NTA INC.

ENGINEERS
PLANNERS
CONSULTANTS

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March 28, 2019

Mr. Mike Hamm, PE
State of North Carolina
Department of Insurance
Manufactured Building Division
322 Chapanoke Road
Suite 200
Raleigh, NC 27603

RE: CMH Manufacturing, Inc. #958
Model: 3440 - NC

Dear Mr. Hamm,

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,

David Richter

David Richter
Account Manager

Enclosures

CMH
Manufacturing, Inc.
engineering department - modular

APPROVED BY
NTA INC. 3/28/2019
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David Richter

Date:
3/27/2019

TYPE : MODULAR

MODEL PLAN INDEX

Model #	***3440***	***State***
Manufacturer	*CMH Manufacturing, Inc.*	**NC**
Brand Name	*CLAYTON*	
Unit Size	*29'-8" x76'-0"*	
Description	*4 BEDROOM / 2 BATH*	

Category	Document Description	Page or Sheet #
Index	*Model Plan Index*	**IX-1**
Technical Sheet	*Light & Vent*	**TS-1**
Technical Sheet	*Energy Compliance*	**Prescriptive**
Technical Sheet	*Heat Loss Calc*	**ATTACHED**
Technical Sheet	*HVAC System Calc*	**ATTACHED**
Technical Sheet	*Electrical Load Calc*	**TS-5**
Model Plan	*Cover Sheet*	**1-0**
Model Plan	*Cross Section / Fastening Schedule*	**1-0.2**
Model Plan	*Master Plan*	**1-1**
Model Plan	*HVAC Layout - Perimeter Duct*	**4-4**
Model Plan	*HVAC Layout - OH Duct*	**4-5**
Model Plan	*DWV Plumbing Schematic*	**8-1**
Model Plan	*Supply Plumbing*	**9-1**
Model Plan	*Electrical Plan*	**11-1**
Model Plan	*Exterior Elevations - Front & Right*	**20-1**
Model Plan	*Exterior Elevations - Rear & Left*	**20-2**
Model Plan	*OFF Frame Foundation*	**21-30PSF**
Technical Sheet	*OFF-Frame Foundation Package*	**ATTACHED**
Model Plan	*ON Frame Foundation*	**21-PS**
Technical Sheet	*ON-Frame Foundation Package*	**ATTACHED**
Model Plan	*Dryer Installation Details*	**4-1**
Model Plan	*Electrical Legend*	**TS-6**
Technical Sheet	*Electric Furnace Chart*	**PLN-1.5**
Technical Sheet	*Plumbing Plan*	**PLN-1.8**
Technical Sheet	*Trusses*	**ATTACHED**

SEE APPROVED MODULAR MANUAL FOR ;

1. SECTIONS	***2. TYPICAL DETAILS***
3. REQUIRED CONSTRUCTION METHODS	***4. MATERIALS***

CMH
Manufacturing, Inc.
engineering department - modular

	REVISIONS	
DATE :	REVISION BY :	*GCK*
March 27, 2019	REVISION DATE :	

TECHNICAL SHEET FOR LIGHT / VENT DATA

MODEL NUMBER	*3440*
SIZE OF UNIT	*29'-8" x76'-0"*
WINDOW SQ. FTG. STD.	
WINDOW SQ. FTG. W/ OPT.	
FIGURED FOR :	*CLAYTON WINDOWS*
PERCENTAGE OF LIGHT REQ'D.	*8%*
PERCENTAGE OF VENT REQ'D.	*4%*

		Square Footage Installed		Required		Percentage of Installed		Artifical	Artifical
Room	Area	Light	Vent	Light	Vent	Light	Vent	Light	Vent
LIVING ROOM	*336.8*	*29.7*	*15.6*	*26.9*	*13.5*	*8.8%*	*4.6%*		
MASTER BEDROOM	*274.3*	*30.2*	*14.0*	*21.9*	*11.0*	*11.0%*	*5.1%*		
BEDROOM 2	*131.8*	*13.7*	*7.0*	*10.5*	*5.3*	*10.4%*	*5.3%*		
BEDROOM 3	*131.5*	*13.7*	*7.0*	*10.5*	*5.3*	*10.4%*	*5.3%*		
BEDROOM 4	*122.1*	*13.7*	*7.0*	*9.8*	*4.9*	*11.2%*	*5.7%*		
DINING ROOM	*83.1*	*39.6*	*20.8*	*6.6*	*3.3*	*47.7%*	*25.0%*		
KITCHEN	*228.8*	*19.2*	*9.8*	*18.3*	*9.2*	*8.4%*	*4.3%*	*YES*	*YES*

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APPLICATION ENGINEERING
FOR HEATING AND COOLING

CMH Mfg., Inc.
2225 South Holden Road
Richfield, NC 27417-0386

Manufacturer's Model #: 3440
HVAC System Type: INFLOOR STRAIGHT ALUM. WITH PER REG ***- CMH DESIGN -***

Prepared By LaSalle Air Systems 3/20/2019 {Method & Output © 2019}

Calculations on this page are based on design standards set forth in ASHRAE and ACCA ***Manuals J Rev 8.2 and D Rev 1.1.*** *System registers are located for best distribution based on Manual T. Design calculations are based on worst case orientation. Room loads may vary based on actual conditions.*

ENTIRE HOUSE VALUES - DESIGN ZONE: NC, Region 4 NCECC (2018)/IECC (2015NC) 36N Latitude

COOLING LOAD: **34,180** Btuh for Outside Temp/Humidity of 92 ° F (33 C)/ 48% and Inside reduced to 75 ° F (23 C)/ 50%

HEATING LOAD: **37,742** Btuh based on outside temp of 16 ° F (-9 C) with inside temp raised to 72 ° F (22 C)

Crawlspace is not heated by the primary air handler. **Actual UA = 355.5 Max UA (Table R402.1.2) = 379.4**
Use net wall area, not gross wall

CONSTRUCTION DETAILS & U / SHGC VALUES: (22+Non-ins Rim - 15 - 38)

Total Cond. Floor Area:	2108.82 s.f.		TRUE Outside Perimeter:		211.33 ft				
Level 1 Ceiling:	108 to 108 in.	Level 2 Ceiling:	0 to 0 in.	Level 3 Ceiling:	0 to 0 in.	Net Roof Area (less ducts): 2045.3 s.f.			
Primary Wall Area:	1598.89 s.f. (Net)	Dark Roof(U):	0.027	FLOOR DUCTS (U):	0.0444	Duct TEL			
Secondary Wall Area:	0.00 s.f. (Net)	Prim Wall (U):	0.070	ATTIC DUCTS (U):	0.125	468.2 ft			
TOTAL Low-E window	195.33 s.f.	Sec Wall (U):	0.035	EXT. DUCTS (U):	0.125				
TOTAL Patio Door	0.00 s.f.	Exp Floor(U):	0.044	INFLOOR DUCT AREA:	389.5	S.F. @ 51.2 TD/ 26.6 TD			
TOTAL Shaded Window	50.00 s.f.	Low-E wi	0.350 / 0.28	ATTIC DUCT AREA:	86.434	S.F.(return) @ 96 TD/ 88.2 TD			
TOTAL Skylite	0.00 s.f.	Patio Doc	0.330 / 0.27	EXT. DUCT AREA:	100.53	S.F. @ 96 TD/ 45 TD			
TOTAL Door1 Area:	57.78 s.f.	Shaded V	0.350 / 0.05	PEOPLE:	5	4118.1 Btuh Total Appliances			
TOTAL Door2 Area:	0.00 s.f.	Skylite	0.790 / 0.64	FIREPLACES:	0				
All Glass % of Floor:	11.63 %	Door 1:	0.140	DUCT GAIN:	@ Semi-Tight	2897	Btuh		
All Glass % of Wall:	12.90 %	Door 2:	0.670	DUCT LOSS:		6719	Btuh		
LATENT GAIN:	7757 Btuh			Summer Infiltr (7.5 mph):		36.9	cfm		
Mech. Ventilation :	119.11 cf (56.2 L/s)	Altitude:	1000 ft	Winter Infiltration (15 mph):		69.6	cfm	@ Semi-Tight	

ROOM BY ROOM VALUES:

825.7 FPM, max velocity in trunk #: 2
Heat Exiting Furnace: 98 deg A/C Exiting : 49 deg
0.34 Max pressure at A/H

Actual heating and cooling required in each room and flow set to maximum of either heating or cooling

Cooling Air Values for **3** ton unit

Heating Air Values for 50 90 % Gas/Oil 12.5 KW Elec

Maximum A/C capacity Calibrated Blower Test

ROOM NAME		HEATING LOSS (Btu)	COOLING GAIN (Btu)	CFM DIST	CFM	Btuh	CFM	Btuh	E	Btuh	Btuh (alt adj)
Kitchen	h	5,511	4,983	160	178	5,037	168	6,129		5,809	5,246
Utility	c	2,591	2,286	77	91	2,590	86	3,152		2,987	2,698
Bath #3	h	1,219	752	35	57	1,600	53	1,947		1,846	1,665
Hall	h	1,282	890	37	57	1,621	54	1,972		1,869	1,686
Bedroom #4	c	2,880	2,650	89	97	2,754	92	3,351		3,176	2,869
Bath #2	h	1,480	1,078	43	60	1,696	57	2,064		1,956	1,764
M. Bath	c	4,302	4,129	138	95	2,698	90	3,283		3,112	2,811
M. Bedroom	c	4,916	4,752	153	192	5,437	182	6,616		6,270	5,664
Bedroom #2	c	2,909	2,664	90	93	2,634	88	3,205		3,038	2,744
Bedroom #3	c	2,405	2,293	77	91	2,589	86	3,150		2,985	2,696
Living Room	c	5,007	4,847	156	154	4,362	146	5,308		5,031	4,542
Dining Room	c	3,240	2,856	96	93	2,633	88	3,204		3,036	2,743
TOTALS		37,742	34,180	1,150	1,259	35,650	1,191	43,380		41,115	37,127

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APPLICATION ENGINEERING
DUCT AIR FLOW AND SIZING WORKSHEET (MANUAL D)

Manufacturer: CMH Mfg., Inc.
2225 South Holden Road
Richfield, NC 27417-0386

Model #: 3440
HVAC System Type: INFLOOR STRAIGHT ALUM. WITH PER REG - CMH DESIGN -
Design Zone: NC, Region 4 NCECC (2018)/IECC (2015NC)

Calculations include factors for duct air temperature change and pressure drops through ducts. All joints are tightly fitted or sealed.

Blower CFM 1296 @ 0.8 E.S.P. TEL= 519.2905 FR= 0.0944 *(A/C Coil included)*
Altitude = 1,000 ft

BRANCH DUCT LISTING ANALYSIS

BR #		Trunk #	Metal (ft)	F. G. (ft)	Flex (ft)	Bends/ Fittings(ft)	Total Eq. Length	Heat Btuh	Cool Btuh	Elec Heat cfm	(Altitude Adj.) Cool cfm	Design cfm	Round Size	User Input Rectangle Size (i.d.) x (i.d.)	Final Round Size	Final Velocity fpm
1	Bath #3	4	33	0	17	406.7	456.7	1,219	752	42	26	42	4.74		5.0	307.1
2	Utility	4	33	0	18	397	448.0	2,591	2,286	89	79	89	6.31		6.0	453.3
3	Kitchen	4	33	0	18	417.2	468.2	2,731	2,469	94	85	94	6.55		6.0	477.6
4	Kitchen	4	33	0	18	407.2	458.2	2,781	2,514	96	87	96	6.54		6.0	486.4
5	Hall	5	24	0	18	407.7	449.7	1,282	890	44	31	44	4.82		5.0	322.8
6	Bedroom #4	5	24	0	18	377.1	419.1	2,880	2,650	99	91	99	6.42		6.0	503.7
7	Bath #2	5	24	0	17	387.4	428.4	1,480	1,078	51	37	51	5.04		5.0	372.9
8	M. Bath	5	24	0	25	379.8	428.8	4,302	4,129	148	142	148	7.57		6.0	752.6
9	Bedroom #3	6	32	0	27	389.3	448.3	2,405	2,293	83	79	83	6.14		6.0	420.7
10	Living Room	6	32	0	27	379.3	438.3	1,906	1,846	65	64	65	5.54		5.0	480.2
11	Living Room	6	32	0	27	369.3	428.3	3,100	3,002	106	103	106	6.67		6.0	542.3
12	Dining Room	6	32	0	29	379.4	440.4	3,240	2,856	111	98	111	6.88		6.0	566.7
13	Bedroom #2	7	34	0	27	379.2	440.2	2,909	2,664	100	92	100	6.57		6.0	508.8
14	M. Bedroom	7	34	0	27	369.2	430.2	2,433	2,351	84	81	84	6.07		6.0	425.5
15	M. Bedroom	7	34	0	27	359.2	420.2	2,484	2,401	85	83	85	6.06		6.0	434.5
N/A	Other Rooms							-	-							
								37,742	34,180	1,296	1,177	1,296				

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TRUNK DUCT LISTING ANALYSIS

TRUNK # 1	32		90	122.0	37,742	34,180		1296	12.64	12	14	14.2	1111.1
TRUNK # 2		11	229.75	240.8	19,266	16,768		662	11.06			12.0	842.5
TRUNK # 3		21	232.75	253.8	18,476	17,412		635	11.03			12.0	808.0
TRUNK # 4	33		240.75	273.8	9,322	8,020		320	8.74	5	14	8.9	658.6
TRUNK # 5	24		240.75	264.8	9,944	8,747		342	8.88	5	14	8.9	702.6
TRUNK # 6	32		253.75	285.8	10,651	9,996		366	9.31	5	14	8.9	752.5
TRUNK # 7	34		253.75	287.8	7,825	7,416		269	8.28	5	14	8.9	552.9
TRUNK # 8					-	-		0		0	0		
TRUNK # 9					-	-		0		0	0		
TRUNK # 10					-	-		0		0	0		
TRUNK # 11					-	-		0		0	0		
TRUNK # 12					-	-		0		0	0		
TRUNK # 13					-	-		0		0	0		
TRUNK # 14		12			-	-		0					
TRUNK # 15		31			-	-		0					
LONGEST RETURN DUCT		31	20	51				1296	11.78	18	24	22.7	432.1

APPLICATION ENGINEERING
EQUIPMENT SELECTION AND SIZING WORKSHEET (MANUAL S)

Manufacturer: CMH Mfg., Inc.
2225 South Holden Road
Richfield, NC 27417-0386

Model #: 3440
HVAC System Type: INFLOOR STRAIGHT ALUM. WITH PER REG - CMH DESIGN -
Design Zone: NC, Region 4 NCECC (2018)/IECC (2015NC)

RESULTS FROM MANUAL-J CALCULATIONS: *Worst Case Orientation*

HEATING LOAD:	**37,742** Btuh at	16 °	**REQ'D BLOWER CFM:**	**1,259** cfm at altitude of	1,000 ft		
SENSIBLE CLG LOAD:	**26,423** Btuh at	92 °	**Entering Air DRY Bulb:**	76.6 °	Mech. Ventilation :	119	
LATENT CLG LOAD:	**7,757** Btuh at	92 °	**Entering Air WET Bulb:**	61.4 °	**Entering Air RH:**	53 %	
GRAINS DIFFERENCE:	**46**		**Outside wet bulb:**	72.0 °	**outside RH:**	48.2 %	

FILL IN BLANKS IN EACH SECTION FROM THE H.V.A.C. EQUIPMENT DATA CHARTS: (Do not use ARI Ratings!)

Air handler model #:_____ Condenser model #:_____

☐ *Blower Data* Select blower speed in COOLING mode: _____
Blower CFM is between 1102 >_____< 1491 for Total (External) Static Pressure between 0.7>_____<0.9

☐ *Electric, Gas or Oil Furnace* Select blower speed in HEATING mode: _____ Output Btuh is between 39629>_____<52838

Blower CFM is between 684 >_____< 808 for Temp. rise of 55-65
Blower CFM is between 808 >_____< 988 for Temp. rise of 45-55
Blower CFM is between 988 >_____< 1271 for Temp. rise of 35-45

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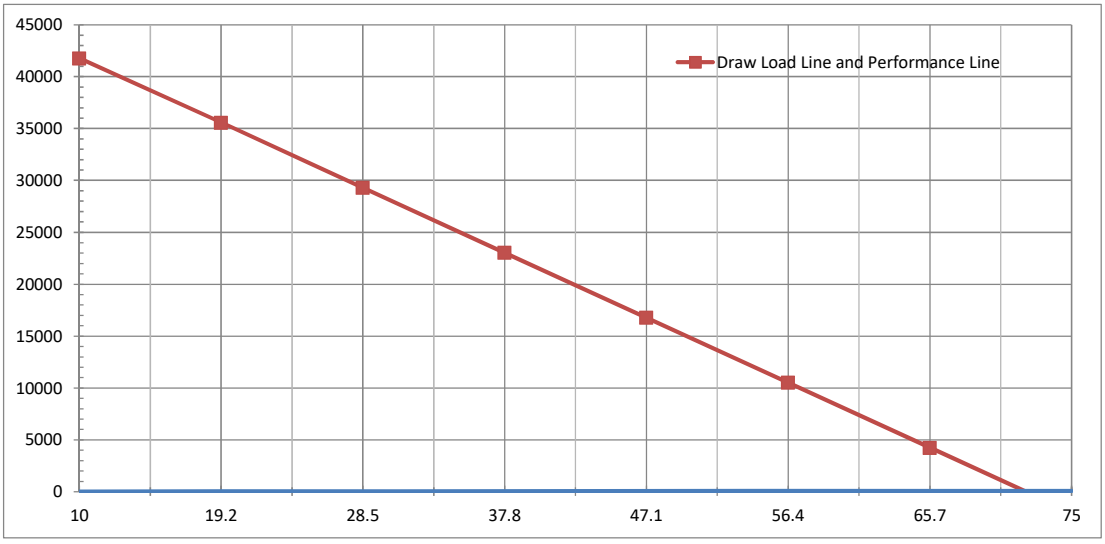
☐ *Cooling Equipment* S/T Ratio = 0.77 Leaving Temp = 50.4 ° TD = 24.6 °
At 92F outside, Total A/C output from 34863 btuh _____ to 39306 btuh is GOOD.
At 92F outside, Total A/C output from 39306 btuh _____ to 41015 btuh is MARGINAL.

Sensible Capacity is from 22544 btuh _____ to 30301 btuh
Latent Capacity is from 7601 btuh _____ to 11635 btuh

Mechanical Ventilation is 9.1 % of blower cfm. Dry bulb increases by: 1.5 ° Wet bulb increases by: 0.9 °

☐ *Heat Pump with Supplemental Heating Coils*

Data from performace charts	Data from load calculation
_____ btuh at _____ F outside	0 btuh at 72 F outside
_____ btuh at _____ F outside	37,742 btuh at 16 F outside



At winter design temperature of 16 F outside, the distance between the lines is _____ btuh

which is the Supplemental Heat divided by 3400 = _____ KW.

APPLICATION ENGINEERING
INTERNATIONAL MECHANICAL CODE - Chapter 4 Ventilation Worsheet

Manufacturer: CMH Mfg., Inc.
2225 South Holden Road
Richfield, NC 27417-0386

Model #: 3440
HVAC System Type: INFLOOR STRAIGHT ALUM. WITH PER REG - CMH DESIGN
Design Zone: NC, Region 4 NCECC (2018)/IECC (2015NC)

Prepared by LaSalle Air Systems 3/20/2019

RESULTS FROM MANUAL-J CALCULATIONS: *Worst Case Orientation*

HEATING LOAD:	**37,742**	Btuh at	16 °	**REQ'D BLOWER CFM:**	**1,259**	cfm at altitude of	1000 ft	
SENSIBLE CLG LOAD:	**26,423**	Btuh at	92 °	**Entering Air DRY Bulb:**	76.6 °	Mech. Ventilation :	119	
LATENT CLG LOAD:	**7,757**	Btuh at	92 °	**Entering Air WET Bulb:**	61.4 °	**Entering Air RH:**	53 %	
GRAINS DIFFERENCE:	**46**			**Outside wet bulb:**	72.0 °	**outside RH:**	48 %	

Natural or Mechanical: Test the infiltration at 50 Pa should result in 607.0 CFM infiltration being 1.919 ACH (to be confirmed by testing)

(5 ACH = 1581 CFM) (3 ACH = 948 CFM) **Mechanical ventilation is required**

To Meet Natural Ventilation: Increase Openable Area by 160 %

ROOM NAME	Room Area	Openable Area Required	Openable Area Built
Kitchen	234.9	9.3	12.00
Utility	186.7	7.4	6.25
Bath #3	84.1	3.3	0.00
Hall	65.5	2.6	0.00
Bedroom #4	210.1	8.4	8.33
Bath #2	101.4	4.0	1.00
M. Bath	244.8	9.7	15.00
M. Bedroom	258.3	10.3	19.67
Bedroom #2	195.3	7.8	8.33

ROOM NAME	Room Area	Openable Area Require	Openable Area Built
Bedroom #3	154.5	6.1	8.33
Living Room	283.1	11.3	18.75
Dining Room	90.3	3.6	0.00
	0.0	0.0	0.00
	0.0	0.0	0.00
	0.0	0.0	0.00
	0.0	0.0	0.00
	0.0	0.0	0.00
	0.0	0.0	0.00
TOTAL	2108.8	83.8	97.67

Mechanical Ventilation Is Required In These Areas To Meet IMC 2012/2015 Per Table 403.3.1.1:

SPACE CLASSIFICATIONS	Occupancy	Area	Outdoor Air	Exhaust Air	ZONE AIR DISTRIBUTION	Air Flow
Private Living Area	5.1	1443.8	119.1	0.0	Floor Supply of Warm Air/Floor Return	869.4
Private Kitchen	0.0	234.9	0.0	25.0	Floor Supply of Warm Air/Floor Return	177.9
Private Baths	0.0	430.2	0.0	105.0	Floor Supply of Warm Air/Floor Return	211.7
	0.0	0.0	0.0	0.0		0
	0.0	0.0	0.0	0.0		0
	0.0	0.0	0.0	0.0		0
Total	5.1	2,108.8	119.1	130.0		1,259

System Ventitlation Efficiency: 1

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ELECTRICAL FEEDER CALCULATION

CMH
Manufacturing, Inc.
engineering department - modular

PAGE:	1 of 1
DATE:	27-Mar-19
BY:	GCK

MODEL NO.	3440	Per NEC 220-30

1. LIGHTING LOAD:

1st floor			2nd floor		
length =	76.00	FT.	length =	0.00	FT.
width =	29.67	FT.	width =	0.00	FT.
Total area =	2254	SQ. FT.	Minimum number of 15 Amp circuits =	4	
X	3	VA			
TOTAL	6762	VA			

2. SMALL APPLIANCE LOAD:

Number of circuits	3	
X	1500	VA
TOTAL	4500	VA

3. LAUNDRY LOAD:

Number of circuits	1	
X	1500	VA
TOTAL	1500	VA

4. APPLIANCE LOAD:

Electric Range =	12100	VA
Electric Water Heater =	5000	VA
Electric Clothes Dryer =	5600	VA
Cooktop =	0	VA
Wall Oven =	0	VA
Freezer =	1200	VA
Dishwasher & Disposal =	2376	VA
Gas furnace motor =	0	VA
Micro-wave oven	1200	VA

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5. TOTAL OF OTHER LOADS (1, 2 & 3)

	LEG A	
Lighting load =	6762	
Small appliance load =	4500	
Laundry =	1500	
Appliance load =	27476	
Sub-Total =	40238	
10000 VA @ 100% =	10000	
Remainder @ 40% =	12095	
Total =	22095	VA
	92.06	AMPS

6. HVAC LOAD:

Lineal feet of baseboard heaters =			0	
Number of baseboard heater circuits =			0	
Total baseboard heater load =			0.0	Amps
Use 65% w/ less than 4 or 40% w/ 4 or more circuits (*)				
Electric furnace @ 65% (*)				
Circuit 1 =	40	Amps	26.00	Amps
Circuit 2 =	30	Amps	19.50	Amps
Air conditioner (*)				Amps
Total HVAC load (*- Use largest of these only) =			45.50	Amps

FURN SIZE
12KW

7. TOTAL OF ALL LOADS = 137.56 Amps

DOOR AND WINDOW SCHEDULE

NOTE: FLOOR PLAN WINDOW SIZES WITH AN "SG" DESIGNATION REPRESENTS SAFETY GLAZING REQUIRED PER IRC SECTION R308.4

SIZES	ROUGH OPENING	LIGHT (@ 8%)	VENT (@ 4%)
14 X 40 WDW.	14 1/4" X 40 1/4"	2.50	1.30
24 X35 WDW.	24 1/4" X 35 1/4"	4.10	2.10
24 X54 WDW.	24 1/4" X 54 1/4"	6.80	3.50
30 X 60 WDW.	30 1/4" X 60 1/4"	9.90	5.20
36 X 35 WDW.	36 1/4" X 35 1/4"	6.60	3.40
36 X 54 WDW.	36 1/4" X 54 1/4"	10.80	5.60
36 X 60 WDW.	36 1/4" X 60 1/4"	12.20	6.20
36 X 72 WDW.	36 1/4" X 72 1/4"	14.90	7.70
36 X 08 WDW.	36 1/4" X 08 1/4"	0.50	0.00
36 x 12 WDW.	36 1/4" X 12 1/4"	1.10	0.00
64 x 35 WDW.	64 1/4" X 35 1/4"	11.50	2.60
58 x 35 WDW.	58 1/4" X 35 1/4"	10.10	2.20
DOORS			
2-8 X 6-8 DOOR	35 1/2" X 80"	-	-
3-0 X 6-8 DOOR	38" X 80"	-	-
PATIO DOOR	72" X 80"	33.6	16.8
ATRIUM DOOR	75 3/8" X 82 1/2"	21.15	17.3

FASTENING REQUIREMENTS: FOR DOORS AND WINDOWS, USE EITHER # 8 X 1" SCREWS, 7/16" X 1 1/2" X 16 GA. STAPLES, OR .092 X 2 1/4" PD NAILS, AT 12" ON CENTER MAXIMUM.

DESIGN CRITERIA

- FLOOR LIVE LOAD = 40 PSF
- GROUND SNOW LOAD = 30 PSF
- ATTIC LIVE LOAD = 10 PSF

CLASSIFICATION:

- USE GROUP = R
  R3 RESIDENTIAL (NON-TRANSIENT)
- CONSTRUCTION TYPE IS V-B (UNPROTECTED)

- SEISMIC DESIGN CATEGORY "C"
- SOIL PROFILE CATEGORY "C"
- WIND EXPOSURE - 'C'
- ROOF MEAN HT 22'-0"

DESIGN WIND SPEED =	90 MPH	100 MPH	120 MPH
ULITMATE WIND SPEED =	117 MPH	130 MPH	152 MPH

ATTENTION LOCAL INSPECTION DEPARTMENT

SET-UP INSTRUCTIONS FOR THIS MODULAR UNIT ARE INCLUDED BY ATTACHMENT TO THESE PLANS. ANY PLAN SET WHICH DOES NOT INCLUDE AN ATTACHMENT ENTITLED "SET UP MANUAL" IS INCOMPLETE

SET- UP INSTRUCTIONS

SEE SETUP MANUAL SENT WITH HOME

REQUIREMENTS FOR FIRESTOPPING

INSTALLATION OF NON- COMBUSTIBLE MATERIALS AROUND ALL OPENINGS THAT ARE VERTICAL PENETRATIONS IN THE FLR. AND CLG.

ATTENTION LOCAL INSPECTION DEPARTMENT

THE FOLLOWING ITEMS LISTED HAVE NOT BEEN COMPLETED BY *CMH MFG, Inc.,* HAVE NOT BEEN INSPECTED BY NTA, INC AND ARE NOT CERTIFIED BY THE STATE OF NORTH CAROLINA MODULAR LABEL. CODE COMPLIANCES MUST BE DETERMINED BY THE LOCAL JURISDICTION FOR THE FOLLOWING:

- HVAC SYSTEM (SITE INSTALLATION AND CONNECTIONS)
- THIS UNIT MUST BE CONNECTED TO A PUBLIC WATER SUPPLY AND SEWER SYSTEM, IF THESE ARE AVAILABLE.

CODE COMPLIANCE

ALL PLANS MEET OR EXCEED THE FOLLOWING:

North Carolina State Building Code Compliance:

- NC Residential Code - 2018 Edition
- NC Electrical Code - 2017

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David Richter

RIDGE BEAMS-SIZES AND MAX. SPAN CHART

RIDGE BM. CHART-SEE MATING WALL PG. RC-60.0 FOR MAX.
CALCULATIONS-SEE MATING WALL PGS. CRC SECTION

Soffitt 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

THERMAL ZONE REQUIREMENT

-THIS BUILDING DESIGN COMPLIES WITH OR EXCEEDS MINIMUM REQUIREMENTS FOR NORTH CAROLINA THERMAL ZONE 5
-MODEL IS DESIGNED TO MEET THERMAL ZONE 5 AND BELOW PER TABLE N1101.2 REFERENCED IN THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION FOR ONE & TWO FAMILY DWELLINGS. REScheck ANALYSIS AND COMPLIANCE REPORT FOR THERMAL ZONE CALCULATION IS PROVIDED FOR EACH SPECIFIC MODEL AND IS ATTACHED IN THE SUBMITTED MODEL APPROVAL PACKAGE.

BTUS PER HVAC CALCS
FURNANCE SIZE PER HVAC CALCS

INSULATION PACKAGES

PRESCRIPTIVE

MODULAR MANUAL REFERENCES

ITEMS BELOW ARE REFERENCED FOR NON PRESCRIPTIVE USE

FLOOR: ON FRAME CONSTRUCTION

DETAILS - SECTIONS ON FLOORS FOR ON FRAME: FL-500
CALCULATIONS - SEE CFL SECTION

FLOOR: OFF FRAME CONSTRUCTION

DETAILS - SECTIONS ON FLOORS FOR OFF FRAME: FL - 100

MARRIAGE WALLS - 2x CONSTRUCTION

DETAILS - MW-20.0, MW-30.0, MW-40.0
CALCULATIONS - SEE CMW SECTION

ELECTRICAL APPLIANCES AND LOADS

ELECTRICAL - SEE PAGES PLN-1.0 for WH & PLN-1.5 for FURN
CALCULATION - SEE TECHNICAL SHEET ATTACHED FOR MODEL SPECIFIC ELECTRICAL PANEL LOAD CALC FOR 200 AMP SERVICE

ANCHORAGE REQUIREMENTS

FOUNDATION SECTIONS FOR PERIMETER ON FRAME:
PER SETUP MANUAL
FOUNDATION SECTIONS FOR PIER SET ON-FRAME:
PER SETUP MANUAL
FOUNDATION SECTIONS FOR PERIMETER OFF FRAME:
PER SETUP MANUAL

TRUSSES - DETAILS / CALCULATIONS

PER TRUSS PRINTS

PLUMBING FIXTURES

SEE PAGE PLN - 1.8
ALL MODELS ARE AVAILABLE WITH FLOOR PLAN REVERSED FROM LEFT TO RIGHT AND / OR FRONT TO BACK.

MARRIAGE WALL COLUMNS SPAN CHART

DETAIL - SEE MATING WALL COLUMNS (PAGE MW-20.0)
CALCULATIONS - SEE CMW SECTION

INSTRUCTIONS ON FILLING OUT PLAN SET BEFORE CONSTRUCTION

YOU MUST CHECK THE APPROPREATE BOX OF WHAT THE STRUCTURE IS TO BE BUILT TO BEFORE PRODUCTION BEGINS. THE MARK SET MUST ACCOMPANY THE UNIT THROUGH THE PRODUCTION PROCESS.

EXTERIOR SIDEWALL HEADERS - SIZES AND MAXIMUM SPAN CHART

HEADER CHART - SEE EXTERIOR WALL PAGE EW - 20.0
CALCULATIONS - CEW SECTION

ATTENTION LOCAL INSPECTION DEPARTMENT:

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.

"Service entrance conductors routed from their point of entrance into the structure, to their point of attachment to the service enclosure a distance horiontally not more than twice the nominal width of the service enclosure and vertically not more than the greater of 5 feet or twice the nominal height of the sevice enclosure shall be considered to be in compliance with the requirements of 230-70(a) of the current National Electrical Code. Service entrance conductors may be routed in the most direct route or at right angles. Service entrance conductors in excess of these specified limits will not be allowed unless specifically authorized by special permission from the electrical inspector having jurisdiction to accommodate adverse site conditions which would not reasonably allow installation within this criteria."

This home is NOT designed for placement in Coastal High Hazard Areas or Ocean Hazard Areas.

CMH
Manufacturing, Inc.

REVISIONS	BY	DATE	ALL MODULAR MODELS
			COVER SHEET 1-0

NC(New)

TYPICAL FASTENING SCHEDULE:

FLOOR FASTENING	REFERENCE 'CFL' – FLOOR CONSTRUCTION CALCULATIONS OF THE MANUAL.
RIM JOIST TO JOIST	PER FL–110 OR FL–510.0 IN APPROVED MANUAL
FLOOR BLOCKING TO JOIST	PER FL–100.0 IN APPROVED MANUAL
MULTIPLE JOIST	.131 x 3" NAILS @ 10" O.C., W/ GLUE 80%
DECKING TO FLOOR FRAMING	PER FL–10 IN APPROVED MANUAL
EXTERIOR WALL FASTENING	REFERENCE 'CEW' – EXTERIOR WALL CONSTRUCTION CALCULATIONS OF THE MANUAL
LOWER TOP PLATE & BOTTOM PLATE TO STUD	PER EW–25 IN APPROVED MANUAL DOUBLE STUDS 7/16" x 2–1/2" x 15 GA. STAPLES @ 6" O.C.
DOUBLE TOP PLATES	PER EW–1 IN APPROVED MANUAL
HEADER TO STUDS	PER EW–20 CHARTS IN APPROVED MANUAL
HEADER COMPONENTS	PER EW–20 IN APPROVED MANUAL
STUDS TO SILLS	PER EW–20 IN APPROVED MANUAL
EXTERIOR SIDING	PER THE MANUFACTURER'S SPECIFICATIONS
BOTTOM PLATE TO FLOOR	PER EW–31 IN APPROVED MANUAL
SIDEWALL TO ENDWALL	PER EW–30 FOR NON–SHEARWALL OR PER SW–40 FOR SHEARWALL OR PER EW–0.0 IN APPROVED MANUAL
WALL WALL TO WALL TOP PLATES	3" x 6" x .036" (20 GA.) GALVANIZED STEEL PLATE W/ (6) .131 x 3" NAILS AT EACH SIDE AT EACH
EXTERIOR WALL SHEATHING	FOR APA RATED SHEATHING; 7/16" X 1–3/4" x 15 GA. STAPLES AT 6" O.C. AT ALL EDGES & 12" O.C. FIELD. FOR COMPOSITE WALLS, FASTEN PER EW–40. FOR SHEARWALL FASTEN PER SW–40 OR ATTACHED PAGES (IF ATTACHED). ALL OTHER SHEATHING FASTENED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
MATING WALL FASTENING	REFERENCE 'CMW' – MARRIAGE WALL CALCULATIONS OF THE MANUAL
LOWER TOP PLATE TO STUD	PER MW–40 IN APPROVED MANUAL
BOTTOM PLATE TO STUD	PER MW–40 IN APPROVED MANUAL
MULTIPLE STUDS	7/16" x 2–1/2" x 15 GA. STAPLES OR .131 x 3" NAILS @ 16" O.C. TO EACH MEMBER
STANDARD COLUMN	PER MW–20 IN APPROVED MANUAL
DOUBLE TOP PLATES	PER MW–40 IN APPROVED MANUAL
BOTTOM PLATE TO FLOOR	PER MW–31 IN APPROVED MANUAL
MATING WALL TO ENDWALL	PER EW–30 IN APPROVED MANUAL
WALL TO WALL TOP PLATES	3" x 6" x .036" (20 GA.) GALVANIZED STEEL PLATE W/ (6) .131 x 3" NAILS AT EACH SIDE AT EACH WALL OR OVERLAPPED PLATE PER EW–0.
INTERIOR WALL FASTENING	
BOTTOM PLATE TO STUDS	PER PT–40 IN APPROVED MANUAL
TOP PLATE TO STUD	PER PT–40 IN APPROVED MANUAL
DOUBLE STUDS	7/16" x 2–1/2" x 16 GA. STAPLES @ 16" O.C.
FLAT HEADER TO STUDS	PER PT–20 IN APPROVED MANUAL
WALL TO FLOOR	PER PT–40 IN APPROVED MANUAL
WALL TO WALL	PER PT–30 IN APPROVED MANUAL
TOP PLATE TO ROOF SYSTEM	PER PT–40 IN APPROVED MANUAL
GYPSUM TO WALL FRAMING	PER THE RESIDENTIAL BUILDING CODE TABLES
ROOF FASTENING	REFERENCE 'CRC' – ROOF CONSTRUCTION CALCULATIONS OF THE MANUAL
CEILING BOARD TO TRUSS	FOAM–SEAL 2100 SPRAY ADHESIVE PER THE MANUFACTURER'S SPECIFICATIONS
BLOCKING TO TRUSS	(2) 7/16" x 2–1/2" x 15 GA. STAPLES DIRECT
TRUSS TO SIDEWALL TOP PLATE	PER RC–30 IN APPROVED MANUAL
TRUSS TO RIDGE BEAM	PER RC–65 IN APPROVED MANUAL
TRUSS TO EDGE RAIL	PER MW–31 CHARTS IN APPROVED MANUAL
EDGE RAIL TO MATING WALL	PER MW–31 CHARTS IN APPROVED MANUAL
TRUSS TO ENDWALL TOP PLATE ROOF DECKING TO TRUSS	PER SW–40 IN APPROVED MANUAL FOR SHEARWALLS AND RC–33.0 FOR NON–SHEARWALLS PER SW20.0 THRU SW–389E.2 (IF NOT ATTACHED) IN APPROVED MANUAL
SHINGLE TO ROOF DECKING	PER THE MANUFACTURER'S OR ARMA SPECIFICATIONS
OUTLOOKER TO TRUSS	PER RC–70 IN APPROVED MANUAL
INSTALLATION FASTENING	REFERENCE INSTALLATION PAGES PROVIDED IN EACH APPROVAL.

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(CS1) 7/16" APA RATED ROOF DECKING 24/16 SPAN RATING.
(CS2) 15# MIN. ROOF UNDERLAYMENT; SINGLE LAYER w/ GREATER THAN 4:12 ROOF PITCH; DOUBLE LAYER w/ 4:12 OR LESS
(CS3) MIN. 20 YEAR SHINGLES.
(CS4) 1 1/2" WIDE ENGINEERED WOOD BEAM, EACH HALF IN OPEN SPAN AREAS GREATER THAN 48".
(CS5) ENGINEERED WOOD TRUSSES: COMPONENTS & SPACING PER TRUSS PRINT
* FOR CONNECTION AND SET–UP OF ROOF: SEE MODULAR SET–UP PAGES ATTACHED TO APPROVAL

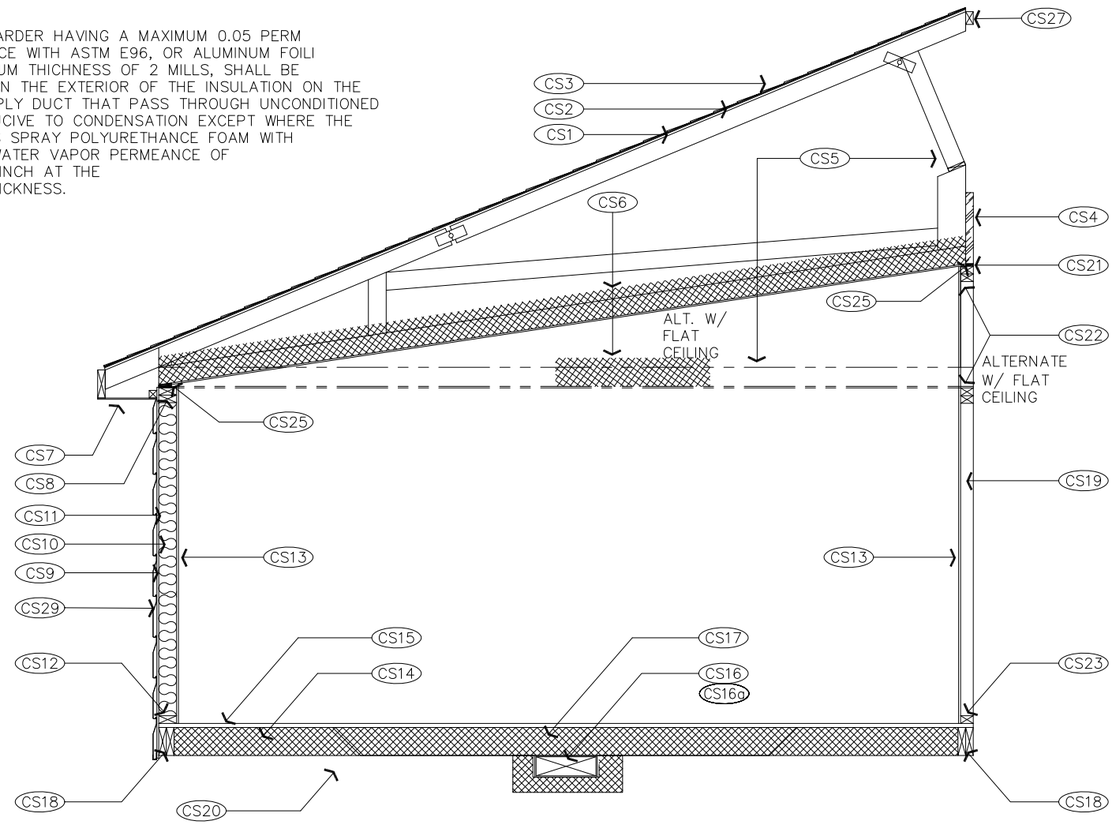
(CS6) CEILING INSULATION, BLOWN OR BATT.
(CS7) CONTINUOUS VENTED SOFFIT.
(CS8) DOUBLE 2x4 TOP PLATE (MIN.).
(CS9) 2x4 STUDS @ 16" O.C. STUD GRADE SPF (MIN.).
(CS10) WALL INSULATION (BATT)
(CS11) 3/8" OSB SHEATHING WITH WATER RESISTIVE BARRIER BELOW ALL EXT. FINISH MATERIAL. CORROSION–RESISTANT FLASHING REQUIRED AT ALL LOCATIONS AS SHOWN ON APPROVED MANUAL DETAILS
(CS12) SINGLE 2x4 BOTTOM PLATE SPF #3 (MIN.).
(CS13) 3/8" (MIN.) GYPSUM WALL BOARD.
(CS14) FLOOR INSULATION (BATT.)
(CS15) MIN. 19/32" RATED DECKING 16" O.C. OR 32/16 SPAN RATING.
(CS16a)
Duct Insulation:
1 – Min R–8
2 – A VAPOR RETARDER HAVING A MAXIMUM 0.05 PERM IN ACCPRDANCE WITH ASTM E96, OR ALUMINUM FOILI WITH A MINIMUM THICHNESS OF 2 MILLS, SHALL BE INSTRALLED ON THE EXTERIOR OF THE INSULATION ON THE COOLING SUPPLY DUCT THAT PASS THROUGH UNCONDITIONED SPACE CONDUCIVE TO CONDENSATION EXCEPT WHERE THE INSULATION IS SPRAY POLYURETHANCE FOAM WITH A MAXIMUM WATER VAPOR PERMEANCE OF 3 PERM PER INCH AT THE INSTALLED THICKNESS.

(CS16) MAIN HEAT DUCT. (MAY BE SITE INSTALLED BY OTHERS)
(CS17) OFF FRAME PER FL–110.0

(CS18) OFF FRAME PER FL–110.0

(CS19) **2x4** (MIN.) MARRIAGE WALL STUDS @ 16" O.C.
(CS20) LISTED BOTTOM BOARD, WHERE OCCURS.
(CS21) 1/2" SHIM FOR COMPRESSION STRIP.
(CS22) DOUBLE **2x4** (MIN.) TOP PLATE.
(CS23) **2x4** (MIN.) BOTTOM PLATE.
(CS24) 1/2" (MIN.) GYPSUM BOARD CEILING.
(CS25) WEDGE SUPPORT AT CATHEDRAL CEILING, EACH END OF TRUSS.

(CS27) CONTINUOUS 2x3 SPF #3 MINIMUM FOR TRUSS TOP RAIL FOR RIDGE CONNECTION
(CS28) 2x FULL DEPTH BLOCKING 24" O.C. (2) JOIST BAY MIN. ENDWALL LOCATION ONLY.
(CS29) LAP BOARD, WOOD OR VINYL SIDING, HARDI SIDING, OR EXPOSED SHEATHING FOR ON SITE EXTERIOR FINISH INSTALLATION.



CMH MANUFACTURING, INC

TYPICAL CROSS SECTION & FASTENING SCHEDULE

BRAND:	SERIES: NC/SC/DE MODULAR	MODEL NO.: ALL
PLANT: #958	DESCRIPTION: OFF FRAME HINGED ROOF	
DRAWN BY: DRR	DATE DRAWN: 10–21–15	DATE PRINTED: 4–25–17	SHEET: 1–0.2

90MPH / BLOCK THIS END 2FT
100MPH / BLOCK THIS END 8FT
120MPH / BLOCK THIS END 16FT

INSULATION FOR NORTH CAROLINA/2018 PRESCRIPTIVE METHOD
CZ3: R=38 CEILING R=15 WALLS R=22 FLOOR
CZ4: R=38 CEILING R=15 WALLS R=22 FLOOR
CZ5: R=38 CEILING R=17.3 WALLS R=30 FLOOR
U=0.35 / SHGC=0.28

756PLF - NAILS - 3"oc EDGES / 12" oc FIELD
1314PLF - NAILS - 3"oc EDGES / 12" oc FIELD
90MPH / 756PLF / 79" EW
100MPH / 756PLF / 100" EW
120MPH / 1314PLF / 100" EW-DBL SIDE

2x6 SIDEWALL HEADERS PER:
EW-20.3.R.K.C.22.20-1 (90MPH)
EW-20.3.R.K.E.22.20-1 (100MPH)
EW-20.3.R.K.I.22.20-1 (120MPH)

320PLF - NAILS - 6"oc EDGES / 12" oc FIELD
489PLF - NAILS - 4"oc EDGES / 12" oc FIELD
90MPH / 320PLF / 187" EW
100MPH / 320PLF / 230" EW
120MPH / 489PLF / 217" EW

RIDGE BEAM PER:RC-60.3.R.K.M._20
COLUMNS PER: MW-20.3.R.K.M.48.20-1
2x4 SIDEWALL HEADERS PER:
EW-20.3.R.K.C.22.20 (90MPH)
EW-20.3.R.K.E.22.20 (100MPH)
EW-20.3.R.K.I.22.20 (120MPH)

A-SECTION HITCH END

B-SECTION HITCH END

BLOCKED REGION W/.131x2.5 NAILS
AT 6" BOUNDARY EDGE / 6" EDGE/12" FIELD
OTHER AREAS AT 6"EDGE/12"FIELD
756 / 320PLF EFFECRIVE LENGTHS
79"EW: 756PLF
187"EW/65"SW: 320PLF
BASED ON SW-31.10._.N.C.17._.78.1-2
ENGINEERED METHOD.
BLOCKED 2'DIAPHRAGM SW-20-237B.1
90 MPH WIND SPEED

BLOCKED REGION W/.131x2.5 NAILS
AT 4" BOUNDARY EDGE / 6" EDGE/12" FIELD
OTHER AREAS AT 6"EDGE/12"FIELD
756 / 320PLF EFFECTIVE LENGTHS
100"EW: 756PLF
230"EW/81"SW: 320PLF
BASED ON SW-31.10._.N.E.17._.78.1-2
ENGINEERED METHOD.
BLOCKED 8'DIAPHRAGM SW-20-389B.1
100 MPH WIND SPEED

BLOCKED REGION W/.131x2.5 NAILS
AT 2.5" BOUNDARY EDGE / 4" EDGE/12" FIELD
OTHER AREAS AT 6"EDGE/12"FIELD
1314 PLF EFFECTIVE LENGTH(DOUBLE SIDED)
BASED ON ENGINEERED CALCS ATTACHED
BLOCKED 16'DIAPHRAGM PER ATTACHED CALCS
489PLF EFFECTIVE LENGTHS 217"EW / 76"SW
BASED ON SW-31.10._.N.I.17._.78.1-2
RIGHT END UNBLOCKED DIAPHRAGM SW-20-389D or E
120 MPH WIND SPEED

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NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.
APPROVED
Limited building only review
Permit holder responsible for full compliance with the code
06/08/2021
Harnett COUNTY NORTH CAROLINA

● INDICATES FREE END SHEAR WALL WITH BLOCKING

RETURN AIR REQUIREMENTS
(1) 20"x16" GRILL REQUIRED
(2) 4"x10" GRILL W/ 2 1/2" DOOR UNDERCUT
(3) DOOR(S) MUST BE UNDERCUT 2 1/2" MIN.
(4) 4"x24" OR 6"x14" GRILL REQUIRED

◈ INDICATES REQUIRED NUMBER OF STUDS IN COLUMN
◈* THE * SPECIFIES THAT THERE CAN BE NO HOLES IN STUDS IN COLUMNS

BRAND: SCHULT
SERIES: CL32

CLAYTON HOME BUILDING GROUP

REVISIONS	BY	DATE

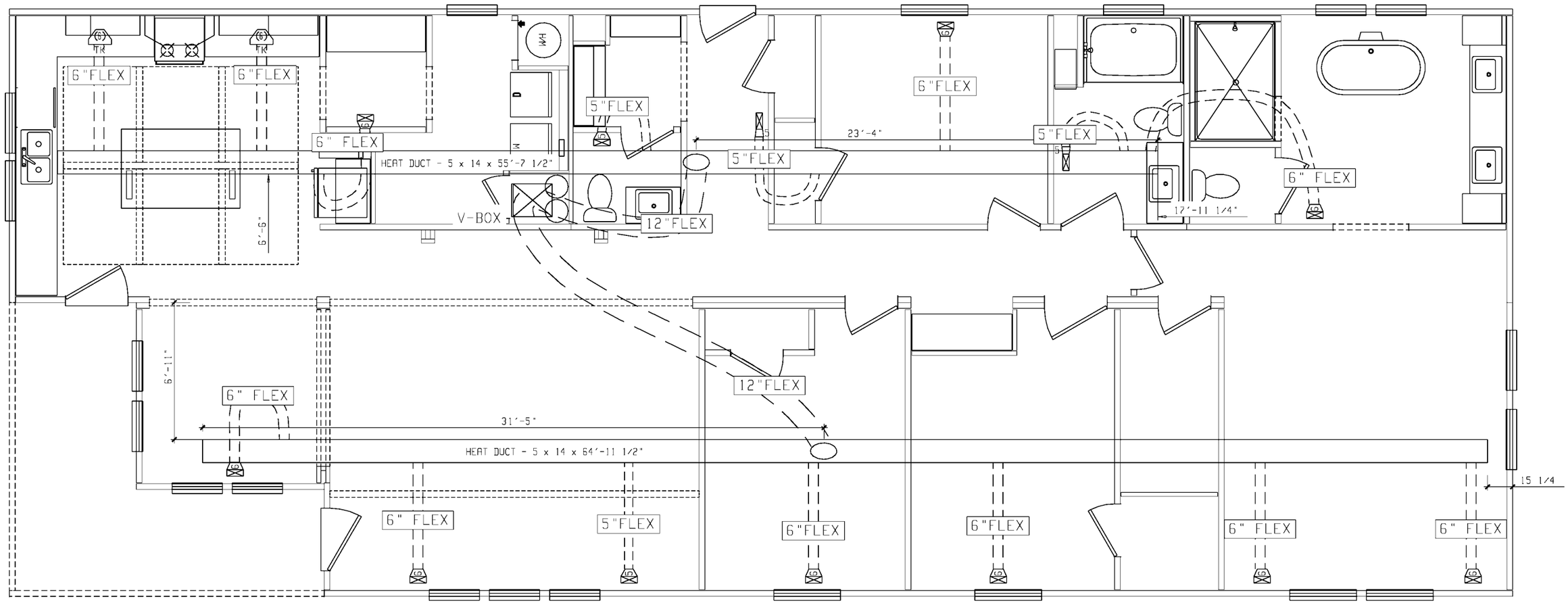
GENERAL NOTES
CEILING HEIGHT = 108.0
FLOOR FRAMING SPACING = 16

DRAWING TITLE: MASTER PLAN-NC

MODEL NAME: 3440-4BR ~ SOUTHERN BELLE
SQ. FT.: 2254

PLANT	DESCRIPTION	MODEL NO.
958	32X76 4BR-2.5BA	3440

DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	1-1



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BRAND	SERIES
SCHULT	CL32

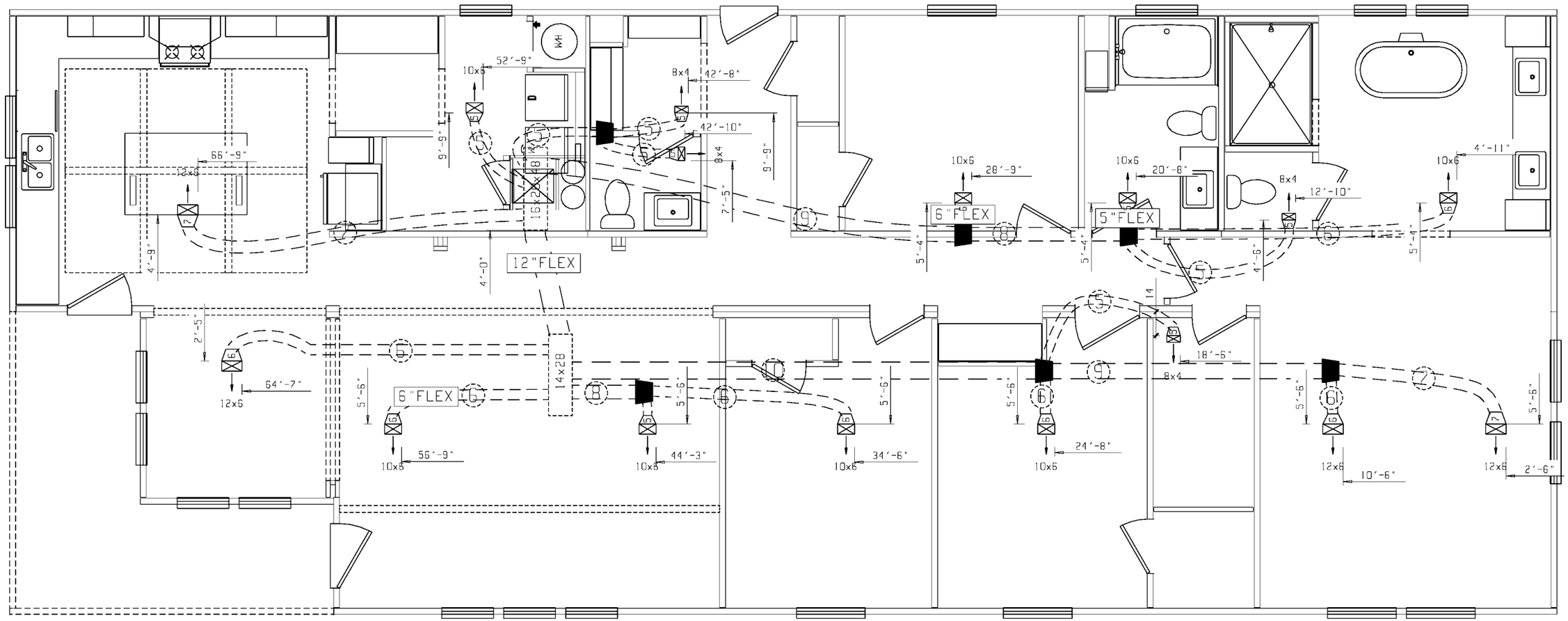
CLAYTON HOME BUILDING GROUP

REVISIONS	BY	DATE

GENERAL NOTES

DRAWING TITLE
PERIMETER LOOP HVAC

MODEL NAME			SQ. FT.
3440-4BR ~ SOUTHERN BELLE			2254
PLANT	DESCRIPTION	MODEL NO.	
958	32X76 4BR-2.5BA	3440	
DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	4-4



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BRAND	SERIES
SCHULT	CL32

CLAYTON HOME BUILDING GROUP

REVISIONS	BY	DATE

GENERAL NOTES

MIXER ABOVE FURNACE: 16"x20"x48"
MIXER ON NON-FURNACE HALF WITH 14" CROSSOVER: 16"x20"x24"
MIXER ON NON-FURNACE HALF WITH 12" CROSSOVER: 14"x16"x28"

DRAWING TITLE
OVERHEAD HVAC

MODEL NAME	SQ. FT.
3440-4BR ~ SOUTHERN BELLE	2254

PLANT	DESCRIPTION	MODEL NO.
958	32X76 4BR-2.5BA	3440

DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	4-5

NOTE
DASHED LINES REPRESENT BELOW FLOOR DWV PIPE TO BE FIELD INSTALLED BY OTHERS. LAYOUT MAY VARY DUE TO SITE CONDITIONS. BUILDER IS RESPONSIBLE TO ASSURE THAT FINAL SYSTEM CONFORMS TO ALL APPLICABLE CODES.

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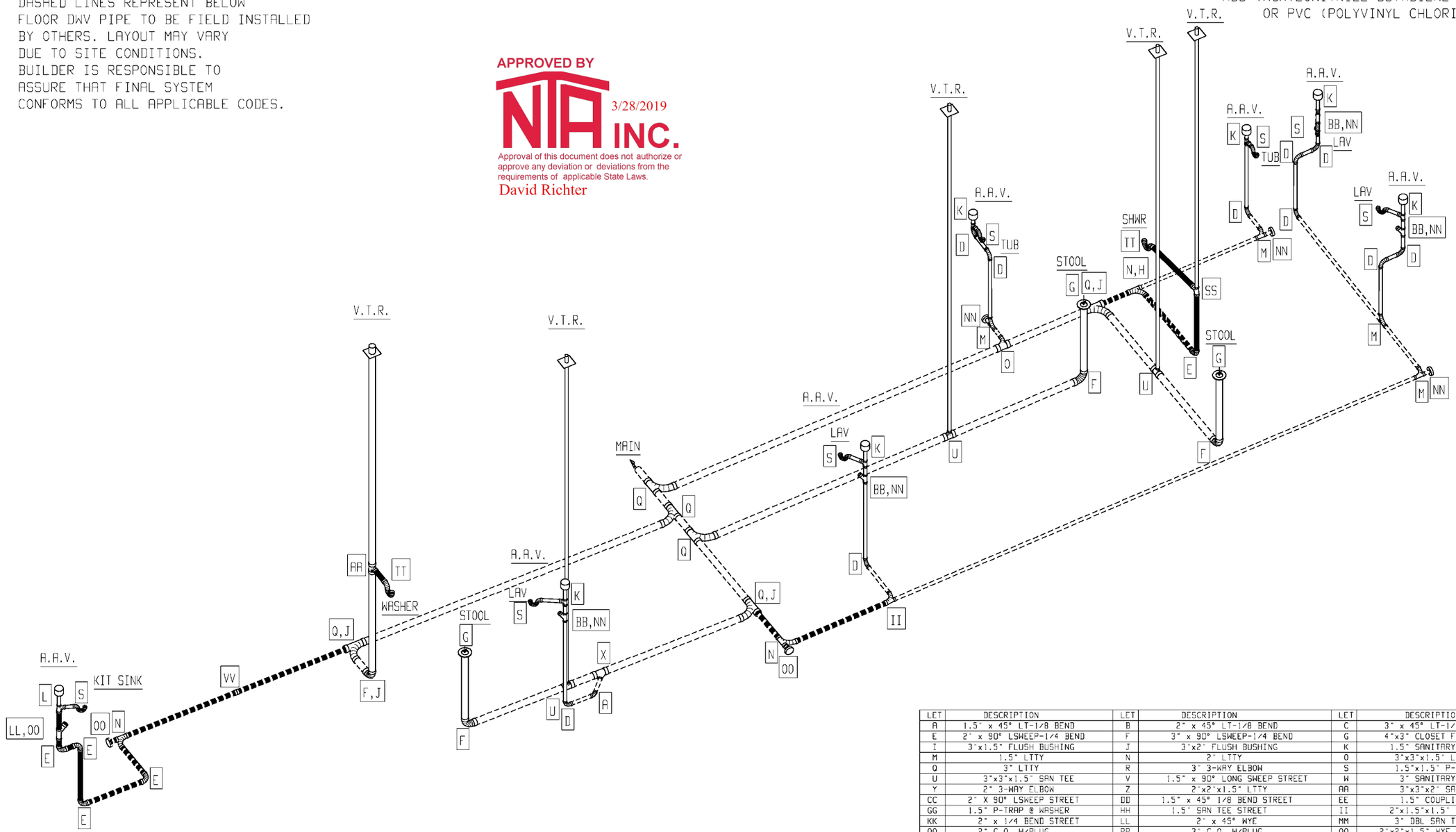
PIPING AND FITTING MATERIAL TYPE TO BE:
ABS (ACRYLONITRILE-BUTADIENE-STYRENE)
OR PVC (POLYVINYL CHLORIDE)

PIPE LEGEND
1 1/2"
2"
3"

STANDARD SHIP LOOSE	
A	1
D	4
E	3
F	3
F, J	1
II	1
M	4
N	2
N, H	1
NN	3
O	1
OO	2
Q	3
Q, J	3
U	3
VV	1
X	1
1.5" PIPE	35 FT
2" PIPE	50 FT
3" PIPE	70 FT



LET	DESCRIPTION	LET	DESCRIPTION	LET	DESCRIPTION	LET	DESCRIPTION
A	1.5" x 45° LT-1/8 BEND	B	2" x 45° LT-1/8 BEND	C	3" x 45° LT-1/8 BEND	D	1.5" x 90° LONG SWEEP-1/4 BEND
E	2" x 90° LSWEEP-1/4 BEND	F	3" x 90° LSWEEP-1/4 BEND	G	4"x3" CLOSET FLANGE	H	2"x1.5" FLUSH BUSHING
I	3"x1.5" FLUSH BUSHING	J	3"x2" FLUSH BUSHING	K	1.5" SANITARY TEE	L	2"x1.5"x1.5" SAN TEE
M	1.5" LTTY	N	2" LTTY	O	3"x3"x1.5" LTTY	P	3"x3"x2" LTTY
Q	3" LTTY	R	3" 3-WAY ELBOW	S	1.5"x1.5" P-TRAP	T	3"x3"x1.5"x1.5" DBL SAN TEE
U	3"x3"x1.5" SAN TEE	V	1.5" x 90° LONG SWEEP STREET	W	3" SANITARY TEE	X	3"x3"x1.5" WYE
Y	2" 3-WAY ELBOW	Z	2"x2"x1.5" LTTY	AA	3"x3"x2" SAN TEE	BB	1.5" x 45° WYE
CC	2" X 90° LSWEEP STREET	DD	1.5" x 45° 1/8 BEND STREET	EE	1.5" COUPLING	FF	3" COUPLING
GG	1.5" P-TRAP @ WASHER	HH	1.5" SAN TEE STREET	II	2"x1.5"x1.5" LTTY	JJ	2"x1.5"x2" LTTY
KK	2" x 1/4 BEND STREET	LL	2" x 45° WYE	MM	3" DBL SAN TEE	NN	1.5" C.O. W/PLUG
OO	2" C.O. W/PLUG	PP	3" C.O. W/PLUG	QQ	2"x2"x1.5" WYE REDUCING	RR	1.5" 1/4 BEND
SS	2"x1.5"x2" SAN TEE	TT	2" P-TRAP	UU	2" x 45° 1/8 BEND STREET	VV	2" COUPLING
WW	3" x 45° 1/8 BEND STREET	XX	2" SANITARY TEE	YY	4" CLOSET FLANGE	ZZ	4" COUPLING
AB	1.5" CONT WASTE	AC	1.5" x 22 1/2° ELBOW STREET	AD	2" x 22 1/2° ELBOW STREET	AE	3"x3"x2"x2" DBL SAN TEE
AF	2"x1.5"x1.5" SAN TEE STREET	AG	2"x1.5"x1.5" 3-WAY ELBOW	AH	3" x 22 1/2° 1/16 BEND ELBOW	AI	1.5" 3-WAY ELBOW
AJ	2" x 22 1/2° 1/16 BEND ELBOW	AK	4"x3" CLOSET BEND STR (CUT DOWN 1.5")	AL	3"x3"x3" WYE	AM	3" 1/4 BEND
AN	2"x3" PIPE INCREASER	AO	3" X 3" X 2" WYE	AP	2" 1/4 BEND	AQ	2"x2"x2"x2" DBL SAN TEE
AR	1.5"x3" PIPE INCREASER	AS	1.5"x1.5"x1.5"x1.5" DBL SAN TEE	AT	3" DOUBLE FIXTURE TEE	AU	2"x2"x1.5"x1.5" DBL SAN TEE
AV	3"x3"x2"x2" SAN TEE (SI) LEFT	AW	3"x3"x3"x1.5" SAN TEE (SI) LEFT	AX	3"x3"x3"x2" SAN TEE (SI) LEFT	AY	3"x3"x2"x2" SAN TEE (SI) RIGHT
AZ	3"x3"x3"x1.5" SAN TEE (SI) RIGHT	BA	3"x3"x3"x2" SAN TEE (SI) RIGHT	BC	3"x3"x3"x2"x2" SAN TEE DBL(SI)	BD	3"x3"x3"x1.5"x1.5" SAN T DBL(SI)
BE	1.5"x2" PIPE INCREASER	BF	3"x3"x1.5" 90° LSWEEP LOW HEEL INLET	BG	3"x3"x2" 90° LSWEEP LOW HEEL INLET	BH	1.5" x 22 1/2° 1/16 BEND ELBOW
BI	4"x3" CLOSET BEND STREET	BJ		BK		BL	

NOTE:
ACCESS SHALL BE PROVIDED TO ALL AIR ADMITTANCE VALVES. THE VALVE SHALL BE LOCATED WITHIN A VENTILATED SPACE THAT ALLOWS AIR TO ENTER THE VALVE

BRAND: SCHULT
SERIES: CL32
CLAYTON HOME BUILDING GROUP

REVISIONS

REVISIONS	BY	DATE

GENERAL NOTES

DRAWING TITLE: DWV SCHEMATIC

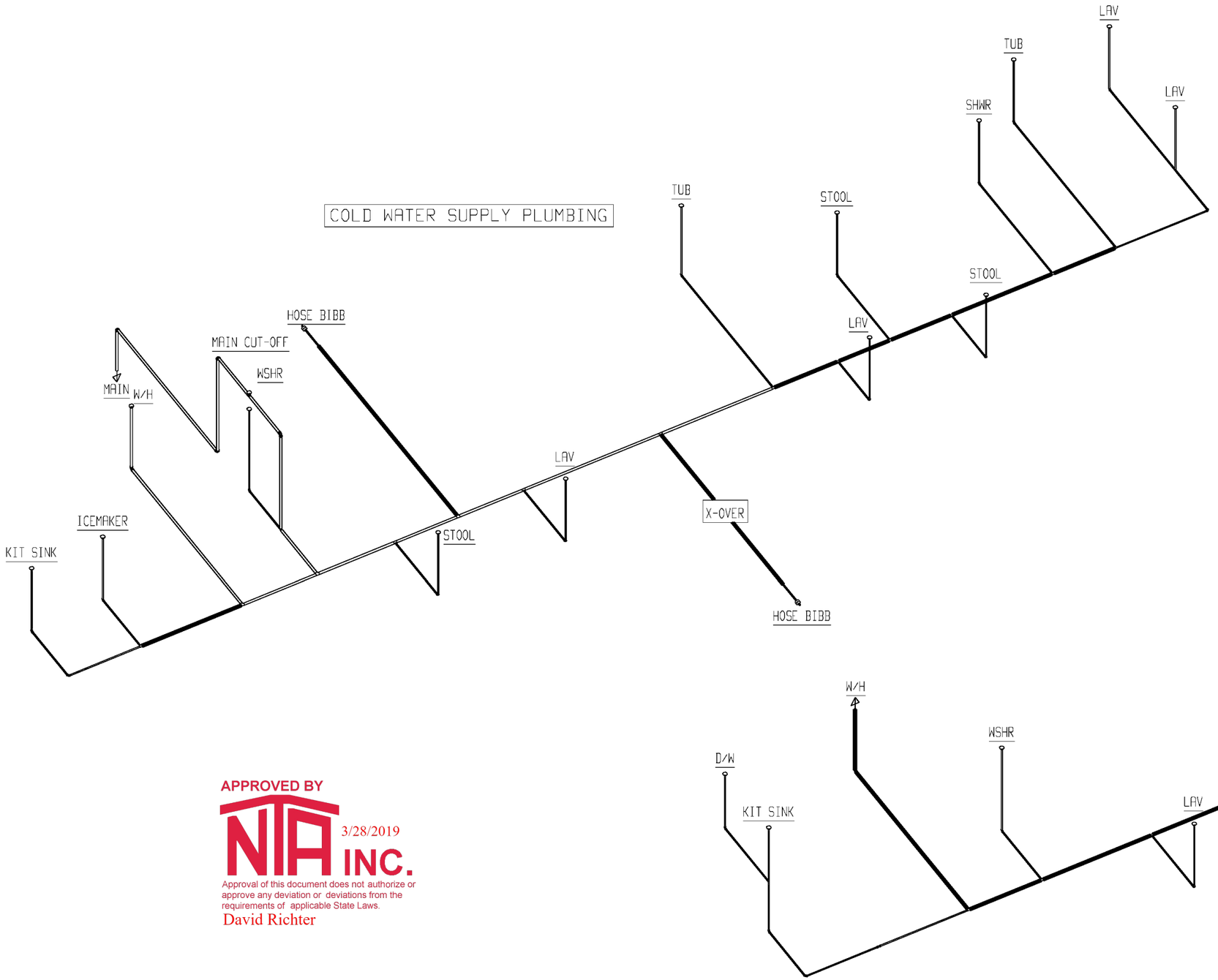
MODEL NAME: 3440-4BR ~ SOUTHERN BELLE
SQ. FT.: 2254

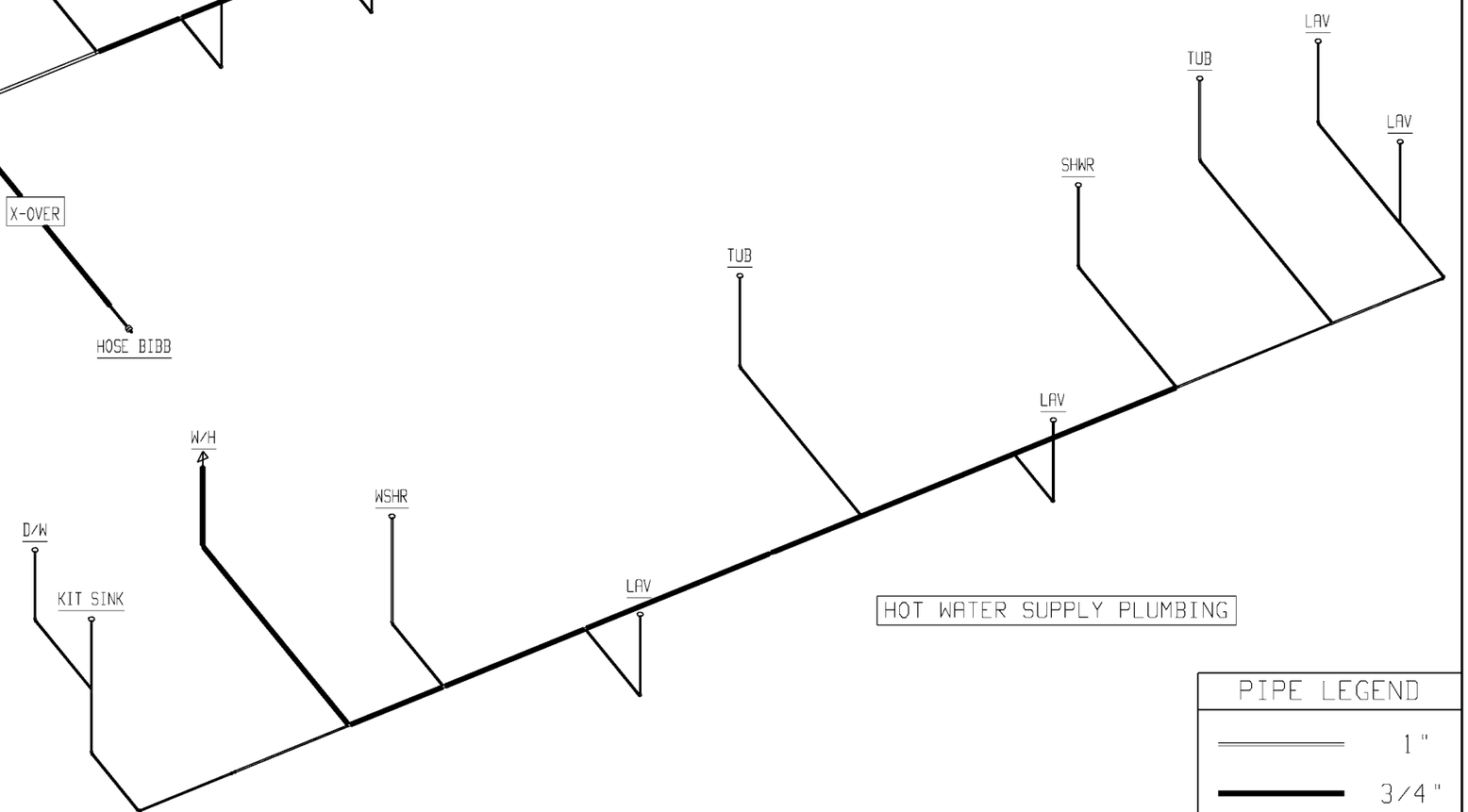
PLANT	DESCRIPTION	MODEL NO.
958	32X76 4BR-2.5BA	3440

DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	8-1

PIPING AND FITTING MATERIAL TYPE TO BE:
PEX TYPE BY QUEST, CPVC OR COPPER

PRESSURE RANGE 40-49 PSI
60' DEVELOPED LENGTH





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PIPE LEGEND

═══	1"
━━━	3/4"
───	1/2"

BRAND	SERIES
SCHULT	CL32

CLAYTON HOME BUILDING GROUP

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GENERAL NOTES

HOSE BIBBS PER SPECS

DRAWING TITLE

SUPPLY PLUMBING

MODEL NAME			SQ. FT.
3440-4BR ~ SOUTHERN BELLE			2254
PLANT	DESCRIPTION		MODEL NO.
958	32X76 4BR-2.5BA		3440
DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
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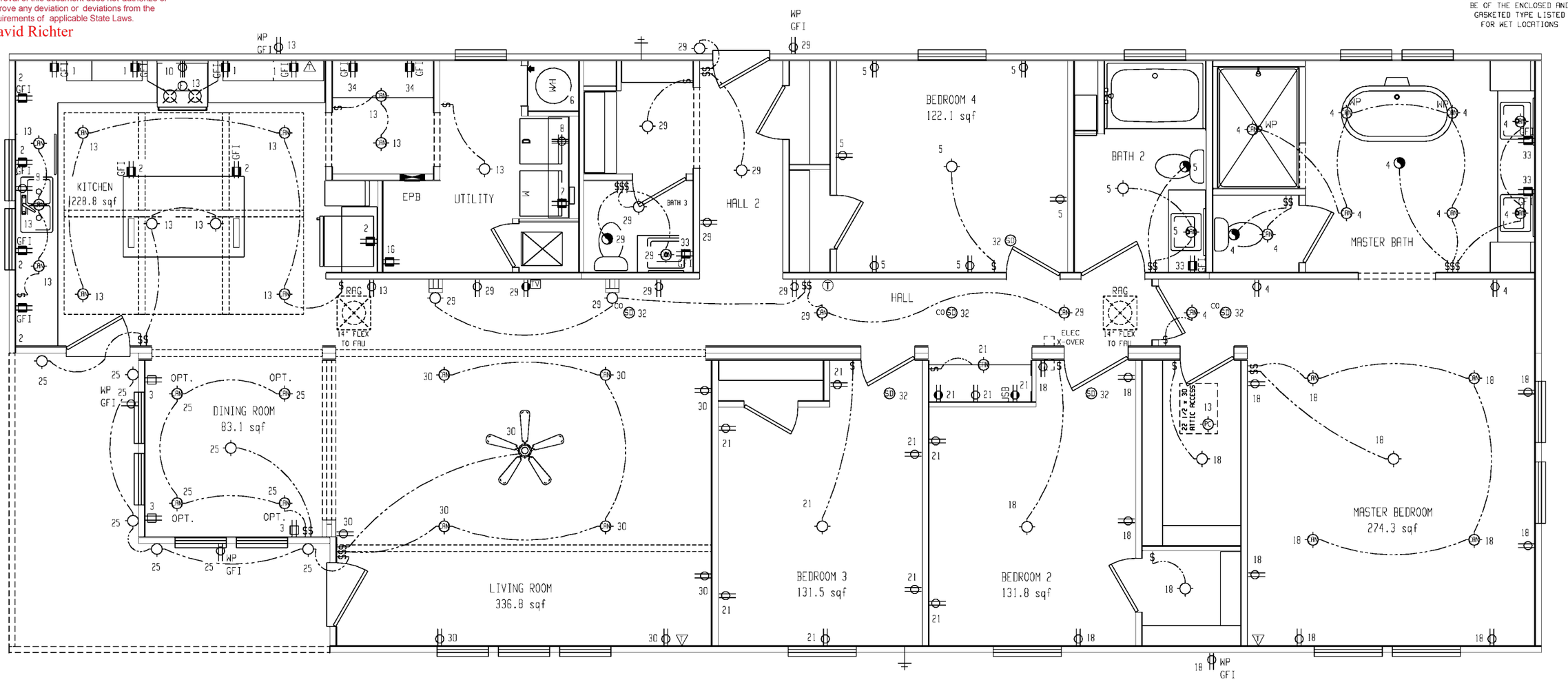
SMOKE DETECTORS NOT ALLOWED ON ARC FAULTS IN THE STATE OF SOUTH CAROLINA
ALL EXTERIOR LIGHTING MUST BE OF THE WATERPROOF TYPE

RECESSED CAN LIGHT SHALL BE OF THE ENCLOSED AND GASKETED TYPE LISTED FOR WET LOCATIONS

A-SECTION HITCH END

B-SECTION HITCH END



NOTE: ALL FAMILY, DINING, LIVING, KITCHEN, LAUNDRY,LIBRARIES, DENS, BEDROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS OR SIMILAR ROOMS OR SPACES SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER IN ACCORDANCE WITH SECTION 210.12 OF THE NEC.

ELECTRICAL SCHEDULE

CIR. NO.	DESCRIPTION	BRK. AMP.	VOLTS	COPR. WIRE
1	PORTABLE APPLIANCES	20	120	12
2	PORTABLE APPLIANCES	20	120	12
3	PORTABLE APPLIANCES	20	120	12
4	GEN. LIGHTING/RECEPT.	15	120	14
5	GEN. LIGHTING/RECEPT.	15	120	14
6	ELEC. WATER HEATER	CIRCUITS VARY, SEE		
DAPIA PAGE PLN-3.1 FOR HUD, PLN-1.1 FOR MOD				
7	WASHER RECEPT.	20	120	12
8	DRYER RECEPT.	30	240	10
9	OPT. DISHWASHER	15	120	14
10	ELECT. RANGE/CKTOP	40	240	8
11	GAS FURNACE	15	120	14
12	ELECTRIC FURNACE	CIRCUITS VARY, SEE		
DAPIA PAGE PLN-3.5 FOR HUD, PLN-1.5 FOR MOD				
13	GEN. LIGHTING/RECEPT.	15	120	14
14	OPT. COOLER BOX	15	120	14
15	OPT. GARBAGE DISPOSAL	15	120	14
16	FREEZER	20	120	12
17	OPT. WHIRLPOOL	20	120	12
18	GEN. LIGHTING/RECEPT.	15	120	14
19	GEN. LIGHTING/RECEPT.	15	120	14
20	GEN. LIGHTING/RECEPT.	15	120	14
21	GEN. LIGHTING/RECEPT.	15	120	14
22	OPT. MICROWAVE	20	120	12/2
24	ELECT. BUILT-IN OVEN	20	240	12/3
25	GEN. LIGHTING/RECEPT.	15	120	14
26	GEN. LIGHTING/RECEPT.	15	120	14
27	GEN. LIGHTING/RECEPT.	15	120	14
28	GEN. LIGHTING/RECEPT.	15	120	14
29	GEN. LIGHTING/RECEPT.	15	120	14
30	GEN. LIGHTING/RECEPT.	15	120	14
31	SITE INSTALLED HEAT PUMP	40	240	8/3
32	SMOKE ALARMS	15	120	14
33	BATH GFI (MOD ONLY)	20	120	12
34	GEN. LIGHTING/RECEPT.	20	120	12

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SERIES: CL32

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GENERAL NOTES
LOCK-OUT BREAKER ON CIRCUIT #6

DRAWING TITLE
ELECTRICAL PLAN

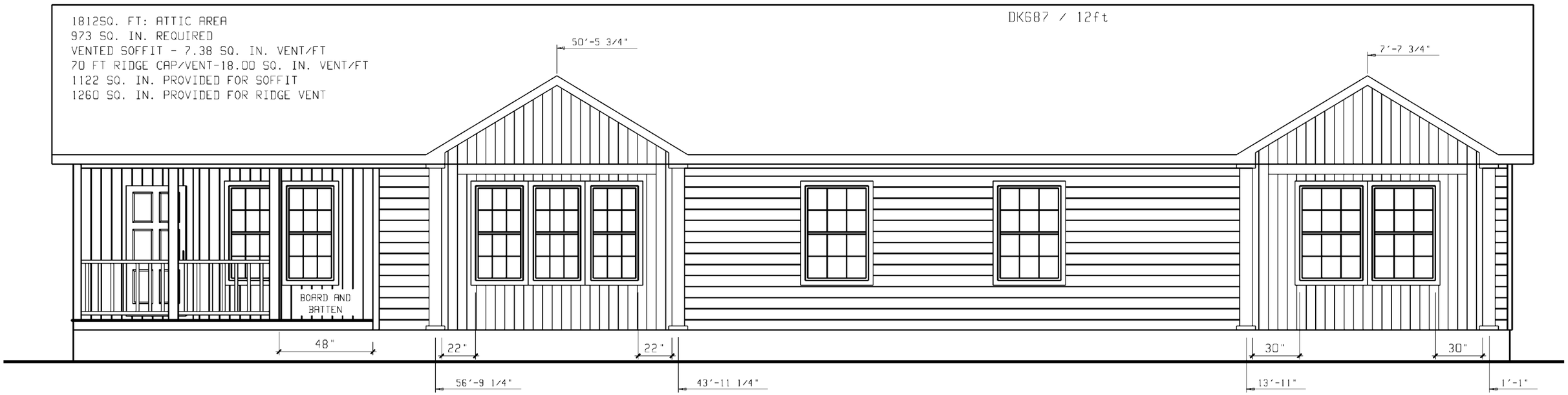
MODEL NAME: 3440-4BR ~ SOUTHERN BELLE
SQ. FT.: 2254

PLANT	DESCRIPTION	MODEL NO.
958	32X76 4BR-2.5BA	3440

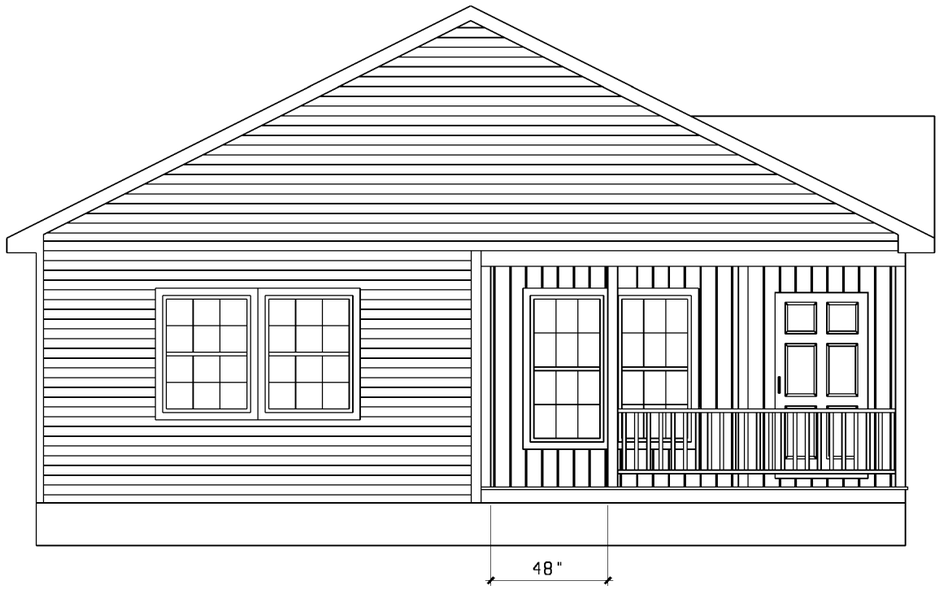
DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	11-1

1812SQ. FT: ATTIC AREA
973 SQ. IN. REQUIRED
VENTED SOFFIT - 7.38 SQ. IN. VENT/FT
70 FT RIDGE CAP/VENT-18.00 SQ. IN. VENT/FT
1122 SQ. IN. PROVIDED FOR SOFFIT
1260 SQ. IN. PROVIDED FOR RIDGE VENT

DK687 / 12ft



FRONT ELEVATION



LEFT SIDE ELEVATION

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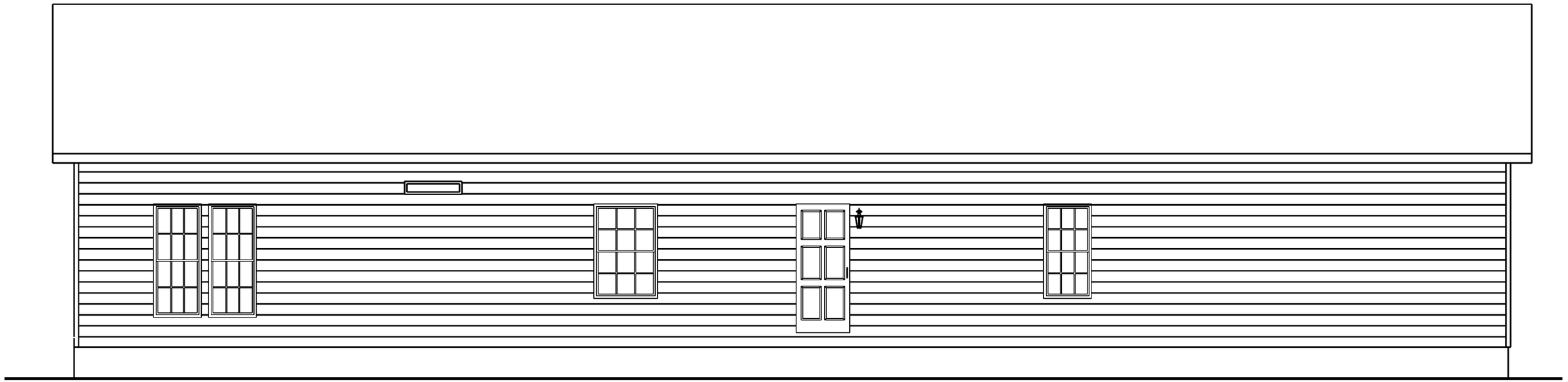
GENERAL NOTES

DRAWING TITLE
EXTERIOR ELEVATION
FRONT & LEFT SIDE

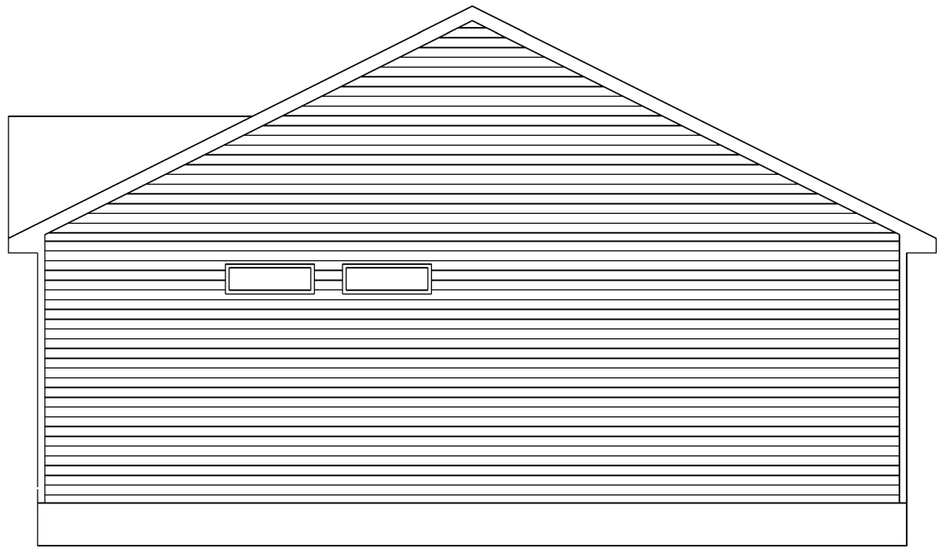
MODEL NAME	SQ. FT.
3440-4BR ~ SOUTHERN BELLE	2254

PLANT	DESCRIPTION	MODEL NO.
958	32X76 4BR-2.5BA	3440

DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	20-1



BACK ELEVATION



RIGHT SIDE ELEVATION

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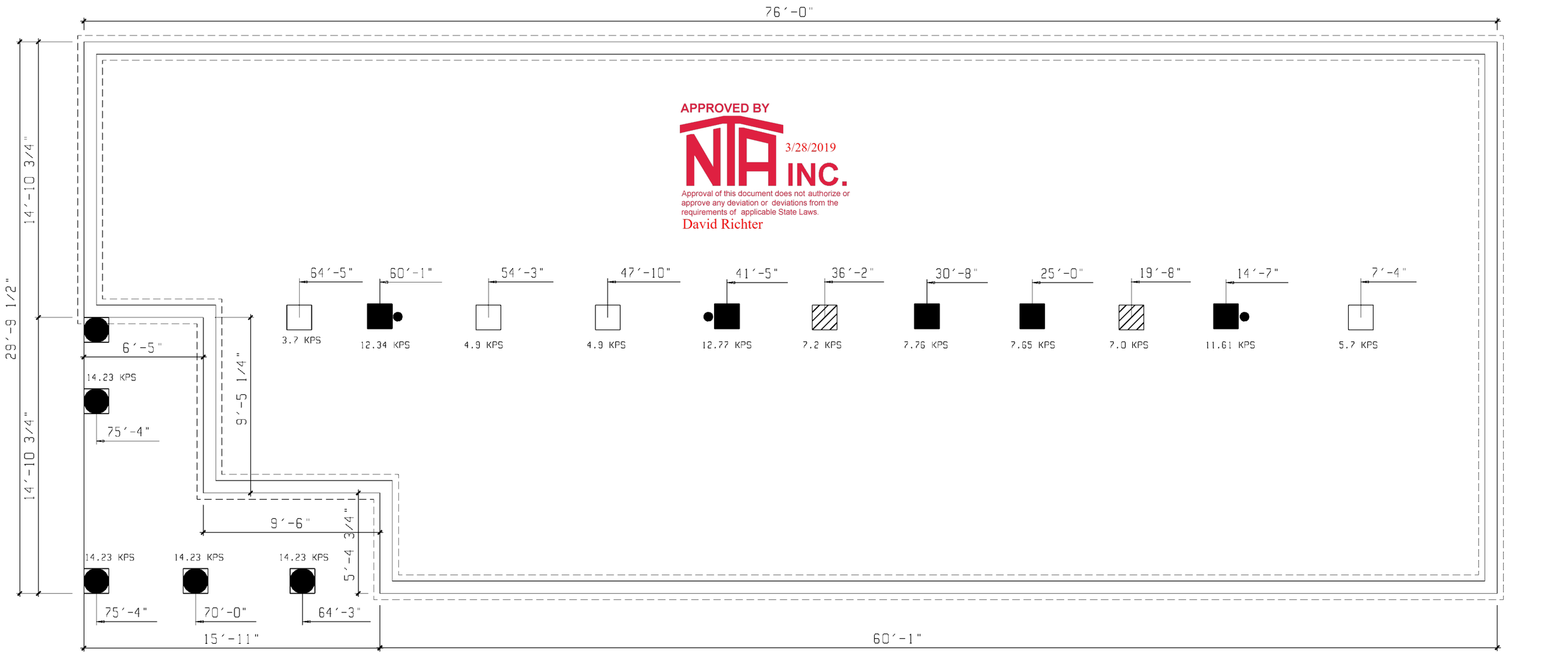
GENERAL NOTES

DRAWING TITLE
EXTERIOR ELEVATION
BACK & RIGHT SIDE

MODEL NAME			SQ. FT.
3440-4BR ~ SOUTHERN BELLE			2254
PLANT	DESCRIPTION	MODEL NO.	
958	32X76 4BR-2.5BA	3440	
DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	20-2



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● NOTES MARRIAGE WALL TIE DOWNS
PER TABLE M AND DETAIL D6 IN THE FOUNDATION PACKAGE

IMPORTANT:
THIS FOUNDATION DRAWING IS MODEL SPECIFIC AND ILLUSTRATES THE BASIC LAYOUT ONLY.
FOR FOUNDATION CONSTRUCTION, FASTENING AND SECUREMENT DETAILS YOU MUST REFER
TO THE ATTACHED FOUNDATION MANUAL INCLUDED WITH THIS HOME.

PIER LEGEND
■ = SUPPORT AT MATING COLUMN
▨ = SUPPORT UNDER MATING WALL
□ = SUPPORT UNDER MATING OPENING
● = SUPPORT AT PORCH/RECESSED ENTRY

CRAWLSPACE VENTILATION
VENTILATION IS BASED ON 144 SQ. IN. OF VENT FOR EVERY 150 SQ. FT. OF CRAWLSPACE AREA WITH APPROVED VAPOR RETARDER MATERIAL. ONE SUCH VENT MUST BE WITHIN 3 FT. OF EACH CORNER

2254 SQ. FT. OF CRAWLSPACE AREA
2164 SQ. IN. OF VENT REQUIRED
42 VENTS NEEDED @ 52 SQ. IN. EACH
2184 SQ. IN. VENTILATION INSTALLED MINIMUM

CRAWL SPACE
18" MIN CLEARANCE BELOW BOTTOM OF FLOOR JOIST. GROUND TO BE COVERED WITH APPROVED VAPOR RETARDER MATERIAL.

INSTALL SWITCHED LIGHT AND GFCI RECEPT AT CRAWL SPACE ENTRANCE FOR SERVICE OF MECHANICAL EQUIPMENT PER NEC - 210-70 (C)

NOTE: MASONRY UNITS FOR STAND ALONE PIERS SHALL BE LAID IN TYPE "M" OR "S" MORTAR OR SHALL BE COVERED WITH SURFACE BONDING CEMENT COMPLYING WITH ASTM C 887 WHEN ACCEPTABLE TO LOCAL BUILDING AUTHORITY. SURFACE BONDING CEMENT SHALL BE APPLIED IN STRICT COMPLIANCE OF MANUFACTURERS INSTRUCTIONS. BOTTOM COURSE SHALL BE LAID IN TYPES "M" OR "S" MORTAR OR BONDING MORTAR (CEMENT).

NOTE: THE FOUNDATION WIDTH SHOWN 29′-8" IS IDENTICAL TO THE OVERALL FLOOR WIDTH OF THE HOME. THE FOUNDATION MAY BE CONSTRUCTED UP TO 1 1/2" WIDER TO COMPENSATE FOR PRODUCTION AND ASSEMBLY TOLERANCES.

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CLAYTON HOME BUILDING GROUP

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GENERAL NOTES
SEE INSTALLATION MANUAL FOR FOUNDATION GENERAL NOTES & TIE-DOWN REQUIREMENTS
FOUNDATION VENT LOCATIONS ARE SHOWN TYPICAL & ARE SUBJECT TO CHANGE DUE TO PIER LOCATION, CHASSIS MEMBERS & EXTERIOR DECK INSTALLATION

DRAWING TITLE
20/30 PSF FOUNDATION

MODEL NAME	SQ. FT.
3440-4BR ~ SOUTHERN BELLE	2254

PLANT	DESCRIPTION	MODEL NO.
958	32X76 4BR-2.5BA	3440

DRAWN BY	ORIG. DATE	DATE PRINTED	SHEET NO.
TXH	03/19/2019	03/27/2019	21-30PSF

PRINT DATE: 12/17/2018

OFF FRAME BASEMENT & CRAWL FOUNDATION DESIGN FOR:

29' - 8 " 2-SECTION MODULAR

1 STORY- W.O ATTIC

Attic without storage where the maximum clear height between joist and rafter is less than 42 inches or req'd insulation depth exceeds the depth of the bottom chord.

PERIMETER ANCHORED SYSTEM- BUILDING IS SECURED TO FOUNDATION WALLS TO SUPPORT WIND AND SEISMIC FORCES.

SIDEWALLS ARE SUPPORTED (PERIMETER BLOCKED)

BUILDING CODE INFORMATION:

IRC (2015)
ASCE 7-10
2018 NORTH CAROLINA RESIDENTIAL CODE

BUILDING SITE INFORMATION:

*MAXIMUM ULTIMATE/DESIGN WIND SPEED & EXPOSURE:	130/ 100 MPH EXPOSURE C-enclosed
MINIMUM SOIL BEARING CAPACITY:	2000 PSF
MAXIMUM GROUND SNOW(S):	20 PSF, 30 PSF
Flat roof snow load (Pg)=20.0 PSF ,23.1 PSF	
SEISMIC DESIGN CATEGORY:	C
DESIGN SPECTRAL RESPONSE (S_{DS}):	0.49
SEISMIC SOIL SITE CLASS:	D

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HOME INFORMATION:

UNIT WIDTH:	29' - 8 "
MAX. UNIT LENGTH:	76 ft.
ROOF PITCH:	3/12 to 6/12
DESIGN LOADS:	40 PSF FL. LL., 7PSF T.C.D.L., 8PSF B.C. D.L., 13PSF FL. DL. &, 10PSF B.C.L.L
MAX. SIDEWALL HEIGHT:	108 INCHES
TOTAL MATING WALL RIM JOIST BEAMS:	(4) 2X10 #2 SPF
RIM JOIST SPLICES:	6" X 8" MiTeK MT20 metal plates each side

OFF FRAME FLOOR
PLANT NUMBER: 958

NORTH CAROLINA PROFESSIONAL SEAL 32861 ENGINEER JAMES W. HARRILL 12/17/2018

Ultimate wind speed Vult. Per ASCE 7-10/ allowable stress design wind speed Vasd

FILENAME:958I-14.R.J.E.22.22.117(_)

Clayton home building group

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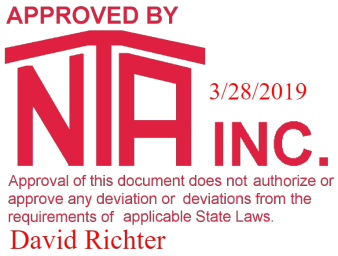
NORTH CAROLINA PROFESSIONAL SEAL 32861 ENGINEER JAMES W. HARRILL
12/17/2018

FILENAME:958I-14.R.J.E.22.22.117(_)

Preface

This foundation design manual is dedicated to the ever-growing trend to place homes over basements and permanent foundations. CMH Manufacturing, Inc. has attempted to address the more common installation configurations. These may or may not be the only acceptable designs for basements or permanent foundations. If deviations are made from these details, it is the homeowner' s and/or installation contractor' s responsibility to obtain proper documentation and engineer' s details of construction acceptable to the local authority having jurisdictions. CMH Manufacturing, Inc. will not supply any details other than what is contained in the following design manual. If an alternate design is requested it must be provided by an independent engineer subject to local approval. The owner/contractor is responsible for any additional construction details, permits, inspections and fees associated with these items.

Setting a home over a basement or permanent foundation requires special knowledge, experience and equipment to accomplish a safe and proper set. Contractors performing this type of installation must be licensed, bonded and insured to protect all aspects of this type of work.



Instructions

1. Determine site soil classification, (see table R405.1).

2. The provided foundation and anchorage designs are not applicable for the following conditions. In all these cases a complete geotechnical evaluation must be performed and foundation must be designed by a professional engineer in accordance with section 1805.8 (IBC) for site specific conditions.

- Site contains OL, OH or Pt class soils.
- Site contains compressible or shifting soils.
- Site contains expansive soils per IRC (R403.1.8.1) or per local authority and adopted code.
- Site contains soils which do not provide the minimum allowable soil bearing strength as specified per the provided designs.
- Foundation walls support unbalanced loads on opposite sides of building, such as a daylight basement or walk out basement where the building aspect ratio, L/W, exceeds the values specified in Table L.
- Site with soils subject to liquifaction or soil containing high concerntration of sulfate.

3. Determine foundation wall height for each wall of foundation. Reference ***Detail – D1 or D2*** for wall height.

4. Determine height of backfill for each wall of foundation. Reference ***Table L*** when backfill heights along the foundation wall are unbalanced. Reference ***Detail – D1 or D2*** for perimeter foundation wall construction.

5. Determine what type of mateline supports will be used. Reference ***Detail - D3, D4, D5 or D7*** for mateline columns and ***Detail – D14*** for cross beams.

6. Determine if type H connector plates will be used around the perimeter of the building. Fastening and anchoring tables have been provided with and without the use of the H connectors.

7. Find the ***Floor to Sill Plate & Sill Plate to Foundation*** table for site soil classification.

8. Find site wall height and backfill height line and follow this line across. Heights are listed as maximums, therefore any line beneath (greater height) may be utilized for items 10 ,11 & 12 below.

9. If type H connectors will be installed the table labeled ***With Type H Plate Connectors*** can be utilized. Note (6) will specify spacing for H plates along sidewalls and Note (7) will specify spacing for H plates along each endwall.

10. Select desired rim to sill connection from line in table (E, F or G for sidewalls and E or G for endwalls).

11. Select desired anchor type (4 or 5) for sill to foundation wall connection and determine anchor spacing for sidewall and endwall under corresponding column.

12. Determine if shearwall foundation holddowns are required by checking far right column within selected row. See ***Shearwall Foundation Holddown Detail (Detail D18)*** for connection requirements .

The above process may be repeated as desired for different foundation wall and backfill combinations.

General Notes

1. Foundation plans and details developed by CMH Manufacturing, Inc. are provided to our company owned sales centers and wholesale distribution partners. Alternate foundation systems may be used in lieu of these plans provided they are designed by a local professional Engineer or Architect familiar with the local soil and climate conditions, and are approved by the local authority having jurisdiction.

2. All notes stating "in field" or "by owner" are obligations pertaining to owner/contractor.

3. Owner /Contractor shall provide complete foundation, including footing drains, vapor barrier, sill plate, anchor bolts, stair area, slab and footing reinforcement along with damp proofing, waterproofing, backfill, and all finish work per Chapter 4 of IRC or per adopted local building code.

4. Owner/Contractor shall be responsible for performing all work in accordance with previously approved construction details and obtaining all necessary inspections as required by local or state authorities.

5. Not designed for areas likely to have collapsible, expansive, compressible, shifting, liquifaction, soil containing high concentration of sulfate or other unknown soil characteristics. In these conditions a local engineer must provide foundation design and the building official shall determine whether to require a soil test to determine the soil characteristics. This soil test shall be made by an approved testing agency using an approved method.

6. Pier spacing is dimensioned to centerline unless otherwise noted.

7. The foundation dimensions shown are nominal. An increase in module width should be expected due to module expansion, setting tolerances, etc. The foundation contractor should consult with the manufacturer of the modules prior to construction of the foundation to determine the actual width of the home and placement of anchors.

8. All steel support columns shall have protective coating and a load capacity equal to or greater than specified on foundation plan (k=1000 pounds).

9. All foundation construction materials and installation shall be in accordance with all state and local codes.

10. Backfill shall not be placed against the wall until the wall has sufficient strength and has been anchored to the floor above or has been sufficiently braced to prevent damage by the backfill. Heavy-equipment must be restricted to a minimum distance to the foundation at least equal to the depth of the foundation.

11. Solid cap block or cement fill required at top courses of all masonry piers or pilasters.

12. The foundation design has been designed to be placed in the seismic zone indicated on the cover of this document. Please note that all CMH structures have been designed for seismic (zone/category) A, B, or C only, unless otherwise noted on floor plan and cover page of these instructions.

13. All piers shall be constructed of 8"x8"x16" concrete masonry units conforming to ASTM C90 with a minimum compressive strength of 700 psi. Masonry foundation walls must be laid in type m or s mortar. When required per tables or details, piers of masonry units shall be laid in type m or s mortar. All dry stack masonry should be surfaced bonded with an approved adhesive product.

14. All reinforcing steel shall be Grade 60 minimum. All splices shall be lapped 24" minimum and splices shall be offset 30" minimum within same footer.

15. All concrete grout shall be 3000 psi at 28 days.

16. Reference the model plan drawing for specific foundation layout.

17. Concrete footings shall have a minimum compressive strength of 3000 psi at 28 days. Concrete foundation walls and other concrete exposed to weather shall have a minimum compressive strength of 3000 psi at 28 days and in moderate andsevere weather areas the concrete shall be air entrained no less than 5 percent and not more than 7 percent.See table R301.2(1) and R402.2 of IRC

18. All exterior footings shall be placed at least 12" below the undisturbed ground surface. All exterior footings shall extend below the frost line or otherwise frost protected in accordance with Sections R403.1.4.1 through R403.1.4.2 of IRC or per adopted local building code.

19. Top of foundation walls shall extend a minimum of 6" above finished adjacent grade. Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8" from exposed earth shall be of naturally durable or preservative-treated wood. Wood floor joist shall not be closer than 18" from exposed ground in under floor space.

20. Contractor shall verify all site conditions and dimensions prior to starting foundation. Notify home manufacturer of any discrepancies immediately.

21. The foundation must be designed and built to local codes and ordinances and must be approved and inspected by local building officials.

22. Access shall be to all under floor spaces. Access shall be a minimum of 18" by 24" . If mechanical equipment is installed is this area, please refer to the Mechanical Code for minimum access opening. Through wall access openings shall not be located under an exterior door.

23. Under floor space shall be ventilated with a net area ratio not less than 1 square foot for each 150 square feet of under floor space area placed in accordance with local codes. Ratio may be reduced to 1/1,500 where ground is covered with a 6-mil polyethylene or approved vapor retarderl.

24. Field installed wiring in basement is subject to local inspection. Basement smoke alarms must be installed at foot of stairs and interconnected with home smoke alarms and tested on site. Smoke alarms must be located, installed, and tested in conformance with local building requirements.

25. Large clear spans along mating wall require a column or pier at each end. See model specific foundation plan for required capacity and additional column requirements.

26. Basement stairs (widths, handrails, clearances, headroom, landings, fire protection, etc.) are the responsibility of the owner/contractor and must be constructed to comply with local building codes.

27. Owner/contractor shall not alter basement stair opening without written approval from CMH Manufacturing, Inc.

28. Lighting and receptacles in basement are the responsibility of owner/contractor.

29. Termite protection shall be provided per the building code and local requirements and are responsibility of owner/contractor.

30. Ground snow load is indicated on foundation plans. Snow load must be verified per locality. Building has not been designed to be located within a Tsunami design zone.

31. This structure has not been designed to be located within flood hazard locations or in Coastal A Zones. When site is located in a flood hazard area or in Coastal A Zones as determined by the local authority having jurisdiction or flood hazard maps. The unit shall have lowest floor elevated above the design floor elevation. Foundation and anchorage designs shall be provided by a local engineer in conformance with locally adopted building code and ASCE-24-14.

32. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be minimum of ASTM A653 Type G185 zinc coated galvanized or stainless when in contact with pressure treated sill plates or other pressure treated lumber.

33. Radon control, when required by a local jurisdiction, shall be provided and installed by [illegible] in accordance with appendix F of the IRC.

34. Topographic wind effects have not been considered. Home has not been designed to be located in areas designated as having local historical data documenting structural damage to buildings caused by wind speed-up at isolated hills, ridges and escarpments.

35. Surface drainage shall be devirted to a storm sewer or other approved collection point. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches within the first 10 feet.

36 A 6-mil-thick polyethylene moisture barrier shall be applied over the porous layer with the basement floor constructed over the polyethylene.

37. Concrete and Masonry Foundation walls that retain earth and enclose interior spaces and floors below grade shall be damp proofed from the top of the footing to the finished grade. Masonry walls shall have not less than 3/8" Portland cement parging applied to the exterior of the wall. The parging shall be damp proofed in accordance with one of the following.

a. Bituminous coating, b. 3 pound per sq. yard of arcylic modified cement, c. 1/8" coat of surface-bonding cement complying with ASTM C887, d. Material permitted for waterproofing per Section R406.2, e. Other approved methods or materials.

38. Concrete and masonry foundation walls that retain earth and enclose interior spaces and floors below grade in areas of high water table or other severe soil-water conditions shall be waterproofed from the top of the footing to the finished grade in accordance with one of the following:

a. 2-ply hot-mopped felts, b. 55 pound rolled roofing, c. 6-mil polyvinyl chloride, 6-mil polyethylene, d. 40-mil polymer-modified asphalt., e, 60-mil flexible polymer cement, f. 1/8" cement-based, fiber-reinforced, waterproof coating, g. 60-mil solvent-free liquid-applied synthetic rubber.

39. If building is located within a wind borne debris region glazed openings shall be protected from wind borne debris. Wind Borne debris protection is the responsibility of others.

40. When Geotechnical report is required or available, all recommendations shall be followed and geotechnical engineer shall review all foundation plans to verify applicability with recommendations and engineer shall be present on regular basis during site preparation, fill placement and foundation excavation.

41. Self-closing rated doors shall be installed between garage and house (on-site by other).(R302.5.1)
42.Reserved.

43. A 6-mil polyethylene or approved vapor retarder with joints lapped not less than 12 inches shall be placed between the concrete floor slab and the base course or the prepared subgrade.

SOIL CLASSIFICATION

TABLE R405.1 W/ NC admendments						
LATERAL SOIL LOAD	UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL	SOIL DESCRIPTION	DRAINAGE CHARACTERISTICS[a]	FROST HEAVE POTENTIAL	VOL. CHANGE POTENTIAL EXPANSION[b]	ALLOWABLE SOIL PRESSURE
30 psf LATERAL SOIL LOAD	GW	Well-graded gravels, gravel sand mixtures, little or no fines	Good	Low	Low	5000
	GP	Poorly graded gravel or gravels sand mixtures, little or no fines	Good	Low	Low	5000
	SW	Well-graded gravels, gravelly sands, little or no fines	Good	Low	Low	3000
	SP	Poorly graded sand, or gravelly sands, little or no fines	Good	Low	Low	3000
45 psf LATERAL SOIL LOAD	GM	Silty gravels, gravel-sand-silt mixtures	Good	Medium	Low	3000
	SM	Silty sand, sand-silt mixtures	Good	Medium	Low	3000
	GC	Clayey gravels, gravel-sand-clay mixtures	Medium	Medium	Low	3000
60 psf LATERAL SOIL LOAD	SC	Clayey sands, sand-clay mixture	Medium	Medium	Low	3000
	ML	Inorganic silts and very find sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Medium	High	Low	2000*
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	Medium	Medium	Medium to Low	2000*
	CH	Inorganic clays of high plasticity, fat clays	Poor	Medium	High	2000*
	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	Poor	High	High	2000*
SPECIAL INSPECTION REQUIRED	OL	Organic silts and organic silty clays of low plasticity	Poor	Medium	Medium	SPECIAL INSPECTION REQUIRED
	OL	Organic clays of medium to high plasticity, organic silts	Unsatisfactory	Medium	High	
	Pt	Peat and other highly organic soils	Unsatisfactory	Medium	High	

a. The percolation rate for good drainage is over 4 inches per hour, medium drainage is 2 inches to 4 inches per hour, and poor is less than 2 inches per hour.

b. Soils with low potential expansion typically have a plasticity index (PI) of 0 to 15, soils with a medium potential expansion have a PI of 10 to 35 and soils with a high potential expansion have PI greater than 20.

* Where the building offical determines that in place soils with an allowable bearing capacity of less than 2000 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.

TABLE R404.1.1:IRC (2015) PERIMETER FOUNDATION WALL MINIMUM REQUIREMENTS [Seismic Seismic Zone: Design]

		GW, GP, SW, & SP Soil Class (30 PSF)			GM, GC, SM-SC, & ML Soil Class (45 PSF)			SC, MH, ML-CL, & Inorganic CL Soil Class (60 PSF)		
Max. Wall Height	Maximum Unbalanced Fill*	Plain Masonry 1 Walls	8" Reinforced Masonry Walls [5,9]	8" Poured Concrete Walls [6, 7]	Plain Masonry 1 Walls	8" Reinforced Masonry Walls [5,9]	8" Poured Concrete Walls [6, 7]	Plain Masonry 1 Walls	8" Reinforced Masonry Walls [5,9]	8" Poured Concrete Walls [6, 7]
0 to 5 feet	4	6 in. solid (3) or 8 in.	-	PC	6 in. solid (3) or 8 in.	-	PC	6 in. solid (3) or 8 in.	-	PC
	5	6 in. solid (3) or 8 in.	-	PC	8 in.	-	PC	10 in.	-	PC
6 feet to 7 feet	4	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	8	#4 @ 48 in. o.c.	PC	8	#4 @ 48 in. o.c.	PC
	5	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	10 in.	#4 @ 48 in. o.c.	PC	10 in.	#4 @ 48 in. o.c.	PC
	6	10 in.	#4 @ 48 in. o.c.	PC	12 in.	#5 @ 48 in. o.c.	PC	10 in. solid (3)	#5 @ 48 in. o.c.	#5 @ 48 in. o.c.
	7	12 in.	#5 @ 48 in. o.c.	PC	10 in. solid (3)	#6 @ 48 in. o.c.	#5 @ 46 in. o.c.	12 in. solid (3)	'#6 @ 40 in. o.c.	#6 @ 48 in. o.c.
8 feet	4	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	8	#4 @ 48 in. o.c.	PC
	5	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	10 in.	#4 @ 48 in. o.c.	PC	12 in.	#4 @ 48 in. o.c.	PC
	6	10 in.	#4 @ 48 in. o.c.	PC	12 in.	#5 @ 48 in. o.c.	PC	12 in. solid (3)	#5 @ 48 in. o.c.	#6@32in o.c.
	7	12 in.	#5 @ 48 in. o.c.	PC	12 in. solid (3)	#6 @ 48 in. o.c.	#5 @ 41 in. o.c.	Footnote (4)	'#6 @ 40 in. o.c.	#6@32 in. o.c.
	8	10 in. solid (3)	#5 @ 48 in. o.c.	#6@41	12 in. solid (3)	#6 @ 48 in. o.c.	#6 @ 43 in. o.c.	Footnote (4)	'#6 @ 32 in. o.c.	#6@18 in. o.c.
9 feet	4	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	6 in. solid (3) or 8 in.	#4 @ 48 in. o.c.	PC	8 in.	#4 @ 48 in. o.c.	PC
	5	8 in.	#4 @ 48 in. o.c.	PC	10 in.	#4 @ 48 in. o.c.	PC	12 in.	#5 @ 48 in. o.c.	PC
	6	10 in.	#4 @ 48 in. o.c.	PC	12 in.	#4 @ 48 in. o.c.	PC	12 in. solid (3)	#6 @ 48 in. o.c.	#6@35 in. o.c.
	7	12 in.	#5 @ 48 in. o.c.	PC	12 in. solid (3)	#6 @ 48 in. o.c.	#6@35 in. o.c.	Footnote (4)	'#6 @ 40 in. o.c.	#6@32 in. o.c.
	8	12 in. solid (3)	#6 @ 48 in. o.c.	#6@36 in. o.c.	Footnote (4)	'#6 @ 40 in. o.c.	#6@32 in. o.c.	Footnote (4)	#6 @ 24 in. o.c.	#6@28 in. o.c.
	9	Footnote (4)	'#6 @ 40 in. o.c.	#6@35 in. o.c.	Footnote (4)	#6 @ 24 in. o.c.	#6@25 in. o.c.	Footnote (4)	#6 @ 16 in. o.c.	#6@24 in. o.c.
10 feet	8	NA	#6 @ 48 in. o.c.	#6 @ 35 in. o.c.	NA	#6 @ 32 in. o.c.	#6 @ 29 in. o.c.	NA	#6 @ 24 in. o.c.	#6 @ 21 in. o.c.
	9	NA	#6 @ 40 in. o.c.	#6@34 in. o.c.	NA	#6 @ 24in. o.c.	#6@22 in. o.c.	NA	#6 @ 16 in. o.c.	#6@16 in. o.c.
	10	NA	#6 @ 32 in. o.c.	#6 @ 27 in. o.c.	NA	#6 @ 16 in. o.c.	#6 @ 17 in. o.c.	NA	#6 @ 16 in. o.c.	#6 @ 13 in. o.c.

*Unbalanced backfill height is the difference in height between the exterior finish grade level and the top of the basement slab or crawl space grade.

Backfill shall be placed only AFTER the home has been anchored to the foundation wall.

(1) - All block must conform to ASTM C90 (700 psi rated) and be laid in a running bond of Type M or S mortar with overlapping pattern . Ungrouted hollow masonry units are permitted except where otherwise indicated.

(3) - Solid grouted hollow units or solid masonry units.

(4) - Wall construction per reinforced units or design required.

(5) - Vertical reinforcement shall be Grade 60 minimum. The distance from the face of the soil side of the wall to the center of vertical reinforcement shall be at least 5".

(6) - PC = Plain Concrete (Concrete with less reinforement than minimum for reinforced concrete)

(7) - All reinforcement shall be Grade 60 minimum. The distance from the face of the soil side of the wall to the vertical reinforcement shall be at least 6 1/16", but not more than 6 11/16".

'All information above has been extracted from the 2009 IRC Tables R404.1.1(1), Tables R404.1.1(2) Tables R404.1.2(3)

(8) Reserved

(9) Reserved

Maximum Aspect Ratio, L/W for Unbalanced Foundations

		SOIL CLASS		
Maximum Wall Height	**Maximum Unbalanced Fill**	**GW, GP, SW, & SP (30 PSF)**	**GM, GC, SM-SC, & ML (45 PSF)**	**SC, MH, ML-CL, & Inorganic CL (60 PSF)**
7 feet	4	4.0	4.0	4.0
	5	4.0	3.4	2.6
	6	3.0	2.0	1.5
	7	1.9	1.2	0.9
8 feet	4	4.0	4.0	4.0
	5	4.0	3.9	2.9
	6	3.4	2.3	1.7
	7	2.1	1.4	1.1
	8	1.4	1.0	0.7
9 feet	4	4.0	4.0	4.0
	5	4.0	4.0	3.3
	6	3.8	2.6	1.9
	7	2.4	1.6	1.2
	8	1.6	1.1	0.8
	9	1.1	0.8	0.6

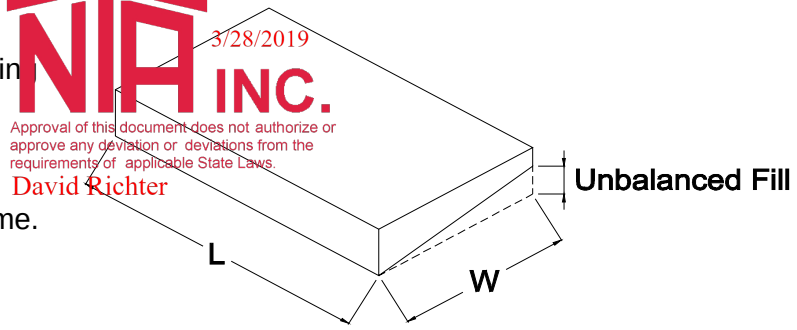
Instructions:

Where foundation wall support unbalnced load on opposite sides of building such as daylight basement, the building aspect ratio, L/W, shall not exceed the value specified in Table

1 - Determine foundation wall height, unbalanced fill depth, and soil class to determine aspect ratio from table above.

2 - Multiple "W" times aspect ratio.

3 - Result is equal to the maximum allowable building length on the exposed side.



Example 1 - check sidewall for 26'-8" x 60'-0" home.

Basement Wall Height = 8'-0"

Unbalanced backfill = 7'-0"

Soil Class = SP

Aspect Ratio from Table above = 2.1

26.67 x 2.1 = 56'-0" max. allowable length - **example fails**

Try again using 6'-0" max. unbalanced fill with an aspect ratio of 3.4.

26.67 x 3.4 = 90'-8" max. allowable length - **example passes**

Max. allowable backfill is 6'-0"

Example 2 - check endwall for 26'-8" x 60'-0" home.

Basement Wall Height = 8'-0"

Unbalanced backfill = 7'-0"

Soil Class = SP

Aspect Ratio from Table above = 2.1

60 x 2.1 = 126'-0" max. allowable length - **example passes**

"L" = total overall dimension of the building on the exposed side

"W" = the total overall dimension of the building on the side adjacent to the exposed side

Required Rim Joist to Sill Plate Fastening at wall "L".
Use a 20 Gauge metal angle clip at 24" o.c. with (5) 8d nails per leg or an approved connector supplying 230 pounds per linear foot capacity.

**Page extracted from 2006 IRC section R404.1.5 & Table R404.1(3)*

Schult

UNBALANCED FOUNDATIONS (TABLE L)

DATE: 3/27/07 | FILENAME:958I-14.R.J.E.22.22.117(_)

TABLE M - MINIMUM CONCRETE BLOCK PIER AND FOOTER SIZE AT MATING WALL COLUMNS (REF. DETAILS D3 OR D5)

GROUND SNOW		20	30				# of Uplift Ties
MAXIMUM MATING LINE SPAN BETWEEN MATING WALL COLUMN SUPPORTS	4 '	(S) 26"x26"X9" OR 30" Dia. X 11"	(S) 26"x26"X9" OR 30" Dia. X 11"				0
	6 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				0
	8 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	10 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	12 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	14 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	16 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	18 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	20 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	22 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(D) 34"x34"X9" OR 40" Dia. X 16"				1
	24 '	(D) 34"x34"X9" OR 40" Dia. X 16"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	26 '	(D) 34"x34"X10" OR 40" Dia. X 16"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	28 '	(D) 34"x34"X11" OR 40" Dia. X 16"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	30 '	(D) 34"x34"X13" OR 40" Dia. X 16"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	32 '	(T) 42"x42"X13" OR 48" Dia. X 20"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	34 '	(T) 42"x42"X13" OR 48" Dia. X 20"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	36 '	(T) 42"x42"X13" OR 48" Dia. X 20"	(T) 42"x42"X13" OR 48" Dia. X 20"				1
	46 '	(T) 42"x42"X15" OR 48" Dia. X 20"	(T) 42"x42"X15" OR 48" Dia. X 20"				1

SUPPORTS UNDER MATING OPENING AS CLEARSPANS IN FEET					
PIER SPACING	8.4 '	8.4 '			
PIER CONFIG.	(S) 26"x26"X9" OR 25" Dia.	(S) 26"x26"X9" OR 25" Dia.			

SUPPORTS UNDER MATING WALLS- CLEARSPANS IN FEET					
PIER SPACING	7.1 '	7.1 '			
PIER CONFIG.	(D) 34"x34"X9" OR 28" Dia.	(D) 34"x34"X9" OR 30" Dia.			

Girder beams construction to be (4) 2X10 #2 SPF joists. Splices 6" X 8" MiTeK MT20 metal plates each side

APPROVED BY NTA INC. 3/28/2019

Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.

David Richter

Chart Key:

(Pier Configuration) Min. footer width (inches) x Min. footer length (inches) x Min. footer depth (inches)

(S)= Single stack block configuration.

(D)= Double stack block configuration.

(T)= Triple stack block configuration.

(DR)=Double stack reinforced & fully grouted configuration.

IE. For 20 psf 178" box with 14' opening:Double stack pier on a 34"x 34" sq. footer 9" deep footing.

30' 1 STORY- W.O ATTIC OFF FRAME BASEMENT & CRAWL With Roof Pitch of 3/12 Min. to 6/12 Max.

NOTES: 1 DESIGNED FOR 100 MPH MAX. WIND SPEED.

2 DESIGNED FOR 2000 PSF MIN. ALLOWABLE SOIL BEARING CAPACITY.

3 *Ultimate wind speed Vult. Per ASCE 7-10/ allowable stress design wind speed Vasd & ASCE 7-10 & 2018 NORTH CAROLINA RESIDENTIAL CODE

4 MAX. MATING WALL OPENINGS LISTED IN CHART ASSUME OPENING IN BOTH HALVES. IF ANCHOR IS TIED TO ONLY ONE COLUMN (ONE HALF) THEN HALF THE OPENING SIZE CAN BE USED WHEN LOOKING UP VALUE IN TABLE ABOVE. PIERS SUPPORTS REQUIRED AT EACH SIDE OF DOOR OPENINGS AND ALL EXTERIOR WALL OPENINGS GREATER THAN 4'.

5 WHEN PIER CONFIGURATION IS NOT GIVEN IN CHART THE ACTUAL LOADS EXCEED ALL PREDESIGNED PIERS AND A LOCAL ENGINEER MUST DESIGN THE SUPPORTS FOR THE GIVEN LOADS (- UPLIFT/ + GRAVITY LOADS).

6 ALL PIERS SHALL BE EMBEDDED IN TYPE M OR S MORTAR.

7.Round footers or Round Piles with diameter as required above may be used as alternate to square footing or square footing and block piers.

TABLE N - STRUCTURAL STEEL POST AND FOOTER SIZE AT MATING WALL COLUMNS (REF. DETAIL D7)

GROUND SNOW		20	30				Uplift force
MAXIMUM MATING LINE SPAN BETWEEN MATING WALL COLUMN SUPPORTS	4 '	(9k) 26"x26"X11"	(9k) 26"x26"X11"				0 #
	6 '	(9k) 26"x26"X11"	(9k) 26"x26"X11"				0 #
	8 '	(14k) 32"x32"X13"	(14k) 32"x32"X13"				6.0466 #
	10 '	(14k) 32"x32"X13"	(14k) 32"x32"X13"				129.043 #
	12 '	(14k) 32"x32"X13"	(14k) 32"x32"X13"				252.04 #
	14 '	(14k) 32"x32"X13"	(14k) 32"x32"X13"				375.037 #
	16 '	(14k) 32"x32"X13"	(14k) 32"x32"X13"				498.033 #
	18 '	(14k) 32"x32"X13"	(14k) 32"x32"X13"				621.03 #
	20 '	(14k) 32"x32"X13"	(20k) 38"x38"X14"				744.027 #
	22 '	(14k) 32"x32"X13"	(20k) 38"x38"X14"				867.023 #
	24 '	(14k) 32"x32"X13"	(20k) 38"x38"X14"				990.02 #
	26 '	(14k) 32"x32"X13"	(20k) 38"x38"X14"				1113.02 #
	28 '	(20k) 38"x38"X14"	(20k) 38"x38"X14"				1236.01 #
	30 '	(20k) 38"x38"X14"	(20k) 38"x38"X14"				1359.01 #
	32 '	(20k) 38"x38"X14"	(20k) 38"x38"X14"				1482.01 #
	34 '	(20k) 38"x38"X14"	(20k) 38"x38"X14"				1605 #
	36 '	(20k) 38"x38"X14"	(20k) 38"x38"X14"				1728 #
	46 '	(20k) 38"x38"X19"	(30k) 48"x48"X17"				2342.98 #
SUPPORTS UNDER MATING OPENING AS CLEARSPANS IN FEET							
POST SPACING		8.4 '	8.4 ' 0/C				
FOOTER SIZE		(9k) 26"x26"X11"	(9k) 26"x26"X11"				
SUPPORTS UNDER MATING WALLS- CLEARSPANS IN FEET							
POST SPACING		7.1 '	7.1 '				
FOOTER SIZE		(9k) 26"x26"X11"	(9k) 26"x26"X11"				

Girder beams construction to be (4) 2X10 #2 SPF joists. Splices 6" X 8" MiTeK MT20 metal plates each side

Chart Key:
(Post Load)= Minimum allowable compression rating which post must be rated in kips (1000 lbs.).
(Post Capacity and Footer Size) Min. footer width (inches) x Min. footer length (inches) x Min. footer depth (inches)
Note: Steel piers must have a minimum steel base plate size of 4 inches x 5.5 inches which bears directly on footer sized per chart.
Minimum steel column top plate size of 4"x5.5"for 9000#; 6"x6"for 14000#; 6"x8"for 20000# & 6"x12"for 30000#

Minimum footer Reinforcement (Number of #4 bars each way):

Footer size	# of No. 4 bars	Footer size	# of No. 4 bars
26"x26"	3	38"x38"	5
32"x32"	4	48"x48"	8

30' 1 STORY- W.O ATTIC OFF FRAME BASEMENT & CRAWL With Roof Pitch of 3/12 Min. to 6/12 Max.

NOTES:
1 DESIGNED FOR 100 MPH MAX. WIND SPEED.
2 DESIGNED FOR 2000 PSF MIN. ALLOWABLE SOIL BEARING CAPACITY.
3 *Ultimate wind speed Vult. Per ASCE 7-10/ allowable stress design wind speed Vasd & ASCE 7-10 & 2018 NORTH CAROLINA RESI
4 MAX. MATING WALL OPENINGS LISTED IN CHART ASSUME OPENING IN BOTH HALVES. IF ANCHOR IS TIED TO ONLY ONE COLUMN (ONE HALF) THEN HALF THE OPENING SIZE CAN BE USED WHEN LOOKING UP VALUE IN TABLE ABOVE. PIERS SUPPORTS REQUIRED AT EACH SIDE OF DOOR OPENINGS AND ALL EXTERIOR WALL OPENINGS GREATER THAN 4'.
5 WHEN PIER CONFIGURATION IS NOT GIVEN IN CHART THE ACTUAL LOADS EXCEED ALL PREDESIGNED FOOTERS AND A LOCAL ENGINEER MUST DESIGN THE SUPPORTS FOR THE GIVEN LOADS (- UPLIFT/ + GRAVITY LOADS).

Support and anchorage for 16" Max. Recess

NON CORNER- SPANS ARE NOT LOCATED WITH 6' OF END OF HOME

			PIER CONFIGURATION AND MINIMUM FOOTER SIZE UNDER SIDEWALL PORCH/ RECESS SUPPORT [1,4]									
GROUND SNOW			20 #		30 #		0 #		0 #		0 #	
Max. span[3]	UPLIFT LOAD [10]	# Brk[2]	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors
4	-183.63854 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
6	-275.45781 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
8	-367.27708 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
10	-459.09635 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
12	-550.91562 #	-1	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"

CORNER- SPANS ARE LOCATED WITH 6' OF END OF HOME

			PIER CONFIGURATION AND MINIMUM FOOTER SIZE UNDER SIDEWALL PORCH/ RECESS SUPPORT [1,4]									
GROUND SNOW			20 #		30 #		0 #		0 #		0 #	
Max. span[3]	UPLIFT LOAD [10]	# Brk[2]	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors
4	-129.7666 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
6	-194.6499 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
8	-259.5332 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
10	-324.4165 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
12	-389.2998 #	-1	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"

Support and anchorage for 48" Max. Porch Depth

NON CORNER- SPANS ARE NOT LOCATED WITH 6' OF END OF HOME

			PIER CONFIGURATION AND MINIMUM FOOTER SIZE UNDER SIDEWALL PORCH/ RECESS SUPPORT [1,4]									
GROUND SNOW			20 #		30 #		0 #		0 #		0 #	
Max. span[3]	UPLIFT LOAD [10]	# Brk[2]	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors
4	-63.923188 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
6	-95.884782 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
8	-127.84638 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
10	-159.80797 #	-1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
12	-191.76956 #	-1	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"

CORNER- SPANS ARE LOCATED WITHIN 6' OF END OF HOME

			PIER CONFIGURATION AND MINIMUM FOOTER SIZE UNDER SIDEWALL PORCH/ RECESS SUPPORT [1,4]									
GROUND SNOW			20 #		30 #		0 #		0 #		0 #	
Max. span[3]	UPLIFT LOAD [10]	# Brk[2]	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors	w/ground anchors	w/concrete anchors
4	13.258128 #	1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
6	19.887191 #	1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
8	26.516255 #	1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
10	33.145319 #	1	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"	(S) 26"x26"X9"
12	39.774383 #	1	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"	(D) 34"x34"X9"

NOTES:

1. Piers supports are required under all porch/ recess post and at intersection of sidewall (see key plan).
2. # Brk- Number of uplift brackets required under the support column. Brackets per Detail D6. Brackets maybe Installed individually or in pairs and must be tied to a ground anchor or concrete anchor with a minimum design capacity of 3150#. An alternate uplift connector may be used which has the required uplift load indicated above NG- Indicates that uplift exceeds standard angle and tie down capacity and alternate design is require.
3. Max. Span- Maximum distance between adjacent porch post or supports as measure parallel to box length.
4. Piers- Indicates the minimum CMU block configuration (S)ingle, (D)ouble, (T) Triple or (DR) (D)ouble (R)einforced and minimum footer size. See Detail D3 of D4 for pier configuration.
5. w/ ground anchors- Minimum footer size for gravity load support at post. Uplift is taken to ground anchor and not placed in soil.
6. w/ concrete anchors- Minimum footer size based on gravity and uplift. Concrete anchors embedded into foot carry uplift load.
7. off frame basement & crawl foundation design for: 29' - 8 " 2-section modular
8. designed for 100 mph max. wind speed.
9. Desgin for 2000 psf min. allowable soil bearing capacity.
10. Designed to the *Ultimate wind speed Vult. Per ASCE 7-10/ allowable stress design wind speed Vasd & ASE 7-10

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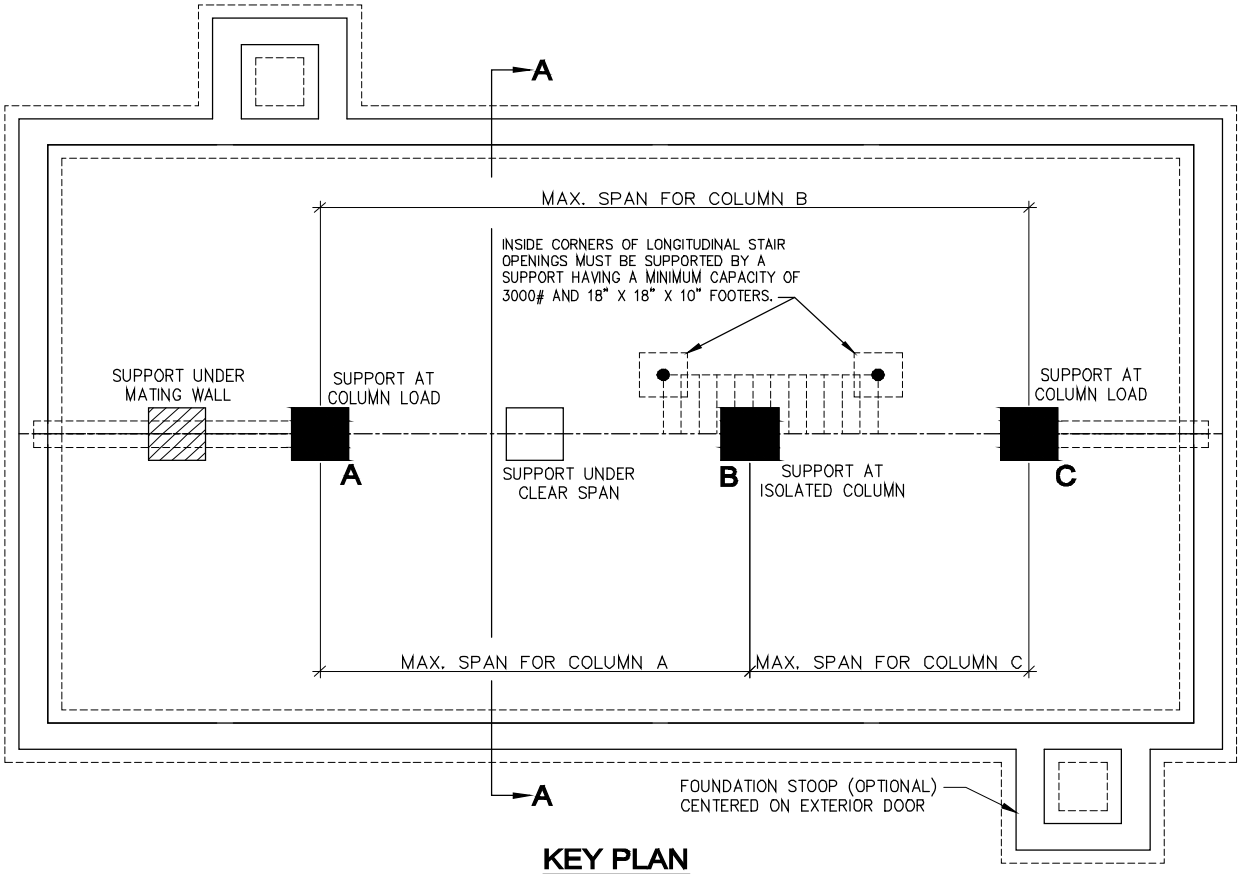
PORCH & RECESS (TABLE P)

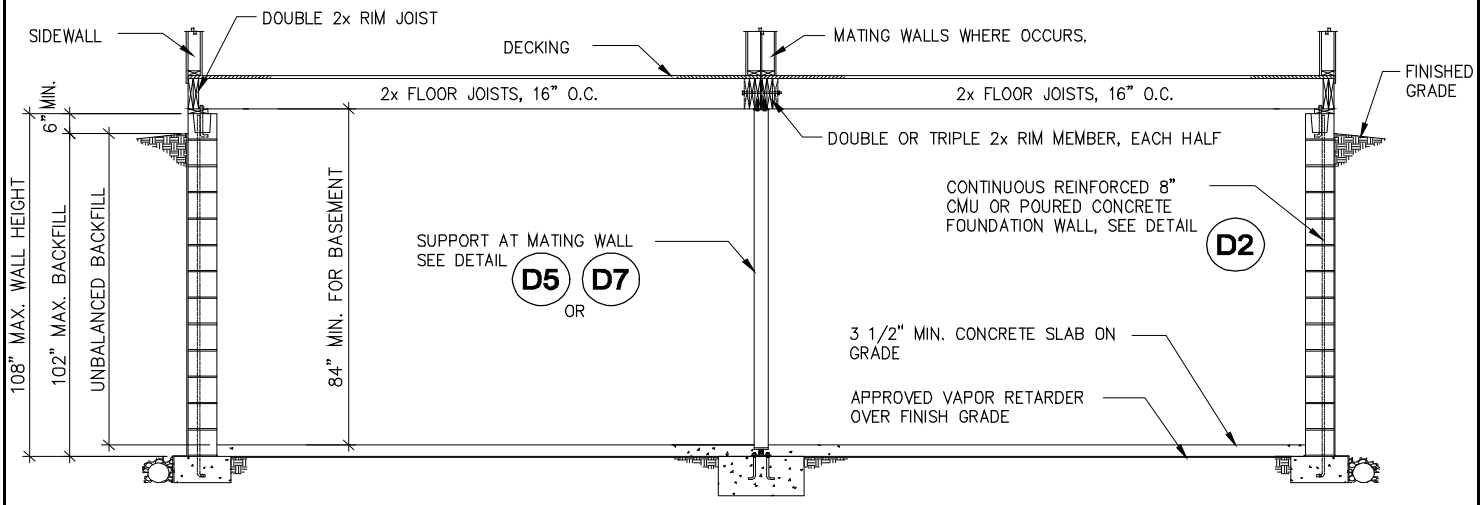
DATE: 3/27/07

958I-14.R.J.E.22.22.117(_)



KEY PLAN
OFF-FRAME BASEMENT - 2 SECTION

NOT TO SCALE



CROSS SECTION A-A

NOTES:

1. MARRIAGE LINE POSTS SHALL SUPPORT THE MARRIAGE WALL, COLUMNS AND STAIR LOADS WHERE OCCURS. REFER TO SPECIFIC FOUNDATION LAYOUT FOR LOCATION INFORMATION.
2. SEE GENERAL NOTES SECTION FOR VENTILATION, DRAINAGE AND OTHER FOUNDATION REQUIREMENTS.

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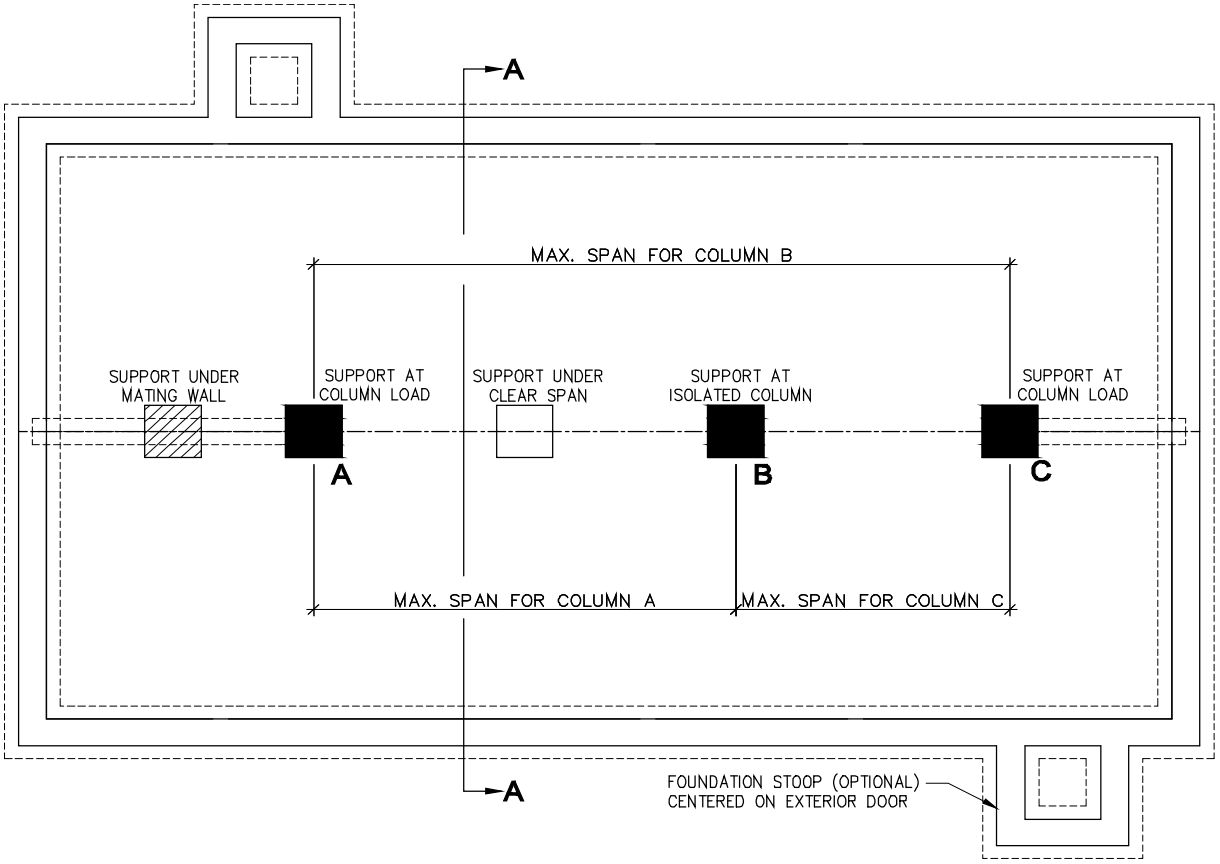
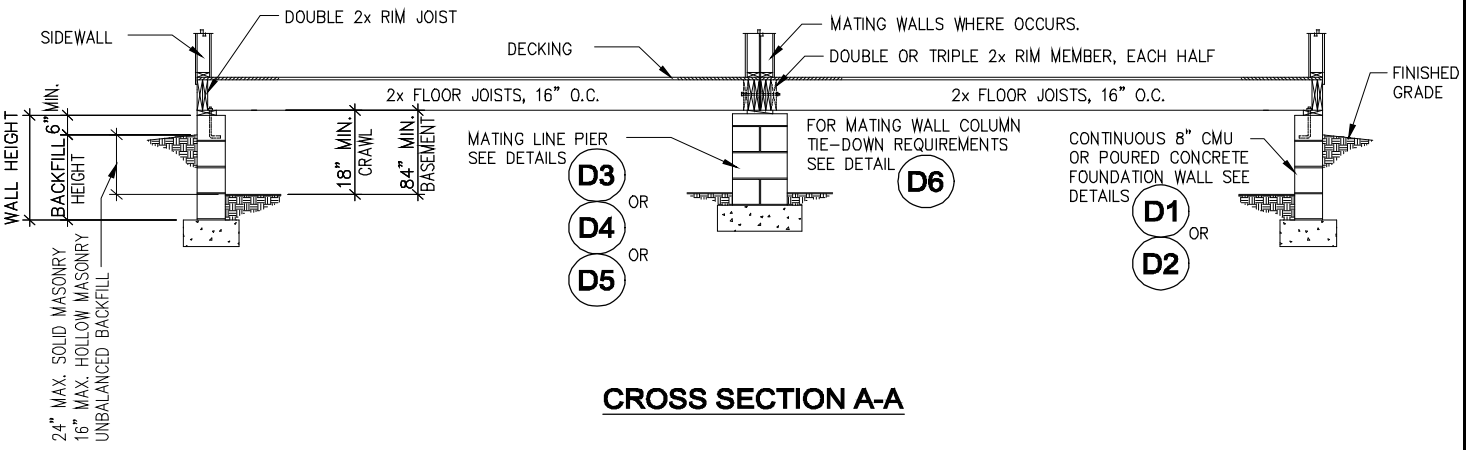
KEY PLAN 7 - OFF-FRAME / BASEMENT / 2 SECTION

DATE: 05/25/07 | 958I-14.R.J.E.22.22.117(_)



KEY PLAN
OFF-FRAME CRAWL SPACE - 2 SECTION

NOT TO SCALE



CROSS SECTION A-A

NOTES:

1. MARRIAGE LINE POSTS SHALL SUPPORT THE MARRIAGE WALL, COLUMNS AND STAIR LOADS WHERE OCCURS. REFER TO SPECIFIC FOUNDATION LAYOUT FOR LOCATION INFORMATION.
2. SEE GENERAL NOTES SECTION FOR VENTILATION, DRAINAGE AND OTHER FOUNDATION REQUIREMENTS.

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KEY PLAN 8 - OFF-FRAME / CRAWL SPACE / 2 SECTION

DATE: 05/25/07

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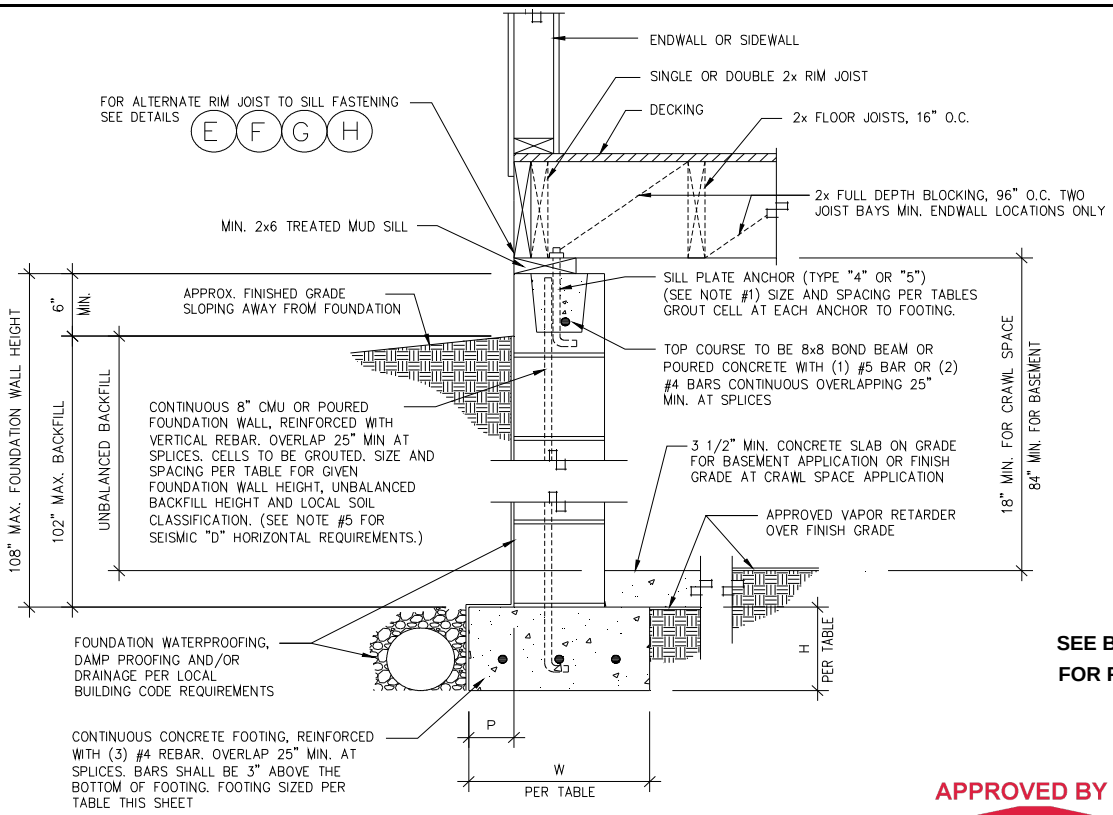
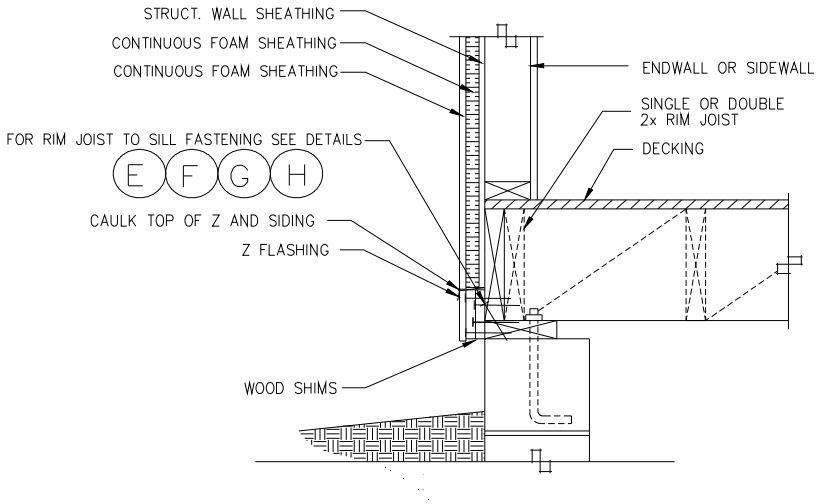


TYPICAL
SEE BELOW FOR ADDITIONAL DETAIL
FOR FOAM SHEATHING APPLICATION



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FOOTER SIZE TABLE

MAX. GROUND SNOW	MIN. FOOTER SIZE		
	WIDTH W	DEPTH H	
		Crawl	Basement
20 PSF	16 "	6"	6"
30 PSF	16 "	6"	6"

REINFORCED PERIMETER FOUNDATION WALL
BASEMENT OR CRAWL SPACE
30 ' WIDE 1 STORY- W.O ATTIC
130/ 100 *MAXIMUM ULTIMATE/DESIGN WIND SPEED
EXPOSURE C-enclosed & SEISMIC ZONE C

NOTES:

1. **MUD SILL TO FOUNDATION ANCHORS:**
   TYPE 4:1/2" DIAMETER STEEL ANCHOR BOLTS EMBEDDED 7" MIN. INTO CONCRETE FOUNDATION WALL OR CLOSE CELL CMU WITH 2"x2"x1/8" WASHERS AND NUTS. BOLT HEADS SHALL NOT BE RECESSED INTO SINGLE SILL PLATE.
   TYPE 5: SIMPSON MAB OR MAS MUD SILL ANCHOR INSTALLED PER INSTALLATION INSTRUCTIONS.
2. **RIM TO MUD SILL FASTENING AND SILL TO FOUNDATION ANCHOR SPACING SHALL BE THE MINIMUM OF:**
   a) **SPACING GIVEN IN APPLICABLE TABLES FOR UNIT CONFIGURATION AND WIND SPEED.**
   b) **SPACING GIVEN IN BACKFILL/ SIDEWALL TABLES FOR GIVEN UNIT CONFIGURATION, MAXIMUM BASEMENT WALL HEIGHT, BACKFILL DEPTH, AND LOCAL SOIL CLASSIFICATION.**
3. **DISTANCE FROM EDGE OF FOOTER TO FACE OF FOUNDATION WALL (P) SHALL NOT BE LESS THAN 2" AND SHALL NOT EXCEED THE FOOTER THICKNESS (H).**
4. **2000 PSF MIN. ALLOWABLE SOIL BEARING CAPACITY.**
5. **FOR SEISMIC ZONES EXCEEDING ZONE C:**
   VERTICALLY REINFORCED PER TABLE (R404.1.1) AT 16" O.C. ALONG ENDWALLS & 48" O.C.ELSEWHERE.

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REINFORCED PERIMETER FOUNDATION WALL - DETAIL - D2

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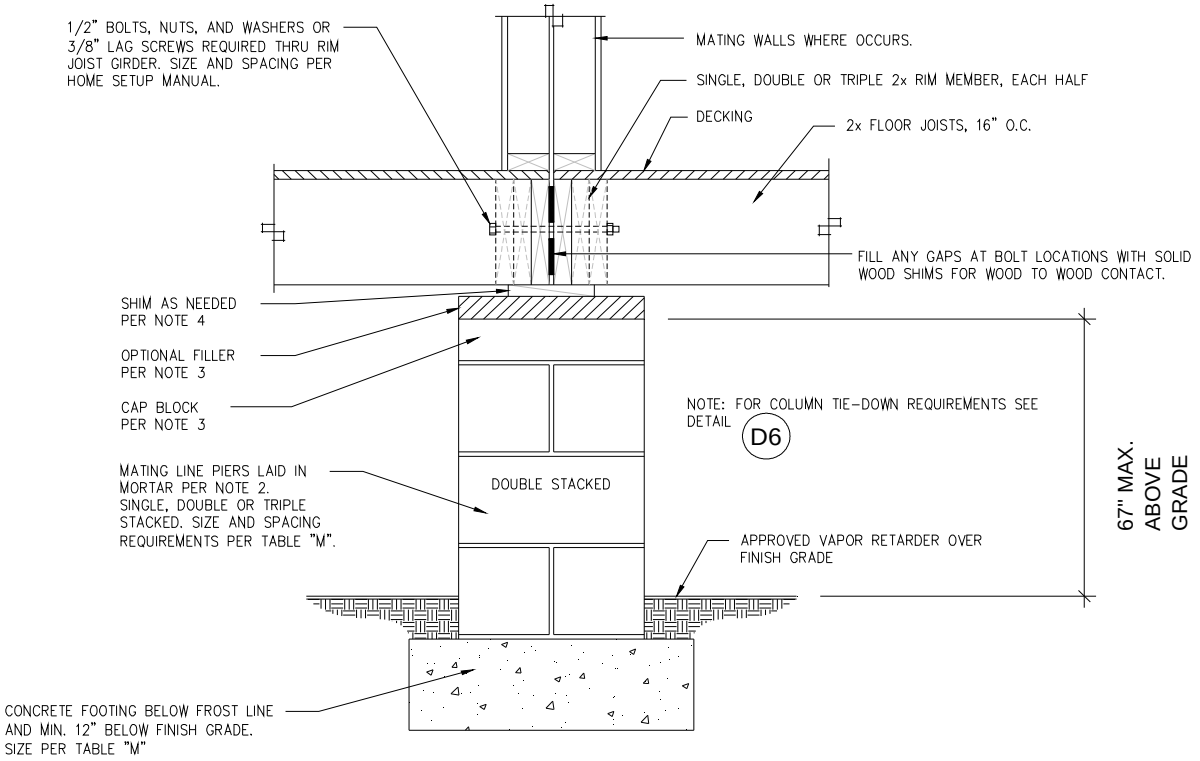

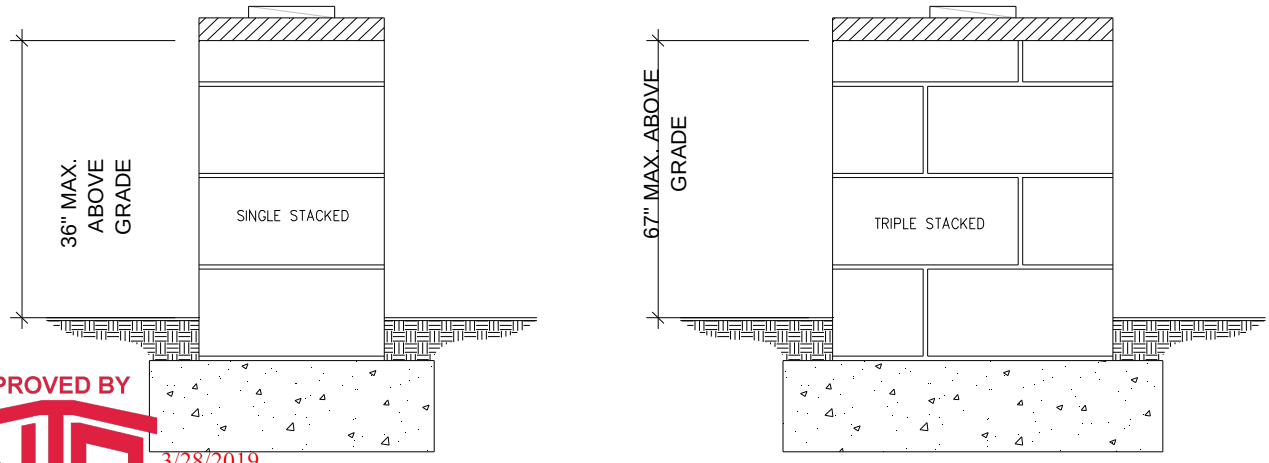

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NON-REINFORCED MATING WALL OR COLUMN SUPPORT PIER
CRAWL SPACE ONLY

NOTES:

1. FOOTINGS MUST BE LEVEL IN ALL DIRECTIONS. PIERS ARE TO BE PLACED CENTERED ON THE FOOTING SO THAT THE FOOTING PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTING.

2. CONCRETE BLOCKS FOR PIERS ARE 8" x 16" x 8" NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU's MANUFACTURED IN CONFORMANCE WITH ASTM C90, GRADE "N". OPEN CELLS ARE ALIGNED VERTICALLY.THE PIERS SHALL BE LAID IN RUNNING BOND WITH TYPE M OR S MORTAR OR APPROVED ALTERNATE (SEE GENERAL NOTE 12). SINGLE STACKED BLOCKS TO BE LAID WITH LONG SIDE PERPENDICULAR TO MATE LINE RIM JOISTS. DOUBLE STACKED BLOCK IS LAID WITH EACH LAYER AT A RIGHT ANGLE TO THE PREVIOUS LAYER. THE TOP COURSE OR THE CAP BLOCKS SHALL BE PERPENDICULAR TO THE MATE LINE RIM JOISTS.

3. CAP BLOCKS SHALL BE 4" SOLID CONCRETE OR MASONRY BLOCK. 2x NOMINAL HARDWOOD OR 1/2" STEEL MAY BE USED AS A CAP BLOCK IF THE TOP COURSE OF THE PIER IS SOLID MASONRY OR CONCRETE OR IF THE TOP COURSE OF A HOLLOW PIER IS FILLED WITH CONCRETE OR GROUT. OPTIONAL FILLER MATERIAL MAY BE 2x NOMINAL HARDWOOD OR 2" OR 4' NOMINAL SOLID CONCRETE BLOCK. ALL CAPS AND FILLER SHALL BE OF THE SAME NOMINAL DIMENSIONS AS THE PIERS THEY REST UPON. INDIVIDUAL LENGTHS OF CAP BLOCKS AND FILLER SHALL BE PERPENDICULAR TO THE MATE LINE RIM JOISTS.

4. SHIMS SHALL BE OF HARDWOOD, AT LEAST 3 1/2" WIDE AND 6" LONG AND ARE NOT TO EXCEED ONE INCH IN THICKNESS. SHIMS SHALL BE PERPENDICULAR TO MATE LINE, FITTED AND DRIVEN TIGHT BETWEEN CAP BLOCKS OR FILLER AND MATE LINE RIM JOISTS.

5. MARRIAGE LINE PIERS SHALL SUPPORT THE MARRIAGE WALL AND COLUMNS WHERE OCCURS PER MODEL SPECIFIC FOUNDATION PLAN. MAXIMUM PIER SPACING PER TABLE "M".

6. SEE GENERAL NOTES FOR DRAINAGE AND OTHER FOUNDATION REQUIREMENTS.

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NON-REINFORCED MATING WALL COLUMN SUPPORT PIER - CRAWLSPACE ONLY - DETAIL - D3

DATE: 06/13/07

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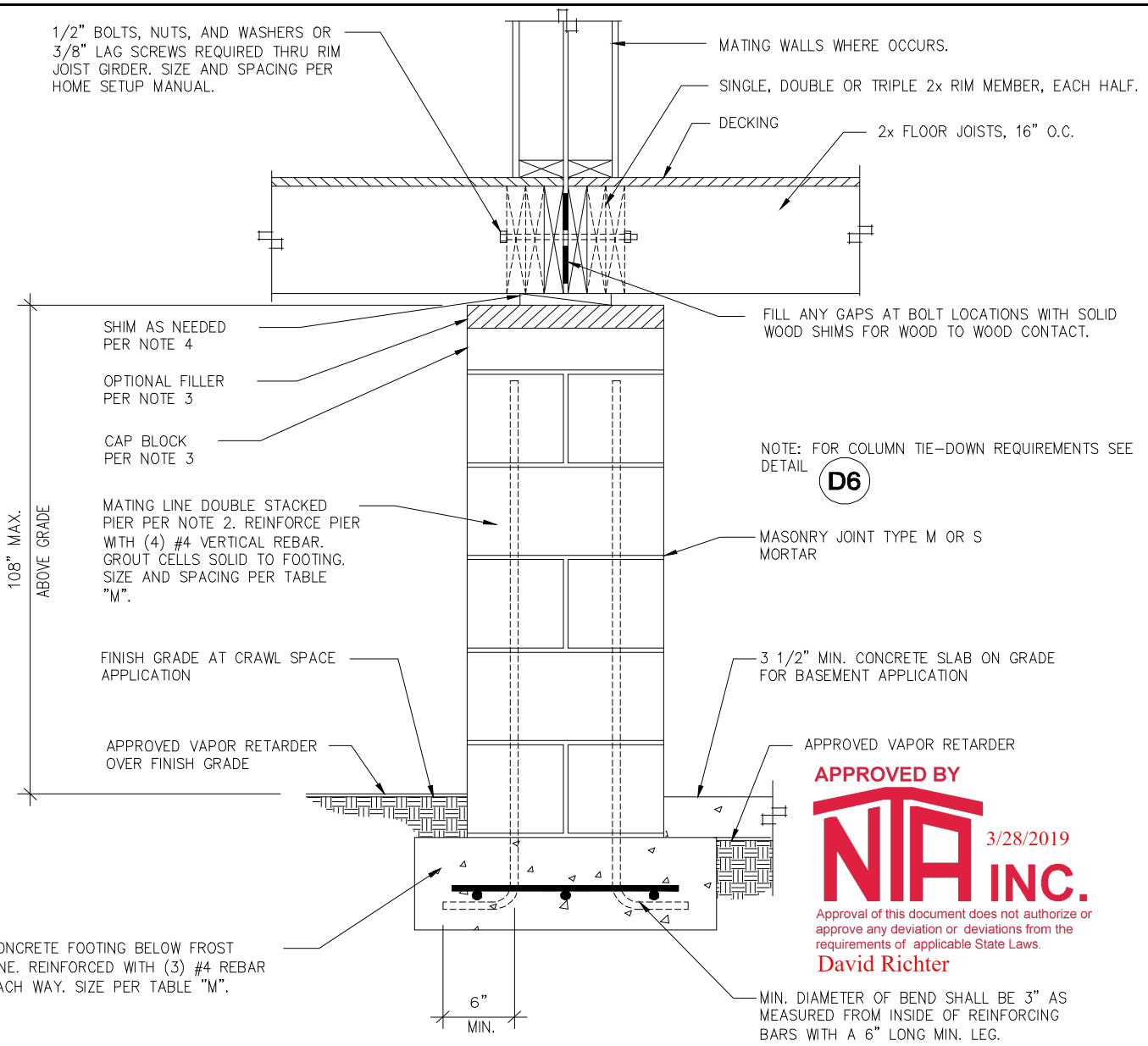

REINFORCED MATING WALL OR COLUMN SUPPORT PIER BASEMENT OR CRAWL SPACE (PIER SPACING AND FOOTER SIZE PER TABLE M)

NOTES:

1. FOOTINGS MUST BE LEVEL IN ALL DIRECTIONS. PIERS ARE TO BE PLACED CENTERED ON THE FOOTING SO THAT THE FOOTING PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTING.

2. CONCRETE BLOCKS FOR PIERS ARE 8" x 16" x 8" NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU's MANUFACTURED IN CONFORMANCE WITH ASTM C90, GRADE "N". OPEN CELLS ARE ALIGNED VERTICALLY.THE PIERS SHALL BE LAID IN RUNNING BOND WITH TYPE M OR S MORTAR. SINGLE STACKED BLOCKS TO BE LAID WITH LONG SIDE PERPENDICULAR TO MATE LINE RIM JOISTS. DOUBLE STACKED BLOCK IS LAID WITH EACH LAYER AT A RIGHT ANGLE TO THE PREVIOUS LAYER. THE TOP COURSE OR THE CAP BLOCKS SHALL BE PERPENDICULAR TO THE MATE LINE RIM JOISTS.

3. CAP BLOCKS SHALL BE 4" SOLID CONCRETE OR MASONRY BLOCK. 2x NOMINAL HARDWOOD OR 1/2" STEEL MAY BE USED AS A CAP BLOCK IF THE TOP COURSE OF THE PIER IS SOLID MASONRY OR CONCRETE OR IF THE TOP COURSE OF A HOLLOW PIER IS FILLED WITH CONCRETE OR GROUT. OPTIONAL FILLER MATERIAL MAY BE 2x NOMINAL HARDWOOD OR 2" OR 4' NOMINAL SOLID CONCRETE BLOCK. ALL CAPS AND FILLER SHALL BE OF THE SAME NOMINAL DIMENSIONS AS THE PIERS THEY REST UPON. INDIVIDUAL LENGTHS OF CAP BLOCKS AND FILLER SHALL BE PERPENDICULAR TO THE MATE LINE RIM JOISTS.

4. SHIMS SHALL BE OF HARDWOOD, AT LEAST 3 1/2" WIDE AND 6" LONG AND ARE NOT TO EXCEED ONE INCH IN THICKNESS. SHIMS SHALL BE PERPENDICULAR TO MATE LINE, FITTED AND DRIVEN TIGHT BETWEEN CAP BLOCKS OR FILLER AND MATE LINE RIM JOISTS.

5. MARRIAGE LINE PIERS SHALL SUPPORT THE MARRIAGE WALL AND COLUMNS WHERE OCCURS PER MODEL SPECIFIC FOUNDATION PLAN. MAXIMUM PIER SPACING PER TABLE "M".

6. SEE GENERAL NOTES FOR DRAINAGE AND OTHER FOUNDATION REQUIREMENTS.

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REINFORCED MATING WALL OR COLUMN SUPPORT PIER - BASEMENT OR CRAWL SPACE
DETAIL - D5

DATE: 06/04/07

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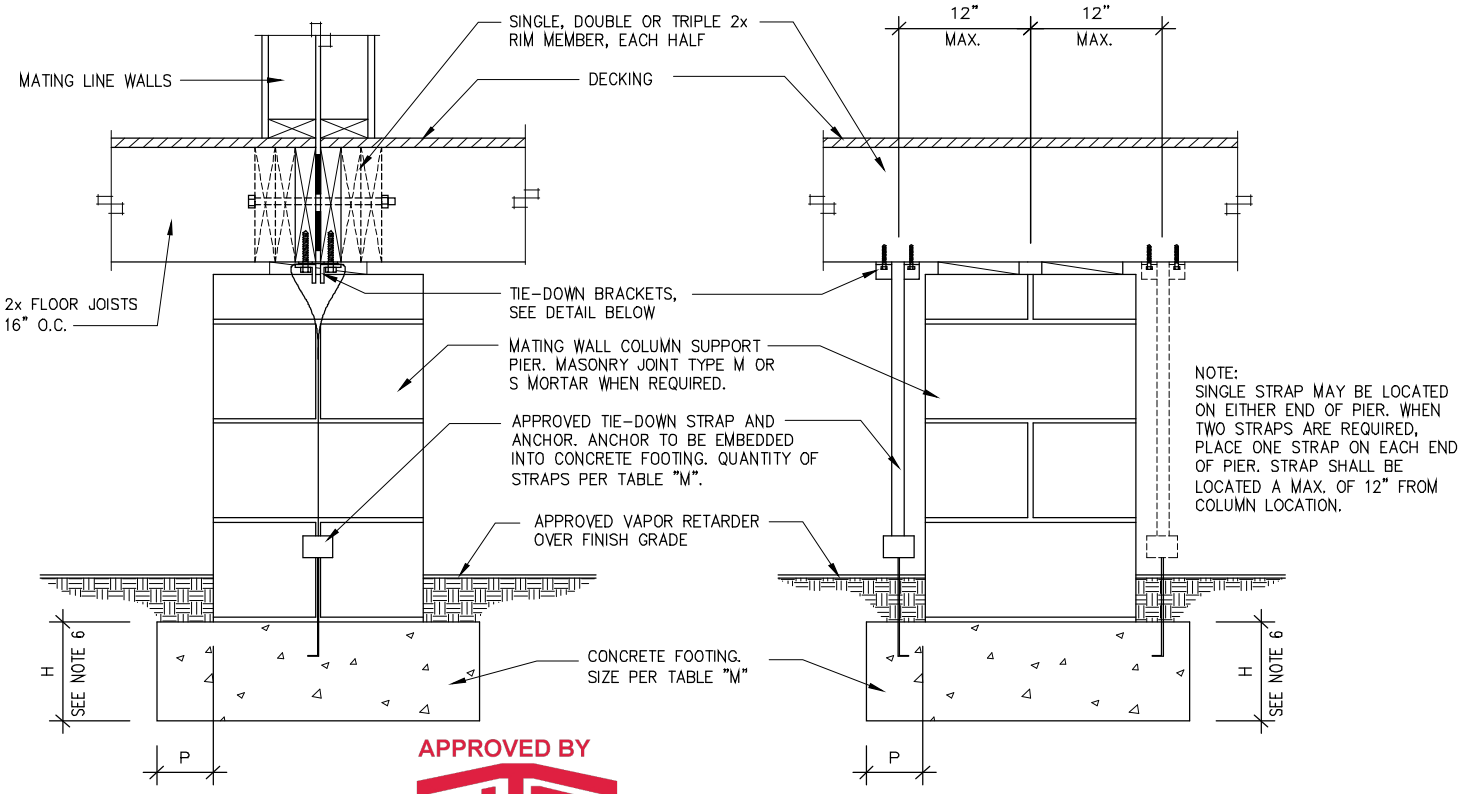

END VIEW **SIDE VIEW**

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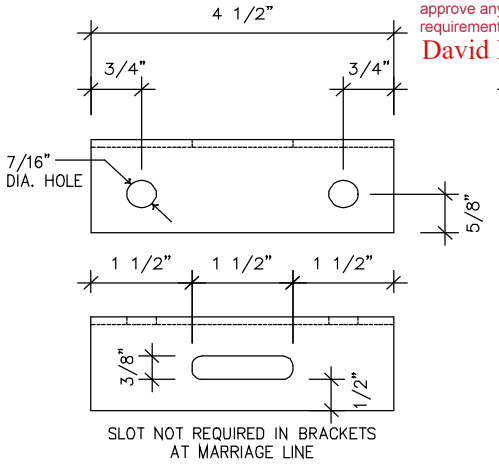

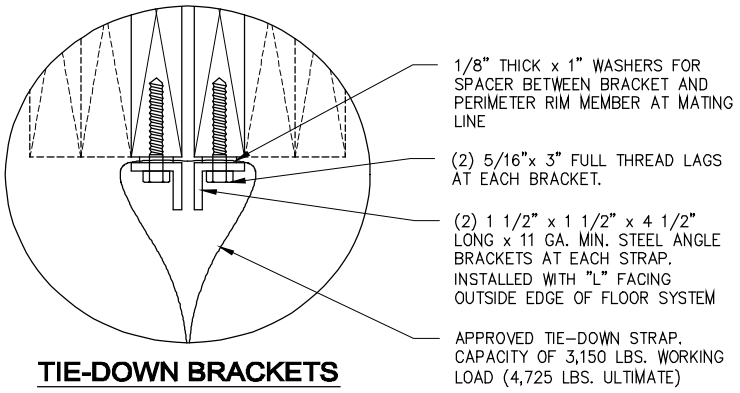

TIE-DOWN BRACKETS

MATING WALL COLUMN TIE DOWN

NOTES:

1. ALL MARRIAGE WALL COLUMN LOCATIONS WITH OPENINGS 4 FEET OR GREATER MAY REQUIRE THE INSTALLATION OF COLUMN BRACKETS AND TIE-DOWNS. SEE TABLE "M" FOR REQUIREMENTS.
2. EACH BRACKET IS RATED FOR AN ALLOWABLE WORKING LOAD OF 1,719 LBS.
3. THE CAPACITY OF BOTH THE TIE-DOWN STRAP AND ANCHOR MUST BE 3,150 LBS. WORKING LOAD (4,725 LBS. ULTIMATE)
4. USE A RADIUS CLIP FOR ALL BRACKET APPLICATIONS BY THREADING A PIECE OF STRAP OVER THE BRACKETS BEFORE LOOPING THE TIE-DOWN STRAP AROUND THE BRACKET.
5. GROUND ANCHORS WHICH ARE LISTED FOR THE REQUIRED CAPACITY ABOVE MAY BE USED IN LIEU OF CONCRETE ANCHOR.
6. DISTANCE FROM EDGE OF FOOTING TO FACE OF FOUNDATION WALL (P) SHALL NOT BE LESS THAN 2" AND SHALL NOT EXCEED THE FOOTING THICKNESS (H). FOOTING THICKNESS MAY BE 10" IF GROUND ANCHORS WITH AN UPLIFT CAPACITY OF 3,150 LBS. ARE USED IN PLACE OF CONCRETE ANCHORS.
7. FOOTING SIZES PER TABLE "M" HAVE BEEN DESIGNED ASSUMING CONCRETE ANCHORS WILL BE UTILIZED. IF GROUND ANCHORS ARE UTILIZED TO TRANSMIT UPLIFT INTO GROUND SOIL, THE DEPTH OF THE FOOTING MAY BE REDUCED TO (P). WHERE (P) IS EQUAL TO THE GREATEST DISTANCE FROM EDGE OF FOOTING TO EDGE OF PIER. MINIMUM DEPTH IS 9".

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MATING WALL COLUMN TIE DOWN - DETAIL - D6

DATE: 06/29/07

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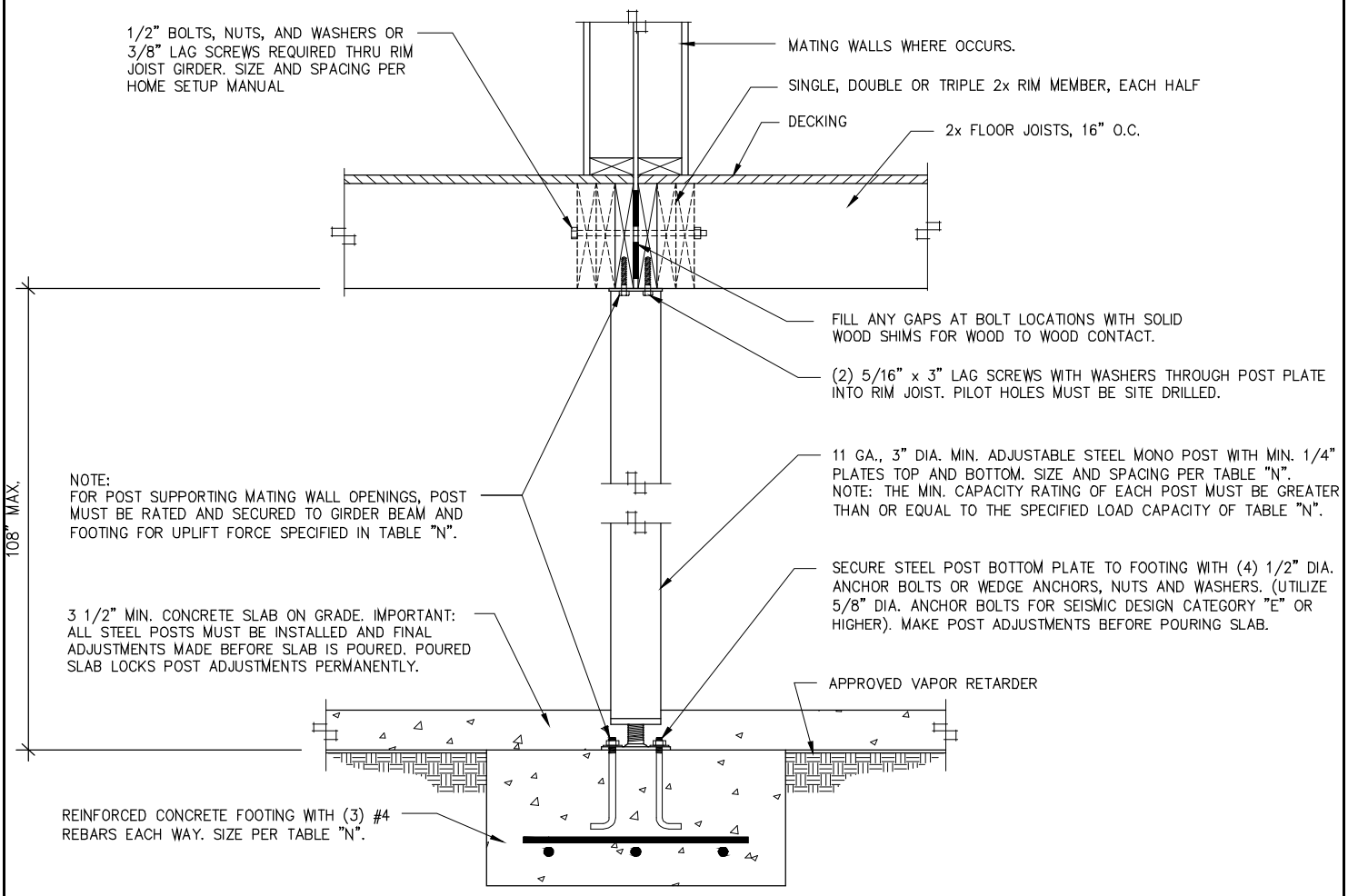

ALTERNATE POST INSTALLATION: STEEL POSTS MAY BE INSTALLED WITH SCREW JACK ASSEMBLY AT THE TOP OR BOTTOM. STEEL POSTS INSTALLED WITHOUT THE SCREW JACK ASSEMBLY AT THE BOTTOM AND ENCASED IN CONCRETE ARE SUBJECT TO LOAD REDUCTIONS. VERIFY THE CAPACITY OF THE STEEL POST BASED ON THE INSTALLATION METHOD PRIOR TO INSTALLATION OF THE POST.

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ADJUSTABLE STEEL COLUMN POST BASEMENT OR CRAWL SPACE (MAXIMUM POST SPACING PER TABLE N)

NOTES:

1. FOOTINGS MUST BE LEVEL IN ALL DIRECTIONS. STEEL POSTS ARE TO BE PLACED CENTERED ON THE FOOTING SO THAT THE FOOTING PROJECTION FROM THE POST IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. COLUMN POSTS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTING.

2. MARRIAGE LINE STEEL POSTS SHALL SUPPORT THE MARRIAGE WALL AND COLUMNS WHERE OCCURS PER

3. SEE GENERAL NOTES FOR DRAINAGE AND OTHER FOUNDATION REQUIREMENTS.

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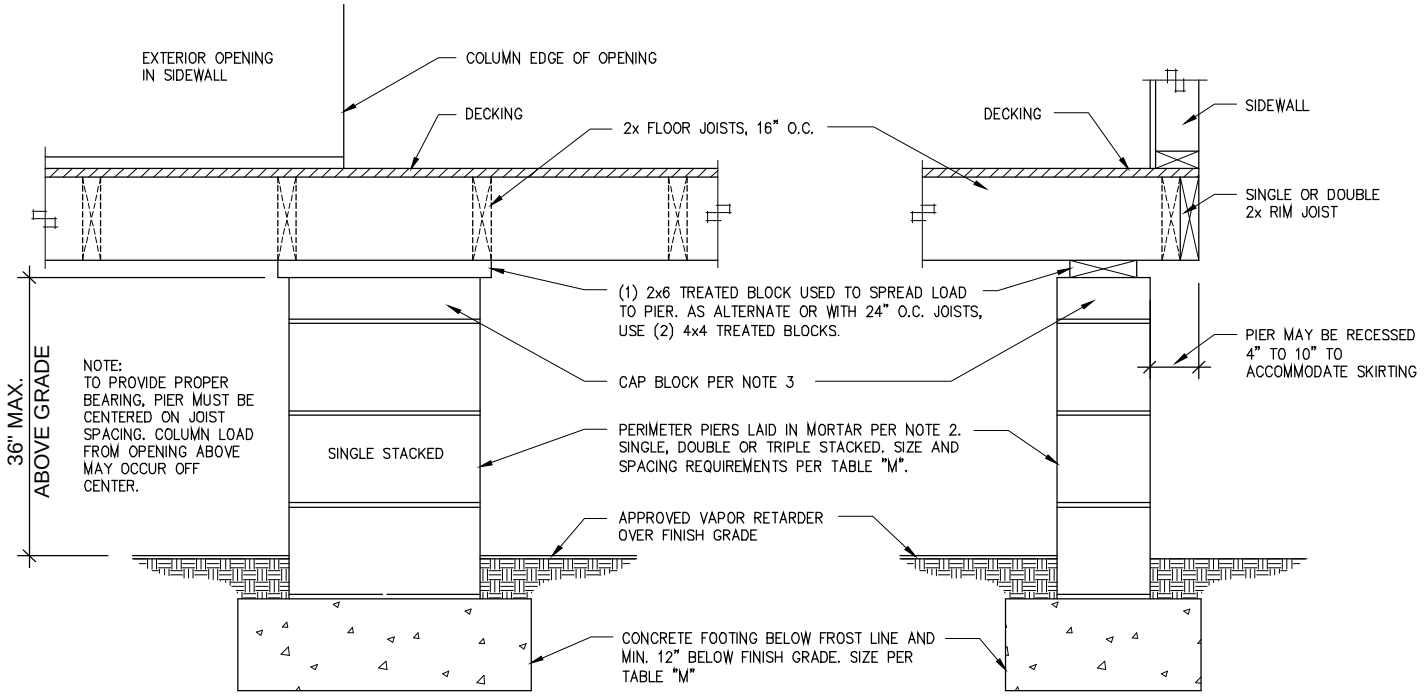
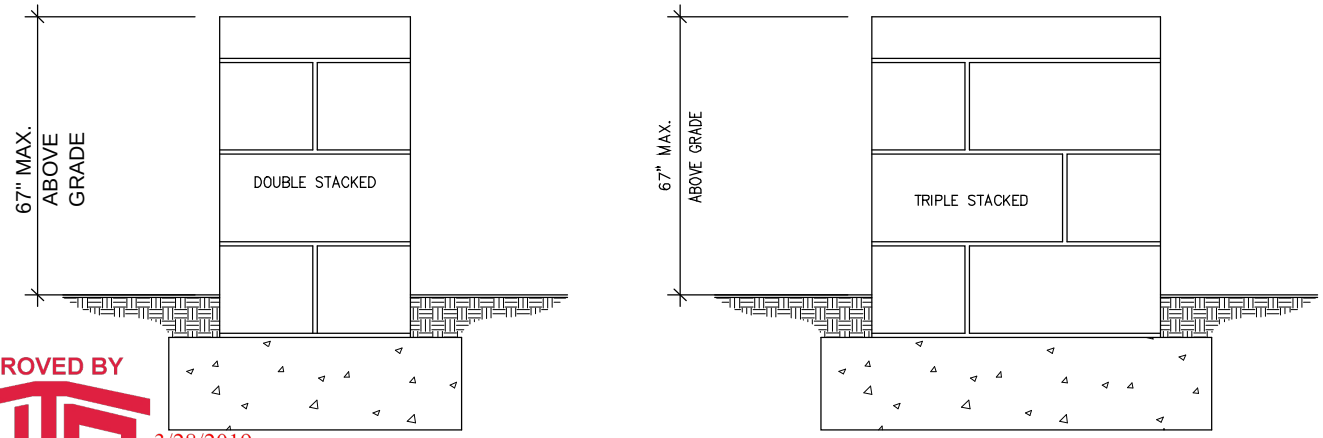
ADJUSTABLE STEEL COLUMN POST - BASEMENT OR CRAWL SPACE - DETAIL - D7

DATE: 06/08/07 | 958I-14.R.J.E.22.22.117(_)



FRONT VIEW **SIDE VIEW**



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NON-REINFORCED PERIMETER OR PORCH POST SUPPORT PIER

NOTES:

1. FOOTINGS MUST BE LEVEL IN ALL DIRECTIONS. PIERS ARE TO BE PLACED CENTERED ON THE FOOTING SO THAT THE FOOTING PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTING.
2. CONCRETE BLOCKS FOR PIERS ARE 8" x 16" x 8" NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU's MANUFACTURED IN CONFORMANCE WITH ASTM C90, GRADE "N". OPEN CELLS ARE ALIGNED VERTICALLY. SEE NOTE 7. FOR MORTAR REQUIREMENT. SINGLE STACKED BLOCKS TO BE LAID WITH LONG SIDE PERPENDICULAR TO MATE LINE RIM JOISTS. DOUBLE STACKED BLOCK IS LAID WITH EACH LAYER AT A RIGHT ANGLE TO THE PREVIOUS LAYER. THE TOP COURSE OR THE CAP BLOCKS SHALL BE PERPENDICULAR TO THE MATE LINE RIM JOISTS.
3. CAP BLOCKS SHALL BE 4" SOLID CONCRETE OR MASONRY BLOCK. 2x NOMINAL HARDWOOD OR 1/2" STEEL MAY BE USED AS A CAP BLOCK IF THE TOP COURSE OF THE PIER IS SOLID MASONRY OR CONCRETE OR IF THE TOP COURSE OF A HOLLOW PIER IS FILLED WITH CONCRETE OR GROUT. OPTIONAL FILLER MATERIAL MAY BE 2x NOMINAL HARDWOOD OR 2" OR 4' NOMINAL SOLID CONCRETE BLOCK. ALL CAPS AND FILLER SHALL BE OF THE SAME NOMINAL DIMENSIONS AS THE PIERS THEY REST UPON. INDIVIDUAL LENGTHS OF CAP BLOCKS AND FILLER SHALL BE PERPENDICULAR TO THE MATE LINE RIM JOISTS.
4. SHIMS SHALL BE OF HARDWOOD, AT LEAST 3 1/2" WIDE AND 6" LONG AND ARE NOT TO EXCEED ONE INCH IN THICKNESS. SHIMS SHALL BE PERPENDICULAR TO MATE LINE, FITTED AND DRIVEN TIGHT BETWEEN CAP BLOCKS OR FILLER AND MATE LINE RIM JOISTS.
5. MARRIAGE LINE PIERS SHALL SUPPORT THE MARRIAGE WALL AND COLUMNS WHERE OCCURS PER MODEL SPECIFIC FOUNDATION PLAN. MAXIMUM PIER SPACING PER TABLE "M".
6. SEE GENERAL NOTES FOR DRAINAGE AND OTHER FOUNDATION REQUIREMENTS.
7. THE PIERS SHALL BE LAID IN RUNNING BOND WITH TYPE M OR S MORTAR OR DRY STACKED ABOVE FIRST COARSE WITH SURFACE BONDING AGENT APPLIED THAT MEETS ASTM C887 WHEN ACCEPTABLE TO LOCAL AUTHORITY. BONDING AGENT MUST BE INTENDED FOR USE/APPLICATION AND SHALL BE INSTALLED PER MANUFACTURES SPECIFICATINS.

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NON-REINFORCED PERIMETER/ PORCH POST SUPPORT PIER - DETAIL - D15

DATE: 07/18/07

958I-14.R.J.E.22.22.117(_)

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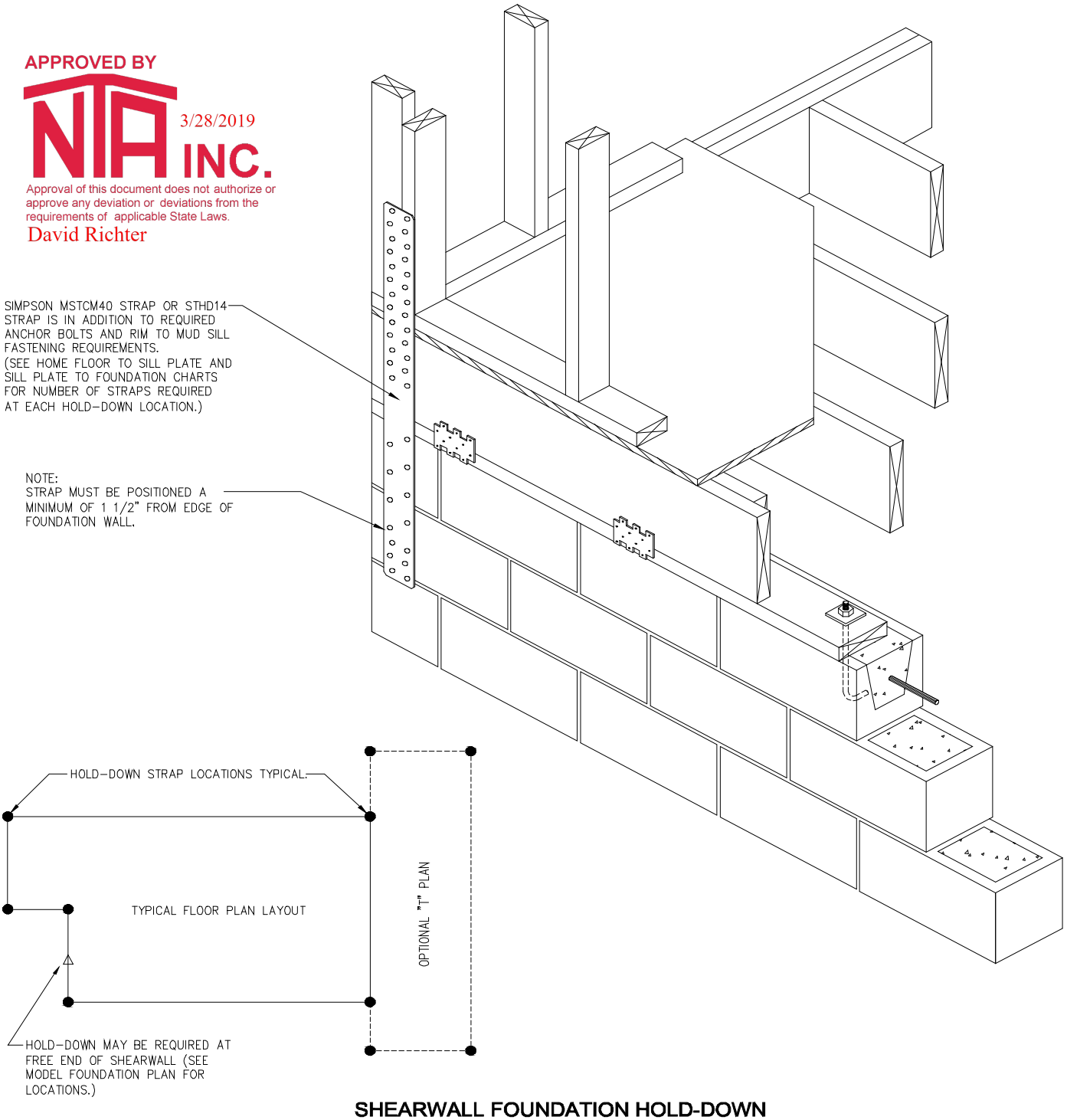

SHEARWALL FOUNDATION HOLD-DOWN

NOTES:

1. **WHERE REQUIRED AT FREE-END HOLD-DOWNS (AS LOCATED ON THE FOUNDATION LAYOUT) OR AT BUILDING CORNERS PER THE FASTENING TABLES INCLUDED WITHIN THIS FOUNDATION DESIGN PACKAGE, THE FOUNDATION HOLD-DOWN STRAPS ARE THE RESPONSIBILITY OF OTHERS AND ARE NOT PROVIDED BY CLAYTON HOME BUILDING GROUP OR SUBSIDIARIES.**
2. **SIMPSON MSTCM40 SHALL BE FASTENED TO WALL STUD WITH (26) 16d NAILS AND TO FOUNDATION WALL WITH (14) 1/4" x 2 1/4" TITAN SCREWS.**
3. **SIMPSON MSTCM40 OR STHD14 STRAP MAY BE PLACED ON ENDWALL OR SIDEWALL. MINIMUM EDGE DISTANCE OF TITAN SCREW TO CONCRETE OR MASONRY BLOCK CORNER OF 1 1/2" MUST BE MAINTAINED.**
4. **SIMPSON MSTCM40 STRAP IS IN ADDITION TO THE REQUIRED ANCHOR BOLTS AND RIM TO MUD SILL FASTENING REQUIREMENTS.**
5. **SIMPSON STHD14 STRAP (POURED WALLS) MUST BE FASTENED TO WALL STUD WITH (38) .148X 3 1/4" NAILS.)**
6. **DESIGN STRAP CAPACITY: MSTCM40=4250# AND STHD14= 5025#**

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SHEARWALL FOUNDATION HOLD-DOWN - DETAIL - D18

DATE: 06/13/07

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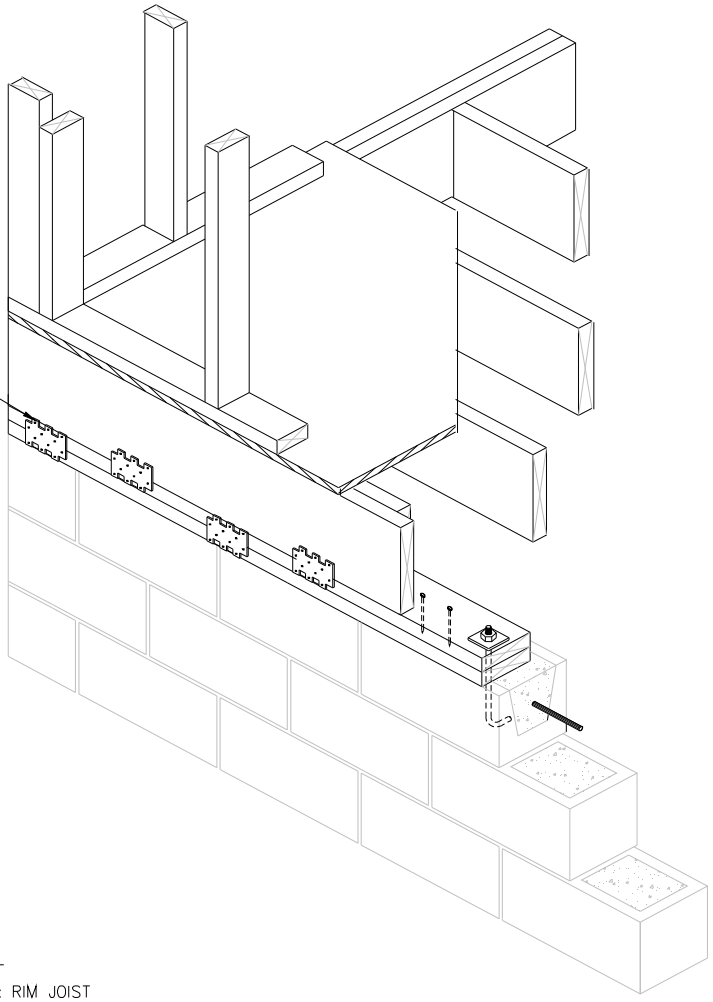
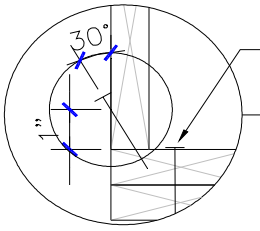
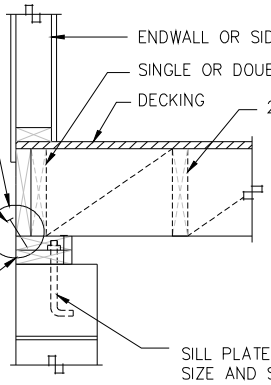


WHEN FASTENING TABLES WITH H PLATES ARE USED SIMPSON LTP4 SHALL BE INSTALLED PER DETAIL H. TO BOTH BOTTOM MUD SILL TO UPPER MUD SILL & TOP MUD SILL TO RIM JOIST. SPACING PER HOME FLOOR TO SILL PLATE & SILL WITH H PLATE TABLES.



FASTEN UPPER TOP PLATE TO BOTTOM PLATE WITH 8D (.131 x 3") NAILS SPACED PER TYPE E FASTENER TYPE SPACING FOR RIM TO SILL



ENDWALL OR SIDEWALL

SINGLE OR DOUBLE 2x RIM JOIST

DECKING

2x FLOOR JOISTS, 16" O.C.

FASTEN RIM JOIST TO SILL WITH 10D (.148 x 3") CORROSION RESISTANT NAILS. ON CENTER SPACING OF FASTENER TYPE "E" IN TABLES. NOTE: IF SPACING REQUIRES ADDITIONAL TYPE "H" PLATE CONNECTORS, SEE DETAIL ABOVE AND DETAIL (H)

SILL PLATE ANCHOR (TYPE "4") SIZE AND SPACING PER TABLES

MIN. 2x6 TREATED MUD SILLS TOP PLATE ONLY MAY BE NOTCHED OR COUNTER SUNK. TO RECEIVE NUTS/ WASHERS.

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DOUBLE MUD SILL OPTION

NOTES:

1. **MUD SILL TO FOUNDATION ANCHORS:**
   TYPE 4:1/2" DIAMETER STEEL ANCHOR BOLTS EMBEDDED 7" MIN. INTO CONCRETE FOUNDATION WALL OR CLOSE CELL CMU WITH 2"x2"x1/8" WASHERS AND NUTS. BOLT HEADS SHALL NOT BE RECESSED INTO BOTTOM MUD SILL PLATE.
2. **UPPER MUD SILL MUST BE FASTENED TO LOWER MUD SILL WITH .131"X3" NAILS SPACED PER RIM JOIST TO MUD SILL SPACING TABLE FOR TYPE E FASTENERS.**
4. **WHEN FASTENING TABLES WITH H PLATES ARE USED, SIMPSON LPT4 PLATES MUST BE INSTALLED FROM LOWER MUD SILL TO UPPER MUD SILL AND FROM UPPER MUD SILL TO RIM JOIST PER FASTENING SPACED PER RIM TO MUD SILL SPACING TABLES.**

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DOUBLE MUD SILL FOUNDATION WALL DETAIL - D34

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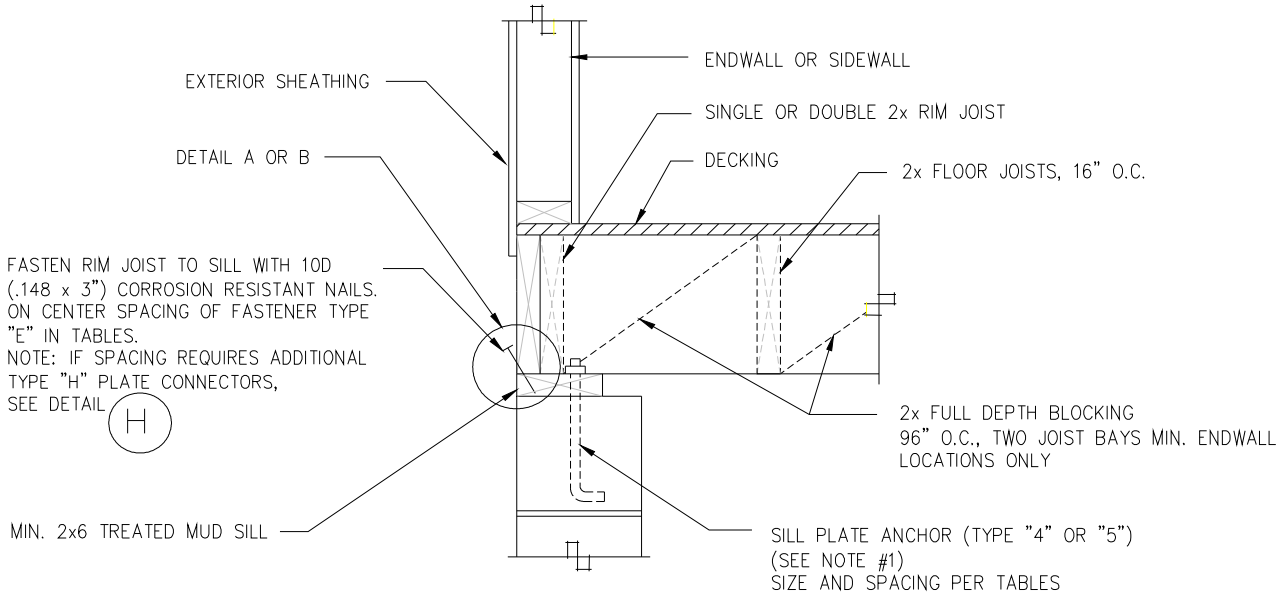

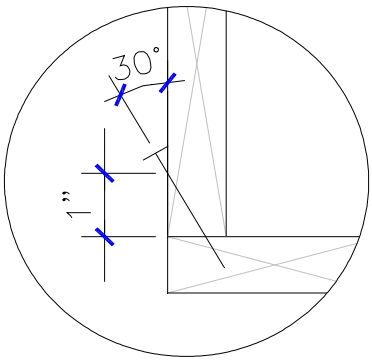

ALTERNATE FASTENER:

THE FOLLOWING ALTERNATE FASTENERS MAY BE USED WHEN SPACING IN CHART IS MULTIPLIED BY THE FOLLOWING FASTENER MULTIPLIER.

8D (.131 x 3") NAIL = .82
16D (.162 x 3 1/2") NAIL = 1.2
#8 x 3" WOOD SCREW = .78

DETAIL A- DIRECT RIM TO SILL FASTENING

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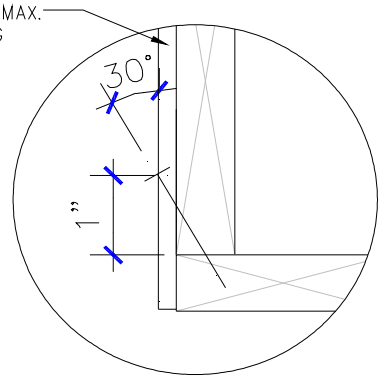
FASTENED THRU $\frac{7}{16}$" MAX. EXTERIOR SHEATHING



ALTERNATE FASTENER:

FASTENERS MAY BE INSTALLED THROUGH $\frac{7}{16}$" MAXIMUM THICK WALL SHEATHING WHEN SPACING IN CHARTS ARE REDUCED BY MULTIPLYING BY THE FOLLOW:

10d (.148"X3") NAIL = .68
8D (.131 x 3") NAIL = .55
16D (.162 x 3 1/2") NAIL = .816
#8 x 3" WOOD SCREW = .53

DETAIL B- THRU SHEATHING RIM TO SILL FASTENING

FLOOR TO SILL PLATE FASTENING -TYPE "E" -ENDWALL OR SIDEWALL

NOTES:

1) **MUD SILL TO FOUNDATION ANCHORS:**
   TYPE 4:DIAMETER STEEL ANCHOR BOLTS EMBEDDED 7" MIN. INTO CONCRETE FOUNDATION WALL OR CLOSE CELL CMU WITH WASHERS AND NUTS. BOLT HEADS SHALL NOT BE RECESSED INTO SINGLE SILL PLATE.
   TYPE 5: SIMPSON MAB OR MASA MUD SILL ANCHOR INSTALLED PER INSTALLATION INSTRUCTIONS
2) **RIM TO MUD SILL FASTENING AND SILL TO FOUNDATION ANCHOR SPACING SHALL BE THE** MINIMUM OF:
   a) **SPACING GIVEN IN APPLICABLE TABLES FOR UNIT CONFIGURATION AND WIND SPEED.**
   b) **SPACING GIVEN IN BACKFILL/ SIDEWALL TABLES FOR GIVEN UNIT CONFIGURATION, MAXIMUM BASEMENT WALL HEIGHT, BACKFILL DEPTH, AND LOCAL SOIL** CLASSIFICATION.

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FLOOR TO SILL PLATE FASTENING - ENDWALL OR SIDEWALL - DETAIL - E

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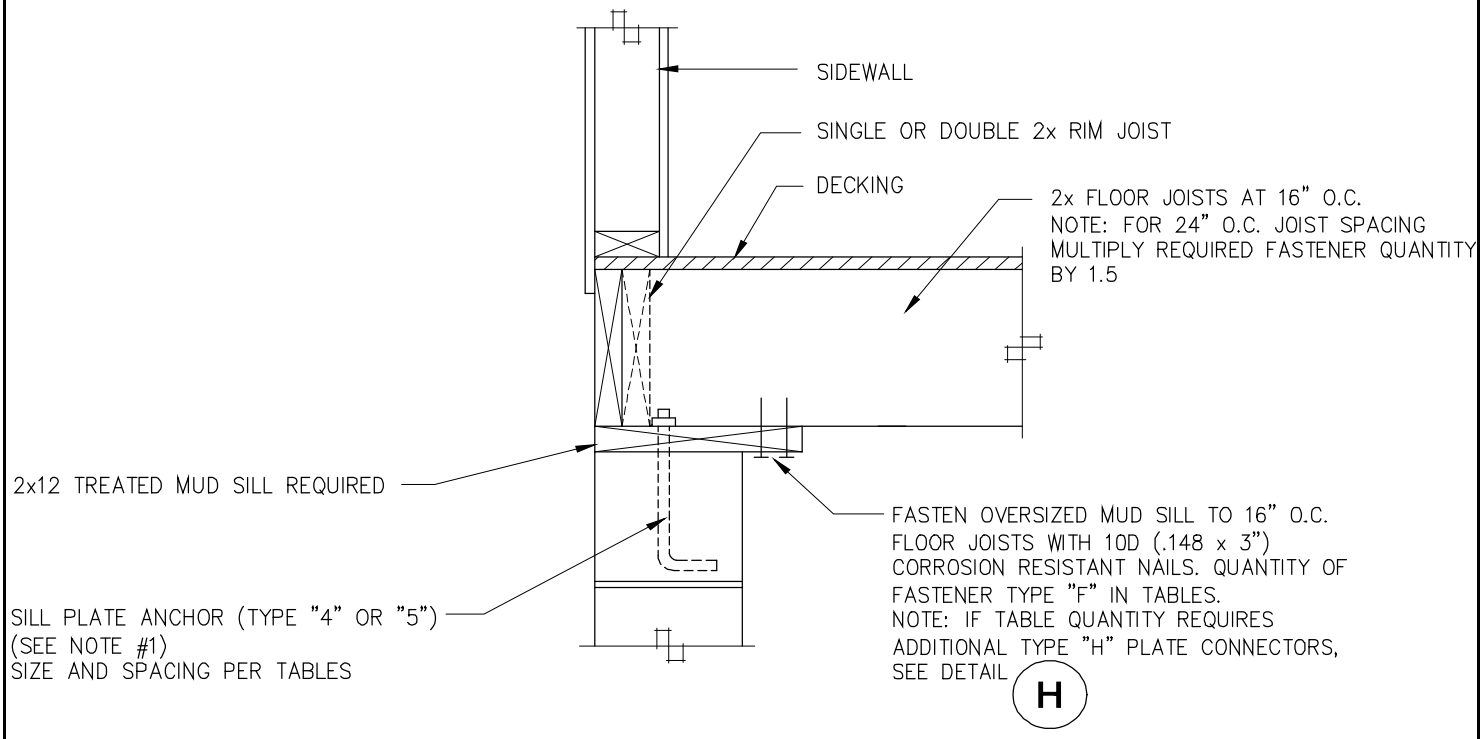

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ALTERNATE FASTENERS:
THE FOLLOWING ALTERNATE FASTENERS MAY BE USED WHEN QUANTITY IN TABLE IS MULTIPLIED BY THE FOLLOWING FASTENER MULTIPLIER.

8D (.131 x 3") NAIL = 1.21
16D (.162 x 3 1/2") NAIL = .83
#8 x 3" WOOD SCREW = 1.28

NOTE: THIS DETAIL FOR TYPE "F" FASTENING IS APPLICABLE TO SIDEWALL CONNECTIONS ONLY AND CAN NOT BE USED FOR ENDWALLS.
SEE FASTENING TYPE "E" OR TYPE "G" FOR ENDWALL APPLICATION.

FLOOR TO SILL PLATE FASTENING - TYPE "F" - SIDEWALL ONLY

NOTES:

1) **MUD SILL TO FOUNDATION ANCHORS:**
   TYPE 4:DIAMETER STEEL ANCHOR BOLTS EMBEDDED 7" MIN. INTO CONCRETE FOUNDATION WALL OR CLOSE CELL CMU WITH WASHERS AND NUTS. BOLT HEADS SHALL NOT BE RECESSED INTO SINGLE SILL PLATE.
   TYPE 5: SIMPSON MAB OR MASA MUD SILL ANCHOR INSTALLED PER INSTALLATION INSTRUCTIONS
2) **RIM TO MUD SILL FASTENING AND SILL TO FOUNDATION ANCHOR SPACING SHALL BE THE** MINIMUM OF:
   a) **SPACING GIVEN IN APPLICABLE TABLES FOR UNIT CONFIGURATION AND WIND SPEED.**
   b) **SPACING GIVEN IN BACKFILL/ SIDEWALL TABLES FOR GIVEN UNIT CONFIGURATION, MAXIMUM BASEMENT WALL HEIGHT, BACKFILL DEPTH, AND LOCAL SOIL** CLASSIFICATION.

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FLOOR TO SILL PLATE FASTENING - SIDEWALL ONLY
DETAIL - F

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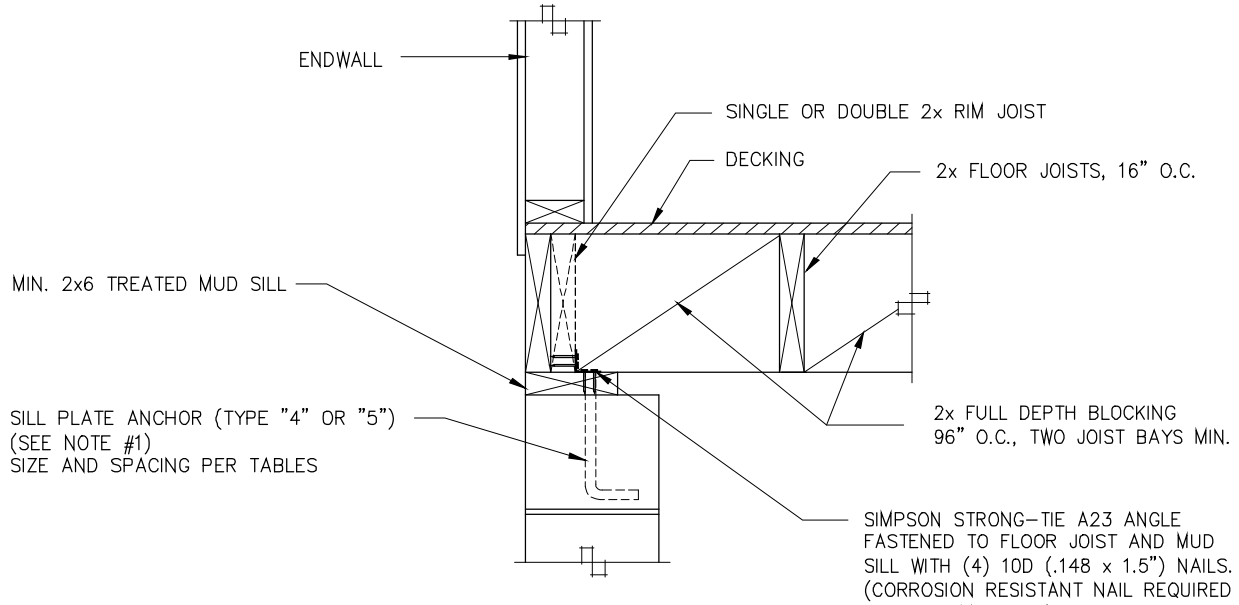
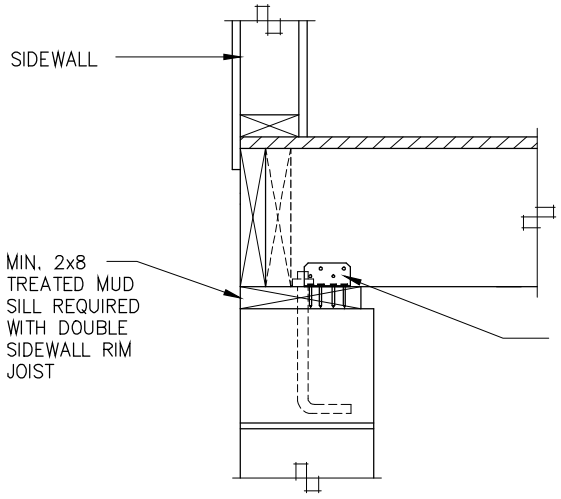


ENDWALL DETAIL



SIDEWALL DETAIL

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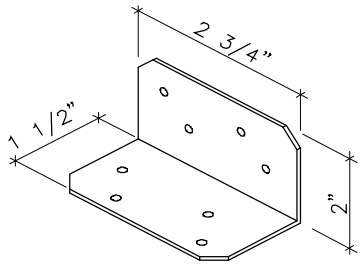
SIMPSON STRONG-TIE A23 ANGLE
FASTENED TO FLOOR JOIST AND MUD
SILL WITH (4) 10D (.148 x 1.5") NAILS.
(CORROSION RESISTANT NAIL REQUIRED
INTO P.T. MUD SILL)
USE (1) OR (2) ANGLES EA. JOIST PER
FASTENER TYPE "G" IN TABLES.
NOTE: IF SPACING REQUIRES ADDITIONAL
TYPE "H" PLATE CONNECTORS,
SEE DETAIL H



SIMPSON STRONG-TIE
'A23' ANGLE

FLOOR TO SILL PLATE FASTENING - TYPE "G" -ENDWALL OR SIDEWALL

NOTES:

1) **MUD SILL TO FOUNDATION ANCHORS:**
   TYPE 4:DIAMETER STEEL ANCHOR BOLTS EMBEDDED 7" MIN. INTO CONCRETE FOUNDATION WALL OR CLOSE CELL CMU WITH WASHERS AND NUTS. BOLT HEADS SHALL NOT BE RECESSED INTO SINGLE SILL PLATE.
   TYPE 5: SIMPSON MAB OR MASA MUD SILL ANCHOR INSTALLED PER INSTALLATION INSTRUCTIONS
2) **RIM TO MUD SILL FASTENING AND SILL TO FOUNDATION ANCHOR SPACING SHALL BE THE** MINIMUM OF:
   a) **SPACING GIVEN IN APPLICABLE TABLES FOR UNIT CONFIGURATION AND WIND SPEED.**
   b) **SPACING GIVEN IN BACKFILL/ SIDEWALL TABLES FOR GIVEN UNIT CONFIGURATION, MAXIMUM BASEMENT WALL HEIGHT, BACKFILL DEPTH, AND LOCAL SOIL** CLASSIFICATION.

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FLOOR TO SILL PLATE FASTENING - ENDWALL OR SIDEWALL - DETAIL - G

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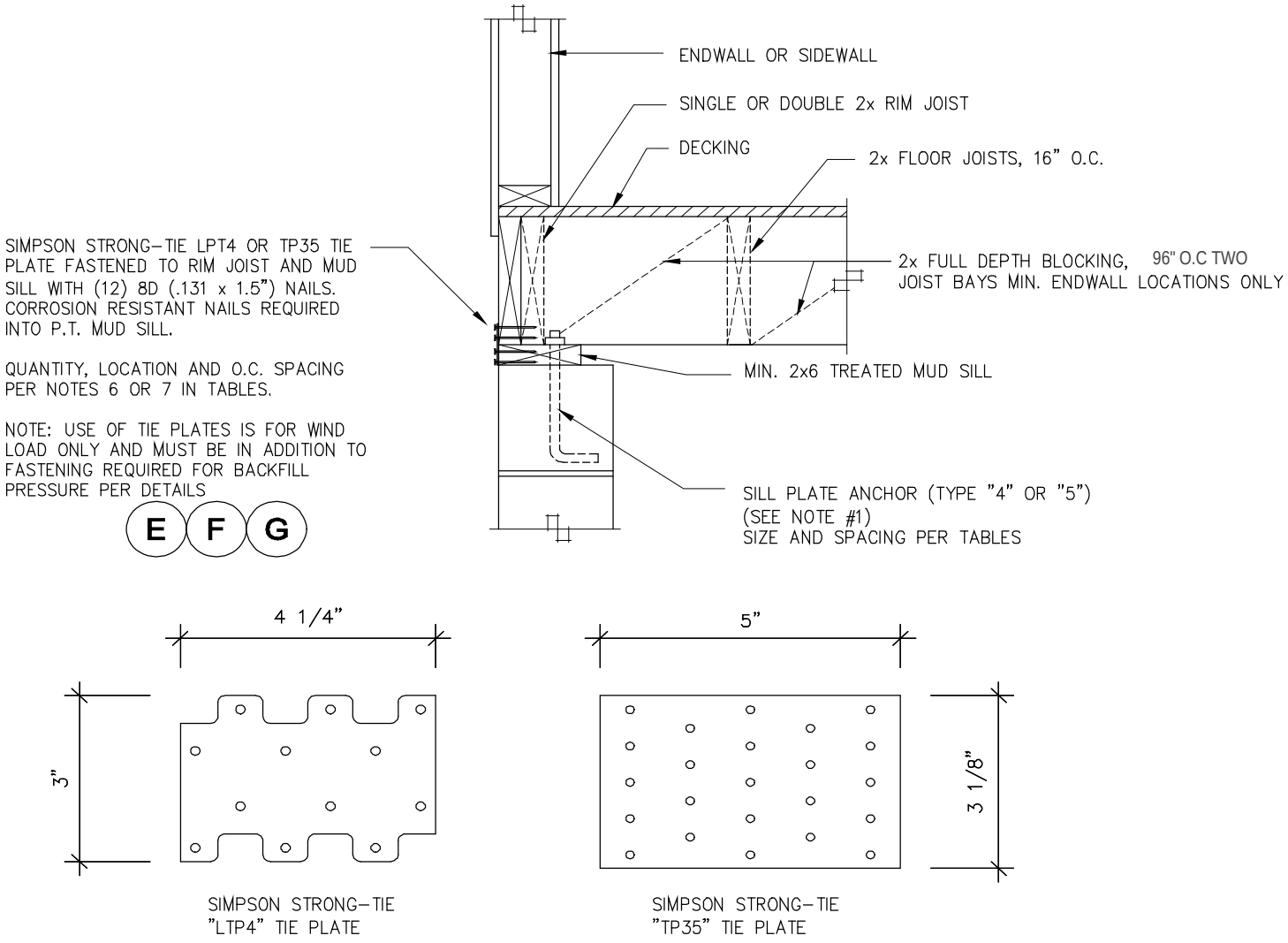

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FLOOR TO SILL PLATE FASTENING - TYPE "H" - ENDWALL OR SIDEWALL

NOTES:

1) **MUD SILL TO FOUNDATION ANCHORS:**
   TYPE 4:DIAMETER STEEL ANCHOR BOLTS EMBEDDED 7" MIN. INTO CONCRETE FOUNDATION WALL OR CLOSE CELL CMU WITH WASHERS AND NUTS. BOLT HEADS SHALL NOT BE RECESSED INTO SINGLE SILL PLATE.
   TYPE 5: SIMPSON MAB OR MASA MUD SILL ANCHOR INSTALLED PER INSTALLATION INSTRUCTIONS
2) **RIM TO MUD SILL FASTENING AND SILL TO FOUNDATION ANCHOR SPACING SHALL BE THE** MINIMUM OF:
   a) **SPACING GIVEN IN APPLICABLE TABLES FOR UNIT CONFIGURATION AND WIND SPEED.**
   b) **SPACING GIVEN IN BACKFILL/ SIDEWALL TABLES FOR GIVEN UNIT CONFIGURATION, MAXIMUM BASEMENT WALL HEIGHT, BACKFILL DEPTH, AND LOCAL SOIL** CLASSIFICATION.

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FLOOR TO SILL PLATE FASTENING - ENDWALL OR SIDEWALL - DETAIL - H

DATE: 04/17/07 | 958I-14.R.J.E.22.22.117(_)

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Home Floor to Sill Plate & Sill Plate to Foundation
WITH TYPE H PLATE CONNECTORS (See note 6 & 7)
SOIL CLASSES GW, GP, SW AND SP SOILS

Unit Width: 29.67' to 29.67' Max.
Unit Length: 76' Max.
Roof Pitch: 3/12 to 6/12
Max. Roof Overhang: 12 "
Max. Sidewall Height: 9 '
***Wind Speed (3s):** 100
Seismic Zone C

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		MAXIMUM FASTENER SPACING OR FASTENERS PER JOIST SPACING [2,3 & 5]									# REQ'D
		SIDEWALL FASTENING SPACING [1]					END WALL FASTENING				S/W HDS
Foundation Wall[10]		Rim to Sill[6]			Sill to Fnd. Wall		Rim to Sill[7]		Sill to Fnd. Wall		SEE
Wall Height	Backfill Depth	Fastener Type			Anchor Spacing		Fastener Type		Anchor Spacing		D18
		E	F [4]	G [4]	4	5	E	G	4	5	/CORNER
24 "	16 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	80" o.c.	269" o.c.	57" o.c.	30" o.c.	0
32 "	24 "	15.3" o.c.	1	1	72" o.c.	72" o.c.	32" o.c.	106" o.c.	56" o.c.	30" o.c.	0
40 "	32 "	15.3" o.c.	1	1	72" o.c.	72" o.c.	17" o.c.	56" o.c.	54" o.c.	30" o.c.	0
3.833 '	3.33 '	9.9" o.c.	1	1	72" o.c.	72" o.c.	10" o.c.	33" o.c.	50" o.c.	29" o.c.	0
7 '	4 '	10.4" o.c.	1	1	72" o.c.	72" o.c.	10" o.c.	35" o.c.	51" o.c.	29" o.c.	0
7 '	5 '	5.3" o.c.	2	1	46" o.c.	51" o.c.	5" o.c.	18" o.c.	40" o.c.	26" o.c.	0
7 '	6 '	3.1" o.c.	3	1	26" o.c.	29" o.c.	3" o.c.	10" o.c.	26" o.c.	21" o.c.	0
8 '	4 '	11.9" o.c.	1	1	72" o.c.	72" o.c.	12" o.c.	40" o.c.	52" o.c.	29" o.c.	0
8 '	5 '	6.1" o.c.	2	1	52" o.c.	58" o.c.	6" o.c.	20" o.c.	43" o.c.	27" o.c.	0
8 '	6 '	3.5" o.c.	3	1	30" o.c.	33" o.c.	4" o.c.	12" o.c.	30" o.c.	23" o.c.	0
8 '	7 '	NA	5	1	19" o.c.	21" o.c.	NA	7" o.c.	19" o.c.	17" o.c.	0
9 '	3 '	15.3" o.c.	1	1	72" o.c.	72" o.c.	32" o.c.	106" o.c.	56" o.c.	30" o.c.	0
9 '	4 '	13.4" o.c.	1	1	72" o.c.	72" o.c.	13" o.c.	45" o.c.	53" o.c.	29" o.c.	0
9 '	5 '	6.8" o.c.	2	1	59" o.c.	65" o.c.	7" o.c.	23" o.c.	45" o.c.	27" o.c.	0
9 '	6 '	4.0" o.c.	3	1	34" o.c.	38" o.c.	4" o.c.	13" o.c.	33" o.c.	24" o.c.	0
9 '	7 '	NA	4	1	21" o.c.	24" o.c.	NA	8" o.c.	21" o.c.	19" o.c.	0
9 '	8 '	NA	6	2	14" o.c.	16" o.c.	NA	6" o.c.	14" o.c.	14" o.c.	0

NOTES:

1. Fastener Types A,B,C & D are not reflected in charts and are available prescriptively per table R404.1(1) in 2006 IRC.

2. See details for additional fastener options.

3. All fastener spacing must start within 12" maximum of each corner or half specified spacing (lesser of two).

4. Type F & G connectors are qty. per 16" oc. Joist spacing.

5. Fastener Type Key:

"Type E"- Fasteners toe-nailed through rim joist into sill plate (Refer to Detail E)

"Type F"- Fasteners direct nailed from sill plate into each floor joist (Applicable at Sidewalls only) (Refer to Detail F)

"Type G"- Number of Simpson A23 angles fastened to sill plate and each 16" OC. (2x8 min. sill plate) (Refer to Detail G)

"Type H"- Simpson LPT4 or TP35 plate fastened to rim joist and mud sill with (12) 8dx1.5" treated nails. (Refer to Detail H)

Anchor Types:

"Type 4"- 1/2" x10" Anchor Bolt with 2"x2"x1/8" Washer between plate and nut.

"Type 5"- Simpson MAB15 (concrete) or MAB23 (concrete block) or MASA

6. Fasteners are in addition to (2) Type H tie plates spaced within 6' of corners & 96" oc. elsewhere along sidewalls.(See note 3)

7. Fasteners are in addition to Type H tie plates spaced at 33" oc. along endwall.

8. Three options (E,F,& G) for rim to sill fastening and two options (4 & 5) for sill plate to foundation anchorage have been provided in chart. Any combination of rim sill connectors and mud sill anchors maybe used.

9. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be galvanized or stainless when in contact with PT sill plates or other PT lumber.

10. Maximum foundation wall height and maximum unbalanced backfill.

Home Floor to Sill Plate & Sill Plate to Foundation
WITH TYPE H PLATE CONNECTORS (See note 6 & 7)
SOIL CLASSES GM, GC, SM, SM-SC AND ML SOILS

Unit Width: 29.67' to 29.67' Max.
Unit Length: 76' Max.
Roof Pitch: 3/12 to 6/12
Max. Roof Overhang: 12 "
Max. Sidewall Height: 9 '
***Wind Speed (3s):** 100
Seismic Zone C

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		MAXIMUM FASTENER SPACING OR FASTENERS PER JOIST SPACING [2,3 & 5]									# REQ'D
		SIDEWALL FASTENING SPACING [1]					END WALL FASTENING				S/W HDS
Foundation Wall[10]		Rim to Sill[6]			Sill to Fnd. Wall		Rim to Sill[7]		Sill to Fnd. Wall		SEE
Wall	Backfill	Fastener Type			Anchor Spacing		Fastener Type		Anchor Spacing		D18
Height	Depth	E	F [4]	G [4]	4	5	E	G	4	5	/CORNER
24 "	16 "	15.3" o.c.	1	1	72" o.c.	72" o.c.	53" o.c.	656" o.c.	56" o.c.	30" o.c.	0
32 "	24 "	15.3" o.c.	1	1	72" o.c.	72" o.c.	21" o.c.	259" o.c.	55" o.c.	30" o.c.	0
40 "	32 "	11.1" o.c.	1	1	72" o.c.	72" o.c.	11" o.c.	137" o.c.	51" o.c.	29" o.c.	0
3.833 '	3.33 '	6.6" o.c.	2	1	56" o.c.	62" o.c.	7" o.c.	81" o.c.	44" o.c.	27" o.c.	0
7 '	4 '	6.9" o.c.	2	1	60" o.c.	66" o.c.	7" o.c.	85" o.c.	45" o.c.	27" o.c.	0
7 '	5 '	3.5" o.c.	3	1	30" o.c.	34" o.c.	4" o.c.	44" o.c.	30" o.c.	23" o.c.	0
7 '	6 '	NA	5	1	18" o.c.	19" o.c.	NA	25" o.c.	18" o.c.	16" o.c.	0
8 '	4 '	7.9" o.c.	2	1	68" o.c.	72" o.c.	8" o.c.	97" o.c.	47" o.c.	28" o.c.	0
8 '	5 '	4.1" o.c.	3	1	35" o.c.	38" o.c.	4" o.c.	50" o.c.	34" o.c.	24" o.c.	0
8 '	6 '	NA	4	1	20" o.c.	22" o.c.	NA	29" o.c.	20" o.c.	18" o.c.	0
8 '	7 '	NA	7	2	13" o.c.	14" o.c.	NA	18" o.c.	13" o.c.	13" o.c.	0
9 '	3 '	15.3" o.c.	1	1	72" o.c.	72" o.c.	21" o.c.	259" o.c.	55" o.c.	30" o.c.	0
9 '	4 '	8.9" o.c.	2	1	72" o.c.	72" o.c.	9" o.c.	109" o.c.	49" o.c.	28" o.c.	0
9 '	5 '	4.6" o.c.	2	1	39" o.c.	43" o.c.	5" o.c.	56" o.c.	36" o.c.	25" o.c.	0
9 '	6 '	NA	4	1	23" o.c.	25" o.c.	NA	32" o.c.	23" o.c.	19" o.c.	0
9 '	7 '	NA	6	2	14" o.c.	16" o.c.	NA	20" o.c.	14" o.c.	14" o.c.	0
9 '	8 '	NA	9	0	10" o.c.	11" o.c.	NA	14" o.c.	10" o.c.	10" o.c.	0

NOTES:

1. Fastener Types A,B,C & D are not reflected in charts and are available prescriptively per table R404.1(1) in 2006 IRC.

2. See details for additional fastener options.

3. All fastener spacing must start within 12" maximum of each corner or half specified spacing (lesser of two).

4. Type F & G connectors are qty. per 16" oc. Joist spacing.

5. Fastener Type Key:

"Type E"- Fasteners toe-nailed through rim joist into sill plate (Refer to Detail E)

"Type F"- Fasteners direct nailed from sill plate into each floor joist (Applicable at Sidewalls only) (Refer to Detail F)

"Type G"- Number of Simpson A23 angles fastened to sill plate and each 16" OC. (2x8 min. sill plate) (Refer to Detail G)

"Type H"- Simpson LPT4 or TP35 plate fastened to rim joist and mud sill with (12) 8dx1.5" treated nails. (Refer to Detail H)

Anchor Types:

"Type 4"- 1/2" x10" Anchor Bolt with 2"x2"x1/8" Washer between plate and nut.

"Type 5"- Simpson MAB15 (concrete) or MAB23 (concrete block) or MASA

6. Fasteners are in addition to (2) Type H tie plates spaced within 6' of corners & 96" oc. elsewhere along sidewalls.(See note 3)

7. Fasteners are in addition to Type H tie plates spaced at 33" oc. along endwall.

8. Three options (E,F,& G) for rim to sill fastening and two options (4 & 5) for sill plate to foundation anchorage have been provided in chart. Any combination of rim sill connectors and mud sill anchors maybe used.

9. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be galvanized or stainless when in contact with PT sill plates or other PT lumber.

10. Maximum foundation wall height and maximum unbalanced backfill.

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Home Floor to Sill Plate & Sill Plate to Foundation
WITH TYPE H PLATE CONNECTORS (See note 6 & 7)
SOIL CLASSES SC, ML-CL AND INORGANIC CL SOILS

Unit Width: 29.67' to 29.67' Max.
Unit Length: 76' Max.
Roof Pitch: 3/12 to 6/12
Max. Roof Overhang: 12 "
Max. Sidewall Height: 9 '
***Wind Speed (3s):** 100
Seismic Zone C

APPROVED BY
NTA INC. 3/28/2019
Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.
David Richter

		MAXIMUM FASTENER SPACING OR FASTENERS PER JOIST SPACING [2,3 & 5]									# REQ'D
		SIDEWALL FASTENING SPACING [1]					END WALL FASTENING				S/W HDS
Foundation Wall[10]		Rim to Sill[6]			Sill to Fnd. Wall		Rim to Sill[7]		Sill to Fnd. Wall		SEE
Wall Height	Backfill Depth	Fastener Type			Anchor Spacing		Fastener Type		Anchor Spacing		D18
		E	F [4]	G [4]	4	5	E	G	4	5	/CORNER
24 "	16 "	15.3" o.c.	1	1	72" o.c.	72" o.c.	40" o.c.	492" o.c.	56" o.c.	30" o.c.	0
32 "	24 "	15.3" o.c.	1	1	72" o.c.	72" o.c.	16" o.c.	194" o.c.	54" o.c.	29" o.c.	0
40 "	32 "	8.4" o.c.	2	1	72" o.c.	72" o.c.	8" o.c.	102" o.c.	48" o.c.	28" o.c.	0
3.833 '	3.33 '	4.9" o.c.	2	1	42" o.c.	47" o.c.	5" o.c.	61" o.c.	38" o.c.	25" o.c.	0
7 '	4 '	5.2" o.c.	2	1	45" o.c.	49" o.c.	5" o.c.	64" o.c.	39" o.c.	26" o.c.	0
7 '	5 '	NA	4	1	23" o.c.	25" o.c.	NA	33" o.c.	23" o.c.	20" o.c.	0
7 '	6 '	NA	6	2	13" o.c.	15" o.c.	NA	19" o.c.	13" o.c.	13" o.c.	0
8 '	4 '	5.9" o.c.	2	1	51" o.c.	56" o.c.	6" o.c.	73" o.c.	42" o.c.	27" o.c.	0
8 '	5 '	3.0" o.c.	3	1	26" o.c.	29" o.c.	3" o.c.	37" o.c.	26" o.c.	21" o.c.	0
8 '	6 '	NA	6	2	15" o.c.	17" o.c.	NA	22" o.c.	15" o.c.	15" o.c.	0
8 '	7 '	NA	9	2	10" o.c.	11" o.c.	NA	14" o.c.	10" o.c.	10" o.c.	0
9 '	3 '	15.3" o.c.	1	1	72" o.c.	72" o.c.	16" o.c.	194" o.c.	54" o.c.	29" o.c.	0
9 '	4 '	6.7" o.c.	2	1	57" o.c.	63" o.c.	7" o.c.	82" o.c.	44" o.c.	27" o.c.	0
9 '	5 '	3.4" o.c.	3	1	29" o.c.	32" o.c.	3" o.c.	42" o.c.	29" o.c.	22" o.c.	0
9 '	6 '	NA	5	2	17" o.c.	19" o.c.	NA	24" o.c.	17" o.c.	16" o.c.	0
9 '	7 '	NA	8	2	11" o.c.	12" o.c.	NA	15" o.c.	11" o.c.	11" o.c.	0
9 '	8 '	NA	11	NA	7" o.c.	8" o.c.	NA	10" o.c.	7" o.c.	8" o.c.	0

NOTES:

1. Fastener Types A,B,C & D are not reflected in charts and are available prescriptively per table R404.1(1) in 2006 IRC.

2. See details for additional fastener options.

3. All fastener spacing must start within 12" maximum of each corner or half specified spacing (lesser of two).

4. Type F & G connectors are qty. per 16" oc. Joist spacing.

5. Fastener Type Key:

"Type E"- Fasteners toe-nailed through rim joist into sill plate (Refer to Detail E)

"Type F"- Fasteners direct nailed from sill plate into each floor joist (Applicable at Sidewalls only) (Refer to Detail F)

"Type G"- Number of Simpson A23 angles fastened to sill plate and each 16" OC. (2x8 min. sill plate) (Refer to Detail G)

"Type H"- Simpson LPT4 or TP35 plate fastened to rim joist and mud sill with (12) 8dx1.5" treated nails. (Refer to Detail H)

Anchor Types:

"Type 4"- 1/2" x10" Anchor Bolt with 2"x2"x1/8" Washer between plate and nut.

"Type 5"- Simpson MAB15 (concrete) or MAB23 (concrete block) or MASA

6. Fasteners are in addition to (2) Type H tie plates spaced within 6' of corners & 96" oc. elsewhere along sidewalls.(See note 3)

7. Fasteners are in addition to Type H tie plates spaced at 33" oc. along endwall.

8. Three options (E,F,& G) for rim to sill fastening and two options (4 & 5) for sill plate to foundation anchorage have been provided in chart. Any combination of rim sill connectors and mud sill anchors maybe used.

9. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be galvanized or stainless when in contact with PT sill plates or other PT lumber.

10. Maximum foundation wall height and maximum unbalanced backfill.

Home Floor to Sill Plate & Sill Plate to Foundation
WITHOUT TYPE H PLATE CONNECTORS (See note 6 & 7)
SOIL CLASSES GW, GP, SW AND SP SOILS

Unit Width: 29.67' to 29.67' Max.
Unit Length: 76' Max.
Roof Pitch: 3/12 to 6/12
Max. Roof Overhang: 12 "
Max. Sidewall Height: 9 '
***Wind Speed (3s):** 100
Seismic Zone C

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NTA INC. 3/28/2019
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David Richter

		MAXIMUM FASTENER SPACING OR FASTENERS PER JOIST SPACING [2,3 & 5]									# REQ'D
		SIDEWALL FASTENING SPACING [1]					END WALL FASTENING				S/W HDS
Foundation Wall[10]		Rim to Sill[6]			Sill to Fnd. Wall		Rim to Sill[7]		Sill to Fnd. Wall		SEE
Wall Height	Backfill Depth	Fastener Type			Anchor Spacing		Fastener Type		Anchor Spacing		D18
		E	F [4]	G [4]	4	5	E	G	4	5	/CORNER
24 "	16 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	30" o.c.	57" o.c.	30" o.c.	1
32 "	24 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	30" o.c.	56" o.c.	30" o.c.	1
40 "	32 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	28" o.c.	54" o.c.	30" o.c.	1
3.833 '	3.33 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	25" o.c.	50" o.c.	29" o.c.	1
7 '	4 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	26" o.c.	51" o.c.	29" o.c.	1
7 '	5 '	5.3" o.c.	2	1	46" o.c.	51" o.c.	5" o.c.	19" o.c.	40" o.c.	26" o.c.	1
7 '	6 '	3.1" o.c.	3	1	26" o.c.	29" o.c.	3" o.c.	12" o.c.	26" o.c.	21" o.c.	1
8 '	4 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	27" o.c.	52" o.c.	29" o.c.	1
8 '	5 '	6.1" o.c.	2	1	52" o.c.	58" o.c.	6" o.c.	21" o.c.	43" o.c.	27" o.c.	1
8 '	6 '	3.5" o.c.	3	1	30" o.c.	33" o.c.	4" o.c.	13" o.c.	30" o.c.	23" o.c.	1
8 '	7 '	NA	5	1	19" o.c.	21" o.c.	NA	8" o.c.	19" o.c.	17" o.c.	0
9 '	3 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	30" o.c.	56" o.c.	30" o.c.	1
9 '	4 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	27" o.c.	53" o.c.	29" o.c.	1
9 '	5 '	6.8" o.c.	2	1	59" o.c.	65" o.c.	6" o.c.	22" o.c.	45" o.c.	27" o.c.	1
9 '	6 '	4.0" o.c.	3	1	34" o.c.	38" o.c.	4" o.c.	15" o.c.	33" o.c.	24" o.c.	1
9 '	7 '	NA	4	1	21" o.c.	24" o.c.	NA	9" o.c.	21" o.c.	19" o.c.	0
9 '	8 '	NA	6	2	14" o.c.	16" o.c.	NA	6" o.c.	14" o.c.	14" o.c.	0

NOTES:

1. RESERVED

2. See details for additional fastener options.

3. All fastener spacing must start within 12" maximum of each corner or half specified spacing (lesser of two).

4. Type F & G connectors are qty. per 16" oc. Joist spacing.

5. Fastener Type Key:

" Type E"- Fasteners toe-nailed through rim joist into sill plate (Refer to Detail E)

"Type F"- Fasteners direct nailed from sill plate into each floor joist (Applicable at Sidewalls only) (Refer to Detail F)

"Type G"- Number of Simpson A23 angles fastened to sill plate and each 16" OC. (2x8 min. sill plate) (Refer to Detail G)

"Type H"- Simpson LPT4 or TP35 plate fastened to rim joist and mud sill with (12) 8dx1.5" treated nails. (Refer to Detail H)

Anchor Types:

"Type 4"- 1/2" x10" Anchor Bolt with 2"x2"x1/8" Washer between plate and nut.

"Type 5"- Simpson MAB15 (concrete) or MAB23 (concrete block) or MASA

6. Fasteners reflected in chart do NOT require "H type" connector plates to be installed along sidewall.

7. Fasteners reflected in chart do NOT require "H type" connector plates to be installed along endwall.

8. Three options (E,F,& G) for rim to sill fastening and two options (4 & 5) for sill plate to foundation anchorage have been provided in chart. Any combination of rim sill connectors and mud sill anchors maybe used.

9. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be galvanized or stainless when in contact with PT sill plates or other PT lumber.

10. Maximum foundation wall height and maximum unbalanced backfill.

Home Floor to Sill Plate & Sill Plate to Foundation
WITHOUT TYPE H PLATE CONNECTORS (See note 6 & 7)
SOIL CLASSES GM, GC, SM, SM-SC AND ML SOILS

Unit Width: 29.67' to 29.67' Max.
Unit Length: 76' Max.
Roof Pitch: 3/12 to 6/12
Max. Roof Overhang: 12 "
Max. Sidewall Height: 9 '
***Wind Speed (3s):** 100
Seismic Zone C

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David Richter

		MAXIMUM FASTENER SPACING OR FASTENERS PER JOIST SPACING [2,3 & 5]									# REQ'D
		SIDEWALL FASTENING SPACING [1]					END WALL FASTENING				S/W HDS
Foundation Wall[10]		Rim to Sill[6]			Sill to Fnd. Wall		Rim to Sill[7]		Sill to Fnd. Wall		SEE
Wall Height	Backfill Depth	Fastener Type			Anchor Spacing		Fastener Type		Anchor Spacing		D18
		E[9]	F[4]	G[4]	4	5	E	G	4	5	/CORNER
24 "	16 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	30" o.c.	56" o.c.	30" o.c.	1
32 "	24 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	29" o.c.	55" o.c.	30" o.c.	1
40 "	32 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	26" o.c.	51" o.c.	29" o.c.	1
3.833 '	3.33 '	6.6" o.c.	2	1	56" o.c.	62" o.c.	6" o.c.	21" o.c.	44" o.c.	27" o.c.	1
7 '	4 '	6.9" o.c.	2	1	60" o.c.	66" o.c.	6" o.c.	22" o.c.	45" o.c.	27" o.c.	1
7 '	5 '	3.5" o.c.	3	1	30" o.c.	34" o.c.	4" o.c.	13" o.c.	30" o.c.	23" o.c.	1
7 '	6 '	NA	5	1	18" o.c.	19" o.c.	NA	8" o.c.	18" o.c.	16" o.c.	0
8 '	4 '	7.9" o.c.	2	1	68" o.c.	72" o.c.	6" o.c.	23" o.c.	47" o.c.	28" o.c.	1
8 '	5 '	4.1" o.c.	3	1	35" o.c.	38" o.c.	4" o.c.	15" o.c.	34" o.c.	24" o.c.	1
8 '	6 '	NA	4	1	20" o.c.	22" o.c.	NA	9" o.c.	20" o.c.	18" o.c.	0
8 '	7 '	NA	7	2	13" o.c.	14" o.c.	NA	5" o.c.	13" o.c.	13" o.c.	0
9 '	3 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	29" o.c.	55" o.c.	30" o.c.	1
9 '	4 '	8.9" o.c.	2	1	72" o.c.	72" o.c.	7" o.c.	25" o.c.	49" o.c.	28" o.c.	1
9 '	5 '	4.6" o.c.	2	1	39" o.c.	43" o.c.	5" o.c.	17" o.c.	36" o.c.	25" o.c.	1
9 '	6 '	NA	4	1	23" o.c.	25" o.c.	NA	10" o.c.	23" o.c.	19" o.c.	0
9 '	7 '	NA	6	2	14" o.c.	16" o.c.	NA	6" o.c.	14" o.c.	14" o.c.	0
9 '	8 '	NA	9	2	10" o.c.	11" o.c.	NA	4" o.c.	10" o.c.	10" o.c.	0

NOTES:

1. RESERVED

2. See details for additional fastener options.

3. All fastener spacing must start within 12" maximum of each corner or half specified spacing (lesser of two).

4. Type F & G connectors are qty. per 16" oc. Joist spacing.

5. Fastener Type Key:

" Type E"- Fasteners toe-nailed through rim joist into sill plate (Refer to Detail E)

"Type F"- Fasteners direct nailed from sill plate into each floor joist (Applicable at Sidewalls only) (Refer to Detail F)

"Type G"- Number of Simpson A23 angles fastened to sill plate and each 16" OC. (2x8 min. sill plate) (Refer to Detail G)

"Type H"- Simpson LPT4 or TP35 plate fastened to rim joist and mud sill with (12) 8dx1.5" treated nails. (Refer to Detail H)

Anchor Types:

"Type 4"- 1/2" x10" Anchor Bolt with 2"x2"x1/8" Washer between plate and nut.

"Type 5"- Simpson MAB15 (concrete) or MAB23 (concrete block) or MASA

6. Fasteners reflected in chart do NOT require "H type" connector plates to be installed along sidewall.

7. Fasteners reflected in chart do NOT require "H type" connector plates to be installed along endwall.

8. Three options (E,F,& G) for rim to sill fastening and two options (4 & 5) for sill plate to foundation anchorage have been provided in chart. Any combination of rim sill connectors and mud sill anchors maybe used.

9. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be galvanized or stainless when in contact with PT sill plates or other PT lumber.

10. Maximum foundation wall height and maximum unbalanced backfill.

Home Floor to Sill Plate & Sill Plate to Foundation
WITHOUT TYPE H PLATE CONNECTORS (See note 6 & 7)
SOIL CLASSES SC, MH, ML-CL AND INORGANIC CL SOILS

Unit Width: 29.67' to 29.67' Max.
Unit Length: 76' Max.
Roof Pitch: 3/12 to 6/12
Max. Roof Overhang: 12 "
Max. Sidewall Height: 9 '
***Wind Speed (3s):** 100
Seismic Zone C

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NTA INC. 3/28/2019
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David Richter

		MAXIMUM FASTENER SPACING OR FASTENERS PER JOIST SPACING [2,3 & 5]									# REQ'D
		SIDEWALL FASTENING SPACING [1]					END WALL FASTENING				S/W HDS
Foundation Wall[10]		Rim to Sill[6]			Sill to Fnd. Wall		Rim to Sill[7]		Sill to Fnd. Wall		SEE
Wall Height	Backfill Depth	Fastener Type			Anchor Spacing		Fastener Type		Anchor Spacing		D18
		E[9]	F[4]	G[4]	4	5	E	G	4	5	/CORNER
24 "	16 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	8" o.c.	30" o.c.	56" o.c.	30" o.c.	1
32 "	24 "	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	28" o.c.	54" o.c.	29" o.c.	1
40 "	32 "	8.4" o.c.	2	1	72" o.c.	72" o.c.	7" o.c.	24" o.c.	48" o.c.	28" o.c.	1
3.833 '	3.33 '	4.9" o.c.	2	1	42" o.c.	47" o.c.	5" o.c.	18" o.c.	38" o.c.	25" o.c.	1
7 '	4 '	5.2" o.c.	2	1	45" o.c.	49" o.c.	5" o.c.	19" o.c.	39" o.c.	26" o.c.	1
7 '	5 '	NA	4	1	23" o.c.	25" o.c.	NA	10" o.c.	23" o.c.	20" o.c.	0
7 '	6 '	NA	6	2	13" o.c.	15" o.c.	NA	6" o.c.	13" o.c.	13" o.c.	0
8 '	4 '	5.9" o.c.	2	1	51" o.c.	56" o.c.	6" o.c.	20" o.c.	42" o.c.	27" o.c.	1
8 '	5 '	3.0" o.c.	3	1	26" o.c.	29" o.c.	3" o.c.	12" o.c.	26" o.c.	21" o.c.	1
8 '	6 '	NA	6	2	15" o.c.	17" o.c.	NA	6" o.c.	15" o.c.	15" o.c.	0
8 '	7 '	NA	9	2	10" o.c.	11" o.c.	NA	4" o.c.	10" o.c.	10" o.c.	0
9 '	3 '	9.6" o.c.	1	1	72" o.c.	72" o.c.	7" o.c.	28" o.c.	54" o.c.	29" o.c.	1
9 '	4 '	6.7" o.c.	2	1	57" o.c.	63" o.c.	6" o.c.	22" o.c.	44" o.c.	27" o.c.	1
9 '	5 '	3.4" o.c.	3	1	29" o.c.	32" o.c.	4" o.c.	13" o.c.	29" o.c.	22" o.c.	1
9 '	6 '	NA	5	2	17" o.c.	19" o.c.	NA	7" o.c.	17" o.c.	16" o.c.	0
9 '	7 '	NA	8	2	11" o.c.	12" o.c.	NA	4" o.c.	11" o.c.	11" o.c.	0
9 '	8 '	NA	11	NA	7" o.c.	8" o.c.	NA	3" o.c.	7" o.c.	8" o.c.	0

NOTES:

1. RESERVED

2. See details for additional fastener options.

3. All fastener spacing must start within 12" maximum of each corner or half specified spacing (lesser of two).

4. Type F & G connectors are qty. per 16" oc. Joist spacing.

5. Fastener Type Key:

" Type E"- Fasteners toe-nailed through rim joist into sill plate (Refer to Detail E)

"Type F"- Fasteners direct nailed from sill plate into each floor joist (Applicable at Sidewalls only) (Refer to Detail F)

"Type G"- Number of Simpson A23 angles fastened to sill plate and each 16" OC. (2x8 min. sill plate) (Refer to Detail G)

"Type H"- Simpson LPT4 or TP35 plate fastened to rim joist and mud sill with (12) 8dx1.5" treated nails. (Refer to Detail H)

Anchor Types:

"Type 4"- 1/2" x10" Anchor Bolt with 2"x2"x1/8" Washer between plate and nut.

"Type 5"- Simpson MAB15 (concrete) or MAB23 (concrete block) or MASA

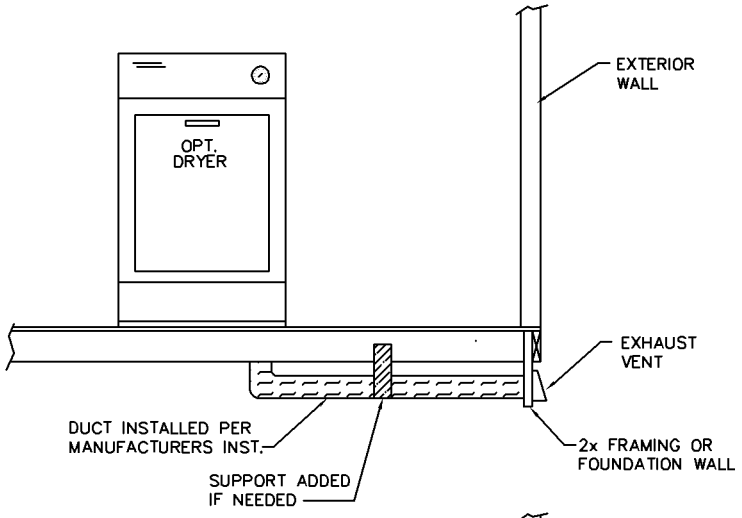
6. Fasteners reflected in chart do NOT require "H type" connector plates to be installed along sidewall.

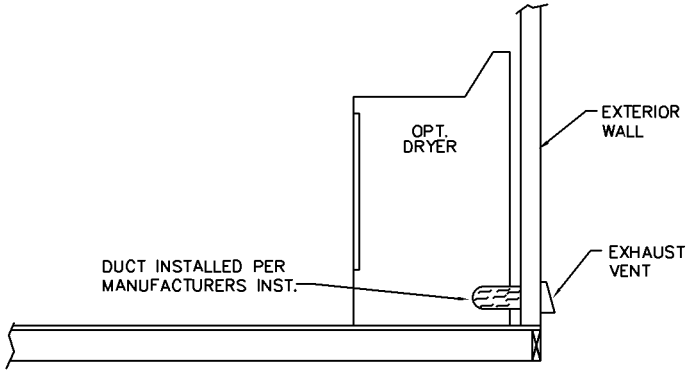
7. Fasteners reflected in chart do NOT require "H type" connector plates to be installed along endwall.

8. Three options (E,F,& G) for rim to sill fastening and two options (4 & 5) for sill plate to foundation anchorage have been provided in chart. Any combination of rim sill connectors and mud sill anchors maybe used.

9. All connection hardware, anchor bolts, straps, hold-downs, washers and fasteners shall be galvanized or stainless when in contact with PT sill plates or other PT lumber.

10. Maximum foundation wall height and maximum unbalanced backfill.





INSTALLTION INSTRUCTIONS:

EXHAUST DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE CONSTRUCTED OF METAL OR NONCOMBUSTIBLE MATERIAL OF EQUAL STRENGTH AND CORROSION RESISTANCE AND SHALL HAVE A SMOOTH INTERIOR FINISH. NO PART OF THE DRYER DUCT TO BE IN CONTACT WITH THE GROUND. THE DUCT TO RUN TO THE OUTSIDE OF THE UNIT AND SHALL NOT TERMINATE UNDERNEATH THE UNIT. A APPROVED DAMPER TO BE INSTALLED ON THE END OF THE DUCT.

GENERAL NOTES:

APPROVAL SEAL:

APPROVED BY
NTA INC.
3/28/2019
Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.
David Richter

CMH Engineering

TITLE:
DRYER VENT INSTALLATION

Drawn by: O'Neal
Date: 4/11/07 | Dwg #:

ELECTRICAL FURNACE DESCRIPTION CHART

Nortek Model E Series	Supply Circuit		Total Amperes	Max Over-Current Rating	Min. Circuit Ampacity	Recommended Wire Sizes NM-B 60°C Copper	Recommended Wire Sizes SEU* 60°C Copper	Low Voltage Thermostat Wire Size
010	Single		44.6	**60**	**56**	4-2	4-4-6	
012	Single		51.2	**70**	**64**	4-2	4-4-6	2-Wire
	Dual	"A"	27.1	**40**	**34**	8-2	6-6-10	system max wire
		"B"	24.2	**30**	**30**	10-2	8-8-10	lengths:
015	Single		N/A	N/A	N/A			24 Ga. = 55'
	Dual	"A"	44.6	**60**	**56**	4-2	4-4-6	22 Ga. = 90'
		"B"	20.8	**30**	**26**	10-2	8-8-10	20 Ga. = 140'
017	Single		N/A	N/A	N/A			24 Ga. = 55'
	Dual	"A"	47.9	**60**	**60**	4-2	4-4-6	22 Ga. = 90'
		"B"	22.5	**30**	**28**	10-2	8-8-10	20 Ga. = 140'
020	Single		N/A	N/A	N/A			18 Ga. = 225'
	Dual	"A"	44.6	**60**	**56**	4-2	4-4-6	
		"B"	41.7	**60**	**52**	4-2	4-4-6	4 or more-Wire
023	Single		N/A	N/A	N/A			system max wire
	Dual	"A"	45.5	**60**	**57**	4-2	4-4-6	lengths:
		"B"	48.0	**60**	**60**	4-2	4-4-6	24 Ga. = 25'
								22 Ga. = 45'
								20 Ga. = 70'
								18 Ga. = 110'

ELECTRIC FURNACE MODEL NUMBER	OUTPUT CAPACITY (BTU)
E#EB-010H	35,000
E#EB-012H	41,000
E#EB-015H	53,000
E#EB-017H	57,000
E#EB-020H	70,000
E#EB-023H	75,000

= Series Version

*- NEC Section 338.10(B)(4)(a)

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David Richter

ELECTRICAL LEGEND (NOT TO SCALE)			
	LIGHT		PANEL BOX
CAN	CAN LIGHT	T	THERMOSTAT
PC	PULL CHAIN LIGHT	S	SWITCH
	BATH FAN	S3	3-WAY SWITCH
	FLUORESCENT LIGHT	T	PHONE JACK
TV	CABLE JACK	SD CO	CEILING MOUNT C.O. & SMOKE DETECTOR
	15 AMP RECEPT FLOOR LEVEL	CO	CEILING MOUNT C.O. DETECTOR
	15 AMP RECEPT CABINET LEVEL	SD	WALL MOUNT SMOKE DETECTOR
	15 AMP RECEPT SIDEWAYS	SD	CEILING MOUNT SMOKE DETECTOR
	20 AMP RECEPT FLOOR LEVEL		SWITCH LEG
	20 AMP RECEPT CABINET LEVEL	GEN	JUNCTION BOX
	20 AMP RECEPT SIDEWAYS		CEILING FAN
	240 VOLT RECEPT		
WP GFI	15 AMP WATERPROOF RECEPT	W/B	POT & PAN RACK
WP GFI	20 AMP WATERPROOF RECEPT		HEAT TAPE RECEPT
	FURNACE	W/H	WATER HEATER
A DASHED SYMBOL REPRESENTS AN OPTION			
GFI-INDICATES A GROUND FAULT PROTECTED RECEPT			

PLUMBING FIXTURE DESCRIPTION CHART

APPLIANCE	MANUFACTURER	MODEL #	ANSI/ASME STANDARD
TOILET	BRISTOL BAY	VCEFB-03B	
SINKS	LYONS EL MUSTICE & SON PREMIUM FLOW CORESTONE & TEKA REVERE	KS01P4-TB #610 UTILITY SINGLE BOWL DOUBLE BOWL BAR SINK	
LAVITORIES	BRISTOL BAY	VCL-10	
TUB SHOWER	BAYMONT BATHWARE	5118 5100 5109	UL
SHOWER	BAYMONT BATHWARE	3309 3308 3304	UL
TUB	BAYMONT BATHWARE	2205 2272	UL

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David Richter

ENGINEERING BY TRENCO
A MiTek Affiliate

Trenco
818 Soundside Rd
Edenton, NC 27932

Re: WPL-913-0315-014_(16W)
CMH MANUFACTURING - SCHULT (Rich-NC)

The truss drawing(s) referenced below have been prepared by Truss Engineering Co. under my direct supervision based on the parameters provided by Wood Perfect, Ltd.

Pages or sheets covered by this seal: I33865413 thru I33865426

My license renewal date for the state of North Carolina is December 31, 2018.

North Carolina COA: C-0844

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NTA INC.
3/28/2019
Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.
David Richter

July 3,2018

Galinski, John

IMPORTANT NOTE: Truss Engineer's responsibility is solely for design of individual trusses based upon design parameters shown on referenced truss drawings. Parameters have not been verified as appropriate for any use. Any location identification specified is for file reference only and has not been used in preparing design. Suitability of truss designs for any particular building is the responsibility of the building designer, not the Truss Engineer, per ANSI/TPI-1, Chapter 2.

Job	Truss	Truss Type	Qty	Ply	CMH MANUFACTURING - SCHULT (Rich-NC) I33865413
WPL-913-0315-014_(16W)	9529-15B	HINGED TRUSS	1	1	M9529 : 6/12 32 WIDE MOD/HUD Job Reference (optional)

Wood Perfect, LLC, Guin, AL 33563

7.640 s Apr 22 2016 MiTek Industries, Inc. Mon Jul 02 15:37:12 2018 Page 1

ID:7DsdcZXbX3z0puIiq?qj47z75_A-UZ4F1Fk9lXo6kb9cHdZY9OX2tJYM1agVnXViACz03K5

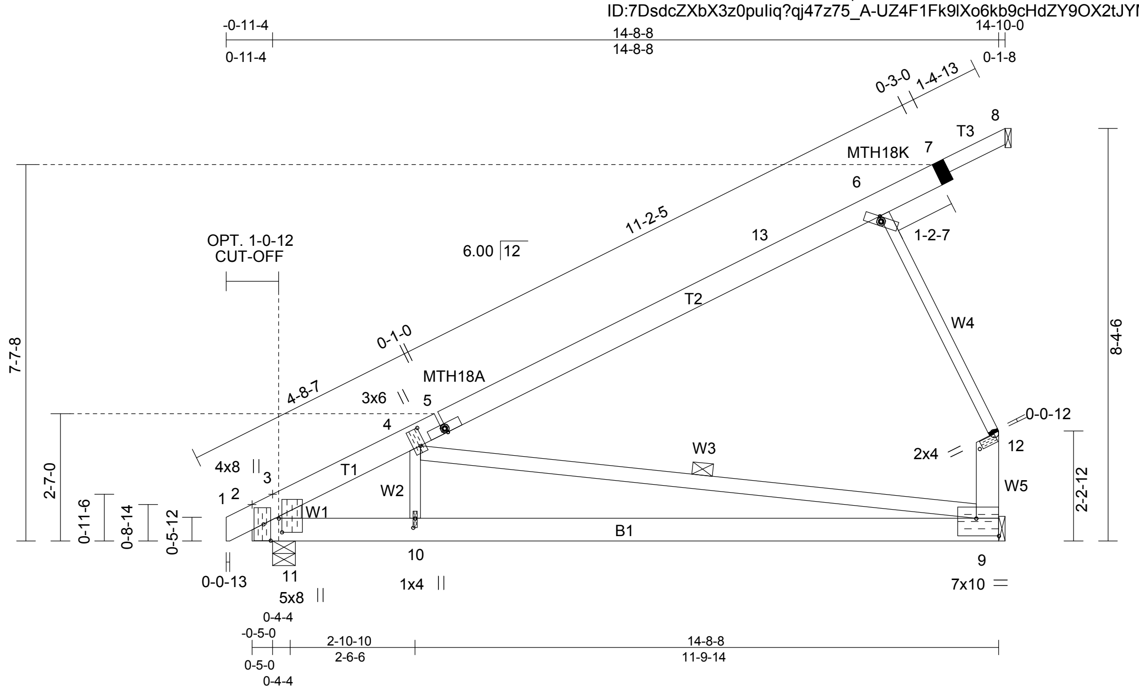

Plate Offsets (X,Y)-- [2:0-4-0,0-1-12], [4:0-4-4,0-1-4], [5:0-0-5,0-1-2], [6:0-0-11,0-1-2], [9:0-8-5,1-2-12], [9:Edge,0-4-4], [10:0-2-4,0-0-8], [11:0-3-6,0-0-12]

SPACING-: 2-0-0		SPACING-: 1-4-0	
LOADING (psf)		**LOADING** (psf)	
TCLL	23.1	TCLL	34.7
(Ground Snow=30.0)		(Ground Snow=45.0)	
TCDL	11.0	TCDL	16.5
BCLL	0.0 *	BCLL	0.0 *
BCDL	10.0	BCDL	15.0

SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
Plate Grip DOL	1.15	TC	0.70	Vert(LL)	-0.17	9-10	>999	240	MT20	197/144
Lumber DOL	1.15	BC	0.55	Vert(CT)	-0.32	9-10	>551	180	MT18HS	197/144
Rep Stress Incr	YES	WB	0.64	Horz(CT)	0.01	9	n/a	n/a		
Code IBC2015/TPI2014		(Matrix)							Weight: 80 lb	
									FT = 0%	

LUMBER-

TOP CHORD 2x6 SPF No.2 *Except*
7-8: 2x4 SPF No.2
BOT CHORD 2x6 SPF No.2
WEBS 2x3 SPF Stud *Except*
4-9: 2x4 SPF No.2, 9-12: 2x6 SPF Stud, 3-11: 2x6 SP No.2

BRACING-

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 7-0-1 oc bracing.
WEBS 1 Row at midpt 4-9
JOINTS 1 Brace at Jt(s): 12

REACTIONS. (lb/size) 9=627/Mechanical, 8=0/Mechanical, 2=735/0-5-8
Max Horz 8=-103(LC 19), 2=464(LC 12)
Max Uplift 9=-506(LC 12), 2=-321(LC 12)
Max Grav 9=730(LC 19), 2=771(LC 19)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-1/0, 2-3=-1340/530, 3-4=-1188/355, 4-5=-503/24, 5-13=-474/42, 6-13=-279/57, 6-7=-201/76, 7-8=-118/88, 9-12=-463/492
BOT CHORD 2-11=-792/929, 10-11=-792/929, 9-10=-792/929
WEBS 4-10=0/439, 4-9=-779/569, 6-12=-511/543, 3-11=-273/252

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
7=148/84/60/0, 12=511/545/0/0

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Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.
David Richter

NOTES-

1) Wind: ASCE 7-10; Vult=152mph (3-second gust) Vasd=120mph @24in o.c.; TCDL=4.4psf; BCDL=4.0psf; (Alt. 180mph @16in o.c.; TCDL=6.6psf; BCDL=6.0psf); h=22ft; Cat. II; Exp C; enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; cantilever left exposed ;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) TCLL: ASCE 7-10; Pg=30.0 psf (ground snow); Ps=23.1 psf (roof snow); Category II; Exp C; Partially Exp.; Ct=1.1
3) Roof design snow load has been reduced to account for slope.
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 18.0 psf or 2.00 times flat roof load of 23.1 psf on overhangs non-concurrent with other live loads.
6) As requested, plates have not been designed to provide for placement tolerances or rough handling and erection conditions. It is the responsibility of the fabricator to increase plate sizes to account for these factors.
7) All plates are MT20 plates unless otherwise indicated.
8) See HINGE PLATE DETAILS for plate placement.
9) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
10) All additional member connections shall be provided by others for forces as indicated.
11) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
12) * 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.
13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 506 lb uplift at joint 9 and 321 lb uplift at joint 2.

NORTH CAROLINA PROFESSIONAL SEAL 28677 ENGINEER JOHN L. GALINSKI

July 3,2018

Continued on page 2

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

NOTES-

14) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
15) "Semi-rigid pitchbreaks including heels" Member end fixity model was used in the analysis and design of this truss.
16) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

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NTA INC.
3/28/2019
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David Richter

ENGINEERING BY
TRENCO
818 Soundside Road
Edenton, NC 27932

ENGINEERING BY TRENCO
A MiTek Affiliate

Trenco
818 Soundside Rd
Edenton, NC 27932

Re: WPL-913-0315-014_(16W)
CMH MANUFACTURING - SCHULT (Rich-NC)

The truss drawing(s) referenced below have been prepared by Truss Engineering Co. under my direct supervision based on the parameters provided by Wood Perfect, Ltd.

Pages or sheets covered by this seal: I33865459 thru I33865460

My license renewal date for the state of North Carolina is December 31, 2018.

North Carolina COA: C-0844

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NTA INC.
3/28/2019
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David Richter

July 3,2018

Galinski, John

IMPORTANT NOTE: Truss Engineer's responsibility is solely for design of individual trusses based upon design parameters shown on referenced truss drawings. Parameters have not been verified as appropriate for any use. Any location identification specified is for file reference only and has not been used in preparing design. Suitability of truss designs for any particular building is the responsibility of the building designer, not the Truss Engineer, per ANSI/TPI-1, Chapter 2.

Job	Truss	Truss Type	Qty	Ply	CMH MANUFACTURING - SCHULT (Rich-NC)	I33865459
WPL-913-0315-014_(16W)	9529-15	HINGED TRUSS	1	1	T9529 - 6/12 9' FLAT (RICH) - 15 Job Reference (optional)	

Wood Perfect, LLC, Guin, AL 33563 — 7.640 s Apr 22 2016 MiTek Industries, Inc. Tue Jul 03 07:50:37 2018 Page 1

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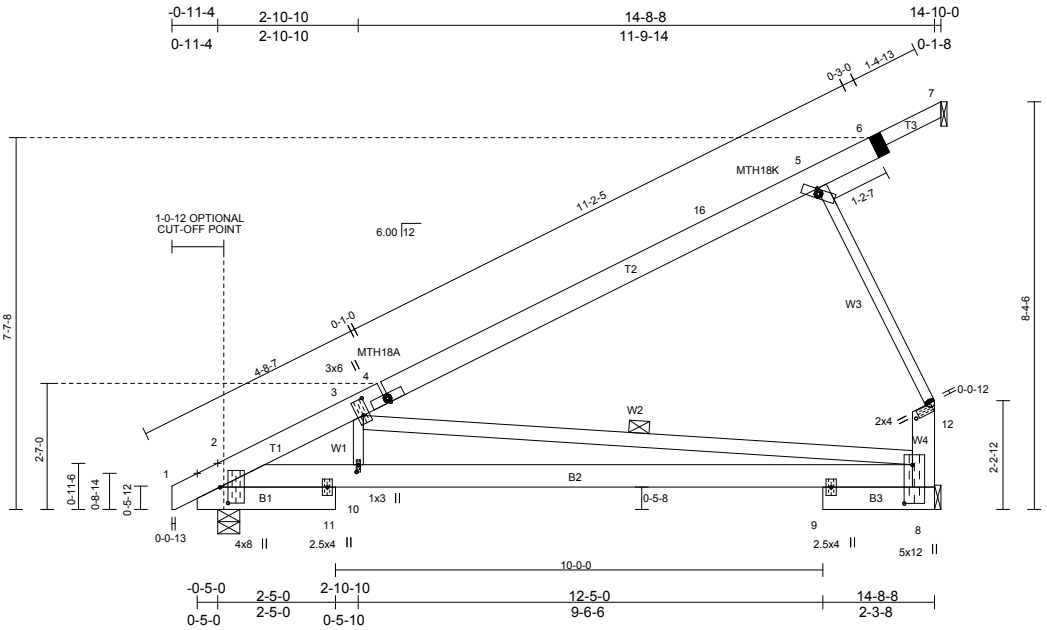

Plate Offsets (X,Y)-- [2:0-3-14,0-2-0], [3:0-4-0,0-1-8], [4:0-0-5,0-1-2], [5:0-0-11,0-1-2], [8:0-9-8,0-2-0], [8:0-5-15,0-9-13], [10:0-1-12,0-0-8]

SPACING-: 1-4-0	**SPACING-:** 1-0-0	**SPACING-** 1-4-0	**CSI.**	**DEFL.** in (loc) l/defl L/d	**PLATES** **GRIP**
LOADING (psf)	**LOADING** (psf)	Plate Grip DOL 1.15	TC 0.49	Vert(LL) -0.18 8-10 >939 240	MT20 197/144
TCLL 23.1	TCLL 30.8	Lumber DOL 1.15	BC 0.58	Vert(CT) -0.37 8-10 >457 180	MT18HS 197/144
(Ground Snow=30.0)	(Ground Snow=40.0)	Rep Stress Incr YES	WB 0.42	Horz(CT) 0.05 8 n/a n/a	
TCDL 11.0	TCDL 14.7	Code IBC2015/TPI2014	(Matrix-M)		Weight: 87 lb
BCLL 0.0 *	BCLL 0.0 *				FT = 0%
BCDL 10.0	BCDL 13.3				

LUMBER-

TOP CHORD 2x6 SPF No.2 *Except* 6-7: 2x4 SPF No.2
BOT CHORD 2x6 SPF No.2
WEBS 2x3 SPF Stud *Except* 3-8: 2x4 SPF No.2, 8-12: 2x6 SPF Stud

BRACING-

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 9-3-4 oc bracing.
WEBS 1 Row at midpt 3-8
JOINTS 1 Brace at Jt(s): 12

REACTIONS. (lb/size) 2=497/0-5-8, 8=406/Mechanical, 7=0/Mechanical
Max Horz 2=306(LC 12), 7=-68(LC 19)
Max Uplift 2=-234(LC 12), 8=-334(LC 12)
Max Grav 2=521(LC 19), 8=475(LC 19)

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David Richter

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/32, 2-3=-966/314, 3-4=-347/25, 4-16=-328/38, 5-16=-195/48, 5-6=-134/51, 6-7=-79/59, 8-12=-293/312
BOT CHORD 2-11=-613/799, 10-11=-607/798, 9-10=-589/806, 8-9=-577/778
WEBS 3-10=0/323, 3-8=-683/432, 5-12=-341/362

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
6=99/56/40/0, 12=341/363/0/0

NOTES-

1) Wind: ASCE 7-10; Vult=152mph (3-second gust) Vasd=120mph @16in o.c.; TCDL=4.4psf; BCDL=4.0psf; (Alt. 176mph @12in o.c.; TCDL=5.9psf; BCDL=5.3psf); h=22ft; Cat. II; Exp C; enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; cantilever left exposed ;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) TCLL: ASCE 7-10; Pg=30.0 psf (ground snow); Ps=23.1 psf (roof snow); Category II; Exp C; Partially Exp.; Ct=1.1
3) Roof design snow load has been reduced to account for slope.
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 18.0 psf or 2.00 times flat roof load of 23.1 psf on overhangs non-concurrent with other live loads.
6) As requested, plates have not been designed to provide for placement tolerances or rough handling and erection conditions. It is the responsibility of the fabricator to increase plate sizes to account for these factors.
7) All plates are MT20 plates unless otherwise indicated.
8) See HINGE PLATE DETAILS for plate placement.
9) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
10) All additional member connections shall be provided by others for forces as indicated.
11) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
12) * 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.
13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 234 lb uplift at joint 2 and 319 lb uplift at joint 8.

July 3,2018

Continued on page 2

ENGINEERING BY
TRENCO
818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	CMH MANUFACTURING - SCHULT (Rich-NC)
WPL-913-0315-014_(16W)	9529-15	HINGED TRUSS	1	1	I33865459 T9529 - 6/12 9' FLAT (RICH) - 15 Job Reference (optional)

NOTES-

14) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
15) "Semi-rigid pitchbreaks including heels" Member end fixity model was used in the analysis and design of this truss.
16) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

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3/28/2019
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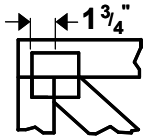
David Richter

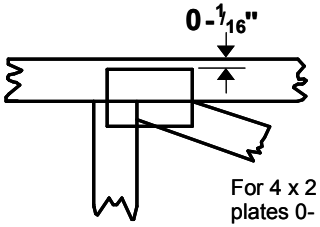
ENGINEERING BY
TRENCO
818 Soundside Road
Edenton, NC 27932

Symbols

PLATE LOCATION AND ORIENTATION



Center plate on joint unless x, y offsets are indicated. Dimensions are in ft-in-sixteenths. Apply plates to both sides of truss and fully embed teeth.



For 4 x 2 orientation, locate plates 0- 1/16" from outside edge of truss.

This symbol indicates the required direction of slots in connector plates.

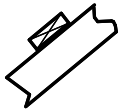
*** Plate location details available in MiTek 20/20 software or upon request.**

PLATE SIZE

4 x 4

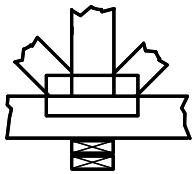
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

LATERAL BRACING LOCATION



Indicated by symbol shown and/or by text in the bracing section of the output. Use T or I bracing if indicated.

BEARING

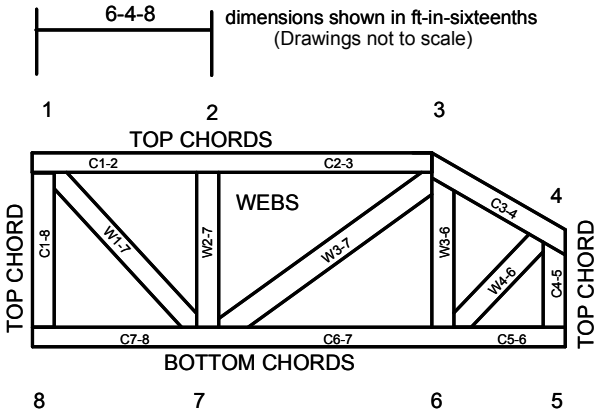


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TPI1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-89: Design Standard for Bracing.
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

Numbering System



JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.

CHORDS AND WEBS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.

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PRODUCT CODE APPROVALS
ICC-ES Reports:

ESR-1311, ESR-1352, ESR1988
ER-3907, ESR-2362, ESR-1397, ESR-3282

Trusses are designed for wind loads in the plane of the truss unless otherwise shown.

Lumber design values are in accordance with ANSI/TPI 1 section 6.3 These truss designs rely on lumber values established by others.

MiTek
ENGINEERING BY TRENCO
A MiTek Affiliate

General Safety Notes

Failure to Follow Could Cause Property Damage or Personal Injury

1. Additional stability bracing for truss system, e.g. diagonal or X-bracing, is always required. See BCSI.
2. Truss bracing must be designed by an engineer. For wide truss spacing, individual lateral braces themselves may require bracing, or alternative Tor I bracing should be considered.
3. Never exceed the design loading shown and never stack materials on inadequately braced trusses.
4. Provide copies of this truss design to the building designer, erection supervisor, property owner and all other interested parties.
5. Cut members to bear tightly against each other.
6. Place plates on each face of truss at each joint and embed fully. Knots and wane at joint locations are regulated by ANSI/TPI 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TPI 1.
8. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication.
9. Unless expressly noted, this design is not applicable for use with fire retardant, preservative treated, or green lumber.
10. Camber is a non-structural consideration and is the responsibility of truss fabricator. General practice is to camber for dead load deflection.
11. Plate type, size, orientation and location dimensions indicated are minimum plating requirements.
12. Lumber used shall be of the species and size, and in all respects, equal to or better than that specified.
13. Top chords must be sheathed or purlins provided at spacing indicated on design.
14. Bottom chords require lateral bracing at 10 ft. spacing, or less, if no ceiling is installed, unless otherwise noted.
15. Connections not shown are the responsibility of others.
16. Do not cut or alter truss member or plate without prior approval of an engineer.
17. Install and load vertically unless indicated otherwise.
18. Use of green or treated lumber may pose unacceptable environmental, health or performance risks. Consult with project engineer before use.
19. Review all portions of this design (front, back, words and pictures) before use. Reviewing pictures alone is not sufficient.
20. Design assumes manufacture in accordance with ANSI/TPI 1 Quality Criteria.

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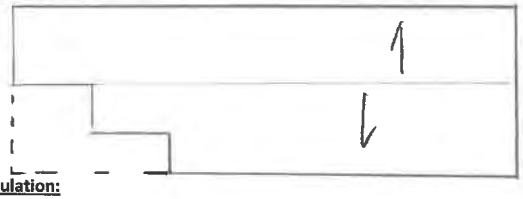
Project Description
Model Number: 3440
Customer:
State(s): NC, SC
Serial Number:

Objective:
Determine the following elements associated with a simply supported flexible diaphragm:
I. Load to supporting shearwalls
II. Required Diaphragm Capacity
III. Maximum moment expereinced in diaphragm
IV. Maximum tension experienced in diaphragm chord
V. Required diaphragm chord

Input:

Wall Height =	9 ft		
Distance between shearwalls =	76 ft		
Diaphragm width at Left S/W =	14.83 ft	Dia Width at Right S/W=	29.67 ft
Roof Pitch (x/12)=	6:12		
End Zone Distance =	6 ft		
Interior Zone Distance =	32 ft		
Available S/W (Right) =	22 ft		
Available S/W (Left)=	8.33 ft		
Diaphragm Width at Max Tension =	29.67 ft		

Sketch/Layout:



Calculation:

I. Determine Load to Shearwalls

Wind Speed (mph)	MWFRS EZ plf	MWFRS IZ plf	Load (lbs)	Right S/W (plf)	Left S/W (plf)	
90	147	117	4626	211	556	
100	182	144	5700	260	685	
110	220	174	6888	314	827	2-sided required
120	272	215	8512	387	1022	2-sided required
130	307	243	9618	438	1155	2-sided required
140	356	282	11160	508	1340	2-sided required

II. Determine required Diaphragm based Upon Min. Width at Shearwall

Wind Speed (mph)	Required Capacity (plf)
90	312
100	385
110	465

Wind Speed (mph)	Required Capacity (plf)
90	156
100	193
110	233

NORTH CAROLINA PROFESSIONAL SEAL 32861 ENGINEER JAMES W. HARRILL 03/25/2019

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No 25413 JAMES WESLEY HARRILL 03/25/19

Available Shearwall Designs
125
195
241
320
366
489
756
781

Double Sided Shearwall Designs (Not included in Manuals)
656
978
1314
1624

120	574
130	649
140	753

120	287
130	325
140	377

Stapled Diaphragm Capacities (Case 1)						
Fastener	Boundary	Edge (in)	Field (in)	ESR 1539	SPF Adj.	Capacity
7/16" x 1 1/2" x 14, 15, 16 ga staples	-	6	12	150	0.82	**123**
7/16" x 1 1/2" x 14, 15, 16 ga staples	6	6	12	165	0.82	**135**
7/16" x 1 1/2" x 14, 15, 16 ga staples	4	6	12	225	0.82	**185**
7/16" x 1 1/2" x 14, 15, 16 ga staples	2 1/2	4	12	335	0.82	**275**
7/16" x 1 1/2" x 14, 15, 16 ga staples	2	3	12	380	0.82	**312**

Nailed Diaphragm Capacities (Case 1)						
Fastener	Boundary	Edge (in.)	Field (in.)	ESR 1539	SPF Adj	Capacity
.131 x 2" nails	-	6	12	320	0.92	**294**
.131 x 2" nails	6	6	12	360	0.92	**331**
.131 x 2" nails	4	6	12	475	0.92	**437**
.131 x 2" nails	2 1/2	4	12	705	0.92	**649**
.131 x 2" nails	2	3	12	805	0.92	**741**

III. Determine maximum moment and chord tension

Wind Speed (mph)	Moment from End Zone Area (#-ft)	Moment from Int. Zone Area (#-ft)	Moment (#-ft)	Tension (lbs)
90	25110	59904	85014	2865
100	30924	73728	104652	3527
110	37368	89088	126456	4262
120	46176	110080	156256	5266
130	52182	124416	176598	5952
140	60552	144384	204936	6907

IV. Diaphragm Chord Capacities

Tension Capacity of Diaphragm Chords (See state approved manual for design)	
Chord Type	Capacity (lbs)
Type A	8335
Type B	7770
Type C	6495
Type D	8970
Type E	11040

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V. Select Diaphragm Chord Design based Upon Maximum Tension

Wind Speed (mph)	Required Tension Capacity (lbs)	Available Chord Type(s)
90	2865	All
100	3527	All
110	4262	All
120	5266	All
130	5952	All
140	6907	Types A, B, D, & E

VI. Determine Extent of Diaphragm Blocking (if necessary) at Left End Shearwall

Wind Speed (mph)	Max. Diaphragm Load (lbs)	Max Unblocked Capacity (lbs)	Max IZ Load (lbs)	Blocking Required	Extent of Blocking (ft)
90	4626	4366	3744	**YES**	**2**
100	5700	4366	4608	**YES**	**8**

110	6888	4366	5568	YES	13
120	8512	4366	6880	YES	~~18~~ 16'
130	9618	4366	7776	YES	~~20~~ 16'
140	11160	4366	9024	YES	23

diaphragm width is 29.67' beginning @ 16' from left end.

VII. Determine Extent of Diaphragm Blocking (if necessary) at Right End Shearwall

Wind Speed (mph)	Max Diaphragm Load (lbs)	Max. Unblocked Capacity	Max IZ Load (lbs)	Blocking Required	Extent of Blocking (ft)
90	4626	8735	3744	NO	0
100	5700	8735	4608	NO	0
110	6888	8735	5568	NO	0
120	8512	8735	6880	NO	0
130	9618	8735	7776	YES	2.9
140	11160	8735	9024	YES	7.0

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Summary

90mph : shearwalls per construction manual
Diaphragm : Block 2' from left end & fasten blocked region w/ .131x 2½" nails at 6" boundary edges, 6" panel edges, & 12" panel fields. Fasten other areas at 6" edge / 12" field.

100 mph: Left s/w : 756 plf (min.) per construction manual
Right s/w : 320 plf (min.) per construction manual
Diaphragm : Blocked 8' from left end. .131x 2½" nails @ 4" boundary, 6" edge, 12" field for 8' from left-end. Remaining portion of diaphragm to be unblocked & fastened w/ .131x 2½" nails @ 6"E/12"F.

110 mph: Left s/w : 978 plf (min.) double-sided shearwall per attached construction chart
Right s/w : 320 plf (min.) per construction manual
Diaphragm : Blocked 13' from left end & fasten with .131x 2½" nails at 2½" along boundary edges, 4" panel edges, & 12" panel fields. Fasten with .131 x 2½" nails @ 6"E/12"F elsewhere

120mph : Right s/w : 489 plf (min.) per construction manual
Left s/w : 1314 plf (min.) double-sided shearwall per attached construction chart
Diaphragm : Block 16' from left end & fasten with .131x2½" nails fastened at 2½" along boundary edges, 4" panel edges, & 12" panel fields. Fasten with .131x 2½" nails @ 6"E/12"F elsewhere.

130 mph: Left s/w : 1314 plf (min.) double-sided shearwall per attached construction chart
Right s/w : 489 plf (min.) per construction manual.
Diaphragm : Block 16' from left end & 3' from right end. Fasten blocked regions with .131 x 2½" nails @ 2½" boundary edges, 4" edge, & 12" field. Fasten remainder of diaphragm with .131 x 2½" nails @ 6"E/12"F.

SHEARWALL CONSTRUCTION:

SW ID	WALL SHEATHING:	PANEL FASTENING [16]: (EDGE SPACING/ FIELD SPACING)	S/W TO WALL, FLOOR & CEILING FASTENING [6] THRU 1/2" MAX. GYPSUM/ WOOD TO WOOD [17] (INCHES ON CENTER) WITHOUT OVERLAP [11] #8x3"	.162"X3.5"	WITH OVERLAP [12] #8x3"	.162"X3.5"	ENDWALL S/W HOLDDOWNS WITH SHEATHING OVERLAP [13,15] 108 # SW [9] JOIST	(# STRAPS) / [10] (FST/END)	108 # SW [9] JOIST	(# STRAPS) / [10] (FST/END)
656.88	BOTH SIDES 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS	.131X2.5" FASTENER AT: (6/12) INCHES O.C. (EDGE/FIELD)	1.3/ 2.2	2.1/ 3.5	1.9/ 3.2	3/ 4.9	3	(4) STRP. W/ (11) FST/END	3	(4) STRP. W/ (11) FST/END
978.88	BOTH SIDES 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS	.131X2.5" FASTENER AT: (4/12) INCHES O.C. (EDGE/FIELD)	0.9/ 1.5	1.4/ 2.3	1.2/ 2.1	2/ 3.3	4	(5) STRP. W/ (13) FST/END	4	(5) STRP. W/ (13) FST/END
1313.8	BOTH SIDES 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS	.131X2.5" FASTENER AT: (3/12) INCHES O.C. (EDGE/FIELD)	0.6/ 1.1	1/ 1.7	0.9/ 1.6	1.5/ 2.4	1	D18 TO FOUNDATION	1	D18 TO FOUNDATION
1674.4	BOTH SIDES 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS	.131X2.5" FASTENER AT: (2/12) INCHES O.C. (EDGE/FIELD)	0.5/ 0.8	0.8/ 1.3	0.8/ 1.3	1.2/ 2	1	D18 TO FOUNDATION	1	D18 TO FOUNDATION
366	SIDE 1: 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS. SIDE 2: 1/2" gypsum board (unblocked edges) FASTENED WITH 5d nail/ 16 Ga. staples (7"/7")AT NONE" OC.	.131X2.5" FASTENER AT: (6/12) INCHES O.C. (EDGE/FIELD)	2.4/ 4.1	3.8/ 6.2	5.1/ 8.6	8/ 9.2	2	(2) STRP. W/ (12) FST/END	2	(2) STRP. W/ (12) FST/END
489	SIDE 1: 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS.	.131X2.5" FASTENER AT: (4/12) INCHES O.C. (EDGE/FIELD)	1.8/ 3	2.8/ 4.7	4.4/ 7.4	6.9/ 9.2	2	(3) STRP. W/ (10) FST/END	2	(3) STRP. W/ (10) FST/END
756	SIDE 1: 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS. SIDE 2: 1/2" gypsum board (unblocked edges) FASTENED WITH 5d nail/ 16 Ga. staples (7"/7")AT NONE" OC.	.131X2.5" FASTENER AT: (3/12) INCHES O.C. (EDGE/FIELD)	1.1/ 1.9	1.8/ 3	2.4/ 4	3.7/ 6.1	3	(4) STRP. W/ (12) FST/END	3	(4) STRP. W/ (12) FST/END
781	SIDE 1: 7/16" (24/16) PS1/PS2 RATED WITH PANEL LENGTH RUNNING EITHER DIRECTION OF STUDS. SIDE 2: 1/2" gypsum board (blocked edges) FASTENED WITH 5d nail/ 16 Ga. staples (7"/7")AT NONE" OC.	.131X2.5" FASTENER AT: (3/12) INCHES O.C. (EDGE/FIELD)	1.1/ 1.9	1.7/ 2.9	2.2/ 3.7	3.5/ 5.7	4	(4) STRP. W/ (12) FST/END	4	(4) STRP. W/ (12) FST/END

16 FASTENER LENGTH MUST BE ADJUSTED AS NECESSARY TO PROVIDE THE FOLLOWING MINIMUM PENETRATIONS INTO FRAMING MEMBERS:.131" NAILS- 1 3/8"; .120" NAILS -1 3/8"; 14 GA STAPLES - 1 1/2"; 15 GA STAPLES- 1 1/4"; 16 GA STAPLES- 1".

17 FIRST NUMBER INDICATES SPACE WHEN FASTENER PENETRATES THROUGH 1/2" MAX. GYPSUM AND SECOND SPACING ASSUMES FULL WOOD TO WOOD CONNECTION.

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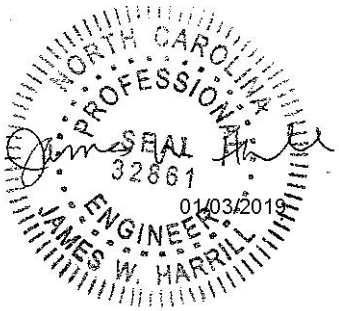

GENERAL NOTES:

1 MINIMUM SHEARWALL SEGMENT LENGTH WHICH CAN BE CONSIDERED IN TOTAL EFFECTIVE LENGTH WITH CHARTED QTYS (Wind/ seismic catgorizes of D and above or gypsum shearwalls):

a. 31"/54 " MINIMUM. FOR A MAXIMUM. SIDEWALL HEIGHT OF 108 ".

2 SHEARWALL FRAMING TO BE 2X4 MIN. STUDS AT 16" OC. MAX.(install panels either horizontally or vertically)

3 ALL PANEL EDGES ARE BACKED BY 2X4 MIN. BLOCKING.

4 SEE TRIB. SPAN TABLES FOR MINIMUM EFFECTIVE SHEARWALL LENGTHS BASED ON BOX SIZE AND CONFIGURATOIN

5 MINIMUM SHEARWALL HOLDDOWNS ARE REQUIRED AT THE END OF EACH FREE END OF SHEAR WALL SEQUMENT (SEE OTHER DETAILS FOR HOLD DOWN AND FASTENING CONSTRUCTION).

6 EACH EFFECTIVE SHEARWALL SEQUMENT SHOULD BE FASTENED TO ADJACENT WALLS, FLOOR AND TRUSSES PER ONE OF THE FASTENER OPTIONS AT SPACING INDICATED IN TABLE.

7 WHERE PANELS ARE APPLIED TO BOTH FACES OF A WALL AND FASTENER SPACING IS LESS THAN 6" OC. ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET OR FRAMING SHALL BE 3" NOMINAL AND FASTENERS ON EACH SIDE SHALL BE STAGGERED.

8 FRAMING AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL AND NAILS STAGGERED WHERE NAILS ARE SPACED 2" OC.

9 # SW JOIST: NUMBER OF #2 spf 1.5X9.25 JOIST REQUIRE UNDER SHEARWALL. JOIST MUST BE SECURED TO SUPPORTING FOUNDATION WALL PER FOUNDATION INSTRUCTIONS. MAXIMUM UNIT WIDTH: 2 SECTIONAL 178

10 NUMBER OF SIMPSON CS16 REQUIRED AT EACH FREE END OF S/W SEGMENTS. (FST/END): NUMBER OF.131"x2.5" NAILS NAILS REQUIRE PER END OF EACH STRAP. WHEN D18 TO FOUNDATION IS INDICATED IN TABLE A SPECIAL HOLDDOWN PER DETAIL D18 OF FOUNDATION INSTRUCTION MUST BE ATTACHED AT S/W FREE ENDS.

11 EXTERIOR SHEATHING DOES NOT OVER LAP CONNECTION JOINT. FASTENER CARRY ALL SHEARWALL LOADS.

12 EXTERIOR SHEATHING OVER LAPS CONNECTION JOINT AND IS FASTENED PER SHEARWALL EDGE FASTENING. CHART FASTENER CARRIES EXCESS LOAD ONLY.

13 EXTERIOR SHEATHING OVERLAPS WALL TO RIM JOIST JOINT. SEE NOTE 12.

14 N.R.: FREE END STRAPS ARE NOT REQUIRED.

15 .131"x3" NAILS MAY BE SUBSTATUTED FOR #8X3" WOOD SCREWS.

Clayton home building group
calc. ref. CSW-35.14._._._22-1.
SHEARWALL CONSTRUCTION & FASTENING

Drawn by: JWH Ver. 17.2
Date: 01/03/19
APPROVAL #:

Clayton home building group
SW-35.14._._._22-1

NORTH CAROLINA
MODULAR PLANS REVIEW CHECKLIST

		PAGE 1 of 3	revised May 2011
Manufacturer		CMH MANUFACTUING INC.	
Model number/name		3440	
3rd Party		NTA INC.	
Review Date		3/28/19	
Reviewer		DAVID RICHTER	
		Plan Sheet Page # and NOTES	
	QC MANUAL (current and complete)		
	APPENDIX B (required and attached)	single family dwelling - not required	
	PLAN SHEETS		
	Each plan sheet third-party stamped with approver's name		
	Each plan sheet is numbered and/or indexed	IX-1	
	GENERAL (cover sheet)		
	Code References	1-0	
	Statement regarding connection to public utilities	1-0	
	Statement regarding bathrooms if not included	1-0	
	Construction type	1-0	
	Occupancy classification	1-0	
	Fire resistance ratings (if required)	1-0	
	Floor live load	1-0	
	Roof live load	1-0	
	Design wind velocity	1-0	
	Seismic information (commercial projects)	1-0	
	Thermal zones	1-0, HDD on REScheck (attached)	
	Notice to inspections department regarding items to be site installed	1-0	
	FLOOR PLANS		
	Interior and exterior wall layouts	1-1	
	Door and window schedule	1-0.2	
	Light and Ventilation requriements	TS-1	
	Attic access (size and locaiton)	1-1	
	Non-prescriptive headers	Charts on 1-0, calc ref on 1-0	
	Safety glazing requirements	1-1	
	Fire rating of Exterior walls (if applicable)		
	EXTERIOR ELEVATIONS		
	Exterior materials	20-1, 20-2, 1-0.2	
	Attic ventilation requirements	20-1, 20-2	
	PLUMBING		
	Plan	locations on floor plan 1-1	
	All fixtures furnished by mfg. shown on plans	1-1	
	Materials (water supply & distribution, DWV, storm drainage)	DWV: 8-1; Supply: 9-1	
	Supply and waste risers, including DWV system (generic) beneath the building	DWV: 8-1; Supply: 9-1	
	Water heater (type and capacity)	ref to electrical appliances on 1-0	

	NORTH CAROLINA		
	MODULAR PLANS REVIEW CHECKLIST		
		PAGE 2 of 3	revised May 2011
		Plan Sheet Page # and NOTES	
	MECHANICAL		
	Design calculations	attached	
	Installed unit capacity	attached	
	Supply and returns (locations and sizes)	4-4,4-5	
	Duct sizes	4-4,4-5	
	Specifications (units, ducts)	1-1, 4-4,4-5	
	All appliances furnished by mfg. shown on plans	1-1, exhaust fans 11-1	
	ELECTRICAL		
	Plan	11-1	
	Location of all electrical boxes	11-1	
	Electrical panel location	11-1	
	Note regarding main disconnect (if applicable)		
	Exterior lighting and receptacles	11-1	
	Ground level receptacles (if applicable)	11-1	
	Smoke detector location(s)	11-1	
	Electrical load calculations	TS-5	
	Electrical panel layout (breaker and wire sizes, circuit schedule)	11-1	
	Panel and service entrance sizes	Panel: 1-0a, SE ref in set-up on 1-0	
	All fixtures furnished by mfg. shown on plans	11-1	
	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		
	Joist and beam sizes and spacing	1-0.2	
	Materials species and grade	1-0.2	
	Sheathing, decking, and concrete as applicable	1-0.2	
	Fastening instructions	1-0.2	
	Insulation	1-0.2	
	Details as required for clarification	1-0.2, other details ref manual on 1-0.2	
	WALL X-SECTION		
	Stud and column sizes and spacing	studs: 1-0.2; column charts: 1-0.2	
	Materials species and grade	1-0.2	
	Sheathing and bracing	1-0.2	
	Headers and lintels	header charts: 1-0.2	
	Finishes	1-0.2	
	Fastening instructions	1-0.2	
	Insulation	1-0.2	
	Details as required for clarificaiton	Ref manual on 1-0.2	

	NORTH CAROLINA		
	MODULAR PLANS REVIEW CHECKLIST		
		PAGE 3 of 3	revised May 2011
		Plan Sheet Page # and NOTES	
	CEILING/ROOF X-SECTION		
	Truss, rafter, and beam spacing	1-0.2	
	Lumber species and grade	1-0.2	
	Sheathing and decking	1-0.2	
	Finishes	1-0.2	
	Fastening instructions	1-0.2	
	Insulation	1-0.2	
	Details including NC sealed truss designs or manual reference	man ref to trusses 1-0.2, other details man ref 1-0.2	
	FOUNDATION PLAN		
	Footings, pier, and curtain wall locations and specifications	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	X-sections with dimensions	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Anchorage - sill plate to piers and curtain wall	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Anchorage - building to sill plate	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Anchorage - tie downs (lateral and longitudinal)	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Soil bearing capacity	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Minimum concrete compressive strength	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Motar type	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Ventilation requirements (with and without vapor barrier)	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	Crawl space access requirements	21-30 PSF (OFF FRAME)21-PS(ON FRAME)	
	ENERGY COMPLIANCE		
	Demonstrate compliance	PRESCRIPTIVE	
	SET-UP INSTRUCTIONS		
	Floor and ceiling connections	ref to set-up manual on 1-0.2	
	Marriage wall connections	ref to set-up manual on 1-0.2	
	Roof set-up connections	ref to set-up manual on 1-0.2	
	Plumbing connections	ref to set-up manual on 1-0.2	
	Mechanical connections	ref to set-up manual on 1-0.2	
	Electrical connections	ref to set-up manual on 1-0.2	
	Fire stopping	1-0.2	
	Air infiltration elimination	ref to set-up manual on 1-0.2	
	Notice to inspections department attachment if set-up instructions are by attachment	1-0.2	
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	ITEMS NOT INSPECTED IN PLANT		
	List of items not inspected by 3rd. Party	1-0.2	
	Notice to inspections department	1-0.2	