Anexo 4

Cálculos



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:19 PM

Designer: Remote

Comment:

9.5" Red-I45™ @ 24" o.c.

Type: A20 Skewed Uplif

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 3% 1% 3%	Design -87 40 -189	Allow. 2544 5792 5792	DOL - Control 160% - Odd Men 160% - All Loads 160% - Odd Men		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total Overhang Live (down) Overhang Total (down) Overhang Live (up) Overhang Total (up)	4% 3% 5%	Design -0.018 -0.018 0.010 0.010 -0.003 -0.004	Allow. -0.435 -0.580 0.200 0.267	Design L / 999+ L / 999+ 2L / 999+ 2L / 999+ 2L / 999+ 2L / 999+	Allow. L / 240 L / 180 2L / 240 2L / 180	Pass/Fail PASS PASS PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Net Uplift Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	1 5 (160) -87 (160) Flush Beam 1.75	Support 2 0 1 1 (90) -132 (160) Bottom Wall 3.50				
HANGERS Model LSSUI25* (* = Web stiffeners requi	ired)	Тор	Face 9-10d	Member 7-10dx1.5"	Header LVL DF/SP	Size 1.75x9.5 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

Δ 2'- 0 0' 8'- 8 375"

APPLICATION LOADS

Units DOL Tributary Type Live Dead Partition Member Type Uniform psf Snow(115%) 25 Snow Roof Joist 33

ADDITIONAL LOADS

Type Uniform Units DOL Location from left **Application** Live Dead Comment Wind(160%) 0'-0.0" to 10'-8.375" Net Wind Uplift -10.1Replaces

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.20".

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The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt $^{\text{IM}}$ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



 $RedSpec^{TM}$ by $RedBuilt^{TM}$ v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:18 PM

Designer: Remote

Comment:

9.5" Red-I45™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 47% 853 1828 115% - Simple Span PASS 1670 Positive Moment (ft-lb) 40% 4163 115% - Odd Members **PASS** Negative Moment (ft-lb) 115% - All Loads **PASS** 6% -246 4163

DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live 25% 0.110 0.435 L / 948 L / 240 **PASS** Span Total 26% 0.151 0.580 L / 691 L / 180 **PASS** Overhang Live (down) 0.012 0.200 2L / 999+ 2L / 240 **PASS** 6% Overhang Total (down) 0.000 2L / 999+ 2L / 180 **PASS** 0.267 -0.066 2L / 731 Overhang Live (up) Overhang Total (up) 2L / 581 -0.083

SUPPORTS Support 1 Support 2 Live Reaction, Critical (Ib) (DOL%) 636 (115) 675 (115) Dead Reaction (lb) 329 206 Total Reaction (lb) (DOL%) 1004 (115) 842 (115) Bearing Flush Bottom Support Beam Wall

Req'd Bearing, No Stiffeners (in) 1.75 3.50
Req'd Bearing, Stiffeners (in) -

 HANGERS Left
 Model
 Top
 Face 9-10d
 Member 7-10dx1.5"
 Header LVL DF/SP
 Size 1.75x9.5 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

8'- 8.375"

2'- 0.0"

Member Slope: -0.25/12 î

Type: A20 Skewed

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

ADDITIONAL LOADS

TypeUnitsDOLLiveDeadLocation from leftApplicationCommentTaperedpsfSnow(115%)55 to 00 to 00'-0.0" to 10'-8.375"Adds ToSnow Drift G

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.20".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:22 PM

Designer: Remote

Comment:

9.5" Red-I45™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 4% 1% 5%	Design -113 40 -318	Allow . 2544 5792 5792	DOL - Control 160% - Odd Members 160% - All Loads 160% - Odd Members		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total Overhang Live (down) Overhang Total (down) Overhang Live (up) Overhang Total (up)	8% 6% 11%	Design -0.047 -0.046 0.023 0.022 -0.004 -0.004	Allow. -0.564 -0.752 0.200 0.267	Design L / 999+ L / 999+ 2L / 999+ 2L / 999+ 2L / 999+ 2L / 999+	Allow. L / 240 L / 180 2L / 240 2L / 180	Pass/Fail PASS PASS PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Net Uplift Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	1 5 (160) -113 (160) Flush Ledger 1.75	Support 2 0 2 2 (90) -156 (160) Bottom Wall 3.50				
HANGERS Model		Тор	Face	Member	Header	Size

SPANS AND LOADS

Left MIU1.81/9

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Ledger LVL DF/SP

1.75x9.5

Type: A20 Uplift



16-10dx1.5"

2-10dx1.5"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

ADDITIONAL LOADS

Type Units DOL Live Dead Location from left Application Comment
Uniform psf Wind(160%) -10.1 0.1 0'-0.0" to 13'-3.313" Replaces Net Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.20".



DESIGN CONTROLS

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:22 PM

Design

Designer: Remote

Comment:

% Allow.

9.5" Red-I45™ @ 24" o.c.

Type: A20

Pass/Fail

PASS

This product meets or exceeds the set design controls for the application and loads listed

Allow.

DOL - Control

2L / 180

Member Slope: -0.25/12 î

Shear (lb) 58% 1065 1828 115% - Simple Span PASS Positive Moment (ft-lb) 64% 2670 4163 115% - Odd Members **PASS** Negative Moment (ft-lb) -232 4163 115% - All Loads **PASS** 6% DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live 46% 0.259 0.564 L / 522 L / 240 **PASS** Span Total 49% 0.368 0.752 L / 368 L / 180 **PASS** Overhang Live (down) 0.013 0.200 2L / 999+ 2L / 240 **PASS** 7%

Overhang Total (down) 0.000 2L / 999+ 0.267 2L / 369 -0.130 Overhang Live (up) Overhang Total (up) -0 176 21 / 273

SUPPORTS Support 1 Support 2 Live Reaction, Critical (Ib) (DOL%) 784 (115) 719 (115) Dead Reaction (lb) 391 273 1109 (115) 1057 (115) Total Reaction (lb) (DOL%) Bearing Flush Bottom

Support Ledger Wall Req'd Bearing, No Stiffeners (in) 1.75 3.50 Req'd Bearing, Stiffeners (in)

Тор **HANGERS** Model Face Member Size 1.75x9.5 **Left** MIU1.81/9 16-10dx1.5" 2-10dx1.5" Ledger LVL DF/SP

SPANS AND LOADS

Dimensions represent horizontal design spans.

2'- 0.0'

11'- 3.313'

APPLICATION LOADS

Units DOL Live Dead **Partition** Tributary Member Type Type Uniform psf Snow(115%) Snow Roof Joist 33 25 0 24

ADDITIONAL LOADS

Units DOL Live Dead Location from left **Application** Comment Type Tapered psf Snow(115%) 55 to 0 0 to 0 0'-0.0" to 11'-2.0" Adds To Snow Drift G

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.20".



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/18/13 4:30 PM

Designer: Remote

Comment:

11.875" Red-I45™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS % Allow.

Shear (lb) 43% Positive Moment (ft-lb)

Design Allow. 1430 4685

DOL - Control 100% - All Loads 100% - All Loads Pass/Fail **PASS PASS**

Type: B2

DEFLECTIONS (in) % Allow. Span Live 19% Span Total 16%

Design 0.047 0.061

Allow. 0.247 0.371

Design Allow. L / 999+ L / 360 L/999+ L / 240 Pass/Fail **PASS PASS**

FloorChoice™ Rating: 9.9

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing.

SUPPORTS

Support 1 Live Reaction, Critical (lb) (DOL%) 593 (100) Dead Reaction (lb) 178 Total Reaction (lb) (DOL%) 771 (100) Bearing

Flush Beam Support

1.75 Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)

Support 2

593 (100) 178 771 (100) Flush Ledger 1.75

4-10dx1.5"

HANGERS Model

Left ITS1.81/11.88 Right ITS1.81/11.88

Top 4-10dx1.5"

Face 2-10dx1.5" 2-10dx1.5'

Member 2-Strong-Grip 2-Strong-Grip

LVL DF/SP Ledger LVL DF/SP

1.75x11.875 TPL 1.75x11.875

SPANS AND LOADS

Dimensions represent horizontal design spans.



7'- 5.0'

APPLICATION LOADS

Units DOL **Partition** Tributary Member Type Type Live Dead Floor(100%) psf 100 Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/18/13 12:43 PM

Designer: Remote

Comment:

11.875" Red-I45™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

Allow. **DOL** - Control **DESIGN CONTROLS** % Allow. Design Pass/Fail Shear (lb) 1785 100% - Conc. Load **PASS** 1549 4685 100% - Conc. Load **PASS** Positive Moment (ft-lb) PASS Negative Moment (ft-lb) 26% -1212 4685 100% - Adjacent Third Support DEFLECTIONS (in) % Allow. Design Allow. Pass/Fail Desian Allow. L / 360 16% 0.049 0.299 L / 999+ **PASS** Span Live Span Total 14% 0.063 0.448 L / 999+ L / 240 PASS

FloorChoice™ Rating: 9.9

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

Type: B3

Support 2 Support 3 Support 1 Support 4 **SUPPORTS** Live Reaction, Critical (lb) (DOL%) 590 (100) 542 (100) 1265 (100) 1282 (100) 375 378 -16 Dead Reaction (lb) 526 (100) -304 (100) Total Reaction (lb) (DOL%) 596 (100) 1640 (100) 1660 (100) Net Uplift Reaction (lb) (DOL%) -235 (100) Bearing Flush Bottom **Bottom** Bottom Support Ledger Wall Wall Wall Req'd Bearing, No Stiffeners (in) 1.75 3.50 3.50 1.75 Req'd Bearing, Stiffeners (in)

 HANGERS
 Model
 Top
 Face
 Member
 Header
 Size

 Left
 ITS1.81/11.88*
 4-10d
 4-10d
 4-10dx1.5"
 LVL DF/SP
 3.5x18

 (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.



APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfFloor(100%)10030019.2"Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected.
- · Joist design includes consideration for a 2000 lb load distributed over a 30" square area and all live loads removed.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 3:02 PM

Designer: Remote

Comment:

11.875" Red-I45™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

Allow. **DOL** - Control **DESIGN CONTROLS** % Allow. Design Pass/Fail Shear (lb) 1785 100% - Conc. Load 1631 **PASS** 1798 4685 100% - Conc. Load **PASS** Positive Moment (ft-lb) Negative Moment (ft-lb) -1491 4685 100% - Conc. Load **PASS**

> DEFLECTIONS (in) % Allow. Design Allow. Pass/Fail Desian Allow. L / 360 11% 0.023 0.209 L / 999+ **PASS** Span Live Span Total 16% 0.049 0.314 L / 999+ L / 240 PASS

FloorChoice™ Rating: 9.9

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

Type: B3@Wall Above

Support 2 Support 3 Support 1 **SUPPORTS** Live Reaction, Critical (lb) (DOL%) 739 (100) 1060 (100) 585 (100) 133 1294 504 Dead Reaction (lb) Total Reaction (lb) (DOL%) 718 (100) 2354 (100) 1244 (100)

 Bearing Support
 Support Req'd Bearing, No Stiffeners (in)
 1.75
 Bottom Bottom Wall
 Bottom Wall
 Wall
 Wall
 2.48

Req'd Bearing, Stiffeners (in) - 3.50 1.80

 HANGERS
 Model
 Top
 Face
 Member
 Header
 Size

 Left
 ITS1.81/11.88*
 4-10d
 4-10d
 4-10dx1.5"
 LVL DF/SP
 3.5x18

 (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.



APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfFloor(100%)10030019.2"Glued Floor Joist

ADDITIONAL LOADS

Type Units DOL Live Dead Location from left Application Comment Uniform plf Floor(100%) 0 150 0'-0.0" to 9'-9.06" Adds To Wall Above

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Joist design includes consideration for a 2000 lb load distributed over a 30" square area and all live loads removed.

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The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt™ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 10:09 AM

Designer: Remote

Comment:

11.875" Red-I45™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

Allow. **DOL** - Control **DESIGN CONTROLS** % Allow. Design Pass/Fail Shear (lb) 1785 100% - Conc. Load **PASS** 2027 4685 100% - Conc. Load **PASS** Positive Moment (ft-lb) Negative Moment (ft-lb) 40% -1865 4685 100% - Adjacent Fourth Support **PASS** DEFLECTIONS (in) % Allow. Design Allow. Pass/Fail Desian Allow. L / 360 23% 0.067 0.293 L / 999+ **PASS** Span Live Span Total 19% 0.083 0.440 L / 999+ L / 240 PASS

FloorChoice™ Rating: 9.9

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

Type: B5

Size

3.5x18

1.75x11.875

Support 2 Support 3 Support 5 Support 1 Support 4 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) 592 (100) 1392 (100) 1605 (100) 1704 (100) 821 (100) 12 362 432 481 Dead Reaction (lb) 166 2037 (100) 2184 (100) Total Reaction (lb) (DOL%) 604 (100) 1754 (100) 987 (100) -282 (100) Net Uplift Reaction (lb) (DOL%) Flush **Bottom Bottom** Bearing **Bottom** Flush Support Ledger Wall Wall Wall Ledger Req'd Bearing, No Stiffeners (in) 1.75 3.50 3.53 4.00 1.75 Req'd Bearing, Stiffeners (in) 3.50 3.50

HANGERS Model
Left ITS1.81/11.88*
Right ITS1.81/11.88

(* = Web stiffeners required)

 Top
 Face
 Member
 Header

 4-10d
 4-10d x1.5"
 LVL DF/SP

 4-10dx1.5"
 2-10dx1.5"
 2-Strong-Grip
 Ledger LVL DF/SP

SPANS AND LOADS

Dimensions represent horizontal design spans.



APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfFloor(100%)10030019.2"Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected
- Joist design includes consideration for a 2000 lb load distributed over a 30" square area and all live loads removed.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 3:59 PM

Designer: Remote

Comment:

11.875" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

Allow. **DOL** - Control **DESIGN CONTROLS** % Allow. Design Pass/Fail Shear (lb) 77% 2255 100% - All Loads **PASS** 1733 4318 9605 100% - Even Members **PASS** Positive Moment (ft-lb) PASS Negative Moment (ft-lb) 56% -5395 9605 100% - All Loads

> DEFLECTIONS (in) % Allow. Design Allow. Pass/Fail Design Allow. Span Live 51% 0.261 0.508 L / 700 L / 360 **PASS** Span Total 41% 0.313 0.762 L / 584 L / 240 PASS

FloorChoice™ Rating: 9.2



Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

Type: C10

Support 2 Support 3 Support 1 **SUPPORTS** Live Reaction, Critical (lb) (DOL%) 719 (100) 1070 (100) 2551 (100) 289 933 270 Dead Reaction (lb) 1340 (100) Total Reaction (lb) (DOL%) 1008 (100) 3484 (100) **Bottom Bottom** Flush Bearing Support Wall Wall Beam Req'd Bearing, No Stiffeners (in) 3.88 1.75

 HANGERS Right
 Model
 Top
 Face
 Member
 Header
 Size

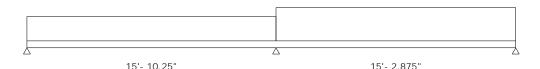
 83.56/11.88
 6-10d
 10-10d
 2-10dx1.5"
 LVL DF/SP
 1.75x11.875 TPL

3.50

SPANS AND LOADS

Dimensions represent horizontal design spans.

Req'd Bearing, Stiffeners (in)



APPLICATION LOADS

Type Units DOL Live Dead Partition Tributary Member Type Uniform psf Floor(100%) 100 30 0 19.2" Glued Floor Joist

ADDITIONAL LOADS

Type Units DOL Live Dead Location from left Application Comment
Uniform psf Floor(100%) 65 30 0'-0.0" to 15'-10.25" Replaces Office & Partition loads

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 4:00 PM

Designer: Remote

Comment:

11.875" Red-I90™ @ 16" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

Allow. **DOL** - Control **DESIGN CONTROLS** % Allow. Design Pass/Fail Shear (lb) 58% 1300 100% - All Loads **PASS** Positive Moment (ft-lb) 4875 9605 100% - All Loads **PASS**

> DEFLECTIONS (in) % Allow. Allow. Pass/Fail Design Design Allow. L / 360 L / 240 Span Live 54% 0.272 0.500 L / 661 **PASS** L / 509 Span Total 47% 0.354 0.750 **PASS**

Type: C7

FloorChoice™ Rating: 9.1

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing.

Support 2 **SUPPORTS** Support 1 Live Reaction, Critical (lb) (DOL%) 1000 (100) 1000 (100)

300 Dead Reaction (lb) 300 1300 (100) Total Reaction (lb) (DOL%) 1300 (100) Flush Flush Bearing Support Beam Ledger

1.75 Req'd Bearing, No Stiffeners (in) 1.75 Req'd Bearing, Stiffeners (in)

Top Member **HANGERS** BA3.56/11.88 Ledger LVL DF/SP 1.5x18 DBL Left 6-10d 10-10d 2-10dx1.5" Ledger LVL DF/SP 1.5x18

Right MIU3.56/11 20-10dx1.5" 2-10dx1.5"

SPANS AND LOADS

Dimensions represent horizontal design spans.



15'- 0.0'

APPLICATION LOADS

Units DOL **Partition** Member Type Type Live Dead Tributary Floor(100%) psf 100 Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 10:41 AM

Designer: Remote

Comment:

11.875" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS % Allow. Design

Shear (lb) Positive Moment (ft-lb)

6230

Allow. 9605

DOL - Control 100% - All Loads 100% - All Loads Pass/Fail **PASS PASS**

Type: C8

DEFLECTIONS (in) % Allow. Span Live 70% Span Total 60%

Design 0.360 0.468

Allow. 0.516 0.774

Design L / 516 L / 397 Allow. L / 360 L / 240 Pass/Fail **PASS PASS**

FloorChoice™ Rating: 8.7



Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing.

SUPPORTS

Support 1 Live Reaction, Critical (lb) (DOL%) 1238 (100) Dead Reaction (lb) 372 Total Reaction (lb) (DOL%) 1610 (100)

Flush Bearing Beam Support Req'd Bearing, No Stiffeners (in) 2.50

Req'd Bearing, Stiffeners (in)

Support 2 1238 (100) 372 1610 (100)

Flush Beam 2.50 1 75

HANGERS

Left BA3.56/11.88* Right BA3.56/11.88*

(* = Web stiffeners required)

Top 6-10dx1.5" 6-10dx1.5"

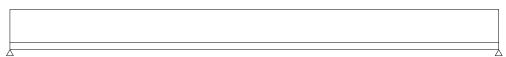
4-10dx1.5" 4-10dx1.5'

Member 2-10dx1.5" 2-10dx1.5" Header Sawn DF Sawn DF

2x6 (Nailer) 2x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.



15'- 5.75'

APPLICATION LOADS

Units DOL **Partition** Live Dead Tributary Member Type Type Uniform Floor(100%) 19.2 Glued Floor Joist psf 100

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 4:02 PM

Designer: Remote

Comment:

11.875" Red-I90™ @ 16" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

Design Allow. **DOL** - Control **DESIGN CONTROLS** % Allow.

Shear (lb) 1388 100% - All Loads Positive Moment (ft-lb) 5558 9605 100% - All Loads

DEFLECTIONS (in) % Allow. Allow. Design Pass/Fail Design Allow. Span Live 65% 0.534 L / 558 L / 360 **PASS** 0.344 L / 429 L / 240 Span Total 56% 0.448 0.801 **PASS**

Type: C9

Pass/Fail

PASS

PASS

FloorChoice™ Rating: 8.7

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing.

Support 2 **SUPPORTS** Support 1 Live Reaction, Critical (lb) (DOL%) 1068 (100) 1068 (100) Dead Reaction (lb) 320 320

1388 (100) Total Reaction (lb) (DOL%) 1388 (100) Flush Flush Bearing Ledger Beam Support

Req'd Bearing, No Stiffeners (in) 1.75 1.75 Req'd Bearing, Stiffeners (in)

Top Member **HANGERS** Model Face Ledger LVL DF/SP 2-10dx1.5" 1.75x11.875 Left MIU3.56/11 20-10dx1.5" Right BA3.56/11.88 6-10d 10-10d 2-10dx1.5" Glulam DF/SP 5.125x24

SPANS AND LOADS

Dimensions represent horizontal design spans.

16'- 0.188'

APPLICATION LOADS

Units DOL **Partition** Tributary Member Type Type Live Dead Floor(100%) psf 100 Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 3:14 PM

Designer: Remote

Comment:

11.875" Red-I90™ @ 16" o.c. with Glued Sheathing **OVERLOADED**

DESIGN CONTROLS

End Reaction (lb) Shear (lb)

% Allow. 118% 115% Positive Moment (ft-lb) 108%

Allow. 2200 2255 9605

DOL - Control 100% - All Loads 100% - All Loads 100% - All Loads

FAIL FAIL FAII

Span Live

DEFLECTIONS (in) % Allow. 65% Span Total 104%

Design 0.3440.835

Allow. 0.5340.801

Design 1 / 558L / 230 Allow. L / 360 L / 240 Pass/Fail **PASS** FAII

Pass/Fail

Type: C9@Wall Above

FloorChoice™ Rating: 8.7

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing.

SUPPORTS

Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing

1521 2589 (100) Flush Ledger

Support 1

1068 (100)

Support 2 1068 (100) 1521 2589 (100) Flush Beam

Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)

Model **HANGERS**

Left None Found Right None Found Top

Face

Member

Header

Size

SPANS AND LOADS

Dimensions represent horizontal design spans.



16'- 0.188"

APPLICATION LOADS

Units Live Partition Type DOL Dead Tributary Member Type Floor(100%) Uniform psf 100 30 16' Glued Floor Joist

ADDITIONAL LOADS

Type Uniform **Application** Units DOL Live Dead Location from left Comment Floor(100%) plf 150 0'-0.0" to 16'-0.188' Wall Above

NOTES

- · Building code: IBC. Methodology: Allowable Stress Design
- · End reaction capacity exceeded.
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.

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Page 1 of 1

The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt™ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 3:54 PM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Allow. **DOL** - Control Pass/Fail **DESIGN CONTROLS** Design Shear (lb) 3345 100% - Conc. Load **PASS** 5868 16435 100% - Even Members **PASS** Positive Moment (ft-lb) PASS Negative Moment (ft-lb) -6849 16435 100% - All Loads

> DEFLECTIONS (in) % Allow. Design Allow. Design Pass/Fail Allow. L / 360 Span Live 9% 0.048 0.547 L / 999+ **PASS** Span Total 22% 0.181 0.820 L / 999+ L / 240 PASS

> > Support 3

451 (100) 1308

Bottom

1758 (100)

FloorChoice™ Rating: 9.7



Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

Type: D10

Support 1 **SUPPORTS** Live Reaction, Critical (lb) (DOL%) 432 (100) Dead Reaction (lb) 610 Total Reaction (lb) (DOL%) 1041 (100)

Bottom Bearing Support Wall Req'd Bearing, No Stiffeners (in)

Req'd Bearing, Stiffeners (in) 1.75

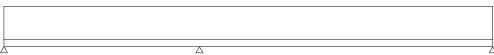
Support 2 1130 (100) 3495

4625 (100) **Bottom** Wall 4.87

Wall 1.75

SPANS AND LOADS

Dimensions represent horizontal design spans.



10'- 11.25"

16'- 4.75"

APPLICATION LOADS

Type Units Live Dead Partition Tributary Member Type Uniform psf Floor(100%) 30 Glued Floor Joist

ADDITIONAL LOADS

Туре Units Live Dead Location from left Application Comment Floor(100%)

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 11:04 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Allow. **DOL** - Control **DESIGN CONTROLS** Design Pass/Fail Shear (lb) 100% - All Loads **PASS** 3607 16435 100% - Even Members **PASS** Positive Moment (ft-lb) PASS Negative Moment (ft-lb) -3968 16435 100% - All Loads

> DEFLECTIONS (in) Design Allow. Pass/Fail % Allow. Desian Allow. 12% 0.080 0.647 L / 999+ L / 360 **PASS** Span Live Span Total 14% 0.136 0.970 L / 999+ L / 240 PASS

FloorChoice™ Rating: 9.4

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

Support 2 Support 3 Support 1 **SUPPORTS** Live Reaction, Critical (lb) (DOL%) 521 (100) 432 (100) 1294 (100) Dead Reaction (lb) 103 970 378 2264 (100) 899 (100) Total Reaction (lb) (DOL%) 535 (100) -75 (100)

 Net Uplift Reaction (Ib) (DOL%)
 -75 (100)

 Bearing Support
 Flush Bottom
 Bottom

 Support
 Beam
 Wall
 Wall

HANGERS Model Top

Left MIT420* 4-10dx1.5" 2-10dx1.5"

(* = Web stiffeners required)

Member Header 2-10dx1.5" Sawn DF Size 2x4 (Nailer)

Type: D12

SPANS AND LOADS

Dimensions represent horizontal design spans.



Face

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfFloor(100%)4030019.2"Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/19/13 2:31 PM

0.241

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

1.103

Allow. **DOL** - Control **DESIGN CONTROLS** % Allow. Design Pass/Fail Shear (lb) 3345 100% - All Loads -1440 **PASS** 5415 16435 100% - Odd Members **PASS** Positive Moment (ft-lb) Negative Moment (ft-lb) 36% -5975 16435 100% - All Loads **PASS** DEFLECTIONS (in) % Allow. Allow. Pass/Fail Design Desian Allow. L / 360 16% 0.119 0.736 L / 999+ **PASS** Span Live

FloorChoice™ Rating: 8.7

Span Total 22%

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

L / 999+

L / 240

Type: D13

PASS

Support 2 Support 1 Support 3 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) 459 (100) 583 (100) 1664 (100) Dead Reaction (lb) 518 1314 -75 384 (100) -360 (100) Total Reaction (lb) (DOL%) 1101 (100) 2978 (100) Net Uplift Reaction (lb) (DOL%) Flush Bearing **Bottom Bottom** Support Ledger Wall Wall Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in) 3.50 1.75

HANGERS Model Top Face Member Header Size MIT420* 4-10d 2-10dx1.5" LVL DF/SP 3.5x18 4-10d (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.



Dartition

APPLICATION LOADS

Unite

	Uniform	psf	Floor(100%)	40	30	0	19.2"	Glued Floor Joist
40	DITION	IAL LO	ADS					
	Type	Units	DOL	Live	Dead	Location from left	Application	Comment
	Uniform	psf	Floor(100%)	65	30	22'-0.81" to 31'-7.31"	Replaces	Office & Partition loads
	Point	plf	Floor(100%)	0	150	11'-0.31"	Adds To	Wall Above

NOTES

• Building code: IBC. Methodology: Allowable Stress Design

Live

- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected.
- · Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed.

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Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/20/13 9:11 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. **DESIGN CONTROLS**

Shear (lb) 45% Positive Moment (ft-lb) 62%

1514 10238

3345 16435 DOL - Control 100% - All Loads 100% - All Loads Pass/Fail PASS

Type: D15

DEFLECTIONS (in) % Allow. Span Live Span Total 49%

Design 0.379 0.663

Allow. 0.901

Design L / 857 L / 490 Allow. L / 360 L / 240 Pass/Fail **PASS**

FloorChoice™ Rating: 2.3



Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing

SUPPORTS
Live Reaction, Critical (Ib) (DOL%) Dead Reaction (lb)

Total Reaction (lb) (DOL%) 1514 (100) Bearing Flush

Beam Support Req'd Bearing, No Stiffeners (in)

Req'd Bearing, Stiffeners (in) 1.75 Model

Top 4-10d

Support 2

865 (100)

1514 (100)

Bottom

649

Wall

1.75

Face

Member

Header

Size

HANGERS

MIT420* (* = Web stiffeners required)

Support 1 865 (100)

4 - 10d

2-10dx1.5"

LVL DF/SP

1.75x11.875 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.



27'- 0.5"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type				
Uniform	nsf	Floor(100%)	40	30	0	10.2"	Glued Floor Inist				

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/23/13 1:31 PM Designer: Remote

Comment: used MIU3.56/20 24-N10 2-N10

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. **DOL** - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 46% -1553 3345 100% - All Loads PASS Positive Moment (ft-lb) 36% 5892 16435 100% - Odd Members **PASS** 52% -8556 16435 100% - All Loads **PASS**

Negative Moment (ft-lb) DEFLECTIONS (in) % Allow. Design Allow. Design Allow. Pass/Fail Span Live 0.209 0.831 L / 360 Span Total 25% 0.316 1.247 L / 947 L / 240 **PASS**

FloorChoice™ Rating: 6.8

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, continuous spans, rigid supports. RedSpec has not performed a structural analysis of the sheathing

Type: D16

Support 2 Support 3 **SUPPORTS** Support 1 Live Reaction, Critical (lb) (DOL%) 1978 (100) 687 (100) 697 (100) Dead Reaction (lb) 451 1483 438 1125 (100) Total Reaction (lb) (DOL%) 1149 (100) 3461 (100) Bearing Bottom **Bottom** Flush Wall Wall Ledger Support Reg'd Bearing, No Stiffeners (in) 1.75 1.75 3.50

SPANS AND LOADS

Dimensions represent horizontal design spans.

Req'd Bearing, Stiffeners (in)



APPLICATION LOADS

Type Units DOL Live Dead Partition Tributary Member Type Floor(100%) Uniform psf 40 30 0 19.2" Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed.



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/2/14 3:16 PM

Designer: Remote **Comment:** Locker room

20" Red-I90™ @ 24" o.c.

Type: D20 drift&brace

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow . 66% 88%	Design 3538 23222	Allow. 5352 26296	DOL - Control 160% - All Loads 160% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total		Design 1.299 1.594	Allow. 1.313 1.750	Design L / 243 L / 198	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	Flush Ledger	Support 2 2882 (160) 656 3539 (160) Bottom Wall - 1.82				
HANGERS Model Left HB3.56/20*		Top 6-16d	Face 16-16d	Member 10-16d		Size 3.5x18

(* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

26'- 3.0"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

ADDITIONAL LOADS

Units Dead Location from left Application Type Live Comment 0'-0.0" to 26'-3.0" Snow(115%) Adds To Snow Drift B Uniform psf 36.8 0 0'-0.0" to 26'-3.0" Uniform plf Wind(160%) 80 Adds To Brace load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Continuous lateral support required at top edge. Lateral
 Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/2/14 3:16 PM

Designer: Remote

Comment: Locker room - Uplift Case

20" Red-I90™ @ 24" o.c.

Type: D20 drift&brace

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 25% 0% 33%	Design -1312 17 -8613	Allow. 5352 14792 26296	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	45%	Design -0.593 -0.591	Allow. -1.313 -1.750	Design L / 532 L / 533	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	3 (90) -1312 (160) Flush Ledger -	Support 2 0 3 3 (90) -1312 (160) Bottom Wall - 1.75				
HANGERS Left Model HB3.56/20* (* = Web stiffeners requi	red)	Top 6-16d	Face 16-16d	Member 10-16d	Header LVL DF/SP	Size 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.



APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	plf	Wind(160%)	-80	0	0'-0.0" to 26'-3.0"	Adds To	Brace load
Uniform	psf	Wind(160%)	-10.1	0.1	0'-0.0" to 26'-3.0"	Replaces	Net wind uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Net uplift over 200 lb detected.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".

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The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt™ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 2:56 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 8% 410 5352 160% - All Loads PASS Positive Moment (ft-lb) 0% 17 14792 90% - Dead Load **PASS** Negative Moment (ft-lb) 7% -1893 26296 160% - All Loads **PASS** DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live 10% -0.133 -1.313 L / 240 Span Total 8% -0.132 -1.750 L / 999+ L / 180 **PASS** Support 1 Support 2 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) Dead Reaction (lb) 3 3 (90) Total Reaction (lb) (DOL%) 3 (90) Net Uplift Reaction (lb) (DOL%) -275 (160) -410 (160) Bearing Flush **Bottom** Support Ledger Wall Req'd Bearing, No Stiffeners (in) 1.75 Req'd Bearing, Stiffeners (in) 1.75 Тор **HANGERS** Model Face Member Header Size Left MIT420* 4-16d 4-16d 4-10dx1.5" LVL DF/SP 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

Member Slope: -0.25/12 î

Type: D20 Mech-Uplift

A



APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Wind(160%)	-10.1	0.1	0'-0.0" to 26'-3.0"	Replaces	Net Wind Uplift
Point	plf	Wind(160%)	-80	0	24'-2.0"	Adds To	Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".

 $Y: \verb|\C0020-RB\RB13138-085264-Providence| Hall High School, UT \verb|\085264-Sizing \verb|\085264-Sizing| IT \verb|\08$



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 2:55 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)		Design 1881 11628	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	33%	Design 0.431 0.814	Allow . 1.313 1.750	Design L / 732 L / 387	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Live Reaction, Max. (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	1060 (160) 835 1894 (160) Flush Ledger	Support 2 1050 (115) 1198 (160) 778 1976 (160) Bottom Wall - 1.75				
HANGERS Model MIT420* (* = Web stiffeners requi	ired)	Top 4-16d	Face 4-16d		Header LVL DF/SP	Size 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.

Snow(115%)

Snow(115%)

Member Slope: -0.25/12 î

Member Type

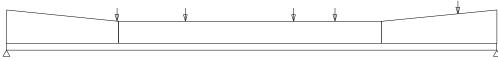
Snow Roof Joist

Drift C

Tributary

Adds To

Type: D20 Mech



26'- 3.0"

Partition

20'-1.0" to 26'-3.0"

APPLICATION LOADS Type Units DOL

psf

psf

Uniform

Tapered

ADDITION	ADDITIONAL LOADS											
Type	Units	DOL	Live	Dead	Location from left	Application	Comment					
Point	lb	Floor(100%)	0	100	5'-11.0"	Adds To	Mech. #1					
Point	lb	Floor(100%)	0	100	9'-7.0"	Adds To	Mech. #1					
Point	lb	Floor(100%)	0	50	15'-4.5"	Adds To	Mech. #3					
Point	lb	Floor(100%)	0	50	17'-7.0"	Adds To	Mech. #3					
Point	plf	Wind(160%)	80	0	24'-2.0"	Adds To	Brace Load					
Tapered	psf	Snow(115%)	30 to 0	0 to 0	0'-0.0" to 6'-0.0"	Adds To	Drift C					

Dead

0 to 0

NOTES

Building code: IBC. Methodology: Allowable Stress Design

Live

0 to 30

- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".

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The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuiltTM recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuiltTM associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:26 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow . 45% 54%	Design -1741 10278	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total		Design 0.429 0.725	Allow. 1.313 1.750	Design L / 734 L / 435	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Live Reaction, Max. (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	Support 1 888 (115) 905 (160) 656 1561 (160) Flush Beam - 1.75	Support 2 1085 (115) 1303 (160) 656 1959 (160) Bottom Wall - 1.75				
HANGERS Model Left MIT420*		Top 4-16d	Face 4-16d	Member 4-10dx1.5"	Header LVL DF/SP	Size 1.75x11.875 DBL

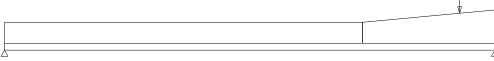
SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

Member Slope: 0.25/12 í

Type: D20



26'- 3.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	plf	Wind(160%)	117.3	0	24'-4.5"	Adds To	Brace Load
Tapered	psf	Snow(115%)	0 to 33.9	0 to 0	19'-2.0" to 26'-3.0"	Adds To	Snow Drift E

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:02 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (Ib) Positive Moment (ft-Ib)	% Allow. 56% 44%	Design 2138 8371	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	29%	Design 0.227 0.273	Allow. 0.783 1.044	Design L / 829 L / 688	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Live Reaction, Max. (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)		Support 2 1747 (115) 2290 (160) 391 2682 (160) Bottom Wall - 1.75				
HANGERS Model Left MIT420*		Top 4-16d	Face 4-16d		Header LVL DF/SP	Size 1.75x11.875 TPL

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

Member Slope: 0.25/12 í

Type: D27



15'- 7.874"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	78.6	0	0'-0.0" to 15'-7.875"	Adds To	Snow Drift H
Point	plf	Wind(160%)	308	0	13'-9.685"	Adds To	Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:02 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 13% 700 5352 160% - All Loads PASS Positive Moment (ft-lb) 0% 6 14792 90% - Dead Load **PASS** Negative Moment (ft-lb) 5% -1315 26296 160% - All Loads **PASS** DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live -0.039 -0.783 L / 240 Span Total 4% -0.038 -1.044 L / 999+ L / 180 **PASS** Support 1 Support 2 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) Dead Reaction (lb) 2 (90) Total Reaction (lb) (DOL%) 2 (90) -229 (160) Net Uplift Reaction (lb) (DOL%) -700 (160) Bearing Flush **Bottom** Support Beam Wall Req'd Bearing, No Stiffeners (in) 1.75 Req'd Bearing, Stiffeners (in) 1.75

Left

Model

MIT420*

HANGERS

(* = Web stiffeners required)

4-16d

Face

Member 4-10dx1.5" Header LVL DF/SP Size

1.75x11.875 TPL

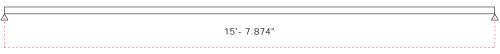
Type: D27 Uplift

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: 0.25/12 í





APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

Тор

4-16d

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Wind(160%)	-10.1	0.1	0'-0.0" to 15'-7.875"	Replaces	Net Wind Uplift
Point	plf	Wind(160%)	-308	0	13'-9.685"	Adds To	Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:45 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

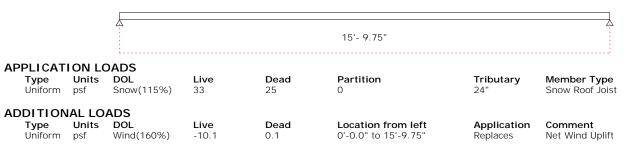
DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 3% 0% 2%	Design -158 6 -625	Allow. 5352 14792 26296	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads	i	Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	2%	Design -0.019 -0.019	Allow. -0.791 -1.054	Design L / 999+ L / 999+	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	2 2 (90) -158 (160) Flush Ledger	Support 2 0 2 2 (90) -158 (160) Flush Beam - 1.75				
HANGERS Model Left MIT420* Right MIT420* (* = Web stiffeners requ	ired)	Top 4-16d 4-16d	Face 4-16d 4-16d	Member 4-10dx1.5" 4-10dx1.5"	Header LVL DF/SP LVL DF/SP	Size 1.75x18 DBL 1.75x11.875 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D28 Uplift



NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".

The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuiltTM recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuiltTM associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:46 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D28

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 24% 3847 115% - All Loads PASS 18900 Positive Moment (ft-lb) 19% 3626 115% - All Loads **PASS** Allow. DEFLECTIONS (in) Pass/Fail % Allow. Design Design Allow. L / 240 L / 180 Span Live 8% 0.063 11% 1.054 L / 999+ **PASS** Span Total **SUPPORTS** Support 2 Support 1 Live Reaction, Critical (lb) (DOL%) 522 (115) 522 (115) Dead Reaction (lb) 395 395 Total Reaction (lb) (DOL%) 917 (115) 917 (115) Bearing Flush Flush Support Ledger Beam Req'd Bearing, No Stiffeners (in) 1.75 1.75 Req'd Bearing, Stiffeners (in) **HANGERS** Model Top Face Member Header Size 4-10dx1.5" LVL DF/SP 1.75x18 DBL Left MIT420* 4-16d 4-16d Right MIT420* 4-16d 4-16d 4-10dx1.5" LVL DF/SP 1.75x11.875 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

15'- 9.75"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:44 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D30 Uplift

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 3% 2% 1%	Design 155 471 -390	Allow. 5352 26296 26296	DOL - Control 160% - Simple S 160% - All Loads 160% - Even Mer	•	Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	2%	Design -0.012 -0.012	Allow. -0.773 -1.031	Design L / 999+ L / 999+	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Net Uplift Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	-1 99 (160) -47 (160) Flush Beam	Support 2 0 3 3 (90) -333 (160) Bottom Wall - 3.50	Support 3 1 (160) 1 2 (160) -155 (160) Bottom Wall - 1.75			
HANGERS Model LBV3.56/20* (* = Web stiffeners requi	red)	Top 6-16dx2.5"	Face 4-16dx2.5"	Member 6-10dx1.5"	Header Sawn DF	Size 3x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Δ 4'- 8.0" 15'- 5.5"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

ADDITIONAL LOADS

TypeUnitsDOLLiveDeadLocation from leftApplicationCommentUniformpsfWind(160%)-10.10.10'-0.0" to 20'-1.5"ReplacesNet Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Net uplift over 200 lb detected.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:42 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D30

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	12%	Design -896 2249 -2735	Allow. 3847 18900 18900	DOL - Control 115% - Simple S 115% - Even Me 115% - All Loads	mbers	Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	5%	Design 0.040 0.070	Allow . 0.773 1.031	Design L / 999+ L / 999+	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support	-136 9 (115) -460 (115) Flush	Support 2 1098 (115) 832 1930 (115) Bottom Wall	Support 3 412 (115) 310 722 (115) Bottom Wall			
Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)		3.50	- 1.75			
HANGERS Model Left LBV3.56/20* (* = Web stiffeners requi	ired)	Top 6-16dx2.5"	Face 4-16dx2.5"	Member 6-10dx1.5"	Header Sawn DF	Size 3x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Δ Δ 4'- 8.0" 15'- 5.5"

APPLICATION LOADS

Type
UniformUnits
psfDOL
Snow(115%)Live
33Dead
25Partition
0Tributary
25Member Type
24"Snow Roof Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Net uplift over 200 lb detected
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:24 PM

Designer: Remote

Comment: EOR to appove

20" Red-I90™ @ 21.5" o.c. OVERLOADED

% Allow. Design Allow. **DOL - Control** Pass/Fail **DESIGN CONTROLS** End Reaction (lb) 102% 3131 3076 115% - All Loads -3130 PASS Shear (lb) 81% 3847 115% - All Loads Positive Moment (ft-lb) 77% 14626 18900 115% - All Loads **PASS**

> DEFLECTIONS (in) Pass/Fail % Allow. Allow. Allow. Design Design 55% 0.593 L / 434 Span Live 1.074 L / 240 **PASS** L / 180 Span Total 50% 0.720 1 432 L / 358 PASS

Type: D31 2FR

Member Slope: 0.25/12 í

SUPPORTS Support 1 Support 2 Live Reaction, Critical (lb) (DOL%) 2195 (115) 2650 (115) Dead Reaction (lb) 481 481 3131 (115) Total Reaction (lb) (DOL%) 2676 (115) Bearing Flush Bottom Support Beam Wall

Req'd Bearing, No Stiffeners (in) - - Req'd Bearing, Stiffeners (in) 2.24 -

 HANGERS Left
 Model
 Top
 Face
 Member
 Header
 Size

 HB3.56/20* (* = Web stiffeners required)
 6-16d
 16-16d
 10-16d
 LVL DF/SP
 1.75x11.875 TPL

SPANS AND LOADS

Dimensions represent horizontal design spans.

21'- 5.626"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	21.5"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	78.6	0	0'-0.0" to 21'-5.625"	Adds To	Snow Drift H
Point	plf	Snow(115%)	308	0	19'-7.0"	Adds To	Brace load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- End reaction capacity exceeded.
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:26 PM

Designer: Remote

Comment: EOR to appove

20" Red-I90™ @ 24" o.c. OVERLOADED

% Allow. Design Allow. **DOL - Control** Pass/Fail **DESIGN CONTROLS** End Reaction (lb) 107% 3284 3076 115% - All Loads PASS Shear (lb) 85% -3284 3847 115% - All Loads Positive Moment (ft-lb) 80% 15198 18900 115% - All Loads **PASS**

> DEFLECTIONS (in) Pass/Fail % Allow. Allow. Allow. Design Design 57% 0.607 L / 425 Span Live 1.074 L / 240 **PASS** L / 180 Span Total 52% 0.748 1 432 L / 344 PASS

Type: D31 3FR

Member Slope: 0.25/12 í

SUPPORTS Support 1 Support 2 Live Reaction, Critical (lb) (DOL%) 2240 (115) 2747 (115) Dead Reaction (lb) 537 537 Total Reaction (lb) (DOL%) 2776 (115) 3284 (115) Bearing Flush Bottom Support Beam Wall

Req'd Bearing, No Stiffeners (in) - Req'd Bearing, Stiffeners (in) 2.55 -

 HANGERS Left
 Model
 Top
 Face
 Member
 Header
 Size

 HB3.56/20* (* = Web stiffeners required)
 6-16d
 16-16d
 10-16d
 LVL DF/SP
 1.75x11.875 TPL

SPANS AND LOADS

Dimensions represent horizontal design spans.

21'- 5.626"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	68.8	0	0'-0.0" to 21'-5.625"	Adds To	Snow Drift H
Point	plf	Snow(115%)	308	0	19'-7.0"	Adds To	Brace load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- End reaction capacity exceeded.
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:27 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow . 65% 71%	Design 2511 13482	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	49%	Design 0.531 0.672	Allow. 1.074 1.432	Design L / 485 L / 383	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Live Reaction, Max. (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	=	Support 2 1975 (115) 2186 (160) 537 2723 (160) Bottom Wall - 1.75				
HANGERS Model HB3.56/20* (* = Web stiffeners requi	red)	Top 6-16d	Face 16-16d	Member 10-16d	Header LVL DF/SP	Size 1.75x11.875 TPL

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: 0.25/12 í

Type: D31 3FR0.75S&B



21'- 5.626"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

DITIONAL EQUIDO										
Type	Units	DOL	Live	Dead	Location from left	Application	Comment			
Uniform	psf	Snow(115%)	59	0	0'-0.0" to 21'-5.625"	Adds To	0.75 Snow Drift H			
Point	ĺb	Wind(160%)	231	0	19'-7.0"	Adds To	0.75 Brace Load			

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:15 PM

Designer: Remote

Comment: EOR to appove

20" Red-I90™ @ 21.5" o.c. **OVERLOADED**

% Allow. Design Allow. **DOL - Control** Pass/Fail **DESIGN CONTROLS** End Reaction (lb) 102% 3131 3076 115% - All Loads -3130 PASS Shear (lb) 81% 3847 115% - All Loads Positive Moment (ft-lb) 77% 14626 18900 115% - All Loads **PASS** DEFLECTIONS (in) Pass/Fail % Allow. Allow. Allow. Design Design 55% 0.593 L / 434 Span Live 1.074 L / 240 **PASS** L / 180 Span Total 50% 0.720 1 432 L / 358 PASS **SUPPORTS** Support 1 Support 2 Live Reaction, Critical (lb) (DOL%) 2195 (115) 2650 (115)

Dead Reaction (lb) 481 481 3131 (115) Total Reaction (lb) (DOL%) 2676 (115) Bearing Flush Bottom Support Beam Wall

Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in) 2.24

Model Top

HANGERS Model Left LBV3.56/20* (* = Web stiffeners required)

Face 6-16d

4-16d

Member

Header LVL DF/SP 6-10dx1.5"

Member Slope: 0.25/12 í

Size

1.75x11.875 TPL

Type: D31

SPANS AND LOADS

Dimensions represent horizontal design spans.

21'- 5.626"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	21.5"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	plf	Snow(115%)	308	0	19'-7.0"	Adds To	Brace load
Uniform	psf	Snow(115%)	78.6	0	0'-0.0" to 21'-5.625"	Adds To	Snow Drift H

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- End reaction capacity exceeded.
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:15 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 15% 560 3847 115% - All Loads PASS 14792 Positive Moment (ft-lb) 0% 12 90% - Dead Load **PASS** Negative Moment (ft-lb) -1806 26296 160% - All Loads **PASS** 7% DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live -0.090 -1.074 L / 240 Span Total 6% -0.089 -1.432 L / 999+ L / 180 **PASS** Support 1 Support 2 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) Dead Reaction (lb) 2 (90) -777 (160) Total Reaction (lb) (DOL%) 2 (90) -269 (160) Net Uplift Reaction (lb) (DOL%) Bearing Flush **Bottom** Support Beam Wall Req'd Bearing, No Stiffeners (in) 1.75 Req'd Bearing, Stiffeners (in) 1.75

HANGERS Model Left

LBV3.56/20*

Top 6-10d Face 4-10d Member 6-10dx1.5 Header LVL DF/SP Size 1.75x11.875 TPL

Type: D31 Uplift

(* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: 0.25/12 í



APPLICATION LOADS

Type Units DOL Live Dead **Partition** Tributary Member Type Uniform Snow(115%) psf 33 25 Snow Roof Joist

ADDITIONAL LOADS

Units DOL Live Dead Location from left **Application** Comment Type Wind(160%) -10.1 Uniform psf 0'-0.0" to 21'-5.625" Replaces Net Wind Uplift 0.1 19'-7.0" Adds To Point plf Snow(115%) -308 Brace load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:37 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D33 Uplift

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 4% 0% 5%	Design -232 13 -1344	Allow. 5352 14792 26296	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	7%	Design -0.075 -0.075	Allow. -1.160 -1.546	Design L / 999+ L / 999+	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	2 2 (90) -232 (160) Bottom Wall	Support 2 0 2 2 (90) -232 (160) Flush Beam - 1.75				
HANGERS Right LBV3.56/20* (* = Web stiffeners requi	red)	Top 6-10dx1.5"	Face 4-10dx1.5"	Member 2-10dx1.5"	Header Sawn DF	Size 2x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

23'- 2.25"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

ADDITIONAL LOADS

TypeUnitsDOLLiveDeadLocation from leftApplicationCommentUniformpsfWind(160%)-10.10.10'-0.0" to 23'-2.25"ReplacesNet Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Net uplift over 200 lb detected.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:36 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (Ib) Positive Moment (ft-Ib)	% Allow . 58% 54%	Design 2236 10156	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	27%	Design 0.311 0.561	Allow. 1.160 1.546	Design L / 894 L / 496	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	956 2237 (115) Bottom Wall	Support 2 864 (115) 671 1535 (115) Flush Beam - 1.75				
HANGERS Model Right LBV3.56/20* (* = Web stiffeners requi	red)	Top 6-10dx1.5"	Face 4-10dx1.5"	Member 2-10dx1.5"	Header Sawn DF	Size 2x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D33

23'- 2.25"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	lb	Floor(100%)	0	234	2'-0.5"	Adds To	Mech.#2
Point	lb	Floor(100%)	0	234	7'-0.5"	Adds To	Mech.#2
Tapered	psf	Snow(115%)	55 to 0	0 to 0	0'-0.0" to 11'-2.0"	Adds To	Snow Drift G

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:25 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 30% -2277 7694 115% - All Loads PASS 37800 Positive Moment (ft-lb) 11726 115% - All Loads **PASS** DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. L / 240 L / 180 Span Live 0.254 1.282 0.399 1.709 L / 770 **PASS** Span Total **SUPPORTS** Support 2 Support 1 Live Reaction, Critical (lb) (DOL%) 992 (115) 1616 (115) Live Reaction, Max. (lb) (DOL%)

Dead Reaction (lb) 1008 (160) 1834 (160) 870 661 1878 (160) Total Reaction (lb) (DOL%) 2496 (160) Bearing Flush Bottom Support Beam Wall Req'd Bearing, No Stiffeners (in) 1.75 1.75 Req'd Bearing, Stiffeners (in) **HANGERS** Model Top Face Member Header Size 1.75x11.875 DBL **Left** B7.12/20*

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

Member Slope: 0.25/12 í

LVL DF/SP

Type: D34



8-16d

6-16d

25'- 7.5"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

6-16d

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	56.1	0	17'-5.5" to 25'-7.5"	Adds To	Snow Drift F
Point	plf	Wind(160%)	117.3	0	23'-10.0"	Adds To	Brace Load
Point	lb	Floor(100%)	0	125	0'-3.5"	Adds To	Mech.#1
Point	lb	Floor(100%)	0	125	3'-11.5"	Adds To	Mech.#1

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:24 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS	% Allow.	Design	Allow.	DOL - Control		Pass/Fail
Shear (lb)	41%	-3128	7694	115% - All Loads		PASS
Positive Moment (ft-lb)	57%	21443	37800	115% - All Loads		PASS
DEFLECTIONS (in) Span Live Span Total	47%	Design 0.640 0.814	Allow. 1.371 1.828	Design L / 514 L / 404	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS	Support 1	Support 2				
Live Reaction, Critical (lb) (DOL%)	2443 (115)	2443 (115)				
Live Reaction, Max. (lb) (DOL%)	2674 (160)	2681 (160)				
Dead Reaction (lb)	686	686				
Total Reaction (lb) (DOL%)	3360 (160)	3366 (160)				
Bearing	Bottom	Bottom				
Support	Wall	Wall				
Req'd Bearing, No Stiffeners (in)	=	-				
Req'd Bearing, Stiffeners (in)	1.75	1.75				

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: 0.25/12 í

Type: D36



27'- 5.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	56.1	0	0'-0.0" to 27'-5.0"	Adds To	Snow Drift F
Point	plf	Wind(160%)	117.3	0	2'-2.0"	Adds To	Brace Load
Point	plf	Wind(160%)	117.3	0	25'-7.5"	Adds To	Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
 Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:10 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

Type: D37 DBL

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow. 29% 37%	Design 2266 14053	Allow . 7694 37800	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	25%	Design 0.368 0.614	Allow. 1.463 1.950	Design L / 953 L / 572	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Live Reaction, Max. (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	765 2844 (160) Bottom Wall	Support 2 1043 (115) 1082 (160) 948 2030 (160) Flush Beam - 1.75				
HANGERS Model Right B7.12/20*		Top 6-16dx2.5"	Face 8-16dx2.5"		Header Sawn DF	Size 3x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

29'- 3.0"

APPLICATION LOADS

туре	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	lb	Floor(100%)	0	125	23'-5.5"	Adds To	Mech.#2
Point	lb	Floor(100%)	0	125	27'-1.5"	Adds To	Mech.#2
Point	plf	Wind(160%)	308	0	1'-10.0"	Adds To	Brace Load
Tapered	psf	Snow(115%)	55 to 0	0 to 0	0'-0.0" to 11'-2.0"	Adds To	Snow Drift G

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:44 PM

Designer: Remote

Comment: Use N10 nails instead of N16

20" Red-I90™ @ 24" o.c.

Type: D37

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow . 59% 74%	Design 2266 14053	Allow. 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	50%	Design 0.736 1.227	Allow. 1.463 1.950	Design L / 477 L / 286	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Live Reaction, Max. (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	2079 (160) 765 2844 (160) Bottom Wall	Support 2 1043 (115) 1082 (160) 948 2030 (160) Flush Beam - 1.75				
HANGERS Model Right LBV3.56/20* (* = Web stiffeners requi	ired)	Top 6-16dx2.5"	Face 4-16dx2.5"	Member 6-10dx1.5"	Header Sawn DF	Size 3x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

29'- 3.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	lb	Floor(100%)	0	125	23'-5.5"	Adds To	Mech.#2
Point	lb	Floor(100%)	0	125	27'-1.5"	Adds To	Mech.#2
Point	plf	Wind(160%)	308	0	1'-10.0"	Adds To	Brace Load
Tapered	psf	Snow(115%)	55 to 0	0 to 0	0'-0.0" to 11'-2.0"	Adds To	Snow Drift G

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:40 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) -417 10704 160% - All Loads PASS Positive Moment (ft-lb) 0% 18 29583 90% - Dead Load **PASS** Negative Moment (ft-lb) -1951 52592 160% - All Loads **PASS** 4% DEFLECTIONS (in) % Allow. Design Allow. Design Allow. Pass/Fail Span Live -1.342 L / 240 Span Total -0.070 -1.790 L/999+ L / 180 **PASS** Support 1 Support 2 **SUPPORTS** Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) 3 3 (90) Total Reaction (lb) (DOL%) 3 (90) -279 (160) Net Uplift Reaction (lb) (DOL%) -418 (160) Bearing Flush Bottom Support Wall Beam Req'd Bearing, No Stiffeners (in) 1.75 Req'd Bearing, Stiffeners (in) 1.75 **HANGERS** Model Top Face Member Header Size

8-16d

6-16d

Right

SPANS AND LOADS
Dimensions represent horizontal design spans.

(* = Web stiffeners required)

B7.12/20*

Member Slope: -0.25/12 î

LVL DF/SP

1.75x18 DBL

Type: D39 @header Upli

26'- 10.126"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

6-16d

ADDITIONAL LOADS

Units Live Dead Location from left **Application** Comment Type Wind(160%) Uniform psf 0'-0.0" to 26'-10.125" Replaces Net Wind Uplift -10.10.1 Point plf Wind(160%) -80 1'-10.0" Adds To Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"

 $Y: \label{thm:condition} Y: \label{thm:condition} \mbox{ X-C0020-RB\RB13138-085264-Providence Hall High School, $UT\085264-Sizing\085264-Sizing.$$ red for X-C0020-RB\RB13138-085264-Sizing.$$ red for X-C0020-RB\RB13138-Sizing.$$ red for X-C0020-RB\$



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:36 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow. 47% 64%	Design 3636 24204	Allow . 7694 37800	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	% Allow. 53% 48%	Design 0.707 0.867	Allow. 1.342 1.790	Design L / 456 L / 371	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Live Reaction, Max. (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	Support 1 2965 (115) 3114 (160) 671 3786 (160) Bottom Wall - 1.75	Support 2 2520 (115) 2531 (160) 671 3202 (160) Flush Beam - 1.75				
HANGERS Model Right B7.12/20*		Top 6-16d	Face 8-16d			Size 1.75x18 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

Member Slope: -0.25/12 î

Type: D39 @header



26'- 10.126"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	78.6	0	0'-0.0" to 23'-7.5"	Adds To	Snow Drift H
Point	plf	Wind(160%)	80	0	1'-10.0"	Adds To	Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:33 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 8% -877 10704 160% - All Loads PASS Positive Moment (ft-lb) 0% 22 29583 90% - Dead Load **PASS** Negative Moment (ft-lb) -2835 52592 160% - All Loads **PASS** 5% DEFLECTIONS (in) % Allow. Design Allow. Design Allow. Pass/Fail Span Live -0.126 -1.495 L / 240 Span Total -0.125 -1.993 L / 999+ L / 180 **PASS** Support 1 Support 2 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) Dead Reaction (lb) 3 3 (90) Total Reaction (lb) (DOL%) 3 (90) -337 (160) Net Uplift Reaction (lb) (DOL%) -877 (160) Bearing Flush Bottom Support Wall Ledger Req'd Bearing, No Stiffeners (in) 1.75 Req'd Bearing, Stiffeners (in) 1.75 **HANGERS** Model Top Face Member Header Size 1.75x18 DBL Right B7.12/20* 6-16d 8-16d 6-16d LVL DF/SP (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D39 DBL Uplift



APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325024"Snow Roof Joist

ADDITIONAL LOADS

Units Live Dead Location from left **Application** Comment Type Wind(160%) Uniform psf -10.1 0'-0.0" to 29'-10.75" Replaces Net Wind Uplift 0.1 1'-10.0" Point plf Wind(160%) -308 Adds To Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"

 $Y: \label{thm:condition} Y: \label{thm:condition} \mbox{ X-C0020-RB\RB13138-085264-Providence Hall High School, $UT\085264-Sizing\085264-Sizing.$$ red for X-C0020-RB\RB13138-085264-Sizing.$$ red for X-C0020-RB\RB13138-Sizing.$$ red for X-C0020-RB\$



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 12:33 PM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** 3432 25179 Shear (lb) 45% 7694 115% - All Loads PASS 37800 Positive Moment (ft-lb) 115% - All Loads **PASS** DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. L / 418 L / 324 L / 240 L / 180 Span Live 1.109 1.993 **PASS** Span Total **SUPPORTS** Support 2 Support 1 Live Reaction, Critical (lb) (DOL%) 2088 (115) 2673 (115) Live Reaction, Max. (lb) (DOL%)

Dead Reaction (lb) 3251 (160) 2126 (160) 760 860 Total Reaction (lb) (DOL%) 2986 (160) 4011 (160) Bearing Bottom Flush Support Wall Ledger Req'd Bearing, No Stiffeners (in) 1.75 1.75 Req'd Bearing, Stiffeners (in) HANGERS Model Right B7.12/20* Top Face Member Header Size 1.75x18 DBL 6-16d 8-16d 6-16d LVL DF/SP (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D39 DBL



29'- 10.75"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	24"	Snow Roof Joist

ADDITIONAL LOADS

- T			1.5	D I	l ti 6 1 - 6t	A 11 41	0
Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	59	0	0'-0.0" to 23'-7.5"	Adds To	Snow Drift H
Point	plf	Wind(160%)	308	0	1'-10.0"	Adds To	Brace Load
Point	lb	Floor(100%)	0	125	26'-11.0"	Adds To	Mech. #1

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/6/14 1:14 PM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c.

Type: D40 FPC

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)		Design -2137 18463	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	77%	Design 1.219 1.699	Allow. 1.584 2.112	Design L / 312 L / 224	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	633 2123 (115) Flush Ledger	Support 2 1504 (115) 633 2137 (115) Bottom Wall - 1.75				
HANGERS Model Left LBV3.56/20* (* = Web stiffeners requ	ired)	Top 6-10dx1.5"	Face 4-10dx1.5"		Header LVL DF/SP	Size 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.

31'- 8.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	19.2"	Snow Roof Joist

ADDITIONAL LOADS

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,, LO	7100					
Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	13.9	0	0'-0.0" to 31'-8.0"	Adds To	Snow Drift A
Point	lb	Floor(100%)	500	0	15'-10.0"	Adds To	Folding Partition Load @ 50%
Tapered	psf	Snow(115%)	17.5 to 0	0 to 0	0'-0.0" to 3'-7.0"	Adds To	Snow Drift E
Tapered	psf	Snow(115%)	0 to 17.5	0 to 0	26'-10.5" to 31'-8.0"	Adds To	Snow Drift E

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
 Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/6/14 1:14 PM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow . 70% 93%	Design 2688 17566	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	77%	Design 1.224 1.705	Allow. 1.584 2.112	Design L / 310 L / 223	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	633 2689 (115) Flush Ledger	Support 2 1438 (115) 633 2071 (115) Bottom Wall - 1.75				
HANGERS Model LBV3.56/20* (* = Web stiffeners requ	ired)	Top 6-16d	Face 4-16d	Member 6-10dx1.5"	Header LVL DF/SP	Size 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D40 FPL



31'- 8.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	19.2"	Snow Roof Joist

ADDITIONAL LOADS

	THOMAL LOADS												
Type	Units	DOL	Live	Dead	Location from left	Application	Comment						
Uniform	psf	Snow(115%)	13.9	0	0'-0.0" to 31'-8.0"	Adds To	Snow Drift A						
Point	lb	Floor(100%)	1000	0	5'-10.0"	Adds To	Folding Partition Load						
Tapered	psf	Snow(115%)	17.5 to 0	0 to 0	0'-0.0" to 3'-7.0"	Adds To	Snow Drift E						
Tapered	psf	Snow(115%)	0 to 17.5	0 to 0	26'-10.5" to 31'-8.0"	Adds To	Snow Drift E						

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
 Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 11:51 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

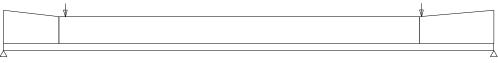
DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow . 63% 89%	Design 2425 16767	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	% Allow . 73% 78%	Design 1.159 1.640	Allow. 1.584 2.112	Design L / 328 L / 232	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	633 2426 (115) Flush Ledger	Support 2 1749 (115) 633 2383 (115) Bottom Wall - 1.75				
HANGERS Model Left MIT420* (* = Web stiffeners requi	red)	Top 4-16d	Face 4-16d	Member 4-10dx1.5"	Header LVL DF/SP	Size 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D40-FPL&R



31'- 8.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	19.2"	Snow Roof Joist

ADDITIONAL LOADS

	STITIONINE EDITIO												
Type	Units	DOL	Live	Dead	Location from left	Application	Comment						
Uniform	psf	Snow(115%)	13.9	0	0'-0.0" to 31'-8.0"	Adds To	Snow Drift A						
Point	lb	Floor(100%)	500	0	4'-0.0"	Adds To	Folding Partition Load						
Point	lb	Floor(100%)	500	0	27'-0.0"	Adds To	Folding Partition Load						
Point	plf	Floor(100%)	30	0	4'-0.0"	Adds To	Sofit Load						
Tapered	psf	Snow(115%)	17.5 to 0	0 to 0	0'-0.0" to 3'-7.0"	Adds To	Snow Drift E						
Tapered	psf	Snow(115%)	0 to 17.5	0 to 0	26'-10.5" to 31'-8.0"	Adds To	Snow Drift E						

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 10:05 AM

Designer: Remote

Comment: Use B7.12/20*xSKR3 6-16d/8-16d/6-16d

Type: D41 DBL

Member Slope: -0.25/12 î

DOUBLE 20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS	% Allow.	Design	Allow . 7694	DOL - Control 115% - All Loads		Pass/Fail PASS
Shear (lb)		2604				
Positive Moment (ft-lb)	55%	20618	37800	115% - All Loads		PASS
DEFLECTIONS (in)	% Allow.	Design	Allow.	Design	Allow.	Pass/Fail
Span Live	48%	0.754	1.584	L / 504	L / 240	PASS
Span Total	47%	0.994	2.112	L / 382	L / 180	PASS
·						
SUPPORTS	Support 1	Support 2				
Live Reaction, Critical (lb) (DOL%)	1971 (115)	1971 (115)				
Live Reaction, Max. (lb) (DOL%)	2124 (160)	1979 (160)				
Dead Reaction (lb)	633	633				
Total Reaction (lb) (DOL%)	2758 (160)	2612 (160)				
Bearing	Flush	Bottom				
Support	Ledger	Wall				
Reg'd Bearing, No Stiffeners (in)	_	_				

SPANS AND LOADS

Dimensions represent horizontal design spans.

Req'd Bearing, Stiffeners (in) 1.75

•

31'- 8.0"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325019.2"Snow Roof Joist

1.75

ADDITIONAL LOADS

Type Units Live Dead Location from left Application Comment Snow(115%) Uniform psf 0'-0.0" to 31'-8.0" Adds To Snow Drift A Point Wind(160%) 100.5 1'-6.0" Adds To Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 10:05 AM

Designer: Remote

Comment: Use B7.12/20*xSKR3 6-16d/8-16d/6-16d

DOUBLE 20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) -406 10704 160% - All Loads PASS Positive Moment (ft-lb) 0% 20 29583 90% - Dead Load **PASS** Negative Moment (ft-lb) -2128 52592 160% - All Loads **PASS** 4%

> DEFLECTIONS (in) % Allow. Design Allow. Design Allow. Pass/Fail Span Live -0.104 -1.584 L / 240 Span Total 5% -0.103 -2.112 L/999+ L / 180 **PASS**

 SUPPORTS
 Support 1
 Support 2

 Live Reaction, Critical (lb) (DOL%)
 0
 0

 Dead Reaction (lb) 3
 3

 Total Reaction (lb) (DOL%)
 3 (90)
 3 (90)

 Net Uplift Reaction (lb) (DOL%)
 -407 (160)
 -261 (160)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D41 DBL Uplift



APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325019.2"Snow Roof Joist

ADDITIONAL LOADS

Type Units Live Dead Location from left **Application** Comment Wind(160%) -10.1 0'-0.0" to 31'-8.0" Net Wind Uplift Uniform Replaces Point plf Wind(160%) -100.5 1'-6.0" Adds To Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Net uplift over 200 lb detected.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 11:40 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (Ib) Positive Moment (ft-Ib)	% Allow . 45% 71%	Design 1743 13508	Allow . 3847 18900	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	% Allow . 41% 60%	Design 0.648 1.259	Allow. 1.570 2.093	Design L / 581 L / 299	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)		Support 2 991 (115) 752 1743 (115) Bottom Wall - 1.75				
HANGEDS Model		Top	Face	Member	Header	Size

HANGERS MIT420*

(* = Web stiffeners required)

4-16d

4-16d

4-10dx1.5"

LVL DF/SP

Member Slope: -0.25/12 î

3.5x18

Type: D41

SPANS AND LOADS

Dimensions represent horizontal design spans.

31'- 4.625"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	19.2"	Snow Roof Joist

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	lb	Floor(100%)	0	125	13'-9.5"	Adds To	Mech.#1
Point	lb	Floor(100%)	0	125	17'-5.5"	Adds To	Mech.#1
Tapered	psf	Snow(115%)	31.4 to 0	0 to 0	0'-0.0" to 6'-5.0"	Adds To	Snow Drift D
Tapered	psf	Snow(115%)	0 to 31.4	0 to 0	24'-11.0" to 31'-4.625"	Adds To	Snow Drift D

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 11:40 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c.

Type: D41 Uplift

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 5% 0% 7%	Design -251 20 -1970	Allow. 5352 14792 26296	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	12%	Design -0.187 -0.186	Allow. -1.570 -2.093	Design L / 999+ L / 999+	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	3 (90) -251 (160) Flush Ledger -	Support 2 0 3 3 (90) -251 (160) Bottom Wall - 1.75				
HANGERS Model MIT420* (* = Web stiffeners requi	red)	Top 4-16d	Face 4-16d	Member 4-10dx1.5"	Header LVL DF/SP	Size 3.5x18

SPANS AND LOADS

Dimensions represent horizontal design spans.

31'- 4.625"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfSnow(115%)3325019.2"Snow Roof Joist

ADDITIONAL LOADS

TypeUnitsDOLLiveDeadLocation from leftApplicationCommentUniformpsfWind(160%)-10.10.10'-0.0" to 31'-4.625"ReplacesNet Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Net uplift over 200 lb detected.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 9:57 AM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

Type: D42 DBL

Member Slope: -0.25/12 î

DESIGN CONTROLS	% Allow.	Design	Allow.	DOL - Control		Pass/Fail
Shear (lb)	34%	2638	7694	115% - All Loads		PASS
Positive Moment (ft-lb)	56%	21164	37800	115% - All Loads		PASS
DEFLECTIONS (in) Span Live Span Total	65%	Design 1.047 1.299	Allow. 1.605 2.139	Design L / 368 L / 296	Allow . L / 240 L / 180	Pass/Fail PASS PASS
•				_, _,	-,	
SUPPORTS	Support 1	Support 2				
Live Reaction, Critical (lb) (DOL%)		1997 (115)				
Live Reaction, Max. (lb) (DOL%)	2789 (160)	2649 (160)				
Dead Reaction (lb)	642	642				
Total Reaction (lb) (DOL%)	3431 (160)	3290 (160)				
Bearing	Bottom	Bottom				
Support	Wall	Wall				
Reg'd Bearing, No Stiffeners (in)	-	-				
Req'd Bearing, Stiffeners (in)		1.75				

SPANS AND LOADS

Dimensions represent horizontal design spans.

32'- 1.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	19.2"	Snow Roof Joist

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	44.8	0	0'-0.0" to 32'-1.0"	Adds To	Snow Drift A
Uniform	plf	Wind(160%)	40	0	0'-0.0" to 32'-1.0"	Adds To	Brace load @ 0.5
Point	plf	Wind(160%)	100.5	0	2'-0.0"	Adds To	Brace Load

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
 Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



 $RedSpec^{TM}$ by $RedBuilt^{TM}$ v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 9:52 AM

Designer: Remote

Comment:

DOUBLE 20" Red-I90™ @ 19.2" o.c.

This product meets or exceeds the set design controls for the application and loads listed

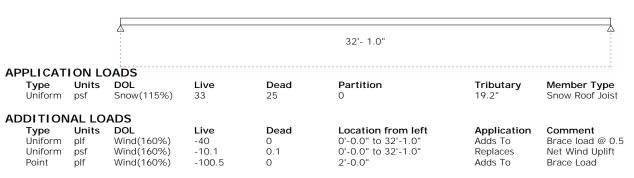
DESIGN CONTROLS	% Allow.	Design	Allow.	DOL - Control		Pass/Fail
Shear (lb)	10%	-1049	10704	160% - All Loads		PASS
Positive Moment (ft-lb)	0%	21	29583	90% - Dead Load		PASS
Negative Moment (ft-lb)	14%	-7367	52592	160% - All Loads		PASS
DEFLECTIONS (in)	% Allow.	Design	Allow.	Design	Allow.	Pass/Fail
Span Live	23%	-0.363	-1.605	L/999+	L / 240	PASS
Span Total	17%	-0.362	-2.139	L / 999+	L / 180	PASS
SUPPORTS	Support 1	Support 2				
Live Reaction, Critical (lb) (DOL%)	0	0				
Dead Reaction (lb)	3	3				
Total Reaction (lb) (DOL%)	3 (90)	3 (90)				
Net Uplift Reaction (lb) (DOL%)	-1049 (160)	-908 (160)				
Bearing	B					
	Bottom	Bottom				
Support		Bottom Wall				
3	Wall					

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: D42 Uplift



NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- · Net uplift over 200 lb detected.
- Connect multiple ply members per RedBuilt™ Installation Guidelines.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:57 PM

Designer: Remote

Comment: Use WI420*SKL60 w/2N10-2-10d @Left end

Type: D43 @GLB&WF Upli

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 1% 0% 0%	Design -49 1 -60	Allow. 5352 14792 26296	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	0%	Design -0.001 -0.001	Allow. -0.246 -0.328	Design L / 999+ L / 999+	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	0 0 (90) -49 (160) Flush Beam	Support 2 0 0 0 (90) -49 (160) Flush Beam - 1.75				
HANGERS Right LBV3.56/20X*SKL30		Top 6-10dx1.5"	Face 4-10dx1.5"	Member 6-10dx1.5"	Header Sawn DF	Size 2x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans

(* = Web stiffeners required)

4'- 11.0"

Member Slope: -0.25/12 î

APPLICATION LOADS

Member Type Units DOL Live Dead Partition Tributary Type Roof(125%) Uniform psf 33 15 Roof Joist

ADDITIONAL LOADS

Units **Application** DOL Location from left Type Live Dead Comment Wind(160%) Uniform psf 0'-0.0" to 4'-11.0" Replaces Net Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".

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The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt™ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:56 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

 DESIGN CONTROLS
 % Allow.
 Design
 Allow.
 DOL - Control
 Pass/Fail

 Shear (Ib)
 6%
 236
 4181
 125% - All Loads
 PASS

 Positive Moment (ft-Ib)
 1%
 290
 20544
 125% - All Loads
 PASS

Design DEFLECTIONS (in) % Allow. Allow. Design Pass/Fail Allow. L / 240 L / 180 L / 999+ Span Live 1% 0.002 0.246 **PASS** L / 999+ Span Total 1% 0.003 0.328 **PASS**

Type: D43 @GLB&WF

Member Slope: -0.25/12 î

SUPPORTS Support 2 Support 1 Live Reaction, Critical (Ib) (DOL%) 162 (125) 162 (125) 74 Dead Reaction (lb) 74 Total Reaction (lb) (DOL%) 236 (125) 236 (125) Bearing Flush Flush Support Beam Beam

Тор **HANGERS** Model Face Member Header Size WI420X*SKL60 Left 2-10dx1.5" 2-10d Glulam DF/SP 5.125x15 6-10dx1.5" Right LBV3.56/20X*SKL30 6-10dx1.5" 4-10dx1.5" Sawn DF 2x6 (Nailer)

(* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

4'- 11.0"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfRoof(125%)3315024"Roof Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:31 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 20% 830 4181 125% - All Loads PASS 4919 Positive Moment (ft-lb) 24% 20544 125% - All Loads **PASS**

> DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. L / 240 L / 180 14% L / 999+ Span Live 0.162 1.186 0.284 L / 999+ **PASS** Span Total

Type: D43 @GLB

Member Slope: -0.25/12 î

SUPPORTS Support 2 Support 1 Live Reaction, Critical (lb) (DOL%) 474 (125) 474 (125) 356 Dead Reaction (lb) 356 Total Reaction (lb) (DOL%) 830 (125) 830 (125) . Bearing Bottom Flush Support Wall Beam Req'd Bearing, No Stiffeners (in)

1.75 1.75 Req'd Bearing, Stiffeners (in)

HANGERS Model Top Face Member Header Size WI420X*SKL60 Right 2-10dx1.5" 2-10d Glulam DF/SP 5.125x15 (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

23'- 8.5"

APPLICATION LOADS

Units DOL Live Dead Partition Tributary Member Type Type Roof(125%) Uniform psf Roof Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:58 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D43 @WF Roof

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** % Allow. Design Shear (lb) 125% - All Loads **PASS** Positive Moment (ft-lb) 1334 20544 125% - All Loads **PASS** DEFLECTIONS (in) % Allow. Design Allow. Design Pass/Fail Allow. L / 240 L / 180 L / 999+ Span Live 3% 0.017 **PASS** 0.527 L / 999+ Span Total 0.025 0.703 **PASS SUPPORTS** Support 2 Support 1 Live Reaction, Critical (Ib) (DOL%) 348 (125) 348 (125) Dead Reaction (lb) 158 158 Total Reaction (lb) (DOL%) 506 (125) 506 (125) Bearing Flush Bottom Support Beam Wall Req'd Bearing, No Stiffeners (in) 1.75 1.75 Req'd Bearing, Stiffeners (in)

Тор **HANGERS** Model Face Member Header Size Left LBV3.56/20X*SKR30 6-10dx1.5" 4-10dx1.5" 6-10dx1.5" Sawn DF 2x6 (Nailer) (* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.

10'- 6.5"

APPLICATION LOADS

Member Type Units **Partition** Tributary DOL Live Dead Type Roof(125%) psf Uniform 24' Roof Joist 33

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".

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The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt™ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:58 PM

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D43 @WF Uplift

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb) Negative Moment (ft-lb)		Design -105 3 -277	Allow. 5352 14792 26296	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	1%	Design -0.005 -0.005	Allow. -0.526 -0.702	Design L / 999+ L / 999+	Allow. L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)	1 1 (90) -105 (160) Flush Beam	Support 2 0 1 1 (90) -105 (160) Bottom Wall - 1.75				
HANGERS Left LBV3.56/20X*SKL30 (* = Web stiffeners requi	ired)	Top 6-10dx1.5"	Face 4-10dx1.5"	Member 6-10dx1.5"	Header Sawn DF	Size 2x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

10'- 6.25"

APPLICATION LOADS

TypeUnitsDOLLiveDeadPartitionTributaryMember TypeUniformpsfRoof(125%)3315024"Roof Joist

ADDITIONAL LOADS

TypeUnitsDOLLiveDeadLocation from leftApplicationCommentUniformpsfWind(160%)-10.10.10'-0.0" to 10'-6.25"ReplacesNet Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 1/3/14 6:59 PM

0.832

Designer: Remote

Comment:

20" Red-I90™ @ 24" o.c.

Type: D43 @WF

PASS

Member Slope: -0.25/12 î

This product meets or exceeds the set design controls for the application and loads listed

2.106

Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** % Allow. Design Shear (lb) 1105 125% - All Loads **PASS** Positive Moment (ft-lb) 8729 20544 125% - All Loads **PASS** Design DEFLECTIONS (in) % Allow. Allow. Pass/Fail Design Allow. L / 798 L / 456 L / 240 L / 180 Span Live 30% 0.475 1.580 **PASS**

SUPPORTS Support 2 Support 1 Live Reaction, Critical (Ib) (DOL%) 632 (125) 632 (125) 474 Dead Reaction (lb) 474 Total Reaction (lb) (DOL%) 1106 (125) 1106 (125) Bearing Flush Flush Support Beam Beam

Span Total

Req'd Bearing, No Stiffeners (in) 1 75 1.75 Req'd Bearing, Stiffeners (in)

Тор **HANGERS** Model Member Header Size Left LBV3.56/20* 6-10dx1.5" 4-10dx1.5" 6-10dx1.5" Sawn DF 2x6 (Nailer) Right LBV3.56/20X*SKL30 6-10dx1.5" 4-10dx1.5" 2-10dx1.5" Sawn DF 2x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

(* = Web stiffeners required)

31'- 7.0"

APPLICATION LOADS

Units DOL Partition Tributary Member Type Type Live Dead Roof(125%) 24' Uniform psf 20 15 Roof Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Sloped length multiplier = 1.000. Bevel cut add = 0.42".



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/16/13 3:51 PM

10596

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Allow. DOL - Control **DESIGN CONTROLS** Design Pass/Fail Shear (lb) 74% 2470 100% - All Loads **PASS**

> DEFLECTIONS (in) % Allow. Allow. Pass/Fail Design Design Allow. Span Live 0.278 0.572 L / 740 L / 360 **PASS** L / 616 L / 240 Span Total 39% 0.334 0.858 **PASS**

100% - All Loads

16435

Type: D5

PASS

FloorChoice™ Rating: 9.5

Positive Moment (ft-lb)

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, flexible support. RedSpec has not performed a structural analysis of the sheathing.

Support 2 **SUPPORTS** Support 1 Live Reaction, Critical (lb) (DOL%) 2059 (100) 2059 (100) 412 412 Dead Reaction (lb)

Total Reaction (lb) (DOL%) 2471 (100) 2471 (100) Bottom Flush Bearing Wall Beam Support

Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in) 2.76

Top Face Member Header Size **HANGERS** HWU3.56/20* 4-16dx2.5" 4-16dx2.5" 6-10d Sawn DF 3x6 (Nailer)

(* = Web stiffeners required)

SPANS AND LOADS

Dimensions represent horizontal design spans.



17'- 1.874"

APPLICATION LOADS

Units DOL Partition Tributary Member Type Type Live Dead Floor(100%) psf Glued Floor Joist

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/20/13 8:59 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS

Shear (lb) Positive Moment (ft-lb)

% Allow. 57% 72%

Design 1902 11839

Allow. 3345 16435

DOL - Control 100% - All Loads 100% - All Loads Pass/Fail PASS

Type: D6

DEFLECTIONS (in) Span Live Span Total

% Allow.

Design 0.177 0.525

Allow. 0.732

Design L / 999+ L / 501

Allow. L / 360 L / 240 Pass/Fail **PASS**

FloorChoice™ Rating:

Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

SUPPORTS
Live Reaction, Critical (lb) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%)

1200 1902 (100) Bearing Support

Bottom Wall 1.75

Support 1 703 (100)

Support 2 703 (100) 1035 1738 (100)

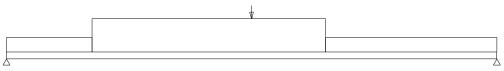
Bottom Wall

Req'd Bearing, No Stiffeners (in) Req'd Bearing, Stiffeners (in)

1.75

SPANS AND LOADS

Dimensions represent horizontal design spans.



21'- 11.5"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Floor(100%)	40	30	0	19.2"	Glued Floor Joist

ADDITIONAL LOADS

	.,	, ,,,,					
Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	plf	Floor(100%)	0	150	10'-11.75"	Adds To	Wall Above
Uniform	nlf	Floor(100%)	0	90	3'-10 0" to 14'-3 5"	Adds To	Wall Above

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed.

Y:\C0020-RB\RB13138-085264-Providence Hall High School, UT\085264-Sizing\085264-Sizing.red

The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt $^{\text{IM}}$ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



Project: Providence Hall High

Location: Herriman, UT Folder: 2nd Floor

Date: 12/20/13 10:37 AM

Designer: Remote

Comment:

20" Red-I90™ @ 19.2" o.c. with Glued Sheathing

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS

Shear (lb) 80% Positive Moment (ft-lb)

Design 2687 13743

Allow. 3345 16435

DOL - Control 100% - All Loads 100% - All Loads Pass/Fail PASS

Type: D9

DEFLECTIONS (in) Span Live

% Allow. Span Total 64%

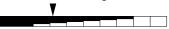
% Allow.

Design 0.343 0.846

Allow. 0.878

Design L / 374 Allow. L / 360 L / 240 Pass/Fail **PASS**

FloorChoice™ Rating: 3.2



Performance rating is based on: 24 oc (23/32", 3/4") sheathing, glued and nailed, simple span, rigid supports. RedSpec has not performed a structural analysis of the sheathing.

SUPPORTS
Live Reaction, Critical (Ib) (DOL%) Dead Reaction (lb) Total Reaction (lb) (DOL%)

Req'd Bearing, No Stiffeners (in)

Req'd Bearing, Stiffeners (in)

Bearing Support

Bottom Wall

1844

Support 1

2687 (100)

843 (100)

3.50

Support 2 843 (100)

912 1755 (100) Bottom Wall

1.75

SPANS AND LOADS

Dimensions represent horizontal design spans.



26'- 4.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Floor(100%)	40	30	0	19.2"	Glued Floor Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	plf	Floor(100%)	0	150	0'-0.0" to 9'-1.75"	Adds To	Wall Above
Point	nlf	Floor(100%)	0	75	9'-1 75"	Adds To	Wall Above

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Joist design includes consideration for a 1000 lb load distributed over a 30" square area and all live loads removed.

Y:\C0020-RB\RB13138-085264-Providence Hall High School, UT\085264-Sizing\085264-Sizing.red

The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt $^{\text{IM}}$ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:53 PM

Designer: Remote

Comment:

DOUBLE 1.75 x 18 RedLam™ LVL 2.0E

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 13766 115% - All Loads Positive Moment (ft-lb) 2128 49708 115% - All Loads **PASS** DEFLECTIONS (in) Allow. Pass/Fail % Allow. Design Design Allow. L / 240 L / 180 Span Live 0.002 0.267 0.003 L / 999+ **PASS** Span Total **SUPPORTS** Support 2 Support 1 Live Reaction, Critical (lb) (DOL%) 880 (115) 880 (115) 716 Dead Reaction (lb) 716 Total Reaction (lb) (DOL%) 1596 (115) 1596 (115)

Bearing Flush Flush
Support Beam Beam
Req'd Bearing (in) 1.50 1.50

HANGERS Model Top Face Member Header Size Left MIT418 2-10dx1.5" LVL DF/SP 1.75x18 DBL 4-10d 4-10d Right MIT418 4-10d 4-10d 2-10dx1.5" LVL DF/SP 1.75x18 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: MF24



5'- 4.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	10'	Snow Roof Beam

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Support bearing length requirements must be checked separately.
- Continuous lateral support required at top and bottom edge.
- Continuous lateral support required at top and bottom ec
 Sloped length multiplier = 1.000. Bevel cut add = 0.38".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 2:04 PM

Designer: Remote

Comment: EOR Verify HB5.5/18 Hanger

TRIPLE 1.75 x 18 RedLam™ LVL 2.0E

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 9% -2680 28728 160% - All Loads PASS Positive Moment (ft-lb) 3% 1593 58353 90% - Dead Load **PASS** Negative Moment (ft-lb) 16% -16717 103739 160% - All Loads **PASS**

> DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live -1.073 L / 840 L / 240 Span Total 20% -0.280 -1.431 L / 920 L / 180 **PASS**

Type: MF35 Uplift

Member Slope: 0.25/12 í

 SUPPORTS
 Support 1
 Support 2

 Live Reaction, Critical (lb) (DOL%)
 0
 0

 Dead Reaction (lb)
 297
 297

 Total Reaction (lb) (DOL%)
 297 (90)
 297 (90)

 Net Uplift Reaction (lb) (DOL%)
 -3116 (160)
 -3116 (160)

Bearing
SupportFlush
BeamBottom
WallReq'd Bearing (in)1.501.50

SPANS AND LOADS

Dimensions represent horizontal design spans.

21'- 5.5"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	1'	Snow Roof Beam

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	plf	Wind(160%)	-308	0	0'-0.0" to 21'-5.5"	Adds To	Brace Load
Uniform	psf	Wind(160%)	-10.1	0.1	0'-0.0" to 21'-5.5"	Replaces	Net Wind Uplift

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Support bearing length requirements must be checked separately
- Continuous lateral support required at top and bottom edge.
- Net uplift (see reactions) requires additional connector consideration.
- Sloped length multiplier = 1.000. Bevel cut add = 0.38".



RedSpec TM by RedBuilt TM v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 2:01 PM

Designer: Remote

Comment:

TRIPLE 1.75 x 18 RedLam™ LVL 2.0E

Type: MF35

Member Slope: 0.25/12 í

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 15% 4441 28728 160% - All Loads 27701 Positive Moment (ft-lb) 27% 103739 160% - All Loads **PASS** DEFLECTIONS (in) Allow. Pass/Fail % Allow. Design Design Allow. L / 623 L / 555 L / 240 L / 180 Span Live 0.464 **PASS** Span Total **SUPPORTS** Support 2 Support 1 Live Reaction, Critical (lb) (DOL%) 4600 (160) 4600 (160) Dead Reaction (lb) 564 564 Total Reaction (lb) (DOL%) 5164 (160) 5164 (160) . Bearing Bottom Flush Support Beam Wall Req'd Bearing (in) 1.50 1.50

 HANGERS
 Model
 Top
 Face
 Member
 Header
 Size

 Left
 HB5.50/18
 6-16d
 16-16d
 10-16d
 LVL DF/SP
 1.75x11.875 TPL

SPANS AND LOADS

Dimensions represent horizontal design spans.

21'- 5.5"

APPLICATION LOADS

Туре	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	1'	Snow Roof Beam

ADDITIONAL LOADS

Туре	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	plf	Wind(160%)	308	0	0'-0.0" to 21'-5.5"	Adds To	Brace Load
Uniform	psf	Snow(115%)	87.7	0	0'-0.0" to 21'-5.5"	Adds To	Snow Drift H

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Support bearing length requirements must be checked separately.
- Continuous lateral support required at top and bottom edge.
- Sloped length multiplier = 1.000. Bevel cut add = 0.38".



 $RedSpec^{TM}$ by $RedBuilt^{TM}$ v7.0.16

Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 2:53 PM

Designer: Remote

Comment:

DOUBLE 1.75 x 18 RedLam™ LVL 2.0E

This product meets or exceeds the set design controls for the application and loads listed

% Allow. Design Allow. DOL - Control Pass/Fail **DESIGN CONTROLS** Shear (lb) 2% 10773 90% - Dead Load PASS 1976 Positive Moment (ft-lb) 5% 38902 90% - Dead Load **PASS** Negative Moment (ft-lb) 2% -1066 69159 160% - All Loads **PASS** DEFLECTIONS (in) Pass/Fail % Allow. Design Allow. Design Allow. Span Live -0.117 -1.463 L / 240 Span Total 0.042 1.950 L / 999+ L / 180 **PASS** Support 1 Support 2 **SUPPORTS** Live Reaction, Critical (Ib) (DOL%) 270 Dead Reaction (lb) 270 270 (90) 270 (90) Total Reaction (lb) (DOL%) Net Uplift Reaction (lb) (DOL%) -231 (160) -312 (160) Bearing Flush Bottom Support Wall Beam Req'd Bearing (in) 1.50 1.50 **HANGERS** Model Top Face Member Header Size 6-16dx2.5" **Right** B3.56/18 8-16dx2.5" 6-16dx2.5" Sawn DF 3x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: MF44 Uplift

29'- 3.0"

APPLICATION LOADS

Туре	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	1'	Snow Roof Beam

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment				
Uniform	psf	Wind(160%)	-10.1	0.1	0'-0.0" to 29'-3.0"	Replaces	Net Wind Uplift				
Point	lb	Snow(115%)	-240	0	23'-5.5"	Adds To	Header Reaction				
Point	lb	Snow(115%)	-240	0	27'-1.5"	Adds To	Header Reaction				
Point	plf	Wind(160%)	-308	0	1'-10.0"	Adds To	Brace Load				

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Support bearing length requirements must be checked separately.
- Continuous lateral support required at top and bottom edge.
- Net uplift (see reactions) requires additional connector consideration.
- Sloped length multiplier = 1.000. Bevel cut add = 0.38"



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 2:53 PM

Designer: Remote

Comment:

DOUBLE 1.75 x 18 RedLam™ LVL 2.0E

This product meets or exceeds the set design controls for the application and loads listed

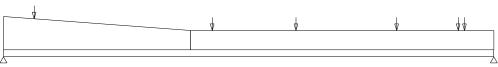
DESIGN CONTROLS Shear (Ib) Positive Moment (ft-Ib)	% Allow . 23% 46%	Design -3163 22947	Allow. 13766 49708	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total	35%	Design 0.506 1.066	Allow. 1.463 1.950	Design L / 694 L / 329	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Live Reaction, Max. (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing (in)	Support 1 1242 (115) 1531 (160) 1212 2743 (160) Bottom Wall 1.50	Support 2 1502 (115) 1521 (160) 1777 3298 (160) Flush Beam 1.50				
HANGERS Model Right B3.56/18		Top 6-16dx2.5"	Face 8-16dx2.5"	Member 6-16dx2.5"	Header Sawn DF	Size 3x6 (Nailer)

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: MF44



29'- 3.0"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	1'	Snow Roof Beam

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Point	lb	Snow(115%)	680	515	23'-5.5"	Adds To	Header Reaction
Point	lb	Snow(115%)	72	55	27'-1.5"	Adds To	Header Reaction
Point	plf	Wind(160%)	308	0	1'-10.0"	Adds To	Brace Load
Point	lb	Floor(100%)	0	175	12'-5.5"	Adds To	Mech. #2
Point	lb	Floor(100%)	0	175	17'-5.5"	Adds To	Mech. #2
Tapered	psf	Snow(115%)	55 to 0	0 to 0	0'-0.0" to 11'-2.0"	Adds To	Snow Drift G
Point	İb	Floor(100%)	0	125	23'-5.5"	Adds To	Mech. #1
Point	lb	Floor(100%)	0	125	27'-6.0"	Adds To	Mech. #1
Point	lb	Snow(115%)	360	275	12'-5.5"	Adds To	Header Reaction
Point	lb	Snow(115%)	360	275	17'-5.5"	Adds To	Header Reaction

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Support bearing length requirements must be checked separately.
- Continuous lateral support required at top and bottom edge.
 Sloped length multiplier = 1.000. Bevel cut add = 0.38".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:59 PM

Designer: Remote

Comment:

DOUBLE 1.75 x 18 RedLam™ LVL 2.0E

This product meets or exceeds the set design controls for the application and loads listed

Type: MF45 Uplift

Member Slope: -0.25/12 î

DESIGN CONTROLS Shear (Ib) Positive Moment (ft-lb) Negative Moment (ft-lb)	% Allow. 3% 5% 1%	Design -514 2073 -941	Allow. 19152 38902 69159	DOL - Control 160% - All Loads 90% - Dead Load 160% - All Loads		Pass/Fail PASS PASS PASS
DEFLECTIONS (in) Span Live Span Total	10%	Design -0.142 0.101	Allow. -1.495 1.993	Design L / 999+ L / 999+	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Net Uplift Reaction (Ib) (DOL%) Bearing Support Req'd Bearing (in)	Support 1 0 277 277 (90) -513 (160) Bottom Wall 1.50	Support 2 0 277 277 (90) -205 (160) Flush Ledger 1.50				
HANGERS Model Right HB3.56/18		Top 6-16d	Face 16-16d	Member 10-16d	Header LVL DF/SP	Size 1.75x18 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

29'- 10.75"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	1.8'	Snow Roof Beam

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Wind(160%)	-10.1	0.1	0'-0.0" to 29'-10.75"	Replaces	Net Wind Uplift
Point	plf	Wind(160%)	-308	0	1'-10.0"	Adds To	Brace Load
Point	lb	Wind(160%)	-205	0	27'-0.0"	Adds To	Header reaction

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Support bearing length requirements must be checked separately.
- Continuous lateral support required at top and bottom edge.
- Net uplift (see reactions) requires additional connector consideration.
- Sloped length multiplier = 1.000. Bevel cut add = 0.38".



Project: Providence Hall High

Location: Herriman, UT

Folder: Roof

Date: 12/30/13 1:58 PM

Designer: Remote

Comment:

DOUBLE 1.75 x 18 RedLam™ LVL 2.0E

This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS Shear (lb) Positive Moment (ft-lb)	% Allow. 35% 63%	Design -4777 31517	Allow . 13766 49708	DOL - Control 115% - All Loads 115% - All Loads		Pass/Fail PASS PASS
DEFLECTIONS (in) Span Live Span Total		Design 1.196 1.576	Allow. 1.495 1.993	Design L / 300 L / 228	Allow . L / 240 L / 180	Pass/Fail PASS PASS
SUPPORTS Live Reaction, Critical (Ib) (DOL%) Live Reaction, Max. (Ib) (DOL%) Dead Reaction (Ib) Total Reaction (Ib) (DOL%) Bearing Support Req'd Bearing (in)		Support 2 3412 (115) 3445 (160) 1514 4958 (160) Flush Ledger 1.89				
HANGERS Model Right HB3.56/18		Top 6-16d	Face 16-16d	Member 10-16d	Header LVL DF/SP	Size 1.75x18 DBL

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: -0.25/12 î

Type: MF45



29'- 10.75"

APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	33	25	0	1.8'	Snow Roof Beam

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment				
Uniform	psf	Snow(115%)	87.7	0	0'-0.0" to 23'-6.75"	Adds To	Snow Drift H				
Point	lb	Floor(100%)	0	250	28'-8.0"	Adds To	Mech. #1				
Point	plf	Wind(160%)	308	0	1'-10.0"	Adds To	Brace Load				
Point	ĺh	Snow(115%)	1244	382	27'-0 0"	Adds To	Header reaction				

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- · Support bearing length requirements must be checked separately.
- · Continuous lateral support required at top and bottom edge.
- Sloped length multiplier = 1.000. Bevel cut add = 0.38".