

Airtight, cellulose insulated,
assemblies.

Simple advice from the
woods of Maine



Jesper Kruse, Maine Passive House



Passive House Principles:

Super Insulated

Triple Pane Windows

No Thermal Bridging

Mechanical Ventilation

Airtight

Passive Solar Gains

Energy Modeling

Super Insulated

No Thermal Bridging

Airtight

CHEERS



Comfort
Health
Energy
Environment
Resilience
S



Certified Passive House Double stud wall



Passive House Standard TJI walls and rafters



Passive House retrofit
TJI walls 2015-never ending



High Performance
Double stud wall
TJI rafters



Oxbow Brewery
TJI rafters
Double stud walls



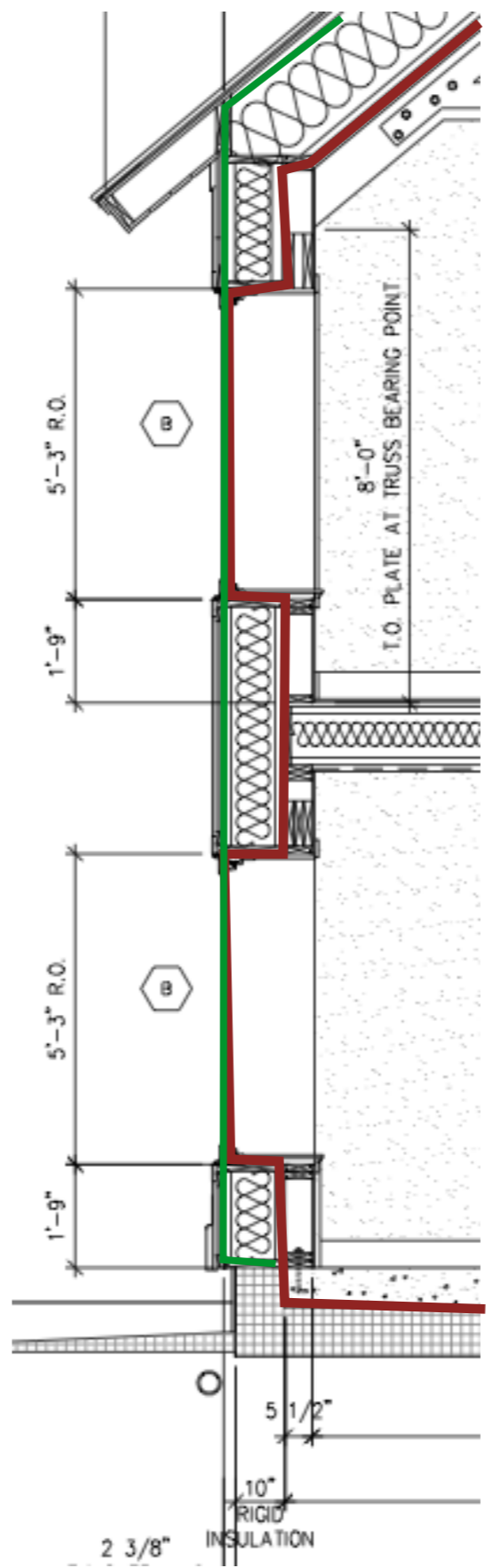
5500W
kept it
heated
through
a Maine
winter



Disclaimer:
Not all insulation is
cellulose

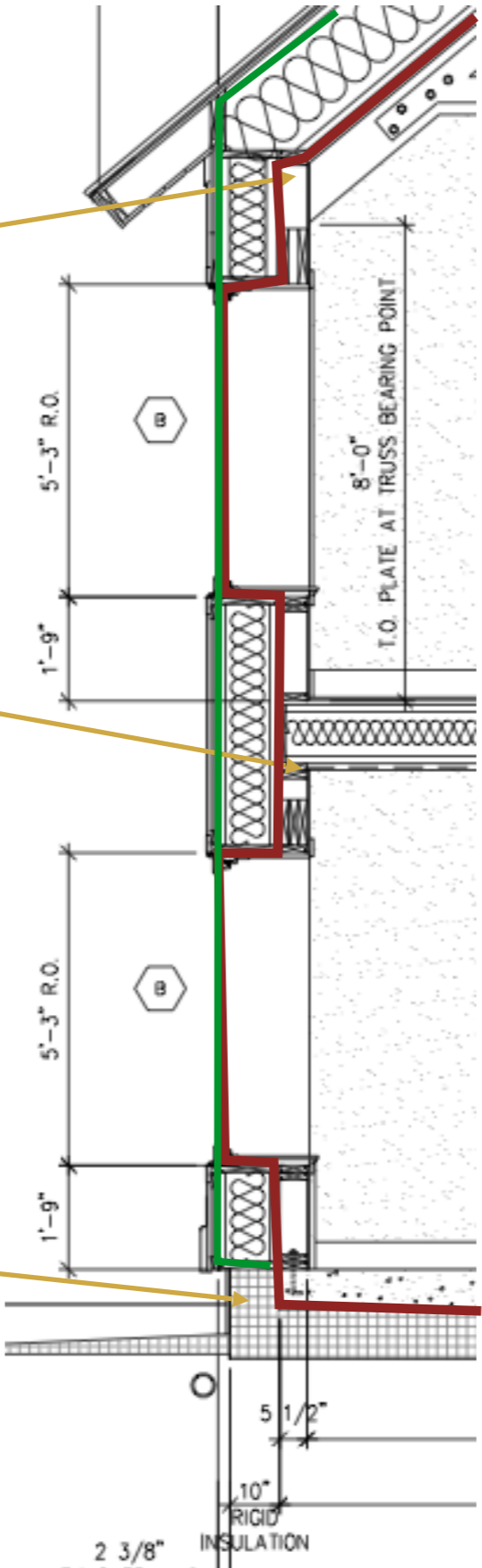






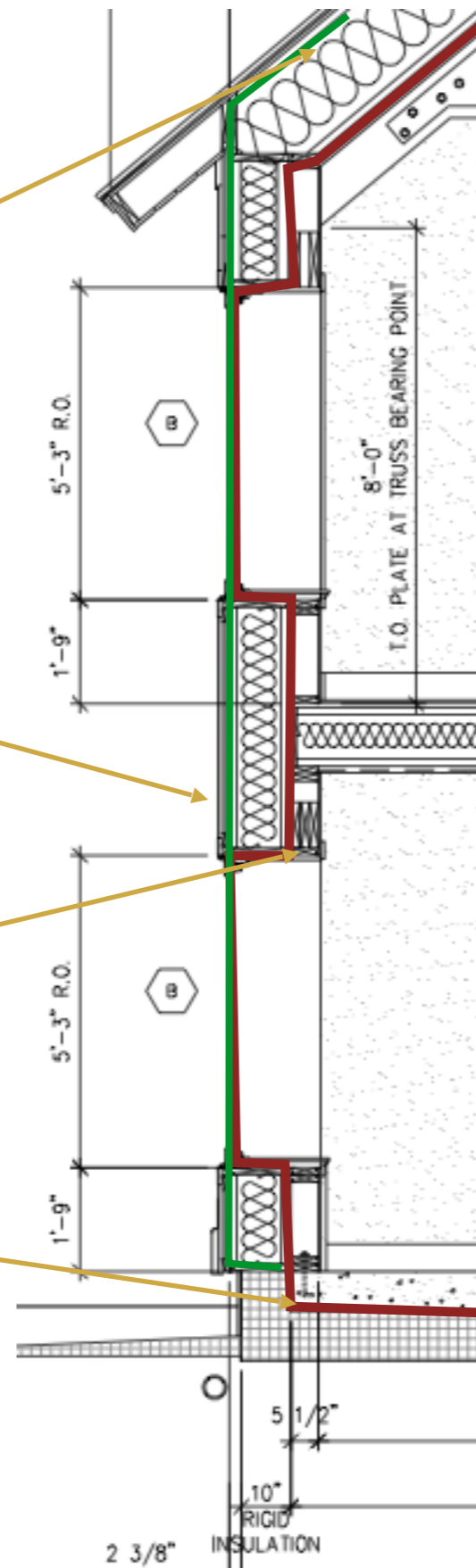
Structural connections inside air barrier

No load under TJIs



**Wind and Weather
Resistant Barrier
with high perm rating**

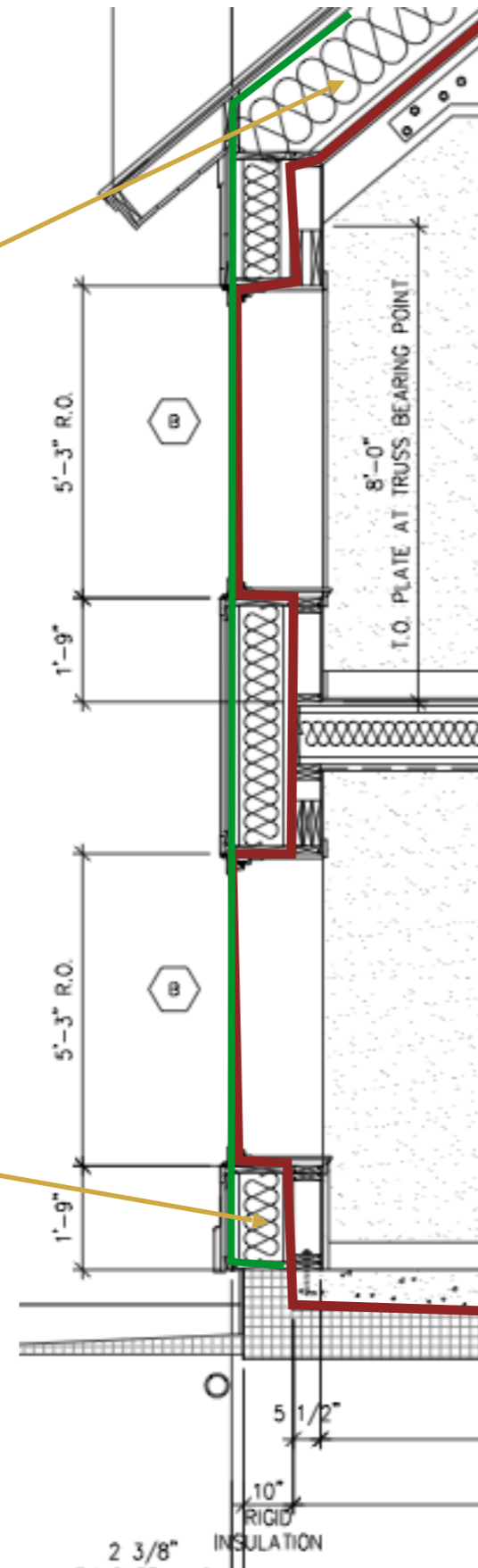
**Airtight barrier
w/low perm rating
close to interior**



**Dense packed
cellulose**

23.5"

15.5"



Assembly Building Assembly Description

2	2x6 with 10" TJI
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Surface Film Resistance, R_s Interior: 0.74 (hr.ft².F/BTU)
 Exterior: 0.23

	Primary Material (Enter from interior to exterior)	Resistivity R per inch	Secondary Material (optional)	Resistivity R per inch	Tertiary Material (optional)	Resistivity R per inch	Thickness [in]
1.		1.300					0.500
2.	cellulose	3.800	tji	1.390			9.875
3.	osb	1.390					0.500
4.	cellulose	3.800			2x6	1.280	5.500
5.	gypsum	0.910					0.500
6.							
7.							
8.							
				Percentage of Mat'l 2	Percentage of Mat'l 3		Total Width
				2.0%	14.0%		16.9 in

R-Value: 56.8 (hr.ft².F/BTU)
 U-Value: 0.0176 (BTU/hr.ft².F)

2x6 wall 24" OC



1/2" ZIP

Tape







10-12" I-Joist



5" GRK Screw



Vapor Open
Membrane







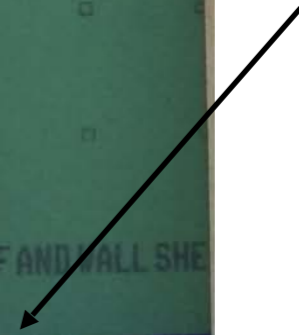
1/2" window
buck



Low perm
rating
membrane
or
1/2" zip



Subslab
vapor
barrier
taped to
zip first



Reinforced membrane



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MENTO PLUS CE

4-lagige Unterdach- und Unterspannbahn mit monolithischer TEEE-Membran, armiert, hochdiffusionsoffen, entspricht dem ZVWF-Produktanforderkatalog Holzbaun-/Mischbauweise Klasse U59-AA05-A gem. Tab. 1. Strongest für Behälter
4-layer roofing and roofing felt with monolithic TEEE-Membrane, reinforced, high diffusion open, $s_d = 0,05$ m, g-Bauweise
Bande de sous-toiture quadruple couche avec armature et membrane monolithique TEEE à très grande perméabilité
4-lagige gewapnete unterdächerbahn mit monolithischer TEEE-membran, reer damp-offen, $s_d = 0,05$ m
Quattro strati a treccia rinforzanti e 4 strati con armatura e membrana monolitica TEEE, $s_d = 0,05$ m

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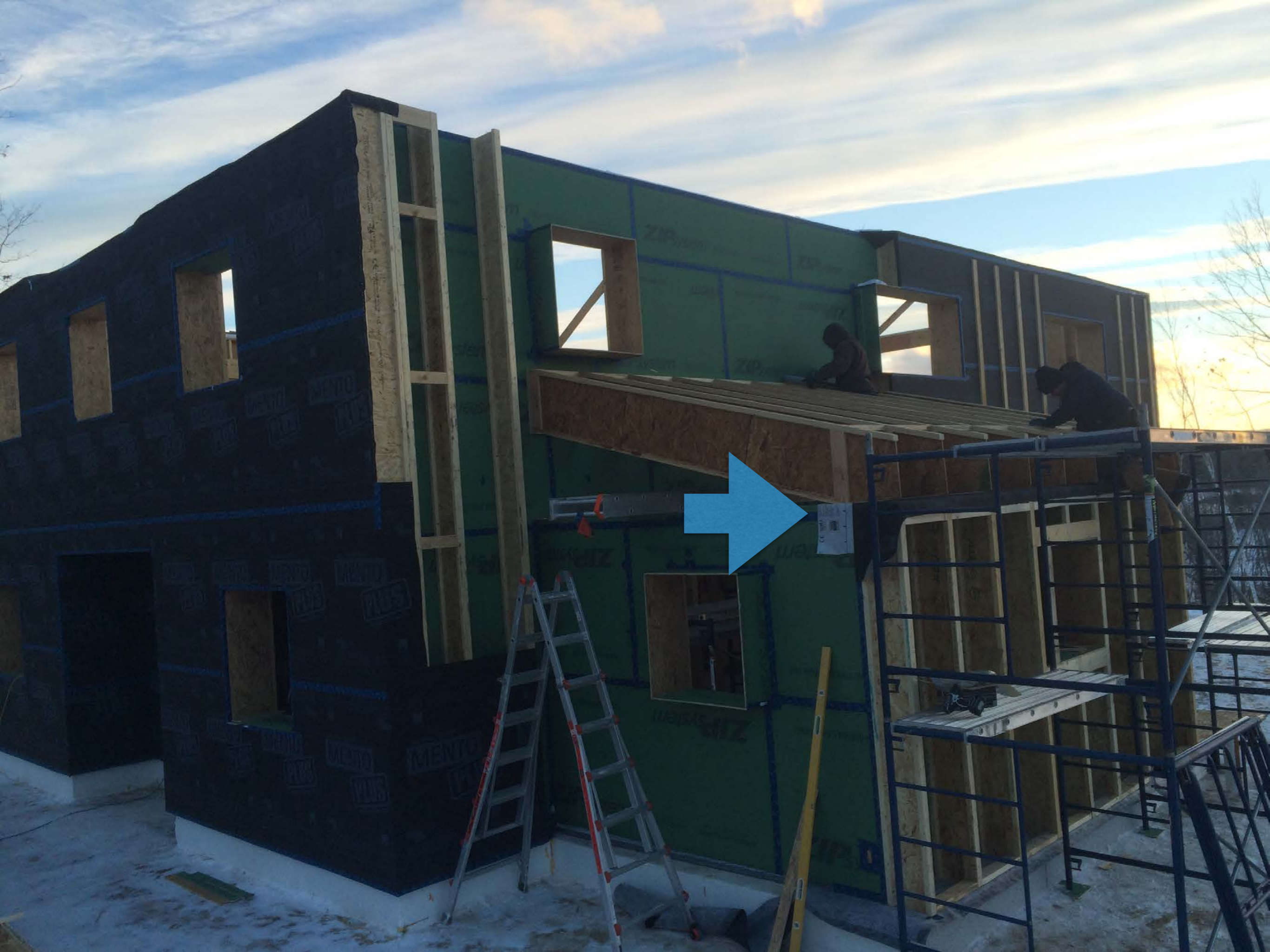
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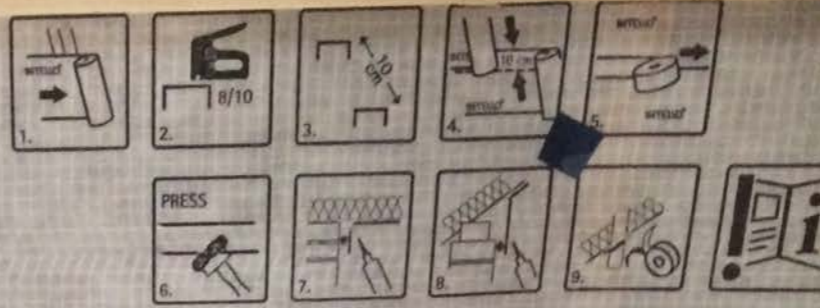


Ridge beam
below
rafters









drying capability
vochtigheids
vochtigheids



Hohe relative Luftfeuchtigkeit während der Bauphase schnell ablassen!
Heightened humidity levels during construction require high ventilation and drying capability!
Evacuer rapidement l'excès d'humidité provoqué par la phase de construction!
Verhoogde vochtigheid tijdens de bouwfase vereist goede ventilatie- en droogmogelijkheden!
Alta umidità relativa: arleggiare subito in fase di lavoro!

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Technical specifications and performance data in multiple languages.

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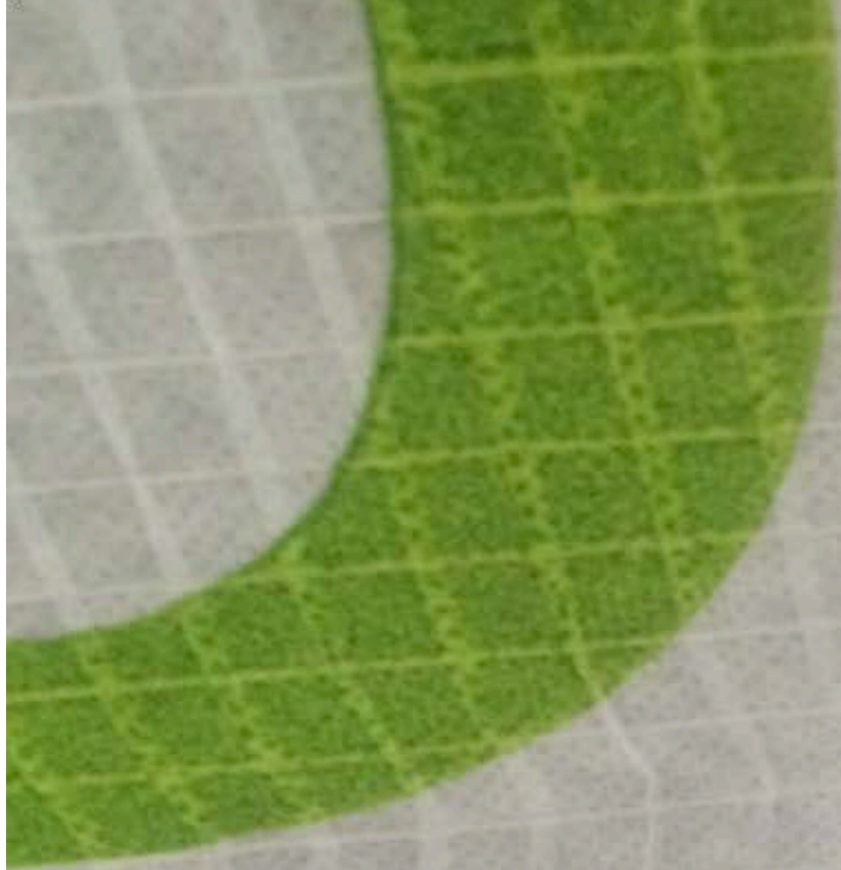
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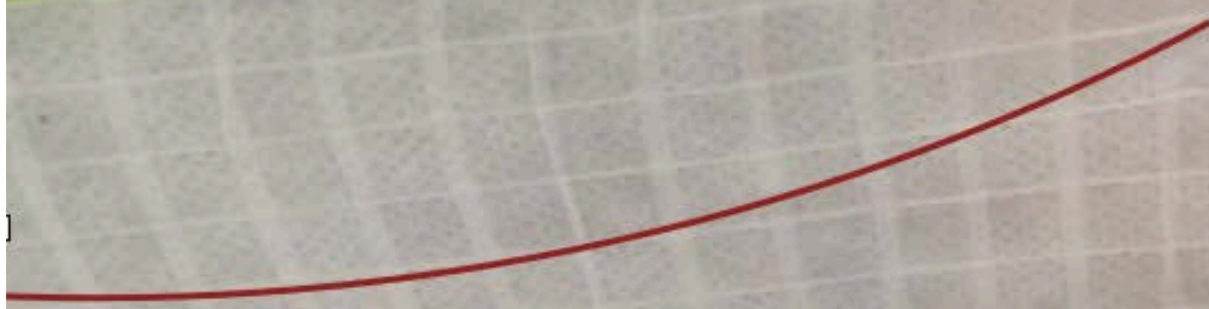
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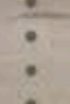
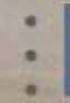
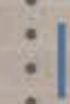
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**and the staples
start to tear**



**so turn the staples
in the direction of
the rafter.**



**As the rafters get
packed with cellulose
they start to bulge out**

