

## PRESTRESSED GIRDER PROPERTIES

### GIRDER W/CAST-IN-PLACE DECK

Section Properties and maximum span length curves for the AASHTO, Bulb Tee, and Wide Flange girders are included in this Article.

The maximum span length curves should only be used as an aid in preliminary design. The curves are based on the following design parameters:

- AASHTO LRFD Design Specifications
- Simple Span lengths are centerline-centerline bearing
- 42'-0" out-out bridge width
- Girder spacing is for 4,5,6,& 7 girders (6'-0"; 7'-3"; 9'-3"; 12'-0")
- Concrete parapet
- Slab  $f'c = 4.0$  ksi
- Future wearing surface = 28 psf
- HL93 live load
- Harp points at 0.4 & 0.6 points
- Deck thickness determined by  $(S+10)/30$  where S is computed in accordance with Article 9.7.2.3
- Minimum 8" nominal deck slab thickness. Structural deck thickness is 0.5" less than the nominal thickness
- Maximum number of 0.6" dia. 270k strand = 62
- The maximum number of straight strand for each girder is:

AASHTO Type 2	16 straight
AASHTO Type 3	34 straight
AASHTO Type 4	48 straight
Bulb Tee Girder	24 straight
WF Girders	46 straight

### DECK BULB TEE GIRDER W/ASPHALT OVERLAY

Section Properties and maximum span length curves for the Bulb Tee girders with an 8" thick top flange are included in this Article.

The maximum span length curves should only be used as an aid in preliminary design. The curves are based on the following design parameters:

- AASHTO LRFD Design Specifications
- Simple Span lengths are centerline-centerline bearing
- 42'-0" out-out bridge width
- Girder spacing is for 6, 7, & 8 girders (84", 72" & 63" top flange width)
- Concrete parapet
- Slab  $f'c = 4.0$  ksi
- Future wearing surface = 28 psf
- HL93 live load
- Harp points at 0.4 & 0.6 points

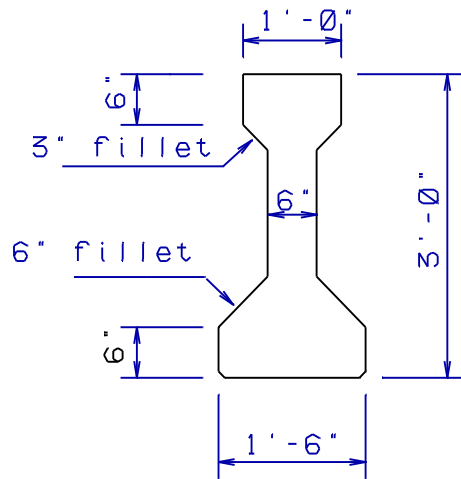
**Revisions:**  
July 2009

- Added design parameters on page 1
- Added WSDOT WF girder data
- Added Deck Bulb Tee Girder maximum span curves

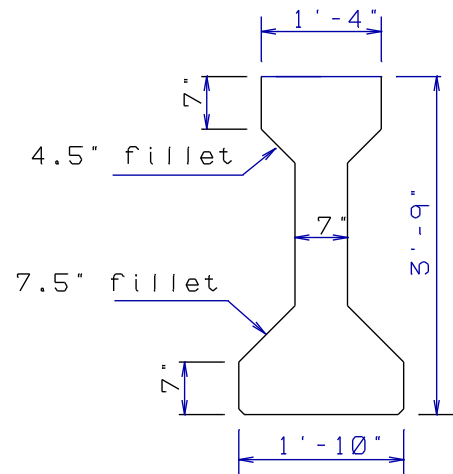
**AASHTO GIRDER SECTION PROPERTIES**

DEPTH	AREA	CENTER OF GRAVITY		MOMENT OF INERTIA	SECTION MODULUS		WEIGHT LB/FT
		TOP	BOTTOM		TOP	BOTTOM	
36"	368.44	20.147	15.853	50,842	2524	3207	384
45"	558.94	24.706	20.294	125,165	5066	6168	582
54"	788.44	29.249	24.751	260,403	8903	10,521	821

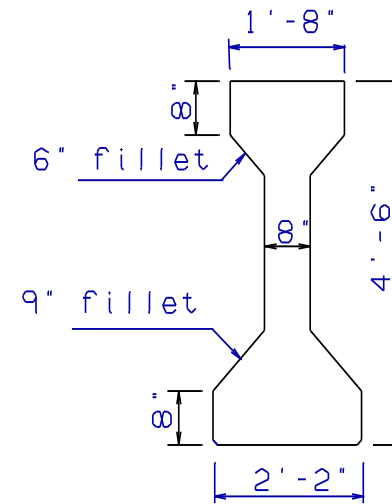
*ALL UNITS IN INCHES EXCEPT WEIGHT*



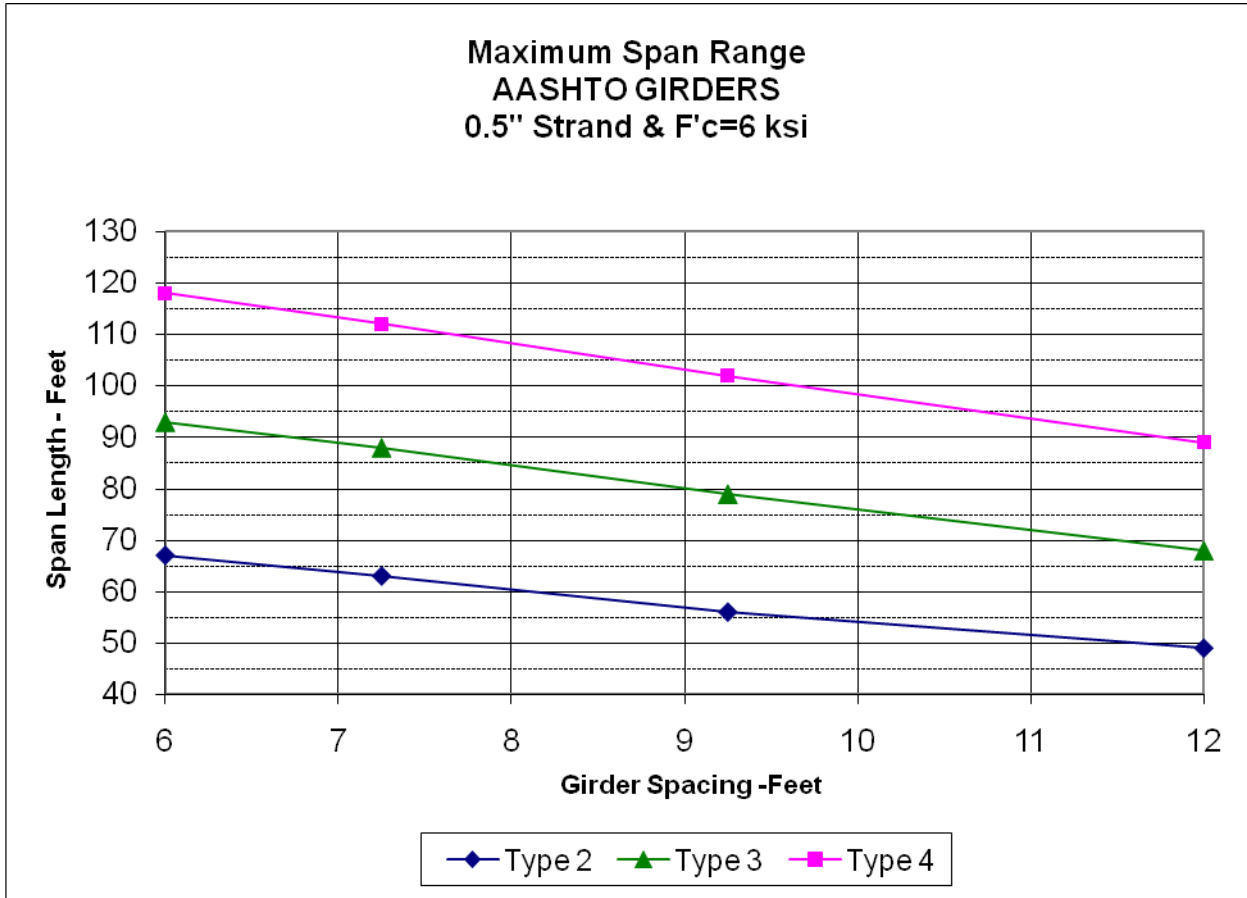
TYPE 2 GIRDER

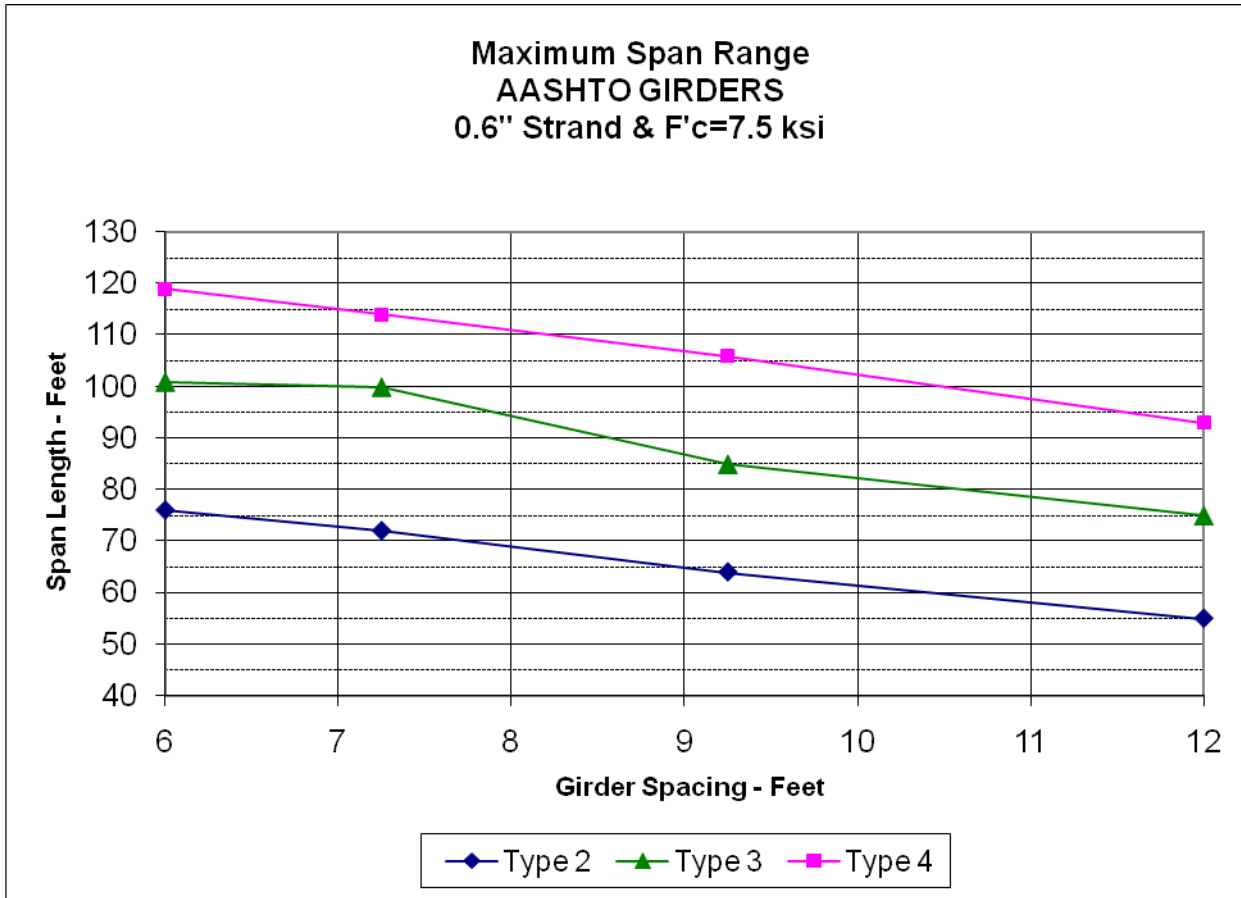


TYPE 3 GIRDER



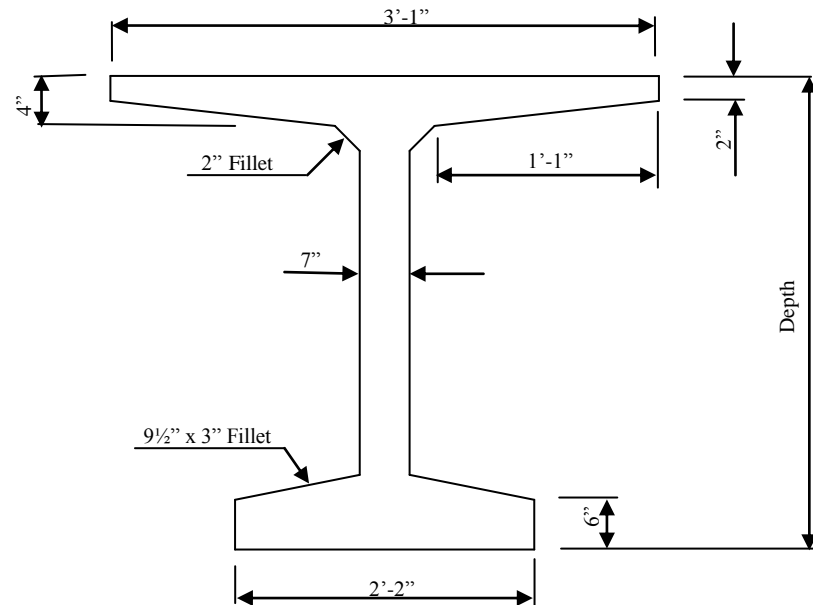
TYPE 4 GIRDER

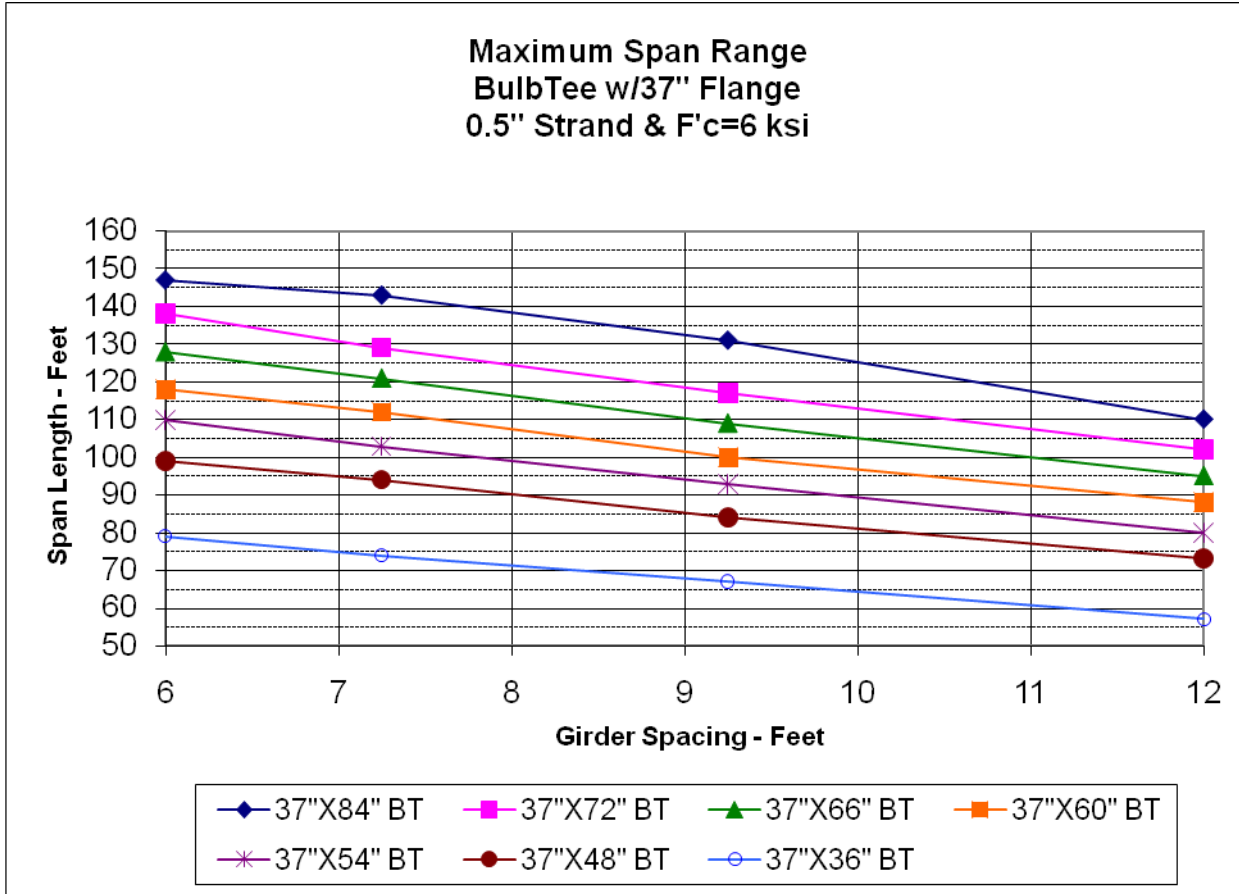


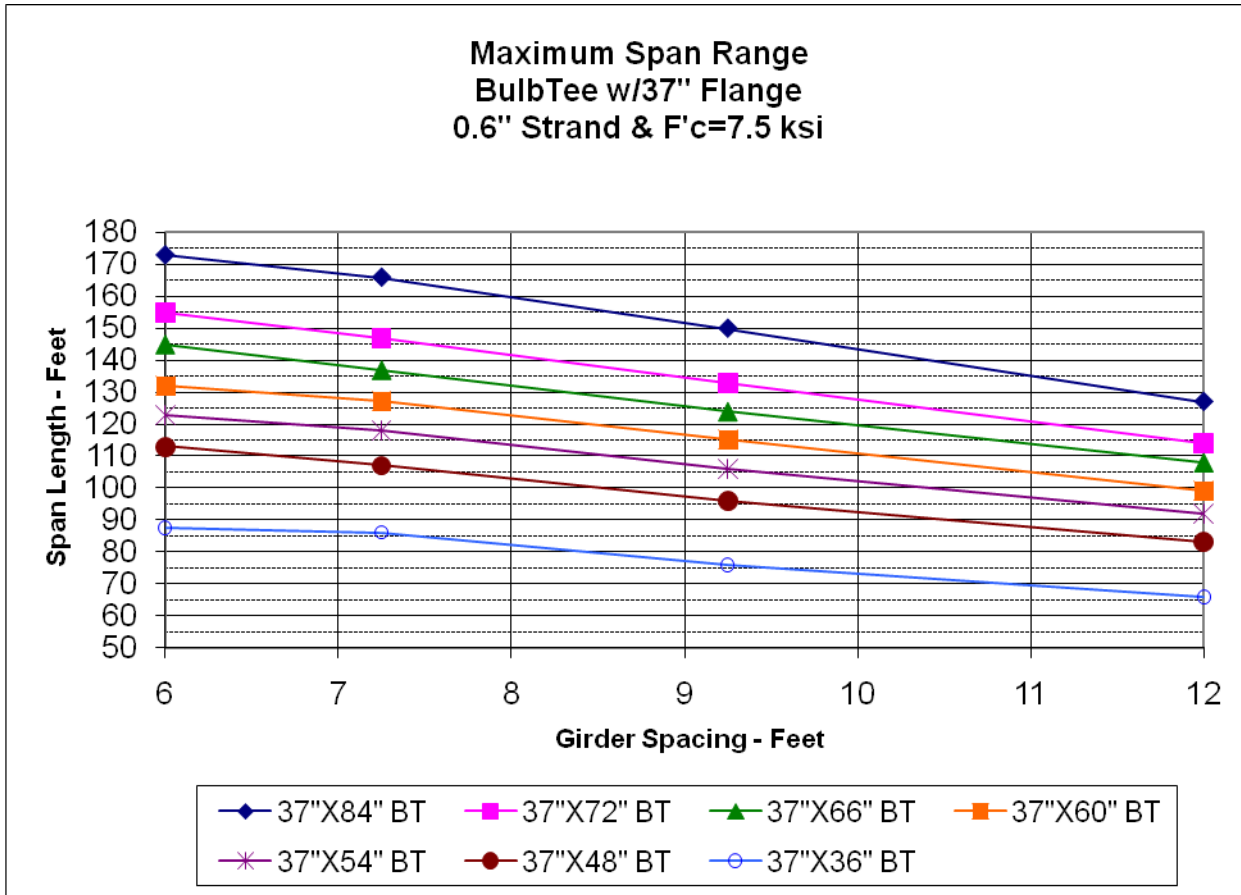


**37" TOP FLANGE BULB TEE GIRDER SECTION PROPERTIES**

DEPTH	AREA	CENTER OF GRAVITY		MOMENT OF INERTIA	SECTION MODULUS		WEIGHT LB/FT
		TOP	BOTTOM		TOP	BOTTOM	
30"	449.9375	15.644	14.356	51,361	3,283	3,578	469
36"	491.9375	18.857	17.143	82,126	4,355	4,791	512
42"	533.9375	22.036	19.964	121,708	5,523	6,096	556
48"	575.9375	25.190	22.810	170,872	6,783	7,491	600
54"	617.9375	28.322	25.678	230,379	8,134	8,972	644
60"	659.9375	31.438	28.562	300,990	9,574	10,538	687
66"	701.9375	34.539	31.461	383,465	11,102	12,189	731
72"	743.9375	37.630	34.370	478,562	12,718	13,924	775
84"	827.9375	43.783	40.217	709,652	16,208	17,645	862

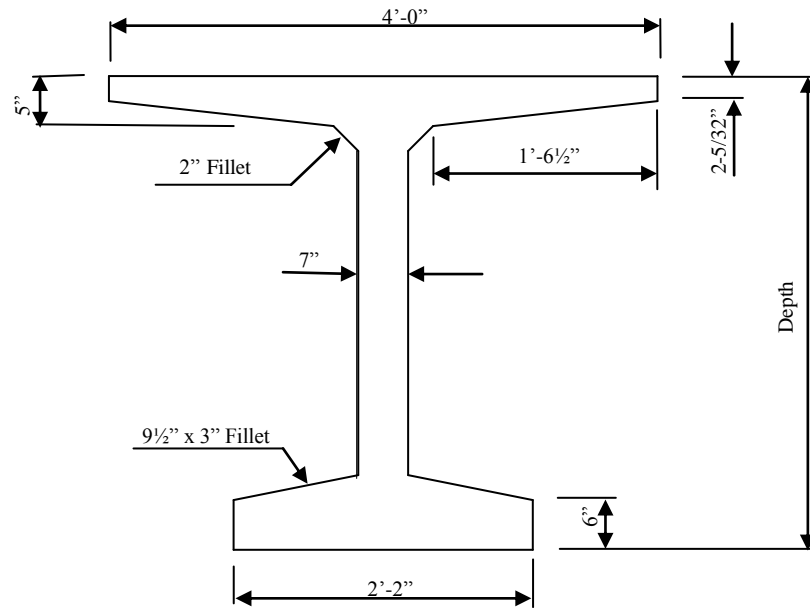


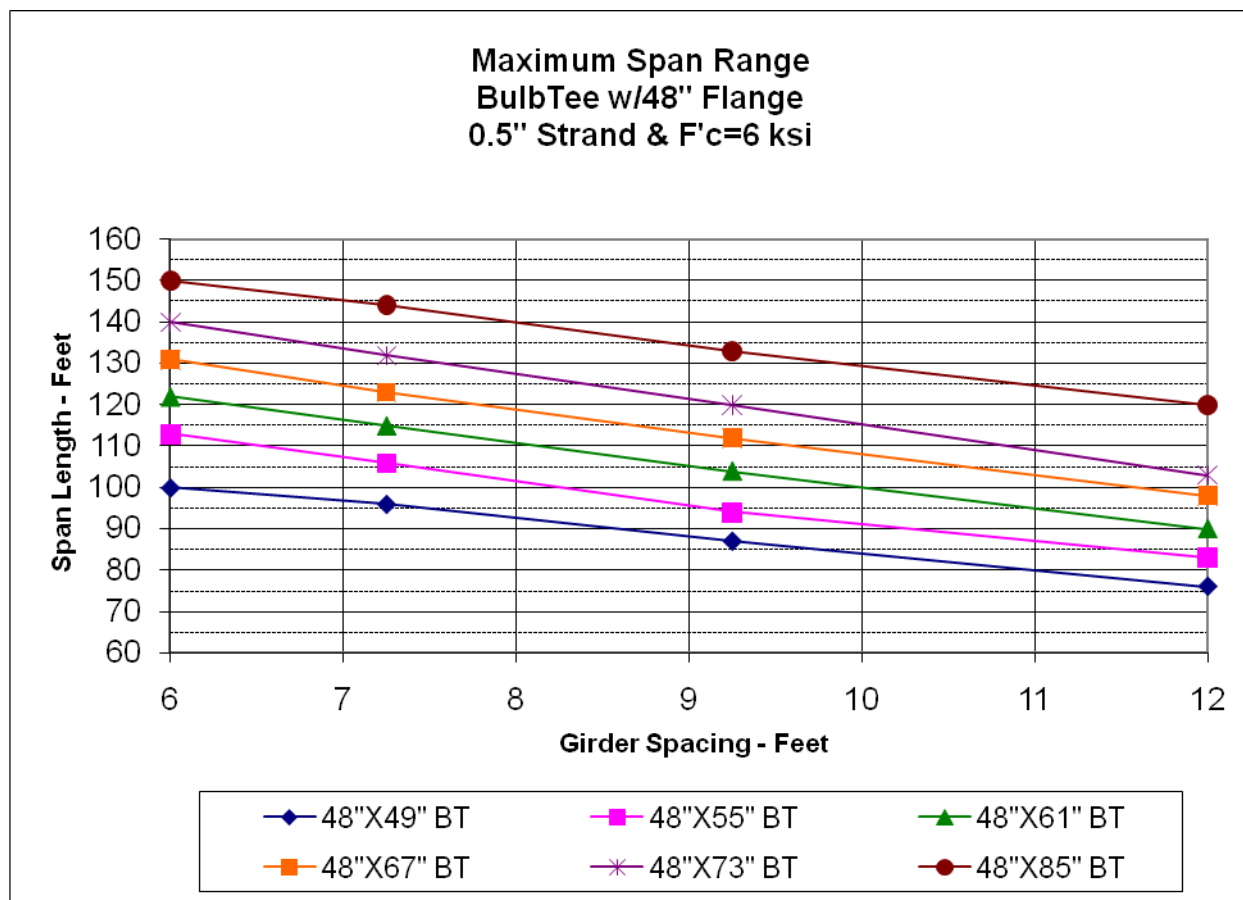


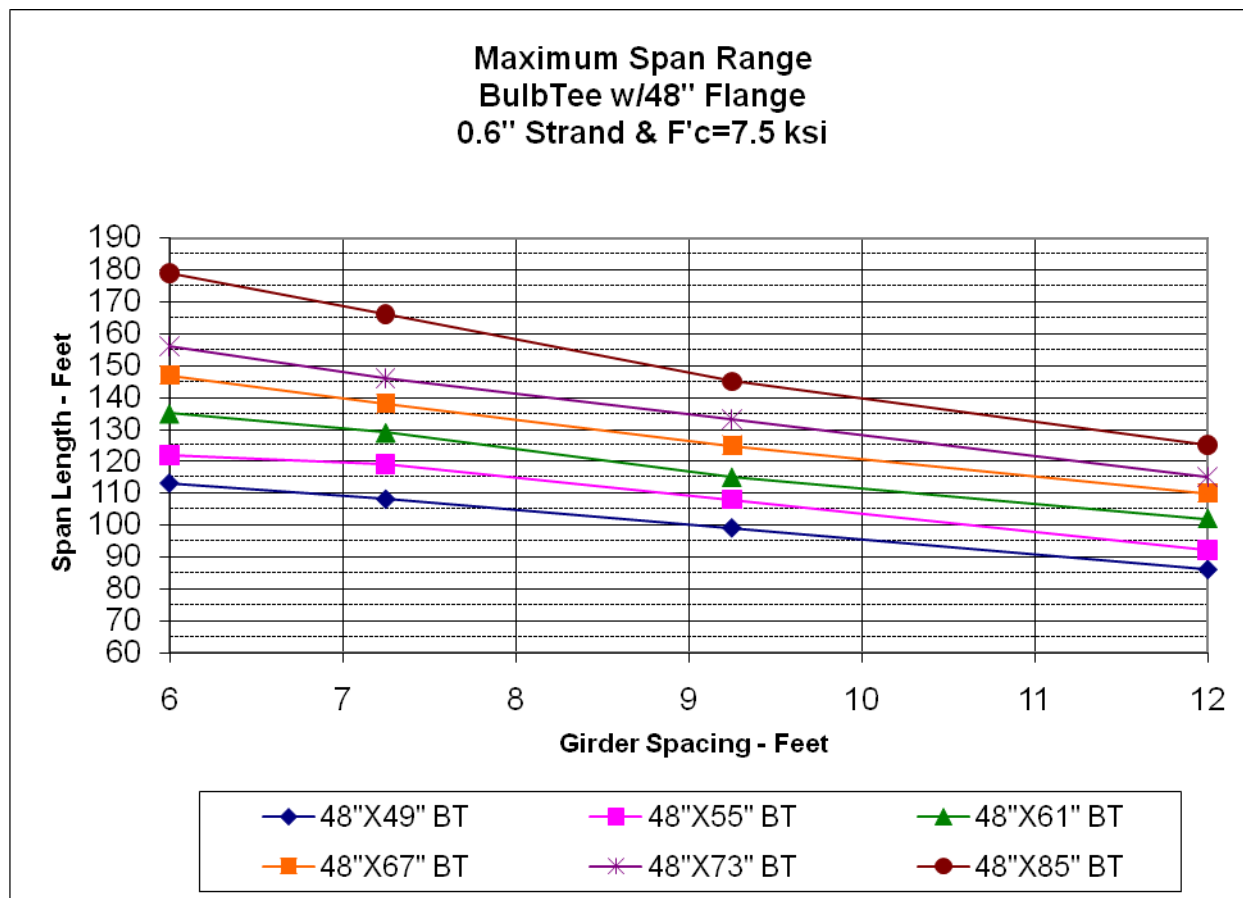


**48" TOP FLANGE BULB TEE GIRDER SECTION PROPERTIES**

DEPTH	AREA	CENTER OF GRAVITY			SECTION MODULUS		WEIGHT LB/FT
		TOP	BOTTOM	MOMENT OF INERTIA	TOP	BOTTOM	
49"	641.284	23.607	25.393	208,593	8,836	8,215	668
55"	683.284	26.600	28.400	278,326	10,464	9,800	712
61"	725.284	29.591	31.409	360,358	12,178	11,473	756
67"	767.284	32.585	34.415	455,445	13,977	13,234	799
73"	809.284	35.579	37.421	564,342	15,862	15,081	843
85"	893.284	41.569	43.431	826,595	19,885	19,032	931







**WF GIRDER SECTION PROPERTIES**

DEPTH	AREA	CENTER OF GRAVITY			SECTION MODULUS		WEIGHT LB/FT
		TOP	BOTTOM	MOMENT OF INERTIA	TOP	BOTTOM	
42"	727.531	21.640	20.360	183,642	8,486	9,020	758
50"	776.531	25.849	21.151	282,559	10,931	11,700	809
58"	825.531	30.033	27.967	406,266	13,527	14,527	860
66"	874.531	34.196	31.804	556,339	16,269	17,493	911
74"	923.531	38.343	35.657	734,356	19,152	20,595	962
82.625"	976.359	42.796	39.829	959,393	22,418	24,088	1017

