ESTIMATING MANUAL AND PRODUCT SELECTOR FOR
TYPES 5GP™, 5MD™, 5AR™, 7GP™, 7HD™, 7TB™ and DK3™

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SECTION 1: Southwest Fireproofing Product Selector

Product	Type 5GP	Type 5MD	Type 5AR	Type 7GP	Type 7TB	Type 7HD
Product Type	Gypsum Plaster	Gypsum Plaster	Gypsum Plaster	Portland Cement	Portland Cement	Portland Cement
Density (Class) lb/ft^3 (pcf)	15	15-22	15	22	22	35-40
Bond Strength (psf)*	>200	>430 (15 pcf) >1,000 (16.5 pcf) >3,000 (22 pcf)	>200	>2,000	>1,200	17,000
1-4 Hour Protection Cellulosic Fire Rated ASTM E119 UL 263 NFPA 251 CAN/ULC S101	X	X	X	X		X
Thermal Barrier Rated UL Enclosed Corner Test					X	
Extended Set Material			X			
Can be injected with Accelerator A-20	X	X	X			
Suitable For High Humidity Applications				X	X	X
Meets Minimum Bond Strength Requirement for High Rise Buildings up to 75 ft. (150 psf)	X	X	X	X	X	X
Meets Minimum Bond Strength Requirement for High Rise Buildings 75 to 420 ft. (430 psf)		X		X	X	X
Meets Minimum Bond Strength Requirement for High Rise Buildings >420 ft. (1,000 psf)		X		X	X	X
Target Yield (Bd. Ft./Bag)	44	44 (15 pcf) 42 (16.5 pcf) 30 (22 pcf)	44	30	30	16

***** Bond Strength tests conducted under ASTM E-736 standard procedure and/or in accordance with Appendix B of AWCI Technical Manual 12-A.
Note: Contact local Carboline sales representative for third party test reports if needed.

SECTION 2: Introduction, Guidelines & Scheduling

INTRODUCTION

Carboline is providing this estimating guide to assist you, our valued customer, in making a competitive bid, with a user friendly source of information. This guide is essentially for all products, with emphasis on Types 5 materials. See current price lists and other published data on product yields, as they may change, to be current in product use and quantities. The information in this guide, are provided in good faith, and of general nature only. Conditions on each individual project change. Be careful in your estimates, in your planning and preparations. Carboline cannot assume responsibility for its use. The responsibility must rest with the user of this guide.

GUIDELINES

Be sure you have these tools and information:

1. Project specifications and all addendum
2. Complete set of plans, including structural and architectural. It may be prudent to have mechanical and electrical as well, but not always necessary.
3. The most recent ULI or ULC Fire Resistance Directory
4. Local codes and national codes applicable

Remember, when selecting a UL design(s) to base your bid on, be sure it meets all specifications and codes. Call Carboline should you need guidance in the selection process.

Estimators may find discrepancies in requirements between the project's plans and specifications. When this occurs, contact the project Architect or General Contractor before finalizing your bid. Sometimes specifications require the use of certain designs, but may not match the construction plans.

COORDINATION AND PROJECT SUPERVISION

Project scheduling, coordination and supervision must always be considered in your estimate. Make sure your estimate is based on a clear understanding of sequencing to efficiently maximize your field crew's time. Attempt to finish all work on a floor before proceeding to the next. Reduce or eliminate as much as possible, any equipment and personnel movements, as they are costly, waste time, and will factor into a competitive bid.

SECTION 3: Estimating Columns

ESTIMATING WIDE FLANGE COLUMNS

1. Separate the columns on a floor by floor basis from the largest to the smallest.
2. Determine the hourly rating required and the corresponding fireproofing thickness. If this is not printed on the plans or specifications, the thicknesses may be determined by using appropriate UL column designs. Call Carboline, if you need assistance.
3. Then use the column worksheet, Appendix D, to sum up your columns.
4. Write down column size, number of columns, and lineal feet of column. Then, multiply the no. of columns by the lineal feet, to arrive at total lineal feet for that column.
5. To convert the lineal footage (of each column and thickness of Southwest products required, to provide the fire rating,) to board footage of fireproofing, use the column conversion factor from Appendix B.
6. To calculate board footage, multiply the proper conversion factor from Appendix B by the total lineal footage of the individual column.
7. Repeat this procedure for each column size and material thickness. Add the resulting board footage amounts to determine a total board footage of product for columns per floor.
8. Repeat this procedure on subsequent floors and add these total individual floor board footage results, to arrive at a total for the project.

Sample procedure (on column worksheet)

1. # column x I'm. ft. per column = Total lin. ft. of columns
2. Total lin. ft. x column conversion factor Table A = BD. Ft.
3. Repeat for each size column on the floor
4. Sum up individual totals for floor Board footage results and record.

ESTIMATING PIPE AND TUBE COLUMNS

1. Separate columns on a specific floor by size, from largest too smallest.
2. Determine required material thickness for each column size. The proper material thickness is based on the column size (A/P value) and hourly rating requirement.
3. Determine the total lineal footage for each column size.
4. Use the following formula to determine board footage for product for each column size and respective material thickness. Also see the end of this guide for calculations completed for UL Design: X771.

Pipe Columns:

$$\frac{(d + 2\,th)\ 2 \times th \times}{15.28}\ \text{lineal footage} = \text{bd. ft.}$$

Tube Columns:

$$\frac{((2L + 2H) \times th) + (4 \times th\ 2)}{12} \times \text{Total lin. footage} = \text{bd. ft.}$$

L = length in inches
H = height in inches
Th = thickness of Southwest products
d = outside dia. of pipe in inches

5. These calculations yield board ft. of product per lineal foot of column. Add the result of each specific column size and thickness per floor. Repeat the procedure for each floor.

Note: As with steel bar joists and trusses, the above formulas are a general solution to the estimating of these steel columns. Experience and specific job conditions will have more effect on total material usage, than the actual are of the pipe or tube column. Remember to consider over-spray on small steel members.

SECTION 4: Estimating Beams, Decks and Joists

ESTIMATING BEAMS

1. Separate beams on each floor form the largest to the smallest and list them on the beam work sheet, Appendix D.
2. Determine fireproofing thickness, if not given on plans or specs, from the appropriate Southwest UL design.

Note: Be sure to determine if beams are restrained or unrestrained, as ULI requires at times different thicknesses.

3. Determine the total footage of each beam size for each respective material thickness.
4. Convert the lineal footage of each beam and thickness required to provide the fire rating, to board footage of product, by using the beam conversion factors from Appendix B.
5. Repeat these steps for each size beam. If you he more than one floor that are identical, you can multiply your bd. ft. by that no. of floors, otherwise a complete take off will have to be done per floor.

Note: Beams that have a W/D smaller than the minimum beam size listed in a UL design, will have to be adjusted accordingly. See the current UL directory for W/D calculations.

ESTIMATING DECKS

Determine type of deck, depth of decks, concrete type (reg. or light wt.) type of profile or the steel floor unit, i.e.: cellular, fluted, or blended. All these factors determine the UL design to be used, and fire proofing thicknesses to bid. Be sure if shear connectors are included in the design, as well as in the construction. Finally note if the requirements are for composite or non-composite decks.

Determine the total thickness of the concrete slab: amount above the flutes... and the concrete type. Check for any electrification units. Determine the width and number of trench headers and bottom less trench headers and electrical inserts. These are covered in certain designs, and may require greater thicknesses.

1. After you have collected the above information, and selected a UL design, commence with the estimate.
2. Calculate the total area of each section of deck, that requires as specific thickness.

CELLULAR DECKING

To determine the sq. ft. for a cellular deck, multiply the length of the deck by the width of the deck, or the entire floor area, if applicable.

FLUTED DECKING

For a fluted deck, the depth and profile of the deck will determine the total surface area to be sprayed. Multiply length x width, of each fluted deck. Then, multiply this area by correct expansion factor shown in Appendix C, for that type of deck.

3. Once the total area to be sprayed for either type of deck, is known, multiply by the thickness required, to obtain bd. ft.

Note: Often more than one thickness is specified by UL for fluted decks. Check UL designs carefully.

4. Repeat this procedure or each floor, and record data per floor.

SAMPLE PROCEDURE

Cellular Decks: (flat)

1. Multiply length x width = sq. ft. of flat area
2. Sq. ft. x material thickness = Total bd. ft. deck area

Fluted Decks:

1. Multiply length x width = sq. ft. fluted decks
2. Sq. ft. x factor (from deck profile) = Total expanded surface area to spray.
3. Surface area x material thickness = Total bd. ft. of surface area

ESTIMATING STEEL BAR, JOISTS AND TRUSSES

Steel bars and joist have many configurations, hence estimating fireproofing on these elements is difficult. However, as so many new buildings are low profile, with joist as a cheaper alternative to structural steel construction, a good estimating technique is very important.

Be careful in estimating, and if prior experience is available, be sure to use it. One way to reduce the amount of product to be used, is to use fiber glass scrim on joists, to substantially reduce overspray. The following procedure is a recommendation. Use your experience as a guide.

1. Separate joists by size (depth) and required fireproofing thickness.
2. Determine material usage necessary by considering the joist to be a beam.
3. Calculate the area to be covered as follows:

$$\frac{(d \times 2 + w)}{12} \times ft. \times th = bd.\ ft.$$

Where: d = depth in inches
w = width in inches
th = thickness of product

MATERIAL TOTALS

1. First of all, determine the material totals required for each of the Southwest products to be used on each different substrate, be it beams, columns, decks or roof configurations.
2. Add your total bd. ft. requirements for each substrate for each floor.
3. Add the totals for each floor to arrive at the amount of product subtotal for the project.

WASTE

It is necessary to compensate for waste during application. Experienced contractors use a 4-6 % factor, assuming the job is "straight foreword", but it is very dependent on the sprayer, job conditions and supervision.

Waste on bar joists or angle trusses can be controlled, by careful work, and experience. Generally, fiberglass scrim can reduce the waste from 25% to less than 10%. Let your experience be your guide.

To adjust your material, estimate for waste, multiply the total bd.ft. of product required by the appropriate waste %.

Example: Assuming a 10% waste factor on a project that has been estimated to require 100,000 bd. ft. of Southwest product.

100,000 bd. ft. x 1.10 = 110,000 bd. ft. (Note, a 10% waste factor is high, and should be in the range of 4 - 6 % for well managed projects; let your experience be your guide; waste on joists of course will be higher than on beams, decks and column work)

CONVERSION OF BRD. FT. TO TOTAL BAGS

To convert total bd. ft. of product to bags (including waste at 10%) divide bd. ft. coverage per bag given in current price sheets and yield factors:

Example:

If you estimated 110,000 bd. ft. of Type 5 (GP) is required and you anticipate applying it at 17 PCF (lbs/ft. 3), your calculation would be:

$$\frac{110.000 \text{ bd. ft.}}{38} =. \text{ 2,895 bags of Type 5}$$

Note: you have already included a waste factor; hence this represents the total bags required.

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SECTION 5: Type DK3 Adhesive/Spattercoat

TYPE DK3 ADHESIVE/SPATTERCOAT

When Type DK adhesive is required, particularly with all flexible roof deck systems, add this material to your estimate.

1. Determine the total area in sq. ft. requiring Type DK adhesive.
2. Divide this area by the coverage of Type DK to arrive at the no. of bags.

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SECTION 6: Estimate Build-Up

TOTAL MATERIAL COSTS

To determine the total material costs, multiply your unit cost for, products and add appropriate sales taxes and freight. Be sure to add costs of drop trailers, if used, including the cost of returning empty trailers.

LABOR AND INCIDENTAL COSTS

These costs will represent a significant percentage of the overall estimate, and project bid price.

Cost in these areas are directly related to your crew's application skills and operational capability. Field proficiency is very important. Hence, SOUTHWEST cannot suggest specific costs related to labor, staging costs and other costs associated with field production.

FINAL PROJECT ESTIMATE

1. The complete project estimate and subsequent bid price will be composed of the preceding items.
2. Project specifications should be carefully understood, and re-examined, so that all costs are covered.
3. Pay particular care when estimating UL designs to accomplish what local codes require, or is specified, preventing potential job site disputes later into a project.

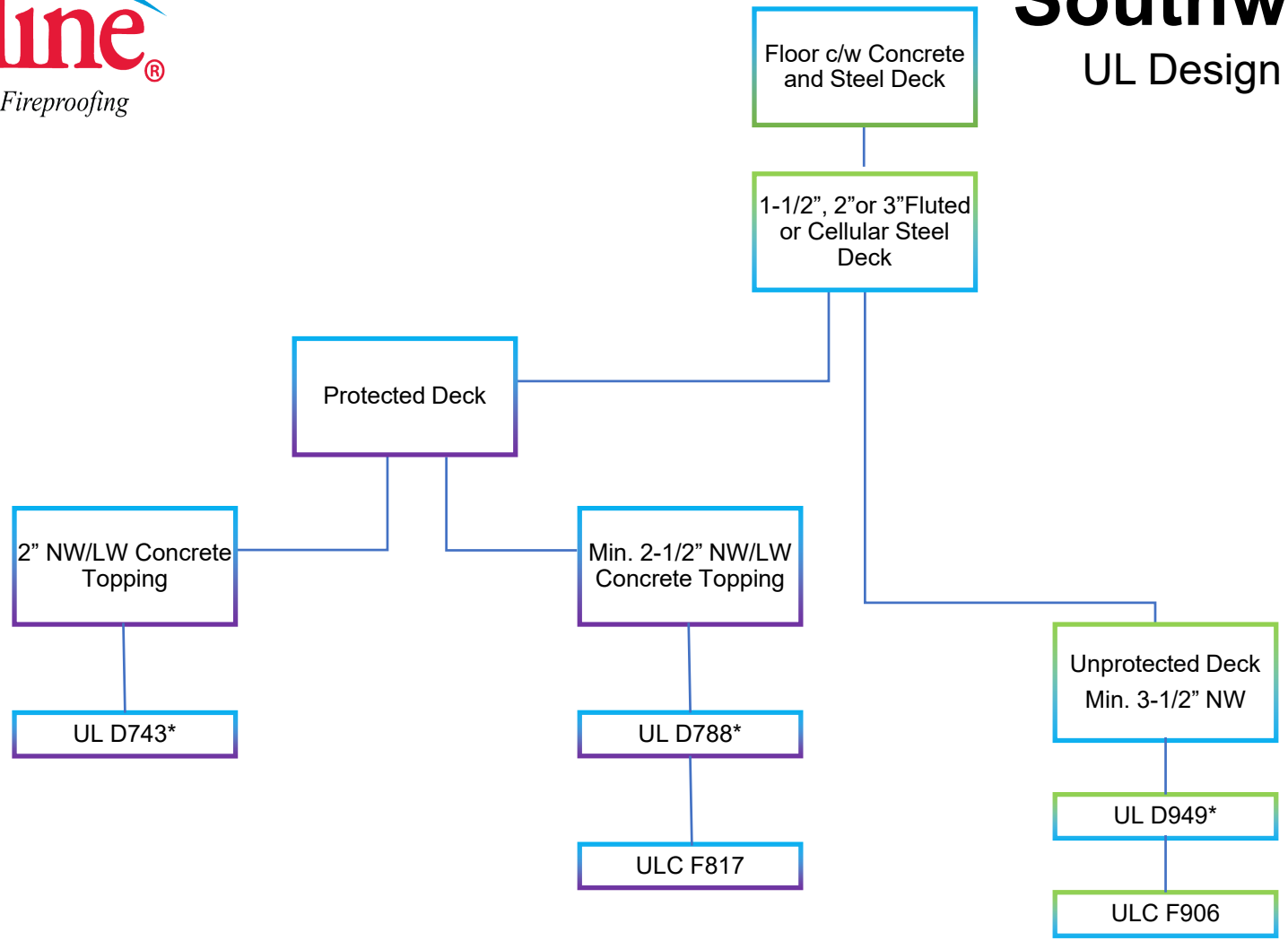
We anticipate this guide is helpful in estimating SOUTHWEST FIREPROOFING PRODUCTS. Call us if you need guidance.

APPENDIX A
SIMPLIFIED DESIGN FLOWCHARTS

carboline®
Coatings - Linings - Fireproofing

Southwest® SFRM Series

UL Design Flow Chart – Concrete/Steel Deck



Quick Links

- Southwest Type 5-GP
- Southwest Type 5-MD
- Southwest Type 7-GP
- Southwest Type 7-HD

Substitutions

- S739
- N791

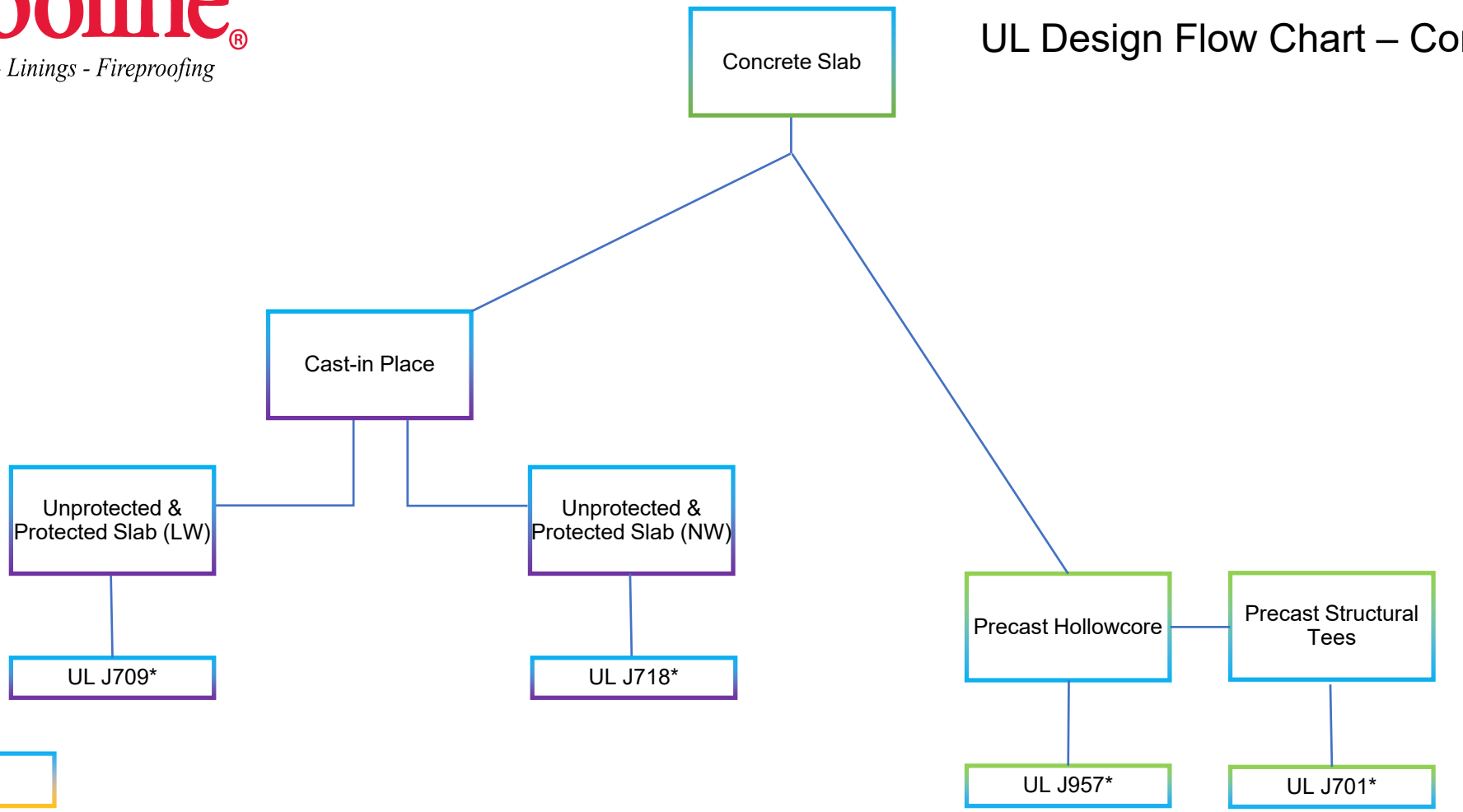
General Notes

* Also certified for use in Canada (CAN/ULC-S101)

August 2019

Southwest® SFRM Series

UL Design Flow Chart – Concrete Floor Assemblies



Quick Links

- Southwest Type 5-GP
- Southwest Type 5-MD
- Southwest Type 7-GP
- Southwest Type 7-HD

General Notes

* Also certified for use in Canada (CAN/ULC-S101)

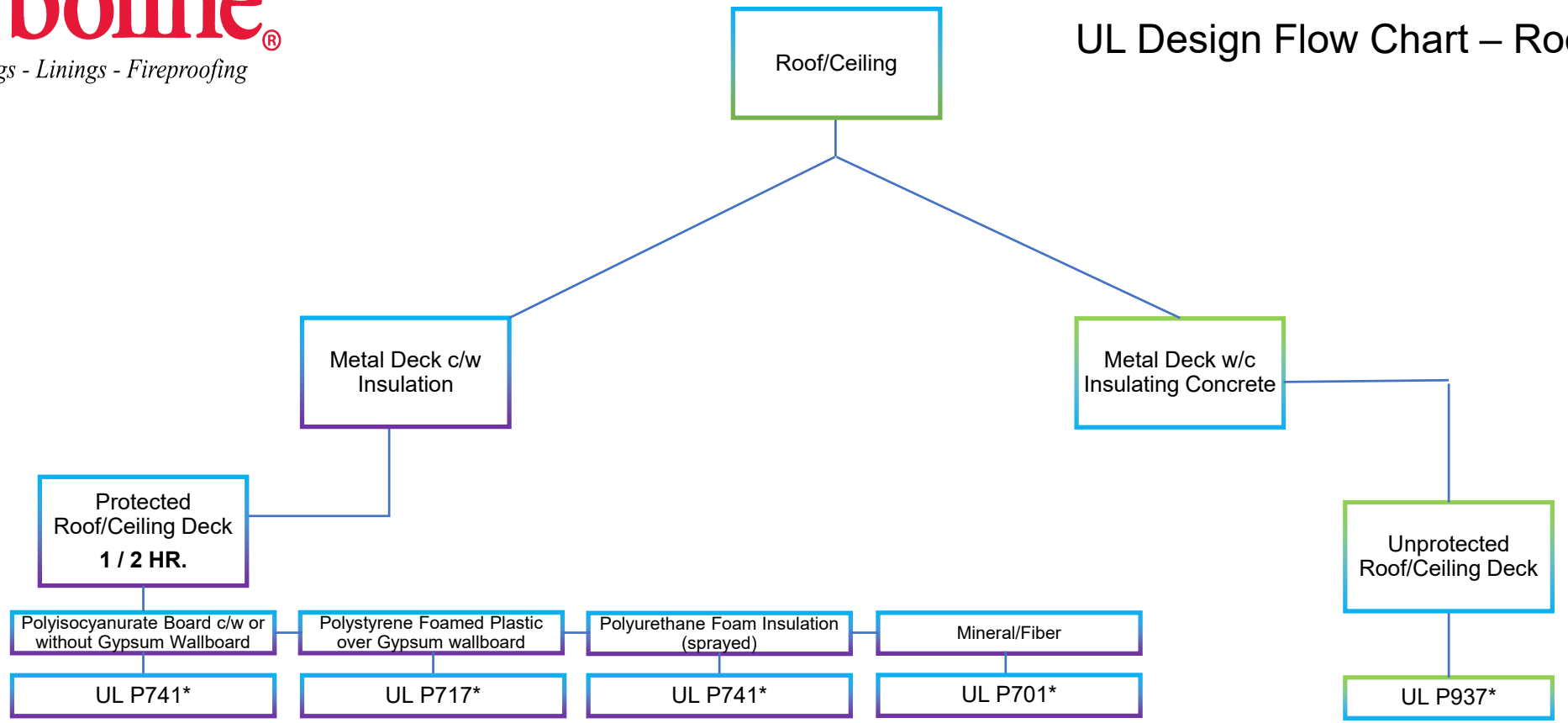
Substitutions

- S739
- N791

August 2019

Southwest® SFRM Series

UL Design Flow Chart – Roof/Ceiling Assemblies



Quick Links

- Southwest Type 5-GP
- Southwest Type 5-MD
- Southwest Type 7-GP
- Southwest Type 7-HD

Substitutions

S739

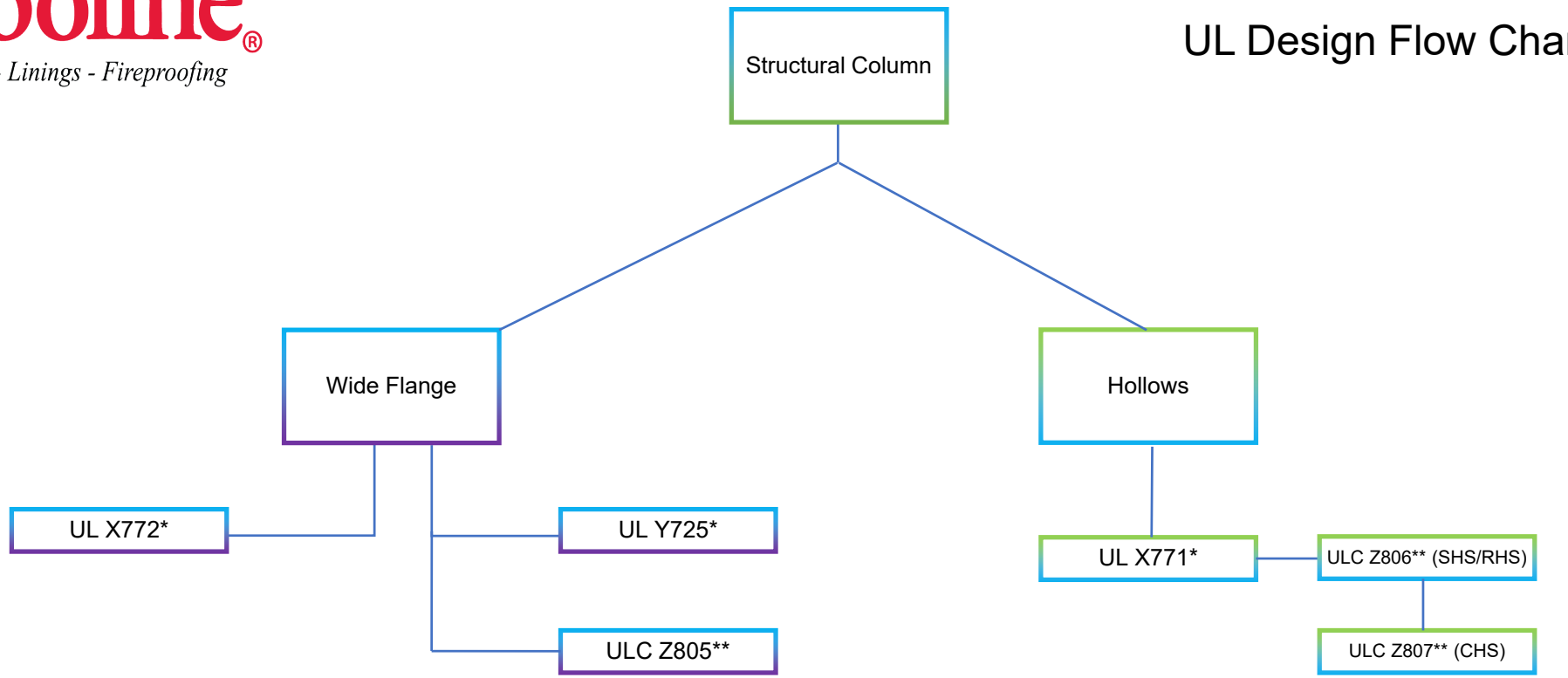
General Notes

* Also certified for use in Canada (CAN/ULC-S101)

August 2019

Southwest® SFRM Series

UL Design Flow Chart – Structural Columns



Quick Links

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- Southwest Type 5-MD
- Southwest Type 7-GP
- Southwest Type 7-HD

General Notes

* Also certified for use in Canada (CAN/ULC-S101)

** Type 5 only (Canada)

August 2019

APPENDIX B
CONVERSION TABLES

COLUMN BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
W 44 x 335	2.25	149	12.42	4.66	5.43	6.21	6.98	7.76	8.54	9.31	10.09	10.86	12.42	15.52	18.63	21.73	24.83
x 290	1.97	147	12.25	4.59	5.36	6.13	6.89	7.66	8.42	9.19	9.95	10.72	12.25	15.31	18.38	21.44	24.50
x 262	1.78	147	12.25	4.59	5.36	6.13	6.89	7.66	8.42	9.19	9.95	10.72	12.25	15.31	18.38	21.44	24.50
x 230	1.58	146	12.17	4.56	5.32	6.08	6.84	7.60	8.36	9.13	9.89	10.65	12.17	15.21	18.25	21.29	24.33
W 40 x 593	4.03	147	12.25	4.59	5.36	6.13	6.89	7.66	8.42	9.19	9.95	10.72	12.25	15.31	18.38	21.44	24.50
x 503	3.49	144	12.00	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.50	12.00	15.00	18.00	21.00	24.00
x 466	3.53	132	11.00	4.13	4.81	5.50	6.19	6.88	7.56	8.25	8.94	9.63	11.00	13.75	16.50	19.25	22.00
x 431	3.01	143	11.92	4.47	5.21	5.96	6.70	7.45	8.19	8.94	9.68	10.43	11.92	14.90	17.88	20.85	23.83
x 397	2.8	142	11.83	4.44	5.18	5.92	6.66	7.40	8.14	8.88	9.61	10.35	11.83	14.79	17.75	20.71	23.67
x 392	3.02	128	10.67	4.00	4.67	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.67	13.33	16.00	18.67	21.33
x 372	2.64	141	11.75	4.41	5.14	5.88	6.61	7.34	8.08	8.81	9.55	10.28	11.75	14.69	17.63	20.56	23.50
x 362	2.57	141	11.75	4.41	5.14	5.88	6.61	7.34	8.08	8.81	9.55	10.28	11.75	14.69	17.63	20.56	23.50
x 331	2.59	126	10.50	3.94	4.59	5.25	5.91	6.56	7.22	7.88	8.53	9.19	10.50	13.13	15.75	18.38	21.00
x 327	2.56	125	10.42	3.91	4.56	5.21	5.86	6.51	7.16	7.81	8.46	9.11	10.42	13.02	15.63	18.23	20.83
x 324	2.31	140	11.67	4.38	5.10	5.83	6.56	7.29	8.02	8.75	9.48	10.21	11.67	14.58	17.50	20.42	23.33
x 321	2.26	141	11.75	4.41	5.14	5.88	6.61	7.34	8.08	8.81	9.55	10.28	11.75	14.69	17.63	20.56	23.50
x 297	2.14	139	11.58	4.34	5.07	5.79	6.52	7.24	7.96	8.69	9.41	10.14	11.58	14.48	17.38	20.27	23.17
x 278	2.2	124	10.33	3.88	4.52	5.17	5.81	6.46	7.10	7.75	8.40	9.04	10.33	12.92	15.50	18.08	20.67
x 277	1.99	139	11.58	4.34	5.07	5.79	6.52	7.24	7.96	8.69	9.41	10.14	11.58	14.48	17.38	20.27	23.17
x 264	2.1	124	10.33	3.88	4.52	5.17	5.81	6.46	7.10	7.75	8.40	9.04	10.33	12.92	15.50	18.08	20.67
x 249	1.79	139	11.58	4.34	5.07	5.79	6.52	7.24	7.96	8.69	9.41	10.14	11.58	14.48	17.38	20.27	23.17
x 235	1.87	124	10.33	3.88	4.52	5.17	5.81	6.46	7.10	7.75	8.40	9.04	10.33	12.92	15.50	18.08	20.67
x 215	1.56	138	11.50	4.31	5.03	5.75	6.47	7.19	7.91	8.63	9.34	10.06	11.50	14.38	17.25	20.13	23.00
x 211	1.7	123	10.25	3.84	4.48	5.13	5.77	6.41	7.05	7.69	8.33	8.97	10.25	12.81	15.38	17.94	20.50
x 199	1.45	137	11.42	4.28	4.99	5.71	6.42	7.14	7.85	8.56	9.28	9.99	11.42	14.27	17.13	19.98	22.83
x 183	1.48	122	10.17	3.81	4.45	5.08	5.72	6.35	6.99	7.63	8.26	8.90	10.17	12.71	15.25	17.79	20.33
x 174	1.26	138	11.50	4.31	5.03	5.75	6.47	7.19	7.91	8.63	9.34	10.06	11.50	14.38	17.25	20.13	23.00
x 167	1.36	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
x 149	1.22	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
W 36 x 848	5.57	152	12.67	4.75	5.54	6.33	7.13	7.92	8.71	9.50	10.29	11.08	12.67	15.83	19.00	22.17	25.33
x 798	5.28	149	12.42	4.66	5.43	6.21	6.98	7.76	8.54	9.31	10.09	10.86	12.42	15.52	18.63	21.73	24.83
x 650	4.41	146	12.17	4.56	5.32	6.08	6.84	7.60	8.36	9.13	9.89	10.65	12.17	15.21	18.25	21.29	24.33
x 527	3.65	142	11.83	4.44	5.18	5.92	6.66	7.40	8.14	8.88	9.61	10.35	11.83	14.79	17.75	20.71	23.67
x 439	3.1	140	11.67	4.38	5.10	5.83	6.56	7.29	8.02	8.75	9.48	10.21	11.67	14.58	17.50	20.42	23.33
x 393	2.8	138	11.50	4.31	5.03	5.75	6.47	7.19	7.91	8.63	9.34	10.06	11.50	14.38	17.25	20.13	23.00
x 359	2.57	137	11.42	4.28	4.99	5.71	6.42	7.14	7.85	8.56	9.28	9.99	11.42	14.27	17.13	19.98	22.83
x 328	2.36	137	11.42	4.28	4.99	5.71	6.42	7.14	7.85	8.56	9.28	9.99	11.42	14.27	17.13	19.98	22.83
x 300	2.17	136	11.33	4.25	4.96	5.67	6.38	7.08	7.79	8.50	9.21	9.92	11.33	14.17	17.00	19.83	22.67
x 280	2.03	136	11.33	4.25	4.96	5.67	6.38	7.08	7.79	8.50	9.21	9.92	11.33	14.17	17.00	19.83	22.67
x 260	1.9	135	11.25	4.22	4.92	5.63	6.33	7.03	7.73	8.44	9.14	9.84	11.25	14.06	16.88	19.69	22.50
x 256	2.1	120	10.00	3.75	4.38	5.00	5.63	6.25	6.88	7.50	8.13	8.75	10.00	12.50	15.00	17.50	20.00
x 245	1.79	135	11.25	4.22	4.92	5.63	6.33	7.03	7.73	8.44	9.14	9.84	11.25	14.06	16.88	19.69	22.50
x 232	1.92	120	10.00	3.75	4.38	5.00	5.63	6.25	6.88	7.50	8.13	8.75	10.00	12.50	15.00	17.50	20.00
x 230	1.69	134	11.17	4.19	4.89	5.58	6.28	6.98	7.68	8.38	9.07	9.77	11.17	13.96	16.75	19.54	22.33
x 210	1.74	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 194	1.62	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 182	1.52	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 170	1.43	118	9.83	3.69	4.30	4.92	5.53	6.15	6.76	7.38	7.99	8.60	9.83	12.29	14.75	17.21	19.67
x 160	1.35	118	9.83	3.69	4.30	4.92	5.53	6.15	6.76	7.38	7.99	8.60	9.83	12.29	14.75	17.21	19.67
x 150	1.27	117	9.75	3.66	4.27	4.88	5.48	6.09	6.70	7.31	7.92	8.53	9.75	12.19	14.63	17.06	19.50
x 135	1.15	117	9.75	3.66	4.27	4.88	5.48	6.09	6.70	7.31	7.92	8.53	9.75	12.19	14.63	17.06	19.50
W 33 x 387	2.91	133	11.08	4.16	4.85	5.54	6.23	6.93	7.62	8.31	9.01	9.70	11.08	13.85	16.63	19.40	22.17
x 354	2.68	132	11.00	4.13	4.81	5.50	6.19	6.88	7.56	8.25	8.94	9.63	11.00	13.75	16.50	19.25	22.00
x 318	2.43	131	10.92	4.09	4.78	5.46	6.14	6.82	7.51	8.19	8.87	9.55	10.92	13.65	16.38	19.10	21.83
W33 x 291	2.24	130	10.83	4.06	4.74	5.42	6.09	6.77	7.45	8.13	8.80	9.48	10.83	13.54	16.25	18.96	21.67
x 263	2.04	129	10.75	4.03	4.70	5.38	6.05	6.72	7.39	8.06	8.73	9.41	10.75	13.44	16.13	18.81	21.50
x 241	1.87	129	10.75	4.03	4.70	5.38	6.05	6.72	7.39	8.06	8.73	9.41	10.75	13.44	16.13	18.81	21.50
x 221	1.73	128	10.67	4.00	4.67	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.67	13.33	16.00	18.67	21.33
x 201	1.58	127	10.58	3.97	4.63	5.29	5.95	6.61	7.28	7.94	8.60	9.26	10.58	13.23	15.88	18.52	21.17

COLUMN BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 169	1.52	111	9.25	3.47	4.05	4.63	5.20	5.78	6.36	6.94	7.52	8.09	9.25	11.56	13.88	16.19	18.50
x 152	1.37	111	9.25	3.47	4.05	4.63	5.20	5.78	6.36	6.94	7.52	8.09	9.25	11.56	13.88	16.19	18.50
x 141	1.28	110	9.17	3.44	4.01	4.58	5.16	5.73	6.30	6.88	7.45	8.02	9.17	11.46	13.75	16.04	18.33
x 130	1.18	110	9.17	3.44	4.01	4.58	5.16	5.73	6.30	6.88	7.45	8.02	9.17	11.46	13.75	16.04	18.33
x 118	1.08	109	9.08	3.41	3.97	4.54	5.11	5.68	6.24	6.81	7.38	7.95	9.08	11.35	13.63	15.90	18.17
W 30 x 477	3.71	128	10.67	4.00	4.67	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.67	13.33	16.00	18.67	21.33
x 391	3.13	125	10.42	3.91	4.56	5.21	5.86	6.51	7.16	7.81	8.46	9.11	10.42	13.02	15.63	18.23	20.83
x 357	2.88	124	10.33	3.88	4.52	5.17	5.81	6.46	7.10	7.75	8.40	9.04	10.33	12.92	15.50	18.08	20.67
x 326	2.65	123	10.25	3.84	4.48	5.13	5.77	6.41	7.05	7.69	8.33	8.97	10.25	12.81	15.38	17.94	20.50
x 292	2.39	122	10.17	3.81	4.45	5.08	5.72	6.35	6.99	7.63	8.26	8.90	10.17	12.71	15.25	17.79	20.33
x 261	2.16	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
x 235	1.96	120	10.00	3.75	4.38	5.00	5.63	6.25	6.88	7.50	8.13	8.75	10.00	12.50	15.00	17.50	20.00
x 211	1.76	120	10.00	3.75	4.38	5.00	5.63	6.25	6.88	7.50	8.13	8.75	10.00	12.50	15.00	17.50	20.00
x 191	1.62	118	9.83	3.69	4.30	4.92	5.53	6.15	6.76	7.38	7.99	8.60	9.83	12.29	14.75	17.21	19.67
x 173	1.45	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 148	1.47	101	8.42	3.16	3.68	4.21	4.73	5.26	5.79	6.31	6.84	7.36	8.42	10.52	12.63	14.73	16.83
x 132	1.32	100	8.33	3.13	3.65	4.17	4.69	5.21	5.73	6.25	6.77	7.29	8.33	10.42	12.50	14.58	16.67
x 124	1.24	99.8	8.32	3.12	3.64	4.16	4.68	5.20	5.72	6.24	6.76	7.28	8.32	10.40	12.48	14.55	16.63
x 116	1.16	99.6	8.30	3.11	3.63	4.15	4.67	5.19	5.71	6.23	6.74	7.26	8.30	10.38	12.45	14.53	16.60
x 108	1.09	99.4	8.28	3.11	3.62	4.14	4.66	5.18	5.69	6.21	6.73	7.25	8.28	10.35	12.43	14.50	16.57
x 99	1	99	8.25	3.09	3.61	4.13	4.64	5.16	5.67	6.19	6.70	7.22	8.25	10.31	12.38	14.44	16.50
x 90	0.915	98.4	8.20	3.08	3.59	4.10	4.61	5.13	5.64	6.15	6.66	7.18	8.20	10.25	12.30	14.35	16.40
W 27 x 539	4.45	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
x 448	3.76	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 368	3.17	116	9.67	3.63	4.23	4.83	5.44	6.04	6.65	7.25	7.85	8.46	9.67	12.08	14.50	16.92	19.33
x 336	2.92	115	9.58	3.59	4.19	4.79	5.39	5.99	6.59	7.19	7.79	8.39	9.58	11.98	14.38	16.77	19.17
x 307	2.72	113	9.42	3.53	4.12	4.71	5.30	5.89	6.47	7.06	7.65	8.24	9.42	11.77	14.13	16.48	18.83
x 281	2.49	113	9.42	3.53	4.12	4.71	5.30	5.89	6.47	7.06	7.65	8.24	9.42	11.77	14.13	16.48	18.83
x 258	2.3	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67
x 235	2.12	111	9.25	3.47	4.05	4.63	5.20	5.78	6.36	6.94	7.52	8.09	9.25	11.56	13.88	16.19	18.50
x 217	1.97	110	9.17	3.44	4.01	4.58	5.16	5.73	6.30	6.88	7.45	8.02	9.17	11.46	13.75	16.04	18.33
x 194	1.76	110	9.17	3.44	4.01	4.58	5.16	5.73	6.30	6.88	7.45	8.02	9.17	11.46	13.75	16.04	18.33
x 178	1.63	109	9.08	3.41	3.97	4.54	5.11	5.68	6.24	6.81	7.38	7.95	9.08	11.35	13.63	15.90	18.17
x 161	1.48	109	9.08	3.41	3.97	4.54	5.11	5.68	6.24	6.81	7.38	7.95	9.08	11.35	13.63	15.90	18.17
x 146	1.35	108	9.00	3.38	3.94	4.50	5.06	5.63	6.19	6.75	7.31	7.88	9.00	11.25	13.50	15.75	18.00
W 24 x 129	1.39	92.8	7.73	2.90	3.38	3.87	4.35	4.83	5.32	5.80	6.28	6.77	7.73	9.67	11.60	13.53	15.47
x 114	1.23	92.4	7.70	2.89	3.37	3.85	4.33	4.81	5.29	5.78	6.26	6.74	7.70	9.63	11.55	13.48	15.40
x 102	1.11	92.1	7.68	2.88	3.36	3.84	4.32	4.80	5.28	5.76	6.24	6.72	7.68	9.59	11.51	13.43	15.35
x 94	1.03	91.5	7.63	2.86	3.34	3.81	4.29	4.77	5.24	5.72	6.20	6.67	7.63	9.53	11.44	13.34	15.25
x 84	0.921	91.2	7.60	2.85	3.33	3.80	4.28	4.75	5.23	5.70	6.18	6.65	7.60	9.50	11.40	13.30	15.20
x 492	4.4	111	9.25	3.47	4.05	4.63	5.20	5.78	6.36	6.94	7.52	8.09	9.25	11.56	13.88	16.19	18.50
x 408	3.74	108	9.00	3.38	3.94	4.50	5.06	5.63	6.19	6.75	7.31	7.88	9.00	11.25	13.50	15.75	18.00
x 370	3.46	107	8.92	3.34	3.90	4.46	5.02	5.57	6.13	6.69	7.24	7.80	8.92	11.15	13.38	15.60	17.83
x 335	3.19	105	8.75	3.28	3.83	4.38	4.92	5.47	6.02	6.56	7.11	7.66	8.75	10.94	13.13	15.31	17.50
x 306	2.94	104	8.67	3.25	3.79	4.33	4.88	5.42	5.96	6.50	7.04	7.58	8.67	10.83	13.00	15.17	17.33
x 279	2.71	103	8.58	3.22	3.76	4.29	4.83	5.36	5.90	6.44	6.97	7.51	8.58	10.73	12.88	15.02	17.17
x 250	2.45	102	8.50	3.19	3.72	4.25	4.78	5.31	5.84	6.38	6.91	7.44	8.50	10.63	12.75	14.88	17.00
x 229	2.27	101	8.42	3.16	3.68	4.21	4.73	5.26	5.79	6.31	6.84	7.36	8.42	10.52	12.63	14.73	16.83
x 207	2.05	101	8.42	3.16	3.68	4.21	4.73	5.26	5.79	6.31	6.84	7.36	8.42	10.52	12.63	14.73	16.83
W24 x 192	1.92	100	8.33	3.13	3.65	4.17	4.69	5.21	5.73	6.25	6.77	7.29	8.33	10.42	12.50	14.58	16.67
x 176	1.77	99.4	8.28	3.11	3.62	4.14	4.66	5.18	5.69	6.21	6.73	7.25	8.28	10.35	12.43	14.50	16.57
x 162	1.63	99.3	8.28	3.10	3.62	4.14	4.65	5.17	5.69	6.21	6.72	7.24	8.28	10.34	12.41	14.48	16.55
x 146	1.48	98.7	8.23	3.08	3.60	4.11	4.63	5.14	5.65	6.17	6.68	7.20	8.23	10.28	12.34	14.39	16.45
x 131	1.33	98.2	8.18	3.07	3.58	4.09	4.60	5.11	5.63	6.14	6.65	7.16	8.18	10.23	12.28	14.32	16.37
x 117	1.2	97.3	8.11	3.04	3.55	4.05	4.56	5.07	5.57	6.08	6.59	7.09	8.11	10.14	12.16	14.19	16.22
x 104	1.07	96.9	8.08	3.03	3.53	4.04	4.54	5.05	5.55	6.06	6.56	7.07	8.08	10.09	12.11	14.13	16.15
x 103	1.25	82.5	6.88	2.58	3.01	3.44	3.87	4.30	4.73	5.16	5.59	6.02	6.88	8.59	10.31	12.03	13.75
x 94	1.14	82.5	6.88	2.58	3.01	3.44	3.87	4.30	4.73	5.16	5.59	6.02	6.88	8.59	10.31	12.03	13.75
x 84	1.02	82.2	6.85	2.57	3.00	3.43	3.85	4.28	4.71	5.14	5.57	5.99	6.85	8.56	10.28	11.99	13.70

COLUMN BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 76	0.933	81.5	6.79	2.55	2.97	3.40	3.82	4.24	4.67	5.09	5.52	5.94	6.79	8.49	10.19	11.89	13.58
x 68	0.837	81.2	6.77	2.54	2.96	3.38	3.81	4.23	4.65	5.08	5.50	5.92	6.77	8.46	10.15	11.84	13.53
x 62	0.844	73.5	6.13	2.30	2.68	3.06	3.45	3.83	4.21	4.59	4.98	5.36	6.13	7.66	9.19	10.72	12.25
x 55	0.749	73.4	6.12	2.29	2.68	3.06	3.44	3.82	4.21	4.59	4.97	5.35	6.12	7.65	9.18	10.70	12.23
W 21 x 201	2.16	93.1	7.76	2.91	3.39	3.88	4.36	4.85	5.33	5.82	6.30	6.79	7.76	9.70	11.64	13.58	15.52
x 182	1.97	92.5	7.71	2.89	3.37	3.85	4.34	4.82	5.30	5.78	6.26	6.74	7.71	9.64	11.56	13.49	15.42
x 166	1.81	91.9	7.66	2.87	3.35	3.83	4.31	4.79	5.27	5.74	6.22	6.70	7.66	9.57	11.49	13.40	15.32
x 147	1.61	91.2	7.60	2.85	3.33	3.80	4.28	4.75	5.23	5.70	6.18	6.65	7.60	9.50	11.40	13.30	15.20
x 132	1.45	90.9	7.58	2.84	3.31	3.79	4.26	4.73	5.21	5.68	6.15	6.63	7.58	9.47	11.36	13.26	15.15
x 122	1.35	90.3	7.53	2.82	3.29	3.76	4.23	4.70	5.17	5.64	6.11	6.58	7.53	9.41	11.29	13.17	15.05
x 111	1.24	89.7	7.48	2.80	3.27	3.74	4.20	4.67	5.14	5.61	6.07	6.54	7.48	9.34	11.21	13.08	14.95
x 101	1.13	89.7	7.48	2.80	3.27	3.74	4.20	4.67	5.14	5.61	6.07	6.54	7.48	9.34	11.21	13.08	14.95
x 93	1.24	74.8	6.23	2.34	2.73	3.12	3.51	3.90	4.29	4.68	5.06	5.45	6.23	7.79	9.35	10.91	12.47
x 83	1.12	74.2	6.18	2.32	2.71	3.09	3.48	3.86	4.25	4.64	5.02	5.41	6.18	7.73	9.28	10.82	12.37
x 73	0.989	73.8	6.15	2.31	2.69	3.08	3.46	3.84	4.23	4.61	5.00	5.38	6.15	7.69	9.23	10.76	12.30
x 68	0.926	73.4	6.12	2.29	2.68	3.06	3.44	3.82	4.21	4.59	4.97	5.35	6.12	7.65	9.18	10.70	12.23
x 62	0.846	73.3	6.11	2.29	2.67	3.05	3.44	3.82	4.20	4.58	4.96	5.34	6.11	7.64	9.16	10.69	12.22
x 57	0.857	66.5	5.54	2.08	2.42	2.77	3.12	3.46	3.81	4.16	4.50	4.85	5.54	6.93	8.31	9.70	11.08
x 50	0.754	66.3	5.53	2.07	2.42	2.76	3.11	3.45	3.80	4.14	4.49	4.83	5.53	6.91	8.29	9.67	11.05
x 44	0.672	65.5	5.46	2.05	2.39	2.73	3.07	3.41	3.75	4.09	4.43	4.78	5.46	6.82	8.19	9.55	10.92
W 18 x 311	3.47	89.6	7.47	2.80	3.27	3.73	4.20	4.67	5.13	5.60	6.07	6.53	7.47	9.33	11.20	13.07	14.93
x 283	3.2	88.4	7.37	2.76	3.22	3.68	4.14	4.60	5.06	5.53	5.99	6.45	7.37	9.21	11.05	12.89	14.73
x 258	2.95	87.4	7.28	2.73	3.19	3.64	4.10	4.55	5.01	5.46	5.92	6.37	7.28	9.10	10.93	12.75	14.57
x 234	2.71	86.4	7.20	2.70	3.15	3.60	4.05	4.50	4.95	5.40	5.85	6.30	7.20	9.00	10.80	12.60	14.40
x 211	2.47	85.4	7.12	2.67	3.11	3.56	4.00	4.45	4.89	5.34	5.78	6.23	7.12	8.90	10.68	12.45	14.23
x 192	2.27	84.6	7.05	2.64	3.08	3.53	3.97	4.41	4.85	5.29	5.73	6.17	7.05	8.81	10.58	12.34	14.10
x 175	2.12	82.5	6.88	2.58	3.01	3.44	3.87	4.30	4.73	5.16	5.59	6.02	6.88	8.59	10.31	12.03	13.75
x 158	1.93	81.8	6.82	2.56	2.98	3.41	3.83	4.26	4.69	5.11	5.54	5.96	6.82	8.52	10.23	11.93	13.63
x 143	1.77	81	6.75	2.53	2.95	3.38	3.80	4.22	4.64	5.06	5.48	5.91	6.75	8.44	10.13	11.81	13.50
x 130	1.61	80.5	6.71	2.52	2.93	3.35	3.77	4.19	4.61	5.03	5.45	5.87	6.71	8.39	10.06	11.74	13.42
x 119	1.48	80.5	6.71	2.52	2.93	3.35	3.77	4.19	4.61	5.03	5.45	5.87	6.71	8.39	10.06	11.74	13.42
x 106	1.33	79.8	6.65	2.49	2.91	3.33	3.74	4.16	4.57	4.99	5.40	5.82	6.65	8.31	9.98	11.64	13.30
x 97	1.22	79.2	6.60	2.48	2.89	3.30	3.71	4.13	4.54	4.95	5.36	5.78	6.60	8.25	9.90	11.55	13.20
x 86	1.09	78.9	6.58	2.47	2.88	3.29	3.70	4.11	4.52	4.93	5.34	5.75	6.58	8.22	9.86	11.51	13.15
x 76	0.971	78.3	6.53	2.45	2.85	3.26	3.67	4.08	4.49	4.89	5.30	5.71	6.53	8.16	9.79	11.42	13.05
x 71	1.08	65.6	5.47	2.05	2.39	2.73	3.08	3.42	3.76	4.10	4.44	4.78	5.47	6.83	8.20	9.57	10.93
x 65	0.997	65.2	5.43	2.04	2.38	2.72	3.06	3.40	3.74	4.08	4.41	4.75	5.43	6.79	8.15	9.51	10.87
x 60	0.923	65	5.42	2.03	2.37	2.71	3.05	3.39	3.72	4.06	4.40	4.74	5.42	6.77	8.13	9.48	10.83
x 55	0.85	64.7	5.39	2.02	2.36	2.70	3.03	3.37	3.71	4.04	4.38	4.72	5.39	6.74	8.09	9.44	10.78
x 50	0.778	64.3	5.36	2.01	2.34	2.68	3.01	3.35	3.68	4.02	4.35	4.69	5.36	6.70	8.04	9.38	10.72
W 18 x 46	0.786	58.5	4.88	1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.88	6.09	7.31	8.53	9.75
x 40	0.688	58.1	4.84	1.82	2.12	2.42	2.72	3.03	3.33	3.63	3.93	4.24	4.84	6.05	7.26	8.47	9.68
x 35	0.602	58.1	4.84	1.82	2.12	2.42	2.72	3.03	3.33	3.63	3.93	4.24	4.84	6.05	7.26	8.47	9.68
W 16 x 100	1.37	73.1	6.09	2.28	2.67	3.05	3.43	3.81	4.19	4.57	4.95	5.33	6.09	7.61	9.14	10.66	12.18
x 89	1.22	72.8	6.07	2.28	2.65	3.03	3.41	3.79	4.17	4.55	4.93	5.31	6.07	7.58	9.10	10.62	12.13
x 77	1.07	71.9	5.99	2.25	2.62	3.00	3.37	3.74	4.12	4.49	4.87	5.24	5.99	7.49	8.99	10.49	11.98
x 67	0.936	71.6	5.97	2.24	2.61	2.98	3.36	3.73	4.10	4.48	4.85	5.22	5.97	7.46	8.95	10.44	11.93
x 57	0.963	59.2	4.93	1.85	2.16	2.47	2.78	3.08	3.39	3.70	4.01	4.32	4.93	6.17	7.40	8.63	9.87
x 50	0.846	59.1	4.93	1.85	2.15	2.46	2.77	3.08	3.39	3.69	4.00	4.31	4.93	6.16	7.39	8.62	9.85
x 45	0.767	58.7	4.89	1.83	2.14	2.45	2.75	3.06	3.36	3.67	3.97	4.28	4.89	6.11	7.34	8.56	9.78
x 40	0.686	58.3	4.86	1.82	2.13	2.43	2.73	3.04	3.34	3.64	3.95	4.25	4.86	6.07	7.29	8.50	9.72
x 36	0.617	58.3	4.86	1.82	2.13	2.43	2.73	3.04	3.34	3.64	3.95	4.25	4.86	6.07	7.29	8.50	9.72
x 31	0.592	52.4	4.37	1.64	1.91	2.18	2.46	2.73	3.00	3.28	3.55	3.82	4.37	5.46	6.55	7.64	8.73
x 26	0.499	52.1	4.34	1.63	1.90	2.17	2.44	2.71	2.98	3.26	3.53	3.80	4.34	5.43	6.51	7.60	8.68
W 14 x 808	7.28	111	9.25	3.47	4.05	4.63	5.20	5.78	6.36	6.94	7.52	8.09	9.25	11.56	13.88	16.19	18.50
x 730	6.76	108	9.00	3.38	3.94	4.50	5.06	5.63	6.19	6.75	7.31	7.88	9.00	11.25	13.50	15.75	18.00
x 665	6.21	107	8.92	3.34	3.90	4.46	5.02	5.57	6.13	6.69	7.24	7.80	8.92	11.15	13.38	15.60	17.83
x 605	5.82	104	8.67	3.25	3.79	4.33	4.88	5.42	5.96	6.50	7.04	7.58	8.67	10.83	13.00	15.17	17.33
x 550	5.34	103	8.58	3.22	3.76	4.29	4.83	5.36	5.90	6.44	6.97	7.51	8.58	10.73	12.88	15.02	17.17

COLUMN BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 500	4.95	101	8.42	3.16	3.68	4.21	4.73	5.26	5.79	6.31	6.84	7.36	8.42	10.52	12.63	14.73	16.83
x 455	4.59	99.1	8.26	3.10	3.61	4.13	4.65	5.16	5.68	6.19	6.71	7.23	8.26	10.32	12.39	14.45	16.52
x 426	4.32	98.5	8.21	3.08	3.59	4.10	4.62	5.13	5.64	6.16	6.67	7.18	8.21	10.26	12.31	14.36	16.42
x 398	4.09	97.3	8.11	3.04	3.55	4.05	4.56	5.07	5.57	6.08	6.59	7.09	8.11	10.14	12.16	14.19	16.22
x 370	3.84	96.4	8.03	3.01	3.51	4.02	4.52	5.02	5.52	6.03	6.53	7.03	8.03	10.04	12.05	14.06	16.07
x 342	3.58	95.5	7.96	2.98	3.48	3.98	4.48	4.97	5.47	5.97	6.47	6.96	7.96	9.95	11.94	13.93	15.92
x 311	3.3	94.3	7.86	2.95	3.44	3.93	4.42	4.91	5.40	5.89	6.38	6.88	7.86	9.82	11.79	13.75	15.72
x 283	3.03	93.4	7.78	2.92	3.41	3.89	4.38	4.86	5.35	5.84	6.32	6.81	7.78	9.73	11.68	13.62	15.57
x 257	2.78	92.5	7.71	2.89	3.37	3.85	4.34	4.82	5.30	5.78	6.26	6.74	7.71	9.64	11.56	13.49	15.42
x 233	2.55	91.5	7.63	2.86	3.34	3.81	4.29	4.77	5.24	5.72	6.20	6.67	7.63	9.53	11.44	13.34	15.25
x 211	2.32	91	7.58	2.84	3.32	3.79	4.27	4.74	5.21	5.69	6.16	6.64	7.58	9.48	11.38	13.27	15.17
x 193	2.14	90	7.50	2.81	3.28	3.75	4.22	4.69	5.16	5.63	6.09	6.56	7.50	9.38	11.25	13.13	15.00
x 176	1.96	89.8	7.48	2.81	3.27	3.74	4.21	4.68	5.14	5.61	6.08	6.55	7.48	9.35	11.23	13.10	14.97
x 159	1.78	89.1	7.43	2.78	3.25	3.71	4.18	4.64	5.10	5.57	6.03	6.50	7.43	9.28	11.14	12.99	14.85
x 145	1.64	88.2	7.35	2.76	3.22	3.68	4.13	4.59	5.05	5.51	5.97	6.43	7.35	9.19	11.03	12.86	14.70
x 132	1.56	84.7	7.06	2.65	3.09	3.53	3.97	4.41	4.85	5.29	5.73	6.18	7.06	8.82	10.59	12.35	14.12
x 120	1.42	84.8	7.07	2.65	3.09	3.53	3.98	4.42	4.86	5.30	5.74	6.18	7.07	8.83	10.60	12.37	14.13
x 109	1.29	84.2	7.02	2.63	3.07	3.51	3.95	4.39	4.82	5.26	5.70	6.14	7.02	8.77	10.53	12.28	14.03
x 99	1.18	83.8	6.98	2.62	3.06	3.49	3.93	4.36	4.80	5.24	5.67	6.11	6.98	8.73	10.48	12.22	13.97
x 90	1.08	83.2	6.93	2.60	3.03	3.47	3.90	4.33	4.77	5.20	5.63	6.07	6.93	8.67	10.40	12.13	13.87
x 82	1.23	66.6	5.55	2.08	2.43	2.78	3.12	3.47	3.82	4.16	4.51	4.86	5.55	6.94	8.33	9.71	11.10
x 74	1.12	66.3	5.53	2.07	2.42	2.76	3.11	3.45	3.80	4.14	4.49	4.83	5.53	6.91	8.29	9.67	11.05
x 68	1.04	65.7	5.48	2.05	2.40	2.74	3.08	3.42	3.76	4.11	4.45	4.79	5.48	6.84	8.21	9.58	10.95
x 61	0.928	65.7	5.48	2.05	2.40	2.74	3.08	3.42	3.76	4.11	4.45	4.79	5.48	6.84	8.21	9.58	10.95
x 53	0.915	57.9	4.83	1.81	2.11	2.41	2.71	3.02	3.32	3.62	3.92	4.22	4.83	6.03	7.24	8.44	9.65
x 48	0.835	57.5	4.79	1.80	2.10	2.40	2.70	2.99	3.29	3.59	3.89	4.19	4.79	5.99	7.19	8.39	9.58
x 43	0.752	57.2	4.77	1.79	2.09	2.38	2.68	2.98	3.28	3.58	3.87	4.17	4.77	5.96	7.15	8.34	9.53
x 38	0.706	53.8	4.48	1.68	1.96	2.24	2.52	2.80	3.08	3.36	3.64	3.92	4.48	5.60	6.73	7.85	8.97
x 34	0.633	53.7	4.48	1.68	1.96	2.24	2.52	2.80	3.08	3.36	3.64	3.92	4.48	5.59	6.71	7.83	8.95
x 30	0.562	53.4	4.45	1.67	1.95	2.23	2.50	2.78	3.06	3.34	3.62	3.89	4.45	5.56	6.68	7.79	8.90
x 26	0.559	46.5	3.88	1.45	1.70	1.94	2.18	2.42	2.66	2.91	3.15	3.39	3.88	4.84	5.81	6.78	7.75
x 22	0.476	46.2	3.85	1.44	1.68	1.93	2.17	2.41	2.65	2.89	3.13	3.37	3.85	4.81	5.78	6.74	7.70
W 12 x 336	4.06	82.7	6.89	2.58	3.02	3.45	3.88	4.31	4.74	5.17	5.60	6.03	6.89	8.61	10.34	12.06	13.78
W 12 x 305	3.76	81.1	6.76	2.53	2.96	3.38	3.80	4.22	4.65	5.07	5.49	5.91	6.76	8.45	10.14	11.83	13.52
x 279	3.5	79.7	6.64	2.49	2.91	3.32	3.74	4.15	4.57	4.98	5.40	5.81	6.64	8.30	9.96	11.62	13.28
x 252	3.2	78.7	6.56	2.46	2.87	3.28	3.69	4.10	4.51	4.92	5.33	5.74	6.56	8.20	9.84	11.48	13.12
x 230	2.96	77.6	6.47	2.43	2.83	3.23	3.64	4.04	4.45	4.85	5.25	5.66	6.47	8.08	9.70	11.32	12.93
x 210	2.73	77	6.42	2.41	2.81	3.21	3.61	4.01	4.41	4.81	5.21	5.61	6.42	8.02	9.63	11.23	12.83
x 190	2.5	76.1	6.34	2.38	2.77	3.17	3.57	3.96	4.36	4.76	5.15	5.55	6.34	7.93	9.51	11.10	12.68
x 170	2.26	75.2	6.27	2.35	2.74	3.13	3.53	3.92	4.31	4.70	5.09	5.48	6.27	7.83	9.40	10.97	12.53
x 152	2.04	74.6	6.22	2.33	2.72	3.11	3.50	3.89	4.27	4.66	5.05	5.44	6.22	7.77	9.33	10.88	12.43
x 136	1.86	73.3	6.11	2.29	2.67	3.05	3.44	3.82	4.20	4.58	4.96	5.34	6.11	7.64	9.16	10.69	12.22
x 120	1.65	72.7	6.06	2.27	2.65	3.03	3.41	3.79	4.17	4.54	4.92	5.30	6.06	7.57	9.09	10.60	12.12
x 106	1.47	72.1	6.01	2.25	2.63	3.00	3.38	3.76	4.13	4.51	4.88	5.26	6.01	7.51	9.01	10.51	12.02
x 96	1.34	71.9	5.99	2.25	2.62	3.00	3.37	3.74	4.12	4.49	4.87	5.24	5.99	7.49	8.99	10.49	11.98
x 87	1.22	71.2	5.93	2.23	2.60	2.97	3.34	3.71	4.08	4.45	4.82	5.19	5.93	7.42	8.90	10.38	11.87
x 79	1.11	70.9	5.91	2.22	2.58	2.95	3.32	3.69	4.06	4.43	4.80	5.17	5.91	7.39	8.86	10.34	11.82
x 72	1.02	70.3	5.86	2.20	2.56	2.93	3.30	3.66	4.03	4.39	4.76	5.13	5.86	7.32	8.79	10.25	11.72
x 65	0.925	70.3	5.86	2.20	2.56	2.93	3.30	3.66	4.03	4.39	4.76	5.13	5.86	7.32	8.79	10.25	11.72
x 58	0.925	62.7	5.23	1.96	2.29	2.61	2.94	3.27	3.59	3.92	4.25	4.57	5.23	6.53	7.84	9.14	10.45
x 53	0.855	62	5.17	1.94	2.26	2.58	2.91	3.23	3.55	3.88	4.20	4.52	5.17	6.46	7.75	9.04	10.33
x 50	0.909	55	4.58	1.72	2.01	2.29	2.58	2.86	3.15	3.44	3.72	4.01	4.58	5.73	6.88	8.02	9.17
x 45	0.829	54.3	4.53	1.70	1.98	2.26	2.55	2.83	3.11	3.39	3.68	3.96	4.53	5.66	6.79	7.92	9.05
x 40	0.734	54.5	4.54	1.70	1.99	2.27	2.55	2.84	3.12	3.41	3.69	3.97	4.54	5.68	6.81	7.95	9.08
x 35	0.703	49.8	4.15	1.56	1.82	2.08	2.33	2.59	2.85	3.11	3.37	3.63	4.15	5.19	6.23	7.26	8.30
x 30	0.607	49.4	4.12	1.54	1.80	2.06	2.32	2.57	2.83	3.09	3.34	3.60	4.12	5.15	6.18	7.20	8.23
x 26	0.531	49	4.08	1.53	1.79	2.04	2.30	2.55	2.81	3.06	3.32	3.57	4.08	5.10	6.13	7.15	8.17
x 22	0.56	39.3	3.28	1.23	1.43	1.64	1.84	2.05	2.25	2.46	2.66	2.87	3.28	4.09	4.91	5.73	6.55
x 19	0.485	39.2	3.27	1.23	1.43	1.63	1.84	2.04	2.25	2.45	2.65	2.86	3.27	4.08	4.90	5.72	6.53

carboline®
Coatings - Linings - Fireproofing

COLUMN BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 16	0.41	39	3.25	1.22	1.42	1.63	1.83	2.03	2.23	2.44	2.64	2.84	3.25	4.06	4.88	5.69	6.50
x 14	0.363	38.6	3.22	1.21	1.41	1.61	1.81	2.01	2.21	2.41	2.61	2.81	3.22	4.02	4.83	5.63	6.43
W 10 x 112	1.81	61.9	5.16	1.93	2.26	2.58	2.90	3.22	3.55	3.87	4.19	4.51	5.16	6.45	7.74	9.03	10.32
x 100	1.64	61	5.08	1.91	2.22	2.54	2.86	3.18	3.49	3.81	4.13	4.45	5.08	6.35	7.63	8.90	10.17
x 88	1.45	60.8	5.07	1.90	2.22	2.53	2.85	3.17	3.48	3.80	4.12	4.43	5.07	6.33	7.60	8.87	10.13
x 77	1.28	60.1	5.01	1.88	2.19	2.50	2.82	3.13	3.44	3.76	4.07	4.38	5.01	6.26	7.51	8.76	10.02
x 68	1.15	59.2	4.93	1.85	2.16	2.47	2.78	3.08	3.39	3.70	4.01	4.32	4.93	6.17	7.40	8.63	9.87
x 60	1.01	59.2	4.93	1.85	2.16	2.47	2.78	3.08	3.39	3.70	4.01	4.32	4.93	6.17	7.40	8.63	9.87
x 54	0.922	58.6	4.88	1.83	2.14	2.44	2.75	3.05	3.36	3.66	3.97	4.27	4.88	6.10	7.33	8.55	9.77
x 49	0.84	58.3	4.86	1.82	2.13	2.43	2.73	3.04	3.34	3.64	3.95	4.25	4.86	6.07	7.29	8.50	9.72
x 45	0.888	50.7	4.23	1.58	1.85	2.11	2.38	2.64	2.90	3.17	3.43	3.70	4.23	5.28	6.34	7.39	8.45
x 39	0.78	50	4.17	1.56	1.82	2.08	2.34	2.60	2.86	3.13	3.39	3.65	4.17	5.21	6.25	7.29	8.33
x 33	0.661	49.9	4.16	1.56	1.82	2.08	2.34	2.60	2.86	3.12	3.38	3.64	4.16	5.20	6.24	7.28	8.32
x 30	0.699	42.9	3.58	1.34	1.56	1.79	2.01	2.23	2.46	2.68	2.90	3.13	3.58	4.47	5.36	6.26	7.15
x 26	0.612	42.5	3.54	1.33	1.55	1.77	1.99	2.21	2.43	2.66	2.88	3.10	3.54	4.43	5.31	6.20	7.08
x 22	0.523	42.1	3.51	1.32	1.53	1.75	1.97	2.19	2.41	2.63	2.85	3.07	3.51	4.39	5.26	6.14	7.02
x 19	0.538	35.3	2.94	1.10	1.29	1.47	1.65	1.84	2.02	2.21	2.39	2.57	2.94	3.68	4.41	5.15	5.88
x 17	0.482	35.3	2.94	1.10	1.29	1.47	1.65	1.84	2.02	2.21	2.39	2.57	2.94	3.68	4.41	5.15	5.88
x 15	0.429	35	2.92	1.09	1.28	1.46	1.64	1.82	2.01	2.19	2.37	2.55	2.92	3.65	4.38	5.10	5.83
x 12	0.347	34.6	2.88	1.08	1.26	1.44	1.62	1.80	1.98	2.16	2.34	2.52	2.88	3.60	4.33	5.05	5.77
W 8 x 67	1.37	48.9	4.08	1.53	1.78	2.04	2.29	2.55	2.80	3.06	3.31	3.57	4.08	5.09	6.11	7.13	8.15
x 58	1.2	48.5	4.04	1.52	1.77	2.02	2.27	2.53	2.78	3.03	3.28	3.54	4.04	5.05	6.06	7.07	8.08
x 48	1	47.8	3.98	1.49	1.74	1.99	2.24	2.49	2.74	2.99	3.24	3.49	3.98	4.98	5.98	6.97	7.97
x 40	0.849	47.1	3.93	1.47	1.72	1.96	2.21	2.45	2.70	2.94	3.19	3.43	3.93	4.91	5.89	6.87	7.85
x 35	0.749	46.7	3.89	1.46	1.70	1.95	2.19	2.43	2.68	2.92	3.16	3.41	3.89	4.86	5.84	6.81	7.78
x 31	0.665	46.6	3.88	1.46	1.70	1.94	2.18	2.43	2.67	2.91	3.16	3.40	3.88	4.85	5.83	6.80	7.77
W 8 x 28	0.688	40.7	3.39	1.27	1.48	1.70	1.91	2.12	2.33	2.54	2.76	2.97	3.39	4.24	5.09	5.94	6.78
x 24	0.591	40.6	3.38	1.27	1.48	1.69	1.90	2.11	2.33	2.54	2.75	2.96	3.38	4.23	5.08	5.92	6.77
x 21	0.577	36.4	3.03	1.14	1.33	1.52	1.71	1.90	2.09	2.28	2.46	2.65	3.03	3.79	4.55	5.31	6.07
x 18	0.499	36.1	3.01	1.13	1.32	1.50	1.69	1.88	2.07	2.26	2.44	2.63	3.01	3.76	4.51	5.26	6.02
x 15	0.481	31.2	2.60	0.98	1.14	1.30	1.46	1.63	1.79	1.95	2.11	2.28	2.60	3.25	3.90	4.55	5.20
x 13	0.421	30.9	2.58	0.97	1.13	1.29	1.45	1.61	1.77	1.93	2.09	2.25	2.58	3.22	3.86	4.51	5.15
x 10	0.327	30.6	2.55	0.96	1.12	1.28	1.43	1.59	1.75	1.91	2.07	2.23	2.55	3.19	3.83	4.46	5.10
W 6 x 25	0.696	35.9	2.99	1.12	1.31	1.50	1.68	1.87	2.06	2.24	2.43	2.62	2.99	3.74	4.49	5.24	5.98
x 20	0.563	35.5	2.96	1.11	1.29	1.48	1.66	1.85	2.03	2.22	2.40	2.59	2.96	3.70	4.44	5.18	5.92
x 16	0.584	27.4	2.28	0.86	1.00	1.14	1.28	1.43	1.57	1.71	1.86	2.00	2.28	2.85	3.43	4.00	4.57
x 15	0.431	34.8	2.90	1.09	1.27	1.45	1.63	1.81	1.99	2.18	2.36	2.54	2.90	3.63	4.35	5.08	5.80
x 12	0.448	26.8	2.23	0.84	0.98	1.12	1.26	1.40	1.54	1.68	1.81	1.95	2.23	2.79	3.35	3.91	4.47
x 9	0.338	26.6	2.22	0.83	0.97	1.11	1.25	1.39	1.52	1.66	1.80	1.94	2.22	2.77	3.33	3.88	4.43
x 8.5	0.32	26.6	2.22	0.83	0.97	1.11	1.25	1.39	1.52	1.66	1.80	1.94	2.22	2.77	3.33	3.88	4.43
W 5 x 19	0.644	29.5	2.46	0.92	1.08	1.23	1.38	1.54	1.69	1.84	2.00	2.15	2.46	3.07	3.69	4.30	4.92
x 16	0.55	29.1	2.43	0.91	1.06	1.21	1.36	1.52	1.67	1.82	1.97	2.12	2.43	3.03	3.64	4.24	4.85
W 4 x 13	0.556	23.4	1.95	0.73	0.85	0.98	1.10	1.22	1.34	1.46	1.58	1.71	1.95	2.44	2.93	3.41	3.90

BEAM BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
W 44 x 335	2.52	133	11.08	4.16	4.85	5.54	6.23	6.93	7.62	8.31	9.01	9.70	11.08	13.85	16.63	19.40	22.17
x 290	2.2	132	11.00	4.13	4.81	5.50	6.19	6.88	7.56	8.25	8.94	9.63	11.00	13.75	16.50	19.25	22.00
x 262	2	131	10.92	4.09	4.78	5.46	6.14	6.82	7.51	8.19	8.87	9.55	10.92	13.65	16.38	19.10	21.83
x 230	1.77	130	10.83	4.06	4.74	5.42	6.09	6.77	7.45	8.13	8.80	9.48	10.83	13.54	16.25	18.96	21.67
W 40 x 593	4.56	130	10.83	4.06	4.74	5.42	6.09	6.77	7.45	8.13	8.80	9.48	10.83	13.54	16.25	18.96	21.67
x 503	3.93	128	10.67	4.00	4.67	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.67	13.33	16.00	18.67	21.33
x 466	3.9	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 431	3.42	126	10.50	3.94	4.59	5.25	5.91	6.56	7.22	7.88	8.53	9.19	10.50	13.13	15.75	18.38	21.00
x 397	3.15	126	10.50	3.94	4.59	5.25	5.91	6.56	7.22	7.88	8.53	9.19	10.50	13.13	15.75	18.38	21.00
x 392	3.38	116	9.67	3.63	4.23	4.83	5.44	6.04	6.65	7.25	7.85	8.46	9.67	12.08	14.50	16.92	19.33
x 372	2.98	125	10.42	3.91	4.56	5.21	5.86	6.51	7.16	7.81	8.46	9.11	10.42	13.02	15.63	18.23	20.83
x 362	2.9	125	10.42	3.91	4.56	5.21	5.86	6.51	7.16	7.81	8.46	9.11	10.42	13.02	15.63	18.23	20.83
x 331	2.9	114	9.50	3.56	4.16	4.75	5.34	5.94	6.53	7.13	7.72	8.31	9.50	11.88	14.25	16.63	19.00
x 327	2.89	113	9.42	3.53	4.12	4.71	5.30	5.89	6.47	7.06	7.65	8.24	9.42	11.77	14.13	16.48	18.83
x 324	2.61	124	10.33	3.88	4.52	5.17	5.81	6.46	7.10	7.75	8.40	9.04	10.33	12.92	15.50	18.08	20.67
x 321	2.55	125	10.42	3.91	4.56	5.21	5.86	6.51	7.16	7.81	8.46	9.11	10.42	13.02	15.63	18.23	20.83
x 297	2.41	123	10.25	3.84	4.48	5.13	5.77	6.41	7.05	7.69	8.33	8.97	10.25	12.81	15.38	17.94	20.50
x 278	2.48	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67
x 277	2.25	123	10.25	3.84	4.48	5.13	5.77	6.41	7.05	7.69	8.33	8.97	10.25	12.81	15.38	17.94	20.50
x 264	2.36	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67
x 249	2.02	123	10.25	3.84	4.48	5.13	5.77	6.41	7.05	7.69	8.33	8.97	10.25	12.81	15.38	17.94	20.50
x 235	2.1	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67
x 215	1.76	122	10.17	3.81	4.45	5.08	5.72	6.35	6.99	7.63	8.26	8.90	10.17	12.71	15.25	17.79	20.33
x 211	1.9	111	9.25	3.47	4.05	4.63	5.20	5.78	6.36	6.94	7.52	8.09	9.25	11.56	13.88	16.19	18.50
x 199	1.64	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
x 183	1.66	110	9.17	3.44	4.01	4.58	5.16	5.73	6.30	6.88	7.45	8.02	9.17	11.46	13.75	16.04	18.33
x 174	1.42	122	10.17	3.81	4.45	5.08	5.72	6.35	6.99	7.63	8.26	8.90	10.17	12.71	15.25	17.79	20.33
x 167	1.53	109	9.08	3.41	3.97	4.54	5.11	5.68	6.24	6.81	7.38	7.95	9.08	11.35	13.63	15.90	18.17
x 149	1.37	109	9.08	3.41	3.97	4.54	5.11	5.68	6.24	6.81	7.38	7.95	9.08	11.35	13.63	15.90	18.17
W 36 x 848	6.32	134	11.17	4.19	4.89	5.58	6.28	6.98	7.68	8.38	9.07	9.77	11.17	13.96	16.75	19.54	22.33
x 798	6.09	131	10.92	4.09	4.78	5.46	6.14	6.82	7.51	8.19	8.87	9.55	10.92	13.65	16.38	19.10	21.83
x 650	5.08	128	10.67	4.00	4.67	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.67	13.33	16.00	18.67	21.33
x 527	4.22	125	10.42	3.91	4.56	5.21	5.86	6.51	7.16	7.81	8.46	9.11	10.42	13.02	15.63	18.23	20.83
x 439	3.57	123	10.25	3.84	4.48	5.13	5.77	6.41	7.05	7.69	8.33	8.97	10.25	12.81	15.38	17.94	20.50
x 393	3.25	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
x 359	2.97	121	10.08	3.78	4.41	5.04	5.67	6.30	6.93	7.56	8.19	8.82	10.08	12.60	15.13	17.65	20.17
x 328	2.73	120	10.00	3.75	4.38	5.00	5.63	6.25	6.88	7.50	8.13	8.75	10.00	12.50	15.00	17.50	20.00
x 300	2.5	120	10.00	3.75	4.38	5.00	5.63	6.25	6.88	7.50	8.13	8.75	10.00	12.50	15.00	17.50	20.00
x 280	2.35	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 260	2.18	119	9.92	3.72	4.34	4.96	5.58	6.20	6.82	7.44	8.06	8.68	9.92	12.40	14.88	17.35	19.83
x 256	2.37	108	9.00	3.38	3.94	4.50	5.06	5.63	6.19	6.75	7.31	7.88	9.00	11.25	13.50	15.75	18.00
x 245	2.08	118	9.83	3.69	4.30	4.92	5.53	6.15	6.76	7.38	7.99	8.60	9.83	12.29	14.75	17.21	19.67
x 232	2.15	108	9.00	3.38	3.94	4.50	5.06	5.63	6.19	6.75	7.31	7.88	9.00	11.25	13.50	15.75	18.00
x 230	1.95	118	9.83	3.69	4.30	4.92	5.53	6.15	6.76	7.38	7.99	8.60	9.83	12.29	14.75	17.21	19.67
x 210	1.96	107	8.92	3.34	3.90	4.46	5.02	5.57	6.13	6.69	7.24	7.80	8.92	11.15	13.38	15.60	17.83
x 194	1.81	107	8.92	3.34	3.90	4.46	5.02	5.57	6.13	6.69	7.24	7.80	8.92	11.15	13.38	15.60	17.83
x 182	1.72	106	8.83	3.31	3.86	4.42	4.97	5.52	6.07	6.63	7.18	7.73	8.83	11.04	13.25	15.46	17.67
x 170	1.6	106	8.83	3.31	3.86	4.42	4.97	5.52	6.07	6.63	7.18	7.73	8.83	11.04	13.25	15.46	17.67
x 160	1.51	106	8.83	3.31	3.86	4.42	4.97	5.52	6.07	6.63	7.18	7.73	8.83	11.04	13.25	15.46	17.67
x 150	1.43	105	8.75	3.28	3.83	4.38	4.92	5.47	6.02	6.56	7.11	7.66	8.75	10.94	13.13	15.31	17.50
x 135	1.29	105	8.75	3.28	3.83	4.38	4.92	5.47	6.02	6.56	7.11	7.66	8.75	10.94	13.13	15.31	17.50
W 33 x 387	3.31	117	9.75	3.66	4.27	4.88	5.48	6.09	6.70	7.31	7.92	8.53	9.75	12.19	14.63	17.06	19.50
x 354	3.05	116	9.67	3.63	4.23	4.83	5.44	6.04	6.65	7.25	7.85	8.46	9.67	12.08	14.50	16.92	19.33
x 318	2.77	115	9.58	3.59	4.19	4.79	5.39	5.99	6.59	7.19	7.79	8.39	9.58	11.98	14.38	16.77	19.17
W33 x 291	2.55	114	9.50	3.56	4.16	4.75	5.34	5.94	6.53	7.13	7.72	8.31	9.50	11.88	14.25	16.63	19.00
x 263	2.33	113	9.42	3.53	4.12	4.71	5.30	5.89	6.47	7.06	7.65	8.24	9.42	11.77	14.13	16.48	18.83
x 241	2.13	113	9.42	3.53	4.12	4.71	5.30	5.89	6.47	7.06	7.65	8.24	9.42	11.77	14.13	16.48	18.83
x 221	1.97	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67
x 201	1.79	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67

BEAM BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 169	1.7	99.6	8.30	3.11	3.63	4.15	4.67	5.19	5.71	6.23	6.74	7.26	8.30	10.38	12.45	14.53	16.60
x 152	1.53	99.3	8.28	3.10	3.62	4.14	4.65	5.17	5.69	6.21	6.72	7.24	8.28	10.34	12.41	14.48	16.55
x 141	1.43	98.4	8.20	3.08	3.59	4.10	4.61	5.13	5.64	6.15	6.66	7.18	8.20	10.25	12.30	14.35	16.40
x 130	1.32	98.3	8.19	3.07	3.58	4.10	4.61	5.12	5.63	6.14	6.66	7.17	8.19	10.24	12.29	14.34	16.38
x 118	1.21	97.8	8.15	3.06	3.57	4.08	4.58	5.09	5.60	6.11	6.62	7.13	8.15	10.19	12.23	14.26	16.30
W 30 x 477	4.23	112	9.33	3.50	4.08	4.67	5.25	5.83	6.42	7.00	7.58	8.17	9.33	11.67	14.00	16.33	18.67
x 391	3.59	109	9.08	3.41	3.97	4.54	5.11	5.68	6.24	6.81	7.38	7.95	9.08	11.35	13.63	15.90	18.17
x 357	3.31	108	9.00	3.38	3.94	4.50	5.06	5.63	6.19	6.75	7.31	7.88	9.00	11.25	13.50	15.75	18.00
x 326	3.05	107	8.92	3.34	3.90	4.46	5.02	5.57	6.13	6.69	7.24	7.80	8.92	11.15	13.38	15.60	17.83
x 292	2.73	107	8.92	3.34	3.90	4.46	5.02	5.57	6.13	6.69	7.24	7.80	8.92	11.15	13.38	15.60	17.83
x 261	2.46	106	8.83	3.31	3.86	4.42	4.97	5.52	6.07	6.63	7.18	7.73	8.83	11.04	13.25	15.46	17.67
x 235	2.24	105	8.75	3.28	3.83	4.38	4.92	5.47	6.02	6.56	7.11	7.66	8.75	10.94	13.13	15.31	17.50
x 211	2.01	105	8.75	3.28	3.83	4.38	4.92	5.47	6.02	6.56	7.11	7.66	8.75	10.94	13.13	15.31	17.50
x 191	1.85	103	8.58	3.22	3.76	4.29	4.83	5.36	5.90	6.44	6.97	7.51	8.58	10.73	12.88	15.02	17.17
x 173	1.66	104	8.67	3.25	3.79	4.33	4.88	5.42	5.96	6.50	7.04	7.58	8.67	10.83	13.00	15.17	17.33
x 148	1.64	90.3	7.53	2.82	3.29	3.76	4.23	4.70	5.17	5.64	6.11	6.58	7.53	9.41	11.29	13.17	15.05
x 132	1.47	89.5	7.46	2.80	3.26	3.73	4.20	4.66	5.13	5.59	6.06	6.53	7.46	9.32	11.19	13.05	14.92
x 124	1.39	89.3	7.44	2.79	3.26	3.72	4.19	4.65	5.12	5.58	6.05	6.51	7.44	9.30	11.16	13.02	14.88
x 116	1.3	89.1	7.43	2.78	3.25	3.71	4.18	4.64	5.10	5.57	6.03	6.50	7.43	9.28	11.14	12.99	14.85
x 108	1.21	88.9	7.41	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	7.41	9.26	11.11	12.96	14.82
x 99	1.12	88.5	7.38	2.77	3.23	3.69	4.15	4.61	5.07	5.53	5.99	6.45	7.38	9.22	11.06	12.91	14.75
x 90	1.02	88	7.33	2.75	3.21	3.67	4.13	4.58	5.04	5.50	5.96	6.42	7.33	9.17	11.00	12.83	14.67
W 27 x 539	5.08	106	8.83	3.31	3.86	4.42	4.97	5.52	6.07	6.63	7.18	7.73	8.83	11.04	13.25	15.46	17.67
x 448	4.29	104	8.67	3.25	3.79	4.33	4.88	5.42	5.96	6.50	7.04	7.58	8.67	10.83	13.00	15.17	17.33
x 368	3.64	101	8.42	3.16	3.68	4.21	4.73	5.26	5.79	6.31	6.84	7.36	8.42	10.52	12.63	14.73	16.83
x 336	3.33	100	8.33	3.13	3.65	4.17	4.69	5.21	5.73	6.25	6.77	7.29	8.33	10.42	12.50	14.58	16.67
x 307	3.11	98.8	8.23	3.09	3.60	4.12	4.63	5.15	5.66	6.18	6.69	7.20	8.23	10.29	12.35	14.41	16.47
x 281	2.86	98.2	8.18	3.07	3.58	4.09	4.60	5.11	5.63	6.14	6.65	7.16	8.18	10.23	12.28	14.32	16.37
x 258	2.64	97.7	8.14	3.05	3.56	4.07	4.58	5.09	5.60	6.11	6.62	7.12	8.14	10.18	12.21	14.25	16.28
x 235	2.43	96.6	8.05	3.02	3.52	4.03	4.53	5.03	5.53	6.04	6.54	7.04	8.05	10.06	12.08	14.09	16.10
x 217	2.26	96	8.00	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	8.00	10.00	12.00	14.00	16.00
x 194	2.03	95.6	7.97	2.99	3.49	3.98	4.48	4.98	5.48	5.98	6.47	6.97	7.97	9.96	11.95	13.94	15.93
x 178	1.87	95	7.92	2.97	3.46	3.96	4.45	4.95	5.44	5.94	6.43	6.93	7.92	9.90	11.88	13.85	15.83
x 161	1.7	94.6	7.88	2.96	3.45	3.94	4.43	4.93	5.42	5.91	6.41	6.90	7.88	9.85	11.83	13.80	15.77
x 146	1.55	94.3	7.86	2.95	3.44	3.93	4.42	4.91	5.40	5.89	6.38	6.88	7.86	9.82	11.79	13.75	15.72
W 24 x 129	1.56	82.8	6.90	2.59	3.02	3.45	3.88	4.31	4.74	5.18	5.61	6.04	6.90	8.63	10.35	12.08	13.80
x 114	1.39	82.3	6.86	2.57	3.00	3.43	3.86	4.29	4.72	5.14	5.57	6.00	6.86	8.57	10.29	12.00	13.72
x 102	1.24	82.1	6.84	2.57	2.99	3.42	3.85	4.28	4.70	5.13	5.56	5.99	6.84	8.55	10.26	11.97	13.68
x 94	1.15	81.5	6.79	2.55	2.97	3.40	3.82	4.24	4.67	5.09	5.52	5.94	6.79	8.49	10.19	11.89	13.58
x 84	1.03	81.2	6.77	2.54	2.96	3.38	3.81	4.23	4.65	5.08	5.50	5.92	6.77	8.46	10.15	11.84	13.53
x 492	5.04	97.7	8.14	3.05	3.56	4.07	4.58	5.09	5.60	6.11	6.62	7.12	8.14	10.18	12.21	14.25	16.28
x 408	4.29	95.1	7.93	2.97	3.47	3.96	4.46	4.95	5.45	5.94	6.44	6.93	7.93	9.91	11.89	13.87	15.85
x 370	3.98	92.9	7.74	2.90	3.39	3.87	4.35	4.84	5.32	5.81	6.29	6.77	7.74	9.68	11.61	13.55	15.48
x 335	3.66	91.5	7.63	2.86	3.34	3.81	4.29	4.77	5.24	5.72	6.20	6.67	7.63	9.53	11.44	13.34	15.25
x 306	3.37	90.8	7.57	2.84	3.31	3.78	4.26	4.73	5.20	5.68	6.15	6.62	7.57	9.46	11.35	13.24	15.13
x 279	3.11	89.7	7.48	2.80	3.27	3.74	4.20	4.67	5.14	5.61	6.07	6.54	7.48	9.34	11.21	13.08	14.95
x 250	2.81	89	7.42	2.78	3.24	3.71	4.17	4.64	5.10	5.56	6.03	6.49	7.42	9.27	11.13	12.98	14.83
x 229	2.6	88.1	7.34	2.75	3.21	3.67	4.13	4.59	5.05	5.51	5.97	6.42	7.34	9.18	11.01	12.85	14.68
x 207	2.36	87.6	7.30	2.74	3.19	3.65	4.11	4.56	5.02	5.48	5.93	6.39	7.30	9.13	10.95	12.78	14.60
W24 x 192	2.2	87.1	7.26	2.72	3.18	3.63	4.08	4.54	4.99	5.44	5.90	6.35	7.26	9.07	10.89	12.70	14.52
x 176	2.03	86.5	7.21	2.70	3.15	3.60	4.05	4.51	4.96	5.41	5.86	6.31	7.21	9.01	10.81	12.61	14.42
x 162	1.88	86.3	7.19	2.70	3.15	3.60	4.05	4.49	4.94	5.39	5.84	6.29	7.19	8.99	10.79	12.59	14.38
x 146	1.7	86.8	7.23	2.71	3.16	3.62	4.07	4.52	4.97	5.43	5.88	6.33	7.23	9.04	10.85	12.66	14.47
x 131	1.54	85.3	7.11	2.67	3.11	3.55	4.00	4.44	4.89	5.33	5.78	6.22	7.11	8.89	10.66	12.44	14.22
x 117	1.38	84.5	7.04	2.64	3.08	3.52	3.96	4.40	4.84	5.28	5.72	6.16	7.04	8.80	10.56	12.32	14.08
x 104	1.24	84.1	7.01	2.63	3.07	3.50	3.94	4.38	4.82	5.26	5.69	6.13	7.01	8.76	10.51	12.26	14.02
x 103	1.4	73.5	6.13	2.30	2.68	3.06	3.45	3.83	4.21	4.59	4.98	5.36	6.13	7.66	9.19	10.72	12.25
x 94	1.28	73.5	6.13	2.30	2.68	3.06	3.45	3.83	4.21	4.59	4.98	5.36	6.13	7.66	9.19	10.72	12.25
x 84	1.15	73.2	6.10	2.29	2.67	3.05	3.43	3.81	4.19	4.58	4.96	5.34	6.10	7.63	9.15	10.68	12.20

BEAM BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 76	1.05	72.5	6.04	2.27	2.64	3.02	3.40	3.78	4.15	4.53	4.91	5.29	6.04	7.55	9.06	10.57	12.08
x 68	0.942	72.2	6.02	2.26	2.63	3.01	3.38	3.76	4.14	4.51	4.89	5.26	6.02	7.52	9.03	10.53	12.03
x 62	0.934	66.4	5.53	2.08	2.42	2.77	3.11	3.46	3.80	4.15	4.50	4.84	5.53	6.92	8.30	9.68	11.07
x 55	0.828	66.4	5.53	2.08	2.42	2.77	3.11	3.46	3.80	4.15	4.50	4.84	5.53	6.92	8.30	9.68	11.07
W 21 x 201	2.5	80.5	6.71	2.52	2.93	3.35	3.77	4.19	4.61	5.03	5.45	5.87	6.71	8.39	10.06	11.74	13.42
x 182	2.29	80	6.67	2.50	2.92	3.33	3.75	4.17	4.58	5.00	5.42	5.83	6.67	8.33	10.00	11.67	13.33
x 166	2.09	79.5	6.63	2.48	2.90	3.31	3.73	4.14	4.55	4.97	5.38	5.80	6.63	8.28	9.94	11.59	13.25
x 147	1.87	78.7	6.56	2.46	2.87	3.28	3.69	4.10	4.51	4.92	5.33	5.74	6.56	8.20	9.84	11.48	13.12
x 132	1.68	78.5	6.54	2.45	2.86	3.27	3.68	4.09	4.50	4.91	5.32	5.72	6.54	8.18	9.81	11.45	13.08
x 122	1.57	77.9	6.49	2.43	2.84	3.25	3.65	4.06	4.46	4.87	5.27	5.68	6.49	8.11	9.74	11.36	12.98
x 111	1.43	77.4	6.45	2.42	2.82	3.23	3.63	4.03	4.43	4.84	5.24	5.64	6.45	8.06	9.68	11.29	12.90
x 101	1.3	77.4	6.45	2.42	2.82	3.23	3.63	4.03	4.43	4.84	5.24	5.64	6.45	8.06	9.68	11.29	12.90
x 93	1.4	66.3	5.53	2.07	2.42	2.76	3.11	3.45	3.80	4.14	4.49	4.83	5.53	6.91	8.29	9.67	11.05
x 83	1.26	65.8	5.48	2.06	2.40	2.74	3.08	3.43	3.77	4.11	4.46	4.80	5.48	6.85	8.23	9.60	10.97
x 73	1.11	65.4	5.45	2.04	2.38	2.73	3.07	3.41	3.75	4.09	4.43	4.77	5.45	6.81	8.18	9.54	10.90
x 68	1.04	65.1	5.43	2.03	2.37	2.71	3.05	3.39	3.73	4.07	4.41	4.75	5.43	6.78	8.14	9.49	10.85
x 62	0.952	65.1	5.43	2.03	2.37	2.71	3.05	3.39	3.73	4.07	4.41	4.75	5.43	6.78	8.14	9.49	10.85
x 57	0.952	59.9	4.99	1.87	2.18	2.50	2.81	3.12	3.43	3.74	4.06	4.37	4.99	6.24	7.49	8.74	9.98
x 50	0.838	59.7	4.98	1.87	2.18	2.49	2.80	3.11	3.42	3.73	4.04	4.35	4.98	6.22	7.46	8.71	9.95
x 44	0.746	59	4.92	1.84	2.15	2.46	2.77	3.07	3.38	3.69	3.99	4.30	4.92	6.15	7.38	8.60	9.83
W 18 x 311	4.01	77.6	6.47	2.43	2.83	3.23	3.64	4.04	4.45	4.85	5.25	5.66	6.47	8.08	9.70	11.32	12.93
x 283	3.7	76.5	6.38	2.39	2.79	3.19	3.59	3.98	4.38	4.78	5.18	5.58	6.38	7.97	9.56	11.16	12.75
x 258	3.41	75.6	6.30	2.36	2.76	3.15	3.54	3.94	4.33	4.73	5.12	5.51	6.30	7.88	9.45	11.03	12.60
x 234	3.13	74.7	6.23	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.45	6.23	7.78	9.34	10.89	12.45
x 211	2.86	73.8	6.15	2.31	2.69	3.08	3.46	3.84	4.23	4.61	5.00	5.38	6.15	7.69	9.23	10.76	12.30
x 192	2.62	73.1	6.09	2.28	2.67	3.05	3.43	3.81	4.19	4.57	4.95	5.33	6.09	7.61	9.14	10.66	12.18
x 175	2.46	71.1	5.93	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.93	7.41	8.89	10.37	11.85
x 158	2.24	70.5	5.88	2.20	2.57	2.94	3.30	3.67	4.04	4.41	4.77	5.14	5.88	7.34	8.81	10.28	11.75
x 143	2.05	69.8	5.82	2.18	2.54	2.91	3.27	3.64	4.00	4.36	4.73	5.09	5.82	7.27	8.73	10.18	11.63
x 130	1.88	69.3	5.78	2.17	2.53	2.89	3.25	3.61	3.97	4.33	4.69	5.05	5.78	7.22	8.66	10.11	11.55
x 119	1.72	69.2	5.77	2.16	2.52	2.88	3.24	3.60	3.96	4.33	4.69	5.05	5.77	7.21	8.65	10.09	11.53
x 106	1.55	68.6	5.72	2.14	2.50	2.86	3.22	3.57	3.93	4.29	4.64	5.00	5.72	7.15	8.58	10.00	11.43
x 97	1.42	68.1	5.68	2.13	2.48	2.84	3.19	3.55	3.90	4.26	4.61	4.97	5.68	7.09	8.51	9.93	11.35
x 86	1.27	67.8	5.65	2.12	2.47	2.83	3.18	3.53	3.88	4.24	4.59	4.94	5.65	7.06	8.48	9.89	11.30
x 76	1.13	67.3	5.61	2.10	2.45	2.80	3.15	3.51	3.86	4.21	4.56	4.91	5.61	7.01	8.41	9.81	11.22
x 71	1.22	58	4.83	1.81	2.11	2.42	2.72	3.02	3.32	3.63	3.93	4.23	4.83	6.04	7.25	8.46	9.67
x 65	1.13	57.6	4.80	1.80	2.10	2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.80	6.00	7.20	8.40	9.60
x 60	1.04	57.5	4.79	1.80	2.10	2.40	2.70	2.99	3.29	3.59	3.89	4.19	4.79	5.99	7.19	8.39	9.58
x 55	0.963	57.1	4.76	1.78	2.08	2.38	2.68	2.97	3.27	3.57	3.87	4.16	4.76	5.95	7.14	8.33	9.52
x 50	0.88	56.8	4.73	1.78	2.07	2.37	2.66	2.96	3.25	3.55	3.85	4.14	4.73	5.92	7.10	8.28	9.47
W 18 x 46	0.876	52.4	4.37	1.64	1.91	2.18	2.46	2.73	3.00	3.28	3.55	3.82	4.37	5.46	6.55	7.64	8.73
x 40	0.768	52.1	4.34	1.63	1.90	2.17	2.44	2.71	2.98	3.26	3.53	3.80	4.34	5.43	6.51	7.60	8.68
x 35	0.672	52.1	4.34	1.63	1.90	2.17	2.44	2.71	2.98	3.26	3.53	3.80	4.34	5.43	6.51	7.60	8.68
W 16 x 100	1.59	62.7	5.23	1.96	2.29	2.61	2.94	3.27	3.59	3.92	4.25	4.57	5.23	6.53	7.84	9.14	10.45
x 89	1.43	62.4	5.20	1.95	2.28	2.60	2.93	3.25	3.58	3.90	4.23	4.55	5.20	6.50	7.80	9.10	10.40
x 77	1.25	61.6	5.13	1.93	2.25	2.57	2.89	3.21	3.53	3.85	4.17	4.49	5.13	6.42	7.70	8.98	10.27
x 67	1.09	61.4	5.12	1.92	2.24	2.56	2.88	3.20	3.52	3.84	4.16	4.48	5.12	6.40	7.68	8.95	10.23
x 57	1.09	52.1	4.34	1.63	1.90	2.17	2.44	2.71	2.98	3.26	3.53	3.80	4.34	5.43	6.51	7.60	8.68
x 50	0.962	52	4.33	1.63	1.90	2.17	2.44	2.71	2.98	3.25	3.52	3.79	4.33	5.42	6.50	7.58	8.67
x 45	0.87	51.7	4.31	1.62	1.88	2.15	2.42	2.69	2.96	3.23	3.50	3.77	4.31	5.39	6.46	7.54	8.62
x 40	0.78	51.3	4.28	1.60	1.87	2.14	2.40	2.67	2.94	3.21	3.47	3.74	4.28	5.34	6.41	7.48	8.55
x 36	0.702	51.3	4.28	1.60	1.87	2.14	2.40	2.67	2.94	3.21	3.47	3.74	4.28	5.34	6.41	7.48	8.55
x 31	0.661	46.9	3.91	1.47	1.71	1.95	2.20	2.44	2.69	2.93	3.18	3.42	3.91	4.89	5.86	6.84	7.82
x 26	0.558	46.6	3.88	1.46	1.70	1.94	2.18	2.43	2.67	2.91	3.16	3.40	3.88	4.85	5.83	6.80	7.77
W 14 x 808	8.75	92.3	7.69	2.88	3.37	3.85	4.33	4.81	5.29	5.77	6.25	6.73	7.69	9.61	11.54	13.46	15.38
x 730	8.08	90.4	7.53	2.83	3.30	3.77	4.24	4.71	5.18	5.65	6.12	6.59	7.53	9.42	11.30	13.18	15.07
x 665	7.49	88.8	7.40	2.78	3.24	3.70	4.16	4.63	5.09	5.55	6.01	6.48	7.40	9.25	11.10	12.95	14.80
x 605	6.96	86.9	7.24	2.72	3.17	3.62	4.07	4.53	4.98	5.43	5.88	6.34	7.24	9.05	10.86	12.67	14.48
x 550	6.43	85.6	7.13	2.68	3.12	3.57	4.01	4.46	4.90	5.35	5.80	6.24	7.13	8.92	10.70	12.48	14.27

BEAM BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 500	5.95	84	7.00	2.63	3.06	3.50	3.94	4.38	4.81	5.25	5.69	6.13	7.00	8.75	10.50	12.25	14.00
x 455	5.53	82.3	6.86	2.57	3.00	3.43	3.86	4.29	4.72	5.14	5.57	6.00	6.86	8.57	10.29	12.00	13.72
x 426	5.21	81.8	6.82	2.56	2.98	3.41	3.83	4.26	4.69	5.11	5.54	5.96	6.82	8.52	10.23	11.93	13.63
x 398	4.93	80.7	6.73	2.52	2.94	3.36	3.78	4.20	4.62	5.04	5.46	5.88	6.73	8.41	10.09	11.77	13.45
x 370	4.63	79.9	6.66	2.50	2.91	3.33	3.75	4.16	4.58	4.99	5.41	5.83	6.66	8.32	9.99	11.65	13.32
x 342	4.32	79.1	6.59	2.47	2.88	3.30	3.71	4.12	4.53	4.94	5.36	5.77	6.59	8.24	9.89	11.54	13.18
x 311	3.98	78.1	6.51	2.44	2.85	3.25	3.66	4.07	4.47	4.88	5.29	5.69	6.51	8.14	9.76	11.39	13.02
x 283	3.66	77.3	6.44	2.42	2.82	3.22	3.62	4.03	4.43	4.83	5.23	5.64	6.44	8.05	9.66	11.27	12.88
x 257	3.36	76.5	6.38	2.39	2.79	3.19	3.59	3.98	4.38	4.78	5.18	5.58	6.38	7.97	9.56	11.16	12.75
x 233	3.08	75.6	6.30	2.36	2.76	3.15	3.54	3.94	4.33	4.73	5.12	5.51	6.30	7.88	9.45	11.03	12.60
x 211	2.81	75.2	6.27	2.35	2.74	3.13	3.53	3.92	4.31	4.70	5.09	5.48	6.27	7.83	9.40	10.97	12.53
x 193	2.6	74.3	6.19	2.32	2.71	3.10	3.48	3.87	4.26	4.64	5.03	5.42	6.19	7.74	9.29	10.84	12.38
x 176	2.38	74.1	6.18	2.32	2.70	3.09	3.47	3.86	4.25	4.63	5.02	5.40	6.18	7.72	9.26	10.81	12.35
x 159	2.16	73.5	6.13	2.30	2.68	3.06	3.45	3.83	4.21	4.59	4.98	5.36	6.13	7.66	9.19	10.72	12.25
x 145	1.99	72.7	6.06	2.27	2.65	3.03	3.41	3.79	4.17	4.54	4.92	5.30	6.06	7.57	9.09	10.60	12.12
x 132	1.89	70	5.83	2.19	2.55	2.92	3.28	3.65	4.01	4.38	4.74	5.10	5.83	7.29	8.75	10.21	11.67
x 120	1.71	70.1	5.84	2.19	2.56	2.92	3.29	3.65	4.02	4.38	4.75	5.11	5.84	7.30	8.76	10.22	11.68
x 109	1.57	69.6	5.80	2.18	2.54	2.90	3.26	3.63	3.99	4.35	4.71	5.08	5.80	7.25	8.70	10.15	11.60
x 99	1.43	69.2	5.77	2.16	2.52	2.88	3.24	3.60	3.96	4.33	4.69	5.05	5.77	7.21	8.65	10.09	11.53
x 90	1.31	68.7	5.73	2.15	2.50	2.86	3.22	3.58	3.94	4.29	4.65	5.01	5.73	7.16	8.59	10.02	11.45
x 82	1.45	56.5	4.71	1.77	2.06	2.35	2.65	2.94	3.24	3.53	3.83	4.12	4.71	5.89	7.06	8.24	9.42
x 74	1.32	56.2	4.68	1.76	2.05	2.34	2.63	2.93	3.22	3.51	3.81	4.10	4.68	5.85	7.03	8.20	9.37
x 68	1.22	55.7	4.64	1.74	2.03	2.32	2.61	2.90	3.19	3.48	3.77	4.06	4.64	5.80	6.96	8.12	9.28
x 61	1.1	55.7	4.64	1.74	2.03	2.32	2.61	2.90	3.19	3.48	3.77	4.06	4.64	5.80	6.96	8.12	9.28
x 53	1.06	49.8	4.15	1.56	1.82	2.08	2.33	2.59	2.85	3.11	3.37	3.63	4.15	5.19	6.23	7.26	8.30
x 48	0.97	49.5	4.13	1.55	1.80	2.06	2.32	2.58	2.84	3.09	3.35	3.61	4.13	5.16	6.19	7.22	8.25
x 43	0.874	49.2	4.10	1.54	1.79	2.05	2.31	2.56	2.82	3.08	3.33	3.59	4.10	5.13	6.15	7.18	8.20
x 38	0.809	47	3.92	1.47	1.71	1.96	2.20	2.45	2.69	2.94	3.18	3.43	3.92	4.90	5.88	6.85	7.83
x 34	0.725	46.9	3.91	1.47	1.71	1.95	2.20	2.44	2.69	2.93	3.18	3.42	3.91	4.89	5.86	6.84	7.82
x 30	0.644	46.6	3.88	1.46	1.70	1.94	2.18	2.43	2.67	2.91	3.16	3.40	3.88	4.85	5.83	6.80	7.77
x 26	0.628	41.4	3.45	1.29	1.51	1.73	1.94	2.16	2.37	2.59	2.80	3.02	3.45	4.31	5.18	6.04	6.90
x 22	0.534	41.2	3.43	1.29	1.50	1.72	1.93	2.15	2.36	2.58	2.79	3.00	3.43	4.29	5.15	6.01	6.87
W 12 x 336	4.85	69.3	5.78	2.17	2.53	2.89	3.25	3.61	3.97	4.33	4.69	5.05	5.78	7.22	8.66	10.11	11.55
W 12 x 305	4.49	67.9	5.66	2.12	2.48	2.83	3.18	3.54	3.89	4.24	4.60	4.95	5.66	7.07	8.49	9.90	11.32
x 279	4.19	66.6	5.55	2.08	2.43	2.78	3.12	3.47	3.82	4.16	4.51	4.86	5.55	6.94	8.33	9.71	11.10
x 252	3.84	65.7	5.48	2.05	2.40	2.74	3.08	3.42	3.76	4.11	4.45	4.79	5.48	6.84	8.21	9.58	10.95
x 230	3.55	64.7	5.39	2.02	2.36	2.70	3.03	3.37	3.71	4.04	4.38	4.72	5.39	6.74	8.09	9.44	10.78
x 210	3.27	64.2	5.35	2.01	2.34	2.68	3.01	3.34	3.68	4.01	4.35	4.68	5.35	6.69	8.03	9.36	10.70
x 190	3	63.4	5.28	1.98	2.31	2.64	2.97	3.30	3.63	3.96	4.29	4.62	5.28	6.60	7.93	9.25	10.57
x 170	2.72	62.6	5.22	1.96	2.28	2.61	2.93	3.26	3.59	3.91	4.24	4.56	5.22	6.52	7.83	9.13	10.43
x 152	2.45	62.1	5.18	1.94	2.26	2.59	2.91	3.23	3.56	3.88	4.20	4.53	5.18	6.47	7.76	9.06	10.35
x 136	2.23	60.9	5.08	1.90	2.22	2.54	2.85	3.17	3.49	3.81	4.12	4.44	5.08	6.34	7.61	8.88	10.15
x 120	1.99	60.4	5.03	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.40	5.03	6.29	7.55	8.81	10.07
x 106	1.77	59.9	4.99	1.87	2.18	2.50	2.81	3.12	3.43	3.74	4.06	4.37	4.99	6.24	7.49	8.74	9.98
x 96	1.61	59.7	4.98	1.87	2.18	2.49	2.80	3.11	3.42	3.73	4.04	4.35	4.98	6.22	7.46	8.71	9.95
x 87	1.47	59.1	4.93	1.85	2.15	2.46	2.77	3.08	3.39	3.69	4.00	4.31	4.93	6.16	7.39	8.62	9.85
x 79	1.34	58.8	4.90	1.84	2.14	2.45	2.76	3.06	3.37	3.68	3.98	4.29	4.90	6.13	7.35	8.58	9.80
x 72	1.23	58.3	4.86	1.82	2.13	2.43	2.73	3.04	3.34	3.64	3.95	4.25	4.86	6.07	7.29	8.50	9.72
x 65	1.11	58.3	4.86	1.82	2.13	2.43	2.73	3.04	3.34	3.64	3.95	4.25	4.86	6.07	7.29	8.50	9.72
x 58	1.1	52.7	4.39	1.65	1.92	2.20	2.47	2.74	3.02	3.29	3.57	3.84	4.39	5.49	6.59	7.69	8.78
x 53	1.02	52	4.33	1.63	1.90	2.17	2.44	2.71	2.98	3.25	3.52	3.79	4.33	5.42	6.50	7.58	8.67
x 50	1.06	47	3.92	1.47	1.71	1.96	2.20	2.45	2.69	2.94	3.18	3.43	3.92	4.90	5.88	6.85	7.83
x 45	0.974	46.2	3.85	1.44	1.68	1.93	2.17	2.41	2.65	2.89	3.13	3.37	3.85	4.81	5.78	6.74	7.70
x 40	0.86	46.5	3.88	1.45	1.70	1.94	2.18	2.42	2.66	2.91	3.15	3.39	3.88	4.84	5.81	6.78	7.75
x 35	0.81	43.2	3.60	1.35	1.58	1.80	2.03	2.25	2.48	2.70	2.93	3.15	3.60	4.50	5.40	6.30	7.20
x 30	0.699	42.9	3.58	1.34	1.56	1.79	2.01	2.23	2.46	2.68	2.90	3.13	3.58	4.47	5.36	6.26	7.15
x 26	0.612	42.5	3.54	1.33	1.55	1.77	1.99	2.21	2.43	2.66	2.88	3.10	3.54	4.43	5.31	6.20	7.08
x 22	0.623	35.3	2.94	1.10	1.29	1.47	1.65	1.84	2.02	2.21	2.39	2.57	2.94	3.68	4.41	5.15	5.88
x 19	0.54	35.2	2.93	1.10	1.28	1.47	1.65	1.83	2.02	2.20	2.38	2.57	2.93	3.67	4.40	5.13	5.87

carboline®
Coatings - Linings - Fireproofing

BEAM BOARD FOOT CONVERSION FACTORS				BD.FT PER L.FT / APPLIED PROTECTION THICKNESS													
Member Designation	**W/D**	**Heated Perimeter (")**	**Heated Perimeter (')**	**3/8**	**4/9**	**1/2**	**4/7**	**5/8**	**2/3**	**3/4**	**4/5**	**7/8**	**1**	**1 1/4**	**1 1/2**	**1 3/4**	**2**
x 16	0.457	35	2.92	1.09	1.28	1.46	1.64	1.82	2.01	2.19	2.37	2.55	2.92	3.65	4.38	5.10	5.83
x 14	0.405	34.6	2.88	1.08	1.26	1.44	1.62	1.80	1.98	2.16	2.34	2.52	2.88	3.60	4.33	5.05	5.77
W 10 x 112	2.17	51.5	4.29	1.61	1.88	2.15	2.41	2.68	2.95	3.22	3.49	3.76	4.29	5.36	6.44	7.51	8.58
x 100	1.97	50.7	4.23	1.58	1.85	2.11	2.38	2.64	2.90	3.17	3.43	3.70	4.23	5.28	6.34	7.39	8.45
x 88	1.74	50.5	4.21	1.58	1.84	2.10	2.37	2.63	2.89	3.16	3.42	3.68	4.21	5.26	6.31	7.36	8.42
x 77	1.54	49.9	4.16	1.56	1.82	2.08	2.34	2.60	2.86	3.12	3.38	3.64	4.16	5.20	6.24	7.28	8.32
x 68	1.38	49.1	4.09	1.53	1.79	2.05	2.30	2.56	2.81	3.07	3.32	3.58	4.09	5.11	6.14	7.16	8.18
x 60	1.22	49.1	4.09	1.53	1.79	2.05	2.30	2.56	2.81	3.07	3.32	3.58	4.09	5.11	6.14	7.16	8.18
x 54	1.11	48.6	4.05	1.52	1.77	2.03	2.28	2.53	2.78	3.04	3.29	3.54	4.05	5.06	6.08	7.09	8.10
x 49	1.01	48.3	4.03	1.51	1.76	2.01	2.26	2.52	2.77	3.02	3.27	3.52	4.03	5.03	6.04	7.04	8.05
x 45	1.06	42.6	3.55	1.33	1.55	1.78	2.00	2.22	2.44	2.66	2.88	3.11	3.55	4.44	5.33	6.21	7.10
x 39	0.929	42	3.50	1.31	1.53	1.75	1.97	2.19	2.41	2.63	2.84	3.06	3.50	4.38	5.25	6.13	7.00
x 33	0.786	42	3.50	1.31	1.53	1.75	1.97	2.19	2.41	2.63	2.84	3.06	3.50	4.38	5.25	6.13	7.00
x 30	0.809	37.1	3.09	1.16	1.35	1.55	1.74	1.93	2.13	2.32	2.51	2.71	3.09	3.86	4.64	5.41	6.18
x 26	0.708	36.7	3.06	1.15	1.34	1.53	1.72	1.91	2.10	2.29	2.48	2.68	3.06	3.82	4.59	5.35	6.12
x 22	0.606	36.3	3.03	1.13	1.32	1.51	1.70	1.89	2.08	2.27	2.46	2.65	3.03	3.78	4.54	5.29	6.05
x 19	0.607	31.3	2.61	0.98	1.14	1.30	1.47	1.63	1.79	1.96	2.12	2.28	2.61	3.26	3.91	4.56	5.22
x 17	0.543	31.3	2.61	0.98	1.14	1.30	1.47	1.63	1.79	1.96	2.12	2.28	2.61	3.26	3.91	4.56	5.22
x 15	0.484	31	2.58	0.97	1.13	1.29	1.45	1.61	1.78	1.94	2.10	2.26	2.58	3.23	3.88	4.52	5.17
x 12	0.392	30.6	2.55	0.96	1.12	1.28	1.43	1.59	1.75	1.91	2.07	2.23	2.55	3.19	3.83	4.46	5.10
W 8 x 67	1.65	40.7	3.39	1.27	1.48	1.70	1.91	2.12	2.33	2.54	2.76	2.97	3.39	4.24	5.09	5.94	6.78
x 58	1.44	40.2	3.35	1.26	1.47	1.68	1.88	2.09	2.30	2.51	2.72	2.93	3.35	4.19	5.03	5.86	6.70
x 48	1.21	39.7	3.31	1.24	1.45	1.65	1.86	2.07	2.27	2.48	2.69	2.89	3.31	4.14	4.96	5.79	6.62
x 40	1.03	39	3.25	1.22	1.42	1.63	1.83	2.03	2.23	2.44	2.64	2.84	3.25	4.06	4.88	5.69	6.50
x 35	0.907	38.6	3.22	1.21	1.41	1.61	1.81	2.01	2.21	2.41	2.61	2.81	3.22	4.02	4.83	5.63	6.43
x 31	0.803	38.6	3.22	1.21	1.41	1.61	1.81	2.01	2.21	2.41	2.61	2.81	3.22	4.02	4.83	5.63	6.43
W 8 x 28	0.819	34.2	2.85	1.07	1.25	1.43	1.60	1.78	1.96	2.14	2.32	2.49	2.85	3.56	4.28	4.99	5.70
x 24	0.704	34.1	2.84	1.07	1.24	1.42	1.60	1.78	1.95	2.13	2.31	2.49	2.84	3.55	4.26	4.97	5.68
x 21	0.675	31.1	2.59	0.97	1.13	1.30	1.46	1.62	1.78	1.94	2.11	2.27	2.59	3.24	3.89	4.54	5.18
x 18	0.583	30.9	2.58	0.97	1.13	1.29	1.45	1.61	1.77	1.93	2.09	2.25	2.58	3.22	3.86	4.51	5.15
x 15	0.551	27.2	2.27	0.85	0.99	1.13	1.28	1.42	1.56	1.70	1.84	1.98	2.27	2.83	3.40	3.97	4.53
x 13	0.483	26.9	2.24	0.84	0.98	1.12	1.26	1.40	1.54	1.68	1.82	1.96	2.24	2.80	3.36	3.92	4.48
x 10	0.375	26.7	2.23	0.83	0.97	1.11	1.25	1.39	1.53	1.67	1.81	1.95	2.23	2.78	3.34	3.89	4.45
W 6 x 25	0.839	29.8	2.48	0.93	1.09	1.24	1.40	1.55	1.71	1.86	2.02	2.17	2.48	3.10	3.73	4.35	4.97
x 20	0.678	29.5	2.46	0.92	1.08	1.23	1.38	1.54	1.69	1.84	2.00	2.15	2.46	3.07	3.69	4.30	4.92
x 16	0.684	23.4	1.95	0.73	0.85	0.98	1.10	1.22	1.34	1.46	1.58	1.71	1.95	2.44	2.93	3.41	3.90
x 15	0.521	28.8	2.40	0.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.40	3.00	3.60	4.20	4.80
x 12	0.526	22.8	1.90	0.71	0.83	0.95	1.07	1.19	1.31	1.43	1.54	1.66	1.90	2.38	2.85	3.33	3.80
x 9	0.398	22.6	1.88	0.71	0.82	0.94	1.06	1.18	1.29	1.41	1.53	1.65	1.88	2.35	2.83	3.30	3.77
x 8.5	0.374	22.7	1.89	0.71	0.83	0.95	1.06	1.18	1.30	1.42	1.54	1.66	1.89	2.36	2.84	3.31	3.78
W 5 x 19	0.776	24.5	2.04	0.77	0.89	1.02	1.15	1.28	1.40	1.53	1.66	1.79	2.04	2.55	3.06	3.57	4.08
x 16	0.664	24.1	2.01	0.75	0.88	1.00	1.13	1.26	1.38	1.51	1.63	1.76	2.01	2.51	3.01	3.51	4.02
W 4 x 13	0.67	19.4	1.62	0.61	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.62	2.02	2.43	2.83	3.23

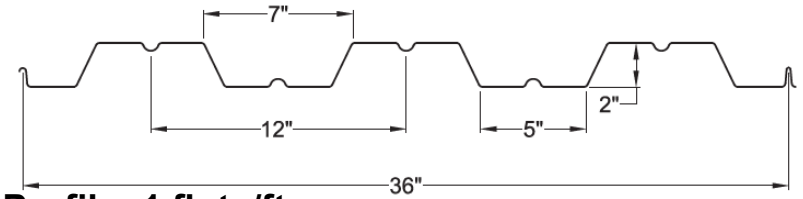
APPENDIX C
DECK PROFILE AND FLUTE CHARTS

carboline®
Coatings - Linings - Fireproofing

Southwest® SFRM Series

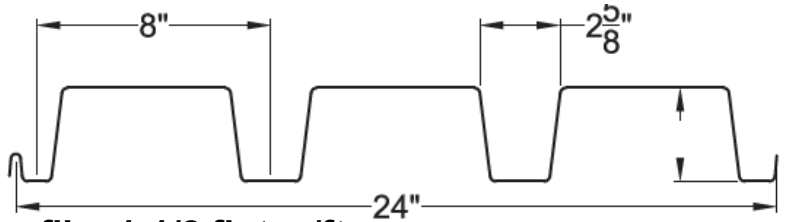
Deck Profile Charts

Flute Depth	1-1/2”	2”	3”
Expansion	1.25	1.333	1.5



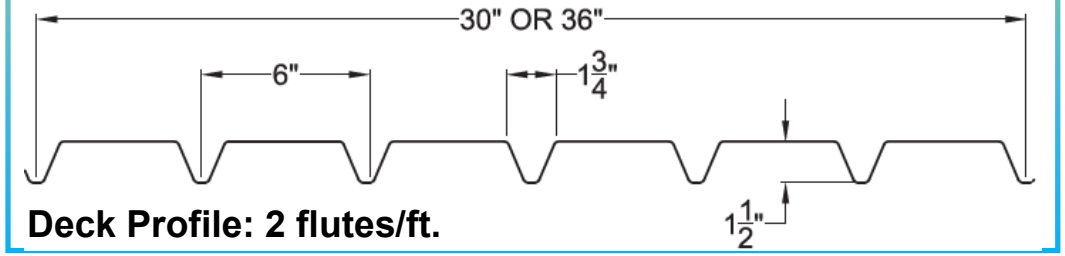
Deck Profile: 1 flute/ft.

Flute Depth	1-1/2”	2”	3”
Expansion	1.375	1.5	1.75



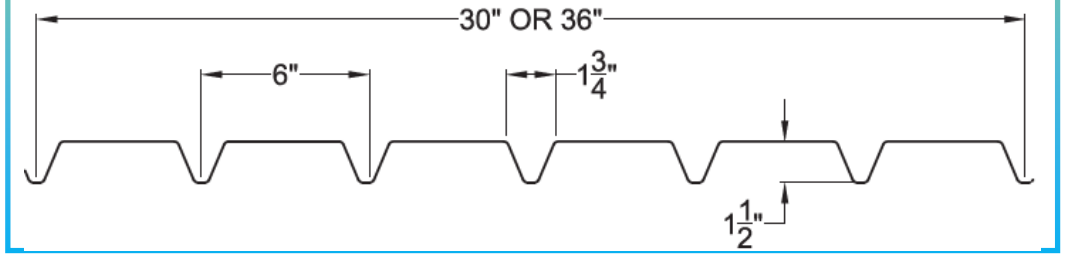
Deck Profile: 1-1/2 flutes/ft.

Flute Depth	1-1/2”	2”	3”
Expansion	1.50	1.667	2



Deck Profile: 2 flutes/ft.

Flute Depth	1-1/2” Roof Deck
Expansion	1.5



The aforementioned charts should be applicable for most common deck profiles. Multiply the sq.ft of deck by the appropriate factor to determine the total surface area of deck to be sprayed.

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Coatings - Linings - Fireproofing

Southwest® SFRM Series

Flute Charts

Unless otherwise noted in the specific UL Fire Resistive Design, UL requires that the flutes above the beams be filled with the same protection material used on the beams. The amount of material required for this can be substantial, especially with 3” decks.

1. Calculate the total linear footage of beams under each type of fluted deck (perpendicular).
2. The total linear footage should be multiplied by the bd.ft factor from the charts shown below. These charts are applicable for the most common deck profiles.

Beam Flange Width	Flute Depth		
	1-1/2”	2”	3”
4	0.230	0.306	0.458
5	0.287	0.382	0.573
6	0.344	0.458	0.688
7	0.400	0.535	0.802
8	0.458	0.611	0.917
9	0.516	0.688	1.032
10	0.573	0.764	1.146

Deck Profile: 1 flute/ft.

Beam Flange Width	Flute Depth	
	1-1/2”	2”
4	0.323	0.431
5	0.404	0.538
6	0.484	0.646
7	0.565	0.754
8	0.646	0.861
9	0.727	0.969
10	0.807	1.076

Deck Profile: 2 flutes/ft.

Beam Flange Width	Flute Depth
	3”
4	0.450
5	0.563
6	0.675
7	0.788
8	0.900
9	1.013
10	1.130

Deck Profile: 1-1/2 flute/ft.

APPENDIX D
WORKSHEET TEMPLATES

COLUMN WORKSHEET

Item	Column Size & W/D	FRR	Material Thickness	Number of Columns	Length (‘)	Total Length	Column BD. FT/L. FT Factor ***(Use Conversion Tables)***	Total BD. FT per Column
							Sub-Total	

Project Reference:
Date:
Revision:
Level/Floor:
Estimator:

BEAM WORKSHEET

Item	Beam Size & W/D	FRR	Material Thickness	Number of Beams	Length (‘)	Total Length	Beam BD. FT/L. FT Factor ***(Use Conversion Tables)***	Total BD. FT per Beam
							Sub-Total	

Project Reference:
Date:
Revision:
Level/Floor:
Estimator:

APPENDIX E
THICKNESS TABLES

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

Member	W/D	Restrained Assembly Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W4x13	0.65	0.42	0.42	0.42	0.63	1.82
W5x16	0.65	0.42	0.42	0.42	0.63	1.82
W5x19	0.76	0.39	0.39	0.39	0.58	1.67
W6x9	0.39	0.53	0.53	0.53	0.80	2.30
W6x12	0.51	0.47	0.47	0.47	0.71	2.05
W6x16	0.66	0.42	0.42	0.42	0.63	1.81
W6x20	0.67	0.41	0.41	0.41	0.62	1.79
W6x26	0.82	0.38	0.38	0.38	0.55	1.60
W8x10	0.37	0.54	0.54	0.54	0.81	2.35
W8x13	0.47	0.49	0.49	0.49	0.74	2.13
W8x15	0.54	0.46	0.46	0.46	0.69	2.00
W8x18	0.57	0.45	0.45	0.45	0.67	1.94
W8x21	0.66	0.42	0.42	0.42	0.63	1.81
W8x24	0.69	0.41	0.41	0.41	0.61	1.76
W8x28	0.80	0.38	0.38	0.38	0.56	1.63
W8x31	0.79	0.38	0.38	0.38	0.57	1.64
W8x35	0.88	0.38	0.38	0.38	0.53	1.54
W8x40	1.00	0.38	0.38	0.38	0.49	1.42
W8x48	1.18	0.38	0.38	0.38	0.44	1.28
W8x58	1.41	0.38	0.38	0.38	0.39	1.13
W8x67	1.61	0.38	0.38	0.38	0.38	1.03
W10x12	0.38	0.54	0.54	0.54	0.80	2.32
W10x15	0.48	0.49	0.49	0.49	0.73	2.11
W10x17	0.54	0.46	0.46	0.46	0.69	2.00
W10x19	0.59	0.44	0.44	0.44	0.66	1.91
W10x22	0.59	0.44	0.44	0.44	0.66	1.91
W10x26	0.69	0.41	0.41	0.41	0.61	1.76
W10x30	0.79	0.38	0.38	0.38	0.57	1.64
W10x33	0.77	0.38	0.38	0.38	0.57	1.66
W10x39	0.90	0.38	0.38	0.38	0.53	1.52
W10x46	1.03	0.38	0.38	0.38	0.48	1.40
W10x49	0.99	0.38	0.38	0.38	0.50	1.43
W10x54	1.09	0.38	0.38	0.38	0.47	1.35
W10x60	1.20	0.38	0.38	0.38	0.44	1.26
W10x68	1.36	0.38	0.38	0.38	0.40	1.16
W10x77	1.52	0.38	0.38	0.38	0.38	1.07
W10x88	1.72	0.38	0.38	0.38	0.38	0.98
W10x100	1.93	0.38	0.38	0.38	0.38	0.90
W10x112	2.14	0.38	0.38	0.38	0.38	0.83
W12x14	0.40	0.53	0.53	0.53	0.79	2.28
W12x16	0.45	0.50	0.50	0.50	0.75	2.17
W12x19	0.53	0.46	0.46	0.46	0.70	2.01
W12x22	0.61	0.43	0.43	0.43	0.65	1.88
W12x26	0.60	0.44	0.44	0.44	0.66	1.90

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

Member	W/D	Restrained Assembly Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W12x30	0.69	0.41	0.41	0.41	0.61	1.76
W12x35	0.79	0.38	0.38	0.38	0.57	1.64
W12x40	0.85	0.38	0.38	0.38	0.54	1.57
W12x45	0.95	0.38	0.38	0.38	0.51	1.47
W12x50	1.04	0.38	0.38	0.38	0.48	1.39
W12x53	0.99	0.38	0.38	0.38	0.50	1.43
W12x54	1.04	0.38	0.38	0.38	0.48	1.39
W12x58	1.08	0.38	0.38	0.38	0.47	1.35
W12x65	1.09	0.38	0.38	0.38	0.47	1.35
W12x72	1.20	0.38	0.38	0.38	0.44	1.26
W12x79	1.32	0.38	0.38	0.38	0.41	1.18
W12x87	1.44	0.38	0.38	0.38	0.39	1.12
W12x96	1.57	0.38	0.38	0.38	0.38	1.05
W12x106	1.73	0.38	0.38	0.38	0.38	0.98
W12x120	1.94	0.38	0.38	0.38	0.38	0.90
W12x136	2.17	0.38	0.38	0.38	0.38	0.82
W12x152	2.40	0.38	0.38	0.38	0.38	0.76
W12x170	2.66	0.38	0.38	0.38	0.38	0.70
W12x190	2.93	0.38	0.38	0.38	0.38	0.64
W12x210	3.21	0.38	0.38	0.38	0.38	0.60
W12x230	3.47	0.38	0.38	0.38	0.38	0.56
W12x262	3.76	0.38	0.38	0.38	0.38	0.52
W12x279	4.10	0.38	0.38	0.38	0.38	0.48
W12x305	4.41	0.38	0.38	0.38	0.38	0.45
W12x336	4.78	0.38	0.38	0.38	0.38	0.42
W14x22	0.52	0.47	0.47	0.47	0.70	2.03
W14x26	0.61	0.43	0.43	0.43	0.65	1.88
W14x30	0.63	0.43	0.43	0.43	0.64	1.85
W14x34	0.71	0.40	0.40	0.40	0.60	1.74
W14x38	0.79	0.38	0.38	0.38	0.57	1.64
W14x43	0.85	0.38	0.38	0.38	0.54	1.57
W14x48	0.94	0.38	0.38	0.38	0.51	1.48
W14x53	1.03	0.38	0.38	0.38	0.48	1.40
W14x61	1.07	0.38	0.38	0.38	0.47	1.36
W14x68	1.19	0.38	0.38	0.38	0.44	1.27
W14x74	1.28	0.38	0.38	0.38	0.42	1.21
W14x82	1.41	0.38	0.38	0.38	0.39	1.13
W14x90	1.27	0.38	0.38	0.38	0.42	1.22
W14x99	1.39	0.38	0.38	0.38	0.40	1.14
W14x109	1.53	0.38	0.38	0.38	0.38	1.07
W14x120	1.67	0.38	0.38	0.38	0.38	1.00
W14x132	1.83	0.38	0.38	0.38	0.38	0.94
W14x145	1.94	0.38	0.38	0.38	0.38	0.90
W14x159	2.11	0.38	0.38	0.38	0.38	0.84

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

Member	W/D	Restrained Assembly Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W14x176	2.25	0.38	0.38	0.38	0.38	0.80
W14x193	2.32	0.38	0.38	0.38	0.38	0.78
W14x211	2.74	0.38	0.38	0.38	0.38	0.68
W14x233	3.00	0.38	0.38	0.38	0.38	0.63
W14x257	3.27	0.38	0.38	0.38	0.38	0.59
W14x283	3.57	0.38	0.38	0.38	0.38	0.55
W14x311	3.88	0.38	0.38	0.38	0.38	0.51
W14x342	4.21	0.38	0.38	0.38	0.38	0.47
W14x370	4.51	0.38	0.38	0.38	0.38	0.45
W14x398	4.80	0.38	0.38	0.38	0.38	0.42
W14x426	5.09	0.38	0.38	0.38	0.38	0.40
W14x455	5.38	0.38	0.38	0.38	0.38	0.38
W14x500	5.82	0.38	0.38	0.38	0.38	0.38
W14x550	6.30	0.38	0.38	0.38	0.38	0.38
W14x605	6.80	0.38	0.38	0.38	0.38	0.38
W16x26	0.55	0.46	0.46	0.46	0.68	1.98
W16x31	0.65	0.42	0.42	0.42	0.63	1.82
W16x36	0.69	0.41	0.41	0.41	0.61	1.76
W16x40	0.76	0.39	0.39	0.39	0.58	1.67
W16x45	0.85	0.38	0.38	0.38	0.54	1.57
W16x50	0.94	0.38	0.38	0.38	0.51	1.48
W16x67	1.07	0.38	0.38	0.38	0.47	1.36
W16x77	1.07	0.38	0.38	0.38	0.47	1.36
W16x89	1.22	0.38	0.38	0.38	0.43	1.25
W16x100	1.56	0.38	0.38	0.38	0.38	1.05
W18x35	0.66	0.42	0.42	0.42	0.63	1.81
W18x40	0.76	0.39	0.39	0.39	0.58	1.67
W18x46	0.86	0.38	0.38	0.38	0.54	1.56
W18x50	0.87	0.38	0.38	0.38	0.54	1.55
W18x55	0.95	0.38	0.38	0.38	0.51	1.47
W18x60	1.03	0.38	0.38	0.38	0.48	1.40
W18x65	1.11	0.38	0.38	0.38	0.46	1.33
W18x71	1.21	0.38	0.38	0.38	0.44	1.26
W18x76	1.11	0.38	0.38	0.38	0.46	1.33
W18x88	1.24	0.38	0.38	0.38	0.43	1.24
W18x97	1.39	0.38	0.38	0.38	0.40	1.14
W18x106	1.52	0.38	0.38	0.38	0.38	1.07
W18x119	1.68	0.38	0.38	0.38	0.38	1.00
W21x44	0.73	0.39	0.39	0.39	0.59	1.71
W21x50	0.83	0.38	0.38	0.38	0.55	1.59
W21x57	0.93	0.38	0.38	0.38	0.51	1.49
W21x62	0.94	0.38	0.38	0.38	0.51	1.48
W21x68	1.03	0.38	0.38	0.38	0.48	1.40
W21x83	1.24	0.38	0.38	0.38	0.43	1.24

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

		1 Hr	**1.5 Hr**	**2 Hr**	**3 Hr**	**4 Hr**
W21x93	1.38	0.38	0.38	0.38	0.40	1.15
W21x101	1.29	0.38	0.38	0.38	0.42	1.20
W21x111	1.41	0.38	0.38	0.38	0.39	1.13
W21x122	1.54	0.38	0.38	0.38	0.38	1.06
W21x132	1.66	0.38	0.38	0.38	0.38	1.01
W21x147	1.83	0.38	0.38	0.38	0.38	0.94
W24x55	0.82	0.38	0.38	0.38	0.55	1.60
W24x62	0.92	0.38	0.38	0.38	0.52	1.50
W24x68	0.93	0.38	0.38	0.38	0.51	1.49
W24x76	1.02	0.38	0.38	0.38	0.49	1.40
W24x84	1.13	0.38	0.38	0.38	0.46	1.32
W24x94	1.26	0.38	0.38	0.38	0.42	1.22
W24x104	1.22	0.38	0.38	0.38	0.43	1.25
W24x117	1.36	0.38	0.38	0.38	0.40	1.16
W24x131	1.52	0.38	0.38	0.38	0.38	1.07
W24x146	1.68	0.38	0.38	0.38	0.38	1.00
W24x162	1.85	0.38	0.38	0.38	0.38	0.93
W27x84	1.02	0.38	0.38	0.38	0.49	1.40
W27x94	1.13	0.38	0.38	0.38	0.46	1.32
W27x102	1.23	0.38	0.38	0.38	0.43	1.24
W27x114	1.36	0.38	0.38	0.38	0.40	1.16
W27x146	1.53	0.38	0.38	0.38	0.38	1.07
W27x161	1.68	0.38	0.38	0.38	0.38	1.00
W27x178	1.85	0.38	0.38	0.38	0.38	0.93
W30x99	1.10	0.38	0.38	0.38	0.46	1.34
W30x108	1.20	0.38	0.38	0.38	0.44	1.26
W30x116	1.28	0.38	0.38	0.38	0.42	1.21
W30x124	1.37	0.38	0.38	0.38	0.40	1.15
W30x132	1.46	0.38	0.38	0.38	0.38	1.10
W30x173	1.66	0.38	0.38	0.38	0.38	1.01
W30x191	1.82	0.38	0.38	0.38	0.38	0.94
W30x211	2.00	0.38	0.38	0.38	0.38	0.88
W33x118	1.19	0.38	0.38	0.38	0.44	1.27
W33x130	1.31	0.38	0.38	0.38	0.41	1.19
W33x141	1.41	0.38	0.38	0.38	0.39	1.13
W33x152	1.51	0.38	0.38	0.38	0.38	1.08
W33x201	1.78	0.38	0.38	0.38	0.38	0.96

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W4x13	0.65	0.42	0.63	0.91	1.40	1.82
W5x16	0.65	0.42	0.63	0.91	1.40	1.82
W5x19	0.76	0.39	0.58	0.84	1.29	1.67
W6x9	0.39	0.53	0.80	1.15	1.77	2.30
W6x12	0.51	0.47	0.71	1.02	1.58	2.05
W6x16	0.66	0.42	0.63	0.90	1.39	1.81
W6x20	0.67	0.41	0.62	0.90	1.38	1.79
W6x26	0.82	0.38	0.55	0.80	1.23	1.60
W8x10	0.37	0.54	0.81	1.17	1.80	2.35
W8x13	0.47	0.49	0.74	1.06	1.64	2.13
W8x15	0.54	0.46	0.69	1.00	1.54	2.00
W8x18	0.57	0.45	0.67	0.97	1.50	1.94
W8x21	0.66	0.42	0.63	0.90	1.39	1.81
W8x24	0.69	0.41	0.61	0.88	1.36	1.76
W8x28	0.80	0.38	0.56	0.81	1.25	1.63
W8x31	0.79	0.38	0.57	0.82	1.26	1.64
W8x35	0.88	0.38	0.53	0.77	1.18	1.54
W8x40	1.00	0.38	0.49	0.71	1.09	1.42
W8x48	1.18	0.38	0.44	0.64	0.98	1.28
W8x58	1.41	0.38	0.39	0.57	0.87	1.13
W8x67	1.61	0.38	0.38	0.51	0.79	1.03
W10x12	0.38	0.54	0.80	1.16	1.79	2.32
W10x15	0.48	0.49	0.73	1.05	1.62	2.11
W10x17	0.54	0.46	0.69	1.00	1.54	2.00
W10x19	0.59	0.44	0.66	0.96	1.47	1.91
W10x22	0.59	0.44	0.66	0.96	1.47	1.91
W10x26	0.69	0.41	0.61	0.88	1.36	1.76
W10x30	0.79	0.38	0.57	0.82	1.26	1.64
W10x33	0.77	0.38	0.57	0.83	1.28	1.66
W10x39	0.90	0.38	0.53	0.76	1.17	1.52
W10x46	1.03	0.38	0.48	0.70	1.07	1.40
W10x49	0.99	0.38	0.50	0.72	1.10	1.43
W10x54	1.09	0.38	0.47	0.67	1.04	1.35
W10x60	1.20	0.38	0.44	0.63	0.97	1.26
W10x68	1.36	0.38	0.40	0.58	0.89	1.16
W10x77	1.52	0.38	0.38	0.54	0.83	1.07
W10x88	1.72	0.38	0.38	0.49	0.75	0.98
W10x100	1.93	0.38	0.38	0.45	0.69	0.90
W10x112	2.14	0.38	0.38	0.42	0.64	0.83
W12x14	0.40	0.53	0.79	1.14	1.75	2.28
W12x16	0.45	0.50	0.75	1.08	1.67	2.17
W12x19	0.53	0.46	0.70	1.01	1.55	2.01
W12x22	0.61	0.43	0.65	0.94	1.45	1.88
W12x26	0.60	0.44	0.66	0.95	1.46	1.90

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W12x30	0.69	0.41	0.61	0.88	1.36	1.76
W12x35	0.79	0.38	0.57	0.82	1.26	1.64
W12x40	0.85	0.38	0.54	0.78	1.21	1.57
W12x45	0.95	0.38	0.51	0.73	1.13	1.47
W12x50	1.04	0.38	0.48	0.69	1.07	1.39
W12x53	0.99	0.38	0.50	0.72	1.10	1.43
W12x54	1.04	0.38	0.48	0.69	1.07	1.39
W12x58	1.08	0.38	0.47	0.68	1.04	1.35
W12x65	1.09	0.38	0.47	0.67	1.04	1.35
W12x72	1.20	0.38	0.44	0.63	0.97	1.26
W12x79	1.32	0.38	0.41	0.59	0.91	1.18
W12x87	1.44	0.38	0.39	0.56	0.86	1.12
W12x96	1.57	0.38	0.38	0.52	0.81	1.05
W12x106	1.73	0.38	0.38	0.49	0.75	0.98
W12x120	1.94	0.38	0.38	0.45	0.69	0.90
W12x136	2.17	0.38	0.38	0.41	0.63	0.82
W12x152	2.40	0.38	0.38	0.38	0.58	0.76
W12x170	2.66	0.38	0.38	0.38	0.54	0.70
W12x190	2.93	0.38	0.38	0.38	0.50	0.64
W12x210	3.21	0.38	0.38	0.38	0.46	0.60
W12x230	3.47	0.38	0.38	0.38	0.43	0.56
W12x262	3.76	0.38	0.38	0.38	0.40	0.52
W12x279	4.10	0.38	0.38	0.38	0.38	0.48
W12x305	4.41	0.38	0.38	0.38	0.38	0.45
W12x336	4.78	0.38	0.38	0.38	0.38	0.42
W14x22	0.52	0.47	0.70	1.02	1.56	2.03
W14x26	0.61	0.43	0.65	0.94	1.45	1.88
W14x30	0.63	0.43	0.64	0.92	1.42	1.85
W14x34	0.71	0.40	0.60	0.87	1.34	1.74
W14x38	0.79	0.38	0.57	0.82	1.26	1.64
W14x43	0.85	0.38	0.54	0.78	1.21	1.57
W14x48	0.94	0.38	0.51	0.74	1.14	1.48
W14x53	1.03	0.38	0.48	0.70	1.07	1.40
W14x61	1.07	0.38	0.47	0.68	1.05	1.36
W14x68	1.19	0.38	0.44	0.64	0.98	1.27
W14x74	1.28	0.38	0.42	0.61	0.93	1.21
W14x82	1.41	0.38	0.39	0.57	0.87	1.13
W14x90	1.27	0.38	0.42	0.61	0.94	1.22
W14x99	1.39	0.38	0.40	0.57	0.88	1.14
W14x109	1.53	0.38	0.38	0.53	0.82	1.07
W14x120	1.67	0.38	0.38	0.50	0.77	1.00
W14x132	1.83	0.38	0.38	0.47	0.72	0.94
W14x145	1.94	0.38	0.38	0.45	0.69	0.90
W14x159	2.11	0.38	0.38	0.42	0.65	0.84

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W14x176	2.25	0.38	0.38	0.40	0.61	0.80
W14x193	2.32	0.38	0.38	0.39	0.60	0.78
W14x211	2.74	0.38	0.38	0.38	0.52	0.68
W14x233	3.00	0.38	0.38	0.38	0.49	0.63
W14x257	3.27	0.38	0.38	0.38	0.45	0.59
W14x283	3.57	0.38	0.38	0.38	0.42	0.55
W14x311	3.88	0.38	0.38	0.38	0.39	0.51
W14x342	4.21	0.38	0.38	0.38	0.38	0.47
W14x370	4.51	0.38	0.38	0.38	0.38	0.45
W14x398	4.80	0.38	0.38	0.38	0.38	0.42
W14x426	5.09	0.38	0.38	0.38	0.38	0.40
W14x455	5.38	0.38	0.38	0.38	0.38	0.38
W14x500	5.82	0.38	0.38	0.38	0.38	0.38
W14x550	6.30	0.38	0.38	0.38	0.38	0.38
W14x605	6.80	0.38	0.38	0.38	0.38	0.38
W16x26	0.55	0.46	0.68	0.99	1.52	1.98
W16x31	0.65	0.42	0.63	0.91	1.40	1.82
W16x36	0.69	0.41	0.61	0.88	1.36	1.76
W16x40	0.76	0.39	0.58	0.84	1.29	1.67
W16x45	0.85	0.38	0.54	0.78	1.21	1.57
W16x50	0.94	0.38	0.51	0.74	1.14	1.48
W16x67	1.07	0.38	0.47	0.68	1.05	1.36
W16x77	1.07	0.38	0.47	0.68	1.05	1.36
W16x89	1.22	0.38	0.43	0.63	0.96	1.25
W16x100	1.56	0.38	0.38	0.53	0.81	1.05
W18x35	0.66	0.42	0.63	0.90	1.39	1.81
W18x40	0.76	0.39	0.58	0.84	1.29	1.67
W18x46	0.86	0.38	0.54	0.78	1.20	1.56
W18x50	0.87	0.38	0.54	0.77	1.19	1.55
W18x55	0.95	0.38	0.51	0.73	1.13	1.47
W18x60	1.03	0.38	0.48	0.70	1.07	1.40
W18x65	1.11	0.38	0.46	0.67	1.02	1.33
W18x71	1.21	0.38	0.44	0.63	0.97	1.26
W18x76	1.11	0.38	0.46	0.67	1.02	1.33
W18x88	1.24	0.38	0.43	0.62	0.95	1.24
W18x97	1.39	0.38	0.40	0.57	0.88	1.14
W18x106	1.52	0.38	0.38	0.54	0.83	1.07
W18x119	1.68	0.38	0.38	0.50	0.77	1.00
W21x44	0.73	0.39	0.59	0.86	1.32	1.71
W21x50	0.83	0.38	0.55	0.80	1.22	1.59
W21x57	0.93	0.38	0.51	0.74	1.14	1.49
W21x62	0.94	0.38	0.51	0.74	1.14	1.48
W21x68	1.03	0.38	0.48	0.70	1.07	1.40
W21x83	1.24	0.38	0.43	0.62	0.95	1.24

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. D788 - Protected Deck Floor Assembly

Normal Weight & Light Weight Concrete

Minimum Thickness, in., Required on Beam

		1 Hr	**1.5 Hr**	**2 Hr**	**3 Hr**	**4 Hr**
W21x93	1.38	0.38	0.40	0.57	0.88	1.15
W21x101	1.29	0.38	0.42	0.60	0.93	1.20
W21x111	1.41	0.38	0.39	0.57	0.87	1.13
W21x122	1.54	0.38	0.38	0.53	0.82	1.06
W21x132	1.66	0.38	0.38	0.50	0.77	1.01
W21x147	1.83	0.38	0.38	0.47	0.72	0.94
W24x55	0.82	0.38	0.55	0.80	1.23	1.60
W24x62	0.92	0.38	0.52	0.75	1.15	1.50
W24x68	0.93	0.38	0.51	0.74	1.14	1.49
W24x76	1.02	0.38	0.49	0.70	1.08	1.40
W24x84	1.13	0.38	0.46	0.66	1.01	1.32
W24x94	1.26	0.38	0.42	0.61	0.94	1.22
W24x104	1.22	0.38	0.43	0.63	0.96	1.25
W24x117	1.36	0.38	0.40	0.58	0.89	1.16
W24x131	1.52	0.38	0.38	0.54	0.83	1.07
W24x146	1.68	0.38	0.38	0.50	0.77	1.00
W24x162	1.85	0.38	0.38	0.46	0.71	0.93
W27x84	1.02	0.38	0.49	0.70	1.08	1.40
W27x94	1.13	0.38	0.46	0.66	1.01	1.32
W27x102	1.23	0.38	0.43	0.62	0.96	1.24
W27x114	1.36	0.38	0.40	0.58	0.89	1.16
W27x146	1.53	0.38	0.38	0.53	0.82	1.07
W27x161	1.68	0.38	0.38	0.50	0.77	1.00
W27x178	1.85	0.38	0.38	0.46	0.71	0.93
W30x99	1.10	0.38	0.46	0.67	1.03	1.34
W30x108	1.20	0.38	0.44	0.63	0.97	1.26
W30x116	1.28	0.38	0.42	0.61	0.93	1.21
W30x124	1.37	0.38	0.40	0.58	0.89	1.15
W30x132	1.46	0.38	0.38	0.55	0.85	1.10
W30x173	1.66	0.38	0.38	0.50	0.77	1.01
W30x191	1.82	0.38	0.38	0.47	0.72	0.94
W30x211	2.00	0.38	0.38	0.44	0.67	0.88
W33x118	1.19	0.38	0.44	0.64	0.98	1.27
W33x130	1.31	0.38	0.41	0.60	0.92	1.19
W33x141	1.41	0.38	0.39	0.57	0.87	1.13
W33x152	1.51	0.38	0.38	0.54	0.83	1.08
W33x201	1.78	0.38	0.38	0.48	0.74	0.96

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

Minimum Thickness Required on Beam for Size Indictaed, in.

Lightweight Concrete

Unrestrained Beam Rating							Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.42	0.63	0.91	1.26	1.82	W4x13	0.65	0.42	0.42	0.63	1.05	1.40
0.42	0.63	0.91	1.26	1.82	W5x16	0.65	0.42	0.42	0.63	1.05	1.40
0.39	0.58	0.84	1.16	1.67	W5x19	0.76	0.39	0.39	0.58	0.97	1.29
0.53	0.80	1.15	1.59	2.30	W6x9	0.39	0.53	0.53	0.80	1.33	1.77
0.47	0.71	1.02	1.42	2.05	W6x12	0.51	0.47	0.47	0.71	1.18	1.58
0.42	0.63	0.90	1.25	1.81	W6x16	0.66	0.42	0.42	0.63	1.04	1.39
0.41	0.62	0.90	1.24	1.79	W6x20	0.67	0.41	0.41	0.62	1.03	1.38
0.38	0.55	0.80	1.11	1.60	W6x26	0.82	0.38	0.38	0.55	0.92	1.23
0.54	0.81	1.17	1.62	2.35	W8x10	0.37	0.54	0.54	0.81	1.35	1.80
0.49	0.74	1.06	1.47	2.13	W8x13	0.47	0.49	0.49	0.74	1.23	1.64
0.46	0.69	1.00	1.38	2.00	W8x15	0.54	0.46	0.46	0.69	1.15	1.54
0.45	0.67	0.97	1.35	1.94	W8x18	0.57	0.45	0.45	0.67	1.12	1.50
0.42	0.63	0.90	1.25	1.81	W8x21	0.66	0.42	0.42	0.63	1.04	1.39
0.41	0.61	0.88	1.22	1.76	W8x24	0.69	0.41	0.41	0.61	1.02	1.36
0.38	0.56	0.81	1.13	1.63	W8x28	0.80	0.38	0.38	0.56	0.94	1.25
0.38	0.57	0.82	1.13	1.64	W8x31	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.53	0.77	1.06	1.54	W8x35	0.88	0.38	0.38	0.53	0.89	1.18
0.38	0.49	0.71	0.98	1.42	W8x40	1.00	0.38	0.38	0.49	0.82	1.09
0.38	0.44	0.64	0.88	1.28	W8x48	1.18	0.38	0.38	0.44	0.74	0.98
0.38	0.39	0.57	0.78	1.13	W8x58	1.41	0.38	0.38	0.39	0.65	0.87
0.38	0.38	0.51	0.71	1.03	W8x67	1.61	0.38	0.38	0.38	0.59	0.79
0.54	0.80	1.16	1.61	2.32	W10x12	0.38	0.54	0.54	0.80	1.34	1.79
0.49	0.73	1.05	1.46	2.11	W10x15	0.48	0.49	0.49	0.73	1.22	1.62
0.46	0.69	1.00	1.38	2.00	W10x17	0.54	0.46	0.46	0.69	1.15	1.54
0.44	0.66	0.96	1.32	1.91	W10x19	0.59	0.44	0.44	0.66	1.10	1.47
0.44	0.66	0.96	1.32	1.91	W10x22	0.59	0.44	0.44	0.66	1.10	1.47
0.41	0.61	0.88	1.22	1.76	W10x26	0.69	0.41	0.41	0.61	1.02	1.36
0.38	0.57	0.82	1.13	1.64	W10x30	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.57	0.83	1.15	1.66	W10x33	0.77	0.38	0.38	0.57	0.96	1.28
0.38	0.53	0.76	1.05	1.52	W10x39	0.90	0.38	0.38	0.53	0.88	1.17
0.38	0.48	0.70	0.97	1.40	W10x46	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.50	0.72	0.99	1.43	W10x49	0.99	0.38	0.38	0.50	0.83	1.10
0.38	0.47	0.67	0.93	1.35	W10x54	1.09	0.38	0.38	0.47	0.78	1.04
0.38	0.44	0.63	0.88	1.26	W10x60	1.20	0.38	0.38	0.44	0.73	0.97
0.38	0.40	0.58	0.80	1.16	W10x68	1.36	0.38	0.38	0.40	0.67	0.89
0.38	0.38	0.54	0.74	1.07	W10x77	1.52	0.38	0.38	0.38	0.62	0.83
0.38	0.38	0.49	0.68	0.98	W10x88	1.72	0.38	0.38	0.38	0.57	0.75
0.38	0.38	0.45	0.62	0.90	W10x100	1.93	0.38	0.38	0.38	0.52	0.69
0.38	0.38	0.42	0.57	0.83	W10x112	2.14	0.38	0.38	0.38	0.48	0.64
0.53	0.79	1.14	1.58	2.28	W12x14	0.40	0.53	0.53	0.79	1.31	1.75
0.50	0.75	1.08	1.50	2.17	W12x16	0.45	0.50	0.50	0.75	1.25	1.67
0.46	0.70	1.01	1.39	2.01	W12x19	0.53	0.46	0.46	0.70	1.16	1.55
0.43	0.65	0.94	1.30	1.88	W12x22	0.61	0.43	0.43	0.65	1.08	1.45
0.44	0.66	0.95	1.31	1.90	W12x26	0.60	0.44	0.44	0.66	1.09	1.46
0.41	0.61	0.88	1.22	1.76	W12x30	0.69	0.41	0.41	0.61	1.02	1.36

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

Minimum Thickness Required on Beam for Size Indictaed, in.

Lightweight Concrete

Unrestrained Beam Rating							Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.57	0.82	1.13	1.64	W12x35	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.54	0.78	1.09	1.57	W12x40	0.85	0.38	0.38	0.54	0.91	1.21
0.38	0.51	0.73	1.02	1.47	W12x45	0.95	0.38	0.38	0.51	0.85	1.13
0.38	0.48	0.69	0.96	1.39	W12x50	1.04	0.38	0.38	0.48	0.80	1.07
0.38	0.50	0.72	0.99	1.43	W12x53	0.99	0.38	0.38	0.50	0.83	1.10
0.38	0.48	0.69	0.96	1.39	W12x54	1.04	0.38	0.38	0.48	0.80	1.07
0.38	0.47	0.68	0.94	1.35	W12x58	1.08	0.38	0.38	0.47	0.78	1.04
0.38	0.47	0.67	0.93	1.35	W12x65	1.09	0.38	0.38	0.47	0.78	1.04
0.38	0.44	0.63	0.88	1.26	W12x72	1.20	0.38	0.38	0.44	0.73	0.97
0.38	0.41	0.59	0.82	1.18	W12x79	1.32	0.38	0.38	0.41	0.68	0.91
0.38	0.39	0.56	0.77	1.12	W12x87	1.44	0.38	0.38	0.39	0.64	0.86
0.38	0.38	0.52	0.73	1.05	W12x96	1.57	0.38	0.38	0.38	0.60	0.81
0.38	0.38	0.49	0.68	0.98	W12x106	1.73	0.38	0.38	0.38	0.56	0.75
0.38	0.38	0.45	0.62	0.90	W12x120	1.94	0.38	0.38	0.38	0.52	0.69
0.38	0.38	0.41	0.57	0.82	W12x136	2.17	0.38	0.38	0.38	0.47	0.63
0.38	0.38	0.38	0.53	0.76	W12x152	2.40	0.38	0.38	0.38	0.44	0.58
0.38	0.38	0.38	0.48	0.70	W12x170	2.66	0.38	0.38	0.38	0.40	0.54
0.38	0.38	0.38	0.45	0.64	W12x190	2.93	0.38	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.41	0.60	W12x210	3.21	0.38	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.39	0.56	W12x230	3.47	0.38	0.38	0.38	0.38	0.43
0.38	0.38	0.38	0.38	0.52	W12x262	3.76	0.38	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.38	0.48	W12x279	4.10	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.45	W12x305	4.41	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.42	W12x336	4.78	0.38	0.38	0.38	0.38	0.38
0.47	0.70	1.02	1.41	2.03	W14x22	0.52	0.47	0.47	0.70	1.17	1.56
0.43	0.65	0.94	1.30	1.88	W14x26	0.61	0.43	0.43	0.65	1.08	1.45
0.43	0.64	0.92	1.28	1.85	W14x30	0.63	0.43	0.43	0.64	1.07	1.42
0.40	0.60	0.87	1.20	1.74	W14x34	0.71	0.40	0.40	0.60	1.00	1.34
0.38	0.57	0.82	1.13	1.64	W14x38	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.54	0.78	1.09	1.57	W14x43	0.85	0.38	0.38	0.54	0.91	1.21
0.38	0.51	0.74	1.02	1.48	W14x48	0.94	0.38	0.38	0.51	0.85	1.14
0.38	0.48	0.70	0.97	1.40	W14x53	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.47	0.68	0.94	1.36	W14x61	1.07	0.38	0.38	0.47	0.79	1.05
0.38	0.44	0.64	0.88	1.27	W14x68	1.19	0.38	0.38	0.44	0.73	0.98
0.38	0.42	0.61	0.84	1.21	W14x74	1.28	0.38	0.38	0.42	0.70	0.93
0.38	0.39	0.57	0.78	1.13	W14x82	1.41	0.38	0.38	0.39	0.65	0.87
0.38	0.42	0.61	0.84	1.22	W14x90	1.27	0.38	0.38	0.42	0.70	0.94
0.38	0.40	0.57	0.79	1.14	W14x99	1.39	0.38	0.38	0.40	0.66	0.88
0.38	0.38	0.53	0.74	1.07	W14x109	1.53	0.38	0.38	0.38	0.62	0.82
0.38	0.38	0.50	0.69	1.00	W14x120	1.67	0.38	0.38	0.38	0.58	0.77
0.38	0.38	0.47	0.65	0.94	W14x132	1.83	0.38	0.38	0.38	0.54	0.72
0.38	0.38	0.45	0.62	0.90	W14x145	1.94	0.38	0.38	0.38	0.52	0.69
0.38	0.38	0.42	0.58	0.84	W14x159	2.11	0.38	0.38	0.38	0.48	0.65
0.38	0.38	0.40	0.55	0.80	W14x176	2.25	0.38	0.38	0.38	0.46	0.61
0.38	0.38	0.39	0.54	0.78	W14x193	2.32	0.38	0.38	0.38	0.45	0.60

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

Minimum Thickness Required on Beam for Size Indictaed, in.

Lightweight Concrete

Unrestrained Beam Rating							Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.38	0.47	0.68	W14x211	2.74	0.38	0.38	0.38	0.39	0.52
0.38	0.38	0.38	0.44	0.63	W14x233	3.00	0.38	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.41	0.59	W14x257	3.27	0.38	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.38	0.55	W14x283	3.57	0.38	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.38	0.51	W14x311	3.88	0.38	0.38	0.38	0.38	0.39
0.38	0.38	0.38	0.38	0.47	W14x342	4.21	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.45	W14x370	4.51	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.42	W14x398	4.80	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.40	W14x426	5.09	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x550	6.30	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38	0.38
0.46	0.68	0.99	1.37	1.98	W16x26	0.55	0.46	0.46	0.68	1.14	1.52
0.42	0.63	0.91	1.26	1.82	W16x31	0.65	0.42	0.42	0.63	1.05	1.40
0.41	0.61	0.88	1.22	1.76	W16x36	0.69	0.41	0.41	0.61	1.02	1.36
0.39	0.58	0.84	1.16	1.67	W16x40	0.76	0.39	0.39	0.58	0.97	1.29
0.38	0.54	0.78	1.09	1.57	W16x45	0.85	0.38	0.38	0.54	0.91	1.21
0.38	0.51	0.74	1.02	1.48	W16x50	0.94	0.38	0.38	0.51	0.85	1.14
0.38	0.47	0.68	0.94	1.36	W16x67	1.07	0.38	0.38	0.47	0.79	1.05
0.38	0.47	0.68	0.94	1.36	W16x77	1.07	0.38	0.38	0.47	0.79	1.05
0.38	0.43	0.63	0.87	1.25	W16x89	1.22	0.38	0.38	0.43	0.72	0.96
0.38	0.38	0.53	0.73	1.05	W16x100	1.56	0.38	0.38	0.38	0.61	0.81
0.42	0.63	0.90	1.25	1.81	W18x35	0.66	0.42	0.42	0.63	1.04	1.39
0.39	0.58	0.84	1.16	1.67	W18x40	0.76	0.39	0.39	0.58	0.97	1.29
0.38	0.54	0.78	1.08	1.56	W18x46	0.86	0.38	0.38	0.54	0.90	1.20
0.38	0.54	0.77	1.07	1.55	W18x50	0.87	0.38	0.38	0.54	0.89	1.19
0.38	0.51	0.73	1.02	1.47	W18x55	0.95	0.38	0.38	0.51	0.85	1.13
0.38	0.48	0.70	0.97	1.40	W18x60	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.46	0.67	0.92	1.33	W18x65	1.11	0.38	0.38	0.46	0.77	1.02
0.38	0.44	0.63	0.87	1.26	W18x71	1.21	0.38	0.38	0.44	0.73	0.97
0.38	0.46	0.67	0.92	1.33	W18x76	1.11	0.38	0.38	0.46	0.77	1.02
0.38	0.43	0.62	0.86	1.24	W18x88	1.24	0.38	0.38	0.43	0.71	0.95
0.38	0.40	0.57	0.79	1.14	W18x97	1.39	0.38	0.38	0.40	0.66	0.88
0.38	0.38	0.54	0.74	1.07	W18x106	1.52	0.38	0.38	0.38	0.62	0.83
0.38	0.38	0.50	0.69	1.00	W18x119	1.68	0.38	0.38	0.38	0.58	0.77
0.39	0.59	0.86	1.18	1.71	W21x44	0.73	0.39	0.39	0.59	0.99	1.32
0.38	0.55	0.80	1.10	1.59	W21x50	0.83	0.38	0.38	0.55	0.92	1.22
0.38	0.51	0.74	1.03	1.49	W21x57	0.93	0.38	0.38	0.51	0.86	1.14
0.38	0.51	0.74	1.02	1.48	W21x62	0.94	0.38	0.38	0.51	0.85	1.14
0.38	0.48	0.70	0.97	1.40	W21x68	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.43	0.62	0.86	1.24	W21x83	1.24	0.38	0.38	0.43	0.71	0.95
0.38	0.40	0.57	0.80	1.15	W21x93	1.38	0.38	0.38	0.40	0.66	0.88
0.38	0.42	0.60	0.83	1.20	W21x101	1.29	0.38	0.38	0.42	0.69	0.93
0.38	0.39	0.57	0.78	1.13	W21x111	1.41	0.38	0.38	0.39	0.65	0.87

Minimum Thickness Required on Beam for Size Indictaed, in

1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.53	0.74	1.06	W21x122	1.54	0.38	0.38	0.38	0.61	0.82
0.38	0.38	0.45	0.70	1.01	W21x132	1.66	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.65	0.94	W21x147	1.83	0.38	0.38	0.38	0.49	0.72
0.38	0.50	0.72	1.11	1.60	W24x55	0.82	0.38	0.38	0.50	0.83	1.23
0.38	0.47	0.67	1.04	1.50	W24x62	0.92	0.38	0.38	0.47	0.78	1.15
0.38	0.46	0.67	1.03	1.49	W24x68	0.93	0.38	0.38	0.46	0.77	1.14
0.38	0.44	0.63	0.97	1.40	W24x76	1.02	0.38	0.38	0.44	0.73	1.08
0.38	0.41	0.59	0.91	1.32	W24x84	1.13	0.38	0.38	0.41	0.68	1.01
0.38	0.38	0.55	0.85	1.22	W24x94	1.26	0.38	0.38	0.38	0.64	0.94
0.38	0.39	0.56	0.87	1.25	W24x104	1.22	0.38	0.38	0.39	0.65	0.96
0.38	0.38	0.52	0.80	1.16	W24x117	1.36	0.38	0.38	0.38	0.60	0.89
0.38	0.38	0.48	0.74	1.07	W24x131	1.52	0.38	0.38	0.38	0.56	0.83
0.38	0.38	0.45	0.69	1.00	W24x146	1.68	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.64	0.93	W24x162	1.85	0.38	0.38	0.38	0.48	0.71
0.38	0.44	0.63	0.97	1.40	W27x84	1.02	0.38	0.38	0.44	0.73	1.08
0.38	0.41	0.59	0.91	1.32	W27x94	1.13	0.38	0.38	0.41	0.68	1.01
0.38	0.39	0.56	0.86	1.24	W27x102	1.23	0.38	0.38	0.39	0.65	0.96
0.38	0.38	0.52	0.80	1.16	W27x114	1.36	0.38	0.38	0.38	0.60	0.89
0.38	0.38	0.48	0.74	1.07	W27x146	1.53	0.38	0.38	0.38	0.55	0.82
0.38	0.38	0.45	0.69	1.00	W27x161	1.68	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.64	0.93	W27x178	1.85	0.38	0.38	0.38	0.48	0.71
0.38	0.42	0.60	0.93	1.34	W30x99	1.10	0.38	0.38	0.42	0.69	1.03
0.38	0.39	0.57	0.88	1.26	W30x108	1.20	0.38	0.38	0.39	0.66	0.97
0.38	0.38	0.54	0.84	1.21	W30x116	1.28	0.38	0.38	0.38	0.63	0.93
0.38	0.38	0.52	0.80	1.15	W30x124	1.37	0.38	0.38	0.38	0.60	0.89
0.38	0.38	0.50	0.76	1.10	W30x132	1.46	0.38	0.38	0.38	0.57	0.85
0.38	0.38	0.45	0.70	1.01	W30x173	1.66	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.65	0.94	W30x191	1.82	0.38	0.38	0.38	0.49	0.72
0.38	0.38	0.39	0.61	0.88	W30x211	2.00	0.38	0.38	0.38	0.45	0.67
0.38	0.40	0.57	0.88	1.27	W33x118	1.19	0.38	0.38	0.40	0.66	0.98
0.38	0.38	0.54	0.82	1.19	W33x130	1.31	0.38	0.38	0.38	0.62	0.92
0.38	0.38	0.51	0.78	1.13	W33x141	1.41	0.38	0.38	0.38	0.59	0.87
0.38	0.38	0.49	0.75	1.08	W33x152	1.51	0.38	0.38	0.38	0.56	0.83
0.38	0.38	0.43	0.66	0.96	W33x201	1.78	0.38	0.38	0.38	0.50	0.74

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

* When used to adjust the material thickness for a ***Restrained*** beam the use of this procedure is limited to steel sections classified as ***compact*** in accordance with the *Specification for the Design of Structural Steel Buildings* by the American Institute of Steel Construction. Refer to the UL Fire Resistance Directory.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

Minimum Thickness Required on Beam for Size Indictaed, in.

Normal Weight Concrete

Unrestrained Beam Rating							Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.42	0.63	0.91	1.26	1.82	W4x13	0.65	0.42	0.42	0.63	1.05	1.40
0.42	0.63	0.91	1.26	1.82	W5x16	0.65	0.42	0.42	0.63	1.05	1.40
0.39	0.58	0.84	1.16	1.67	W5x19	0.76	0.39	0.39	0.58	0.97	1.29
0.53	0.80	1.15	1.59	2.30	W6x9	0.39	0.53	0.53	0.80	1.33	1.77
0.47	0.71	1.02	1.42	2.05	W6x12	0.51	0.47	0.47	0.71	1.18	1.58
0.42	0.63	0.90	1.25	1.81	W6x16	0.66	0.42	0.42	0.63	1.04	1.39
0.41	0.62	0.90	1.24	1.79	W6x20	0.67	0.41	0.41	0.62	1.03	1.38
0.38	0.55	0.80	1.11	1.60	W6x26	0.82	0.38	0.38	0.55	0.92	1.23
0.54	0.81	1.17	1.62	2.35	W8x10	0.37	0.54	0.54	0.81	1.35	1.80
0.49	0.74	1.06	1.47	2.13	W8x13	0.47	0.49	0.49	0.74	1.23	1.64
0.46	0.69	1.00	1.38	2.00	W8x15	0.54	0.46	0.46	0.69	1.15	1.54
0.45	0.67	0.97	1.35	1.95	W8x18	0.57	0.45	0.45	0.67	1.12	1.50
0.42	0.63	0.90	1.25	1.81	W8x21	0.66	0.42	0.42	0.63	1.04	1.39
0.41	0.61	0.88	1.22	1.76	W8x24	0.69	0.41	0.41	0.61	1.02	1.36
0.38	0.56	0.81	1.13	1.63	W8x28	0.80	0.38	0.38	0.56	0.94	1.25
0.38	0.57	0.82	1.13	1.64	W8x31	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.53	0.77	1.06	1.54	W8x35	0.88	0.38	0.38	0.53	0.89	1.18
0.38	0.49	0.71	0.98	1.42	W8x40	1.00	0.38	0.38	0.49	0.82	1.09
0.38	0.44	0.64	0.88	1.28	W8x48	1.18	0.38	0.38	0.44	0.74	0.98
0.38	0.39	0.57	0.78	1.13	W8x58	1.41	0.38	0.38	0.39	0.65	0.87
0.38	0.38	0.51	0.71	1.03	W8x67	1.61	0.38	0.38	0.38	0.59	0.79
0.54	0.80	1.16	1.61	2.32	W10x12	0.38	0.54	0.54	0.80	1.34	1.79
0.49	0.73	1.05	1.46	2.11	W10x15	0.48	0.49	0.49	0.73	1.22	1.62
0.46	0.69	1.00	1.38	2.00	W10x17	0.54	0.46	0.46	0.69	1.15	1.54
0.44	0.66	0.96	1.32	1.91	W10x19	0.59	0.44	0.44	0.66	1.10	1.47
0.44	0.66	0.96	1.32	1.91	W10x22	0.59	0.44	0.44	0.66	1.10	1.47
0.41	0.61	0.88	1.22	1.76	W10x26	0.69	0.41	0.41	0.61	1.02	1.36
0.38	0.57	0.82	1.13	1.64	W10x30	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.57	0.83	1.15	1.66	W10x33	0.77	0.38	0.38	0.57	0.96	1.28
0.38	0.53	0.76	1.05	1.52	W10x39	0.90	0.38	0.38	0.53	0.88	1.17
0.38	0.48	0.70	0.97	1.40	W10x46	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.50	0.72	0.99	1.43	W10x49	0.99	0.38	0.38	0.50	0.83	1.10
0.38	0.47	0.67	0.93	1.35	W10x54	1.09	0.38	0.38	0.47	0.78	1.04
0.38	0.44	0.63	0.88	1.26	W10x60	1.20	0.38	0.38	0.44	0.73	0.97
0.38	0.40	0.58	0.80	1.16	W10x68	1.36	0.38	0.38	0.40	0.67	0.89
0.38	0.38	0.54	0.74	1.07	W10x77	1.52	0.38	0.38	0.38	0.62	0.83
0.38	0.38	0.49	0.68	0.98	W10x88	1.72	0.38	0.38	0.38	0.57	0.75
0.38	0.38	0.45	0.62	0.90	W10x100	1.93	0.38	0.38	0.38	0.52	0.69
0.38	0.38	0.42	0.57	0.83	W10x112	2.14	0.38	0.38	0.38	0.48	0.64
0.53	0.79	1.14	1.58	2.28	W12x14	0.40	0.53	0.53	0.79	1.31	1.75
0.50	0.75	1.08	1.50	2.17	W12x16	0.45	0.50	0.50	0.75	1.25	1.67
0.46	0.70	1.01	1.39	2.01	W12x19	0.53	0.46	0.46	0.70	1.16	1.55
0.43	0.65	0.94	1.30	1.88	W12x22	0.61	0.43	0.43	0.65	1.08	1.45
0.44	0.66	0.95	1.31	1.90	W12x26	0.60	0.44	0.44	0.66	1.09	1.46
0.41	0.61	0.88	1.22	1.76	W12x30	0.69	0.41	0.41	0.61	1.02	1.36

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

Minimum Thickness Required on Beam for Size Indictaed, in.

Normal Weight Concrete

Unrestrained Beam Rating							Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.57	0.82	1.13	1.64	W12x35	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.54	0.78	1.09	1.57	W12x40	0.85	0.38	0.38	0.54	0.91	1.21
0.38	0.51	0.73	1.02	1.47	W12x45	0.95	0.38	0.38	0.51	0.85	1.13
0.38	0.48	0.69	0.96	1.39	W12x50	1.04	0.38	0.38	0.48	0.80	1.07
0.38	0.50	0.72	0.99	1.43	W12x53	0.99	0.38	0.38	0.50	0.83	1.10
0.38	0.48	0.69	0.96	1.39	W12x54	1.04	0.38	0.38	0.48	0.80	1.07
0.38	0.47	0.68	0.94	1.35	W12x58	1.08	0.38	0.38	0.47	0.78	1.04
0.38	0.47	0.67	0.93	1.35	W12x65	1.09	0.38	0.38	0.47	0.78	1.04
0.38	0.44	0.63	0.88	1.26	W12x72	1.20	0.38	0.38	0.44	0.73	0.97
0.38	0.41	0.59	0.82	1.19	W12x79	1.32	0.38	0.38	0.41	0.68	0.91
0.38	0.39	0.56	0.77	1.12	W12x87	1.44	0.38	0.38	0.39	0.64	0.86
0.38	0.38	0.52	0.73	1.05	W12x96	1.57	0.38	0.38	0.38	0.60	0.81
0.38	0.38	0.49	0.68	0.98	W12x106	1.73	0.38	0.38	0.38	0.56	0.75
0.38	0.38	0.45	0.62	0.90	W12x120	1.94	0.38	0.38	0.38	0.52	0.69
0.38	0.38	0.41	0.57	0.82	W12x136	2.17	0.38	0.38	0.38	0.47	0.63
0.38	0.38	0.38	0.53	0.76	W12x152	2.40	0.38	0.38	0.38	0.44	0.58
0.38	0.38	0.38	0.48	0.70	W12x170	2.66	0.38	0.38	0.38	0.40	0.54
0.38	0.38	0.38	0.45	0.64	W12x190	2.93	0.38	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.41	0.60	W12x210	3.21	0.38	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.39	0.56	W12x230	3.47	0.38	0.38	0.38	0.38	0.43
0.38	0.38	0.38	0.38	0.52	W12x262	3.76	0.38	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.38	0.48	W12x279	4.10	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.45	W12x305	4.41	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.42	W12x336	4.78	0.38	0.38	0.38	0.38	0.38
0.47	0.70	1.02	1.41	2.03	W14x22	0.52	0.47	0.47	0.70	1.17	1.56
0.43	0.65	0.94	1.30	1.88	W14x26	0.61	0.43	0.43	0.65	1.08	1.45
0.43	0.64	0.92	1.28	1.85	W14x30	0.63	0.43	0.43	0.64	1.07	1.42
0.40	0.60	0.87	1.20	1.74	W14x34	0.71	0.40	0.40	0.60	1.00	1.34
0.38	0.57	0.82	1.13	1.64	W14x38	0.79	0.38	0.38	0.57	0.94	1.26
0.38	0.54	0.78	1.09	1.57	W14x43	0.85	0.38	0.38	0.54	0.91	1.21
0.38	0.51	0.74	1.02	1.48	W14x48	0.94	0.38	0.38	0.51	0.85	1.14
0.38	0.48	0.70	0.97	1.40	W14x53	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.47	0.68	0.94	1.36	W14x61	1.07	0.38	0.38	0.47	0.79	1.05
0.38	0.44	0.64	0.88	1.27	W14x68	1.19	0.38	0.38	0.44	0.73	0.98
0.38	0.42	0.61	0.84	1.21	W14x74	1.28	0.38	0.38	0.42	0.70	0.93
0.38	0.39	0.57	0.78	1.13	W14x82	1.41	0.38	0.38	0.39	0.65	0.87
0.38	0.42	0.61	0.84	1.22	W14x90	1.27	0.38	0.38	0.42	0.70	0.94
0.38	0.40	0.57	0.79	1.14	W14x99	1.39	0.38	0.38	0.40	0.66	0.88
0.38	0.38	0.53	0.74	1.07	W14x109	1.53	0.38	0.38	0.38	0.62	0.82
0.38	0.38	0.50	0.69	1.00	W14x120	1.67	0.38	0.38	0.38	0.58	0.77
0.38	0.38	0.47	0.65	0.94	W14x132	1.83	0.38	0.38	0.38	0.54	0.72
0.38	0.38	0.45	0.62	0.90	W14x145	1.94	0.38	0.38	0.38	0.52	0.69
0.38	0.38	0.42	0.58	0.84	W14x159	2.11	0.38	0.38	0.38	0.48	0.65
0.38	0.38	0.40	0.55	0.80	W14x176	2.25	0.38	0.38	0.38	0.46	0.61
0.38	0.38	0.39	0.54	0.78	W14x193	2.32	0.38	0.38	0.38	0.45	0.60

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

Minimum Thickness Required on Beam for Size Indictaed, in.

Normal Weight Concrete

Unrestrained Beam Rating							Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.38	0.47	0.68	W14x211	2.74	0.38	0.38	0.38	0.39	0.52
0.38	0.38	0.38	0.44	0.63	W14x233	3.00	0.38	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.41	0.59	W14x257	3.27	0.38	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.38	0.55	W14x283	3.57	0.38	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.38	0.51	W14x311	3.88	0.38	0.38	0.38	0.38	0.39
0.38	0.38	0.38	0.38	0.47	W14x342	4.21	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.45	W14x370	4.51	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.42	W14x398	4.80	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.40	W14x426	5.09	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x550	6.30	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38	0.38
0.46	0.68	0.99	1.37	1.98	W16x26	0.55	0.46	0.46	0.68	1.14	1.52
0.42	0.63	0.91	1.26	1.82	W16x31	0.65	0.42	0.42	0.63	1.05	1.40
0.41	0.61	0.88	1.22	1.76	W16x36	0.69	0.41	0.41	0.61	1.02	1.36
0.39	0.58	0.84	1.16	1.67	W16x40	0.76	0.39	0.39	0.58	0.97	1.29
0.38	0.54	0.78	1.09	1.57	W16x45	0.85	0.38	0.38	0.54	0.91	1.21
0.38	0.51	0.74	1.02	1.48	W16x50	0.94	0.38	0.38	0.51	0.85	1.14
0.38	0.47	0.68	0.94	1.36	W16x67	1.07	0.38	0.38	0.47	0.79	1.05
0.38	0.47	0.68	0.94	1.36	W16x77	1.07	0.38	0.38	0.47	0.79	1.05
0.38	0.43	0.63	0.87	1.25	W16x89	1.22	0.38	0.38	0.43	0.72	0.96
0.38	0.38	0.53	0.73	1.05	W16x100	1.56	0.38	0.38	0.38	0.61	0.81
0.42	0.63	0.90	1.25	1.81	W18x35	0.66	0.42	0.42	0.63	1.04	1.39
0.39	0.58	0.84	1.16	1.67	W18x40	0.76	0.39	0.39	0.58	0.97	1.29
0.38	0.54	0.78	1.08	1.56	W18x46	0.86	0.38	0.38	0.54	0.90	1.20
0.38	0.54	0.77	1.07	1.55	W18x50	0.87	0.38	0.38	0.54	0.89	1.19
0.38	0.51	0.73	1.02	1.47	W18x55	0.95	0.38	0.38	0.51	0.85	1.13
0.38	0.48	0.70	0.97	1.40	W18x60	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.46	0.67	0.92	1.33	W18x65	1.11	0.38	0.38	0.46	0.77	1.02
0.38	0.44	0.63	0.87	1.26	W18x71	1.21	0.38	0.38	0.44	0.73	0.97
0.38	0.46	0.67	0.92	1.33	W18x76	1.11	0.38	0.38	0.46	0.77	1.02
0.38	0.43	0.62	0.86	1.24	W18x88	1.24	0.38	0.38	0.43	0.71	0.95
0.38	0.40	0.57	0.79	1.14	W18x97	1.39	0.38	0.38	0.40	0.66	0.88
0.38	0.38	0.54	0.74	1.07	W18x106	1.52	0.38	0.38	0.38	0.62	0.83
0.38	0.38	0.50	0.69	1.00	W18x119	1.68	0.38	0.38	0.38	0.58	0.77
0.39	0.59	0.86	1.18	1.71	W21x44	0.73	0.39	0.39	0.59	0.99	1.32
0.38	0.55	0.80	1.10	1.59	W21x50	0.83	0.38	0.38	0.55	0.92	1.22
0.38	0.51	0.74	1.03	1.49	W21x57	0.93	0.38	0.38	0.51	0.86	1.14
0.38	0.51	0.74	1.02	1.48	W21x62	0.94	0.38	0.38	0.51	0.85	1.14
0.38	0.48	0.70	0.97	1.40	W21x68	1.03	0.38	0.38	0.48	0.81	1.07
0.38	0.43	0.62	0.86	1.24	W21x83	1.24	0.38	0.38	0.43	0.71	0.95
0.38	0.40	0.57	0.80	1.15	W21x93	1.38	0.38	0.38	0.40	0.66	0.88
0.38	0.42	0.60	0.83	1.20	W21x101	1.29	0.38	0.38	0.42	0.69	0.93
0.38	0.39	0.57	0.78	1.13	W21x111	1.41	0.38	0.38	0.39	0.65	0.87

Minimum Thickness Required on Beam for Size Indictaed, in.

1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.53	0.74	1.06	W21x122	1.54	0.38	0.38	0.38	0.61	0.82
0.38	0.38	0.45	0.70	1.01	W21x132	1.66	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.65	0.94	W21x147	1.83	0.38	0.38	0.38	0.49	0.72
0.38	0.50	0.72	1.11	1.60	W24x55	0.82	0.38	0.38	0.50	0.83	1.23
0.38	0.47	0.67	1.04	1.50	W24x62	0.92	0.38	0.38	0.47	0.78	1.15
0.38	0.46	0.67	1.03	1.49	W24x68	0.93	0.38	0.38	0.46	0.77	1.14
0.38	0.44	0.63	0.97	1.40	W24x76	1.02	0.38	0.38	0.44	0.73	1.08
0.38	0.41	0.59	0.91	1.32	W24x84	1.13	0.38	0.38	0.41	0.68	1.01
0.38	0.38	0.55	0.85	1.22	W24x94	1.26	0.38	0.38	0.38	0.64	0.94
0.38	0.39	0.56	0.87	1.25	W24x104	1.22	0.38	0.38	0.39	0.65	0.96
0.38	0.38	0.52	0.80	1.16	W24x117	1.36	0.38	0.38	0.38	0.60	0.89
0.38	0.38	0.48	0.74	1.07	W24x131	1.52	0.38	0.38	0.38	0.56	0.83
0.38	0.38	0.45	0.69	1.00	W24x146	1.68	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.64	0.93	W24x162	1.85	0.38	0.38	0.38	0.48	0.71
0.38	0.44	0.63	0.97	1.40	W27x84	1.02	0.38	0.38	0.44	0.73	1.08
0.38	0.41	0.59	0.91	1.32	W27x94	1.13	0.38	0.38	0.41	0.68	1.01
0.38	0.39	0.56	0.86	1.24	W27x102	1.23	0.38	0.38	0.39	0.65	0.96
0.38	0.38	0.52	0.80	1.16	W27x114	1.36	0.38	0.38	0.38	0.60	0.89
0.38	0.38	0.48	0.74	1.07	W27x146	1.53	0.38	0.38	0.38	0.55	0.82
0.38	0.38	0.45	0.69	1.00	W27x161	1.68	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.64	0.93	W27x178	1.85	0.38	0.38	0.38	0.48	0.71
0.38	0.42	0.60	0.93	1.34	W30x99	1.10	0.38	0.38	0.42	0.69	1.03
0.38	0.39	0.57	0.88	1.26	W30x108	1.20	0.38	0.38	0.39	0.66	0.97
0.38	0.38	0.54	0.84	1.21	W30x116	1.28	0.38	0.38	0.38	0.63	0.93
0.38	0.38	0.52	0.80	1.16	W30x124	1.37	0.38	0.38	0.38	0.60	0.89
0.38	0.38	0.50	0.76	1.10	W30x132	1.46	0.38	0.38	0.38	0.57	0.85
0.38	0.38	0.45	0.70	1.01	W30x173	1.66	0.38	0.38	0.38	0.52	0.77
0.38	0.38	0.42	0.65	0.94	W30x191	1.82	0.38	0.38	0.38	0.49	0.72
0.38	0.38	0.39	0.61	0.88	W30x211	2.00	0.38	0.38	0.38	0.45	0.67
0.38	0.40	0.57	0.88	1.27	W33x118	1.19	0.38	0.38	0.40	0.66	0.98
0.38	0.38	0.54	0.82	1.19	W33x130	1.31	0.38	0.38	0.38	0.62	0.92
0.38	0.38	0.51	0.78	1.13	W33x141	1.41	0.38	0.38	0.38	0.59	0.87
0.38	0.38	0.49	0.75	1.08	W33x152	1.51	0.38	0.38	0.38	0.56	0.83
0.38	0.38	0.43	0.66	0.96	W33x201	1.78	0.38	0.38	0.38	0.50	0.74

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

* When used to adjust the material thickness for a ***Restrained*** beam the use of this procedure is limited to steel sections classified as ***compact*** in accordance with the *Specification for the Design of Structural Steel Buildings* by the American Institute of Steel Construction. Refer to the UL Fire Resistance Directory.

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP and Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thicknesses (NWC)						Full Flange Tip Thicknesses (LWC)			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.42	0.63	0.91	1.40	W4x13	0.65	0.42	0.63	0.91	1.54
0.42	0.63	0.91	1.40	W6x16	0.65	0.42	0.63	0.91	1.54
0.39	0.58	0.84	1.29	W6x19	0.76	0.39	0.58	0.84	1.42
0.53	0.80	1.15	1.77	W6x9	0.39	0.53	0.80	1.15	1.94
0.47	0.71	1.02	1.58	W6x12	0.51	0.47	0.71	1.02	1.73
0.42	0.63	0.90	1.39	W6x16	0.66	0.42	0.63	0.90	1.53
0.41	0.62	0.90	1.38	W6x20	0.67	0.41	0.62	0.90	1.52
0.38	0.55	0.80	1.23	W6x26	0.82	0.38	0.55	0.80	1.36
0.54	0.81	1.17	1.80	W8x10	0.37	0.54	0.81	1.17	1.98
0.49	0.74	1.06	1.64	W8x13	0.47	0.49	0.74	1.06	1.80
0.46	0.69	1.00	1.54	W8x15	0.54	0.46	0.69	1.00	1.69
0.45	0.67	0.97	1.50	W8x18	0.57	0.45	0.67	0.97	1.65
0.42	0.63	0.90	1.39	W8x21	0.66	0.42	0.63	0.90	1.53
0.41	0.61	0.88	1.36	W8x24	0.69	0.41	0.61	0.88	1.49
0.38	0.56	0.81	1.25	W8x28	0.8	0.38	0.56	0.81	1.38
0.38	0.57	0.82	1.26	W8x31	0.79	0.38	0.57	0.82	1.38
0.38	0.53	0.77	1.18	W8x35	0.88	0.38	0.53	0.77	1.30
0.38	0.49	0.71	1.09	W8x40	1	0.38	0.49	0.71	1.20
0.38	0.44	0.64	0.98	W8x48	1.18	0.38	0.44	0.64	1.08
0.38	0.39	0.57	0.87	W8x58	1.41	0.38	0.39	0.57	0.96
0.38	0.38	0.51	0.79	W8x67	1.61	0.38	0.38	0.51	0.87
0.54	0.80	1.16	1.79	W10x12	0.38	0.54	0.80	1.16	1.96
0.49	0.73	1.05	1.62	W10x15	0.48	0.49	0.73	1.05	1.78
0.46	0.69	1.00	1.54	W10x17	0.54	0.46	0.69	1.00	1.69
0.44	0.66	0.96	1.47	W10x19	0.59	0.44	0.66	0.96	1.62
0.44	0.66	0.96	1.47	W10x22	0.59	0.44	0.66	0.96	1.62
0.41	0.61	0.88	1.36	W10x26	0.69	0.41	0.61	0.88	1.49
0.38	0.57	0.82	1.26	W10x30	0.79	0.38	0.57	0.82	1.38
0.38	0.57	0.83	1.28	W10x33	0.77	0.38	0.57	0.83	1.41
0.38	0.53	0.76	1.17	W10x39	0.9	0.38	0.53	0.76	1.28
0.38	0.48	0.70	1.07	W10x46	1.03	0.38	0.48	0.70	1.18
0.38	0.50	0.72	1.10	W10x49	0.99	0.38	0.50	0.72	1.21
0.38	0.47	0.67	1.04	W10x54	1.09	0.38	0.47	0.67	1.14
0.38	0.44	0.63	0.97	W10x60	1.2	0.38	0.44	0.63	1.07
0.38	0.40	0.58	0.89	W10x68	1.36	0.38	0.40	0.58	0.98
0.38	0.38	0.54	0.83	W10x77	1.52	0.38	0.38	0.54	0.91
0.38	0.38	0.49	0.75	W10x88	1.72	0.38	0.38	0.49	0.83
0.38	0.38	0.45	0.69	W10x100	1.93	0.38	0.38	0.45	0.76
0.38	0.38	0.42	0.64	W10x112	2.14	0.38	0.38	0.42	0.70
0.53	0.79	1.14	1.75	W12x14	0.4	0.53	0.79	1.14	1.93
0.50	0.75	1.08	1.67	W12x16	0.45	0.50	0.75	1.08	1.83
0.46	0.70	1.01	1.55	W12x19	0.53	0.46	0.70	1.01	1.70
0.43	0.65	0.94	1.45	W12x22	0.61	0.43	0.65	0.94	1.59
0.44	0.66	0.95	1.46	W12x26	0.6	0.44	0.66	0.95	1.60
0.41	0.61	0.88	1.36	W12x30	0.69	0.41	0.61	0.88	1.49

AD Southwest Type 5GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Normal Weight Concrete (NWC) Lightweight concrete (LWC)

Full Flange Tip Thickness (NWC)						Full Flange Tip Thickness (LWC)			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.57	0.82	1.26	W12x35	0.79	0.38	0.57	0.82	1.38
0.38	0.54	0.78	1.21	W12x40	0.85	0.38	0.54	0.78	1.33
0.38	0.51	0.73	1.13	W12x45	0.95	0.38	0.51	0.73	1.24
0.38	0.48	0.69	1.07	W12x50	1.04	0.38	0.48	0.69	1.17
0.38	0.50	0.72	1.10	W12x53	0.99	0.38	0.50	0.72	1.21
0.38	0.48	0.69	1.07	W12x54	1.04	0.38	0.48	0.69	1.17
0.38	0.47	0.68	1.04	W12x58	1.08	0.38	0.47	0.68	1.15
0.38	0.47	0.67	1.04	W12x65	1.09	0.38	0.47	0.67	1.14
0.38	0.44	0.63	0.97	W12x72	1.2	0.38	0.44	0.63	1.07
0.38	0.41	0.59	0.91	W12x79	1.32	0.38	0.41	0.59	1.00
0.38	0.39	0.56	0.86	W12x87	1.44	0.38	0.39	0.56	0.94
0.38	0.38	0.52	0.81	W12x96	1.57	0.38	0.38	0.52	0.89
0.38	0.38	0.49	0.75	W12x106	1.73	0.38	0.38	0.49	0.83
0.38	0.38	0.45	0.69	W12x120	1.94	0.38	0.38	0.45	0.76
0.38	0.38	0.41	0.63	W12x136	2.17	0.38	0.38	0.41	0.69
0.38	0.38	0.38	0.58	W12x152	2.4	0.38	0.38	0.38	0.64
0.38	0.38	0.38	0.54	W12x170	2.66	0.38	0.38	0.38	0.59
0.38	0.38	0.38	0.50	W12x190	2.93	0.38	0.38	0.38	0.55
0.38	0.38	0.38	0.46	W12x210	3.21	0.38	0.38	0.38	0.51
0.38	0.38	0.38	0.43	W12x230	3.47	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.40	W12x262	3.76	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.38	W12x279	4.1	0.38	0.38	0.38	0.41
0.38	0.38	0.38	0.38	W12x305	4.41	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W12x336	4.78	0.38	0.38	0.38	0.38
0.47	0.70	1.02	1.56	W14x22	0.52	0.47	0.70	1.02	1.72
0.43	0.65	0.94	1.45	W14x26	0.61	0.43	0.65	0.94	1.59
0.43	0.64	0.92	1.42	W14x30	0.63	0.43	0.64	0.92	1.57
0.40	0.60	0.87	1.34	W14x34	0.71	0.40	0.60	0.87	1.47
0.38	0.57	0.82	1.26	W14x38	0.79	0.38	0.57	0.82	1.38
0.38	0.54	0.78	1.21	W14x43	0.85	0.38	0.54	0.78	1.33
0.38	0.51	0.74	1.14	W14x48	0.94	0.38	0.51	0.74	1.25
0.38	0.48	0.70	1.07	W14x53	1.03	0.38	0.48	0.70	1.18
0.38	0.47	0.68	1.05	W14x61	1.07	0.38	0.47	0.68	1.15
0.38	0.44	0.64	0.98	W14x68	1.19	0.38	0.44	0.64	1.08
0.38	0.42	0.61	0.93	W14x74	1.28	0.38	0.42	0.61	1.02
0.38	0.39	0.57	0.87	W14x82	1.41	0.38	0.39	0.57	0.96
0.38	0.42	0.61	0.94	W14x90	1.27	0.38	0.42	0.61	1.03
0.38	0.40	0.57	0.88	W14x99	1.39	0.38	0.40	0.57	0.97
0.38	0.38	0.53	0.82	W14x109	1.53	0.38	0.38	0.53	0.90
0.38	0.38	0.50	0.77	W14x120	1.67	0.38	0.38	0.50	0.85
0.38	0.38	0.47	0.72	W14x132	1.83	0.38	0.38	0.47	0.79
0.38	0.38	0.45	0.69	W14x145	1.94	0.38	0.38	0.45	0.76
0.38	0.38	0.42	0.65	W14x159	2.11	0.38	0.38	0.42	0.71
0.38	0.38	0.40	0.61	W14x176	2.25	0.38	0.38	0.40	0.68
0.38	0.38	0.39	0.60	W14x193	2.32	0.38	0.38	0.39	0.66

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thickness (NWC)						Full Flange Tip Thickness (LWC)			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.38	0.52	W14x211	2.74	0.38	0.38	0.38	0.58
0.38	0.38	0.38	0.49	W14x233	3	0.38	0.38	0.38	0.53
0.38	0.38	0.38	0.45	W14x257	3.27	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.42	W14x283	3.57	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.39	W14x311	3.88	0.38	0.38	0.38	0.43
0.38	0.38	0.38	0.38	W14x342	4.21	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.38	W14x370	4.51	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x398	4.8	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x426	5.09	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x550	6.3	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x605	6.8	0.38	0.38	0.38	0.38
0.46	0.68	0.99	1.52	W16x26	0.55	0.46	0.68	0.99	1.67
0.42	0.63	0.91	1.40	W16x31	0.65	0.42	0.63	0.91	1.54
0.41	0.61	0.88	1.36	W16x36	0.69	0.41	0.61	0.88	1.49
0.39	0.58	0.84	1.29	W16x40	0.76	0.39	0.58	0.84	1.42
0.38	0.54	0.78	1.21	W16x45	0.85	0.38	0.54	0.78	1.33
0.38	0.51	0.74	1.14	W16x50	0.94	0.38	0.51	0.74	1.25
0.38	0.47	0.68	1.05	W16x67	1.07	0.38	0.47	0.68	1.15
0.38	0.47	0.68	1.05	W16x77	1.07	0.38	0.47	0.68	1.15
0.38	0.43	0.63	0.96	W16x89	1.22	0.38	0.43	0.63	1.06
0.38	0.38	0.53	0.81	W16x100	1.56	0.38	0.38	0.53	0.89
0.42	0.63	0.90	1.39	W18x35	0.66	0.42	0.63	0.90	1.53
0.39	0.58	0.84	1.29	W18x40	0.76	0.39	0.58	0.84	1.42
0.38	0.54	0.78	1.20	W18x46	0.86	0.38	0.54	0.78	1.32
0.38	0.54	0.77	1.19	W18x50	0.87	0.38	0.54	0.77	1.31
0.38	0.51	0.73	1.13	W18x55	0.95	0.38	0.51	0.73	1.24
0.38	0.48	0.70	1.07	W18x60	1.03	0.38	0.48	0.70	1.18
0.38	0.46	0.67	1.02	W18x65	1.11	0.38	0.46	0.67	1.13
0.38	0.44	0.63	0.97	W18x71	1.21	0.38	0.44	0.63	1.06
0.38	0.46	0.67	1.02	W18x76	1.11	0.38	0.46	0.67	1.13
0.38	0.43	0.62	0.95	W18x88	1.24	0.38	0.43	0.62	1.05
0.38	0.40	0.57	0.88	W18x97	1.39	0.38	0.40	0.57	0.97
0.38	0.38	0.54	0.83	W18x106	1.52	0.38	0.38	0.54	0.91
0.38	0.38	0.50	0.77	W18x119	1.68	0.38	0.38	0.50	0.84
0.39	0.59	0.86	1.32	W21x44	0.73	0.39	0.59	0.86	1.45
0.38	0.55	0.80	1.22	W21x50	0.83	0.38	0.55	0.80	1.35
0.38	0.51	0.74	1.14	W21x57	0.93	0.38	0.51	0.74	1.26
0.38	0.51	0.74	1.14	W21x62	0.94	0.38	0.51	0.74	1.25
0.38	0.48	0.70	1.07	W21x68	1.03	0.38	0.48	0.70	1.18
0.38	0.43	0.62	0.95	W21x83	1.24	0.38	0.43	0.62	1.05
0.38	0.40	0.57	0.88	W21x93	1.38	0.38	0.40	0.57	0.97
0.38	0.42	0.60	0.93	W21x101	1.29	0.38	0.42	0.60	1.02
0.38	0.39	0.57	0.87	W21x111	1.41	0.38	0.39	0.57	0.96

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thickness (NWC)						Full Flange Tip Thickness (LWC)			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.53	0.82	W21x122	1.54	0.38	0.38	0.53	0.90
0.38	0.38	0.50	0.77	W21x132	1.66	0.38	0.38	0.50	0.85
0.38	0.38	0.47	0.72	W21x147	1.83	0.38	0.38	0.47	0.79
0.38	0.55	0.80	1.23	W24x55	0.82	0.38	0.55	0.80	1.36
0.38	0.52	0.75	1.15	W24x62	0.92	0.38	0.52	0.75	1.27
0.38	0.51	0.74	1.14	W24x68	0.93	0.38	0.51	0.74	1.26
0.38	0.49	0.70	1.08	W24x76	1.02	0.38	0.49	0.70	1.19
0.38	0.46	0.66	1.01	W24x84	1.13	0.38	0.46	0.66	1.11
0.38	0.42	0.61	0.94	W24x94	1.26	0.38	0.42	0.61	1.03
0.38	0.43	0.63	0.96	W24x104	1.22	0.38	0.43	0.63	1.06
0.38	0.40	0.58	0.89	W24x117	1.36	0.38	0.40	0.58	0.98
0.38	0.38	0.54	0.83	W24x131	1.52	0.38	0.38	0.54	0.91
0.38	0.38	0.50	0.77	W24x146	1.68	0.38	0.38	0.50	0.84
0.38	0.38	0.46	0.71	W24x162	1.85	0.38	0.38	0.46	0.79
0.38	0.49	0.70	1.08	W27x84	1.02	0.38	0.49	0.70	1.19
0.38	0.46	0.66	1.01	W27x94	1.13	0.38	0.46	0.66	1.11
0.38	0.43	0.62	0.96	W27x102	1.23	0.38	0.43	0.62	1.05
0.38	0.40	0.58	0.89	W27x114	1.36	0.38	0.40	0.58	0.98
0.38	0.38	0.53	0.82	W27x146	1.53	0.38	0.38	0.53	0.90
0.38	0.38	0.50	0.77	W27x161	1.68	0.38	0.38	0.50	0.84
0.38	0.38	0.46	0.71	W27x178	1.85	0.38	0.38	0.46	0.79
0.38	0.46	0.67	1.03	W30x99	1.1	0.38	0.46	0.67	1.13
0.38	0.44	0.63	0.97	W30x108	1.2	0.38	0.44	0.63	1.07
0.38	0.42	0.61	0.93	W30x116	1.28	0.38	0.42	0.61	1.02
0.38	0.40	0.58	0.89	W30x124	1.37	0.38	0.40	0.58	0.98
0.38	0.38	0.55	0.85	W30x132	1.46	0.38	0.38	0.55	0.93
0.38	0.38	0.50	0.77	W30x173	1.66	0.38	0.38	0.50	0.85
0.38	0.38	0.47	0.72	W30x191	1.82	0.38	0.38	0.47	0.80
0.38	0.38	0.44	0.67	W30x211	2	0.38	0.38	0.44	0.74
0.38	0.44	0.64	0.98	W33x118	1.19	0.38	0.44	0.64	1.08
0.38	0.41	0.60	0.92	W33x130	1.31	0.38	0.41	0.60	1.01
0.38	0.39	0.57	0.87	W33x141	1.41	0.38	0.39	0.57	0.96
0.38	0.38	0.54	0.83	W33x152	1.51	0.38	0.38	0.54	0.91
0.38	0.38	0.48	0.74	W33x201	1.78	0.38	0.38	0.48	0.81

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP and Type 7 HD

Restrained Beam Only Assembly UL N-791

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half*

Full Flange Tip Thicknesses (NWC & LWC)							**1/2 Flange Tip Thicknesses (NWC & LWC)**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.42	0.42	0.63	1.05	1.40	W4x13	0.65	0.42	0.42	0.63	1.05	1.47
0.42	0.42	0.63	1.05	1.40	W6x16	0.65	0.42	0.42	0.63	1.05	1.47
0.39	0.39	0.58	0.97	1.29	W6x19	0.76	0.39	0.39	0.58	0.97	1.35
0.53	0.53	0.80	1.33	1.77	W6x9	0.39	0.53	0.53	0.80	1.33	1.86
0.47	0.47	0.71	1.18	1.58	W6x12	0.51	0.47	0.47	0.71	1.18	1.66
0.42	0.42	0.63	1.04	1.39	W6x16	0.66	0.42	0.42	0.63	1.04	1.46
0.41	0.41	0.62	1.03	1.38	W6x20	0.67	0.41	0.41	0.62	1.03	1.45
0.38	0.38	0.55	0.92	1.23	W6x26	0.82	0.38	0.38	0.55	0.92	1.29
0.54	0.54	0.81	1.35	1.80	W8x10	0.37	0.54	0.54	0.81	1.35	1.89
0.49	0.49	0.74	1.23	1.64	W8x13	0.47	0.49	0.49	0.74	1.23	1.72
0.46	0.46	0.69	1.15	1.54	W8x15	0.54	0.46	0.46	0.69	1.15	1.61
0.45	0.45	0.67	1.12	1.50	W8x18	0.57	0.45	0.45	0.67	1.12	1.57
0.42	0.42	0.63	1.04	1.39	W8x21	0.66	0.42	0.42	0.63	1.04	1.46
0.41	0.41	0.61	1.02	1.36	W8x24	0.69	0.41	0.41	0.61	1.02	1.42
0.38	0.38	0.56	0.94	1.25	W8x28	0.8	0.38	0.38	0.56	0.94	1.31
0.38	0.38	0.57	0.94	1.26	W8x31	0.79	0.38	0.38	0.57	0.94	1.32
0.38	0.38	0.53	0.89	1.18	W8x35	0.88	0.38	0.38	0.53	0.89	1.24
0.38	0.38	0.49	0.82	1.09	W8x40	1	0.38	0.38	0.49	0.82	1.15
0.38	0.38	0.44	0.74	0.98	W8x48	1.18	0.38	0.38	0.44	0.74	1.03
0.38	0.38	0.39	0.65	0.87	W8x58	1.41	0.38	0.38	0.39	0.65	0.91
0.38	0.38	0.38	0.59	0.79	W8x67	1.61	0.38	0.38	0.38	0.59	0.83
0.54	0.54	0.80	1.34	1.79	W10x12	0.38	0.54	0.54	0.80	1.34	1.88
0.49	0.49	0.73	1.22	1.62	W10x15	0.48	0.49	0.49	0.73	1.22	1.70
0.46	0.46	0.69	1.15	1.54	W10x17	0.54	0.46	0.46	0.69	1.15	1.61
0.44	0.44	0.66	1.10	1.47	W10x19	0.59	0.44	0.44	0.66	1.10	1.54
0.44	0.44	0.66	1.10	1.47	W10x22	0.59	0.44	0.44	0.66	1.10	1.54
0.41	0.41	0.61	1.02	1.36	W10x26	0.69	0.41	0.41	0.61	1.02	1.42
0.38	0.38	0.57	0.94	1.26	W10x30	0.79	0.38	0.38	0.57	0.94	1.32
0.38	0.38	0.57	0.96	1.28	W10x33	0.77	0.38	0.38	0.57	0.96	1.34
0.38	0.38	0.53	0.88	1.17	W10x39	0.9	0.38	0.38	0.53	0.88	1.23
0.38	0.38	0.48	0.81	1.07	W10x46	1.03	0.38	0.38	0.48	0.81	1.13
0.38	0.38	0.50	0.83	1.10	W10x49	0.99	0.38	0.38	0.50	0.83	1.16
0.38	0.38	0.47	0.78	1.04	W10x54	1.09	0.38	0.38	0.47	0.78	1.09
0.38	0.38	0.44	0.73	0.97	W10x60	1.2	0.38	0.38	0.44	0.73	1.02
0.38	0.38	0.40	0.67	0.89	W10x68	1.36	0.38	0.38	0.40	0.67	0.94
0.38	0.38	0.38	0.62	0.83	W10x77	1.52	0.38	0.38	0.38	0.62	0.87
0.38	0.38	0.38	0.57	0.75	W10x88	1.72	0.38	0.38	0.38	0.57	0.79
0.38	0.38	0.38	0.52	0.69	W10x100	1.93	0.38	0.38	0.38	0.52	0.73
0.38	0.38	0.38	0.48	0.64	W10x112	2.14	0.38	0.38	0.38	0.48	0.67
0.53	0.53	0.79	1.31	1.75	W12x14	0.4	0.53	0.53	0.79	1.31	1.84
0.50	0.50	0.75	1.25	1.67	W12x16	0.45	0.50	0.50	0.75	1.25	1.75
0.46	0.46	0.70	1.16	1.55	W12x19	0.53	0.46	0.46	0.70	1.16	1.63
0.43	0.43	0.65	1.08	1.45	W12x22	0.61	0.43	0.43	0.65	1.08	1.52
0.44	0.44	0.66	1.09	1.46	W12x26	0.6	0.44	0.44	0.66	1.09	1.53
0.41	0.41	0.61	1.02	1.36	W12x30	0.69	0.41	0.41	0.61	1.02	1.42
0.38	0.38	0.57	0.94	1.26	W12x35	0.79	0.38	0.38	0.57	0.94	1.32
0.38	0.38	0.54	0.91	1.21	W12x40	0.85	0.38	0.38	0.54	0.91	1.27
0.38	0.38	0.51	0.85	1.13	W12x45	0.95	0.38	0.38	0.51	0.85	1.19
0.38	0.38	0.48	0.80	1.07	W12x50	1.04	0.38	0.38	0.48	0.80	1.12
0.38	0.38	0.50	0.83	1.10	W12x53	0.99	0.38	0.38	0.50	0.83	1.16
0.38	0.38	0.48	0.80	1.07	W12x54	1.04	0.38	0.38	0.48	0.80	1.12
0.38	0.38	0.47	0.78	1.04	W12x58	1.08	0.38	0.38	0.47	0.78	1.09
0.38	0.38	0.47	0.78	1.04	W12x65	1.09	0.38	0.38	0.47	0.78	1.09
0.38	0.38	0.44	0.73	0.97	W12x72	1.2	0.38	0.38	0.44	0.73	1.02
0.38	0.38	0.41	0.68	0.91	W12x79	1.32	0.38	0.38	0.41	0.68	0.96
0.38	0.38	0.39	0.64	0.86	W12x87	1.44	0.38	0.38	0.39	0.64	0.90
0.38	0.38	0.38	0.60	0.81	W12x96	1.57	0.38	0.38	0.38	0.60	0.85
0.38	0.38	0.38	0.56	0.75	W12x106	1.73	0.38	0.38	0.38	0.56	0.79
0.38	0.38	0.38	0.52	0.69	W12x120	1.94	0.38	0.38	0.38	0.52	0.72
0.38	0.38	0.38	0.47	0.63	W12x136	2.17	0.38	0.38	0.38	0.47	0.66

AD Southwest Type 5GP, Type 5 MD, Type 7 GP & Type 7 HD

Restrained Beam Only Assembly UL N-791

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half*

Full Flange Tip Thicknesses (NWC & LWC)							**1/2 Flange Tip Thicknesses (NWC & LWC)**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.39	0.64	0.86	W12x87	1.44	0.38	0.38	0.39	0.64	0.90
0.38	0.38	0.38	0.60	0.81	W12x96	1.57	0.38	0.38	0.38	0.60	0.85
0.38	0.38	0.38	0.56	0.75	W12x106	1.73	0.38	0.38	0.38	0.56	0.79
0.38	0.38	0.38	0.52	0.69	W12x120	1.94	0.38	0.38	0.38	0.52	0.72
0.38	0.38	0.38	0.47	0.63	W12x136	2.17	0.38	0.38	0.38	0.47	0.66
0.38	0.38	0.38	0.44	0.58	W12x152	2.4	0.38	0.38	0.38	0.44	0.61
0.38	0.38	0.38	0.40	0.54	W12x170	2.66	0.38	0.38	0.38	0.40	0.56
0.38	0.38	0.38	0.38	0.50	W12x190	2.93	0.38	0.38	0.38	0.38	0.52
0.38	0.38	0.38	0.38	0.46	W12x210	3.21	0.38	0.38	0.38	0.38	0.48
0.38	0.38	0.38	0.38	0.43	W12x230	3.47	0.38	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.38	0.40	W12x262	3.76	0.38	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.38	0.38	W12x279	4.1	0.38	0.38	0.38	0.38	0.39
0.38	0.38	0.38	0.38	0.38	W12x305	4.41	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W12x336	4.78	0.38	0.38	0.38	0.38	0.38
0.47	0.47	0.70	1.17	1.56	W14x22	0.52	0.47	0.47	0.70	1.17	1.64
0.43	0.43	0.65	1.08	1.45	W14x26	0.61	0.43	0.43	0.65	1.08	1.52
0.43	0.43	0.64	1.07	1.42	W14x30	0.63	0.43	0.43	0.64	1.07	1.49
0.40	0.40	0.60	1.00	1.34	W14x34	0.71	0.40	0.40	0.60	1.00	1.40
0.38	0.38	0.57	0.94	1.26	W14x38	0.79	0.38	0.38	0.57	0.94	1.32
0.38	0.38	0.54	0.91	1.21	W14x43	0.85	0.38	0.38	0.54	0.91	1.27
0.38	0.38	0.51	0.85	1.14	W14x48	0.94	0.38	0.38	0.51	0.85	1.19
0.38	0.38	0.48	0.81	1.07	W14x53	1.03	0.38	0.38	0.48	0.81	1.13
0.38	0.38	0.47	0.79	1.05	W14x61	1.07	0.38	0.38	0.47	0.79	1.10
0.38	0.38	0.44	0.73	0.98	W14x68	1.19	0.38	0.38	0.44	0.73	1.03
0.38	0.38	0.42	0.70	0.93	W14x74	1.28	0.38	0.38	0.42	0.70	0.98
0.38	0.38	0.39	0.65	0.87	W14x82	1.41	0.38	0.38	0.39	0.65	0.91
0.38	0.38	0.42	0.70	0.94	W14x90	1.27	0.38	0.38	0.42	0.70	0.98
0.38	0.38	0.40	0.66	0.88	W14x99	1.39	0.38	0.38	0.40	0.66	0.92
0.38	0.38	0.38	0.62	0.82	W14x109	1.53	0.38	0.38	0.38	0.62	0.86
0.38	0.38	0.38	0.58	0.77	W14x120	1.67	0.38	0.38	0.38	0.58	0.81
0.38	0.38	0.38	0.54	0.72	W14x132	1.83	0.38	0.38	0.38	0.54	0.76
0.38	0.38	0.38	0.52	0.69	W14x145	1.94	0.38	0.38	0.38	0.52	0.72
0.38	0.38	0.38	0.48	0.65	W14x159	2.11	0.38	0.38	0.38	0.48	0.68
0.38	0.38	0.38	0.46	0.61	W14x176	2.25	0.38	0.38	0.38	0.46	0.64
0.38	0.38	0.38	0.45	0.60	W14x193	2.32	0.38	0.38	0.38	0.45	0.63
0.38	0.38	0.38	0.39	0.52	W14x211	2.74	0.38	0.38	0.38	0.39	0.55
0.38	0.38	0.38	0.38	0.49	W14x233	3	0.38	0.38	0.38	0.38	0.51
0.38	0.38	0.38	0.38	0.45	W14x257	3.27	0.38	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.38	0.42	W14x283	3.57	0.38	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.38	0.39	W14x311	3.88	0.38	0.38	0.38	0.38	0.41
0.38	0.38	0.38	0.38	0.38	W14x342	4.21	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x370	4.51	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x398	4.8	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x426	5.09	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x550	6.3	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x605	6.8	0.38	0.38	0.38	0.38	0.38
0.46	0.46	0.68	1.14	1.52	W16x26	0.55	0.46	0.46	0.68	1.14	1.60
0.42	0.42	0.63	1.05	1.40	W16x31	0.65	0.42	0.42	0.63	1.05	1.47
0.41	0.41	0.61	1.02	1.36	W16x36	0.69	0.41	0.41	0.61	1.02	1.42
0.39	0.39	0.58	0.97	1.29	W16x40	0.76	0.39	0.39	0.58	0.97	1.35
0.38	0.38	0.54	0.91	1.21	W16x45	0.85	0.38	0.38	0.54	0.91	1.27
0.38	0.38	0.51	0.85	1.14	W16x50	0.94	0.38	0.38	0.51	0.85	1.19
0.38	0.38	0.47	0.79	1.05	W16x67	1.07	0.38	0.38	0.47	0.79	1.10
0.38	0.38	0.47	0.79	1.05	W16x77	1.07	0.38	0.38	0.47	0.79	1.10
0.38	0.38	0.43	0.72	0.96	W16x89	1.22	0.38	0.38	0.43	0.72	1.01
0.38	0.38	0.38	0.61	0.81	W16x100	1.56	0.38	0.38	0.38	0.61	0.85
0.42	0.42	0.63	1.04	1.39	W18x35	0.66	0.42	0.42	0.63	1.04	1.46
0.39	0.39	0.58	0.97	1.29	W18x40	0.76	0.39	0.39	0.58	0.97	1.35

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half*

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Restrained Beam Only Assembly UL N-791

Full Flange Tip Thicknesses (NWC & LWC)							1/2 Flange Tip Thicknesses (NWC & LWC)				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.54	0.90	1.20	W18x46	0.86	0.38	0.38	0.54	0.90	1.26
0.38	0.38	0.54	0.89	1.19	W18x50	0.87	0.38	0.38	0.54	0.89	1.25
0.38	0.38	0.51	0.85	1.13	W18x55	0.95	0.38	0.38	0.51	0.85	1.19
0.38	0.38	0.48	0.81	1.07	W18x60	1.03	0.38	0.38	0.48	0.81	1.13
0.38	0.38	0.46	0.77	1.02	W18x65	1.11	0.38	0.38	0.46	0.77	1.07
0.38	0.38	0.44	0.73	0.97	W18x71	1.21	0.38	0.38	0.44	0.73	1.02
0.38	0.38	0.46	0.77	1.02	W18x76	1.11	0.38	0.38	0.46	0.77	1.07
0.38	0.38	0.43	0.71	0.95	W18x88	1.24	0.38	0.38	0.43	0.71	1.00
0.38	0.38	0.40	0.66	0.88	W18x97	1.39	0.38	0.38	0.40	0.66	0.92
0.38	0.38	0.38	0.62	0.83	W18x106	1.52	0.38	0.38	0.38	0.62	0.87
0.38	0.38	0.38	0.58	0.77	W18x119	1.68	0.38	0.38	0.38	0.58	0.81
0.39	0.39	0.59	0.99	1.32	W21x44	0.73	0.39	0.39	0.59	0.99	1.38
0.38	0.38	0.55	0.92	1.22	W21x50	0.83	0.38	0.38	0.55	0.92	1.28
0.38	0.38	0.51	0.86	1.14	W21x57	0.93	0.38	0.38	0.51	0.86	1.20
0.38	0.38	0.51	0.85	1.14	W21x62	0.94	0.38	0.38	0.51	0.85	1.19
0.38	0.38	0.48	0.81	1.07	W21x68	1.03	0.38	0.38	0.48	0.81	1.13
0.38	0.38	0.43	0.71	0.95	W21x83	1.24	0.38	0.38	0.43	0.71	1.00
0.38	0.38	0.40	0.66	0.88	W21x93	1.38	0.38	0.38	0.40	0.66	0.93
0.38	0.38	0.42	0.69	0.93	W21x101	1.29	0.38	0.38	0.42	0.69	0.97
0.38	0.38	0.39	0.65	0.87	W21x111	1.41	0.38	0.38	0.39	0.65	0.91
0.38	0.38	0.38	0.61	0.82	W21x122	1.54	0.38	0.38	0.38	0.61	0.86
0.38	0.38	0.38	0.58	0.77	W21x132	1.66	0.38	0.38	0.38	0.58	0.81
0.38	0.38	0.38	0.54	0.72	W21x147	1.83	0.38	0.38	0.38	0.54	0.76
0.38	0.38	0.55	0.92	1.23	W24x55	0.82	0.38	0.38	0.55	0.92	1.29
0.38	0.38	0.52	0.86	1.15	W24x62	0.92	0.38	0.38	0.52	0.86	1.21
0.38	0.38	0.51	0.86	1.14	W24x68	0.93	0.38	0.38	0.51	0.86	1.20
0.38	0.38	0.49	0.81	1.08	W24x76	1.02	0.38	0.38	0.49	0.81	1.13
0.38	0.38	0.46	0.76	1.01	W24x84	1.13	0.38	0.38	0.46	0.76	1.06
0.38	0.38	0.42	0.71	0.94	W24x94	1.26	0.38	0.38	0.42	0.71	0.99
0.38	0.38	0.43	0.72	0.96	W24x104	1.22	0.38	0.38	0.43	0.72	1.01
0.38	0.38	0.40	0.67	0.89	W24x117	1.36	0.38	0.38	0.40	0.67	0.94
0.38	0.38	0.38	0.62	0.83	W24x131	1.52	0.38	0.38	0.38	0.62	0.87
0.38	0.38	0.38	0.58	0.77	W24x146	1.68	0.38	0.38	0.38	0.58	0.81
0.38	0.38	0.38	0.54	0.71	W24x162	1.85	0.38	0.38	0.38	0.54	0.75
0.38	0.38	0.49	0.81	1.08	W27x84	1.02	0.38	0.38	0.49	0.81	1.13
0.38	0.38	0.46	0.76	1.01	W27x94	1.13	0.38	0.38	0.46	0.76	1.06
0.38	0.38	0.43	0.72	0.96	W27x102	1.23	0.38	0.38	0.43	0.72	1.00
0.38	0.38	0.40	0.67	0.89	W27x114	1.36	0.38	0.38	0.40	0.67	0.94
0.38	0.38	0.38	0.62	0.82	W27x146	1.53	0.38	0.38	0.38	0.62	0.86
0.38	0.38	0.38	0.58	0.77	W27x161	1.68	0.38	0.38	0.38	0.58	0.81
0.38	0.38	0.38	0.54	0.71	W27x178	1.85	0.38	0.38	0.38	0.54	0.75
0.38	0.38	0.46	0.77	1.03	W30x99	1.1	0.38	0.38	0.46	0.77	1.08
0.38	0.38	0.44	0.73	0.97	W30x108	1.2	0.38	0.38	0.44	0.73	1.02
0.38	0.38	0.42	0.70	0.93	W30x116	1.28	0.38	0.38	0.42	0.70	0.98
0.38	0.38	0.40	0.67	0.89	W30x124	1.37	0.38	0.38	0.40	0.67	0.93
0.38	0.38	0.38	0.64	0.85	W30x132	1.46	0.38	0.38	0.38	0.64	0.89
0.38	0.38	0.38	0.58	0.77	W30x173	1.66	0.38	0.38	0.38	0.58	0.81
0.38	0.38	0.38	0.54	0.72	W30x191	1.82	0.38	0.38	0.38	0.54	0.76
0.38	0.38	0.38	0.50	0.67	W30x211	2	0.38	0.38	0.38	0.50	0.71
0.38	0.38	0.44	0.73	0.98	W33x118	1.19	0.38	0.38	0.44	0.73	1.03
0.38	0.38	0.41	0.69	0.92	W33x130	1.31	0.38	0.38	0.41	0.69	0.96
0.38	0.38	0.39	0.65	0.87	W33x141	1.41	0.38	0.38	0.39	0.65	0.91
0.38	0.38	0.38	0.62	0.83	W33x152	1.51	0.38	0.38	0.38	0.62	0.87
0.38	0.38	0.38	0.55	0.74	W33x201	1.78	0.38	0.38	0.38	0.55	0.77

*Thickness applied to beam's lower flange edge shall not be less than 1/4-in

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP and Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half*

Full Flange Tip Thicknesses (NWC & LWC)							**1/2 Flange Tip Thicknesses (NWC & LWC)**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.42	0.63	0.91	1.40	1.82	W4x13	0.65	0.42	0.63	0.91	1.54	2.17
0.42	0.63	0.91	1.40	1.82	W6x16	0.65	0.42	0.63	0.91	1.54	2.17
0.39	0.58	0.84	1.29	1.67	W6x19	0.76	0.39	0.58	0.84	1.42	1.99
0.53	0.80	1.15	1.77	2.30	W6x9	0.39	0.53	0.80	1.15	1.94	2.74
0.47	0.71	1.02	1.58	2.05	W6x12	0.51	0.47	0.71	1.02	1.73	2.44
0.42	0.63	0.90	1.39	1.81	W6x16	0.66	0.42	0.63	0.90	1.53	2.15
0.41	0.62	0.90	1.38	1.79	W6x20	0.67	0.41	0.62	0.90	1.52	2.14
0.38	0.55	0.80	1.23	1.60	W6x26	0.82	0.38	0.55	0.80	1.36	1.91
0.54	0.81	1.17	1.80	2.35	W8x10	0.37	0.54	0.81	1.17	1.98	2.80
0.49	0.74	1.06	1.64	2.13	W8x13	0.47	0.49	0.74	1.06	1.80	2.54
0.46	0.69	1.00	1.54	2.00	W8x15	0.54	0.46	0.69	1.00	1.69	2.38
0.45	0.67	0.97	1.50	1.94	W8x18	0.57	0.45	0.67	0.97	1.65	2.32
0.42	0.63	0.90	1.39	1.81	W8x21	0.66	0.42	0.63	0.90	1.53	2.15
0.41	0.61	0.88	1.36	1.76	W8x24	0.69	0.41	0.61	0.88	1.49	2.10
0.38	0.56	0.81	1.25	1.63	W8x28	0.8	0.38	0.56	0.81	1.38	1.94
0.38	0.57	0.82	1.26	1.64	W8x31	0.79	0.38	0.57	0.82	1.38	1.95
0.38	0.53	0.77	1.18	1.54	W8x35	0.88	0.38	0.53	0.77	1.30	1.83
0.38	0.49	0.71	1.09	1.42	W8x40	1	0.38	0.49	0.71	1.20	1.70
0.38	0.44	0.64	0.98	1.28	W8x48	1.18	0.38	0.44	0.64	1.08	1.52
0.38	0.39	0.57	0.87	1.13	W8x58	1.41	0.38	0.39	0.57	0.96	1.35
0.38	0.38	0.51	0.79	1.03	W8x67	1.61	0.38	0.38	0.51	0.87	1.23
0.54	0.80	1.16	1.79	2.32	W10x12	0.38	0.54	0.80	1.16	1.96	2.77
0.49	0.73	1.05	1.62	2.11	W10x15	0.48	0.49	0.73	1.05	1.78	2.51
0.46	0.69	1.00	1.54	2.00	W10x17	0.54	0.46	0.69	1.00	1.69	2.38
0.44	0.66	0.96	1.47	1.91	W10x19	0.59	0.44	0.66	0.96	1.62	2.28
0.44	0.66	0.96	1.47	1.91	W10x22	0.59	0.44	0.66	0.96	1.62	2.28
0.41	0.61	0.88	1.36	1.76	W10x26	0.69	0.41	0.61	0.88	1.49	2.10
0.38	0.57	0.82	1.26	1.64	W10x30	0.79	0.38	0.57	0.82	1.38	1.95
0.38	0.57	0.83	1.28	1.66	W10x33	0.77	0.38	0.57	0.83	1.41	1.98
0.38	0.53	0.76	1.17	1.52	W10x39	0.9	0.38	0.53	0.76	1.28	1.81
0.38	0.48	0.70	1.07	1.40	W10x46	1.03	0.38	0.48	0.70	1.18	1.66
0.38	0.50	0.72	1.10	1.43	W10x49	0.99	0.38	0.50	0.72	1.21	1.71
0.38	0.47	0.67	1.04	1.35	W10x54	1.09	0.38	0.47	0.67	1.14	1.61
0.38	0.44	0.63	0.97	1.26	W10x60	1.2	0.38	0.44	0.63	1.07	1.51
0.38	0.40	0.58	0.89	1.16	W10x68	1.36	0.38	0.40	0.58	0.98	1.38
0.38	0.38	0.54	0.83	1.07	W10x77	1.52	0.38	0.38	0.54	0.91	1.28
0.38	0.38	0.49	0.75	0.98	W10x88	1.72	0.38	0.38	0.49	0.83	1.17
0.38	0.38	0.45	0.69	0.90	W10x100	1.93	0.38	0.38	0.45	0.76	1.07
0.38	0.38	0.42	0.64	0.83	W10x112	2.14	0.38	0.38	0.42	0.70	0.99
0.53	0.79	1.14	1.75	2.28	W12x14	0.4	0.53	0.79	1.14	1.93	2.71
0.50	0.75	1.08	1.67	2.17	W12x16	0.45	0.50	0.75	1.08	1.83	2.58
0.46	0.70	1.01	1.55	2.01	W12x19	0.53	0.46	0.70	1.01	1.70	2.40
0.43	0.65	0.94	1.45	1.88	W12x22	0.61	0.43	0.65	0.94	1.59	2.24
0.44	0.66	0.95	1.46	1.90	W12x26	0.6	0.44	0.66	0.95	1.60	2.26
0.41	0.61	0.88	1.36	1.76	W12x30	0.69	0.41	0.61	0.88	1.49	2.10
0.38	0.57	0.82	1.26	1.64	W12x35	0.79	0.38	0.57	0.82	1.38	1.95
0.38	0.54	0.78	1.21	1.57	W12x40	0.85	0.38	0.54	0.78	1.33	1.87
0.38	0.51	0.73	1.13	1.47	W12x45	0.95	0.38	0.51	0.73	1.24	1.75
0.38	0.48	0.69	1.07	1.39	W12x50	1.04	0.38	0.48	0.69	1.17	1.65
0.38	0.50	0.72	1.10	1.43	W12x53	0.99	0.38	0.50	0.72	1.21	1.71
0.38	0.48	0.69	1.07	1.39	W12x54	1.04	0.38	0.48	0.69	1.17	1.65
0.38	0.47	0.68	1.04	1.35	W12x58	1.08	0.38	0.47	0.68	1.15	1.61
0.38	0.47	0.67	1.04	1.35	W12x65	1.09	0.38	0.47	0.67	1.14	1.61
0.38	0.44	0.63	0.97	1.26	W12x72	1.2	0.38	0.44	0.63	1.07	1.51
0.38	0.41	0.59	0.91	1.18	W12x79	1.32	0.38	0.41	0.59	1.00	1.41
0.38	0.39	0.56	0.86	1.12	W12x87	1.44	0.38	0.39	0.56	0.94	1.33
0.38	0.38	0.52	0.81	1.05	W12x96	1.57	0.38	0.38	0.52	0.89	1.25
0.38	0.38	0.49	0.75	0.98	W12x106	1.73	0.38	0.38	0.49	0.83	1.16
0.38	0.38	0.45	0.69	0.90	W12x120	1.94	0.38	0.38	0.45	0.76	1.07
0.38	0.38	0.41	0.63	0.82	W12x136	2.17	0.38	0.38	0.41	0.69	0.98

AD Southwest Type 5GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half*

Full Flange Tip Thicknesses (NWC & LWC)							**1/2 Flange Tip Thicknesses (NWC & LWC)**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.39	0.56	0.86	1.12	W12x87	1.44	0.38	0.39	0.56	0.94	1.33
0.38	0.38	0.52	0.81	1.05	W12x96	1.57	0.38	0.38	0.52	0.89	1.25
0.38	0.38	0.49	0.75	0.98	W12x106	1.73	0.38	0.38	0.49	0.83	1.16
0.38	0.38	0.45	0.69	0.90	W12x120	1.94	0.38	0.38	0.45	0.76	1.07
0.38	0.38	0.41	0.63	0.82	W12x136	2.17	0.38	0.38	0.41	0.69	0.98
0.38	0.38	0.38	0.58	0.76	W12x152	2.4	0.38	0.38	0.38	0.64	0.90
0.38	0.38	0.38	0.54	0.70	W12x170	2.66	0.38	0.38	0.38	0.59	0.83
0.38	0.38	0.38	0.50	0.64	W12x190	2.93	0.38	0.38	0.38	0.55	0.77
0.38	0.38	0.38	0.46	0.60	W12x210	3.21	0.38	0.38	0.38	0.51	0.71
0.38	0.38	0.38	0.43	0.56	W12x230	3.47	0.38	0.38	0.38	0.47	0.67
0.38	0.38	0.38	0.40	0.52	W12x262	3.76	0.38	0.38	0.38	0.44	0.62
0.38	0.38	0.38	0.38	0.48	W12x279	4.1	0.38	0.38	0.38	0.41	0.58
0.38	0.38	0.38	0.38	0.45	W12x305	4.41	0.38	0.38	0.38	0.38	0.54
0.38	0.38	0.38	0.38	0.42	W12x336	4.78	0.38	0.38	0.38	0.38	0.50
0.47	0.70	1.02	1.56	2.03	W14x22	0.52	0.47	0.70	1.02	1.72	2.42
0.43	0.65	0.94	1.45	1.88	W14x26	0.61	0.43	0.65	0.94	1.59	2.24
0.43	0.64	0.92	1.42	1.85	W14x30	0.63	0.43	0.64	0.92	1.57	2.21
0.40	0.60	0.87	1.34	1.74	W14x34	0.71	0.40	0.60	0.87	1.47	2.07
0.38	0.57	0.82	1.26	1.64	W14x38	0.79	0.38	0.57	0.82	1.38	1.95
0.38	0.54	0.78	1.21	1.57	W14x43	0.85	0.38	0.54	0.78	1.33	1.87
0.38	0.51	0.74	1.14	1.48	W14x48	0.94	0.38	0.51	0.74	1.25	1.76
0.38	0.48	0.70	1.07	1.40	W14x53	1.03	0.38	0.48	0.70	1.18	1.66
0.38	0.47	0.68	1.05	1.36	W14x61	1.07	0.38	0.47	0.68	1.15	1.62
0.38	0.44	0.64	0.98	1.27	W14x68	1.19	0.38	0.44	0.64	1.08	1.52
0.38	0.42	0.61	0.93	1.21	W14x74	1.28	0.38	0.42	0.61	1.02	1.44
0.38	0.39	0.57	0.87	1.13	W14x82	1.41	0.38	0.39	0.57	0.96	1.35
0.38	0.42	0.61	0.94	1.22	W14x90	1.27	0.38	0.42	0.61	1.03	1.45
0.38	0.40	0.57	0.88	1.14	W14x99	1.39	0.38	0.40	0.57	0.97	1.36
0.38	0.38	0.53	0.82	1.07	W14x109	1.53	0.38	0.38	0.53	0.90	1.27
0.38	0.38	0.50	0.77	1.00	W14x120	1.67	0.38	0.38	0.50	0.85	1.19
0.38	0.38	0.47	0.72	0.94	W14x132	1.83	0.38	0.38	0.47	0.79	1.12
0.38	0.38	0.45	0.69	0.90	W14x145	1.94	0.38	0.38	0.45	0.76	1.07
0.38	0.38	0.42	0.65	0.84	W14x159	2.11	0.38	0.38	0.42	0.71	1.00
0.38	0.38	0.40	0.61	0.80	W14x176	2.25	0.38	0.38	0.40	0.68	0.95
0.38	0.38	0.39	0.60	0.78	W14x193	2.32	0.38	0.38	0.39	0.66	0.93
0.38	0.38	0.38	0.52	0.68	W14x211	2.74	0.38	0.38	0.38	0.58	0.81
0.38	0.38	0.38	0.49	0.63	W14x233	3	0.38	0.38	0.38	0.53	0.75
0.38	0.38	0.38	0.45	0.59	W14x257	3.27	0.38	0.38	0.38	0.50	0.70
0.38	0.38	0.38	0.42	0.55	W14x283	3.57	0.38	0.38	0.38	0.46	0.65
0.38	0.38	0.38	0.39	0.51	W14x311	3.88	0.38	0.38	0.38	0.43	0.61
0.38	0.38	0.38	0.38	0.47	W14x342	4.21	0.38	0.38	0.38	0.40	0.56
0.38	0.38	0.38	0.38	0.45	W14x370	4.51	0.38	0.38	0.38	0.38	0.53
0.38	0.38	0.38	0.38	0.42	W14x398	4.8	0.38	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.38	0.40	W14x426	5.09	0.38	0.38	0.38	0.38	0.48
0.38	0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.38	0.38	W14x550	6.3	0.38	0.38	0.38	0.38	0.39
0.38	0.38	0.38	0.38	0.38	W14x605	6.8	0.38	0.38	0.38	0.38	0.38
0.46	0.68	0.99	1.52	1.98	W16x26	0.55	0.46	0.68	0.99	1.67	2.36
0.42	0.63	0.91	1.40	1.82	W16x31	0.65	0.42	0.63	0.91	1.54	2.17
0.41	0.61	0.88	1.36	1.76	W16x36	0.69	0.41	0.61	0.88	1.49	2.10
0.39	0.58	0.84	1.29	1.67	W16x40	0.76	0.39	0.58	0.84	1.42	1.99
0.38	0.54	0.78	1.21	1.57	W16x45	0.85	0.38	0.54	0.78	1.33	1.87
0.38	0.51	0.74	1.14	1.48	W16x50	0.94	0.38	0.51	0.74	1.25	1.76
0.38	0.47	0.68	1.05	1.36	W16x67	1.07	0.38	0.47	0.68	1.15	1.62
0.38	0.47	0.68	1.05	1.36	W16x77	1.07	0.38	0.47	0.68	1.15	1.62
0.38	0.43	0.63	0.96	1.25	W16x89	1.22	0.38	0.43	0.63	1.06	1.49
0.38	0.38	0.53	0.81	1.05	W16x100	1.56	0.38	0.38	0.53	0.89	1.26
0.42	0.63	0.90	1.39	1.81	W18x35	0.66	0.42	0.63	0.90	1.53	2.15
0.39	0.58	0.84	1.29	1.67	W18x40	0.76	0.39	0.58	0.84	1.42	1.99

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half*

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-791

Full Flange Tip Thicknesses (NWC & LWC)							1/2 Flange Tip Thicknesses (NWC & LWC)				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.54	0.78	1.20	1.56	W18x46	0.86	0.38	0.54	0.78	1.32	1.86
0.38	0.54	0.77	1.19	1.55	W18x50	0.87	0.38	0.54	0.77	1.31	1.85
0.38	0.51	0.73	1.13	1.47	W18x55	0.95	0.38	0.51	0.73	1.24	1.75
0.38	0.48	0.70	1.07	1.40	W18x60	1.03	0.38	0.48	0.70	1.18	1.66
0.38	0.46	0.67	1.02	1.33	W18x65	1.11	0.38	0.46	0.67	1.13	1.59
0.38	0.44	0.63	0.97	1.26	W18x71	1.21	0.38	0.44	0.63	1.06	1.50
0.38	0.46	0.67	1.02	1.33	W18x76	1.11	0.38	0.46	0.67	1.13	1.59
0.38	0.43	0.62	0.95	1.24	W18x88	1.24	0.38	0.43	0.62	1.05	1.47
0.38	0.40	0.57	0.88	1.14	W18x97	1.39	0.38	0.40	0.57	0.97	1.36
0.38	0.38	0.54	0.83	1.07	W18x106	1.52	0.38	0.38	0.54	0.91	1.28
0.38	0.38	0.50	0.77	1.00	W18x119	1.68	0.38	0.38	0.50	0.84	1.19
0.39	0.59	0.86	1.32	1.71	W21x44	0.73	0.39	0.59	0.86	1.45	2.04
0.38	0.55	0.80	1.22	1.59	W21x50	0.83	0.38	0.55	0.80	1.35	1.90
0.38	0.51	0.74	1.14	1.49	W21x57	0.93	0.38	0.51	0.74	1.26	1.77
0.38	0.51	0.74	1.14	1.48	W21x62	0.94	0.38	0.51	0.74	1.25	1.76
0.38	0.48	0.70	1.07	1.40	W21x68	1.03	0.38	0.48	0.70	1.18	1.66
0.38	0.43	0.62	0.95	1.24	W21x83	1.24	0.38	0.43	0.62	1.05	1.47
0.38	0.40	0.57	0.88	1.15	W21x93	1.38	0.38	0.40	0.57	0.97	1.37
0.38	0.42	0.60	0.93	1.20	W21x101	1.29	0.38	0.42	0.60	1.02	1.44
0.38	0.39	0.57	0.87	1.13	W21x111	1.41	0.38	0.39	0.57	0.96	1.35
0.38	0.38	0.53	0.82	1.06	W21x122	1.54	0.38	0.38	0.53	0.90	1.27
0.38	0.38	0.50	0.77	1.01	W21x132	1.66	0.38	0.38	0.50	0.85	1.20
0.38	0.38	0.47	0.72	0.94	W21x147	1.83	0.38	0.38	0.47	0.79	1.12
0.38	0.55	0.80	1.23	1.60	W24x55	0.82	0.38	0.55	0.80	1.36	1.91
0.38	0.52	0.75	1.15	1.50	W24x62	0.92	0.38	0.52	0.75	1.27	1.78
0.38	0.51	0.74	1.14	1.49	W24x68	0.93	0.38	0.51	0.74	1.26	1.77
0.38	0.49	0.70	1.08	1.40	W24x76	1.02	0.38	0.49	0.70	1.19	1.67
0.38	0.46	0.66	1.01	1.32	W24x84	1.13	0.38	0.46	0.66	1.11	1.57
0.38	0.42	0.61	0.94	1.22	W24x94	1.26	0.38	0.42	0.61	1.03	1.46
0.38	0.43	0.63	0.96	1.25	W24x104	1.22	0.38	0.43	0.63	1.06	1.49
0.38	0.40	0.58	0.89	1.16	W24x117	1.36	0.38	0.40	0.58	0.98	1.38
0.38	0.38	0.54	0.83	1.07	W24x131	1.52	0.38	0.38	0.54	0.91	1.28
0.38	0.38	0.50	0.77	1.00	W24x146	1.68	0.38	0.38	0.50	0.84	1.19
0.38	0.38	0.46	0.71	0.93	W24x162	1.85	0.38	0.38	0.46	0.79	1.11
0.38	0.49	0.70	1.08	1.40	W27x84	1.02	0.38	0.49	0.70	1.19	1.67
0.38	0.46	0.66	1.01	1.32	W27x94	1.13	0.38	0.46	0.66	1.11	1.57
0.38	0.43	0.62	0.96	1.24	W27x102	1.23	0.38	0.43	0.62	1.05	1.48
0.38	0.40	0.58	0.89	1.16	W27x114	1.36	0.38	0.40	0.58	0.98	1.38
0.38	0.38	0.53	0.82	1.07	W27x146	1.53	0.38	0.38	0.53	0.90	1.27
0.38	0.38	0.50	0.77	1.00	W27x161	1.68	0.38	0.38	0.50	0.84	1.19
0.38	0.38	0.46	0.71	0.93	W27x178	1.85	0.38	0.38	0.46	0.79	1.11
0.38	0.46	0.67	1.03	1.34	W30x99	1.1	0.38	0.46	0.67	1.13	1.60
0.38	0.44	0.63	0.97	1.26	W30x108	1.2	0.38	0.44	0.63	1.07	1.51
0.38	0.42	0.61	0.93	1.21	W30x116	1.28	0.38	0.42	0.61	1.02	1.44
0.38	0.40	0.58	0.89	1.15	W30x124	1.37	0.38	0.40	0.58	0.98	1.38
0.38	0.38	0.55	0.85	1.10	W30x132	1.46	0.38	0.38	0.55	0.93	1.32
0.38	0.38	0.50	0.77	1.01	W30x173	1.66	0.38	0.38	0.50	0.85	1.20
0.38	0.38	0.47	0.72	0.94	W30x191	1.82	0.38	0.38	0.47	0.80	1.12
0.38	0.38	0.44	0.67	0.88	W30x211	2	0.38	0.38	0.44	0.74	1.04
0.38	0.44	0.64	0.98	1.27	W33x118	1.19	0.38	0.44	0.64	1.08	1.52
0.38	0.41	0.60	0.92	1.19	W33x130	1.31	0.38	0.41	0.60	1.01	1.42
0.38	0.39	0.57	0.87	1.13	W33x141	1.41	0.38	0.39	0.57	0.96	1.35
0.38	0.38	0.54	0.83	1.08	W33x152	1.51	0.38	0.38	0.54	0.91	1.29
0.38	0.38	0.48	0.74	0.96	W33x201	1.78	0.38	0.38	0.48	0.81	1.14

*Thickness applied to beam's lower flange edge shall not be less than 1/4-in.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Concrete Floor / Beam Assembly

Minimum Thickness Required on Beam, in.

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W4x13	0.65	0.49	0.70	0.91	1.40	2.03
W5x16	0.65	0.49	0.70	0.91	1.40	2.03
W5x19	0.76	0.45	0.64	0.84	1.29	1.87
W6x9	0.39	0.62	0.88	1.15	1.77	2.56
W6x12	0.51	0.55	0.79	1.02	1.58	2.29
W6x16	0.66	0.49	0.69	0.90	1.39	2.01
W6x20	0.67	0.48	0.69	0.90	1.38	2.00
W6x26	0.82	0.43	0.62	0.80	1.23	1.79
W8x10	0.37	0.63	0.90	1.17	1.80	2.62
W8x13	0.47	0.57	0.82	1.06	1.64	2.37
W8x15	0.54	0.54	0.77	1.00	1.54	2.23
W8x18	0.57	0.52	0.75	0.97	1.50	2.17
W8x21	0.66	0.49	0.69	0.90	1.39	2.01
W8x24	0.69	0.47	0.68	0.88	1.36	1.97
W8x28	0.80	0.44	0.63	0.81	1.25	1.81
W8x31	0.79	0.44	0.63	0.82	1.26	1.83
W8x35	0.88	0.41	0.59	0.77	1.18	1.71
W8x40	1.00	0.38	0.55	0.71	1.09	1.59
W8x48	1.18	0.38	0.49	0.64	0.98	1.43
W8x58	1.41	0.38	0.44	0.57	0.87	1.26
W8x67	1.61	0.38	0.40	0.51	0.79	1.15
W10x12	0.38	0.63	0.89	1.16	1.79	2.59
W10x15	0.48	0.57	0.81	1.05	1.62	2.35
W10x17	0.54	0.54	0.77	1.00	1.54	2.23
W10x19	0.59	0.51	0.74	0.96	1.47	2.13
W10x22	0.59	0.51	0.74	0.96	1.47	2.13
W10x26	0.69	0.47	0.68	0.88	1.36	1.97
W10x30	0.79	0.44	0.63	0.82	1.26	1.83
W10x33	0.77	0.45	0.64	0.83	1.28	1.85
W10x39	0.90	0.41	0.58	0.76	1.17	1.69
W10x46	1.03	0.38	0.54	0.70	1.07	1.56
W10x49	0.99	0.39	0.55	0.72	1.10	1.60
W10x54	1.09	0.38	0.52	0.67	1.04	1.50
W10x60	1.20	0.38	0.49	0.63	0.97	1.41
W10x68	1.36	0.38	0.45	0.58	0.89	1.29
W10x77	1.52	0.38	0.41	0.54	0.83	1.20
W10x88	1.72	0.38	0.38	0.49	0.75	1.09
W10x100	1.93	0.38	0.38	0.45	0.69	1.00
W10x112	2.14	0.38	0.38	0.42	0.64	0.93
W12x14	0.40	0.61	0.88	1.14	1.75	2.54
W12x16	0.45	0.58	0.83	1.08	1.67	2.42
W12x19	0.53	0.54	0.77	1.01	1.55	2.25
W12x22	0.61	0.51	0.72	0.94	1.45	2.10
W12x26	0.60	0.51	0.73	0.95	1.46	2.11
W12x30	0.69	0.47	0.68	0.88	1.36	1.97

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Concrete Floor / Beam Assembly

Minimum Thickness Required on Beam, in.

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W12x35	0.79	0.44	0.63	0.82	1.26	1.83
W12x40	0.85	0.42	0.60	0.78	1.21	1.75
W12x45	0.95	0.40	0.56	0.73	1.13	1.64
W12x50	1.04	0.38	0.53	0.69	1.07	1.55
W12x53	0.99	0.39	0.55	0.72	1.10	1.60
W12x54	1.04	0.38	0.53	0.69	1.07	1.55
W12x58	1.08	0.38	0.52	0.68	1.04	1.51
W12x65	1.09	0.38	0.52	0.67	1.04	1.50
W12x72	1.20	0.38	0.49	0.63	0.97	1.41
W12x79	1.32	0.38	0.46	0.59	0.91	1.32
W12x87	1.44	0.38	0.43	0.56	0.86	1.24
W12x96	1.57	0.38	0.40	0.52	0.81	1.17
W12x106	1.73	0.38	0.38	0.49	0.75	1.09
W12x120	1.94	0.38	0.38	0.45	0.69	1.00
W12x136	2.17	0.38	0.38	0.41	0.63	0.92
W12x152	2.40	0.38	0.38	0.38	0.58	0.85
W12x170	2.66	0.38	0.38	0.38	0.54	0.78
W12x190	2.93	0.38	0.38	0.38	0.50	0.72
W12x210	3.21	0.38	0.38	0.38	0.46	0.67
W12x230	3.47	0.38	0.38	0.38	0.43	0.62
W12x262	3.76	0.38	0.38	0.38	0.40	0.58
W12x279	4.10	0.38	0.38	0.38	0.38	0.54
W12x305	4.41	0.38	0.38	0.38	0.38	0.51
W12x336	4.78	0.38	0.38	0.38	0.38	0.47
W14x22	0.52	0.55	0.78	1.02	1.56	2.27
W14x26	0.61	0.51	0.72	0.94	1.45	2.10
W14x30	0.63	0.50	0.71	0.92	1.42	2.06
W14x34	0.71	0.47	0.67	0.87	1.34	1.94
W14x38	0.79	0.44	0.63	0.82	1.26	1.83
W14x43	0.85	0.42	0.60	0.78	1.21	1.75
W14x48	0.94	0.40	0.57	0.74	1.14	1.65
W14x53	1.03	0.38	0.54	0.70	1.07	1.56
W14x61	1.07	0.38	0.52	0.68	1.05	1.52
W14x68	1.19	0.38	0.49	0.64	0.98	1.42
W14x74	1.28	0.38	0.47	0.61	0.93	1.35
W14x82	1.41	0.38	0.44	0.57	0.87	1.26
W14x90	1.27	0.38	0.47	0.61	0.94	1.36
W14x99	1.39	0.38	0.44	0.57	0.88	1.28
W14x109	1.53	0.38	0.41	0.53	0.82	1.19
W14x120	1.67	0.38	0.39	0.50	0.77	1.12
W14x132	1.83	0.38	0.38	0.47	0.72	1.04
W14x145	1.94	0.38	0.38	0.45	0.69	1.00
W14x159	2.11	0.38	0.38	0.42	0.65	0.94
W14x176	2.25	0.38	0.38	0.40	0.61	0.89
W14x193	2.32	0.38	0.38	0.39	0.60	0.87

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Concrete Floor / Beam Assembly

Minimum Thickness Required on Beam, in.

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W14x211	2.74	0.38	0.38	0.38	0.52	0.76
W14x233	3.00	0.38	0.38	0.38	0.49	0.70
W14x257	3.27	0.38	0.38	0.38	0.45	0.66
W14x283	3.57	0.38	0.38	0.38	0.42	0.61
W14x311	3.88	0.38	0.38	0.38	0.39	0.57
W14x342	4.21	0.38	0.38	0.38	0.38	0.53
W14x370	4.51	0.38	0.38	0.38	0.38	0.50
W14x398	4.80	0.38	0.38	0.38	0.38	0.47
W14x426	5.09	0.38	0.38	0.38	0.38	0.45
W14x455	5.38	0.38	0.38	0.38	0.38	0.42
W14x500	5.82	0.38	0.38	0.38	0.38	0.40
W14x550	6.30	0.38	0.38	0.38	0.38	0.38
W14x605	6.80	0.38	0.38	0.38	0.38	0.38
W16x26	0.55	0.53	0.76	0.99	1.52	2.21
W16x31	0.65	0.49	0.70	0.91	1.40	2.03
W16x36	0.69	0.47	0.68	0.88	1.36	1.97
W16x40	0.76	0.45	0.64	0.84	1.29	1.87
W16x45	0.85	0.42	0.60	0.78	1.21	1.75
W16x50	0.94	0.40	0.57	0.74	1.14	1.65
W16x67	1.07	0.38	0.52	0.68	1.05	1.52
W16x77	1.07	0.38	0.52	0.68	1.05	1.52
W16x89	1.22	0.38	0.48	0.63	0.96	1.39
W16x100	1.56	0.38	0.41	0.53	0.81	1.17
W18x35	0.66	0.49	0.69	0.90	1.39	2.01
W18x40	0.76	0.45	0.64	0.84	1.29	1.87
W18x46	0.86	0.42	0.60	0.78	1.20	1.74
W18x50	0.87	0.42	0.60	0.77	1.19	1.73
W18x55	0.95	0.40	0.56	0.73	1.13	1.64
W18x60	1.03	0.38	0.54	0.70	1.07	1.56
W18x65	1.11	0.38	0.51	0.67	1.02	1.48
W18x71	1.21	0.38	0.48	0.63	0.97	1.40
W18x76	1.11	0.38	0.51	0.67	1.02	1.48
W18x88	1.24	0.38	0.48	0.62	0.95	1.38
W18x97	1.39	0.38	0.44	0.57	0.88	1.28
W18x106	1.52	0.38	0.41	0.54	0.83	1.20
W18x119	1.68	0.38	0.38	0.50	0.77	1.11
W21x44	0.73	0.46	0.66	0.86	1.32	1.91
W21x50	0.83	0.43	0.61	0.80	1.22	1.77
W21x57	0.93	0.40	0.57	0.74	1.14	1.66
W21x62	0.94	0.40	0.57	0.74	1.14	1.65
W21x68	1.03	0.38	0.54	0.70	1.07	1.56
W21x83	1.24	0.38	0.48	0.62	0.95	1.38
W21x93	1.38	0.38	0.44	0.57	0.88	1.28
W21x101	1.29	0.38	0.46	0.60	0.93	1.34
W21x111	1.41	0.38	0.44	0.57	0.87	1.26

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Concrete Floor / Beam Assembly

Minimum Thickness Required on Beam, in.

Unrestrained Beam Rating

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W21x122	1.54	0.38	0.41	0.53	0.82	1.19
W21x132	1.66	0.38	0.39	0.50	0.77	1.12
W21x147	1.83	0.38	0.38	0.47	0.72	1.04
W24x55	0.82	0.43	0.62	0.80	1.23	1.79
W24x62	0.92	0.40	0.58	0.75	1.15	1.67
W24x68	0.93	0.40	0.57	0.74	1.14	1.66
W24x76	1.02	0.38	0.54	0.70	1.08	1.57
W24x84	1.13	0.38	0.51	0.66	1.01	1.47
W24x94	1.26	0.38	0.47	0.61	0.94	1.36
W24x104	1.22	0.38	0.48	0.63	0.96	1.39
W24x117	1.36	0.38	0.45	0.58	0.89	1.29
W24x131	1.52	0.38	0.41	0.54	0.83	1.20
W24x146	1.68	0.38	0.38	0.50	0.77	1.11
W24x162	1.85	0.38	0.38	0.46	0.71	1.04
W27x84	1.02	0.38	0.54	0.70	1.08	1.57
W27x94	1.13	0.38	0.51	0.66	1.01	1.47
W27x102	1.23	0.38	0.48	0.62	0.96	1.39
W27x114	1.36	0.38	0.45	0.58	0.89	1.29
W27x146	1.53	0.38	0.41	0.53	0.82	1.19
W27x161	1.68	0.38	0.38	0.50	0.77	1.11
W27x178	1.85	0.38	0.38	0.46	0.71	1.04
W30x99	1.10	0.38	0.51	0.67	1.03	1.49
W30x108	1.20	0.38	0.49	0.63	0.97	1.41
W30x116	1.28	0.38	0.47	0.61	0.93	1.35
W30x124	1.37	0.38	0.44	0.58	0.89	1.29
W30x132	1.46	0.38	0.42	0.55	0.85	1.23
W30x173	1.66	0.38	0.39	0.50	0.77	1.12
W30x191	1.82	0.38	0.38	0.47	0.72	1.05
W30x211	2.00	0.38	0.38	0.44	0.67	0.98
W33x118	1.19	0.38	0.49	0.64	0.98	1.42
W33x130	1.31	0.38	0.46	0.60	0.92	1.33
W33x141	1.41	0.38	0.44	0.57	0.87	1.26
W33x152	1.51	0.38	0.41	0.54	0.83	1.20
W33x201	1.78	0.38	0.38	0.48	0.74	1.07

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Beam / Slab Floor Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W4x13	0.65	0.56	0.84	1.12	1.68	2.38
W5x16	0.65	0.56	0.84	1.12	1.68	2.38
W5x19	0.76	0.51	0.77	1.03	1.54	2.19
W6x9	0.39	0.71	1.06	1.41	2.12	3.01
W6x12	0.51	0.63	0.95	1.26	1.89	2.68
W6x16	0.66	0.56	0.83	1.11	1.67	2.36
W6x20	0.67	0.55	0.83	1.10	1.65	2.34
W6x26	0.82	0.49	0.74	0.99	1.48	2.10
W8x10	0.37	0.72	1.08	1.44	2.16	3.07
W8x13	0.47	0.65	0.98	1.31	1.96	2.78
W8x15	0.54	0.61	0.92	1.23	1.84	2.61
W8x18	0.57	0.60	0.90	1.20	1.79	2.54
W8x21	0.66	0.56	0.83	1.11	1.67	2.36
W8x24	0.69	0.54	0.81	1.09	1.63	2.31
W8x28	0.80	0.50	0.75	1.00	1.50	2.13
W8x31	0.79	0.50	0.76	1.01	1.51	2.14
W8x35	0.88	0.47	0.71	0.95	1.42	2.01
W8x40	1.00	0.44	0.66	0.88	1.31	1.86
W8x48	1.18	0.39	0.59	0.79	1.18	1.67
W8x58	1.41	0.38	0.52	0.70	1.04	1.48
W8x67	1.61	0.38	0.48	0.63	0.95	1.35
W10x12	0.38	0.71	1.07	1.43	2.14	3.04
W10x15	0.48	0.65	0.97	1.30	1.94	2.75
W10x17	0.54	0.61	0.92	1.23	1.84	2.61
W10x19	0.59	0.59	0.88	1.18	1.76	2.50
W10x22	0.59	0.59	0.88	1.18	1.76	2.50
W10x26	0.69	0.54	0.81	1.09	1.63	2.31
W10x30	0.79	0.50	0.76	1.01	1.51	2.14
W10x33	0.77	0.51	0.77	1.02	1.53	2.17
W10x39	0.90	0.47	0.70	0.93	1.40	1.98
W10x46	1.03	0.43	0.64	0.86	1.29	1.83
W10x49	0.99	0.44	0.66	0.88	1.32	1.87
W10x54	1.09	0.41	0.62	0.83	1.24	1.76
W10x60	1.20	0.39	0.58	0.78	1.17	1.65
W10x68	1.36	0.38	0.54	0.71	1.07	1.52
W10x77	1.52	0.38	0.50	0.66	0.99	1.40
W10x88	1.72	0.38	0.45	0.60	0.91	1.28
W10x100	1.93	0.38	0.42	0.55	0.83	1.18
W10x112	2.14	0.38	0.38	0.51	0.77	1.09
W12x14	0.40	0.70	1.05	1.40	2.10	2.98
W12x16	0.45	0.67	1.00	1.33	2.00	2.83
W12x19	0.53	0.62	0.93	1.24	1.86	2.63
W12x22	0.61	0.58	0.87	1.16	1.74	2.46
W12x26	0.60	0.58	0.88	1.17	1.75	2.48

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Beam / Slab Floor Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

		Unrestrained Beam Rating				
Member	**W/D**	**1 Hr**	**1.5 Hr**	**2 Hr**	3.500	**4 Hr**
W12x30	0.69	0.54	0.81	1.09	1.63	2.31
W12x35	0.79	0.50	0.76	1.01	1.51	2.14
W12x40	0.85	0.48	0.72	0.97	1.45	2.05
W12x45	0.95	0.45	0.68	0.90	1.35	1.92
W12x50	1.04	0.43	0.64	0.85	1.28	1.81
W12x53	0.99	0.44	0.66	0.88	1.32	1.87
W12x54	1.04	0.43	0.64	0.85	1.28	1.81
W12x58	1.08	0.42	0.63	0.83	1.25	1.77
W12x65	1.09	0.41	0.62	0.83	1.24	1.76
W12x72	1.20	0.39	0.58	0.78	1.17	1.65
W12x79	1.32	0.38	0.55	0.73	1.09	1.55
W12x87	1.44	0.38	0.51	0.69	1.03	1.46
W12x96	1.57	0.38	0.48	0.65	0.97	1.37
W12x106	1.73	0.38	0.45	0.60	0.90	1.28
W12x120	1.94	0.38	0.41	0.55	0.83	1.17
W12x136	2.17	0.38	0.38	0.51	0.76	1.07
W12x152	2.40	0.38	0.38	0.47	0.70	0.99
W12x170	2.66	0.38	0.38	0.43	0.64	0.91
W12x190	2.93	0.38	0.38	0.40	0.59	0.84
W12x210	3.21	0.38	0.38	0.38	0.55	0.78
W12x230	3.47	0.38	0.38	0.38	0.52	0.73
W12x262	3.76	0.38	0.38	0.38	0.48	0.68
W12x279	4.10	0.38	0.38	0.38	0.45	0.63
W12x305	4.41	0.38	0.38	0.38	0.42	0.59
W12x336	4.78	0.38	0.38	0.38	0.39	0.55
W14x22	0.52	0.63	0.94	1.25	1.88	2.66
W14x26	0.61	0.58	0.87	1.16	1.74	2.46
W14x30	0.63	0.57	0.85	1.14	1.71	2.42
W14x34	0.71	0.53	0.80	1.07	1.60	2.27
W14x38	0.79	0.50	0.76	1.01	1.51	2.14
W14x43	0.85	0.48	0.72	0.97	1.45	2.05
W14x48	0.94	0.45	0.68	0.91	1.36	1.93
W14x53	1.03	0.43	0.64	0.86	1.29	1.83
W14x61	1.07	0.42	0.63	0.84	1.26	1.78
W14x68	1.19	0.39	0.59	0.78	1.17	1.66
W14x74	1.28	0.38	0.56	0.74	1.12	1.58
W14x82	1.41	0.38	0.52	0.70	1.04	1.48
W14x90	1.27	0.38	0.56	0.75	1.12	1.59
W14x99	1.39	0.38	0.53	0.70	1.06	1.49
W14x109	1.53	0.38	0.49	0.66	0.99	1.40
W14x120	1.67	0.38	0.46	0.62	0.93	1.31
W14x132	1.83	0.38	0.43	0.58	0.86	1.22
W14x145	1.94	0.38	0.41	0.55	0.83	1.17
W14x159	2.11	0.38	0.39	0.52	0.77	1.10

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. J718 - Beam / Slab Floor Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Member	W/D	Unrestrained Beam Rating				
		1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W14x176	2.25	0.38	0.38	0.49	0.74	1.04
W14x193	2.32	0.38	0.38	0.48	0.72	1.02
W14x211	2.74	0.38	0.38	0.42	0.63	0.89
W14x233	3.00	0.38	0.38	0.39	0.58	0.83
W14x257	3.27	0.38	0.38	0.38	0.54	0.77
W14x283	3.57	0.38	0.38	0.38	0.50	0.71
W14x311	3.88	0.38	0.38	0.38	0.47	0.66
W14x342	4.21	0.38	0.38	0.38	0.44	0.62
W14x370	4.51	0.38	0.38	0.38	0.41	0.58
W14x398	4.80	0.38	0.38	0.38	0.39	0.55
W14x426	5.09	0.38	0.38	0.38	0.38	0.52
W14x455	5.38	0.38	0.38	0.38	0.38	0.50
W14x500	5.82	0.38	0.38	0.38	0.38	0.46
W14x550	6.30	0.38	0.38	0.38	0.38	0.43
W14x605	6.80	0.38	0.38	0.38	0.38	0.40
W16x26	0.55	0.61	0.91	1.22	1.83	2.59
W16x31	0.65	0.56	0.84	1.12	1.68	2.38
W16x36	0.69	0.54	0.81	1.09	1.63	2.31
W16x40	0.76	0.51	0.77	1.03	1.54	2.19
W16x45	0.85	0.48	0.72	0.97	1.45	2.05
W16x50	0.94	0.45	0.68	0.91	1.36	1.93
W16x67	1.07	0.42	0.63	0.84	1.26	1.78
W16x77	1.07	0.42	0.63	0.84	1.26	1.78
W16x89	1.22	0.38	0.58	0.77	1.15	1.63
W16x100	1.56	0.38	0.49	0.65	0.97	1.38
W18x35	0.66	0.56	0.83	1.11	1.67	2.36
W18x40	0.76	0.51	0.77	1.03	1.54	2.19
W18x46	0.86	0.48	0.72	0.96	1.44	2.04
W18x50	0.87	0.48	0.71	0.95	1.43	2.02
W18x55	0.95	0.45	0.68	0.90	1.35	1.92
W18x60	1.03	0.43	0.64	0.86	1.29	1.83
W18x65	1.11	0.41	0.61	0.82	1.23	1.74
W18x71	1.21	0.39	0.58	0.77	1.16	1.64
W18x76	1.11	0.41	0.61	0.82	1.23	1.74
W18x88	1.24	0.38	0.57	0.76	1.14	1.62
W18x97	1.39	0.38	0.53	0.70	1.06	1.49
W18x106	1.52	0.38	0.50	0.66	0.99	1.40
W18x119	1.68	0.38	0.46	0.61	0.92	1.30
W21x44	0.73	0.53	0.79	1.05	1.58	2.24
W21x50	0.83	0.49	0.73	0.98	1.47	2.08
W21x57	0.93	0.46	0.69	0.92	1.37	1.94
W21x62	0.94	0.45	0.68	0.91	1.36	1.93
W21x68	1.03	0.43	0.64	0.86	1.29	1.83
W21x83	1.24	0.38	0.57	0.76	1.14	1.62

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

		1 Hr	**1.5 Hr**	**2 Hr**	**3 Hr**	**4 Hr**
W21x93	1.38	0.38	0.53	0.71	1.06	1.50
W21x101	1.29	0.38	0.56	0.74	1.11	1.57
W21x111	1.41	0.38	0.52	0.70	1.04	1.48
W21x122	1.54	0.38	0.49	0.65	0.98	1.39
W21x132	1.66	0.38	0.46	0.62	0.93	1.32
W21x147	1.83	0.38	0.43	0.58	0.86	1.22
W24x55	0.82	0.49	0.74	0.99	1.48	2.10
W24x62	0.92	0.46	0.69	0.92	1.38	1.96
W24x68	0.93	0.46	0.69	0.92	1.37	1.94
W24x76	1.02	0.43	0.65	0.86	1.30	1.84
W24x84	1.13	0.40	0.61	0.81	1.21	1.72
W24x94	1.26	0.38	0.56	0.75	1.13	1.60
W24x104	1.22	0.38	0.58	0.77	1.15	1.63
W24x117	1.36	0.38	0.54	0.71	1.07	1.52
W24x131	1.52	0.38	0.50	0.66	0.99	1.40
W24x146	1.68	0.38	0.46	0.61	0.92	1.30
W24x162	1.85	0.38	0.43	0.57	0.86	1.21
W27x84	1.02	0.43	0.65	0.86	1.30	1.84
W27x94	1.13	0.40	0.61	0.81	1.21	1.72
W27x102	1.23	0.38	0.57	0.77	1.15	1.63
W27x114	1.36	0.38	0.54	0.71	1.07	1.52
W27x146	1.53	0.38	0.49	0.66	0.99	1.40
W27x161	1.68	0.38	0.46	0.61	0.92	1.30
W27x178	1.85	0.38	0.43	0.57	0.86	1.21
W30x99	1.10	0.41	0.62	0.82	1.24	1.75
W30x108	1.20	0.39	0.58	0.78	1.17	1.65
W30x116	1.28	0.38	0.56	0.74	1.12	1.58
W30x124	1.37	0.38	0.53	0.71	1.07	1.51
W30x132	1.46	0.38	0.51	0.68	1.02	1.44
W30x173	1.66	0.38	0.46	0.62	0.93	1.32
W30x191	1.82	0.38	0.43	0.58	0.87	1.23
W30x211	2.00	0.38	0.40	0.54	0.81	1.14
W33x118	1.19	0.39	0.59	0.78	1.17	1.66
W33x130	1.31	0.38	0.55	0.73	1.10	1.56
W33x141	1.41	0.38	0.52	0.70	1.04	1.48
W33x152	1.51	0.38	0.50	0.66	1.00	1.41
W33x201	1.78	0.38	0.44	0.59	0.88	1.25

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

* Thickness applied to beam' s lower flange edge shall be a minimum of 1/4-in.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD
Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in.

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W4x13	0.65	0.38	0.63	0.88
W5x16	0.65	0.38	0.63	0.88
W5x19	0.76	0.38	0.58	0.81
W6x9	0.39	0.48	0.80	1.11
W6x12	0.51	0.43	0.71	0.99
W6x16	0.66	0.38	0.63	0.88
W6x20	0.67	0.38	0.62	0.87
W6x26	0.82	0.38	0.55	0.78
W8x10	0.37	0.49	0.81	1.14
W8x13	0.47	0.44	0.74	1.03
W8x15	0.54	0.41	0.69	0.97
W8x18	0.57	0.40	0.67	0.94
W8x21	0.66	0.38	0.63	0.88
W8x24	0.69	0.38	0.61	0.85
W8x28	0.80	0.38	0.56	0.79
W8x31	0.79	0.38	0.57	0.79
W8x35	0.88	0.38	0.53	0.74
W8x40	1.00	0.38	0.49	0.69
W8x48	1.18	0.38	0.44	0.62
W8x58	1.41	0.38	0.39	0.55
W8x67	1.61	0.38	0.38	0.50
W10x12	0.38	0.48	0.80	1.13
W10x15	0.48	0.44	0.73	1.02
W10x17	0.54	0.41	0.69	0.97
W10x19	0.59	0.40	0.66	0.93
W10x22	0.59	0.40	0.66	0.93
W10x26	0.69	0.38	0.61	0.85
W10x30	0.79	0.38	0.57	0.79
W10x33	0.77	0.38	0.57	0.80
W10x39	0.90	0.38	0.53	0.74
W10x46	1.03	0.38	0.48	0.68
W10x49	0.99	0.38	0.50	0.69
W10x54	1.09	0.38	0.47	0.65
W10x60	1.20	0.38	0.44	0.61
W10x68	1.36	0.38	0.40	0.56
W10x77	1.52	0.38	0.38	0.52
W10x88	1.72	0.38	0.38	0.48
W10x100	1.93	0.38	0.38	0.44
W10x112	2.14	0.38	0.38	0.40
W12x14	0.40	0.47	0.79	1.10
W12x16	0.45	0.45	0.75	1.05
W12x19	0.53	0.42	0.70	0.98
W12x22	0.61	0.39	0.65	0.91
W12x26	0.60	0.39	0.66	0.92

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in.

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W12x30	0.69	0.38	0.61	0.85
W12x35	0.79	0.38	0.57	0.79
W12x40	0.85	0.38	0.54	0.76
W12x45	0.95	0.38	0.51	0.71
W12x50	1.04	0.38	0.48	0.67
W12x53	0.99	0.38	0.50	0.69
W12x54	1.04	0.38	0.48	0.67
W12x58	1.08	0.38	0.47	0.66
W12x65	1.09	0.38	0.47	0.65
W12x72	1.20	0.38	0.44	0.61
W12x79	1.32	0.38	0.41	0.57
W12x87	1.44	0.38	0.39	0.54
W12x96	1.57	0.38	0.38	0.51
W12x106	1.73	0.38	0.38	0.47
W12x120	1.94	0.38	0.38	0.43
W12x136	2.17	0.38	0.38	0.40
W12x152	2.40	0.38	0.38	0.38
W12x170	2.66	0.38	0.38	0.38
W12x190	2.93	0.38	0.38	0.38
W12x210	3.21	0.38	0.38	0.38
W12x230	3.47	0.38	0.38	0.38
W12x262	3.76	0.38	0.38	0.38
W12x279	4.10	0.38	0.38	0.38
W12x305	4.41	0.38	0.38	0.38
W12x336	4.78	0.38	0.38	0.38
W14x22	0.52	0.42	0.70	0.98
W14x26	0.61	0.39	0.65	0.91
W14x30	0.63	0.38	0.64	0.90
W14x34	0.71	0.38	0.60	0.84
W14x38	0.79	0.38	0.57	0.79
W14x43	0.85	0.38	0.54	0.76
W14x48	0.94	0.38	0.51	0.72
W14x53	1.03	0.38	0.48	0.68
W14x61	1.07	0.38	0.47	0.66
W14x68	1.19	0.38	0.44	0.62
W14x74	1.28	0.38	0.42	0.59
W14x82	1.41	0.38	0.39	0.55
W14x90	1.27	0.38	0.42	0.59
W14x99	1.39	0.38	0.40	0.55
W14x109	1.53	0.38	0.38	0.52
W14x120	1.67	0.38	0.38	0.49
W14x132	1.83	0.38	0.38	0.45
W14x145	1.94	0.38	0.38	0.43
W14x159	2.11	0.38	0.38	0.41

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in.

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W14x176	2.25	0.38	0.38	0.39
W14x193	2.32	0.38	0.38	0.38
W14x211	2.74	0.38	0.38	0.38
W14x233	3.00	0.38	0.38	0.38
W14x257	3.27	0.38	0.38	0.38
W14x283	3.57	0.38	0.38	0.38
W14x311	3.88	0.38	0.38	0.38
W14x342	4.21	0.38	0.38	0.38
W14x370	4.51	0.38	0.38	0.38
W14x398	4.80	0.38	0.38	0.38
W14x426	5.09	0.38	0.38	0.38
W14x455	5.38	0.38	0.38	0.38
W14x500	5.82	0.38	0.38	0.38
W14x550	6.30	0.38	0.38	0.38
W14x605	6.80	0.38	0.38	0.38
W16x26	0.55	0.41	0.68	0.96
W16x31	0.65	0.38	0.63	0.88
W16x36	0.69	0.38	0.61	0.85
W16x40	0.76	0.38	0.58	0.81
W16x45	0.85	0.38	0.54	0.76
W16x50	0.94	0.38	0.51	0.72
W16x67	1.07	0.38	0.47	0.66
W16x77	1.07	0.38	0.47	0.66
W16x89	1.22	0.38	0.43	0.61
W16x100	1.56	0.38	0.38	0.51
W18x35	0.66	0.38	0.63	0.88
W18x40	0.76	0.38	0.58	0.81
W18x46	0.86	0.38	0.54	0.76
W18x50	0.87	0.38	0.54	0.75
W18x55	0.95	0.38	0.51	0.71
W18x60	1.03	0.38	0.48	0.68
W18x65	1.11	0.38	0.46	0.64
W18x71	1.21	0.38	0.44	0.61
W18x76	1.11	0.38	0.46	0.64
W18x88	1.24	0.38	0.43	0.60
W18x97	1.39	0.38	0.40	0.55
W18x106	1.52	0.38	0.38	0.52
W18x119	1.68	0.38	0.38	0.48
W21x44	0.73	0.38	0.59	0.83
W21x50	0.83	0.38	0.55	0.77
W21x57	0.93	0.38	0.51	0.72
W21x62	0.94	0.38	0.51	0.72
W21x68	1.03	0.38	0.48	0.68
W21x83	1.24	0.38	0.43	0.60

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in.

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W21x93	1.38	0.38	0.40	0.56
W21x101	1.29	0.38	0.42	0.58
W21x111	1.41	0.38	0.39	0.55
W21x122	1.54	0.38	0.38	0.52
W21x132	1.66	0.38	0.38	0.49
W21x147	1.83	0.38	0.38	0.45
W24x55	0.82	0.38	0.55	0.78
W24x62	0.92	0.38	0.52	0.73
W24x68	0.93	0.38	0.51	0.72
W24x76	1.02	0.38	0.49	0.68
W24x84	1.13	0.38	0.46	0.64
W24x94	1.26	0.38	0.42	0.59
W24x104	1.22	0.38	0.43	0.61
W24x117	1.36	0.38	0.40	0.56
W24x131	1.52	0.38	0.38	0.52
W24x146	1.68	0.38	0.38	0.48
W24x162	1.85	0.38	0.38	0.45
W27x84	1.02	0.38	0.49	0.68
W27x94	1.13	0.38	0.46	0.64
W27x102	1.23	0.38	0.43	0.60
W27x114	1.36	0.38	0.40	0.56
W27x146	1.53	0.38	0.38	0.52
W27x161	1.68	0.38	0.38	0.48
W27x178	1.85	0.38	0.38	0.45
W30x99	1.10	0.38	0.46	0.65
W30x108	1.20	0.38	0.44	0.61
W30x116	1.28	0.38	0.42	0.59
W30x124	1.37	0.38	0.40	0.56
W30x132	1.46	0.38	0.38	0.54
W30x173	1.66	0.38	0.38	0.49
W30x191	1.82	0.38	0.38	0.46
W30x211	2.00	0.38	0.38	0.42
W33x118	1.19	0.38	0.44	0.62
W33x130	1.31	0.38	0.41	0.58
W33x141	1.41	0.38	0.39	0.55
W33x152	1.51	0.38	0.38	0.52
W33x201	1.78	0.38	0.38	0.46

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W4x13	0.65	0.50	0.82	1.13
W5x16	0.65	0.50	0.82	1.13
W5x19	0.76	0.46	0.75	1.04
W6x9	0.39	0.64	1.03	1.43
W6x12	0.51	0.57	0.92	1.28
W6x16	0.66	0.50	0.81	1.13
W6x20	0.67	0.50	0.81	1.12
W6x26	0.82	0.44	0.72	1.00
W8x10	0.37	0.65	1.06	1.46
W8x13	0.47	0.59	0.96	1.32
W8x15	0.54	0.55	0.90	1.24
W8x18	0.57	0.54	0.88	1.21
W8x21	0.66	0.50	0.81	1.13
W8x24	0.69	0.49	0.79	1.10
W8x28	0.80	0.45	0.73	1.01
W8x31	0.79	0.45	0.74	1.02
W8x35	0.88	0.43	0.69	0.96
W8x40	1.00	0.39	0.64	0.89
W8x48	1.18	0.38	0.58	0.80
W8x58	1.41	0.38	0.51	0.71
W8x67	1.61	0.38	0.46	0.64
W10x12	0.38	0.64	1.04	1.45
W10x15	0.48	0.58	0.95	1.31
W10x17	0.54	0.55	0.90	1.24
W10x19	0.59	0.53	0.86	1.19
W10x22	0.59	0.53	0.86	1.19
W10x26	0.69	0.49	0.79	1.10
W10x30	0.79	0.45	0.74	1.02
W10x33	0.77	0.46	0.75	1.03
W10x39	0.90	0.42	0.68	0.95
W10x46	1.03	0.39	0.63	0.87
W10x49	0.99	0.40	0.64	0.89
W10x54	1.09	0.38	0.61	0.84
W10x60	1.20	0.38	0.57	0.79
W10x68	1.36	0.38	0.52	0.72
W10x77	1.52	0.38	0.48	0.67
W10x88	1.72	0.38	0.44	0.61
W10x100	1.93	0.38	0.40	0.56
W10x112	2.14	0.38	0.38	0.52
W12x14	0.40	0.63	1.02	1.42
W12x16	0.45	0.60	0.98	1.35
W12x19	0.53	0.56	0.91	1.25
W12x22	0.61	0.52	0.85	1.17
W12x26	0.60	0.53	0.85	1.18

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W12x30	0.69	0.49	0.79	1.10
W12x35	0.79	0.45	0.74	1.02
W12x40	0.85	0.43	0.71	0.98
W12x45	0.95	0.41	0.66	0.91
W12x50	1.04	0.38	0.62	0.86
W12x53	0.99	0.40	0.64	0.89
W12x54	1.04	0.38	0.62	0.86
W12x58	1.08	0.38	0.61	0.84
W12x65	1.09	0.38	0.61	0.84
W12x72	1.20	0.38	0.57	0.79
W12x79	1.32	0.38	0.53	0.74
W12x87	1.44	0.38	0.50	0.69
W12x96	1.57	0.38	0.47	0.65
W12x106	1.73	0.38	0.44	0.61
W12x120	1.94	0.38	0.40	0.56
W12x136	2.17	0.38	0.38	0.51
W12x152	2.40	0.38	0.38	0.47
W12x170	2.66	0.38	0.38	0.43
W12x190	2.93	0.38	0.38	0.40
W12x210	3.21	0.38	0.38	0.38
W12x230	3.47	0.38	0.38	0.38
W12x262	3.76	0.38	0.38	0.38
W12x279	4.10	0.38	0.38	0.38
W12x305	4.41	0.38	0.38	0.38
W12x336	4.78	0.38	0.38	0.38
W14x22	0.52	0.56	0.91	1.27
W14x26	0.61	0.52	0.85	1.17
W14x30	0.63	0.51	0.83	1.15
W14x34	0.71	0.48	0.78	1.08
W14x38	0.79	0.45	0.74	1.02
W14x43	0.85	0.43	0.71	0.98
W14x48	0.94	0.41	0.66	0.92
W14x53	1.03	0.39	0.63	0.87
W14x61	1.07	0.38	0.61	0.85
W14x68	1.19	0.38	0.57	0.79
W14x74	1.28	0.38	0.54	0.75
W14x82	1.41	0.38	0.51	0.71
W14x90	1.27	0.38	0.55	0.76
W14x99	1.39	0.38	0.51	0.71
W14x109	1.53	0.38	0.48	0.67
W14x120	1.67	0.38	0.45	0.62
W14x132	1.83	0.38	0.42	0.58
W14x145	1.94	0.38	0.40	0.56
W14x159	2.11	0.38	0.38	0.52

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W14x176	2.25	0.38	0.38	0.50
W14x193	2.32	0.38	0.38	0.49
W14x211	2.74	0.38	0.38	0.42
W14x233	3.00	0.38	0.38	0.39
W14x257	3.27	0.38	0.38	0.38
W14x283	3.57	0.38	0.38	0.38
W14x311	3.88	0.38	0.38	0.38
W14x342	4.21	0.38	0.38	0.38
W14x370	4.51	0.38	0.38	0.38
W14x398	4.80	0.38	0.38	0.38
W14x426	5.09	0.38	0.38	0.38
W14x455	5.38	0.38	0.38	0.38
W14x500	5.82	0.38	0.38	0.38
W14x550	6.30	0.38	0.38	0.38
W14x605	6.80	0.38	0.38	0.38
W16x26	0.55	0.55	0.89	1.23
W16x31	0.65	0.50	0.82	1.13
W16x36	0.69	0.49	0.79	1.10
W16x40	0.76	0.46	0.75	1.04
W16x45	0.85	0.43	0.71	0.98
W16x50	0.94	0.41	0.66	0.92
W16x67	1.07	0.38	0.61	0.85
W16x77	1.07	0.38	0.61	0.85
W16x89	1.22	0.38	0.56	0.78
W16x100	1.56	0.38	0.47	0.66
W18x35	0.66	0.50	0.81	1.13
W18x40	0.76	0.46	0.75	1.04
W18x46	0.86	0.43	0.70	0.97
W18x50	0.87	0.43	0.70	0.96
W18x55	0.95	0.41	0.66	0.91
W18x60	1.03	0.39	0.63	0.87
W18x65	1.11	0.38	0.60	0.83
W18x71	1.21	0.38	0.57	0.78
W18x76	1.11	0.38	0.60	0.83
W18x88	1.24	0.38	0.56	0.77
W18x97	1.39	0.38	0.51	0.71
W18x106	1.52	0.38	0.48	0.67
W18x119	1.68	0.38	0.45	0.62
W21x44	0.73	0.47	0.77	1.07
W21x50	0.83	0.44	0.72	0.99
W21x57	0.93	0.41	0.67	0.93
W21x62	0.94	0.41	0.66	0.92
W21x68	1.03	0.39	0.63	0.87
W21x83	1.24	0.38	0.56	0.77

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. P741 - Beam / Roof Assembly

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Member	W/D	Unrestrained Beam Rating		
		1 Hr	1.5 Hr	2 Hr
W21x93	1.38	0.38	0.52	0.72
W21x101	1.29	0.38	0.54	0.75
W21x111	1.41	0.38	0.51	0.71
W21x122	1.54	0.38	0.48	0.66
W21x132	1.66	0.38	0.45	0.63
W21x147	1.83	0.38	0.42	0.58
W24x55	0.82	0.44	0.72	1.00
W24x62	0.92	0.41	0.67	0.93
W24x68	0.93	0.41	0.67	0.93
W24x76	1.02	0.39	0.63	0.88
W24x84	1.13	0.38	0.59	0.82
W24x94	1.26	0.38	0.55	0.76
W24x104	1.22	0.38	0.56	0.78
W24x117	1.36	0.38	0.52	0.72
W24x131	1.52	0.38	0.48	0.67
W24x146	1.68	0.38	0.45	0.62
W24x162	1.85	0.38	0.42	0.58
W27x84	1.02	0.39	0.63	0.88
W27x94	1.13	0.38	0.59	0.82
W27x102	1.23	0.38	0.56	0.77
W27x114	1.36	0.38	0.52	0.72
W27x146	1.53	0.38	0.48	0.67
W27x161	1.68	0.38	0.45	0.62
W27x178	1.85	0.38	0.42	0.58
W30x99	1.10	0.38	0.60	0.83
W30x108	1.20	0.38	0.57	0.79
W30x116	1.28	0.38	0.54	0.75
W30x124	1.37	0.38	0.52	0.72
W30x132	1.46	0.38	0.50	0.69
W30x173	1.66	0.38	0.45	0.63
W30x191	1.82	0.38	0.42	0.59
W30x211	2.00	0.38	0.39	0.55
W33x118	1.19	0.38	0.57	0.79
W33x130	1.31	0.38	0.54	0.74
W33x141	1.41	0.38	0.51	0.71
W33x152	1.51	0.38	0.49	0.67
W33x201	1.78	0.38	0.43	0.60

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

* Thickness applied to beam' s lower flange edge shall be a minimum of 1/4-in.

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP and Type 7 HD

Restrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thicknesses (NWC							**Full Flange Tip Thicknesses (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.56	0.70	0.84	1.26	1.68	W4x13	0.65	0.56	0.77	0.98	1.40	1.82
0.56	0.70	0.84	1.26	1.68	W6x16	0.65	0.56	0.77	0.98	1.40	1.82
0.51	0.64	0.77	1.16	1.54	W6x19	0.76	0.51	0.71	0.90	1.29	1.67
0.71	0.88	1.06	1.59	2.12	W6x9	0.39	0.71	0.97	1.24	1.77	2.30
0.63	0.79	0.95	1.42	1.89	W6x12	0.51	0.63	0.87	1.10	1.58	2.05
0.56	0.69	0.83	1.25	1.67	W6x16	0.66	0.56	0.76	0.97	1.39	1.81
0.55	0.69	0.83	1.24	1.65	W6x20	0.67	0.55	0.76	0.96	1.38	1.79
0.49	0.62	0.74	1.11	1.48	W6x26	0.82	0.49	0.68	0.86	1.23	1.60
0.72	0.90	1.08	1.62	2.16	W8x10	0.37	0.72	0.99	1.26	1.80	2.35
0.65	0.82	0.98	1.47	1.96	W8x13	0.47	0.65	0.90	1.14	1.64	2.13
0.61	0.77	0.92	1.38	1.84	W8x15	0.54	0.61	0.84	1.07	1.54	2.00
0.60	0.75	0.90	1.35	1.79	W8x18	0.57	0.60	0.82	1.05	1.50	1.94
0.56	0.69	0.83	1.25	1.67	W8x21	0.66	0.56	0.76	0.97	1.39	1.81
0.54	0.68	0.81	1.22	1.63	W8x24	0.69	0.54	0.75	0.95	1.36	1.76
0.50	0.63	0.75	1.13	1.50	W8x28	0.8	0.50	0.69	0.88	1.25	1.63
0.50	0.63	0.76	1.13	1.51	W8x31	0.79	0.50	0.69	0.88	1.26	1.64
0.47	0.59	0.71	1.06	1.42	W8x35	0.88	0.47	0.65	0.83	1.18	1.54
0.44	0.55	0.66	0.98	1.31	W8x40	1	0.44	0.60	0.77	1.09	1.42
0.39	0.49	0.59	0.88	1.18	W8x48	1.18	0.39	0.54	0.69	0.98	1.28
0.38	0.44	0.52	0.78	1.04	W8x58	1.41	0.38	0.48	0.61	0.87	1.13
0.38	0.40	0.48	0.71	0.95	W8x67	1.61	0.38	0.44	0.55	0.79	1.03
0.71	0.89	1.07	1.61	2.14	W10x12	0.38	0.71	0.98	1.25	1.79	2.32
0.65	0.81	0.97	1.46	1.94	W10x15	0.48	0.65	0.89	1.13	1.62	2.11
0.61	0.77	0.92	1.38	1.84	W10x17	0.54	0.61	0.84	1.07	1.54	2.00
0.59	0.74	0.88	1.32	1.76	W10x19	0.59	0.59	0.81	1.03	1.47	1.91
0.59	0.74	0.88	1.32	1.76	W10x22	0.59	0.59	0.81	1.03	1.47	1.91
0.54	0.68	0.81	1.22	1.63	W10x26	0.69	0.54	0.75	0.95	1.36	1.76
0.50	0.63	0.76	1.13	1.51	W10x30	0.79	0.50	0.69	0.88	1.26	1.64
0.51	0.64	0.77	1.15	1.53	W10x33	0.77	0.51	0.70	0.89	1.28	1.66
0.47	0.58	0.70	1.05	1.40	W10x39	0.9	0.47	0.64	0.82	1.17	1.52
0.43	0.54	0.64	0.97	1.29	W10x46	1.03	0.43	0.59	0.75	1.07	1.40
0.44	0.55	0.66	0.99	1.32	W10x49	0.99	0.44	0.61	0.77	1.10	1.43
0.41	0.52	0.62	0.93	1.24	W10x54	1.09	0.41	0.57	0.72	1.04	1.35
0.39	0.49	0.58	0.88	1.17	W10x60	1.2	0.39	0.53	0.68	0.97	1.26
0.38	0.45	0.54	0.80	1.07	W10x68	1.36	0.38	0.49	0.63	0.89	1.16
0.38	0.41	0.50	0.74	0.99	W10x77	1.52	0.38	0.45	0.58	0.83	1.07
0.38	0.38	0.45	0.68	0.91	W10x88	1.72	0.38	0.41	0.53	0.75	0.98
0.38	0.38	0.42	0.62	0.83	W10x100	1.93	0.38	0.38	0.48	0.69	0.90
0.38	0.38	0.38	0.57	0.77	W10x112	2.14	0.38	0.38	0.45	0.64	0.83
0.70	0.88	1.05	1.58	2.10	W12x14	0.4	0.70	0.96	1.23	1.75	2.28
0.67	0.83	1.00	1.50	2.00	W12x16	0.45	0.67	0.92	1.17	1.67	2.17
0.62	0.77	0.93	1.39	1.86	W12x19	0.53	0.62	0.85	1.08	1.55	2.01
0.58	0.72	0.87	1.30	1.74	W12x22	0.61	0.58	0.80	1.01	1.45	1.88
0.58	0.73	0.88	1.31	1.75	W12x26	0.6	0.58	0.80	1.02	1.46	1.90
0.54	0.68	0.81	1.22	1.63	W12x30	0.69	0.54	0.75	0.95	1.36	1.76

AD Southwest Type 5GP, Type 5 MD, Type 7 GP & Type 7 HD

Restrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight concrete (LWC)

Full Flange Tip Thickness (NWC							**Full Flange Tip Thickness (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.50	0.63	0.76	1.13	1.51	W12x35	0.79	0.50	0.69	0.88	1.26	1.64
0.48	0.60	0.72	1.09	1.45	W12x40	0.85	0.48	0.66	0.84	1.21	1.57
0.45	0.56	0.68	1.02	1.35	W12x45	0.95	0.45	0.62	0.79	1.13	1.47
0.43	0.53	0.64	0.96	1.28	W12x50	1.04	0.43	0.59	0.75	1.07	1.39
0.44	0.55	0.66	0.99	1.32	W12x53	0.99	0.44	0.61	0.77	1.10	1.43
0.43	0.53	0.64	0.96	1.28	W12x54	1.04	0.43	0.59	0.75	1.07	1.39
0.42	0.52	0.63	0.94	1.25	W12x58	1.08	0.42	0.57	0.73	1.04	1.35
0.41	0.52	0.62	0.93	1.24	W12x65	1.09	0.41	0.57	0.72	1.04	1.35
0.39	0.49	0.58	0.88	1.17	W12x72	1.2	0.39	0.53	0.68	0.97	1.26
0.38	0.46	0.55	0.82	1.09	W12x79	1.32	0.38	0.50	0.64	0.91	1.18
0.38	0.43	0.51	0.77	1.03	W12x87	1.44	0.38	0.47	0.60	0.86	1.12
0.38	0.40	0.48	0.73	0.97	W12x96	1.57	0.38	0.44	0.56	0.81	1.05
0.38	0.38	0.45	0.68	0.90	W12x106	1.73	0.38	0.41	0.53	0.75	0.98
0.38	0.38	0.41	0.62	0.83	W12x120	1.94	0.38	0.38	0.48	0.69	0.90
0.38	0.38	0.38	0.57	0.76	W12x136	2.17	0.38	0.38	0.44	0.63	0.82
0.38	0.38	0.38	0.53	0.70	W12x152	2.4	0.38	0.38	0.41	0.58	0.76
0.38	0.38	0.38	0.48	0.64	W12x170	2.66	0.38	0.38	0.38	0.54	0.70
0.38	0.38	0.38	0.45	0.59	W12x190	2.93	0.38	0.38	0.38	0.50	0.64
0.38	0.38	0.38	0.41	0.55	W12x210	3.21	0.38	0.38	0.38	0.46	0.60
0.38	0.38	0.38	0.39	0.52	W12x230	3.47	0.38	0.38	0.38	0.43	0.56
0.38	0.38	0.38	0.38	0.48	W12x262	3.76	0.38	0.38	0.38	0.40	0.52
0.38	0.38	0.38	0.38	0.45	W12x279	4.1	0.38	0.38	0.38	0.38	0.48
0.38	0.38	0.38	0.38	0.42	W12x305	4.41	0.38	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.38	0.39	W12x336	4.78	0.38	0.38	0.38	0.38	0.42
0.63	0.78	0.94	1.41	1.88	W14x22	0.52	0.63	0.86	1.09	1.56	2.03
0.58	0.72	0.87	1.30	1.74	W14x26	0.61	0.58	0.80	1.01	1.45	1.88
0.57	0.71	0.85	1.28	1.71	W14x30	0.63	0.57	0.78	1.00	1.42	1.85
0.53	0.67	0.80	1.20	1.60	W14x34	0.71	0.53	0.73	0.94	1.34	1.74
0.50	0.63	0.76	1.13	1.51	W14x38	0.79	0.50	0.69	0.88	1.26	1.64
0.48	0.60	0.72	1.09	1.45	W14x43	0.85	0.48	0.66	0.84	1.21	1.57
0.45	0.57	0.68	1.02	1.36	W14x48	0.94	0.45	0.63	0.80	1.14	1.48
0.43	0.54	0.64	0.97	1.29	W14x53	1.03	0.43	0.59	0.75	1.07	1.40
0.42	0.52	0.63	0.94	1.26	W14x61	1.07	0.42	0.58	0.73	1.05	1.36
0.39	0.49	0.59	0.88	1.17	W14x68	1.19	0.39	0.54	0.68	0.98	1.27
0.38	0.47	0.56	0.84	1.12	W14x74	1.28	0.38	0.51	0.65	0.93	1.21
0.38	0.44	0.52	0.78	1.04	W14x82	1.41	0.38	0.48	0.61	0.87	1.13
0.38	0.47	0.56	0.84	1.12	W14x90	1.27	0.38	0.51	0.66	0.94	1.22
0.38	0.44	0.53	0.79	1.06	W14x99	1.39	0.38	0.48	0.62	0.88	1.14
0.38	0.41	0.49	0.74	0.99	W14x109	1.53	0.38	0.45	0.58	0.82	1.07
0.38	0.39	0.46	0.69	0.93	W14x120	1.67	0.38	0.42	0.54	0.77	1.00
0.38	0.38	0.43	0.65	0.86	W14x132	1.83	0.38	0.40	0.50	0.72	0.94
0.38	0.38	0.41	0.62	0.83	W14x145	1.94	0.38	0.38	0.48	0.69	0.90
0.38	0.38	0.39	0.58	0.77	W14x159	2.11	0.38	0.38	0.45	0.65	0.84
0.38	0.38	0.38	0.55	0.74	W14x176	2.25	0.38	0.38	0.43	0.61	0.80
0.38	0.38	0.38	0.54	0.72	W14x193	2.32	0.38	0.38	0.42	0.60	0.78

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Restrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thickness (NWC							**Full Flange Tip Thickness (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.38	0.47	0.63	W14x211	2.74	0.38	0.38	0.38	0.52	0.68
0.38	0.38	0.38	0.44	0.58	W14x233	3	0.38	0.38	0.38	0.49	0.63
0.38	0.38	0.38	0.41	0.54	W14x257	3.27	0.38	0.38	0.38	0.45	0.59
0.38	0.38	0.38	0.38	0.50	W14x283	3.57	0.38	0.38	0.38	0.42	0.55
0.38	0.38	0.38	0.38	0.47	W14x311	3.88	0.38	0.38	0.38	0.39	0.51
0.38	0.38	0.38	0.38	0.44	W14x342	4.21	0.38	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.38	0.41	W14x370	4.51	0.38	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.38	0.39	W14x398	4.8	0.38	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.38	0.38	W14x426	5.09	0.38	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x550	6.3	0.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	0.38	W14x605	6.8	0.38	0.38	0.38	0.38	0.38
0.61	0.76	0.91	1.37	1.83	W16x26	0.55	0.61	0.84	1.07	1.52	1.98
0.56	0.70	0.84	1.26	1.68	W16x31	0.65	0.56	0.77	0.98	1.40	1.82
0.54	0.68	0.81	1.22	1.63	W16x36	0.69	0.54	0.75	0.95	1.36	1.76
0.51	0.64	0.77	1.16	1.54	W16x40	0.76	0.51	0.71	0.90	1.29	1.67
0.48	0.60	0.72	1.09	1.45	W16x45	0.85	0.48	0.66	0.84	1.21	1.57
0.45	0.57	0.68	1.02	1.36	W16x50	0.94	0.45	0.63	0.80	1.14	1.48
0.42	0.52	0.63	0.94	1.26	W16x67	1.07	0.42	0.58	0.73	1.05	1.36
0.42	0.52	0.63	0.94	1.26	W16x77	1.07	0.42	0.58	0.73	1.05	1.36
0.38	0.48	0.58	0.87	1.15	W16x89	1.22	0.38	0.53	0.67	0.96	1.25
0.38	0.41	0.49	0.73	0.97	W16x100	1.56	0.38	0.45	0.57	0.81	1.05
0.56	0.69	0.83	1.25	1.67	W18x35	0.66	0.56	0.76	0.97	1.39	1.81
0.51	0.64	0.77	1.16	1.54	W18x40	0.76	0.51	0.71	0.90	1.29	1.67
0.48	0.60	0.72	1.08	1.44	W18x46	0.86	0.48	0.66	0.84	1.20	1.56
0.48	0.60	0.71	1.07	1.43	W18x50	0.87	0.48	0.65	0.83	1.19	1.55
0.45	0.56	0.68	1.02	1.35	W18x55	0.95	0.45	0.62	0.79	1.13	1.47
0.43	0.54	0.64	0.97	1.29	W18x60	1.03	0.43	0.59	0.75	1.07	1.40
0.41	0.51	0.61	0.92	1.23	W18x65	1.11	0.41	0.56	0.72	1.02	1.33
0.39	0.48	0.58	0.87	1.16	W18x71	1.21	0.39	0.53	0.68	0.97	1.26
0.41	0.51	0.61	0.92	1.23	W18x76	1.11	0.41	0.56	0.72	1.02	1.33
0.38	0.48	0.57	0.86	1.14	W18x88	1.24	0.38	0.52	0.67	0.95	1.24
0.38	0.44	0.53	0.79	1.06	W18x97	1.39	0.38	0.48	0.62	0.88	1.14
0.38	0.41	0.50	0.74	0.99	W18x106	1.52	0.38	0.45	0.58	0.83	1.07
0.38	0.38	0.46	0.69	0.92	W18x119	1.68	0.38	0.42	0.54	0.77	1.00
0.53	0.66	0.79	1.18	1.58	W21x44	0.73	0.53	0.72	0.92	1.32	1.71
0.49	0.61	0.73	1.10	1.47	W21x50	0.83	0.49	0.67	0.86	1.22	1.59
0.46	0.57	0.69	1.03	1.37	W21x57	0.93	0.46	0.63	0.80	1.14	1.49
0.45	0.57	0.68	1.02	1.36	W21x62	0.94	0.45	0.63	0.80	1.14	1.48
0.43	0.54	0.64	0.97	1.29	W21x68	1.03	0.43	0.59	0.75	1.07	1.40
0.38	0.48	0.57	0.86	1.14	W21x83	1.24	0.38	0.52	0.67	0.95	1.24
0.38	0.44	0.53	0.80	1.06	W21x93	1.38	0.38	0.49	0.62	0.88	1.15
0.38	0.46	0.56	0.83	1.11	W21x101	1.29	0.38	0.51	0.65	0.93	1.20
0.38	0.44	0.52	0.78	1.04	W21x111	1.41	0.38	0.48	0.61	0.87	1.13

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Restrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thickness (NWC							**Full Flange Tip Thickness (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.41	0.49	0.74	0.98	W21x122	1.54	0.38	0.45	0.57	0.82	1.06
0.38	0.39	0.46	0.70	0.93	W21x132	1.66	0.38	0.43	0.54	0.77	1.01
0.38	0.38	0.43	0.65	0.86	W21x147	1.83	0.38	0.40	0.50	0.72	0.94
0.49	0.62	0.74	1.11	1.48	W24x55	0.82	0.49	0.68	0.86	1.23	1.60
0.46	0.58	0.69	1.04	1.38	W24x62	0.92	0.46	0.63	0.81	1.15	1.50
0.46	0.57	0.69	1.03	1.37	W24x68	0.93	0.46	0.63	0.80	1.14	1.49
0.43	0.54	0.65	0.97	1.30	W24x76	1.02	0.43	0.59	0.76	1.08	1.40
0.40	0.51	0.61	0.91	1.21	W24x84	1.13	0.40	0.56	0.71	1.01	1.32
0.38	0.47	0.56	0.85	1.13	W24x94	1.26	0.38	0.52	0.66	0.94	1.22
0.38	0.48	0.58	0.87	1.15	W24x104	1.22	0.38	0.53	0.67	0.96	1.25
0.38	0.45	0.54	0.80	1.07	W24x117	1.36	0.38	0.49	0.63	0.89	1.16
0.38	0.41	0.50	0.74	0.99	W24x131	1.52	0.38	0.45	0.58	0.83	1.07
0.38	0.38	0.46	0.69	0.92	W24x146	1.68	0.38	0.42	0.54	0.77	1.00
0.38	0.38	0.43	0.64	0.86	W24x162	1.85	0.38	0.39	0.50	0.71	0.93
0.43	0.54	0.65	0.97	1.30	W27x84	1.02	0.43	0.59	0.76	1.08	1.40
0.40	0.51	0.61	0.91	1.21	W27x94	1.13	0.40	0.56	0.71	1.01	1.32
0.38	0.48	0.57	0.86	1.15	W27x102	1.23	0.38	0.53	0.67	0.96	1.24
0.38	0.45	0.54	0.80	1.07	W27x114	1.36	0.38	0.49	0.63	0.89	1.16
0.38	0.41	0.49	0.74	0.99	W27x146	1.53	0.38	0.45	0.58	0.82	1.07
0.38	0.38	0.46	0.69	0.92	W27x161	1.68	0.38	0.42	0.54	0.77	1.00
0.38	0.38	0.43	0.64	0.86	W27x178	1.85	0.38	0.39	0.50	0.71	0.93
0.41	0.51	0.62	0.93	1.24	W30x99	1.1	0.41	0.57	0.72	1.03	1.34
0.39	0.49	0.58	0.88	1.17	W30x108	1.2	0.39	0.53	0.68	0.97	1.26
0.38	0.47	0.56	0.84	1.12	W30x116	1.28	0.38	0.51	0.65	0.93	1.21
0.38	0.44	0.53	0.80	1.07	W30x124	1.37	0.38	0.49	0.62	0.89	1.15
0.38	0.42	0.51	0.76	1.02	W30x132	1.46	0.38	0.47	0.59	0.85	1.10
0.38	0.39	0.46	0.70	0.93	W30x173	1.66	0.38	0.43	0.54	0.77	1.01
0.38	0.38	0.43	0.65	0.87	W30x191	1.82	0.38	0.40	0.51	0.72	0.94
0.38	0.38	0.40	0.61	0.81	W30x211	2	0.38	0.38	0.47	0.67	0.88
0.39	0.49	0.59	0.88	1.17	W33x118	1.19	0.39	0.54	0.68	0.98	1.27
0.38	0.46	0.55	0.82	1.10	W33x130	1.31	0.38	0.50	0.64	0.92	1.19
0.38	0.44	0.52	0.78	1.04	W33x141	1.41	0.38	0.48	0.61	0.87	1.13
0.38	0.41	0.50	0.75	1.00	W33x152	1.51	0.38	0.46	0.58	0.83	1.08
0.38	0.38	0.44	0.66	0.88	W33x201	1.78	0.38	0.40	0.51	0.74	0.96

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP and Type 7 HD

Unrestrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thicknesses (NWC							**Full Flange Tip Thicknesses (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.56	0.77	0.98	1.40	2.24	W4x13	0.65	0.56	0.91	1.12	1.75	2.24
0.56	0.77	0.98	1.40	2.24	W6x16	0.65	0.56	0.91	1.12	1.75	2.24
0.51	0.71	0.90	1.29	2.06	W6x19	0.76	0.51	0.84	1.03	1.61	2.06
0.71	0.97	1.24	1.77	2.83	W6x9	0.39	0.71	1.15	1.41	2.21	2.83
0.63	0.87	1.10	1.58	2.52	W6x12	0.51	0.63	1.02	1.26	1.97	2.52
0.56	0.76	0.97	1.39	2.22	W6x16	0.66	0.56	0.90	1.11	1.74	2.22
0.55	0.76	0.96	1.38	2.20	W6x20	0.67	0.55	0.90	1.10	1.72	2.20
0.49	0.68	0.86	1.23	1.97	W6x26	0.82	0.49	0.80	0.99	1.54	1.97
0.72	0.99	1.26	1.80	2.89	W8x10	0.37	0.72	1.17	1.44	2.26	2.89
0.65	0.90	1.14	1.64	2.62	W8x13	0.47	0.65	1.06	1.31	2.04	2.62
0.61	0.84	1.07	1.54	2.46	W8x15	0.54	0.61	1.00	1.23	1.92	2.46
0.60	0.82	1.05	1.50	2.39	W8x18	0.57	0.60	0.97	1.20	1.87	2.39
0.56	0.76	0.97	1.39	2.22	W8x21	0.66	0.56	0.90	1.11	1.74	2.22
0.54	0.75	0.95	1.36	2.17	W8x24	0.69	0.54	0.88	1.09	1.70	2.17
0.50	0.69	0.88	1.25	2.00	W8x28	0.8	0.50	0.81	1.00	1.56	2.00
0.50	0.69	0.88	1.26	2.01	W8x31	0.79	0.50	0.82	1.01	1.57	2.01
0.47	0.65	0.83	1.18	1.89	W8x35	0.88	0.47	0.77	0.95	1.48	1.89
0.44	0.60	0.77	1.09	1.75	W8x40	1	0.44	0.71	0.88	1.37	1.75
0.39	0.54	0.69	0.98	1.57	W8x48	1.18	0.39	0.64	0.79	1.23	1.57
0.38	0.48	0.61	0.87	1.39	W8x58	1.41	0.38	0.57	0.70	1.09	1.39
0.38	0.44	0.55	0.79	1.27	W8x67	1.61	0.38	0.51	0.63	0.99	1.27
0.71	0.98	1.25	1.79	2.86	W10x12	0.38	0.71	1.16	1.43	2.23	2.86
0.65	0.89	1.13	1.62	2.59	W10x15	0.48	0.65	1.05	1.30	2.03	2.59
0.61	0.84	1.07	1.54	2.46	W10x17	0.54	0.61	1.00	1.23	1.92	2.46
0.59	0.81	1.03	1.47	2.35	W10x19	0.59	0.59	0.96	1.18	1.84	2.35
0.59	0.81	1.03	1.47	2.35	W10x22	0.59	0.59	0.96	1.18	1.84	2.35
0.54	0.75	0.95	1.36	2.17	W10x26	0.69	0.54	0.88	1.09	1.70	2.17
0.50	0.69	0.88	1.26	2.01	W10x30	0.79	0.50	0.82	1.01	1.57	2.01
0.51	0.70	0.89	1.28	2.04	W10x33	0.77	0.51	0.83	1.02	1.60	2.04
0.47	0.64	0.82	1.17	1.87	W10x39	0.9	0.47	0.76	0.93	1.46	1.87
0.43	0.59	0.75	1.07	1.72	W10x46	1.03	0.43	0.70	0.86	1.34	1.72
0.44	0.61	0.77	1.10	1.76	W10x49	0.99	0.44	0.72	0.88	1.38	1.76
0.41	0.57	0.72	1.04	1.66	W10x54	1.09	0.41	0.67	0.83	1.29	1.66
0.39	0.53	0.68	0.97	1.56	W10x60	1.2	0.39	0.63	0.78	1.22	1.56
0.38	0.49	0.63	0.89	1.43	W10x68	1.36	0.38	0.58	0.71	1.12	1.43
0.38	0.45	0.58	0.83	1.32	W10x77	1.52	0.38	0.54	0.66	1.03	1.32
0.38	0.41	0.53	0.75	1.21	W10x88	1.72	0.38	0.49	0.60	0.94	1.21
0.38	0.38	0.48	0.69	1.11	W10x100	1.93	0.38	0.45	0.55	0.86	1.11
0.38	0.38	0.45	0.64	1.02	W10x112	2.14	0.38	0.42	0.51	0.80	1.02
0.70	0.96	1.23	1.75	2.80	W12x14	0.4	0.70	1.14	1.40	2.19	2.80
0.67	0.92	1.17	1.67	2.67	W12x16	0.45	0.67	1.08	1.33	2.08	2.67
0.62	0.85	1.08	1.55	2.48	W12x19	0.53	0.62	1.01	1.24	1.94	2.48
0.58	0.80	1.01	1.45	2.31	W12x22	0.61	0.58	0.94	1.16	1.81	2.31
0.58	0.80	1.02	1.46	2.33	W12x26	0.6	0.58	0.95	1.17	1.82	2.33
0.54	0.75	0.95	1.36	2.17	W12x30	0.69	0.54	0.88	1.09	1.70	2.17

AD Southwest Type 5GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight concrete (LWC)

Full Flange Tip Thickness (NWC							**Full Flange Tip Thickness (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.50	0.69	0.88	1.26	2.01	W12x35	0.79	0.50	0.82	1.01	1.57	2.01
0.48	0.66	0.84	1.21	1.93	W12x40	0.85	0.48	0.78	0.97	1.51	1.93
0.45	0.62	0.79	1.13	1.81	W12x45	0.95	0.45	0.73	0.90	1.41	1.81
0.43	0.59	0.75	1.07	1.71	W12x50	1.04	0.43	0.69	0.85	1.33	1.71
0.44	0.61	0.77	1.10	1.76	W12x53	0.99	0.44	0.72	0.88	1.38	1.76
0.43	0.59	0.75	1.07	1.71	W12x54	1.04	0.43	0.69	0.85	1.33	1.71
0.42	0.57	0.73	1.04	1.67	W12x58	1.08	0.42	0.68	0.83	1.30	1.67
0.41	0.57	0.72	1.04	1.66	W12x65	1.09	0.41	0.67	0.83	1.29	1.66
0.39	0.53	0.68	0.97	1.56	W12x72	1.2	0.39	0.63	0.78	1.22	1.56
0.38	0.50	0.64	0.91	1.46	W12x79	1.32	0.38	0.59	0.73	1.14	1.46
0.38	0.47	0.60	0.86	1.37	W12x87	1.44	0.38	0.56	0.69	1.07	1.37
0.38	0.44	0.56	0.81	1.29	W12x96	1.57	0.38	0.52	0.65	1.01	1.29
0.38	0.41	0.53	0.75	1.20	W12x106	1.73	0.38	0.49	0.60	0.94	1.20
0.38	0.38	0.48	0.69	1.10	W12x120	1.94	0.38	0.45	0.55	0.86	1.10
0.38	0.38	0.44	0.63	1.01	W12x136	2.17	0.38	0.41	0.51	0.79	1.01
0.38	0.38	0.41	0.58	0.93	W12x152	2.4	0.38	0.38	0.47	0.73	0.93
0.38	0.38	0.38	0.54	0.86	W12x170	2.66	0.38	0.38	0.43	0.67	0.86
0.38	0.38	0.38	0.50	0.79	W12x190	2.93	0.38	0.38	0.40	0.62	0.79
0.38	0.38	0.38	0.46	0.73	W12x210	3.21	0.38	0.38	0.38	0.57	0.73
0.38	0.38	0.38	0.43	0.69	W12x230	3.47	0.38	0.38	0.38	0.54	0.69
0.38	0.38	0.38	0.40	0.64	W12x262	3.76	0.38	0.38	0.38	0.50	0.64
0.38	0.38	0.38	0.38	0.60	W12x279	4.1	0.38	0.38	0.38	0.47	0.60
0.38	0.38	0.38	0.38	0.56	W12x305	4.41	0.38	0.38	0.38	0.44	0.56
0.38	0.38	0.38	0.38	0.52	W12x336	4.78	0.38	0.38	0.38	0.41	0.52
0.63	0.86	1.09	1.56	2.50	W14x22	0.52	0.63	1.02	1.25	1.95	2.50
0.58	0.80	1.01	1.45	2.31	W14x26	0.61	0.58	0.94	1.16	1.81	2.31
0.57	0.78	1.00	1.42	2.28	W14x30	0.63	0.57	0.92	1.14	1.78	2.28
0.53	0.73	0.94	1.34	2.14	W14x34	0.71	0.53	0.87	1.07	1.67	2.14
0.50	0.69	0.88	1.26	2.01	W14x38	0.79	0.50	0.82	1.01	1.57	2.01
0.48	0.66	0.84	1.21	1.93	W14x43	0.85	0.48	0.78	0.97	1.51	1.93
0.45	0.63	0.80	1.14	1.82	W14x48	0.94	0.45	0.74	0.91	1.42	1.82
0.43	0.59	0.75	1.07	1.72	W14x53	1.03	0.43	0.70	0.86	1.34	1.72
0.42	0.58	0.73	1.05	1.68	W14x61	1.07	0.42	0.68	0.84	1.31	1.68
0.39	0.54	0.68	0.98	1.56	W14x68	1.19	0.39	0.64	0.78	1.22	1.56
0.38	0.51	0.65	0.93	1.49	W14x74	1.28	0.38	0.61	0.74	1.16	1.49
0.38	0.48	0.61	0.87	1.39	W14x82	1.41	0.38	0.57	0.70	1.09	1.39
0.38	0.51	0.66	0.94	1.50	W14x90	1.27	0.38	0.61	0.75	1.17	1.50
0.38	0.48	0.62	0.88	1.41	W14x99	1.39	0.38	0.57	0.70	1.10	1.41
0.38	0.45	0.58	0.82	1.31	W14x109	1.53	0.38	0.53	0.66	1.03	1.31
0.38	0.42	0.54	0.77	1.23	W14x120	1.67	0.38	0.50	0.62	0.96	1.23
0.38	0.40	0.50	0.72	1.15	W14x132	1.83	0.38	0.47	0.58	0.90	1.15
0.38	0.38	0.48	0.69	1.10	W14x145	1.94	0.38	0.45	0.55	0.86	1.10
0.38	0.38	0.45	0.65	1.03	W14x159	2.11	0.38	0.42	0.52	0.81	1.03
0.38	0.38	0.43	0.61	0.98	W14x176	2.25	0.38	0.40	0.49	0.77	0.98
0.38	0.38	0.42	0.60	0.96	W14x193	2.32	0.38	0.39	0.48	0.75	0.96

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thickness (NWC							**Full Flange Tip Thickness (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.38	0.38	0.52	0.84	W14x211	2.74	0.38	0.38	0.42	0.65	0.84
0.38	0.38	0.38	0.49	0.78	W14x233	3	0.38	0.38	0.39	0.61	0.78
0.38	0.38	0.38	0.45	0.72	W14x257	3.27	0.38	0.38	0.38	0.57	0.72
0.38	0.38	0.38	0.42	0.67	W14x283	3.57	0.38	0.38	0.38	0.52	0.67
0.38	0.38	0.38	0.39	0.63	W14x311	3.88	0.38	0.38	0.38	0.49	0.63
0.38	0.38	0.38	0.38	0.58	W14x342	4.21	0.38	0.38	0.38	0.45	0.58
0.38	0.38	0.38	0.38	0.55	W14x370	4.51	0.38	0.38	0.38	0.43	0.55
0.38	0.38	0.38	0.38	0.52	W14x398	4.8	0.38	0.38	0.38	0.41	0.52
0.38	0.38	0.38	0.38	0.49	W14x426	5.09	0.38	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.38	0.47	W14x455	5.38	0.38	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.38	0.44	W14x500	5.82	0.38	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.38	0.41	W14x550	6.3	0.38	0.38	0.38	0.38	0.41
0.38	0.38	0.38	0.38	0.38	W14x605	6.8	0.38	0.38	0.38	0.38	0.38
0.61	0.84	1.07	1.52	2.43	W16x26	0.55	0.61	0.99	1.22	1.90	2.43
0.56	0.77	0.98	1.40	2.24	W16x31	0.65	0.56	0.91	1.12	1.75	2.24
0.54	0.75	0.95	1.36	2.17	W16x36	0.69	0.54	0.88	1.09	1.70	2.17
0.51	0.71	0.90	1.29	2.06	W16x40	0.76	0.51	0.84	1.03	1.61	2.06
0.48	0.66	0.84	1.21	1.93	W16x45	0.85	0.48	0.78	0.97	1.51	1.93
0.45	0.63	0.80	1.14	1.82	W16x50	0.94	0.45	0.74	0.91	1.42	1.82
0.42	0.58	0.73	1.05	1.68	W16x67	1.07	0.42	0.68	0.84	1.31	1.68
0.42	0.58	0.73	1.05	1.68	W16x77	1.07	0.42	0.68	0.84	1.31	1.68
0.38	0.53	0.67	0.96	1.54	W16x89	1.22	0.38	0.63	0.77	1.20	1.54
0.38	0.45	0.57	0.81	1.30	W16x100	1.56	0.38	0.53	0.65	1.01	1.30
0.56	0.76	0.97	1.39	2.22	W18x35	0.66	0.56	0.90	1.11	1.74	2.22
0.51	0.71	0.90	1.29	2.06	W18x40	0.76	0.51	0.84	1.03	1.61	2.06
0.48	0.66	0.84	1.20	1.92	W18x46	0.86	0.48	0.78	0.96	1.50	1.92
0.48	0.65	0.83	1.19	1.90	W18x50	0.87	0.48	0.77	0.95	1.49	1.90
0.45	0.62	0.79	1.13	1.81	W18x55	0.95	0.45	0.73	0.90	1.41	1.81
0.43	0.59	0.75	1.07	1.72	W18x60	1.03	0.43	0.70	0.86	1.34	1.72
0.41	0.56	0.72	1.02	1.64	W18x65	1.11	0.41	0.67	0.82	1.28	1.64
0.39	0.53	0.68	0.97	1.55	W18x71	1.21	0.39	0.63	0.77	1.21	1.55
0.41	0.56	0.72	1.02	1.64	W18x76	1.11	0.41	0.67	0.82	1.28	1.64
0.38	0.52	0.67	0.95	1.52	W18x88	1.24	0.38	0.62	0.76	1.19	1.52
0.38	0.48	0.62	0.88	1.41	W18x97	1.39	0.38	0.57	0.70	1.10	1.41
0.38	0.45	0.58	0.83	1.32	W18x106	1.52	0.38	0.54	0.66	1.03	1.32
0.38	0.42	0.54	0.77	1.23	W18x119	1.68	0.38	0.50	0.61	0.96	1.23
0.53	0.72	0.92	1.32	2.11	W21x44	0.73	0.53	0.86	1.05	1.64	2.11
0.49	0.67	0.86	1.22	1.96	W21x50	0.83	0.49	0.80	0.98	1.53	1.96
0.46	0.63	0.80	1.14	1.83	W21x57	0.93	0.46	0.74	0.92	1.43	1.83
0.45	0.63	0.80	1.14	1.82	W21x62	0.94	0.45	0.74	0.91	1.42	1.82
0.43	0.59	0.75	1.07	1.72	W21x68	1.03	0.43	0.70	0.86	1.34	1.72
0.38	0.52	0.67	0.95	1.52	W21x83	1.24	0.38	0.62	0.76	1.19	1.52
0.38	0.49	0.62	0.88	1.41	W21x93	1.38	0.38	0.57	0.71	1.10	1.41
0.38	0.51	0.65	0.93	1.48	W21x101	1.29	0.38	0.60	0.74	1.16	1.48
0.38	0.48	0.61	0.87	1.39	W21x111	1.41	0.38	0.57	0.70	1.09	1.39

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Unrestrained Beam Only Assembly UL N-706

Normal Weight Concrete (NWC) Lightweight Concrete (LWC)

Full Flange Tip Thickness (NWC							**Full Flange Tip Thickness (LWC**				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.38	0.45	0.57	0.82	1.31	W21x122	1.54	0.38	0.53	0.65	1.02	1.31
0.38	0.43	0.54	0.77	1.24	W21x132	1.66	0.38	0.50	0.62	0.97	1.24
0.38	0.40	0.50	0.72	1.15	W21x147	1.83	0.38	0.47	0.58	0.90	1.15
0.49	0.68	0.86	1.23	1.97	W24x55	0.82	0.49	0.80	0.99	1.54	1.97
0.46	0.63	0.81	1.15	1.84	W24x62	0.92	0.46	0.75	0.92	1.44	1.84
0.46	0.63	0.80	1.14	1.83	W24x68	0.93	0.46	0.74	0.92	1.43	1.83
0.43	0.59	0.76	1.08	1.73	W24x76	1.02	0.43	0.70	0.86	1.35	1.73
0.40	0.56	0.71	1.01	1.62	W24x84	1.13	0.40	0.66	0.81	1.26	1.62
0.38	0.52	0.66	0.94	1.51	W24x94	1.26	0.38	0.61	0.75	1.18	1.51
0.38	0.53	0.67	0.96	1.54	W24x104	1.22	0.38	0.63	0.77	1.20	1.54
0.38	0.49	0.63	0.89	1.43	W24x117	1.36	0.38	0.58	0.71	1.12	1.43
0.38	0.45	0.58	0.83	1.32	W24x131	1.52	0.38	0.54	0.66	1.03	1.32
0.38	0.42	0.54	0.77	1.23	W24x146	1.68	0.38	0.50	0.61	0.96	1.23
0.38	0.39	0.50	0.71	1.14	W24x162	1.85	0.38	0.46	0.57	0.89	1.14
0.43	0.59	0.76	1.08	1.73	W27x84	1.02	0.43	0.70	0.86	1.35	1.73
0.40	0.56	0.71	1.01	1.62	W27x94	1.13	0.40	0.66	0.81	1.26	1.62
0.38	0.53	0.67	0.96	1.53	W27x102	1.23	0.38	0.62	0.77	1.20	1.53
0.38	0.49	0.63	0.89	1.43	W27x114	1.36	0.38	0.58	0.71	1.12	1.43
0.38	0.45	0.58	0.82	1.31	W27x146	1.53	0.38	0.53	0.66	1.03	1.31
0.38	0.42	0.54	0.77	1.23	W27x161	1.68	0.38	0.50	0.61	0.96	1.23
0.38	0.39	0.50	0.71	1.14	W27x178	1.85	0.38	0.46	0.57	0.89	1.14
0.41	0.57	0.72	1.03	1.65	W30x99	1.1	0.41	0.67	0.82	1.29	1.65
0.39	0.53	0.68	0.97	1.56	W30x108	1.2	0.39	0.63	0.78	1.22	1.56
0.38	0.51	0.65	0.93	1.49	W30x116	1.28	0.38	0.61	0.74	1.16	1.49
0.38	0.49	0.62	0.89	1.42	W30x124	1.37	0.38	0.58	0.71	1.11	1.42
0.38	0.47	0.59	0.85	1.36	W30x132	1.46	0.38	0.55	0.68	1.06	1.36
0.38	0.43	0.54	0.77	1.24	W30x173	1.66	0.38	0.50	0.62	0.97	1.24
0.38	0.40	0.51	0.72	1.16	W30x191	1.82	0.38	0.47	0.58	0.90	1.16
0.38	0.38	0.47	0.67	1.08	W30x211	2	0.38	0.44	0.54	0.84	1.08
0.39	0.54	0.68	0.98	1.56	W33x118	1.19	0.39	0.64	0.78	1.22	1.56
0.38	0.50	0.64	0.92	1.47	W33x130	1.31	0.38	0.60	0.73	1.15	1.47
0.38	0.48	0.61	0.87	1.39	W33x141	1.41	0.38	0.57	0.70	1.09	1.39
0.38	0.46	0.58	0.83	1.33	W33x152	1.51	0.38	0.54	0.66	1.04	1.33
0.38	0.40	0.51	0.74	1.18	W33x201	1.78	0.38	0.48	0.59	0.92	1.18

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.49	0.84	1.26	1.76	W4x13	0.65	0.49	0.70	1.05	1.51
0.49	0.84	1.26	1.76	W5x16	0.65	0.49	0.70	1.05	1.51
0.45	0.77	1.16	1.62	W5x19	0.76	0.45	0.64	0.97	1.39
0.62	1.06	1.59	2.23	W6x9	0.39	0.62	0.88	1.33	1.91
0.55	0.95	1.42	1.99	W6x12	0.51	0.55	0.79	1.18	1.70
0.49	0.83	1.25	1.75	W6x16	0.66	0.49	0.69	1.04	1.50
0.48	0.83	1.24	1.74	W6x20	0.67	0.48	0.69	1.03	1.49
0.43	0.74	1.11	1.55	W6x26	0.82	0.43	0.62	0.92	1.33
0.63	1.08	1.62	2.27	W8x10	0.37	0.63	0.90	1.35	1.95
0.57	0.98	1.47	2.06	W8x13	0.47	0.57	0.82	1.23	1.77
0.54	0.92	1.38	1.93	W8x15	0.54	0.54	0.77	1.15	1.66
0.52	0.90	1.35	1.88	W8x18	0.57	0.52	0.75	1.12	1.62
0.49	0.83	1.25	1.75	W8x21	0.66	0.49	0.69	1.04	1.50
0.47	0.81	1.22	1.71	W8x24	0.69	0.47	0.68	1.02	1.47
0.44	0.75	1.13	1.58	W8x28	0.80	0.44	0.63	0.94	1.35
0.44	0.76	1.13	1.59	W8x31	0.79	0.44	0.63	0.94	1.36
0.41	0.71	1.06	1.49	W8x35	0.88	0.41	0.59	0.89	1.28
0.38	0.66	0.98	1.38	W8x40	1.00	0.38	0.55	0.82	1.18
0.38	0.59	0.88	1.24	W8x48	1.18	0.38	0.49	0.74	1.06
0.38	0.52	0.78	1.10	W8x58	1.41	0.38	0.44	0.65	0.94
0.38	0.48	0.71	1.00	W8x67	1.61	0.38	0.40	0.59	0.86
0.63	1.07	1.61	2.25	W10x12	0.38	0.63	0.89	1.34	1.93
0.57	0.97	1.46	2.04	W10x15	0.48	0.57	0.81	1.22	1.75
0.54	0.92	1.38	1.93	W10x17	0.54	0.54	0.77	1.15	1.66
0.51	0.88	1.32	1.85	W10x19	0.59	0.51	0.74	1.10	1.59
0.51	0.88	1.32	1.85	W10x22	0.59	0.51	0.74	1.10	1.59
0.47	0.81	1.22	1.71	W10x26	0.69	0.47	0.68	1.02	1.47
0.44	0.76	1.13	1.59	W10x30	0.79	0.44	0.63	0.94	1.36
0.45	0.77	1.15	1.61	W10x33	0.77	0.45	0.64	0.96	1.38
0.41	0.70	1.05	1.47	W10x39	0.90	0.41	0.58	0.88	1.26
0.38	0.64	0.97	1.35	W10x46	1.03	0.38	0.54	0.81	1.16
0.39	0.66	0.99	1.39	W10x49	0.99	0.39	0.55	0.83	1.19
0.38	0.62	0.93	1.30	W10x54	1.09	0.38	0.52	0.78	1.12
0.38	0.58	0.88	1.23	W10x60	1.20	0.38	0.49	0.73	1.05
0.38	0.54	0.80	1.13	W10x68	1.36	0.38	0.45	0.67	0.96
0.38	0.50	0.74	1.04	W10x77	1.52	0.38	0.41	0.62	0.89
0.38	0.45	0.68	0.95	W10x88	1.72	0.38	0.38	0.57	0.81
0.38	0.42	0.62	0.87	W10x100	1.93	0.38	0.38	0.52	0.75
0.38	0.38	0.57	0.80	W10x112	2.14	0.38	0.38	0.48	0.69
0.61	1.05	1.58	2.21	W12x14	0.40	0.61	0.88	1.31	1.89
0.58	1.00	1.50	2.10	W12x16	0.45	0.58	0.83	1.25	1.80
0.54	0.93	1.39	1.95	W12x19	0.53	0.54	0.77	1.16	1.67
0.51	0.87	1.30	1.82	W12x22	0.61	0.51	0.72	1.08	1.56
0.51	0.88	1.31	1.84	W12x26	0.60	0.51	0.73	1.09	1.58
0.47	0.81	1.22	1.71	W12x30	0.69	0.47	0.68	1.02	1.47
0.44	0.76	1.13	1.59	W12x35	0.79	0.44	0.63	0.94	1.36
0.42	0.72	1.09	1.52	W12x40	0.85	0.42	0.60	0.91	1.30

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.40	0.68	1.02	1.42	W12x45	0.95	0.40	0.56	0.85	1.22
0.38	0.64	0.96	1.34	W12x50	1.04	0.38	0.53	0.80	1.15
0.39	0.66	0.99	1.39	W12x53	0.99	0.39	0.55	0.83	1.19
0.38	0.64	0.96	1.34	W12x54	1.04	0.38	0.53	0.80	1.15
0.38	0.63	0.94	1.31	W12x58	1.08	0.38	0.52	0.78	1.13
0.38	0.62	0.93	1.30	W12x65	1.09	0.38	0.52	0.78	1.12
0.38	0.58	0.88	1.23	W12x72	1.20	0.38	0.49	0.73	1.05
0.38	0.55	0.82	1.15	W12x79	1.32	0.38	0.46	0.68	0.98
0.38	0.51	0.77	1.08	W12x87	1.44	0.38	0.43	0.64	0.93
0.38	0.48	0.73	1.02	W12x96	1.57	0.38	0.40	0.60	0.87
0.38	0.45	0.68	0.95	W12x106	1.73	0.38	0.38	0.56	0.81
0.38	0.41	0.62	0.87	W12x120	1.94	0.38	0.38	0.52	0.74
0.38	0.38	0.57	0.80	W12x136	2.17	0.38	0.38	0.47	0.68
0.38	0.38	0.53	0.74	W12x152	2.40	0.38	0.38	0.44	0.63
0.38	0.38	0.48	0.68	W12x170	2.66	0.38	0.38	0.40	0.58
0.38	0.38	0.45	0.62	W12x190	2.93	0.38	0.38	0.38	0.54
0.38	0.38	0.41	0.58	W12x210	3.21	0.38	0.38	0.38	0.50
0.38	0.38	0.39	0.54	W12x230	3.47	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.51	W12x262	3.76	0.38	0.38	0.38	0.43
0.38	0.38	0.38	0.47	W12x279	4.10	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.44	W12x305	4.41	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.41	W12x336	4.78	0.38	0.38	0.38	0.38
0.55	0.94	1.41	1.97	W14x22	0.52	0.55	0.78	1.17	1.69
0.51	0.87	1.30	1.82	W14x26	0.61	0.51	0.72	1.08	1.56
0.50	0.85	1.28	1.79	W14x30	0.63	0.50	0.71	1.07	1.54
0.47	0.80	1.20	1.68	W14x34	0.71	0.47	0.67	1.00	1.44
0.44	0.76	1.13	1.59	W14x38	0.79	0.44	0.63	0.94	1.36
0.42	0.72	1.09	1.52	W14x43	0.85	0.42	0.60	0.91	1.30
0.40	0.68	1.02	1.43	W14x48	0.94	0.40	0.57	0.85	1.23
0.38	0.64	0.97	1.35	W14x53	1.03	0.38	0.54	0.81	1.16
0.38	0.63	0.94	1.32	W14x61	1.07	0.38	0.52	0.79	1.13
0.38	0.59	0.88	1.23	W14x68	1.19	0.38	0.49	0.73	1.06
0.38	0.56	0.84	1.17	W14x74	1.28	0.38	0.47	0.70	1.01
0.38	0.52	0.78	1.10	W14x82	1.41	0.38	0.44	0.65	0.94
0.38	0.56	0.84	1.18	W14x90	1.27	0.38	0.47	0.70	1.01
0.38	0.53	0.79	1.11	W14x99	1.39	0.38	0.44	0.66	0.95
0.38	0.49	0.74	1.04	W14x109	1.53	0.38	0.41	0.62	0.89
0.38	0.46	0.69	0.97	W14x120	1.67	0.38	0.39	0.58	0.83
0.38	0.43	0.65	0.91	W14x132	1.83	0.38	0.38	0.54	0.78
0.38	0.41	0.62	0.87	W14x145	1.94	0.38	0.38	0.52	0.74
0.38	0.39	0.58	0.81	W14x159	2.11	0.38	0.38	0.48	0.70
0.38	0.38	0.55	0.77	W14x176	2.25	0.38	0.38	0.46	0.66
0.38	0.38	0.54	0.76	W14x193	2.32	0.38	0.38	0.45	0.65
0.38	0.38	0.47	0.66	W14x211	2.74	0.38	0.38	0.39	0.57
0.38	0.38	0.44	0.61	W14x233	3.00	0.38	0.38	0.38	0.53
0.38	0.38	0.41	0.57	W14x257	3.27	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.53	W14x283	3.57	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.49	W14x311	3.88	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.46	W14x342	4.21	0.38	0.38	0.38	0.39

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.38	0.43	W14x370	4.51	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.41	W14x398	4.80	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.39	W14x426	5.09	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x455	5.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x550	6.30	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38
0.53	0.91	1.37	1.92	W16x26	0.55	0.53	0.76	1.14	1.64
0.49	0.84	1.26	1.76	W16x31	0.65	0.49	0.70	1.05	1.51
0.47	0.81	1.22	1.71	W16x36	0.69	0.47	0.68	1.02	1.47
0.45	0.77	1.16	1.62	W16x40	0.76	0.45	0.64	0.97	1.39
0.42	0.72	1.09	1.52	W16x45	0.85	0.42	0.60	0.91	1.30
0.40	0.68	1.02	1.43	W16x50	0.94	0.40	0.57	0.85	1.23
0.38	0.63	0.94	1.32	W16x67	1.07	0.38	0.52	0.79	1.13
0.38	0.63	0.94	1.32	W16x77	1.07	0.38	0.52	0.79	1.13
0.38	0.58	0.87	1.21	W16x89	1.22	0.38	0.48	0.72	1.04
0.38	0.49	0.73	1.02	W16x100	1.56	0.38	0.41	0.61	0.88
0.49	0.83	1.25	1.75	W18x35	0.66	0.49	0.69	1.04	1.50
0.45	0.77	1.16	1.62	W18x40	0.76	0.45	0.64	0.97	1.39
0.42	0.72	1.08	1.51	W18x46	0.86	0.42	0.60	0.90	1.29
0.42	0.71	1.07	1.50	W18x50	0.87	0.42	0.60	0.89	1.29
0.40	0.68	1.02	1.42	W18x55	0.95	0.40	0.56	0.85	1.22
0.38	0.64	0.97	1.35	W18x60	1.03	0.38	0.54	0.81	1.16
0.38	0.61	0.92	1.29	W18x65	1.11	0.38	0.51	0.77	1.11
0.38	0.58	0.87	1.22	W18x71	1.21	0.38	0.48	0.73	1.04
0.38	0.61	0.92	1.29	W18x76	1.11	0.38	0.51	0.77	1.11
0.38	0.57	0.86	1.20	W18x88	1.24	0.38	0.48	0.71	1.03
0.38	0.53	0.79	1.11	W18x97	1.39	0.38	0.44	0.66	0.95
0.38	0.50	0.74	1.04	W18x106	1.52	0.38	0.41	0.62	0.89
0.38	0.46	0.69	0.97	W18x119	1.68	0.38	0.38	0.58	0.83
0.46	0.79	1.18	1.66	W21x44	0.73	0.46	0.66	0.99	1.42
0.43	0.73	1.10	1.54	W21x50	0.83	0.43	0.61	0.92	1.32
0.40	0.69	1.03	1.44	W21x57	0.93	0.40	0.57	0.86	1.24
0.40	0.68	1.02	1.43	W21x62	0.94	0.40	0.57	0.85	1.23
0.38	0.64	0.97	1.35	W21x68	1.03	0.38	0.54	0.81	1.16
0.38	0.57	0.86	1.20	W21x83	1.24	0.38	0.48	0.71	1.03
0.38	0.53	0.80	1.11	W21x93	1.38	0.38	0.44	0.66	0.95
0.38	0.56	0.83	1.17	W21x101	1.29	0.38	0.46	0.69	1.00
0.38	0.52	0.78	1.10	W21x111	1.41	0.38	0.44	0.65	0.94
0.38	0.49	0.74	1.03	W21x122	1.54	0.38	0.41	0.61	0.88
0.38	0.46	0.70	0.98	W21x132	1.66	0.38	0.39	0.58	0.84
0.38	0.43	0.65	0.91	W21x147	1.83	0.38	0.38	0.54	0.78
0.43	0.74	1.11	1.55	W24x55	0.82	0.43	0.62	0.92	1.33
0.40	0.69	1.04	1.45	W24x62	0.92	0.40	0.58	0.86	1.24
0.40	0.69	1.03	1.44	W24x68	0.93	0.40	0.57	0.86	1.24
0.38	0.65	0.97	1.36	W24x76	1.02	0.38	0.54	0.81	1.17
0.38	0.61	0.91	1.27	W24x84	1.13	0.38	0.51	0.76	1.09

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.56	0.85	1.19	W24x94	1.26	0.38	0.47	0.71	1.02
0.38	0.58	0.87	1.21	W24x104	1.22	0.38	0.48	0.72	1.04
0.38	0.54	0.80	1.13	W24x117	1.36	0.38	0.45	0.67	0.96
0.38	0.50	0.74	1.04	W24x131	1.52	0.38	0.41	0.62	0.89
0.38	0.46	0.69	0.97	W24x146	1.68	0.38	0.38	0.58	0.83
0.38	0.43	0.64	0.90	W24x162	1.85	0.38	0.38	0.54	0.77
0.38	0.65	0.97	1.36	W27x84	1.02	0.38	0.54	0.81	1.17
0.38	0.61	0.91	1.27	W27x94	1.13	0.38	0.51	0.76	1.09
0.38	0.57	0.86	1.20	W27x102	1.23	0.38	0.48	0.72	1.03
0.38	0.54	0.80	1.13	W27x114	1.36	0.38	0.45	0.67	0.96
0.38	0.49	0.74	1.04	W27x146	1.53	0.38	0.41	0.62	0.89
0.38	0.46	0.69	0.97	W27x161	1.68	0.38	0.38	0.58	0.83
0.38	0.43	0.64	0.90	W27x178	1.85	0.38	0.38	0.54	0.77
0.38	0.62	0.93	1.30	W30x99	1.10	0.38	0.51	0.77	1.11
0.38	0.58	0.88	1.23	W30x108	1.20	0.38	0.49	0.73	1.05
0.38	0.56	0.84	1.17	W30x116	1.28	0.38	0.47	0.70	1.01
0.38	0.53	0.80	1.12	W30x124	1.37	0.38	0.44	0.67	0.96
0.38	0.51	0.76	1.07	W30x132	1.46	0.38	0.42	0.64	0.92
0.38	0.46	0.70	0.98	W30x173	1.66	0.38	0.39	0.58	0.84
0.38	0.43	0.65	0.91	W30x191	1.82	0.38	0.38	0.54	0.78
0.38	0.40	0.61	0.85	W30x211	2.00	0.38	0.38	0.50	0.73
0.38	0.59	0.88	1.23	W33x118	1.19	0.38	0.49	0.73	1.06
0.38	0.55	0.82	1.15	W33x130	1.31	0.38	0.46	0.69	0.99
0.38	0.52	0.78	1.10	W33x141	1.41	0.38	0.44	0.65	0.94
0.38	0.50	0.75	1.05	W33x152	1.51	0.38	0.41	0.62	0.90
0.38	0.44	0.66	0.93	W33x201	1.78	0.38	0.38	0.55	0.79

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half**

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.56	0.91	1.40	2.02	W4x13	0.65	0.56	0.77	1.19	1.89
0.56	0.91	1.40	2.02	W5x16	0.65	0.56	0.77	1.19	1.89
0.51	0.84	1.29	1.85	W5x19	0.76	0.51	0.71	1.09	1.74
0.71	1.15	1.77	2.55	W6x9	0.39	0.71	0.97	1.50	2.39
0.63	1.02	1.58	2.27	W6x12	0.51	0.63	0.87	1.34	2.13
0.56	0.90	1.39	2.00	W6x16	0.66	0.56	0.76	1.18	1.88
0.55	0.90	1.38	1.98	W6x20	0.67	0.55	0.76	1.17	1.86
0.49	0.80	1.23	1.77	W6x26	0.82	0.49	0.68	1.05	1.66
0.72	1.17	1.80	2.60	W8x10	0.37	0.72	0.99	1.53	2.44
0.65	1.06	1.64	2.36	W8x13	0.47	0.65	0.90	1.39	2.21
0.61	1.00	1.54	2.21	W8x15	0.54	0.61	0.84	1.30	2.07
0.60	0.97	1.50	2.15	W8x18	0.57	0.60	0.82	1.27	2.02
0.56	0.90	1.39	2.00	W8x21	0.66	0.56	0.76	1.18	1.88
0.54	0.88	1.36	1.95	W8x24	0.69	0.54	0.75	1.15	1.83
0.50	0.81	1.25	1.80	W8x28	0.80	0.50	0.69	1.06	1.69
0.50	0.82	1.26	1.81	W8x31	0.79	0.50	0.69	1.07	1.70
0.47	0.77	1.18	1.70	W8x35	0.88	0.47	0.65	1.01	1.60
0.44	0.71	1.09	1.58	W8x40	1.00	0.44	0.60	0.93	1.48
0.39	0.64	0.98	1.42	W8x48	1.18	0.39	0.54	0.84	1.33
0.38	0.57	0.87	1.25	W8x58	1.41	0.38	0.48	0.74	1.18
0.38	0.51	0.79	1.14	W8x67	1.61	0.38	0.44	0.67	1.07
0.71	1.16	1.79	2.57	W10x12	0.38	0.71	0.98	1.52	2.41
0.65	1.05	1.62	2.33	W10x15	0.48	0.65	0.89	1.38	2.19
0.61	1.00	1.54	2.21	W10x17	0.54	0.61	0.84	1.30	2.07
0.59	0.96	1.47	2.12	W10x19	0.59	0.59	0.81	1.25	1.99
0.59	0.96	1.47	2.12	W10x22	0.59	0.59	0.81	1.25	1.99
0.54	0.88	1.36	1.95	W10x26	0.69	0.54	0.75	1.15	1.83
0.50	0.82	1.26	1.81	W10x30	0.79	0.50	0.69	1.07	1.70
0.51	0.83	1.28	1.84	W10x33	0.77	0.51	0.70	1.09	1.72
0.47	0.76	1.17	1.68	W10x39	0.90	0.47	0.64	0.99	1.58
0.43	0.70	1.07	1.55	W10x46	1.03	0.43	0.59	0.91	1.45
0.44	0.72	1.10	1.58	W10x49	0.99	0.44	0.61	0.94	1.49
0.41	0.67	1.04	1.49	W10x54	1.09	0.41	0.57	0.88	1.40
0.39	0.63	0.97	1.40	W10x60	1.20	0.39	0.53	0.83	1.31
0.38	0.58	0.89	1.29	W10x68	1.36	0.38	0.49	0.76	1.21
0.38	0.54	0.83	1.19	W10x77	1.52	0.38	0.45	0.70	1.11
0.38	0.49	0.75	1.09	W10x88	1.72	0.38	0.41	0.64	1.02
0.38	0.45	0.69	1.00	W10x100	1.93	0.38	0.38	0.59	0.93
0.38	0.42	0.64	0.92	W10x112	2.14	0.38	0.38	0.54	0.86
0.70	1.14	1.75	2.52	W12x14	0.40	0.70	0.96	1.49	2.36
0.67	1.08	1.67	2.40	W12x16	0.45	0.67	0.92	1.42	2.25
0.62	1.01	1.55	2.23	W12x19	0.53	0.62	0.85	1.32	2.09
0.58	0.94	1.45	2.08	W12x22	0.61	0.58	0.80	1.23	1.95
0.58	0.95	1.46	2.10	W12x26	0.60	0.58	0.80	1.24	1.97
0.54	0.88	1.36	1.95	W12x30	0.69	0.54	0.75	1.15	1.83
0.50	0.82	1.26	1.81	W12x35	0.79	0.50	0.69	1.07	1.70

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half**

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.48	0.78	1.21	1.74	W12x40	0.85	0.48	0.66	1.03	1.63
0.45	0.73	1.13	1.63	W12x45	0.95	0.45	0.62	0.96	1.52
0.43	0.69	1.07	1.54	W12x50	1.04	0.43	0.59	0.91	1.44
0.44	0.72	1.10	1.58	W12x53	0.99	0.44	0.61	0.94	1.49
0.43	0.69	1.07	1.54	W12x54	1.04	0.43	0.59	0.91	1.44
0.42	0.68	1.04	1.50	W12x58	1.08	0.42	0.57	0.89	1.41
0.41	0.67	1.04	1.49	W12x65	1.09	0.41	0.57	0.88	1.40
0.39	0.63	0.97	1.40	W12x72	1.20	0.39	0.53	0.83	1.31
0.38	0.59	0.91	1.31	W12x79	1.32	0.38	0.50	0.77	1.23
0.38	0.56	0.86	1.24	W12x87	1.44	0.38	0.47	0.73	1.16
0.38	0.52	0.81	1.16	W12x96	1.57	0.38	0.44	0.69	1.09
0.38	0.49	0.75	1.08	W12x106	1.73	0.38	0.41	0.64	1.01
0.38	0.45	0.69	0.99	W12x120	1.94	0.38	0.38	0.59	0.93
0.38	0.41	0.63	0.91	W12x136	2.17	0.38	0.38	0.54	0.85
0.38	0.38	0.58	0.84	W12x152	2.40	0.38	0.38	0.50	0.79
0.38	0.38	0.54	0.77	W12x170	2.66	0.38	0.38	0.46	0.72
0.38	0.38	0.50	0.71	W12x190	2.93	0.38	0.38	0.42	0.67
0.38	0.38	0.46	0.66	W12x210	3.21	0.38	0.38	0.39	0.62
0.38	0.38	0.43	0.62	W12x230	3.47	0.38	0.38	0.38	0.58
0.38	0.38	0.40	0.58	W12x262	3.76	0.38	0.38	0.38	0.54
0.38	0.38	0.38	0.54	W12x279	4.10	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.50	W12x305	4.41	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.47	W12x336	4.78	0.38	0.38	0.38	0.44
0.63	1.02	1.56	2.25	W14x22	0.52	0.63	0.86	1.33	2.11
0.58	0.94	1.45	2.08	W14x26	0.61	0.58	0.80	1.23	1.95
0.57	0.92	1.42	2.05	W14x30	0.63	0.57	0.78	1.21	1.92
0.53	0.87	1.34	1.92	W14x34	0.71	0.53	0.73	1.14	1.80
0.50	0.82	1.26	1.81	W14x38	0.79	0.50	0.69	1.07	1.70
0.48	0.78	1.21	1.74	W14x43	0.85	0.48	0.66	1.03	1.63
0.45	0.74	1.14	1.64	W14x48	0.94	0.45	0.63	0.97	1.53
0.43	0.70	1.07	1.55	W14x53	1.03	0.43	0.59	0.91	1.45
0.42	0.68	1.05	1.51	W14x61	1.07	0.42	0.58	0.89	1.41
0.39	0.64	0.98	1.41	W14x68	1.19	0.39	0.54	0.83	1.32
0.38	0.61	0.93	1.34	W14x74	1.28	0.38	0.51	0.79	1.26
0.38	0.57	0.87	1.25	W14x82	1.41	0.38	0.48	0.74	1.18
0.38	0.61	0.94	1.35	W14x90	1.27	0.38	0.51	0.80	1.26
0.38	0.57	0.88	1.27	W14x99	1.39	0.38	0.48	0.75	1.19
0.38	0.53	0.82	1.18	W14x109	1.53	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.11	W14x120	1.67	0.38	0.42	0.66	1.04
0.38	0.47	0.72	1.04	W14x132	1.83	0.38	0.40	0.61	0.97
0.38	0.45	0.69	0.99	W14x145	1.94	0.38	0.38	0.59	0.93
0.38	0.42	0.65	0.93	W14x159	2.11	0.38	0.38	0.55	0.87
0.38	0.40	0.61	0.88	W14x176	2.25	0.38	0.38	0.52	0.83
0.38	0.39	0.60	0.86	W14x193	2.32	0.38	0.38	0.51	0.81
0.38	0.38	0.52	0.75	W14x211	2.74	0.38	0.38	0.45	0.71
0.38	0.38	0.49	0.70	W14x233	3.00	0.38	0.38	0.41	0.66

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by One-Half**

Unrestrained Assemby Rating						Restrained Assemby Rating			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.45	0.65	W14x257	3.27	0.38	0.38	0.38	0.61
0.38	0.38	0.42	0.60	W14x283	3.57	0.38	0.38	0.38	0.57
0.38	0.38	0.39	0.56	W14x311	3.88	0.38	0.38	0.38	0.53
0.38	0.38	0.38	0.52	W14x342	4.21	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.49	W14x370	4.51	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.47	W14x398	4.80	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.44	W14x426	5.09	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.42	W14x455	5.38	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.39	W14x500	5.82	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x550	6.30	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38
0.61	0.99	1.52	2.19	W16x26	0.55	0.61	0.84	1.29	2.05
0.56	0.91	1.40	2.02	W16x31	0.65	0.56	0.77	1.19	1.89
0.54	0.88	1.36	1.95	W16x36	0.69	0.54	0.75	1.15	1.83
0.51	0.84	1.29	1.85	W16x40	0.76	0.51	0.71	1.09	1.74
0.48	0.78	1.21	1.74	W16x45	0.85	0.48	0.66	1.03	1.63
0.45	0.74	1.14	1.64	W16x50	0.94	0.45	0.63	0.97	1.53
0.42	0.68	1.05	1.51	W16x67	1.07	0.42	0.58	0.89	1.41
0.42	0.68	1.05	1.51	W16x77	1.07	0.42	0.58	0.89	1.41
0.38	0.63	0.96	1.38	W16x89	1.22	0.38	0.53	0.82	1.30
0.38	0.53	0.81	1.17	W16x100	1.56	0.38	0.45	0.69	1.09
0.56	0.90	1.39	2.00	W18x35	0.66	0.56	0.76	1.18	1.88
0.51	0.84	1.29	1.85	W18x40	0.76	0.51	0.71	1.09	1.74
0.48	0.78	1.20	1.73	W18x46	0.86	0.48	0.66	1.02	1.62
0.48	0.77	1.19	1.71	W18x50	0.87	0.48	0.65	1.01	1.61
0.45	0.73	1.13	1.63	W18x55	0.95	0.45	0.62	0.96	1.52
0.43	0.70	1.07	1.55	W18x60	1.03	0.43	0.59	0.91	1.45
0.41	0.67	1.02	1.47	W18x65	1.11	0.41	0.56	0.87	1.38
0.39	0.63	0.97	1.39	W18x71	1.21	0.39	0.53	0.82	1.31
0.41	0.67	1.02	1.47	W18x76	1.11	0.41	0.56	0.87	1.38
0.38	0.62	0.95	1.37	W18x88	1.24	0.38	0.52	0.81	1.28
0.38	0.57	0.88	1.27	W18x97	1.39	0.38	0.48	0.75	1.19
0.38	0.54	0.83	1.19	W18x106	1.52	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.11	W18x119	1.68	0.38	0.42	0.65	1.04
0.53	0.86	1.32	1.89	W21x44	0.73	0.53	0.72	1.12	1.78
0.49	0.80	1.22	1.76	W21x50	0.83	0.49	0.67	1.04	1.65
0.46	0.74	1.14	1.65	W21x57	0.93	0.46	0.63	0.97	1.54
0.45	0.74	1.14	1.64	W21x62	0.94	0.45	0.63	0.97	1.53
0.43	0.70	1.07	1.55	W21x68	1.03	0.43	0.59	0.91	1.45
0.38	0.62	0.95	1.37	W21x83	1.24	0.38	0.52	0.81	1.28
0.38	0.57	0.88	1.27	W21x93	1.38	0.38	0.49	0.75	1.19
0.38	0.60	0.93	1.33	W21x101	1.29	0.38	0.51	0.79	1.25
0.38	0.57	0.87	1.25	W21x111	1.41	0.38	0.48	0.74	1.18
0.38	0.53	0.82	1.18	W21x122	1.54	0.38	0.45	0.70	1.10
0.38	0.50	0.77	1.12	W21x132	1.66	0.38	0.43	0.66	1.05

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

UL P937 - Lightweight insulating concrete roof deck

Minimum Thickness, in., Required on Beam When Lower Edge Thickness is Reduced by one half**

Unrestrained Assemby Rating						**Restrained Assemby Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.47	0.72	1.04	W21x147	1.83	0.38	0.40	0.61	0.97
0.49	0.80	1.23	1.77	W24x55	0.82	0.49	0.68	1.05	1.66
0.46	0.75	1.15	1.66	W24x62	0.92	0.46	0.63	0.98	1.55
0.46	0.74	1.14	1.65	W24x68	0.93	0.46	0.63	0.97	1.54
0.43	0.70	1.08	1.56	W24x76	1.02	0.43	0.59	0.92	1.46
0.40	0.66	1.01	1.46	W24x84	1.13	0.40	0.56	0.86	1.37
0.38	0.61	0.94	1.35	W24x94	1.26	0.38	0.52	0.80	1.27
0.38	0.63	0.96	1.38	W24x104	1.22	0.38	0.53	0.82	1.30
0.38	0.58	0.89	1.29	W24x117	1.36	0.38	0.49	0.76	1.21
0.38	0.54	0.83	1.19	W24x131	1.52	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.11	W24x146	1.68	0.38	0.42	0.65	1.04
0.38	0.46	0.71	1.03	W24x162	1.85	0.38	0.39	0.61	0.96
0.43	0.70	1.08	1.56	W27x84	1.02	0.43	0.59	0.92	1.46
0.40	0.66	1.01	1.46	W27x94	1.13	0.40	0.56	0.86	1.37
0.38	0.62	0.96	1.38	W27x102	1.23	0.38	0.53	0.81	1.29
0.38	0.58	0.89	1.29	W27x114	1.36	0.38	0.49	0.76	1.21
0.38	0.53	0.82	1.18	W27x146	1.53	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.11	W27x161	1.68	0.38	0.42	0.65	1.04
0.38	0.46	0.71	1.03	W27x178	1.85	0.38	0.39	0.61	0.96
0.41	0.67	1.03	1.48	W30x99	1.10	0.41	0.57	0.88	1.39
0.39	0.63	0.97	1.40	W30x108	1.20	0.39	0.53	0.83	1.31
0.38	0.61	0.93	1.34	W30x116	1.28	0.38	0.51	0.79	1.26
0.38	0.58	0.89	1.28	W30x124	1.37	0.38	0.49	0.76	1.20
0.38	0.55	0.85	1.22	W30x132	1.46	0.38	0.47	0.72	1.15
0.38	0.50	0.77	1.12	W30x173	1.66	0.38	0.43	0.66	1.05
0.38	0.47	0.72	1.04	W30x191	1.82	0.38	0.40	0.61	0.98
0.38	0.44	0.67	0.97	W30x211	2.00	0.38	0.38	0.57	0.91
0.39	0.64	0.98	1.41	W33x118	1.19	0.39	0.54	0.83	1.32
0.38	0.60	0.92	1.32	W33x130	1.31	0.38	0.50	0.78	1.24
0.38	0.57	0.87	1.25	W33x141	1.41	0.38	0.48	0.74	1.18
0.38	0.54	0.83	1.19	W33x152	1.51	0.38	0.46	0.70	1.12
0.38	0.48	0.74	1.06	W33x201	1.78	0.38	0.40	0.63	0.99

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

* When used to adjust the material thickness for a ***Restrained*** beam the use of this procedure is limited to steel sections classified as ***compact*** in accordance with the *Specification for the Design of Structural Steel Buildings* by the American Institute of Steel Construction. Refer to the UL Fire Resistance Directory.

**Thickness applied to beam' s lower flange edge shall not be less than 1/4-in.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam Only Design for Roofs

Unrestrained Beam Rating						Restrained Beam Rating*			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.49	0.84	1.26	1.96	W4x13	0.65	0.49	0.70	1.05	1.68
0.49	0.84	1.26	1.96	W5x16	0.65	0.49	0.70	1.05	1.68
0.45	0.77	1.16	1.80	W5x19	0.76	0.45	0.64	0.97	1.54
0.62	1.06	1.59	2.47	W6x9	0.39	0.62	0.88	1.33	2.12
0.55	0.95	1.42	2.21	W6x12	0.51	0.55	0.79	1.18	1.89
0.49	0.83	1.25	1.94	W6x16	0.66	0.49	0.69	1.04	1.67
0.48	0.83	1.24	1.93	W6x20	0.67	0.48	0.69	1.03	1.65
0.43	0.74	1.11	1.73	W6x26	0.82	0.43	0.62	0.92	1.48
0.63	1.08	1.62	2.53	W8x10	0.37	0.63	0.90	1.35	2.16
0.57	0.98	1.47	2.29	W8x13	0.47	0.57	0.82	1.23	1.96
0.54	0.92	1.38	2.15	W8x15	0.54	0.54	0.77	1.15	1.84
0.52	0.90	1.35	2.09	W8x18	0.57	0.52	0.75	1.12	1.79
0.49	0.83	1.25	1.94	W8x21	0.66	0.49	0.69	1.04	1.67
0.47	0.81	1.22	1.90	W8x24	0.69	0.47	0.68	1.02	1.63
0.44	0.75	1.13	1.75	W8x28	0.80	0.44	0.63	0.94	1.50
0.44	0.76	1.13	1.76	W8x31	0.79	0.44	0.63	0.94	1.51
0.41	0.71	1.06	1.66	W8x35	0.88	0.41	0.59	0.89	1.42
0.38	0.66	0.98	1.53	W8x40	1.00	0.38	0.55	0.82	1.31
0.38	0.59	0.88	1.38	W8x48	1.18	0.38	0.49	0.74	1.18
0.38	0.52	0.78	1.22	W8x58	1.41	0.38	0.44	0.65	1.04
0.38	0.48	0.71	1.11	W8x67	1.61	0.38	0.40	0.59	0.95
0.63	1.07	1.61	2.50	W10x12	0.38	0.63	0.89	1.34	2.14
0.57	0.97	1.46	2.27	W10x15	0.48	0.57	0.81	1.22	1.94
0.54	0.92	1.38	2.15	W10x17	0.54	0.54	0.77	1.15	1.84
0.51	0.88	1.32	2.06	W10x19	0.59	0.51	0.74	1.10	1.76
0.51	0.88	1.32	2.06	W10x22	0.59	0.51	0.74	1.10	1.76
0.47	0.81	1.22	1.90	W10x26	0.69	0.47	0.68	1.02	1.63
0.44	0.76	1.13	1.76	W10x30	0.79	0.44	0.63	0.94	1.51
0.45	0.77	1.15	1.79	W10x33	0.77	0.45	0.64	0.96	1.53
0.41	0.70	1.05	1.63	W10x39	0.90	0.41	0.58	0.88	1.40
0.38	0.64	0.97	1.50	W10x46	1.03	0.38	0.54	0.81	1.29
0.39	0.66	0.99	1.54	W10x49	0.99	0.39	0.55	0.83	1.32
0.38	0.62	0.93	1.45	W10x54	1.09	0.38	0.52	0.78	1.24
0.38	0.58	0.88	1.36	W10x60	1.20	0.38	0.49	0.73	1.17
0.38	0.54	0.80	1.25	W10x68	1.36	0.38	0.45	0.67	1.07
0.38	0.50	0.74	1.16	W10x77	1.52	0.38	0.41	0.62	0.99
0.38	0.45	0.68	1.06	W10x88	1.72	0.38	0.38	0.57	0.91
0.38	0.42	0.62	0.97	W10x100	1.93	0.38	0.38	0.52	0.83
0.38	0.38	0.57	0.89	W10x112	2.14	0.38	0.38	0.48	0.77
0.61	1.05	1.58	2.45	W12x14	0.40	0.61	0.88	1.31	2.10
0.58	1.00	1.50	2.33	W12x16	0.45	0.58	0.83	1.25	2.00
0.54	0.93	1.39	2.17	W12x19	0.53	0.54	0.77	1.16	1.86
0.51	0.87	1.30	2.02	W12x22	0.61	0.51	0.72	1.08	1.74
0.51	0.88	1.31	2.04	W12x26	0.60	0.51	0.73	1.09	1.75
0.47	0.81	1.22	1.90	W12x30	0.69	0.47	0.68	1.02	1.63

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam Only Design for Roofs

Unrestrained Beam Rating						Restrained Beam Rating*			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.44	0.76	1.13	1.76	W12x35	0.79	0.44	0.63	0.94	1.51
0.42	0.72	1.09	1.69	W12x40	0.85	0.42	0.60	0.91	1.45
0.40	0.68	1.02	1.58	W12x45	0.95	0.40	0.56	0.85	1.35
0.38	0.64	0.96	1.49	W12x50	1.04	0.38	0.53	0.80	1.28
0.39	0.66	0.99	1.54	W12x53	0.99	0.39	0.55	0.83	1.32
0.38	0.64	0.96	1.49	W12x54	1.04	0.38	0.53	0.80	1.28
0.38	0.63	0.94	1.46	W12x58	1.08	0.38	0.52	0.78	1.25
0.38	0.62	0.93	1.45	W12x65	1.09	0.38	0.52	0.78	1.24
0.38	0.58	0.88	1.36	W12x72	1.20	0.38	0.49	0.73	1.17
0.38	0.55	0.82	1.28	W12x79	1.32	0.38	0.46	0.68	1.09
0.38	0.51	0.77	1.20	W12x87	1.44	0.38	0.43	0.64	1.03
0.38	0.48	0.73	1.13	W12x96	1.57	0.38	0.40	0.60	0.97
0.38	0.45	0.68	1.05	W12x106	1.73	0.38	0.38	0.56	0.90
0.38	0.41	0.62	0.96	W12x120	1.94	0.38	0.38	0.52	0.83
0.38	0.38	0.57	0.88	W12x136	2.17	0.38	0.38	0.47	0.76
0.38	0.38	0.53	0.82	W12x152	2.40	0.38	0.38	0.44	0.70
0.38	0.38	0.48	0.75	W12x170	2.66	0.38	0.38	0.40	0.64
0.38	0.38	0.45	0.69	W12x190	2.93	0.38	0.38	0.38	0.59
0.38	0.38	0.41	0.64	W12x210	3.21	0.38	0.38	0.38	0.55
0.38	0.38	0.39	0.60	W12x230	3.47	0.38	0.38	0.38	0.52
0.38	0.38	0.38	0.56	W12x262	3.76	0.38	0.38	0.38	0.48
0.38	0.38	0.38	0.52	W12x279	4.10	0.38	0.38	0.38	0.45
0.38	0.38	0.38	0.49	W12x305	4.41	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.46	W12x336	4.78	0.38	0.38	0.38	0.39
0.55	0.94	1.41	2.19	W14x22	0.52	0.55	0.78	1.17	1.88
0.51	0.87	1.30	2.02	W14x26	0.61	0.51	0.72	1.08	1.74
0.50	0.85	1.28	1.99	W14x30	0.63	0.50	0.71	1.07	1.71
0.47	0.80	1.20	1.87	W14x34	0.71	0.47	0.67	1.00	1.60
0.44	0.76	1.13	1.76	W14x38	0.79	0.44	0.63	0.94	1.51
0.42	0.72	1.09	1.69	W14x43	0.85	0.42	0.60	0.91	1.45
0.40	0.68	1.02	1.59	W14x48	0.94	0.40	0.57	0.85	1.36
0.38	0.64	0.97	1.50	W14x53	1.03	0.38	0.54	0.81	1.29
0.38	0.63	0.94	1.47	W14x61	1.07	0.38	0.52	0.79	1.26
0.38	0.59	0.88	1.37	W14x68	1.19	0.38	0.49	0.73	1.17
0.38	0.56	0.84	1.30	W14x74	1.28	0.38	0.47	0.70	1.12
0.38	0.52	0.78	1.22	W14x82	1.41	0.38	0.44	0.65	1.04
0.38	0.56	0.84	1.31	W14x90	1.27	0.38	0.47	0.70	1.12
0.38	0.53	0.79	1.23	W14x99	1.39	0.38	0.44	0.66	1.06
0.38	0.49	0.74	1.15	W14x109	1.53	0.38	0.41	0.62	0.99
0.38	0.46	0.69	1.08	W14x120	1.67	0.38	0.39	0.58	0.93
0.38	0.43	0.65	1.01	W14x132	1.83	0.38	0.38	0.54	0.86
0.38	0.41	0.62	0.96	W14x145	1.94	0.38	0.38	0.52	0.83
0.38	0.39	0.58	0.90	W14x159	2.11	0.38	0.38	0.48	0.77
0.38	0.38	0.55	0.86	W14x176	2.25	0.38	0.38	0.46	0.74
0.38	0.38	0.54	0.84	W14x193	2.32	0.38	0.38	0.45	0.72

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam Only Design for Roofs

Unrestrained Beam Rating						Restrained Beam Rating*			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.47	0.73	W14x211	2.74	0.38	0.38	0.39	0.63
0.38	0.38	0.44	0.68	W14x233	3.00	0.38	0.38	0.38	0.58
0.38	0.38	0.41	0.63	W14x257	3.27	0.38	0.38	0.38	0.54
0.38	0.38	0.38	0.59	W14x283	3.57	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.55	W14x311	3.88	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.51	W14x342	4.21	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.48	W14x370	4.51	0.38	0.38	0.38	0.41
0.38	0.38	0.38	0.45	W14x398	4.80	0.38	0.38	0.38	0.39
0.38	0.38	0.38	0.43	W14x426	5.09	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.41	W14x455	5.38	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x500	5.82	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x550	6.30	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38
0.53	0.91	1.37	2.13	W16x26	0.55	0.53	0.76	1.14	1.83
0.49	0.84	1.26	1.96	W16x31	0.65	0.49	0.70	1.05	1.68
0.47	0.81	1.22	1.90	W16x36	0.69	0.47	0.68	1.02	1.63
0.45	0.77	1.16	1.80	W16x40	0.76	0.45	0.64	0.97	1.54
0.42	0.72	1.09	1.69	W16x45	0.85	0.42	0.60	0.91	1.45
0.40	0.68	1.02	1.59	W16x50	0.94	0.40	0.57	0.85	1.36
0.38	0.63	0.94	1.47	W16x67	1.07	0.38	0.52	0.79	1.26
0.38	0.63	0.94	1.47	W16x77	1.07	0.38	0.52	0.79	1.26
0.38	0.58	0.87	1.35	W16x89	1.22	0.38	0.48	0.72	1.15
0.38	0.49	0.73	1.13	W16x100	1.56	0.38	0.41	0.61	0.97
0.49	0.83	1.25	1.94	W18x35	0.66	0.49	0.69	1.04	1.67
0.45	0.77	1.16	1.80	W18x40	0.76	0.45	0.64	0.97	1.54
0.42	0.72	1.08	1.68	W18x46	0.86	0.42	0.60	0.90	1.44
0.42	0.71	1.07	1.67	W18x50	0.87	0.42	0.60	0.89	1.43
0.40	0.68	1.02	1.58	W18x55	0.95	0.40	0.56	0.85	1.35
0.38	0.64	0.97	1.50	W18x60	1.03	0.38	0.54	0.81	1.29
0.38	0.61	0.92	1.43	W18x65	1.11	0.38	0.51	0.77	1.23
0.38	0.58	0.87	1.35	W18x71	1.21	0.38	0.48	0.73	1.16
0.38	0.61	0.92	1.43	W18x76	1.11	0.38	0.51	0.77	1.23
0.38	0.57	0.86	1.33	W18x88	1.24	0.38	0.48	0.71	1.14
0.38	0.53	0.79	1.23	W18x97	1.39	0.38	0.44	0.66	1.06
0.38	0.50	0.74	1.16	W18x106	1.52	0.38	0.41	0.62	0.99
0.38	0.46	0.69	1.07	W18x119	1.68	0.38	0.38	0.58	0.92
0.46	0.79	1.18	1.84	W21x44	0.73	0.46	0.66	0.99	1.58
0.43	0.73	1.10	1.71	W21x50	0.83	0.43	0.61	0.92	1.47
0.40	0.69	1.03	1.60	W21x57	0.93	0.40	0.57	0.86	1.37
0.40	0.68	1.02	1.59	W21x62	0.94	0.40	0.57	0.85	1.36
0.38	0.64	0.97	1.50	W21x68	1.03	0.38	0.54	0.81	1.29
0.38	0.57	0.86	1.33	W21x83	1.24	0.38	0.48	0.71	1.14
0.38	0.53	0.80	1.24	W21x93	1.38	0.38	0.44	0.66	1.06
0.38	0.56	0.83	1.30	W21x101	1.29	0.38	0.46	0.69	1.11
0.38	0.52	0.78	1.22	W21x111	1.41	0.38	0.44	0.65	1.04

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam Only Design for Roofs

Unrestrained Beam Rating						Restrained Beam Rating*			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.49	0.74	1.14	W21x122	1.54	0.38	0.41	0.61	0.98
0.38	0.46	0.70	1.08	W21x132	1.66	0.38	0.39	0.58	0.93
0.38	0.43	0.65	1.01	W21x147	1.83	0.38	0.38	0.54	0.86
0.43	0.74	1.11	1.73	W24x55	0.82	0.43	0.62	0.92	1.48
0.40	0.69	1.04	1.61	W24x62	0.92	0.40	0.58	0.86	1.38
0.40	0.69	1.03	1.60	W24x68	0.93	0.40	0.57	0.86	1.37
0.38	0.65	0.97	1.51	W24x76	1.02	0.38	0.54	0.81	1.30
0.38	0.61	0.91	1.42	W24x84	1.13	0.38	0.51	0.76	1.21
0.38	0.56	0.85	1.32	W24x94	1.26	0.38	0.47	0.71	1.13
0.38	0.58	0.87	1.35	W24x104	1.22	0.38	0.48	0.72	1.15
0.38	0.54	0.80	1.25	W24x117	1.36	0.38	0.45	0.67	1.07
0.38	0.50	0.74	1.16	W24x131	1.52	0.38	0.41	0.62	0.99
0.38	0.46	0.69	1.07	W24x146	1.68	0.38	0.38	0.58	0.92
0.38	0.43	0.64	1.00	W24x162	1.85	0.38	0.38	0.54	0.86
0.38	0.65	0.97	1.51	W27x84	1.02	0.38	0.54	0.81	1.30
0.38	0.61	0.91	1.42	W27x94	1.13	0.38	0.51	0.76	1.21
0.38	0.57	0.86	1.34	W27x102	1.23	0.38	0.48	0.72	1.15
0.38	0.54	0.80	1.25	W27x114	1.36	0.38	0.45	0.67	1.07
0.38	0.49	0.74	1.15	W27x146	1.53	0.38	0.41	0.62	0.99
0.38	0.46	0.69	1.07	W27x161	1.68	0.38	0.38	0.58	0.92
0.38	0.43	0.64	1.00	W27x178	1.85	0.38	0.38	0.54	0.86
0.38	0.62	0.93	1.44	W30x99	1.10	0.38	0.51	0.77	1.24
0.38	0.58	0.88	1.36	W30x108	1.20	0.38	0.49	0.73	1.17
0.38	0.56	0.84	1.30	W30x116	1.28	0.38	0.47	0.70	1.12
0.38	0.53	0.80	1.24	W30x124	1.37	0.38	0.44	0.67	1.07
0.38	0.51	0.76	1.19	W30x132	1.46	0.38	0.42	0.64	1.02
0.38	0.46	0.70	1.08	W30x173	1.66	0.38	0.39	0.58	0.93
0.38	0.43	0.65	1.01	W30x191	1.82	0.38	0.38	0.54	0.87
0.38	0.40	0.61	0.94	W30x211	2.00	0.38	0.38	0.50	0.81
0.38	0.59	0.88	1.37	W33x118	1.19	0.38	0.49	0.73	1.17
0.38	0.55	0.82	1.28	W33x130	1.31	0.38	0.46	0.69	1.10
0.38	0.52	0.78	1.22	W33x141	1.41	0.38	0.44	0.65	1.04
0.38	0.50	0.75	1.16	W33x152	1.51	0.38	0.41	0.62	1.00
0.38	0.44	0.66	1.03	W33x201	1.78	0.38	0.38	0.55	0.88

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

* When used to adjust the material thickness for a ***Restrained*** beam the use of this procedure is limited to steel sections classified as ***compact*** in accordance with the *Specification for the Design of Structural Steel Buildings* by the American Institute of Steel Construction. Refer to the UL Fire Resistance Directory.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.56	0.91	1.40	2.24	W4x13	0.65	0.56	0.77	1.19	1.89
0.56	0.91	1.40	2.24	W5x16	0.65	0.56	0.77	1.19	1.89
0.51	0.84	1.29	2.06	W5x19	0.76	0.51	0.71	1.09	1.74
0.71	1.15	1.77	2.83	W6x9	0.39	0.71	0.97	1.50	2.39
0.63	1.02	1.58	2.52	W6x12	0.51	0.63	0.87	1.34	2.13
0.56	0.90	1.39	2.22	W6x16	0.66	0.56	0.76	1.18	1.88
0.55	0.90	1.38	2.20	W6x20	0.67	0.55	0.76	1.17	1.86
0.49	0.80	1.23	1.97	W6x26	0.82	0.49	0.68	1.05	1.66
0.72	1.17	1.80	2.89	W8x10	0.37	0.72	0.99	1.53	2.44
0.65	1.06	1.64	2.62	W8x13	0.47	0.65	0.90	1.39	2.21
0.61	1.00	1.54	2.46	W8x15	0.54	0.61	0.84	1.30	2.07
0.60	0.97	1.50	2.39	W8x18	0.57	0.60	0.82	1.27	2.02
0.56	0.90	1.39	2.22	W8x21	0.66	0.56	0.76	1.18	1.88
0.54	0.88	1.36	2.17	W8x24	0.69	0.54	0.75	1.15	1.83
0.50	0.81	1.25	2.00	W8x28	0.80	0.50	0.69	1.06	1.69
0.50	0.82	1.26	2.01	W8x31	0.79	0.50	0.69	1.07	1.70
0.47	0.77	1.18	1.89	W8x35	0.88	0.47	0.65	1.01	1.60
0.44	0.71	1.09	1.75	W8x40	1.00	0.44	0.60	0.93	1.48
0.39	0.64	0.98	1.57	W8x48	1.18	0.39	0.54	0.84	1.33
0.38	0.57	0.87	1.39	W8x58	1.41	0.38	0.48	0.74	1.18
0.38	0.51	0.79	1.27	W8x67	1.61	0.38	0.44	0.67	1.07
0.71	1.16	1.79	2.86	W10x12	0.38	0.71	0.98	1.52	2.41
0.65	1.05	1.62	2.59	W10x15	0.48	0.65	0.89	1.38	2.19
0.61	1.00	1.54	2.46	W10x17	0.54	0.61	0.84	1.30	2.07
0.59	0.96	1.47	2.35	W10x19	0.59	0.59	0.81	1.25	1.99
0.59	0.96	1.47	2.35	W10x22	0.59	0.59	0.81	1.25	1.99
0.54	0.88	1.36	2.17	W10x26	0.69	0.54	0.75	1.15	1.83
0.50	0.82	1.26	2.01	W10x30	0.79	0.50	0.69	1.07	1.70
0.51	0.83	1.28	2.04	W10x33	0.77	0.51	0.70	1.09	1.72
0.47	0.76	1.17	1.87	W10x39	0.90	0.47	0.64	0.99	1.58
0.43	0.70	1.07	1.72	W10x46	1.03	0.43	0.59	0.91	1.45
0.44	0.72	1.10	1.76	W10x49	0.99	0.44	0.61	0.94	1.49
0.41	0.67	1.04	1.66	W10x54	1.09	0.41	0.57	0.88	1.40
0.39	0.63	0.97	1.56	W10x60	1.20	0.39	0.53	0.83	1.31
0.38	0.58	0.89	1.43	W10x68	1.36	0.38	0.49	0.76	1.21
0.38	0.54	0.83	1.32	W10x77	1.52	0.38	0.45	0.70	1.11
0.38	0.49	0.75	1.21	W10x88	1.72	0.38	0.41	0.64	1.02
0.38	0.45	0.69	1.11	W10x100	1.93	0.38	0.38	0.59	0.93
0.38	0.42	0.64	1.02	W10x112	2.14	0.38	0.38	0.54	0.86
0.70	1.14	1.75	2.80	W12x14	0.40	0.70	0.96	1.49	2.36
0.67	1.08	1.67	2.67	W12x16	0.45	0.67	0.92	1.42	2.25
0.62	1.01	1.55	2.48	W12x19	0.53	0.62	0.85	1.32	2.09
0.58	0.94	1.45	2.31	W12x22	0.61	0.58	0.80	1.23	1.95
0.58	0.95	1.46	2.33	W12x26	0.60	0.58	0.80	1.24	1.97
0.54	0.88	1.36	2.17	W12x30	0.69	0.54	0.75	1.15	1.83

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.50	0.82	1.26	2.01	W12x35	0.79	0.50	0.69	1.07	1.70
0.48	0.78	1.21	1.93	W12x40	0.85	0.48	0.66	1.03	1.63
0.45	0.73	1.13	1.81	W12x45	0.95	0.45	0.62	0.96	1.52
0.43	0.69	1.07	1.71	W12x50	1.04	0.43	0.59	0.91	1.44
0.44	0.72	1.10	1.76	W12x53	0.99	0.44	0.61	0.94	1.49
0.43	0.69	1.07	1.71	W12x54	1.04	0.43	0.59	0.91	1.44
0.42	0.68	1.04	1.67	W12x58	1.08	0.42	0.57	0.89	1.41
0.41	0.67	1.04	1.66	W12x65	1.09	0.41	0.57	0.88	1.40
0.39	0.63	0.97	1.56	W12x72	1.20	0.39	0.53	0.83	1.31
0.38	0.59	0.91	1.46	W12x79	1.32	0.38	0.50	0.77	1.23
0.38	0.56	0.86	1.37	W12x87	1.44	0.38	0.47	0.73	1.16
0.38	0.52	0.81	1.29	W12x96	1.57	0.38	0.44	0.69	1.09
0.38	0.49	0.75	1.20	W12x106	1.73	0.38	0.41	0.64	1.01
0.38	0.45	0.69	1.10	W12x120	1.94	0.38	0.38	0.59	0.93
0.38	0.41	0.63	1.01	W12x136	2.17	0.38	0.38	0.54	0.85
0.38	0.38	0.58	0.93	W12x152	2.40	0.38	0.38	0.50	0.79
0.38	0.38	0.54	0.86	W12x170	2.66	0.38	0.38	0.46	0.72
0.38	0.38	0.50	0.79	W12x190	2.93	0.38	0.38	0.42	0.67
0.38	0.38	0.46	0.73	W12x210	3.21	0.38	0.38	0.39	0.62
0.38	0.38	0.43	0.69	W12x230	3.47	0.38	0.38	0.38	0.58
0.38	0.38	0.40	0.64	W12x262	3.76	0.38	0.38	0.38	0.54
0.38	0.38	0.38	0.60	W12x279	4.10	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.56	W12x305	4.41	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.52	W12x336	4.78	0.38	0.38	0.38	0.44
0.63	1.02	1.56	2.50	W14x22	0.52	0.63	0.86	1.33	2.11
0.58	0.94	1.45	2.31	W14x26	0.61	0.58	0.80	1.23	1.95
0.57	0.92	1.42	2.28	W14x30	0.63	0.57	0.78	1.21	1.92
0.53	0.87	1.34	2.14	W14x34	0.71	0.53	0.73	1.14	1.80
0.50	0.82	1.26	2.01	W14x38	0.79	0.50	0.69	1.07	1.70
0.48	0.78	1.21	1.93	W14x43	0.85	0.48	0.66	1.03	1.63
0.45	0.74	1.14	1.82	W14x48	0.94	0.45	0.63	0.97	1.53
0.43	0.70	1.07	1.72	W14x53	1.03	0.43	0.59	0.91	1.45
0.42	0.68	1.05	1.68	W14x61	1.07	0.42	0.58	0.89	1.41
0.39	0.64	0.98	1.56	W14x68	1.19	0.39	0.54	0.83	1.32
0.38	0.61	0.93	1.49	W14x74	1.28	0.38	0.51	0.79	1.26
0.38	0.57	0.87	1.39	W14x82	1.41	0.38	0.48	0.74	1.18
0.38	0.61	0.94	1.50	W14x90	1.27	0.38	0.51	0.80	1.26
0.38	0.57	0.88	1.41	W14x99	1.39	0.38	0.48	0.75	1.19
0.38	0.53	0.82	1.31	W14x109	1.53	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W14x120	1.67	0.38	0.42	0.66	1.04
0.38	0.47	0.72	1.15	W14x132	1.83	0.38	0.40	0.61	0.97
0.38	0.45	0.69	1.10	W14x145	1.94	0.38	0.38	0.59	0.93
0.38	0.42	0.65	1.03	W14x159	2.11	0.38	0.38	0.55	0.87
0.38	0.40	0.61	0.98	W14x176	2.25	0.38	0.38	0.52	0.83
0.38	0.39	0.60	0.96	W14x193	2.32	0.38	0.38	0.51	0.81

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.52	0.84	W14x211	2.74	0.38	0.38	0.45	0.71
0.38	0.38	0.49	0.78	W14x233	3.00	0.38	0.38	0.41	0.66
0.38	0.38	0.45	0.72	W14x257	3.27	0.38	0.38	0.38	0.61
0.38	0.38	0.42	0.67	W14x283	3.57	0.38	0.38	0.38	0.57
0.38	0.38	0.39	0.63	W14x311	3.88	0.38	0.38	0.38	0.53
0.38	0.38	0.38	0.58	W14x342	4.21	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.55	W14x370	4.51	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.52	W14x398	4.80	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.49	W14x426	5.09	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.47	W14x455	5.38	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.44	W14x500	5.82	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.41	W14x550	6.30	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38
0.61	0.99	1.52	2.43	W16x26	0.55	0.61	0.84	1.29	2.05
0.56	0.91	1.40	2.24	W16x31	0.65	0.56	0.77	1.19	1.89
0.54	0.88	1.36	2.17	W16x36	0.69	0.54	0.75	1.15	1.83
0.51	0.84	1.29	2.06	W16x40	0.76	0.51	0.71	1.09	1.74
0.48	0.78	1.21	1.93	W16x45	0.85	0.48	0.66	1.03	1.63
0.45	0.74	1.14	1.82	W16x50	0.94	0.45	0.63	0.97	1.53
0.42	0.68	1.05	1.68	W16x67	1.07	0.42	0.58	0.89	1.41
0.42	0.68	1.05	1.68	W16x77	1.07	0.42	0.58	0.89	1.41
0.38	0.63	0.96	1.54	W16x89	1.22	0.38	0.53	0.82	1.30
0.38	0.53	0.81	1.30	W16x100	1.56	0.38	0.45	0.69	1.09
0.56	0.90	1.39	2.22	W18x35	0.66	0.56	0.76	1.18	1.88
0.51	0.84	1.29	2.06	W18x40	0.76	0.51	0.71	1.09	1.74
0.48	0.78	1.20	1.92	W18x46	0.86	0.48	0.66	1.02	1.62
0.48	0.77	1.19	1.90	W18x50	0.87	0.48	0.65	1.01	1.61
0.45	0.73	1.13	1.81	W18x55	0.95	0.45	0.62	0.96	1.52
0.43	0.70	1.07	1.72	W18x60	1.03	0.43	0.59	0.91	1.45
0.41	0.67	1.02	1.64	W18x65	1.11	0.41	0.56	0.87	1.38
0.39	0.63	0.97	1.55	W18x71	1.21	0.39	0.53	0.82	1.31
0.41	0.67	1.02	1.64	W18x76	1.11	0.41	0.56	0.87	1.38
0.38	0.62	0.95	1.52	W18x88	1.24	0.38	0.52	0.81	1.28
0.38	0.57	0.88	1.41	W18x97	1.39	0.38	0.48	0.75	1.19
0.38	0.54	0.83	1.32	W18x106	1.52	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W18x119	1.68	0.38	0.42	0.65	1.04
0.53	0.86	1.32	2.11	W21x44	0.73	0.53	0.72	1.12	1.78
0.49	0.80	1.22	1.96	W21x50	0.83	0.49	0.67	1.04	1.65
0.46	0.74	1.14	1.83	W21x57	0.93	0.46	0.63	0.97	1.54
0.45	0.74	1.14	1.82	W21x62	0.94	0.45	0.63	0.97	1.53
0.43	0.70	1.07	1.72	W21x68	1.03	0.43	0.59	0.91	1.45
0.38	0.62	0.95	1.52	W21x83	1.24	0.38	0.52	0.81	1.28
0.38	0.57	0.88	1.41	W21x93	1.38	0.38	0.49	0.75	1.19
0.38	0.60	0.93	1.48	W21x101	1.29	0.38	0.51	0.79	1.25
0.38	0.57	0.87	1.39	W21x111	1.41	0.38	0.48	0.74	1.18

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating **Restrained Beam Rating****

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.53	0.82	1.31	W21x122	1.54	0.38	0.45	0.70	1.10
0.38	0.50	0.77	1.24	W21x132	1.66	0.38	0.43	0.66	1.05
0.38	0.47	0.72	1.15	W21x147	1.83	0.38	0.40	0.61	0.97
0.49	0.80	1.23	1.97	W24x55	0.82	0.49	0.68	1.05	1.66
0.46	0.75	1.15	1.84	W24x62	0.92	0.46	0.63	0.98	1.55
0.46	0.74	1.14	1.83	W24x68	0.93	0.46	0.63	0.97	1.54
0.43	0.70	1.08	1.73	W24x76	1.02	0.43	0.59	0.92	1.46
0.40	0.66	1.01	1.62	W24x84	1.13	0.40	0.56	0.86	1.37
0.38	0.61	0.94	1.51	W24x94	1.26	0.38	0.52	0.80	1.27
0.38	0.63	0.96	1.54	W24x104	1.22	0.38	0.53	0.82	1.30
0.38	0.58	0.89	1.43	W24x117	1.36	0.38	0.49	0.76	1.21
0.38	0.54	0.83	1.32	W24x131	1.52	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W24x146	1.68	0.38	0.42	0.65	1.04
0.38	0.46	0.71	1.14	W24x162	1.85	0.38	0.39	0.61	0.96
0.43	0.70	1.08	1.73	W27x84	1.02	0.43	0.59	0.92	1.46
0.40	0.66	1.01	1.62	W27x94	1.13	0.40	0.56	0.86	1.37
0.38	0.62	0.96	1.53	W27x102	1.23	0.38	0.53	0.81	1.29
0.38	0.58	0.89	1.43	W27x114	1.36	0.38	0.49	0.76	1.21
0.38	0.53	0.82	1.31	W27x146	1.53	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W27x161	1.68	0.38	0.42	0.65	1.04
0.38	0.46	0.71	1.14	W27x178	1.85	0.38	0.39	0.61	0.96
0.41	0.67	1.03	1.65	W30x99	1.10	0.41	0.57	0.88	1.39
0.39	0.63	0.97	1.56	W30x108	1.20	0.39	0.53	0.83	1.31
0.38	0.61	0.93	1.49	W30x116	1.28	0.38	0.51	0.79	1.26
0.38	0.58	0.89	1.42	W30x124	1.37	0.38	0.49	0.76	1.20
0.38	0.55	0.85	1.36	W30x132	1.46	0.38	0.47	0.72	1.15
0.38	0.50	0.77	1.24	W30x173	1.66	0.38	0.43	0.66	1.05
0.38	0.47	0.72	1.16	W30x191	1.82	0.38	0.40	0.61	0.98
0.38	0.44	0.67	1.08	W30x211	2.00	0.38	0.38	0.57	0.91
0.39	0.64	0.98	1.56	W33x118	1.19	0.39	0.54	0.83	1.32
0.38	0.60	0.92	1.47	W33x130	1.31	0.38	0.50	0.78	1.24
0.38	0.57	0.87	1.39	W33x141	1.41	0.38	0.48	0.74	1.18
0.38	0.54	0.83	1.33	W33x152	1.51	0.38	0.46	0.70	1.12
0.38	0.48	0.74	1.18	W33x201	1.78	0.38	0.40	0.63	0.99

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

*Thickness applied to beam lower flange edges shall be a minimum of 3/8-in. (0.375-in.)

When used to adjust the material thickness for a ***Restrained* beam the use of this procedure is limited to steel sections classified as ***compact*** in accordance with the *Specification for the Design of Structural Steel Buildings* by the American Institute of Steel Construction. Refer to the UL Fire Resistance Directory.

Southwest Fireproofing Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Design No. X771 - Pipe Columns

Standard Weight Pipe

Size			Thickness, in. , Required for Size and Rating Indicated				
Nom. Diameter, in.	Wall Thickness	A/P	1 Hour	1.5 Hour	2 Hour	3 Hour	4 Hour
2.50	0.203	0.19	0.950	1.544	2.139	3.327	NR
3	0.216	0.2	0.903	1.467	2.032	3.160	NR
3.50	0.226	0.21	0.860	1.397	1.935	3.010	NR
4	0.237	0.22	0.821	1.334	1.847	2.873	NR
5	0.258	0.24	0.752	1.223	1.693	2.634	3.574
6	0.28	0.27	0.669	1.087	1.505	2.341	3.177
8	0.322	0.31	0.583	0.947	1.311	2.039	2.767
10	0.365	0.35	0.516	0.838	1.161	1.806	2.451
12	0.375	0.36	0.502	0.815	1.129	1.756	2.383

NR - Not Rated

Extra Strong Pipe

Size			Thickness, in. , Required for Size and Rating Indicated				
Nom. Diameter, in.	Wall Thickness	A/P	1 Hour	1.5 Hour	2 Hour	3 Hour	4 Hour
1.50	0.2	0.17	1.062	1.726	2.390	3.718	NR
2	0.218	0.19	0.950	1.544	2.139	3.327	NR
2.50	0.276	0.25	0.722	1.174	1.625	2.528	3.431
3	0.3	0.27	0.669	1.087	1.505	2.341	3.177
3.50	0.318	0.29	0.623	1.012	1.401	2.179	2.958
4	0.337	0.31	0.583	0.947	1.311	2.039	2.767
5	0.375	0.35	0.516	0.838	1.161	1.806	2.451
6	0.432	0.4	0.451	0.734	1.016	1.580	2.144
6	0.864	0.74	0.250	0.397	0.549	0.854	1.159
8	0.5	0.47	0.384	0.624	0.865	1.345	1.825
10	0.5	0.48	0.376	0.611	0.847	1.317	1.787
12	0.5	0.48	0.376	0.611	0.847	1.317	1.787

NR - Not Rated

Double Extra Strong Pipe

Size			Thickness, in. , Required for Size and Rating Indicated				
Nom. Diameter, in.	Wall Thickness	A/P	1 Hour	1.5 Hour	2 Hour	3 Hour	4 Hour
2	0.436	0.34	0.531	0.863	1.195	1.859	2.523
2.50	0.552	0.43	0.420	0.682	0.945	1.470	1.995
3	0.6	0.48	0.376	0.611	0.847	1.317	1.787
4	0.674	0.56	0.322	0.524	0.726	1.129	1.532
5	0.75	0.64	0.282	0.459	0.635	0.988	1.340
6	0.864	0.74	0.250	0.397	0.549	0.854	1.159
8	0.875	0.78	0.250	0.376	0.521	0.810	1.100

These column protection thicknesses have been calculated for the convenience of users, in accordance with the proprietary equation in UL Design No. X771, as detailed in the UL FireResistance Directory.
While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions.
If any discrepancy is found between this table and the UL Design information, the UL Design information governs.

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

UL Design X771 - Rectangular Tube Steel Columns

Size			Thickness, in. Required for Size and Rating Indicated				
Wall, in.	Member	A/P	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
3/16	4x3	0.18	1.00	1.63	2.26	3.51	NR
1/4	4x3	0.23	0.79	1.28	1.77	2.75	3.73
3/16	5x3	0.18	1.00	1.63	2.26	3.51	NR
1/4	5x3	0.23	0.79	1.28	1.77	2.75	3.73
5/16	5x3	0.29	0.62	1.01	1.40	2.18	2.96
3/8	5x3	0.34	0.53	0.86	1.20	1.86	2.52
1/2	5x3	0.44	0.41	0.67	0.92	1.44	1.95
3/16	5x4	0.18	1.00	1.63	2.26	3.51	NR
1/4	5x4	0.24	0.75	1.22	1.69	2.63	3.57
5/16	5x4	0.29	0.62	1.01	1.40	2.18	2.96
3/8	5x4	0.34	0.53	0.86	1.20	1.86	2.52
3/16	6x3	0.18	1.00	1.63	2.26	3.51	NR
1/4	6x3	0.24	0.75	1.22	1.69	2.63	3.57
5/16	6x3	0.29	0.62	1.01	1.40	2.18	2.96
3/8	6x3	0.34	0.53	0.86	1.20	1.86	2.52
1/2	6x3	0.44	0.41	0.67	0.92	1.44	1.95
3/16	6x4	0.18	1.00	1.63	2.26	3.51	NR
1/4	6x4	0.24	0.75	1.22	1.69	2.63	3.57
5/16	6x4	0.29	0.62	1.01	1.40	2.18	2.96
3/8	6x4	0.35	0.52	0.84	1.16	1.81	2.45
1/2	6x4	0.45	0.40	0.65	0.90	1.40	1.91
3/16	7x5	0.18	1.00	1.63	2.26	3.51	NR
1/4	7x5	0.24	0.75	1.22	1.69	2.63	3.57
5/16	7x5	0.3	0.60	0.98	1.35	2.11	2.86
3/8	7x5	0.35	0.52	0.84	1.16	1.81	2.45
1/2	7x5	0.48	0.38	0.61	0.85	1.32	1.79
3/16	8x3	0.18	1.00	1.63	2.26	3.51	NR
1/4	8x3	0.24	0.75	1.22	1.69	2.63	3.57
5/16	8x3	0.35	0.52	0.84	1.16	1.81	2.45
3/8	8x3	0.45	0.40	0.65	0.90	1.40	1.91
3/16	8x4	0.18	1.00	1.63	2.26	3.51	NR
1/4	8x4	0.24	0.75	1.22	1.69	2.63	3.57
5/16	8x4	0.3	0.60	0.98	1.35	2.11	2.86
3/8	8x4	0.35	0.52	0.84	1.16	1.81	2.45
1/2	8x4	0.46	0.39	0.64	0.88	1.37	1.86
3/16	8x6	0.18	1.00	1.63	2.26	3.51	NR
1/4	8x6	0.24	0.75	1.22	1.69	2.63	3.57
5/16	8x6	0.3	0.60	0.98	1.35	2.11	2.86
3/8	8x6	0.35	0.52	0.84	1.16	1.81	2.45
1/2	8x6	0.46	0.39	0.64	0.88	1.37	1.86
3/16	10x4	0.18	1.00	1.63	2.26	3.51	NR
1/4	10x4	0.24	0.75	1.22	1.69	2.63	3.57
5/16	10x4	0.3	0.60	0.98	1.35	2.11	2.86
3/8	10x4	0.35	0.52	0.84	1.16	1.81	2.45
1/2	10x4	0.46	0.39	0.64	0.88	1.37	1.86

NR - Not Rated

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

UL Design X771 - Rectangular Tube Steel Columns

Size			Thickness, in. Required for Size and Rating Indicated				
Wall, in.	Member	A/P	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
3/16	10x6	0.18	1.00	1.63	2.26	3.51	NR
1/4	10x6	0.24	0.75	1.22	1.69	2.63	3.57
5/16	10x6	0.3	0.60	0.98	1.35	2.11	2.86
3/8	10x6	0.35	0.52	0.84	1.16	1.81	2.45
1/2	10x6	0.46	0.39	0.64	0.88	1.37	1.86
3/16	10x8	0.18	1.00	1.63	2.26	3.51	NR
1/4	10x8	0.24	0.75	1.22	1.69	2.63	3.57
5/16	10x8	0.3	0.60	0.98	1.35	2.11	2.86
3/8	10x8	0.36	0.50	0.82	1.13	1.76	2.38
1/2	10x8	0.47	0.38	0.62	0.86	1.34	1.83
3/16	12x4	0.18	1.00	1.63	2.26	3.51	NR
1/4	12x4	0.24	0.75	1.22	1.69	2.63	3.57
5/16	12x4	0.3	0.60	0.98	1.35	2.11	2.86
3/8	12x4	0.35	0.52	0.84	1.16	1.81	2.45
1/2	12x4	0.46	0.39	0.64	0.88	1.37	1.86
3/16	12x6	0.18	1.00	1.63	2.26	3.51	NR
1/4	12x6	0.24	0.75	1.22	1.69	2.63	3.57
5/16	12x6	0.3	0.60	0.98	1.35	2.11	2.86
3/8	12x6	0.36	0.50	0.82	1.13	1.76	2.38
1/2	12x6	0.47	0.38	0.62	0.86	1.34	1.83
1/4	12x8	0.24	0.75	1.22	1.69	2.63	3.57
5/16	12x8	0.3	0.60	0.98	1.35	2.11	2.86
3/8	12x8	0.36	0.50	0.82	1.13	1.76	2.38
1/2	12x8	0.48	0.38	0.61	0.85	1.32	1.79
5/8	12x8	0.59	0.31	0.50	0.69	1.07	1.45
1/4	14x4	0.24	0.75	1.22	1.69	2.63	3.57
5/16	14x4	0.3	0.60	0.98	1.35	2.11	2.86
3/8	14x4	0.36	0.50	0.82	1.13	1.76	2.38
1/2	14x4	0.47	0.38	0.62	0.86	1.34	1.83
1/4	14x6	0.24	0.75	1.22	1.69	2.63	3.57
5/16	14x6	0.3	0.60	0.98	1.35	2.11	2.86
3/8	14x6	0.36	0.50	0.82	1.13	1.76	2.38
1/2	14x6	0.48	0.38	0.61	0.85	1.32	1.79
5/16	14x10	0.3	0.60	0.98	1.35	2.11	2.86
3/8	14x10	0.36	0.50	0.82	1.13	1.76	2.38
1/2	14x10	0.47	0.38	0.62	0.86	1.34	1.83
5/16	16x4	0.3	0.60	0.98	1.35	2.11	2.86
3/8	16x4	0.36	0.50	0.82	1.13	1.76	2.38
1/2	16x4	0.48	0.38	0.61	0.85	1.32	1.79
5/16	16x8	0.3	0.60	0.98	1.35	2.11	2.86
3/8	16x8	0.36	0.50	0.82	1.13	1.76	2.38
1/2	16x8	0.47	0.38	0.62	0.86	1.34	1.83
5/16	16x12	0.31	0.58	0.95	1.31	2.04	2.77
3/8	16x12	0.36	0.50	0.82	1.13	1.76	2.38
1/2	16x12	0.48	0.38	0.61	0.85	1.32	1.79

NR - Not Rated

AD Southwest Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

UL Design X771 - Rectangular Tube Steel Columns

Size			Thickness, in. Required for Size and Rating Indicated				
Wall, in.	Member	A/P	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
5/16	18x6	0.30	0.60	0.98	1.35	2.11	2.86
3/8	18x6	0.36	0.50	0.82	1.13	1.76	2.38
1/2	18x6	0.47	0.38	0.62	0.86	1.34	1.83
5/16	20x4	0.3	0.60	0.98	1.35	2.11	2.86
3/8	20x4	0.36	0.50	0.82	1.13	1.76	2.38
1/2	20x4	0.47	0.38	0.62	0.86	1.34	1.83
5/16	20x8	0.31	0.58	0.95	1.31	2.04	2.77
3/8	20x8	0.36	0.50	0.82	1.13	1.76	2.38
1/2	20x8	0.48	0.38	0.61	0.85	1.32	1.79
5/16	20x12	0.31	0.58	0.95	1.31	2.04	2.77
3/8	20x12	0.37	0.49	0.79	1.10	1.71	2.32
1/2	20x12	0.48	0.38	0.61	0.85	1.32	1.79
5/16	20x18	0.49	0.37	0.60	0.83	1.29	1.75
3/8	20x18	0.37	0.49	0.79	1.10	1.71	2.32
1/2	20x18	0.31	0.58	0.95	1.31	2.04	2.77
5/16	22x20	0.31	0.58	0.95	1.31	2.04	2.77
3/8	22x20	0.37	0.49	0.79	1.10	1.71	2.32
1/2	22x20	0.49	0.37	0.60	0.83	1.29	1.75
5/16	24x22	0.31	0.58	0.95	1.31	2.04	2.77
3/8	24x22	0.37	0.49	0.79	1.10	1.71	2.32
1/2	24x22	0.49	0.37	0.60	0.83	1.29	1.75
5/16	26x24	0.31	0.58	0.95	1.31	2.04	2.77
3/8	26x24	0.37	0.49	0.79	1.10	1.71	2.32
1/2	26x24	0.49	0.37	0.60	0.83	1.29	1.75
5/16	28x24	0.31	0.58	0.95	1.31	2.04	2.77
3/8	28x24	0.37	0.49	0.79	1.10	1.71	2.32
1/2	28x24	0.49	0.37	0.60	0.83	1.29	1.75
5/16	30x24	0.31	0.58	0.95	1.31	2.04	2.77
3/8	30x30	0.37	0.49	0.79	1.10	1.71	2.32
1/2	30x30	0.49	0.37	0.60	0.83	1.29	1.75

These column protection thicknesses have been calculated for the convenience of users, in accordance with the proprietary equation in UL Design No. X771, as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between this table and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Design No. X771 - Square Tube Steel Column

Size			Thickness, in. Required for Size and Rating Indicated				
Wall, in.	Member	A/P	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
1/4	2x2	0.22	0.82	1.33	1.85	2.87	3.90
5/16	2x2	0.26	0.69	1.13	1.56	2.43	3.30
1/4	2.5x2.5	0.23	0.79	1.28	1.77	2.75	3.73
5/16	2.5x2.5	0.27	0.67	1.09	1.50	2.34	3.18
3/16	3x3	0.18	1.00	1.63	2.26	3.51	NR
1/4	3x3	0.23	0.79	1.28	1.77	2.75	3.73
5/16	3x3	0.28	0.64	1.05	1.45	2.26	3.06
3/8	3x3	0.33	0.55	0.89	1.23	1.92	2.60
1/2	3x3	0.42	0.43	0.70	0.97	1.50	2.04
3/16	3.5x3.5	0.18	1.00	1.63	2.26	3.51	NR
1/4	3.5x3.5	0.23	0.79	1.28	1.77	2.75	3.73
5/16	3.5x3.5	0.28	0.64	1.05	1.45	2.26	3.06
3/16	4x4	0.18	1.00	1.63	2.26	3.51	NR
1/4	4x4	0.23	0.79	1.28	1.77	2.75	3.73
5/16	4x4	0.29	0.62	1.01	1.40	2.18	2.96
3/8	4x4	0.34	0.53	0.86	1.20	1.86	2.52
1/2	4x4	0.44	0.41	0.67	0.92	1.44	1.95
3/16	4.5x4.5	0.18	1.00	1.63	2.26	3.51	NR
1/4	4.5x4.5	0.24	0.75	1.22	1.69	2.63	3.57
5/16	4.5x4.5	0.29	0.62	1.01	1.40	2.18	2.96
3/8	4.5x4.5	0.34	0.53	0.86	1.20	1.86	2.52
3/16	5x5	0.18	1.00	1.63	2.26	3.51	NR
1/4	5x5	0.24	0.75	1.22	1.69	2.63	3.57
5/16	5x5	0.29	0.62	1.01	1.40	2.18	2.96
3/8	5x5	0.35	0.52	0.84	1.16	1.81	2.45
1/2	5x5	0.45	0.40	0.65	0.90	1.40	1.91
3/16	5.5x5.5	0.18	1.00	1.63	2.26	3.51	NR
1/4	5.5x5.5	0.24	0.75	1.22	1.69	2.63	3.57
5/16	5.5x5.5	0.29	0.62	1.01	1.40	2.18	2.96
3/8	5.5x5.5	0.35	0.52	0.84	1.16	1.81	2.45
3/16	6x6	0.18	1.00	1.63	2.26	3.51	NR
1/4	6x6	0.24	0.75	1.22	1.69	2.63	3.57
5/16	6x6	0.3	0.60	0.98	1.35	2.11	2.86
3/8	6x6	0.35	0.52	0.84	1.16	1.81	2.45
1/2	6x6	0.48	0.38	0.61	0.85	1.32	1.79
5/8	6x6	0.56	0.32	0.52	0.73	1.13	1.53
3/16	7x7	0.18	1.00	1.63	2.26	3.51	NR
1/4	7x7	0.24	0.75	1.22	1.69	2.63	3.57
5/16	7x7	0.3	0.60	0.98	1.35	2.11	2.86
3/8	7x7	0.35	0.52	0.84	1.16	1.81	2.45
1/2	7x7	0.46	0.39	0.64	0.88	1.37	1.86
5/8	7x7	0.57	0.32	0.51	0.71	1.11	1.50
3/16	8x8	0.18	1.00	1.63	2.26	3.51	NR
1/4	8x8	0.24	0.75	1.22	1.69	2.63	3.57
5/16	8x8	0.3	0.60	0.98	1.35	2.11	2.86

Southwest Fireproofing Type 5 GP, Type 5 MD, Type 7 GP & Type 7 HD

Design No. X771 - Square Tube Steel Column

Size			Thickness, in. Required for Size and Rating Indicated				
Wall, in.	Member	A/P	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
3/8	8x8	0.35	0.52	0.84	1.16	1.81	2.45
1/2	8x8	0.46	0.39	0.64	0.88	1.37	1.86
5/8	8x8	0.58	0.31	0.51	0.70	1.09	1.48
3/16	10x10	0.18	1.00	1.63	2.26	3.51	NR
1/4	10x10	0.24	0.75	1.22	1.69	2.63	3.57
5/16	10x10	0.3	0.60	0.98	1.35	2.11	2.86
3/8	10x10	0.36	0.50	0.82	1.13	1.76	2.38
1/2	10x10	0.48	0.38	0.61	0.85	1.32	1.79
5/8	10x10	0.59	0.31	0.50	0.69	1.07	1.45
1/4	12x12	0.24	0.75	1.22	1.69	2.63	3.57
5/16	12x12	0.3	0.60	0.98	1.35	2.11	2.86
3/8	12x12	0.36	0.50	0.82	1.13	1.76	2.38
1/2	12x12	0.47	0.38	0.62	0.86	1.34	1.83
5/8	12x12	0.59	0.31	0.50	0.69	1.07	1.45
5/16	14x14	0.31	0.58	0.95	1.31	2.04	2.77
3/8	14x14	0.36	0.50	0.82	1.13	1.76	2.38
1/2	14x14	0.48	0.38	0.61	0.85	1.32	1.79
5/8	14x14	0.6	0.30	0.49	0.68	1.05	1.43
5/16	16x16	0.31	0.58	0.95	1.31	2.04	2.77
3/8	16x16	0.37	0.49	0.79	1.10	1.71	2.32
1/2	16x16	0.48	0.38	0.61	0.85	1.32	1.79
5/8	16x16	0.6	0.30	0.49	0.68	1.05	1.43
5/16	18x18	0.31	0.58	0.95	1.31	2.04	2.77
3/8	18x18	0.37	0.49	0.79	1.10	1.71	2.32
1/2	18x18	0.49	0.37	0.60	0.83	1.29	1.75
5/8	18x18	0.6	0.30	0.49	0.68	1.05	1.43
3/8	20x20	0.37	0.49	0.79	1.10	1.71	2.32
1/2	20x20	0.49	0.37	0.60	0.83	1.29	1.75
5/8	20x20	0.61	0.30	0.48	0.67	1.04	1.41
3/4	20x20	0.72	0.25	0.41	0.56	0.88	1.19
1.00	20x20	0.95	0.19	0.31	0.43	0.67	0.90
3/8	22x22	0.37	0.49	0.79	1.10	1.71	2.32
1/2	22x22	0.49	0.37	0.60	0.83	1.29	1.75
5/8	22x22	0.61	0.30	0.48	0.67	1.04	1.41
3/8	24x24	0.37	0.49	0.79	1.10	1.71	2.32
1/2	24x24	0.49	0.37	0.60	0.83	1.29	1.75
5/8	24x24	0.61	0.30	0.48	0.67	1.04	1.41
3/4	24x24	0.73	0.25	0.40	0.56	0.87	1.18
1.00	24x24	0.96	0.25	0.31	0.42	0.66	0.89
1/2	26x26	0.49	0.37	0.60	0.83	1.29	1.75
5/8	26x26	0.61	0.30	0.48	0.67	1.04	1.41
3/4	26x26	0.73	0.25	0.40	0.56	0.87	1.18
7/8	26x26	0.86	0.25	0.34	0.47	0.73	1.00
1.00	26x26	0.96	0.25	0.31	0.42	0.66	0.89
1/2	28x28	0.49	0.37	0.60	0.83	1.29	1.75

Size			Thickness, in. Required for Size and Rating Indicated				
Wall, in.	**Member**	**A/P**	**1 Hr**	**1.5 Hr**	**2 Hr**	**3 Hr**	**4 Hr**
5/8	28x28	0.61	0.30	0.48	0.67	1.04	1.41
3/4	28x28	0.73	0.25	0.40	0.56	0.87	1.18
7/8	28x28	0.85	0.25	0.35	0.48	0.74	1.01
1.00	28x28	0.96	0.25	0.31	0.42	0.66	0.89
1/2	30x30	0.49	0.37	0.60	0.83	1.29	1.75
5/8	30x30	0.61	0.30	0.48	0.67	1.04	1.41
3/4	30x30	0.73	0.25	0.40	0.56	0.87	1.18
7/8	30x30	0.85	0.25	0.35	0.48	0.74	1.01
1.00	30x30	0.97	0.25	0.30	0.42	0.65	0.88
1.25	30x30	1.2	0.25	0.25	0.34	0.53	0.71
1/2	32x32	0.49	0.37	0.60	0.83	1.29	1.75
3/4	32x32	0.73	0.25	0.40	0.56	0.87	1.18
7/8	32x32	0.85	0.25	0.35	0.48	0.74	1.01
1.00	32x32	0.97	0.25	0.30	0.42	0.65	0.88
1.25	32x32	1.2	0.25	0.25	0.34	0.53	0.71
1.50	32x32	1.43	0.25	0.25	0.28	0.44	0.60
1.75	32x32	1.66	0.25	0.25	0.24	0.38	0.52
2.00	32x32	1.88	0.25	0.25	0.22	0.34	0.46

These column protection thicknesses have been calculated for the convenience of users, in accordance with the proprietary equation in UL Design No. X771, as detailed in the UL FireResistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between this table and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W4x13	0.54	0.67	1.01	1.35	2.02	2.70
W5x16	0.54	0.67	1.01	1.35	2.02	2.70
W5x19	0.64	0.63	0.95	1.26	1.89	2.53
W6x9	0.33	0.79	1.18	1.56	2.36	3.14
W6x12	0.44	0.72	1.08	1.45	2.17	2.89
W6x16	0.57	0.66	0.99	1.31	1.98	2.63
W6x20	0.56	0.67	1.00	1.33	2.00	2.66
W6x26	0.68	0.62	0.92	1.23	1.85	2.46
W8x10	0.32	0.79	1.19	1.58	2.37	3.17
W8x13	0.41	0.74	1.11	1.48	2.22	2.96
W8x15	0.47	0.71	1.06	1.41	2.12	2.83
W8x18	0.49	0.70	1.05	1.40	2.09	2.79
W8x21	0.57	0.66	0.99	1.31	1.98	2.63
W8x24	0.58	0.66	0.98	1.31	1.97	2.63
W8x28	0.67	0.62	0.93	1.24	1.86	2.48
W8x31	0.65	0.63	0.94	1.26	1.88	2.51
W8x35	0.73	0.60	0.90	1.20	1.79	2.39
W8x40	0.83	0.56	0.85	1.13	1.69	2.25
W8x48	0.98	0.52	0.78	1.04	1.56	2.08
W8x58	1.17	0.47	0.71	0.95	1.42	1.89
W8x67	1.34	0.44	0.66	0.88	1.31	1.75
W10x12	0.34	0.78	1.17	1.56	2.34	3.12
W10x15	0.42	0.73	1.10	1.47	2.20	2.93
W10x17	0.48	0.70	1.05	1.40	2.11	2.81
W10x19	0.53	0.68	1.02	1.36	2.04	2.71
W10x22	0.51	0.69	1.03	1.38	2.06	2.75
W10x26	0.60	0.65	0.97	1.30	1.94	2.59
W10x30	0.69	0.61	0.92	1.22	1.84	2.45
W10x33	0.65	0.63	0.94	1.26	1.88	2.51
W10x39	0.76	0.59	0.88	1.17	1.76	2.35
W10x46	0.87	0.55	0.83	1.10	1.65	2.21
W10x49	0.83	0.56	0.85	1.13	1.69	2.25
W10x54	0.91	0.54	0.81	1.08	1.62	2.16
W10x60	1.00	0.51	0.77	1.03	1.54	2.06
W10x68	1.13	0.48	0.72	0.96	1.45	1.93
W10x77	1.26	0.45	0.68	0.91	1.36	1.82
W10x88	1.43	0.42	0.63	0.84	1.26	1.69
W10x100	1.60	0.39	0.59	0.79	1.18	1.57
W10x112	1.78	0.37	0.55	0.73	1.10	1.47
W12x14	0.36	0.77	1.15	1.53	2.30	3.07
W12x16	0.41	0.74	1.11	1.48	2.22	2.96
W12x19	0.48	0.70	1.05	1.40	2.11	2.81
W12x22	0.55	0.67	1.00	1.34	2.01	2.68
W12x26	0.52	0.68	1.02	1.37	2.05	2.73
W12x30	0.60	0.65	0.97	1.30	1.94	2.59
W12x35	0.69	0.61	0.92	1.22	1.84	2.45
W12x40	0.72	0.60	0.90	1.20	1.80	2.40
W12x45	0.81	0.57	0.86	1.14	1.71	2.28

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W12x50	0.89	0.50	0.82	1.09	1.64	2.18
W12x53	0.84	0.50	0.84	1.12	1.68	2.24
W12x54	0.84	0.50	0.84	1.12	1.68	2.24
W12x58	0.91	0.50	0.81	1.08	1.62	2.16
W12x65	0.91	0.50	0.81	1.08	1.62	2.16
W12x72	1.01	0.50	0.77	1.02	1.54	2.05
W12x79	1.09	0.49	0.74	0.98	1.48	1.97
W12x87	1.20	0.47	0.70	0.93	1.40	1.87
W12x96	1.32	0.44	0.66	0.88	1.33	1.77
W12x106	1.44	0.42	0.63	0.84	1.26	1.68
W12x120	1.61	0.39	0.59	0.78	1.18	1.57
W12x136	1.82	0.36	0.54	0.72	1.09	1.45
W12x152	2.01	0.34	0.51	0.68	1.02	1.35
W12x170	2.22	0.32	0.47	0.63	0.95	1.26
W12x190	2.46	0.29	0.44	0.59	0.88	1.18
W12x210	2.69	0.25	0.41	0.55	0.83	1.10
W12x230	2.92	0.25	0.39	0.52	0.78	1.04
W12x262	3.15	0.25	0.37	0.49	0.73	0.98
W12x279	3.43	0.25	0.34	0.46	0.69	0.91
W12x305	3.70	0.25	0.32	0.43	0.65	0.86
W12x336	4.01	0.25	0.30	0.40	0.61	0.81
W14x22	0.47	0.71	1.06	1.41	2.12	2.83
W14x26	0.55	0.67	1.00	1.34	2.01	2.68
W14x30	0.55	0.67	1.00	1.34	2.01	2.68
W14x34	0.63	0.64	0.95	1.27	1.91	2.54
W14x38	0.70	0.61	0.91	1.22	1.83	2.43
W14x43	0.73	0.60	0.90	1.20	1.79	2.39
W14x48	0.82	0.57	0.85	1.13	1.70	2.27
W14x53	0.90	0.50	0.81	1.09	1.63	2.17
W14x61	0.91	0.50	0.81	1.08	1.62	2.16
W14x68	1.01	0.50	0.77	1.02	1.54	2.05
W14x74	1.09	0.49	0.74	0.98	1.48	1.97
W14x82	1.21	0.46	0.70	0.93	1.39	1.86
W14x90	1.06	0.50	0.75	1.00	1.50	2.00
W14x99	1.15	0.48	0.72	0.96	1.43	1.91
W14x109	1.26	0.45	0.68	0.91	1.36	1.82
W14x120	1.39	0.43	0.64	0.86	1.29	1.71
W14x132	1.52	0.41	0.61	0.81	1.22	1.62
W14x145	1.61	0.39	0.59	0.78	1.18	1.57
W14x159	1.75	0.37	0.56	0.74	1.11	1.49
W14x176	1.93	0.35	0.52	0.70	1.04	1.39
W14x193	2.09	0.33	0.49	0.66	0.99	1.32
W14x211	2.28	0.31	0.47	0.62	0.93	1.24
W14x228	2.49	0.25	0.44	0.58	0.87	1.19
W14x233	2.50	0.25	0.44	0.56	0.87	1.19
W14x257	2.72	0.25	0.41	0.55	0.82	1.09
W14x283	2.97	0.25	0.38	0.51	0.77	1.02

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W14x311	3.23	0.25	0.36	0.48	0.72	0.96
W14x342	3.51	0.25	0.34	0.45	0.67	0.90
W14x370	3.76	0.25	0.32	0.43	0.64	0.85
W14x398	4.00	0.25	0.30	0.40	0.61	0.81
W14x426	4.24	0.25	0.29	0.39	0.58	0.77
W14x455	4.48	0.25	0.28	0.37	0.55	0.74
W14x500	4.86	0.25	0.26	0.34	0.52	0.69
W14x550	5.25	0.25	0.25	0.32	0.48	0.65
W14x605	5.71	0.25	0.25	0.30	0.45	0.60
W14x665	6.21	0.25	0.25	0.28	0.42	0.56
W14x730	6.62	0.25	0.25	0.26	0.38	0.50
W14x808	7.28	0.25	0.25	0.24	0.38	0.50
W16x26	0.49	0.70	1.05	1.40	2.09	2.79
W16x31	0.58	0.66	0.98	1.31	1.97	2.63
W16x36	0.61	0.64	0.97	1.29	1.93	2.57
W16x40	0.67	0.62	0.93	1.24	1.86	2.48
W16x45	0.76	0.59	0.88	1.17	1.76	2.35
W16x50	0.83	0.50	0.85	1.13	1.69	2.25
W16x57	0.96	0.50	0.79	1.13	1.69	2.25
W16x67	0.92	0.50	0.81	1.07	1.61	2.15
W16x77	1.05	0.50	0.75	1.00	1.51	2.01
W16x89	1.20	0.47	0.70	0.93	1.40	1.87
W16x100	1.34	0.44	0.66	0.88	1.31	1.75
W18x35	0.59	0.65	0.98	1.30	1.96	2.61
W18x40	0.68	0.62	0.92	1.23	1.85	2.46
W18x46	0.78	0.58	0.87	1.16	1.74	2.32
W18x50	0.77	0.58	0.88	1.17	1.75	2.33
W18x55	0.84	0.50	0.84	1.12	1.68	2.24
W18x60	0.91	0.50	0.81	1.08	1.62	2.16
W18x65	0.98	0.50	0.78	1.04	1.56	2.08
W18x71	1.07	0.50	0.75	0.99	1.49	1.99
W18x76	0.95	0.50	0.79	1.06	1.58	2.11
W18x88	1.07	0.50	0.75	0.99	1.49	1.99
W18x97	1.20	0.47	0.70	0.93	1.40	1.87
W18x106	1.30	0.45	0.67	0.89	1.34	1.78
W18x119	1.46	0.42	0.62	0.83	1.25	1.66
W18x130	1.61	0.39	0.59	0.78	1.18	1.57
W18x143	1.77	0.37	0.55	0.74	1.11	1.47
W18x158	1.93	0.35	0.52	0.70	1.04	1.39
W18x175	2.12	0.33	0.49	0.65	0.98	1.31
W18x192	2.27	0.31	0.47	0.62	0.93	1.25
W18x211	2.47	0.29	0.44	0.59	0.88	1.17
W18x234	2.71	0.27	0.41	0.55	0.82	1.10
W18x258	2.95	0.26	0.39	0.51	0.77	1.03
W18x283	3.20	0.24	0.36	0.48	0.72	0.97
W18x311	3.47	0.23	0.34	0.45	0.68	0.91
W21x44	0.66	0.62	0.94	1.25	1.87	2.49

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W21x50	0.75	0.59	0.89	1.18	1.77	2.36
W21x57	0.85	0.50	0.84	1.12	1.67	2.23
W21x62	0.84	0.50	0.84	1.12	1.68	2.24
W21x68	0.91	0.50	0.81	1.08	1.62	2.16
W21x83	1.10	0.49	0.73	0.98	1.47	1.96
W21x93	1.23	0.46	0.69	0.92	1.38	1.84
W21x101	1.11	0.49	0.73	0.97	1.46	1.95
W21x111	1.21	0.46	0.70	0.93	1.39	1.86
W21x122	1.33	0.44	0.66	0.88	1.32	1.76
W21x132	1.43	0.42	0.63	0.84	1.26	1.69
W21x147	1.59	0.39	0.59	0.79	1.18	1.58
W21x166	1.81	0.36	0.54	0.73	1.09	1.45
W21x182	1.97	0.34	0.52	0.69	1.03	1.37
W21x201	2.16	0.32	0.48	0.64	0.97	1.29
W24x55	0.74	0.59	0.89	1.19	1.78	2.38
W24x62	0.83	0.56	0.85	1.13	1.69	2.25
W24x68	0.82	0.57	0.85	1.13	1.70	2.27
W24x76	0.92	0.54	0.81	1.07	1.61	2.15
W24x84	1.01	0.51	0.77	1.02	1.54	2.05
W24x94	1.12	0.48	0.73	0.97	1.45	1.94
W24x103	1.25	0.46	0.68	0.91	1.37	1.82
W24x104	1.06	0.50	0.75	1.00	1.50	2.00
W24x117	1.19	0.47	0.70	0.94	1.41	1.88
W24x131	1.32	0.44	0.66	0.88	1.33	1.77
W24x146	1.46	0.42	0.62	0.83	1.25	1.66
W24x162	1.61	0.39	0.59	0.78	1.18	1.57
W24x176	1.77	0.37	0.55	0.74	1.11	1.47
W24x192	1.92	0.35	0.52	0.70	1.05	1.40
W24x207	2.05	0.33	0.50	0.67	1.00	1.34
W24x229	2.27	0.31	0.47	0.62	0.93	1.25
W24x250	2.45	0.29	0.44	0.59	0.88	1.18
W24x279	2.71	0.27	0.41	0.55	0.82	1.10
W24x306	2.94	0.26	0.39	0.52	0.77	1.03
W24x335	3.19	0.24	0.36	0.48	0.73	0.97
W24x370	3.46	0.23	0.34	0.45	0.68	0.91
W24x408	3.74	0.21	0.32	0.43	0.64	0.85
W24x492	4.40	0.19	0.28	0.37	0.56	0.75
W27x84	0.91	0.54	0.81	1.08	1.62	2.16
W27x94	1.01	0.51	0.77	1.02	1.54	2.05
W27x102	1.09	0.49	0.74	0.98	1.48	1.97
W27x114	1.21	0.46	0.70	0.93	1.39	1.86
W27x129	1.39	0.43	0.64	0.86	1.29	1.71
W27x146	1.33	0.44	0.66	0.88	1.32	1.76
W27x161	1.47	0.41	0.62	0.83	1.24	1.66
W27x178	1.61	0.39	0.59	0.78	1.18	1.57
W27x194	1.76	0.37	0.55	0.74	1.11	1.48
W27x217	1.97	0.34	0.52	0.69	1.03	1.37
W27x235	2.12	0.33	0.49	0.65	0.98	1.31

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W27x258	2.30	0.31	0.46	0.62	0.93	1.23
W27x281	2.49	0.29	0.44	0.58	0.87	1.17
W27x307	2.72	0.27	0.41	0.55	0.82	1.09
W27x336	2.92	0.26	0.39	0.52	0.78	1.04
W27x368	3.17	0.24	0.36	0.49	0.73	0.97
W27x448	3.76	0.21	0.32	0.43	0.64	0.85
W27x539	4.45	0.19	0.28	0.37	0.56	0.74
W30x90	0.91	0.54	0.81	1.08	1.62	2.16
W30x99	0.99	0.52	0.78	1.03	1.55	2.07
W30x108	1.07	0.50	0.75	0.99	1.49	1.99
W30x116	1.15	0.48	0.72	0.96	1.43	1.91
W30x124	1.23	0.46	0.69	0.92	1.38	1.84
W30x132	1.30	0.45	0.67	0.89	1.34	1.78
W30x148	1.47	0.41	0.62	0.83	1.24	1.66
W30x173	1.44	0.42	0.63	0.84	1.26	1.68
W30x191	1.59	0.39	0.59	0.79	1.18	1.58
W30x211	1.74	0.37	0.56	0.75	1.12	1.49
W30x235	1.96	0.34	0.52	0.69	1.03	1.38
W30x261	2.16	0.32	0.48	0.64	0.97	1.29
W30x292	2.39	0.30	0.45	0.60	0.90	1.20
W30x326	2.65	0.28	0.42	0.56	0.84	1.11
W30x357	2.88	0.26	0.39	0.52	0.78	1.05
W30x391	3.13	0.25	0.37	0.49	0.74	0.98
W30x477	3.71	0.21	0.32	0.43	0.64	0.86
W33x118	1.07	0.50	0.75	0.99	1.49	1.99
W33x130	1.17	0.47	0.71	0.95	1.42	1.89
W33x141	1.27	0.45	0.68	0.90	1.36	1.81
W33x152	1.35	0.44	0.65	0.87	1.31	1.74
W33x169	1.52	0.41	0.61	0.81	1.22	1.62
W33x201	1.58	0.40	0.59	0.79	1.19	1.59
W33x221	1.73	0.37	0.56	0.75	1.12	1.50
W33x241	1.87	0.36	0.53	0.71	1.07	1.42
W33x263	2.04	0.34	0.50	0.67	1.01	1.34
W33x291	2.24	0.31	0.47	0.63	0.94	1.26
W33x318	2.43	0.30	0.44	0.59	0.89	1.19
W33x354	2.68	0.28	0.41	0.55	0.83	1.10
W33x387	2.91	0.26	0.39	0.52	0.78	1.04
W36x135	1.15	0.48	0.72	0.96	1.43	1.91
W36x150	1.27	0.45	0.68	0.90	1.36	1.81
W36x160	1.35	0.44	0.65	0.87	1.31	1.74
W36x170	1.43	0.42	0.63	0.84	1.26	1.69
W36x182	1.52	0.41	0.61	0.81	1.22	1.62
W36x194	1.62	0.39	0.59	0.78	1.17	1.56
W36x210	1.74	0.37	0.56	0.75	1.12	1.49
W36x230	1.69	0.38	0.57	0.76	1.14	1.52
W36x232	1.92	0.35	0.52	0.70	1.05	1.40
W36x245	1.79	0.37	0.55	0.73	1.10	1.46
W36x256	2.10	0.33	0.49	0.66	0.99	1.31

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W36x260	1.90	0.35	0.53	0.70	1.06	1.41
W36x280	2.03	0.34	0.50	0.67	1.01	1.35
W36x300	2.17	0.32	0.48	0.64	0.96	1.29
W36x328	2.36	0.30	0.45	0.61	0.91	1.21
W36x359	2.57	0.28	0.43	0.57	0.85	1.14
W36x393	2.80	0.27	0.40	0.53	0.80	1.07
W36x439	3.10	0.25	0.37	0.49	0.74	0.99
W36x527	3.65	0.22	0.33	0.44	0.65	0.87
W36x650	4.41	0.19	0.28	0.37	0.56	0.75
W36x798	5.28	0.16	0.24	0.32	0.48	0.64
W36x848	5.57	0.15	0.23	0.31	0.46	0.61
W40x149	1.22	0.46	0.69	0.92	1.39	1.85
W40x167	1.36	0.43	0.65	0.87	1.30	1.74
W40x174	1.26	0.45	0.68	0.91	1.36	1.82
W40x183	1.48	0.41	0.62	0.83	1.24	1.65
W40x199	1.45	0.42	0.63	0.84	1.25	1.67
W40x211	1.70	0.38	0.57	0.76	1.14	1.51
W40x215	1.56	0.40	0.60	0.80	1.20	1.60
W40x235	1.87	0.36	0.53	0.71	1.07	1.42
W40x249	1.79	0.37	0.55	0.73	1.10	1.46
W40x264	2.10	0.33	0.49	0.66	0.99	1.31
W40x277	1.99	0.34	0.51	0.68	1.02	1.36
W40x278	2.20	0.32	0.48	0.64	0.95	1.27
W40x297	2.14	0.32	0.49	0.65	0.97	1.30
W40x321	2.26	0.31	0.47	0.62	0.94	1.25
W40x324	2.31	0.31	0.46	0.61	0.92	1.23
W40x327	2.56	0.29	0.43	0.57	0.86	1.14
W40x331	2.59	0.28	0.42	0.57	0.85	1.13
W40x362	2.57	0.28	0.43	0.57	0.85	1.14
W40x372	2.64	0.28	0.42	0.56	0.84	1.12
W40x392	3.02	0.25	0.38	0.50	0.76	1.01
W40x397	2.80	0.27	0.40	0.53	0.80	1.07
W40x431	3.01	0.25	0.38	0.51	0.76	1.01
W40x466	3.53	0.22	0.34	0.45	0.67	0.89
W40x503	3.49	0.23	0.34	0.45	0.68	0.90
W40x593	4.03	0.20	0.30	0.40	0.60	0.80
W44x230	1.58	0.40	0.59	0.79	1.19	1.59
W44x262	1.78	0.37	0.55	0.73	1.10	1.47
W44x290	1.97	0.34	0.52	0.69	1.03	1.37
W44x335	2.25	0.31	0.47	0.63	0.94	1.25

These column protection thicknesses have been determined for the convenience of users, in accordance with the table and proprietary equation in Design Y725, as detailed in the UL Fire Resistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column When Flange Tip Thickness is Reduced by one-half*

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W6x9	0.33	0.88	1.25	1.63	2.44	3.19
W6x12	0.44	0.88	1.25	1.63	2.44	3.19
W6x16	0.57	0.75	1.06	1.38	2.06	2.69
W6x20	0.56	0.88	1.25	1.63	2.44	3.19
W6x26	0.68	0.69	1.06	1.38	2.06	2.63
W8x10	0.32	0.88	1.25	1.63	2.44	3.19
W8x13	0.41	0.88	1.25	1.63	2.44	3.19
W8x15	0.47	0.88	1.25	1.63	2.44	3.19
W8x18	0.49	0.88	1.25	1.63	2.44	3.19
W8x21	0.57	0.75	1.06	1.38	2.06	2.69
W8x24	0.58	0.75	1.06	1.38	2.06	2.69
W8x28	0.67	0.69	1.06	1.38	2.06	2.63
W8x31	0.65	0.75	1.06	1.38	2.06	2.69
W8x35	0.73	0.69	1.06	1.38	2.06	2.63
W8x40	0.83	0.56	1.06	1.38	2.06	2.50
W8x48	0.98	0.56	1.06	1.38	2.06	2.50
W8x58	1.17	0.56	1.06	1.38	2.06	2.50
W8x67	1.34	0.56	1.06	1.38	2.06	2.50
W10x12	0.34	0.88	1.25	1.63	2.44	3.19
W10x15	0.42	0.88	1.25	1.63	2.44	3.19
W10x17	0.48	0.88	1.25	1.63	2.44	3.19
W10x19	0.53	0.88	1.25	1.63	2.44	3.19
W10x22	0.51	0.88	1.25	1.63	2.44	3.19
W10x26	0.60	0.75	1.06	1.38	2.06	2.69
W10x30	0.69	0.69	1.06	1.38	2.06	2.63
W10x33	0.65	0.75	1.06	1.38	2.06	2.69
W10x39	0.76	0.69	1.06	1.38	2.06	2.63
W10x46	0.87	0.56	1.06	1.38	2.06	2.50
W10x49	0.83	0.56	1.06	1.38	2.06	2.50
W10x54	0.91	0.56	1.06	1.38	2.06	2.50
W10x60	1.00	0.56	1.06	1.38	2.06	2.50
W10x68	1.13	0.56	1.06	1.38	2.06	2.50
W10x77	1.26	0.56	1.06	1.38	2.06	2.50
W10x88	1.43	0.56	1.06	1.38	2.06	2.50
W10x100	1.60	0.56	1.06	1.38	2.06	2.50
W10x112	1.78	0.56	1.06	1.38	2.06	2.50
W12x14	0.36	0.88	1.25	1.63	2.44	3.19
W12x16	0.41	0.88	1.25	1.63	2.44	3.19
W12x19	0.48	0.88	1.25	1.63	2.44	3.19
W12x22	0.55	0.88	1.25	1.63	2.44	3.19
W12x26	0.52	0.88	1.25	1.63	2.44	3.19
W12x30	0.60	0.75	1.06	1.38	2.06	2.69
W12x35	0.69	0.69	1.06	1.38	2.06	2.63
W12x40	0.72	0.69	1.06	1.38	2.06	2.63
W12x45	0.81	0.69	1.06	1.38	2.06	2.63
W12x50	0.89	0.56	1.06	1.38	2.06	2.50
W12x53	0.84	0.56	1.06	1.38	2.06	2.50
W12x54	0.84	0.56	1.06	1.38	2.06	2.50

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column When Flange Tip Thickness is Reduced by one-half*

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W12x58	0.91	0.56	1.06	1.38	2.06	2.50
W12x65	0.91	0.56	1.06	1.38	2.06	2.50
W12x72	1.01	0.56	1.06	1.38	2.06	2.50
W12x79	1.09	0.56	1.06	1.38	2.06	2.50
W12x87	1.20	0.56	1.06	1.38	2.06	2.50
W12x96	1.32	0.56	1.06	1.38	2.06	2.50
W12x106	1.44	0.56	1.06	1.38	2.06	2.50
W12x120	1.61	0.56	1.06	1.38	2.06	2.50
W12x136	1.82	0.56	1.06	1.38	2.06	2.50
W12x152	2.01	0.56	1.06	1.38	2.06	2.50
W12x170	2.22	0.56	1.06	1.38	2.06	2.50
W12x190	2.46	0.56	1.06	1.38	2.06	2.50
W12x210	2.69	0.25	0.44	0.69	1.19	1.56
W12x230	2.92	0.25	0.44	0.69	1.19	1.56
W12x262	3.15	0.25	0.44	0.69	1.19	1.56
W12x279	3.43	0.25	0.44	0.69	1.19	1.56
W12x305	3.70	0.25	0.44	0.69	1.19	1.56
W12x336	4.01	0.25	0.44	0.69	1.19	1.56
W14x22	0.47	0.88	1.25	1.63	2.44	3.19
W14x26	0.55	0.88	1.25	1.63	2.44	3.19
W14x30	0.55	0.88	1.25	1.63	2.44	3.19
W14x34	0.63	0.75	1.06	1.38	2.06	2.69
W14x38	0.70	0.69	1.06	1.38	2.06	2.63
W14x43	0.73	0.69	1.06	1.38	2.06	2.63
W14x48	0.82	0.69	1.06	1.38	2.06	2.63
W14x53	0.90	0.56	1.06	1.38	2.06	2.50
W14x61	0.91	0.56	1.06	1.38	2.06	2.50
W14x68	1.01	0.56	1.06	1.38	2.06	2.50
W14x74	1.09	0.56	1.06	1.38	2.06	2.50
W14x82	1.21	0.56	1.06	1.38	2.06	2.50
W14x90	1.06	0.56	1.06	1.38	2.06	2.50
W14x99	1.15	0.56	1.06	1.38	2.06	2.50
W14x109	1.26	0.56	1.06	1.38	2.06	2.50
W14x120	1.39	0.56	1.06	1.38	2.06	2.50
W14x132	1.52	0.56	1.06	1.38	2.06	2.50
W14x145	1.61	0.56	1.06	1.38	2.06	2.50
W14x159	1.75	0.56	1.06	1.38	2.06	2.50
W14x176	1.93	0.56	1.06	1.38	2.06	2.50
W14x193	2.09	0.56	1.06	1.38	2.06	2.50
W14x211	2.28	0.56	1.06	1.38	2.06	2.50
W14x233	2.49	0.25	0.44	0.69	1.19	1.56
W14x257	2.72	0.25	0.44	0.69	1.19	1.56
W14x283	2.97	0.25	0.44	0.69	1.19	1.56
W14x311	3.23	0.25	0.44	0.69	1.19	1.56
W14x342	3.51	0.25	0.44	0.69	1.19	1.56
W14x370	3.76	0.25	0.44	0.69	1.19	1.56
W14x398	4.00	0.25	0.44	0.69	1.19	1.56

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column When Flange Tip Thickness is Reduced by one-half*

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W14x426	4.24	0.25	0.44	0.69	1.19	1.56
W14x455	4.48	0.25	0.44	0.69	1.19	1.56
W14x500	4.86	0.25	0.44	0.69	1.19	1.56
W14x550	5.25	0.25	0.44	0.69	1.19	1.56
W14x605	5.71	0.25	0.44	0.69	1.19	1.56
W14x665	6.21	0.25	0.44	0.69	1.19	1.56
W14x730	6.62	0.25	0.44	0.69	1.19	1.56
W14x808	7.28	0.25	0.44	0.69	1.19	1.56
W16x26	0.49	0.88	1.25	1.63	2.44	3.19
W16x31	0.58	0.75	1.06	1.38	2.06	2.69
W16x36	0.61	0.75	1.06	1.38	2.06	2.69
W16x40	0.67	0.69	1.06	1.38	2.06	2.63
W16x45	0.76	0.69	1.06	1.38	2.06	2.63
W16x50	0.83	0.56	1.06	1.38	2.06	2.50
W16x57	0.96	0.56	1.06	1.38	2.06	2.50
W16x67	0.92	0.56	1.06	1.38	2.06	2.50
W16x77	1.05	0.56	1.06	1.38	2.06	2.50
W16x89	1.20	0.56	1.06	1.38	2.06	2.50
W16x100	1.34	0.56	1.06	1.38	2.06	2.50
W18x35	0.59	0.75	1.06	1.38	2.06	2.69
W18x40	0.68	0.69	1.06	1.38	2.06	2.63
W18x46	0.78	0.69	1.06	1.38	2.06	2.63
W18x50	0.77	0.69	1.06	1.38	2.06	2.63
W18x55	0.84	0.56	1.06	1.38	2.06	2.50
W18x60	0.91	0.56	1.06	1.38	2.06	2.50
W18x65	0.98	0.56	1.06	1.38	2.06	2.50
W18x71	1.07	0.56	1.06	1.38	2.06	2.50
W18x76	0.95	0.56	1.06	1.38	2.06	2.50
W18x88	1.07	0.56	1.06	1.38	2.06	2.50
W18x97	1.20	0.56	1.06	1.38	2.06	2.50
W18x106	1.30	0.56	1.06	1.38	2.06	2.50
W18x119	1.46	0.56	1.06	1.38	2.06	2.50
W18x130	1.61	0.56	1.06	1.38	2.06	2.50
W18x143	1.77	0.56	1.06	1.38	2.06	2.50
W18x158	1.93	0.56	1.06	1.38	2.06	2.50
W18x175	2.12	0.56	1.06	1.38	2.06	2.50
W18x192	2.27	0.56	1.06	1.38	2.06	2.50
W18x211	2.47	0.56	1.06	1.38	2.06	2.50
W18x234	2.71	0.25	0.44	0.69	1.19	1.56
W18x258	2.95	0.25	0.44	0.69	1.19	1.56
W18x283	3.20	0.25	0.44	0.69	1.19	1.56
W18x311	3.47	0.25	0.44	0.69	1.19	1.56
W21x44	0.66	0.75	1.06	1.38	2.06	2.69
W21x50	0.75	0.69	1.06	1.38	2.06	2.63
W21x57	0.85	0.56	1.06	1.38	2.06	2.50
W21x62	0.84	0.56	1.06	1.38	2.06	2.50
W21x68	0.91	0.56	1.06	1.38	2.06	2.50

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column When Flange Tip Thickness is Reduced by one-half*

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W21x83	1.10	0.56	1.06	1.38	2.06	2.50
W21x93	1.23	0.56	1.06	1.38	2.06	2.50
W21x101	1.11	0.56	1.06	1.38	2.06	2.50
W21x111	1.21	0.56	1.06	1.38	2.06	2.50
W21x122	1.33	0.56	1.06	1.38	2.06	2.50
W21x132	1.43	0.56	1.06	1.38	2.06	2.50
W21x147	1.59	0.56	1.06	1.38	2.06	2.50
W21x166	1.81	0.56	1.06	1.38	2.06	2.50
W21x182	1.97	0.56	1.06	1.38	2.06	2.50
W21x201	2.16	0.56	1.06	1.38	2.06	2.50
W24x55	0.74	0.69	1.06	1.38	2.06	2.63
W24x62	0.83	0.56	1.06	1.38	2.06	2.50
W24x68	0.82	0.69	1.06	1.38	2.06	2.63
W24x76	0.92	0.56	1.06	1.38	2.06	2.50
W24x84	1.01	0.56	1.06	1.38	2.06	2.50
W24x94	1.12	0.56	1.06	1.38	2.06	2.50
W24x103	1.25	0.56	1.06	1.38	2.06	2.50
W24x104	1.06	0.56	1.06	1.38	2.06	2.50
W24x117	1.19	0.56	1.06	1.38	2.06	2.50
W24x131	1.32	0.56	1.06	1.38	2.06	2.50
W24x146	1.46	0.56	1.06	1.38	2.06	2.50
W24x162	1.61	0.56	1.06	1.38	2.06	2.50
W24x176	1.77	0.56	1.06	1.38	2.06	2.50
W24x192	1.92	0.56	1.06	1.38	2.06	2.50
W24x207	2.05	0.56	1.06	1.38	2.06	2.50
W24x229	2.27	0.56	1.06	1.38	2.06	2.50
W24x250	2.45	0.56	1.06	1.38	2.06	2.50
W24x279	2.71	0.25	0.44	0.69	1.19	1.56
W24x306	2.94	0.25	0.44	0.69	1.19	1.56
W24x335	3.19	0.25	0.44	0.69	1.19	1.56
W24x370	3.46	0.25	0.44	0.69	1.19	1.56
W24x408	3.74	0.25	0.44	0.69	1.19	1.56
W24x492	4.40	0.25	0.44	0.69	1.19	1.56
W27x84	0.91	0.56	1.06	1.38	2.06	2.50
W27x94	1.01	0.56	1.06	1.38	2.06	2.50
W27x102	1.09	0.56	1.06	1.38	2.06	2.50
W27x114	1.21	0.56	1.06	1.38	2.06	2.50
W27x129	1.39	0.56	1.06	1.38	2.06	2.50
W27x146	1.33	0.56	1.06	1.38	2.06	2.50
W27x161	1.47	0.56	1.06	1.38	2.06	2.50
W27x178	1.61	0.56	1.06	1.38	2.06	2.50
W27x194	1.76	0.56	1.06	1.38	2.06	2.50
W27x217	1.97	0.56	1.06	1.38	2.06	2.50
W27x235	2.12	0.56	1.06	1.38	2.06	2.50
W27x258	2.30	0.56	1.06	1.38	2.06	2.50
W27x281	2.49	0.25	0.44	0.69	1.19	1.56
W27x307	2.72	0.25	0.44	0.69	1.19	1.56
W27x336	2.92	0.25	0.44	0.69	1.19	1.56

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design Y725 - Column

Minimum Thickness, in., Required on Column When Flange Tip Thickness is Reduced by one-half*

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W27x368	3.17	0.25	0.44	0.69	1.19	1.56
W27x448	3.76	0.25	0.44	0.69	1.19	1.56
W27x539	4.45	0.25	0.44	0.69	1.19	1.56
W30x90	0.91	0.56	1.06	1.38	2.06	2.50
W30x99	0.99	0.56	1.06	1.38	2.06	2.50
W30x108	1.07	0.56	1.06	1.38	2.06	2.50
W30x116	1.15	0.56	1.06	1.38	2.06	2.50
W30x124	1.23	0.56	1.06	1.38	2.06	2.50
W30x132	1.30	0.56	1.06	1.38	2.06	2.50
W30x148	1.47	0.56	1.06	1.38	2.06	2.50
W30x173	1.44	0.56	1.06	1.38	2.06	2.50
W30x191	1.59	0.56	1.06	1.38	2.06	2.50
W30x211	1.74	0.56	1.06	1.38	2.06	2.50
W30x235	1.96	0.56	1.06	1.38	2.06	2.50
W30x261	2.16	0.56	1.06	1.38	2.06	2.50
W30x292	2.39	0.56	1.06	1.38	2.06	2.50
W30x326	2.65	0.25	0.44	0.69	1.19	1.56
W30x357	2.88	0.25	0.44	0.69	1.19	1.56
W30x391	3.13	0.25	0.44	0.69	1.19	1.56
W30x477	3.71	0.25	0.44	0.69	1.19	1.56
W33x118	1.07	0.56	1.06	1.38	2.06	2.50
W33x130	1.17	0.56	1.06	1.38	2.06	2.50
W33x141	1.27	0.56	1.06	1.38	2.06	2.50
W33x152	1.35	0.56	1.06	1.38	2.06	2.50
W33x169	1.52	0.56	1.06	1.38	2.06	2.50
W33x201	1.58	0.56	1.06	1.38	2.06	2.50
W33x221	1.73	0.56	1.06	1.38	2.06	2.50
W33x241	1.87	0.56	1.06	1.38	2.06	2.50
W33x263	2.04	0.56	1.06	1.38	2.06	2.50
W33x291	2.24	0.56	1.06	1.38	2.06	2.50
W33x318	2.43	0.56	1.06	1.38	2.06	2.50
W33x354	2.68	0.25	0.44	0.69	1.19	1.56
W33x387	2.91	0.25	0.44	0.69	1.19	1.56
W36x135	1.15	0.56	1.06	1.38	2.06	2.50
W36x150	1.27	0.56	1.06	1.38	2.06	2.50
W36x160	1.35	0.56	1.06	1.38	2.06	2.50
W36x170	1.43	0.56	1.06	1.38	2.06	2.50
W36x182	1.52	0.56	1.06	1.38	2.06	2.50
W36x194	1.62	0.56	1.06	1.38	2.06	2.50
W36x210	1.74	0.56	1.06	1.38	2.06	2.50
W36x230	1.69	0.56	1.06	1.38	2.06	2.50
W36x232	1.92	0.56	1.06	1.38	2.06	2.50
W36x245	1.79	0.56	1.06	1.38	2.06	2.50
W36x256	2.10	0.56	1.06	1.38	2.06	2.50
W36x260	1.90	0.56	1.06	1.38	2.06	2.50
W36x280	2.03	0.56	1.06	1.38	2.06	2.50
W36x300	2.17	0.56	1.06	1.38	2.06	2.50
W36x328	2.36	0.56	1.06	1.38	2.06	2.50

Minimum Thickness, in., Required on Column When Flange Tip Thickness is Reduced by one-half*

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
W36x359	2.57	0.25	0.44	0.69	1.19	1.56
W36x393	2.80	0.25	0.44	0.69	1.19	1.56
W36x439	3.10	0.25	0.44	0.69	1.19	1.56
W36x527	3.65	0.25	0.44	0.69	1.19	1.56
W36x650	4.41	0.25	0.44	0.69	1.19	1.56
W36x798	5.28	0.25	0.44	0.69	1.19	1.56
W36x848	5.57	0.25	0.44	0.69	1.19	1.56
W40x149	1.22	0.56	1.06	1.38	2.06	2.50
W40x167	1.36	0.56	1.06	1.38	2.06	2.50
W40x174	1.26	0.56	1.06	1.38	2.06	2.50
W40x183	1.48	0.56	1.06	1.38	2.06	2.50
W40x199	1.45	0.56	1.06	1.38	2.06	2.50
W40x211	1.70	0.56	1.06	1.38	2.06	2.50
W40x215	1.56	0.56	1.06	1.38	2.06	2.50
W40x235	1.87	0.56	1.06	1.38	2.06	2.50
W40x249	1.79	0.56	1.06	1.38	2.06	2.50
W40x264	2.10	0.56	1.06	1.38	2.06	2.50
W40x277	1.99	0.56	1.06	1.38	2.06	2.50
W40x278	2.20	0.56	1.06	1.38	2.06	2.50
W40x297	2.14	0.56	1.06	1.38	2.06	2.50
W40x321	2.26	0.56	1.06	1.38	2.06	2.50
W40x324	2.31	0.56	1.06	1.38	2.06	2.50
W40x327	2.56	0.25	0.44	0.69	1.19	1.56
W40x331	2.59	0.25	0.44	0.69	1.19	1.56
W40x362	2.57	0.25	0.44	0.69	1.19	1.56
W40x372	2.64	0.25	0.44	0.69	1.19	1.56
W40x392	3.02	0.25	0.44	0.69	1.19	1.56
W40x397	2.80	0.25	0.44	0.69	1.19	1.56
W40x431	3.01	0.25	0.44	0.69	1.19	1.56
W40x466	3.53	0.25	0.44	0.69	1.19	1.56
W40x503	3.49	0.25	0.44	0.69	1.19	1.56
W40x593	4.03	0.25	0.44	0.69	1.19	1.56
W44x230	1.58	0.56	1.06	1.38	2.06	2.50
W44x262	1.78	0.56	1.06	1.38	2.06	2.50
W44x290	1.97	0.56	1.06	1.38	2.06	2.50
W44x335	2.25	0.56	1.06	1.38	2.06	2.50

These column protection thicknesses have been determined for the convenience of users, in accordance with the table and proprietary equation in Design Y725, as detailed in the UL Fire Resistance Directory. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

*Minimum thickness shall not be less than 1/4-in., regardless of value in table.

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WWF Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WWF14x92	1.13	0.485	0.727	0.969	1.454	1.939
WWF14x104	1.28	0.454	0.681	0.908	1.362	1.816
WWF14x118	1.45	0.42	0.629	0.839	1.259	1.679
WWF14x128	1.58	0.4	0.599	0.799	1.199	1.598
WWF14x142	1.76	0.371	0.557	0.743	1.114	1.458
WWF14x159	1.97	0.348	0.522	0.696	1.044	1.392
WWF14x177	2.19	0.33	0.495	0.66	0.989	1.319
WWF14x211	2.61	0.25	0.436	0.563	0.872	1.188
WWF16x105	1.12	0.485	0.727	0.969	1.454	1.939
WWF16x119	1.27	0.452	0.678	0.904	1.356	1.807
WWF16x135	1.45	0.42	0.629	0.839	1.259	1.679
WWF16x147	1.58	0.4	0.599	0.799	1.199	1.598
WWF16x163	1.76	0.371	0.557	0.743	1.114	1.458
WWF16x183	1.97	0.348	0.522	0.696	1.044	1.392
WWF16x203	2.19	0.33	0.495	0.66	0.989	1.319
WWF16x243	2.62	0.25	0.436	0.563	0.872	1.188
WWF16x298	3.23	0.25	0.36	0.479	0.719	0.959
WWF18x119	1.13	0.485	0.727	0.969	1.454	1.939
WWF18x134	1.27	0.452	0.678	0.904	1.356	1.807
WWF18x152	1.44	0.42	0.629	0.839	1.259	1.679
WWF18x166	1.58	0.4	0.599	0.799	1.199	1.598
WWF18x184	1.75	0.371	0.557	0.743	1.114	1.485
WWF18x207	1.97	0.348	0.522	0.696	1.044	1.392
WWF18x229	2.18	0.33	0.495	0.66	0.989	1.319
WWF18x275	2.62	0.25	0.436	0.563	0.872	1.188
WWF18x337	3.24	0.25	0.36	0.479	0.719	0.959
WWF20x132	1.13	0.485	0.727	0.969	1.454	1.939
WWF20x150	1.29	0.454	0.681	0.908	1.362	1.816
WWF20x170	1.46	0.42	0.629	0.839	1.259	1.679
WWF20x185	1.59	0.4	0.599	0.799	1.199	1.598
WWF20x205	1.77	0.371	0.557	0.743	1.114	1.458
WWF20x230	1.98	0.348	0.522	0.696	1.044	1.392
WWF20x256	2.20	0.33	0.495	0.66	0.989	1.319
WWF20x306	2.64	0.25	0.436	0.563	0.872	1.188
WWF20x377	3.27	0.25	0.36	0.479	0.719	0.959
WWF20x437	3.87	0.25	0.319	0.425	0.638	0.851
WWF22x188	1.46	0.42	0.629	0.839	1.259	1.679
WWF22x282	2.20	0.33	0.495	0.66	0.989	1.319
WWF22x338	2.64	0.25	0.436	0.563	0.872	1.188
WWF22x416	3.27	0.25	0.36	0.479	0.719	0.959
WWF22x484	3.87	0.25	0.319	0.425	0.638	0.851
WWF24x248	1.77	0.371	0.557	0.743	1.114	1.458

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WWF Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WWF24x309	2.21	0.33	0.495	0.66	0.989	1.319
WWF24x371	2.62	0.25	0.436	0.563	0.872	1.188
WWF24x456	3.27	0.25	0.36	0.479	0.719	0.959
WWF24x531	3.88	0.25	0.319	0.425	0.638	0.851
WWF26x269	1.77	0.371	0.557	0.743	1.114	1.458
WWF26x336	2.21	0.33	0.495	0.66	0.989	1.319
WWF26x402	2.64	0.25	0.436	0.563	0.872	1.188
WWF26x497	3.28	0.25	0.36	0.479	0.719	0.959
WWF26x580	3.89	0.25	0.319	0.425	0.638	0.851
WWF28x102	1.01	0.5	0.768	1.024	1.536	2.048
WWF28x117	1.16	0.478	0.717	0.956	1.433	1.911
WWF28x132	1.13	0.485	0.727	0.969	1.454	1.939
WWF28x144	1.23	0.46	0.69	0.92	1.381	1.841
WWF28x164	1.40	0.436	0.654	0.872	1.308	1.744
WWF31x108	0.99	0.52	0.78	1.04	1.56	2.08
WWF31x123	1.13	0.485	0.727	0.969	1.454	1.939
WWF31x150	1.20	0.476	0.7	0.933	1.4	1.866
WWF31x170	1.36	0.436	0.654	0.872	1.308	1.744
WWF31x202	1.44	0.42	0.629	0.839	1.259	1.679
WWF31x228	1.62	0.392	0.588	0.783	1.175	1.567
WWF35x113	0.97	0.5	0.792	1.056	1.585	2.113
WWF35x128	1.10	0.489	0.734	0.979	1.468	1.958
WWF35x156	1.17	0.473	0.71	0.946	1.42	1.893
WWF35x176	1.32	0.442	0.663	0.884	1.326	1.768
WWF35x208	1.40	0.429	0.643	0.857	1.286	1.715
WWF35x233	1.57	0.4	0.599	0.799	1.199	1.598
WWF35x279	1.78	0.371	0.557	0.743	1.114	1.485
WWF39x134	1.08	0.497	0.745	0.993	1.49	1.987
WWF39x150	1.20	0.467	0.7	0.933	1.4	1.866
WWF39x176	1.25	0.46	0.69	0.92	1.381	1.841
WWF39x197	1.40	0.429	0.643	0.857	1.286	1.715
WWF39x228	1.46	0.416	0.624	0.832	1.248	1.665
WWF39x253	1.62	0.392	0.588	0.783	1.175	1.567
WWF39x300	1.83	0.362	0.543	0.724	1.086	1.448
WWF43x157	1.19	0.469	0.703	0.938	1.406	1.875
WWF43x184	1.24	0.46	0.69	0.92	1.381	1.841
WWF43x204	1.37	0.436	0.654	0.872	1.308	1.744
WWF43x236	1.44	0.42	0.629	0.839	1.259	1.679
WWF43x260	1.59	0.4	0.599	0.799	1.199	1.598
WWF43x307	1.79	0.371	0.557	0.743	1.114	1.485
WWF47x176	1.25	0.46	0.69	0.92	1.381	1.841
WWF47x203	1.30	0.446	0.669	0.892	1.337	1.783

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WWF Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WWF47x224	1.43	0.421	0.632	0.843	1.264	1.686
WWF47x255	1.48	0.414	0.622	0.829	1.243	1.658
WWF47x281	1.64	0.392	0.588	0.783	1.175	1.567
WWF47x326	1.81	0.367	0.551	0.735	1.102	1.469
WWF55x240	1.40	0.429	0.643	0.857	1.286	1.715
WWF55x272	1.45	0.42	0.629	0.839	1.259	1.679
WWF55x316	1.62	0.392	0.588	0.783	1.175	1.567
WWF55x344	1.76	0.371	0.557	0.743	1.114	1.458
WWF55x402	2.06	0.339	0.508	0.677	1.016	1.355
WWF63x289	1.42	0.429	0.643	0.857	1.286	1.715
WWF63x333	1.58	0.4	0.599	0.799	1.199	1.598
WWF63x361	1.71	0.392	0.588	0.783	1.175	1.567
WWF63x388	1.84	0.362	0.543	0.724	1.086	1.448
WWF63x419	1.98	0.348	0.522	0.696	1.044	1.392
WWF71x344	1.57	0.4	0.599	0.799	1.199	1.598
WWF71x388	1.71	0.392	0.588	0.783	1.175	1.567
WWF71x415	1.83	0.362	0.543	0.724	1.086	1.448
WWF71x442	1.95	0.348	0.522	0.696	1.044	1.392
WWF71x470	2.07	0.339	0.508	0.677	1.016	1.355
WWF79x364	1.55	0.406	0.609	0.812	1.218	1.624
WWF79x408	1.68	0.392	0.588	0.783	1.175	1.567
WWF79x436	1.80	0.367	0.551	0.735	1.102	1.469
WWF79x490	2.02	0.339	0.508	0.677	1.016	1.355

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT2.6x6.5	0.55	0.67	1.004	1.339	2.009	2.678
WT2.6x8	0.54	0.674	1.011	1.348	2.022	2.696
WT2.6x9.5	0.64	0.632	0.947	1.263	1.895	2.526
WT3x4.5	0.34	0.779	1.169	1.558	2.337	3.116
WT3x6	0.44	0.723	1.084	1.446	2.168	2.891
WT3x8	0.58	0.656	0.985	1.313	1.969	2.625
WT3x7.5	0.43	0.733	1.1	1.467	2.2	2.934
WT3x10	0.56	0.665	0.998	1.33	1.995	2.661
WT3x12.5	0.69	0.612	0.918	1.224	1.837	2.449
WT4x5	0.33	0.785	1.178	1.563	2.356	3.141
WT4x6.5	0.42	0.733	1.1	1.467	2.2	2.934
WT4x7.5	0.48	0.702	1.054	1.405	2.107	2.81
WT4x9	0.50	0.702	1.054	1.405	2.107	2.81
WT4x10.5	0.57	0.661	0.991	1.313	1.982	2.625
WT4x12	0.59	0.652	0.978	1.304	1.956	2.609
WT4x14	0.68	0.616	0.924	1.232	1.848	2.464
WT4x15.5	0.66	0.624	0.936	1.247	1.871	2.495
WT4x17.5	0.74	0.598	0.896	1.195	1.793	2.39
WT4x20	0.84	0.5	0.841	1.122	1.682	2.43
WT4x24	1.00	0.515	0.772	1.029	1.544	2.058
WT4x29	1.18	0.473	0.71	0.946	1.42	1.893
WT4x33.5	1.34	0.438	0.657	0.876	1.314	1.752
WT5x6	0.35	0.779	1.169	1.558	2.337	3.116
WT5x7.5	0.43	0.733	1.1	1.467	2.2	2.934
WT5x8.5	0.48	0.702	1.054	1.405	2.107	2.81
WT5x9.5	0.53	0.679	1.018	1.357	2.036	2.715
WT5x11	0.52	0.683	1.025	1.367	2.05	2.733
WT5x13	0.61	0.648	0.972	1.296	1.944	2.592
WT5x15	0.69	0.612	0.918	1.224	1.837	2.449
WT5x16.5	0.66	0.624	0.936	1.247	1.871	2.495
WT5x19.5	0.77	0.587	0.881	1.174	1.761	2.348
WT5x22.5	0.88	0.551	0.827	1.103	1.654	2.206
WT5x24.5	0.83	0.564	0.846	1.125	1.688	2.25
WT5x27	0.92	0.5	0.805	1.073	1.61	2.147
WT5x30	1.01	0.5	0.768	1.024	1.536	2.048
WT5x34	1.13	0.482	0.724	0.965	1.447	1.929
WT5x38.5	1.27	0.452	0.678	0.904	1.356	1.807
WT5x44	1.43	0.421	0.632	0.843	1.264	1.686
WT5x50	1.61	0.392	0.588	0.783	1.175	1.567
WT5x56	1.77	0.371	0.557	0.743	1.114	1.485
WT6x7	0.36	0.767	1.151	1.534	2.301	3.068
WT6x8	0.41	0.739	1.108	1.478	2.216	2.955

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT6x9.5	0.48	0.702	1.054	1.405	2.107	2.81
WT6x11	0.55	0.67	1.004	1.339	2.009	2.678
WT6x13	0.53	0.679	1.018	1.357	2.036	2.715
WT6x15	0.61	0.648	0.972	1.296	1.944	2.592
WT6x17.5	0.70	0.609	0.913	1.217	1.826	2.434
WT6x20	0.74	0.598	0.896	1.195	1.793	2.39
WT6x22.5	0.82	0.567	0.851	1.134	1.701	2.268
WT6x25	0.91	0.5	0.809	1.079	1.619	2.158
WT6x26.5	0.84	0.5	0.841	1.122	1.682	2.43
WT6x29	0.92	0.5	0.805	1.073	1.61	2.147
WT6x32.5	0.92	0.5	0.805	1.073	1.61	2.147
WT6x36	1.01	0.5	0.768	1.024	1.536	2.048
WT6x39.5	1.10	0.489	0.734	0.979	1.468	1.958
WT6x43.5	1.21	0.464	0.697	0.929	1.393	1.858
WT6x48	1.32	0.442	0.663	0.884	1.326	1.768
WT6x53	1.45	0.42	0.629	0.839	1.259	1.679
WT6x60	1.62	0.392	0.588	0.783	1.175	1.567
WT6x68	1.81	0.371	0.557	0.743	1.114	1.485
WT6x76	2.01	0.339	0.508	0.677	1.016	1.355
WT6x85	2.21	0.33	0.495	0.66	0.989	1.319
WT6x95	2.44	0.31	0.465	0.621	0.931	1.241
WT6x105	2.66	0.25	0.436	0.563	0.872	1.188
WT6x115	2.87	0.25	0.41	0.546	0.819	1.092
WT6x126	3.10	0.25	0.383	0.511	0.767	1.022
WT6x139.5	3.38	0.25	0.36	0.479	0.719	0.959
WT6x152.5	3.64	0.25	0.337	0.449	0.674	0.899
WT6x168	3.93	0.25	0.319	0.425	0.638	0.851
WT7x11	0.48	0.702	1.054	1.405	2.107	2.81
WT7x13	0.56	0.665	0.998	1.33	1.995	2.661
WT7x15	0.56	0.665	0.998	1.33	1.995	2.661
WT7x17	0.63	0.636	0.953	1.271	1.907	2.542
WT7x19	0.70	0.598	0.896	1.195	1.793	2.39
WT7x21.5	0.74	0.598	0.896	1.195	1.793	2.39
WT7x24	0.83	0.564	0.846	1.125	1.688	2.25
WT7x26.5	0.90	0.5	0.814	1.085	1.628	2.17
WT7x30.5	0.92	0.5	0.805	1.073	1.61	2.147
WT7x34	1.02	0.5	0.768	1.024	1.536	2.048
WT7x37	1.10	0.489	0.734	0.979	1.468	1.958
WT7x41	1.21	0.464	0.697	0.929	1.393	1.858
WT7x45	1.07	0.497	0.745	0.993	1.49	1.987
WT7x49.5	1.17	0.473	0.71	0.946	1.42	1.893
WT7x54.5	1.29	0.454	0.681	0.908	1.362	1.816

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT7x60	1.40	0.429	0.643	0.857	1.286	1.715
WT7x66	1.53	0.406	0.609	0.812	1.218	1.624
WT7x72.5	1.62	0.392	0.588	0.783	1.175	1.567
WT7x79.5	1.76	0.371	0.557	0.743	1.114	1.485
WT7x88	1.93	0.348	0.522	0.696	1.044	1.392
WT7x96.5	2.11	0.33	0.495	0.66	0.989	1.319
WT7x105.5	2.28	0.31	0.465	0.621	0.931	1.241
WT7x116.5	2.49	0.25	0.436	0.563	0.872	1.188
WT7x128.5	2.72	0.25	0.41	0.546	0.819	1.092
WT7x141.5	2.96	0.25	0.383	0.511	0.767	1.022
WT7x155.5	3.21	0.25	0.367	0.489	0.733	0.978
WT7x171	3.48	0.25	0.343	0.457	0.686	0.915
WT7x185	3.71	0.25	0.323	0.431	0.646	0.862
WT7x199	3.95	0.25	0.319	0.425	0.638	0.851
WT7x213	4.18	0.25	0.304	0.405	0.607	0.809
WT7x227.5	4.42	0.25	0.29	0.386	0.579	0.772
WT7x250	4.76	0.25	0.277	0.369	0.553	0.738
WT7x275	5.14	0.25	0.277	0.369	0.553	0.738
WT7x302.5	5.53	0.25	0.25	0.323	0.485	0.646
WT7x332.5	5.95	0.25	0.25	0.301	0.451	0.601
WT7x365	6.39	0.25	0.25	0.301	0.451	0.601
WT7x404	6.86	0.25	0.25	0.265	0.375	0.5
WT8x13	0.50	0.702	1.054	1.405	2.107	2.81
WT8x15.5	0.59	0.652	0.978	1.304	1.956	2.609
WT8x18	0.62	0.644	0.966	1.287	1.931	2.575
WT8x20	0.68	0.616	0.924	1.232	1.848	2.464
WT8x22.5	0.76	0.587	0.881	1.174	1.761	2.348
WT8x25	0.84	0.5	0.841	1.122	1.682	2.43
WT8x28.5	0.95	0.5	0.792	1.056	1.585	2.113
WT8x33.5	0.93	0.5	0.809	1.079	1.619	2.158
WT8x38.5	1.06	0.499	0.749	0.998	1.498	1.997
WT8x44.5	1.21	0.464	0.697	0.929	1.393	1.858
WT8x50	1.35	0.436	0.654	0.872	1.308	1.744
WT9x17.5	0.60	0.648	0.972	1.296	1.944	2.592
WT9x20	0.68	0.616	0.924	1.232	1.848	2.464
WT9x23	0.78	0.58	0.87	1.161	1.741	2.321
WT9x25	0.77	0.587	0.881	1.174	1.761	2.348
WT9x27.5	0.84	0.5	0.841	1.122	1.682	2.43
WT9x30	0.90	0.5	0.814	1.085	1.628	2.17
WT9x32.5	0.99	0.52	0.78	1.04	1.56	2.08
WT9x35.5	1.07	0.499	0.749	0.998	1.498	1.997
WT9x38	0.96	0.5	0.792	1.056	1.585	2.113

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT9x43	1.08	0.497	0.745	0.993	1.49	1.987
WT9x48.5	1.21	0.464	0.697	0.929	1.393	1.858
WT9x53	1.31	0.452	0.678	0.904	1.356	1.807
WT9x59.5	1.46	0.416	0.624	0.832	1.248	1.665
WT9x65	1.59	0.4	0.599	0.799	1.199	1.598
WT9x71.5	1.74	0.373	0.559	0.746	1.118	1.491
WT9x79	1.90	0.362	0.543	0.724	1.086	1.448
WT9x87.5	2.08	0.393	0.508	0.677	1.016	1.355
WT9x96	2.22	0.33	0.495	0.66	0.989	1.319
WT9x105.5	2.41	0.31	0.465	0.621	0.931	1.241
WT9x117	2.64	0.25	0.436	0.563	0.872	1.188
WT9x129	2.87	0.25	0.41	0.546	0.819	1.092
WT9x141.5	3.10	0.25	0.383	0.511	0.767	1.022
WT9x155.5	3.36	0.25	0.36	0.479	0.719	0.959
WT10.5x22	0.67	0.62	0.93	1.24	1.859	2.479
WT10.5x25	0.66	0.624	0.936	1.247	1.871	2.495
WT10.5x28.5	0.75	0.591	0.886	1.181	1.772	2.362
WT10.5x27.5	0.75	0.591	0.886	1.181	1.772	2.362
WT10.5x31	0.84	0.5	0.841	1.122	1.682	2.43
WT10.5x34	0.92	0.537	0.805	1.073	1.61	2.147
WT10.5x36.5	0.98	0.52	0.78	1.04	1.56	2.08
WT10.5x41.5	1.11	0.487	0.731	0.974	1.461	1.948
WT10.5x46.5	1.23	0.464	0.697	0.929	1.393	1.858
WT10.5x50.5	1.12	0.458	0.727	0.969	1.454	1.939
WT10.5x55.5	1.22	0.464	0.697	0.929	1.393	1.858
WT10.5x61	1.33	0.44	0.66	0.88	1.32	1.76
WT10.5x66	1.44	0.42	0.629	0.839	1.259	1.679
WT10.5x73.5	1.59	0.4	0.599	0.799	1.199	1.598
WT10.5x83	1.79	0.371	0.557	0.743	1.114	1.458
WT10.5x91	1.94	0.348	0.522	0.696	1.044	1.392
WT10.5x100.5	2.12	0.33	0.495	0.66	0.989	1.319
WT12x27.5	0.75	0.591	0.886	1.181	1.772	2.362
WT12x31	0.84	0.5	0.841	1.122	1.682	2.43
WT12x34	0.83	0.564	0.846	1.125	1.688	2.25
WT12x38	0.92	0.5	0.805	1.073	1.61	2.147
WT12x42	1.01	0.5	0.768	1.024	1.536	2.048
WT12x47	1.12	0.458	0.727	0.969	1.454	1.939
WT12x51.5	1.23	0.464	0.697	0.929	1.393	1.858
WT12x52	1.07	0.497	0.745	0.993	1.49	1.987
WT12x58.5	1.19	0.473	0.71	0.946	1.42	1.893
WT12x65.5	1.33	0.44	0.66	0.88	1.32	1.76
WT12x73	1.47	0.416	0.624	0.832	1.248	1.665

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT12x81	1.61	0.392	0.588	0.783	1.175	1.567
WT12x88	1.75	0.371	0.557	0.743	1.114	1.485
WT12x96	1.90	0.362	0.543	0.724	1.086	1.448
WT12x103.5	2.03	0.393	0.508	0.677	1.016	1.355
WT12x114.5	2.23	0.33	0.495	0.66	0.989	1.319
WT12x125	2.40	0.31	0.465	0.621	0.931	1.241
WT12x139.5	2.65	0.25	0.436	0.563	0.872	1.188
WT12x167.5	3.11	0.25	0.388	0.518	0.777	1.036
WT12x204	3.63	0.25	0.337	0.449	0.674	0.899
WT12x246	4.25	0.25	0.29	0.386	0.579	0.772
WT13.5x42	0.92	0.5	0.805	1.073	1.61	2.147
WT13.5x47	1.02	0.5	0.768	1.024	1.536	2.048
WT13.5x51	1.10	0.489	0.734	0.979	1.468	1.958
WT13.5x57	1.22	0.464	0.697	0.929	1.393	1.858
WT13.5x64.5	1.38	0.438	0.657	0.876	1.314	1.752
WT13.5x73	1.34	0.438	0.657	0.876	1.314	1.752
WT13.5x80.5	1.47	0.414	0.622	0.829	1.243	1.658
WT13.5x89	1.61	0.392	0.588	0.783	1.175	1.567
WT13.5x97	1.75	0.371	0.557	0.743	1.114	1.485
WT13.5x108.5	1.94	0.348	0.522	0.696	1.044	1.392
WT13.5x117.5	2.09	0.33	0.495	0.66	0.989	1.319
WT13.5x129	2.27	0.33	0.495	0.66	0.989	1.319
WT13.5x153.5	2.66	0.25	0.436	0.563	0.872	1.188
WT13.5x184	3.12	0.25	0.383	0.511	0.767	1.022
WT13.5x224	3.65	0.25	0.337	0.449	0.674	0.899
WT13.5x269.5	4.32	0.25	0.29	0.386	0.579	0.772
WT15x45	0.91	0.5	0.809	1.079	1.619	2.158
WT15x49.5	0.99	0.517	0.776	1.035	1.552	2.069
WT15x54	1.08	0.497	0.745	0.993	1.49	1.987
WT15x58	1.16	0.478	0.717	0.956	1.433	1.911
WT15x62	1.23	0.46	0.69	0.92	1.381	1.841
WT15x66	1.30	0.452	0.678	0.904	1.356	1.807
WT15x74	1.46	0.416	0.624	0.832	1.248	1.665
WT15x86.5	1.45	0.42	0.629	0.839	1.259	1.679
WT15x95.5	1.59	0.4	0.599	0.799	1.199	1.598
WT15x105.5	1.75	0.371	0.557	0.743	1.114	1.485
WT15x117.5	1.93	0.348	0.522	0.696	1.044	1.392
WT15x130.5	2.13	0.33	0.495	0.66	0.989	1.319
WT15x146	2.36	0.31	0.465	0.621	0.931	1.241
WT15x163	2.61	0.25	0.436	0.563	0.872	1.188
WT15x195.5	3.07	0.25	0.383	0.511	0.767	1.022
WT15x238.5	3.62	0.25	0.337	0.449	0.674	0.899

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT16.5x59	1.07	0.497	0.745	0.993	1.49	1.987
WT16.5x65	1.18	0.473	0.71	0.946	1.42	1.893
WT16.5x70.5	1.27	0.452	0.678	0.904	1.356	1.807
WT16.5x76	1.36	0.438	0.657	0.876	1.314	1.752
WT16.5x84.5	1.51	0.416	0.624	0.832	1.248	1.665
WT16.5x100.5	1.56	0.4	0.599	0.799	1.199	1.598
WT16.5x110.5	1.70	0.392	0.588	0.783	1.175	1.567
WT16.5x120.5	1.85	0.362	0.543	0.724	1.086	1.448
WT16.5x131.5	2.01	0.339	0.508	0.677	1.016	1.355
WT16.5x145.5	2.21	0.33	0.495	0.66	0.989	1.319
WT16.5x159	2.39	0.31	0.465	0.621	0.931	1.241
WT16.5x177	2.64	0.25	0.436	0.563	0.872	1.188
WT18x67.5	1.15	0.478	0.717	0.956	1.433	1.911
WT18x75	1.27	0.452	0.678	0.904	1.356	1.807
WT18x80	1.35	0.436	0.654	0.872	1.308	1.744
WT18x85	1.43	0.414	0.622	0.829	1.243	1.658
WT18x91	1.52	0.406	0.609	0.812	1.218	1.624
WT18x97	1.62	0.392	0.588	0.783	1.175	1.567
WT18x105	1.74	0.373	0.559	0.746	1.118	1.491
WT18x116	1.91	0.362	0.543	0.724	1.086	1.448
WT18x128	2.10	0.33	0.495	0.66	0.989	1.319
WT18x115	1.69	0.392	0.588	0.783	1.175	1.567
WT18x122.5	1.80	0.373	0.559	0.746	1.118	1.491
WT18x130	1.90	0.362	0.543	0.724	1.086	1.448
WT18x140	2.04	0.393	0.508	0.677	1.016	1.355
WT18x150	2.17	0.33	0.495	0.66	0.989	1.319
WT18x164	2.37	0.31	0.465	0.621	0.931	1.241
WT18x179.5	2.58	0.25	0.436	0.563	0.872	1.188
WT18x196.5	2.80	0.25	0.41	0.546	0.819	1.092
WT18x219.5	3.09	0.25	0.383	0.511	0.767	1.022
WT18x263.5	3.63	0.25	0.337	0.449	0.674	0.899
WT18x325	4.36	0.25	0.29	0.386	0.579	0.772
WT18x399	5.19	0.25	0.29	0.386	0.579	0.772
WT18x424	5.39	0.25	0.25	0.323	0.485	0.646
WT20x74.5	1.23	0.464	0.697	0.929	1.393	1.858
WT20x83.5	1.37	0.414	0.622	0.829	1.243	1.658
WT20x91.5	1.49	0.414	0.622	0.829	1.243	1.658
WT20x105.5	1.70	0.392	0.588	0.783	1.175	1.567
WT20x117.5	1.89	0.362	0.543	0.724	1.086	1.448
WT20x132	2.11	0.33	0.495	0.66	0.989	1.319
WT20x139	2.20	0.33	0.495	0.66	0.989	1.319
WT20x165.5	2.58	0.25	0.436	0.563	0.872	1.188

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - WT Sections (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
WT20x196	3.00	0.25	0.383	0.511	0.767	1.022
WT20x233	3.44	0.25	0.36	0.479	0.719	0.959
WT20x87	2.28	0.33	0.495	0.66	0.989	1.319
WT20x99.5	2.56	0.25	0.436	0.563	0.872	1.188
WT20x107.5	2.58	0.25	0.436	0.563	0.872	1.188
WT20x124.5	2.53	0.25	0.436	0.563	0.872	1.188
WT20x138.5	2.59	0.25	0.436	0.563	0.872	1.188
WT20x148.5	3.00	0.25	0.383	0.511	0.767	1.022
WT20x160.5	2.75	0.25	0.41	0.546	0.819	1.092
WT20x186	2.97	0.25	0.383	0.511	0.767	1.022
WT20x215.5	3.44	0.25	0.36	0.479	0.719	0.959
WT20x251.5	3.41	0.25	0.36	0.479	0.719	0.959
WT20x296.5	3.94	0.25	0.319	0.425	0.638	0.851
WT22x115	1.56	0.4	0.599	0.799	1.199	1.598
WT22x131	1.76	0.371	0.557	0.743	1.114	1.485
WT22x145	1.95	0.348	0.522	0.696	1.044	1.392
WT22x167.5	2.22	0.316	0.474	0.632	0.949	1.265

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - S Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
S3x5.7	0.40	0.767	1.151	1.534	2.301	3.068
S3x7.5	0.50	0.723	1.084	1.446	2.168	2.891
S4x7.7	0.44	0.723	1.084	1.446	2.168	2.891
S4x9.5	0.53	0.679	1.018	1.357	2.036	2.715
S5x10	0.48	0.702	1.054	1.405	2.107	2.81
S6x12.5	0.52	0.683	1.025	1.367	2.05	2.733
S6x17.25	0.69	0.612	0.918	1.244	1.837	2.449
S8x18.4	0.61	0.648	0.972	1.296	1.944	2.592
S8x23	0.74	0.594	0.891	1.188	1.782	2.376
S10x25.4	0.69	0.612	0.918	1.224	1.837	2.449
S10x35	0.93	0.537	0.805	1.073	1.61	2.147
S12x31.8	0.76	0.587	0.881	1.174	1.761	2.348
S12x35	0.83	0.564	0.846	1.125	1.688	2.25
S12x40.8	0.95	0.537	0.805	1.073	1.61	2.147
S12x50	1.14	0.487	0.731	0.974	1.461	1.948
S15x42.9	0.86	0.5	0.841	1.122	1.682	2.243
S15x50	0.99	0.517	0.776	1.035	1.552	2.069
S18x54.7	0.95	0.54	0.809	1.079	1.619	2.158
S18x70	1.19	0.469	0.703	0.938	1.406	1.875
S20x66	1.05	0.5	0.753	1.003	1.505	2.007
S20x75	1.19	0.469	0.703	0.938	1.406	1.875
S20x86	1.30	0.446	0.669	0.892	1.337	1.783
S20x96	1.43	0.421	0.632	0.843	1.264	1.686
S24x80	1.09	0.492	0.738	0.984	1.476	1.967
S24x90	1.22	0.464	0.697	0.929	1.393	1.858
S24x100	1.35	0.436	0.654	0.872	1.308	1.744
S24x106	1.37	0.436	0.654	0.872	1.308	1.744
S24x121	1.54	0.406	0.609	0.812	1.218	1.624

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Rods (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
1/4"	0.21	1.625	2.313	2.688	3.063	NFT
5/16"	0.27	1.625	2.313	2.688	3.063	NFT
3/8"	0.32	1.625	2.313	2.688	3.063	NFT
7/16"	0.37	0.770	1.150	1.530	2.300	3.070
1/2"	0.43	0.730	1.100	1.470	2.200	2.930
9/16"	0.48	0.690	1.030	1.380	2.060	2.750
5/8"	0.57	0.640	0.970	1.290	1.930	2.570
11/16"	0.59	0.640	0.970	1.290	1.930	2.570
3/4"	0.64	0.640	0.970	1.290	1.930	2.570
7/8"	0.75	0.598	0.896	1.195	1.793	2.390
1"	0.85	0.564	0.846	1.128	1.692	2.250
1-1/4"	1.06	0.500	0.809	1.079	1.619	2.158
1-5/16"	1.12	0.473	0.710	0.946	1.420	1.893
1-3/8"	1.17	0.473	0.710	0.946	1.420	1.893
1-7/16"	1.22	0.464	0.697	0.929	1.393	1.858
1-1/2"	1.28	0.464	0.697	0.929	1.393	1.858
1-9/16"	1.33	0.436	0.654	0.872	1.308	1.744
1-5/8"	1.38	0.436	0.654	0.872	1.308	1.744
1-11/16"	1.44	0.380	0.390	0.570	0.870	1.130
1-3/4"	1.49	0.414	0.622	0.892	1.243	1.658
1-7/8"	1.60	0.393	0.590	0.787	1.180	1.573
2"	1.70	0.392	0.588	0.783	1.175	1.567
2-1/4"	1.91	0.371	0.557	0.743	1.114	1.485
2-5/16"	1.97	0.348	0.522	0.696	1.044	1.392
2-3/8"	2.02	0.348	0.522	0.696	1.044	1.392
2-7/16"	2.07	0.348	0.522	0.696	1.044	1.392
2-1/2"	2.13	0.339	0.508	0.677	1.016	1.355
2-9/16"	2.18	0.339	0.508	0.677	1.016	1.355
2-5/8"	2.23	0.316	0.474	0.632	0.949	1.265
2-11/16"	2.29	0.31	0.465	0.621	0.931	1.241
2-3/4"	2.34	0.31	0.465	0.621	0.931	1.241
2-7/8"	2.45	0.294	0.441	0.588	0.882	1.176
3"	2.55	0.25	0.436	0.583	0.874	1.188
3-1/4"	2.76	0.25	0.41	0.546	0.819	1.092
3-5/16"	2.82	0.25	0.41	0.546	0.819	1.092
3-3/8"	2.87	0.25	0.41	0.546	0.819	1.092
3-7/16"	2.92	0.25	0.41	0.546	0.819	1.092
3-1/2"	2.98	0.25	0.383	0.511	0.767	1.022
3-9/16"	3.03	0.25	0.383	0.511	0.767	1.022
3-5/8"	3.08	0.25	0.383	0.511	0.767	1.022
3-11/16"	3.14	0.25	0.383	0.511	0.767	1.022
3-3/4"	3.19	0.25	0.383	0.511	0.767	1.022

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Rods (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
3-7/8"	3.30	0.25	0.36	0.479	0.719	0.959
4"	3.40	0.25	0.36	0.479	0.719	0.959
4-1/4"	3.62	0.25	0.337	0.449	0.674	0.899
4-1/2"	3.83	0.25	0.319	0.425	0.638	0.851

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - MC Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
MC6x12	0.57	0.640	0.970	1.290	1.930	2.570
MC6x15.1	0.67	0.636	0.953	1.271	1.907	2.542
MC6x15.3	0.62	0.644	0.966	1.287	1.931	2.575
MC6x16.3	0.71	0.609	0.913	1.217	1.826	2.434
MC6x18	0.73	0.598	0.896	1.195	1.793	2.390
MC7x19.1	0.72	0.601	0.902	1.202	1.804	2.405
MC7x22.7	0.84	0.564	0.846	1.128	1.692	2.250
MC8x8.5	0.37	0.770	1.150	1.530	2.300	3.070
MC8x18.7	0.70	0.609	0.913	1.217	1.826	2.434
MC8x20	0.74	0.598	0.896	1.195	1.793	2.390
MC8x21.4	0.75	0.598	0.896	1.195	1.793	2.390
MC8x22.8	0.79	0.580	0.870	1.160	1.740	2.320
MC9x23.9	0.75	0.598	0.896	1.195	1.793	2.390
MC9x25.4	0.78	0.580	0.870	1.160	1.740	2.320
MC10x6.5	0.83	0.564	0.846	1.128	1.692	2.250
MC10x8.4	0.33	1.625	2.313	2.688	3.063	NFT
MC10x22	0.69	0.636	0.953	1.271	1.907	2.542
MC10x25	0.77	0.598	0.896	1.195	1.793	2.390
MC10x28.5	0.83	0.564	0.846	1.128	1.692	2.250
MC10x33.6	0.96	0.500	0.805	1.073	1.610	2.147
MC10x41.1	1.15	0.478	0.717	0.956	1.433	1.911
MC12x10.6	0.36	0.767	1.151	1.534	2.301	3.068
MC12x31	0.83	0.564	0.846	1.128	1.692	2.250
MC12x35	0.93	0.537	0.805	1.073	1.61	2.147
MC12x40	1.05	0.5	0.753	1.003	1.505	2.007
MC12x45	1.17	0.478	0.717	0.956	1.433	1.911
MC12x50	1.28	0.452	0.678	0.904	1.356	1.807
MC13x31.8	0.79	0.580	0.870	1.160	1.740	2.320
MC13x35	0.86	0.5	0.841	1.122	1.682	2.243
MC13x40	0.97	0.500	0.805	1.073	1.610	2.147
MC13x50	1.19	0.473	0.71	0.946	1.42	1.893
MC18x42.7	0.85	0.5	0.836	1.115	1.673	2.231
MC18x45.8	0.91	0.5	0.809	1.079	1.619	2.158
MC18x51.9	1.02	0.512	0.768	1.024	1.536	2.048
MC18x58	1.13	0.485	0.727	0.969	1.454	1.939

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - M Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
M4x6	0.273	1.625	2.313	2.688	3.063	NFT
M5x18.9	0.654	0.636	0.953	1.271	1.907	2.542
M6x3.7	0.193	1.625	2.313	2.688	3.063	NFT
M6x4.4	0.234	1.625	2.313	2.688	3.063	NFT
M8x6.2	0.251	1.625	2.313	2.688	3.063	NFT
M8x6.5	0.265	1.625	2.313	2.688	3.063	NFT
M10x7.5	0.249	1.625	2.313	2.688	3.063	NFT
M10x8.0	0.266	1.625	2.313	2.688	3.063	NFT
M10x9.0	0.299	1.625	2.313	2.688	3.063	NFT
M12x10	0.276	1.625	2.313	2.688	3.063	NFT
M12x10.8	0.303	1.625	2.313	2.688	3.063	NFT

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - HP Shapes (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
HP8x36	0.771	0.609	0.913	1.217	1.826	2.434
HP10x42	0.72	0.601	0.902	1.202	1.804	2.405
HP10x57	0.973	0.794	1.390	2.184	3.772	4.963
HP12x53	0.75	0.598	0.896	1.195	1.793	2.390
HP12x63	0.88	0.564	0.846	1.128	1.692	2.250
HP12x74	1.03	0.500	0.768	1.024	1.536	2.048
HP12x84	1.16	0.478	0.717	0.956	1.433	1.911
HP12x89	1.23	0.464	0.697	0.929	1.393	1.858
HP12x102	1.38	0.438	0.657	0.876	1.314	1.752
HP12x117	1.56	0.406	0.609	0.812	1.218	1.624
HP14x89	1.05	0.500	0.753	1.003	1.505	2.007
HP14x102	1.2	0.467	0.7	0.933	1.4	1.866
HP14x117	1.37	0.438	0.657	0.876	1.314	1.752

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Double Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
Dbl L3/4x3/4x1/4	0.35	0.780	1.170	1.560	2.340	3.120
Dbl L1x1x1/8	0.20	1.625	2.313	2.688	3.063	NFT
Dbl L1x1x3/16	0.29	1.625	2.313	2.688	3.063	NFT
Dbl L1x1x1/4	0.37	0.770	1.150	1.530	2.300	3.070
Dbl L1-1/4x1-1/4x1/8	0.20	1.625	2.313	2.688	3.063	NFT
Dbl L1-1/4x1-1/4x3/16	0.30	1.625	2.313	2.688	3.063	NFT
Dbl L1-1/4x1-1/4x1/4	0.38	0.770	1.150	1.530	2.300	3.070
Dbl L1-1/2x1-1/2x1/8	0.20	1.625	2.313	2.688	3.063	NFT
Dbl L1-1/2x1-1/2x3/16	0.30	1.625	2.313	2.688	3.063	NFT
Dbl L1-1/2x1-1/2x1/4	0.39	0.770	1.150	1.530	2.300	3.070
Dbl L1-3/4x1-3/4x1/8	0.21	1.625	2.313	2.688	3.063	NFT
Dbl L1-3/4x1-3/4x3/16	0.30	1.625	2.313	2.688	3.063	NFT
Dbl L1-3/4x1-3/4x1/4	0.39	0.770	1.150	1.530	2.300	3.070
Dbl L2x1-1/2x3/16	0.30	1.625	2.313	2.688	3.063	NFT
Dbl L2x1-1/2x1/4	0.39	0.770	1.150	1.530	2.300	3.070
Dbl L2x2x1/8	0.21	1.625	2.313	2.688	3.063	NFT
Dbl L2x2x3/16	0.31	1.625	2.313	2.688	3.063	NFT
Dbl L2x2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L2x2x5/16	0.50	0.700	1.050	1.400	2.090	2.790
Dbl L2x2x3/8	0.59	0.660	0.980	1.310	1.970	2.630
Dbl L2-1/2x2x3/16	0.31	1.625	2.313	2.688	3.063	NFT
Dbl L2-1/2x2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L2-1/2x2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
Dbl L2-1/2x2x3/8	0.60	0.650	0.970	1.300	1.940	2.590
Dbl L2-1/2x2-1/2x3/16	0.31	1.625	2.313	2.688	3.063	NFT
Dbl L2-1/2x2-1/2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L2-1/2x2-1/2x5/16	0.50	0.700	1.050	1.400	2.090	2.790
Dbl L2-1/2x2-1/2x3/8	0.60	0.650	0.970	1.300	1.940	2.590
Dbl L2-1/2x2-1/2x1/2	0.78	0.580	0.870	1.160	1.740	2.320
Dbl L3x2x3/16	0.32	1.625	2.313	2.688	3.063	NFT
Dbl L3x2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L3x2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
Dbl L3x2x3/8	0.60	0.650	0.970	1.300	1.940	2.590
Dbl L3x2x1/2	0.78	0.580	0.870	1.160	1.740	2.320
Dbl L3x2-1/2x3/16	0.32	1.625	2.313	2.688	3.063	NFT
Dbl L3x2-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L3x2-1/2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
Dbl L3x2-1/2x3/8	0.61	0.640	0.970	1.290	1.930	2.570
Dbl L3x2-1/2x1/2	0.79	0.580	0.870	1.160	1.740	2.320
Dbl L3x3x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L3x3x5/16	0.51	0.690	1.030	1.380	2.060	2.750
Dbl L3x3x3/8	0.61	0.640	0.970	1.290	1.930	2.570

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Double Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
Dbl L3x3x7/16	0.70	0.609	0.913	1.217	1.826	2.434
Dbl L3x3x1/2	0.79	0.580	0.870	1.160	1.740	2.320
Dbl L3-1/2x2-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L3-1/2x2-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L3-1/2x2-1/2x3/8	0.61	0.640	0.970	1.290	1.930	2.570
Dbl L3-1/2x2-1/2x1/2	0.80	0.570	0.856	1.141	1.711	2.281
Dbl L3-1/2x3x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L3-1/2x3x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L3-1/2x3x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L3-1/2x3x1/2	0.78	0.580	0.870	1.160	1.740	2.320
Dbl L3-1/2x3-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L3-1/2x3-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L3-1/2x3-1/2x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L3-1/2x3-1/2x7/16	0.71	0.609	0.913	1.217	1.826	2.434
Dbl L3-1/2x3-1/2x1/2	0.80	0.570	0.856	1.141	1.711	2.281
Dbl L4x3x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L4x3x5/16	0.51	0.690	1.030	1.380	2.060	2.750
Dbl L4x3x3/8	0.61	0.640	0.970	1.290	1.930	2.570
Dbl L4x3x7/16	0.70	0.609	0.913	1.217	1.826	2.434
Dbl L4x3x1/2	0.79	0.580	0.870	1.160	1.740	2.320
Dbl L4x3x5/8	0.97	0.794	1.390	2.184	3.772	4.963
Dbl L4x3–1/2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L4x3-1/2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
Dbl L4x3-1/2x3/8	0.61	0.640	0.970	1.290	1.930	2.570
Dbl L4x3-1/2x1/2	0.79	0.580	0.870	1.160	1.740	2.320
Dbl L4x4x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L4x4x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L4x4x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L4x4x7/16	0.71	0.609	0.913	1.217	1.826	2.434
Dbl L4x4x1/2	0.80	0.570	0.856	1.141	1.711	2.281
Dbl L4x4x5/8	0.99	0.517	0.776	1.035	1.552	2.069
Dbl L4x4x3/4	1.17	0.473	0.710	0.946	1.420	1.893
Dbl L5x3x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L5x3x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L5x3x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L5x3x7/16	0.72	0.601	0.902	1.202	1.804	2.405
Dbl L5x3x1/2	0.81	0.570	0.856	1.141	1.711	2.281
Dbl L5x3-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L5x3-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L5x3-1/2x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L5x3-1/2x1/2	0.81	0.570	0.856	1.141	1.711	2.281
Dbl L5x3-1/2x5/8	1.00	0.515	0.772	1.029	1.544	2.058

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Double Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
Dbl L5x3-1/2x3/4	1.18	0.473	0.710	0.946	1.420	1.893
Dbl L5x5x1/4	0.41	0.730	1.100	1.470	2.200	2.930
Dbl L5x5x5/16	0.53	0.679	1.018	1.357	2.036	2.715
Dbl L5x5x3/8	0.63	0.636	0.953	1.271	1.907	2.542
Dbl L5x5x7/16	0.73	0.598	0.896	1.195	1.793	2.390
Dbl L5x5x1/2	0.82	0.567	0.851	1.134	1.701	2.268
Dbl L5x5x5/8	1.02	0.500	0.809	1.079	1.619	2.158
Dbl L5x5x3/4	1.20	0.467	0.700	0.933	1.400	1.866
Dbl L5x5x7/8	1.38	0.429	0.643	0.857	1.286	1.715
Dbl L6x3-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L6x3-1/2x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L6x3-1/2x1/2	0.81	0.570	0.856	1.141	1.711	2.281
Dbl L6x3-1/2x5/8	0.99	0.517	0.776	1.035	1.552	2.069
Dbl L6x4x5/16	0.52	0.683	1.025	1.367	2.050	2.733
Dbl L6x4x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L6x4x7/16	0.71	0.609	0.913	1.217	1.826	2.434
Dbl L6x4x1/2	0.81	0.570	0.856	1.141	1.711	2.281
Dbl L6x4x9/16	0.90	0.500	0.814	1.085	1.628	2.170
Dbl L6x4x5/8	1.00	0.515	0.772	1.029	1.544	2.058
Dbl L6x4x3/4	1.19	0.473	0.710	0.946	1.420	1.893
Dbl L6x4x7/8	1.37	0.436	0.654	0.872	1.308	1.744
Dbl L6x6x1/4	0.42	0.730	1.100	1.470	2.200	2.930
Dbl L6x6x5/16	0.53	0.679	1.018	1.357	2.036	2.715
Dbl L6x6x3/8	0.63	0.636	0.953	1.271	1.907	2.542
Dbl L6x6x7/16	0.73	0.598	0.896	1.195	1.793	2.390
Dbl L6x6x1/2	0.82	0.567	0.851	1.134	1.701	2.268
Dbl L6x6x9/16	0.92	0.500	0.809	1.079	1.619	2.158
Dbl L6x6x5/8	1.02	0.500	0.768	1.024	1.536	2.048
Dbl L6x6x3/4	1.21	0.467	0.700	0.933	1.400	1.866
Dbl L6x6x7/8	1.39	0.429	0.643	0.857	1.286	1.715
Dbl L6x6x1	1.58	0.395	0.592	0.790	1.184	1.579
Dbl L7x4x3/8	0.62	0.644	0.966	1.287	1.931	2.575
Dbl L7x4x7/16	0.73	0.598	0.896	1.195	1.793	2.390
Dbl L7x4x1/2	0.82	0.570	0.856	1.141	1.711	2.281
Dbl L7x4x5/8	1.01	0.515	0.772	1.029	1.544	2.058
Dbl L7x4x3/4	1.20	0.467	0.700	0.933	1.400	1.866
Dbl L8x4x7/16	0.73	0.598	0.896	1.195	1.793	2.390
Dbl L8x4x1/2	0.83	0.564	0.846	1.128	1.692	2.250
Dbl L8x4x9/16	0.93	0.500	0.805	1.073	1.610	2.147
Dbl L8x4x5/8	1.03	0.500	0.768	1.024	1.536	2.048
Dbl L8x4x3/4	1.21	0.467	0.700	0.933	1.400	1.866
Dbl L8x4x7/8	1.40	0.429	0.643	0.857	1.286	1.715

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Double Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
Dbl L8x4x1	1.58	0.395	0.592	0.790	1.184	1.579
Dbl L8x6x7/16	0.73	0.598	0.896	1.195	1.793	2.390
Dbl L8x6x1/2	0.84	0.564	0.846	1.128	1.692	2.250
Dbl L8x6x9/16	0.93	0.500	0.805	1.073	1.610	2.147
Dbl L8x6x5/8	1.03	0.500	0.768	1.024	1.536	2.048
Dbl L8x6x3/4	1.22	0.464	0.697	0.929	1.393	1.858
Dbl L8x6x7/8	1.41	0.429	0.643	0.857	1.286	1.715
Dbl L8x6x1	1.60	0.393	0.590	0.787	1.180	1.573
Dbl L8x8x1/2	0.84	0.564	0.846	1.128	1.692	2.250
Dbl L8x8x9/16	0.94	0.500	0.805	1.073	1.610	2.147
Dbl L8x8x5/8	1.04	0.512	0.768	1.024	1.536	2.048
Dbl L8x8x3/4	1.24	0.460	0.690	0.920	1.381	1.841
Dbl L8x8x7/8	1.43	0.421	0.632	0.843	1.264	1.686
Dbl L8x8x1	1.62	0.392	0.588	0.783	1.175	1.567
Dbl L8x8x1-1/8	1.80	0.371	0.557	0.743	1.114	1.485

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 hr	1.5 Hr	2 Hr	3 Hr	4 Hr
L3/4x3/4x1/4	0.35	0.780	1.170	1.560	2.340	3.120
L1x1x1/8	0.20	1.625	2.313	2.688	3.063	NFT
L1x1x3/16	0.29	1.625	2.313	2.688	3.063	NFT
L1x1x1/4	0.37	0.770	1.150	1.530	2.300	3.070
L1-1/4x1-1/4x1/8	0.20	1.625	2.313	2.688	3.063	NFT
L1-1/4x1-1/4x3/16	0.30	1.625	2.313	2.688	3.063	NFT
L1-1/4x1-1/4x1/4	0.38	0.770	1.150	1.530	2.300	3.070
L1-1/2x1-1/2x1/8	0.20	1.625	2.313	2.688	3.063	NFT
L1-1/2x1-1/2x3/16	0.30	1.625	2.313	2.688	3.063	NFT
L1-1/2x1-1/2x1/4	0.39	0.770	1.150	1.530	2.300	3.070
L1-3/4x1-3/4x1/8	0.21	1.625	2.313	2.688	3.063	NFT
L1-3/4x1-3/4x3/16	0.30	1.625	2.313	2.688	3.063	NFT
L1-3/4x1-3/4x1/4	0.39	0.770	1.150	1.530	2.300	3.070
L2x1-1/2x3/16	0.30	1.625	2.313	2.688	3.063	NFT
L2x1-1/2x1/4	0.39	0.770	1.150	1.530	2.300	3.070
L2x2x1/8	0.21	1.625	2.313	2.688	3.063	NFT
L2x2x3/16	0.31	1.625	2.313	2.688	3.063	NFT
L2x2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L2x2x5/16	0.50	0.700	1.050	1.400	2.090	2.790
L2x2x3/8	0.59	0.660	0.980	1.310	1.970	2.630
L2-1/2x2x3/16	0.31	1.625	2.313	2.688	3.063	NFT
L2-1/2x2x1/4	0.41	0.740	1.110	1.480	2.220	2.960
L2-1/2x2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
L2-1/2x2x3/8	0.60	0.650	0.970	1.300	1.940	2.590
L2-1/2x2-1/2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L2-1/2x2-1/2x5/16	0.50	0.700	1.050	1.400	2.090	2.790
L2-1/2x2-1/2x3/8	0.60	0.650	0.970	1.300	1.940	2.590
L2-1/2x2-1/2x1/2	0.78	0.580	0.870	1.160	1.740	2.320
L3x2x3/16	0.32	1.625	2.313	2.688	3.063	NFT
L3x2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L3x2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
L3x2x3/8	0.60	0.650	0.970	1.300	1.940	2.590
L3x2x1/2	0.78	0.580	0.870	1.160	1.740	2.320
L3x2-1/2x3/16	0.32	1.625	2.313	2.688	3.063	NFT
L3x2-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L3x2-1/2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
L3x2-1/2x3/8	0.61	0.640	0.970	1.290	1.930	2.570
L3x2-1/2x1/2	0.79	0.580	0.870	1.160	1.740	2.320
L3x3x3/16	0.31	1.625	2.313	2.688	3.063	NFT
L3x3x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L3x3x5/16	0.51	0.690	1.030	1.380	2.060	2.750
L3x3x3/8	0.61	0.640	0.970	1.290	1.930	2.570

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 hr	1.5 Hr	2 Hr	3 Hr	4 Hr
L3x3x7/16	0.70	0.609	0.913	1.217	1.826	2.434
L3x3x1/2	0.79	0.580	0.870	1.160	1.740	2.320
L3-1/2x2-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L3-1/2x2-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L3-1/2x2-1/2x3/8	0.61	0.640	0.970	1.290	1.930	2.570
L3-1/2x2-1/2x1/2	0.80	0.570	0.856	1.141	1.711	2.281
L3-1/2x3x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L3-1/2x3x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L3-1/2x3x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L3-1/2x3x1/2	0.81	0.570	0.856	1.141	1.711	2.281
L3-1/2x3-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L3-1/2x3-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L3-1/2x3-1/2x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L3-1/2x3-1/2x7/16	0.71	0.609	0.913	1.217	1.826	2.434
L3-1/2x3-1/2x1/2	0.80	0.570	0.856	1.141	1.711	2.281
L4x3x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L4x3x5/16	0.51	0.690	1.030	1.380	2.060	2.750
L4x3x3/8	0.61	0.640	0.970	1.290	1.930	2.570
L4x3x7/16	0.70	0.609	0.913	1.217	1.826	2.434
L4x3x1/2	0.79	0.580	0.870	1.160	1.740	2.320
L4x3x5/8	0.97	0.794	1.390	2.184	3.772	4.963
L4x3–1/2x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L4x3-1/2x5/16	0.51	0.690	1.030	1.380	2.060	2.750
L4x3-1/2x3/8	0.61	0.640	0.970	1.290	1.930	2.570
L4x3-1/2x1/2	0.79	0.580	0.870	1.160	1.740	2.320
L4x4x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L4x4x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L4x4x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L4x4x7/16	0.71	0.609	0.913	1.217	1.826	2.434
L4x4x1/2	0.80	0.570	0.856	1.141	1.711	2.281
L4x4x5/8	0.99	0.517	0.776	1.035	1.552	2.069
L4x4x3/4	1.17	0.473	0.710	0.946	1.420	1.893
L5x3x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L5x3x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L5x3x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L5x3x7/16	0.72	0.601	0.902	1.202	1.804	2.405
L5x3x1/2	0.81	0.570	0.856	1.141	1.711	2.281
L5x3-1/2x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L5x3-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L5x3-1/2x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L5x3-1/2x1/2	0.81	0.570	0.856	1.141	1.711	2.281
L5x3-1/2x5/8	1.00	0.515	0.772	1.029	1.544	2.058

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 hr	1.5 Hr	2 Hr	3 Hr	4 Hr
L5x3-1/2x3/4	1.18	0.473	0.710	0.946	1.420	1.893
L5x5x1/4	0.41	0.730	1.100	1.470	2.200	2.930
L5x5x5/16	0.53	0.679	1.018	1.357	2.036	2.715
L5x5x3/8	0.63	0.636	0.953	1.271	1.907	2.542
L5x5x7/16	0.73	0.598	0.896	1.195	1.793	2.390
L5x5x1/2	0.82	0.567	0.851	1.134	1.701	2.268
L5x5x5/8	1.02	0.500	0.809	1.079	1.619	2.158
L5x5x3/4	1.20	0.467	0.700	0.933	1.400	1.866
L5x5x7/8	1.38	0.429	0.643	0.857	1.286	1.715
L6x3-1/2x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L6x3-1/2x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L6x3-1/2x1/2	0.81	0.570	0.856	1.141	1.711	2.281
L6x3-1/2x5/8	0.99	0.517	0.776	1.035	1.552	2.069
L6x4x5/16	0.52	0.683	1.025	1.367	2.050	2.733
L6x4x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L6x4x7/16	0.71	0.609	0.913	1.217	1.826	2.434
L6x4x1/2	0.81	0.570	0.856	1.141	1.711	2.281
L6x4x9/16	0.90	0.500	0.814	1.085	1.628	2.170
L6x4x5/8	1.00	0.515	0.772	1.029	1.544	2.058
L6x4x3/4	1.19	0.473	0.710	0.946	1.420	1.893
L6x4x7/8	1.37	0.436	0.654	0.872	1.308	1.744
L6x6x1/4	0.42	0.730	1.100	1.470	2.200	2.930
L6x6x5/16	0.53	0.679	1.018	1.357	2.036	2.715
L6x6x3/8	0.63	0.636	0.953	1.271	1.907	2.542
L6x6x7/16	0.73	0.598	0.896	1.195	1.793	2.390
L6x6x1/2	0.82	0.567	0.851	1.134	1.701	2.268
L6x6x9/16	0.92	0.500	0.809	1.079	1.619	2.158
L6x6x5/8	1.02	0.500	0.768	1.024	1.536	2.048
L6x6x3/4	1.21	0.467	0.700	0.933	1.400	1.866
L6x6x7/8	1.39	0.429	0.643	0.857	1.286	1.715
L6x6x1	1.58	0.395	0.592	0.790	1.184	1.579
L7x4x3/8	0.62	0.644	0.966	1.287	1.931	2.575
L7x4x7/16	0.73	0.598	0.896	1.195	1.793	2.390
L7x4x1/2	0.82	0.570	0.856	1.141	1.711	2.281
L7x4x5/8	1.01	0.515	0.772	1.029	1.544	2.058
L7x4x3/4	1.20	0.467	0.700	0.933	1.400	1.866
L8x4x7/16	0.73	0.598	0.896	1.195	1.793	2.390
L8x4x1/2	0.83	0.564	0.846	1.128	1.692	2.250
L8x4x9/16	0.93	0.500	0.805	1.073	1.610	2.147
L8x4x5/8	1.03	0.500	0.768	1.024	1.536	2.048
L8x4x3/4	1.21	0.467	0.700	0.933	1.400	1.866
L8x4x7/8	1.40	0.429	0.643	0.857	1.286	1.715

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - Angles (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 hr	1.5 Hr	2 Hr	3 Hr	4 Hr
L8x4x1	1.58	0.395	0.592	0.790	1.184	1.579
L8x6x7/16	0.73	0.598	0.896	1.195	1.793	2.390
L8x6x1/2	0.84	0.564	0.846	1.128	1.692	2.250
L8x6x9/16	0.93	0.500	0.805	1.073	1.610	2.147
L8x6x5/8	1.03	0.500	0.768	1.024	1.536	2.048
L8x6x3/4	1.22	0.464	0.697	0.929	1.393	1.858
L8x6x7/8	1.41	0.429	0.643	0.857	1.286	1.715
L8x6x1	1.60	0.393	0.590	0.787	1.180	1.573
L8x8x1/2	0.84	0.564	0.846	1.128	1.692	2.250
L8x8x9/16	0.94	0.500	0.805	1.073	1.610	2.147
L8x8x5/8	1.04	0.512	0.768	1.024	1.536	2.048
L8x8x3/4	1.24	0.460	0.690	0.920	1.381	1.841
L8x8x7/8	1.43	0.421	0.632	0.843	1.264	1.686
L8x8x1	1.62	0.392	0.588	0.783	1.175	1.567
L8x8x1-1/8	1.80	0.371	0.557	0.743	1.114	1.485

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Miscellaneous Steel Sizes - C Channels (Based on UL Y725 & UL U703 Fire Safing Thickness)

Minimum Thickness, in., Required for Size and Rating Indicated

Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
C3x4.1	0.37	0.779	1.169	1.558	2.337	3.116
C3x5	0.44	0.723	1.084	1.446	2.168	2.891
C3x6	0.51	0.688	1.032	1.376	2.064	2.752
C4x5.4	0.40	0.779	1.169	1.558	2.337	3.116
C4x6.25	0.45	0.723	1.084	1.446	2.168	2.891
C4x7.25	0.51	0.688	1.032	1.376	2.064	2.752
C5x6.7	0.41	0.739	1.108	1.478	2.216	2.955
C5x9	0.54	0.674	1.011	1.348	2.022	2.696
C6x8.2	0.43	0.733	1.1	1.467	2.2	2.934
C6x10.5	0.54	0.674	1.011	1.348	2.022	2.696
C6x13	0.66	0.624	0.936	1.247	1.871	2.495
C7x11.5	0.46	0.723	1.084	1.446	2.168	2.891
C7x12.25	0.56	0.665	0.998	1.33	1.995	2.661
C7x14.75	0.68	0.616	0.924	1.232	1.848	2.464
C8x11.5	0.48	0.702	1.054	1.405	2.107	2.81
C8x13.75	0.56	0.665	0.998	1.33	1.995	2.661
C8x18.75	0.75	0.591	0.886	1.181	1.772	2.362
C9x13.4	0.50	0.698	1.046	1.395	2.093	2.79
C9x15	0.56	0.665	0.998	1.33	1.995	2.661
C9x20	0.73	0.598	0.896	1.195	1.793	2.39
C10x15.3	0.52	0.683	1.025	1.367	2.05	2.733
C10x20	0.67	0.62	0.93	1.24	1.859	2.479
C10x25	0.82	0.57	0.856	1.141	1.711	2.281
C10x30	0.97	0.537	0.805	1.073	1.61	2.147
C12x20.7	0.60	0.648	0.972	1.296	1.944	2.592
C12x25	0.71	0.609	0.913	1.217	1.826	2.434
C12x30	0.85	0.5	0.836	1.115	1.673	2.231
C15x33.9	0.80	0.584	0.875	1.167	1.751	2.335
C15x40	0.94	0.5	0.805	1.073	1.61	2.147
C15x50	1.15	0.478	0.717	0.956	1.433	1.911