VS. Engineered Wood

HOLE SIZE

Header or Beam Depth	Maximum Round Hole Size
9 1/4"	6"
12"	8"
14"	10“

TUFF BEAM ARRIVES WITH PRE-PUNCHED HOLES

Header or Beam Depth	Maximum Round Hole Size
9 1/4" - 9 1/2"	3"
11 1/4" - 11 7/8"	3 5/8"
14" - 16"	4 5/8"

JOBSITE PREPARATION

- Trim to Length (Maximum 2’ Drop)
- Field Apply Wood Nailers (If Not Factory Applied)
- Install
- Bearing Length Maximum 3”

- Trim to Length
- Field Assemble (Multiple Rows of Nails, Bolts, and / or Screws
- Install
- Bearing Length Varies from 1 ½” up to 7 ¾”

Other Advantages of TUFF BEAM

- Achieve Longer Spans with Shallower Depth Beam
- Camber is Available to Reduce Deflection
- Fewer Vertical Supports
- Ability to Handle Multiple Point Loads
- Drywall can be attached directly to TUFF BEAM
- Higher Strength to Weight Ratio
- TUFF BEAM has a 70% or higher recycle content
- Trimmed pieces are 100% Recyclable
- Cost Competitive to Engineered Wood and Structural Steel
- Inventory Reduction – TUFF BEAM is readily available to eliminate the need to stock 40’ Engineered Wood Beams
- Waist Reduction – TUFF BEAM is sold in 2’ increments to eliminate excess waist, drops, and profit loss.
- TUFF BEAM will not Shrink, Swell, Twist, and / or Rot

GS Beam® 5.008.2 (Build 140)
kmBeamEngine 4.600y
Materials Database 1381

Member Data

Description: B01
ROOF GIRDER

Standard Load:
Live Load: 0 PLF
Dead Load: 0 PLF

Member Type: Girder
Top Lateral Bracing: Continuous
Bottom Lateral Bracing: Continuous
Moisture Condition: Dry
Deflection Criteria: L/360 live, L/240 total
Deck Connection: Nailed
Filename: 51087 GIRDER

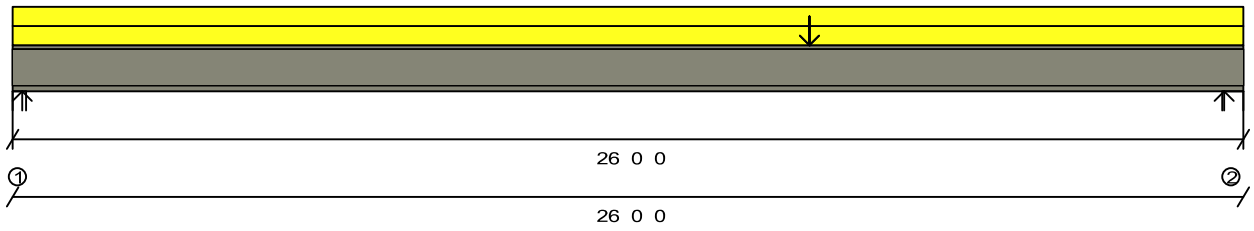
Application: Floor

Building Code: IBC/IRC

Member Weight: 30.9 PLF

Other Loads

Type (Description)	Side	Begin	End	Trib. Width	Other Start	Other End	Dead Start	Dead End	Category
Replacement Uniform (PLF)	Top	0' 0.00"	26' 0.00"		150		0		Snow
Replacement Uniform (PLF)	Top	0' 0.00"	26' 0.00"		0		75		Live
Point (LBS)	Top	16' 10.13"			2959		0		Snow
Point (LBS)	Top	16' 10.13"			290		1726		Live



Bearings and Reactions

	Location	Type	Material	Input Length	Min Required	Gravity Reaction	Gravity Uplift
1	0' 0.000"	Wall	Southern Pine (565psi)	3.500"	N/A	4867#	–
2	26' 0.000"	Wall	Southern Pine (565psi)	5.500"	N/A	6316#	–

Maximum Load Case Reactions

Used for applying point loads (or line loads) to carrying members

	Live	Snow	Dead
1	100#	2927#	1941#
2	190#	3842#	2475#

Design spans
25' 4.750"

Product: Metwood 14511 - 14" x 5" 1 ply **PASSES DESIGN CHECKS**

Design assumes continuous lateral bracing for both flanges.
Web stiffeners are required at all bearing and point load locations unless reviewed by a design engineer.
Consult manufacturer's installation guide (if applicable) for details.

Allowable Stress Design

	Actual	Allowable	Capacity	Location	Loading
Moment	546682."#	1261920."#	43%	16.84'	Total Load D+S
Shear	6258.#	17290.#	36%	25.39'	Total Load D+S
V/M Interaction	0.24	1.00	24%	16.84'	Total Load D+S
TL Deflection	0.5158"	1.2698"	L/590	12.92'	Total Load D+S
LL Deflection	0.3141"	0.8465"	L/970	12.92'	Total Load S

Control: Moment

Michael Callahan
Metwood Building Solutions
819 Naff Rd.
Boones Mill, VA 24065
540-334-4294 ph.
540-334-4293 fx.

JAVELIN software by Weyerhaeuser

Design Passed

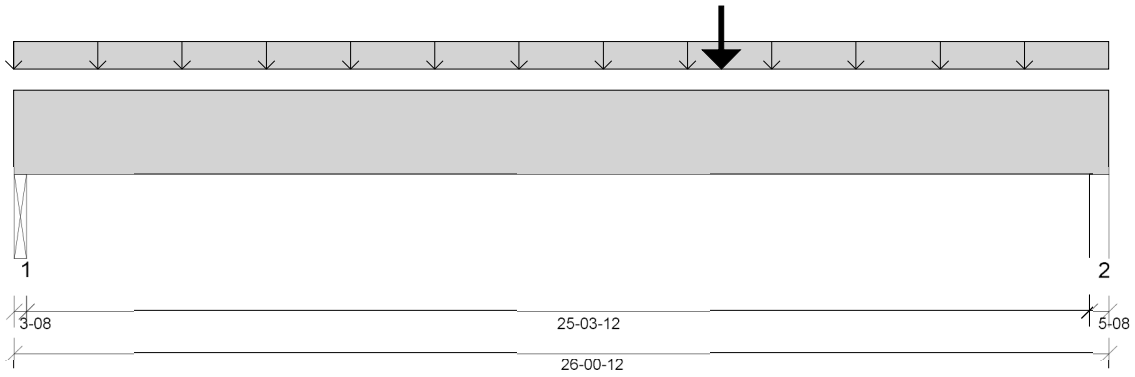
Member Report

Label: BM1 | Design Tag: i6931

3 piece(s) of 1 3/4" x 24" 1.9E Microllam® LVL

Member Type: Beam | Level: 2nd Floor

Product is Sufficient for Application and Loads Described



Building Code: IBC 2009 Design Methodology: ASD Member Cut Length: 26-00-12 Member Drawing Not to Scale

Design Results:	Design @ Location	Allowed	Result	LDF	Load Combination - (Load Group)
Critical Reaction	6464 lb @ 25-08-12	12272 lb (5.5")	Passed - 53%	-	1.0 D + 1.0 S - (0)
Shear	5825 lb @ 23-07-04	27531 lb	Passed - 21%	1.15	1.0 D + 1.0 S - (0)
Moment	46409 lb-ft @ 16-10-02	114283 lb-ft	Passed - 41%	1.15	1.0 D + 1.0 S - (0)
Live Load Deflection	0.29" @ 13-06-00	0.85" L/360	Passed - L/999	-	1.0 D + 1.0 S - (0)
Total Load Deflection	0.47" @ 13-05-12	1.28" L/240	Passed - L/647	-	1.0 D + 1.0 S - (0)

Design Notes:

* Bracing (Lu): All compression edges (top and bottom) must be braced at 10-06-06 o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.

Supports:

				Maximum Loads to Supports			
Support	Start : End	Req'd Br'g	Source	Dead	Floor Live	Roof Live	Snow
1	0 : 3-08	1.5"	BM2(i6932)	2021 lb	101 lb	-	2971 lb
2	25-07-04 : 26-00-12	2.9"	E5(i680)	2566 lb	189 lb	-	3898 lb

Loads:

				Maximum Loads on Member			
Type	Start : End	Combine	Source	Dead	Floor Live	Roof Live	Snow
Self Weight	0 : 26-00-12	-	Self Weight	35 lb/ft	-	-	-
Uniform	0 : 26-00-12	-	User Load	75 lb/ft	-	-	150 lb/ft
Point	16-10-02 : -	-	BM6(i6933)	1726 lb	290 lb	-	2959 lb

Errors, Warnings, & Notes:

* If sloping roof loads are applied to this member, the roof dead load has been adjusted for slope.
* The member graphic, dimensions, and locations shown on this report are based on the centerline of the member.
* Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
* Load Duration Factors: Dead - 0.90, Floor Live - 1.00, Roof Live - 1.25, Snow - 1.15

JAVELIN® software by Weyerhaeuser

Design Passed

Member Report

Label: BM1 | Design Tag: i6931

3 piece(s) of 1 3/4" x 24" 1.9E Microllam® LVL

Member Type: Beam | Level: 2nd Floor

Product is Sufficient for Application and Loads Described

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Refer to current literature for installation details. (woodbywy.com) Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. The product application, input design loads, dimensions and support information have been provided by _____ of _____.

SUSTAINABLE FORESTRY INITIATIVE

MULTIPLE-MEMBER CONNECTIONS

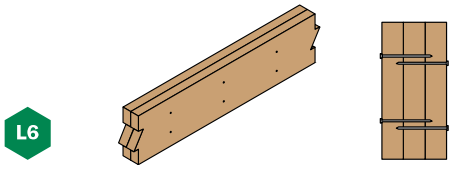
Fastener Installation Requirements

Piece Width	# of Plies	Fastener				
		Type(1)	Min. Length	# Rows	O.C. Spacing	Location
1½" or 1¾"	2	10d nails	3"	3(2)	12"	One side
		12d–16d nails	3¼"	2(2)		
		Screws	3" for 1½" members 3⅜" for 1¾" members	2	24"	
	3	10d nails	3"	3(2)	12"	Both sides
		12d–16d nails	3¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	Both sides

(1) 10d nails are 0.128" diameter; 12d–16d nails are 0.148"–0.162" diameter; screws are SDS, SDW, USP WS, or TrussLOK EWP™.

(2) An additional row of nails is required with depths of 14" or greater.

- When fasteners are required on both sides, stagger fasteners on the second side so they fall halfway between fasteners on the first side.



Multiple pieces can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 5¼". Load must be applied evenly across entire beam width.

For applications that require wider members and/or uneven/side loaded beams, refer to the Trus Joist® Beam, Header and Column Specifier's Guides TJ-9000 or TJ-9020, or contact your Weyerhaeuser representative.

3 piece(s) of 1 3/4" x 24" 1.9E Microllam® LVL

MSRP - $1738.00* + Labor to Assemble Plies on Site.
Assembly requires Approx. 162 Nails
*** Price is for only 26'**

Comparable Metwood TUFF BEAM
1451126 - 14" x 5" x 26'
MSRP - $1684.00 -
Product Ready to Install