

## **Attachment L. Plots of Change in Prestress**

This attachment presents all of the plots of calculated and measured prestress loss for the full size and lab cast beams. For each beam a table is presented with the input parameters needed to perform the loss calculations,

**Table L.1 - T2.8.Typ**

<b>Beam Properties</b>		<b>Slab Properties</b>	
Area	369 in <sup>2</sup>	Area	672 in.
Perimeter	113 in.	Width x Depth	84 in. x 8 in.
Moment of inertia	50980 in <sup>4</sup>	Moment of inertia	3584 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	15.83 in.	Centroid of slab (measured from bottom of beam)	41 in.
Unit weight of concrete	118.4 lb/cf	Unit weight of concrete	118.4 lb/cf
Self Weight per unit length	303.4 lb/ft	Self Weight per unit length	552.5 lb/cf
Age of concrete at release	2 days		
Concrete strength at release	7380 psi	Concrete Strength at 7 days	3410 psi
Concrete modulus at release	3590 ksi	Concrete Modulus at 7 days	2743 ksi
Concrete strength at 28 days	8150 psi	Concrete strength at 28 days	4700 psi
Concrete modulus at 28 days	3585 ksi	Concrete modulus at 28 days	2974 ksi
Jacking Force (not measured)	744 kips		
Strand eccentricity relative to gross cross-section (at mid-span)	9.58 in.		
Area of prestress	3.672 in <sup>2</sup>		
Modulus of prestress	28500 ksi		
Beam length	41 ft		
Span Length	40 ft		
Age of concrete at deck placement	50 days		
Age of concrete at testing	110 days	Age of concrete at testing	60
Relative Humidity	70%		

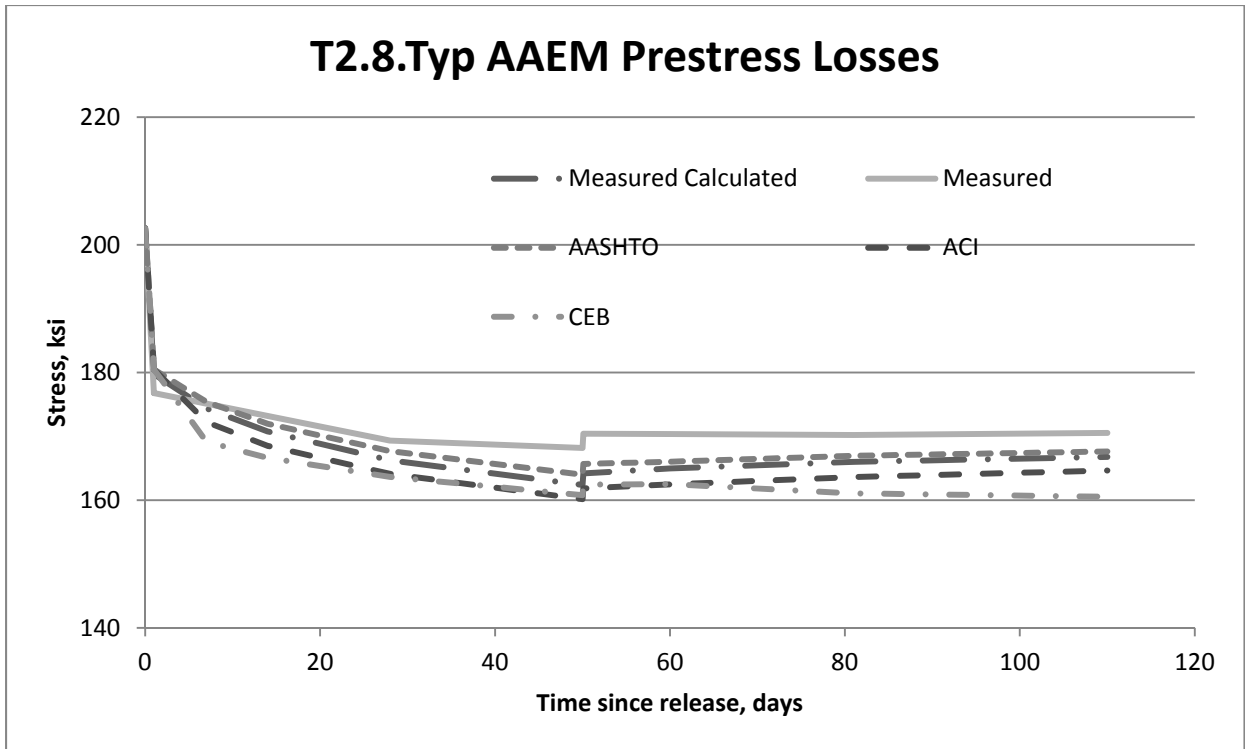


Figure L.1 T2.8.Typ AAEM Prestress Losses

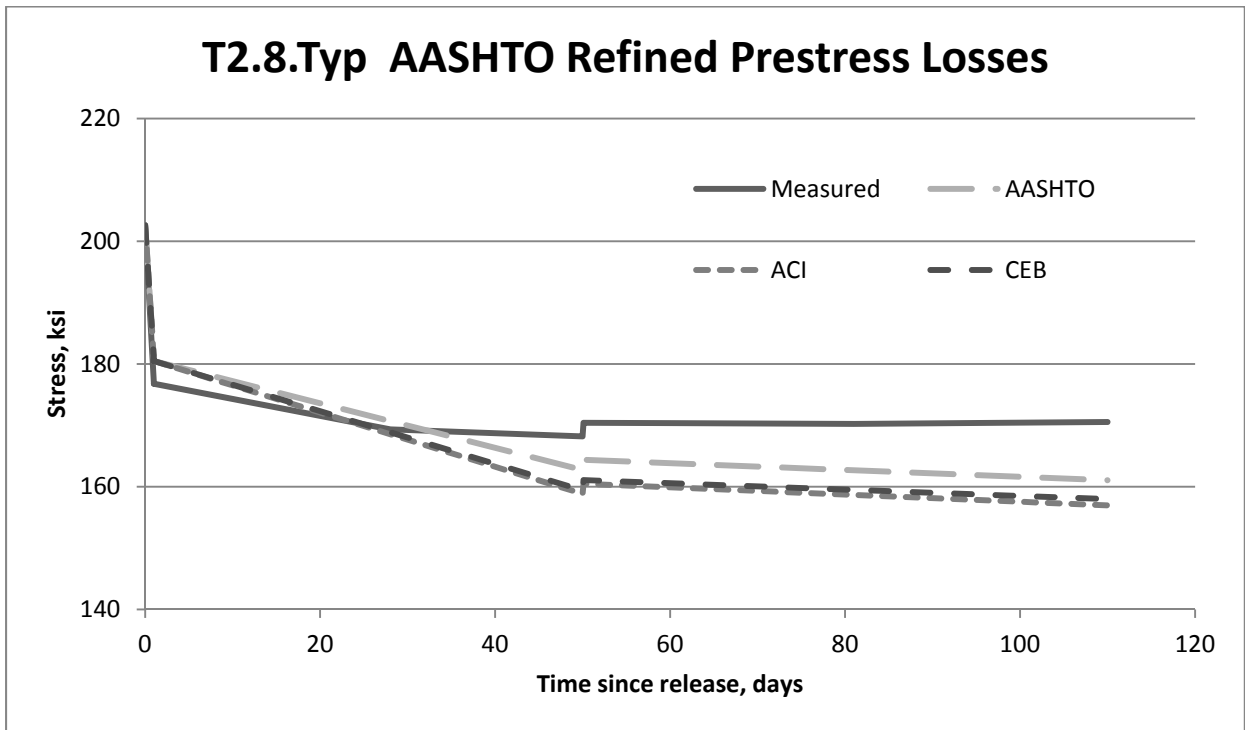


Figure L.2. T2.8.Typ AASHTO Refined Prestress Losses

**Table L.2 - T2.8.Min**

<b>Beam Properties</b>		<b>Slab Properties</b>	
Area	369 in <sup>2</sup>	Area	672 in.
Perimeter	113 in.	Width x Depth	84 in. x 8 in.
Moment of inertia	50980 in <sup>4</sup>	Moment of inertia	3584 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	15.83 in.	Centroid of slab (measured from bottom of beam)	41 in.
Unit weight of concrete	120 lb/cf	Unit weight of concrete	120 lb/cf
Self Weight per unit length	307.5 lb/ft	Self Weight per unit length	560 lb/cf
Age of concrete at release	2 days		
Concrete strength at release	7380 psi	Concrete Strength at 7 days	3410 psi
Concrete modulus at release	3590 ksi	Concrete Modulus at 7 days	2743 ksi
Concrete strength at 28 days	8150 psi	Concrete strength at 28 days	4700 psi
Concrete modulus at 28 days	3585 ksi	Concrete modulus at 28 days	2974 ksi
Jacking Force (not measured)	744 kips		
Strand eccentricity relative to gross cross-section (at mid-span)	9.58 in.		
Area of prestress	3.672 in <sup>2</sup>		
Modulus of prestress	28500 ksi		
Beam length	41 ft		
Span Length	40 ft		
Age of concrete at deck placement	50 days		
Age of concrete at testing	131 days	Age of concrete at testing	81
Relative Humidity	70%		

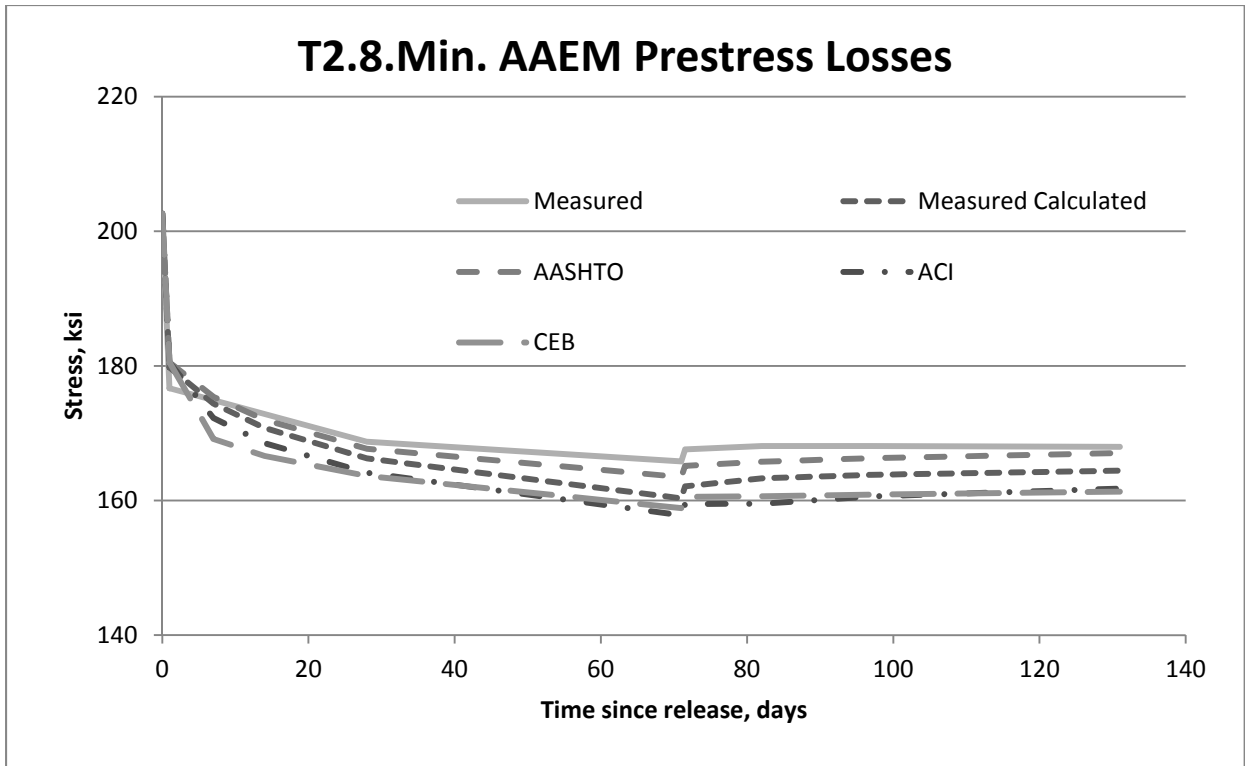


Figure L.3 T2.8.Min AAEM Prestress Losses

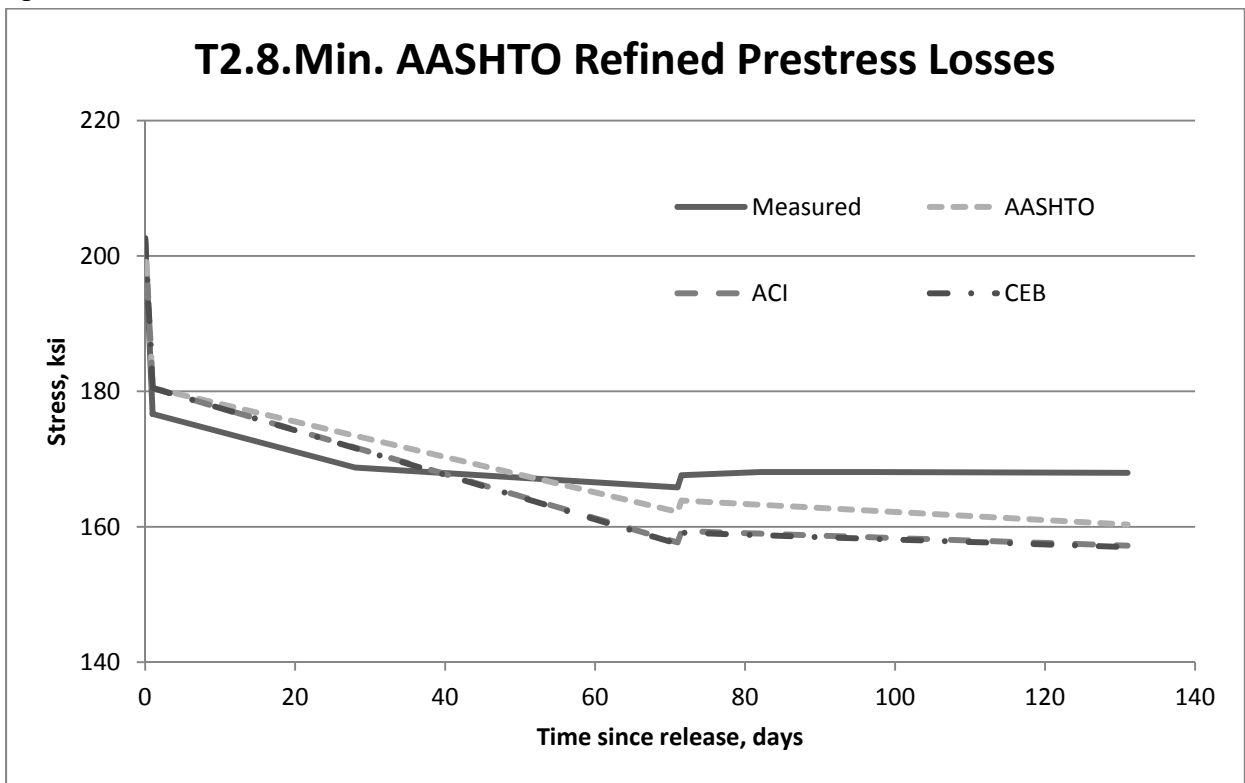


Figure L.4 T2.8.Min AASHTO Refined Prestress Losses

**Table L.3 - BT.8.Typ**

<b>Beam Properties</b>		<b>Slab Properties</b>	
Area	746.7 in <sup>2</sup>	Area	672 in.
Perimeter	219.7 in.	Width x Depth	84 in. x 8 in.
Moment of inertia	207300 in <sup>4</sup>	Moment of inertia	3584 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	22.23 in.	Centroid of slab (measured from bottom of beam)	50 in.
Unit weight of concrete	127.1 lb/cf	Unit weight of concrete	123.4 lb/cf
Self Weight per unit length	659 lb/ft	Self Weight per unit length	575.90 lb/cf
Age of concrete at release	2 days		
Concrete strength at release	7270 psi	Concrete Strength at 7 days	3220 psi
Concrete modulus at release	3790 ksi	Concrete Modulus at 7 days	3440 ksi
Concrete strength at 28 days	8100 psi	Concrete strength at 28 days	5010 psi
Concrete modulus at 28 days	3910 ksi	Concrete modulus at 28 days	3470 ksi
Jacking Force (not measured)	1054 kips		
Strand eccentricity relative to gross cross-section (at mid-span)	18.45 in.		
Area of prestress	5.202 in <sup>2</sup>		
Modulus of prestress	28500 ksi		
Beam length	59 ft		
Span Length	58 ft		
Age of concrete at deck placement	164 days		
Age of concrete at testing	205 days	Age of concrete at testing	81
Relative Humidity	70%		

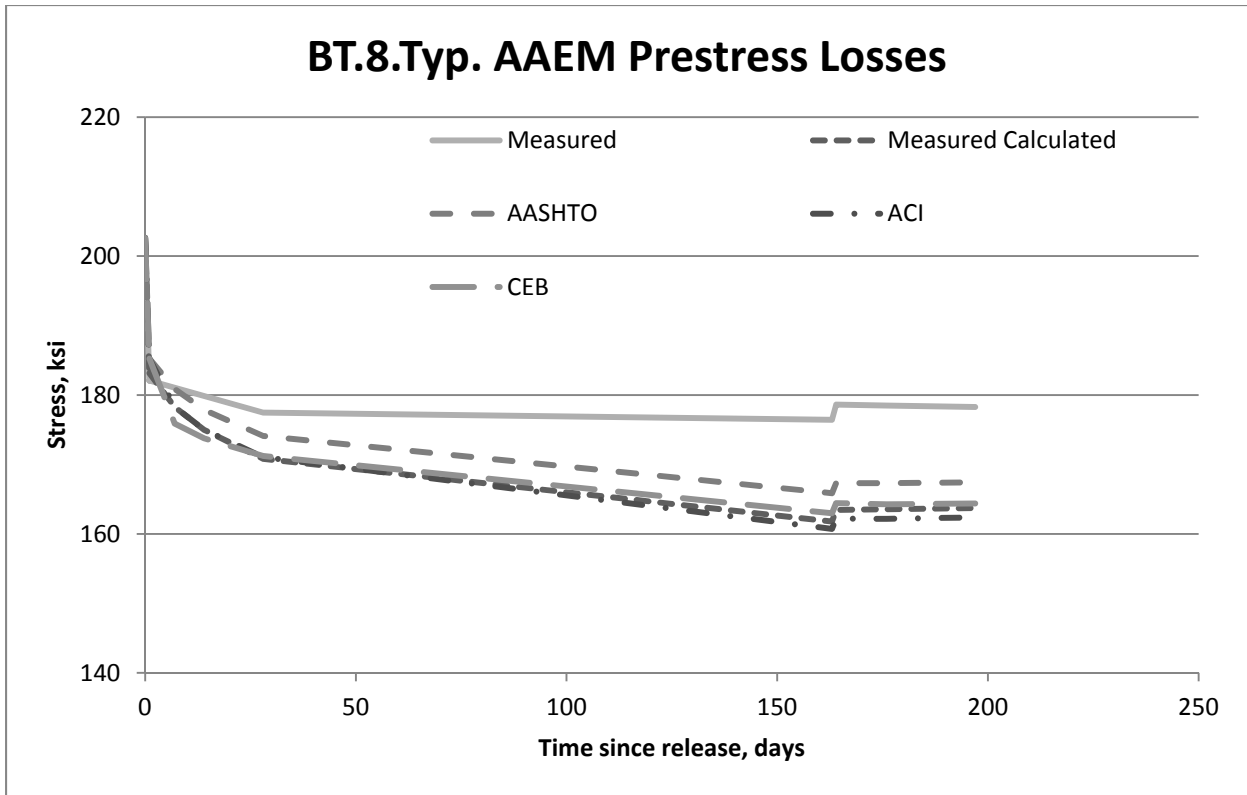


Figure L.5 BT.8.Typ AAEM Prestress Losses

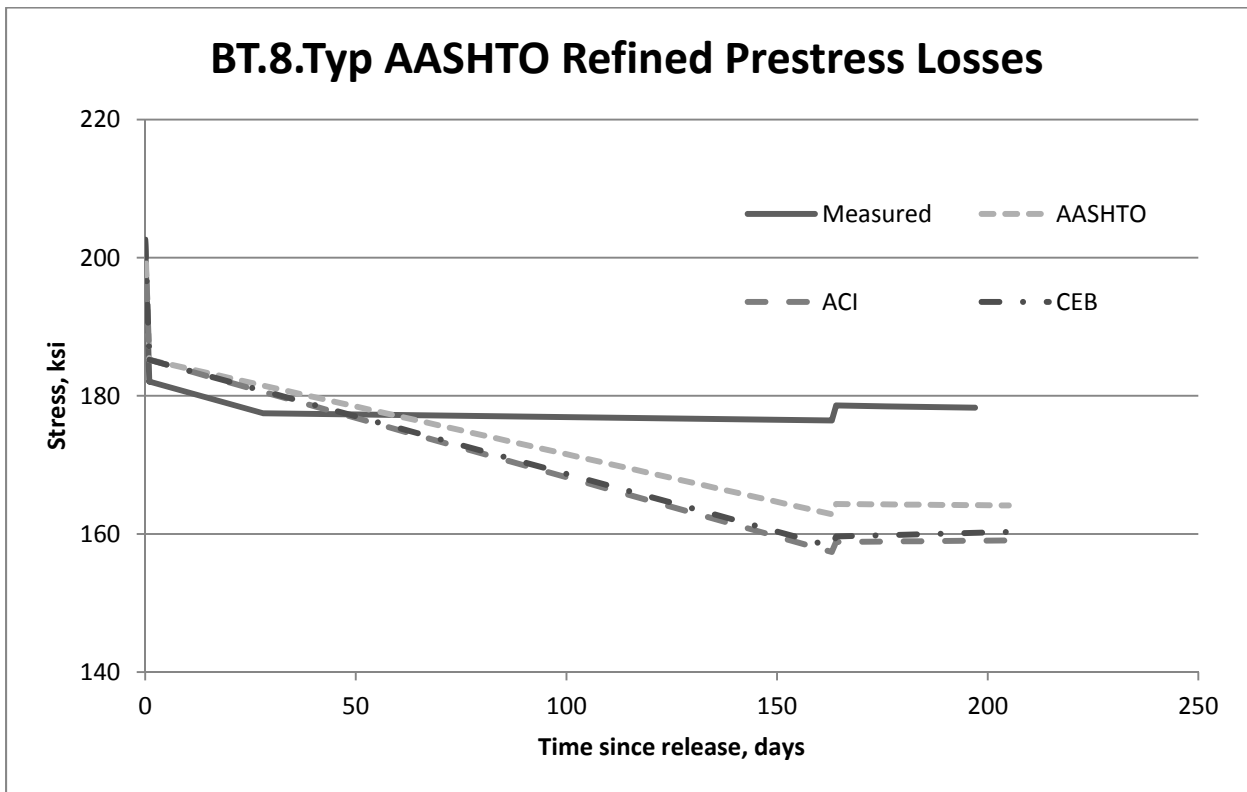


Figure L.6 BT.8.Typ AASHTO Refined Prestress Losses

**Table L.4 - BT.8N.Typ**

<b>Beam Properties</b>		<b>Slab Properties</b>	
Area	746.7 in <sup>2</sup>	Area	672 in.
Perimeter	219.7 in.	Width x Depth	84 in. x 8 in.
Moment of inertia	207300 in <sup>4</sup>	Moment of inertia	3584 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	22.23 in.	Centroid of slab (measured from bottom of beam)	50 in.
Unit weight of concrete	145 lb/cf	Unit weight of concrete	122 lb/cf
Self Weight per unit length	752 lb/ft	Self Weight per unit length	569.3 lb/cf
Age of concrete at release	1 day		
Concrete strength at release	7250 psi	Concrete Strength at 7 days	3510 psi
Concrete modulus at release	4670 ksi	Concrete Modulus at 7 days	2640 ksi
Concrete strength at 28 days	8610 psi	Concrete strength at 28 days	4700 psi
Concrete modulus at 28 days	4960 ksi	Concrete modulus at 28 days	2950 ksi
Jacking Force (not measured)	1054 kips		
Strand eccentricity relative to gross cross-section (at mid-span)	18.45 in.		
Area of prestress	5.202 in <sup>2</sup>		
Modulus of prestress	28500 ksi		
Beam length	59 ft		
Span Length	58 ft		
Age of concrete at deck placement	52 days		
Age of concrete at testing	93 days	Age of concrete at testing	41
Relative Humidity	70%		



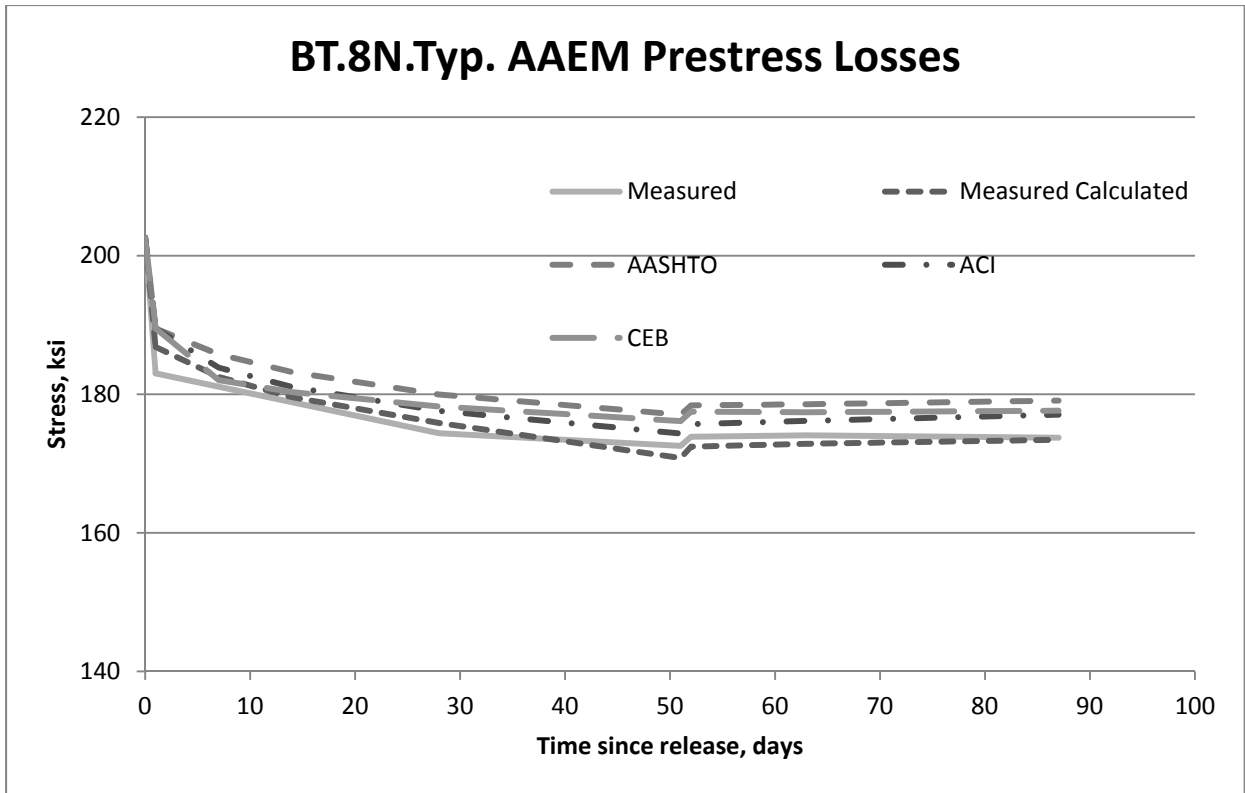


Figure L.7 BT.8N.Typ AAEM Prestress Losses

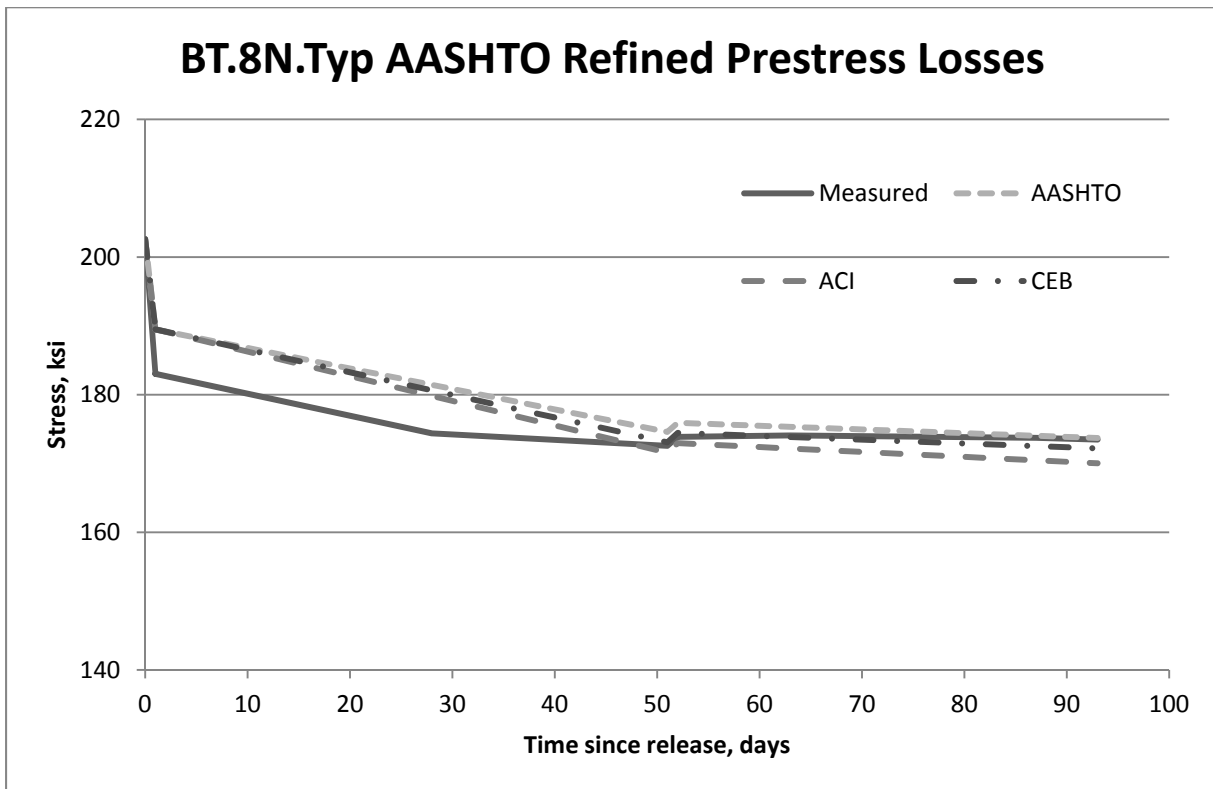


Figure L.8 BT.8N.Typ AASHTO Refined Prestress Losses

**Table L.5 - BT.10.Typ**

<b>Beam Properties</b>		<b>Slab Properties</b>	
Area	746.7 in <sup>2</sup>	Area	672 in.
Perimeter	219.7 in.	Width x Depth	84 in. x 8 in.
Moment of inertia	207300 in <sup>4</sup>	Moment of inertia	3584 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	22.23 in.	Centroid of slab (measured from bottom of beam)	50 in.
Unit weight of concrete	122.8 lb/cf	Unit weight of concrete	122.8 lb/cf
Self Weight per unit length	637 lb/ft	Self Weight per unit length	573 lb/cf
Age of concrete at release	1 day		
Concrete strength at release	7330 psi	Concrete Strength at 7 days	3480 psi
Concrete modulus at release	4230 ksi	Concrete Modulus at 7 days	2840 ksi
Concrete strength at 28 days	8100 psi	Concrete strength at 28 days	4130 psi
Concrete modulus at 28 days	4040 ksi	Concrete modulus at 28 days	3160 ksi
Jacking Force (not measured)	1054 kips		
Strand eccentricity relative to gross cross-section (at mid-span)	18.45 in.		
Area of prestress	5.202 in <sup>2</sup>		
Modulus of prestress	28500 ksi		
Beam length	59 ft		
Span Length	58 ft		
Age of concrete at deck placement	266 days		
Age of concrete at testing	288 days	Age of concrete at testing	22
Relative Humidity	70%		

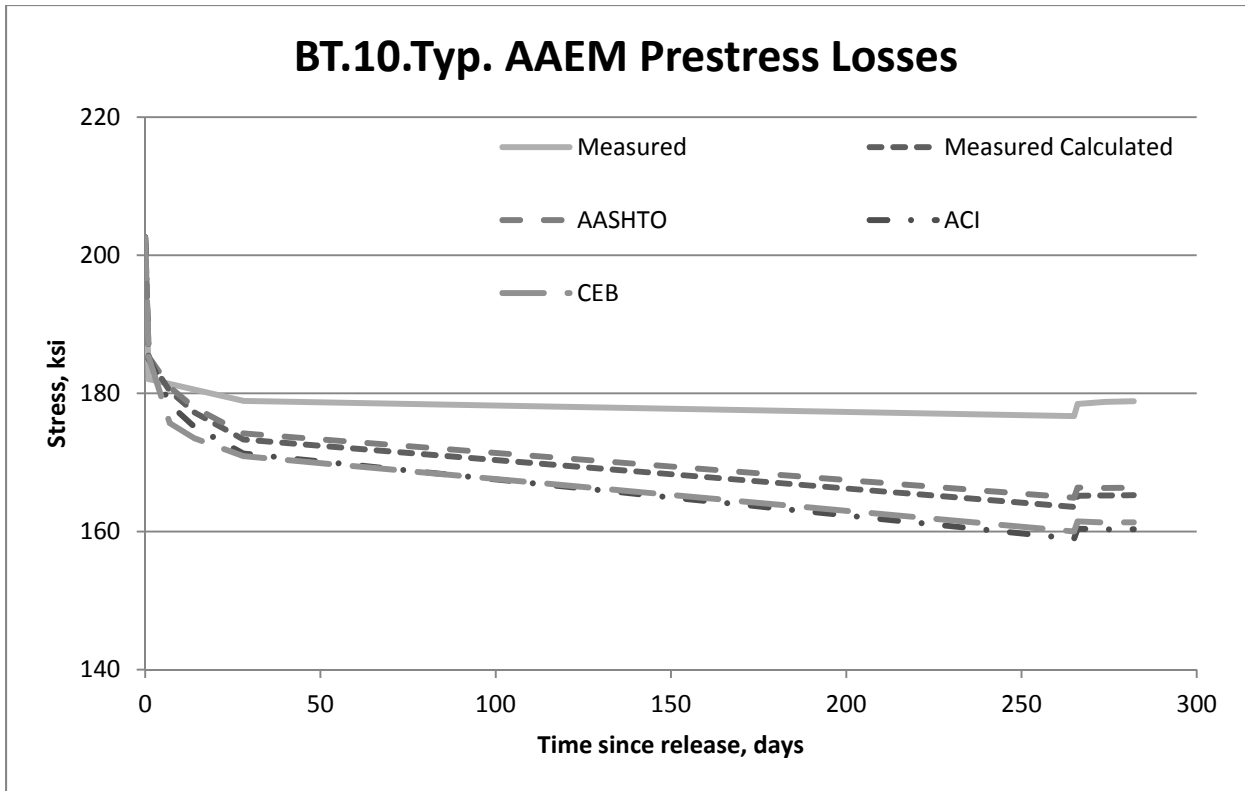


Figure L.9 BT.10.Typ AAEM Prestress Losses

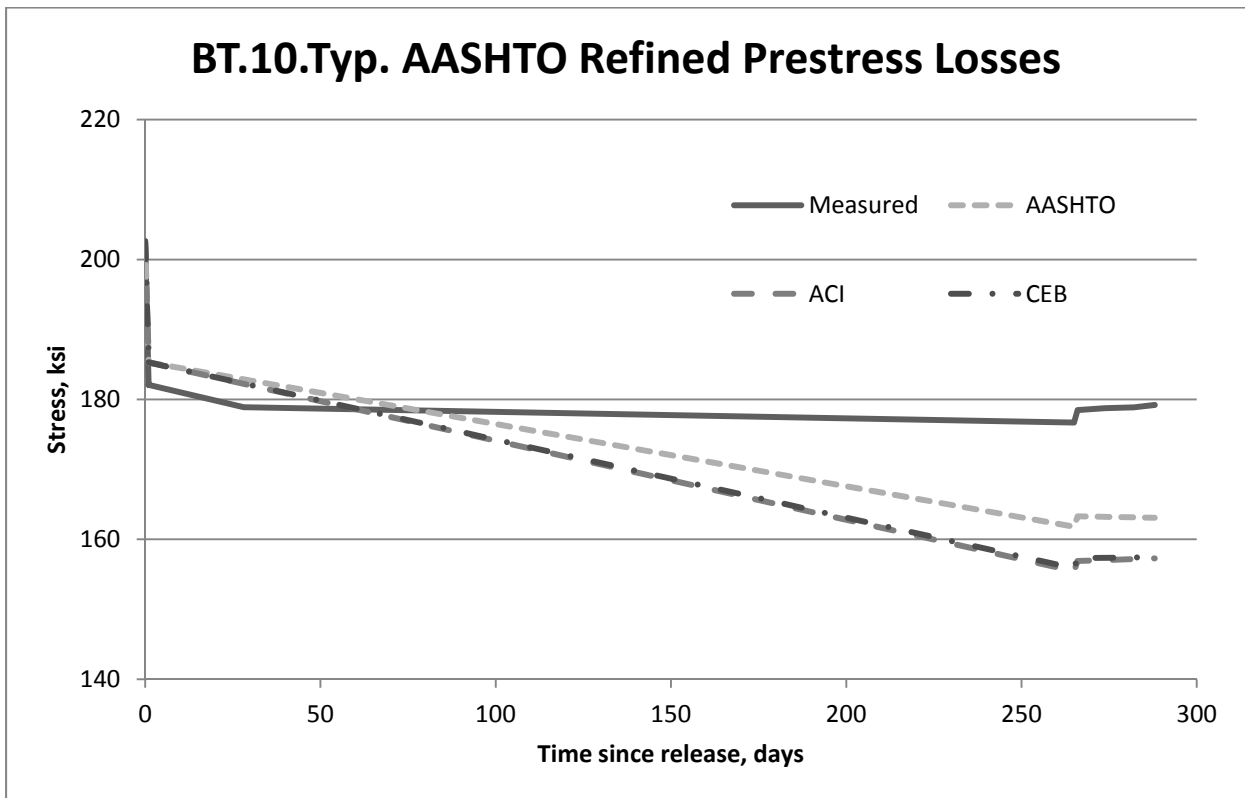


Figure L.10 B.10.Typ AASHTO Refined Prestress Losses

**Table L.6 - BT.10.Min**

<b>Beam Properties</b>		<b>Slab Properties</b>	
Area	746.7 in <sup>2</sup>	Area	672 in.
Perimeter	219.7 in.	Width x Depth	84 in. x 8 in.
Moment of inertia	207300 in <sup>4</sup>	Moment of inertia	3584 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	22.23 in.	Centroid of slab (measured from bottom of beam)	50 in.
Unit weight of concrete	122.2 lb/cf	Unit weight of concrete	122.2 lb/cf
Self Weight per unit length	634 lb/ft	Self Weight per unit length	570 lb/cf
Age of concrete at release	1 day		
Concrete strength at release	7330 psi	Concrete Strength at 7 days	3900 psi
Concrete modulus at release	4230 ksi	Concrete Modulus at 7 days	2720 ksi
Concrete strength at 28 days	8900 psi	Concrete strength at 28 days	52470 psi
Concrete modulus at 28 days	4100 ksi	Concrete modulus at 28 days	3230 ksi
Jacking Force (not measured)	1054 kips		
Strand eccentricity relative to gross cross-section (at mid-span)	18.45 in.		
Area of prestress	5.202 in <sup>2</sup>		
Modulus of prestress	28500 ksi		
Beam length	59 ft		
Span Length	58 ft		
Age of concrete at deck placement	161 days		
Age of concrete at testing	207 days	Age of concrete at testing	46
Relative Humidity	70%		

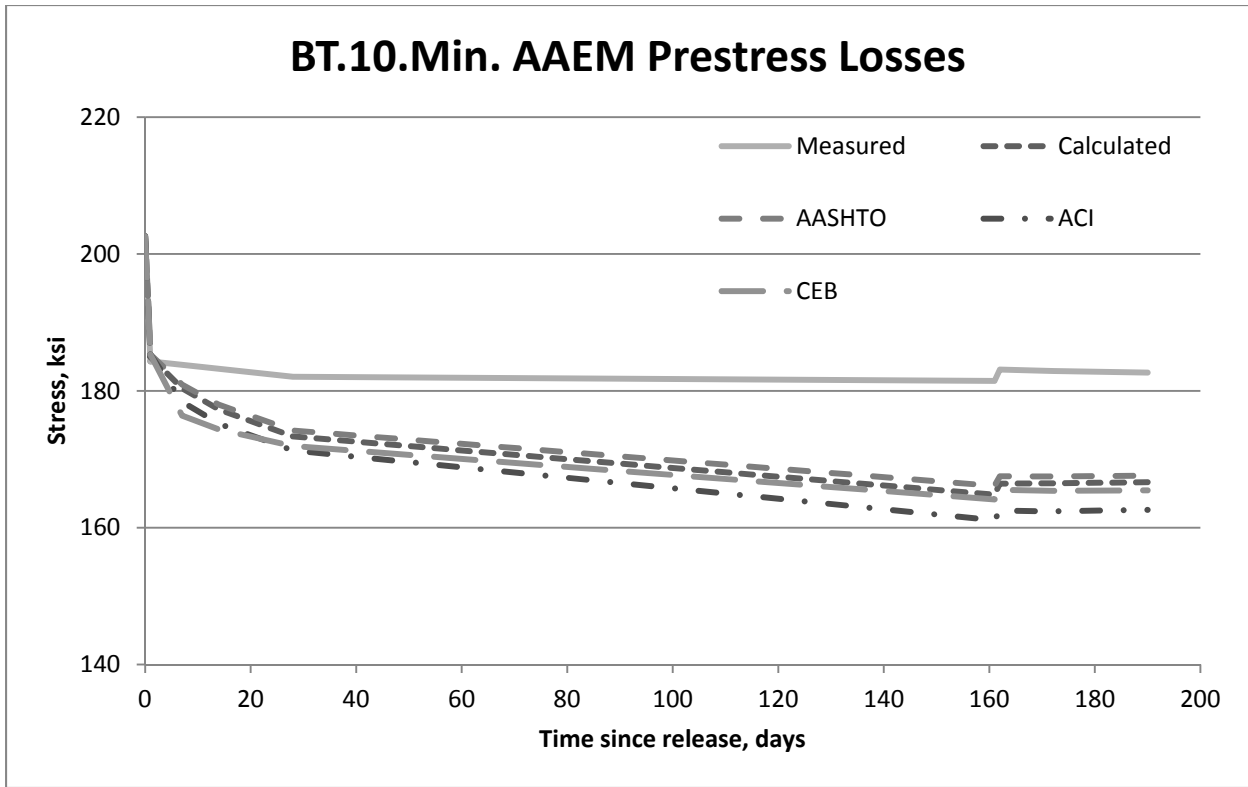


Figure L.11 BT.10. Min AAEM Prestress Losses

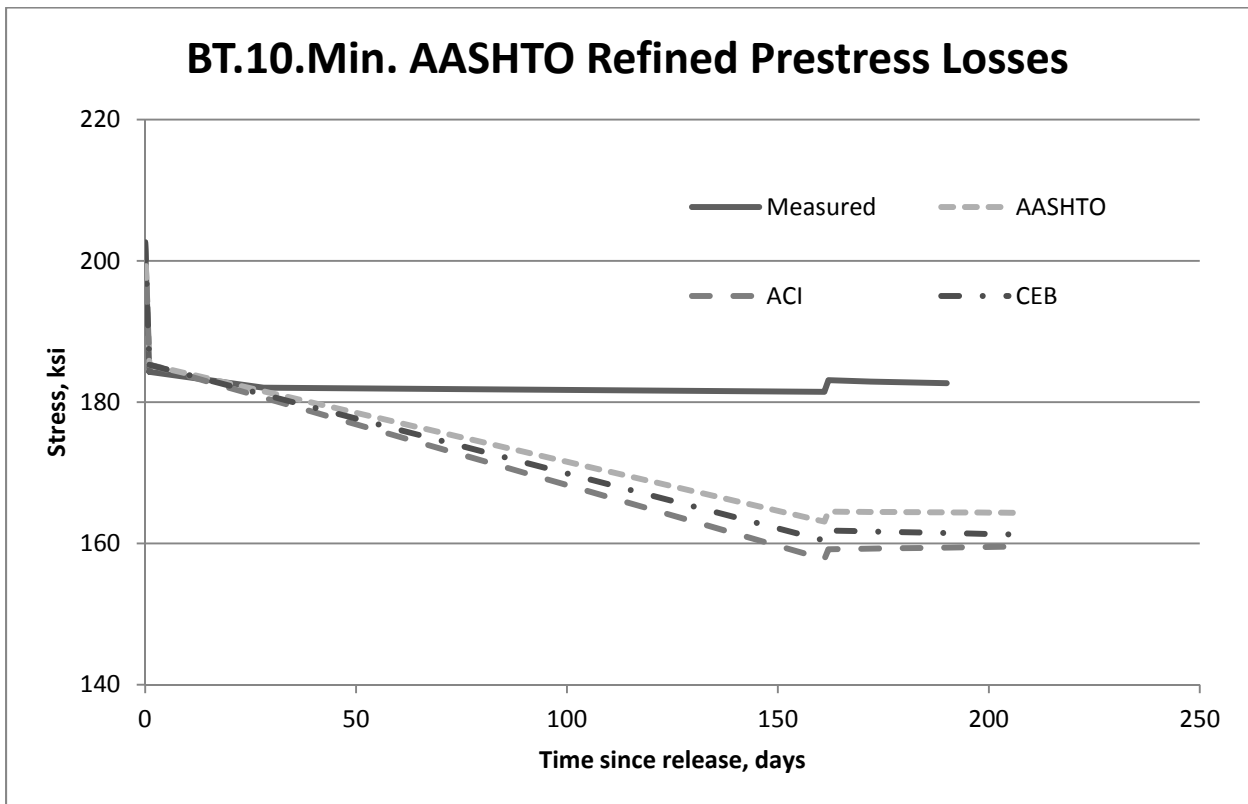
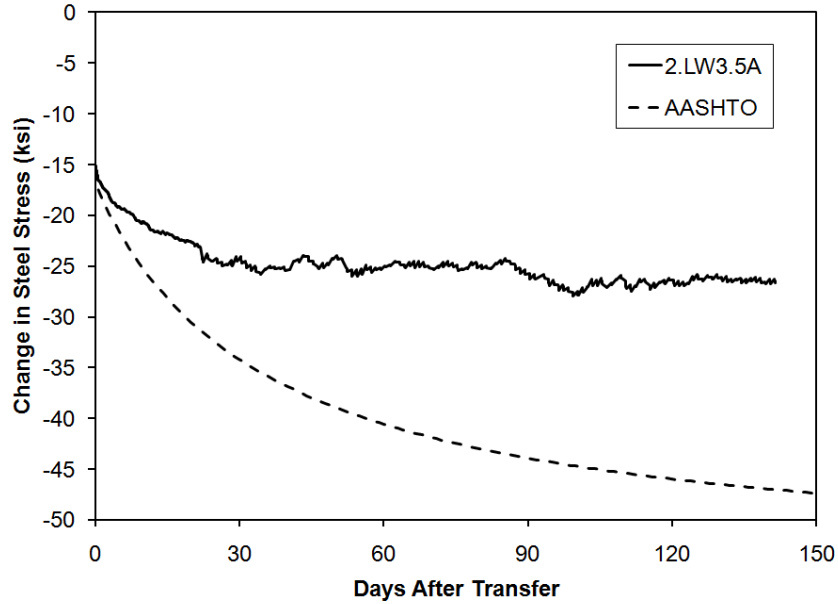


Figure L.12 BT.10.Min AASHTO Refined Prestress Losses

**Table L.7 - 2.LW3.5A**

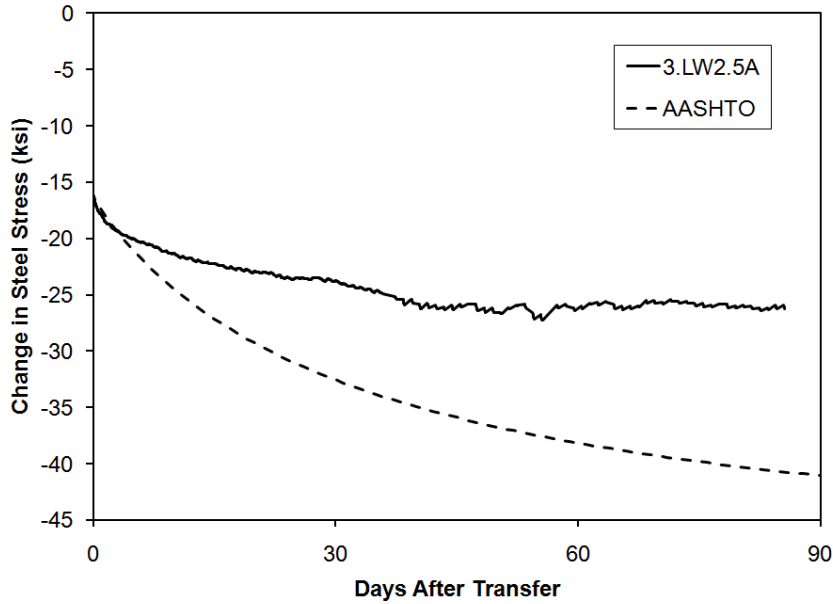
<b>Beam Properties</b>	
Area	135 in <sup>2</sup>
Perimeter	84.6 in.
Moment of inertia	4537 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	10.3 in.
Unit weight of concrete	120 lb/cf
Self Weight per unit length	113 lb/ft
Age of concrete at release	7 days
Concrete strength at release	5020 psi
Concrete modulus at release	2920 ksi
Concrete strength at 28 days	7740 psi
Concrete modulus at 28 days	3560 ksi
Jacking Force	93 kips
Strand eccentricity relative to gross cross-section (at mid-span)	8.27 in.
Area of prestress	0.459 in <sup>2</sup>
Modulus of prestress	28500 ksi
Beam length	24 ft
Span Length	24 ft
Age of concrete at testing	145 days
Relative Humidity	70%



**Figure L.13. VWG Prestress Loss Beam 2.LW3.5A**

**Table L.8 - 3.LW2.5A**

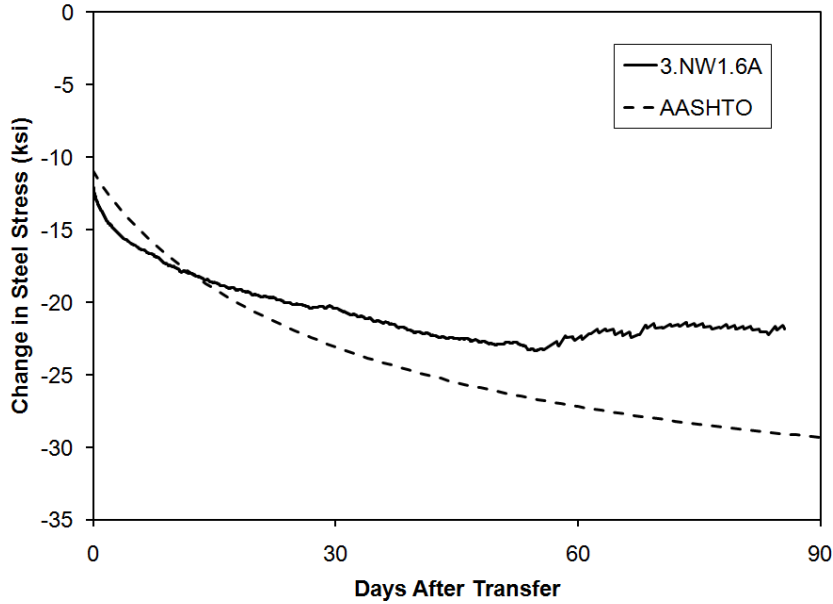
<b>Beam Properties</b>	
Area	135 in <sup>2</sup>
Perimeter	84.6 in.
Moment of inertia	4537 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	10.3 in.
Unit weight of concrete	120 lb/cf
Self Weight per unit length	113 lb/ft
Age of concrete at release	7 days
Concrete strength at release	5890 psi
Concrete modulus at release	3060 ksi
Concrete strength at 28 days	7730 psi
Concrete modulus at 28 days	3420 ksi
Jacking Force	93 kips
Strand eccentricity relative to gross cross-section (at mid-span)	8.27 in.
Area of prestress	0.459 in <sup>2</sup>
Modulus of prestress	28500 ksi
Beam length	24 ft
Span Length	24 ft
Age of concrete at testing	85 days
Relative Humidity	70%



**Figure L.14. VWG Prestress Loss Beam 3.LW2.5A**

**Table L.9 - 3.NW1.6A**

<b>Beam Properties</b>	
Area	273 in <sup>2</sup>
Perimeter	110.3 in.
Moment of inertia	15320 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	15.9 in.
Unit weight of concrete	145 lb/cf
Self Weight per unit length	275 lb/ft
Age of concrete at release	7 days
Concrete strength at release	6200 psi
Concrete modulus at release	4570 ksi
Concrete strength at 28 days	7970 psi
Concrete modulus at 28 days	5520 ksi
Jacking Force	132 kips
Strand eccentricity relative to gross cross-section (at mid-span)	13.9 in.
Area of prestress	0.651 in <sup>2</sup>
Modulus of prestress	28500 ksi
Beam length	24 ft
Span Length	24 ft
Age of concrete at testing	86 days
Relative Humidity	70%

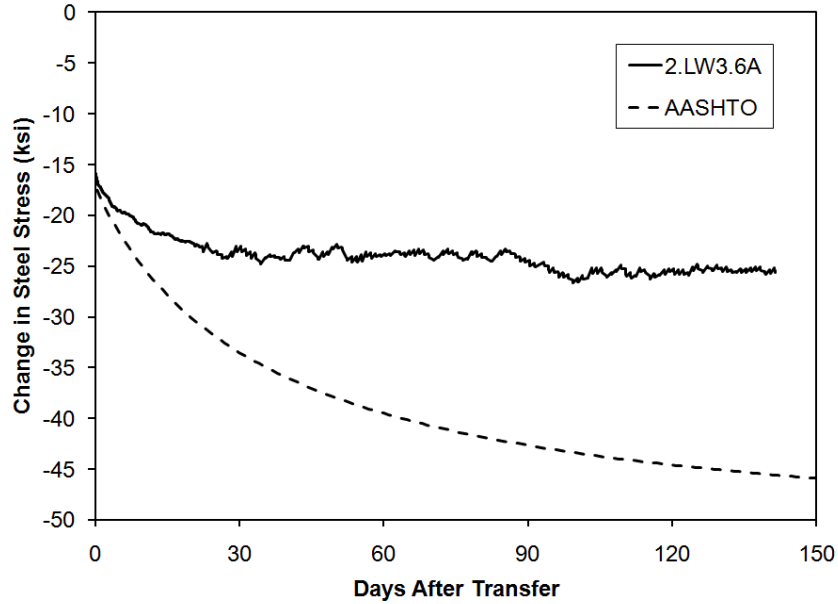


**Figure L.15. VWG Prestress Loss Beam 3.NW1.6A**



**Table L.10 - 2.LW3.6A**

<b>Beam Properties</b>	
Area	273 in <sup>2</sup>
Perimeter	110.3 in.
Moment of inertia	15320 in <sup>4</sup>
Centroid of gross section (measured from bottom of beam)	15.9 in.
Unit weight of concrete	120 lb/cf
Self Weight per unit length	228 lb/ft
Age of concrete at release	7 days
Concrete strength at release	5020 psi
Concrete modulus at release	2920 ksi
Concrete strength at 28 days	7740 psi
Concrete modulus at 28 days	3560 ksi
Jacking Force	132 kips
Strand eccentricity relative to gross cross-section (at mid-span)	13.9 in.
Area of prestress	0.651 in <sup>2</sup>
Modulus of prestress	28500 ksi
Beam length	24 ft
Span Length	24 ft
Age of concrete at testing	86 days
Relative Humidity	70%



**Figure L.16 VWG Prestress Loss Beam 2.LW3.6A**