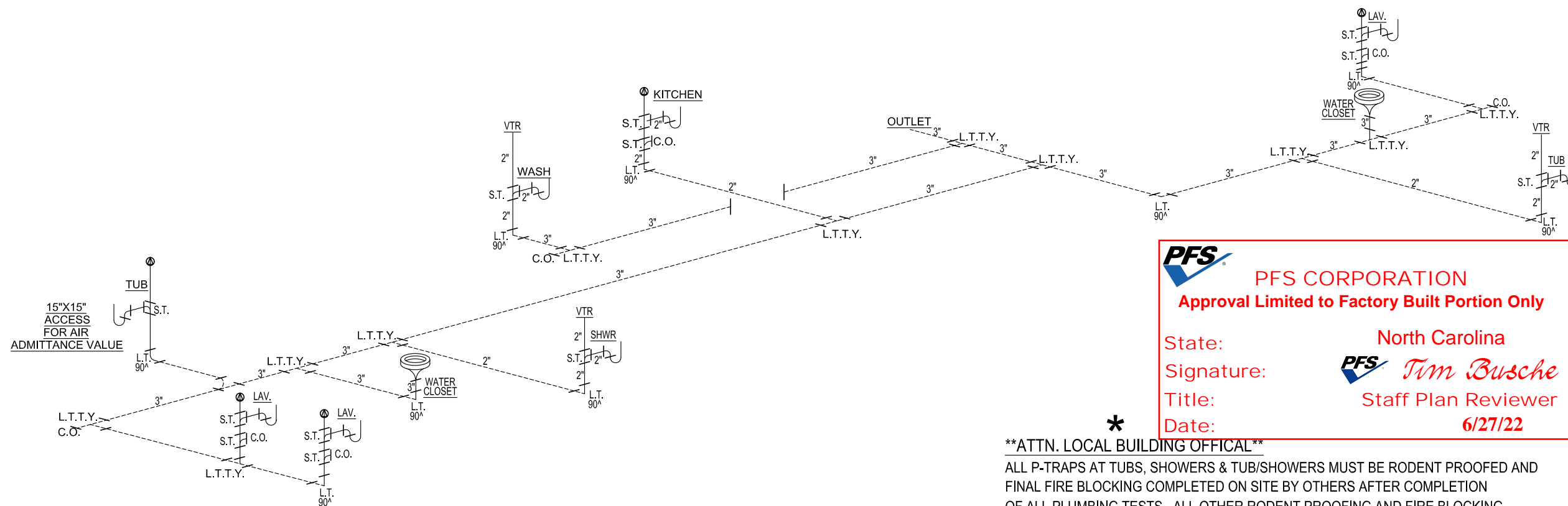
DATE: 05-20-21

SCALE:

23-3276-07 062322 NC NEW

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State: North Carolina  
Signature: *Tim Busche*  
Title: Staff Plan Reviewer  
Date: 6/27/22

**\*\*ATTN. LOCAL BUILDING OFFICIAL\*\***

ALL P-TRAPS AT TUBS, SHOWERS & TUB/SHOWERS MUST BE RODENT PROOFED AND FINAL FIRE BLOCKING COMPLETED ON SITE BY OTHERS AFTER COMPLETION OF ALL PLUMBING TESTS. ALL OTHER RODENT PROOFING AND FIRE BLOCKING AT FLOOR LEVEL DONE AT FACTORY. (REFERENCE IRC R302.11 FOR CORRECT METHODS) SEE PAGE AE-101 IN SETUP MANUAL IN HOME FOR DETAILS (SECTION 5, PG 36 QA MANUAL). SEE Q/A MANUAL FOR APPROVED PLUMBING FIXTURES SECTION 4 PAGE 5

**NOTES:**

- 1-ALL PIPE SIZES ARE 1 1/2" UNLESS OTHERWISE SPECIFIED.
- 2-ONE FIXTURE IN "BATHROOM GROUP" MAY BE ELIMINATED WITHOUT AFFECTING PIPE SIZING.
- 3-ALL PIPES SHOWN IN DASHED LINE ARE FIELD INSTALLED BY OTHERS SUBJECT TO LOCAL JURISDICTION.
- 4-AUTO VENTS TO BE INSTALLED ON SITE AFTER COMPLETE PLUMBING SYSTEM TEST.
- 5-WATER STAND TEST MUST BE DONE ON SITE AFTER COMPLETION OF PLUMBING SYSTEM.
- 6-ALL VENT PIPES MUST TERMINATE MIN. 6" ABOVE ROOF. WITH APPROVED WATER TIGHT FLASHING. (P904.1 & P904.3)
- 7-IF HOME LOCATED IN AREA WHERE 97.5% FOR OUTSIDE DESIGN TEMPERATURE IS 0° OR LESS, EVERY VENT EXTENSION SHALL BE MIN. 3". THIS TO BE DONE ON SITE BY OTHERS. (P904.2)
- 8-RODENT PROOFING AT ALL SHOWERS, TUBS, TUB/SHOWER TO BE COMPLETED ON SITE BY OTHERS AFTER PLUMBING TEST COMPLETED.
- 9-DWV SYSTEM SHALL EITHER ABS or PVC-DWV

- BUILDING DRAIN AND CLEANOUTS ARE DESIGNED AND SITE INSTALLED BY OTHERS, SUBJECT TO LOCAL JURISDICTION APPROVAL.
- TUB ACCESS PROVIDED UNDER HOME UNLESS OTHERWISE NOTED.
- SHOWER STALLS SHALL BE COVERED w/ NON-ABSORBANT MATERIAL TO A HEIGHT OF 72 INCHES ABOVE FINISH FLOOR.
- T&P RELIEF VALVE w/DRAIN TO EXTERIOR AND SHUT-OFF WITH-IN 3' OF WATER SUPPLY AT WATER HEATER

15"X15"  
ACCESS  
FOR AIR  
ADMITTANCE VALUE

PIPE SUPPORT TO BE AS FOLLOWS:

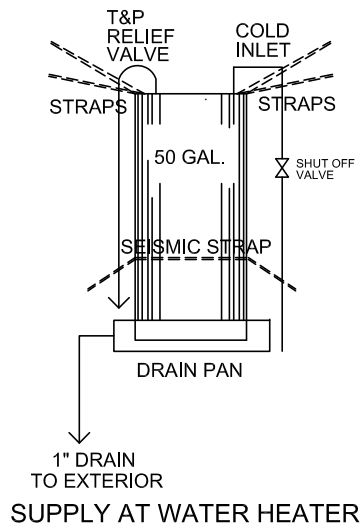
MAX HORIZONTAL SPACING = 4'  
MAX VERTICAL SPACING = 10'

REFERENCE IPC TABLE 308.5

- ⊙ APPROVED AUTOVENT
- VTR VENT THROUGH ROOF
- INSTALLED ON SITE

WATER HEATER SECURED IN PLACE FOR TRANSIT WITH METAL SHIPPING STRAPS FROM WALL TO WALL

STATE WATER HEATER  
MODEL # SC 152 DORTE 3 (ELECTRIC)  
CO1094 IM 50 NHDST 2 (GAS)  
MANF. INFORMATION LOCATED IN Q.A. MANUAL, SECTION 4, PAGE 04.01.01



1. ALL PLUMBING FIXTURES HAVE SEPARATE SHUTOFF VALVES.
2. WATER HEATER SHALL HAVE A SAFETY PAN WITH 1 INCH DRAIN TO EXTERIOR.
3. 3/4" HOT WATER PIPES SHALL BE INSULATED PER N1103.5.3 AND INSULATED WITH R-3 MIN. \*\*THE MAIN WATER PIPES LOCATED UNDER FLOOR SHALL BE INSULATED AND INSPECTED ON-SITE TO VERIFY COMPLIANCE. IF 3/4" HOT WATER LINES ARE INSTALLED IN ATTIC SPACE, THIS IS ALSO TO BE INSULATED TO R-3 MIN AND VERIFIED BY ONSITE INSPECTION
4. SHOWER VALVES MUST LIMIT TEMP TO 120 deg MAX
5. WATER SUPPLY LINES SHALL BE POLYETHYLENE (PEX), CPVC, OR COPPER, WHEN POLYETHYLENE SUPPLY LINES ARE INSTALLED THE MAXIMUM WATER HEATER SETTING IS 180 deg F. THE POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURES LIMITATIONS AND INSTRUCTIONS.
6. BUILDING DRAIN AND CLEANOUTS ARE DESIGNED AND SITE INSTALLED BY OTHERS, SUBJECT TO LOCAL JURISDICTION APPROVAL.
7. TUB ACCESS PROVIDED UNDER HOME UNLESS OTHERWISE NOTED.
8. SHOWER STALLS SHALL BE COVERED w/ NON-ABSORANT MATERIAL TO A HEIGHT OF 72 INCHES ABOVE FINISH FLOOR.
9. T&P RELIEF VALVE w/ DRAIN TO EXTERIOR OR PAN and SHUT-OFF WITHIN 3' OF WATER SUPPLY AT WATER HEATER
10. WHOLE HOUSE SHUT OFF VALVE LOCATED AT WASHER BOX FOR WATER HEATER, SHOULD BE NEAR THE WATER HEATER. IF THE WATER HEATER LOCATION IS NOT "NEAR" THEN SHUT OFF PROVISIONS MUST BE MADE PER P2903.9.2 OR A DOOR SHOULD BE INSTALLED ON WATER HEATER COMPARTMENT
11. FOR SEISMIC D0-D2 CONDITIONS WATER HEATER SHALL HAVE AN ADDITIONAL STRAP AROUND LOWER 1/3 IN ADDITION TO THE UPPER STRAPPING STRAPPING SHALL COMPLY WITH M1307.2 SEE ILLUSTRATION

10. THIS UNIT MUST BE CONNECTED TO PUBLIC WATER SUPPLY AND SEWAGE SYSTEM IF THESE ARE AVAILABLE

11. WATER PIPE DESIGNED FOR MAXIMUM INLET PRESSURE OF 80 PSI. SEE SETUP MANUAL SECTION 6.1

SEE Q/A MANUAL FOR APPROVED PLUMBING FIXTURES SECTION 4 PAGE 5

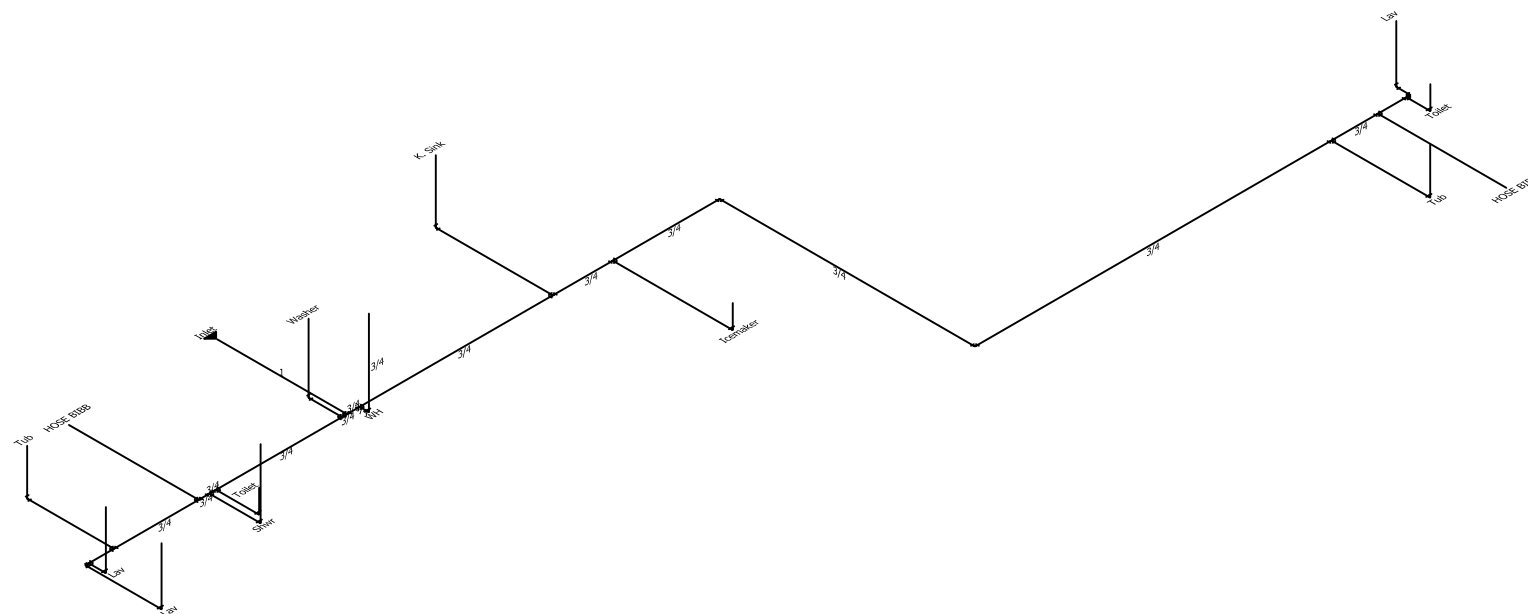
ALL PLUMBING FIXTURES/PIPING SHALL COMPLY WITH 2018 IRC AND IPC.

ALL TUBS AND SHOWER SHALL HAVE TEMPERATURE LIMITING VALVES PER 2018 IRC .

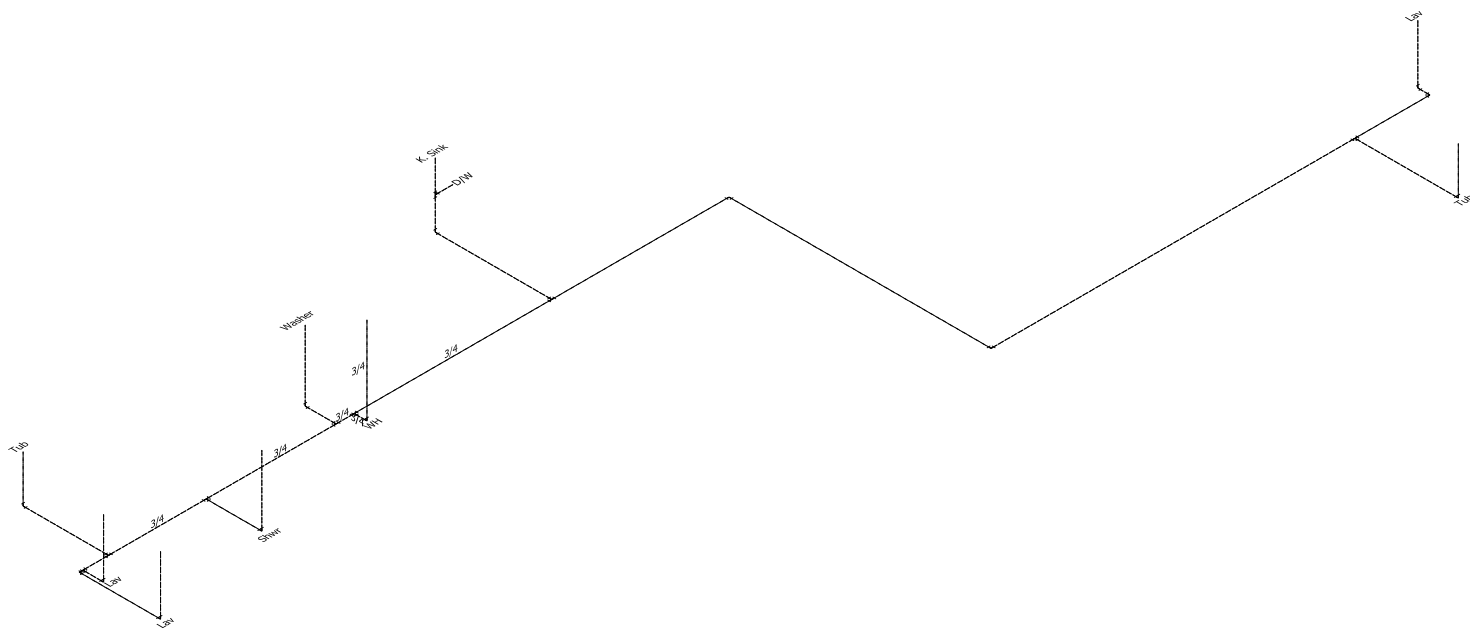
WATER SUPPLY LINES SHALL BE POLYETHYLENE (PEX), WHEN POLYETHYLENE (PEX), SUPPLY LINES ARE INSTALLED THE MAXIMUM WATER HEATER SETTING IS 180 deg F. THE POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURES LIMITATIONS AND INSTRUCTIONS.

WATER HAMMER ARRESTERS SHALL BE INSTALLED AT EACH QUICK CLOSING VALVE ie. ICE MAKERS, DISH WASHERS, AND CLOTHES WASHERS.

## COLD LINE



## HOT LINE



### WATER SUPPLY NOTES:

- ALL SUPPLY LINES TO BE 1/2" UNLESS OTHERWISE NOTED
- ONLY FACTORY INSTALLED PORTION DISPLAYED, REMAINDER OF SYSTEM DESIGNED, PROVIDED AND INSTALLED BY OTHERS ON SITE IN ACCORDANCE WITH PREVAILING CODE
- WATER HEATER EXPANSION TANK WHEN REQUIRED, TO BE PROVIDED AND INSTALLED ONSITE BY OTHERS PER PLUMBING CODE 607.3

### WATER SUPPLY and DISTRIBUTION

PLUMBING FIXTURE OR FIXTURE FITTING	MAX. FLOW RATE OR QUANTITY
LAVATORY FAUCET	2.2 gpm at 60 psi
SHOWER HEAD(including hand held shower spray)	2.5 gpm at 80 psi
SINK FAUCET	2.2 gpm at 60 psi
WATER CLOSET	1.6 gallons per flushing cycle

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PHONE: 248-614-8200

BUILDER:

**GIG HOUSING**

CUSTOMER/PROJECT:

**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL



**PFS CORPORATION**

Approval Limited to Factory Built Portion Only

State:

North Carolina

Signature:

*Tim Busche*

Title:

Staff Plan Reviewer

Date:

6/27/22

MODIFICATIONS

PROJECT:  
**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:  
**FACTORY INSTALLED**  
**WATER LINES**  
**PL-102**

DRAWN BY: Staff

DATE: 05-20-21

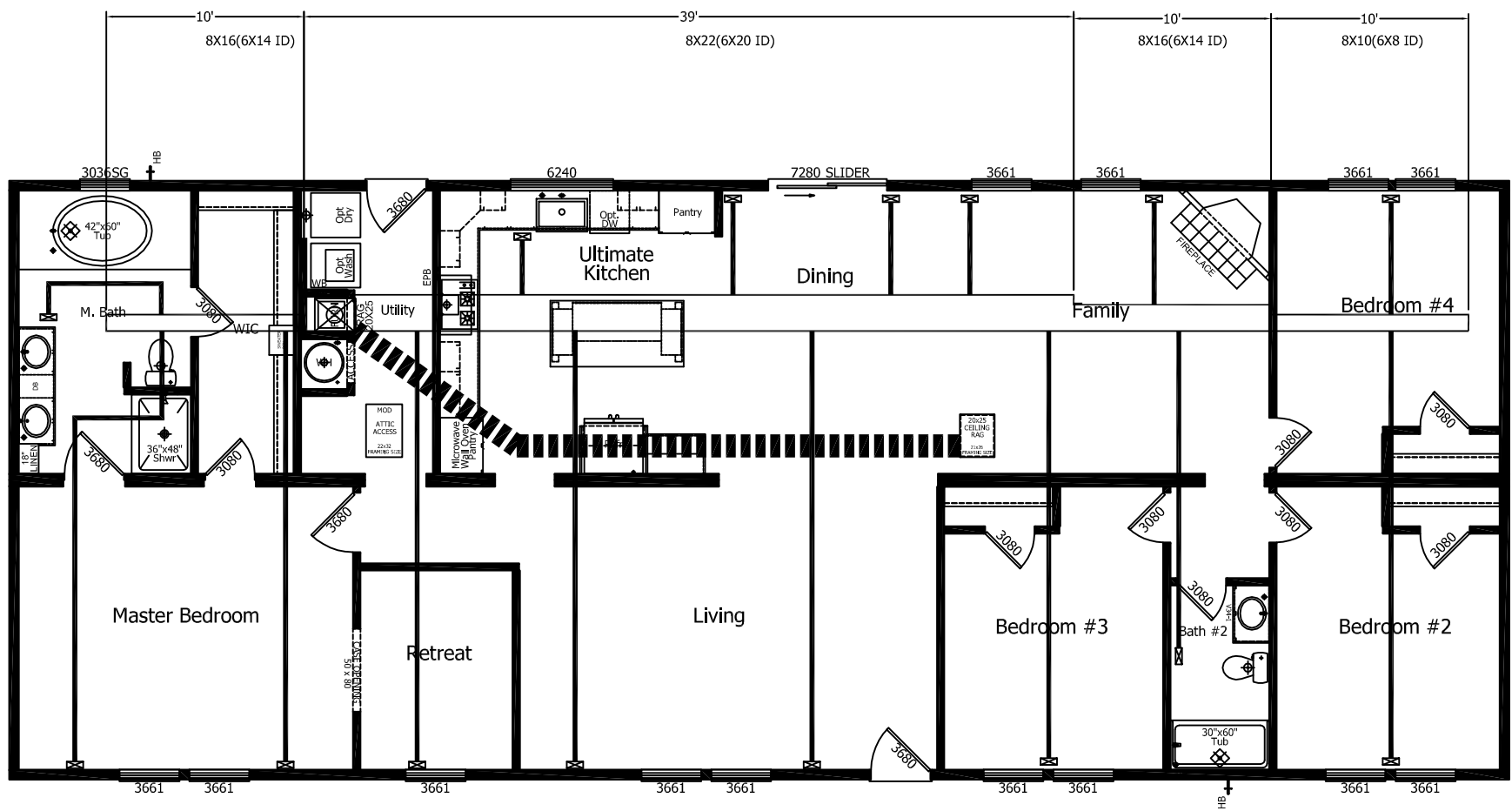
SCALE:

23-3276-07 062322 NC NEW

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4X10 REGISTER  
TYPICAL REGISTER  
REPLACES 2" DIA. IN FLOOR  
IF FOOTING REQUIRED BY OTHERS OR UIC.



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 State: North Carolina  
 Signature: *Tim Busche*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22

<b>THE</b> <b>AMS</b> <b>GROUP</b> <small>ELKHART, IN.</small>	CUSTOMER: CHAMPION HOME BUILDER
	DESCRIPTION: PERIMETER
MODEL: 23-3276-07	SCALE:
DRAWN: JL	DATE: 6/24/22
CAD FILENAME: DS\CHAMPION LILLINGTON	



3933 East Jackson Blvd., Elkhart, IN 46516



**PFS CORPORATION**

**Approval Limited to Factory Built Portion Only**

**Project Information**

For: Champion Home Builders  
 Lillington, NC

State: **North Carolina**  
 Signature: *Tim Busche*  
 Title: **Staff Plan Reviewer**  
 Date: **6/27/22**

**Design Information**

	Htg	Clg	Infiltration	
Outside db (°F)	<b>23</b>	<b>92</b>	Method	Simplified
Inside db (°F)	70	75	Construction quality	Average
Design TD (°F)	47	17	Fireplaces	1 (Average)
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	41	63		

**HEATING EQUIPMENT**

Make	Generic
Trade	
Model	AFUE 96
AHRI ref	
Efficiency	96 AFUE
Heating input	37519 Btuh
Heating output	36018 Btuh
Temperature rise	27 °F
Actual air flow	1210 cfm
Air flow factor	0.039 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	

**COOLING EQUIPMENT**

Make	Generic
Trade	
Cond	SEER 14.0
Coil	
AHRI ref	
Efficiency	12.2 EER, 14 SEER
Sensible cooling	27375 Btuh
Latent cooling	11732 Btuh
Total cooling	39107 Btuh
Actual air flow	1210 cfm
Air flow factor	0.046 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.73

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
BA1	145	3096	1467	120	67
WIC	80	0	0	0	0
UTL	107	0	0	0	0
KIT-D/R-F/R	644	8585	7344	333	335
B4	183	3310	2600	128	119
B1	271	4480	3813	174	174
RETREAT	90	1243	1523	48	70
L/R	360	4354	3755	169	172
B3	175	2169	2689	84	123
BA2	56	673	286	26	13
B2	179	3302	3007	128	137
ALCOVE	28	0	0	0	0

*Bold/italic values have been manually overridden*

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Entire House	2318	31212	26483	1210	1210
Other equip loads		4806	1738		
Equip. @ 0.97 RSM			27375		
Latent cooling			10216		
<b>TOTALS</b>	<b>2318</b>	<b>36018</b>	<b>37591</b>	<b>1210</b>	<b>1210</b>



**PFS CORPORATION**  
**Approval Limited to Factory Built Portion Only**

State: **North Carolina**

Signature:  *Tim Busche*

Title: **Staff Plan Reviewer**

Date: **6/27/22**

*Bold/italic values have been manually overridden*

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.





**Project Summary**  
**Entire House**  
**AMS Of Indiana, Inc.**

Job: 23-3276-07 062322.  
 Date: 6/24/22  
 By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

**PFS CORPORATION**  
 Approval Limited to Factory Built Portion Only

State: **North Carolina**

Signature: *Tim Busche*

Title: **Staff Plan Reviewer**

Date: **6/27/22**

**Project Information**

For: **Champion Home Builders**  
 Lillington, NC

Notes:

**Design Information**

Weather: **Raleigh-Durham Intl, NC, US**

**Winter Design Conditions**

Outside db **23** °F  
 Inside db **70** °F  
 Design TD **47** °F

**Summer Design Conditions**

Outside db **92** °F  
 Inside db **75** °F  
 Design TD **17** °F  
 Daily range **M**  
 Relative humidity **50** %  
 Moisture difference **63** gr/lb

**Heating Summary**

Structure **23687** Btuh  
 Ducts **7525** Btuh  
 Central vent (94 cfm) **4806** Btuh  
   Outside air  
 Humidification **0** Btuh  
 Piping **0** Btuh  
 Equipment load **36018** Btuh

**Sensible Cooling Equipment Load Sizing**

Structure **20299** Btuh  
 Ducts **6185** Btuh  
 Central vent (94 cfm) **1738** Btuh  
   Outside air  
 Blower **0** Btuh  
 Use manufacturer's data **n**  
 Rate/swing multiplier **0.97**  
 Equipment sensible load **27375** Btuh

**Infiltration**

Method **Simplified**  
 Construction quality **Average**  
 Fireplaces **1 (Average)**

**Latent Cooling Equipment Load Sizing**

Structure **3931** Btuh  
 Ducts **2332** Btuh  
 Central vent (94 cfm) **3954** Btuh  
   Outside air  
 Equipment latent load **10216** Btuh

	<b>Heating</b>	<b>Cooling</b>
Area (ft <sup>2</sup> )	2318	2318
Volume (ft <sup>3</sup> )	20862	20862
Air changes/hour	0.38	0.16
Equiv. AVF (cfm)	131	56

**Equipment Total Load (Sen+Lat)** **37591** Btuh  
 Req. total capacity at 0.70 SHR **3.3** ton

**Heating Equipment Summary**

Make **Generic**  
 Trade  
 Model **AFUE 96**  
 AHRI ref

Efficiency **96 AFUE**  
 Heating input **37519** Btuh  
 Heating output **36018** Btuh  
 Temperature rise **27** °F  
 Actual air flow **1210** cfm  
 Air flow factor **0.039** cfm/Btuh  
 Static pressure **0.50** in H2O  
 Space thermostat

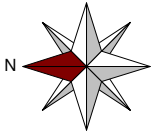
**Cooling Equipment Summary**

Make **Generic**  
 Trade  
 Cond **SEER 14.0**  
 Coil  
 AHRI ref  
 Efficiency **12.2 EER, 14 SEER**  
 Sensible cooling **27375** Btuh  
 Latent cooling **11732** Btuh  
 Total cooling **39107** Btuh  
 Actual air flow **1210** cfm  
 Air flow factor **0.046** cfm/Btuh  
 Static pressure **0.50** in H2O  
 Load sensible heat ratio **0.73**

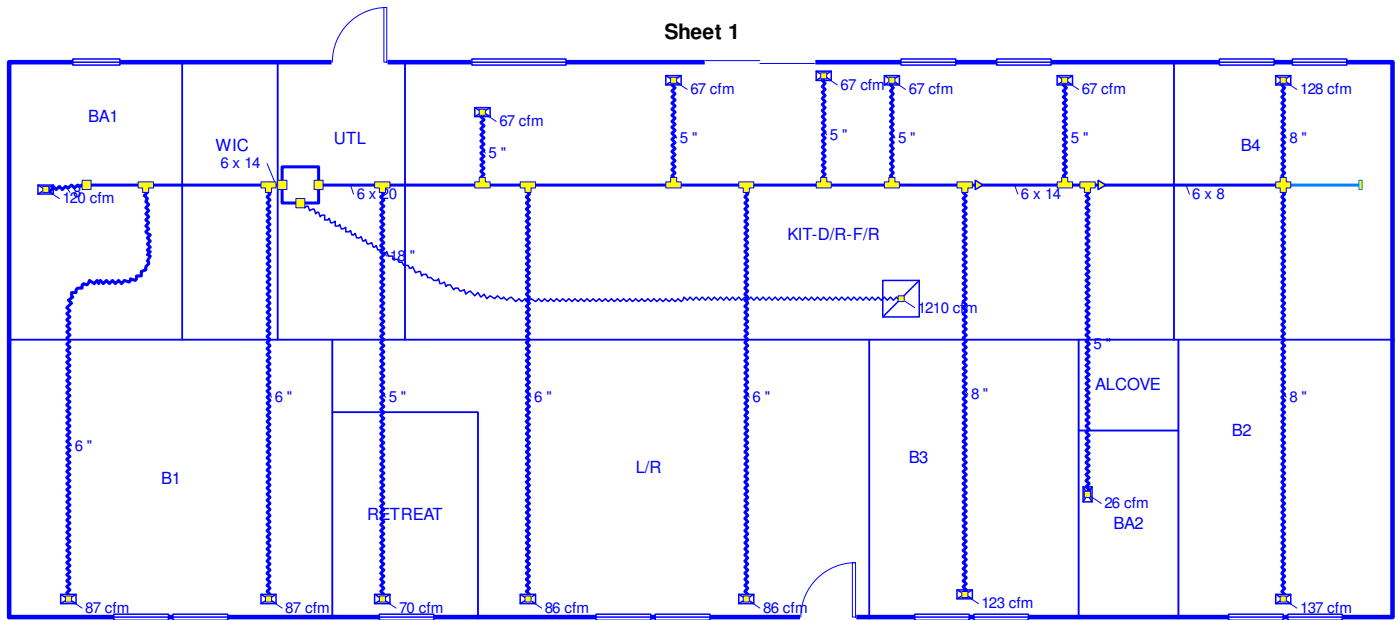
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Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.





Sheet 1



**PFS CORPORATION**

**Approval Limited to Factory Built Portion Only**

State:

North Carolina

Signature:

*Tim Busche*

Title:

Staff Plan Reviewer

Date:

6/27/22

**Job #: 23-3276-07 062322.**  
**Performed by AMS of Indiana, Inc. for:**  
Champion Home Builders  
Lillington, NC

**AMS Of Indiana, Inc.**

3933 East Jackson Blvd.  
Elkhart, IN 46516

Scale: 1 : 127  
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### Project Information

North Carolina

For: Champion Home Builders  
 Lillington, NC

Signature:



*Tim Busche*

Title:

Staff Plan Reviewer

Date:

6/27/22

	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0.16 in H2O	0.16 in H2O
Available static pressure	0.34 in H2O	0.34 in H2O
Supply / return available pressure	0.242 / 0.098 in H2O	0.242 / 0.098 in H2O
Lowest friction rate	0.098 in/100ft	0.098 in/100ft
Actual air flow	1210 cfm	1210 cfm
Total effective length (TEL)	345 ft	

### Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
B1	c	1906	87	0.131	6.0	0x0	VIFx	34.8	150.0	st2
B1-A	c	1906	87	0.140	6.0	0x0	VIFx	23.5	150.0	st2
B2	c	3007	128	0.098	8.0	0x0	VIFx	75.8	170.0	st1B
B3	c	2689	84	0.129	8.0	0x0	VIFx	58.0	130.0	st1
B4	h	3310	128	0.106	8.0	0x0	VIFx	58.8	170.0	st1B
BA1	h	3096	120	0.169	8.0	0x0	VIFx	13.0	130.0	st2
BA2	h	673	26	0.116	5.0	0x0	VIFx	59.3	150.0	st1A
KIT-D/R-F/R	c	1469	67	0.129	5.0	0x0	VIFx	13.0	175.0	st1
KIT-D/R-F/R-A	c	1469	67	0.127	5.0	0x0	VIFx	25.3	165.0	st1
KIT-D/R-F/R-B	c	1469	67	0.132	5.0	0x0	VIFx	33.8	150.0	st1
KIT-D/R-F/R-C	c	1469	67	0.137	5.0	0x0	VIFx	37.3	140.0	st1
KIT-D/R-F/R-D	c	1469	67	0.117	5.0	0x0	VIFx	46.8	160.0	st1A
L/R	c	1877	84	0.116	6.0	0x0	VIFx	34.3	175.0	st1
L/R-A	c	1877	84	0.117	6.0	0x0	VIFx	46.3	160.0	st1
RETREAT	c	1523	48	0.120	5.0	0x0	VIFx	26.3	175.0	st1

### Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	Peak AVF	294	241	0.131	503	<b>9.4</b>	<b>14 x 6</b>	RectFbg	
st1	Peak AVF	916	969	0.098	1162	<b>15.0</b>	<b>20 x 6</b>	RectFbg	
st1A	Peak AVF	349	336	0.098	598	<b>15.0</b>	<b>14 x 6</b>	RectFbg	st1
st1B	Peak AVF	256	256	0.098	769	<b>15.0</b>	<b>8 x 6</b>	RectFbg	st1A

*Bold/italic values have been manually overridden*

## Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	1210	1210	99.5	0.098	685	18.0	0x 0		VIFx	



**PFS CORPORATION**

**Approval Limited to Factory Built Portion Only**

State:

North Carolina

Signature:



*Tim Busche*

Title:

Staff Plan Reviewer

Date:

**6/27/22**

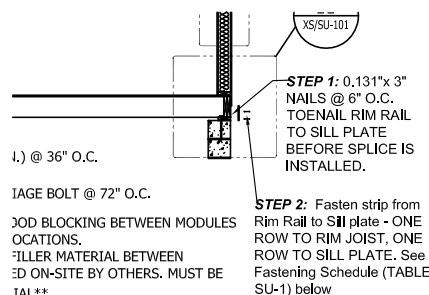


**NOTE:**

- FOUNDATION AND DETAILS SHOWN ARE FOR THIS STRUCTURE ONLY, PROVIDING BASIC DIMENSIONS AND SUPPORT REQUIREMENTS. ACTUAL FOUNDATION DESIGN SHALL BE BY PER IRC CHAPTER 4 OR (NC)Chapter 45(HIGH WIND). IF THE SITE CONDITIONS DO NOT FOLLOW PRESCRIPTIVE IRC SPECIFICATIONS THEN THE FOUNDATION SHOULD BE DONE BY A REGISTERED ARCHITECT OR PROFESSIONAL ENGINEER BASED ON SITE SOIL CONDITIONS AND STATE/LOCAL CODE REQUIREMENTS.
- CHAMPION HOME BUILDERS, INC. ASSUMES NO RESPONSIBILITY FOR FOUNDATION CONSTRUCTION OR DESIGN.
- FOR HEATED BASEMENTS; INSULATION REQUIREMENTS SHALL BE BASED ON ENERGY AND HEAT LOSS CALCULATION PER STATE CODE.
- UNLESS A BASEMENT ACCESS IS PROVIDED FROM THE DWELLING UNIT TO THE BASEMENT THE BUILDER IS RESPONSIBLE FOR PROVIDING ON SITE ACCESS FROM THE BASEMENT OR CRAWL SPACE TO THE EXTERIOR. VENTILATION OF THE BASEMENT/ CRAWL SPACE REQUIREMENTS TO BE DETERMINED, PROVIDED AND INSTALLED ON SITE BY OTHERS IN ACCORDANCE WITH LOCAL AUTHORITY HAVING JURISDICTION
- 1/2" ANCHOR BOLTS W/ 1/4"x3"x3" PLATE WASHERS REQUIRED 6'-0" O.C., MIN. (2) ANCHOR BOLTS REQUIRED PER SILL PLATE SECTION.
- ANCHOR BOLTS TO BE NOT MORE THAN 12" AND NOT LESS THAN 4" FROM CORNERS OF UNIT
- MINIMUM OF (2) ANCHOR BOLTS PER SILL PLATE SECTION. - AN ANCHOR BOLT MUST BE LOCATED 3 1/2" MIN - 12" MAX. FROM EACH END OF EACH SILL PLATE SECTION.
- CONNECTIONS FROM THE MODULAR TO THE FOUNDATION MUST BE PROVIDED ON-SITE FOR LISTED UPLIFT LOADS.
- FOUNDATION SHALL BE DESIGNED TO CONFORM TO IRC CHAPTER 4 OR CHAPTER 45(HIGH WIND) SPECIFICATIONS OR BY A LOCAL DESIGN PROFESSIONAL WITH KNOWLEDGE OF THE LOCAL SOIL CONDITIONS. THIS PLAN IS MEANT ONLY TO COMMUNICATE THE DIMENSIONAL AND LOADING INFORMATION TO THE DESIGN PROFESSIONAL SO THE FOUNDATION IS COORDINATED WITH THE REQUIREMENTS OF THE MODULAR BUILDING.
- CRAWL SPACE ACCESS REQUIREMENTS TO BE DETERMINED, PROVIDED AND INSTALLED BY OTHERS ON SITE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING JURISDICTION

**RECOMMENDED FOUNDATION PARAMETERS:**

- 2500 PSI MIN. CONCRETE
- MIN. SOIL BEARING CAPACITY OF 2,000 PSI
- MORTAR TO BY TYPE M OR S

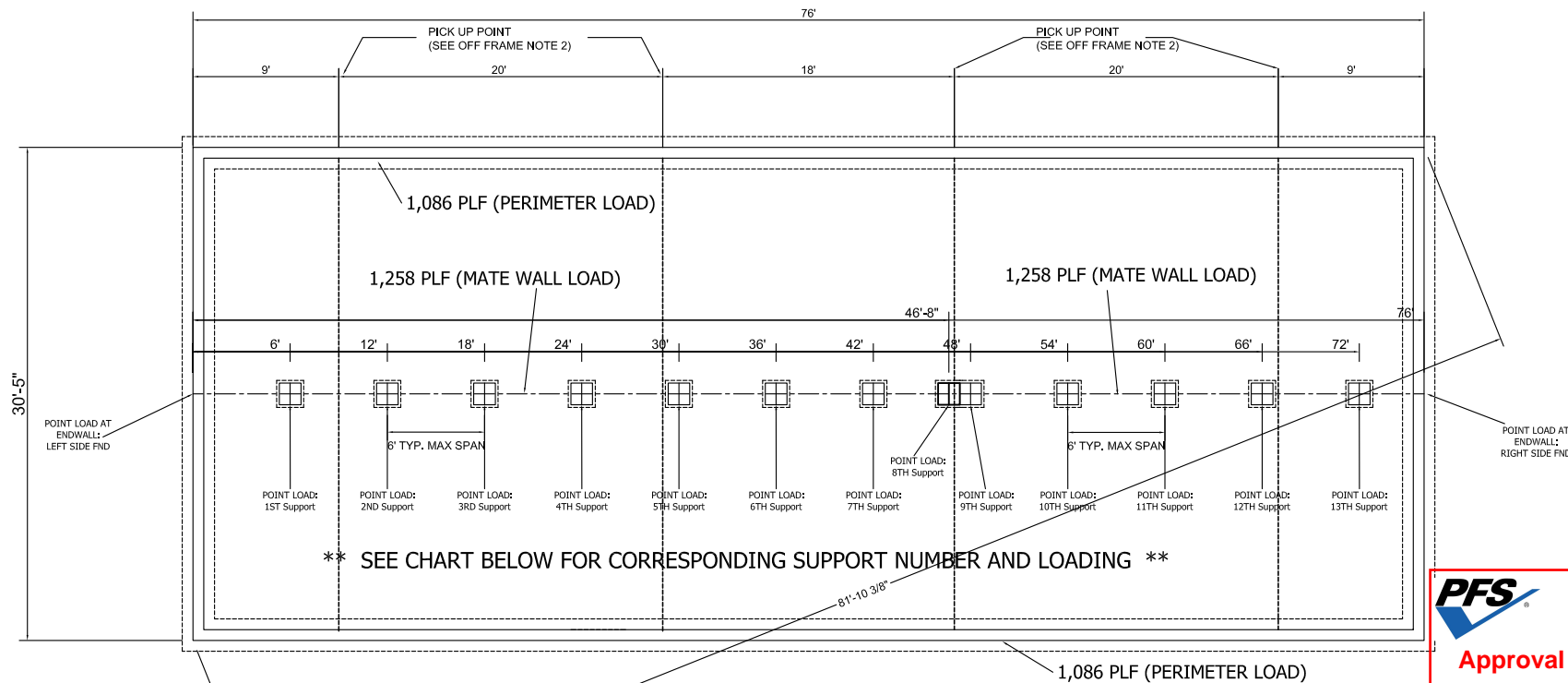


**SILL TO UNIT CONNECTION**

**NOTES:**

- SPLICES IN MATE LINE GIRDERS MUST FALL ON A SUPPORT PIER.
- PIERS OR POSTS TO BE SPACED PER CHART AND LOCATED UNDER OPENING COLUMN SUPPORTS WHEN OPENING WIDTH IS 4' OR GREATER.
- 1" ADDED TO OVERALL WIDTH TO ACCOMMODATE LIFT STRAPS

**OFF-FRAME LIFTING POINTS:**  
 1. If lifting points are more than 32' apart (typical of unit lengths greater than 64'), a third and fourth lifting point is required, third and fourth lifting point is to be between outer lifting points and meet the requirements of note 2.  
 2. pick up point must not be located under a wall opening. If it can't be avoided a temporary wall must be installed



**SEE FD-01.01 & FD-02.04 FOR MINIMUM TYPICAL FOUNDATION DETAILS. FOUNDATION SHOULD BE BUILT AND DESIGNED PER IRC CHAPTER 4 REQUIREMENTS AND SUBJECT TO LOCAL JURISDICTION.**

**\*\*IF THE SITE CONDITIONS DO NOT FOLLOW PRESCRIPTIVE REQUIREMENTS THEN A FOUNDATION SHOULD BE DESIGNED BY AN ARCHITECT OR ENGINEER USING SITE CONDITIONS.\*\***

**\*\*CALCULATIONS BELOW USED FOR POINT LOADS. PIERS ADDED 6' o.c. FOR SPLICE BEARING\*\***

Foundation Loading Calculation - V3.0 (01/20/2021)																
Roof Live Load =	23.1	psf	Ground Snow Load =	30	psf	Box Width =	182	in	Truss Number =	MHT-1	Perimeter Reaction =	1323	lbs - Truss Drawing Max. Grav @ Sidewall			
Cape Floor Load =	20	psf	Truss Dead Load =	15	psf	Sidewall Height =	108	in	Truss Spacing =	24	in o.c.	Mate Line Reaction =	819	lbs - Truss Drawing Max. Grav @ Matewall		
Size Factor, Cf =	1.10		Floor Live Load =	40	psf	Mate Wall Height =	108	in	Truss Type =	Cape	Live Load Truss Reaction =	608	lbs			
Repetitive Factor, Cr =	1.00		Floor Dead Load =	10	psf							Truss Pitch =	7	:12	Max. Span, No Marriage Wall Openings	
			Wall Dead Load =	5	psf							Plies =	2		7'-3"	
			Perimeter Foundation Loading =			1,086			plf			Material =	SPF#2		8'-6"	
			Mate Wall Foundation Loading w/ Roof =			1257.83			plf			Material Size =	9.25			
			Roof Load Only (Openings) =			409.50			plf			Fb =	875	psi		
			Floor Load Only (Openings) =			758.33			plf			Fv =	135	psi		
												E =	1,400,000	ksi		
*Start From Left of Home and work your way Right to the end. (Distance is always to right)																
			Full Length LVL Rim Joist =			No			Rim Joist Splices occur over a Pier =			Yes				
Roof Load =	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Opening =	No	No	No	No	No	No	No	Start	In	End	No	No	No	No	No	No
Opening Size (Pier/Pier), ft. =																11.08
Dist. to Next Support, ft. =	6.00	6.00	6.00	6.00	6.00	6.00	6.00	4.67	1.33	6.00	6.00	6.00	6.00	4.00	0.00	
Load, lbs =	3,774	7,547	7,547	7,547	7,547	7,547	8,317	4,046	4,876	4,610	7,547	7,547	7,547	6,289	2,516	

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**North Carolina**  
**Staff Plan Reviewer**

**CHAMPION**  
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**CHAMPION**  
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BUILDER:  
**GIG HOUSING**

CUSTOMER/PROJECT:  
**CARROLL**

ENGINEER'S / ARCHITECT'S SEAL

APPROVERS SEAL  
**North Carolina**  
**Staff Plan Reviewer**

MODIFICATIONS

PROJECT:  
**23-3276-07 062322**  
**30'-4" x 76' 4 BD 2 BTH**

TITLE:  
**FOUNDATION LOADING PF-101**

DRAWN BY: Staff  
 DATE: 05-20-21  
 SCALE:  
 23-3276-07 062322 NC NEW

SHEET:

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**GENERAL NOTES: (PER IRC 2015)**

- ALL DESIGN NOTES AND DETAILS IN THIS SECTION ARE AN IRC BASED SET OF GUIDELINES FOR PROPER FOUNDATION CONSTRUCTION. THE ACTUAL FOUNDATION IS DEPENDENT UPON UNIQUE SITE CONDITIONS WHICH MAY REQUIRE DESIGN BY A PROFESSIONAL ENGINEER AND APPROVAL FROM THE LOCAL AUTHORITY HAVING JURISDICTION.
- FOUNDATION DESIGN IS BASED ON AN ASSUMED NON-EXPANSIVE SOIL WITH CAPACITY OF 2000 PSF. SOIL TYPE AND BEARING CAPACITY VARIATION MAY SIGNIFICANTLY ALTER DESIGN REQUIREMENTS. CONSULT LOCAL AHJ OR ENGINEERING PROFESSIONAL FOR ADDITIONAL INFORMATION.
- ALL ASPECTS OF FOUNDATION CONSTRUCTION ARE TO BE PERFORMED ON SITE BY OTHERS, AND IS SUBJECT TO LOCAL BUILDING CODE REQUIREMENTS AND APPROVAL.
- VERIFY ALL DIMENSIONS AND SUPPORT LOCATIONS OF THE HOME PRIOR TO CONSTRUCTION.
- FOOTINGS SHALL BE CENTERED UNDER ALL SUPPORTS ALONG THE MARRIAGE WALL.
- MINIMUM FOOTING DEPTH TO BE 12" OR BELOW SITE FROST LINE PER LOCAL CODE REQUIREMENTS.
- CONCRETE FOUNDATIONS SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS WITH 5 TO 7% AIR ENTRAINMENT BY VOLUME IN MODERATE TO SEVERE WEATHER AREAS. PROVIDE MINIMUM 3" CONCRETE COVER FOR ALL REINFORCEMENT STEEL UNLESS OTHERWISE DIMENSIONED.
- FOUNDATION DESIGN DOES NOT INCLUDE PROVISIONS FOR FLOODING. CONSULT WITH LOCAL AHJ OR ENGINEERING PROFESSIONAL FOR SITE SPECIFIC PROVISIONS ON FLOOD RESISTANT CONSTRUCTION.
- FINISH GRADE TO BE A MINIMUM 8" BELOW TOP OF FOUNDATION WALL.
- MASONRY WEEP HOLES, FLASHING, AND TIE STRAPS ARE SUBJECT TO LOCAL CODE REQUIREMENTS.
- ALL FOUNDATION WALLS LOCATED IN A HIGH WATER TABLE SHALL BE WATERPROOFED PER IRC REQUIREMENTS. ALL OTHER FOUNDATIONS SHALL BE DAMP PROOFED PER IRC REQUIREMENTS.
- BASEMENTS AND EVERY SLEEPING ROOM IN BASEMENTS SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY ESCAPE AND RESCUE OPENING PER IRC R310.
- TYPE "M" OR "S" MORTAR SHALL BE USED IN ALL MASONRY.

**CRAWLSPACE:**

- PROVIDE CRAWL SPACE VENTILATION EQUAL TO 1/150 OF THE ACTUAL ENCLOSED CRAWL SPACE AREA. (144 SQ. IN. / 150 SQ. FT.)
- PROVIDE POSITIVE UNDER DRAINAGE, SUGGEST MINIMUM 4" PEA GRAVEL WITH 6 MIL POLYETHYLENE VAPOR BARRIER.
- 18"x24" CRAWL SPACE ACCESS TO BE PROVIDED (MINIMUM)
- CRAWL SPACE CLEARANCE TO BE 18" MINIMUM BELOW BOTTOM OF FLOOR JOISTS TO GRADE.
- PROVIDE GFCI RECEPTACLE AND SWITCHED LIGHT FIXTURE AT CRAWLSPACE ACCESS.
- WHERE INTERIOR GROUND LEVEL IS BELOW OUTSIDE GRADE, MEASURES SHALL BE TAKEN TO ASSURE POSITIVE DRAINAGE.
- GROUTED PIERS MAY BE DRY STACKED. UN-GROUTED PIERS MAY BE DRY STACKED AND SURFACE BONDED WITH CEMENT IN ACCORDANCE TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- UNBALANCED BACKFILL SHALL NOT EXCEED 4'-0" ON ALL CRAWLSPACES.

**BASEMENT:**

- EXTERIOR FOOTINGS SHALL EXTEND BELOW THE LOCAL FROST LINE OR SHALL BE PLACED A MINIMUM OF 12" BELOW FINISHED GRADE.
- THE FINISHED GRADE SHALL PROVIDE A MINIMUM SLOPE OF ONE-HALF UNIT VERTICAL IN 12 UNITS HORIZONTAL, FOR A MINIMUM OF 10 FEET FROM THE HOME.
- FOUNDATION INSULATION, WHEN INSTALLED, SHALL BE PERFORMED ON SITE BY OTHERS AS REQUIRED BY LOCAL BUILDING CODES.
- DRAINAGE AND WATERPROOFING AS REQUIRED BY SITE CONDITIONS, SHALL BE INSTALLED ON SITE BY OTHERS PER IRC SPECIFICATIONS.
- THE REINFORCEMENT LOCATED AT TOP OF FOUNDATION WALL FOR ON-FRAME DESIGNS PROVIDES LATERAL RESISTANCE FOR SOIL PRESSURE PER IRC 2015.

**DESIGN CRITERIA: (1 & 1/2 STORY)**

ROOF LIVE LOAD : 90 PSF (MAX.)  
 FLOOR LIVE LOAD: 40 PSF  
 TOTAL DEAD LOAD: 25 PSF  
 MAXIMUM EAVE LENGTH: 18"  
 MAXIMUM SIDE WALL HEIGHT: 108"  
 ROOF PITCH: 3:12 TO 12:12  
 WIND LOAD: 180 MPH, EXP. D\*  
 MINIMUM SOIL BEARING CAPACITY: 2000 PSF  
 SEISMIC CATEGORY: A, B, & C

\* SEE SW SECTION FOR WIND LOADS OVER 140 MPH, EXP. C (RANCH ONLY)

**DESIGN CRITERIA: (2-STORY)**

ROOF LIVE LOAD : 90 PSF (MAX.)  
 FLOOR LIVE LOAD: 40 PSF  
 TOTAL DEAD LOAD: 50 PSF  
 MAXIMUM EAVE LENGTH: 12"  
 MAXIMUM SIDE WALL HEIGHT (LOWER LEVEL): 108"  
 MAXIMUM SIDE WALL HEIGHT (UPPER LEVEL): 108"  
 ROOF PITCH: 3:12 TO 7:12  
 WIND LOAD: 140 MPH, EXP. C\*  
 MINIMUM SOIL BEARING CAPACITY: 2000 PSF  
 IRC SEISMIC CATEGORY: A, B, & C

**TABLE 1  
UN-REINFORCED FOOTING SIZE CHART**

FOOTING SIZE (IN)	MAX. LOAD (KIPS)
22x22x6	6.72
24x24x8	8.00
26x26x10	9.39
28x28x12	10.8
30x30x14	12.5
32x32x16	14.2
34x34x18	16.0

**NOTES:**

- CHART BASED ON SOIL CAPACITY OF 2000 PSF. GREATER SOIL CAPACITY MAY SIGNIFICANTLY REDUCE SPREAD FOOTING DIMENSION/ REINFORCEMENT REQUIREMENTS. CONSULT LOCAL AHJ OR ENGINEERING PROFESSIONAL FOR VERIFICATION.
- PIERS OUTSIDE THIS SCOPE MUST BE DESIGNED BY A PROFESSIONAL ENGINEER, PER LOCAL CODES AND SOIL BEARING CAPACITY GIVEN BY LAHJ.

MAXIMUM SPACING OF PIERS IN MATE WALL WITH NO OPENINGS. (RANCH ONLY)																					
ROOF LIVE LOAD	6" FOOTING DEPTH			8" FOOTING DEPTH			10" FOOTING DEPTH			12" FOOTING DEPTH			14" FOOTING DEPTH			16" FOOTING DEPTH			18" FOOTING DEPTH		
	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	
20	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"
30	6'-9"	5'-11"	5'-2"	8'-0"	7'-0"	6'-2"	9'-5"	8'-3"	7'-3"	10'-11"	9'-7"	8'-5"	12'-7"	11'-0"	9'-8"	14'-4"	12'-6"	11'-0"	16'-2"	14'-2"	12'-5"
40	6'-0"	5'-3"	4'-7"	7'-2"	6'-3"	5'-6"	8'-5"	7'-4"	6'-6"	9'-9"	8'-7"	7'-6"	11'-3"	9'-10"	8'-8"	12'-9"	11'-2"	9'-10"	14'-5"	12'-8"	11'-1"
60	5'-5"	4'-9"	4'-2"	6'-6"	5'-8"	5'-0"	7'-7"	6'-8"	5'-10"	8'-10"	7'-9"	6'-10"	10'-2"	8'-11"	7'-10"	11'-7"	10'-1"	8'-11"	13'-1"	11'-5"	10'-0"
90	4'-7"	4'-0"	--	5'-5"	4'-9"	4'-2"	6'-5"	5'-7"	4'-11"	7'-5"	6'-6"	5'-8"	8'-6"	7'-6"	6'-7"	9'-9"	8'-6"	7'-6"	11'-0"	9'-7"	8'-5"

**NOTES:**

- OPENINGS IN MATE WALL 48" OR LESS MAY BE IGNORED FOR PIER SPACING.
- USE CHART AT TOP OF THIS SHEET FOR FOOTING OVERALL SIZE.
- PIERS OUTSIDE THIS SCOPE MUST BE DESIGNED BY A PROFESSIONAL ENGINEER, PER LOCAL CODES AND SOIL BEARING CAPACITY GIVEN BY LAHJ.

MAXIMUM OPENING SIZE FOR MATE WALL BASED ON PIER CAPACITY (RANCH ONLY)																					
ROOF LIVE LOAD	6" FOOTING DEPTH			8" FOOTING DEPTH			10" FOOTING DEPTH			12" FOOTING DEPTH			14" FOOTING DEPTH			16" FOOTING DEPTH			18" FOOTING DEPTH		
	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	MODULE WIDTH	
20	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"	140"	160"	182"
30	9'-7"	8'-4"	7'-4"	11'-5"	10'-0"	8'-9"	13'-4"	11'-8"	10'-3"	15'-6"	13'-7"	11'-11"	17'-10"	15'-7"	13'-8"	20'-3"	17'-9"	15'-7"	22'-11"	20'-0"	17'-7"
40	8'-2"	7'-2"	6'-3"	9'-9"	8'-6"	7'-6"	11'-5"	10'-0"	8'-10"	13'-4"	11'-7"	10'-3"	15'-3"	13'-4"	11'-9"	17'-4"	15'-2"	13'-4"	19'-7"	17'-2"	15'-1"
60	7'-2"	6'-3"	5'-6"	8'-6"	7'-5"	6'-7"	10'-0"	8'-9"	7'-8"	11'-8"	10'-2"	8'-11"	13'-4"	11'-8"	10'-3"	15'-2"	13'-3"	11'-8"	17'-2"	15'-0"	13'-2"
90	5'-9"	5'-0"	--	6'-10"	6'-0"	5'-3"	8'-0"	7'-0"	6'-2"	9'-4"	8'-1"	7'-2"	10'-8"	9'-4"	8'-2"	12'-2"	10'-7"	9'-4"	13'-9"	12'-0"	10'-7"

**NOTES:**

- CHART ABOVE ASSUMES (1) PIER SUPPORT AT MID-SPAN OF OPENING (OVER 48" IN WIDTH) FOR FLOOR LOAD SUPPORT ONLY.
- OPENINGS IN MATE WALL 48" OR LESS MAY BE IGNORED FOR PIER SPACING.
- USE CHART AT TOP OF THIS SHEET FOR OVERALL FOOTING SIZE.
- PIERS OUTSIDE THIS SCOPE MUST BE DESIGNED BY A PROFESSIONAL ENGINEER, PER LOCAL CODES AND SOIL BEARING CAPACITY GIVEN BY LAHJ.

**PFS CORPORATION**  
 Approval Limited to Factory Built Portion Only

State: North Carolina  
 Signature: *Tim Busche*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22

**CHAMPION**  
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 PHONE: 248-614-8200

ENGINEER'S / ARCHITECT'S SEAL

APPROVER'S SEAL

**PFS Corporation**  
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 11/5/19  
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MODIFICATIONS

TITLE: **GENERAL NOTES**  
 FOUNDATION

MODEL:

DATE: 09/20/2019 SCALE:  
 DRAWN BY: CORP. CHECKED BY:  
 BLDG CODE: IRC 2015  
 CALCS: MD-100

FILENAME: 8-FOUNDATION SECTION 023  
 SHEET NO.: **FD-01.01**

PAGE: 1 OF 1

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2 STORY DESIGN LOADING (PLF)

MAXIMUM HOME WIDTH	ROOF LIVE LOAD									
	20 PSF		30 PSF		40 PSF		60 PSF		90 PSF	
	CENTER BEAM	PERIMETER WALL	CENTER BEAM	PERIMETER WALL	CENTER BEAM	PERIMETER WALL	CENTER BEAM	PERIMETER WALL	CENTER BEAM	PERIMETER WALL
24' WIDE	1,913	1,009	2,030	1,083	2,147	1,156	2,380	1,303	2,730	1,523
28' WIDE	2,147	1,126	2,280	1,208	2,413	1,289	2,680	1,453	3,080	1,698
32' WIDE	2,403	1,231	2,555	1,315	2,707	1,400	3,010	1,568	3,465	1,820

A. FOUNDATION LOADING PROVIDED FOR ON SITE FOUNDATION EVALUATION AS REQUIRED BY LAHJ PER SPECIFIC SITE CONDITIONS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER.

2 STORY PIER SPACING & MAXIMUM LOADING CHART

- NOTES:**
- ALL MULTIPLE MEMBER CENTER BEAM CONFIGURATIONS SHALL BE MECHANICALLY FASTENED TOGETHER WITH, RIM TO RIM REQUIREMENTS ON SHEET FA-01.02
  - ALL CENTER BEAM END (BUTT) JOINTS & MARRIAGE WALL OPENING COLUMNS SHALL BE LOCATED DIRECTLY ABOVE SUPPORT LOCATIONS.
  - MAXIMUM MARRIAGE WALL TRIBUTARY SPANS:  
(MAX. CLEAR SPANS IN OPENINGS PER FD-02.03)  
  
 -FOR ALIGNED OPENINGS IN 1ST AND 2ND LEVELS:  
 FOR 20, 30 & 40 PSF ROOF LL = 24 FT.  
 FOR 60 & 90 PSF ROOF LL = 16 FT  
  
 -FOR UNALIGNED OPENINGS IN 1ST AND 2ND LEVELS:  
 AT 2ND LEVEL:  
 FOR 20, 30 & 40 PSF ROOF LL = 16 FT.  
 FOR 60 & 90 PSF ROOF LL = 12 FT.  
 AT 1ST LEVEL:  
 FOR 20, 30 & 40 PSF ROOF LL = 24 FT.  
 FOR 60 & 90 PSF ROOF LL = 16 FT.
  - USE MAX PIER LOADING TO DETERMINE SPREAD FOOTING SIZE ON SHEET FD-01.01

ROOF LIVE LOAD (PSF)	NUMBER OF SPF #2, 2x10'S	MAXIMUM FLOOR WIDTH											
		140"		160"		182"		140"		160"		182"	
		WITH NO MARRIAGE WALL OPENINGS	AT MARRIAGE WALL OPENINGS (SEE NOTE 3)	WITH NO MARRIAGE WALL OPENINGS	AT MARRIAGE WALL OPENINGS (SEE NOTE 3)	WITH NO MARRIAGE WALL OPENINGS	AT MARRIAGE WALL OPENINGS (SEE NOTE 3)	WITH NO MARRIAGE WALL OPENINGS	AT MARRIAGE WALL OPENINGS (SEE NOTE 3)	WITH NO MARRIAGE WALL OPENINGS	AT MARRIAGE WALL OPENINGS (SEE NOTE 3)	WITH NO MARRIAGE WALL OPENINGS	AT MARRIAGE WALL OPENINGS (SEE NOTE 3)
		MAX. CLEAR SPAN	MAX. PIER LOAD (KIPS)	MAX. PIER LOAD (KIPS)	MAX. CLEAR SPAN	MAX. PIER LOAD (KIPS)	MAX. PIER LOAD (KIPS)	MAX. CLEAR SPAN	MAX. PIER LOAD (KIPS)	MAX. PIER LOAD (KIPS)	MAX. CLEAR SPAN	MAX. PIER LOAD (KIPS)	MAX. PIER LOAD (KIPS)
20	2	5'-4"	11.3	23.1	5'-0"	12.0	25.8	4'-9"	12.6	28.7			
	3	7'-0"	14.8	24.7	6'-7"	15.7	27.5	6'-3"	16.6	30.5			
30	2	5'-2"	11.6	25.3	4'-11"	12.3	28.3	4'-7"	13.0	31.6			
	3	6'-10"	15.2	26.8	6'-5"	16.2	29.9	6'-1"	17.1	33.3			
40	2	5'-0"	12.0	27.5	4'-9"	12.7	30.8	4'-6"	13.4	34.5			
	3	6'-7"	15.7	29.0	6'-3"	16.6	32.4	5'-11"	17.6	36.1			
60	2	4'-9"	12.6	31.9	4'-6"	13.4	35.9	4'-3"	14.2	40.2			
	3	6'-3"	16.5	33.3	5'-11"	17.5	37.4	5'-7"	18.6	41.8			
90	2	4'-5"	13.5	38.6	4'-2"	14.3	43.6	--	--	--			
	3	5'-10"	17.7	39.9	5'-6"	18.8	45.0	5'-2"	19.9	50.5			

CAPE & 2 STORY STEEL CENTER BEAMS

MAXIMUM WIDTH OF HOME (PER SECTION)	DESIGN ROOF LIVE LOAD				
	20 PSF	30 PSF	40 PSF	60 PSF	90 PSF
140"	W10x27 / W12x26	W10x30 / W12x26	W10x30 / W12x26	W10x30 / W12x26	W10x33 / W12x30
160"	W10x30 / W12x26	W10x30 / W12x26	W12x30	W10x30 / W12x26	W12x35 / W14x30
182"	W10x33 / W12x26	W12x30	W12x35 / W14x30	W12x30	W12x35 / W14x34

CENTER BEAM FOUNDATION COLUMN LOADS (KIPS) / MAX. COLUMN SPACING (FT)  
(SPACING BASED ON TWO CONTINUOUS SPANS MINIMUM)

MAXIMUM WIDTH OF HOME (PER SECTION)	DESIGN ROOF LIVE LOAD				
	20 PSF	30 PSF	40 PSF	60 PSF	90 PSF
140"	35.5K / 12'-0"	38.0K / 12'-0"	41.0K / 12'-0"	44.5K / 10'-0"	52.5K / 10'-0"
160"	40.0K / 12'-0"	43.0K / 12'-0"	46.5K / 12'-0"	50.0K / 10'-0"	60.0K / 10'-0"
182"	45.0K / 12'-0"	48.5K / 12'-0"	52.5K / 12'-0"	56.5K / 10'-0"	67.5K / 10'-0"

GENERAL NOTES:

- MAXIMUM MARRIAGE WALL TRIBUTARY SPANS FOR ALL OPENINGS IN 1ST & 2ND LEVELS ANY STACKED ARRANGEMENT FOR ALL ROOF LOADS:  
2ND FLOOR OPENING: 16 FT.  
1ST FLOOR OPENING: 24 FT.
- RECOMMEND 4" DEEP BEAM POCKETS FOR 3" MINIMUM BEAM BEARING AT ALL FOUNDATION SUPPORT LOCATIONS.
- USE LOADING INFORMATION ON THIS SHEET TO DETERMINE SPREAD FOOTING REQUIREMENTS PER FOUNDATION CHART ON FD-01.01

**PFS CORPORATION**  
Approval Limited to Factory Built Portion Only

State: North Carolina  
Signature: *Tim Busche*  
Title: Staff Plan Reviewer  
Date: 6/27/22

ENGINEER'S / ARCHITECT'S SEAL

APPROVER'S SEAL

PFS Corporation  
Northeast Region  
**APPROVED**  
H Raup - 3  
11/5/19  
Approval limited to  
Factory Built Portion

MODIFICATIONS

TITLE:  
**CAPE & 2 STORY  
MATELINE DESIGN**  
OFF-FRAME FOUNDATION

MODEL:

DATE: 09/20/2019 SCALE:  
DRAWN BY: CORP. CHECKED BY:  
BLDG CODE: IRC 2015  
CALCS: MD-110

FILENAME: 8-FOUNDATION SECTION 023  
SHEET NO.:

**FD-02.04**

PAGE: 1 OF 1

PROPRIETARY AND CONFIDENTIAL  
THESE DRAWINGS AND SPECIFICATIONS ARE ORIGINAL,  
PROPRIETARY AND CONFIDENTIAL MATERIALS OF  
CHAMPION HOME BUILDERS, INC.  
COPYRIGHT © 2018 BY CHAMPION

Job MH83077R2	Truss MHT-1	Truss Type FAN	Qty 100	Ply 1	Job Reference (optional) 8.320 s Feb 24 2020 MiTek Industries, Inc. Fri Mar 6 10:27:18 2020 Page 1 ID:Kltw9lRcFn1b8SOJbHe3yVAI4-sfjGhQikPbX6VdsbeebT8LLDLGUy0PsezVNIkHdzgEN	140520729
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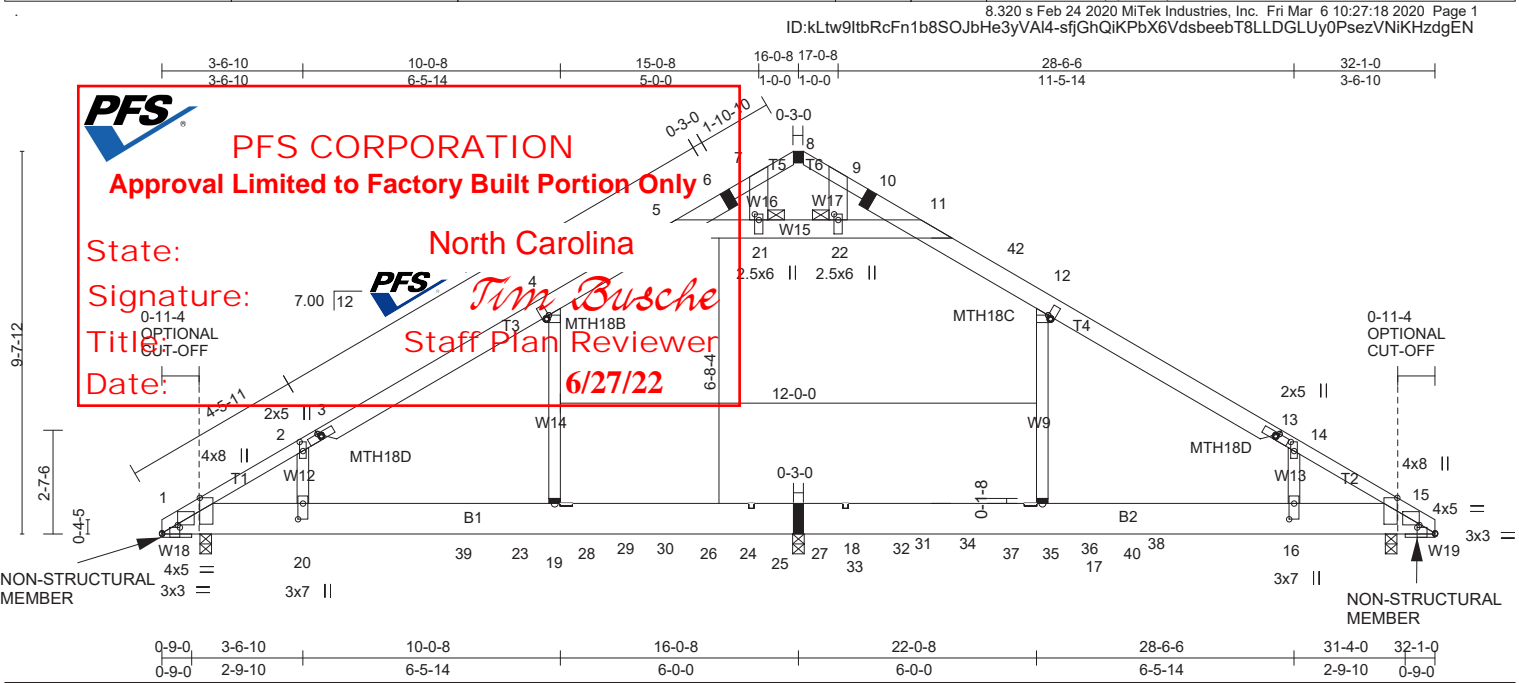


Plate Offsets (X,Y) -- [1:Edge,0-11-7], [1:0-5-6,0-2-0], [1:0-4-12,0-2-8], [2:0-2-12,0-1-0], [3:0-0-11,0-1-2], [4:0-0-11,0-1-2], [12:0-0-11,0-1-2], [13:0-0-11,0-1-2], [14:0-2-12,0-1-0], [15:0-5-6,0-2-0], [15:Edge,0-11-7], [15:0-4-12,0-2-8], [16:0-4-12,0-1-8], [20:0-4-12,0-1-8], [21:0-1-12,0-1-4], [22:0-1-12,0-1-4]

LOADING (psf)	SPACING-	CSI.	DEFL.	PLATES	GRIP
TCLL 23.1 (Ground Snow=30.0)	Plate Grip DOL 1.15	TC 0.68	in (loc) l/defl L/d	MT20	197/144
TCDL 7.0	Lumber DOL 1.15	BC 0.97	Vert(LL) 0.55 19-20 >348 240	MT18HS	197/144
BCLL 0.0 *	Rep Stress Incr YES	WB 0.62	Vert(CT) -0.58 19-20 >326 180		
BCDL 7.0	Code IBC2018/TPI2014	Matrix-R	Horz(CT) 0.02 15 n/a n/a		
			Attic -0.40 17-18 368 360	Weight: 246 lb	FT = 20%

**LUMBER-**  
TOP CHORD 2x4 SP No.2 or 2x4 SPF No.2 \*Except\*  
T3,T4: 2x6 SP No.2 or 2x6 SPF No.2  
BOT CHORD 2x10 SP No.1  
WEBS 2x4 SP No.2 or 2x4 SPF No.2 \*Except\*  
W15,W16,W17: 2x6 SP No.2 or 2x6 SPF No.2  
W19,W18: 1-8/16x1 SPF No.2

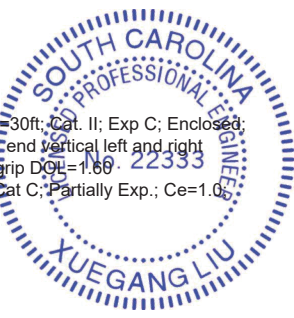
**REACTIONS.** (lb/size) 1=1071/0-3-8 (min. 0-1-8), 18=446/0-3-8 (min. 0-1-8), 15=1071/0-3-8 (min. 0-1-8)  
Max Horz 1=422(LC 10)  
Max Uplift 1=685(LC 14), 18=-248(LC 14), 15=-687(LC 15)  
Max Grav 1=1321(LC 24), 18=819(LC 24), 15=1323(LC 25)

**FORCES.** (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.  
TOP CHORD 1-2=-1501/589, 2-4=-1516/738, 4-5=-1249/763, 5-7=-655/372, 7-8=-435/266,  
8-9=-437/269, 9-11=-647/365, 11-12=-1245/759, 12-14=-1511/734, 14-15=-1497/585  
BOT CHORD 1-20=-464/1273, 19-20=-464/1273, 18-19=-464/1273, 17-18=-464/1273,  
16-17=-464/1273, 15-16=-464/1273  
WEBS 12-17=-177/253, 2-20=-458/496, 14-16=-458/496, 4-19=-178/254, 5-21=-765/597,  
21-22=-765/597, 11-22=-765/597, 7-21=-310/466, 9-22=-313/475

**REQUIRED FIELD JOINT CONNECTIONS** - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)  
5=765/597/290/0, 6=645/369/267/0, 7=310/466/46/0, 8=370/248/254/0, 9=313/475/47/0, 10=638/362/271/0, 11=765/597/291/0, 17=177/253/0/0, 18=464/1273/518/0,  
19=178/254/0/0

- NOTES-**
- 1) Dado: 0-1-8 length x 0-1-8 deep dado, 1-0-0 to right edge from joint 18 on the top face.
  - 2) Dado: 0-3-10 length x 0-0-12 deep dado, 4-6-14 to right edge from joint 18 on the top face.
  - 3) Dado: 0-3-10 length x 0-0-12 deep dado, 5-6-14 to right edge from joint 18 on the top face.
  - 4) Dado: 0-1-8 length x 0-1-8 deep dado, 1-0-0 to left edge from joint 18 on the top face.
  - 5) Dado: 0-3-10 length x 0-0-12 deep dado, 4-6-14 to left edge from joint 18 on the top face.
  - 6) Dado: 0-3-10 length x 0-0-12 deep dado, 5-6-14 to left edge from joint 18 on the top face.
  - 7) Wind: ASCE 7-16; Vult=150mph (3-second gust) Vasd=119mph; TCCL=2.8psf; BCDL=2.8psf; I=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; cantilever left and right exposed, end vertical left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - 8) TCLL: ASCE 7-16; Pg=30.0 psf; Ps=23.1 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
  - 9) Roof design snow load has been reduced to account for slope.
  - 10) Unbalanced snow loads have been considered for this design.
  - 11) All plates are MT20 plates unless otherwise indicated.
  - 12) See HINGE PLATE DETAILS for plate placement.

Continued on page 2



March 6, 2020

**WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.**  
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ANSIT/TP1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information available from Truss Plate Institute, 218 N. Lee Street, Suite 312, Alexandria, VA 22314.

**ENGINEERING BY**  
**TRENCO**  
A MiTek Affiliate  
818 Soundside Road  
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Job Reference (optional)
MH83077R2	MHT-1	FAN	100	1	

I40520729

8.320 s Feb 24 2020 MiTek Industries, Inc. Fri Mar 6 10:27:18 2020 Page 2

ID:kLtw9ltbRcFn1b8SOJbHe3yVAI4-sfjGhQiKpbX6VdsbeebT8LLDGLUy0PsezVNIkHzdGEn

**NOTES-**

- 13) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
- 14) All additional member connections shall be provided by others for forces as indicated.
- 15) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 16) \* This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 7.0psf.
- 17) Ceiling dead load (5.0 psf) on member(s). 4-5, 11-12, 5-21, 21-22, 11-22
- 18) Bottom chord live load (30.0 psf) and additional bottom chord dead load (0.0 psf) applied only to room. 18-19, 17-18
- 19) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 685 lb uplift at joint 1, 248 lb uplift at joint 18 and 687 lb uplift at joint 15.
- 20) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
- 21) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 180 lb down and 86 lb up at 16-0-2 on top chord. The design/selection of such connection device(s) is the responsibility of others.
- 22) Attic room checked for L/360 deflection.



**PFS CORPORATION**  
**Approval Limited to Factory Built Portion Only**

State: North Carolina

Signature:  *Tim Busche*

Title: Staff Plan Reviewer

Date: 6/27/22

**WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.**

Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see **ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information** available from Truss Plate Institute, 218 N. Lee Street, Suite 312, Alexandria, VA 22314.



818 Soundside Road  
Edenton, NC 27932

## APPENDIX E (E-1 THROUGH E-4) RESIDENTIAL REQUIREMENTS FOR ENERGY CONSERVATION

This appendix is a North Carolina addition and not part of the 2015 *International Residential Code*.

There will be no underlining.

(The provisions contained in this appendix are a part of this code.)

### APPENDIX E-1 Energy Efficiency Certificate (Section N1101.14)



part of this code

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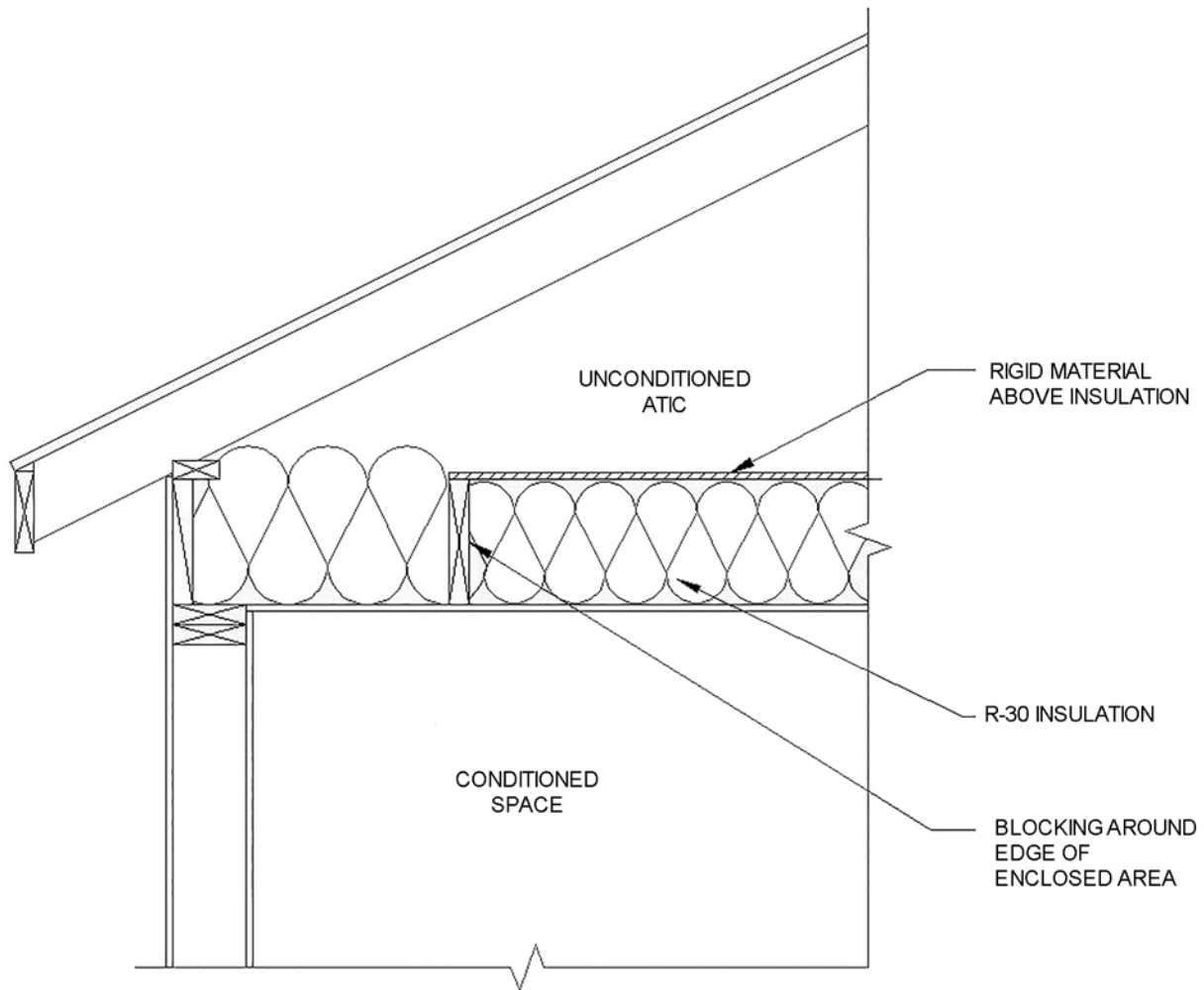
#### ENERGY EFFICIENCY CERTIFICATE (N1101.14)

Builder, Permit Holder or Registered Design Professional	State: <b>North Carolina</b>
Print Name:	Signature: <i>Tim Busche</i>
Signature:	Title: <b>Staff Plan Reviewer</b>
Property Address:	Date: <b>6/27/22</b>
Date:	
<b>Insulation Rating – List the value covering largest area to all that apply</b>	
Ceiling/roof:	R- <b>30</b>
Wall:	R- <b>18</b>
Floor: Omitted floor insulation - To be provided and install onsite by others.	R- <b>19 MIN.</b>
Closed crawl space wall:	R-
Closed crawl space floor:	R-
Slab:	R-
Basement wall:	R-
<b>Fenestration:</b>	
U-Factor	<b>0.34</b>
Solar Heat Gain Coefficient (SHGC)	<b>0.29</b>
<b>Building Air Leakage</b>	
<input type="checkbox"/> Visually inspected according to N1102.4.2.1 OR	
<input type="checkbox"/> Building air leakage test results (Sec. N1102.4.2.2) ACH50 [Target: 5.0] or CFM50/SFSA [Target: 0.30]	
Name of Tester/Company:	
Date:	Phone:
<b>Ducts:</b>	
Insulation	R-
Total duct leakage test result (Sect. N1103.3.3) Circle one: Total duct leakage test (CFM25 Total/100SF) [Target: 5] or Duct leakage to the outside test (CFM25 Total/100SF) [Target: 4]	
Name of Tester or Company:	
Date:	Phone:
<b>Certificate to be displayed permanently</b>	

**APPENDIX E-2  
INSULATION AND AIR SEALING DETAILS**

**APPENDIX E-2.1**

**N1102.2.1 Ceilings with attic spaces:** Exception for fully enclosed attic floor systems



**SECTION VIEW OF CEILING WITH ATTIC SPACE**

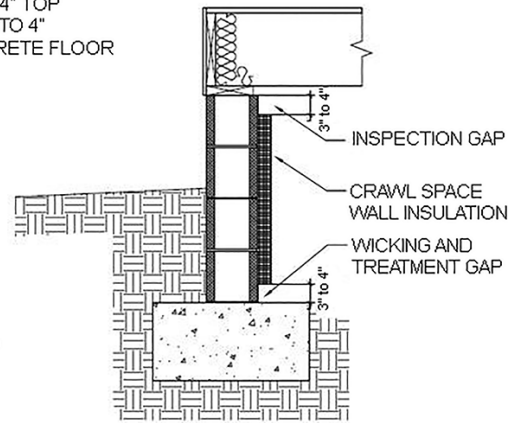
**PFS**  
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State: North Carolina  
Signature: **PFS** *Tim Busche*  
Title: Staff Plan Reviewer  
Date: 6/27/22

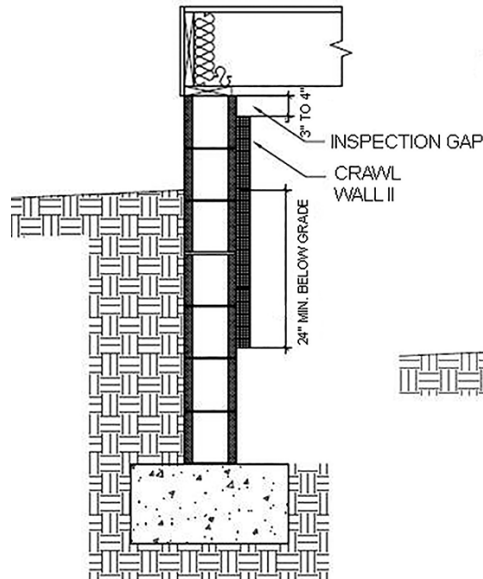
APPENDIX E-2.2

N1102.2.11 Closed crawl space walls. Insulation illustrations

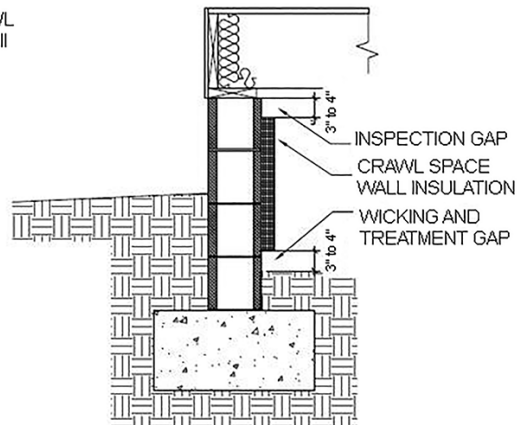
FOAM OR POROUS INSULATION HAS 3" TO 4" TOP INSPECTION GAP AND EXTENDS DOWN 3" TO 4" ABOVE TOP OF WALL FOOTING OR CONCRETE FLOOR



FOAM OR POROUS INSULATION HAS 3" TO 4" TOP INSPECTION GAP AND EXTENDS DOWN 24" BELOW GRADE



FOAM OR POROUS INSULATION HAS 3" TO 4" TOP INSPECTION GAP AND EXTENDS DOWN 3" TO 4" ABOVE INTERIOR GROUND SURFACE



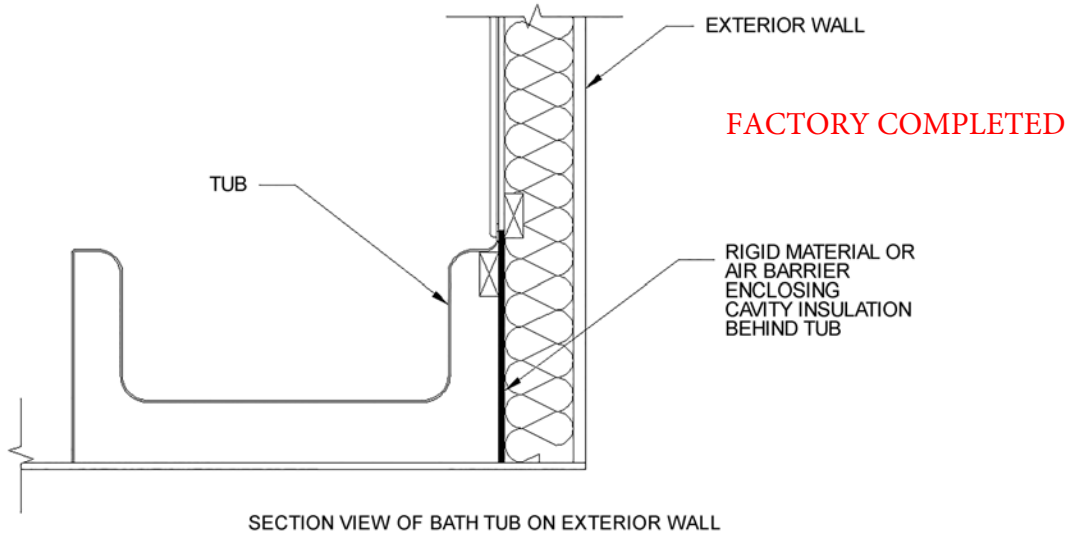
**PFS** PFS CORPORATION  
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 Date: 6/27/22

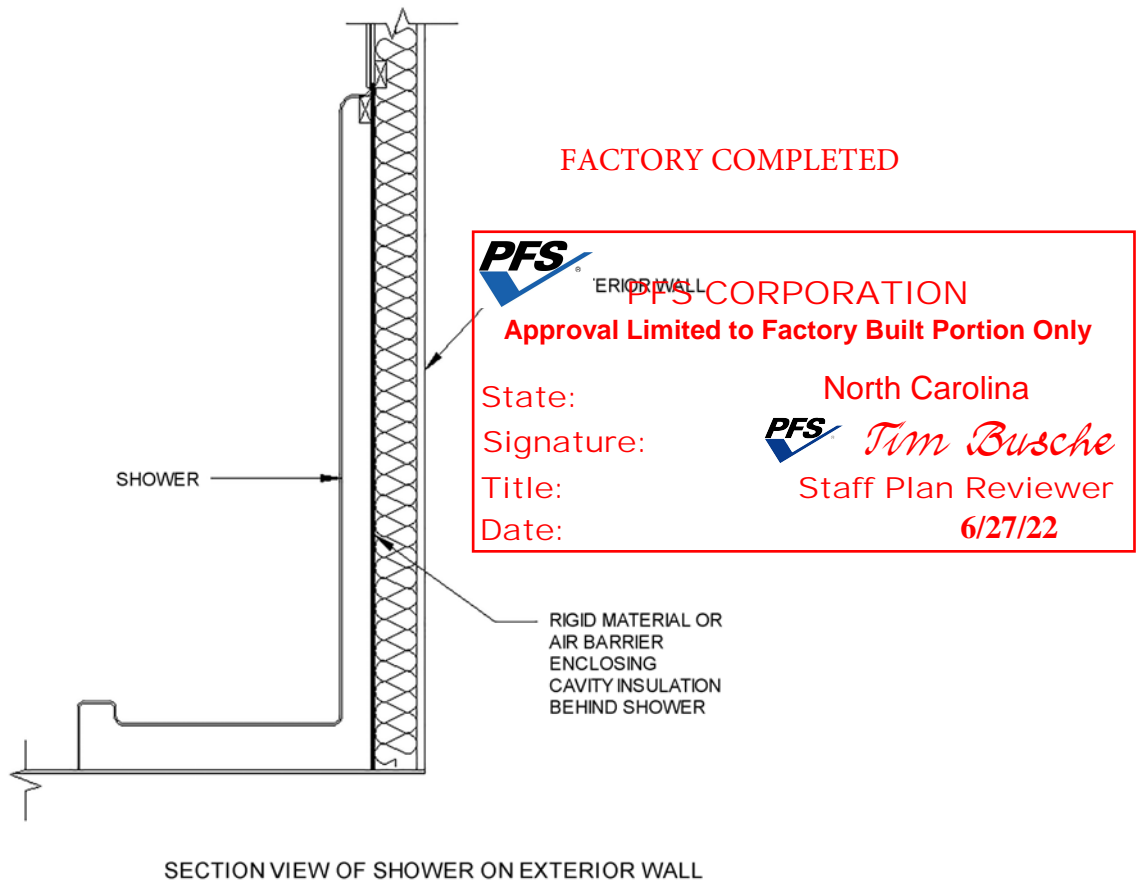


APPENDIX E-2.3

N1102.2.14 Framed cavity walls. Insulation enclosure—1. Tubs

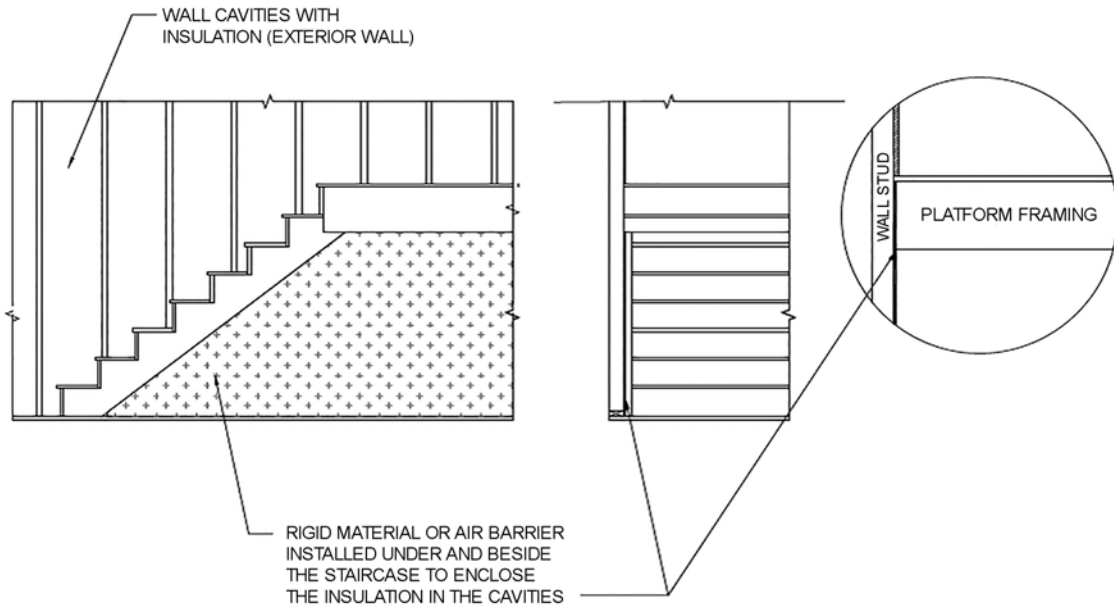


N1102.2.14 Framed cavity walls. Insulation enclosure—2. Showers



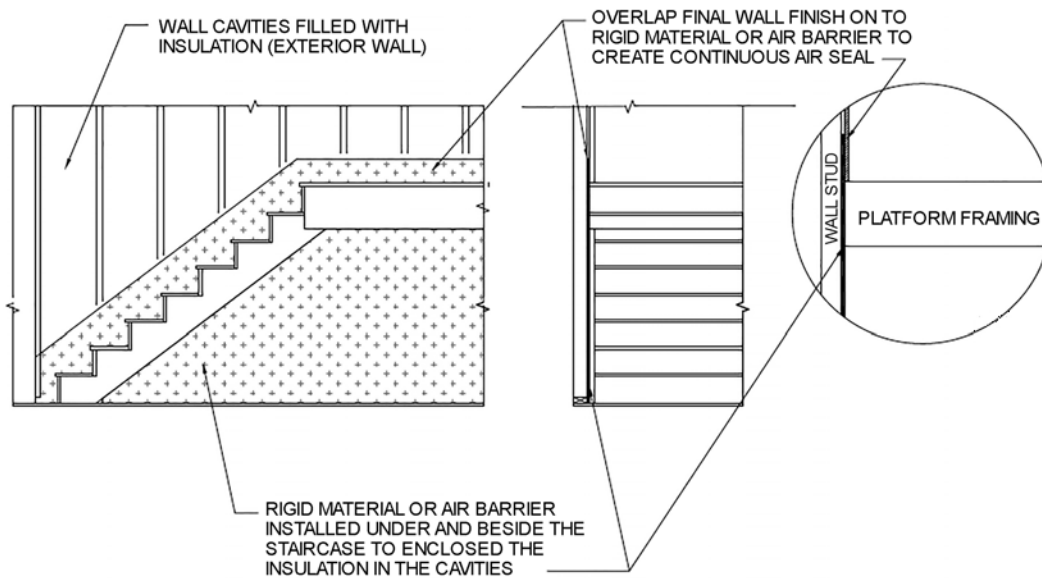
N1102.2.14 Framed cavity walls. Insulation enclosure—3. Stairs

FACTORY COMPLETED, IF APPLICABLE



SECTION VIEW OF INTERIOR STAIRCASE ON EXTERIOR WALL (OPTION 1)

N1102.2.14 Framed cavity walls. Insulation enclosure—3. Stairs



SECTION VIEW OF INTERIOR STAIRCASE ON EXTERIOR WALL (OPTION 2)

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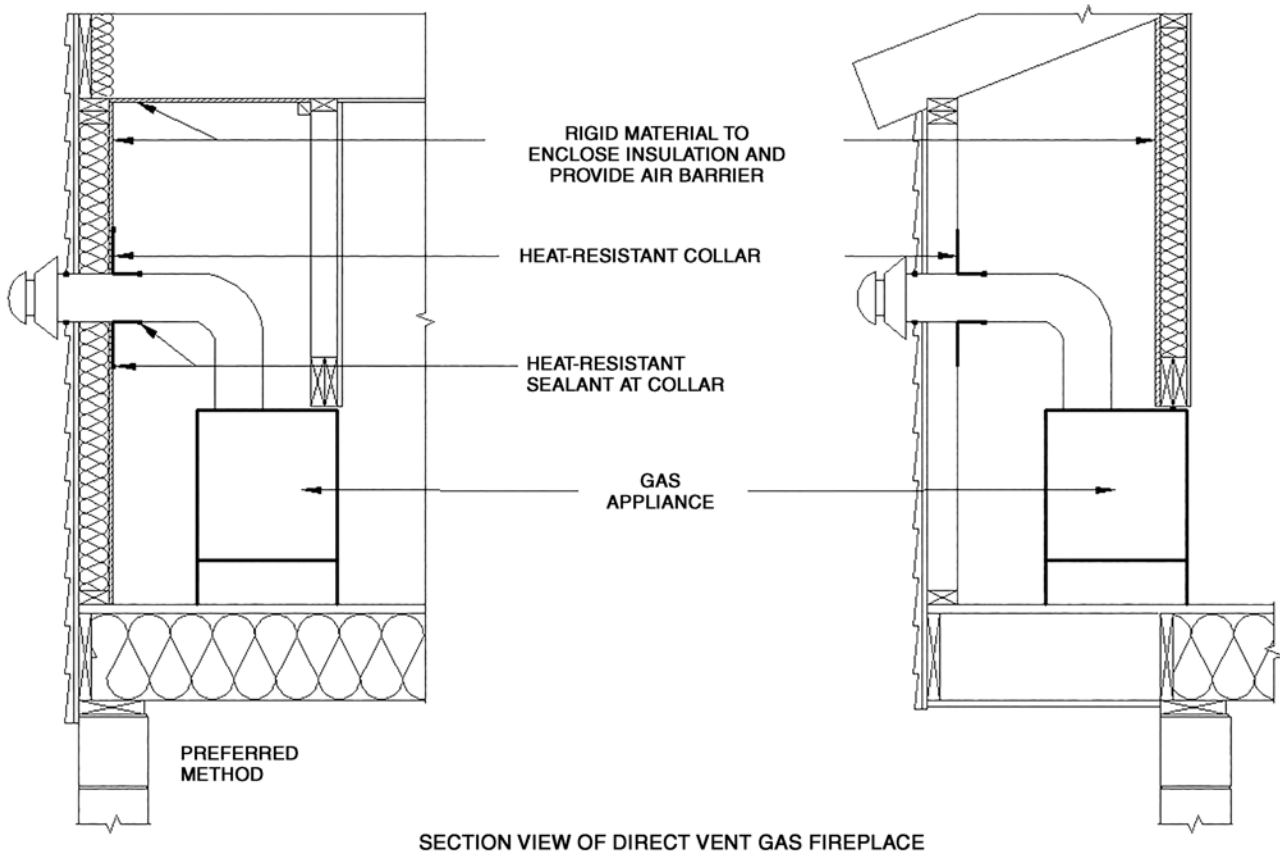
Title: Staff Plan Reviewer

Date: 6/27/22



N1102.2.14 Framed cavity wall. Insulation enclosure—4. Direct vent gas fireplace

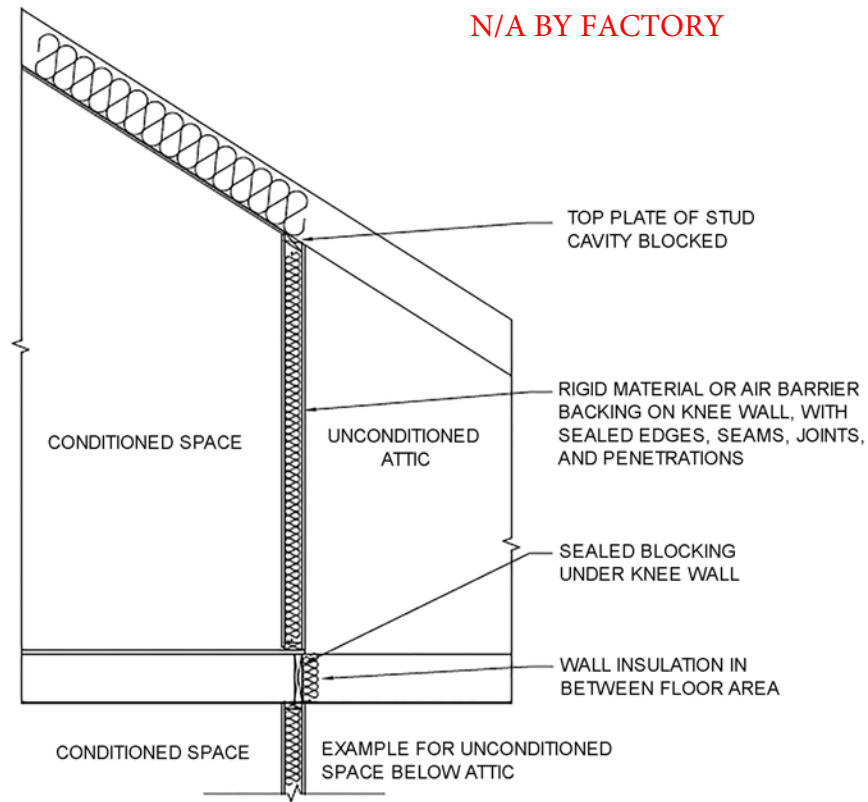
N/A BY FACTORY



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 Title: Staff Plan Reviewer  
 Date: 6/27/22

N1102.2.15 Framed cavity walls. Insulation enclosure—5. Walls that adjoin attic spaces



SECTION VIEW OF WALL ADJOINING ATTIC SPACE WITH STICK FRAMED ROOF

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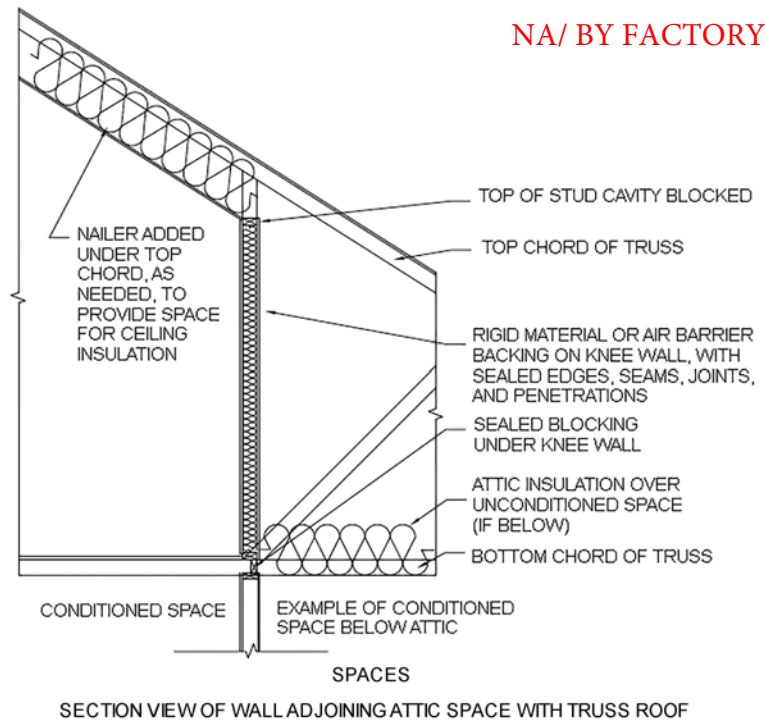
State: North Carolina

Signature: **PFS** *Tim Busche*

Title: Staff Plan Reviewer

Date: 6/27/22

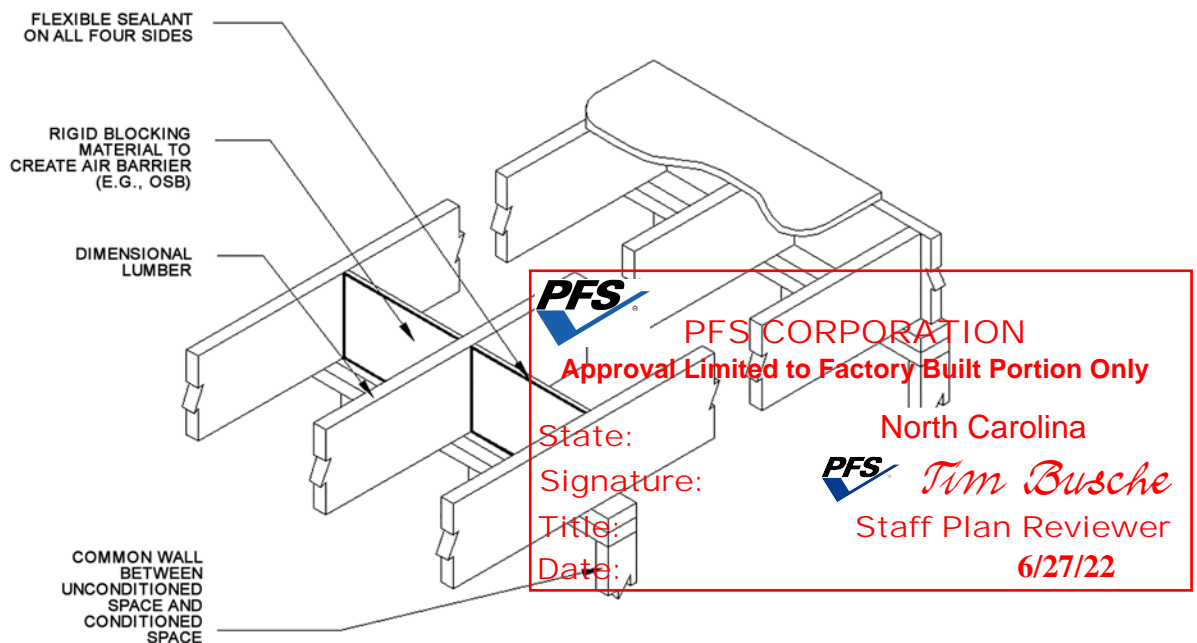
N1102.2.15 Framed cavity walls. Insulation enclosure—5. Walls that adjoin attic spaces



APPENDIX E-2.4

N1102.4.1 Building thermal envelope.—1. Block and seal floor/ceiling systems

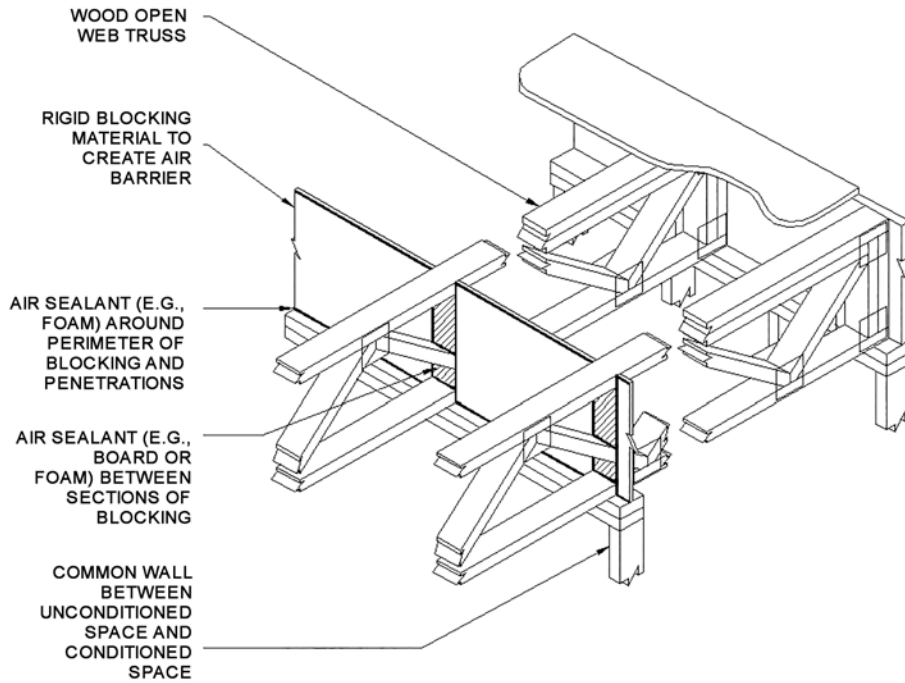
N/A BY FACTORY



ISOMETRIC VIEW OF DIMENSIONAL LUMBER FLOOR/CEILING SYSTEM ABOVE COMMON WALL BETWEEN UNCONDITIONED AND CONDITIONED SPACE

**N1102.4.1 Building thermal envelope.—1. Block and seal floor/ceiling systems**

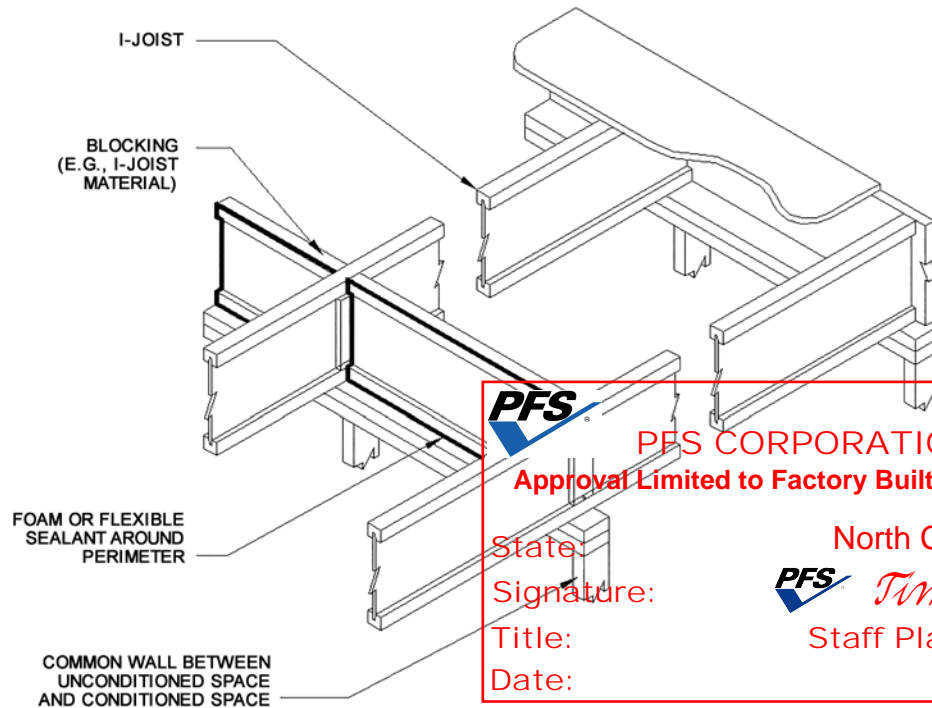
**N/A BY FACTORY**



ISOMETRIC VIEW OF WOOD TRUSS FLOOR/CEILING SYSTEM ABOVE COMMON WALL BETWEEN UNCONDITIONED AND CONDITIONED SPACE

**N1102.4.1 Building thermal envelope. —1. Block and seal floor/ceiling systems**

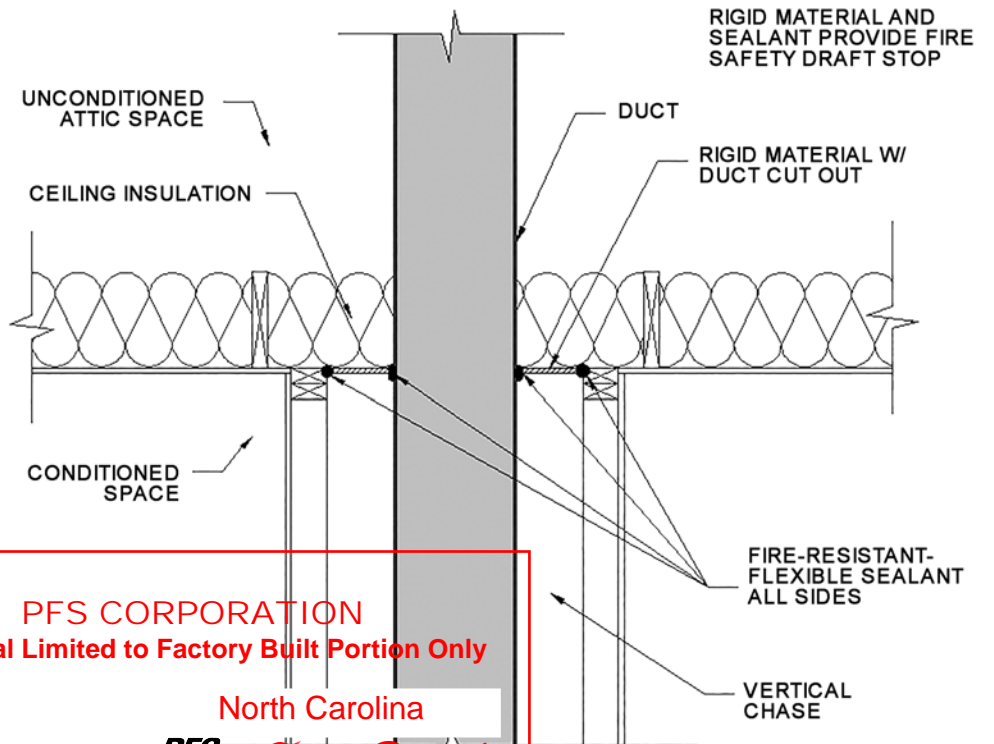
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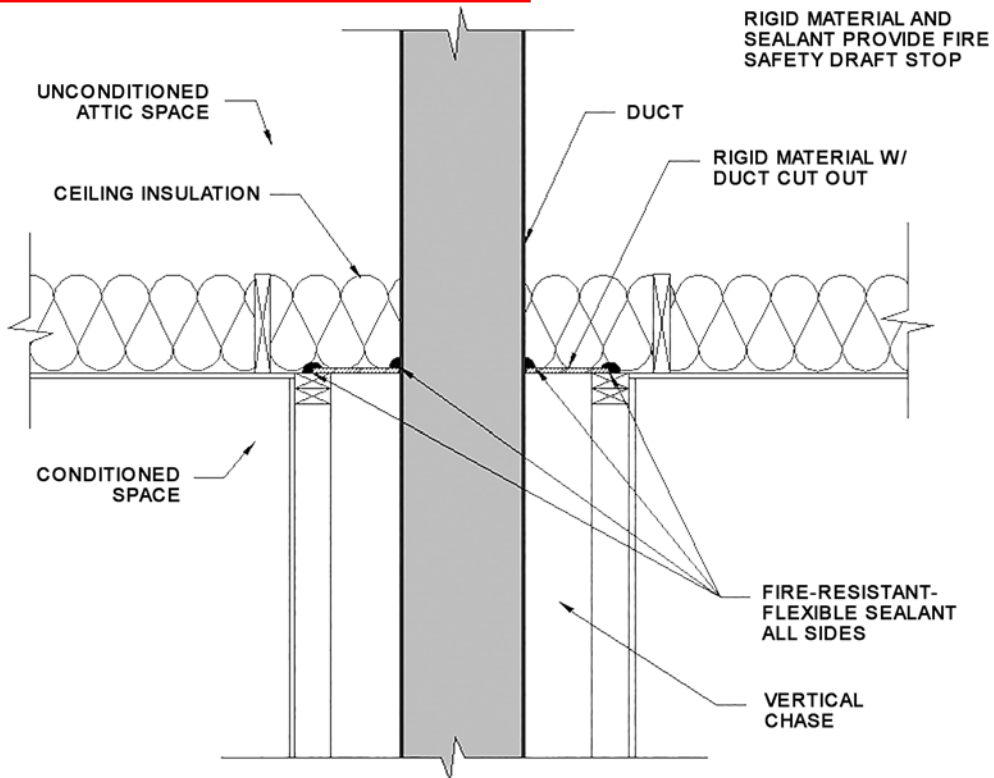
ISOMETRIC VIEW OF I-JOIST FLOOR/CEILING SYSTEM ABOVE COMMON WALL BETWEEN UNCONDITIONED AND CONDITIONED SPACE

N1102.4.1 Building thermal envelope—2. Cap and seal shafts and chases

BY OTHERS IF APPLICABLE

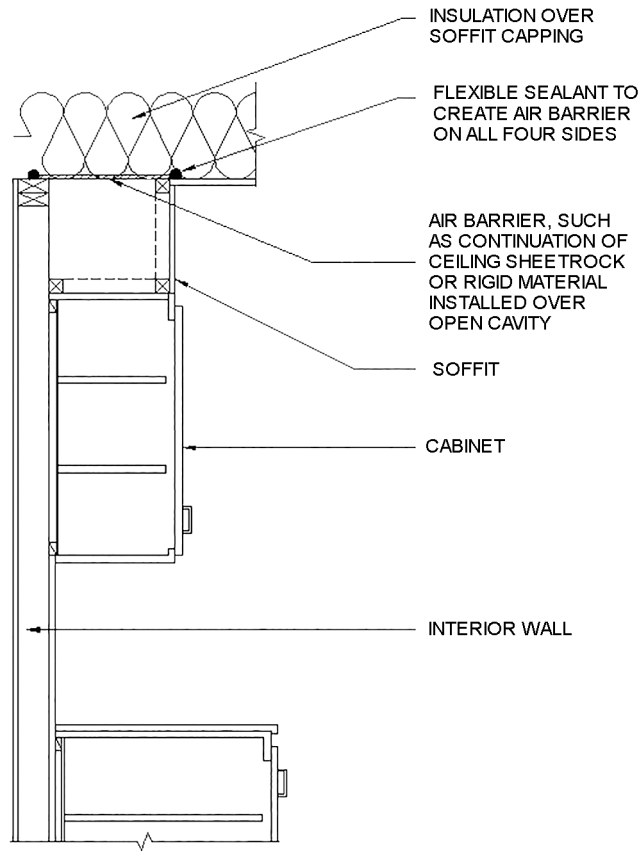


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**Approval Limited to Factory Built Portion Only**  
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 Signature: *Tim Busche*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22



SECTION VIEWS OF DUCT PENETRATING INTO ATTIC

N1102.4.1 Building thermal envelope. —3. Cap and seal soffit or dropped ceiling N/A



SECTION VIEW OF SOFFIT OVER CABINET



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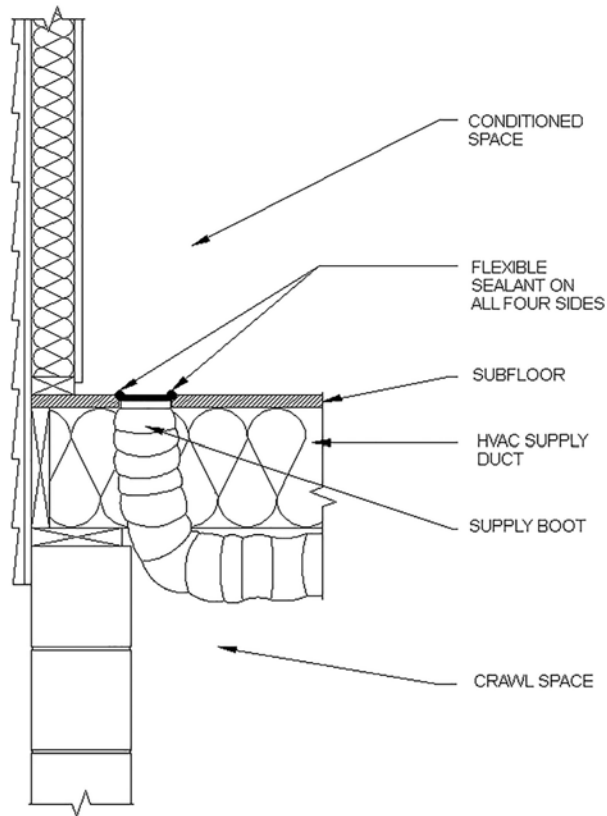
Signature: *Tim Busche*

Title: **Staff Plan Reviewer**

Date: **6/27/22**

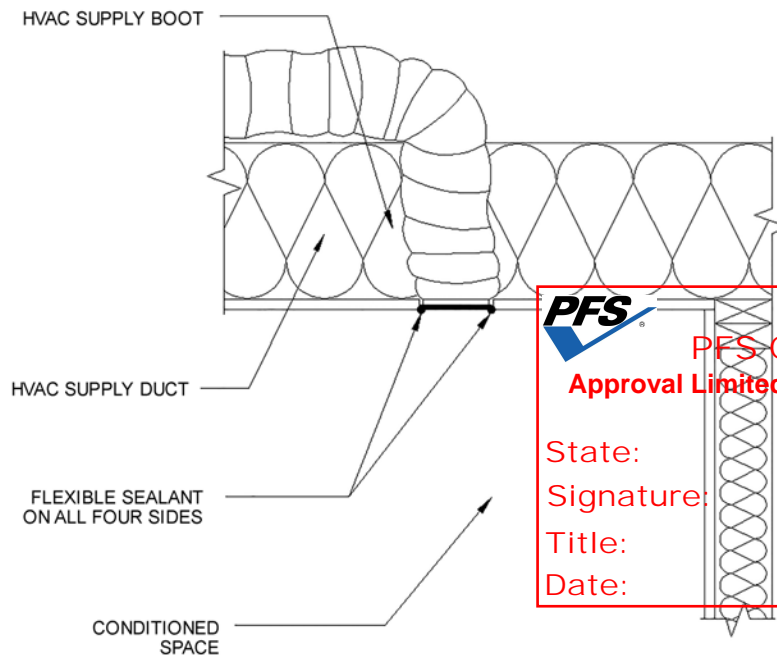



N1102.4.1 Building thermal envelope.—4. Seal HVAC boot penetration—floor **FACTORY COMPLETED**



SECTION VIEW OF FLOOR HVAC BOOT PENETRATION

N1102.4.1 Building thermal envelope.—4. Seal HVAC boot penetration—ceiling





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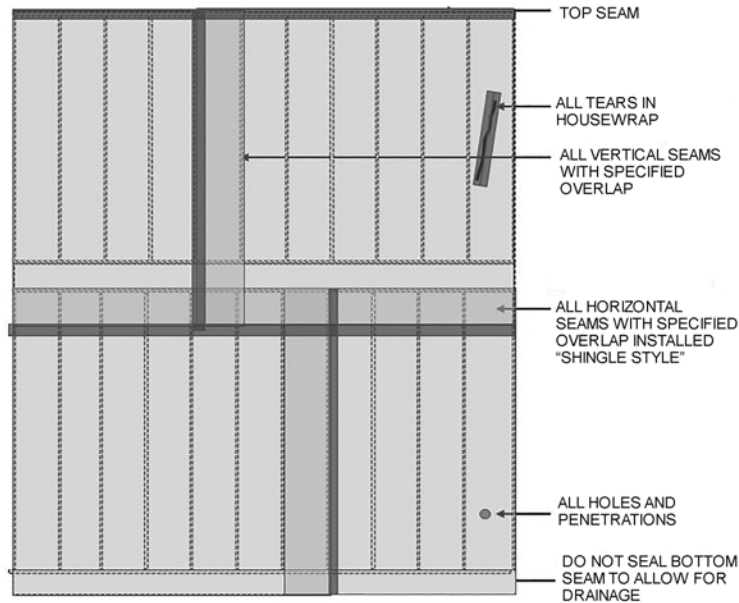
State: North Carolina  
 Signature: *Tim Busche*  
 Title: Staff Plan Reviewer  
 Date: 6/27/22

SECTION VIEW OF CEILING HVAC BOOT PENETRATION

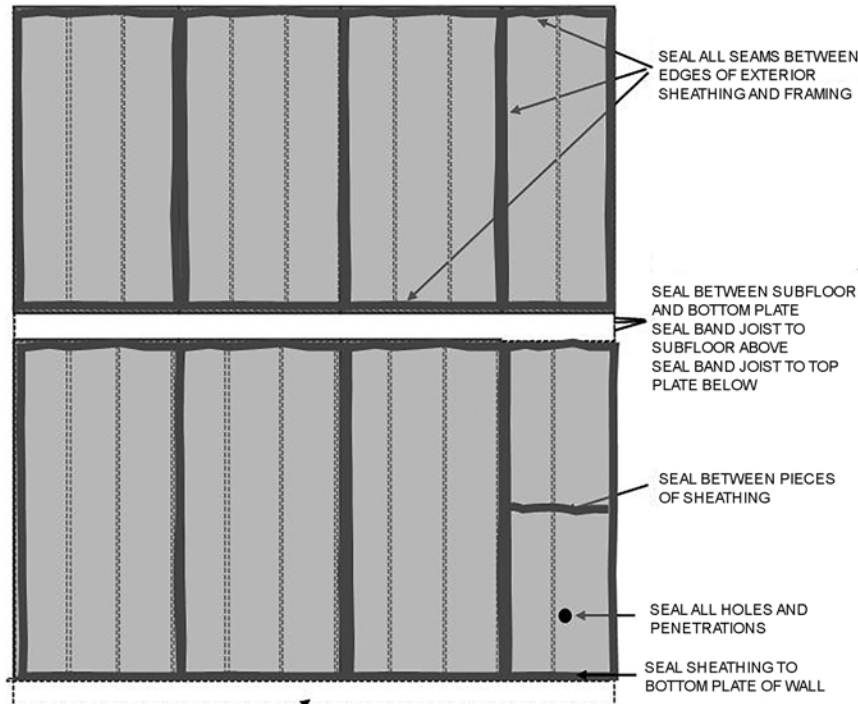
**MUST BE INSPECTED ON SITE BY OTHERS FOR TEARS**

**N1102.4.1 Building thermal envelope.—5. Sealed exterior air barrier with housewrap**

Follow manufacturer’s instructions for sealing air barrier-rated housewrap, including choice of materials, to provide an exterior air barrier at the following locations:



**N1102.4.1 Building thermal envelope.—5. Sealed exterior air barrier with sheathing**



- 1) IF FIRST FLOOR IS SLAB-ON-GRADE, INSTALL SEAL SEALER UNDER BOTTOM PLATE OF EXTERIOR WALL.
- 2) IF FIRST FLOOR IS OVER UNCONDITIONED CRAWL SPACE OR BASEMENT, INSTALL SEAL SEALER UNDER BOTTOM PLATE AND SEAL SUBFLOOR TO BAND JOIST.
- 3) IF FIRST FLOOR IS OVER CONDITIONED BASEMENT OR CLOSED CRAWL SPACE WITH CRAWL SPACE WALL INSULATION BELOW, SEAL BETWEEN SUBFLOOR AND BOTTOM PLATE, SEAL BAND JOIST TO SUBFLOOR ABOVE, AND SEAL BAND JOIST TO TOP PLATE BELOW.



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State: North Carolina

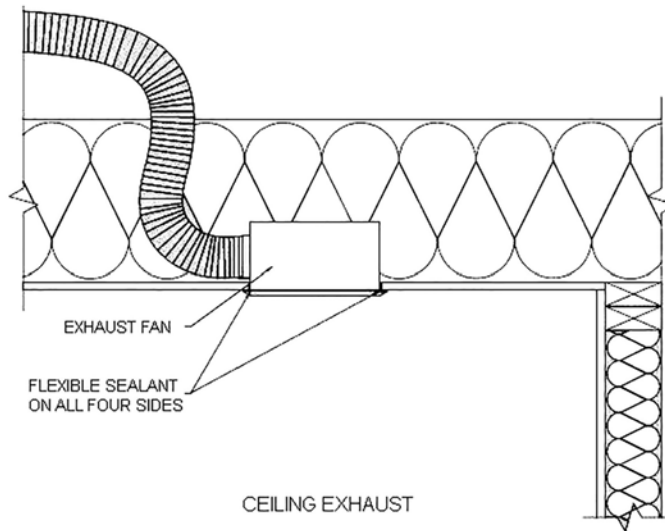
Signature:  *Tim Busche*

Title: Staff Plan Reviewer

Date: 6/27/22

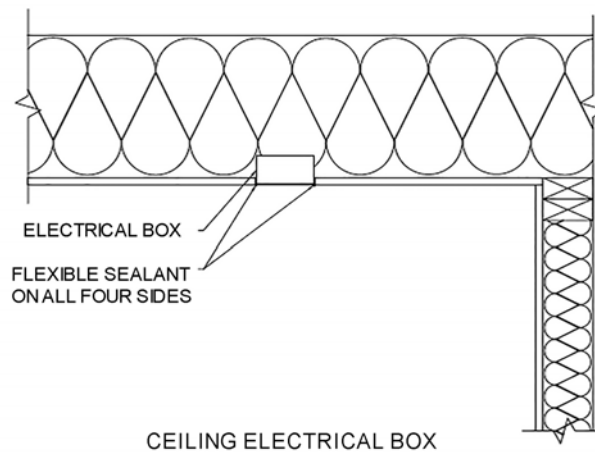
N1102.4.2.1 Visual inspection option. —Table N1102.4.2 Seal ceiling mechanical box penetrations

FACTORY COMPLETED



N1102.4.2.1 Visual inspection option. — Table N1102.4.2 Seal ceiling electrical box penetrations

FACTORY COMPLETED



**PFS CORPORATION**  
**Approval Limited to Factory Built Portion Only**

State:

North Carolina

Signature:



*Tim Busche*

Title:

Staff Plan Reviewer

Date:

6/27/22

**APPENDIX E-3:  
SAMPLE WORKSHEETS FOR RESIDENTIAL AIR AND DUCT LEAKAGE TESTING**

**APPENDIX E-3A  
AIR SEALING: VISUAL INSPECTION OPTION (Section N1102.4.2.1)**

**SAMPLE WORKSHEET**

**N1102.4.2 Air sealing.** Building envelope air tightness shall be demonstrated by Section N1102.4.2.1 or N1102.4.2.2.

**N1102.4.2.1 Visual inspection option.** Building envelope tightness shall be considered acceptable when items providing insulation enclosure in Section N1102.2.14 and enclosure and

air sealing in Section N1102.2.15 and air sealing in Section N1102.4.1 are addressed and when the items listed in Table N1102.4.2, applicable to the method of construction, are certified by the builder, permit holder or *registered design professional* via the certificate in Appendix E-1.

**TABLE N1102.4.2  
AIR BARRIER INSPECTION**

COMPONENT	CRITERIA
factory done Ceiling/attic	Sealants or gaskets provide a continuous air barrier system joining the top plate of framed walls with either the ceiling drywall or the top edge of wall drywall to prevent air leakage. Top plate penetrations are sealed. For ceiling finishes that are not air barrier systems such as tongue-and-groove planks, air barrier systems (for example, taped house wrap), shall be used above the finish. <b>Note:</b> It is acceptable that sealants or gaskets applied as part of the application of the drywall will not be observable by the code official.
Walls	Sill plate is gasketed or sealed to subfloor or slab. <b>factory done</b>
Windows and doors	Space between window and exterior door jambs and framing is sealed. <b>factory done unless onsite provided</b>
Floors (including above-garage and cantilevered floors)	Air barrier system is installed at any exposed edge of insulation. <b>Onsite done</b>
Penetrations	Utility penetrations through the building thermal envelope, including those for plumbing, electrical wiring, ductwork, security and fire alarm wiring, and control wiring, shall be sealed. <b>Onsite done</b>
Garage separation	Air sealing is provided between the garage and conditioned spaces. An air barrier system shall be installed between the ceiling system above the garage and the ceiling system of interior spaces. <b>Onsite done</b>
Ceiling penetrations	Ceiling electrical box penetrations and ceiling mechanical box penetrations shall be caulked, gasketed, or sealed at the penetration of the ceiling finish. See Appendix E-2.4. <b>Factory started/Onsite Completed</b> <b>Exception:</b> Ceiling electrical boxes and ceiling mechanical boxes not penetrating the building thermal envelope
Recessed lighting	Recessed light fixtures are air tight, IC rated, and sealed to drywall. <b>factory done</b> <b>Exception:</b> Fixtures in conditioned space.

**\*\*Attic Access insulated and weatherstripped per N1102.2.2.4\*\***


Property Address:

**N1102.4.2.1 Visual Inspection Option.** The inspection information, including tester name, **North Carolina** included on the certificate described in Section N1101.14.

Signature



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**Approval Limited to Factory Built Portion Only**

Signature:  *Tim Busche*  
Title: **Staff Plan Reviewer**  
Date: **6/27/22**

**\*\*All factory done items have been inspected in factory, above signoff is for on site items only\*\***

**APPENDIX E-3B  
Air sealing: Testing option (Section N1102.4.2.2)**

**Sample Worksheet**

**N1102.4.2 Air sealing.** Building envelope air tightness shall be demonstrated by Section N1102.4.2.1 or N1102.4.2.2:

**N1102.4.2.2 Testing option.** Building envelope tightness shall be considered acceptable when items providing insulation enclosure in Section N1102.2.14 and enclosure and air sealing in Section N1102.2.15 and air sealing in Section N1102.4.1 are addressed and when tested air leakage is less than or equal to one of the two following performance measurements:

1. 0.30 CFM50/Square Foot of Surface Area (SFSA) or
2. Five (5) air changes per hour (ACH50)

When tested with a blower door fan assembly, at a pressure of 33.5 psf (50 Pa). A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the blower door fan assembly has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E779—03. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. Testing shall be reported by the permit holder, a North Carolina licensed general contrac-

tor, a North Carolina licensed HVAC contractor, a North Carolina licensed Home Inspector, a *registered design professional*, a certified *BPI Envelope Professional* or a certified *HERS rater*.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed;
2. Dampers shall be closed, but not sealed, including exhaust, backdraft, and flue dampers;
3. Interior doors shall be open;
4. Exterior openings for continuous ventilation systems, air intake ducted to the return side of the conditioning system, and energy or heat recovery ventilators shall be closed and sealed;
5. Heating and cooling system(s) shall be turned off; and
6. Supply and return registers shall not be sealed.

The air leakage information, including building air leakage result, tester name, date, and contact information, shall be included on the certificate described in Section N1101.14.

**For Test Criteria 1** in this section, the report shall be produced in the following manner: Perform the blower door test and record the *CFM50* \_\_\_\_\_. Calculate the total square feet of surface area for the building thermal envelope, all floors, ceilings, and walls (this includes windows and doors) and record the area \_\_\_\_\_. Divide *CFM50* by the total square feet and record the result below. If the result is less than or equal to **[0.30 CFM50/SFSA]** the envelope tightness is acceptable; or

**For Test Criteria 2**, the report shall be produced in the following manner: Perform a blower door test and record the *CFM50* \_\_\_\_\_. Multiply the *CFM50* by 60 minutes to create CFHour50 and record \_\_\_\_\_. Then calculate the total conditioned volume of the home and record \_\_\_\_\_. Divide the CFH50 by the total volume and record the result below. If the result is less than or equal to **[5 ACH50]** the envelope tightness is acceptable.

Property Address: \_\_\_\_\_

Fan attachment location \_\_\_\_\_ Company Name \_\_\_\_\_

Contact Information: \_\_\_\_\_

Signature of Tester \_\_\_\_\_ Date \_\_\_\_\_

Permit Holder, NC Licensed General Contractor, NC Licensed Home Inspector, *Registered Professional*, Certified *BPI Envelope Professional*, or Certified *HERS Rater* (circle one).



**PFS CORPORATION**  
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State: North Carolina

Signature:  *Tim Busche*

Title: Staff Plan Reviewer

Date: 6/27/22



**APPENDIX E-3C  
Duct sealing. Duct air leakage test (Section N1103.2.2 & Section N1103.3.3)**

**Sample Worksheet**

**N1103.3.2 Sealing (Mandatory Requirements).** Ducts, air handlers, filter boxes, and building cavities used as ducts shall be sealed. Joints and seams shall comply with either the *International Mechanical Code* or *International Residential Code*, as applicable.

**N1103.3.3 Duct leakage (Prescriptive) and duct testing (Mandatory).** Duct testing and duct leakage shall be verified by compliance with either Section N1103.3.3.1 or N1103.3.3.2. Duct testing shall be verified using one of the two following methods:

**N1103.3.3.1 Total duct leakage.** Total duct leakage shall be less than or equal to 5 CFM (12 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure.

During testing:

1. Block, if present, ventilation air duct(s) connected to the conditioning system.
2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.
3. The filter shall be removed and the air handler power shall be turned off.
4. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight.
5. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.
6. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage.

**N1103.3.3.2 Duct leakage to the outside.** Conduct the test using fan pressurization of distribution system and building at a fixed reference pressure for combined supply and return leaks. Duct leakage to the outside shall be less than or equal to 4 CFM (12 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, relative to the outside, including the manufacturer's air handler enclosure.

During testing:

1. Block, if present, the ventilation air duct(s) connected to the conditioning system.
2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.
3. The filter shall be removed and the air handler power shall be turned off.

4. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight or as tight as possible.
5. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.
6. Open all interconnecting doors in the building, close dampers for fireplaces and other operable dampers.
7. Set up an envelope air moving/flow-regulating/flow measurement assembly, such as a blower door, following the manufacturer's prescribed procedure.
8. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage used in combination with a blower door. Typical steps are as follows:

- a. Depressurize the ductwork system to 25 Pa using the measurement hose in Step 5 above.
  - b. Depressurize the house to 25 Pa using an envelope air moving/flow-regulating/flow measurement assembly, such as a blower door.
- Correct the duct pressure to measure 0 Pa of pressure differential between the house and the ductwork system.

Measure duct leakage using the procedure and specific equipment being used. (Note that most automatically calculating pressure gauges cannot compute the CFM25 automatically with a duct-to-house difference in pressure of 0 Pa, so the gauge setting should be set to read CFM instead of CFM25).

Testing shall be performed and reported by the permit holder, a North Carolina licensed general contractor, a North Carolina licensed HVAC contractor, a North Carolina licensed Home Inspector, a registered design professional, a certified BPI Envelope Professional or a certified HERS rater. A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the duct testing fan assembly(s) has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E1554-07.

The duct leakage information, including duct leakage test selected and result, tester name, date, and contact information, shall be included on the certificate described in Section N1101.14.

For the Test Criteria, the report shall be produced in the following manner: perform the HVAC system air leakage test and record the CFM25. Calculate the total square feet of Conditioned Floor Area (CFA) served by that system. Multiply CFM25 by 100, divide the result by the CFA and

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Signature: *Tim Busch*  
Title: Staff Plan Reviewer  
Date: 6/27/22

APPENDIX E

record the result. If the result is less than or equal to 5 CFM25/100SF for the "Total duct leakage test" or less than or equal to 4 CFM25/100SF for the "Duct leakage to the outside" test, then the HVAC system air tightness is acceptable.

Complete one duct leakage report for each HVAC system serving the home:

Property Address: \_\_\_\_\_

Test Performed: Total duct leakage or Duct leakage to the outside (circle one)

HVAC System Number: \_\_\_\_\_ Describe area of home served: \_\_\_\_\_

CFM25 Total \_\_\_\_\_ Conditioned Floor Area (CFA) served by system: \_\_\_\_\_ s.f.

CFM25 x 100 divided by CFA = \_\_\_\_\_ CFM25/100SF (e.g. 100 CFM25 x 100/2,000 CFA = 5 CFM25/100SF)

Fan attachment location \_\_\_\_\_

Company Name \_\_\_\_\_

Contact Information: \_\_\_\_\_

\_\_\_\_\_  
Signature of Tester

\_\_\_\_\_  
Date

Permit Holder, NC Licensed General Contractor, NC Licensed HVAC Contractor,  
NC Licensed Home Inspector, *Registered Design Professional*,  
Certified *BPI Envelope Professional*, or Certified *HERS Rater*  
**(circle one)**

	<b>PFS CORPORATION</b>
	<b>Approval Limited to Factory Built Portion Only</b>
State:	North Carolina
Signature:	 <i>Tim Busche</i>
Title:	Staff Plan Reviewer
Date:	6/27/22

E-4D:

SAMPLE WORKSHEETS FOR RESIDENTIAL AIR AND DUCT LEAKAGE TESTING

E-4D.1  
AIR SEALING: TESTING  
(Section N1102.4.2.2)

Sample Worksheet for Alternative Residential  
Energy Code for Higher Efficiency

**Air sealing.** Building envelope air tightness shall be demonstrated by Section N1102.4.2.2:

**Air sealing: Testing option (Section N1102.4.2.2)**  
**Sample Worksheet for Alternative Residential**  
**Energy Code for Higher Efficiency**

**N1102.4.2.2 Testing.** Building envelope tightness shall be considered acceptable when items providing insulation enclosure in Section N1102.2.14 and enclosure air sealing in Section N1102.2.15 and air sealing in Section N1102.4.1 are addressed and when tested air leakage is less than or equal to one of the two following performance measurements:

1. 0.24 CFM50 (6.8 L/min)/square foot of surface area (SFSA) or
2. Four (4) air changes per hour (ACH50)

When tested with a blower door fan assembly, at a pressure of 0.2 inches water gauge (50 Pa), a single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the blower door fan assembly has been certified by the manufacturer to be capable

of conducting tests in accordance with ASTM E779—03. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. Testing shall be reported by the permit holder, a North Carolina licensed general contractor, a North Carolina licensed HVAC contractor, a North Carolina licensed Home Inspector, a *registered design professional*, a certified *BPI Envelope Professional* or a certified *HERS rater*.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed;
2. Dampers shall be closed, but not sealed, including exhaust, backdraft, and flue dampers;
3. Interior doors shall be open;
4. Exterior openings for continuous ventilation systems, air intake ducted to the return side of the conditioning system, and energy or heat recovery ventilators shall be closed and sealed;
5. Heating and cooling system(s) shall be turned off; and
6. Supply and return registers shall not be sealed.

The air leakage information, including building air leakage result, tester name, date, and contact information, shall be included on the certificate described in Section N1101.14.

**For Test Criteria 1** in this section, the report shall be produced in the following manner: Perform the blower door test and record the *CFM50* \_\_\_\_\_. Calculate the total square feet of surface area for the building thermal envelope, all floors, ceilings, and walls (this includes windows and doors) and record the area \_\_\_\_\_. Divide *CFM50* by the total square feet and record the result below. If the result is less than or equal to **[0.24 CFM50/SFSA]** the envelope tightness is acceptable; or

**For Test Criteria 2**, the report shall be produced in the following manner: Perform a blower door test and record the *CFM50* = \_\_\_\_\_. Multiply the *CFM50* by 60 minutes to create CF/Hour50 and record = \_\_\_\_\_. Then calculate the total conditioned volume of the home and record = \_\_\_\_\_ cubic feet. Divide the CF/Hour50 by the total volume and record the result = \_\_\_\_\_ ACH50. If the result is less than or equal to **[4 ACH50]** the envelope tightness is acceptable.

Property Address: \_\_\_\_\_

Fan attachment location \_\_\_\_\_ Company Name \_\_\_\_\_

Contact Information: \_\_\_\_\_

\_\_\_\_\_

Signature of Tester \_\_\_\_\_ Date \_\_\_\_\_



**PFS CORPORATION**  
**Approval Limited to Factory Built Portion Only**

State: \_\_\_\_\_ North Carolina

Signature:  **Tim Busche**

Title: \_\_\_\_\_ Staff Plan Reviewer

Date: \_\_\_\_\_ **6/27/22**

Permit Holder, NC Licensed General Contractor, NC Licensed HVAC Contractor,  
NC Licensed Home Inspector, *Registered Design Professional*,  
*Certified BPI Envelope Professional*, or *Certified HERS Rater*  
(circle one)

**E-4D.2  
DUCT SEALING. Duct air leakage test  
(Section N1103.3.3)  
Sample Worksheet for Alternative Residential  
Energy Code for Higher Efficiency**

**N1103.3.3 Duct leakage (Prescriptive) and duct testing (Mandatory).** Duct testing and duct leakage shall be verified by compliance with either Section N1103.3.3.1 or N1103.3.3.2. Duct testing shall be performed and reported by the permit holder, a NC licensed general contractor, a NC licensed HVAC contractor, a NC licensed Home Inspector, a *registered design professional*, a certified *BPI Envelope Professional* or a certified *HERS rater*. A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the duct testing fan assembly(s) has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E1554—07.

The duct leakage information, including duct leakage test selected and result, tester name, date, and contact information, shall be included on the certificate described in Section N1101.3.

For the Test Criteria, the report shall be produced in the following manner: perform the HVAC system air leakage test and record the CFM25. Calculate the total square feet of Conditioned Floor Area (CFA) served by that system. Multiply CFM25 by 100, divide the result by the CFA and record the result. If the result is less than or equal to 4 CFM25/100SF for the “Total duct leakage test or less than or equal to 3 CFM25/100SF for the Duct leakage to the outside” test, then the HVAC system air tightness is acceptable.

**Exceptions to testing requirements:**

1. Duct systems or portions thereof inside the building thermal envelope shall not be required to be leak tested.
2. Installation of a partial system as part of replacement, renovation or addition does not require a duct leakage test.

**1103.3.3.1 Total duct leakage.** Total duct leakage less than or equal to 4 CFM (113 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer’s air handler enclosure. During testing:

1. Block, if present, ventilation air duct(s) connected to the conditioning system.
2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.
3. The filter shall be removed and the air handler power shall be turned off.
4. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight.
5. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.


6. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage.

**1103.3.3.2 Duct leakage to the outside.** Conduct the test using fan pressurization of distribution system and building at a fixed reference pressure for combined supply and return leak. Duct leakage to the outside shall be less than or equal to 3 CFM (85 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, relative to the outside, including the manufacturer’s air handler enclosure.

During testing:


1. Block, if present, the ventilation air duct(s) connected to the conditioning system.
2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.
3. The filter shall be removed and the air handler power shall be turned off.
4. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight or as tight as possible.
5. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.
6. Open all interconnecting doors in the building, close dampers for fireplaces and other operable dampers.
7. Set up an envelope air moving/flow-regulating/flow measurement assembly, such as a blower door, following the manufacturer’s prescribed procedure.
8. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage used in combination with a blower door. Typical steps are as follows:

- a. Depressurize the ductwork system to 25 Pa using the measurement hose in Step 5 above.
- b. Depressurize the house to 25 Pa using an envelope air moving/flow-regulating/flow measurement assembly, such as a blower door.
- c. Correct the duct pressure to measure 0 Pa of pressure differential between the house and the ductwork system.
- d. Read the CFM of duct leakage using the procedures for the specific equipment being used. (Note that most automatically calculating pressure gauges cannot compute the CFM25 automatically with a duct-to-house difference in pressure of 0 Pa. As the gauge setting should be set to read CFM instead of CFM25).



**PFS CORPORATION**  
Approval Limited to Factory Built Portion Only

State: North Carolina

Signature:  *Tim Busche*

Title: Staff Plan Reviewer

Date: 6/27/22

**MUST BE COMPLETED BY BUILDER ON SITE**

**APPENDIX E**

**Complete one duct leakage report for each HVAC system serving the home:**

Property Address: \_\_\_\_\_

HVAC System Number: \_\_\_\_\_ Describe area of home served: \_\_\_\_\_

CFM25 Total \_\_\_\_\_. Conditioned Floor Area (CFA) served by system: \_\_\_\_\_ s.f.

CFM25 × 100 divided by CFA = \_\_\_\_\_ CFM25/100 SF

(e.g. 50 CFM25 × 100/ 2,000 CFA = 2.5 CFM25/100SF)

Fan attachment location \_\_\_\_\_

Company Name \_\_\_\_\_

Contact Information: \_\_\_\_\_

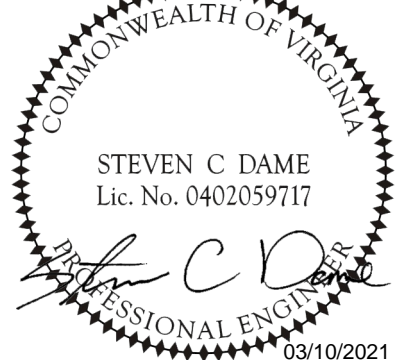
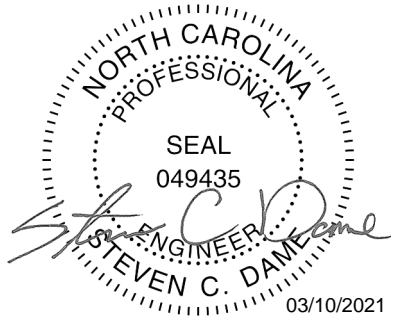
\_\_\_\_\_  
Signature of Tester

\_\_\_\_\_  
Date

Permit Holder, NC Licensed General Contractor, NC Licensed HVAC Contractor,  
NC Licensed Home Inspector, *Registered Design Professional*,  
Certified *BPI Envelope Professional*, or Certified *HERS Rater*  
**(circle one)**

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State:	North Carolina
Signature:	 <i>Tim Busche</i>
Title:	Staff Plan Reviewer
Date:	<b>6/27/22</b>





LVL		CAPE ROOF BEAM																								
		TRUSS REACTION (LBS) / TRUSS SPACING (IN O.C.)																								
HEADER SIZE	HEADER CALL-OUT	700 LBS			750 LBS			800 LBS			850 LBS			900 LBS			1000 LBS			1100 LBS			1200 LBS			
		24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	
SINGLE PLY ROOF BEAM	1 1/2 x 7 1/4"	ML-8	127 / 1	111 / 2	101 / 2	124 / 2	109 / 2	99 / 2	122 / 2	106 / 2	97 / 2	119 / 2	104 / 2	95 / 2	117 / 2	101 / 2	93 / 2	113 / 2	99 / 2	89 / 2	109 / 2	96 / 2	85 / 3	106 / 2	93 / 2	81 / 3
	1 1/2 x 9 1/4"	ML-10	163 / 2	142 / 2	129 / 2	159 / 2	139 / 2	126 / 3	156 / 2	136 / 2	123 / 3	152 / 2	133 / 2	121 / 3	150 / 2	131 / 2	117 / 3	144 / 2	126 / 3	111 / 3	140 / 2	122 / 3	106 / 3	136 / 2	117 / 3	101 / 3
	1 1/2 x 11 1/4"	ML-11	198 / 2	173 / 2	157 / 3	193 / 2	169 / 3	153 / 3	189 / 2	165 / 3	149 / 3	185 / 2	162 / 3	144 / 3	182 / 2	159 / 3	140 / 3	176 / 2	153 / 3	133 / 3	170 / 3	146 / 3	127 / 4	165 / 3	140 / 3	121 / 4
	1 1/2 x 11 7/8"	ML-12	209 / 2	182 / 3	166 / 3	204 / 2	178 / 3	161 / 3	200 / 2	174 / 3	156 / 3	196 / 2	171 / 3	152 / 3	192 / 2	168 / 3	147 / 3	185 / 3	161 / 3	140 / 4	180 / 3	154 / 3	133 / 4	174 / 3	147 / 3	128 / 4
	1 1/2 x 14"	ML-14	246 / 2	215 / 3	194 / 3	241 / 2	210 / 3	188 / 4	236 / 3	206 / 3	182 / 4	231 / 3	202 / 3	176 / 4	227 / 3	198 / 3	171 / 4	219 / 3	188 / 4	162 / 4	212 / 3	179 / 4	155 / 4	206 / 3	171 / 4	148 / 4
	1 1/2 x 16"	ML-16	282 / 3	246 / 3	219 / 4	275 / 3	240 / 3	212 / 4	269 / 3	235 / 4	205 / 4	264 / 3	230 / 4	199 / 4	259 / 3	223 / 4	193 / 4	250 / 3	212 / 4	183 / 4	242 / 3	202 / 4	175 / 5	235 / 4	193 / 4	167 / 5
	1 1/2 x 18"	ML-18	317 / 3	277 / 4	244 / 4	310 / 3	271 / 4	236 / 4	303 / 3	264 / 4	228 / 4	297 / 3	256 / 4	222 / 5	291 / 3	249 / 4	215 / 5	281 / 4	236 / 4	204 / 5	273 / 4	225 / 5	195 / 5	264 / 4	215 / 5	186 / 5
	1 1/2 x 20"	ML-20	352 / 3	308 / 4	269 / 5	344 / 3	300 / 4	260 / 5	337 / 3	290 / 4	251 / 5	330 / 4	282 / 4	24 / 5	324 / 4	274 / 5	237 / 5	313 / 4	260 / 5	225 / 5	303 / 4	248 / 5	214 / 6	290 / 4	237 / 5	3205 / 6
	1 1/2 x 22"	ML-22	388 / 3	338 / 4	293 / 5	379 / 4	327 / 5	283 / 5	371 / 4	317 / 5	274 / 5	363 / 4	307 / 5	266 / 5	356 / 4	299 / 5	259 / 6	344 / 4	283 / 5	245 / 6	331 / 4	270 / 5	234 / 6	317 / 5	259 / 6	224 / 6
	1 1/2 x 24"	ML-24	423 / 4	367 / 5	317 / 5	413 / 4	354 / 5	307 / 6	404 / 4	343 / 5	297 / 6	396 / 4	333 / 5	288 / 6	389 / 4	323 / 5	280 / 6	375 / 5	307 / 6	266 / 6	358 / 5	292 / 6	253 / 7	343 / 5	280 / 6	242 / 7
DOUBLE PLY ROOF BEAM	1 1/2 x 7 1/4"	(2)ML-8	161 / 1	140 / 2	127 / 2	157 / 1	137 / 2	124 / 2	154 / 1	134 / 1	122 / 2	151 / 1	131 / 1	119 / 2	148 / 1	129 / 1	117 / 2	143 / 1	124 / 2	113 / 2	138 / 1	121 / 2	109 / 2	134 / 1	117 / 2	106 / 2
	1 1/2 x 9 1/4"	(2)ML-10	205 / 2	179 / 2	163 / 2	200 / 1	175 / 2	157 / 2	196 / 1	171 / 2	156 / 2	192 / 1	168 / 2	152 / 2	189 / 1	165 / 2	150 / 2	182 / 1	159 / 2	144 / 2	176 / 2	154 / 2	140 / 2	171 / 2	150 / 2	136 / 2
	1 1/2 x 11 1/4"	(2)ML-11	249 / 2	218 / 2	198 / 2	244 / 2	213 / 2	193 / 2	239 / 2	208 / 2	189 / 2	234 / 2	204 / 2	185 / 2	229 / 2	200 / 2	182 / 2	221 / 2	193 / 2	176 / 2	215 / 2	187 / 2	170 / 3	208 / 2	182 / 2	165 / 3
	1 1/2 x 11 7/8"	(2)ML-12	263 / 2	230 / 2	209 / 3	257 / 2	225 / 2	204 / 3	252 / 0	220 / 2	200 / 2	247 / 2	216 / 2	196 / 2	242 / 2	211 / 2	192 / 2	234 / 2	204 / 2	185 / 3	226 / 2	198 / 2	180 / 3	220 / 2	192 / 2	174 / 3
	1 1/2 x 14"	(2)ML-14	311 / 2	271 / 2	246 / 3	304 / 2	265 / 2	241 / 3	297 / 2	259 / 2	236 / 3	291 / 2	254 / 2	231 / 3	286 / 2	249 / 2	227 / 3	276 / 2	241 / 2	219 / 3	267 / 2	233 / 3	212 / 3	259 / 2	227 / 3	206 / 3
	1 1/2 x 16"	(2)ML-16	355 / 2	310 / 3	282 / 3	347 / 2	303 / 3	275 / 3	340 / 2	297 / 3	269 / 3	333 / 2	291 / 3	264 / 3	326 / 2	285 / 3	259 / 3	315 / 2	275 / 3	250 / 3	305 / 2	267 / 3	242 / 3	297 / 2	259 / 3	235 / 4
	1 1/2 x 18"	(2)ML-18	399 / 2	349 / 3	317 / 4	390 / 2	341 / 3	310 / 4	382 / 2	334 / 3	303 / 3	374 / 2	327 / 3	297 / 3	367 / 2	321 / 3	291 / 3	355 / 2	310 / 3	281 / 4	344 / 3	300 / 3	273 / 4	334 / 3	291 / 3	264 / 4
	1 1/2 x 20"	(2)ML-20	444 / 3	388 / 3	352 / 4	434 / 3	379 / 3	344 / 4	425 / 3	371 / 3	337 / 4	416 / 3	363 / 3	330 / 4	408 / 2	357 / 3	324 / 4	394 / 3	344 / 3	313 / 4	382 / 3	333 / 3	303 / 4	371 / 3	324 / 4	290 / 4
	1 1/2 x 22"	(2)ML-22	488 / 3	427 / 4	388 / 4	477 / 3	417 / 4	379 / 4	467 / 3	408 / 4	371 / 4	458 / 3	400 / 3	363 / 4	449 / 3	392 / 3	356 / 4	434 / 3	379 / 4	344 / 4	420 / 3	367 / 4	331 / 4	408 / 3	356 / 4	317 / 5
	1 1/2 x 24"	(2)ML-24	533 / 3	465 / 4	423 / 5	521 / 3	455 / 4	413 / 5	510 / 3	445 / 1	404 / 4	499 / 3	436 / 4	396 / 4	490 / 3	428 / 4	389 / 4	473 / 3	413 / 4	375 / 5	458 / 3	400 / 4	358 / 5	445 / 3	389 / 4	343 / 5

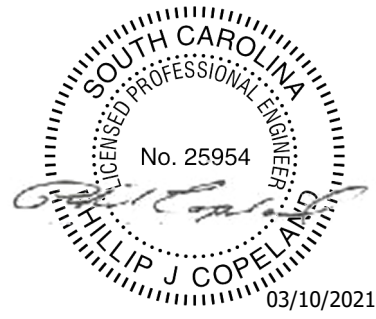
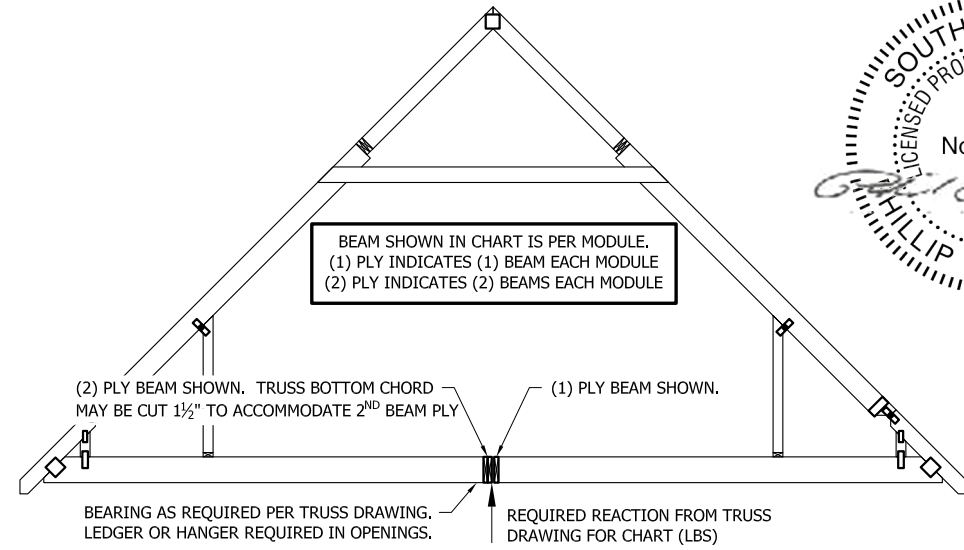
\*NOTES: 1. NUMBER OF JACK STUDS IN CHART IS BASED ON WORST CASE OF BEARING AREA & UPLIFT STRAP REQUIREMENTS, EACH COLUMN PLY SHALL HAVE (1) 26 GA UPLIFT STRAP PER FA01.01  
2. ACTUAL TRUSS REACTIONS MAY BE +15LBS FROM CHART AND STILL USE THE LOWER VALUE. (IE: 1,015 LBS REACTION MAY USE 1,000 LBS COLUMN)

LVL MINIMUM SPECIFICATIONS:  
F<sub>v</sub> = 2,900 psi  
F<sub>v</sub> = 280 psi  
E = 2,000,000 psi

LUMBER (SPF#2 / SYP#2)		CAPE ROOF BEAM																								
		TRUSS REACTION (LBS) / TRUSS SPACING (IN O.C.)																								
HEADER SIZE	HEADER CALL-OUT	700 LBS			750 LBS			800 LBS			850 LBS			900			1000			1100			1200			
		24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	24" O.C.	16" O.C.	12" O.C.	
SINGLE PLY	2x8	M2-8	81 / 1	66 / 1	57 / 1	78 / 1	64 / 1	55 / 1	76 / 1	62 / 1	54 / 1	74 / 1	60 / 1	52 / 1	72 / 1	58 / 1	50 / 1	68 / 1	55 / 1	46 / 2	65 / 1	53 / 1	42 / 2	62 / 1	50 / 1	39 / 2
	2x10	M2-10	96 / 1	79 / 1	68 / 2	93 / 1	76 / 1	66 / 2	90 / 1	74 / 1	64 / 2	87 / 1	71 / 1	62 / 2	85 / 1	69 / 2	60 / 2	81 / 1	66 / 2	57 / 2	77 / 1	63 / 2	54 / 2	74 / 1	60 / 2	49 / 2
	2x12	M2-12	114 / 1	93 / 2	80 / 2	110 / 1	90 / 2	77 / 2	106 / 1	87 / 2	75 / 2	103 / 1	84 / 2	73 / 2	100 / 1	82 / 2	71 / 2	95 / 2	77 / 2	67 / 2	91 / 2	74 / 2	64 / 2	87 / 2	71 / 2	60 / 2
DOUBLE PLY	2x8	(2)M2-8	115 / 1	94 / 2	81 / 2	111 / 1	91 / 2	78 / 2	108 / 1	88 / 2	76 / 2	104 / 1	85 / 2	74 / 2	101 / 1	83 / 2	72 / 2	96 / 2	78 / 2	68 / 2	92 / 2	75 / 2	65 / 2	88 / 2	72 / 2	62 / 2
	2x10	(2)M2-10	137 / 2	111 / 2	96 / 2	132 / 2	108 / 2	93 / 2	128 / 2	104 / 2	90 / 2	124 / 2	101 / 2	87 / 2	120 / 2	98 / 2	85 / 2	114 / 2	93 / 2	81 / 2	109 / 2	89 / 2	77 / 2	104 / 2	85 / 2	74 / 2
	2x12	(2)M2-12	161 / 2	131 / 2	114 / 2	155 / 2	127 / 2	110 / 2	150 / 2	123 / 2	106 / 2	146 / 2	119 / 2	103 / 2	142 / 2	116 / 2	100 / 2	135 / 2	110 / 2	95 / 3	128 / 2	105 / 2	91 / 3	123 / 2	100 / 2	87 / 3

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**PFS CORPORATION**  
Approval Limited to Factory Built Portion Only  
State: North Carolina  
Signature: *Tim Busche*  
Title: Staff Plan Reviewer  
Date: 6/27/22



A TYPICAL CAPE TRUSS - SPACING PER TRUSS DRAWING AND ROOF LOAD  
RF03.03 SEE RF08 FOR INFORMATION NOT SHOWN

TITLE: CAPE ROOF BEAM SPAN CHARTS

MODEL:

DATE: 03/10/2021 SCALE:

DRAWN BY: CORP. CHECKED BY:

BLDG CODE: ASCET-16, NDS 2018

CALCS: RF105

FILENAME: 12-ROOF SECTION

SHEET NO.: RF03.04

PAGE: 1 OF 1

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