COLORADO
Department of Local Affairs

JULY 2023

STATE OF COLORADO
Cover Sheet for Building Specifications, Third Party Reviews, and QA Manuals

Name of Manufacturer: Champion Homes (dba Highland Manufacturing) **Plant I.D. Number:** 166

Manufacturer Address: 1660 Rowe Avenue, Worthington, MN 56187

Manufacturer Contact Name and Contact Number: Mark Lively (Engineering Manager) 507-295-0880

Manufacturer Contact Email address: mlively@championhomes.com

Third Party Inspection Agency (if not CDOH):

Third Party Plan Review Agency (if applicable): PFS

Third Party Plan Review Approval Name/Number (if applicable):

Factory Type: (FB) FBNR Tiny Homes HUD Homes

Document Type: (New Plan) Revision Renewal

Model Name/No.:

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 insignia affixed to each factory built unit that is subject to Colorado statutes and which is manufactured or is to be sold, offered for sale, or occupied in the state of Colorado.

Sq. Footage Finished: 1980 **Sq. Footage Unfinished:** 300 **CDOH Approval Stamp**	State of Colorado Division of Housing Apr 12 2024 STATE OF COLORADO 1876 APPROVED PLANS Subject to field inspection OC INSPECTION REQUIRED
Expiration Date 1/1/25	**CDOH Plan Approval Number** R-0006074OC

COLORADO
Department of Local Affairs
Division of Housing

JULY 2023

Model Number: 290-KBM-3266S33005 (Tarczali)

Residential (IRC) & Tiny Home Plan Submission Checklist

A full plan set submission to the Colorado Division of Housing includes the following:
(Electronic Plan Submissions Only)

Submitted	Document Type
☒	• Plan Review Payment through Salesforce
	Plan Set Package
	Architectural Plan Set
X	• Initialed and signed copy of the Plan Submission Checklist confirming applicable documents have been included in the plan package.
X	• Index of submitted plan package ○ Can be a separate document or clearly denoted on cover page
X	• Site location where structure is to be installed, and Local Authority Having Jurisdiction, or designate the structure as lot model with design loads that are specific for the area the home can be installed, and a minimum setback distance noted for fire separation requirements. If site location is known, a site plan, set back distances to lot lines or other structures, and local AHJ Wildfire Mitigation area requirements (if any) are required to determine fire separation requirements for structure. If structure is to be set in a location where there is no local authority having jurisdiction or lot model, at a minimum, the design loads must comply with 8 CCR 1302-14, Rule 2.2.1.

X	• Code Analysis
	  ○ Design Codes
	  ○ Wind, and Snow Loads (must meet local AHJ and CDOH minimums)
	  ○ Seismic and Wind Exposure category
	  ○ Type of Fire suppression system if applicable (factory installed or on site)
	  ▪ If location is known, clearly denote on code analysis if the jurisdiction require a fire suppression system. If one is required and any of the installation is to be in-plant, then it must comply with Colorado Division of Fire Safety & Control Rules (8 CCR 1507-11) & a CORI shall accompany the units throughout the process.

X	• List of items to be completed on site ○ OC Form included that complies with 8 CCR 1302-14, Rules 1.19, 4.17.1.1, and C.R.S. 24-32-3311(1)(a.7)

X	• Architectural plans with applicable details
	  ○ Floor Plan for Each Level
	  ○ Room Use Specification
	  ○ Window and Door Schedules
	  ○ Elevations
	  ○ Section Drawings (Full and at Stairs)

NA	• Fire Rated Assembly Details (If applicable)
	  ○ Assemblies not exempt in section R302 to be fire rated or other sections in the code, need to have details showing compliance with section R302 of the IRC for separation of dwellings, fire separation distances, and/or floors. Must comply with the testing standards of either ASTM E119 or UL263 or section 703.3 of the IBC.
	  ○ If section 722 of the IBC has been opted for compliance, the design must be approved through a Colorado Registered Fire Protection engineer.

	Structural Framing Plans

X	• Components
	  ○ Floor Assemblies
	  ○ Wall Assemblies
	  ○ Roof Assemblies
	  ○ Ceiling Assemblies
	  ○ Headers, Beams and Columns
	  ○ Proposed Foundation
	  ○ Braced Wall line details, and tie down equipment with locations that are not specifically addressed in approved installation manual.
	  ○ Construction components exceeding section R301 of the IRC, shall have plans stamped by a Colorado Registered Design Professional.

	MEP Plan Sheets

X	• Mechanical System Plans
	  ○ Exhaust Locations
	  ○ Whole home ventilation systems

X	• Electrical System Plans ○ Fixtures, load calculations, panel/circuit schedule with breaker and wire sizing, symbols legend, etc.

X	• Plumbing System Plans
	  ○ Service water piping with piping location, insulation and size
	  ○ Fixture types and locations
	  ○ Isometric for DWV, indicate pipe sizes

NA	• Gas System Plans
	  ○ Gas Isometric with distances and BTU ratings of appliances it serves
	  ○ Piping material and sizes, service pressure ratings

	Spec Set Package
X	• Spec Cover Sheet
X	• Copy of the “OC” Inspection letter denoting the “OC” inspection items listed on the submitted plans. Information from the site address on the first page to the “factory authorized representative” portion to the date must be filled in by the factory, except for the CDOH P/A NO (DOH assigned).

X	• Engineered/Certified Component Details
	  ○ Engineered and stamped truss details by a State of Colorado professional designed per TPI 1 - 2014 per IRC 2018. Include correct loading and wind speed & exposure, etc.
	  ○ Tiny Home chassis must be engineer approved or certified by NHTSA

	• Energy Compliance

X	○ REScheck (*signed*) ▪ Use appropriate version 2015 (or 2012, 2009 based on local adoption) ▪ Use the Colorado city where the building will be installed (If site location is not a selection on REScheck, list exact location on Construction Site information box) • If a REScheck is omitted and the prescriptive method is opted for use, please clearly denote on plans a table showing the information depicted in the IECC, Section R103.2 and applicable information per 8 CCR 1302-14, Rule 2.7
X	• HVAC System Plans ○ Load calculations for equipment sizing (Manual J) ○ Equipment size listed and meets or exceeds load calculation with deration (Manual S) ○ Supply and return air sizing and plans (Manual D) ○ Site information must match information provided on the REScheck

The Colorado Division of Housing plan review does not begin until the entire plan submission is received.

Applicant must sign below acknowledging submittal checklist has been read and all applicable documents have been submitted for review and any changes to plans require plans to be resubmitted for review, and approved by DOH before construction. All DOH plans are subject to field inspection. Additional information not included in this general list may be requested by DOH plan reviewers to complete review.

X Mark Lively Date: 3/22/2024

For additional plan review requirements, questions, or concerns, please reach out to our staff at:

FB/FBNR
manufactured.plans@state.co.us
Tiny Homes
dola_tinyhomes@state.co.us

COLORADO
Department of Local Affairs
Division of Housing

JULY 2023

"OC" (On-site Construction) Form

Please read below before signing form.

Please See Attached Document at bottom of form for Specific plan and Manufacturer information.

To: The Local Authority Having Jurisdiction (LAHJ) or other DOH approved third party inspection agency.

By signing this form, you confirm that you have received and reviewed this form, and acknowledge that the identified components below are required to complete the construction of this modular structure onsite within your jurisdiction.

Building Official Responsibility

Please check the box labeled "Accept" and initial to confirm that you will take responsibility for inspections of the "OC" Inspection Items on behalf of the DOH. You also acknowledge that it will be done to the DOH approved plans.

If you would like to defer inspection of the "OC" Inspection Items back to the DOH, please check the box labeled "Defer Inspection".

ATTENTION

"On-site Construction" or "OC" means on-site construction or modification of the factory-built structure that directly relates to the durability, quality, and safety; that is completed at the installation "site" as defined by section 24-32-3302(33), C.R.S.; using components not installed at the manufacturer's location; and to complete the compliance of that structure as reflected in the Division of Housing approved plans. These items do not include the component(s) required for setting and securing the structure for its installation.

Fire Safety Official Responsibility (if applicable)

The DOH defers the requirement of any fire protection system for all modular IBC (Section 901.2) and IRC (Section R313) structures as follows:

An automatic fire sprinkler system shall be installed in buildings (IBC) OR one and two family dwellings and townhouses (IRC) OR Tiny homes as required by the local jurisdiction where the structure or home will be set. Final tests required by this Section shall be approved by a certified inspector. The inspector must be either an employee of the fire department having jurisdiction or another qualified individual with prior approval of the Colorado Division of Fire Prevention & Control.

Wild Fire mitigation requirements will be deferred for (IBC) OR one and two family dwellings and townhouses (IRC) OR Tiny homes as required by the local jurisdiction where the structure or home will be set. Final inspections required by locals shall be approved by a certified inspector. The inspector must be either an employee of the fire department having jurisdiction or another qualified individual with prior approval of the Colorado Division of Fire Prevention & Control.

Please confirm if the LAHJ requires a fire protection system and/or wild fire mitigation for this modular structure. If so, please indicate if the inspection will be completed by a fire department (identify which one) or whether it will be completed by the Colorado Division of Fire Prevention & Control.

Manufacturer Responsibility

The registered manufacturer is responsible for manufacturing a structure that is compliant with our Administrative Rules (CCR 1302-14). If items in the factory have not been completed, only to be completed in the field, you are still responsible for ensuring they have been completed for compliance. Please sign below that you have received this letter and acknowledge the items listed are to complete compliance of the structure, and items are to be inspected and passed for compliance in order to meet Rule 1.13.1 and section 24-32-3311(4), Colorado Revised Statutes (C.R.S.).

ATTENTION

A DOH issued insignia (silver for residential or blue for nonresidential or pink for tiny homes or black for multi-family) certifying its construction cannot be affixed to the structure until all "OC" items are completed on site and pass inspection. The same applies to modular structures manufactured by a certified manufacturer.

Acknowledge Receipt and Understanding

Normal permits and fees for these site work inspections are to be per the local jurisdiction.

State approved plans for Factory-Built Construction may be obtained from the Builder/Manufacturer.

A copy of this completed form is included with the DOH approved plans and must be included with the installation instructions and shipped with the unit. If the completed form has been damaged or lost during shipping, the manufacturer or its representative can obtain a copy from the DOH.

Before any inspection is scheduled at the on-site location or Installation Authorization (required for modular homes and multi-family structures) is issued by the DOH, this form will be required to be signed and dated by the Building Official, or Approved Third Party Agent, or Fire Safety Official (if applicable), and submitted to the DOH.

The DOH approved OC form will be included with the approved spec file, with the DOH Plan Reviewer signature below and their plan approval stamp on the page(s) with the OC listed items to be completed at the site location. That approved OC form should be submitted to the appropriate parties described in this form and submitted back to the DOH before any inspection is scheduled at the onsite location or Installation Authorization (required for modular homes and multi-family structures) is issued.

DOH Plan Reviewer Name_____

DOH Plan Reviewer Signature_____

Date Approved_____ Contact email:_____

COLORADO
Department of Local Affairs
Division of Housing

JULY 2023

Building Department Representative Printed Name_____

Building Department Representative Signature_____

Title_____

Date_____

☐ Accept ☐ Defer Inspection Contact email:_____

If applicable:

Fire Safety Official Printed Name_____

Fire Safety Official Signature_____Date_____

Contact email:_____

Is a fire protection system required? (check one) Required Not Required

If required, the inspection is to be performed by (check one):

_____ Fire Department: (NAME)_____

OR

_____ Colorado Division of Fire Prevention & Control

Manufacturer's Authorized Quality Assurance Representative

Printed Name **Rebecca Santiago**

Manufacturer's Authorized Quality Assurance Representative

Signature *Rebecca Santiago* Date 03/14/2024

Contact email: rsantiago@championhomes.com

If the inspection has been deferred and the manufacturer elects to utilize an Approved Third Party Agency to inspect the "OC" items on behalf of DOH, please sign and date below.

Approved Third Party Agent Printed Name_____

Approved Third Party Agent Signature_____Date_____

Contact email:_____

COLORADO
Department of Local Affairs
Division of Housing

JULY 2023

Verify Inspection(s) Completed

Once you have completed all of your assigned inspections identified in this form and they have passed for compliance, please sign and date below.

Building Department Representative Printed Name_____

Building Department Representative Signature_____

Date_____

Contact email:_____

Or

Approved Third Party Agent Printed Name_____

Approved Third Party Agent Signature_____Date_____

Contact email:_____

Fire Protection Systems (if applicable)

Fire Safety Official Printed Name_____

Fire Safety Official Signature_____Date_____

Contact email:_____

Please direct questions to manufactured.plans@state.co.us

COLORADO
Department of Local Affairs
Division of Housing

JULY 2023

The following is based on information provided to the Division of Housing (DOH) and may be modified based on the actual findings of the field inspection.

DATE: 3/22/2024

MANUFACTURER: Highland Manufacturing | ID NO.: 166

CONTACT: Mark Lively | PHONE NO.: 507-295-0880

MODEL NO.: 290-KBM-3266S33005 (Tarczali) | DOH P/A NO.:

INSPECTION REQUIREMENTS: Check on site:

"OC" Inspection Items

Foundation construction, all earth work, & below grade insulation per ResCheck.
Extension of gas vents and/or chimneys to the exterior.
Furnace stack and cap installation.
Drain vent (VTR) installation of extensions and couplers.
Siding installation for the ends of the house.
Vented ridge cap installation.

Champion Home Builders, Inc.
DBA Highland Manufacturing
Model: 290-KBM-3266S33005

Index:

Specifications package

Highland Manufacturing
A Division of Champion Home Builders, Inc
1660 Rowe Ave
Worthington, MN 56187
Phone: 507-376-9460

Colorado
Requirements from the state

Site location where structure is to be installed and Local Authority Having Jurisdiction, or designate the structure as lot model with design loads that are specific for the area the home can be installed, and a minimum setback distance noted for fire separation requirements. If site location is known, a site plan and set back distances to lot lines or other structures is required to determine fire separation requirements for structure. If structure is to be set in a location where there is no local authority having jurisdiction or lot model, at a minimum, the design loads must comply with 8 CCR 1302-14, Rule 2.1.

Site information needed to get approvals:

Full name of owner(s): Thomas Tarczali/Christi

Street Address: 820 S. St. Vrain Ave.

City & Zip: Estes Park, CO 80517

Phone: 970-231-4218 Email: thomastarczali@yahoo.com

Parcel#: _____

Local Authority Having Jurisdiction (LAHJ): Town of Estes Park

Wind Speed: 165 Snow Load: 100 (Roof) (Ground)

Site Set Back requirements:

1. Front 10'
2. Back 10'
3. Sides 10'

Attach a Site Plan (preferable a GIS print out) with dimensions and/or scaling. (sent 3/6/24)

Town of Estes Park GIS

Sign In

boundaries of the zoning districts shown hereon. These boundaries follow property boundaries as delineated on this map.

This map shall not be used to:

Establish specific legal lots lots of record, or individual parcel boundaries; or

Establish property descriptions for legal conveyance of parcels of land.

Individual property boundaries are subject to frequent change, and recent changes may not be reflected on this map. Larime County and the Town of Estes Park canno anticipate and do not assume responsibilit or liability for subsequent, secondary use this map. No representation or warranty i made as to the completeness or accuracy of this map for any use other than the intended use of identifying zoning district boundaries.

Tarczali
820 S. St. Vrain Ave.
Estes Park, CO
80517

Town of Estes
Larimer County

Larimer County Web Map

Legend

Ground Snow Load Contours
- 1000 ft Index Contours
- Under 7000 ft = 30 psf
- 7000-7999 ft = 40 psf
- 8000-8999 = 50 psf

- Basic Wind Speed (3s)
- Addresses
- Subdivisions
- Tax Parcels
- Platted Lots

- Road System
- Lakes and Ponds
- Major Rivers and Streams
- Rivers and Streams
- County Boundary

Notes

0.0 0 0.0 Miles

Date Prepared: 8/15/2023 6:03:58 AM

Scale 1: 600

Manual S Compliance Report
Entire House

AMS Of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

Job: KBM-3266 S3 3005-TARC...
Date: 3/6/24
By: AMS of Indiana, Inc.

Project Information

For: CHAMPION HOME BUILDERS, KBM-3266 S3 3005-TARCZALI

Cooling Equipment

Design Conditions

Outdoor design DB:	79.0 °F	Sensible gain:	10875	Btuh	Entering coil DB:	75.5°F
Outdoor design WB:	58.0 °F	Latent gain:	0	Btuh	Entering coil WB:	60.9°F
Indoor design DB:	75.0 °F	Total gain:	10875	Btuh		
Indoor RH:	50 %	Estimated airflow:	644	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split AC				
Manufacturer:	Generic		Model:	SEER 14.0	
Actual airflow:	644	cfm			
Sensible capacity:	9135	Btuh	84% of load		
Latent capacity:	3915	Btuh	0% of load		
Total capacity:	13050	Btuh	120% of load	SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	-7.0 °F	Heat loss:	32525	Btuh	Entering coil DB:	60.8°F
Indoor design DB:	70.0 °F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Gas furnace					
Manufacturer:	Generic		Model:	AFUE 95		
Actual airflow:	644	cfm				
Output capacity:	39330	Btuh	121% of load		Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.

Load Short Form
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARC...
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

Project Information

For: CHAMPION HOME BUILDERS, KBM-3266 S3 3005-TARCZALI

Design Information

	Htg	Clg
Outside db (°F)	***-7***	***79***
Inside db (°F)	70	75
Design TD (°F)	77	4
Daily range	-	M
Inside humidity (%)	50	50
Moisture difference (gr/lb)	69	-24

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

HEATING EQUIPMENT

Make	Generic		
Trade			
Model	AFUE 95		
AHRI ref			
Efficiency		95 AFUE	
Heating input		60000	Btuh
Heating output		39330	Btuh
Temperature rise		74	°F
Actual air flow		644	cfm
Air flow factor		0.023	cfm/Btuh
Static pressure		0.50	in H2O
Space thermostat			

COOLING EQUIPMENT

Make	Generic		
Trade			
Cond	SEER 14.0		
Coil			
AHRI ref			
Efficiency		12.2 EER, 14 SEER	
Sensible cooling		9135	Btuh
Latent cooling		3915	Btuh
Total cooling		13050	Btuh
Actual air flow		644	cfm
Air flow factor		0.061	cfm/Btuh
Static pressure		0.50	in H2O
Load sensible heat ratio		1.00	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
DR\KT\LR	773	9684	5674	225	344
U	116	1137	166	26	10
BA2	61	506	64	12	4
C1	58	483	61	11	4
B1	244	3241	1508	75	91
BA1	150	2285	738	53	45
B2	173	1339	914	31	55
B3	173	1355	922	31	56
ENTRY	80	1201	541	28	33
BA3	37	84	39	2	2
PTY	33	0	0	0	0
H	85	0	0	0	0
CRWL	1980	6420	0	149	0

Bold/italic values have been manually overridden

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

Entire House	3960	27735	10627	644	644
Other equip loads		4790	249		
Equip. @ 0.84 RSM			9135		
Latent cooling			0		
TOTALS	3960	32525	9135	644	644

Bold/italic values have been manually overridden

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

wrightsoft®

Building Analysis
Entire House
AMS Of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

Job: KBM-3266 S3 3005-TARC...
Date: 3/6/24
By: AMS of Indiana, Inc.

Project Information

For: CHAMPION HOME BUILDERS, KBM-3266 S3 3005-TARCZALI

Design Conditions

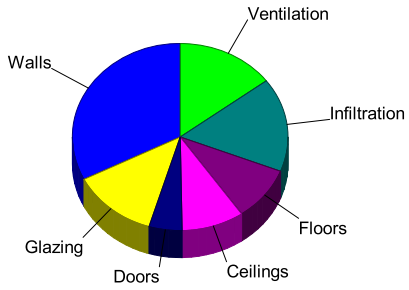
Location:
Boulder 14 W, CO, US
Elevation: ***7761*** ft
Latitude: 40 °N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	***-7***	***79***
Daily range (°F)	-	23 (M)
Wet bulb (°F)	-	***58***
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	77	4
Relative humidity (%)	50	50
Moisture difference (gr/lb)	69.3	-24.0
Infiltration:		
Method	Simplified	
Construction quality	Average	
Fireplaces	0	

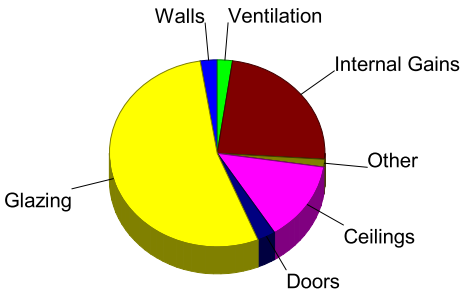
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.8	10552	32.4
Glazing	20.0	4188	12.9
Doors	19.3	1617	5.0
Ceilings	1.5	3049	9.4
Floors	1.5	3049	9.4
Infiltration	3.1	5280	16.2
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4790	14.7
Adjustments		0	
Total		**32525**	**100.0**



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.1	275	2.5
Glazing	27.9	5836	53.7
Doors	3.5	297	2.7
Ceilings	0.8	1491	13.7
Floors	0	0	0
Infiltration	0.1	147	1.4
Ducts		0	0
Ventilation		249	2.3
Internal gains		2580	23.7
Blower		0	0
Adjustments		0	
Total		**10875**	**100.0**



Latent Cooling Load = 0 Btuh
Overall U-value = 0.045 Btuh/ft²-°F, Window / Floor Area = 5.3 %

Data entries checked.

Bold/italic values have been manually overridden

3933 East Jackson Blvd., Elkhart, IN 46516

Project Information

For: CHAMPION HOME BUILDERS, KBM-3266 S3 3005-TARCZALI

Design Conditions

Location:
Boulder 14 W, CO, US
Elevation: 7761 ft
Latitude: 40°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	***-7***	***79***
Daily range (°F)	-	23 (M)
Wet bulb (°F)	-	***58***
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	77	4
Relative humidity (%)	50	50
Moisture difference (gr/lb)	69.3	-24.0

Infiltration:

Method	Simplified
Construction quality	Average
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	ne	511	0.065	21.0	5.00	2559	0.19	98
	se	270	0.065	21.0	5.00	1351	0.19	52
	sw	471	0.065	21.0	5.00	2355	0.19	90
	nw	183	0.065	21.0	5.00	916	0.19	35
	all	1435	0.065	21.0	5.00	7181	0.19	275
15B15-0wc-4: Bg wall, light dry soil, 2"x4" wood int frm, concrete wall, r-15 cav ins, 8" thk	ne	264	0.057	15.0	4.39	1159	0	0
	se	120	0.057	15.0	4.39	527	0	0
	sw	264	0.057	15.0	4.39	1159	0	0
	nw	120	0.057	15.0	4.39	527	0	0
	all	768	0.057	15.0	4.39	3371	0	0
Partitions								
(none)								
Windows								
2 glazing, clr low-e outr, argon gas, vnl frm mat, clr innr, clr strm, 1/4" gap, 1/8" thk: 2 glazing, clr low-e outr, argon gas, vnl frm mat, clr innr, clr strm, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.30); 6.67 ft head ht	ne	62	0.260	0	20.0	1235	19.7	1212
	sw	103	0.260	0	20.0	2052	24.7	2532
	nw	45	0.260	0	20.0	901	19.7	885
	all	209	0.260	0	20.0	4188	22.1	4629
Doors								
Door, wd sc type	ne	21	0.170	0	13.1	275	2.41	51
	sw	21	0.170	0	13.1	275	2.41	51
	nw	42	0.330	0	25.4	1067	4.67	196
	all	84	0.330	0	19.3	1617	3.54	297
Ceilings								
16B-50ad: Attic ceiling, asphalt shingles roof mat, r-50 ceil ins, 1/2" gypsum board int fnsh		1980	0.020	50.0	1.54	3049	0.75	1491
Floors								
21A-32t: Bg floor, light dry soil, 4' depth		1980	0.020	0	1.54	3049	0	0

Bold/italic values have been manually overridden

wrightsoft

Project Summary
Entire House
AMS Of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

Job: KBM-3266 S3 3005-TARC...
Date: 3/6/24
By: AMS of Indiana, Inc.

Project Information

For: CHAMPION HOME BUILDERS, KBM-3266 S3 3005-TARCZALI

Notes: FURNACE DERATED FOR ELEVATION

Design Information

Weather: Boulder 14 W, CO, US

Winter Design Conditions

Outside db	***-7***	°F
Inside db	70	°F
Design TD	77	°F

Summer Design Conditions

Outside db	***79***	°F
Inside db	75	°F
Design TD	4	°F
Daily range	M	
Relative humidity	50	%
Moisture difference	-24	gr/lb

Heating Summary

Structure	27735	Btuh
Ducts	0	Btuh
Central vent (75 cfm) Outside air	4790	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	32525	Btuh

Sensible Cooling Equipment Load Sizing

Structure	10627	Btuh
Ducts	0	Btuh
Central vent (75 cfm) Outside air	249	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.84	
Equipment sensible load	9135	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	3960	3960
Volume (ft³)	17820	17820
Air changes/hour	0.28	0.15
Equiv. AVF (cfm)	83	45

Latent Cooling Equipment Load Sizing

Structure	655	Btuh
Ducts	0	Btuh
Central vent (75 cfm) Outside air	-922	Btuh
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	9135	Btuh
Req. total capacity at 0.70 SHR	1.1	ton

Heating Equipment Summary

Make	Generic
Trade	
Model	AFUE 95
AHRI ref	

Efficiency	95 AFUE	
Heating input	60000	Btuh
Heating output	39330	Btuh
Temperature rise	74	°F
Actual air flow	644	cfm
Air flow factor	0.023	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

Cooling Equipment Summary

Make	Generic
Trade	
Cond	SEER 14.0
Coil	
AHRI ref	

Efficiency	12.2 EER, 14 SEER	
Sensible cooling	9135	Btuh
Latent cooling	3915	Btuh
Total cooling	13050	Btuh
Actual air flow	644	cfm
Air flow factor	0.061	cfm/Btuh
Static pressure	0.50	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.

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Right-J8® Form J1
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARCZALI
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

		Entire House	DR\KT\LR
1	Name of Room		
2	Running Feet of Exposed Wall	384.0 ft	81.5 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	6.5 ft 5974.5 ft²	9.0 ft 1053.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	3960.0 ft²	1.0 x 772.5 ft 772.5 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 3960.0 ft²	0 ° 772.5 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	594	2559	98		257	1171	45	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	62	1235	1212		23	450	442	
.	└──Door	Door, wd sc type	ne	13.09	2.41	21	275	51		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	264	1159	0		0	0	0	
11	Wall	12F-0sw	se	5.00	0.19	270	1351	52		0	0	0	
	Wall	15B15-0wc-4	se	4.39	0.00	120	527	0		0	0	0	
	Wall	12F-0sw	sw	5.00	0.19	594	2355	90		207	811	31	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	103	2052	2532		45	901	1112	
	└──Door	Door, wd sc type	sw	13.09	2.41	21	275	51		0	0	0	
	Wall	15B15-0wc-4	sw	4.39	0.00	264	1159	0		0	0	0	
	Wall	12F-0sw	nw	5.00	0.19	270	916	35		270	916	35	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	45	901	885		45	901	885	
	└──Door	Door, wd sc type	nw	25.41	4.67	42	1067	196		42	1067	196	
	Wall	15B15-0wc-4	nw	4.39	0.00	120	527	0		0	0	0	
	Ceil	16B-50ad	-	1.54	0.75	1980	3049	1491		773	1190	582	
	Flor	21A-32t	-	1.54	0.00	1980	3049	0		0	0	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 1.00	5280			WAR 0.42	2241		
		Sensible Load (Btuh)			0.15			147				62	
		Latent Load (Btuh)							-545				
13	Internal	a Occupants at 230 and 200 Btuh				6		1380	1200	2		460	400
		b Scenario number						1200				1200	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					27735	10627	655		9684	5674	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75		4790	249	-922				
17	Winter Humidification Load			Gal/Day	0		0						
18	Piping Load						0						
19	Blower Heat							0					
20	AED Excursion & Latent Moisture Migration Load							1208				607	
21	Total Load	Sum lines 13 through 19					32525	10875	0		9684	5674	

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

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Right-J8® Form J1
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARCZALI
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

		U	BA2
1	Name of Room		
2	Running Feet of Exposed Wall	10.5 ft	5.5 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 387.0 ft²	9.0 ft 297.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.5 x 11.0 ft 115.5 ft²	5.5 x 11.0 ft 60.5 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 115.5 ft²	0 ° 60.5 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	U Area or Length	U Btuh Heating	U Btuh S-Clg	U Btuh L-Clg	BA2 Area or Length	BA2 Btuh Heating	BA2 Btuh S-Clg	BA2 Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	95	368	14		50	248	9	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	0	0	0		0	0	0	
.	└──Door	Door, wd sc type	ne	13.09	2.41	21	275	51		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	0	0	0		0	0	0	
11	Wall	12F-0sw	se	5.00	0.19	0	0	0		0	0	0	
	Wall	15B15-0wc-4	se	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	sw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	0	0	0		0	0	0	
	└──Door	Door, wd sc type	sw	13.09	2.41	0	0	0		0	0	0	
	Wall	15B15-0wc-4	sw	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	nw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	0	0	0		0	0	0	
	└──Door	Door, wd sc type	nw	25.41	4.67	0	0	0		0	0	0	
	Wall	15B15-0wc-4	nw	4.39	0.00	0	0	0		0	0	0	
	Ceil	16B-50ad	-	1.54	0.75	116	178	87		61	93	46	
	Flor	21A-32t	-	1.54	0.00	0	0	0		0	0	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 0.05	289			WAR 0.03	151		
		Sensible Load (Btuh)			0.15			8				4	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1137	166			506	64	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							-6				-2	
21	Total Load	Sum lines 13 through 19					1137	166			506	64	

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Right-J8® Form J1
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARCZALI
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

		C1	B1
1	Name of Room		
2	Running Feet of Exposed Wall	5.3 ft	31.3 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 292.5 ft²	9.0 ft 562.5 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	5.3 x 11.0 ft 57.8 ft²	16.3 x 15.0 ft 243.8 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 57.8 ft²	0 ° 243.8 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	47	236	9		146	536	21	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	0	0	0		39	784	770	
.	└──Door	Door, wd sc type	ne	13.09	2.41	0	0	0		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	0	0	0		0	0	0	
11	Wall	12F-0sw	se	5.00	0.19	0	0	0		135	676	26	
	Wall	15B15-0wc-4	se	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	sw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	0	0	0		0	0	0	
	└──Door	Door, wd sc type	sw	13.09	2.41	0	0	0		0	0	0	
	Wall	15B15-0wc-4	sw	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	nw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	0	0	0		0	0	0	
	└──Door	Door, wd sc type	nw	25.41	4.67	0	0	0		0	0	0	
	Wall	15B15-0wc-4	nw	4.39	0.00	0	0	0		0	0	0	
	Ceil	16B-50ad	-	1.54	0.75	58	89	43		244	375	184	
	Flor	21A-32t	-	1.54	0.00	0	0	0		0	0	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 0.03	144			WAR 0.16	859		
		Sensible Load (Btuh)			0.15			4				24	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	2		460	400
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					483	61			3241	1508	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							-2				19	
21	Total Load	Sum lines 13 through 19					483	61			3241	1508	

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Right-J8® Form J1
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARCZALI
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

		BA1	B2
1	Name of Room		
2	Running Feet of Exposed Wall	25.0 ft	11.5 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 450.0 ft²	9.0 ft 477.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 15.0 ft 150.0 ft²	11.5 x 15.0 ft 172.5 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 150.0 ft²	0 ° 172.5 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	BA1 Area or Length	BA1 Btuh Heating	BA1 Btuh S-Clg	BA1 Btuh L-Clg	B2 Area or Length	B2 Btuh Heating	B2 Btuh S-Clg	B2 Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	0	0	0		0	0	0	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	0	0	0		0	0	0	
.	└──Door	Door, wd sc type	ne	13.09	2.41	0	0	0		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	0	0	0		0	0	0	
11	Wall	12F-0sw	se	5.00	0.19	135	676	26		0	0	0	
	Wall	15B15-0wc-4	se	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	sw	5.00	0.19	90	370	14		104	443	17	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	16	320	395		15	300	371	
	└──Door	Door, wd sc type	sw	13.09	2.41	0	0	0		0	0	0	
	Wall	15B15-0wc-4	sw	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	nw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	0	0	0		0	0	0	
	└──Door	Door, wd sc type	nw	25.41	4.67	0	0	0		0	0	0	
	Wall	15B15-0wc-4	nw	4.39	0.00	0	0	0		0	0	0	
	Ceil	16B-50ad	-	1.54	0.75	150	231	113		173	266	130	
	Flor	21A-32t	-	1.54	0.00	0	0	0		0	0	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 0.13	687			WAR 0.06	316		
		Sensible Load (Btuh)			0.15			19				9	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	1		230	200
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					2285	738			1339	914	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							171				152	
21	Total Load	Sum lines 13 through 19					2285	738			1339	914	

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

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Right-J8® Form J1
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARCZALI
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

		B3	ENTRY
1	Name of Room		
2	Running Feet of Exposed Wall	11.5 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 477.0 ft²	9.0 ft 324.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	11.5 x 15.0 ft 172.5 ft²	10.0 x 8.0 ft 80.0 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 172.5 ft²	0 ° 80.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	0	0	0		0	0	0	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	0	0	0		0	0	0	
.	└──Door	Door, wd sc type	ne	13.09	2.41	0	0	0		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	0	0	0		0	0	0	
11	Wall	12F-0sw	se	5.00	0.19	0	0	0		0	0	0	
	Wall	15B15-0wc-4	se	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	sw	5.00	0.19	104	443	17		90	288	11	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	15	300	371		12	230	284	
	└──Door	Door, wd sc type	sw	13.09	2.41	0	0	0		21	275	51	
	Wall	15B15-0wc-4	sw	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	nw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	0	0	0		0	0	0	
	└──Door	Door, wd sc type	nw	25.41	4.67	0	0	0		0	0	0	
	Wall	15B15-0wc-4	nw	4.39	0.00	0	0	0		0	0	0	
	Ceil	16B-50ad	-	1.54	0.75	173	266	130		80	123	60	
	Flor	21A-32t	-	1.54	0.00	0	0	0		0	0	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 0.06	316			WAR 0.05	275		
		Sensible Load (Btuh)			0.15			9				8	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				1		230	200	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1355	922			1201	541	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							152				123	
21	Total Load	Sum lines 13 through 19					1355	922			1201	541	

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

3933 East Jackson Blvd., Elkhart, IN 46516

		BA3	PTY
1	Name of Room		
2	Running Feet of Exposed Wall	0 ft	0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 220.5 ft²	9.0 ft 211.5 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	5.3 x 7.0 ft 36.8 ft²	4.8 x 7.0 ft 33.3 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 36.8 ft²	0 ° 33.3 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	0	0	0		0	0	0	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	0	0	0		0	0	0	
.	└──Door	Door, wd sc type	ne	13.09	2.41	0	0	0		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	0	0	0		0	0	0	
11	Wall	12F-0sw	se	5.00	0.19	0	0	0		0	0	0	
	Wall	15B15-0wc-4	se	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	sw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	0	0	0		0	0	0	
	└──Door	Door, wd sc type	sw	13.09	2.41	0	0	0		0	0	0	
	Wall	15B15-0wc-4	sw	4.39	0.00	0	0	0		0	0	0	
	Wall	12F-0sw	nw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	0	0	0		0	0	0	
	└──Door	Door, wd sc type	nw	25.41	4.67	0	0	0		0	0	0	
	Wall	15B15-0wc-4	nw	4.39	0.00	0	0	0		0	0	0	
	Ceil	16B-50ad	-	1.54	0.75	37	57	28		33	51	25	
	Flor	21A-32t	-	1.54	0.00	0	0	0		0	0	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 0	0			WAR 0	0		
		Sensible Load (Btuh)			0.15			0				0	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					84	39			0	0	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							-1				-1	
21	Total Load	Sum lines 13 through 19					84	39			0	0	

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

wrightsoft

Right-J8® Form J1
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARCZALI
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

		H	CRWL
1	Name of Room		
2	Running Feet of Exposed Wall	0 ft	192.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 454.5 ft²	4.0 ft 768.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	21.3 x 4.0 ft 85.0 ft²	66.0 x 30.0 ft 1980.0 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 85.0 ft²	0 ° 1980.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sw	ne	5.00	0.19	0	0	0		0	0	0	
.	├──Glaz	2 glazing, dr low-e	ne	20.02	19.66	0	0	0		0	0	0	
.	└──Door	Door, wd sc type	ne	13.09	2.41	0	0	0		0	0	0	
.	Wall	15B15-0wc-4	ne	4.39	0.00	0	0	0		264	1159	0	
11	Wall	12F-0sw	se	5.00	0.19	0	0	0		0	0	0	
	Wall	15B15-0wc-4	se	4.39	0.00	0	0	0		120	527	0	
	Wall	12F-0sw	sw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	sw	20.02	24.70	0	0	0		0	0	0	
	└──Door	Door, wd sc type	sw	13.09	2.41	0	0	0		0	0	0	
	Wall	15B15-0wc-4	sw	4.39	0.00	0	0	0		264	1159	0	
	Wall	12F-0sw	nw	5.00	0.19	0	0	0		0	0	0	
	├──Glaz	2 glazing, dr low-e	nw	20.02	19.66	0	0	0		0	0	0	
	└──Door	Door, wd sc type	nw	25.41	4.67	0	0	0		0	0	0	
	Wall	15B15-0wc-4	nw	4.39	0.00	0	0	0		120	527	0	
	Ceil	16B-50ad	-	1.54	0.75	85	131	64		0	0	0	
	Flor	21A-32t	-	1.54	0.00	0	0	0		1980	3049	0	
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.28	WAR 0	0			WAR 0	0		
		Sensible Load (Btuh)			0.15			0				0	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					0	0			6420	0	
15	Duct Loads	EHLF & ESGF		0	0		0	0			0	0	
		ELG							0				0
16	Ventilation Loads	Vent Cfm	75	E Cfm	75								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							-2				0	
21	Total Load	Sum lines 13 through 19					0	0			6420	0	

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

Duct System Summary
Entire House
AMS Of Indiana, Inc.

Job: KBM-3266 S3 3005-TARC...
Date: 3/6/24
By: AMS of Indiana, Inc.

3933 East Jackson Blvd., Elkhart, IN 46516

Project Information

For: CHAMPION HOME BUILDERS, KBM-3266 S3 3005-TARCZALI

	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0.16 in H2O	0.16 in H2O
Available static pressure	0.34 in H2O	0.34 in H2O
Supply / return available pressure	0.242 / 0.098 in H2O	0.242 / 0.098 in H2O
Lowest friction rate	0.066 in/100ft	0.066 in/100ft
Actual air flow	644 cfm	644 cfm
Total effective length (TEL)	514 ft	

Supply Branch Detail Table

Name		Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
B1	c	754	38	46	0.132	6.0	0x 0	VlFx	23.5	160.0	st1
B1-A	c	754	38	46	0.142	6.0	0x 0	VlFx	30.8	140.0	st1
B2	c	914	31	55	0.079	6.0	0x 0	VlFx	55.0	250.0	st4
B3	c	922	31	56	0.078	6.0	0x 0	VlFx	66.5	245.0	st4
BA1	h	2285	53	45	0.080	6.0	0x 0	VlFx	40.8	260.0	st4
BA2	h	506	12	4	0.135	6.0	0x 0	VlFx	3.5	175.0	st1
BA3	c	39	2	2	0.084	6.0	0x 0	VlFx	73.0	215.0	st4
C1	h	483	11	4	0.133	6.0	0x 0	VlFx	17.3	165.0	st1
CRWL	h	2140	50	0	0.142	6.0	0x 0	VlFx	20.0	150.0	st1
CRWL-A	h	2140	50	0	0.134	6.0	0x 0	VlFx	30.0	150.0	st2
CRWL-B	h	2140	50	0	0.080	6.0	0x 0	VlFx	65.3	235.0	st4
DR\KT\LR	c	1418	56	86	0.136	6.0	0x 0	VlFx	38.3	140.0	st2
DR\KT\LR-A	c	1418	56	86	0.085	6.0	0x 0	VlFx	68.8	215.0	st8
DR\KT\LR-B	c	1418	56	86	0.133	6.0	0x 0	VlFx	21.5	160.0	st2
DR\KT\LR-C	c	1418	56	86	0.085	6.0	0x 0	VlFx	59.0	225.0	st8
ENTRY	c	541	28	33	0.066	6.0	0x 0	VlFx	75.1	290.0	st4
U	h	1137	26	10	0.138	6.0	0x 0	VlFx	9.8	165.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	195	191	0.066	351	8.6	16 x 5	RectFbg	st1
st2	Peak AVF	301	354	0.085	447	10.2	19 x 6	RectFbg	
st1	Peak AVF	343	290	0.066	434	10.6	19 x 6	RectFbg	
st8	Peak AVF	112	172	0.085	387	7.8	16 x 4	RectFbg	st2

Return Branch Detail Table

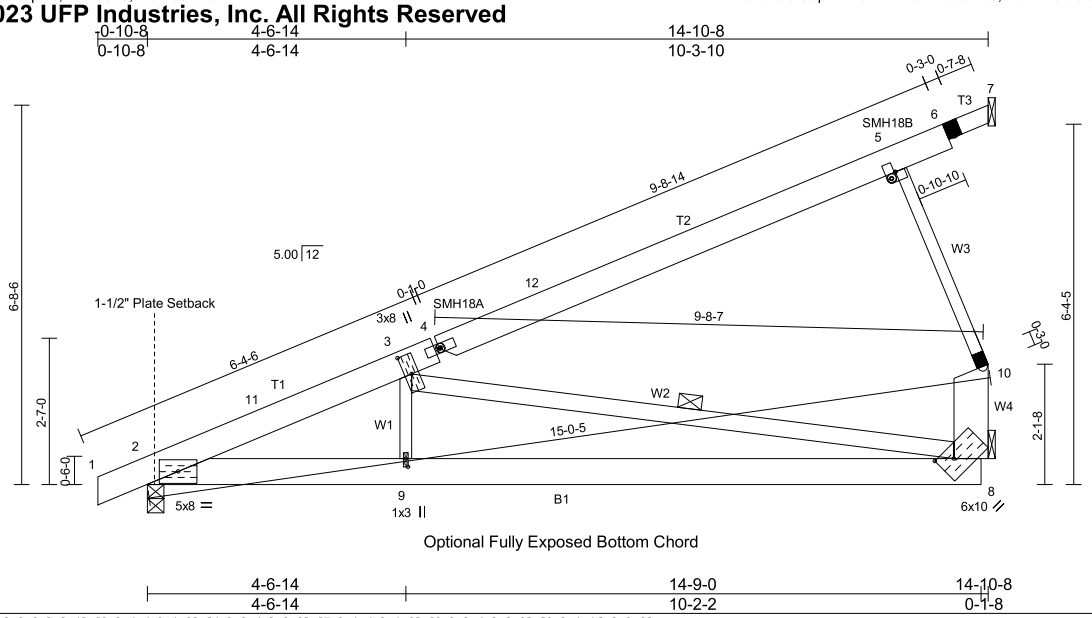
Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb5	0x 0	147	146	82.2	0.120	269	***10.0***	***0*** x ***0***		VlFx	rt1
rb2	0x 0	275	344	92.4	0.106	631	***10.0***	***0*** x ***0***		VlFx	rt2
rb3	0x 0	118	49	148.5	0.066	337	8.0	0x 0		VlFx	rt2
rb4	0x 0	105	105	117.7	0.084	302	8.0	0x 0		VlFx	rt1

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	252	251	0.084	321	***12.0***	***0*** x ***0***	VinlFlx	
rt2	Peak AVF	392	393	0.066	501	12.0	0 x 0	VinlFlx	

Bold/italic values have been manually overridden

Job	Truss	Truss Type	Qty	Ply	
114693	HMC80509	HINGE MONO	1	1	Highland - 379 4653



Optional Fully Exposed Bottom Chord

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

SPACING-: 2-0-0 **LOADING** (psf) TCLL 46.2 (Ground Snow=60.0) TCDL 10.0 BCLL 0.0 * BCDL 10.0	**SPACING-:** 1-4-0 **LOADING** (psf) TCLL 69.3 (Ground Snow=90.0) TCDL 15.0 BCLL 0.0 * BCDL 15.0	**SPACING-** 2-0-0 Plate Grip DOL 1.00 Lumber DOL 1.00 Rep Stress Incr YES Code IBC2021/TPI2014	**CSI.** TC 0.81 BC 0.87 WB 0.76 Matrix-R	**DEFL.** in (loc) l/defl L/d Vert(LL) -0.10 8-9 >999 240 Vert(CT) -0.20 8-9 >857 180 Horz(CT) 0.03 8 n/a n/a	**PLATES** **GRIP** MT20 197/144 MT18HS 197/144 Weight: 76 lb FT = 0%

LUMBER-
TOP CHORD 2x6 SPF No.2 *Except*
T3: 2x4 SPF No.2, T2: 2x6 SPF 2100F 1.8E
BOT CHORD 2x6 SPF No.2
WEBS 2x3 SPF Stud *Except*
W2: 2x4 SPF No.2, W4: 2x8 SPF No.2

BRACING-
TOP CHORD Structural wood sheathing directly applied or 4-9-10 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-5-10 oc bracing.
WEBS 1 Row at midpt 3-8

REACTIONS. (lb/size) 2=1098/0-3-8 (min. 0-1-14), 7=-0/Mechanical, 8=954/Mechanical
Max Horz 2=403(LC 12), 7=-82(LC 19)
Max Uplift 2=-349(LC 12), 8=-458(LC 12)
Max Grav 2=1212(LC 19), 8=1249(LC 19)

REACTIONS. (lb/size) 2=1098/0-3-8 (min. 0-1-14), 7=-0/Mechanical, 8=954/Mechanical
Max Horz 2=403(LC 12), 7=-82(LC 19)
Max Uplift 2=-479(LC 8), 8=-528(LC 8)
Max Grav 2=1212(LC 19), 8=1249(LC 19)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/66, 2-11=-2174/677, 3-11=-2015/686, 3-4=-638/0, 4-12=-600/0, 5-12=-395/14, 5-6=-175/41, 6-7=-94/49, 8-10=-777/481
BOT CHORD 2-9=-1081/1870, 8-9=-1081/1870
WEBS 3-9=0/384, 3-8=-1616/922, 5-10=-827/512

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
6=118/47/55/0, 10=827/512/283/0

NOTES- (13-16)
1) Wind: ASCE 7-16; Vult=145mph (3-second gust) Vasd=115mph @24in o.c.; TCDL=4.0psf; BCDL=4.0psf; (Alt. 178mph @16in o.c.; TCDL=6.0psf; BCDL=6.0psf); h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3E) -0-10-8 to 2-1-8, Exterior(2N) 2-1-8 to 14-9-12 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=60.0 psf; Ps=46.2 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 19.0 psf or 2.00 times flat roof load of 46.2 psf on overhangs non-concurrent with other l 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 l chord and any other members.
12) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 349 lb uplift at joint 2 and 458 lb uplift at joint 8.
13) This truss is designed in accordance with the 2021 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
14) This truss is designed in accordance with the 2018 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
15) This truss is designed in accordance with the 2015 IBC Sec 2306.1 and referenced standard ANSI/TPI 1
16) Based on: HMC80508. Changes: Removed kingpost kicker.

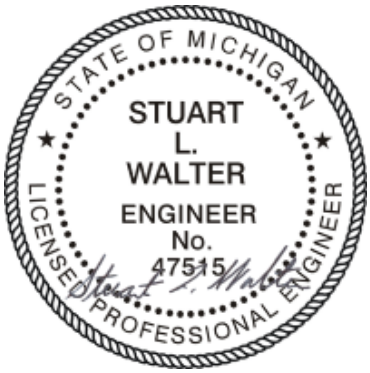
10/16/2023

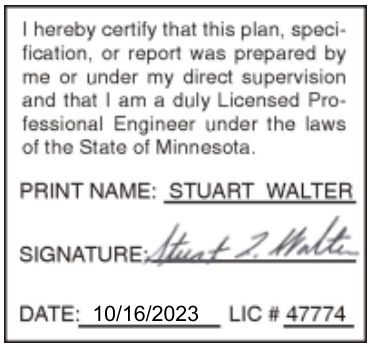
The professional engineering seal indicates that a licensed professional engineer has designed the truss under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use in a specific state. The final determination on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

UFP INDUSTRIES

Job	Truss	MFG	Customer
114693	HMC80509	379	HIGHLAND

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: 10/16/2023 LIC # 47774

Generated by RES*check-Web* Software

Compliance Certificate

Project 290HGKBM-3266S33005 (Tarczali) S#004959

Energy Code:	**2021 IECC**
Location:	**Estes Park, Colorado**
Construction Type:	**Single-family**
Project Type:	**New Construction**
Conditioned Floor Area:	**1,980 ft2**
Glazing Area	**14%**
Climate Zone:	**5 (7944 HDD)**
Permit Date:	
Permit Number:	

Construction Site: Owner/Agent: Designer/Contractor:

Compliance: Passes using UA trade-off

Compliance: **1.9% Better Than Code** Maximum UA: **264** Your UA: **259**

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

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

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Ceiling: Flat Ceiling or Scissor Truss	1,980	50.0	0.3	0.025	0.024	50	48
Wall: Wood Frame, 16" o.c.	1,920	21.0	0.0	0.057	0.045	89	70
Door 1: Solid Door (under 50% glazing)	88			0.170	0.320	15	28
Door 2: Glass Door (over 50% glazing)	41			0.330	0.320	14	13
Window: Vinyl Frame	228			0.260	0.320	59	73
Crawl Wall: Solid Concrete or Masonry Wall height: 4.0' Depth below grade: 3.0' Insulation depth: 3.0'	768	0.0	15.0	0.056	0.055	32	32

Additional Efficiency Package(s)

Required: 1 Proposed: 1

Description	Credits
Efficient HVAC Performance	1.0

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 2021 IECC requirements in RES*check* Version : REScheck-Web and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Name - Title	Signature	Date
ECDC Anstine CAD Tech Drafter		03/14/24

2021 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	21.00
Below-Grade Wall	15.00
Floor	0.00
Ceiling / Roof	50.00
Ductwork (unconditioned spaces):	8.00

Glass & Door Rating	U-Factor	SHGC
Window	0.26	
Door	0.17 & 0.33	

Heating & Cooling Equipment	Efficiency

Heating System:__GAS (60)N96MSN-0601716, 95%, OUTPUT: 57,000, CARRIER_____

Cooling System:__ON SITE BY OTHERS - NO DATA AVAILABLE_____

Water Heater: _____GAS (40 GAL) 24140FDVX, 93%, 1st hour, Rheem_____

Name: Eddie Anstine Date: 03/14/2024

Comments

Champion Homes
1660 Rowe Avenue
PO Box 427
Worthington, MN 56187
(507) 376-9460

Colorado Division of Housing
1313 Sherman Street Room 321
Denver, CO 80203

Gas Furnace Deration Calculations

Model #:	KBM-3266S33005	
Home Location:	Estes Park, CO	
Home Elevation:	7761	feet above sea level
Furnace Deration:	4	% for each 1,000 feet over sea level
Deration Factor (DF):	0.31	

Furnace Model: **N96MSN-0601716**

Furnace Deration Calculations

Input	60,000
Output	57,000
Deration factor	0.31
Deration loss	17,670
Output	57,000
Deration loss	17,670
Derated Output	**39,330**

Efficiency 95

Revised: 7/22/22 MEL

Electrical calculation - 100 Amps or greater

Serial # 4959 Model KBM-3266S33005

Delivery Point City Estes Park State CO

Construction type: Residential Factor 3.00

Unit	Length		Width		Area	
	ft	in	ft	in		
A	76	0	15	0	1140	sq.ft.
B	76	0	15	0	1140	sq.ft.
C					0	sq.ft.
				Total Area	2280	sq.ft.
				x Construction factor	3.00	
				General lighting	6840	Watts

Circuits

Qty	Items	Watts	Load calculations			
	General Lighting		6,840	=	6.84	KW
5	Small Appliance	1,500	7,500	=	7.5	KW
1	Water Heater	4,500	4,500	=	4.5	KW
1	Furnace blower	150	150	=	0.15	KW
	Elec. F.Place	1,500	0	=	0	KW
1	Range	6,400	6,400	=	6.4	KW
	Cooktop	6,400	0	=	0	KW
1	Wall Oven	7,700	7,700	=	7.7	KW
1	Dishwasher	1,400	1,400	=	1.4	KW
1	Rangehood	150	150	=	0.15	KW
3	Bath Fans	100	300	=	0.3	KW
1	Clothes Washer	1,500	1,500	=	1.5	KW
1	Dryer	5,000	5,000	=	5	KW
			Total Load		41.44	KW

Heating and Cooling Equipment

	Heat	23kW	22,000	0	=	0.00	KW
1	Cooling Equip		6,800	6,800	=	6.80	KW
				Heating load factor (65%)		0.00	KW
				Cooling load factor (100%)		6.80	KW

	First 10 KW of total load @ 100%	10.00	KW
31.44	Remainder of total load @ 40%	12.58	KW
	Heating or Cooling equipment load	6.80	KW
	Total design load	29.38	KW
	Minimum required amperage	122.40	Amps
	(Total design load/240*1000)		

Install 200 amp, 120/240 volt, single phase, service panel

3/11/2024

CHAMPION HOME BUILDERS

Unblocked, 7/16" Wood Roof Diaphragm

Model: 290-Tarczali

Spacing at 6 in. o.c. at diaphragm perimeter, 6 in. o.c. at other panel edges, 12 in. o.c. field

Loading Type	Wind	Code Reference	ESR-1539
Diaphragm Type	Unblocked	Diaphragm Perimeter Spacing	6 in
Sheathing Layout	Case 1	Panel Edge Spacing	6 in
Fastener Type	0.131 in. dia nails	Max L/W Ratio	3:1
	Minimum 2" fastener length		

Components & Cladding:

Corner	Fasten at:	6" o.c.	Panel Edges and	6" o.c.	in the field
Field	Fasten at:	6" o.c.	Panel Edges and	9" o.c.	in the field

Roof Diaphragm Data :

Diaphragm Capacity =	320	plf
Reduction Factor =	0.92	for SPF
Max. Allowable Shear =	294	plf

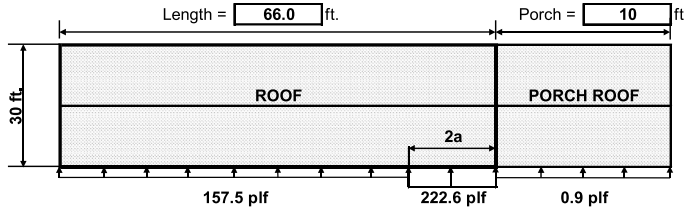
House Layout :

Roof Pitch =	5.00	/12
Overhang, OH =	12	in
Wall Height, H =	108	in
Floor Width, W =	15.00	ft
Number of Boxes =	2	
Length =	66.00	ft
Porch Pitch =	5	/12
Porch Length =	10	ft.

Wind Load : ASCE7-10

Wind Speed (Vult)=	175	mph
Exposure =	C	
Mean Roof Height =	20.00	ft
Adjustment Factor =	1.29	
Wall Load (Field) =	34.4	psf
Wall Load (Edge) =	49.5	psf
Roof Load (Field) =	0.4	psf
Roof Load (Edge) =	0.0	psf

Diaphragm Load (Field) =	157.5	plf
Diaphragm Load (Edge) =	222.6	plf
Porch Load =	0.9	plf
Edge Distance, a =	3.0	ft.
Windward Uplift =	67.8	plf



Diaphragm Shear Load :

Main Roof Shear =	5,389	lbs
Porch Roof Shear =	5,398	lbs
Allowable Shear =	9,421	lbs

Diaphragm Moment Load :

Diaphragm Chord :	#3	2x6 (SPF)
Actual Moment =	86,358	lb-ft
Allowable Moment =	137,280	lb-ft

Change from Blocked to Unblocked Diaphragm Not Required

Diaphragm Capacity =	320	plf
Max. Shear for Unblocked Diaphragm =	294	plf (for SPF)
Maximum Roof Shear Wind =	5,398	lbs
Maximum Roof Shear Seismic =	0	lbs
Length from Blocked to Unblocked =	-18.01	ft. (From Roof Edge)

Blocking Not Required

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CHAMPION HOME BUILDERS

Unblocked, 7/16" Wood Roof Diaphragm

Model: 290-Tarczali

Spacing at 6 in. o.c. at diaphragm perimeter, 6 in. o.c. at other panel edges, 12 in. o.c. field

Loading Type	Wind	Code Reference	ESR-1539
Diaphragm Type	Unblocked	Diaphragm Perimeter Spacing	6 in
Sheathing Layout	Case 3	Panel Edge Spacing	6 in
Fastener Type	0.131 in. dia nails	Max L/W Ratio	3:1
	Minimum 2" fastener length		

Roof Diaphragm Data :

Diaphragm Capacity =	235	plf
Reduction Factor =	0.92	for SPF
Max. Shear =	216	plf

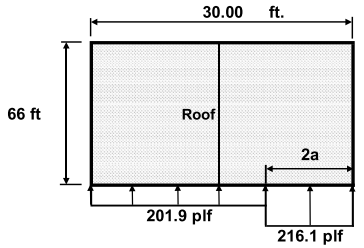
House Layout :

Roof Pitch =	5	/12
Overhang, OH =	12	in
Wall Height, H =	108	in
Floor Width, W =	15.00	ft
Number of floors =	2	
Length =	66.00	ft

Wind Load : ASCE7-10

Wind Speed (Vult) =	175	mph
Exposure =	C	
Mean Roof Height =	20.00	ft
Adjustment Factor =	1.29	
Wall Load (Field) =	24.9	psf
Wall Load (Edge) =	37.6	psf

Diaphragm Load (Field) =	201.9	plf
Diaphragm Load (Edge) =	216.1	plf
Windward Uplift =	16.0	plf
Edge Distance, a =	3.0	ft.



Span Calculation :

A.

Allowable Shear Load =	14,269	lbs
Maximum Span =	151.2	ft.

B.

Chord Force =	4,290	lbs
Moment due to Chord =	283,140	ft-lbs
Maximum Span =	105.9	ft.

Diaphragm Chord: #3 2x6 (SPF)

Change from Blocked to Unblocked Diaphragm Not Required

Diaphragm Capacity =	235	plf
Max. Shear for Unblocked Diaphragm =	216	plf (for SPF)
Maximum Reaction Wind =	3,105	lbs
Maximum Reaction Seismic =	0	LBS
Length from Blocked to Unblocked =	-51.66	ft. (From Roof Edge)

Blocking Not Required

CHAMPION HOME BUILDERS

7/16" Rated Shearwall at Endwall

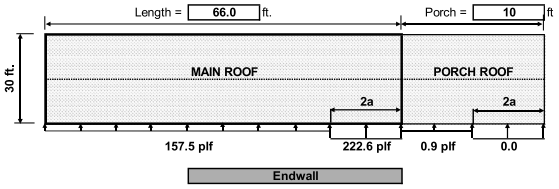
Model: 290-Tarczali
End Wall 1

Connected by : 0.131 dia. Nails spaced @ 3 in. o.c. (edge), 12 in. o.c. (field)
Minimum 2" fastener length — 3x Framing Required

Loading Type = Wind — Code Reference ESR-1539

Shearwall Data :

			Stud Spacing		Components & Cladding		
						Edge	Field
Shearwall Capacity =	685	plf	16	in o.c.			
Reduction Factor =	0.92	for SPF	Blocked	Horz. Seems	Corner	3" o.c.	10.5" o.c.
Max. Shear =	630	plf	1.0	Factor	Field	3" o.c.	12" o.c.

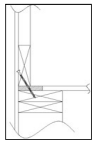


Endwall

Total Shear at Endwall = 5,389 lbs
Shear Wall Required = **8.55 ft.**
Available Wall = **10.42** ft.
Actual Shear Value = 517 plf.
Shear Capacity = **6,565** lbs

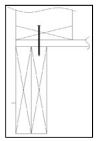
Overturning Moment :
Anchor Capacity = **8,440** lbs
Anchor Uplift Force = **4,281** **lbs**
(2) - Simpson (or EQ.) MSTCM40 @ 4,220# tension ea.

Shearwall to Roof Truss Connection:
(Out of Plane)
Fasteners = #8x4" Toe-Screws (NDS)
Fastener Capacity = 103.6 lbs/screw
Shear Load = 168.3 plf
Fasteners req'd @ **7.0** in. oc.



In Plane and Out of Plane Shear Option:
Without OSB overlap (OSB seam at BC of truss)
Shear Load = 348.0 plf
Fasteners req'd @ **3.5** in. oc.

Bottom Plate to Rim Joist Connection:
(Out of Plane)
Fasteners = 0.131 x 3.25" Nails (NDS)
Fastener Capacity = 100.2 lbs/nail
Shear Load = 172.0 plf
Nails req'd @ **6.5** in. oc.
Number per cavity = **3.0** nails



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3/11/2024

CHAMPION HOME BUILDERS

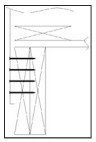
7/16" Rated Shearwall at Endwall
(630 plf Wall)

Model: 290-Tarczali
End Wall 1

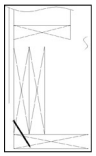
Shear wall to rim joist connection: (ESR-1539)
(In Plane)

Fastener = 0.131 Nail — Minimum 2" fastener length
Fastener Capacity = 131.2 lbs/nail
Shear Load = 517.4 plf
Fasteners req'd @ 3.0 in. oc.

use (2) rows: **6.0** in. oc. staggered



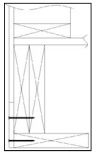
Bottom Half Wall Shear Connection:
(Out of Plane)
Fastener = 0.131 x 3.25" Toe Nail (ESR-1539)
Fastener Capacity = 108.9 lbs/nail
Shear Load = **205.7** plf
Nails req'd @ **6.0** in. oc.



Shear Transfer from Rim Joist to Sill Plate: (ESR-1539)
(In Plane)

Fastener = 0.131 Nails — Minimum 2" fastener length
Fastener Capacity = 131.2 lbs/nail
Lateral Shear Load = **179.9** plf
Uplift Shear Load = **16.0** plf
Nails req'd @ **8.0** in. oc.

Option: LTP4 Clips = **36** in. o.c.



Roof Joint Connection: (NDS)

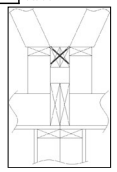
Angle = 45 deg.
Angle = 0.7854 rad.

	5/16"	Lag Bolt	#10	Screws
Shear Capacity =	239	lbs/bolt	131	lbs/bolt
Withdrawl Capacity =	440	lbs/bolt	204	lbs/bolt
Combined Capacity =	**309.7**	lbs/bolt	**131.5**	lbs/bolt

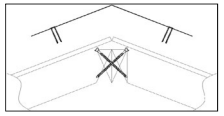
Roof Uplift Connection:
Uplift = 42.6 plf
Roof Trib = 195.00 in.
Moment = 4789 lbs-ft
Moment Arm: = 16.02 ft
Tension Force = 298.9 plf

Lags
Spacing = **12** in o.c.
Alternating Sides

#10 Screws
Spacing = **5** in o.c.
Alternating Sides



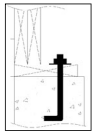
Roof Shear Load Connection: From Diaphragm (ESR-1539)
Connect 26 Ga. Metal Strip with 15 Ga. Staples
Total Load across Joint = 180 plf
Capacity Parallel to Grain = 92 lbs/staple
Spacing = **6** in o.c.



Screw Option: (no metal strip required) (NDS)
Connect With = #10 x 4" Screws
Total Load across Joint = 180 plf
Capacity Parallel to Grain = 145 lbs/screw
Spacing = **9** in o.c.

Anchor Bolt Shear: (NDS)

Number of Sill Plates = **1**
Fastener = **5/8** in. dia. Anchor Bolt
Shear Parallel to Grain = 179.9 plf
Shear Perpendicular to Grain = 205.7 plf
Capacity Parallel to Grain = 1552 lbs/bolt
Capacity Perpendicular to Grain = 928 lbs/bolt
Spacing = **54** in. oc.



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Segmented (Endwall)
290-Tarczali- 1-Story Diaphragms & Shearwalls (ASCE7-10).xlsx

CHAMPION HOME BUILDERS

7/16" Rated Shearwall at Endwall

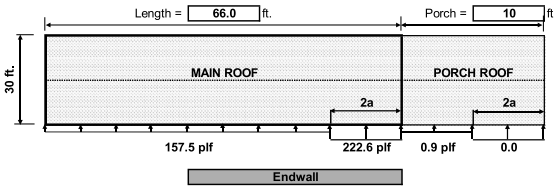
Model: 290-Tarczali
End Wall 2

Connected by : 0.131 dia. Nails spaced @ 6 in. o.c. (edge), 12 in. o.c. (field)
Minimum 2" fastener length

Loading Type = Wind Code Reference = ESR-1539

Shearwall Data :

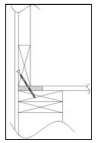
			Stud Spacing		Components & Cladding	Edge	Field
Shearwall Capacity =	365	plf	16	in o.c.			
Reduction Factor =	0.92	for SPF	Unblocked	Horz. Seems	Corner	6" o.c.	10.5" o.c.
Max. Shear =	201	plf	0.6	Factor	Field	6" o.c.	12" o.c.



Total Shear at Endwall = 5,389 lbs
Shear Wall Required = **26.75 ft.**
Available Wall = 30.00 ft.
Actual Shear Value = 180 plf.
Shear Capacity = 6,044 lbs

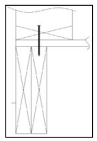
Overturning Moment :
Anchor Capacity = 4,220 lbs
Anchor Uplift Force = 537 **lbs**
(1) - Simpson (or EQ.) MSTCM40 @ 4,220# tension ea.

Shearwall to Roof Truss Connection:
(Out of Plane)
Fasteners = #8x4" Toe-Screws (NDS)
Fastener Capacity = 103.6 lbs/screw
Shear Load = 168.3 plf
Fasteners req'd @ 7.0 in. oc.



In Plane and Out of Plane Shear Option:
Without OSB overlap (OSB seam at BC of truss)
Shear Load = 348.0 plf
Fasteners req'd @ 3.5 in. oc.

Bottom Plate to Rim Joist Connection:
(Out of Plane)
Fasteners = 0.131 x 3.25" Nails (NDS)
Fastener Capacity = 100.2 lbs/nail
Shear Load = 172.0 plf
Nails req'd @ 6.5 in. oc.
Number per cavity = 3.0 nails



3/11/2024

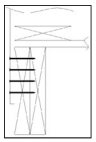
CHAMPION HOME BUILDERS

7/16" Rated Shearwall at Endwall
(201 plf Wall)

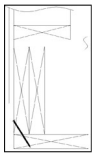
Model: 290-Tarczali
End Wall 2

Shear wall to rim joist connection: (ESR-1539)
(In Plane)
Fastener = 0.131 Nail Minimum 2" fastener length
Fastener Capacity = 131.2 lbs/nail
Shear Load = 179.6 plf
Fasteners req'd @ 8.5 in. oc.

use (2) rows: 6.0 in. oc. staggered

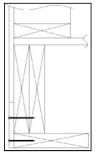


Bottom Half Wall Shear Connection:
(Out of Plane)
Fastener = 0.131 x 3.25" Toe Nail (ESR-1539)
Fastener Capacity = 108.9 lbs/nail
Shear Load = 205.7 plf
Nails req'd @ 6.0 in. oc.



Shear Transfer from Rim Joist to Sill Plate: (ESR-1539)
(In Plane)
Fastener = 0.131 Nails Minimum 2" fastener length
Fastener Capacity = 131.2 lbs/nail
Lateral Shear Load = 179.9 plf
Uplift Shear Load = 16.0 plf
Nails req'd @ 8.0 in. oc.

Option: LTP4 Clips = 36 in. o.c.



Roof Joint Connection: (NDS)

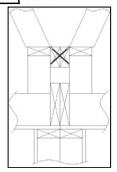
	5/16"	Lag Bolt		#10	Screws
Shear Capacity =	239	lbs/bolt	Shear Capacity =	131	lbs/bolt
Withdrawl Capacity =	440	lbs/bolt	Withdrawl Capacity =	204	lbs/bolt
Combined Capacity =	309.7	lbs/bolt	Combined Capacity =	131.5	lbs/bolt

Angle = 45 deg.
Angle = 0.7854 rad.

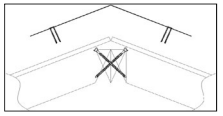
Roof Uplift Connection:
Uplift = 42.6 plf
Roof Trib = 195.00 in.
Moment = 4789 lbs-ft
Moment Arm: = 16.02 ft
Tension Force = 298.9 plf

Lags
Spacing = 12 in o.c.
Alternating Sides

#10 Screws
Spacing = 5 in o.c.
Alternating Sides



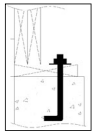
Roof Shear Load Connection: From Diaphragm (ESR-1539)
Connect 26 Ga. Metal Strip with 15 Ga. Staples
Total Load across Joint = 180 plf
Capacity Parallel to Grain = 92 lbs/staple
Spacing = 6 in o.c.



Screw Option: (no metal strip required) (NDS)
Connect With = #10 x 4" Screws
Total Load across Joint = 180 plf
Capacity Parallel to Grain = 145 lbs/screw
Spacing = 9 in o.c.

Anchor Bolt Shear: (NDS)

Number of Sill Plates = 1
Fastener = 5/8 in. dia. Anchor Bolt
Shear Parallel to Grain = 179.9 plf
Shear Perpendicular to Grain = 205.7 plf
Capacity Parallel to Grain = 1552 lbs/bolt
Capacity Perpendicular to Grain = 928 lbs/bolt
Spacing = 54 in. oc.



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Segmented (Endwall) (2)
290-Tarczali- 1-Story Diaphragms & Shearwalls (ASCE7-10).xlsx

3/11/2024

CHAMPION HOME BUILDERS

7/16 in. Thick Rated Shear Wall

Model: 290-Tarczali
Sidewall 1

Connected by: **15** ga. Staples @ **6** in. o.c. (edge), 12 in. o.c. (field)
Minimum 1.75" fastener length

Loading Type = **Wind**

Loading Factor = 1.4

Shearwall Data:

Shearwall Capacity =	259	plf	**ESR-1539**
Reduction Factor =	0.82	for SPF	
Maximum Shear =	127	plf (for SPF)	

Wall Height, H = **108** in

Stud Spacing	
16	in o.c.
Unblocked	Horz. Seems
0.6	Factor

Components & Cladding

	Edge	Field
Corner	**6" o.c.**	**8" o.c.**
Field	**6" o.c.**	**9" o.c.**

Wall Segment Lengths

	ft	in	ft	h/bs	% Capacity	Strength (plf)
1	**10**	**9**	10.75	0.84	100%	127
2	**5**	**2**	5.17	1.74	100%	127
3	**11**	**1**	11.08	0.81	100%	127
4	**12**	**7**	12.58	0.72	100%	127
5			0.00	0.00	0%	127
6			0.00	0.00	0%	127
7			0.00	0.00	0%	127
8			0.00	0.00	0%	127
			39.58			127

Total Shear @ Wall =	3,105	lbs
Actual Shear Wall Segment Lengths =	39.58	ft.
Perforated Shear Wall Length =	**66.00**	ft.
Actual Shear Value =	102.8	plf.

Percent Full Height Sheathing

0.60
Lower Bound = 0.50
Upper Bound = 0.60

Maximum Opening Height

64 in
0.59
Lower Bound = 0.50
Upper Bound = 0.67

	1/3 h	1/2 h	2/3 h	5/6 h	1 h
10%	1.00	0.69	0.53	0.43	0.36
20%	1.00	0.71	0.56	0.45	0.38
30%	1.00	0.74	0.59	0.49	0.42
40%	1.00	0.77	0.63	0.53	0.45
50%	1.00	0.80	0.67	0.57	0.50
60%	1.00	0.83	0.71	0.63	0.56
70%	1.00	0.87	0.77	0.69	0.63
80%	1.00	0.91	0.83	0.77	0.71
90%	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00

Interpolation

0.8	0.67
0.83	0.71

0.73
0.76

Co =	0.76	
Perforated Capacity =	**97**	plf
Allowable Shear Force =	**3850**	lbs
Anchor Uplift Force =	**0**	lbs

04/02/2024

3/11/2024

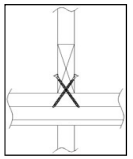
CHAMPION HOME BUILDERS

7/16 in. Thick Rated Shear Wall

Model: 290-Tarczali
Sidewall 1

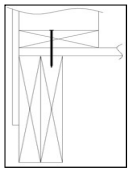
Roof Truss to Top Plate Connection:

Fasteners =	0.131 x 3.25" Toe Nails (NDS)	
Fastener Capacity =	108.9	lbs/nail
Parellel Shear Load =	47.0	plf
Perpendicular Shear Load =	117.4	plf
No. of nails req'd =	**2**	per truss



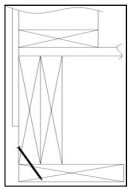
Bottom Plate to Rim Joist Connection:
(Out of Plane)

Fasteners =	0.131 x 3.25" Nails (NDS)	
Fastener Capacity =	100.2	lbs/nail
Shear Load =	137.2	plf
Nails req'd @	**8.5**	in. oc.
Nails req'd @	3	per stud cavity



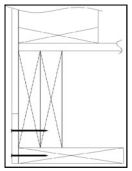
Bottom Half Wall Shear Connection:
(Out of Plane)

Fastener =	0.131 x 3.25" Toe Nail (ESR-1539)	
Fastener Capacity =	108.9	lbs/nail
Shear Load =	**143.5**	plf
Nails req'd @	**9.0**	in. oc.



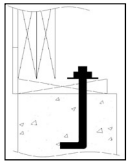
Shear Transfer from Rim Joist to Sill Plate: ESR-1539

Fastener =	15	Staple	Minimum 1.75" fastener length
Fastener Capacity =	72	lbs/each	
Lateral Shear Load =	**47.0**	plf	
Uplift Shear Load =	**67.8**	plf	
Nails req'd @	**10.0**	in. oc.	
Option: LTP4 Clips =	**78.0**	in. o.c.	



Anchor Bolt Shear and Uplift: (NDS)

# of Sill Plates =	**1**		
Fastener =	**5/8**	in. dia. Anchor Bolt	
Shear Parallel to Grain =	47.0	plf	
Shear Perpendicular to Grain =	143.5	plf	
Capacity Parallel to Grain =	1552	lbs/bolt	(NDS Table 11E SPF)
Capacity Perpendicular to Grain =	928	lbs/bolt	(NDS Table 11E SPF)
Required Shear Spacing =	**72**	in. oc.	
Uplift =	67.8	plf	
Washer Area =	2.03	in^2	
Cb =	1.21		
Fcp =	425	psi	
Anchor Bolt Uplift Capacity =	1050	lbs/bolt	
Required Uplift Spacing =	180	in. oc.	



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290-Tarczali- 1-Story Diaphragms & Shearwalls (ASCE7-10).xlsx
Perforated (Sidewall)

3/11/2024

CHAMPION HOME BUILDERS

7/16 in. Thick Rated Shear Wall

Model: 290-Tarczali
Sidewall 2

Connected by: **15** ga. Staples @ **4** in. o.c. (edge), 12 in. o.c. (field)
Minimum 1.75" fastener length

Loading Type = **Wind** Loading Factor = 1.4

Shearwall Data:

Shearwall Capacity =	392	plf	ESR-1539
Reduction Factor =	0.82	for SPF	
Maximum Shear =	193	plf (for SPF)	

Wall Height, H = **108** in

Stud Spacing	
16	in o.c.
Unblocked	Horz. Seems
0.6	Factor

Components & Cladding

	Edge	Field
Corner	4" o.c.	8" o.c.
Field	4" o.c.	9" o.c.

Wall Segment Lengths

	ft	in	ft	h/bs	% Capacity	Strength (plf)
1	4	1	4.08	2.20	100%	193
2	7	2	7.17	1.26	100%	193
3	4	2	4.17	2.16	100%	193
4	4	10	4.83	1.86	100%	193
5	2	9	2.75	3.27	100%	193
6	3	5	3.42	2.63	100%	193
7	3	5	3.42	2.63	100%	193
8			0.00	0.00	0%	193
			29.83			193

Total Shear @ Wall =	3,105	lbs
Actual Shear Wall Segment Lengths =	29.83	ft.
Perforated Shear Wall Length =	60.17	ft.
Actual Shear Value =	166.8	plf.

Percent Full Height Sheathing

	0.50
Lower Bound =	0.40
Upper Bound =	0.50

Maximum Opening Height

80	in
0.74	
Lower Bound =	0.67
Upper Bound =	0.83

	1/3 h	1/2 h	2/3 h	5/6 h	1 h
10%	1.00	0.69	0.53	0.43	0.36
20%	1.00	0.71	0.56	0.45	0.38
30%	1.00	0.74	0.59	0.49	0.42
40%	1.00	0.77	0.63	0.53	0.45
50%	1.00	0.80	0.67	0.57	0.50
60%	1.00	0.83	0.71	0.63	0.56
70%	1.00	0.87	0.77	0.69	0.63
80%	1.00	0.91	0.83	0.77	0.71
90%	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00

Interpolation

0.63	0.53
0.67	0.57

0.59
0.63

Co =	0.62	
Perforated Capacity =	120	plf
Allowable Shear Force =	3590	lbs
Anchor Uplift Force =	0	lbs

COLORADO LICENSED STEVEN C. DAME 53094 PROFESSIONAL ENGINEER
04/02/2024

3/11/2024

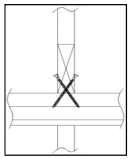
CHAMPION HOME BUILDERS

7/16 in. Thick Rated Shear Wall

Model: 290-Tarczali
Sidewall 2

Roof Truss to Top Plate Connection:

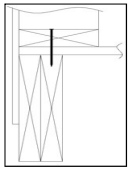
Fasteners =	0.131 x 3.25" Toe Nails (NDS)	
Fastener Capacity =	108.9	lbs/nail
Parellel Shear Load =	47.0	plf
Perpendicular Shear Load =	117.4	plf
No. of nails req'd =	2	per truss



Bottom Plate to Rim Joist Connection:

(Out of Plane)

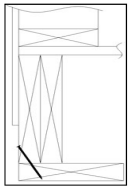
Fasteners =	0.131 x 3.25" Nails (NDS)	
Fastener Capacity =	100.2	lbs/nail
Shear Load =	137.2	plf
Nails req'd @	8.5	in. oc.
Nails req'd @	3	per stud cavity



Bottom Half Wall Shear Connection:

(Out of Plane)

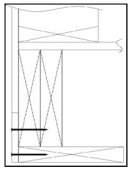
Fastener =	0.131 x 3.25" Toe Nail (ESR-1539)	
Fastener Capacity =	108.9	lbs/nail
Shear Load =	143.5	plf
Nails req'd @	9.0	in. oc.



Shear Transfer from Rim Joist to Sill Plate:

ESR-1539

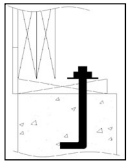
Fastener =	15	Staple	Minimum 1.75" fastener length
Fastener Capacity =	72	lbs/each	
Lateral Shear Load =	47.0	plf	
Uplift Shear Load =	67.8	plf	
Nails req'd @	10.0	in. oc.	
Option: LTP4 Clips =	78.0	in. o.c.	



Anchor Bolt Shear and Uplift:

(NDS)

# of Sill Plates =	1		
Fastener =	5/8	in. dia. Anchor Bolt	
Shear Parallel to Grain =	47.0	plf	
Shear Perpendicular to Grain =	143.5	plf	
Capacity Parallel to Grain =	1552	lbs/bolt	(NDS Table 11E SPF)
Capacity Perpendicular to Grain =	928	lbs/bolt	(NDS Table 11E SPF)
Required Shear Spacing =	72	in. oc.	
Uplift =	67.8	plf	
Washer Area =	2.03	in^2	
Cb =	1.21		
Fcp =	425	psi	
Anchor Bolt Uplift Capacity =	1050	lbs/bolt	
Required Uplift Spacing =	180	in. oc.	



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290-Tarczali- 1-Story Diaphragms & Shearwalls (ASCE7-10).xlsx
Perforated (Sidewall) (2)

3/11/2024

CHAMPION
HOME BUILDERS, INC.

OUT OF PLANE WIND FASTENING CALCULATIONS

Sheathing Thickness =	7/16 "	Roof Pitch =	5 : 12
Truss Spacing =	16 " o.c.	Wall Stud Spacing =	16 " o.c.
Exposure Catagory =	C	Exposure Factor =	1.29
Mean Roof Height =	20 ft.		

Requires 3x framing at adjoining panel edges

Withdrawl Capacities:

7/16"x1 .75"x14 GA Staple =	52.5 lbs	0.113x2" Nails =	45.0 lbs
7/16"x1 .75"x15 GA Staple =	48.3 lbs	0.120x2" Nails =	47.5 lbs
7/16"x1 .5"x16 GA Staple =	34.0 lbs	0.131 x 2.5" Nail =	69.3 lbs
		0.148 x 3" Nail =	94.3 lbs

		Zone 2 (Roof) Fastener Spacing						
Wind (mph)	**Load (psf)**	**14**	**15**	**16**	**0.113**	**0.120**	**0.131**	**0.148**
175	**67.9**	6.5	6.0	4.5	5.5	6.0	9.0	**12.0**

		Zone 3 (Roof) Fastener Spacing						
Wind (mph)	**Load (psf)**	**14**	**15**	**16**	**0.113**	**0.120**	**0.131**	**0.148**
175	**100.5**	4.5	4.0	3.0	4.0	4.0	6.0	8.0

		Zone 4 (Wall) Fastener Spacing						
Wind (mph)	**Load (psf)**	**14**	**15**	**16**	**0.113**	**0.120**	**0.131**	**0.148**
175	**46.3**	10.0	9.0	6.5	8.5	9.0	**12.0**	**12.0**

		Zone 5 (Wall) Fastener Spacing						
Wind (mph)	**Load (psf)**	**14**	**15**	**16**	**0.113**	**0.120**	**0.131**	**0.148**
175	**57.1**	8.0	8.0	5.0	7.0	7.0	10.5	**12.0**

04/02/2024

CHAMPION HOME BUILDERS

Ridgebeam Check Based of Truss Reaction

Truss#: HMC80509 Node: 1

Design Loads : Ground Snow Load = 30.0 psf
Truss Reaction (Max. Grav) = 1249.0 lbs
Truss Reaction (Max. Uplift) = 458.0 lbs
Spacing = 24 " o.c.

Linear Load = 52.0 plf
Uplift Load = 19.1 plf

Ridgebeam = Yes

Species : LVL Grade : 2.0E Number of Ply(s), N : 1

LVL Properties :

Thickness, b =	1.5	in.
Fb =	2,900	psi
Fv =	280	psi
E =	2,000,000	psi

Adjustment Factors :

1. Load Duration Factor (Wind)	Cd =	1.60
1b. Load Duration Factor (Snow)	Cds =	1.00
2. Repetitive Member Factor	Cr =	1.00
3. Allowable Deflection	L /	240

Depth	Area	Sx	Ix	Cf	Fb' (Snow)	Fb' (Wind)	Fv' (Snow)	Fv' (Wind)
5.5	8.25	7.56	20.80	1.15	3337	5340	280	448
7.25	10.88	13.14	47.63	1.09	3175	5081	280	448
9.25	13.88	21.39	98.93	1.05	3039	4863	280	448
11.25	16.88	31.64	177.98	1.01	2934	4694	280	448
11.875	17.81	35.25	209.32	1.00	2905	4649	280	448
14	21.00	49.00	343.00	0.97	2821	4513	280	448
16	24.00	64.00	512.00	0.95	2754	4406	280	448
18	27.00	81.00	729.00	0.93	2696	4313	280	448
20	30.00	100.00	1000.00	0.91	2645	4232	280	448
22	33.00	121.00	1331.00	0.90	2600	4160	280	448
24	36.00	144.00	1728.00	0.88	2560	4096	280	448

Maximum Span Based on :

	Moment		Shear		Deflection		Max. Span	Uplift Load (lbs)	Uplift Straps[1]	Bearing Columns[2]
Depth	Snow	Wind	Snow	Wind	Snow	Wind				
5.5	62.29	130.11	59.18	258.24	63	89	59	563	2	2
7.25	80.09	167.29	78.01	340.40	84	117	78	745	2	3
9.25	99.97	208.82	99.54	434.31	107	149	99	945	2	3
11.25	119.46	249.53	121.06	528.21	130	181	119	1136	3	4
11.875	125.48	262.11	127.78	557.55	137	191	125	1193	3	4
14	145.76	304.47	150.65	657.33	162	226	145	1384	3	4
16	164.59	343.81	172.17	751.23	185	258	164	1565	3	5
18	183.22	382.71	193.69	845.14	208	290	183	1747	4	5
20	201.65	421.22	215.21	939.04	231	322	201	1918	4	6
22	219.92	459.39	236.73	1032.94	254	355	219	2090	4	6
24	238.04	497.24	258.25	1126.85	277	387	238	2271	5	7

Notes:
1. Uplift straps are 26GA by 1.25" in width and attached to beam and column stud w/ (8) 15 ga staples. (16 Total Staples)
2. Bearing Column ply based of 425psi value for SPF top plate.

3/13/2024

CHAMPION HOME BUILDERS

Header Check Based of Truss Reaction

Truss#: HMC80509 Node: 1

Design Loads :

Truss Reaction (Max. Grav) =	1249.0	lbs*	Linear Load =	26.0	plf	Ridgebeam =	No
Truss Reaction (Max. Uplift) =	458.0	lbs*	Uplift Load =	9.5	plf		
Spacing =	24	" o.c.	Number of Ply(s), N :	3			

**Max. of all Trusses.*

Species : SPF / SYP Grade : #2

LVL Properties :

Thickness, b =	1.5	in.
Fb =	See Chart	psi
Fv =	135	psi
E =	1,400,000	psi

Adjustment Factors :

1. Load Duration Factor (Wind)	Cd =	1.60
1b. Load Duration Factor (Snow)	Cds =	1.00
2. Repetitive Member Factor	Cr =	1.15
3. Allowable Deflection	L /	240

	Depth	Area	Sx	Ix	Cf	Fb' (Snow)	Fb' (Wind)	Fv' (Snow)	Fv' (Wind)
Triple Ply	3.50	15.75	9.19	16.08	1.00	1265	2024	135	216
	5.50	24.75	22.69	62.39	1.00	1150	1840	135	216
	7.25	32.63	39.42	142.90	1.00	1064	1702	135	216
	9.25	41.63	64.17	296.79	1.00	800	1472	135	216
	11.25	50.63	94.92	533.94	1.00	750	1380	135	216

Maximum Span Based on :

		Moment		Shear		Deflection		Max. Span	Uplift Straps[1]	Bearing Columns[2]
	Depth	Snow	Wind	Snow	Wind	Snow	Wind			
Triple Ply	3.50	59.78	124.86	108.95	475.39	65	80	59	1	1
	5.50	89.56	187.08	171.21	747.04	102	125	89	1	1
	7.25	113.55	237.18	225.68	984.73	135	165	113	2	1
	9.25	125.63	281.42	287.94	1256.38	172	210	125	2	1
	11.25	147.94	331.40	350.20	1528.03	209	256	147	2	1

Notes:
1. Uplift straps are 26GA by 1.25" in width and attached to beam and column stud w/ (8) 15 ga staples. (16 Total Staples)
2. Bearing Column ply based of 425psi value for SPF top plate.

04/02/2024