STATE OF COLORADO

Specifications Cover Sheet

FACTORY BUILT RESIDENTIAL APPLICATION

Jan-2018

Name of Manufacturer: BonnaVilla Homes by Chief **Plant I.D. Number:** 3276

Complete Address: PO Box 127, 111 Grant Street, Aurora, NE 68818

Contact Name: Bob Phillips **Contact Number:** (308) 389-8359

Contact Email address: Bob.Phillips@chiefind.com

Third Party Inspection Agency: Nebraska Public Service Commission, Housing Division

For more detailed information on this plan approval please contact the Division of Housing

Model Name/No.: PID4000

Type of Approval				Code	
New	X			IBC:	N/A
Revision		PA:		IRC:	2018
Renewal		PA:		IECC:	2015
				NEC:	2017

Sq. Footage Finished:	1495.000	Fee: $0.25	=	$373.75	State of Colorado Division of Housing
Sq. Footage Unfinished:	0.000	Fee: $0.10	=	$0.00	
		Total Fee:	=	$373.75	

Approval Stamp

January 22, 2019

PLANS APPROVED
Subject to field inspection

Released for Permit
11/13/2020 2:57:43 PM
Pikes Peak REGIONAL Building Department
shelley
CONSTRUCTION

515247

EXPIRES: December 1, 2019

MANUFACTURER CERTIFIES that only approved equipment and materials will be used and the installations shall be made in accordance with approved plans. and applicable codes and provisions of the Colorado Division of Housing,. Manufacturer agrees to in-plant inspection of units manufactured under the above plan approval. Application shall be made for and insignias affixed to each factory built unit that is subject to Colorado statues and which is manufactured or is to be sold, offered for sale, or occupied for sale, or occupied in the State of Colorado.

BonnaVilla® Homes
111 Grant Street
P.O. Box 127
Aurora, NE 68818
Phone: 402.694.5250 Fax: 308.389.6749
www.bonnavillahomes.com

Date:	12/31/2018	Attention:	Greg Ardrey
To:	Colorado Division of Housing Plan Approval Department 1313 Sherman Street, Rm 321 Denver, Colorado 80203	Re: Job Number:	Modular Plan Approval PID4000

We are sending you:

☑ Attached	☐ Under Separate Cover via:		the following:
☐ Shop Drawings	☐ Prints	☑ Plans	☐ Other:
☐ Copy of Letter	☐ Change Order	☐ Samples	
☐ Total Quantity	☐ Reproducible	☑ Specifications	

Qty	Date	Dwg. #	Rev.	Description
1	12/31/18			Colorado Factory Built Residential Application
1	12/31/18			Chief Letter of Transmittal
1	12/31/18			PID Electrical Load Calculation
1	12/31/18			PID Light and Air Calculation
1	12/31/18			PID REScheck Calculation
1	12/31/18			PID Heat Loss/Gain Calculation
1	12/31/18			PID Plan Submittal Worksheet
1	12/31/18			Truss print (3508-D10, 3510-D24, 3550-MT, 3562-VLT and 3658-HIP)
1	12/31/18	00A		PID Cover Sheet

☑ See second page for additional Transmittal items.

These are transmitted as checked below:

☑ For Approval	☐ Approved as Submitted	☐ Resubmit for copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit [#] copies for distribution
☐ As Requested	☐ Returned for Corrections	☐ Return [#] corrected prints
☐ For Review and Comment	☐ Revised and Resubmit/Work May Not Proceed	
☐ FOR BIDS DUE:		☐ PRINTS RETURNED AFTER LOAN

Comments:

Greg, Please find enclosed drawings and specifications for the approval of model PID. If you should have any questions, please feel free to let me know. I can be reached at (402) 694-0759 or bob.phillips@chiefind.com.

Copy to:

Bob Phillips

Signature

Transmittal Letter

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Qty	Date	Dwg. #	Rev.	Description
1	12/31/18	01		PID Floor Plan
1	12/31/18	03		PID Floor Framing Plan
1	12/31/18	04		PID Mechanical HVAC Plan
1	12/31/18	06		PID Water Plan
1	12/31/18	07		PID Drain Plan
1	12/31/18	07A		PID Drain Isometric Plan
1	12/31/18	08		PID Electrical Plan
1	12/31/18	09		PID Elevations Plan
1	12/31/18	10		PID Sidewalls & Endwalls Plan
1	12/31/18	11		PID Commonwall Plan
1	12/31/18	12		PID Roof Framing Plan
1	12/31/18	13		PID Overall Roof Plan
1	12/31/18	14		PID Footing & Foundation Plan
1	12/31/18	16		PID Building Section Plan

BONNAVILLA
A DIVISION OF CHIEF INDUSTRIES, INC.

BonnaVilla® Homes
Plan Submittal Worksheet

Model: PID4000 Base Model: _____ Date: 12/31/2018

Address (Street, City, State): CALHAN, CO LAHJ: State of Nebraska

Latitude: 39.040 ° Longitude: -104.300 ° Elev 6535 Ft Wdt 2 ° F Sdt 87 ° F

Building Code: 2018 IRC Energy Code: 2015 IECC Electrical Code: 2017 NEC

Gsl: 52 Psf Rsl: 40 Psf Vult: 126 Mph Vasd: 100 Mph

Daily Range: H HDD: 7222 IECC Zone: 5B FMHCSS Zone: N/A

1st Flr Δ: 1495.000 Sf. 2nd Flr Δ: 0.000 Sf. Total Flr Δ: 1495.000 Sf.

Basement Height: 0.000 Ft. Basement AG: 0.000 Ft. Basement BG: 0.000 Ft.

Crawlspace Height: 4.000 Ft. Crawlspace AG: 1.000 Ft Crawlspace Bg: 3.000 Ft

Insulation: Floor R- RJO* (* Rim joist only) Wall R- 21.0 Roof R- 50.0

Attic Access Insul: R- 21.0 Basement / Crawlspace Walls: R- 8.0

Doors: Therma Tru Windows: Windsor 1st Floor ceiling height 8.00 Ft. Transoms: N

Front Wall Area 416.000 Sf.

Single Hung/Double Hung Window

Qty	Size	Δ	Δ_T
	24x15	2.500	0.000
	24x36	6.000	0.000
	32x32	7.111	0.000
	36x12	3.000	0.000
	36x15	3.750	0.000
	32x32	7.111	0.000
	36x36	9.000	0.000
4	36x60	15.000	60.000
	40x10	2.778	0.000
	42x15	4.380	0.000
	42x60	17.500	0.000
	54x10	3.750	0.000
	60x12	5.000	0.000
	60x36	15.000	0.000
	67x10	4.563	0.000
	84x12	7.000	0.000
	84x36	21.000	0.000
	96x60	40.000	0.000
	24x36 C	6.000	0.000
	30x60 C	12.500	0.000
	36x36 C	9.000	0.000
	36x48 C	12.000	0.000
	36x60 C	15.000	0.000
	36x18 ▲	3.534	0.000
	36x90 T	20.359	0.000

Right Wall Area 230.000 Sf.

Single Hung/Double Hung Window

Qty	Size	Δ	Δ_T
	24x15	2.500	0.000
	24x36	6.000	0.000
	32x32	7.111	0.000
	36x12	3.000	0.000
	36x15	3.750	0.000
	32x32	7.111	0.000
	36x36	9.000	0.000
1	36x60	15.000	15.000
	40x10	2.778	0.000
	42x15	4.380	0.000
	42x60	17.500	0.000
	54x10	3.750	0.000
	60x12	5.000	0.000
	60x36	15.000	0.000
	67x10	4.563	0.000
	84x12	7.000	0.000
	84x36	21.000	0.000
	96x60	40.000	0.000
	24x36 C	6.000	0.000
	30x60 C	12.500	0.000
	36x36 C	9.000	0.000
	36x48 C	12.000	0.000
	36x60 C	15.000	0.000
	36x18 ▲	3.534	0.000
	36x90 T	20.359	0.000

	36x101 P	23.797	0.000
	36x9x14 T	1.910	0.000
	36x15x20 T	3.410	0.000
	36x21x26 T	4.910	0.000
	38x21x26 T	5.230	0.000
	36x9x21 T	2.988	0.000
	36x24x30 T	6.404	0.000
	36x9x23 T	3.268	0.000
	36x25x39 T	6.873	0.000
	48x24 ◠	6.283	0.000
			0.000
			0.000
		Window Total	60.000
Doors			
1	36x80	20.000	20.000
	52x80	28.889	0.000
	68x80	37.778	0.000
	72x80	40.000	0.000
	108x80	60.000	0.000
		Door Total	20.000
		Net Wall	336.000

	36x101 P	23.797	0.000
	36x9x14 T	1.910	0.000
	36x15x20 T	3.410	0.000
	36x21x26 T	4.910	0.000
	38x21x26 T	5.230	0.000
	36x9x21 T	2.988	0.000
	36x24x30 T	6.404	0.000
	36x9x23 T	3.268	0.000
	36x25x39 T	6.873	0.000
	48x24 ◠	6.283	0.000
			0.000
			0.000
		Window Total	15.000
Doors			
1	36x80	20.000	20.000
	52x80	28.889	0.000
	68x80	37.778	0.000
	72x80	40.000	0.000
	108x80	60.000	0.000
		Door Total	20.000
		Net Wall	195.000

Rear Wall Area 416.000 Sf.

Single Hung/Double Hung Window

Qty	Size	Δ	Δ_T
	24x15	2.500	0.000
1	24x36	6.000	6.000
	32x32	7.111	0.000
	36x12	3.000	0.000
	36x15	3.750	0.000
	32x32	7.111	0.000
	36x36	9.000	0.000
4	36x60	15.000	60.000
	40x10	2.778	0.000
	42x15	4.380	0.000
	42x60	17.500	0.000
	54x10	3.750	0.000
	60x12	5.000	0.000
	60x36	15.000	0.000
	67x10	4.563	0.000
	84x12	7.000	0.000
	84x36	21.000	0.000
	96x60	40.000	0.000
	24x36 C	6.000	0.000
	30x60 C	12.500	0.000
	36x36 C	9.000	0.000
	36x48 C	12.000	0.000
	36x60 C	15.000	0.000
	36x18 ◠	3.534	0.000
	36x90 T	20.359	0.000
	36x101 P	23.797	0.000
	36x9x14 T	1.910	0.000
	36x15x20 T	3.410	0.000
	36x21x26 T	4.910	0.000
	38x21x26 T	5.230	0.000
	36x9x21 T	2.988	0.000

Left Wall Area 230.000 Sf.

Single Hung/Double Hung Window

Qty	Size	Δ	Δ_T
	24x15	2.500	0.000
2	24x36	6.000	12.000
	32x32	7.111	0.000
	36x12	3.000	0.000
	36x15	3.750	0.000
	32x32	7.111	0.000
	36x36	9.000	0.000
	36x60	15.000	0.000
	40x10	2.778	0.000
	42x15	4.380	0.000
	42x60	17.500	0.000
	54x10	3.750	0.000
	60x12	5.000	0.000
	60x36	15.000	0.000
	67x10	4.563	0.000
	84x12	7.000	0.000
	84x36	21.000	0.000
	96x60	40.000	0.000
	24x36 C	6.000	0.000
	30x60 C	12.500	0.000
	36x36 C	9.000	0.000
	36x48 C	12.000	0.000
	36x60 C	15.000	0.000
	36x18 ◠	3.534	0.000
	36x90 T	20.359	0.000
	36x101 P	23.797	0.000
	36x9x14 T	1.910	0.000
	36x15x20 T	3.410	0.000
	36x21x26 T	4.910	0.000
	38x21x26 T	5.230	0.000
	36x9x21 T	2.988	0.000

	36x24x30 T	6.404	0.000
	36x9x23 T	3.268	0.000
	36x25x39 T	6.873	0.000
	48x24 ◠	6.283	0.000
			0.000
			0.000
		Window Total	66.000

Doors

	36x80	20.000	0.000
	52x80	28.889	0.000
	68x80	37.778	0.000
1	72x80	40.000	40.000
	108x80	60.000	0.000
		Door Total	40.000
		Net Wall	310.000

	36x24x30 T	6.404	0.000
	36x9x23 T	3.268	0.000
	36x25x39 T	6.873	0.000
	48x24 ◠	6.283	0.000
			0.000
			0.000
		Window Total	12.000

Doors

	36x80	20.000	0.000
	52x80	28.889	0.000
	68x80	37.778	0.000
	72x80	40.000	0.000
	108x60	60.000	0.000
		Door Total	0.000
		Net Wall	218.000

Furnace: Guardian DGAA056 Water Heater: State WH EN640DORT

Floor bays (square)

Component	Δ of Increase		Insulation		Qty.	Total Δ	
1-Window - 8' Wall (104.25")							
Floor-14" x 49.50"	4.813	Sf.	R=	26	0	0.000	Sf.
Wall- 28" x 104.25"	20.270	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 49.50"	4.813	Sf.	R=	38	0	0.000	Sf.
1-Window - 9' Wall (114.25")							
Floor-14" x 49.50"	4.813	Sf.	R=	26	0	0.000	Sf.
Wall- 28" x 114.25"	22.215	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 49.50"	4.813	Sf.	R=	38	0	0.000	Sf.
2-Window - 8' Wall (104.25")							
Floor-14" x 85.25"	8.288	Sf.	R=	26	0	0.000	Sf.
Wall- 28" x 104.25"	20.271	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 85.25"	8.288	Sf.	R=	38	0	0.000	Sf.
2-Window - 9' Wall (114.25")							
Floor-14" x 95"	9.236	Sf.	R=	26	0	0.000	Sf.
Wall- 28" x 114.25"	22.215	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 95"	9.236	Sf.	R=	38	0	0.000	Sf.
3-Window 8' Wall (104.25")							
Floor - 14" x 121.25"	11.788	Sf.	R=	26	0	0.000	Sf.
Wall - 28" x 104.25"	20.270	Sf.	R=	13	0	0.000	Sf.
Roof - 14" x 121.25"	11.788	Sf.	R=	38	0	0.000	Sf.
3-Window 9' Wall (114.25")							
Floor - 14" x 121.25"	11.788	Sf.	R=	26	0	0.000	Sf.
Wall - 28" x 104.25"	20.270	Sf.	R=	13	0	0.000	Sf.
Roof - 14" x 121.25	11.788	Sf.	R=	38	0	0.000	Sf.
1-Window Kitchen Bay - 8' or 9' Wall							
Floor-14" x 49.50"	4.984	Sf.	R=	26	0	0.000	Sf.
Wall- 36.25" x 36.25"	9.125	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 49.50"	4.984	Sf.	R=	38	0	0.000	Sf.
2-Window Kitchen Bay- 8' or 9' Wall							
Floor-14" x 49.50"	4.984	Sf.	R=	26	0	0.000	Sf.

Wall- 84" x 36.25"	21.146	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 49.50"	4.984	Sf.	R=	38	0	0.000	Sf.
1-Sliding Glass Door Bay- 8' Wall							
Floor-14" x 49.50"	8.288	Sf.	R=	26	0	0.000	Sf.
Wall- 84" x 36.25"	20.271	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 49.50"	8.288	Sf.	R=	38	0	0.000	Sf.
1-sliding Glass Door Bay- 9' Wall							
Floor-14" x 49.50"	9.236	Sf.	R=	26	0	0.000	Sf.
Wall- 84" x 36.25"	22.215	Sf.	R=	13	0	0.000	Sf.
Roof- 14" x 49.50"	9.236	Sf.	R=	38	0	0.000	Sf.
Floor bays (angled)							
Component	Δ of Increase		Insulation				
3-Window - 8' Wall (104.25")							
Floor - 12" x 83.5"	6.958	Sf.	R=	26	0	0.000	Sf.
Wall - 124" x 104.25"	89.771	Sf.	R=	13	0	0.000	Sf.
Roof - 12" x 83.5"	6.958	Sf.	R=	38	0	0.000	Sf.
3-Window - 9' Wall (114.25")							
Floor 12" x 125"	6.958	Sf.	R=	26	0	0.000	Sf.
Wall - 124" x 114.25"	98.382	Sf.	R=	13	0	0.000	Sf.
Roof - 12" x 83.75"	6.958	Sf.	R=	38	0	0.000	Sf.
4-Window - 8' Wall (104.25")							
Floor - 12" x 125"	10.417	Sf.	R=	26	0	0.000	Sf.
Wall - 165.5" x 104.25"	119.815	Sf.	R=	13	0	0.000	Sf.
Roof - 12" x 125.25"	10.417	Sf.	R=	38	0	0.000	Sf.
4-Window - 9' Wall (114.25")							
Floor - 12" x 125"	10.417	Sf.	R=	26	0	0.000	Sf.
Wall - 165.5" x 114.25"	131.308	Sf.	R=	13	0	0.000	Sf.
Roof - 12" x 125"	10.417	Sf.	R=	38	0	0.000	Sf.

Total Floor Δ	0.000
Total Wall Δ	0.000
Total Roof Δ	0.000

Total Window Δ: 153.000 sf % of wall Δ: 11.84% % of floor Δ: #REF!

Total Door Δ: 80.000 sf

Total Wall Δ: 1059.000 sf

BonnaVilla® Homes
Light and Ventilation Calculation

A DIVISION OF CHIEF INDUSTRIES, INC.

Date: 12/31/2018 Model: PID4000 Prepared By: KE

Room Designation	Floor Area	Required Glazed	Required Vent Area	Window Qty.	Window Size	Actual Glazed	Actual Vent Area	Meets Code
Living Room	248.00	19.84	9.92	3	36x60	33.72	17.49	
						0.00	0.00	
						0.00	0.00	
						22.48	11.66	
Total						56.20	29.15	Yes
Kitchen/Morning Room	277.00	22.16	11.08	2	36x60	22.48	11.66	
				1	72x80	33.16	16.22	
						0.00	0.00	
Total						55.64	27.88	Yes
Master Bedroom	181.00	14.48	7.24	2	36x60	22.48	11.66	
						0.00	0.00	
Total						22.48	11.66	Yes
2nd Bedroom	125.00	10.00	5.00	1	36x60	11.24	5.83	
						0.00	0.00	
Total						11.24	5.83	Yes
3rd Bedroom	132.00	10.56	5.28	1	36x60	11.24	5.83	
						0.00	0.00	
Total						11.24	5.83	Yes
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	
	0.00	0.00	0.00			0.00	0.00	
						0.00	0.00	
Total						0.00	0.00	

Code Requirements for Light and ' Required Glass Area = 8% Required Ventilation Area = 4%

Habital Rooms: Required Glass Area = 8%; Required Ventilation Area = 4%

Bathrooms: Required Glass Area = 3.0 S.F.; Required Ventilation Area = 1.5 S.F.

* Indicates exhaust appliances and lighting provided for required glass and ventilation area.

Code Reference: 2018 International Residential Code; Section R303

Bath exhaust fans require a minimum of 70 cfm capacity.

BONNAVILLA
A DIVISION OF CHIEF INDUSTRIES, INC.

BONNAVILLA® HOMES
RESIDENTIAL ELECTRICAL LOAD CALCULATION
(Reference 2017 NEC Article 220.5)

Model: PID4000
Serial No.:
Type of Structure: Residential

Date: 12/31/2018
Small Appliance: 3 Circuits
General Lighting: 3 Volt-amperes/Sf

Prepared by: KE
Length: 76.000 Ft.
Width: 29.750 Ft.

Heating/Cooling Loads

Air conditioning: Model: Generic (30 Amp)
Air conditioning (@ 100%) 6000.00 Volt-amperes 1 Number of units = 6000.00 Volt-amperes

Electric heating; Model: Colman 23 KW
Electric heating (@ 65%) 23000.00 Volt-amperes 0 Number of units = 0.00 Volt-amperes

Enter the larger of the Air-conditioning load or the diversified demand of the Electric heating load: 6000.00 Volt-amperes

Other Loads

Item	Volt-	Qty	Demand	Code Ref	
General lighting	3.00	2261.00	100.00%	NEC Art 220.42	6783.00 Volt-amperes
Small appliance	1500.00	3	100.00%	NEC Art 220.42	4500.00 Volt-amperes
Laundry	1500.00	1	100.00%	NEC Art 220.52(B)	1500.00 Volt-amperes
Refrigerator	1020.00	1	100.00%	NEC Art 220.52(B)	1020.00 Volt-amperes
Range	10100.00	1	100.00%	NEC Art 220.55	10100.00 Volt-amperes
Range - dual fuel	3500.00	0	100.00%	NEC Art 220.55	0.00 Volt-amperes
Dryer	5600.00	1	100.00%	NEC Art 220.54	5600.00 Volt-amperes
Water Heater	6000.00	1	100.00%	NEC Art 220.82(B)(3)	6000.00 Volt-amperes
Exhaust fan	276.00	0	100.00%	NEC Art 430.245	0.00 Volt-amperes
Exhaust fan - heated	1536.00	0	100.00%	NEC Art 430.245	0.00 Volt-amperes
Ceiling fan	75.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Range hood	60.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Smoke detector	4.80	3	100.00%	NEC Art 220.14(A)	14.40 Volt-amperes
Smoke/CO detector	10.80	2	100.00%	NEC Art 220.14(A)	21.60 Volt-amperes
Furnace	471.00	1	100.00%	NEC Art 220.14(A)	471.00 Volt-amperes
Cooktop	7700.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Wall oven - single	3400.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Wall oven - double	6800.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Wall oven & microwave	4600.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Microwave	1200.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Microwave - spacesaver	1000.00	1	100.00%	NEC Art 220.14(A)	1000.00 Volt-amperes
Whirlpool	800.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Electrical fireplace	1500.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Tankless water heater	28800.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Dishwasher	1512.00	1	100.00%	NEC Art 220.14(A)	1512.00 Volt-amperes
Disposal	701.50	1	100.00%	NEC Art 220.14(A)	701.50 Volt-amperes
Trash Compactor	780.00	0	100.00%	NEC Art 220.14(A)	0.00 Volt-amperes
Total of Loads:					39223.50 Volt-amperes
1st 10.00 Kw at 100.00% :					10000.00 Volt-amperes
Remainder of other loads at 40.00% :					11689.40 Volt-amperes
Larger of heating or air conditioning loads:					6000.00 Volt-amperes
Total calculated load of structure (Volt-amperes):					27689.40 Volt-amperes
Total ampere rating of structuree (Volt-amperes ÷ 240):					115.37 Ampere

Panel-board used: 1 Phase 240 Volts 200 amps 40 breaker openings

REScheck Software Version 4.6.5

Compliance Certificate

Project DOVER MODEL HOME

Energy Code:	**2015 IECC**
Location:	**Calhan, Colorado**
Construction Type:	**Single-family**
Project Type:	**New Construction**
Conditioned Floor Area:	**0 ft2**
Glazing Area	**16%**
Climate Zone:	**5 (7222 HDD)**
Permit Date:	
Permit Number:	

Construction Site:
915 5TH ST
CALHAN, CO 80808

Owner/Agent:
ACCOLADE HOMES
522 8TH ST.
CALHAN, CO 80808

Designer/Contractor:
KIM EASTMAN
BONNAVILLA
111 GRANT ST
AURORA, NE 68818
308-389-8353
Kimberla.eastman@chiefind.com

Compliance: Passes using UA trade-off

Compliance: **1.0% Better Than Code** Maximum UA: **204** Your UA: **202**

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

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Ceiling 1: Flat Ceiling or Scissor Truss	1,490	13.0	37.0	0.019	28
Attic access: Flat Ceiling or Scissor Truss	5	21.0	0.0	0.047	0
Front wall: Wood Frame, 16" o.c.	416	21.0	0.0	0.057	19
Window 1: Vinyl/Fiberglass Frame:Double Pane with Low-E	60			0.320	19
Door 1: Glass	20			0.190	4
Right wall: Wood Frame, 16" o.c.	230	21.0	0.0	0.057	11
Window 2: Vinyl/Fiberglass Frame:Double Pane with Low-E	15			0.320	5
Door 2: Solid	20			0.140	3
Rear wall: Wood Frame, 16" o.c.	416	21.0	0.0	0.057	18
Window 3: Vinyl/Fiberglass Frame:Double Pane with Low-E	6			0.330	2
Window 4: Vinyl/Fiberglass Frame:Double Pane with Low-E	60			0.320	19
Door 3: Glass	40			0.320	13
Left wall: Wood Frame, 16" o.c.	230	21.0	0.0	0.057	12
Window 5: Vinyl/Fiberglass Frame:Double Pane with Low-E	12			0.330	4

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Crawl 1: Solid Concrete or Masonry Wall height: 4.0' Depth below grade: 3.0' Insulation depth: 4.0'	646	0.0	8.0	0.093	45

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2015 IECC requirements in RES*check* Version 4.6.5 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Kim Eastman	Kim Eastman Digitally signed by Kim Eastman Date: 2019.01.03 07:20:47 -06'00'	12/31/2018
Name - Title	Signature	Date

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	21.00
Below-Grade Wall	8.00
Floor	0.00
Ceiling / Roof	50.00
Ductwork (unconditioned spaces):	8.0

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

Heating & Cooling Equipment	Efficiency
Heating System: Guardian MG9S060	95.5%
Cooling System: OSBO	
Water Heater: State WH EN640DORT	91.0%

Name: Kim Eastman **Date:** 12/31/2018

Comments

Serial No.: 18-M33

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	**21.00**
Below-Grade Wall	**8.00**
Floor	**0.00**
Ceiling / Roof	**50.00**
Ductwork (unconditioned spaces):	8.0

Glass & Door Rating	U-Factor	SHGC
Window	**0.32**	
Door	**0.32**	

Heating & Cooling Equipment	Efficiency
Heating System: Guardian MG9S060	95.5%
Cooling System: OSBO	
Water Heater: State WH EN640DORT	91.0%

Name: Kim Eastman **Date:** 12/31/2018

Comments

Component Constructions
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

Project Information

For: PID4000
Calhan, CO

Design Conditions

Location:
Colorado Sprgs, CO, US
Elevation: 6171 ft
Latitude: 39°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	2	87
Daily range (°F)	-	25 (M)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	72	75
Design TD (°F)	70	12
Relative humidity (%)	30	50
Moisture difference (gr/lb)	37.8	-37.1

Infiltration:	
Method	Simplified
Construction quality	Tight
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sw: Frm wall, vnl ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	308	0.065	21.0	4.55	1401	0.64	196
	e	193	0.065	21.0	4.55	880	0.64	123
	s	335	0.065	21.0	4.55	1524	0.64	213
	w	229	0.065	21.0	4.55	1043	0.64	146
	all	1066	0.065	21.0	4.55	4849	0.64	679
15A-10sfoc-6: Bg wall, light dry soil, empty core, concrete block wall, r-10 ins, 8" thk, 1/2" gypsum board int fnsh	n	208	0.050	10.0	3.50	728	0	0
	e	115	0.050	10.0	3.50	401	0	0
	s	208	0.050	10.0	3.50	728	0	0
	w	115	0.050	10.0	3.50	401	0	0
	all	645	0.050	10.0	3.50	2259	0	0
Partitions								
(none)								
Windows								
WinNDPSh: Windsor Next Dimension Pro, Single hung, Vinyl frame, Low E glass, Argon; NFRC rated (SHGC=0.36); 50% blinds 45°, medium; 50% outdoor insect screen; 1.33 ft overhang (3 ft window ht, 1.33 ft sep.); 6.67 ft head ht	n	6	0.310	0	21.7	130	8.21	49
WinNDPSh: Windsor Next Dimension Pro, Single hung, Vinyl frame, Low E glass, Argon; NFRC rated (SHGC=0.36); 50% blinds 45°, medium; 50% outdoor insect screen; 1.33 ft overhang (5 ft window ht, 1.33 ft sep.); 6.67 ft head ht	n	60	0.310	0	21.7	1302	8.21	492
	e	15	0.310	0	21.7	326	30.1	452
	s	60	0.310	0	21.7	1302	11.5	693
	all	135	0.310	0	21.7	2930	12.1	1637
Doors								
WinNDPSgd: Windwsor Next Dimension, Sliding glass door, Vinyl frame, Low E glass, Argon	n	42	0.320	3.1	22.4	941	6.72	282
ThermaTruFiberglassClear: Therma Tru fiberglass core, wood frame, 40% clear glass	e	21	0.220	4.5	15.4	323	4.62	97
ThermaTruFiberglassCottage: Therma Tru fiberglass core, wood frame, cottage	s	21	0.220	4.5	15.4	323	4.62	97

Ceilings							
16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh	1491	0.020	50.0	1.40	2087	0.89	1327
Floors							
Crawlspace Floor: Crawlspace floor, Below grade, light dry soil, 4' depth	1491	0.011	0	0.79	1172	0	0

Project Summary
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

Project Information

For: PID4000
Calhan, CO

Notes:

Design Information

Weather: Colorado Sprgs, CO, US

Winter Design Conditions

Outside db	***2***	°F
Inside db	72	°F
Design TD	70	°F

Summer Design Conditions

Outside db	87	°F
Inside db	75	°F
Design TD	12	°F
Daily range	M	
Relative humidity	50	%
Moisture difference	-37	gr/lb

Heating Summary

Structure	19278	Btuh
Ducts	0	Btuh
Central vent (60 cfm)	***3679***	Btuh
Outside air		
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	22957	Btuh

Sensible Cooling Equipment Load Sizing

Structure	7157	Btuh
Ducts	0	Btuh
Central vent (60 cfm)	***641***	Btuh
Outside air		
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.92	
Equipment sensible load	7190	Btuh

Infiltration

Method	Simplified
Construction quality	Tight
Fireplaces	0

	Heating	Cooling
Area (ft²)	2981	2981
Volume (ft³)	11925	11925
Air changes/hour	***0.35***	***0.35***
Equiv. AVF (cfm)	70	70

Latent Cooling Equipment Load Sizing

Structure	-356	Btuh
Ducts	0	Btuh
Central vent (60 cfm)	***-1204***	Btuh
Outside air		
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	7190	Btuh
Req. total capacity at 0.85 SHR	0.7	ton

Heating Equipment Summary

Make	Coleman, Unitary Products Group
Trade	COLEMAN BY JOHNSON CONTROLS
Model	MG9S060B12MP11
AHRI ref	2017052

Efficiency	95.5	AFUE
Heating input	60000	Btuh
Heating output	58000	Btuh
Temperature rise	162	°F
Actual air flow	409	cfm
Air flow factor	0.021	cfm/Btuh
Static pressure	0.10	in H2O
Space thermostat		

Cooling Equipment Summary

Make	
Trade	
Cond	
Coil	
AHRI ref	

Efficiency	0	SEER
Sensible cooling	0	Btuh
Latent cooling	0	Btuh
Total cooling	0	Btuh
Actual air flow	409	cfm
Air flow factor	0.057	cfm/Btuh
Static pressure	0.10	in H2O
Load sensible heat ratio	1.00	

Bold/italic values have been manually overridden

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

AED Assessment
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

Project Information

For: PID4000
Calhan, CO

Design Conditions

Location:
Colorado Sprgs, CO, US
Elevation: 6171 ft
Latitude: 39°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	***2***	87
Daily range (°F)	-	25 (M)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	72	75
Design TD (°F)	70	12
Relative humidity (%)	30	50
Moisture difference (gr/lb)	37.8	-37.1

Infiltration:

Test for Adequate Exposure Diversity

Maximum hourly glazing load exceeds average by 35.2%.

House does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 125 Btuh (PFG - 1.3*AFG)

Bold/italic values have been manually overridden

Right-J® Worksheet
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

		Entire House	Master Bedroom
1	Room name	322.7 ft	29.0 ft
2	Exposed wall	6.0 ft	8.0 ft heat/cool
3	Room height		14.7 x 14.3 ft
4	Room dimensions	2981.3 ft²	210.2 ft²
5	Room area		

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.55	0.64	416	308	1401	196	117	87	397	56
.	G	WinNDPSh	0.310	n	21.70	8.21	6	0	130	49	0	0	0	0
.	G	WinNDPSh	0.310	n	21.70	8.21	60	0	1302	492	30	0	651	246
.	D	WinNDPSgd	0.320	n	22.40	6.72	42	42	941	282	0	0	0	0
11	W	15A-10sfoc-6	0.085	n	3.50	0.00	208	208	728	0	0	0	0	0
	W	12F-0sw	0.065	e	4.55	0.64	229	193	880	123	0	0	0	0
	G	WinNDPSh	0.310	e	21.70	30.12	15	0	326	452	0	0	0	0
	D	ThermaTruFiberglassC	0.220	e	15.40	4.62	21	21	323	97	0	0	0	0
	W	15A-10sfoc-6	0.085	e	3.50	0.00	115	115	401	0	0	0	0	0
	W	12F-0sw	0.065	s	4.55	0.64	416	335	1524	213	0	0	0	0
	G	WinNDPSh	0.310	s	21.70	11.55	60	26	1302	693	0	0	0	0
	D	ThermaTruFiberglassC	0.220	s	15.40	4.62	21	21	323	97	0	0	0	0
	W	15A-10sfoc-6	0.085	s	3.50	0.00	208	208	728	0	0	0	0	0
	W	12F-0sw	0.065	w	4.55	0.64	229	229	1043	146	115	115	522	73
	W	15A-10sfoc-6	0.085	w	3.50	0.00	115	115	401	0	0	0	0	0
	C	16B-50ad	0.020	-	1.40	0.89	1491	1491	2087	1327	210	210	294	187
	F	Crawlspace Floor	0.011	-	0.79	0.00	1491	1491	1172	0	0	0	0	0

6	c) AED excursion									125				-40
	Envelope loss/gain								15013	4293			1864	522
12	a) Infiltration								4265	743			767	134
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				4			920	0			0
		Appliances/other								1200				0
	Subtotal (lines 6 to 13)								19278	7157			2631	656
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								19278	7157			2631	656
15	Duct loads						0%	0%	0	0	-0%	0%	0	0
	Total room load								19278	7157			2631	656
	Air required (cfm)								409	409			56	37

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

Right-J® Worksheet
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

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		Kitchen	Morning Room
1	Room name	Kitchen	Morning Room
2	Exposed wall	10.7 ft	10.7 ft
3	Room height	8.0 ft heat/cool	8.0 ft heat/cool
4	Room dimensions	10.7 x 14.3 ft	10.7 x 14.3 ft
5	Room area	152.9 ft²	152.9 ft²

	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²) Heat	HTM (Btuh/ft²) Cool	Area (ft²) or perimeter (ft) Gross	Area (ft²) or perimeter (ft) N/P/S	Load (Btuh) Heat	Load (Btuh) Cool	Area (ft²) or perimeter (ft) Gross	Area (ft²) or perimeter (ft) N/P/S	Load (Btuh) Heat	Load (Btuh) Cool
6	W	12F-0sw	0.065	n	4.55	0.64	85	55	252	35	85	43	197	28
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	0	0	0	0
.	G	WinNDPSh	0.310	n	21.70	8.21	30	0	651	246	0	0	0	0
.	D	WinNDPSgd	0.320	n	22.40	6.72	0	0	0	0	42	42	941	282
11	W	15A-10sfoc-6	0.085	n	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	e	4.55	0.64	0	0	0	0	0	0	0	0
	G	WinNDPSh	0.310	e	21.70	30.12	0	0	0	0	0	0	0	0
	D	ThermaTruFiberglassC	0.220	e	15.40	4.62	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	e	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	4.55	0.64	0	0	0	0	0	0	0	0
	G	WinNDPSh	0.310	s	21.70	11.55	0	0	0	0	0	0	0	0
	D	ThermaTruFiberglassC	0.220	s	15.40	4.62	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	s	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	4.55	0.64	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	w	3.50	0.00	0	0	0	0	0	0	0	0
	C	16B-50ad	0.020	-	1.40	0.89	153	153	214	136	153	153	214	136
	F	Crawlspace Floor	0.011	-	0.79	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-96				-55
	Envelope loss/gain								1117	322			1352	391
12	a) Infiltration								282	49			282	49
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	2			460
		Appliances/other								1200				0
	Subtotal (lines 6 to 13)								1399	1571			1634	900
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1399	1571			1634	900
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								1399	1571			1634	900
	Air required (cfm)								30	90			35	51

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

Right-J® Worksheet
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

		Main Bath	Utility
1	Room name		
2	Exposed wall	5.7 ft	24.7 ft
3	Room height	8.0 ft heat/cool	8.0 ft heat/cool
4	Room dimensions	5.7 x 14.3 ft	10.3 x 14.3 ft
5	Room area	81.2 ft²	148.1 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.55	0.64	45	45	206	29	83	77	349	49
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	6	0	130	49
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	0	0	0	0
.	D	WinNDPSgd	0.320	n	22.40	6.72	0	0	0	0	0	0	0	0
11	W	15A-10sfoc-6	0.085	n	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	e	4.55	0.64	0	0	0	0	115	94	426	60
	G	WinNDPSh	0.310	e	21.70	30.12	0	0	0	0	0	0	0	0
	D	ThermaTruFiberglassC	0.220	e	15.40	4.62	0	0	0	0	21	21	323	97
	W	15A-10sfoc-6	0.085	e	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	4.55	0.64	0	0	0	0	0	0	0	0
	G	WinNDPSh	0.310	s	21.70	11.55	0	0	0	0	0	0	0	0
	D	ThermaTruFiberglassC	0.220	s	15.40	4.62	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	s	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	4.55	0.64	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	w	3.50	0.00	0	0	0	0	0	0	0	0
	C	16B-50ad	0.020	-	1.40	0.89	81	81	114	72	148	148	207	132
	F	Crawlspace Floor	0.011	-	0.79	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-7				-29
	Envelope loss/gain								320	94			1436	358
12	a) Infiltration								150	26			652	114
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								470	120			2088	472
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								470	120			2088	472
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								470	120			2088	472
	Air required (cfm)								10	7			44	27

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

Right-J® Worksheet
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

		2nd Bedroom	3rd Bedroom
1	Room name	26.3 ft	10.8 ft
2	Exposed wall	8.0 ft heat/cool	8.0 ft heat/cool
3	Room height	12.0 x 14.3 ft	10.8 x 14.3 ft
4	Room dimensions	172.0 ft²	155.3 ft²
5	Room area		

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		2nd Bedroom Area (ft²) or perimeter (ft)		2nd Bedroom Load (Btuh)		3rd Bedroom Area (ft²) or perimeter (ft)		3rd Bedroom Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.55	0.64	0	0	0	0	0	0	0	0
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	0	0	0	0
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	0	0	0	0
.	D	WinNDPSgd	0.320	n	22.40	6.72	0	0	0	0	0	0	0	0
11	W	15A-10sfoc-6	0.085	n	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	e	4.55	0.64	115	100	453	63	0	0	0	0
	G	WinNDPSh	0.310	e	21.70	30.12	15	0	326	452	0	0	0	0
	D	ThermaTruFiberglassC	0.220	e	15.40	4.62	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	e	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	4.55	0.64	96	96	437	61	87	72	326	46
	G	WinNDPSh	0.310	s	21.70	11.55	0	0	0	0	15	6	326	173
	D	ThermaTruFiberglassC	0.220	s	15.40	4.62	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	s	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	4.55	0.64	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	w	3.50	0.00	0	0	0	0	0	0	0	0
	C	16B-50ad	0.020	-	1.40	0.89	172	172	241	153	155	155	217	138
	F	Crawlspace Floor	0.011	-	0.79	0.00	0	0	0	0	0	0	0	0

6	c) AED excursion									142				61
	Envelope loss/gain								1457	872			869	418
12	a) Infiltration								696	121			286	50
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230		0					0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2153	993			1155	468
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								2153	993			1155	468
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								2153	993			1155	468
	Air required (cfm)								46	57			24	27

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

Right-J® Worksheet
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

		Living Room 18.5 ft	Master Bath 25.0 ft
1	Room name		
2	Exposed wall	8.0 ft heat/cool	8.0 ft heat/cool
3	Room height		
4	Room dimensions	18.5 x 14.3 ft	10.7 x 14.3 ft
5	Room area	265.2 ft²	152.9 ft²

	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	4.55	0.64	0	0	0	0	0	0	0	0
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	0	0	0	0
.	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0	0	0	0	0
.	D	WinNDPSgd	0.320	n	22.40	6.72	0	0	0	0	0	0	0	0
11	W	15A-10sfoc-6	0.085	n	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	e	4.55	0.64	0	0	0	0	0	0	0	0
	G	WinNDPSh	0.310	e	21.70	30.12	0	0	0	0	0	0	0	0
	D	ThermaTruFiberglassC	0.220	e	15.40	4.62	0	0	0	0	0	0	0	0
	W	15A-10sfoc-6	0.085	e	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	4.55	0.64	148	82	373	52	85	85	388	54
	G	WinNDPSh	0.310	s	21.70	11.55	45	19	977	520	0	0	0	0
	D	ThermaTruFiberglassC	0.220	s	15.40	4.62	21	21	323	97	0	0	0	0
	W	15A-10sfoc-6	0.085	s	3.50	0.00	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	4.55	0.64	0	0	0	0	115	115	522	73
	W	15A-10sfoc-6	0.085	w	3.50	0.00	0	0	0	0	0	0	0	0
	C	16B-50ad	0.020	-	1.40	0.89	265	265	371	236	153	153	214	136
	F	Crawlspace Floor	0.011	-	0.79	0.00	0	0	0	0	0	0	0	0

6	c) AED excursion									170				-22
	Envelope loss/gain								2044	1075			1124	242
12	a) Infiltration								489	85			661	115
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230			2				460	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2533	1620			1785	357
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								2533	1620			1785	357
15	Duct loads					-0%	0%		0	0	-0%	0%	0	0
	Total room load								2533	1620			1785	357
	Air required (cfm)								54	92			38	20

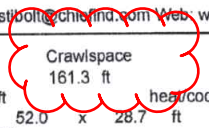
Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Right-J® Worksheet
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

1 Room name: Crawlspace
2 Exposed wall: 161.3 ft
3 Room height: 4.0 ft
4 Room dimensions: 52.0 x 28.7 ft
5 Room area: 1490.7 ft²



	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²) Heat	HTM (Btuh/ft²) Cool	Area (ft²) or perimeter (ft) Gross	Area (ft²) or perimeter (ft) N/P/S	Load (Btuh) Heat	Load (Btuh) Cool	Area or perimeter Gross	Area or perimeter N/P/S	Load Heat	Load Cool
6	W	12F-0sw	0.065	n	4.55	0.64	0	0	0	0				
	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0				
	G	WinNDPSh	0.310	n	21.70	8.21	0	0	0	0				
	D	WinNDPSgd	0.320	n	22.40	6.72	0	0	0	0				
11	W	15A-10sfoc-6	0.085	n	3.50	0.00	208	208	728	0				
	W	12F-0sw	0.065	e	4.55	0.64	0	0	0	0				
	G	WinNDPSh	0.310	e	21.70	30.12	0	0	0	0				
	D	ThermaTruFiberglassC	0.220	e	15.40	4.62	0	0	0	0				
	W	15A-10sfoc-6	0.085	e	3.50	0.00	115	115	401	0				
	W	12F-0sw	0.065	s	4.55	0.64	0	0	0	0				
	G	WinNDPSh	0.310	s	21.70	11.55	0	0	0	0				
	D	ThermaTruFiberglassC	0.220	s	15.40	4.62	0	0	0	0				
	W	15A-10sfoc-6	0.085	s	3.50	0.00	208	208	728	0				
	W	12F-0sw	0.065	w	4.55	0.64	0	0	0	0				
	W	15A-10sfoc-6	0.085	w	3.50	0.00	115	115	401	0				
	C	16B-50ad	0.020	-	1.40	0.89	0	0	0	0				
	F	Crawlspace Floor	0.011	-	0.79	0.00	1491	1491	1172	0				

6	c) AED excursion				0	
	Envelope loss/gain			3430	0	
12	a) Infiltration			0	0	
	b) Room ventilation			0	0	
13	Internal gains: Occupants @ 230	0			0	
	Appliances/other				0	
	Subtotal (lines 6 to 13)			3430	0	
	Less external load			0	0	
	Less transfer			0	0	
	Redistribution			0	0	
14	Subtotal			3430	0	
15	Duct loads	-0%	0%	0	0	
	Total room load			3430	0	
	Air required (cfm)			73	0	

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

Loads for Multiple Orientations
Entire House
BonnaVilla Homes

Job: PID4000
Date: Dec 28, 2018
By: Cara Stibolt
Plan: PID4000

111 Grant Street, Aurora, NE 68818-0127 Phone: 308.389.8313 Fax: 308.389.6749 Email: cara.stibolt@chiefind.com Web: www.BonnaVilla.com License: 3276

Project Information

For: PID4000
Calhan, CO

Design Conditions

Location:
Colorado Sprgs, CO, US
Elevation: 6171 ft
Latitude: 39°N

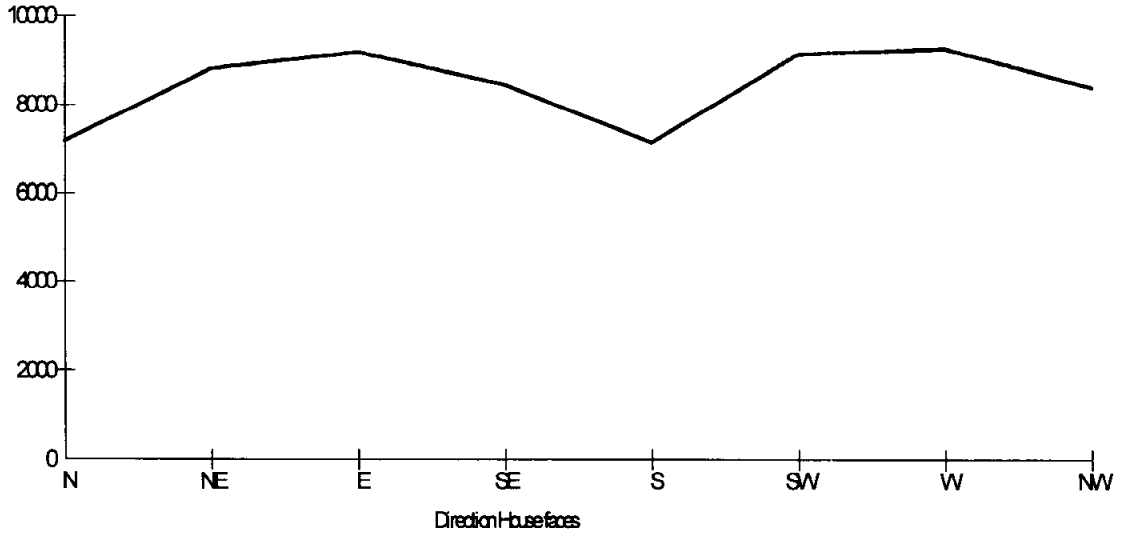
Outdoor:	Heating	Cooling
Dry bulb (°F)	2	87
Daily range (°F)	-	25 (M)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	72	75
Design TD (°F)	70	12
Relative humidity (%)	30	50
Moisture difference (gr/lb)	37.8	-37.1

Infiltration:

House	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btuh)	7190	8808	9179	8460	7175	9149	9271	8415
Latent Load (Btuh)	0	0	0	0	0	0	0	0
Total Load (Btuh)	7190	8808	9179	8460	7175	9149	9271	8415
Heating AVF (cfm)	409	509	532	487	408	530	537	484
Cooling AVF (cfm)	409	509	532	487	408	530	537	484

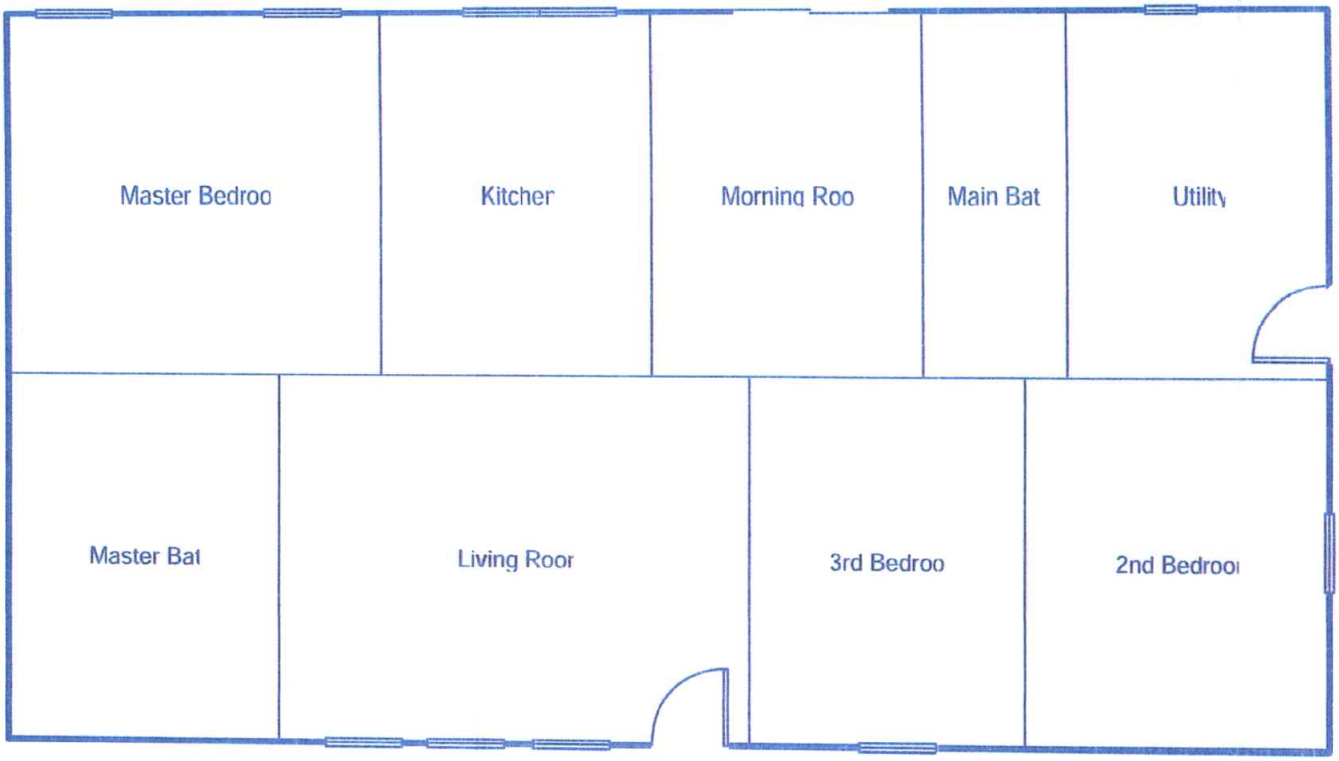
Building Orientation Cooling Load



Current Orientation: House faces North
Highest Cooling Load: House faces West

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

First Floor



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11/13/2020 3:34:30 PM
tcrippen
MECHANICAL

Job #: PID4000
Performed by Cara Stibolt for:
PID4000

Calhan, CO

BonnaVilla Homes
111 Grant Street
Aurora, NE 68818-0127
Phone: 308.389.8313 Fax: 308.389.6749
www.BonnaVilla.com cara.stibolt@chiefind.com

Scale: 1 : 87

Right-Suite® Universal 2018
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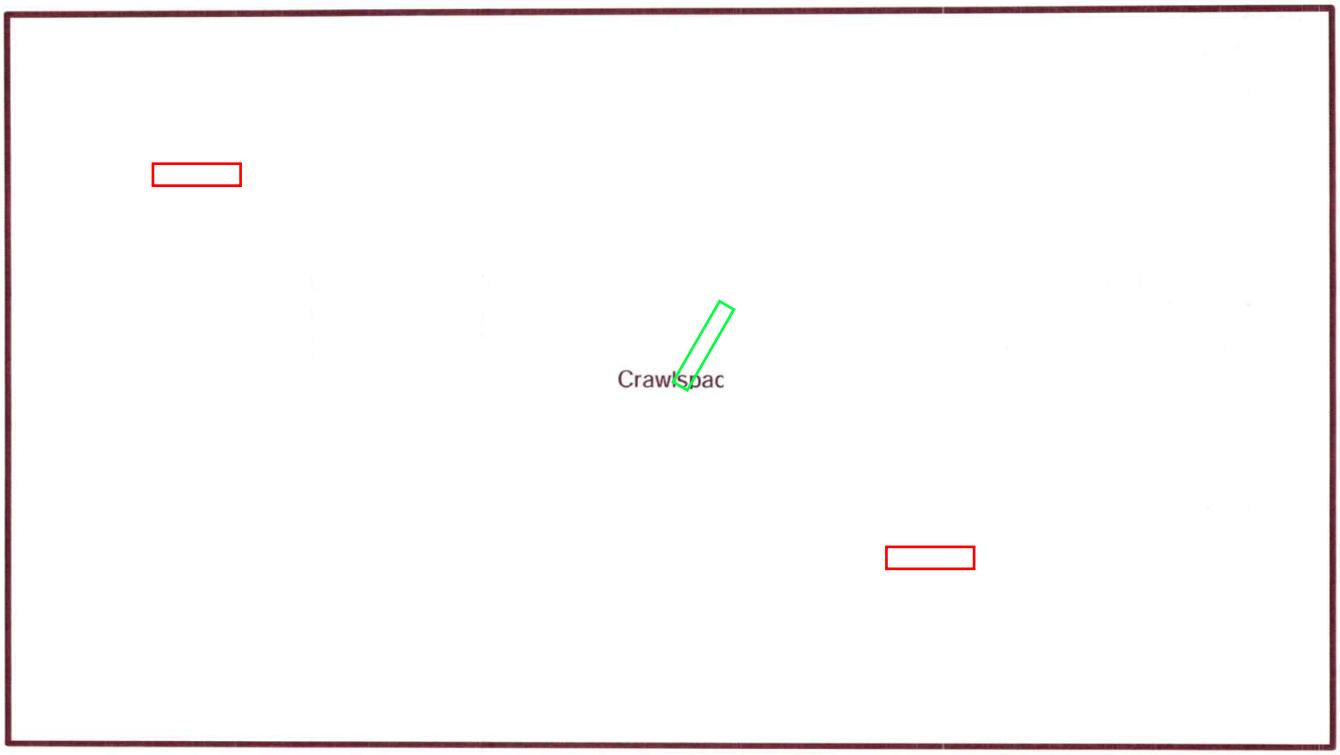
Crawlspace



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11/13/2020 3:34:15 PM
tcripper
MECHANICAL

Job #: PID4000
Performed by Cara Stibolt for:
PID4000

Calhan, CO

BonnaVilla Homes

111 Grant Street
Aurora, NE 68818-0127
Phone: 308.389.8313 Fax: 308.389.6749
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Scale: 1 : 87

Right-Suite® Universal 2018
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P. E. ROBBINS
ENGINEERING

Phillip E. Robbins, P.E.
1777 State Route 167
Victoria, IL 61485
Tel: 309-879-3258
Reference: PER182062

October 24, 2018
Kevin Gartner
Drafting Supervisor
Bonnavilla
308-389-8318
Kevin.Gartner@chiefind.com

Re: IBC/IRC 2018

Dear Mr. Gartner:

Your current truss package designed for IBC/IRC 2015 shall continue to be used without alteration for the 2018 IBC/IRC coded houses for the design loadings listed on each truss print. There are no substantial changes to the design standards referenced or in the IBC/IRC 2018 codes that affect the size and type of trusses used on your modular coded units.

Sincerely,

Phillip E. Robbins, P.E.

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
90830	HM952410	GABLE	1	1	4204-MG1

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.130 s Dec 12 2017 MiTek Industries, Inc. Mon Feb 12 11:16:48 2018 Page 1 of 1

14-2-4 / 14-2-4 — 14-3-0 / 0-0-12

REACTIONS FOR OPTIONAL CANTILEVER

(lb/size) 10=58/12-9-0 (min. 0-5-3), 11=511/12-9-0 (min. 0-5-3), 12=476/12-9-0 (min. 0-5-3), 13=459/12-9-0 (min. 0-5-3), 14=492/12-9-0 (min. 0-5-3), 15=512/12-9-0 (min. 0-5-3), 16=161/12-9-0 (min. 0-5-3), 17=596/0-1-8 (min. 0-1-8)
Max Horz 16=356(LC 8)
Max Uplift 10=-19(LC 12), 11=-115(LC 8), 12=-127(LC 12), 13=-116(LC 12), 14=-128(LC 12), 15=-127(LC 8), 16=-263(LC 12)
Max Grav 10=76(LC 18), 11=655(LC 18), 12=618(LC 18), 13=588(LC 18), 14=645(LC 18), 15=598(LC 18), 16=161(LC 1), 17=604(LC 18)

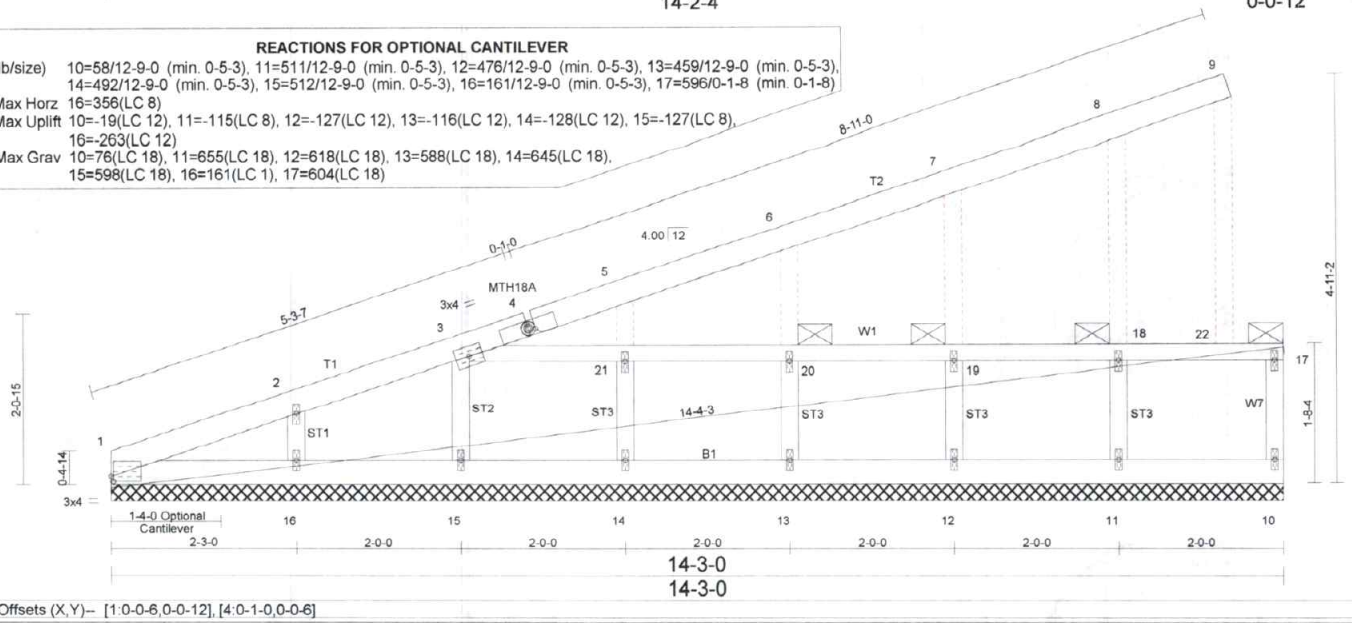

Plate Offsets (X,Y)-- [1:0-0-6,0-0-12], [4:0-1-0,0-0-6]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.31	Vert(LL)	n/a	-	n/a	999	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.12	Vert(CT)	n/a	-	n/a	999	MT18HS	197/144
TCDL	10.0	Rep Stress Incr	YES	WB	0.23	Horz(CT)	-0.00	10	n/a	n/a		
BCLL	0.0 *	Code IBC2015/TPI2014		Matrix-R							Weight: 47 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x4 SPF No.2
BOT CHORD 2x4 SPF No.2
WEBS 2x3 SPF Stud *Except* W1: 2x3 SPF No.2
OTHERS 2x3 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 10-0-0 oc bracing.
JOINTS 1 Brace at Jt(s): 17, 18, 19, 20

REACTIONS. (lb/size) 1=222/14-1-8 (min. 0-6-2), 10=73/14-1-8 (min. 0-6-2), 11=492/14-1-8 (min. 0-6-2), 12=481/14-1-8 (min. 0-6-2), 13=458/14-1-8 (min. 0-6-2), 14=499/14-1-8 (min. 0-6-2), 15=483/14-1-8 (min. 0-6-2), 16=557/14-1-8 (min. 0-6-2)
Max Horz 1=356(LC 8)
Max Uplift10=-12(LC 8), 11=-122(LC 8), 12=-125(LC 8), 13=-115(LC 8), 14=-129(LC 8), 15=-125(LC 8), 16=-158(LC 8)
Max Grav 1=225(LC 18), 10=91(LC 18), 11=636(LC 18), 12=623(LC 18), 13=587(LC 18), 14=651(LC 18), 15=568(LC 18), 16=557(LC 1)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-408/150, 2-3=-329/119, 3-4=-266/87, 4-5=-259/98, 5-6=-201/83, 6-7=-141/94, 7-8=-94/89, 8-9=-80/26, 10-17=-74/22
BOT CHORD 1-16=-3/2, 15-16=-3/2, 14-15=-3/2, 13-14=-3/2, 12-13=-3/2, 11-12=-3/2, 10-11=-3/2
WEBS 11-18=-594/181, 12-19=-583/177, 13-20=-548/168, 14-21=-607/182, 3-15=-543/183, 2-16=-470/204, 3-21=-2/3, 20-21=-2/3, 19-20=-2/3, 18-19=-2/3, 18-22=-6/4, 17-22=-2/3, 5-21=-608/182, 6-20=-545/167, 7-19=-596/181, 8-18=-537/163, 9-22=-121/37

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
5=608/182/0/0, 6=545/167/0/0, 7=596/181/0/0, 8=537/163/0/0, 9=121/38/115/0, 18=537/163/4/0, 19=596/181/0/0, 20=545/167/0/0, 21=608/182/0/0, 22=121/37/4/0

NOTES- (17-18)
1) Wind: ASCE 7-10; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-10; Pg=130.0 psf (ground snow); Ps=100.1 psf (roof snow); Category II; Exp C; Partially Exp.; Ct=1.1
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) All plates are MT20 plates unless otherwise indicated.
7) All plates are 1x3 MT20 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) Gable studs spaced at 2-0-0 oc.
12) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
13) * 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.
14) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 12 lb uplift at joint 10, 122 lb uplift at joint 11, 125 lb uplift at joint 12, 115 lb uplift at joint 13, 129 lb uplift at joint 14, 125 lb uplift at joint 15 and 158 lb uplift at joint 16.
15) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
16) Based on HM952409. Changes: Cut top chord back for ladder cap.
17) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1

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

E-signed by Stuart Walter

2/13/2018

WARNING - *Verify design parameters and READ NOTES*

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

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

UNIVERSAL FOREST PRODUCTS, INC.

Job	Truss	Customer	MFG
90830	HM952410	BONNAVILLA HOMES	379

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

Registered Professional Engineer (Civil) CERTIFICATE NO. 32544 JOHN SIROWATKA Date Signed ARIZONA U.S.A.

LICENSED PROFESSIONAL ENGINEER KEVIN W. FREEMAN 15512 IOWA

JOHN SIROWATKA LICENSED 14611 KANSAS PROFESSIONAL ENGINEER

STATE OF MISSOURI KEVIN W. FREEMAN NUMBER E-20091 REGISTERED PROFESSIONAL ENGINEER

MONTANA KEVIN FREEMAN 16178PE LICENSED PROFESSIONAL ENGINEER

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PRINT NAME: STUART WALTER

SIGNATURE: S. J. Walter

DATE: 2/13/2018 LIC # 47774

PROFESSIONAL CIVIL ENGINEER JOHN SIROWATKA E-10267 STATE OF NEBRASKA

PROFESSIONAL ENGINEER-STATE OF NEVADA JOHN SIROWATKA Exp. 4/30/2016 CIVIL No. 013771

LICENSED PROFESSIONAL ENGINEER NEW MEXICO 12908 JOHN SIROWATKA

KEVIN WESLEY FREEMAN NORTH DAKOTA PE-5265 REGISTERED PROFESSIONAL ENGINEER

JOHN SIROWATKA SOUTH DAKOTA 6172 LICENSED PROFESSIONAL ENGINEER

WISCONSIN KEVIN W. FREEMAN E-34389 GRAND RAPIDS PROFESSIONAL ENGINEER

Professional Engineer (Civil) JOHN SIROWATKA 6996 Date WYOMING

Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	
88320	M600907	GABLE	1	1	Bonnavilla Homes - 379 4205-MG2

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek

8.030 s Apr 8 2017 MiTek Industries, Inc. Tue Jun 27 08:59:38 2017 Page 1 of 1

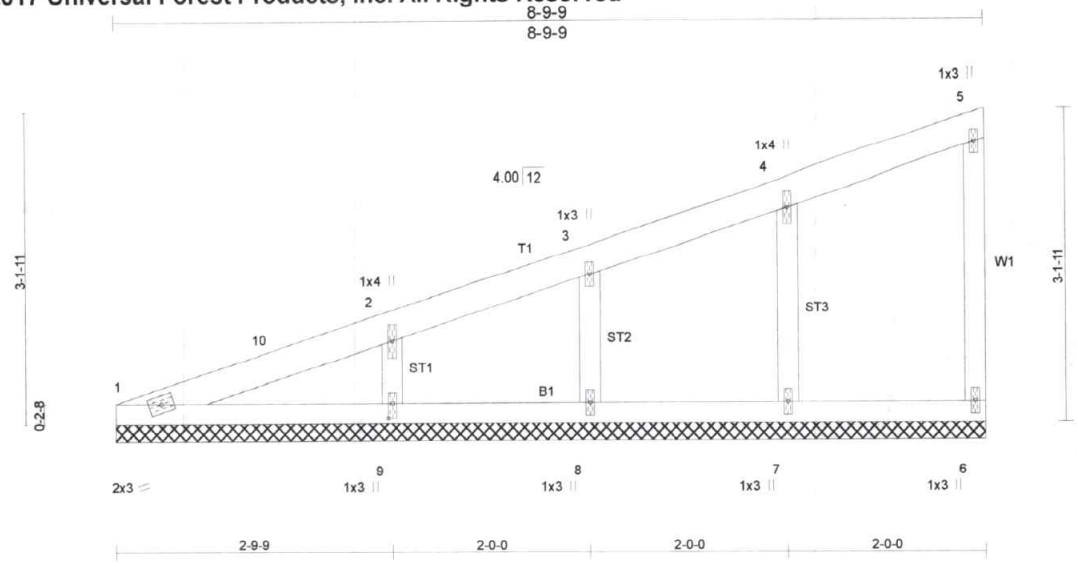

Plate Offsets (X,Y)-- [9:0-1-12,0-0-8]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.36	Vert(LL)	n/a	-	n/a	999	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.09	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.25	Horz(CT)	0.00		n/a	n/a		
BCLL	0.0 *	Code IBC2015/TPI2014		Matrix-P							Weight: 23 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x4 SPF No.2
BOT CHORD 2x3 SPF No.2
WEBS 2x3 SPF Stud
OTHERS 2x3 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 10-0-0 oc bracing.

REACTIONS. (lb/size) 1=259/8-9-9 (min. 0-3-13), 6=178/8-9-9 (min. 0-3-13), 7=535/8-9-9 (min. 0-3-13), 8=414/8-9-9 (min. 0-3-13), 9=667/8-9-9 (min. 0-3-13)
Max Horz 1=219(LC 8)
Max Uplift6=-46(LC 8), 7=-137(LC 8), 8=-107(LC 8), 9=-171(LC 8)
Max Grav 1=264(LC 18), 6=218(LC 18), 7=650(LC 18), 8=516(LC 18), 9=776(LC 18)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-10=-274/97, 2-10=-269/127, 2-3=-175/72, 3-4=-111/92, 4-5=-99/48, 5-6=-203/76
BOT CHORD 1-9=0/0, 8-9=0/0, 7-8=0/0, 6-7=0/0
WEBS 4-7=-605/228, 3-8=-482/177, 2-9=-720/285

NOTES- (12-13)
1) Wind: ASCE 7-10; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-10; Pg=130.0 psf (ground snow); Ps=100.1 psf (roof snow); Category II; Exp C; Partially Exp.; Ct=1.1
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Gable studs spaced at 2-0-0 oc.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 46 lb uplift at joint 6, 137 lb uplift at joint 7, 107 lb uplift at joint 8 and 171 lb uplift at joint 9.
11) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
12) Based on M600905. Changes: Updated to IBC 2015.
13) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1

E-signed by Stuart Walter

6/28/2017

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UNIVERSAL FOREST PRODUCTS, INC.

Job	Truss	Customer	MFG
88320	M600907	BONNAVILLA HOMES	379

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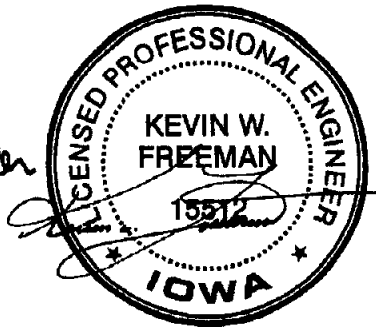
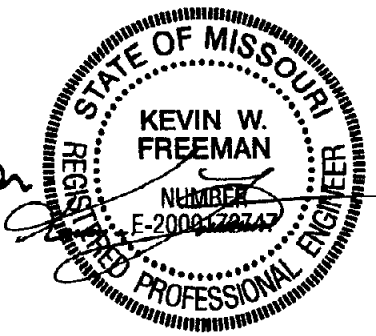
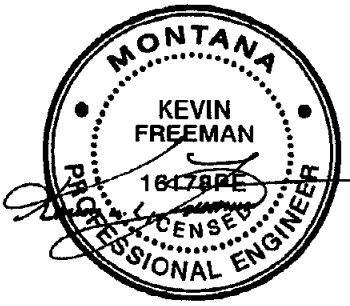




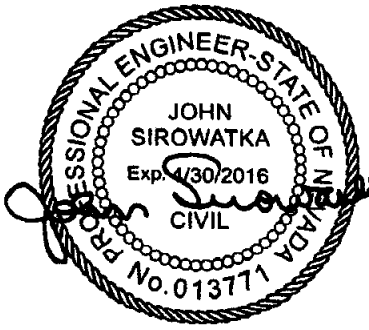


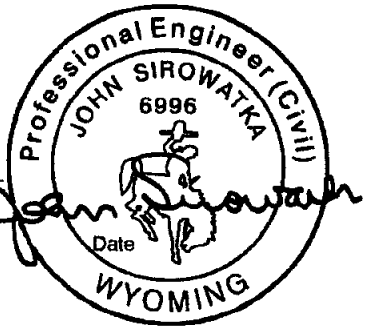
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

PRINT NAME: STUART WALTER

DATE: 6/28/2017

DATE:_____ LIC # 47774

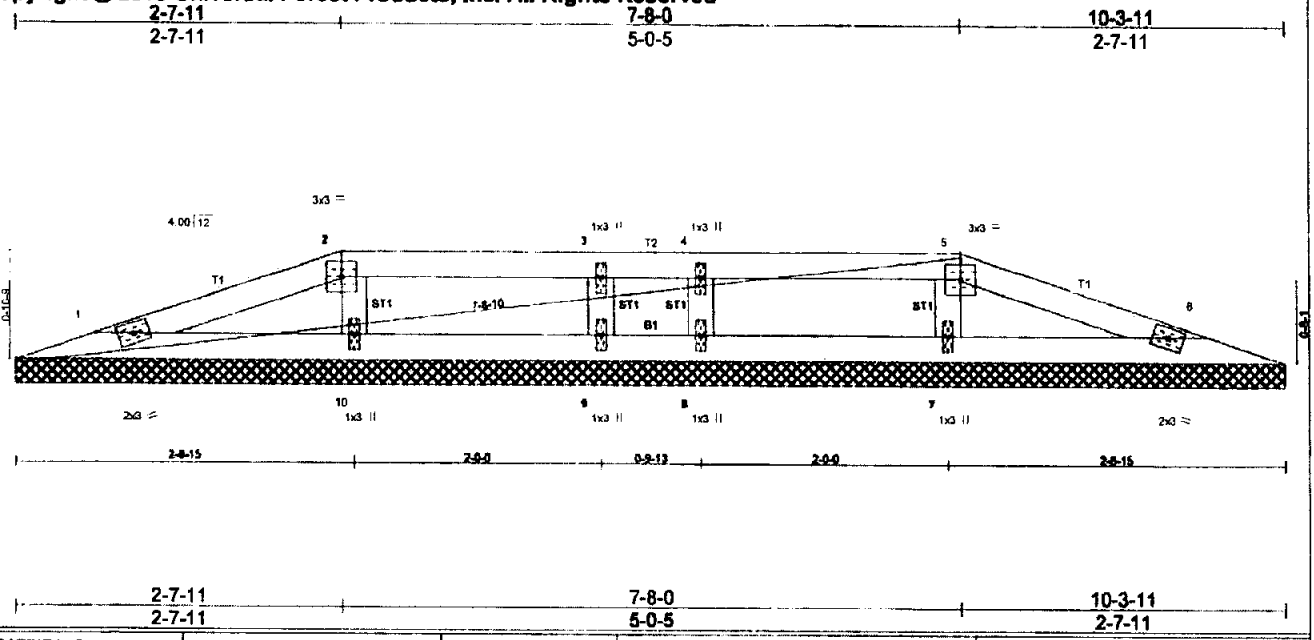




Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
93185	DR500319	GABLE	1	1	4254-DD20-A1

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Selanek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:38:56 2018 Page 1 of 1



LOADING (psf)		SPACING-	1-4-0	CSI		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1 **	Plate Grip DOL	1.00	TC	0.47	Vert(LL)	n/a	-	n/a	999	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.04	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.12	Horz(CT)	0.00	6	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-P							Weight: 17 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2
OTHERS 2x3 SPF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. (PC)
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (lb/size) 1=168/10-3-11 (min. 0-2-4), 6=168/10-3-11 (min. 0-2-4), 10=298/10-3-11 (min. 0-2-4), 7=298/10-3-11 (min. 0-2-4), 8=257/10-3-11 (min. 0-2-4), 9=257/10-3-11 (min. 0-2-4)
Max Horz 1=15(LC 9)
Max Uplift1=-39(LC 7), 6=-41(LC 8), 10=-60(LC 7), 7=-58(LC 8), 8=-61(LC 8), 9=-61(LC 7)
Max Grav 1=231(LC 23), 6=231(LC 23), 10=320(LC 13), 7=340(LC 14), 8=363(LC 22), 9=363(LC 22)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-83/30, 5-6=-83/30, 2-3=-4/32, 3-4=-4/32, 4-5=-4/32
BOT CHORD 1-10=-1/35, 9-10=-12/34, 8-9=-12/34, 7-8=-12/34, 6-7=0/37
WEBS 2-10=-291/177, 5-7=-312/177, 4-8=-346/175, 3-9=-348/175

NOTES- (13-15)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) 0-7-11 to 2-7-11, Corner(3R) 2-7-11 to 7-8-0, Corner(3E) 7-8-0 to 9-8-0 zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) ** TCLL: ASCE 7-16; Pg=130.0 psf; Ps= varies (100.1 psf) see load cases (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10, Lu=50-0-0
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Provide adequate drainage to prevent water ponding.
7) Gable requires continuous bottom chord bearing.
8) Gable studs spaced at 2-0-0 oc.
9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
10) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 39 lb uplift at joint 1, 41 lb uplift at joint 6, 60 lb uplift at joint 10, 58 lb uplift at joint 7, 61 lb uplift at joint 8 and 61 lb uplift at joint 9.
12) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
14) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
15) Based on DR500319 Changes Updated to IBC 2015

COLORADO LICENSED
STUART LEE WALTER
39142
PROFESSIONAL ENGINEER
9/5/2018

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

WARNING - *Verify design parameters and READ NOTES* Universal Forest Products, Inc. 2801 EAST BELTLINE RD, NE
PHONE (616)-364-8161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

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

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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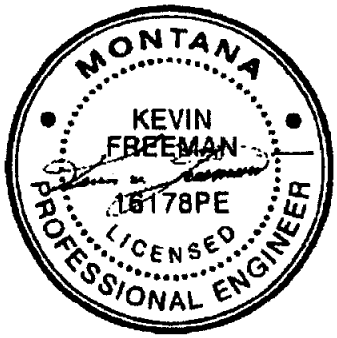
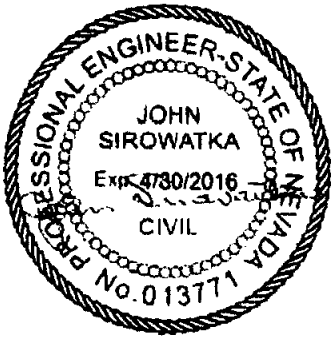
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

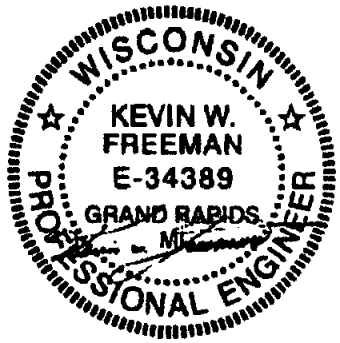
PRINT NAME: STUART WALTER

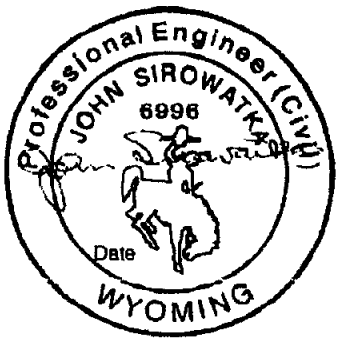
SIGNATURE:

DATE: 9/5/2018 LIC # 47774









Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
93185	DR500320	PIGGYBACK	1	1	4254-DD20-A2

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:39:11 2018 Page 1 of 1

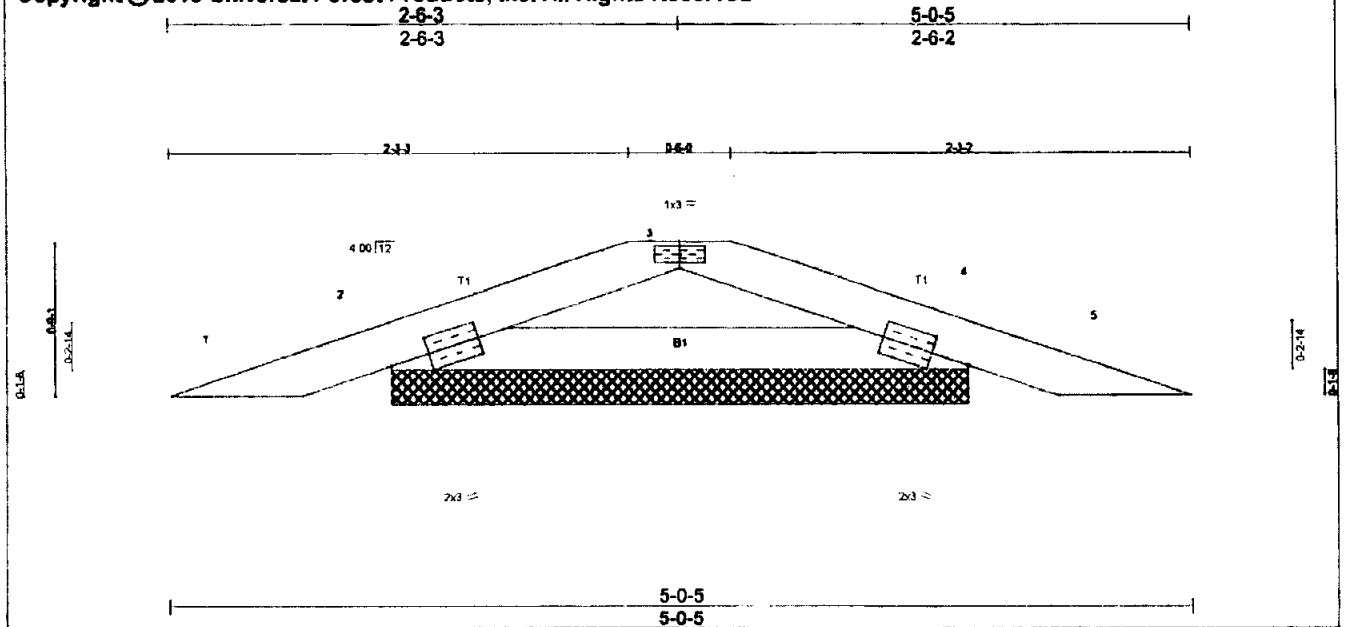


Plate Offsets (X,Y)— [2:0-2-5,0-1-0], [4:0-2-5,0-1-0]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.40	Vert(LL)	-0.00	5	n/r	120	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.15	Vert(CT)	-0.00	4	n/r	90		
TCDL	10.0	Rep Stress Incr	YES	WB	0.00	Horz(CT)	0.00	4	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-P							Weight: 7 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2

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

REACTIONS. (lb/size) 2=339/2-10-0 (min. 0-1-8), 4=339/2-10-0 (min. 0-1-8)
Max Horz 2=17(LC 7)
Max Uplift2=-95(LC 7), 4=-95(LC 8)
Max Grav2=365(LC 14), 4=365(LC 15)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/62, 2-3=-281/177, 3-4=-281/177, 4-5=0/62
BOT CHORD 2-4=-151/228

NOTES- (12-14)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) TCLL: ASCE 7-16; Pg=130.0 psf; Pf=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
3) Roof design snow load has been reduced to account for slope.
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 100.1 psf on overhangs non-concurrent with other live loads.
6) Gable requires continuous bottom chord bearing.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * 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.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 95 lb uplift at joint 2 and 95 lb uplift at joint 4.
10) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
11) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.
12) This truss is designed in accordance with the 2018 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2018 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
14) Based on: DR500311 Changes: Updated to IBC 2018

COLORADO LICENSED
STUART LEE WALTER
39142
PROFESSIONAL ENGINEER
9/5/2018

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Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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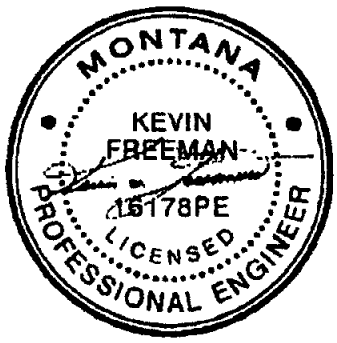
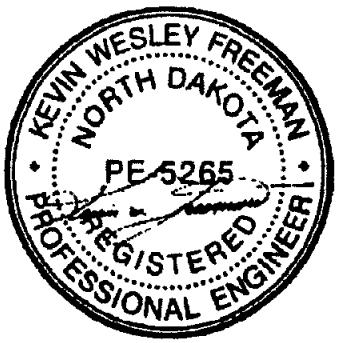
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

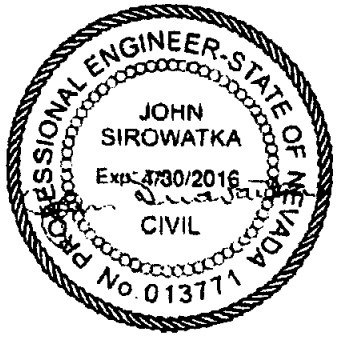
PRINT NAME: STUART WALTER

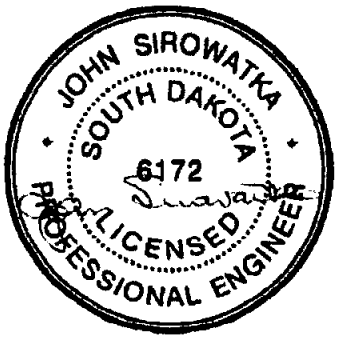
SIGNATURE:

DATE: 9/5/2018 LIC # 47774





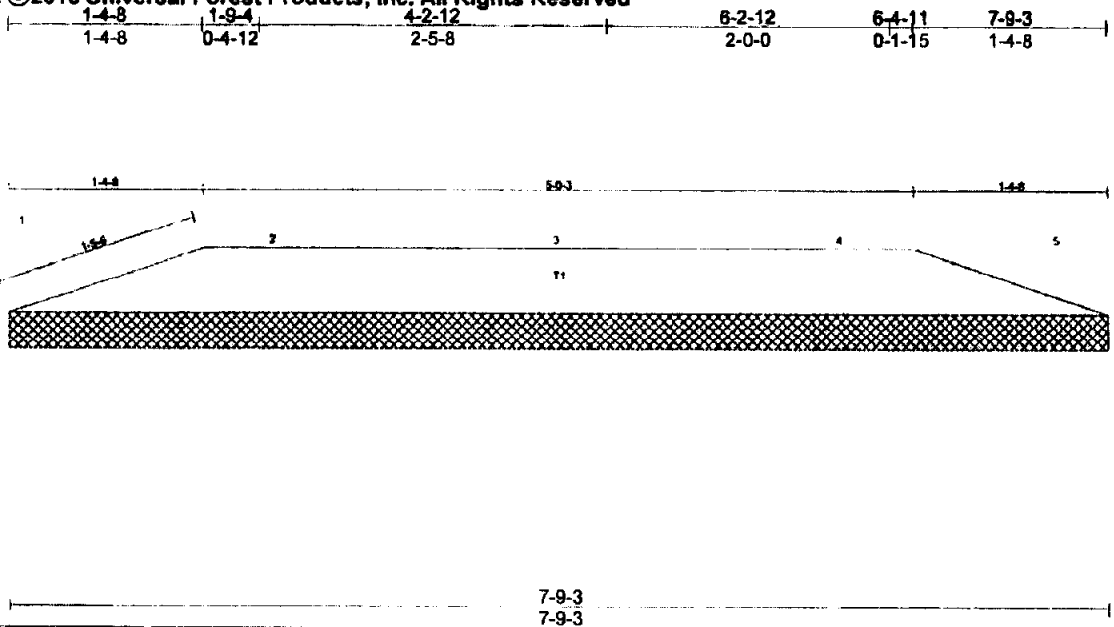




Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525 9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	
93185	DR500321	GABLE	1	1	Bonnavilla Homes - 379 4254-DD20-B

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:40:05 2018 Page 1 of 1



LOADING (psf)		SPACING-	1-4-0	CSI		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.07	Vert(LL)	-0.00	2-3	>999	240		
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.00	Vert(CT)	-0.00	2-3	>999	180		
TCDL	20.0	Rep Stress Incr	YES	WB	0.00	Horz(CT)	0.00		n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-P							Weight: 14 lb	FT = 0%
BCDL	0.0											

LUMBER-
TOP CHORD 2x6 SPF No.2

BRACING-
TOP CHORD Structural wood sheathing directly applied or 7-9-3 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (lb/size) 1=142/0-5-8 (min. 0-1-8), 3=320/0-5-8 (min. 0-1-8), 5=123/0-5-8 (min. 0-1-8), 2=302/0-5-8 (min. 0-1-8), 4=283/0-5-8 (min. 0-1-8)
Max Uplift1=-38(LC 7), 3=-87(LC 7), 5=-33(LC 7), 2=-82(LC 7), 4=-77(LC 7)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/0, 2-3=0/0, 3-4=0/0, 4-5=0/0

NOTES- (13-15)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=0.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf; Ps=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10, Lu=50-0-0
4) Roof design snow load has been reduced to account for slope.
5) Provide adequate drainage to prevent water ponding.
6) The bottom chord dead load shown is sufficient only to cover the truss weight itself and does not allow for any additional load to be added to the bottom chord.
7) Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
8) Gable studs spaced at 2-0-0 oc.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 38 lb uplift at joint 1, 87 lb uplift at joint 3, 33 lb uplift at joint 5, 82 lb uplift at joint 2 and 77 lb uplift at joint 4.
11) This truss is designed in accordance with the 2018 International Building Code section 2306.* and referenced standard ANSI/TPI 1.
12) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
13) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
14) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
15) Based on: DR500312 Changes: Updated to IBC 2018

COLORADO LICENSED
STUART LEE WALTER
39142
PROFESSIONAL ENGINEER

9/5/2018

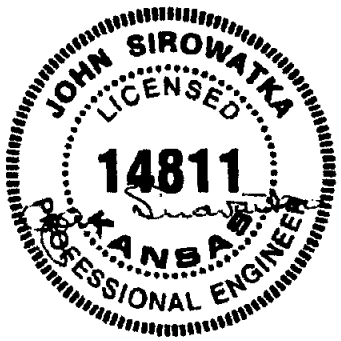
The professional engineering seal indicates that a licensed professional engineer has designed the truss under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use in a specific state. The final determination on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

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

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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

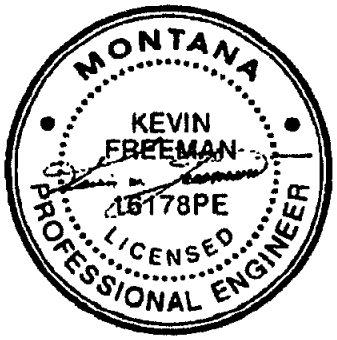


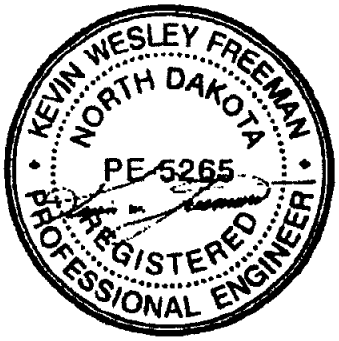
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

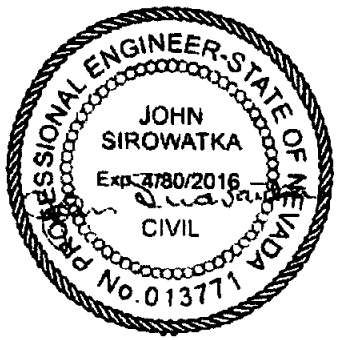
PRINT NAME: STUART WALTER

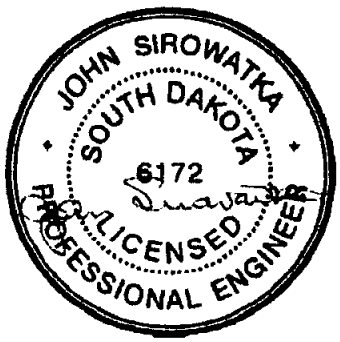
SIGNATURE:

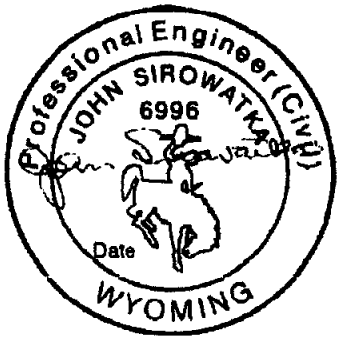
DATE: 9/5/2018 LIC # 47774











Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
93185	DR500322	GABLE	1	1	4254-DD20-C

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:40:19 2018 Page 1 of 1

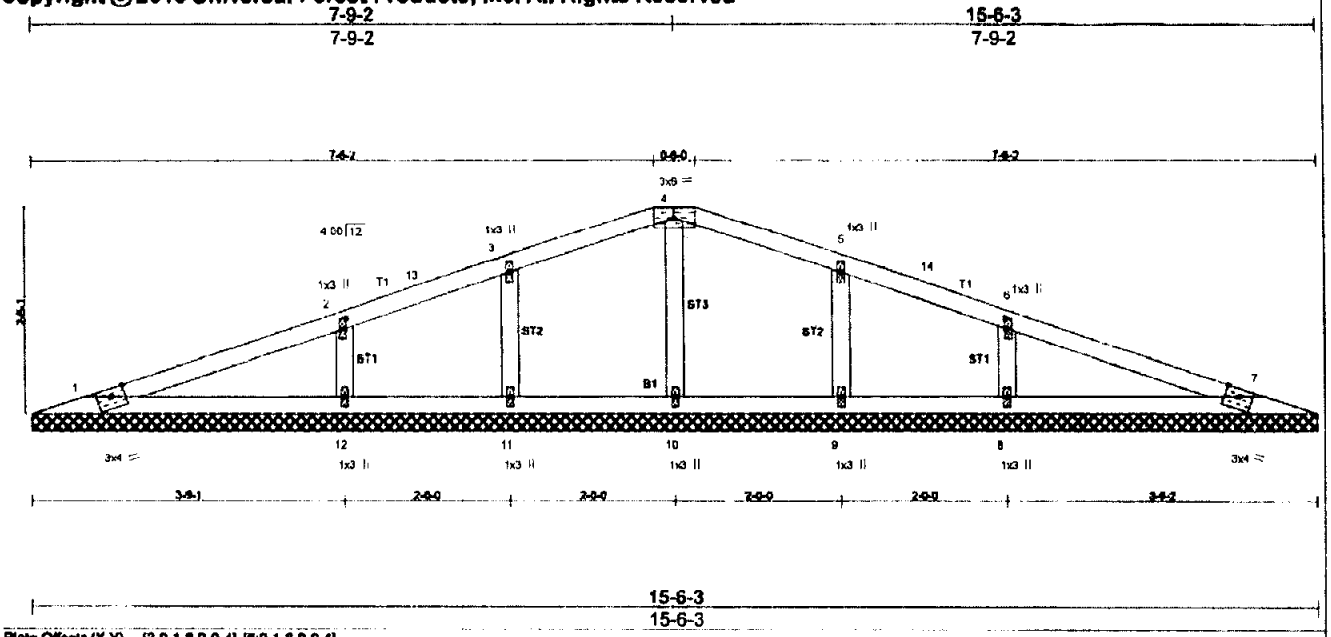


Plate Offsets (X,Y)-- [2:0-1-8,0-0-4], [6:0-1-8,0-0-4]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/def	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.63	Vert(LL)	n/a	-	n/a	999	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.46	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.21	Horz(CT)	0.00	7	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-R							Weight: 30 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2
OTHERS 2x3 SPF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (lb/size) 1=209/15-6-3 (min. 0-3-9), 7=209/15-6-3 (min. 0-3-9), 10=345/15-6-3 (min. 0-3-9), 11=244/15-6-3 (min. 0-3-9), 12=513/15-6-3 (min. 0-3-9), 9=244/15-6-3 (min. 0-3-9), 8=513/15-6-3 (min. 0-3-9)
Max Horz 1=53(LC 9)
Max Uplift1=-34(LC 7), 7=-40(LC 6), 10=-27(LC 7), 11=-66(LC 9), 12=-131(LC 7), 9=-66(LC 10), 8=-131(LC 8)
Max Grav 1=283(LC 13), 7=283(LC 14), 10=345(LC 1), 11=356(LC 13), 12=695(LC 13), 9=356(LC 14), 8=695(LC 14)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-111/90, 2-13=-98/69, 3-13=-17/74, 3-4=-82/127, 4-5=-82/127, 5-14=-17/74, 6-14=-98/69, 6-7=-111/90
BOT CHORD 1-12=-6/45, 11-12=-6/45, 10-11=-6/45, 9-10=-6/45, 8-9=-6/45, 7-8=-6/45
WEBS 4-10=-306/96, 3-11=-380/151, 2-12=-595/227, 5-9=-360/151, 6-8=-595/227

NOTES- (12-14)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) 0-7-11 to 3-9-1, Exterior(2N) 3-9-1 to 4-9-2, Corner(3R) 4-9-2 to 10-9-2, Exterior(2N) 10-9-2 to 11-9-2, Corner(3E) 11-9-2 to 14-10-8 zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf; Ps=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Gable studs spaced at 2-0-0 oc.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 34 lb uplift at joint 1, 40 lb uplift at joint 7, 27 lb uplift at joint 10, 66 lb uplift at joint 11, 131 lb uplift at joint 12, 66 lb uplift at joint 9 and 131 lb uplift at joint 8.
11) This truss is designed in accordance with the 2018 International Building Code section 2308.1 and referenced standard ANSI/TPI 1.
12) This truss is designed in accordance with the 2012 IBC Sec 2308.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2015 IBC Sec 2308.1 and referenced standard ANSI/TPI 1.
14) Based on: DR500313 Changes Updated to IBC 2018

9/5/2018

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

WARNING - *Verify design parameters and READ NOTES*

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

2801 EAST BELTLINE RD, NE
GRAND RAPIDS, MI 49525

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

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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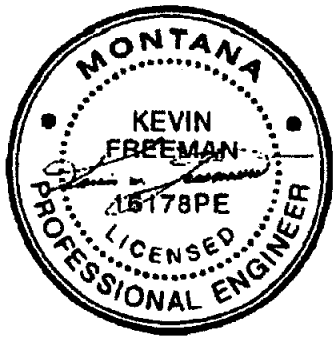
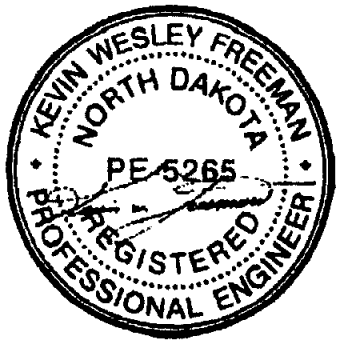
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

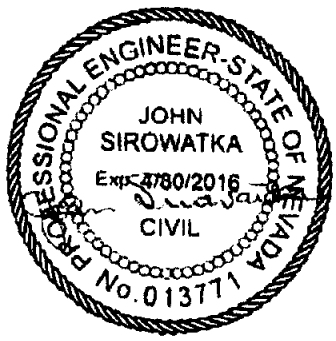
PRINT NAME: STUART WALTER

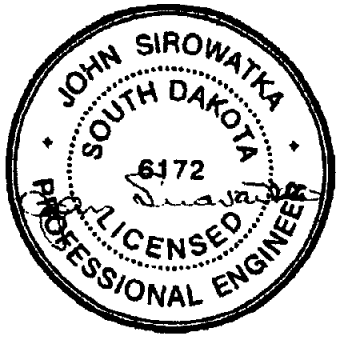
SIGNATURE: Stuart J Walter

DATE: 9/5/2018 LIC # 47774







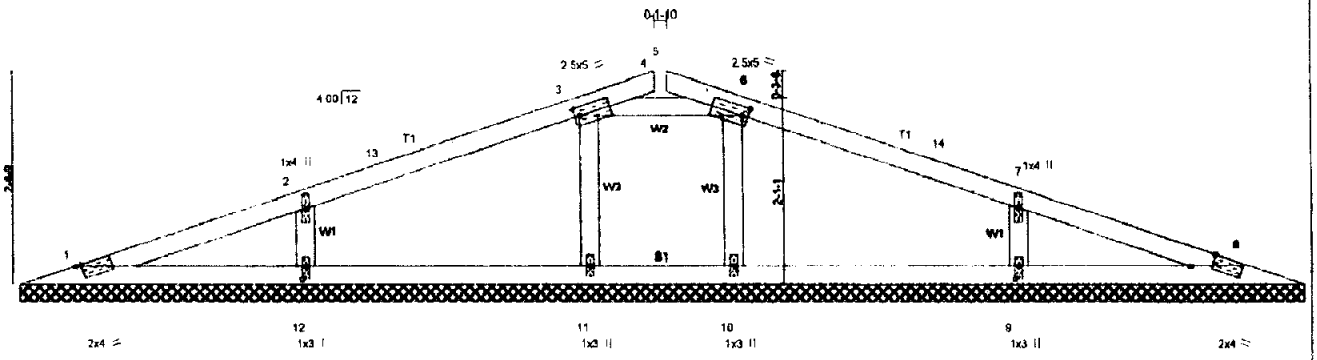


Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	
93185	DR500323	GABLE	1	1	Bonnavilla Homes - 379 4254-DD20-D

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:40:44 2018 Page 1 of 1

3-2-8	6-4-13	7-2-8	8-0-3	11-2-8	12-9-15	14-5-0
3-2-8	3-2-5	0-9-11	0-9-11	3-2-5	1-7-7	1-7-1



3-2-8	6-4-13	8-0-3	11-2-8	14-5-0
3-2-8	3-2-5	1-7-6	3-2-5	3-2-8

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

LOADING (psf)		SPACING-	1-4-0	CSI		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.70	Vert(LL)	0.03	5-6	n/r	120	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.21	Vert(CT)	0.00	5	n/r	90		
TCDL	10.0	Rep Stress Incr	YES	WB	0.23	Horz(CT)	0.00	8	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-R							Weight: 28 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2
WEBS 2x3 SPF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing. Except:
6-0-0 oc bracing: 10-11.

REACTIONS. (lb/size) 1=155/14-5-0 (min. 0-3-4), 8=155/14-5-0 (min. 0-3-4), 11=349/14-5-0 (min. 0-3-4), 10=349/14-5-0 (min. 0-3-4), 12=538/14-5-0 (min. 0-3-4), 9=538/14-5-0 (min. 0-3-4)
Max Horz 1=48(LC 9)
Max Uplift1=-24(LC 7), 8=-26(LC 8), 11=-63(LC 9), 10=-56(LC 10), 12=-140(LC 9), 9=-140(LC 10)
Max Grav 1=211(LC 13), 8=211(LC 14), 11=473(LC 13), 10=473(LC 14), 12=733(LC 13), 9=733(LC 14)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-96/70, 2-13=-140/79, 3-13=-30/88, 3-4=-56/0, 5-6=-56/0, 6-14=-30/88, 7-14=-140/79, 7-8=-96/70
BOT CHORD 1-12=-6/39, 11-12=-6/39, 10-11=-7/51, 9-10=-6/39, 8-9=-6/39
WEBS 3-11=-449/182, 6-10=-449/182, 3-6=-13/142, 2-12=-664/274, 7-9=-664/274

NOTES- (12-14)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) 0-7-11 to 3-7-11, Exterior(2N) 3-7-11 to 4-1-11, Corner(3R) 4-1-11 to 10-3-5, Exterior(2N) 10-3-5 to 10-9-5, Corner(3E) 10-9-5 to 13-9-5 zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf; Ps=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Gable studs spaced at 2-0-0 oc.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 24 lb uplift at joint 1, 28 lb uplift at joint 8, 63 lb uplift at joint 11, 56 lb uplift at joint 10, 140 lb uplift at joint 12 and 140 lb uplift at joint 9.
11) This truss is designed in accordance with the 2018 International Building Code section 2308.1 and referenced standard ANSI/TPI 1.
12) This truss is designed in accordance with the 2012 IBC Sec 2308.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2015 IBC Sec 2308.1 and referenced standard ANSI/TPI 1.
14) Based on DR500014 Changes Updated to IBC 2018

COLORADO LICENSED STUART LEE WALTER 39142 PROFESSIONAL ENGINEER
9/5/2018

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

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

Truss shall not be cut or modified without approval of the truss design engineer.
This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 5300 Enterprise LN, Madison, WI 53719. J:\support\MiTekSupp\templates\ufp.tpe

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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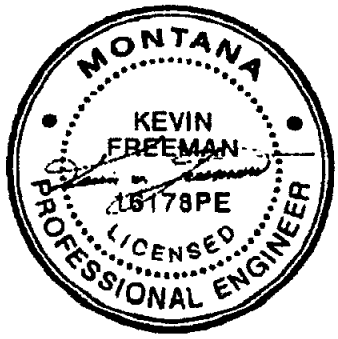
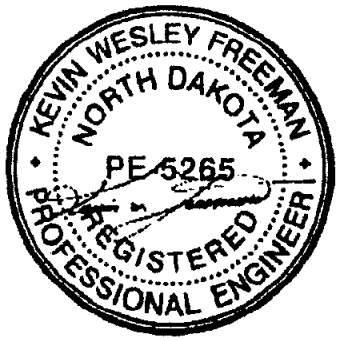
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

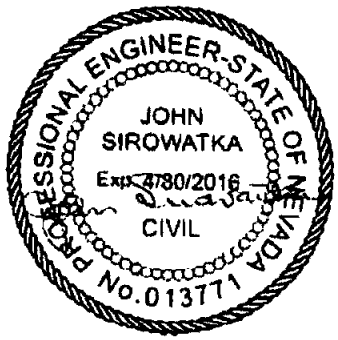
PRINT NAME: STUART WALTER

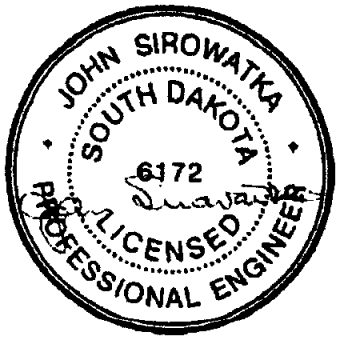
SIGNATURE: Stuart J Walter

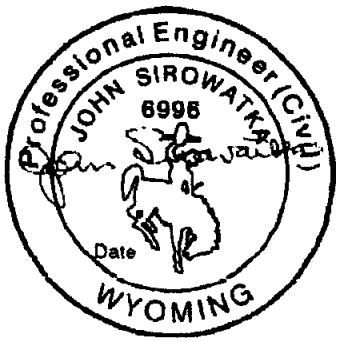
DATE: 9/5/2018 LIC # 47774









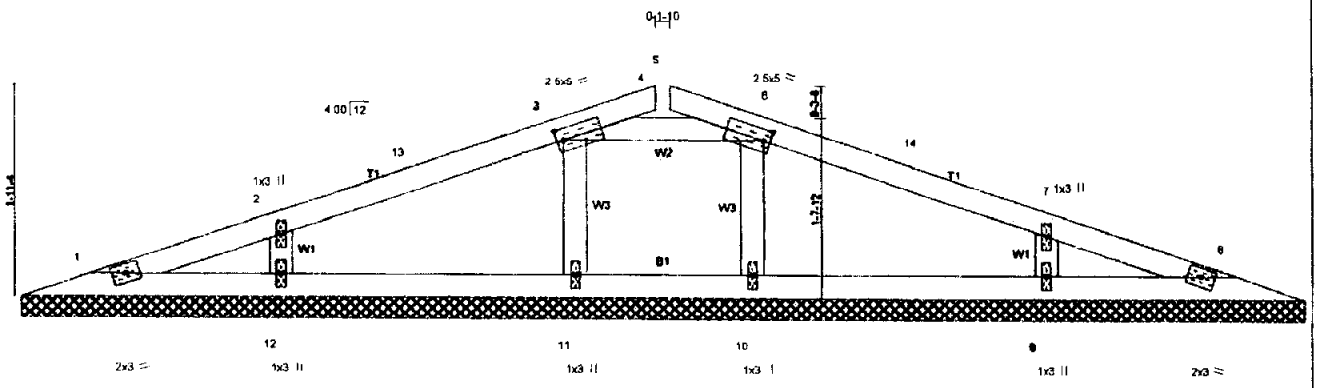


Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
93185	DR500324	GABLE	1	1	4254-DD20-E

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Selanek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:41:42 2018 Page 1 of 1

2-4-8	5-0-13	5-10-8	6-8-3	9-4-8	11-9-0
2-4-8	2-8-5	0-9-11	0-9-11	2-8-5	2-4-8



2-4-8	5-0-13	6-8-3	9-4-8	11-9-0
2-4-8	2-8-5	1-7-6	2-8-5	2-4-8

Plate Offsets (X,Y)-- [3:0-0-12,0-1-4], [6:0-0-12,0-1-4]

LOADING (psf)		SPACING-	1-4-0	CSL		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.41	Vert(LL)	0.01	5-6	n/r	120	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.07	Vert(CT)	0.00	5	n/r	90		
TCDL	10.0	Rep Stress Incr	YES	WB	0.16	Horz(CT)	0.00	8	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-R							Weight: 23 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2
WEBS 2x3 SPF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except:
6-0-0 oc bracing: 10-11.

REACTIONS. (lb/size) 1=96/11-9-0 (min. 0-2-10), 8=96/11-9-0 (min. 0-2-10), 11=327/11-9-0 (min. 0-2-10), 10=327/11-9-0 (min. 0-2-10), 12=405/11-9-0 (min. 0-2-10), 9=405/11-9-0 (min. 0-2-10)
Max Horz 1=36(LC 9)
Max Uplift1=-14(LC 8), 8=-15(LC 8), 11=-62(LC 9), 10=-56(LC 10), 12=-105(LC 9), 9=-105(LC 10)
Max Grav 1=130(LC 13), 8=130(LC 14), 11=437(LC 13), 10=437(LC 14), 12=543(LC 13), 9=543(LC 14)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-70/40, 2-13=-118/65, 3-13=-32/66, 3-4=-55/0, 5-6=-55/0, 6-14=-32/66, 7-14=-118/65, 7-8=-70/40
BOT CHORD 1-12=-5/32, 11-12=-5/32, 10-11=-6/49, 9-10=-5/32, 8-9=-5/32
WEBS 3-11=-412/206, 6-10=-412/206, 3-5=-8/125, 2-12=-499/230, 7-9=-499/230

NOTES- (12-14)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) 0-7-11 to 3-7-11, Corner(3R) 3-7-11 to 8-1-5, Corner(3E) 8-1-5 to 11-1-5 zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf, Ps=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Gable studs spaced at 2-0-0 oc.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 14 lb uplift at joint 1, 15 lb uplift at joint 8, 62 lb uplift at joint 11, 56 lb uplift at joint 10, 105 lb uplift at joint 12 and 105 lb uplift at joint 9.
11) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1
12) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
14) Based on DR500315 Changes Updated to IBC 2015

9/5/2018

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

WARNING - *Verify design parameters and READ NOTES*

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

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

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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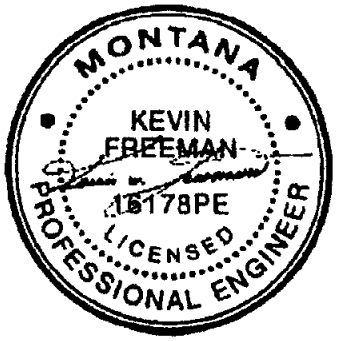
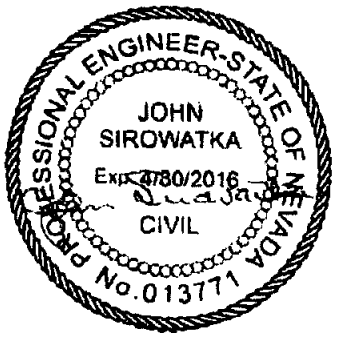
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

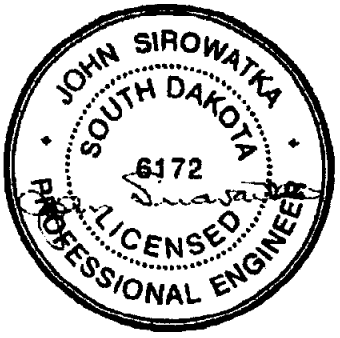
PRINT NAME: STUART WALTER

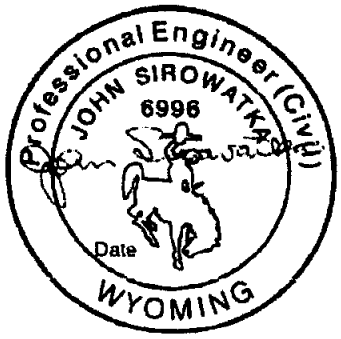
SIGNATURE: Stuart J. Walter

DATE: 9/5/2018 LIC # 47774









Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
93185	DR500325	GABLE	1	1	4254-DD20-F

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:41:55 2018 Page 1 of 1

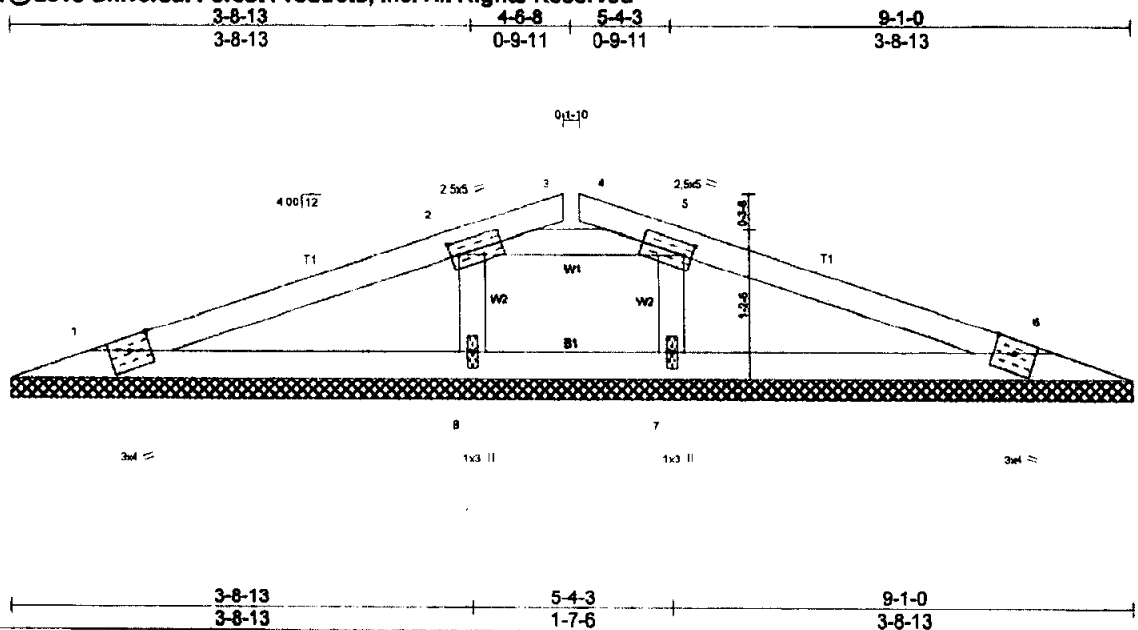


Plate Offsets (X,Y)-- [2:0-0-12,0-1-4], [5:0-0-12,0-1-4]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100.1	Plate Grip DOL	1.00	TC	0.63	Vert(LL)	0.04	4-5	n/r	120	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.47	Vert(CT)	0.00	4	n/r	90		
TCDL	10.0	Rep Stress Incr	YES	WB	0.16	Horz(CT)	0.00	6	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-R							Weight: 17 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2
WEBS 2x3 SPF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (lb/size) 1=220/9-1-0 (min. 0-1-15), 6=220/9-1-0 (min. 0-1-15), 8=395/9-1-0 (min. 0-1-15), 7=395/9-1-0 (min. 0-1-15)
Max Horz 1=-26(LC 10)
Max Uplift1=-46(LC 7), 6=-50(LC 8), 8=-86(LC 9), 7=-82(LC 10)
Max Grav1=286(LC 13), 6=286(LC 14), 8=527(LC 13), 7=527(LC 14)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-135/47, 2-3=-53/0, 4-5=-53/0, 5-6=-135/47
BOT CHORD 1-8=-3/39, 7-8=-16/53, 6-7=-3/39
WEBS 2-8=-438/260, 5-7=-438/260, 2-5=-4/94

NOTES- (12-14)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) 0-7-11 to 3-7-6, Corner(3R) 3-7-6 to 5-5-10, Corner(3E) 5-5-10 to 8-5-5 zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf; Ps=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Gable studs spaced at 2-0-0 oc.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 46 lb uplift at joint 1, 50 lb uplift at joint 6, 86 lb uplift at joint 8 and 82 lb uplift at joint 7.
11) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
12) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
14) Based on: DR500316 Changes: Updated to IBC 2015

COLORADO LICENSED
STUART LEE WALTER
39142
PROFESSIONAL ENGINEER
9/5/2018

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

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

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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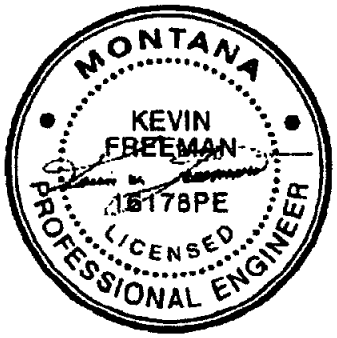
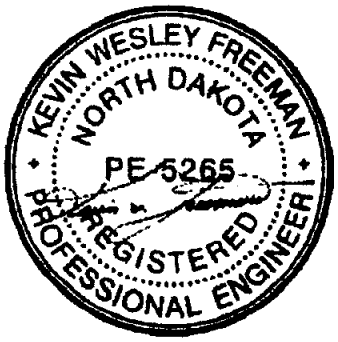
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

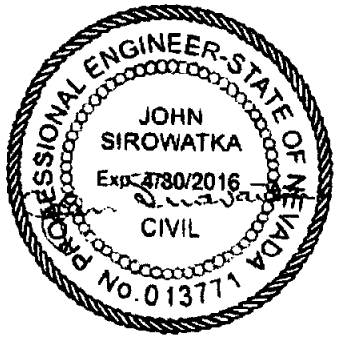
PRINT NAME: STUART WALTER

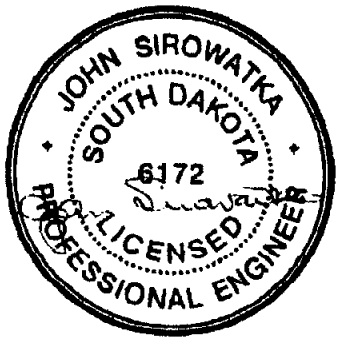
SIGNATURE:

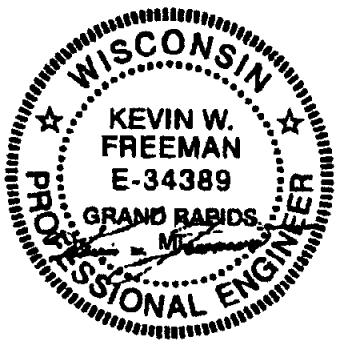
DATE: 9/5/2018 LIC # 47774











Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
93185	DR500326	GABLE	1	1	4254-DD20-G

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:42:18 2018 Page 1 of 1

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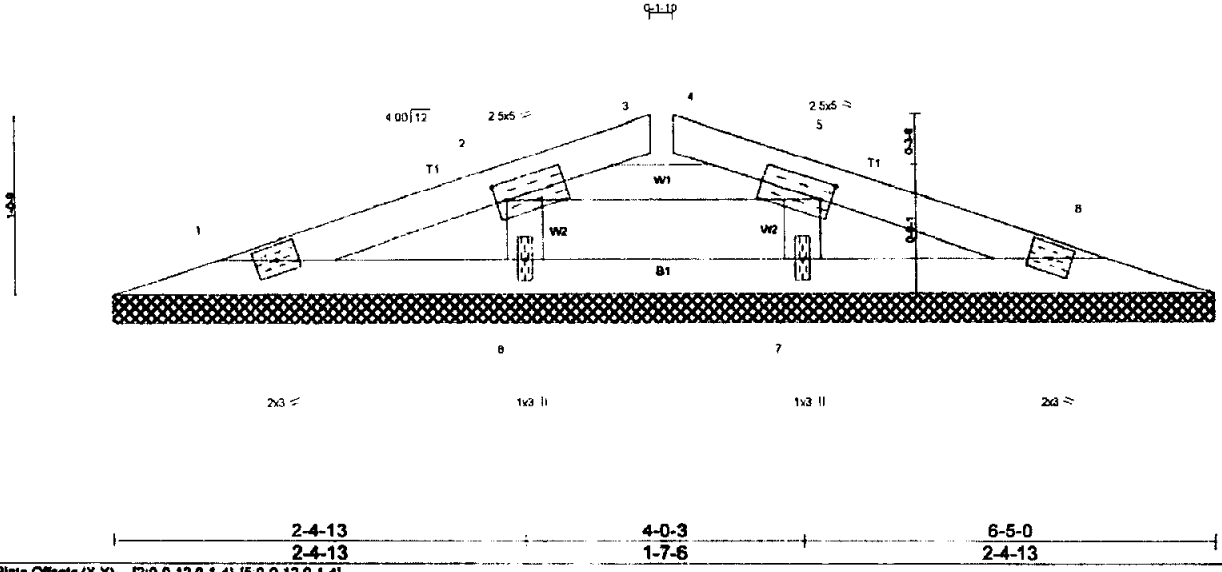
2-4-13 | 0-9-11 | 0-9-11 | 2-4-13



2-4-13 | 4-0-3 | 6-5-0
2-4-13 | 1-7-6 | 2-4-13

Plate Offsets (X,Y)-- [2:0-0-12,0-1-4], [5:0-0-12,0-1-4]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	100 1	Plate Grip DOL	1.00	TC	0.27	Vert(LL)	-0.01	4	n/r	120	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.04	Vert(CT)	-0.00	4	n/r	90		
TCDL	10.0	Rep Stress Incr	YES	WB	0.12	Horz(CT)	0.00	8	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-P							Weight: 12 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x3 SPF No.2
WEBS 2x3 SPF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (lb/size) 1=108/6-5-0 (min. 0-1-8), 6=108/6-5-0 (min. 0-1-8), 8=293/6-5-0 (min. 0-1-8), 7=293/6-5-0 (min. 0-1-8)
Max Horz 1=18(LC 9)
Max Uplift1=-23(LC 7), 6=-24(LC 8), 8=-60(LC 9), 7=-57(LC 10)
Max Grav 1=137(LC 13), 6=137(LC 14), 8=359(LC 13), 7=359(LC 14)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-82/25, 2-3=-50/0, 4-5=-50/0, 5-6=-82/25
BOT CHORD 1-8=-7/54, 7-8=-24/56, 6-7=-1/54
WEBS 2-8=-342/256, 5-7=-342/256, 2-5=-0/56

NOTES- (12-14)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf; Ps=100.1 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Gable studs spaced at 2-0-0 oc.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 23 lb uplift at joint 1, 24 lb uplift at joint 6, 60 lb uplift at joint 8 and 57 lb uplift at joint 7.
11) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1
12) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
13) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
14) Based on: DR500317. Changes: Updated to IBC 2018

COLORADO LICENSED STUART LEE WALTER 39142 PROFESSIONAL ENGINEER
9/5/2018

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

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

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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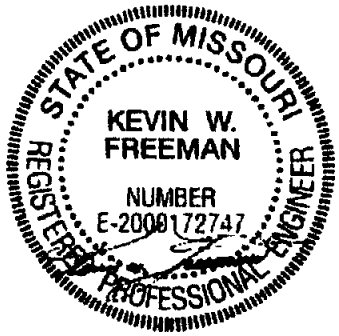
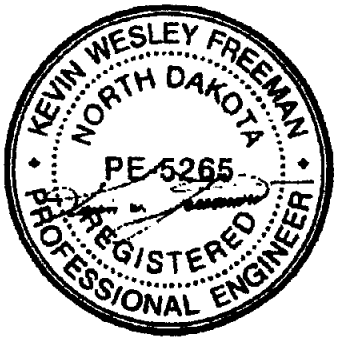
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

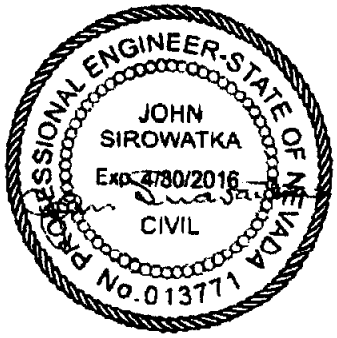
PRINT NAME: STUART WALTER

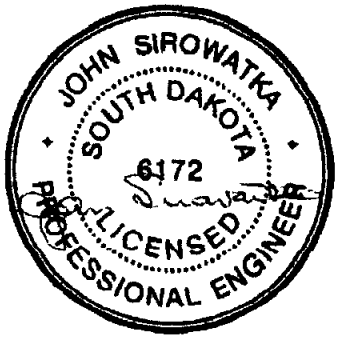
SIGNATURE: Stuart F. Walter

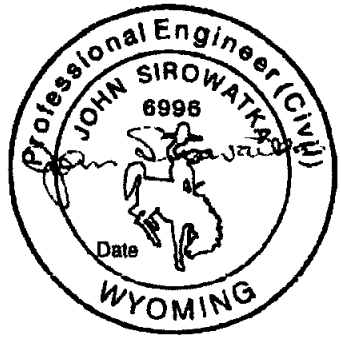
DATE: 9/5/2018 LIC # 47774











Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
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Job	Truss	Truss Type	Qty	Ply	
93185	DR500327	GABLE	1	1	Bonnavilla Homes - 379 4254-DD20-H

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 6.220 s Aug 13 2018 MiTek Industries, Inc. Wed Aug 29 09:44:07 2018 Page 1 of 1

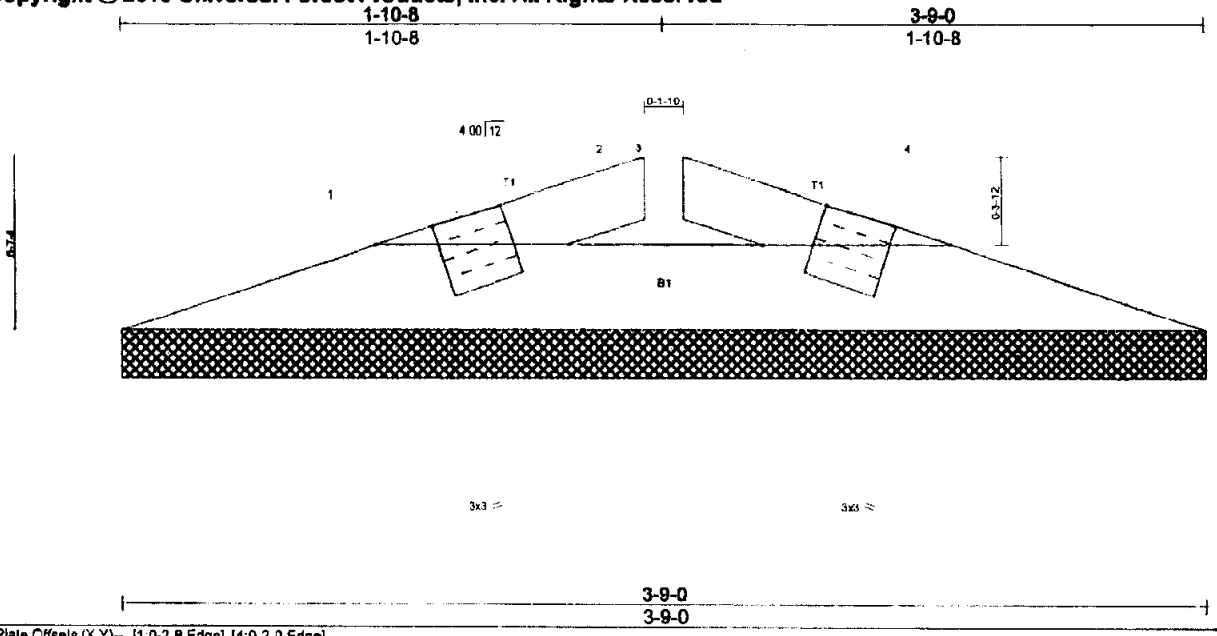

Plate Offsets (X,Y)-- [1:0-2-8,Edge], [4:0-2-0,Edge]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	0.0	Plate Grip DOL	1.00	TC	0.29	Vert(LL)	-0.02	3	n/r	120	MT20	197/144
(Ground Snow=130.0)		Lumber DOL	1.00	BC	0.18	Vert(CT)	-0.00	3	n/r	90		
TCDL	10.0	Rep Stress Incr	YES	WB	0.00	Horz(CT)	0.00	4	n/a	n/a		
BCLL	0.0 *	Code IBC2018/TPI2014		Matrix-P							Weight: 6 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x3 SPF No.2
BOT CHORD 2x4 SPF No.2

BRACING-
TOP CHORD Structural wood sheathing directly applied or 3-9-0 oc purlins. [P]
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (lb/size) 1=150/3-9-0 (min. 0-1-8), 4=150/3-9-0 (min. 0-1-8)
Max Horz 1=8(LC 9)
Max Uplift1=-44(LC 7), 4=-44(LC 8)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-55/0, 3-4=-55/0
BOT CHORD 1-4=-0/58

NOTES- (13-15)
1) Wind: ASCE 7-16; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) Truss designed for wind loads in the plane of the truss only.
3) TCLL: ASCE 7-16; Pg=130.0 psf; Ps=0.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Roof design snow load has been reduced to account for slope.
5) Unbalanced snow loads have been considered for this design.
6) Gable requires continuous bottom chord bearing.
7) Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
8) Gable studs spaced at 2-0-0 oc.
9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
10) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 44 lb uplift at joint 1 and 44 lb uplift at joint 4.
12) This truss is designed in accordance with the 2018 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
13) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
14) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1.
15) Based on: DR500318 Changes: Updated to IBC 2018

9/5/2018

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

WARNING - *Verify design parameters and READ NOTES*

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

2801 EAST BELTLINE RD, NE
GRAND RAPIDS, MI 49525

Truss shall not be cut or modified without approval of the truss design engineer.
This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 5300 Enterprise LN, Madison, WI 53719. J:\support\MiTekSupp\templates\ufp.tpe

Universal Forest Products

Job	Truss	MFG	Customer
93185		379	BONNAVILLA HOMES

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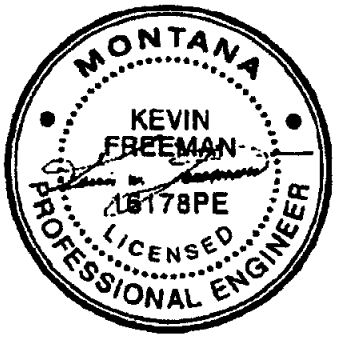
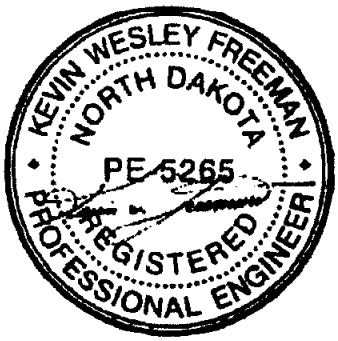
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

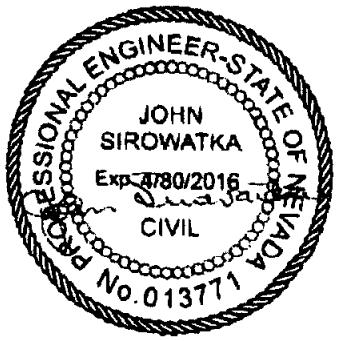
PRINT NAME: STUART WALTER

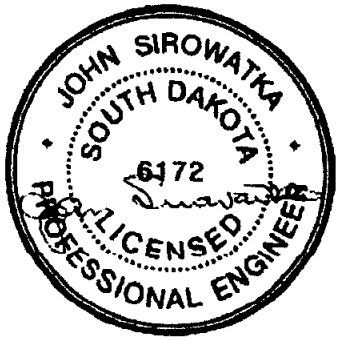
SIGNATURE:

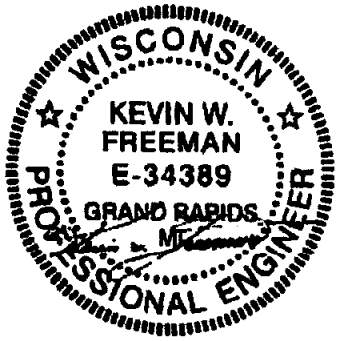
DATE: 9/5/2018 LIC # 47774

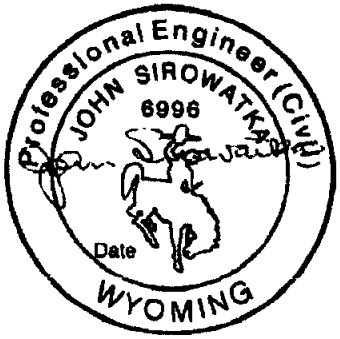












Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Job	Truss	Truss Type	Qty	Ply	
88320	HMC63003	HINGE MONO	1	1	Bonnavilla Homes - 379 4289-MT

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.030 s Apr 8 2017 MiTek Industries, Inc. Tue Jun 27 08:39:17 2017 Page 1 of 1

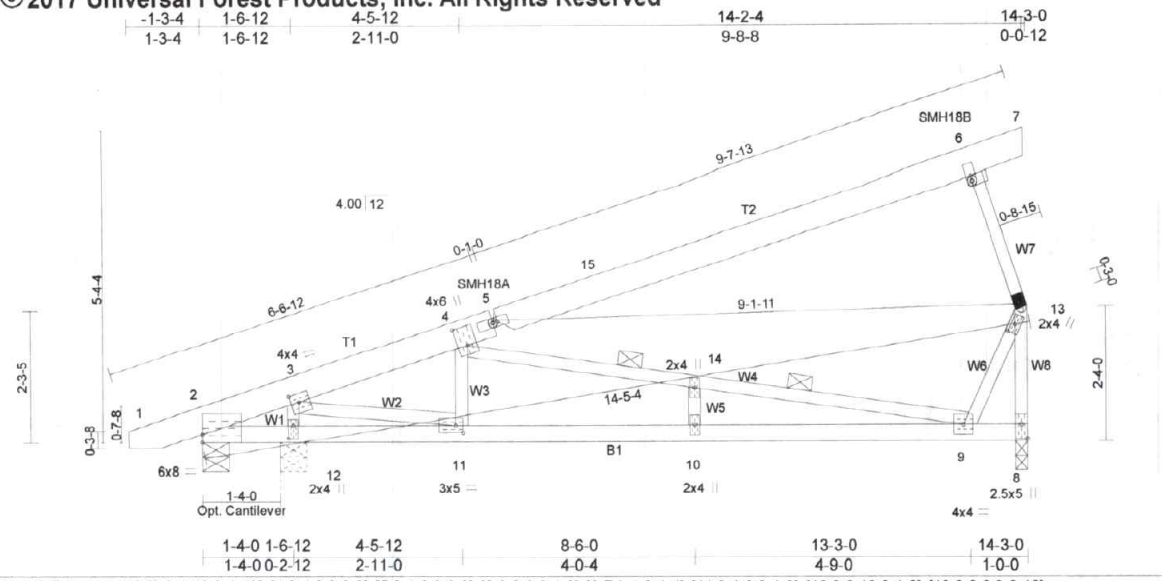


Plate Offsets (X,Y)-- [2:Edge,0-1-11], [3:0-1-12,0-1-12], [4:0-4-0,0-2-0], [5:0-1-0,0-0-0], [6:0-0-0,0-1-0], [8:Edge,0-1-4], [11:0-1-8,0-1-8], [12:0-2-12,0-1-0], [13:0-2-0,0-0-12]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	46.2	Plate Grip DOL	1.15	TC	0.88	Vert(LL)	-0.36	9-10	>462	240	MT20	197/144
(Ground Snow=60.0)		Lumber DOL	1.15	BC	0.98	Vert(CT)	-0.72	9-10	>231	180	MT18HS	197/144
TCDL	10.0	Rep Stress Incr	YES	WB	0.91	Horz(CT)	0.04	8	n/a	n/a		
BCLL	0.0 *	Code IBC2015/TPI2014		Matrix-R							Weight: 62 lb	FT = 0%
BCDL	10.0											

LUMBER-
TOP CHORD 2x6 SPF No.2 *Except* T2: 2x6 SPF 1650F 1.5E
BOT CHORD 2x4 SPF No.2
WEBS 2x3 SPF Stud *Except* W4,W2: 2x3 SPF No.2

BRACING- [MCT]
TOP CHORD Structural wood sheathing directly applied or 2-2-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 2-2-0 oc bracing.
WEBS 2 Rows at 1/3 pts 4-9

REACTIONS. (lb/size) 2=1064/0-5-8 (min. 0-1-13), 8=920/0-2-8 (min. 0-1-12)
Max Horz 2=389(LC 8)
Max Uplift2=-416(LC 8), 8=-427(LC 12)
Max Grav 2=1139(LC 19), 8=1135(LC 19)

REACTIONS FOR OPTIONAL CANTILEVER
REACTIONS. (lb/size) 8=807/0-2-8 (min. 0-1-9), 12=1181/0-5-8 (min. 0-2-0)
Max Horz 12=389(LC 8)
Max Uplift8=-387(LC 12), 12=-512(LC 8)
Max Grav 8=1014(LC 19), 12=1264(LC 19)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/18, 2-3=-1560/502, 3-4=-2104/650, 4-5=-446/0, 5-15=-414/0, 6-15=-247/0, 6-7=-57/0, 8-13=-1214/795
BOT CHORD 2-12=-798/1259, 11-12=-798/1259, 10-11=-997/2003, 9-10=-997/2003, 8-9=-0/7
WEBS 4-11=-29/304, 4-14=-1805/866, 9-14=-1802/859, 6-13=-714/463, 9-13=-388/585, 10-14=-16/35, 3-12=-149/0, 3-11=-206/769

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
13=714/463/234/0

NOTES- (16-18)
1) Wind: ASCE 7-10; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone;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=60.0 psf (ground snow); Ps=46.2 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 20.0 psf or 2.00 times flat roof load of 46.2 psf on overhangs non-concurrent with other live loads.
6) All plates are MT20 plates unless otherwise indicated.
7) See HINGE PLATE DETAILS for plate placement.
8) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
9) All additional member connections shall be provided by others for forces as indicated.
10) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
11) * 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.
12) Provide mechanical connection (by others) of truss to bearing plate at joint(s) 8.
13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 416 lb uplift at joint 2 and 427 lb uplift at joint 8.
14) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
15) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.
16) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
17) Take precaution to keep the chords in plane, any bending or twisting of the hinge plate must be repaired before the building is put into service.
18) Based on: HMC63001. Changes: Updated to IBC 2015.

E-signed by Stuart Walter

6/28/2017

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UNIVERSAL FOREST PRODUCTS, INC.

Job	Truss	Customer	MFG
88320	HMC63003	BONNAVILLA HOMES	379

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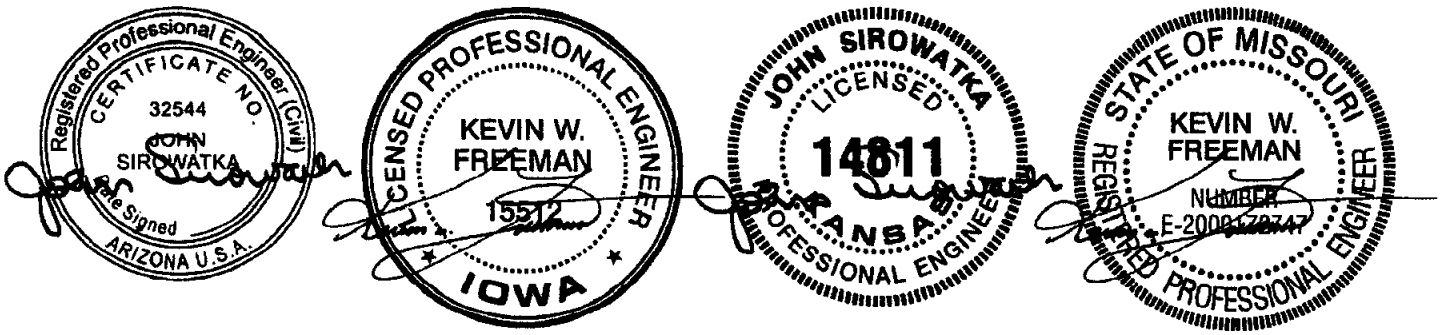

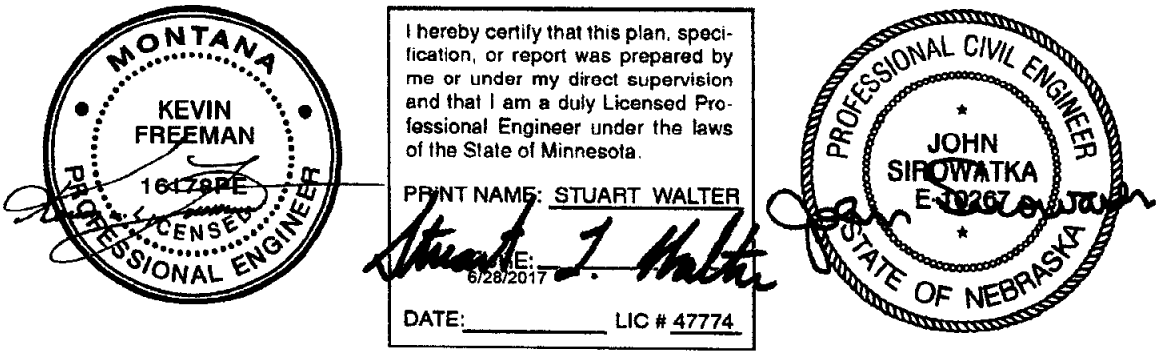

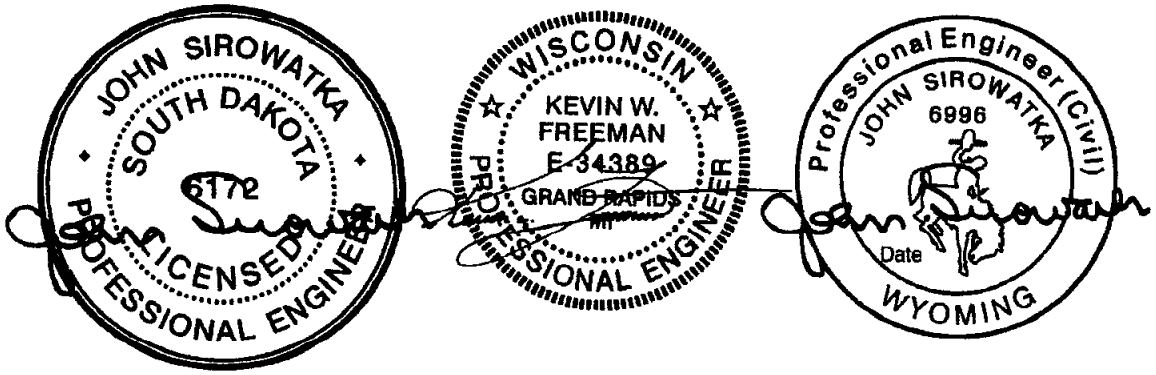

Corporate Engineering
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ufpi.com

Job	Truss	Truss Type	Qty	Ply	Bonnavilla Homes - 379
88320	HMD08602	HINGE MONO	1	1	4290-CO

Universal Forest Products Inc., Grand Rapids, MI 49525, Matt Salonek — 8.030 s Apr 8 2017 MiTek Industries, Inc. Tue Jun 27 10:10:31 2017 Page 1 of 1

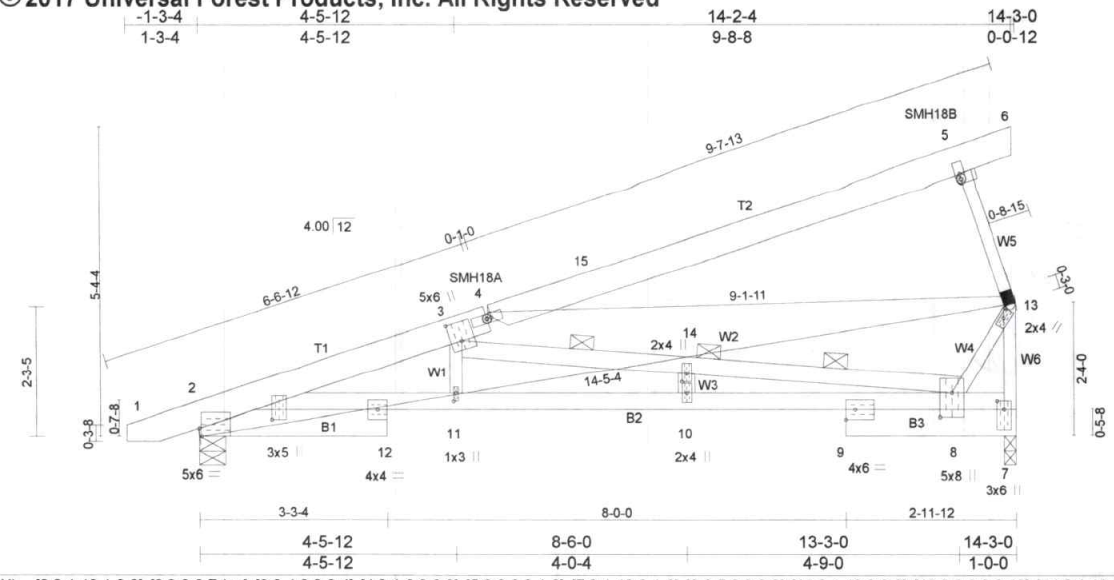

Plate Offsets (X,Y)-- [2:0-1-13,1-3-2], [2:0-0-6,Edge], [3:0-4-0,0-2-4], [4:0-1-0,0-0-0], [5:0-0-0,0-1-0], [7:0-1-12,0-1-8], [8:0-5-0,0-2-8], [11:0-1-12,0-0-8], [13:0-2-0,0-0-12], [14:0-1-12,0-1-0]

LOADING (psf)
TCLL 46.2
(Ground Snow=60.0)
TCDL 10.0
BCLL 0.0 *
BCDL 10.0

SPACING- 2-0-0
Plate Grip DOL 1.15
Lumber DOL 1.15
Rep Stress Incr YES
Code IBC2015/TPI2014

CSI.
TC 0.88
BC 0.85
WB 0.98
Matrix-R

DEFL.	in	(loc)	l/defl	L/d
Vert(LL)	-0.24	8-10	>685	240
Vert(CT)	-0.53	8-10	>317	180
Horz(CT)	0.11	7	n/a	n/a

PLATES	**GRIP**
MT20	197/144
MT18HS	197/144

Weight: 71 lb FT = 0%

LUMBER-
TOP CHORD 2x6 SPF No.2 *Except*
T2: 2x6 SPF 1650F 1.5E
BOT CHORD 2x6 SPF No.2 *Except*
B2: 2x4 SPF 2100F 1.8E
WEBS 2x3 SPF Stud *Except*
W2: 2x4 SPF No.2, W3: 2x4 SPF No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 2-2-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.
WEBS 3 Rows at 1/4 pts 3-8

REACTIONS. (lb/size) 2=1064/0-5-8 (min. 0-1-13), 7=920/0-2-8 (min. 0-1-12)
Max Horz 2=391(LC 8)
Max Uplift2=-419(LC 8), 7=-424(LC 12)
Max Grav2=1139(LC 19), 7=1135(LC 19)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/35, 2-3=-2950/1049, 3-4=-446/0, 4-15=-414/0, 5-15=-247/0, 5-6=-57/0, 7-13=-1189/771
BOT CHORD 2-12=-1372/2731, 11-12=-1369/2721, 10-11=-1369/2721, 9-10=-1369/2721, 8-9=-1368/2712, 7-8=-40/20
WEBS 3-11=0/433, 3-14=-2511/1233, 8-14=-2533/1237, 5-13=-714/463, 8-13=-364/561, 10-14=-19/134

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
13=714/463/234/0

NOTES- (16-17)
1) Wind: ASCE 7-10; Vult=155mph (3-second gust) Vasd=123mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp C; enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone;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=60.0 psf (ground snow); Ps=46.2 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 20.0 psf or 2.00 times flat roof load of 46.2 psf on overhangs non-concurrent with other live loads.
6) All plates are MT20 plates unless otherwise indicated.
7) See HINGE PLATE DETAILS for plate placement.
8) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
9) All additional member connections shall be provided by others for forces as indicated.
10) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
11) * 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.
12) Provide mechanical connection (by others) of truss to bearing plate at joint(s) 7.
13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 419 lb uplift at joint 2 and 424 lb uplift at joint 7.
14) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
15) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.
16) Based on: HMD08601. Changes: Updated to IBC 2015.
17) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1

E-signed by Stuart Walter

6/28/2017

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UNIVERSAL FOREST PRODUCTS, INC.

Job	Truss	Customer	MFG
88320	HMD08602	BONNAVILLA HOMES	379

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Registered Professional Engineer (Civil) CERTIFICATE NO. 32544 JOHN SIROWATKA Date Signed ARIZONA U.S.A.

LICENSED PROFESSIONAL ENGINEER KEVIN W. FREEMAN 15512 IOWA

JOHN SIROWATKA LICENSED 14811 KANSAS PROFESSIONAL ENGINEER

STATE OF MISSOURI KEVIN W. FREEMAN NUMBER E-20001[illegible] REGISTERED PROFESSIONAL ENGINEER

MONTANA KEVIN FREEMAN 16178PE LICENSED PROFESSIONAL ENGINEER

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PRINT NAME: STUART WALTER

SIGNATURE: 6/28/2017

DATE:_____ LIC # 47774

PROFESSIONAL CIVIL ENGINEER JOHN SIROWATKA E-19267 STATE OF NEBRASKA

PROFESSIONAL ENGINEER-STATE OF NEVADA JOHN SIROWATKA Exp. 4/30/2016 CIVIL No. 013771

LICENSED PROFESSIONAL ENGINEER NEW MEXICO 12968 JOHN SIROWATKA

KEVIN WESLEY FREEMAN NORTH DAKOTA PE-5265 REGISTERED PROFESSIONAL ENGINEER

JOHN SIROWATKA SOUTH DAKOTA 6172 LICENSED PROFESSIONAL ENGINEER

WISCONSIN KEVIN W. FREEMAN E-34389 GRAND RAPIDS PROFESSIONAL ENGINEER

Professional Engineer (Civil) JOHN SIROWATKA 6996 Date WYOMING

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