

Tables 6-1 and 6-2 shown below are example LRFD and ASD schedules that often control. Please note that although multiple load category considerations are shown in a single tabulated line such as (L_r or S) or (W or $0.70E$), this is simply to show potentially controlling conditions. In specifying joist loads for a real project, the Specifying Professional must either determine which of these is controlling, and display only one, or else must display both as separate potentially controlling load combinations to be investigated by the joist manufacturer. For load combinations which include wind or seismic, it may be necessary to break these down further into separate load combinations considering different directions of lateral loading. End moments are affected by the amount of the dead load to be resisted in the moment frame. Consequently, timing of the bottom chord to column stabilizer plate weld can affect the magnitude of the moments in the SLRS. If the end moments in Tables 6-1 and 6-2 are calculated with less than 100% of the dead load applied, a note stating when this weld is to be made is required.

Table 6-1 LRFD Load Combination Schedule for Joist Girder

Mark: G1	Girder Designation: 48G8NSP			→ ← +		Remarks
	Panel Load (kips)	Left End Moment (kip-ft.)	Right End Moment (kip-ft.)	TC Force (kips)	BC Force (kips)	
LRFD Load Combination:						
1.4D + 1.4C						
1.2D + 1.2C + 1.6(L_r or S)						
1.2D + 1.2C + 1.6W + 0.5(L_r or S)						
1.2D + 1.2C + 1.0E + 0.2S						
(1.2 + 0.2 S_{DS}) (D+C) + ρQ_E + 0.2S						
0.9D + 1.6W						

Table 6-2 ASD Load Combination Schedule for Joist Girder

Mark: G1	Girder Designation: 48G8NSP			→ ← +		Remarks
	Panel Load (kips)	Left End Moment (kip-ft.)	Right End Moment (kip-ft.)	TC Force (kips)	BC Force (kips)	
ASD Load Combination:						
D + C						
D + C + (L_r or S)						
D + C + 0.75(W + (L_r or S))						
D + C + (W or 0.7E)						
D + C + 0.75(W or 0.7E) + 0.75(L_r or S)						
0.6D + W						

Presentation of Loads:

Although useful for comparison and verification purposes, the Panel Load field, shown in Tables 6-1 and 6-2 for each load combination, is only applicable to very simple loading conditions with equal loads equally spaced. In general, externally applied loads for lateral load resisting joists are more clearly communicated by specifying design loads by category and allowing the joist manufacturer to appropriately sum the loads per the specified load combinations.

There are many instances where the Joist Girder loads are not uniformly spaced, or where the loads along the length of the Joist Girder are not equal. The Specifying Professional can indicate these loads in various ways. One method is to use a load diagram and load schedule as shown in Table 6-3. This method has the advantage of presenting loads very clearly and concisely for each girder and works very well for projects with design loads that are well defined early in the project and unlikely to change. The primary disadvantage of this method is the difficulty of revising load diagrams for changes to design loads late in the project, or managing loads for which final magnitudes and locations may not be determined until late in the project (such as roof mechanical equipment or sprinkler mains). These types of late load revisions can become quite cumbersome on projects with complex loading, requiring numerous different Joist Girders with different design load criteria.

Table 6-3 Joist Girder Load Schedule

Mark: G1	Girder Designation: 48G8NSP			↓ P1 ↓ P2 ↓ P3 ↓ P4 ↓ P5 ↓ P6 ↓ P7 ↓ P8 ↓ P9					
	P1 (kips)	P2 (kips)	P3 (kips)	P4 (kips)	P5 (kips)	P6 (kips)	P7 (kips)	P8 (kips)	P9 (kips)
Load Category:									
Dead Load (D)									
Collateral Load (C)									
Roof Live Load (L_r)									
Snow Load (S)									
Wind Load (W) (Windward)									
Wind Load (W) (Leeward)									

For projects with more complex loading, it may be easier to simply specify the base loads for each load category in psf, then show additional loads either on the roof/floor framing plan, on key plans (such as wind pressure plan diagrams and snow drift plan diagrams), or include in notes and diagrams keyed to the roof/floor framing plan.