

## Verification Calculations for Table 1

<b>Member:</b>	<b>EK4-3-54</b>	
Ma =	<b>23.562</b>	k-in
Ixe =	<b>1.881</b>	in <sup>4</sup>
Va =	<b>6.743</b>	kips
Wt =	<b>3.075</b>	lbs/ft (plf)
Deflection: Δ =	Δ=L/D: D=	<b>180</b>
E =	29.5 x 10 <sup>6</sup> psi	

**Member:** **Span L = 8 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 245 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 321 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 1686 plf

**Member:** **Span L = 14 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 80 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 60 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 963.3 plf

**Member:** **Span L = 20 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 39 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 21 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 674.3 plf

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## Verification Calculations for Table 2

<b>Member:</b>	<b>EK6-3-43</b>	
Ma =	<b>24.813</b>	k-in
Ixe =	<b>4.209</b>	in <sup>4</sup>
Va =	<b>2.854</b>	kips
Wt =	<b>3.080</b>	lbs/ft (plf)
Deflection: Δ=	Δ=L/D: D= <b>240</b>	
E=	29.5 x 10 <sup>6</sup>	psi

**Member:** **Span L = 8 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 258 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 539 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 713.5 plf

**Member:** **Span L = 14 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 84 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 101 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 407.7 plf

**Member:** **Span L = 18 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 51 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 47 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 317.1 plf

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## Verification Calculations for Table 3

<b>Member:</b>	<b>EK8-3-54 HD</b>	
Ma =	62.154	k-in
Ixe =	11.422	in <sup>4</sup>
Va =	4.214	kips
Wt =	5.097	lbs/ft (plf)
Deflection: Δ =	Δ=L/D: D= 360	
E =	29.5 x 10 <sup>6</sup> psi	

**Member:** **Span L = 8 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 647 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 975 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 1054 plf

**Member:** **Span L = 14 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 211 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 182 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 602 plf

**Member:** **Span L = 18 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 128 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 86 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 468.2 plf

## Verification Calculations for Table 4

<b>Member:</b>	<b>EK6-3-43</b>	
Ma =	<b>24.813</b>	k-in
Ixe =	<b>4.209</b>	in <sup>4</sup>
Va =	<b>2.854</b>	kips
Wt =	<b>3.080</b>	lbs/ft (plf)
Deflection: Δ =	Δ = L/D: D = <b>480</b>	
E =	29.5 x 10 <sup>6</sup> psi	

**Member:** **Span L = 8 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w = 258 plf Controls</b>
Deflection:	Δ = L/D = 5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w = 269 plf
Shear:	Va = w*L/2 >>	w = 2*Va/L =	w = 713.5 plf

**Member:** **Span L = 12 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w = 115 plf
Deflection:	Δ = L/D = 5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w = 80 plf Controls</b>
Shear:	Va = w*L/2 >>	w = 2*Va/L =	w = 475.7 plf

**Member:** **Span L = 18 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w = 51 plf
Deflection:	Δ = L/D = 5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w = 24 plf Controls</b>
Shear:	Va = w*L/2 >>	w = 2*Va/L =	w = 317.1 plf

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## Verification Calculations for Table 5

<b>Member:</b>	<b>EK6-3-68 HD</b>	
Ma =	<b>62.791</b>	k-in
Ixe =	<b>7.473</b>	in <sup>4</sup>
Va =	<b>10.701</b>	kips
Wt =	<b>5.417</b>	lbs/ft (plf)
Deflection: Δ=	Δ=L/D: D= <b>600</b>	
E=	29.5 x 10 <sup>6</sup> psi	

**Member:** **Span L = 8 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 654 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 383 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 2675 plf

**Member:** **Span L = 12 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 291 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 113 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 1784 plf

**Member:** **Span L = 18 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 129 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 34 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 1189 plf

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## Verification Calculations for Table 6

<b>Member:</b>	<b>EK6-3-68</b>	
Ma =	57.486	k-in
Ixe =	6.431	in <sup>4</sup>
Va =	10.701	kips
Wt =	4.811	lbs/ft (plf)
Deflection: Δ=	Δ=L/D: D= 720	
E=	29.5 x 10 <sup>6</sup> psi	

**Member:** **Span L = 8 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	<b>w= 599 plf Controls</b>
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	w= 274 plf
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 2675 plf

**Member:** **Span L = 12 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 266 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 81 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 1784 plf

**Member:** **Span L = 14 ft**

Solve for Uniform Load w, plf (pounds per linear foot)

Bending:	Ma = w*L <sup>2</sup> /8 >>	w = Ma*8/L <sup>2</sup> =	w= 196 plf
Deflection:	Δ=L/D=5*w*L <sup>4</sup> /(384*E*Ixe) >>	w = (384*E*Ixe)/(5*L <sup>3</sup> *D) =	<b>w= 51 plf Controls</b>
Shear:	Va=w*L/2 >>	w=2*Va/L=	w= 1529 plf

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