



WSDOT WIDE FLANGE (WF) GIRDER SERIES SPAN CAPABILITY CHARTS

DESIGN CRITERIA

1.) Charts are based on the following:

AASHTO LRFD Bridge Design Specifications, 4th Edition
WSDOT Bridge Design Manual, M 23-50, February, 2007
PGSuper V2.0.7 - Built April 21, 2008

2.) Dead Load (DC):

- ⇒ Girder + Haunch + Main Slab
- + 32" F-Shape Traffic Barrier
- + Intermediate Diaphragms per B.D.M.

Superimposed Dead Load (DW):

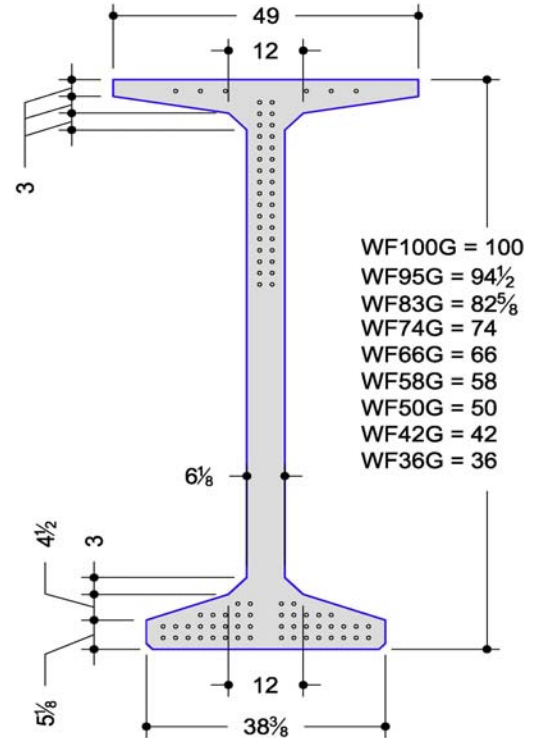
- ⇒ 2" Thick Future Asphalt Overlay

Live Load (LL):

- ⇒ HL-93 with 33% impact on the truck portion only

3.) Loading Combinations

Flexure =	Strength I	Bridge Site Stage 3
Shear =	Strength I	Bridge Site Stage 3
Stresses =	Service I	Casting Yard Stage (Release)
	Service I	Temporary Strand Removal
	Service I	Bridge Site Stage 1
	Service I	Bridge Site Stage 2
	Service I	Bridge Site Stage 3
	Service IA	Bridge Site Stage 3
	Service III	Bridge Site Stage 3



4.) Live Load Distribution

Moment = LRFD 4.6.2.2.2b-1 (Interior Girder, type "k" cross section)

Shear = LRFD 4.6.2.2.3a-1 (Interior Girder, type "k" cross section)

5.) Main Slab Thickness for Girder Spacing < 12 ft

7 1/2" thick total deck with 1/2" sacrificial depth

($t_{deck} = 7"$ for strength and section properties)

($t_{deck} = 7 1/2"$ for dead load)

Main Slab Thickness for Girder Spacing ≥ 12 ft

8" thick total deck with 1/2" sacrificial depth

($t_{deck} = 7 1/2"$ for strength and section properties)

($t_{deck} = 8"$ for dead load)

6.) Concrete

Girder f'_c = Variable ksi, $w_c = 155$ pcf for section properties, 160 pcf for weight calculations

Girder f'_{ci} = Variable ksi

Deck $f'_c = 4.0$ ksi, $w_c = 155$ pcf for section properties, 160 pcf for weight calculations

7.) Reinforcement

Strand = 0.6" diameter, 270 ksi, 7-wire, low-relaxation

$f_{pj} = 202.5$ ksi

$E_{ps} = 28,500$ ksi

Rebar = Grade 60

$E_s = 28,900$ ksi

8.) Prestress Losses

Refined Estimate per WSDOT Bridge Design Manual