

PROPER APPLICATION OF STEEL BEAM LOAD RESTRICTION FACTORS TO UL DESIGNS

AS AN UPDATE to the “UL Design Considerations” article (October 2015, available at www.modernsteel.com), following is the latest from Underwriters Laboratories. This and subsequent information will continue to be available at www.aisc.org/ULclarity.

Underwriters Laboratories (UL), the American Iron and Steel Institute (AISI) and the American Institute of Steel Construction (AISC) have been collaborating to provide answers and solutions to questions that have been raised about the need for load restriction factors with UL Designs. We have identi-

ed a number of clarifications and updates that will be made in UL Guide BXUV, as well as in UL Designs themselves. We jointly offer the following summary so that the information is known and can be used now, while UL updates their documents.

Recent testing conducted by UL for AISI and AISC provides for the following conclusions related to application of load restriction factors to UL Designs for steel beams in US practice:

1. Load restriction factors for steel beams need not be applied to any UL Design that is based upon strength calculated using the 2005 or 2010 AISC Specification. Table 1 below shows the UL (and ULC) Designs that meet this condition.

2. Load restriction factors for steel beams need not be applied to any other UL Design if an unrestrained beam rating is used. Unrestrained beam ratings are determined using a limiting temperature criterion of 1,100 °F and a load mainte-

The Load Restricted Factor should be applied to the factored resistance of all structural members or components, including, but not limited to, factored moment resistance (M_r), factored shear resistance (V_r), factored tensile resistance (T_r) and factored compressive resistance (C_r).

The engineer of record should be consulted whenever re-resistive assemblies with Load Restricted Factors are selected. The indicated load reductions are based upon factored load effects that are governed by the reduced factored resistance of the structural elements. The selection of structural elements is, at times, based upon service limits, such as deflection and vibration. These factors and others, such as the change in material strength properties as a function of temperature, should be considered when selecting re-resistive assemblies with Load Restricted ratings.

Unless stated in a design, it is recommended the Load Restricted Factors in Table 2 be used.

Assemblies developed from tests where the load applied on the sample was based upon calculations in accordance with the Load and Resistance Factor Design are identified in the individual certifications. These assemblies shall not be considered "Load Restricted." ■

Table 2

Type of Assembly	Percent Load Reduction (LRFD-ASD) / LRFD	Load Restricted Factor
	0%	
	0%	
	0%	
	0%	
	0%	
	0%	
	0%	
	0%	