

## Appendix A

**BOISE CASCADE WOOD PRODUCTS, L.L.C.**

**BCI® and AJS® Fire Resistance Rated Floor and Roof Assembly Details**

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD,  
BOISE CASCADE® RIMBOARD PLUS  
Fire Resistance Rated Rim Board Assembly Details**



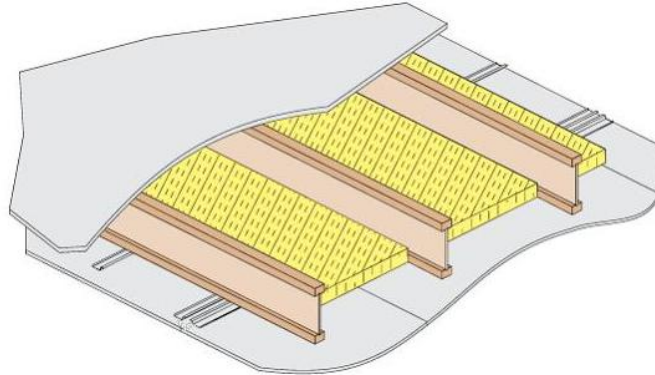


# Boise Cascade Assembly FR1

## 45-Minute Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

One Layer 5/8" Type C Gypsum Wallboard – BCI® and AJS® Joists



<b>BASE ASSEMBLY</b>	
<b>Component</b>	<b>Material Specification</b>
<b>Floor Topping (Optional)</b>	<b>Varies</b>
Reference sound ratings if applicable.	
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.	
<b>Insulation (Optional)</b>	<b>Min. 3-1/2 inch (89 mm) Glass Fiber Insulation or 2 inch (51 mm) Rock Wool Insulation, 2.5 pcf Nominal.</b>
Reference sound ratings if applicable.	
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>
Maximum 24 inch (610 mm) on center spacing. Minimum BCI flange dimensions of 1-1/8 inch (29mm) thick by 1-1/2 inch (38mm) wide. Minimum AJS flange dimensions of 1-1/2 inch (38mm) thick by 2-1/2 inch (64mm) wide.	
<b>Resilient Channels</b>	<b>Min. 0.019 inch (0.5mm) Galvanized Resilient Channels</b>
Attached perpendicular to the bottom flange of the joist with 1-1/8 inch (29mm) Type W drywall screws. Channels are spaced a maximum of 16 inches (406mm) on center. Additional channels required at gypsum wallboard end joints such that each board rests on its own channel. These additional channels shall extend to the next joist on each side of the board edges.	
<b>Ceiling</b>	<b>(1) Layer of 5/8 inch (16mm) Type C Gypsum Wallboard</b>
Installed with long dimension perpendicular to resilient channels and fastened with minimum 1-1/8 inch (29mm) Type S drywall screws at 7 inches (178 mm) on center. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets. Screws shall be minimum 1-1/2 inch (38mm) from board edge and 3/4 inch (19mm) from board ends. <u>Finish:</u> The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.	
<b>SIMILAR ASSEMBLIES</b>	
<b>BCI® Joists</b>	<b>AJS® Joists</b>
2010 NBCC Table A-9.10.3.1.B., Assembly Num. F8, F10, F14, and F20	2010 NBCC Table A-9.10.3.1.B., Assembly Num. F8, F10, F14, and F20

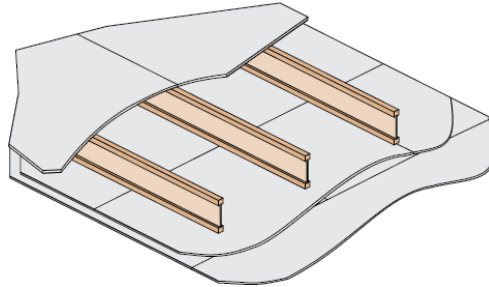


# Boise Cascade Assembly FR2

## One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

Two Layers 5/8" Type X Gypsum Wallboard – BCI® and AJS® Joists



BASE ASSEMBLY		
Component	Material Specification	
<b>Floor Topping (Optional)</b>	<b>Varies</b>	
Reference sound ratings if applicable		
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>	
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.		
<b>Insulation (Optional)</b>	<b>Max 9-1/2 inch (241 mm) Glass Fiber Insulation</b>	
Reference sound ratings if applicable		
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>	
Maximum 24 inch (610 mm) on center spacing. Minimum BCI flange dimensions of 1-1/8 inch (29mm) thick by 1-1/2 inch (38mm) wide. Minimum AJS flange dimensions of 1-1/2 inch (38mm) thick by 2-1/2 inch (64mm) wide.		
<b>Resilient Channels (Optional)</b>	<b>Min. 0.019 inch (0.5mm) Galvanized Resilient Channels</b>	
Attached perpendicular to the bottom flange of the joist with 1-1/4 inch (32mm) Type S drywall screws. Channels are spaced a maximum of 16 inches (406mm), 24 inches (610mm) on center when I-joists are spaced a maximum of 16 inches on center.		
<b>Ceiling</b>	<b>(2) Layers of 5/8 inch (16mm) Type X Gypsum Wallboard</b>	
<p><b>Base Layer:</b> Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-1/4 inch (32mm) Type W drywall screws at 24 inches (610 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.</p> <p><b>Face Layer:</b> Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists through the first layer using 1-7/8 inch (48mm) Type W drywall screws spaced at 12 inches (305mm) on center. The longitudinal joints of this layer must be offset 24 inches (610mm) from those of the base layer. The end joints must be centered on the bottom flange of the joists and offset a minimum of one joist spacing from those of the base layer. Additionally, face layer end joints are attached to the base layer with 1-1/2 inch (38mm) Type G drywall screws at 12 inches (305mm) on center placed 2 inches (51mm) either side of the joint.</p> <p><b>With Resilient Channels:</b> attached as described above except use 1-3/8 inch (35mm) and 1-3/4 inch (44mm) Type S screws for the base and face layer, respectively. The end joints of the wallboard must be centered on a resilient channel and must be staggered the equivalent of two joist spacings with those of adjacent sheets.</p> <p><b>Finish:</b> The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.</p>		
SOUND RATING (w/ Resilient Channels)		
Components	STC	IIC
Base Assembly with Carpet and Padding	54	68
Base Assembly with 3-1/2" (89mm) Insulation	55	46
Base Assembly with additional layer of 5/8" Sheathing and 9-1/2" Insulation	61	50
Base Assembly with Tarkett "Acoustiflor" vinyl and 3-1/2" Insulation	59	50
Base Assembly with cushioned vinyl, 3/4" Gypsum Concrete and 3-1/2" Insulation	67	51
SIMILAR ASSEMBLIES		
BCI® Joists	AJS® Joists	
2006/2009 IBC® Table 720.1(3), Item Num. 22-1.1/21-1.1		
2012 IBC® Table 721.1(3), Item Num. 21-1.1		
2010 NBCC Table A-9.10.3.1.B., Assembly Num. F4, F9, F11, and F13, F15, F17, and F21		
ICC-ES ESR 1336, Figure 2		

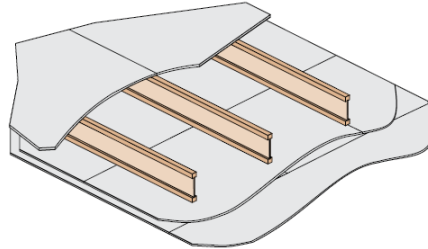


# Boise Cascade Assembly FR3

## One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

Two Layers 1/2" Type C Gypsum Wallboard – BCI® and AJS® Joists



BASE ASSEMBLY		
Component	Material Specification	
<b>Floor Topping (Optional)</b>	<b>Varies</b>	
Reference sound ratings if applicable		
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>	
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.		
<b>Insulation (Optional)</b>	<b>Max 9-1/2 inch (241 mm) Glass Fiber Insulation</b>	
Reference sound ratings if applicable		
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>	
Maximum 24 inch (610 mm) on center spacing. Minimum BCI flange dimensions of 1-1/8 inch (29mm) thick by 1-1/2 inch (38mm) wide. Minimum AJS flange dimensions of 1-1/2 inch (38mm) thick by 2-1/2 inch (64mm) wide.		
<b>Resilient Channels (Optional)</b>	<b>Min. 0.019 inch (0.5mm) Galvanized Resilient Channels</b>	
Attached perpendicular to the bottom flange of the joist with 1-1/4 inch (32mm) Type S drywall screws. Channels are spaced a maximum of 16 inches (406mm), 24 inches (610mm) on center when I-joists are spaced a maximum of 16 inches on center.		
<b>Ceiling</b>	<b>(2) Layers of 1/2 inch (13mm) Type C Gypsum Wallboard</b>	
<p><b>Base Layer:</b> Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-1/4 inch (32mm) Type W drywall screws at 12 inches (305 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.</p> <p><b>Face Layer:</b> Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists through the first layer using 1-5/8 inch (41mm) Type W drywall screws spaced at 12 inches (305mm) on center on intermediate joists and 6 inches (152mm) on center at end joints. The longitudinal joints of this layer must be offset 24 inches (610mm) from those of the base layer. The end joints must be centered on the bottom flange of the joists and offset a minimum of one joist spacing from those of the base layer. Additionally, face layer end joints are attached to the base layer with 1-1/2 inch (38mm) Type G drywall screws at 8 inches (203mm) on center placed 6 inches (152mm) either side of the joint.</p> <p><b>With Resilient Channels:</b> attached as described above except use 1-1/4 inch (32mm) and 1-5/8 inch (41mm) Type S screws for the base and face layer, respectively. The end joints of the wallboard must be centered on a resilient channel and must be staggered the equivalent of two joist spacings with those of adjacent sheets.</p> <p><b>Finish:</b> The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.</p>		
SOUND RATING (w/ Resilient Channels)		
Components	STC	IIC
Base Assembly with Carpet and Padding	54	68
Base Assembly with 3-1/2" (89mm) Insulation	55	46
Base Assembly with additional layer of 5/8" Sheathing and 9-1/2" Insulation	61	50
Base Assembly with Tarkett "Acoustiflor" vinyl and 3-1/2" Insulation	59	50
Base Assembly with cushioned vinyl, 3/4" Gypsum Concrete and 3-1/2" Insulation	67	51
SIMILAR ASSEMBLIES		
BCI® Joists	AJS® Joists	
	2006/2009 IBC® Table 720.1(3), Item Num. 27-1.1/26-1.1	
	2006/2009 IBC® Table 720.1(3), Item Num. 28-1.1/27-1.1	
	2012 IBC® Table 721.1(3), Item Num. 26-1.1	
	2012 IBC® Table 721.1(3), Item Num. 27-1.1	
	2010 NBCC Table A-9.10.3.1.B., Assembly Num. F4, F9, F11, and F13, F15, F17, and F21	
	ICC-ES ESR 1336, Figure 3	

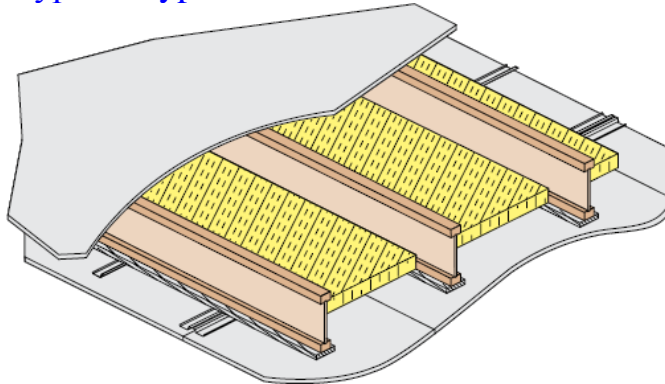


## Boise Cascade Assembly FR4

# One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**One Layer 5/8" Type C Gypsum Wallboard – BCI® 60/90 and AJS® Joists**



<b>BASE ASSEMBLY</b>		
<b>Component</b>	<b>Material Specification</b>	
<b>Floor Topping (Optional)</b>	<b>Varies</b>	
	Reference sound ratings if applicable	
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>	
	A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.	
<b>Insulation</b>	<b>Min. 2 inch (51mm) Mineral Fiber Insulation, Min. 3.5 pcf</b>	
	Installed adjacent to the bottom flange of the I-Joist and supported by the 1x4 furring strips. The ends of the batts must be centered over resilient channels.	
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>	
	Maximum 24 inch (610 mm) on center spacing. Minimum flange dimensions of 1-5/16 inch (33mm) thick by 1-3/4 inch (44mm) wide.	
<b>Furring Strips</b>	<b>1x4 (Nominal) Wood Furring Strips</b>	
	Centered on the bottom flange of the I-Joist and attached with 1-1/2 inch (38mm) Type W screws at 24 inches (610mm) on center	
<b>Resilient Channels</b>	<b>Min. 0.019 inch (0.5mm) Galvanized Resilient Channels</b>	
	Attached perpendicular to the bottom flange of the I-Joist with 1-7/8 inch (48mm) Type S drywall screws. Channels are spaced a maximum of 16 inches (406mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.	
<b>Ceiling</b>	<b>(1) Layer of 5/8 inch (16mm) Type C Gypsum Wallboard</b>	
	Installed with long dimension perpendicular to resilient channels and fastened with minimum 1-1/8 inch (29mm) Type S drywall screws at 7 inches (178 mm) on center. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets. <b>Finish:</b> The face layer joints must be covered with tape and coated with joint compound.	
<b>SOUND RATING</b>		
<b>Components</b>	<b>STC</b>	<b>IIC</b>
Base Assembly with Carpet and Padding	52	66
Base Assembly with cushioned vinyl, 3/4" Gypsum Concrete	55	49
Base Assem. With cushioned vinyl, 1" Gypsum Concrete, 1/4" Acousti-Mat II	58	57
<b>SIMILAR ASSEMBLIES</b>		
<b>BCI® Joists</b>	<b>AJS® Joists</b>	
	2006/2009 IBC® Table 720.1(3), Item Num. 23-1.1/23-1.1	
	2012 IBC® Table 721.1(3), Item Num. 23-1.1	
ICC-ES ESR 1336, Figure 4		

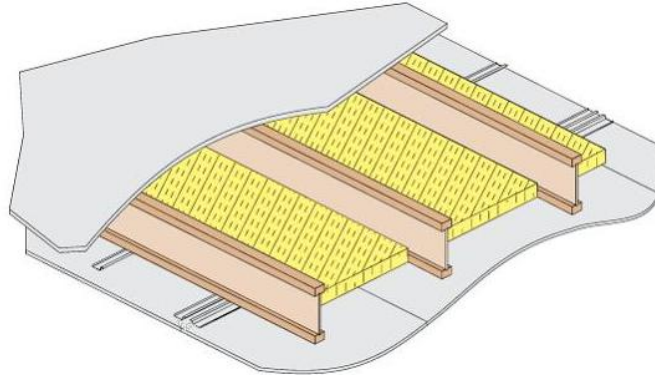


## Boise Cascade Assembly FR5

# One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

One Layer 5/8" Type C Gypsum Wallboard – BCI® 90 and AJS® 25/30 Joists



BASE ASSEMBLY			
Component	Material Specification		
<b>Floor Topping (Optional)</b>	<b>Varies</b>		
Reference sound ratings if applicable			
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>		
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.			
<b>Insulation</b>	<b>Min. 1-1/2 inch (38mm) Mineral Fiber Insulation, Min. 2.8 pcf</b>		
Installed adjacent to the bottom flange of the I-Joist and supported by the furring channels. Ends of bats shall be centered over resilient channels.			
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>		
Maximum 24 inch (610 mm) on center spacing. Minimum flange dimensions of 1-1/2 inch (38mm) thick by 3-1/2 inch (89mm) wide.			
<b>Furring Channels</b>	<b>Min. 0.026 inch (0.66mm) Hat Shaped Galv. Steel Channels</b>		
Attached perpendicular to the bottom flange of the I-Joist with 1-5/8 inch (41mm) Type S drywall screws. Channels are spaced a maximum of 16 inches (406mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.			
<b>Ceiling</b>	<b>(1) Layer of 5/8 inch (16mm) Type C Gypsum Wallboard</b>		
Installed with long dimension perpendicular to resilient channels and fastened with minimum 1-1/8 inch (29mm) Type S drywall screws spaced at 12 inches (305mm) on center on intermediate joists and 8 inches (203mm) on center at end joints. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets. <b>Finish:</b> The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.			
SOUND RATING*			
Components	STC	IIC	
Base Assembly with Carpet and Padding, Gypsum Concrete	49	59	
SIMILAR ASSEMBLIES			
<b>BCI® 90 Joists</b>	<b>AJS® 25/30 Joists</b>		
2006/2009 IBC® Table 720.1(3), Item Num. 25-1.1/24-1.1			
2012 IBC® Table 721.1(3), Item Num. 24-1.1			
DCA 3, WIJ-1.1			

\* Sound ratings from the American Wood Council publication *Design for Code Acceptance 3*. Retrieved from <http://www.awc.org/publications/DCA/DCA3/DCA3.pdf>.

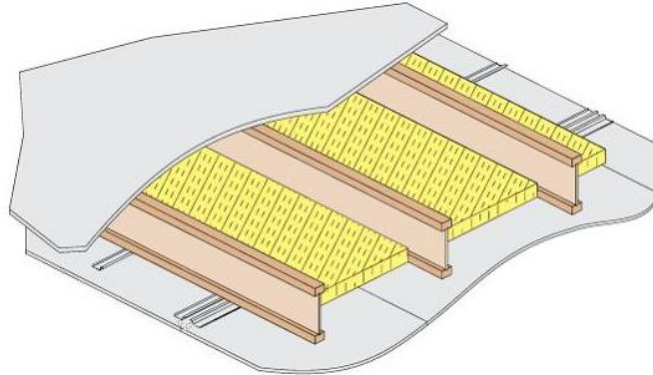


## Boise Cascade Assembly FR6

# One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

One Layer 5/8" Type C Gypsum Wallboard – BCI® 90 and AJS® 25/30 Joists



BASE ASSEMBLY		
Component	Material Specification	
<b>Floor Topping (Optional)</b>	<b>Varies</b>	
Reference sound ratings if applicable		
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>	
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.		
<b>Insulation</b>	<b>Min. 1-1/2 inch (38mm) Mineral Fiber Insulation, Min. 2.8 pcf</b>	
Installed adjacent to the bottom flange of the I-Joist and supported by the furring channels. The ends of the batts shall be centered over resilient channels.		
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>	
Maximum 24 inch (610 mm) on center spacing. Minimum flange dimensions of 1-1/2 inch (38mm) thick by 3-1/2 inch (89mm) wide.		
<b>Resilient Channels</b>	<b>Min. 0.019 inch (0.5mm) Resilient Channels</b>	
Attached perpendicular to the bottom flange of the I-Joist with 1-5/8 inch (41mm) Type S drywall screws. Channels are spaced a maximum of 16 inches (406mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.		
<b>Ceiling</b>	<b>(1) Layer of 5/8 inch (16mm) Type C Gypsum Wallboard</b>	
Installed with long dimension perpendicular to resilient channels and fastened with minimum 1-1/8 inch (29mm) Type S drywall screws spaced at 12 inches (305mm) on center on intermediate joists and 8 inches (203mm) on center at end joints. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets. Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.		
SOUND RATING*		
Components	STC	IIC
Base Assembly with cushioned vinyl	51	46
Base Assembly with Carpet and Padding	51	64
Base Assembly with cushioned vinyl, Gypsum Concrete	60	50
Base Assembly with Carpet and Padding, Gypsum Concrete	60	65
SIMILAR ASSEMBLIES		
<b>BCI® 90 Joists</b>	<b>AJS® 25/30 Joists</b>	
2006/2009 IBC® Table 720.1(3), Item Num. 26-1.1/25-1.1		
2012 IBC® Table 721.1(3), Item Num. 25-1.1		
2010 NBCC Table A-9.10.3.1.B., Assembly Num. F10, F14, and F20		
DCA 3, WIJ-1.2		
ICC-ES ESR 1336, Figure 5		

\* Sound ratings from the American Wood Council publication *Design for Code Acceptance 3*. Retrieved from <http://www.awc.org/publications/DCA/DCA3/DCA3.pdf>.

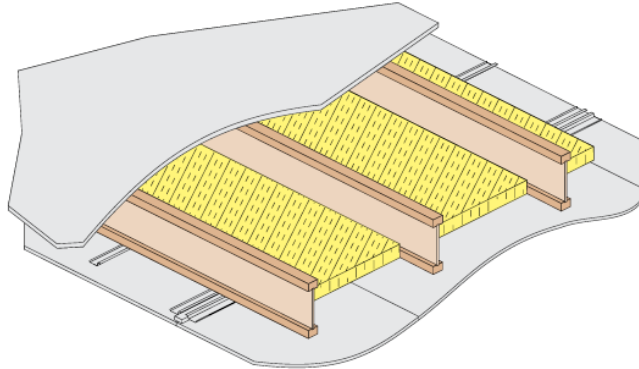


## Boise Cascade Assembly FR7

# One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

One Layer 5/8" Type C Gypsum Wallboard\Strips– BCI® 90 & AJS® 25/30 Joists



BASE ASSEMBLY		
Component	Material Specification	
<b>Floor Topping (Optional)</b>	<b>Varies</b>	
Reference sound ratings if applicable		
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>	
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.		
<b>Insulation</b>	<b>Min. 2 inch (51mm) Mineral Fiber Insulation, Min. 3.5 pcf</b>	
Installed adjacent to the bottom flange of the I-Joist and supported by the furring channels. The ends of the batts shall be centered over resilient channels.		
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>	
Maximum 24 inch (610 mm) on center spacing. Minimum flange dimensions of 1-5/16 inch (33mm) thick by 3-1/2 inch (89mm) wide.		
<b>Resilient Channels</b>	<b>Min. 0.019 inch (0.5mm) Resilient Channels</b>	
Attached perpendicular to the bottom flange of the I-Joist with 1-1/4 inch (32mm) Type W drywall screws. Channels are spaced a maximum of 16 inches (406mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.		
<b>Gypsum Strips</b>	<b>2 inch (51mm) wide by 1/2 inch (13 mm) Type C Gypsum Wallboard</b>	
Installed perpendicular to the joists above each end joint of the 5/8 inch (16 mm) gypsum wallboard. The strips are attached with one 1-1/4 inch (32 mm) Type W drywall screw at each joist.		
<b>Ceiling</b>	<b>(1) Layer of 5/8 inch (16mm) Type C Gypsum Wallboard</b>	
Installed with long dimension perpendicular to resilient channels and fastened with minimum 1-1/8 inch (29mm) Type S drywall screws spaced at 8 inches (203mm) on center. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets. <b>Finish:</b> The face layer joints must be covered with tape and coated with joint compound.		
SOUND RATING		
Components	STC	IIC
Base Assembly with Carpet and Padding	55	62
Base Assembly with cushioned vinyl, 3/4" Gypsum Concrete	58	45
Base Assem. with cushioned vinyl, 1" Gypsum Concrete, 1/4" Acousti-Mat II	61	53
SIMILAR ASSEMBLIES		
<b>BCI® 90 Joists</b>	<b>AJS® 25/30 Joists</b>	
ICC-ES ESR 1336, Figure 6		

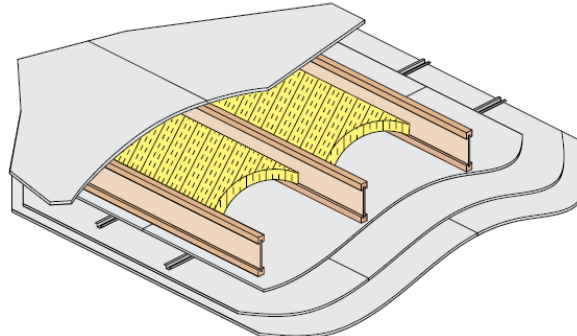


## Boise Cascade Assembly FR8

# Two-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**Three Layers 5/8" Type C Gypsum Wallboard – BCI® and AJS® Joists**



BASE ASSEMBLY		
Component	Material Specification	
<b>Floor Topping (Optional)</b>	<b>Varies</b>	
Reference sound ratings if applicable		
<b>Floor Sheathing</b>	<b>Min. 23/32 inch (18mm) Wood Structural Panel</b>	
A modified contact construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joists centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.		
<b>Insulation</b>	<b>Max 3-1/2 inch (89mm) Unfaced Glass Fiber Insulation</b>	
Friction fitted between I-Joists and supported by stay wires spaced 12 inches (305mm) on center along the top of the joist bottom flange.		
<b>Structural Members</b>	<b>Min. 9-1/2 inch (241mm) Deep Joists</b>	
Maximum 24 inch (610 mm) on center spacing. Minimum BCI flange dimensions of 1-1/8 inch (29mm) thick by 2 inch (51mm) wide. Minimum AJS flange dimensions of 1-1/2 inch (38mm) thick by 2-1/2 inch (64mm) wide.		
<b>Furring Channels</b>	<b>Min. 0.019 inch (0.5mm) Hat Shaped Galv. Steel Channels</b>	
Attached perpendicular to the bottom flange of the I-Joist with 1-5/8 inch (41mm) Type S drywall screws penetrating through the wallboard base layer into each joist flange. Channels are spaced a maximum of 16 inches (406mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.		
<b>Ceiling</b>	<b>(3) Layers of 5/8 inch (16mm) Type C Gypsum Wallboard</b>	
<p><b>Base Layer:</b> Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-5/8 inch (41mm) Type S drywall screws at 12 inches (305 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.</p> <p><b>Middle Layer:</b> attached to furring channels using 1-inch (25mm) Type S drywall screws at 12 inches (305mm) on center with the long dimension perpendicular to furring channels. End joints must be staggered from end joints of adjacent sheets and end joints on the face layer.</p> <p><b>Face Layer:</b> attached to furring channels through the middle layer using 1-5/8 inch (41mm) Type S drywall screws spaced at 8 inches (203mm) on center with long dimension perpendicular to furring channel. End joints must be staggered from end joints of adjacent sheets and staggered 32 inches (813mm) end joints on the middle layer. Edge joints (long dimension) must be offset 24 inches (610mm) from those of the middle layer.</p> <p><b>Finish:</b> The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.</p>		
SOUND RATING*		
Components	STC	IIC
Base Assembly with Carpet and Padding	49	54
Base Assembly with cushioned vinyl, Gypsum Concrete	52	46
Base Assembly with Carpet and Padding, Gypsum Concrete	52	60
SIMILAR ASSEMBLIES		
BCI® Joists	AJS® Joists	
2006/2009 IBC® Table 720.1(3), Item Num. 29-1.1/28-1.1		
2012 IBC® Table 721.1(3), Item Num. 28-1.1		
DCA 3, WIJ-2.1		
ICC-ES ESR1336, Figure 7		

\* Sound ratings from the American Wood Council publication *Design for Code Acceptance 3*. Retrieved from <http://www.awc.org/publications/DCA/DCA3/DCA3.pdf>.

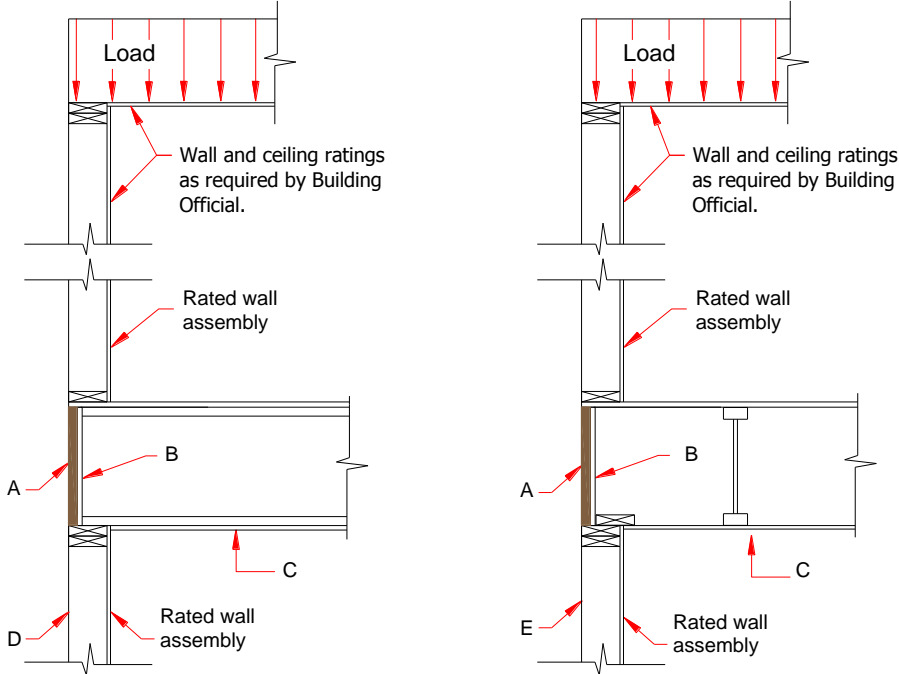


# Boise Cascade Assembly RB1

## Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD,  
BOISE CASCADE® RIMBOARD PLUS**



### End Wall Configuration Base Assembly

Rim Board Thickness, in. A	Rim Board Protection B	Ceiling Membrane Req. for 1-hr C	Ceiling Membrane Req. for 2-hr C	Stud Size D	Stud Size E
1.000	Unprotected	1-hour Fire-rated Assembly	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	5/8" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	5/8" Type X	2x6	2x4
1.125	Unprotected	1-hour Fire-rated Assembly	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	5/8" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	5/8" Type X	2x6	2x4
1.250	Unprotected	1-hour Fire-rated Assembly	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	5/8" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	5/8" Type X	2x6	2x4

- 1) Rim assembly for fire from inside of structure.
- 2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only; it does not necessarily cause the floor assembly to be rated.
- 3) Attach 1/2" Type X to Rim Board with 1-1/2" Type W drywall screws spaced 12" o.c..
- 4) Attach 5/8" Type X to Rim Board with 2" Type W drywall screws spaced 12" o.c..
- 5) Provide minimum 1-3/4" bearing for I-joist.
- 6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
- 7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
- 8) When two layers of gypsum wallboard are used, I-joist end nails shall be 16d box nails.
- 9) Rim board needs to be sized for vertical and lateral load.

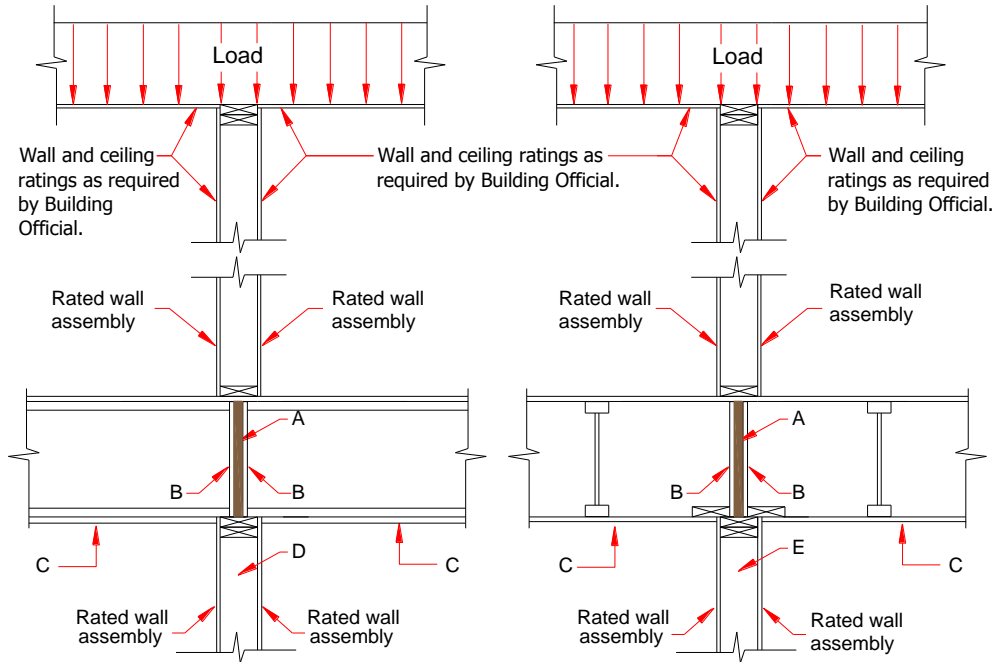


## Boise Cascade Assembly RB2

### Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD,  
BOISE CASCADE® RIMBOARD PLUS**



#### Single Wall Configuration Base Assembly

Rim Board Thickness, in. A	Rim Board Protection B	Ceiling Membrane Req. for 1-hr C	Ceiling Membrane Req. for 2-hr C	Stud Size D	Stud Size E
1.000	Unprotected	45-min Fire-rated Assembly	2-hour Fire-rated Assembly	2x6	2x4
	(1) 1/2" Type X	1/2" Type X	1.5-hour Fire-rated Assembly	2x6	2x6
	(1) 5/8" Type X	1/2" Type X	1.5-hour Fire-rated Assembly	2x6	2x6
	(2) 1/2" Type X	No Ceiling Required	5/8" Type X	2x8	2x6
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x8	2x6
1.125	Unprotected	45-min Fire-rated Assembly	2-hour Fire-rated Assembly	2x6	2x4
	(1) 1/2" Type X	1/2" Type X	1.5-hour Fire-rated Assembly	2x6	2x6
	(1) 5/8" Type X	1/2" Type X	1.5-hour Fire-rated Assembly	2x6	2x6
	(2) 1/2" Type X	No Ceiling Required	5/8" Type X	2x8	2x6
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x8	2x6
1.250	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x6	2x4
	(1) 1/2" Type X	1/2" Type X	1.5-hour Fire-rated Assembly	2x6	2x6
	(1) 5/8" Type X	1/2" Type X	1.5-hour Fire-rated Assembly	2x6	2x6
	(2) 1/2" Type X	No Ceiling Required	1/2" Type X	2x8	2x6
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x8	2x6

- 1) Rim assembly for fire from either side of wall.
- 2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only; it does not necessarily cause the floor assembly to be rated.
- 3) Attach 1/2" Type X to Rim Board with 1-1/2" Type W drywall screws spaced 12" o.c..
- 4) Attach 5/8" Type X to Rim Board with 2" Type W drywall screws spaced 12" o.c..
- 5) Provide minimum 1-3/4" bearing for I-joist.
- 6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
- 7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
- 8) When two layers of gypsum wallboard are used, I-joist end nails shall be 16d box nails.
- 9) Rim board needs to be sized for vertical and lateral load.

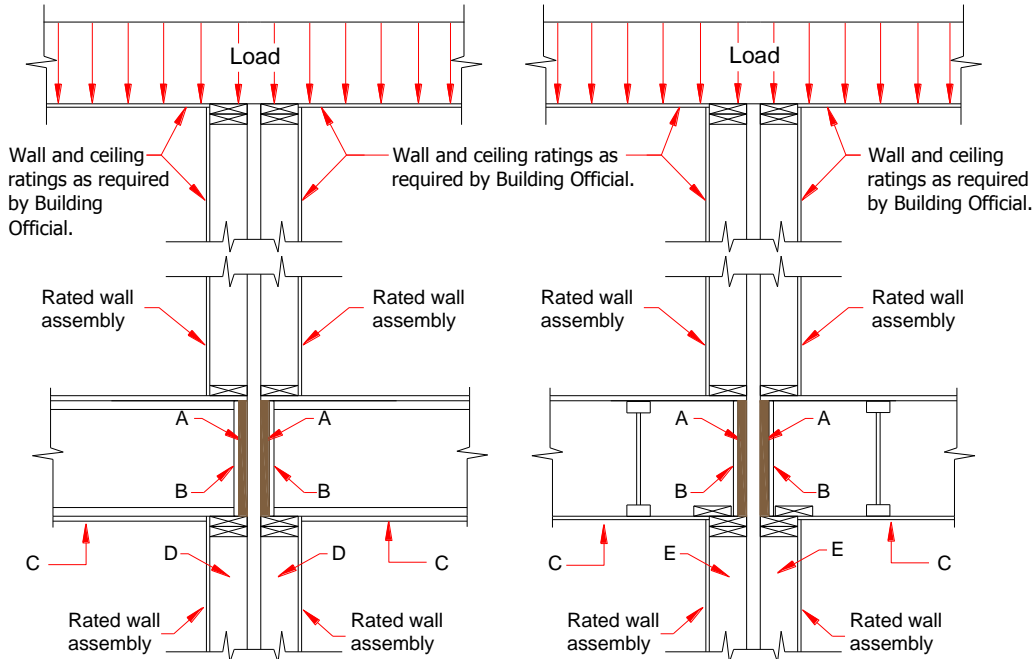


## Boise Cascade Assembly RB3

### Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD,  
BOISE CASCADE® RIMBOARD PLUS**



#### Double Wall Configuration With Load Transfer Base Assembly

Rim Board Thickness, in. A	Rim Board Protection B	Ceiling Membrane Req. for 1-hr C	Ceiling Membrane Req. for 2-hr C	Stud Size D	Stud Size E
1.000	Unprotected	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	45-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4
1.125	Unprotected	1/2" Type X	90 min Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	5/8" Type X	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4
1.250	Unprotected	1/2" Type X	90 min Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	No Ceiling Required	45-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	5/8" Type X	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4

- 1) Rim assembly for fire from either side of wall.
- 2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only; it does not necessarily cause the floor assembly to be rated.
- 3) Attach 1/2" Type X to Rim Board with 1-1/2" Type W drywall screws spaced 12" o.c..
- 4) Attach 5/8" Type X to Rim Board with 2" Type W drywall screws spaced 12" o.c..
- 5) Provide minimum 1-3/4" bearing for I-joist.
- 6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
- 7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
- 8) When two layers of gypsum wallboard are used, I-joist end nails shall be 16d box nails.
- 9) Rim board needs to be sized for vertical and lateral load.

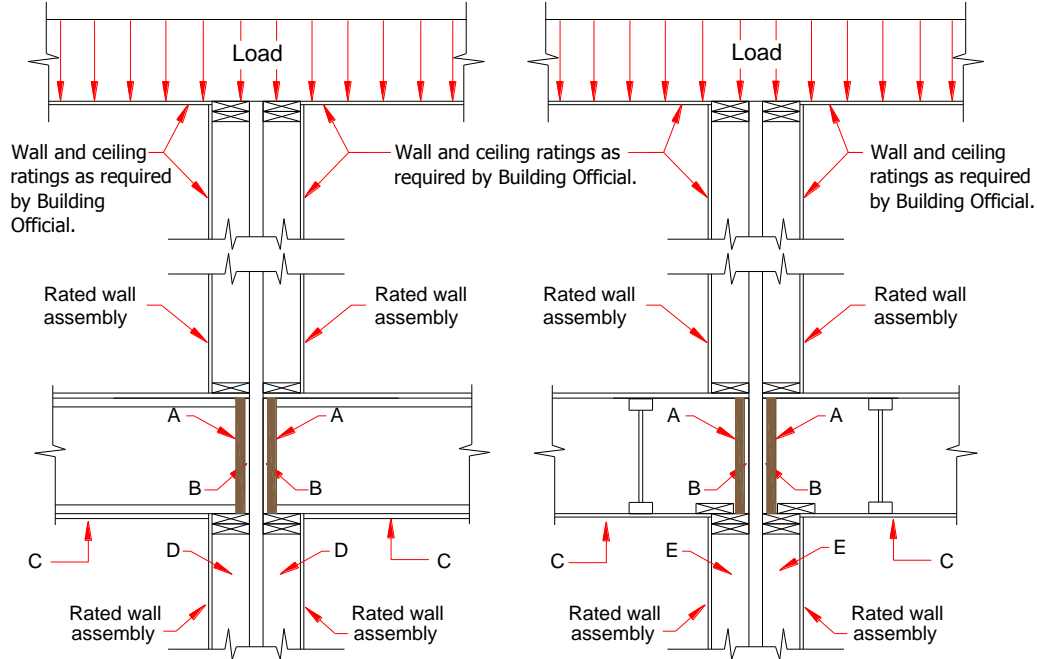


# Boise Cascade Assembly RB4

## Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD, BOISE CASCADE® RIMBOARD PLUS**



### Double Wall Configuration With Load Transfer Base Assembly

Rim Board Thickness, in. A	Rim Board Protection B	Ceiling Membrane Req. for 1-hr C	Ceiling Membrane Req. for 2-hr C	Stud Size D	Stud Size E
1.000	Unprotected	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
1.125	Unprotected	1/2" Type X	90 min Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4
1.250	Unprotected	1/2" Type X	90 min Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	45-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	No Ceiling Required	2x6	2x4

- 1) Rim assembly for fire from either side of wall.
- 2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only; it does not necessarily cause the floor assembly to be rated.
- 3) Attach 1/2" Type X to Rim Board with 1-1/2" Type W drywall screws spaced 12" o.c..
- 4) Attach 5/8" Type X to Rim Board with 2" Type W drywall screws spaced 12" o.c..
- 5) Provide minimum 1-3/4" bearing for I-joist.
- 6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
- 7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
- 8) When two layers of gypsum wallboard are used, I-joist end nails shall be 16d box nails.
- 9) Rim board needs to be sized for vertical and lateral load.

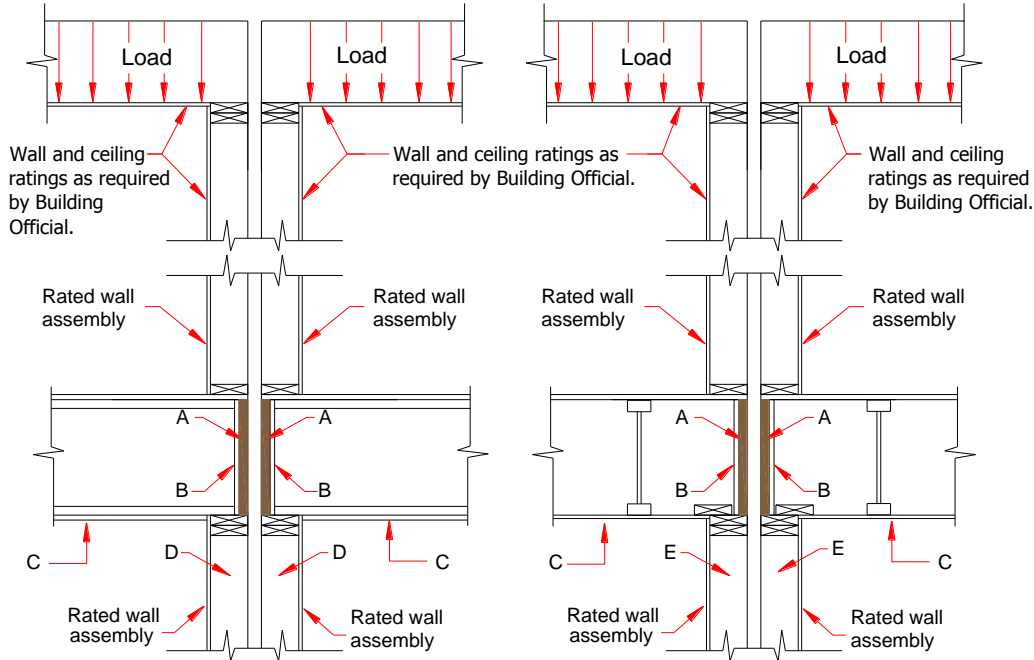


## Boise Cascade Assembly RB5

### Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD,  
BOISE CASCADE® RIMBOARD PLUS**



#### Double Wall Configuration No Load Transfer Base Assembly

Rim Board Thickness, in. A	Rim Board Protection B	Ceiling Membrane Req. for 1-hr C	Ceiling Membrane Req. for 2-hr C	Stud Size D	Stud Size E
1.000	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	5/8" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
1.125	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	5/8" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
1.250	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	5/8" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4

- 1) Rim assembly for fire from either side of wall.
- 2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only; it does not necessarily cause the floor assembly to be rated.
- 3) Attach 1/2" Type X to Rim Board with 1-1/2" Type W drywall screws spaced 12" o.c..
- 4) Attach 5/8" Type X to Rim Board with 2" Type W drywall screws spaced 12" o.c..
- 5) Provide minimum 1-3/4" bearing for I-joist.
- 6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
- 7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
- 8) When two layers of gypsum wallboard are used, I-joist end nails shall be 16d box nails.
- 9) Rim board needs to be sized for vertical and lateral load.

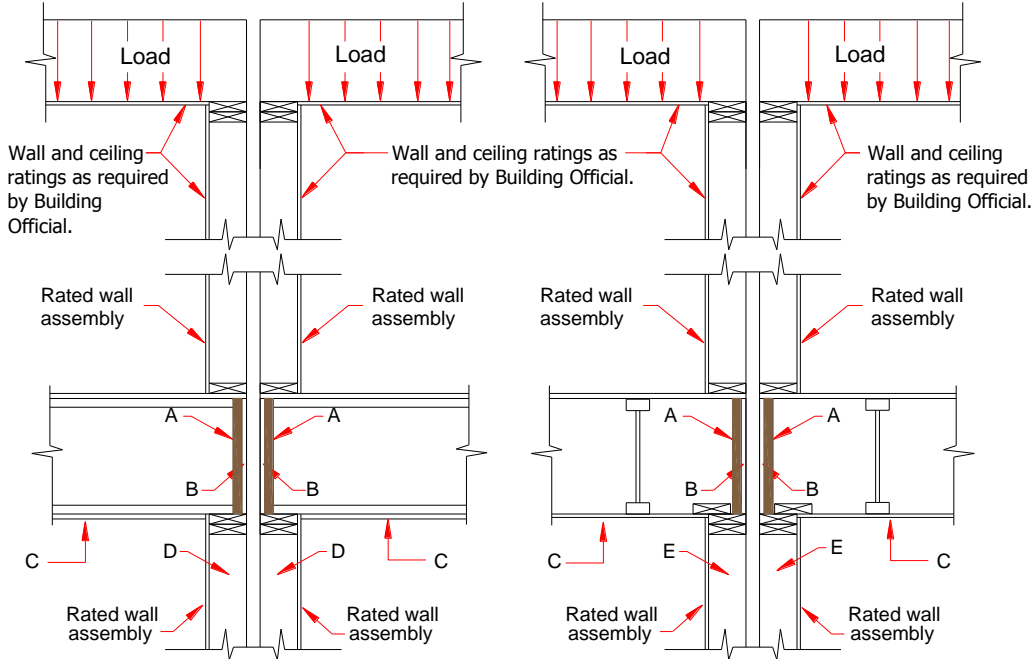


## Boise Cascade Assembly RB6

### Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM-E119 and CAN/ULC-S101

**VERSA-LAM®, VERSA-STRAND®, BOISE CASCADE® RIMBOARD,  
BOISE CASCADE® RIMBOARD PLUS**



**Double Wall Configuration No Load Transfer Base Assembly**

Rim Board Thickness, in. <b>A</b>	Rim Board Protection <b>B</b>	Ceiling Membrane Req. for <b>1-hr</b> <b>C</b>	Ceiling Membrane Req. for <b>2-hr</b> <b>C</b>	Stud Size <b>D</b>	Stud Size <b>E</b>
1.000	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	5/8" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
1.125	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
1.250	Unprotected	5/8" Type X	2-hour Fire-rated Assembly	2x4	2x4
	(1) 1/2" Type X	1/2" Type X	90-min Fire-rated Assembly	2x4	2x4
	(1) 5/8" Type X	No Ceiling Required	1-hour Fire-rated Assembly	2x4	2x4
	(2) 1/2" Type X	No Ceiling Required	1/2" Type X	2x6	2x4
	(2) 5/8" Type X	No Ceiling Required	1/2" Type X	2x6	2x4

- 1) Rim assembly for fire from either side of wall.
- 2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only; it does not necessarily cause the floor assembly to be rated.
- 3) Attach 1/2" Type X to Rim Board with 1-1/2" Type W drywall screws spaced 12" o.c..
- 4) Attach 5/8" Type X to Rim Board with 2" Type W drywall screws spaced 12" o.c..
- 5) Provide minimum 1-3/4" bearing for I-joist.
- 6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
- 7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
- 8) When two layers of gypsum wallboard are used, I-joist end nails shall be 16d box nails.
- 9) Rim board needs to be sized for vertical and lateral load.