



October 9, 2023

Mr. Shane Phelps  
State of North Carolina  
Department of Insurance  
Manufactured Building Division  
1202 Mail Service Center  
Raleigh, NC 27699-1202

RE: R-Anell Housing Group. LLC  
Model 2R2008-R10-NC Rev 1

Mr. Shane Phelps:

Enclosed, you will find one (1) copy of the above-mentioned project for your files.

Should you have any questions or comments, please contact me at your earliest convenience.

Sincerely,

*Kip Whitehead*

Kip Whitehead  
Residential Account Manager  
ICC-NTA LLC

## Adopted Codes: State of North Carolina

- 2018 North Carolina Residential Code
- 2017 North Carolina Electrical Code (2017 NEC)
- 2018 North Carolina Energy Code
- 2018 North Carolina Mechanical Code
- 2018 North Carolina Plumbing Code

### Project Location:

20 BYRD JOHNSON LANE  
LILLINGTON, NC 25546  
HARNETT County

### Occupancy:

Occupancy: .....IRC - Single Family Dwelling  
Construction Type: .....5B (Wood Frame - Unprotected)  
Number of Stories: .....One Story Cape

### Design Load:

Floor Area: .....2401 Sq.Ft.                      Floor Live Load: .....40 psf  
Ground Snow Load: .....20 psf                      Floor Dead Load: .....10 psf  
Top Chord Dead Load: .....10 psf                      Bottom Chord Live Load:.....20 psf  
Ultimate Wind Speed: ..... 120 mph                      Wind Exposure Category: .....B  
Seismic Design Category: ...C                      IECC Geographical Code: .....4

### Insulation

Reference RESCheck for Requirements.

### Attention Local Inspection Departments:

1. Set-up instructions for this modular unit are included by attachment to these plans. Any plans set that does not include an attachment entitled "MODULAR HOME INSTALLATION MANUAL" is incomplete.
2. The following items are not completed by the home manufacturer, are not inspected by in-factory third party inspectors, and are not certified by the modular compliance label: (A) Components or connections for heating or air conditioning systems which are NOT part of the factory installation. (B) Below floor ducts. (C) Electrical service disconnect. (D) Foundation designs and attachments. In order to verify that all required systems connections are complete, refer to the "Inspection Check Sheet" in the manufacturer's modular home installation manual. Regardless of factory or site installation, the furnace, water heater, and all elements of heating system must be per applicable codes, (refer to ResCheck if applicable).
3. Site installed furnace must meet IECC Energy Efficiency Certificate if applicable.
4. This unit must be connected to a public water supply and sewer system if these are available.
5. **If this structure is in a thermal zone more stringent than that listed on these plans, is set on pilings, or is installed at a mountain region or coastal high hazard site such that wind or other design parameters are increased, the design must be determined to be adequate for actual site conditions. Alterations may be required to bring the home into compliance with the more stringent conditions.**
6. Soffit materials for this unit assume that the building face will be 10 feet or greater from the property line when installed on site. Where the building face is less than 10 feet from the property line, underlayment materials and ventilation in accordance with **Section R302.1.1, NC Residential Code**, must be provided and installed at the site and inspected by the local jurisdiction.
7. If after installation of this home, the lowest part of the clear opening of any window is more than 72" above the finished grade, guards will be required to be installed onsite in accordance with **Section R312**; subject to local inspection.
8. Partial plumbing installation (stubbed in) requires full DWV testing in field. Testing of factory portion of DWV is not required unless partial testing is mandated by code.
9. Smoke detectors required by code that are not shown on the plan will be site installed by others and are subject to inspection by the authority having jurisdiction.
10. Where required, window protection designed and provided on site by others to meet applicable local codes.

Model: 2R2008-R10

Customer: STROUTH

Builder: HBV

Manufacturer:

R-Anell Housing Group, LLC

Commodore Homes, LLC

235 Anthony Grove Rd.

Crouse, NC 28033

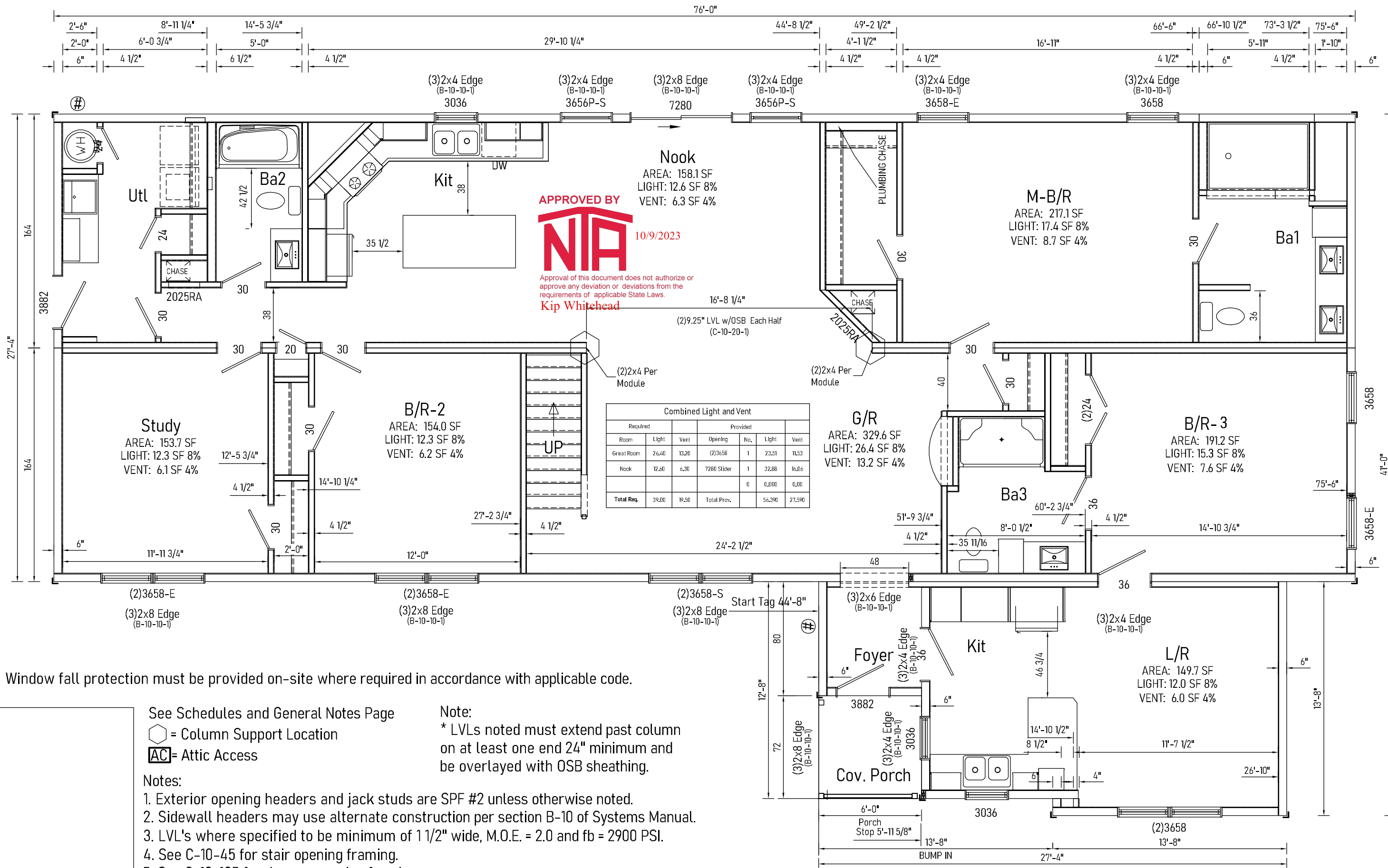


FRONT VIEW

## Drawing Index

Title	Page
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Floor Plan	FP
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Cold Water Lines	WC
DWV System	DL
DWV Notes	DN
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Foundation 2x10 Marriage Line without Stair	FD20#
Manual J Calculations	ATTACHED
ResCheck	ATTACHED
UFP Rigid Collar Tie Connection Details	UFP-EB05-02
Truss Diagram	ATTACHED

APPROVED BY  
**NIA** 10/9/2023  
Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.  
Kip Whitehead



Note: Window fall protection must be provided on-site where required in accordance with applicable code.

See Schedules and General Notes Page

○ = Column Support Location

AC = Attic Access

Notes:

1. Exterior opening headers and jack studs are SPF #2 unless otherwise noted.
2. Sidewall headers may use alternate construction per section B-10 of Systems Manual.
3. LVL's where specified to be minimum of 1 1/2" wide, M.O.E. = 2.0 and fb = 2900 PSI.
4. See C-10-45 for stair opening framing.
5. See C-10-105 for dormer opening framing.

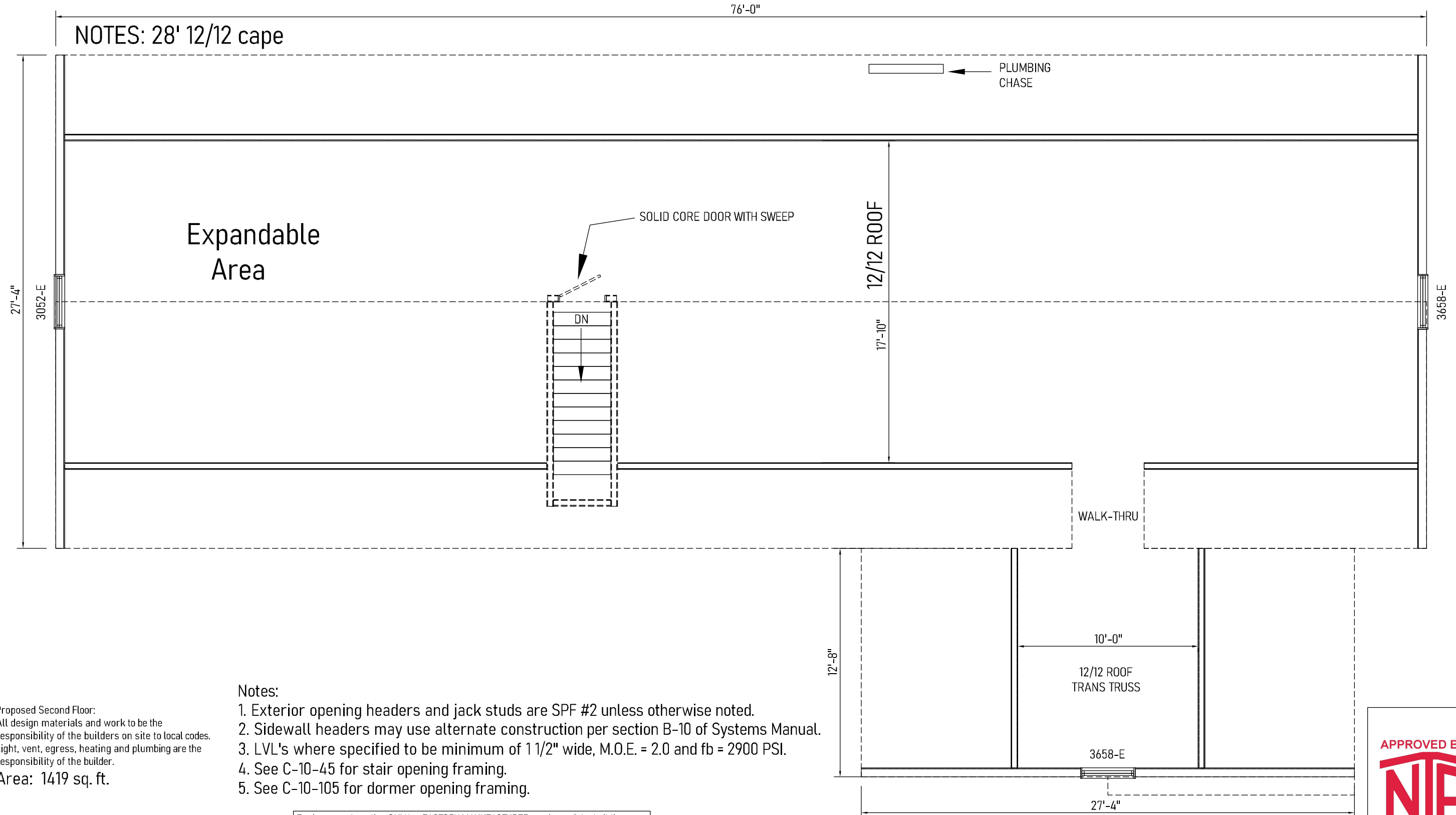
Note:

\* LVLs noted must extend past column on at least one end 24" minimum and be overlaid with OSB sheathing.

Note: Window fall protection must be provided on-site where required in accordance with applicable code.

Note:

\* LVLs noted must extend past column on at least one end 24" minimum and be overlaid with OSB sheathing.



Proposed Second Floor:  
 All design materials and work to be the responsibility of the builders on site to local codes. Light, vent, egress, heating and plumbing are the responsibility of the builder.  
 Area: 1419 sq. ft.


- Notes:
1. Exterior opening headers and jack studs are SPF #2 unless otherwise noted.
  2. Sidewall headers may use alternate construction per section B-10 of Systems Manual.
  3. LVL's where specified to be minimum of 1 1/2" wide, M.O.E. = 2.0 and fb = 2900 PSI.
  4. See C-10-45 for stair opening framing.
  5. See C-10-105 for dormer opening framing.

Engineer seal applies ONLY to FACTORY MANUFACTURED portions of the building. Seal does not apply to site installed elements or portions built on site such as, but not limited to; foundation, connections to foundation, exterior steps, smoke detectors, or other site works. Site work must be designed BY OTHERS for site conditions, under local jurisdiction. COMPLIANCE WITH ALL APPLICABLE CODES PER LOCAL AUTHORITY HAVING JURISDICTION, WHETHER DETAILED IN THIS SET OR NOT, MUST BE MET.

See Schedules and General Notes Page

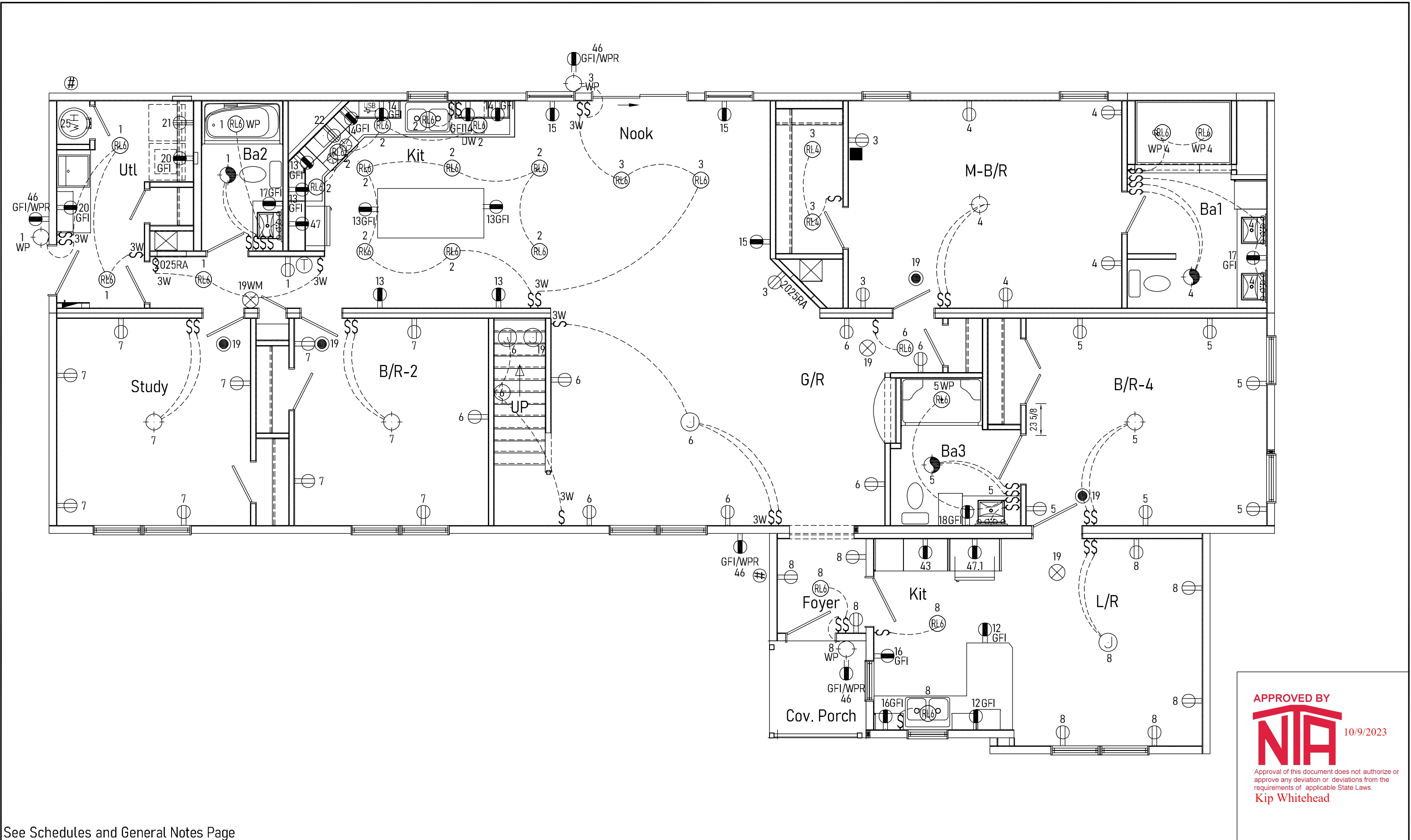
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Builder: R-Anell Housing Group, LLC - Subsidiary of The Commodore Corp.	Address: 235 Anthony Grove Rd. Crouse, NC 28033	Callout: 4276	Revisions:	Scale: 3/16" = 1'-0"	Date: 09/29/2023	Cust: STROUTH	Model/Eng. No.: 2R2008-R10
Title: Proposed Cape Floor Plan			Drawn By: CCL	Reference: NONE		Dtr: HBV	PCFP
						S/N: 44132	Pg.: 3 of 40





**APPROVED BY**



10/9/2023

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**Kip Whitehead**

See Schedules and General Notes Page

Builder: R-Anell Housing Group, LLC - Subsidiary of The Commodore Corp.	Address: 235 Anthony Grove Rd. Crouse, NC 28033	Callout: 4276	Revisions:	Scale: 3/16" = 1'-0" Date: 08/21/2023	Cust: STROUTH Dtr: HBV S/N: 44132
Title: Electrical Plan			Drawn By: CCL	Reference: NONE	Model/Eng. No.: <b>2R2008-R10</b> EP

Optional Method Load Calculation for One-Family Dwellings		Model # 2R2008-R10																									
1 General Lighting and Receptacle Loads 220.82(B)(1) <i>Do not include open porches, garages, or unused or unfinished spaces not adaptable for future use.</i>	$3 \times \frac{2401}{(ft^2 \text{ using outside dimensions})} =$	1	7203																								
2 Small-Appliance Branch Circuits 220.82(B)(2) <i>At least two small-appliance branch circuits must be included. 210.11(C)(1)</i>	$1500 \times \frac{5}{(\text{minimum of two})} =$	2	7500																								
3 Laundry Branch Circuits(s) 220.82(B)(2) <i>At least one laundry branch circuit must be included. 210.11(C)(2)</i>	$1500 \times \frac{1}{(\text{minimum of one})} =$	3	1500																								
4 Appliances 220.82(B)(3) and (4) <i>Do NOT include any heating or A/C equipment in this section. Use the nameplate rating of all appliances (fastened in place, permanently connected, or connected to a specific circuit), ranges, ovens, cooktops, motors, and clothes dryers. Convert any nameplate rating given in amperes to volt-amperes by multiplying the amperes by the rated voltage.</i>	Total volt-amps of all app. LISTED BLEOW	4	33100																								
<table border="0"> <tr> <td>(1) Electric H<sub>2</sub>O Heater</td><td>4.5 KVA</td> <td>(5) Vent Fans</td><td>1.5 KVA</td> </tr> <tr> <td>(1) Electric Dryer</td><td>5.4 KVA</td> <td>(1) Microwave</td><td>1.5 KVA</td> </tr> <tr> <td>(1) Electric Range</td><td>14.2 KVA</td> <td>(1) Dishwasher</td><td>1.5 KVA</td> </tr> <tr> <td>(0) Electric Wal Oven (S)</td><td>0 KVA</td> <td></td><td></td> </tr> <tr> <td>(0) Electric Wal Oven (D)</td><td>0 KVA</td> <td></td><td></td> </tr> <tr> <td>(3) Bath Circ's</td><td>4.5 KVA</td> <td></td><td></td> </tr> </table>		(1) Electric H <sub>2</sub> O Heater	4.5 KVA	(5) Vent Fans	1.5 KVA	(1) Electric Dryer	5.4 KVA	(1) Microwave	1.5 KVA	(1) Electric Range	14.2 KVA	(1) Dishwasher	1.5 KVA	(0) Electric Wal Oven (S)	0 KVA			(0) Electric Wal Oven (D)	0 KVA			(3) Bath Circ's	4.5 KVA				
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5 Apply 220.82(B) demand factor to the total of lines 1 through 4. $49303 - 10,000 = 39303 \times 40\% = 15721 + 10,000 = 25721$ (total of lines 1-4)																											
6 Heating or Air-Conditioning System 220.82(C). <i>Use the nameplate ratings in volt-amperes for all applicable systems in lines a through e.</i>		c) Supplemental electric heating equipment for heat-pump systems. Include the heat-pump compressor(s) at 100%. If the heat-pump compressor is prevented from operating with the supplemental heat, omit the compressor.																									
a) Air-conditioning and cooling systems, including heat pumps without any supplemental electric heating: $6000 \times 100\% =$ a) 6000		d) Electric space-heating equipment, if fewer than four separately controlled units: $20000 \times 65\% =$ d) 13000																									
b) Electric thermal storage & other heating systems where the usual load is expected to be continuous at full nameplate value. Systems qualifying under this selection shall not be figured under any other selection in 220.82(C). $0 \times 100\% =$ b) 0		e) Electric space-heating equipment, if four or more separately controlled units: $0 \times 40\% =$ e) 0																									
7 Total Volt-Ampere Demand Load: (Largest VA rating, 6a - 6e)		7 38721																									
8 Minimum Amperes Divide the total volt-amperes by voltage. (line 7) (voltage) (min. amperes)		9 Minimum Size Service or Feeder 240.6(A) 200 Amps Installed																									
10 Size the Service or Feeder Conductors. Use 310.15(B)(6) to find the service conductor up to 400 amperes. Ratings in excess of 400 amperes shall comply w/ Table 310.16. 310.15(B)(6) also applies to feeder conductors serving as the main power feeder.		10 Minimum Size Conductors 2/0 Copper OR 4/0 Aluminum																									

LEGEND			
		WPR = WEATHERPROOF ENCLOSURE WITH WEATHE RESISTANT RECPT	
	GFI = GROUND FAULT CIRCUIT INTERRUPTER		

CIRCUIT ID NO.	LOAD	AMPS	POLES REQ'D	WIRE SIZE
1-11	General Lighting/Receptacles	15	1	NM14-2/WG
12-16	Small Appliance	20	1	NM12-2/WG
17-18	Bath (GFCI)	20	1	NM12-2/WG
19	Smoke Alarms (AFCI)	15	1	NM14-2/WG
20	Laundry	20	1	NM12-2/WG
21	Electric Dryer	30	2	NM10-3/WG
22	Electric Range	50	2	NM6-3/WG
23	Electric Cooktop	40	2	NM8-3/WG
24	Electric Wall Oven	20	2	NM12-2/WG
	Electric Wall Oven	40	2	NM8-2/WG
25	Electric W/H	25	2	NM10-2/WG
25.1	Tankless W/H	20	1	NM12-2/WG
26	Gas Furnace	15	1	NM14-2/WG
27	Electric Furnace	60/30	4	NM4-2/WG
	Electric Furnace	60/60	4	NM4-2/WG
28-37	Electric BB Heat	20	2	NM12-2/WG
38	A/C	50	2	NM6-2/WG
39	Freezer	20	1	NM12-2/WG
40	Dishwasher	15	1	NM14-2/WG
41	Disposal (GFCI)	15	1	NM14-2/WG
42	Whirlpool Tub (GFCI)	20	1	NM12-2/WG
43	Microwave Oven	20	1	NM12-2/WG
44	Garage (GFCI)	20	1	NM12-2/WG
46	Exterior Receptacles	15 (Opt. 20)	1	NM14-2/WG (Opt. NM12-2/WG)
47-47.1	Refrigerator	20	1	NM12-2/WG

DOOR SCHEDULE					
Description	Label	R/O SF	Light	Vent	Design Load
7280 Sliding Patio Door	7280	40.00	32.88	16.06	+50/-50
3882 9 Lite Exterior Door	3882	21.70	5.12	20.76	+50/-50
3882 6 Panel Exterior Door	3882	21.70	0.00	20.76	+50/-50
24 Hinged Interior Door	24	14.99	0.00	0.00	NA
20 Hinged Interior Door	20	12.68	0.00	0.00	NA
(2) 24 Interior Doors	(2)24	28.82	0.00	0.00	NA
36 Hinged Interior Door	36	21.90	0.00	0.00	NA
30 Hinged Interior Door	30	18.44	0.00	0.00	NA

**STAIRWAYS**  
 RISER HEIGHT - 8 1/4" MAX.  
 TREAD DEPTH - 9" MIN.  
 HEAD ROOM 80" MIN.  
 NOTE: THE STAIRWELL GEOMETRY IN THIS HOME HAS BEEN DESIGNED TO THE CRITERIA ABOVE. IF MORE STRINGENT STAIR GEOMETRY IS REQUIRED OR DESIRED, PLEASE CONTACT THE PLANT OF MANUFACTURE FOR PLAN ADJUSTMENTS.

- ELECTRICAL PLAN NOTES BASED ON NEC 2017:
- ALL KITCHEN AND BATHROOM COUNTER RECEPTS TO BE GFCI PROTECTED.
  - ALL CLOSET LIGHTS TO BE ENCLOSED SURFACE MOUNT FIXTURES, 12" MIN. FROM STORAGE SPACE.
  - ALL RECEPTS TO BE GROUNDING TYPE, PER 210-7/NEC.
  - SPECS, WIRING, INSTALLATIONS, ETC. TO COMPLY WITH NEC REGULATIONS.
  - SERVICE PANEL MAY BE LOCATED IN GARAGE.
  - ALL SMOKE ALARMS TO HAVE BATTERY BACK-UP AND TO BE INTERCONNECTED WITH A 14 GA. MIN. INTERCONNECTION WIRE, 14-3 CABLE, OR EQUIVALENT PER MFG.S RECOMMENDATIONS.
  - EXTERIOR LIGHT AT GARAGE SIDE MAY BE REPLACED.
  - GAS APPLIANCES MAY BE SUBSTITUTED FOR ELECTRIC APPLIANCES WHERE APPLICABLE. WHEN GAS APPLIANCES ARE INSTALLED, ALL GAS PIPING, CONNECTIONS, HOOK-UPS, ETC. TO BE INSTALLED ON SITE BY OTHERS. THE OPTIONAL GARBAGE DISPOSAL CONNECTED TO INDIPENDING RECEPTACLE AND WALL SWITCH.
  - 200 AMP PANEL BOX INSTALLED
  - ALL 120v GENERAL USE RECEPTS ARE TAMPER RESISTANT UNLESS MOUNTED AT LEAST 66" ABOVE FLOOR, OR ARE PART OF A LISTED LIGHT FIXTURE OR APPLIANCE, OR WHERE CORD & PLUG APPLIANCE IN DEDICATED SPACE IS NOT EASILY MOVED FOR USE.
  - ALL EXTERIOR RECEPTACLES ARE GFI, TAMPER RESISTANT AND LISTED FOR WET LOCATIONS.
  - COMBINATION TYPE AFCI BREAKERS ARE REQUIRED FOR ALL 120 V CIRCUITS EXCEPT THOSE SERVING BATHROOMS, GARAGE, LAUNDRY AREAS, KITCHENS, UNFINISHED BASEMENTS AND OUTDOORS.
  - ALL ELECTRICAL BOXES SUPPORTING LIGHTING FIXTURES MUST BE RATED @ 50# AND IDENTIFIED ON THE BOX.
  - WHIRLPOOL RECEPTACLES MUST BE GFCI, TAMPER RESISTANT AND READILY ACCESSIBLE PER NEC 680.71
  - A CIRCUIT BREAKER LOCKING DEVICE SHALL BE PROVIDED TO LOCK THE APPLICABLE BREAKERS IN THEIR "OFF" POSITION. THIS APPLIES TO CIRCUIT BREAKERS WHICH SERVE AS THE DISCONNECT FOR ELECTRIC WATER HEATERS, ELECTRIC BASEBOARD HEATERS, AND ANY APPLIANCE RATED OVER 300 WATTS OR 1/8 HORSEPOWER, WHICH ARE NOT LOCATED WITHIN CLEAR SIGHT OF THEIR DISCONNECT
  - A RECEPTACLE OUTLET IS REQUIRED FOR PORCHES, BALCONIES OR DECKS WHICH ARE ACCESSIBLE FROM THE INSIDE OF THE DWELLING UNIT REGARDLESS OF THE SIZE OF THE PORCH, BALCONY OR DECK.
  - NON-SWITCHED CIRCUIT NEUTRAL CONDUCTOR MUST BE PRESENT AT EACH WALL SWITCH. RE-IDENTIFIED CONDUCTORS WITH WHITE, GREY OR THREE STRIPE INSULATION MAY ONLY BE USED AS SUPPLY TO SWITCH AND NOT FOR HOT RETURN TO FIXTURE.
  - 120v 15 OR 20 AMP RECEPTS LOCATED WITHIN 6' FROM ANY DWELLING UNIT SINK MUST BE GFCI PROTECTED.
  - IF THE PERIMETERS OF THE AREAS OF THE ON-SITE INSTALLED STOOPS, PORCHES OR DECKS ARE NOT UNDER THE EXTERIOR ELECTRICAL RECEPTACLES SHOWN IN THE ELECTRICAL FLOOR PLAN, THEN ADDITIONAL RECEPTACLES SHALL BE SITE INSTALLED WITHIN THESE AREAS BY THE CONTRACTOR.

If an attached garage is to be added to this home, the entrance door to the home from the garage must be a self-closing fire rated door per applicable code. Clothes dryer vents may need to be completed to the exterior of the home on site. Refer to sections of applicable local codes and to Section 8 of the home installation manual for required completion of dryer ventilation as necessary.

FOR PERMANENTLY CONNECTED APPLIANCES RATED AT OVER 300 VOLT-AMPERES OR 1/8 HP, THE BRANCH CIRCUIT BREAKER SHALL BE PERMITTED TO SERVE AS THE DISCONNECTING MEANS WHERE THE CIRCUIT BREAKER IS WITHIN SIGHT FROM THE APPLIANCE OR IS CAPABLE OF BEING LOCKED IN THE OPEN POSITION. THE LOCKING MEANS SHALL REMAIN IN PLACE WITH OR WITHOUT THE LOCK INSTALLED. MAIN DISCONNECT SHALL BE LOCATED ON THE EXTERIOR OF THE HOME.

REFER TO RESCHECK FOR DOOR AND WINDOW U-VALUES

## WINDOW SCHEDULE

AT LEAST ONE EGRESS WINDOW IS REQUIRED FOR EACH SLEEPING AREA WHERE NO EXTERIOR EXIT DOOR EXISTS.

S SUFFIX DENOTES SAFETY GLAZING / E SUFFIX DENOTES EGRESS

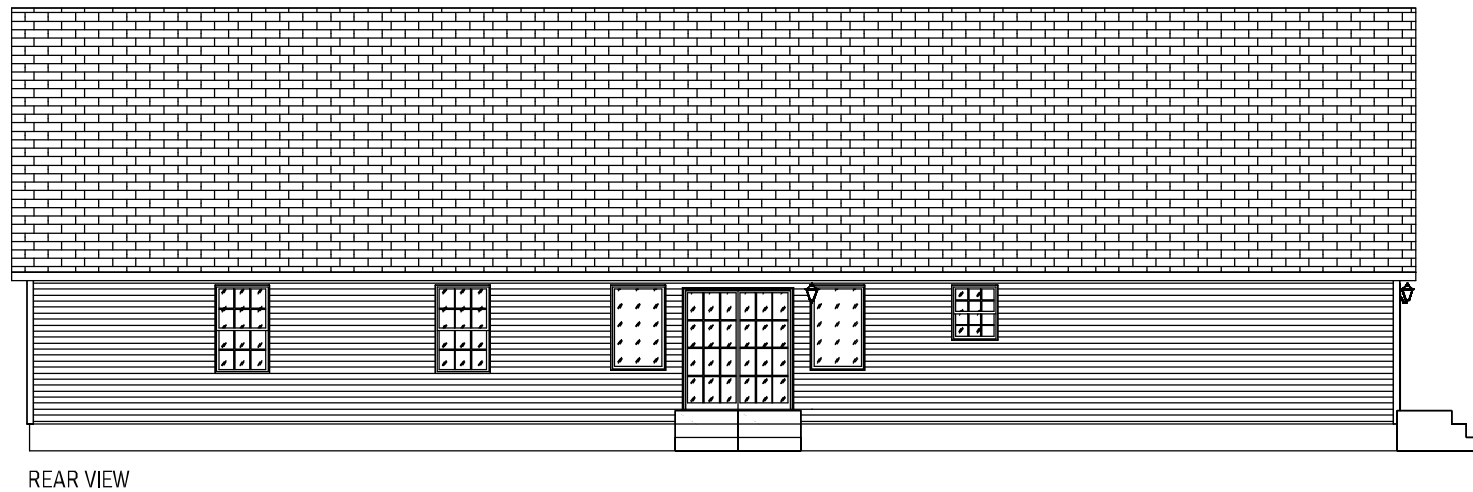
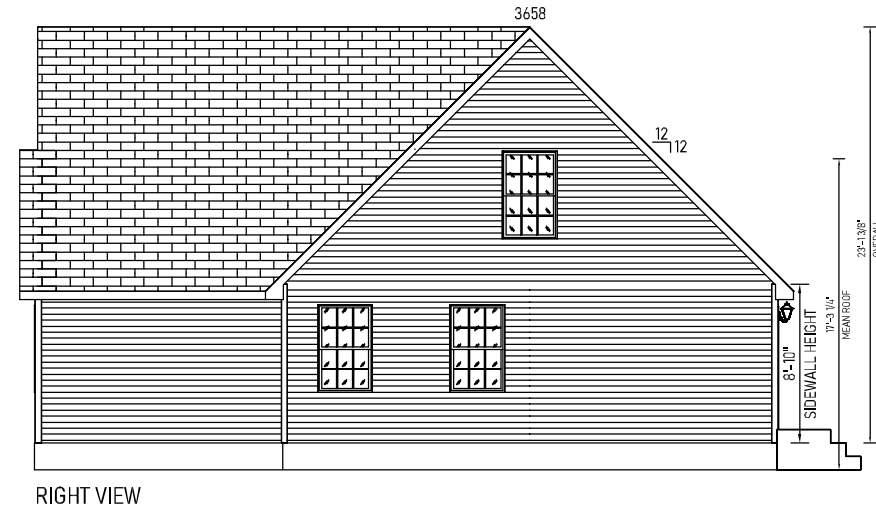
Label	Width R/O	Height R/O	R/O SF	Light	Vent	Room SF	U Value	Egress	Design Load	SHGC w/o Grids
(2)3658	73	58.5	29.66	23.51	11.53	288.25	0.34	Yes	+50/-50	0.32
(2)3658-E	73	58.5	29.66	23.51	11.53	288.25	0.34	Yes	+50/-50	0.32
(2)3658-S	73	58.5	29.66	23.51	11.53	288.25	0.34	Yes	+50/-50	0.32
3036	30.5	36.5	7.73	5.50	2.64	66.00	0.34	No	+50/-50	0.32
3656P-S	36.5	56.5	14.32	12.33	0.00	0.00	0.32	No	+50/-50	0.35
3658	36.5	58.5	14.83	11.76	5.76	144.00	0.34	Yes	+50/-50	0.32
3658-E	36.5	58.5	14.83	11.76	5.76	144.00	0.34	Yes	+50/-50	0.32

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Title: Schedules and General Notes			Drawn By: CCL	Reference: NONE		Dlr: HBV	NG
						S/N: 44132	Pg: NG

ELEVATIONS SHOWN ON THIS PAGE REPRESENT BASIC COMPONENTS AND ARE NOT INTENDED TO BE ALL INCLUSIVE, NOR DO THESE ELEVATIONS DETAIL EVERY CODE REQUIRED ASPECT OF THIS BUILDING. SITE BUILT STOOPS, STEPS, DECKS, PORCHES, HANDRAILS AND/OR SIMILAR ITEMS MUST BE PROVIDED BY OTHERS ON SITE FOR COMPLIANCE WITH APPLICABLE CODES. COMPLIANCE WITH ALL APPLICABLE CODES PER LOCAL AUTHORITY HAVING JURISDICTION, WHETHER DETAILED IN THIS SET OR NOT, MUST BE MET.

Note: Window fall protection must be provided on-site where required in accordance with applicable code.

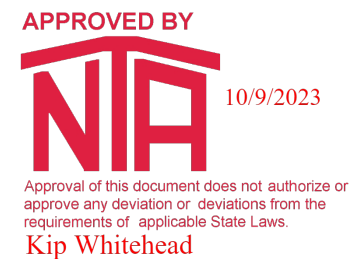


-NOTES-

1. FOUNDATION SHALL BE DESIGNED AND CONSTRUCTED BY OTHERS WHERE "OTHERS" REFERS TO THE DEALER BUILDER.
2. GUTTERS AND LEADERS SHALL BE INSTALLED BY OTHERS.
3. TYPICAL 12" OR 15" VINYL SHUTTERS PROVIDED BY MANUFACTURERS.
4. ALL FOOTINGS, RAILINGS AND STEPS SHALL BE FIELD INSTALLED IN COMPLIANCE WITH APPLICABLE STATE AND LOCAL CODES.
5. SIDING SHALL BE VINYL SIDING WITH VINYL TRIM, AND MAY BE PARTIALLY INSTALLED ON SITE.
6. EXTERIOR LIGHTS MAY BE SHIPPED LOOSE FOR INSTALLATION ON SITE.
7. ROOFING SHINGLES MAY BE PARTIALLY SITE INSTALLED.
8. PORCH RAILINGS ARE PVC. TREATED LUMBER PORCH POSTS MAY BE COVERED WITH VINYL. PORCH DECKING SHALL BE TREATED.
9. ALL EXTERIOR COVERINGS SHALL BE WEATHER AND DECAY RESISTIVE TO PROVIDE PROPER PROTECTION FOR UNTREATED MATERIALS.

NOTE:

HOMES WITH ATTIC SPACE QUALIFYING AS HABITABLE, MUST BE EQUIPPED WITH EMERGENCY ESCAPE AND RESCUE OPENINGS REGARDLESS OF WHETHER ATTIC AREA IS FINISHED OR UNFINISHED. OPENINGS MAY OCCUR AT END WALL OF ATTIC AND/OR AT ROOF DORMERS IN WHATEVER ARRANGEMENT NECESSARY TO INSURE THAT ANY SLEEPING ROOM HAS AT LEAST ONE EGRESS OPENING.



Builder: R-Anell Housing Group, LLC - Subsidiary of The Commodore Corp.	Address: 235 Anthony Grove Rd. Crouse, NC 28033	Callout: 4276	Revisions:	Scale: N.T.S.	Date: 08/21/2023	Cust: STROUTH	Model/Eng. No.: 2R2008-R10
Title: Elevations			Drawn By: CCL	Reference: NONE		Dlr: HBV	EL
						S/N: 44132	Pg.: EL

LEGEND

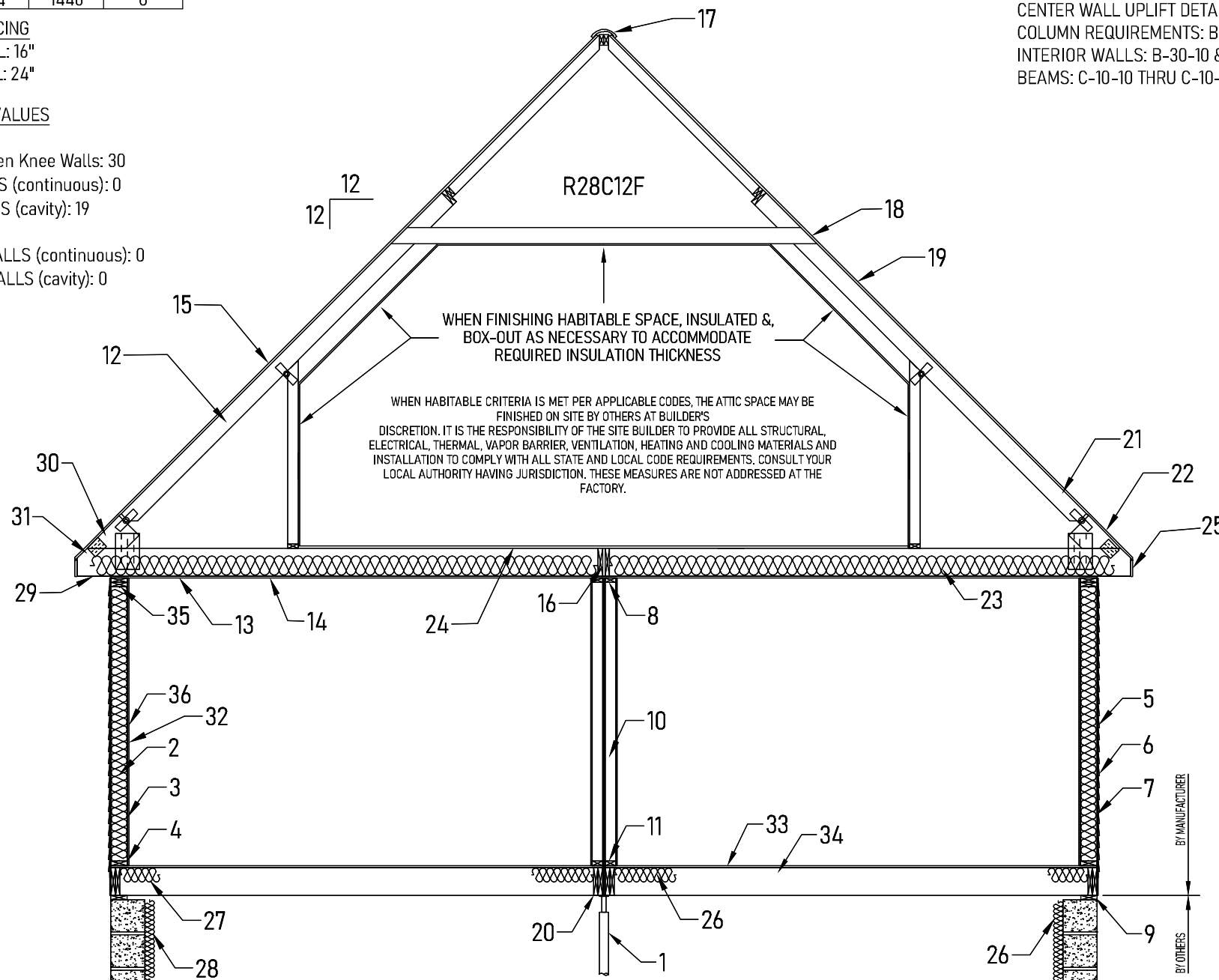
- 1 JACK POST, PIER OR CONCRETE FILLED POST THAT MEETS OR EXCEEDS REQUIRED SUPPORT CAPACITY PER FOUNDATION DESIGN.
- 2 EXTERIOR WALL INSULATION (SEE INSULATION R-VALUES).
- 3 2X6 #3 SPF EXTERIOR WALL STUDS. (SEE STUD O.C. SPACING NOTE)
- 4 2X6 #3 SPF SIDEWALL BOTTOM PLATE.
- 5 7/16" RATED SHEATHING.
- 6 VINYL OR HARDBOARD SIDING (RAN VERT. OR HORZ.) INSTALLED PER MFGR.'S INSTRUCTIONS.
- 7 AIR INFILTRATION AND WATER RESISTANT BARRIER.
- 8 2X4 #3 SPF SINGLE OR DOUBLE TOP PLATE.
- 9 2X6 TREATED SILL PLATE. FASTENING OF SILL AND HOME TO FOUNDATION ON SITE PER CODES OR BY LOCAL ENGINEER WHEN APPLICABLE.
- 10 2X4 #3 SPF INTERIOR WALL STUDS. (SEE STUD O.C. SPACING NOTE)
- 11 2X4 #3 SPF BOTTOM PLATE INTERIOR WALLS, TYP.
- 12 ENGINEERED TRUSSES SPACED TO MEET DESIGNED GROUND LOAD SNOW LOAD.
- 13 VAPOR BARRIER.
- 14 CEILING BOARD 1/2" GYPSUM.
- 15 7/16" 24/16 RATED ROOF DECKING MIN. TYP.
- 16 2X4 #3 SPF MIN. VERT. RAIL CONT. ON BOTH SECTIONS OVER MATE WALL. USE APPLICABLE BEAM OVER OPEN SPANS (TYP.) PER PG'S C-10-10 OF SYSTEM DOCUMENT.
- 17 RIDGE VENT TYP. 50% VENTILATION OF ROOF CAVITY (UPPER PORTION), INSTALLED PER CODE REQUIREMENTS.
- 18 TYPICAL SHINGLES, INSTALLED PER MFGR'S INSTRUCTIONS.
- 19 SHINGLE UNDERLAYMENT TYP.
- 20 JOIST HANGERS AT MATELINE(S).
- 21 1" MIN. SPACE FOR ATTIC VENTILATION.
- 22 TYPICAL ICE BARRIER PER SECTION 905 OF APPLICABLE CODE.
- 23 CEILING INSULATION TYP. (SEE INSULATION R-VALUES).
- 24 23/32" (O.S.B.) BOARD DECKING.
- 25 ALUM., VINYL OR HARDIE BOARD FACIA AND DRIP EDGE.
- 26 FLOOR CAVITY OR PERIMETER WALL MUST BE INSULATED ON SITE OR AT THE FACTORY (SEE "INSULATION R-VALUES")
- 27 PERIMETER RIM JOIST MUST BE INSULATED TO R-VALUE LISTED FOR EXTERIOR WALLS
- 28 INSULATION INSTALLED ONSITE BY OTHERS PER THERMAL REQUIREMENTS AND/OR STATE AND LOCAL CODES
- 29 VENTED SOFFIT 50% OF LOWER ROOF VENTILATION.
- 30 BAFFLE REQUIRED
- 31 DRIFT BLOCKER
- 32 VAPOR RETARDER (AS REQUIRED PER CLIMATE ZONE).
- 33 FLOOR DECKING RATED FOR 19.2" O.C. JOIST SPACING MAX.
- 34 MIN. 2X10 #2 SPF FLOOR JOIST 16" O.C.
- 35 2X6 #3 SPF DOUBLE TOP PLATE.
- 36 WALL COVERING (MIN. 1/2" GYPSUM).

Truss Data			
Truss #	Spacing	Sidewall	Centerline
R28C12F	24	1051	976
R274G12F	24	1446	0

STUD O.C. SPACING  
 EXTERIOR WALL: 16"  
 INTERIOR WALL: 24"

INSULATION R-VALUES  
 CEILING: 38  
 CEILING (Between Knee Walls: 30  
 EXTERIOR WALLS (continuous): 0  
 EXTERIOR WALLS (cavity): 19  
 FLOOR: 30  
 FOUNDATION WALLS (continuous): 0  
 FOUNDATION WALLS (cavity): 0

SYSTEMS MANUAL REFERENCES  
 FLOOR CONSTRUCTION: A-10-10 & 20  
 SIDEWALL CONSTRUCTION: B-10-10  
 CENTER WALL UPLIFT DETAIL: B-20-10  
 COLUMN REQUIREMENTS: B-20-20, 21 & 30  
 INTERIOR WALLS: B-30-10 & 11  
 BEAMS: C-10-10 THRU C-10-30



NOTES:

- FOLLOW RECOMMENDED ATTACHMENTS FOR FASTENING OF HOME TO FOUNDATION.
- FOUNDATIONS TO BE BUILT AND CONSTRUCTED BY OTHERS ON SITE.
- FOUNDATIONS (BY OTHERS) MUST MEET ALL APPLICABLE CODES.
- NOTES AND/OR ILLUSTRATIONS SHOWN ARE TYPICAL AND MAY NOT APPLY TO ALL HOMES CONSTRUCTED.
- CONSTRUCTION & SPECIFICATIONS MAY VARY PER PLAN.
- REFER TO INSTALLATION MANUAL FOR MODULE CONNECTIONS.
- REFER TO INSTALLATION MANUAL AND TRUSS MFG. DIAGRAM FOR ROOF TRUSS BRACING.

IMPORTANT!

MAIN LEVEL FLOORS, OVER ENCLOSED FOUNDATIONS, CONSTRUCTED WITH OPTIONAL ENGINEERED WEB FLOOR JOISTS (OPEN JOISTS) OR WITH JOISTS OF NOMINAL LUMBER LESS THAN 2X10, MAY BE SUBJECT TO SPECIAL FIRE PROTECTIVE REQUIREMENTS TO BE PERFORMED BY OTHERS ON SITE. CONSULT ADOPTED LOCAL CODES FOR COMPLIANCE WITH FIRE PROTECTION OF FLOORS. REFERENCE THE APPROVED SYSTEMS PACKAGE FOR ADDITIONAL AND SPECIFIC CROSS SECTION INFORMATION

TRIMLINE RIDGE VENT: ALLOWS 13" OF NET FREE AIR PER LINEAL FOOT  
 FULL LENGTH OF HOUSE AIR FLO SOFFIT: FULL VENTED 5.89 SQ IN PER LINEAL FOOT  
 FULL LENGTH OF HOUSE 2401/300 = 8 VENT REQUIRED

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 Kip Whitehead



LEGEND

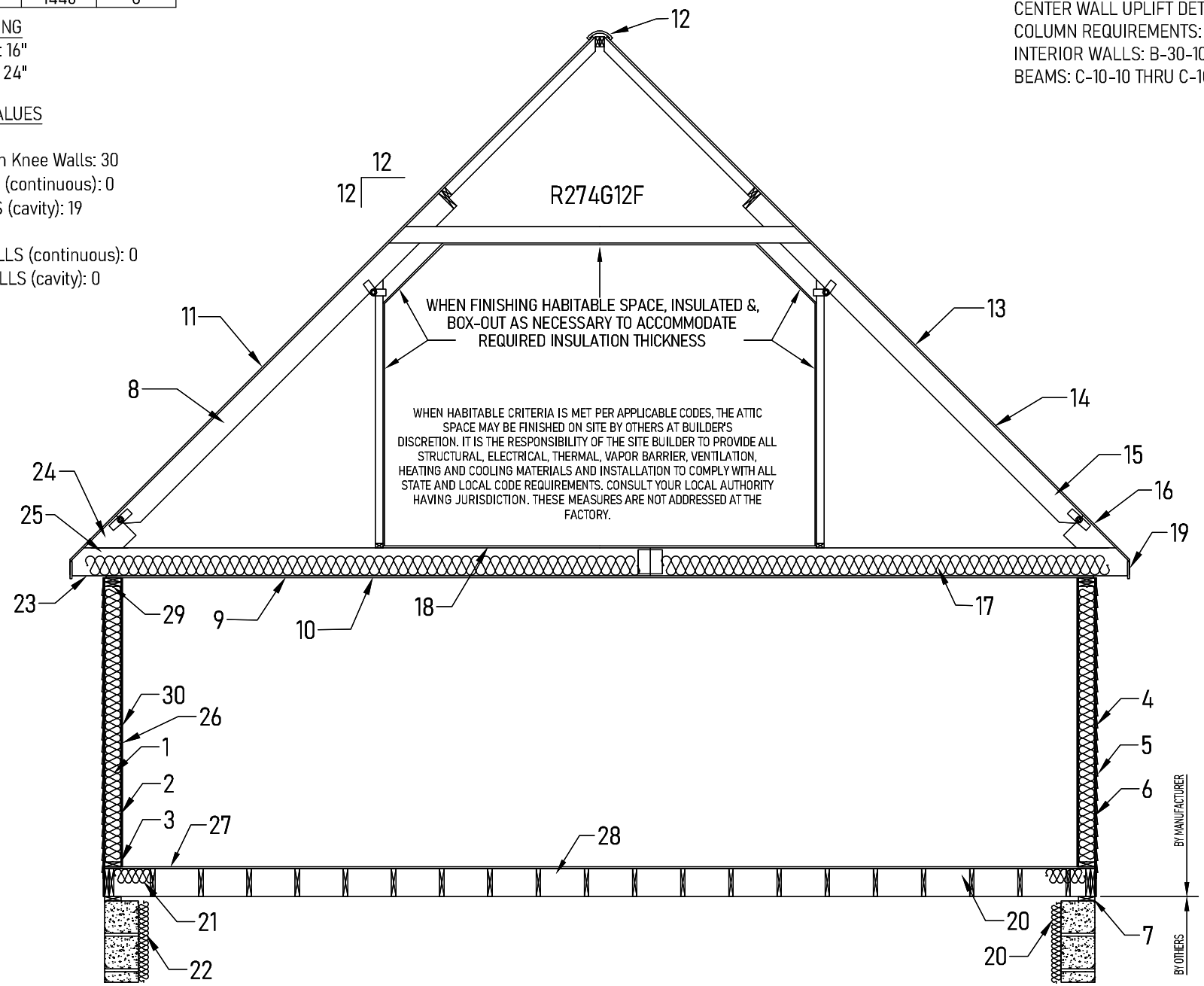
- 1 EXTERIOR WALL INSULATION (SEE INSULATION R-VALUES).
- 2 2X6 #3 SPF EXTERIOR WALL STUDS. (SEE STUD O.C. SPACING NOTE)
- 3 2X6 #3 SPF SIDEWALL BOTTOM PLATE.
- 4 7/16" RATED SHEATHING.
- 5 VINYL OR HARDBOARD SIDING (RAN VERT. OR HORZ.) INSTALLED PER MFGR.'S INSTRUCTIONS.
- 6 AIR INFILTRATION AND WATER RESISTANT BARRIER.
- 7 2X6 TREATED SILL PLATE. FASTENING OF SILL AND HOME TO FOUNDATION ON SITE PER CODES OR BY LOCAL ENGINEER WHEN APPLICABLE.
- 8 ENGINEERED TRUSSES SPACED TO MEET DESIGNED GROUND LOAD SNOW LOAD.
- 9 VAPOR BARRIER.
- 10 CEILING BOARD 1/2" GYPSUM.
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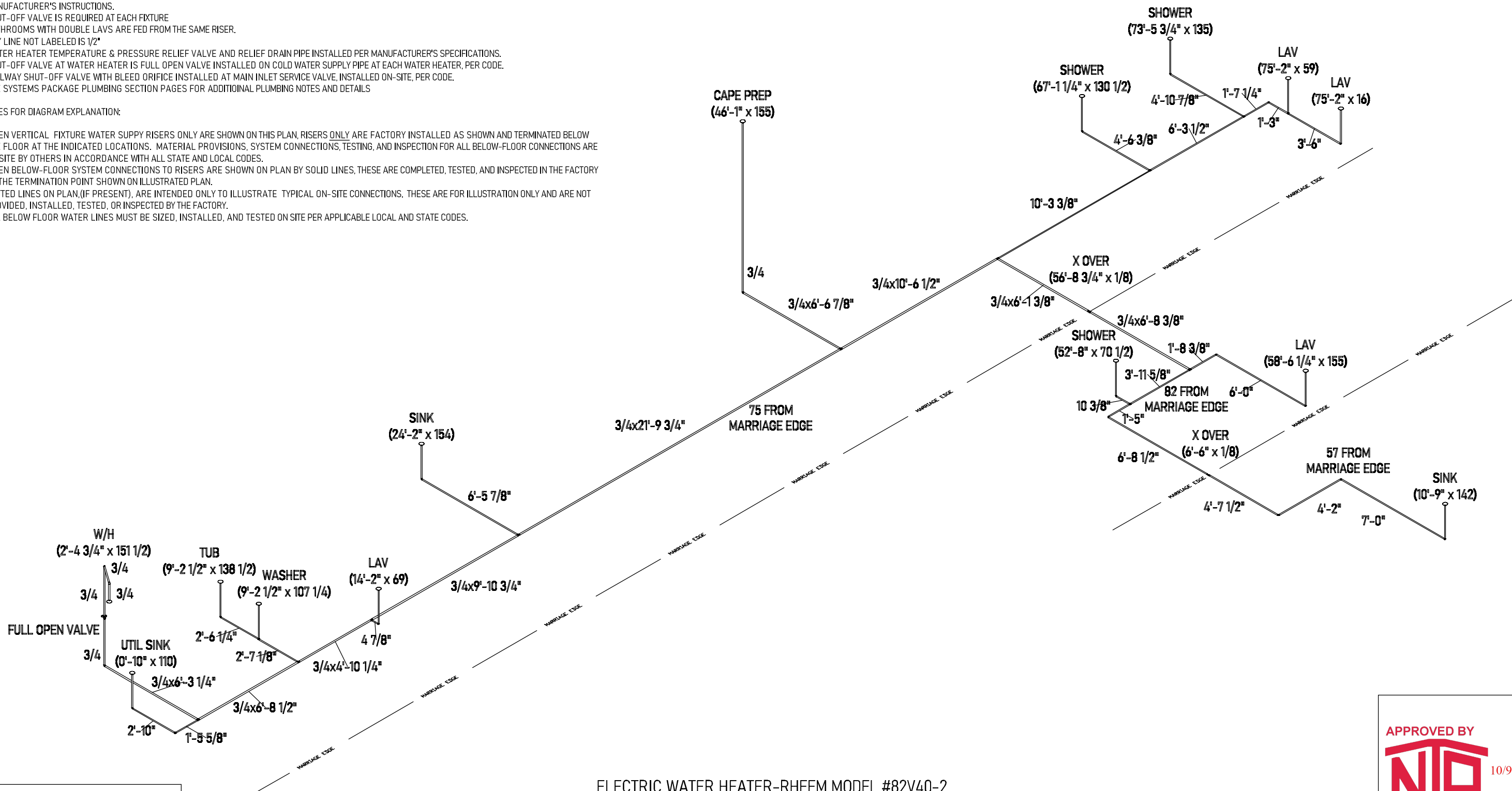
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- NOTE:
- 3/4" GALVANIZED, OR COPPER RELIEF DRAIN (NOT SHOWN) THRU FLOOR w/VISIBLE AIR GAP
  - INLET WITH 1" CAP & CHAIN.
  - DIMENSIONS EXPRESSED IN PARENTHESIS (A x B) INDICATE: (DIST. FROM REAR END OF HOME FLOOR x DIST. FROM HOME MATE LINE).
  - ANTI-SCALD DEVICE ON ALL SHOWER, AND TUB/SHOWER COMBINATIONS.
  - WATER-HAMMER ARRESTORS AT BATTERY OF FIXTURES INSTALLED WHEREVER THERE IS A QUICK-CLOSING VALVE CONFORMING TO ASSE 1010 & MANUFACTURER'S INSTRUCTIONS.
  - SHUT-OFF VALVE IS REQUIRED AT EACH FIXTURE
  - BATHROOMS WITH DOUBLE LAVS ARE FED FROM THE SAME RISER.
  - ANY LINE NOT LABELED IS 1/2"
  - WATER HEATER TEMPERATURE & PRESSURE RELIEF VALVE AND RELIEF DRAIN PIPE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
  - SHUT-OFF VALVE AT WATER HEATER IS FULL OPEN VALVE INSTALLED ON COLD WATER SUPPLY PIPE AT EACH WATER HEATER, PER CODE.
  - FULLWAY SHUT-OFF VALVE WITH BLEED ORIFICE INSTALLED AT MAIN INLET SERVICE VALVE, INSTALLED ON-SITE, PER CODE.
  - SEE SYSTEMS PACKAGE PLUMBING SECTION PAGES FOR ADDITIONAL PLUMBING NOTES AND DETAILS

SITE NOTES FOR DIAGRAM EXPLANATION:

- WHEN VERTICAL FIXTURE WATER SUPPLY RISERS ONLY ARE SHOWN ON THIS PLAN, RISERS ONLY ARE FACTORY INSTALLED AS SHOWN AND TERMINATED BELOW THE FLOOR AT THE INDICATED LOCATIONS. MATERIAL PROVISIONS, SYSTEM CONNECTIONS, TESTING, AND INSPECTION FOR ALL BELOW-FLOOR CONNECTIONS ARE ON SITE BY OTHERS IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
- WHEN BELOW-FLOOR SYSTEM CONNECTIONS TO RISERS ARE SHOWN ON PLAN BY SOLID LINES, THESE ARE COMPLETED, TESTED, AND INSPECTED IN THE FACTORY TO THE TERMINATION POINT SHOWN ON ILLUSTRATED PLAN.
- DOTTED LINES ON PLAN, (IF PRESENT), ARE INTENDED ONLY TO ILLUSTRATE TYPICAL ON-SITE CONNECTIONS. THESE ARE FOR ILLUSTRATION ONLY AND ARE NOT PROVIDED, INSTALLED, TESTED, OR INSPECTED BY THE FACTORY.
- ALL BELOW FLOOR WATER LINES MUST BE SIZED, INSTALLED, AND TESTED ON SITE PER APPLICABLE LOCAL AND STATE CODES.



HANGER SPACING - PEX PIPE (SUPPLY)	
MAX HORIZONTAL SPACING (FT.)	MAX VERTICAL SPACING (FT.)
2'-8"	4'-0"

LINE SIZED FOR DISHWASHER

ELECTRIC WATER HEATER-RHEEM MODEL #82V40-2  
 ELECTRIC WATER HEATER-RHEEM MODEL #82V52-2  
 ELECTRIC WATER HEATER-RHEEM MODEL #83VR52-2  
 GAS WATER HEATER-RHEEM MODEL #22V40F1  
 GAS WATER HEATER-RHEEM MODEL #22V50F1

ALL DIMENSIONS FROM REAR AND MARRIAGE EDGE

APPROVED BY



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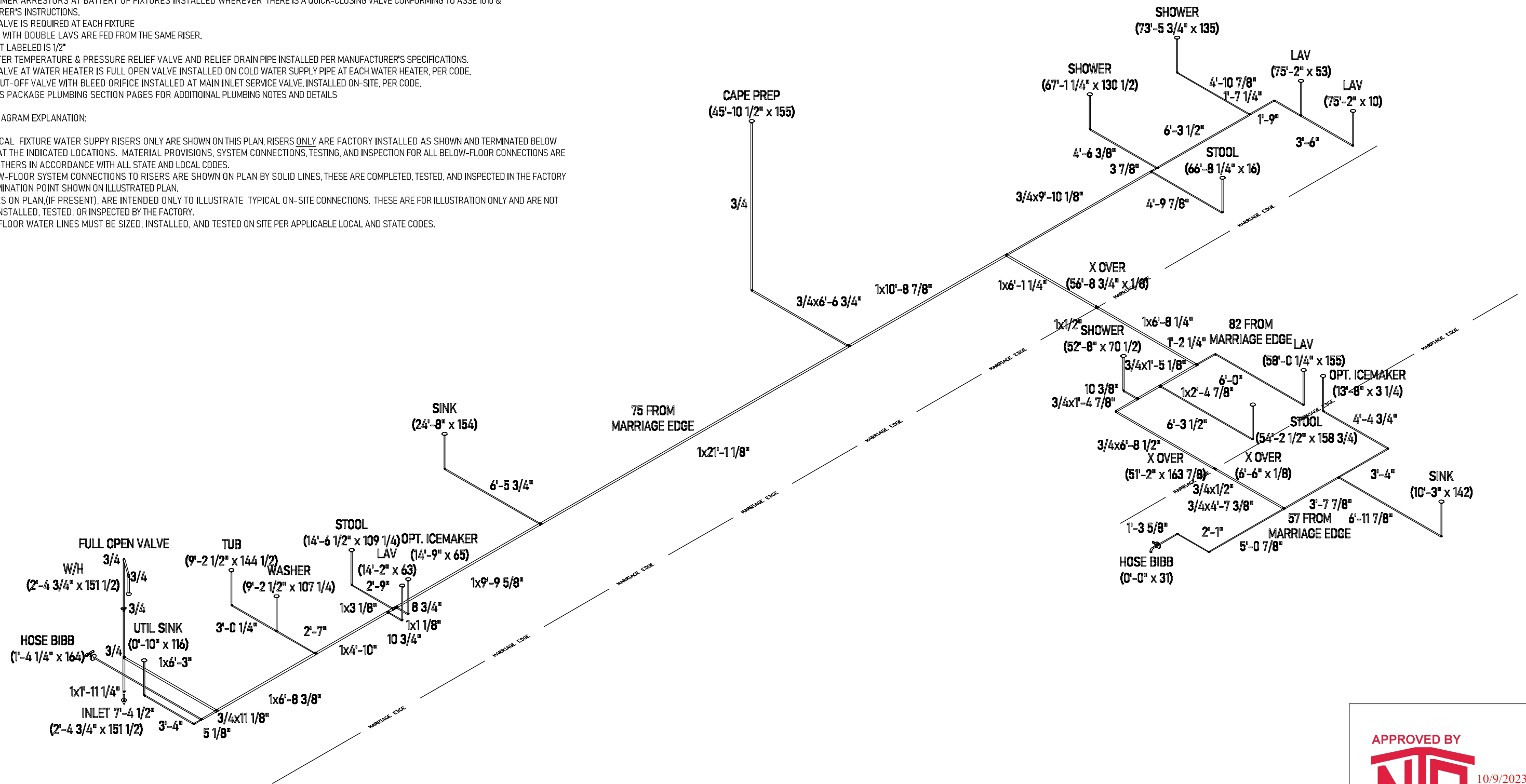
Builder: R-Anell Housing Group, LLC - Subsidiary of The Commodore Corp.	Address: 235 Anthony Grove Rd. Crouse, NC 28033	Callout: 4276	Revisions:	Scale: CUSTOM	Date: 08/21/2023	Cust: STROUTH	Model/Eng. No.: 2R2008-R10
Title: Hot Water Lines			Drawn By: CCL	Reference: NONE		Dtr: HBV	WH
						S/N: 44132	Pg.: 9 of 40



- NOTE:
- 3/4" GALVANIZED, OR COPPER RELIEF DRAIN (NOT SHOWN) THRU FLOOR w/VISIBLE AIR GAP
  - INLET WITH 1" CAP & CHAIN.
  - DIMENSIONS EXPRESSED IN PARENTHESIS (A x B) INDICATE: (DIST. FROM REAR END OF HOME FLOOR x DIST. FROM HOME MATE LINE).
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SITE NOTES FOR DIAGRAM EXPLANATION:

- WHEN VERTICAL FIXTURE WATER SUPPLY RISERS ONLY ARE SHOWN ON THIS PLAN, RISERS ONLY ARE FACTORY INSTALLED AS SHOWN AND TERMINATED BELOW THE FLOOR AT THE INDICATED LOCATIONS. MATERIAL PROVISIONS, SYSTEM CONNECTIONS, TESTING, AND INSPECTION FOR ALL BELOW-FLOOR CONNECTIONS ARE ON SITE BY OTHERS IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
- WHEN BELOW-FLOOR SYSTEM CONNECTIONS TO RISERS ARE SHOWN ON PLAN BY SOLID LINES, THESE ARE COMPLETED, TESTED, AND INSPECTED IN THE FACTORY TO THE TERMINATION POINT SHOWN ON ILLUSTRATED PLAN.
- DOTTED LINES ON PLAN, (IF PRESENT), ARE INTENDED ONLY TO ILLUSTRATE TYPICAL ON-SITE CONNECTIONS. THESE ARE FOR ILLUSTRATION ONLY AND ARE NOT PROVIDED, INSTALLED, TESTED, OR INSPECTED BY THE FACTORY.
- ALL BELOW FLOOR WATER LINES MUST BE SIZED, INSTALLED, AND TESTED ON SITE PER APPLICABLE LOCAL AND STATE CODES.



HANGER SPACING - PEX PIPE (SUPPLY)	
MAX HORIZONTAL SPACING (FT.)	MAX VERTICAL SPACING (FT.)
2'-8"	4'-0"


ELECTRIC WATER HEATER-RHEEM MODEL #82V40-2  
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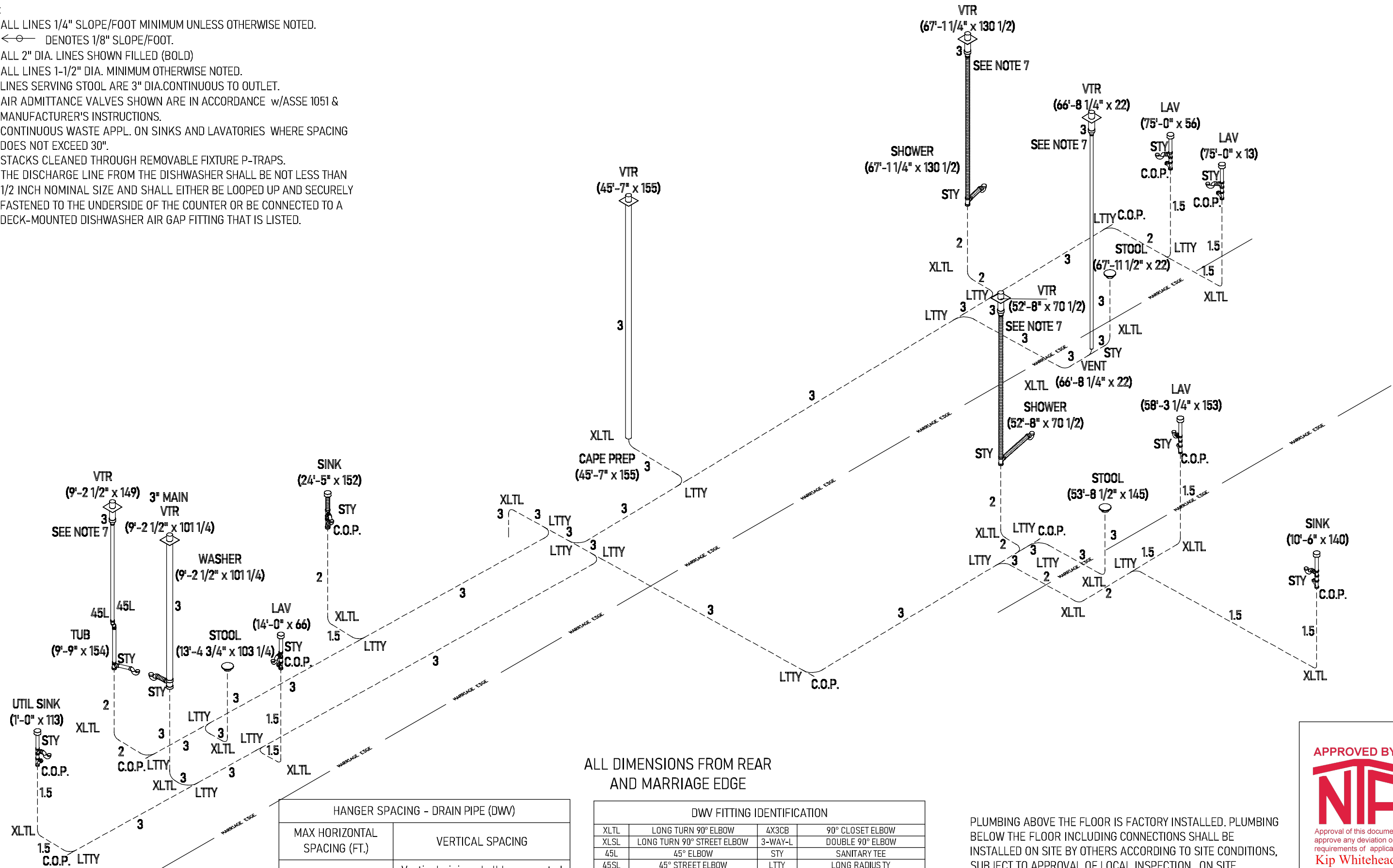
ALL DIMENSIONS FROM REAR AND MARRIAGE EDGE



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Title: Cold Water Lines			Drawn By: CCL	Reference: NONE		Dtr: HBV	WC
						S/N: 44132	Pg.: 10 of 40

NOTE:

1. ALL LINES 1/4" SLOPE/FOOT MINIMUM UNLESS OTHERWISE NOTED.
2.  DENOTES 1/8" SLOPE/FOOT.
3. ALL 2" DIA. LINES SHOWN FILLED (BOLD)
4. ALL LINES 1-1/2" DIA. MINIMUM OTHERWISE NOTED.
5. LINES SERVING STOOL ARE 3" DIA. CONTINUOUS TO OUTLET.
6. AIR ADMITTANCE VALVES SHOWN ARE IN ACCORDANCE w/ASSE 1051 & MANUFACTURER'S INSTRUCTIONS.
7. CONTINUOUS WASTE APPL. ON SINKS AND LAVATORIES WHERE SPACING DOES NOT EXCEED 30".
8. STACKS CLEANED THROUGH REMOVABLE FIXTURE P-TRAPS.
9. THE DISCHARGE LINE FROM THE DISHWASHER SHALL BE NOT LESS THAN 1/2 INCH NOMINAL SIZE AND SHALL EITHER BE LOOPED UP AND SECURELY FASTENED TO THE UNDERSIDE OF THE COUNTER OR BE CONNECTED TO A DECK-MOUNTED DISHWASHER AIR GAP FITTING THAT IS LISTED.



ALL DIMENSIONS FROM REAR AND MARRIAGE EDGE

HANGER SPACING - DRAIN PIPE (DWV)	
MAX HORIZONTAL SPACING (FT.)	VERTICAL SPACING
4'-0"	Vertical piping shall be supported at each story or floor level.

DWV FITTING IDENTIFICATION			
XLTL	LONG TURN 90° ELBOW	4X3CB	90° CLOSET ELBOW
XLSL	LONG TURN 90° STREET ELBOW	3-WAY-L	DOUBLE 90° ELBOW
45L	45° ELBOW	STY	SANITARY TEE
45SL	45° STREET ELBOW	LTTY	LONG RADIUS TY
22.5L	22 1/2° ELBOW	45 WYE	45° WYE
22.5SL	22 1/2° STREET ELBOW		

PLUMBING ABOVE THE FLOOR IS FACTORY INSTALLED. PLUMBING BELOW THE FLOOR INCLUDING CONNECTIONS SHALL BE INSTALLED ON SITE BY OTHERS ACCORDING TO SITE CONDITIONS, SUBJECT TO APPROVAL OF LOCAL INSPECTION. ON SITE PLUMBING SHOWN IS SUGGESTIVE ONLY.

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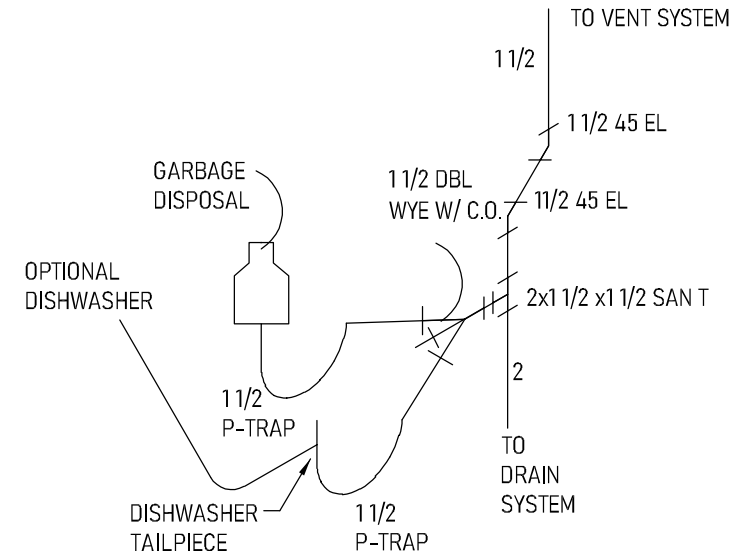
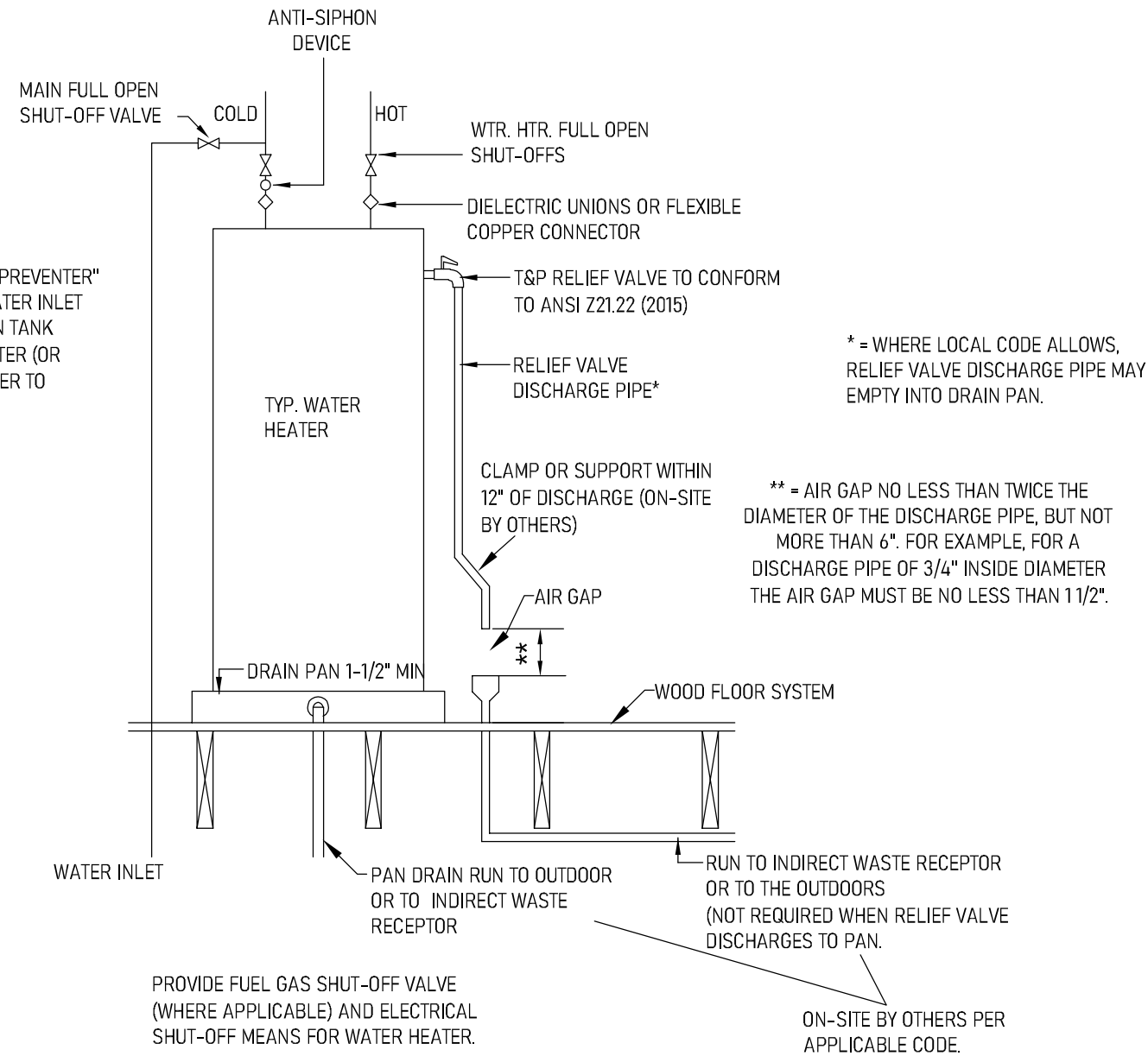
**PIPE SUPPORT:**

**VERTICAL PIPING:**  
SUPPORTS AT 10' O.C. MAX. OR BETWEEN FLOOR LEVELS.

**HORIZONTAL PIPING:**  
SUPPORTS AT 4' O.C. MAX. ENDS OF BRANCHES, AND AT CHANGES IN ELEVATION AND/OR DIRECTION.

**TRAP ARMS:**  
SUPPORT LOCATED AS CLOSE TO TRAP AS POSSIBLE WHEN TRAP TO VENT EXCEEDS 3'.

WATER HEATERS, WHICH HAVE A "BACK-FLOW PREVENTER" OR A "CHECK VALVE" LOCATED IN THE COLD WATER INLET LINE, ARE TO BE EQUIPPED WITH AN EXPANSION TANK INSTALLED BETWEEN THE BACK-FLOW PREVENTER (OR CHECK VALVE) AND THE WATER HEATER IN ORDER TO ALIEVIATE THERMAL EXPANSION.



OPTIONAL GARBAGE DISPOSAL PLUMBING ILLINOIS MODELS ONLY - USE DETAIL ABOVE FOR OPTIONAL GARBAGE DISPOSAL.

- NOTES:**
- ALL BELOW FLOOR PLUMBING BY OTHERS. ALL FITTINGS BELOW BOTTOM CAN BE SHIPPED LOOSE.
  - ALL BELOW FLOOR PLUMBING ILLUSTRATIONS ARE RECOMMENDATIONS ONLY. ON-SITE CONDITIONS AND/OR RESTRICTIONS MAY REQUIRE SOME MODIFICATIONS.
  - OPT. GARBAGE DISPOSAL TO BE LOCATED ON KITCHEN SINK WASTE ASSEMBLY. ALL VENTS THRU ROOF TO BE 3", 12" MIN. ABOVE AND BELOW ROOF PENETRATION.
  - ALL P-TRAPS TO BE 1 1/2" UNLESS NOTED.
  - HORIZONTAL VENT SLOPE : 1/8" PER FOOT
  - HORIZONTAL DRAIN SLOPE: 1/4" PER FOOT
  - DRAIN, WASTE, AND VENT PLUMBING TO BE PVC PLASTIC OR EQUAL, APPROVED FOR DWV APPLICATIONS.
  - DRAIN AND DISCHARGE PIPES SERVING WATER HEATERS TO BE CPVC OR OTHER CODE APPROVED MATERIAL.
  - ANY TRANSITIONS TO MATERIALS, OTHER THAN THE SPECIFIED MATERIAL, MUST INCORPORATE AN APPROVED FITTING FOR CONNECTION.
  - ALL TUBS WITH WHIRLPOOL MUST BE PROVIDED WITH ACCESS TO MOTOR. ALL PLUMBING TO MEET OR EXCEED CURRENT ADOPTED PLUMBING CODES.
  - IN CONCEALED SPACES WHERE PIPING IS INSTALLED THRU HOLES OR NOTCHES IN STUDS, JOISTS, TRUSSES, OR SIMILAR MEMBERS LESS THAN 1 1/2" FROM NEAREST EDGE OF THE MEMBER, THE PIPE SHALL BE PROTECTED BY SHIELD PLATES.
  - PROTECTIVE SHIELD PLATES SHALL BE A MINIMUM OF 16 GA. STEEL. PLATES SHALL COVER AREA OF THE PIPE WHERE THE MEMBERS ARE NOTCHED OR BORED, AND SHALL EXTEND A MINIMUM OF 2" ABOVE SOLE PLATES AND BELOW TOP PLATES.
  - AIR ADMITTANCE VALVES MAY SUBSTITUTE ROOF VENTS AT VARIOUS LOCATIONS PER APPLICABLE STATE AND LOCAL PLUMBING CODES. THE 3" MAIN VENT MUST BE VENTED THRU THE ROOF AND CANNOT BE MECHANICALLY VENTED.
  - IN SEISMIC CATEGORIES D0, D1, D2 OR E STRAP UPPER THIRD AND LOWER THIRD OF WATER HEATER TO RESIST A HORIZONTAL FORCE OF 1/3 THE OPERATING WEIGHT OF THE WATER HEATER.

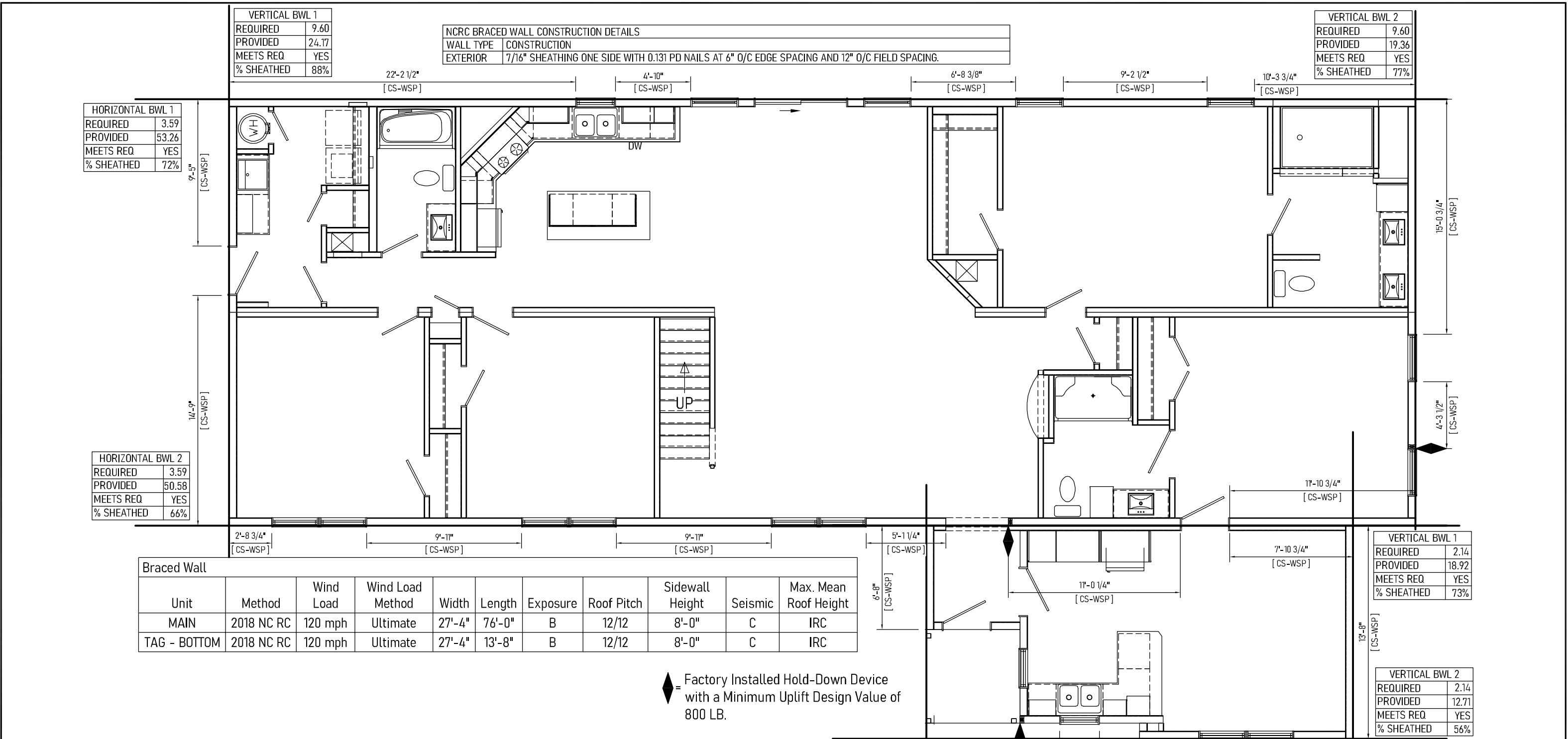
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Title: DWV Notes			Drawn By: CCL	Reference: NONE		Dlr: HBV	DN
						S/N: 44132	Pg.: 10



Bracing per prescriptive North Carolina 2018 Residential code.

In conjunction with the wall bracing requirements of Section 602.10, all exterior walls are sheathed with wood structural sheathing panels in accordance with 4506.2 for 140 to 150 MPH structural bracing.

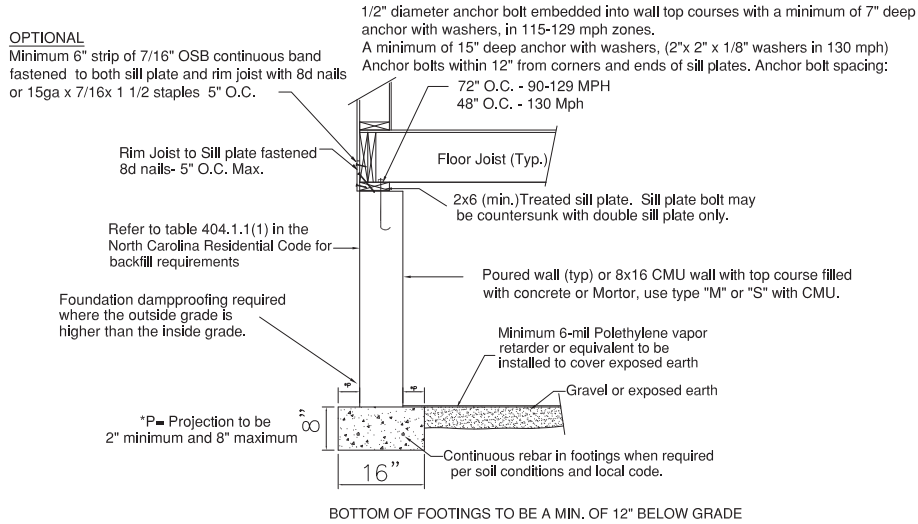
FOUNDATION TIE-DOWN MUST BE CONNECTED ON-SITE BY POINT LOAD LOCATIONS AS NOTED (BY OTHERS). ALTERNATIVE TIE DOWN CONNECTION METHODS APPROVED BY A LOCAL ENGINEER MAY BE USED. REFER TO THE IRC FOR FOUNDATION TIE DOWN REQUIREMENTS FOR 130 MPH OR LESS WIND ZONES





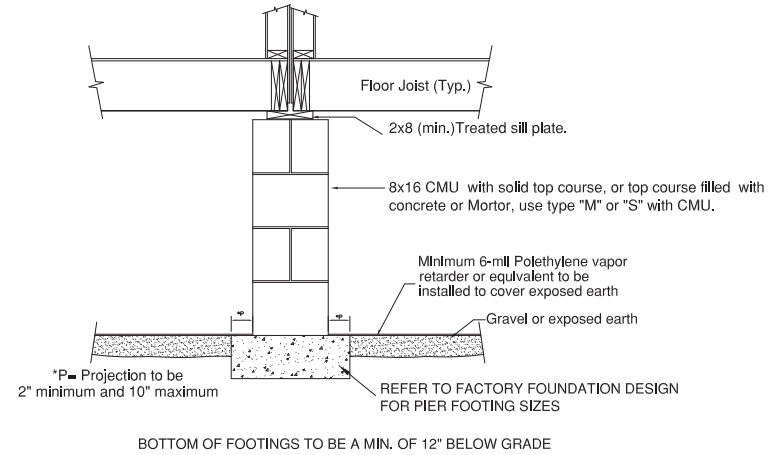


### N.C. Foundation Cross Section- 90 to 130 Mph 1-1/2, 2, OR 2-1/2 STORY



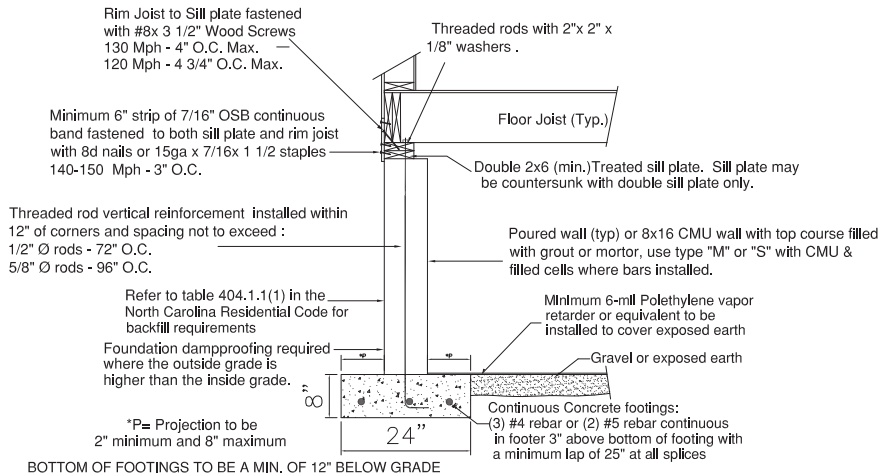
Applicable to Seismic Zone C with minimum soil bearing capacity of 1500 PSF. Concrete 2500-PSI. min. Wind speed up to 130 Mph Exp. C. Refer to Chapter 4 in the North Carolina Residential Code for specific foundation application or CMU Construction. Refer to the wind bracing pages for additional tie down and braced wall requirements.

### N.C. Pier Cross Section- All Zones- UP TO 3 STORIES



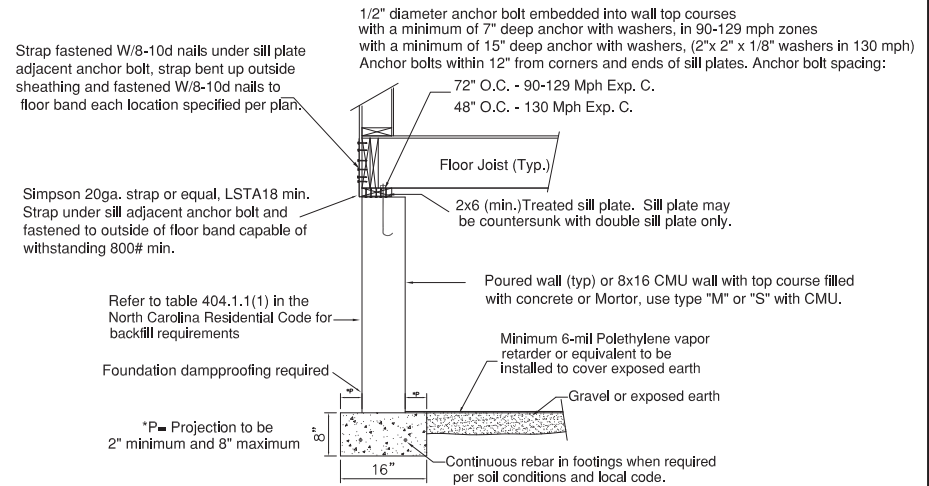
R404.1.5.4 Piers. The unsupported height of masonry piers shall not exceed 10 times their least dimension. When structural clay tile or hollow concrete masonry units are used for isolated piers to support beams and girders, the cellular spaces shall be filled solidly with concrete or Type M or S mortar, except that unfilled hollow piers may be used if their unsupported height is not more than four times their least dimension. When hollow masonry units are solidly filled with concrete or Type M or S mortar, the allowable compressive stress may be increased as provided in Table 606.9.

### N.C. High Wind Foundation Cross Section- 140 to 150 Mph 1-1/2, 2, OR 2-1/2 STORY



Applicable to Seismic Zone C, D0, D1 with minimum soil bearing capacity of 2500 PSF. Concrete-2500 PSI. min. Wind speed up to 130 Mph maximum. Refer to wind bracing pages for additional tie down requirements at braced wall locations. Refer to Chapters 4 & 45 in the North Carolina Residential Code for specific foundation application or CMU Construction. REFER TO FIGURE R4504.2(B) FOUNDATION WALL WITH UPLIFT ANCHOR BOLTS FROM FOOTING TO SILL PLATE

### N.C. 800# HOLD DOWN STRAP DEVICE



Applicable to Seismic Zone C with minimum soil bearing capacity of 2500 PSF. Concrete 2500-PSI. min. Wind speed up to 110 Mph Exp. C. Refer to Chapter 4 in the North Carolina Residential Code for specific foundation application or CMU Construction. Refer to the wind bracing pages for additional tie down and braced wall requirements.

COUNTRY	ALL
STATE	NC
SNOW LOAD	20
WIND LOAD	
WIND SPEED	110 - 150
CUST. NO.	
DRAWING NAME	

CITY	
NOTE:	
BY:	
REVISION:	
DATE:	11/18/18
2018 CODE UPDATES	1/30/19
TYP FOUNDATION DETAILS	
FRANC. WALL	
PIER DETAILS	2021.DWG

**HOMES BY VANDERBUILT**  
 3300 JEFFERSON DAVIS HWY  
 SANFORD, NC 27332  
 PHONE: (919) 718-2780  
 FAX: (919) 718-2799





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**Project Information**

For: The Commodore Corporation  
 2R2008-R10

**Design Information**

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	12	99	Method	Average
Inside db (°F)	70	75	Construction quality	
Design TD (°F)	58	24	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	47	53		

**HEATING EQUIPMENT**

Make	Generic
Trade	
Model	AFUE 100
AHRI ref	
Efficiency	100 AFUE
Heating input	10.5 kW
Heating output	35962 Btuh
Temperature rise	25 °F
Actual air flow	1328 cfm
Air flow factor	0.044 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	27954 Btuh
Latent cooling	11980 Btuh
Total cooling	39934 Btuh
Actual air flow	1328 cfm
Air flow factor	0.054 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.75

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
u	114	2502	1002	109	54
ba2	55	616	254	27	14
kt\nk	414	5188	4947	227	268
h	31	0	0	0	0
c1	46	497	203	22	11
b1	233	2556	2484	112	134
ba1	125	2048	748	89	40
b4	213	2523	1655	110	90
ba3	69	299	181	13	10
c4	21	0	0	0	0
cl	11	0	0	0	0
\	9	0	0	0	0
gr	305	2759	2757	121	149
s	48	0	0	0	0

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

b2		172	2290	2477	100	134
cls		31	0	0	0	0
study		175	3123	2712	136	147
ktlr		278	4518	4540	197	246
foy		39	1477	603	65	33
Entire House	d	2388	30394	24563	1328	1328
Other equip loads			5567	2316		
Equip. @ 1.04 RSM				27954		
Latent cooling				9163		
<b>TOTALS</b>		<b>2388</b>	<b>35962</b>	<b>37117</b>	<b>1328</b>	<b>1328</b>

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## Project Information

**For:** The Commodore Corporation  
 2R2008-R10

**Notes:**

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## Design Information

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

### Winter Design Conditions

Outside db 12 °F  
 Inside db 70 °F  
 Design TD 58 °F

### Summer Design Conditions

Outside db 99 °F  
 Inside db 75 °F  
 Design TD 24 °F  
 Daily range M  
 Relative humidity 50 %  
 Moisture difference 53 gr/lb

### Heating Summary

Structure 25643 Btuh  
 Ducts 4752 Btuh  
 Central vent (89 cfm) 5567 Btuh  
     Outside air  
 Humidification 0 Btuh  
 Piping 0 Btuh  
 Equipment load 35962 Btuh

### Sensible Cooling Equipment Load Sizing

Structure 22408 Btuh  
 Ducts 2155 Btuh  
 Central vent (89 cfm) 2316 Btuh  
     Outside air  
 Blower 0 Btuh  
 Use manufacturer's data n  
 Rate/swing multiplier 1.04  
 Equipment sensible load 27954 Btuh

### Infiltration

Method Simplified  
 Construction quality Average  
 Fireplaces 0

### Latent Cooling Equipment Load Sizing

Structure 3199 Btuh  
 Ducts 2819 Btuh  
 Central vent (89 cfm) 3145 Btuh  
     Outside air  
 Equipment latent load 9163 Btuh

	<b>Heating</b>	<b>Cooling</b>
Area (ft <sup>2</sup> )	2388	2388
Volume (ft <sup>3</sup> )	19107	19107
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	102	51

**Equipment Total Load (Sen+Lat)** 37117 Btuh  
 Req. total capacity at 0.70 SHR 3.3 ton

### Heating Equipment Summary

Make Generic  
 Trade  
 Model AFUE 100  
 AHRI ref

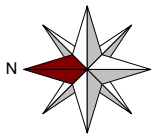
Efficiency 100 AFUE  
 Heating input 10.5 kW  
 Heating output 35962 Btuh  
 Temperature rise 25 °F  
 Actual air flow 1328 cfm  
 Air flow factor 0.044 cfm/Btuh  
 Static pressure 0.50 in H2O  
 Space thermostat

### Cooling Equipment Summary

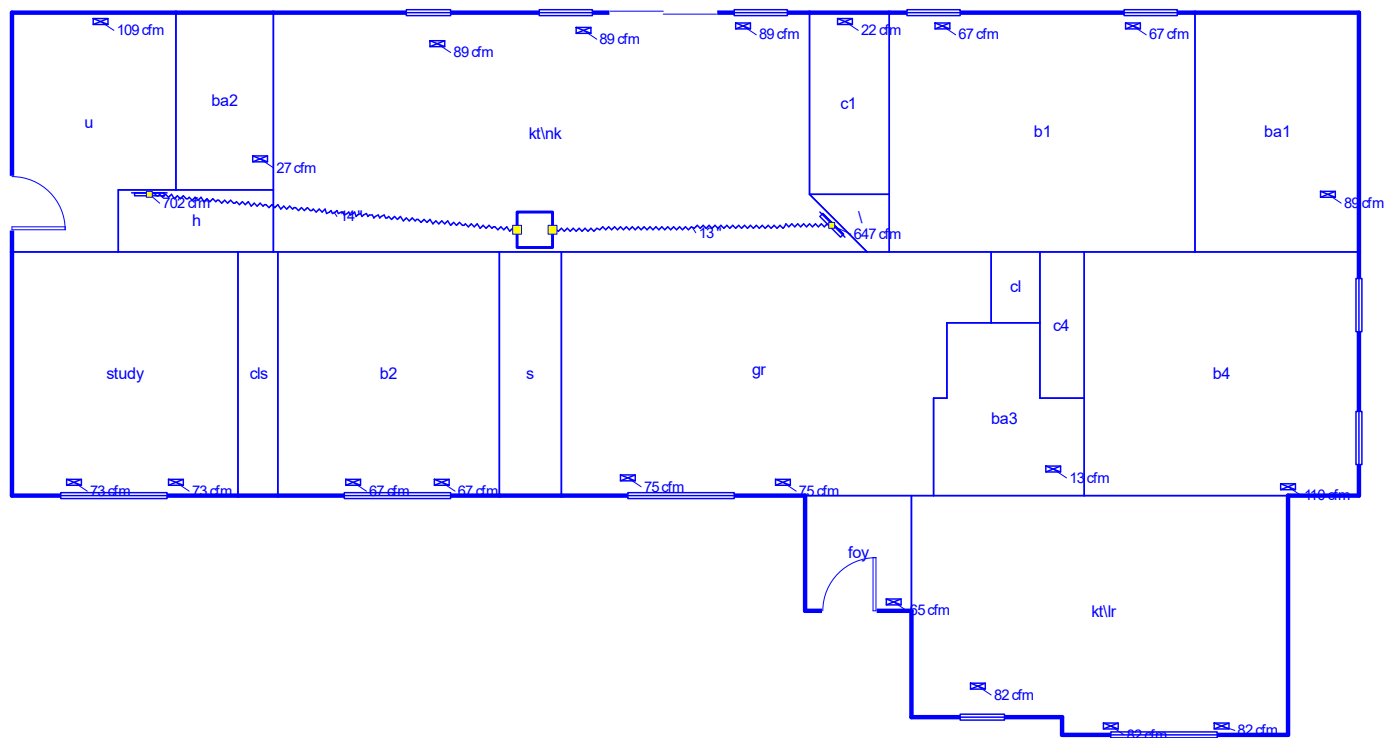
Make Generic  
 Trade  
 Cond SEER 14.0  
 Coil  
 AHRI ref  
 Efficiency 12.2 EER, 14 SEER

Sensible cooling 27954 Btuh  
 Latent cooling 11980 Btuh  
 Total cooling 39934 Btuh  
 Actual air flow 1328 cfm  
 Air flow factor 0.054 cfm/Btuh  
 Static pressure 0.50 in H2O  
 Load sensible heat ratio 0.75

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



1ST FLOOR



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**Job #: 2R2008-R10**  
**Performed by AMS of Indiana, Inc. for:**  
 The Commodore Corporation  
 2R2008-R10

**AMS of Indiana, Inc.**  
 3933 E. Jackson Blvd.  
 Elkhart, IN 46516  
 Phone: 574-293-5526 Fax: 574-294-1366  
 eng-ams@comcast.net

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**Project Information**

For: The Commodore Corporation  
 2R2008-R10

	<b>Heating</b>	<b>Cooling</b>
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0.20 in H2O	0.20 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.371 in/100ft	0.371 in/100ft
Actual air flow	1328 cfm	1328 cfm
Total effective length (TEL)	81 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 1242	56	67	0	0	0x0	VIFx	0	0	
b1-A	c 1242	56	67	0	0	0x0	VIFx	0	0	
b2	c 1238	50	67	0	0	0x0	VIFx	0	0	
b2-A	c 1238	50	67	0	0	0x0	VIFx	0	0	
b4	h 1655	110	90	0	0	0x0	VIFx	0	0	
ba1	h 748	89	40	0	0	0x0	VIFx	0	0	
ba2	h 254	27	14	0	0	0x0	VIFx	0	0	
ba3	h 181	13	10	0	0	0x0	VIFx	0	0	
c1	h 203	22	11	0	0	0x0	VIFx	0	0	
foy	h 603	65	33	0	0	0x0	VIFx	0	0	
gr	c 1379	60	75	0	0	0x0	VIFx	0	0	
gr-A	c 1379	60	75	0	0	0x0	VIFx	0	0	
ktlr	c 1513	66	82	0	0	0x0	VIFx	0	0	
ktlr-A	c 1513	66	82	0	0	0x0	VIFx	0	0	
ktlr-B	c 1513	66	82	0	0	0x0	VIFx	0	0	
ktnrk	c 1649	76	89	0	0	0x0	VIFx	0	0	
ktnrk-A	c 1649	76	89	0	0	0x0	VIFx	0	0	
ktnrk-B	c 1649	76	89	0	0	0x0	VIFx	0	0	
study	c 1356	68	73	0	0	0x0	VIFx	0	0	
study-A	c 1356	68	73	0	0	0x0	VIFx	0	0	
u	h 1002	109	54	0	0	0x0	VIFx	0	0	

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**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	681	702	80.8	0.371	656	14.0	0x 0		VIFx	
rb2	0x0	647	627	75.8	0.396	702	13.0	0x 0		VIFx	

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# Generated by REScheck-Web Software Compliance Certificate

Project 2R2008-R10

Energy Code: **2018 IECC**  
 Location: **Harnett County, North Carolina**  
 Construction Type: **Single-family**  
 Project Type: **New Construction**  
 Orientation: **Unspecified**  
 Conditioned Floor Area: **2,401 ft<sup>2</sup>**  
 Glazing Area: **10%**  
 Climate Zone: **4 (3499 HDD)**  
 Permit Date:  
 Permit Number:

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Construction Site:  
 20 Byrd Johnson Lane  
 Lillington, North Carolina 25546

Owner/Agent:  
 STROUT  
 HBV

Designer/Contractor:  
 R-Anell Housing Group, LLC  
 Commodore Homes, LLC  
 235 Anthony Grove Rd.  
 Crouse, NC 28033

## Compliance: Passes using UA trade-off

Compliance: **4.0% Better Than Code** Maximum UA: **400** Your UA: **384** Maximum SHGC: **0.40** Your SHGC: **0.32**

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

Slab-on-grade tradeoffs are no longer considered in the UA or performance compliance path in REScheck. Each slab-on-grade assembly in the specified climate zone must meet the minimum energy code insulation R-value and depth requirements.

## Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Ceiling 1: Flat Ceiling or Scissor Truss	962	38.0	0.0	0.030	0.026	29	25
Ceiling 2 [Between knee walls]: Flat Ceiling or Scissor Truss	1,439	30.0	0.0	0.035	0.026	50	37
Wall [1walls]: Wood Frame, 16" o.c. Orientation: Right side	360	19.0	0.0	0.060	0.060	20	20
Window - Kinro SH 3658 {Qty 2}: Vinyl Frame:Double Pane with Low-E SHGC: 0.32 Orientation: Right side	30			0.340	0.320	10	10
Wall [1walls]: Wood Frame, 16" o.c. Orientation: Left side	360	19.0	0.0	0.060	0.060	20	20
Door - Hinged - Exterior - 9 Lite {Qty 1}: null Orientation: Left side	22			0.290	0.320	6	7
Window - Kinro SH 3036 {Qty 1}: Vinyl Frame:Double Pane with Low-E SHGC: 0.32 Orientation: Left side	8			0.340	0.320	3	3
Wall [1walls]: Wood Frame, 16" o.c. Orientation: Back	667	19.0	0.0	0.060	0.060	34	34

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Door - Sliding Patio {Qty 1}: null Orientation: Back	40			0.230	0.320	9	13
Window - Kinro SH 3036 {Qty 1}: Vinyl Frame:Double Pane with Low-E SHGC: 0.32 Orientation: Back	8			0.340	0.320	3	3
Window - Kinro 3656 Picture {Qty 2}: Vinyl Frame:Double Pane with Low-E SHGC: 0.35 Orientation: Back	29			0.320	0.320	9	9
Window - Kinro SH 3658 {Qty 2}: Vinyl Frame:Double Pane with Low-E SHGC: 0.32 Orientation: Back	30			0.340	0.320	10	10
Wall [1walls]: Wood Frame, 16" o.c. Orientation: Front	667	19.0	0.0	0.060	0.060	31	31
Door - Hinged - Exterior - 6 Panel {Qty 1}: Solid Orientation: Front	22			0.170	0.320	4	7
Window - Kinro SH 3036 {Qty 1}: Vinyl Frame:Double Pane with Low-E SHGC: 0.32 Orientation: Front	8			0.340	0.320	3	3
Window - (2) Kinro SH 3658 {Qty 4}: Vinyl Frame:Double Pane with Low-E SHGC: 0.32 Orientation: Front	119			0.340	0.320	40	38
Wall [Cape Close Off Kit]: Wood Frame, 24" o.c. Orientation: Unspecified	200	11.0	0.0	0.087	0.060	16	11
Attic Door: Solid Orientation: Unspecified	18			0.460	0.320	8	6
Floor 1: All-Wood Joist/Truss:Over Outside Air	2,401	30.0	0.0	0.033	0.047	79	113

**Compliance Statement:** The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2018 IECC requirements in REScheck Version : REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Courtney Lorenz  
Name - Title

Courtney Lorenz  
Signature

9/29/2023  
Date

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Kip Whitehead



# Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the REScheck software



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

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

**Additional Comments/Assumptions:**

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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Foundation Inspection	Complies?	Comments/Assumptions
303.2.1 [FO11] <sup>2</sup> 	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.9 [FO12] <sup>2</sup> 	Snow- and ice-melting system controls installed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

**Additional Comments/Assumptions:**

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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.4 [FR1] <sup>1</sup>	Door U-factor.	U-____	U-____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
402.1.1, 402.3.1, 402.3.3, 402.5 [FR2] <sup>1</sup>	Glazing U-factor (area-weighted average).	U-____	U-____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
303.1.3 [FR4] <sup>1</sup>	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.4.1.1 [FR23] <sup>1</sup>	Air barrier and thermal barrier installed per manufacturer's instructions.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.4.3 [FR20] <sup>1</sup>	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.4.5 [FR16] <sup>2</sup>	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.3.1 [FR12] <sup>1</sup>	Supply and return ducts in attics insulated ≥ R-8 where duct is ≥ 3 inches in diameter and ≥ R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated ≥ R-6 for diameter ≥ 3 inches and R-4.2 for < 3 inches in diameter.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.3.2 [FR13] <sup>1</sup>	Ducts, air handlers and filter boxes are sealed with joints/seams compliant with International Mechanical Code or International Residential Code, as applicable.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.3.5 [FR15] <sup>3</sup>	Building cavities are not used as ducts or plenums.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.4 [FR17] <sup>2</sup>	HVAC piping conveying fluids above 105 °F or chilled fluids below 55 °F are insulated to ≥R-3.	R-____	R-____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.4.1 [FR24] <sup>1</sup>	Protection of insulation on HVAC piping.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.5.3 [FR18] <sup>2</sup>	Hot water pipes are insulated to ≥R-3.	R-____	R-____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

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

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6 [FR19] <sup>2</sup>	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

**Additional Comments/Assumptions:**

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1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13] <sup>2</sup>	All installed insulation is labeled or the installed R-values provided.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.1.1, 402.2.6 [IN1] <sup>1</sup>	Floor insulation R-value.	R-_____ <input type="checkbox"/> Wood <input type="checkbox"/> Steel	R-_____ <input type="checkbox"/> Wood <input type="checkbox"/> Steel	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
303.2, 402.2.8 [IN2] <sup>1</sup>	Floor insulation installed per manufacturer's instructions and in substantial contact with the underside of the subfloor, or floor framing cavity insulation is in contact with the top side of sheathing, or continuous insulation is installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.1.1, 402.2.5, 402.2.6 [IN3] <sup>1</sup>	Wall insulation R-value. If this is a mass wall with at least 1/2 of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R-_____ <input type="checkbox"/> Wood <input type="checkbox"/> Mass <input type="checkbox"/> Steel	R-_____ <input type="checkbox"/> Wood <input type="checkbox"/> Mass <input type="checkbox"/> Steel	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
303.2 [IN4] <sup>1</sup>	Wall insulation is installed per manufacturer's instructions.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	


**Additional Comments/Assumptions:**

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**Kip Whitehead**

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1] <sup>1</sup>	Ceiling insulation R-value.	R-____ <input type="checkbox"/> Wood <input type="checkbox"/> Steel	R-____ <input type="checkbox"/> Wood <input type="checkbox"/> Steel	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
303.1.1.1, 303.2 [FI2] <sup>1</sup>	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft <sup>2</sup> .			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.2.3 [FI22] <sup>2</sup>	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.2.4 [FI3] <sup>1</sup>	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.4.1.2 [FI17] <sup>1</sup>	Blower door test @ 50 Pa. ≤=5 ach in Climate Zones 1-2, and ≤=3 ach in Climate Zones 3-8.	ACH 50 = ____	ACH 50 = ____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.3.3 [FI27] <sup>1</sup>	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft <sup>2</sup>	____ cfm/100 ft <sup>2</sup>	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.3.4 [FI4] <sup>1</sup>	Duct tightness test result of ≤=4 cfm/100 ft <sup>2</sup> across the system or ≤=3 cfm/100 ft <sup>2</sup> without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.	____ cfm/100 ft <sup>2</sup>	____ cfm/100 ft <sup>2</sup>	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.3.2.1 [FI24] <sup>1</sup>	Air handler leakage designated by manufacturer at ≤=2% of design air flow.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.1.1 [FI9] <sup>2</sup>	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.	 APPROVED BY 10/9/2023		<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.1.2 [FI10] <sup>2</sup>	Heat pump thermostat installed on heat pumps.	Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws. Kip Whitehead		<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.5.1 [FI11] <sup>2</sup>	Circulating service hot water systems have automatic or accessible manual controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25] <sup>2</sup>	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits per Table R403.6.1.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.2 [FI26] <sup>2</sup>	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.5.1.1 [FI28] <sup>2</sup>	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermosyphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.	<p><b>APPROVED BY</b></p>  <p>10/9/2023</p> <p><small>Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.</small></p> <p><b>Kip Whitehead</b></p>		<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.5.1.2 [FI29] <sup>2</sup>	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.5.2 [FI30] <sup>2</sup>	Demand recirculation water systems have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to ≤ 104°F.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.5.4 [FI31] <sup>2</sup>	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
404.1 [FI6] <sup>1</sup>	90% or more of permanent fixtures have high efficacy lamps.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
404.1.1 [FI23] <sup>3</sup>	Fuel gas lighting systems have no continuous pilot light.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
401.3 [FI7] <sup>2</sup>	Compliance certificate posted.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.3 [FI18] <sup>3</sup>	Manufacturer manuals for mechanical and water heating systems have been provided.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

**Additional Comments/Assumptions:**

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1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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# 2018 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	19.00
Below-Grade Wall	0.00
Floor	30.00
Ceiling / Roof	30.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.34	0.32
Door	0.23	

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

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

Comments

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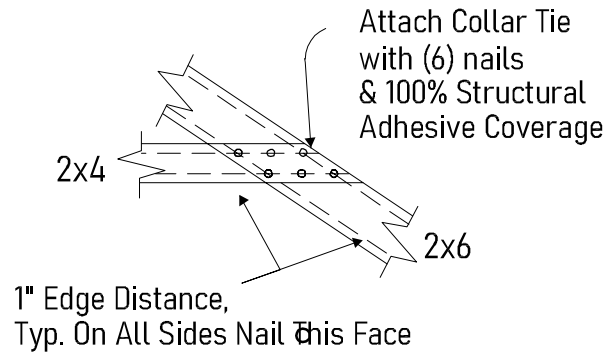
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Job 32802	Truss A098601	Truss Type RIGID COLLAR TIE CONNECTION DETAILS 1	Qty	Ply	UFP ENGINEERING 1 Bulletin 05-02 REF # 2001092
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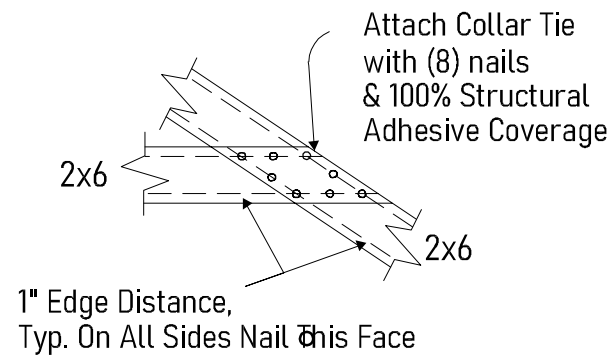
Universal Forest Products Inc., Grand Rapids, MI 49525,

**2x4 Collar Tie  
Nailed to 2x6 Chord**



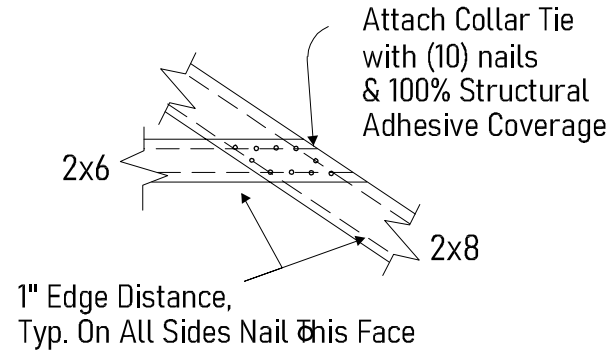
**Detail (A)**

**2x6 Collar Tie  
Nailed to 2x6 Chord**



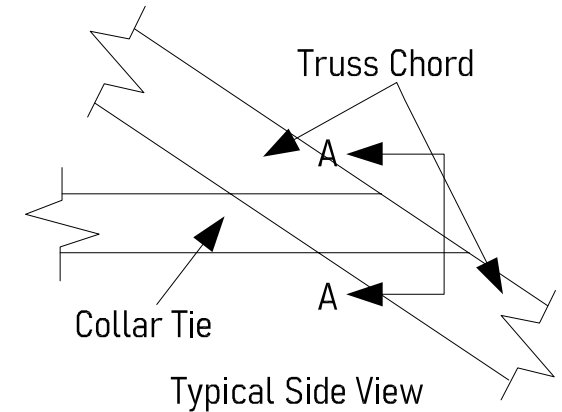
**Detail (B)**

**2x6 Collar Tie  
Nailed to 2x8 Chord**

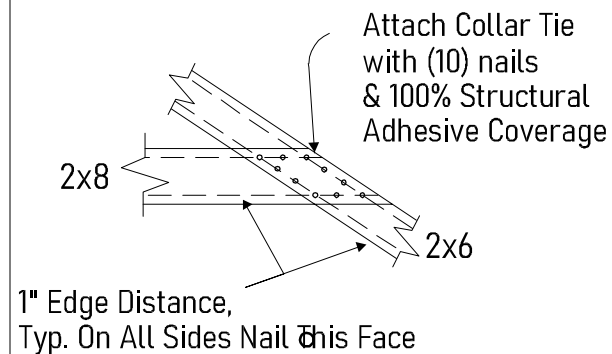


**Detail (C)**

This Bulletin to be used only in conjunction with UFPI truss designs which specifically refer to this Bulletin by number for collar tie field fastening.

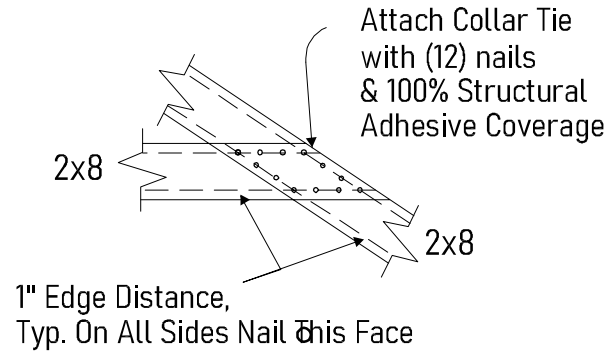


**2x8 Collar Tie  
Nailed to 2x6 Chord**



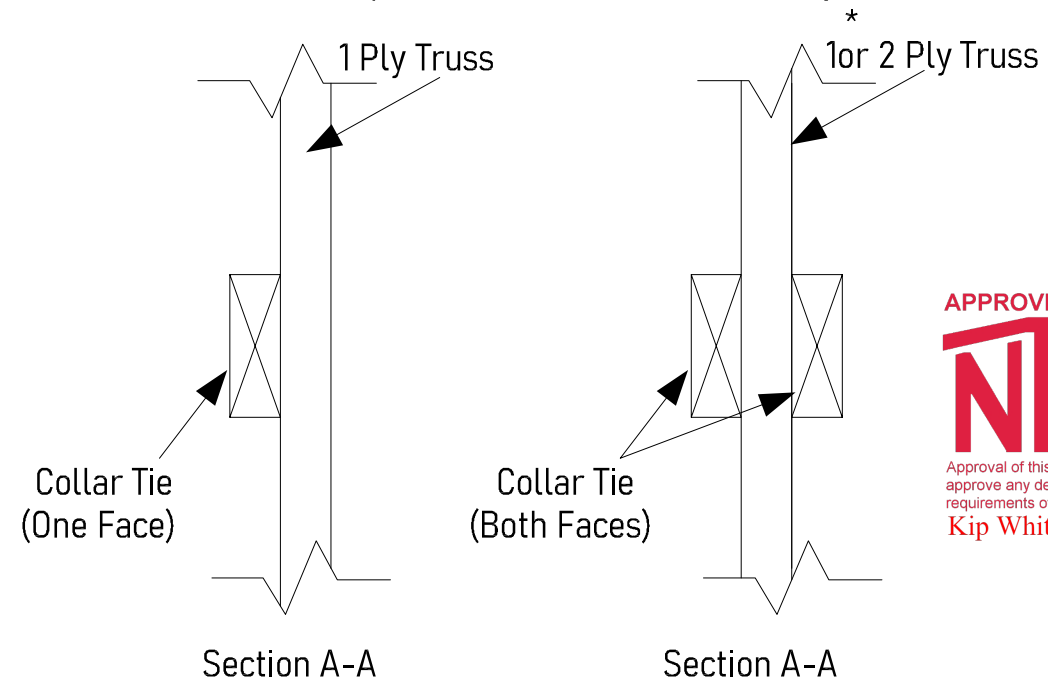
**Detail (D)**

**2x8 Collar Tie  
Nailed to 2x8 Chord**

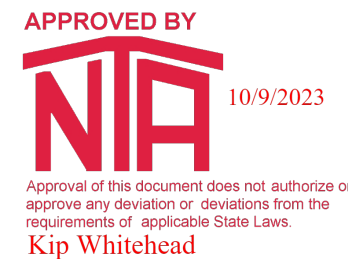


**Detail (E)**

**Acceptable Alternate Applications**  
See truss print for which detail is actually used



\* FOR 1 PLY, OFFSET NAILS WITH RESPECT TO EACH FACE.



**Power Driven Nails Rigid Collar Tie  
Connection Details**

- A) Side member shall be fastened with structural adhesive that meets the requirements of ASTM-2559. Maximum wood to wood gap = 1/16".
- B) Bostitch .131" Dia. x 3" nails (or equal)

**WARNING - Verify design parameters and READ NOTES**

This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult QST-88 Quality Standard, DSB-89 Bracing Specification, and HIB-91 Handling, Installing and Bracing Recommendation available from Truss Plate Institute, 583 D'Onofrio Drive, Madison, WI 53719

Universal Forest Products, Inc.  
PHONE (616)-364-6161 FAX (616)-365-0060

2801 EAST BELTLINE RD, NE  
GRAND RAPIDS, MI 49505



Job <b>98425</b>	Truss <b>CCB32611</b>	Truss Type <b>HINGED ATTIC</b>	Qty <b>1</b>	Ply <b>1</b>	<b>Commodore 315 NC</b> <b>27'4"w 12/12 cape R28C12F<sup>^</sup></b> Ref. #10004972
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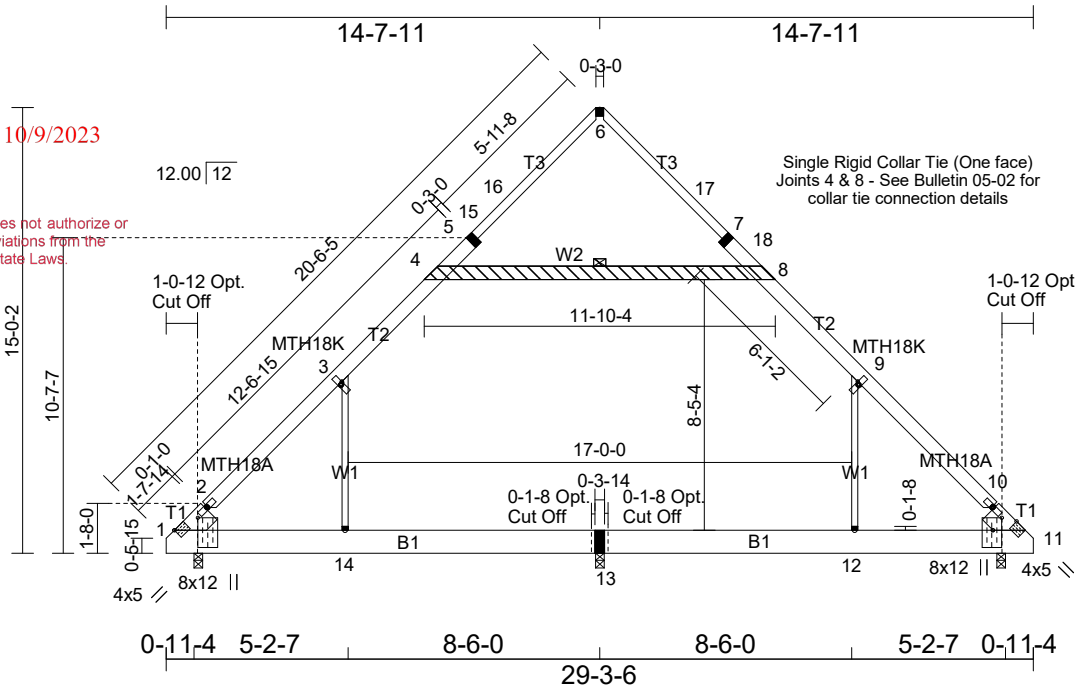


Plate Offsets (X,Y)-- [1:0-5-0,0-9-9], [2:0-0-5,0-0-7], [3:0-0-11,0-1-2], [9:0-0-11,0-1-2], [10:0-0-5,0-0-7], [11:0-5-0,0-3-9], [11:0-4-4,Edge]

<b>SPACING:-</b> 2-0-0 <b>LOADING (psf)</b> TCLL 17.8 (Ground Snow=30.0) TCDL 7.0 BCLL 0.0 BCDL 10.0	<b>SPACING:-</b> 1-4-0 <b>LOADING (psf)</b> TCLL 26.7 (Ground Snow=45.0) TCDL 10.5 BCLL 0.0 BCDL 15.0	<b>SPACING-</b> 2-0-0 Plate Grip DOL 1.15 Lumber DOL 1.15 Rep Stress Incr YES Code IBC2018/TPI2014 IBC2015/TPI2014	<b>CSI.</b> TC 0.83 BC 0.78 WB 0.82 Matrix-R	<b>DEFL.</b> Vert(LL) 0.42 13-14 >393 240 Vert(CT) 0.39 13-14 >418 180 Horz(CT) 0.01 11 n/a n/a Attic -0.19 13-14 1086 360	<b>PLATES GRIP</b> MT20 137/130 MT18HS 137/130 Weight: 214 lb FT = 0%
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<b>LUMBER-</b> TOP CHORD 1-1/2X9-1/4 LP-LSL TC 1.75E *Except* T2: 2x6 SP No.2 or 2x6 SPF No.2 T3: 2x4 SP No.2 or 2x4 SPF No.2 BOT CHORD 2x10 SP No.2 or 2x10 SPF No.2 WEBS 2x3 SPF Stud *Except* W2: 2x6 SP No.2 or 2x6 SPF No.2	<b>BRACING-</b> TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. BOT CHORD Rigid ceiling directly applied or 4-11-10 oc bracing. WEBS 1 Row at midpt 4-8
--	--

**REACTIONS.** (lb/size) 13=260/0-3-8 (min. 0-1-8), 1=907/0-3-8 (min. 0-1-10), 11=907/0-3-8 (min. 0-1-10)  
Max Horz 1=-975(LC 7)  
Max Uplift 13=-122(LC 9), 1=-692(LC 10), 11=-694(LC 9)  
Max Grav 13=976(LC 13), 1=1051(LC 3), 11=1051(LC 4)

**FORCES.** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=-991/834, 2-3=-890/832, 3-4=-788/856, 4-5=-364/240, 5-15=-307/244, 15-16=-248/248, 6-16=-187/257, 6-17=-190/261, 17-18=-253/251, 7-18=-313/248, 7-8=-363/242, 8-9=-787/859, 9-10=-890/833, 10-11=-991/835  
BOT CHORD 1-14=-464/588, 13-14=-458/590, 12-13=-458/590, 11-12=-454/588  
WEBS 9-12=-381/622, 3-14=-384/625, 4-8=-504/853

**REQUIRED FIELD JOINT CONNECTIONS** - Maximum Compression (lb)/ Tension (lb)/ Shear (lb)/ Moment (lb-in)  
4=504/853/155/8770, 5=325/242/265/0, 6=153/263/265/0, 7=326/246/263/0, 8=504/853/155/8696,  
12=381/622/0/0, 13=458/590/488/0, 14=384/625/0/0



The professional engineering seal indicates that a licensed professional engineer has designed the truss under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use in a specific state. The final determination on whether a truss design is acceptable under the locally adopted building code rest with the building official or designated appointee.

**WARNING - Verify design parameters and READ NOTES** Universal Forest Products, Inc. 2801 EAST BELTLINE RD, NE  
PHONE (616)-364-6161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

Truss shall not be cut or modified without approval of the truss design engineer.  
This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 6300 Enterprise LN, Madison, WI 53719 J:\support\MitekSupp\templates\lufp.tpe



Job <b>98425</b>	Truss <b>CCB32611</b>	Truss Type <b>HINGED ATTIC</b>	Qty <b>1</b>	Ply <b>1</b>	<b>Commodore 315 NC</b> <b>27'4"w 12/12 cape R28C12F^</b> Ref. #10004972
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**NOTES-**

- 1) Wind: ASCE 7-16; Vult=167mph (3-second gust) Vasd=132mph @24in o.c.; TCDL=2.8psf; BCDL=4.0psf; (Alt. 180mph @16in o.c.; TCDL=4.2psf; BCDL=6.0psf); h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) 0-11-12 to 3-11-12, Interior(1) 3-11-12 to 11-8-7, Exterior(2R) 11-8-7 to 17-8-7, Interior(1) 17-8-7 to 25-3-10, Exterior(2E) 25-3-10 to 28-3-10 zone; cantilever left and right exposed ;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- 2) TCLL: ASCE 7-16; Pg=30.0 psf; Ps=17.8 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=0.77; Ct=1.10
- 3) Roof design snow load has been reduced to account for slope.
- 4) Unbalanced snow loads have been considered for this design.
- 5) All plates are MT20 plates unless otherwise indicated.
- 6) See HINGE PLATE DETAILS for plate placement.
- 7) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
- 8) All additional member connections shall be provided by others for forces as indicated.
- 9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 10) \* 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.
- 11) Ceiling dead load (5.0 psf) on member(s). 3-4, 8-9, 4-8
- 12) Bottom chord live load (40.0 psf) and additional bottom chord dead load (0.0 psf) applied only to room. 13-14, 12-13
- 13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 122 lb uplift at joint 13, 692 lb uplift at joint 1 and 694 lb uplift at joint 11.
- 14) Fixity of member 4 - 8 has been changed.
- 15) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
- 16) Attic room checked for L/360 deflection.
- 17) **This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1**
- 18) **Take precaution to keep the chords in plane, any bending or twisting of the hinge plate must be repaired before the building is put into service.**
- 19) **The field-installed members are an integral part of the truss design. Retain a design professional to specify final field connections and temporary supports. All field-installed members must be properly fastened prior to applying any loading to the truss. This design anticipates the final set position.**
- 20) **Based on: CCB32602**
- 21) **Revision: Updated Code**

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10/9/2023

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PHONE (616)-364-6161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

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This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 6300 Enterprise LN, Madison, WI 53719 J:\support\MitekSupp\templates\lufp.tpe







# Universal Forest Products®

Job	Truss	MFG	Customer
98425	CCB32611	315	COMMODORE

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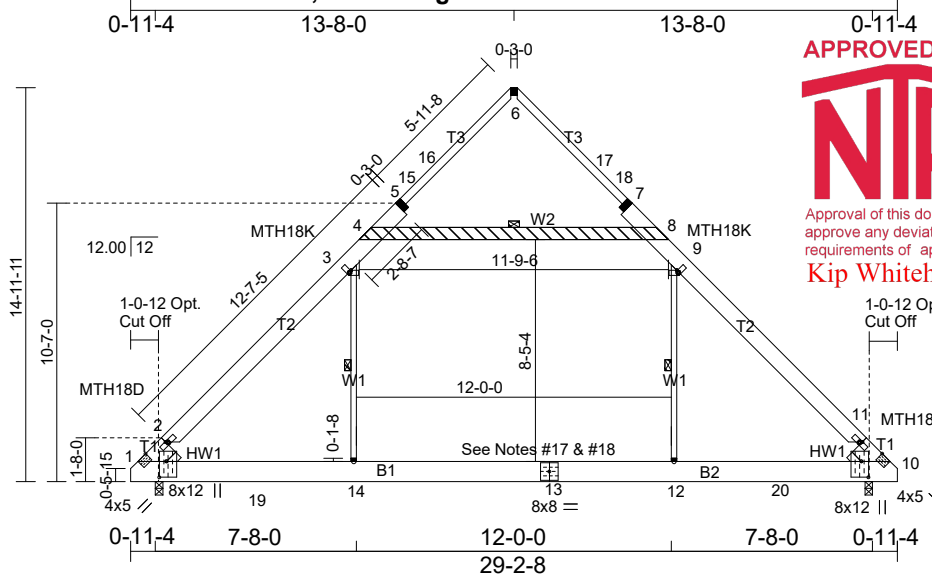
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Job <b>98738</b>	Truss <b>CCB33030</b>	Truss Type <b>HINGED ATTIC</b>	Qty <b>1</b>	Ply <b>1</b>	<b>Commodore 315 NC (R274G12F^)</b> 27'4"w 12/12 transverse (167mph X-C) Ref. #10005282
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Plate Offsets (X,Y)-- [1:0-3-11,0-3-4], [1:0-4-11,0-4-6], [1:0-3-11,1-4-6], [1:0-11-6,0-11-13], [2:0-2-2,0-2-2], [2:0-0-0,0-1-13], [3:0-0-11,0-1-2], [9:0-0-11,0-1-2], [10:0-2-2,0-2-2], [10:0-0-11,0-0-0]

<b>SPACING--:</b> 2-0-0 <b>LOADING (psf)</b> TCLL 17.8 (Ground Snow=30.0) TCDL 7.0 BCLL 0.0 BCDL 10.0	<b>SPACING--:</b> 1-4-0 <b>LOADING (psf)</b> TCLL 26.7 (Ground Snow=45.0) TCDL 10.5 BCLL 0.0 BCDL 15.0	<b>SPACING--:</b> 2-0-0 Plate Grip DOL 1.15 Lumber DOL 1.15 Rep Stress Incr YES Code IBC2018/TPI2014 IBC2015/TPI2014	<b>CSI.</b> TC 0.83 BC 0.79 WB 0.62 Matrix-R	<b>DEFL.</b> Vert(LL) 0.45 1-14 >731 240 Vert(CT) 0.43 1-14 >752 180 Horz(CT) 0.02 11 n/a n/a Attic -0.14 12-14 1071 360	<b>PLATES GRIP</b> MT20 197/144 MT18HS 137/130  Weight: 237 lb FT = 0%
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<b>LUMBER-</b> TOP CHORD 1-1/2X9-1/4 LP-LSL TC 1.75E *Except* T2: 2x8 SP No.2 or 2x8 SPF No.2 T3: 2x4 SP No.2 or 2x4 SPF No.2 BOT CHORD 2x10 SP No.2 or 2x10 SPF No.2 WEBS 2x3 SPF Stud *Except* W2: 2x6 SP No.2 or 2x6 SPF No.2 SLIDER Left 2x4 SPF No.2 0-5-15, Right 2x4 SPF No.2 0-5-15 <b>REACTIONS.</b> (lb/size) 1=1010/0-3-8 (min. 0-2-4), 11=1010/0-3-8 (min. 0-2-4) Max Horz 1=972(LC 8) Max Uplift 1=-760(LC 10), 11=-762(LC 9) Max Grav 1=1446(LC 3), 11=1446(LC 4) <b>FORCES.</b> (lb) - Maximum Compression/Maximum Tension TOP CHORD 1-2=-1684/1042, 2-3=-1666/1035, 3-4=-1015/863, 4-5=-356/236, 5-15=-306/241, 15-16=-246/244, 6-16=-183/254, 6-17=-186/258, 17-18=-251/248, 7-18=-312/244, 7-8=-356/237, 8-9=-1015/866, 9-10=-1665/1038, 10-11=-1684/1044 BOT CHORD 1-19=-473/1035, 14-19=-473/1035, 13-14=-464/1045, 12-13=-464/1045, 12-20=-460/1035, 11-20=-460/1035 WEBS 9-12=-503/900, 3-14=-504/900, 4-8=-963/944 <b>REQUIRED FIELD JOINT CONNECTIONS</b> - Maximum Compression (lb)/ Tension (lb)/ Shear (lb)/ Moment (lb-in) 4=963/944/52/0, 5=322/239/266/0, 6=149/260/265/0, 7=323/243/265/0, 8=963/944/52/0, 12=503/900/0/0, 14=504/900/0/0	<b>BRACING-</b> TOP CHORD Structural wood sheathing directly applied or 5-5-11 oc purlins. BOT CHORD Rigid ceiling directly applied or 4-10-11 oc bracing. WEBS 1 Row at midpt 9-12, 3-14, 4-8
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**NOTES-**  
1) Wind: ASCE 7-16; Vult=167mph (3-second gust) Vasd=132mph @24in o.c.; TCDL=2.8psf; BCDL=4.0psf; (Alt. 180mph @16in o.c.; TCDL=4.2psf; BCDL=6.0psf); h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) 0-11-12 to 3-11-12, Interior(1) 3-11-12 to 11-8-0, Exterior(2R) 11-8-0 to 17-8-0, Interior(1) 17-8-0 to 25-2-12, Exterior(2E) 25-2-12 to 28-2-12 zone; cantilever left and right exposed ;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60

The professional engineering seal indicates that a licensed professional engineer has designed the truss under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use in a specific state. The final determination on whether a truss design is acceptable under the locally adopted building code rest with the building official or designated appointee.



**WARNING - Verify design parameters and READ NOTES**

Truss shall not be cut or modified without approval of the truss design engineer.

This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 6300 Enterprise LN, Madison, WI 53719 J:\support\MitekSupp\templates\lufp.tpe

Universal Forest Products, Inc. 2801 EAST BELTLINE RD, NE  
PHONE (616)-364-6161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

Job 98738	Truss CCB33030	Truss Type HINGED ATTIC	Qty 1	Ply 1	Commodore 315 NC (R274G12F^) 27'4"w 12/12 transverse (167mph X-C) Ref. #10005282
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Universal Forest Products Inc., Grand Rapids, MI 49525, Weston Gorby 8.220 e Aug 13 2018 MiTek Industries, Inc. Thu Oct 3 08:41:18 2019 Page 2 of 2

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- 2) TCELL: ASCE 7-16; Pg=30.0 psf; Ps=17.8 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=0.77; Ct=1.10
- 3) Roof design snow load has been reduced to account for slope.
- 4) Unbalanced snow loads have been considered for this design.
- 5) All plates are MT20 plates unless otherwise indicated.
- 6) See HINGE PLATE DETAILS for plate placement.
- 7) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
- 8) All additional member connections shall be provided by others for forces as indicated.
- 9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 10) \* 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 = 10.0psf.
- 11) Ceiling dead load (5.0 psf) on member(s). 3-4, 8-9, 4-8
- 12) Bottom chord live load (40.0 psf) and additional bottom chord dead load (0.0 psf) applied only to room. 12-14
- 13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 760 lb uplift at joint 1 and 762 lb uplift at joint 11.
- 14) N/A
- 15) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
- 16) Attic room checked for L/360 deflection.
- 17) Temporary supports are required to maintain the bottom chord in a level position during storage, transportation, and setup. Retain a design professional to specify all temporary bracing to support the truss until setup is complete. Temporary support(s) must not be removed until all field connections are completed.
- 18) The bottom chord must be laterally braced during shipment and setup to prevent damage to the splice plate.
- 19) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
- 20) Take precaution to keep the chords in plane, any bending or twisting of the hinge plate must be repaired before the building is put into service.
- 21) The field-installed members are an integral part of the truss design. Retain a design professional to specify final field connections and temporary supports. All field-installed members must be properly fastened prior to applying any loading to the truss. This design anticipates the final set position.
- 22) Based on: CCB33013
- 23) Revision: IBC2018/2015 version

APPROVED BY

**NIA**

10/9/2023

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Kip Whitehead

The professional engineering seal indicates that a licensed professional engineer has designed the truss under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use in a specific state. The final determination on whether a truss design is acceptable under the locally adopted building code rest with the building official or designated appointee.

**WARNING - Verify design parameters and READ NOTES** Universal Forest Products, Inc. 2801 EAST BELTLINE RD, NE  
PHONE (616)-364-6161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

Truss shall not be cut or modified without approval of the truss design engineer.

This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 6300 Enterprise LN, Madison, WI 53719 J:\support\MitekSupp\templates\lufp.tpe





# UFP INDUSTRIES

Job 98738	Truss CCB33030	MFG 315	Customer COMMODORE
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Job <b>98952</b>	Truss <b>P1595407</b>	Truss Type <b>KINGPOST</b>	Qty <b>1</b>	Ply <b>1</b>	<b>Commodore 315 NC</b> R14C12T^ double hinge (167mph X-C) Ref. #10005477
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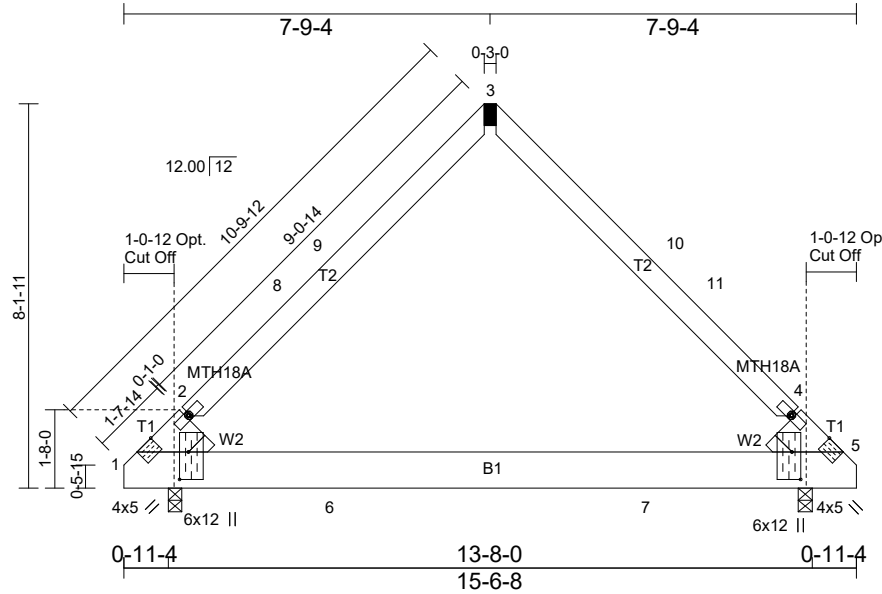


Plate Offsets (X,Y)-- [1:0-7-0,0-2-4], [1:0-4-4,Edge], [2:0-2-2,0-2-2], [2:0-0-5,0-0-9], [4:0-0-5,0-0-9], [4:0-2-2,0-2-2], [5:0-7-0,0-2-4], [5:0-4-4,Edge]

<b>SPACING:-</b> 2-0-0 <b>LOADING (psf)</b> TCLL 17.8 (Ground Snow=30.0) TCDL 7.0 BCLL 0.0 BCDL 10.0	<b>SPACING:-</b> 1-4-0 <b>LOADING (psf)</b> TCLL 26.7 (Ground Snow=45.0) TCDL 10.5 BCLL 0.0 BCDL 15.0	<b>SPACING-</b> 2-0-0 Plate Grip DOL 1.15 Lumber DOL 1.15 Rep Stress Incr YES Code IBC2018/TPI2014 IBC2015/TPI2014	<b>CSI.</b> TC 0.80 BC 0.63 WB 0.00 Matrix-R	<b>DEFL.</b> Vert(LL) -0.19 Vert(CT) -0.30 Horz(CT) 0.00	in (loc) l/defl L/d 1-5 >865 240 1-5 >537 180 5 n/a n/a	<b>PLATES GRIP</b> MT20 137/130 MT18HS 137/130  Weight: 118 lb FT = 0%
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**LUMBER-**  
TOP CHORD 1-1/2X9-1/4 LP-LSL TC 1.75E \*Except\*  
T2: 2x6 SP No.2 or 2x6 SPF No.2  
BOT CHORD 2x10 SP No.2 or 2x10 SPF No.2  
SLIDER Left 2x4 SP or SPF No.2 0-5-15,  
Right 2x4 SP or SPF No.2 0-5-15

**REACTIONS.** (lb/size) 1=472/0-3-8 (min. 0-1-8), 5=472/0-3-8 (min. 0-1-8)  
Max Horz 1=504(LC 8)  
Max Uplift 1=397(LC 10), 5=399(LC 9)  
Max Grav 1=627(LC 3), 5=627(LC 4)

**FORCES.** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=453/407, 2-8=320/363, 8-9=259/366, 3-9=252/376, 3-10=253/379, 10-11=263/370,  
4-11=324/367, 4-5=453/407  
BOT CHORD 1-6=202/302, 6-7=202/302, 5-7=202/302

**REQUIRED FIELD JOINT CONNECTIONS** - Maximum Compression (lb)/ Tension (lb)/ Shear (lb)/ Moment (lb-in)  
3=199/382/394/0

**BRACING-**  
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 8-8-5 oc bracing.

**APPROVED BY**  
**NIA** 10/9/2023

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**Kip Whitehead**



- NOTES-**
- 1) Wind: ASCE 7-16; Vult=167mph (3-second gust) Vasd=132mph @24in o.c.; TCDL=2.8psf; BCDL=4.0psf; (Alt. 180mph @16in o.c.; TCDL=4.2psf; BCDL=6.0psf); h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) 0-11-12 to 3-11-12, Interior(1) 3-11-12 to 4-10-0, Exterior(2R) 4-10-0 to 10-10-0, Interior(1) 10-10-0 to 11-6-12, Exterior(2E) 11-6-12 to 14-6-12 zone; cantilever left and right exposed ;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - 2) TCLL: ASCE 7-16; Pg=30.0 psf; Ps=17.8 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=0.77; Ct=1.10
  - 3) Roof design snow load has been reduced to account for slope.
  - 4) Unbalanced snow loads have been considered for this design.
  - 5) All plates are MT20 plates unless otherwise indicated.
  - 6) See HINGE PLATE DETAILS for plate placement.
  - 7) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
  - 8) All additional member connections shall be provided by others for forces as indicated.
  - 9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - 10) \* 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 = 10.0psf.
  - 11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 397 lb uplift at joint 1 and 399 lb uplift at joint 5.
  - 12) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
  - 13) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
  - 14) Take precaution to keep the chords in plane, any bending or twisting of the hinge plate must be repaired before the building is put into service.
  - 15) The field-installed members are an integral part of the truss design. Retain a design professional to specify final field connections and temporary supports. All field-installed members must be properly fastened prior to applying any loading to the truss. This design anticipates the final set position.
  - 16) Based on: P1595402
  - 17) Revision: Updated Code

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PHONE (616)-364-6161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

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# Universal Forest Products®

Job	Truss	MFG	Customer
98952	P1595407	315	COMMODORE

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Kip Whitehead

Corporate Engineering

2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060

ufpi.com



# NORTH CAROLINA MODULAR PLANS REVIEW CHECKLIST

PAGE 1 of 3

revised June 2018

**Manufacturer**  
**Model number/name**  
**3rd Party**  
**Review Date**  
**Reviewer**

**Plan Sheet Page # and NOTES**

**QC MANUAL** (current and complete)

**APPENDIX B** (required and attached)

**PLAN SHEETS**

Each plan sheet third-party stamped with approver's name

Each plan sheets is numbered and/or indexed

**GENERAL (cover sheet)**

Code References

Statement regarding connection to public utilities

Statement regarding bathrooms if not included

Construction type

Occupancy classification

Fire resistance ratings (if required)

Floor live load

Roof live load

Design wind velocity

Seismic information (commercial projects)

Thermal zones

Notice to inspections department regarding items to be site inspected

**FLOOR PLANS**

Interior and exterior wall layouts

Door and window schedule

Light and Ventilation requirements

Attic access (size and location)

Non-prescriptive headers

Safety glazing requirements

Fire rating of Exterior walls (if applicable)

**EXTERIOR ELEVATIONS**

Exterior materials

Attic ventilation requirements

**PLUMBING**

Plan

All fixtures furnished by mfg. shown on plans

Materials (water supply & distribution, DWV, storm drainage)

Supply and waste risers, including DWV system (generic) beneath the building.

Water heater (type and capacity)

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

PAGE 2 of 3

revised June 2018

**Plan Sheet Page # and NOTES**

**MECHANICAL**

Design calculations  
 Installed unit capacity  
 Supply and returns (locations and sizes)  
 Duct sizes  
 Specifications (units, ducts)  
 All appliances furnished by mfg. shown on plans

**ELECTRICAL**

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

**ACCESSIBILITY**

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

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

**FLOOR X-SECTION**

Joists and beam sizes and spacing  
 Materials species and grade  
 Sheathing, decking, and concrete as applicable  
 Fastening instructions  
 Insulation  
 Details as required for clarification

**WALL X-SECTION**

Stud and column sizes and spacing  
 Materials species and grade  
 Sheathing and bracing  
 Headers and lintels  
 Finishes  
 Fastening instructions  
 Insulation  
 Details as required for clarification

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

PAGE 3 of 3

revised June 2018

**Plan Sheet Page # and NOTES**

**CEILING / ROOF X-SECTION**

- Truss, rafter, and beam spacing
- Lumber species and grade
- Sheathing and decking
- Finishes
- Fastening instructions
- Insulation
- Details including NC sealed truss designs or manual reference

**FOUNDATION PLAN**

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

**ENERGY COMPLIANCE**

- Demonstrated compliance

**SET-UP INSTRUCTIONS**

- Floor and ceiling connections
- Marriage wall connections
- Roof set-up and connection
- Plumbing connections
- Mechanical connections
- Electrical connections
- Fire stopping
- Air infiltration elimination
- Notice to inspections department attachment if set-up instructions are by attachment

**ITEMS NOT INSPECTED IN PLANT**

- List of items not inspected by 3rd. Party
- Notice to inspections department