Chancellor Residence

4045 West Mercer Way
Mercer Island, WA 98040

STRUCTURAL CALCULATIONS

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8-18-25

Gill

Prepared by

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Design Criteria

Address: West View Residence
4045 West Mercer Way
Mercer Island, WA 98040

Seismic (2018 IBC)

Sds := .948 soil factors assuming site class D

Wind (ASCE 7-16)

Wind Speed = 97 mph Exposure C Kzt = 1.0
(exposure and Kzt from Google Earth)

V := 110

Roof Snow (ASCE 7-10)

Pg := 30 psf ws := Pg

Dead Loads

Roof

Ballast	rbal := 10
Roofing Membrane	rf := 1
sheathing 5/8" pw	shtg := 1.9
purlins 11 7/8"TJI@24"	rpurl := 2.0
beams 5 1/4X12PSL@12'	rbm := 1.3
insul 10" BATT	rins := 1
ceiling 5/8 gyp	rclg := 2.2
Mech/misc	rspac := 2.6
Future Solar	rsol := 5

wr := rbal + rf + shtg + rpurl + rbm + rins + rspac + rclg + rsol
wr = 27 psf

2nd Floor

Flooring hardwood	lf := 2
Sheathing 2 layers 3/4" pw	lshtg := 4.3
purlins 11 7/8"TJI@ 16"	lpurl := 3
beams w10x30 @ 25'	lbm := 2.4
Ceiling 5/8 gyp	lclg := 2.2
Topping 1.5" gypcrete	ltpg := 13.8
Misc/Mech	lmisc := 2.3

w2 := lf + lpurl + lbm + lclg + lshtg + lmisc + ltpg
w2 = 30 psf w2l := 40

1st Floor

Flooring hardwood	lf := 2
Sheathing 2 layers 3/4" pw	lshtg := 4.3
purlins 11 7/8"TJI@ 16"	lpurl := 3
beams w10x30 @ 25'	lbm := 2.4
Ceiling 5/8 gyp	lclg := 2.2
Topping 1.5" gypcrete	ltpg := 13.8
Misc/Mech	lmisc := 2.3

w1 := lf + lpurl + lbm + lclg + lshtg + lmisc + ltpg
w1 = 30 psf w1l := 40

Lateral

Seismic

Residence

Since the basement level is laterally supported by concrete shear walls, the first level is considered a base with a separate Rw from the levels above. The Rw for the upper levels is 3.5 for an ordinary steel moment frame in the longitudinal direction and 6.5 in the transverse direction. The Rw for the first level is 5.0 for concrete shear walls in both directions.

Ist Floor to Roof

AreaURoof := 2214 WURoof := AreaURoof·(wr + 2) WURoof = 64206

Ct := .028 x := .8 hn := 22 Ta := $Ct \cdot hn^{x}$ Ta = 0.3

Rlong := 3.5 Cslong := $\frac{Sds}{Rlong \cdot 1.4}$ Cslong = 0.19 above min and below max

Cslongmax := $\frac{Sds}{Rlong \cdot Ta \cdot 1.4}$ Cslongmax = 0.6 Cslongmin := .044·Sds Cslongmin = 0.042

Ct := .02 x := .75 hn := 22 Ta := $Ct \cdot hn^{x}$ Ta = 0.2

Rtrans := 6.5 Cstrans := $\frac{Sds}{Rtrans \cdot 1.4}$ Cstrans = 0.1

Area2ndFloor := 2518

Area1stFloor := 2133

W2ndFloor := Area2ndFloor·(w2 + 3)

W2ndFloor = 83094

hr := 22.33 hrxWroof := hr·WURoof hrxWroof = 1433720

h2 := 10.33 h2xW2ndFloor := h2·W2ndFloor h2xW2ndFloor = 858361

SumhxW := hrxWroof + h2xW2ndFloor SumhxW = 2292081

Csr := $\frac{hrxWroof}{SumhxW}$ Csr = 0.6

Cs2 := $\frac{h2xW2ndFloor}{SumhxW}$ Cs2 = 0.4

Wtot := WURoof + W2ndFloor Wtot = 147300

Vsrlong := Wtot·Csr·Cslong Vsrlong = 17825.8

Vsrtrans := Wtot·Csr·Cstrans Vsrtrans = 9598.5

Vs2long := Wtot·Cs2·Cslong Vs2long = 10672.2

Vs2trans := Wtot·Cs2·Cstrans Vs2trans = 5746.6

Basement to 1st Floor

$Ct := .02 \quad x := .75 \quad hn := 12 \quad Ta := Ct \cdot hn^{x} \quad Ta = 0.1$

$Rw := 5 \quad C1 := \frac{Sds}{Rw \cdot 1.4} \quad C1 = 0.14$

$W1stFloor := Area1stFloor \cdot (w1 + 3)$

$W1stFloor = 70389$

$Wtot := W1stFloor + W2ndFloor + WUroof \quad Wtot = 217689$

$Vs1 := Wtot \cdot C1 \quad Vs1 = 29481.3$

Basement level is considered as a base for the structure hence the Rw is increased to 5 since the lateral resisting system is special concrete shear walls. ASCE 7-16 12.2.3.2(a) states that as long a the stiffness of the base is 10 times greater than the structure above, this is a valid assumption. To show this, the deflection of the shortest concrete shear wall is compared to the deflection of the moment fram above.

$Lcw := 7.14 \quad Igcw := (Lcw \cdot 12)^3 \cdot 8 \cdot \frac{1}{12} \quad Hcw := 11.75 \quad fc := 2500 \quad E_{Ec} = 2850$

$Vcw := (Vs1)\frac{20}{39 \cdot 2} \cdot 1.3 \quad Vcw = 9827.1$

$dcw := \frac{Vcw \cdot Hcw^3 \cdot 1728}{Igcw \cdot Ec \cdot 3 \cdot 1000} \quad dcw = 0.008 \quad dmf := 1.2 \quad \frac{dmf}{dcw} = 156.2$ Much Greater than 10 so OK

Wind

Basic Wind Speed $BWS := 98$ mph Exposure C

$Alpha := 9.5 \quad Zg := 900 \quad Ht := 35$

$Kd := .85 \quad Kz := 2.01 \cdot \left(\frac{Ht}{Zg}\right)^{\frac{2}{Alpha}} \quad Kz = 1 \quad Kzt := 1.0$

$q := .00256 \cdot Kd \cdot Kz \cdot Kzt \cdot \frac{BWS^2}{1.4} \quad q = 15.1$

$Vwrlong := 39 \cdot 6 \cdot q \quad Vwrlong = 3544.2$

$Vwrtrans := 76.5 \cdot 6 \cdot q \quad Vwrtrans = 6952.1$

$Vw2long := 39 \cdot \frac{22.33}{2} \cdot q \quad Vw2long = 6595.1$

$Vw2trans := 76.5 \cdot \frac{22.33}{2} \cdot q \quad Vw2trans = 12936.6$

$Vw1long := 39 \cdot 3 \cdot q \quad Vw1long = 1772.1$

$Vw1trans := 76.5 \cdot 10.25 \cdot q \quad Vw1trans = 11876.4$

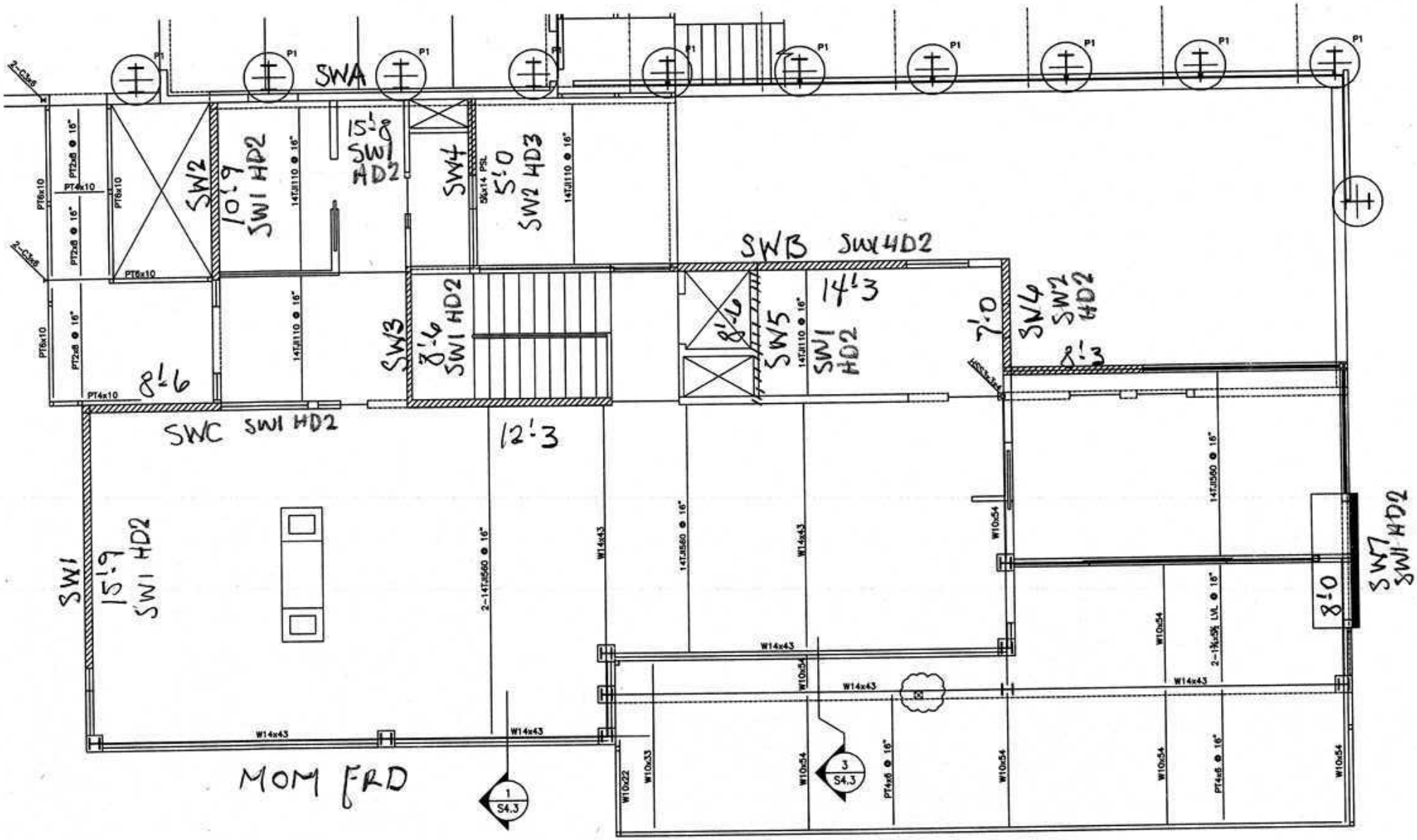
$Vwlong := Vwrlong + Vw2long + Vw1long$

Vwlong = 11911.4

Vwtrans := Vwrtrans + Vw2trans + Vw1trans

Vwtrans = 31765.1

Check Wind and Seismic at all levels and for all elements



1-47

2ND FLR SHEAR WALLS

Shear Walls

2nd Floor to Roof

Shear Wall Redundancy

As long as twice the total shear wall length divided by the story height is greater than or equal to 2, a redundancy factor of 1.0 is allowed.

$H := 11$

$L1 := 15.75$	$L1 = 15.8$	$NoBays := \frac{2L1}{H}$	$NoBays = 2.86$	$r1 := 1.0$
$L2 := 10.75$	$L2 = 10.8$	$NoBays := \frac{2 \cdot L2}{H}$	$NoBays = 2$	$r2 := 1.0$
$L3 := 8.5$	$L3 = 8.5$	$NoBays := \frac{2 \cdot L3}{H}$	$NoBays = 1.5$	$r3 := 1.3$
$L4 := 5$	$L4 = 5$	$NoBays := \frac{2 \cdot L4}{H}$	$NoBays = 0.9$	$r4 := 1.3$
$L5 := 8.5$	$L5 = 8.5$	$NoBays := \frac{2 \cdot L5}{H}$	$NoBays = 1.5$	$r5 := 1.3$
$L6 := 7$	$L6 = 7$	$NoBays := \frac{2 \cdot L6}{H}$	$NoBays = 1.3$	$r6 := 1.3$
$L7 := 8$	$L7 = 8$	$NoBays := \frac{2 \cdot L7}{H}$	$NoBays = 1.5$	$r7 := 1.3$
$LA := 15.66$	$LA = 15.7$	$NoBays := \frac{2 \cdot LA}{H}$	$NoBays = 2.8$	$rA := 1.0$
$LB := 14.25$	$LB = 14.3$	$NoBays := \frac{2 \cdot LB}{H}$	$NoBays = 2.6$	$rB := 1.0$
$LC := 8.5 + 12.25 + 8.25$	$LC = 29$	$NoBays := \frac{2 \cdot LC}{H}$	$NoBays = 5.3$	$rC := 1.0$
Moment Frame D		No Bays = 2		$rD := 1.0$

Shear Wall S1

$L := L1 \quad H := 11 \quad r := r1$

$Vs := r \cdot Vsrtrans \cdot \frac{8.5}{78 \cdot 2}$ $\quad Vs = 523$ $\quad Vw := \frac{Vwrtrans \cdot 8.5}{78 \cdot 2}$ $\quad Vw = 378.8$ $\quad V := Vs$

$v := \frac{V}{L}$ $\quad v = 33.2$ $\quad V1rs := Vs$ $\quad V1rw := Vw$

$HD1 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $\quad HD1 = -501$ $\quad$ **Use: SW1 & HD2**

Shear Wall S2

$L := L2 \quad H := 11 \quad r := r2$

$Vs := r \cdot Vsrtrans \cdot \frac{15.66}{78 \cdot 2}$ $Vs = 963.5$ $Vw := \frac{Vwrtrans \cdot (15.66)}{2 \cdot 78}$ $Vw = 697.9$ $V := Vs$

$v := \frac{V}{L}$ $v = 89.6$ $V2rs := Vs$ $V2rw := Vw$

$HD2 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HD2 = 394.7$ **Use: SW1 & HD2**

Shear Wall S3

$L := L3 \quad H := 11 \quad r := r3$

$Vs := r \cdot Vsrtrans \cdot \frac{15.25}{78 \cdot 2}$ $Vs = 1219.8$ $Vw := \frac{Vwrtrans \cdot 21.25}{78 \cdot 2}$ $Vw = 947$ $V := Vs$

$v := \frac{V}{L}$ $v = 143.5$ $V3rs := Vs$ $V3rw := Vw$

$HD3 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HD3 = 1111.1$ **Use: SW1 & HD2**

Shear Wall S4

$L := L4 \quad H := 11 \quad r := r4$

$Vs := r \cdot Vsrtrans \cdot \frac{21.25}{78 \cdot 2}$ $Vs = 1699.7$ $Vw := \frac{Vwrtrans \cdot 21.25}{78 \cdot 2}$ $Vw = 947$ $V := Vs$

$v := \frac{V}{L}$ $v = 339.9$ $V4rs := Vs$ $V4rw := Vw$

$HD4 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HD4 = 3464.4$ **Use: SW2 & HD3**

Shear Wall S5

$L := L5 \quad H := 11 \quad r := r5$

$Vs := r \cdot Vsrtrans \cdot \frac{31.75}{78 \cdot 2}$ $Vs = 2539.6$ $Vw := \frac{Vwrtrans \cdot 31.75}{78 \cdot 2}$ $Vw = 1414.9$ $V := Vs$

$v := \frac{V}{L}$ $v = 298.8$ $V5rs := Vs$ $V5rw := Vw$

$HD5 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HD5 = 2819.1$ **Use: SW1 & HD2**

Shear Wall S6

$L := L6 \quad H := 11 \quad r := r6$

$Vs := r \cdot Vsrtrans \cdot \frac{35.25}{78 \cdot 2}$ $Vs = 2819.6$ $Vw := \frac{Vwrtrans \cdot 35.25}{78 \cdot 2}$ $Vw = 1570.9$ $V := Vs$

$v := \frac{V}{L}$ $v = 402.8$ $V6rs := Vs$ $V6rw := Vw$

$HD6 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HD6 = 4045.7$ **Use: SW2 & HD3**

Shear Wall S7

$L := L7 \quad H := 11 \quad r := r7$

$Vs := r \cdot Vsrtrans \cdot \frac{20}{78 \cdot 2}$ $Vs = 1599.8$ $Vw := \frac{Vwrtrans \cdot 20}{78 \cdot 2}$ $Vw = 891.3$ $V := Vs$

$v := \frac{V}{L}$ $v = 200$ $V7rs := Vs$ $V7rw := Vw$

$HD7 := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HD7 = 1759.7$ **Use: SW1 & HD2**

Moment Frame D

$H := 11 \quad r := rD$

$VDrs := r \cdot Vsrlong \cdot \frac{20}{39.5 \cdot 2}$ $VDrs = 4512.9$ $VDrw := \frac{Vwrlong \cdot 20}{39.5 \cdot 2}$ $VDrw = 897.3$

See Risa Model for design of moment frame

Shear Wall SA

$L := LA \quad H := 11 \quad r := rA$

$Vs := r \cdot Vsrlong \cdot \frac{10}{39.5 \cdot 2}$ $Vs = 2256.4$ $Vw := \frac{Vwrlong \cdot 10}{2 \cdot 39.5}$ $Vw = 448.6$ $V := Vs$

$v := \frac{V}{L}$ $v = 144.1$ $VArs := Vs$ $VArw := Vw$

$HDA := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $HDA = 723.7$ **Use: SW1 & HD2**

Shear Wall SB

$L := LB \quad H := 11 \quad r := rB$

$Vs := r \cdot Vsrlong \cdot \frac{18.5}{39.5 \cdot 2}$ $\quad Vs = 4174.4$ $\quad Vw := \frac{Vwrlong \cdot 18.5}{2 \cdot 39.5}$ $\quad Vw = 830$ $\quad V := Vs$

$v := \frac{V}{L}$ $\quad v = 292.9$ $\quad VBrs := Vs$ $\quad VBrw := Vw$

$HDB := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $\quad HDB = 2438.6$ $\quad$ **Use: SW1 & HD2**

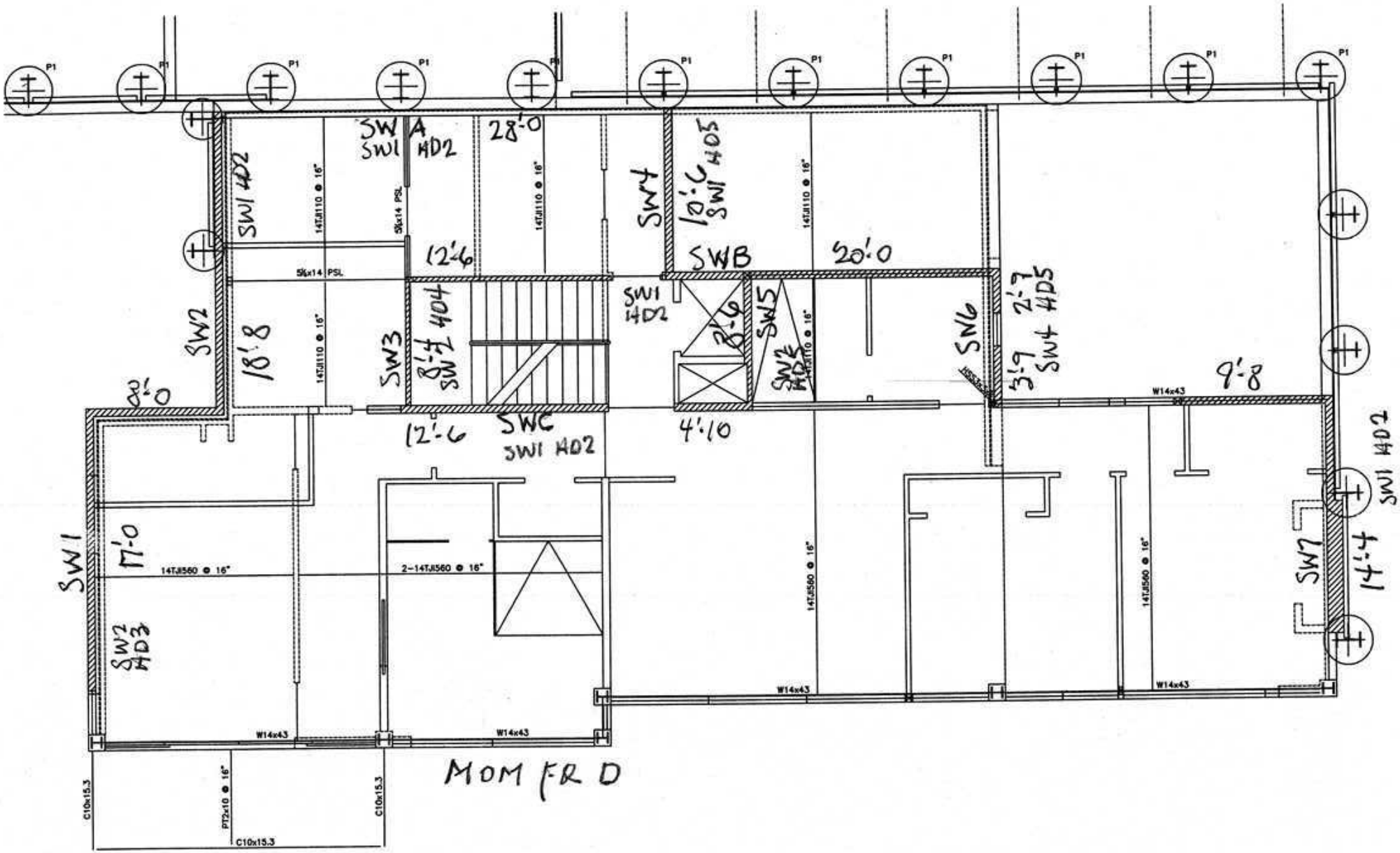
Shear Wall SC

$L := LC \quad H := 11 \quad r := rC$

$Vs := r \cdot Vsrlong \cdot \frac{28.5}{2 \cdot 39.5}$ $\quad Vs = 6430.8$ $\quad Vw := \frac{Vwrlong \cdot 28.5}{2 \cdot 39.5}$ $\quad Vw = 1278.6$ $\quad V := Vs$

$v := \frac{V}{L}$ $\quad v = 221.8$ $\quad VCrs := Vs$ $\quad VCrw := Vw$

$HDC := v \cdot H - H \cdot 10 \cdot \frac{L}{2}$ $\quad HDC = 844.3$ $\quad$ **Use: SW1 & HD2**



1ST FLOOR SHEAR WALLS

L8.1

1st Floor to 2nd Floor

Shear Wall Redundancy

As long as twice the total shear wall length divided by the story height is greater than or equal to 2, a redundancy factor of 1.0 is allowed.

$H := 12$

$L1 := 17$	$L1 = 17$	$NoBays := \frac{2L1}{H}$	$NoBays = 2.83$	$r1 := 1.0$
$L2 := 18.66$	$L2 = 18.7$	$NoBays := \frac{2L2}{H}$	$NoBays = 3.11$	$r2 := 1.0$
$L3 := 8.33$	$L3 = 8.3$	$NoBays := \frac{2L3}{H}$	$NoBays = 1.39$	$r3 := 1.3$
$L4 := 10.33$	$L4 = 10.3$	$NoBays := \frac{2 \cdot L4}{H}$	$NoBays = 1.7$	$r4 := 1.3$
$L5 := 8.5$	$L5 = 8.5$	$NoBays := \frac{2 \cdot L5}{H}$	$NoBays = 1.4$	$r5 := 1.3$
$L6 := 3.75 + 2.75$	$L6 = 6.5$	$NoBays := \frac{2 \cdot L6}{H}$	$NoBays = 1.1$	$r6 := 1.3$
$L7 := 14.33$	$L7 = 14.3$	$NoBays := \frac{2 \cdot L7}{H}$	$NoBays = 2.4$	$r7 := 1.0$
$LA := 28$	$LA = 28$	$NoBays := \frac{2 \cdot LA}{H}$	$NoBays = 4.7$	$rA := 1.0$
$LB := 12.5 + 20$	$LB = 32.5$	$NoBays := \frac{2 \cdot LB}{H}$	$NoBays = 5.4$	$rB := 1.0$
$LC := 8 + 12.5 + 4.82 + 9.66$	$LC = 35$	$NoBays := \frac{2 \cdot LC}{H}$	$NoBays = 5.8$	$rC := 1.0$
Moment Frame D		No Bays = 5		$rD := 1.0$

Shear Wall S1

$L := L1 \quad H := 12 \quad r := r1$

$Vs := r \cdot (Vs2trans) \cdot \frac{8}{2 \cdot 78} + V1rs$ $\quad Vs = 817.7$

$Vw := \frac{(Vw2trans) \cdot 8}{78 \cdot 2} + V1rw$ $\quad Vw = 1042.2$

$v := \frac{V}{L}$ $\quad v = 378.3$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD1$ $\quad HD = 3018.4$ **Use: SW2 & HD3**

Shear Wall S2

$L := L2 \quad H := 12 \quad r := r2 \quad Trib := 19.75$

$Vs := r \cdot (Vs2trans) \cdot \frac{Trib}{2 \cdot 78} + V2rs \qquad Vs = 1691.1$

$Vw := \frac{(Vw2trans) \cdot Trib}{78 \cdot 2} + V2rw \qquad Vw = 2335.7$

$v := \frac{Vw}{L} \qquad v = 125.2$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD2 \qquad HD = 777.2$ **Use: SW1 & HD2**

Shear Wall S3

$L := L3 \quad H := 12 \quad r := r3 \quad Trib := 27.75$

$Vs := r \cdot (Vs2trans) \cdot \frac{Trib}{2 \cdot 78} + V3rs \qquad Vs = 2548.7$

$Vw := \frac{(Vw2trans) \cdot Trib}{78 \cdot 2} + V3rw \qquad Vw = 3248.2$

$v := \frac{Vw}{L} \qquad v = 389.9$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD3 \qquad HD = 5290.6$ **Use: SW2 & HD4**

Shear Wall S4

$L := L4 \quad H := 12 \quad r := r4 \quad Trib := 21.33$

$Vs := r \cdot (Vs2trans) \cdot \frac{Trib}{2 \cdot 78} + V4rs \qquad Vs = 2721.2$

$Vw := \frac{(Vw2trans) \cdot Trib}{78 \cdot 2} + V4rw \qquad Vw = 2715.8$

$v := \frac{Vs}{L} \qquad v = 263.4$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD4 \qquad HD = 6005.7$ **Use: SW1 & HD5**

Shear Wall S5

$L := L5 \quad H := 12 \quad r := r5 \quad Trib := 20$

$Vs := r \cdot (Vs2trans) \cdot \frac{Trib}{2 \cdot 78} + V5rs \qquad Vs = 3497.4$

$Vw := \frac{(Vw2trans) \cdot Trib}{78 \cdot 2} + V5rw \qquad Vw = 3073.5$

$v := \frac{Vs}{L} \qquad v = 411.5$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD5 \qquad HD = 7246.5$ **Use: SW2 & HD5**

Shear Wall S6

$L := L6 \quad H := 12 \quad r := r6 \quad Trib := 35.25$

$Vs := r \cdot (Vs2trans) \cdot \frac{Trib}{2 \cdot 78} + V6rs \qquad Vs = 4507.6$

$Vw := \frac{(Vw2trans) \cdot Trib}{78 \cdot 2} + V6rw \qquad Vw = 4494.1$

$v := \frac{Vs}{L} \qquad v = 693.5$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD6 \qquad HD = 11977.5$ **Use: SW4 & HD5**

Shear Wall S7

$L := L7 \quad H := 12 \quad r := r7 \quad Trib := 20.5$

$Vs := r \cdot (Vs2trans) \cdot \frac{Trib}{2 \cdot 78} + V7rs \qquad Vs = 2354.9$

$Vw := \frac{(Vw2trans) \cdot Trib}{78 \cdot 2} + V7rw \qquad Vw = 2591.3$

$v := \frac{Vw}{L} \qquad v = 180.8$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HD7 \qquad HD = 3069.8$ **Use: SW1 & HD2**

Shear Wall SA

$L := LA \quad H := 12 \quad r := rA \quad Trib := 10.25$

$Vs := r \cdot (Vs2long) \cdot \frac{Trib}{2 \cdot 39.5} + VArs \qquad Vs = 3641.1$

$Vw := \frac{(Vw2long) \cdot Trib}{39.5 \cdot 2} + VArw \qquad Vw = 1304.3$

$v := \frac{Vs}{L} \qquad v = 130$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HDA \qquad HD = 604.2$ **Use: SW1 & HD2**

Shear Wall SB

$L := LB \quad H := 12 \quad r := rB \quad Trib := 18.5$

$Vs := r \cdot (Vs2long) \cdot \frac{Trib}{2 \cdot 39.5} + VBrs \qquad Vs = 6673.6$

$Vw := \frac{(Vw2long) \cdot Trib}{39.5 \cdot 2} + VBrw \qquad Vw = 2374.4$

$v := \frac{Vs}{L} \qquad v = 205.3$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HDB \qquad HD = 2952.7$ **Use: SW1 & HD2**

Shear Wall SC

$L := LC \quad H := 12 \quad r := rC \quad Trib := 28.75$

$Vs := r \cdot (Vs2long) \cdot \frac{Trib}{2 \cdot 39.5} + VCrs \qquad Vs = 10314.7$

$Vw := \frac{(Vw2long) \cdot Trib}{39.5 \cdot 2} + VCrw \qquad Vw = 3678.7$

$v := \frac{Vs}{L} \qquad v = 294.9$

$HD := v \cdot H - H \cdot 10 \cdot \frac{L}{2} + HDC \qquad HD = 2284$ **Use: SW1 & HD2**

Moment Frame D

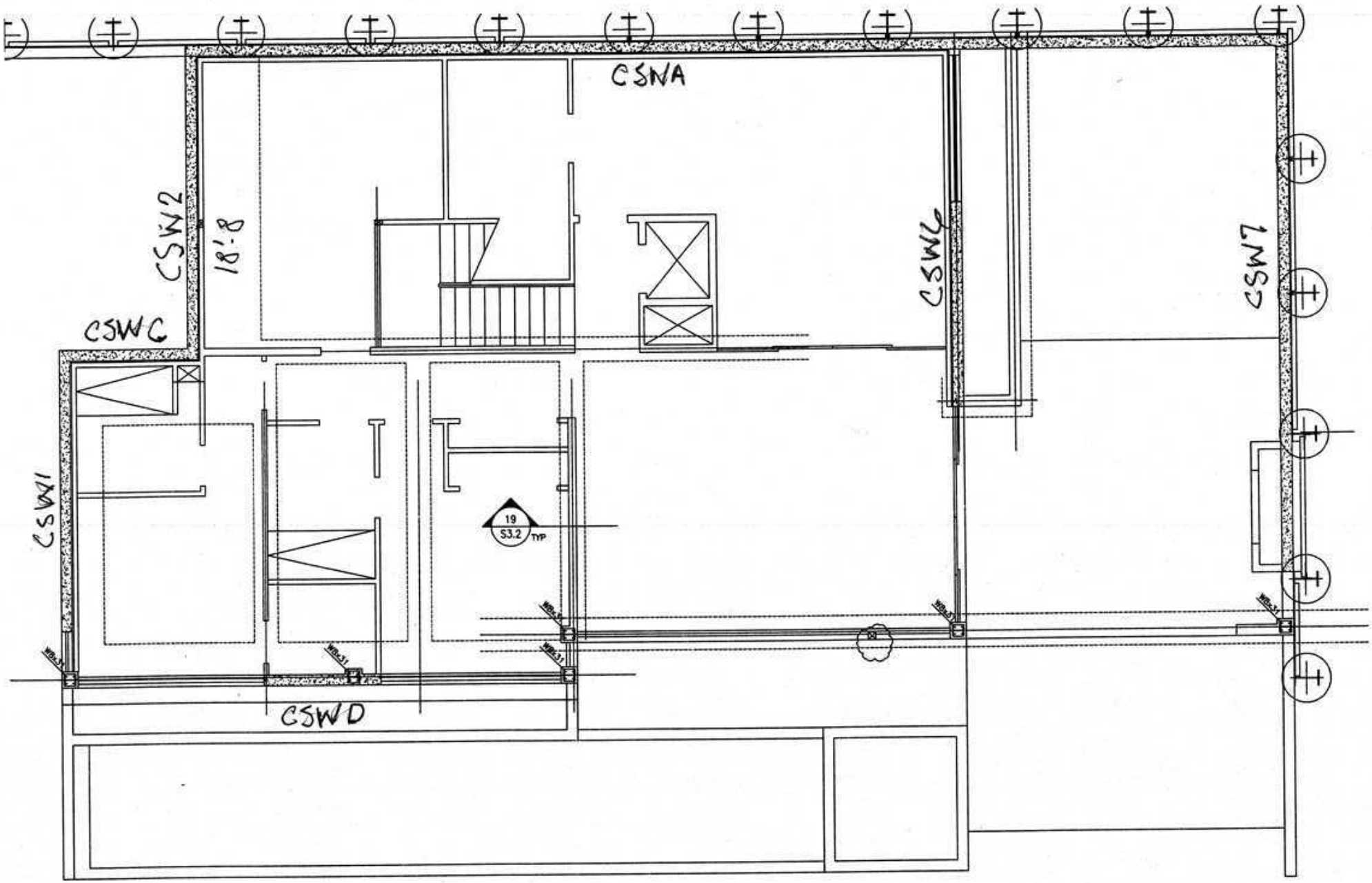
$H := 12 \quad r := rD \quad Trib := 20$

$Vs := r \cdot (Vs2long) \cdot \frac{Trib}{2 \cdot 39.5} \qquad Vs = 2701.8$

$Vw := \frac{(Vw2long) \cdot Trib}{39.5 \cdot 2} \qquad Vw = 1669.7$

See Risa Model for design of moment frame

Homeboy 322?



BASEMENT SHEAR WALLS

L13

First Floor Concrete Shear Walls

Shear Wall Redundancy

As long as the total shear wall length divided by the story height is greater than or equal to 2, a redundancy factor of 1.0 is allowed.

H := 12

L1 := 17	L1 = 17	$NoBays := \frac{L1}{H}$	NoBays = 1.42	r1 := 1.3
L2 := 19	L2 = 19	$NoBays := \frac{L2}{H}$	NoBays = 1.58	r2 := 1.3
L6 := 12.66	L6 = 12.7	$NoBays := \frac{L6}{H}$	NoBays = 1.05	r6 := 1.3
L7 := 33	L7 = 33	$NoBays := \frac{L7}{H}$	NoBays = 2.8	r7 := 1.0
LA := 68	LA = 68	$NoBays := \frac{LA}{H}$	NoBays = 5.7	rA := 1.0
LC := 8.66	LC = 8.7	$NoBays := \frac{LC}{H}$	NoBays = 0.7	rC := 1.3
LD := 7.14	LD = 7.1	$NoBays := \frac{LD}{H}$	NoBays = 0.6	rD := 1.3

Shear Walls CSW1, 2, 7 & A

By inspection, due to the long lengths of these walls, they are adequate for the seismic loads from the structure. The design of the walls is governed by the wall bending due to the soil loads that are addressed in the retaining wall design.

Shear Wall CSW6

L := L6 H := 12 r := r6

Vs := r·(Vs1)·(.5) Vs = 19162.9

Vw := (Vwtrans)·.5 Vw = 15882.5

Vu := if(Vw > Vs, Vw·1.6, Vs·1.4) Vu = 26828

lw := L hw := H bw := .66 $\frac{hw}{lw} = 0.9$ < 2 therefore qualifies as wall

$\frac{lw}{bw} = 19.2$ > 6 therefore qualifes as wall

Acv := lw·12·bw·12 $Vn := Acv \cdot (4000)^{.5}$ Vn = 76097.5

.0025·8·12 = 0.24 Because Vn>Vu #4h @ 12" ok

$I := lw^3 \cdot 144 \cdot bw$ $I = 192844.6$ $E := 3600000$ $du := \frac{Vu \cdot hw^3 \cdot 1728}{3 \cdot I \cdot E}$ $du = 0.038$

$fac := if\left(\frac{du}{lw \cdot 12} < .005, .005, \frac{du}{lw \cdot 12}\right)$ $fac = 0.005$

$cmax := \frac{lw \cdot 12}{600 \cdot 1.5 \cdot fac}$ $cmax = 33.8$ $Mu := Vu \cdot hw$ $Mu = 321935.9$

$As := 3 \cdot .31$ $a := \frac{As \cdot 60}{.85 \cdot bw \cdot 12}$ $a = 8.3$ $PhiMn := .9 \cdot As \cdot (lw \cdot 12 - 4) \cdot \frac{60000}{12}$

$PhiMn = 619045.2$

$c := \frac{a}{.75}$ $c = 11.1$ because c<cmax no boundary element required

Use: #5v@12" & #4v @ 12"

Shear Wall CSWC

$L := LC$ $H := 12$ $r := rC$

$Vs := r \cdot (Vs1) \cdot (.5)$ $Vs = 19162.9$

$Vw := (Vwlong) \cdot .5$ $Vw = 5955.7$

$Vu := if(Vw > Vs, Vw \cdot 1.6, Vs \cdot 1.4)$ $Vu = 26828$

$lw := L$ $hw := H$ $bw := .66$ $\frac{hw}{lw} = 1.4$ < 2 therefore qualifies as wall

$\frac{lw}{bw} = 13.1$ > 6 therefore qualifes as wall

$Acv := lw \cdot 12 \cdot bw \cdot 12$ $Vn := Acv \cdot (4000)^{.5}$ $Vn = 52054$

$.0025 \cdot 8 \cdot 12 = 0.24$ Because Vn>Vu #4h @ 12" ok

$I := lw^3 \cdot 144 \cdot bw$ $I = 61724.9$ $E := 3600000$ $du := \frac{Vu \cdot hw^3 \cdot 1728}{3 \cdot I \cdot E}$ $du = 0.12$

$fac := if\left(\frac{du}{lw \cdot 12} < .005, .005, \frac{du}{lw \cdot 12}\right)$ $fac = 0.005$

$cmax := \frac{lw \cdot 12}{600 \cdot 1.5 \cdot fac}$ $cmax = 23.1$ $Mu := Vu \cdot hw$ $Mu = 321935.9$

$As := 3 \cdot .31$ $a := \frac{As \cdot 60}{.85 \cdot bw \cdot 12}$ $a = 8.3$ $PhiMn := .9 \cdot As \cdot (lw \cdot 12 - 4) \cdot \frac{60000}{12}$

$PhiMn = 418165.2$

$c := \frac{a}{.75}$ $c = 11.1$ because c<cmax no boundary element required

Use: #5v@12" & #4v @ 12"

Shear Wall CSWD

$L := LD \quad H := 12 \quad r := rD$

$Vs := r \cdot (Vs1) \cdot \left(\frac{20}{2 \cdot 39}\right)$ $\quad Vs = 9827.1$

$Vw := (Vwlong) \cdot \left(\frac{20}{39 \cdot 2}\right)$ $\quad Vw = 3054.2$

$Vu := if(Vw > Vs, Vw \cdot 1.6, Vs \cdot 1.4)$ $\quad Vu = 13757.9$

$lw := L \quad hw := H \quad bw := .66$ $\quad \frac{hw}{lw} = 1.7$ < 2 therefore qualifies as wall

$\frac{lw}{bw} = 10.8$ > 6 therefore qualifes as wall

$Acv := lw \cdot 12 \cdot bw \cdot 12 \quad Vn := Acv \cdot (4000)^{.5} \quad Vn = 42917.5$

$.0025 \cdot 8 \cdot 12 = 0.24$ Because Vn>Vu #4h @ 12" ok

$I := lw^3 \cdot 144 \cdot bw \quad I = 34594 \quad E := 3600000 \quad du := \frac{Vu \cdot hw^3 \cdot 1728}{3 \cdot I \cdot E} \quad du = 0.11$

$fac := if\left(\frac{du}{lw \cdot 12} < .005, .005, \frac{du}{lw \cdot 12}\right)$ $\quad fac = 0.005$

$cmax := \frac{lw \cdot 12}{600 \cdot 1.5 \cdot fac} \quad cmax = 19 \quad Mu := Vu \cdot hw \quad Mu = 165095.3$

$As := 3 \cdot .31 \quad a := \frac{As \cdot 60}{.85 \cdot bw \cdot 12} \quad a = 8.3 \quad PhiMn := .9 \cdot As \cdot (lw \cdot 12 - 4) \cdot \frac{60000}{12}$

$PhiMn = 341830.8$

$c := \frac{a}{.75} \quad c = 11.1$ because c<cmax no boundary element required

Use: #5v@12" & #4v @ 12"

Garage Floor Steel Beams

$Span := 21$ $Trib := 5.66$ $wd := 70$ $wl := 50$

$Mt := \frac{Span^2 \cdot Trib \cdot (wd + wl)}{8}$ $Mt = 37440.9$ $Sr := \frac{Mt \cdot 12}{.6 \cdot 50000}$ $Sr = 14.976$

$Ir := \frac{5 \cdot Trib \cdot (wd + wl) \cdot Span^3 \cdot 144 \cdot 480}{384 \cdot 29000000}$ $Ir = 195.209$

Use: W18x35

First Floor Awning

$Cant := 6.5$ $Trib := 9$ $wd := 8$ $wsn := 30$

$Pcant := \frac{Cant}{2} \cdot Trib \cdot (wd + wsn)$ $Mcant := Pcant \cdot Cant$ $Pcant = 1111.5$

$Mcant = 7224.75$ $Sr := \frac{Mcant \cdot 12}{.6 \cdot 50000}$ $Sr = 2.89$

$Ir := \frac{Pcant \cdot Cant^3 \cdot 1728}{3 \cdot 29000000 \cdot .5}$ $Ir = 12.126$ Use: C10x15.3

Weld

$Lw := 10$ $tw := \frac{1}{4}$ $Sw := tw \cdot \frac{Lw^2}{6}$ $Sw = 4.167$

$fw := \frac{Mcant \cdot 12}{Sw}$ $fw = 20807.28$ Use: 3/16 fillet full height plus 2.5" return

Shoring Design Parameters

Taken from Geotech Consultants report dated May 28, 2021

Cantilevered Temporary or Permanent with level back slope	40 pcf w/ 1.5 FOS
Cantilevered Temporary or Permanent with sloped back slope	60 pcf w/ 1.5 FOS
Cantilevered Permanent	9xH psf w/ 1.2 FOS
Traffic surcharge on temporary or permanent wall	Add 2' to des ht
Catchment Walls north of garage	

Lagging Design

Temporary Lagging
For Pile Spacing < 6' use .3 x ECP
For Pile Spacing >6' use .5 x ECP
For Permanent Concrete Lagging Use ECP

Lagging Design

4x Lagging North Catchment Walls

$Fb := 1.1 \cdot 1.1 \cdot 900$

$Hmax := 9 \quad ECP := 60 \quad Spac := 8 \quad wh := Hmax \cdot ECP \quad wh = 540$

$Mh := wh \cdot \frac{Spac^2}{8} \quad Mh = 4320 \quad Treq := \left(\frac{Mh \cdot .5 \cdot 12}{2 \cdot Fb}\right)^{.5} \quad Treq = 3.45$

Use: 4x lagging for first 9'-0" ht of north catchment walls

6x Lagging North Catchment Walls

$Fb := 875$

$Hmax := 19.33 \quad ECP := 60 \quad Spac := 7.5 \quad wh := Hmax \cdot ECP \quad wh = 1159.8$

$Mh := wh \cdot \frac{Spac^2}{8} \quad Mh = 8154.844 \quad Treq := \left(\frac{Mh \cdot .5 \cdot 12}{2 \cdot Fb}\right)^{.5} \quad Treq = 5.288$

Use: 6x lagging from 9'-0" ht to up to 19'-4" of north catchment walls

4x Lagging East West Shoring Walls

$Fb := 1.1 \cdot 1.1 \cdot 900$

$Hmax := 14 \quad ECP := 40 \quad Spac := 8 \quad wh := Hmax \cdot ECP \quad wh = 560$

$Mh := wh \cdot \frac{Spac^2}{8} \quad Mh = 4480 \quad Treq := \left(\frac{Mh \cdot .5 \cdot 12}{2 \cdot Fb}\right)^{.5} \quad Treq = 3.513$

Use: 4x lagging for first 13'-0" ht of East West Shoring walls

6x Lagging East West Shoring Walls

$Fb := 875$

$Hmax := 20$ $ECP := 40$ $Spac := 8$ $wh := Hmax \cdot ECP$ $wh = 800$

$Mh := wh \cdot \frac{Spac^2}{8}$ $Mh = 6400$ $Treq := \left(\frac{Mh \cdot .5 \cdot 12}{2 \cdot Fb}\right)^{.5}$ $Treq = 4.684$

Use: 6x lagging from 13'-0" ht to up to 20' of East West Shoring walls

Permanent Concrete Lagging North Catchment Walls

First 8'

$Hmax := 8$ $ECP := 60$ $Spac := 8$ $wh := Hmax \cdot ECP$ $wh = 480$

$whu := wh \cdot 1.6$ $Mhu := \frac{Spac^2 \cdot whu}{10}$ $Mhu = 4915.2$

$d := 4$ $As := .31 \cdot \frac{12}{12}$ $a := \frac{60 \cdot As}{.85 \cdot 12 \cdot 2.5}$ $a = 0.729$

$PhiMc := As \cdot 60 \cdot .9 \cdot \left(d - \frac{a}{2}\right) \cdot \frac{1}{12}$ $PhiMc = 5.071$ Use: 8" Conc wall with #5v&h @ 12" ea way

Welded Studs

$Rmax := wh \cdot Spac$ $Rmax = 3840$ $Tall := \frac{11}{1.6}$ $Tall = 6.875$

Use: 3/4"dia x 6" welded headed studs @ 18" oc

8' to 14'

$Hmax := 14$ $ECP := 60$ $Spac := 8$ $wh := Hmax \cdot ECP$ $wh = 840$

$whu := wh \cdot 1.6$ $Mhu := \frac{Spac^2 \cdot whu}{10}$ $Mhu = 8601.6$

$d := 4$ $As := .44 \cdot \frac{12}{9}$ $a := \frac{60 \cdot As}{.85 \cdot 12 \cdot 2.5}$ $a = 1.38$

$PhiMc := As \cdot 60 \cdot .9 \cdot \left(d - \frac{a}{2}\right) \cdot \frac{1}{12}$ $PhiMc = 8.738$ Use: 8" Conc wall with #5v@12" &#6h @ 9"

Welded Studs

$Rmax := wh \cdot Spac$ $Rmax = 6720$ $Tall := \frac{11}{1.6}$ $Tall = 6.875$

Use: 3/4"dia x 6" welded headed studs @ 12" oc

14' to 18'

$Hmax := 19.33$ $ECP := 60$ 8 $wh := Hmax \cdot ECP$ $wh = 1159.8$

$whu := wh \cdot 1.6$ $Mhu := \frac{Spac^2 \cdot whu}{10}$ $Mhu = 11876.352$

$d := 4$ $As := .44 \cdot \frac{12}{6}$ $a := \frac{60 \cdot As}{.85 \cdot 12 \cdot 2.5}$ $a = 2.071$

$PhiMc := As \cdot 60 \cdot .9 \cdot \left(d - \frac{a}{2}\right) \cdot \frac{1}{12}$ $PhiMc = 11.74$ Use: 8" Conc wall with #5v@ 12" &#6h @ 6"

Welded Studs

$Rmax := wh \cdot Spac$ $Rmax = 9278.4$ $Tall := \frac{11}{1.6}\left(\frac{12}{8}\right)$ $Tall = 10.313$

Use: 3/4"dia x 6" welded headed studs @ 8" oc

Wales

Piles P2-P7

$Span := 8$ $Fh := 94$ $Fv := 54.2$ $L1 := 2$ $L2 := 6$ $Hwall := 26$

$Mh := \frac{Fh \cdot L1 \cdot L2}{Span}$ $Mh = 141$ $Shr := \frac{Mh \cdot 12}{2 \cdot 46 \cdot .6}$ $Shr = 30.652$

$Mv := \frac{Fv \cdot L1 \cdot L2}{Span}$ $Mv = 81.3$ $Svr := \frac{Mv \cdot 12}{2 \cdot 46 \cdot .6}$ $Svr = 17.674$

See Risa Analysis Use: 2-HSS10x8x.5 Horiz & 2-HSS6x6x.375 Vert

Embedment Requirement due to Tieback Vertical &Wall load

$Emb := 10$ $Skin := 2$ $Dia := 3$ $A := 3.14 \cdot Dia$ $A = 9.42$ $t := 8$

$Pall := Emb \cdot A \cdot Skin$ $Pall = 188.4$

$Pwall := Hwall \cdot \frac{t}{12} \cdot .150 \cdot Span + Fv$ $Pwall = 75$ 10 feet emb ok

Piles P8-P10

Span := 8 Fh := 47.4 Fv := 23.7 L1 := 2 L2 := 6 Hwall := 22

$Mh := \frac{Fh \cdot L1 \cdot L2}{Span}$ Mh = 71.1 $Shr := \frac{Mh \cdot 12}{2 \cdot 46 \cdot .6}$ Shr = 15.457

$Mv := \frac{Fv \cdot L1 \cdot L2}{Span}$ Mv = 35.55 $Svr := \frac{Mv \cdot 12}{2 \cdot 46 \cdot .6}$ Svr = 7.728

See Risa Analysis Use: 2-HSS8x6x.5 Horiz & 2-HSS6x4x.375 Vert

Embedment Requirement due to Tieback Vertical &Wall load

Emb := 10 Skin := 2 Dia := 3 A := 3.14·Dia A = 9.42 t := 8

Pall := Emb·A·Skin Pall = 188.4

$Pwall := Hwall \cdot \frac{t}{12} \cdot .150 \cdot Span + Fv$ Pwall = 41.3 10 feet emb ok

Piles P26-P29

Span := 8 Fh := 22.5 Fv := 13 L1 := 2 L2 := 6 Hwall := 20

$Mh := \frac{Fh \cdot L1 \cdot L2}{Span}$ Mh = 33.75 $Shr := \frac{Mh \cdot 12}{2 \cdot 46 \cdot .6}$ Shr = 7.337

$Mv := \frac{Fv \cdot L1 \cdot L2}{Span}$ Mv = 19.5 $Svr := \frac{Mv \cdot 12}{2 \cdot 46 \cdot .6}$ Svr = 4.239

See Risa Analysis Use: 2-HSS8x6x.5 Horiz & 2-HSS6x4x.375 Vert

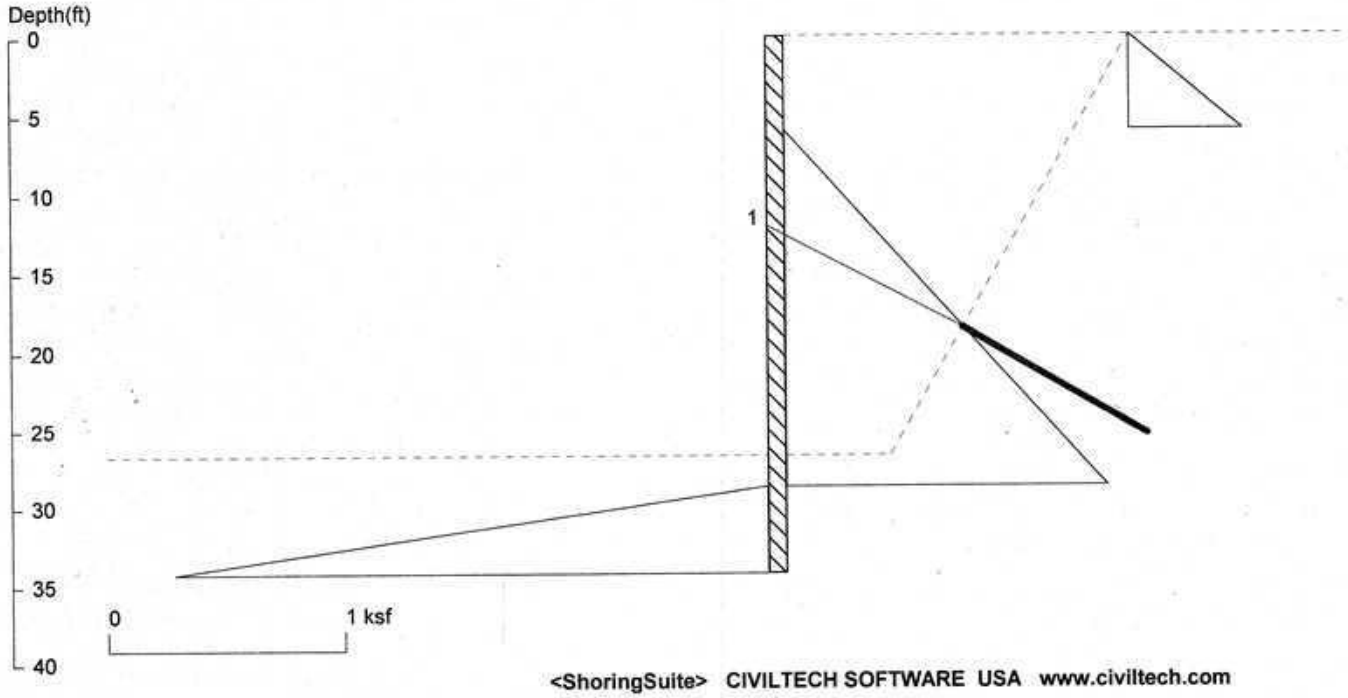
Embedment Requirement due to Tieback Vertical &Wall load

Emb := 10 Skin := 2 Dia := 3 A := 3.14·Dia A = 9.42 t := 8

Pall := Emb·A·Skin Pall = 188.4

$Pwall := Hwall \cdot \frac{t}{12} \cdot .150 \cdot Span + Fv$ Pwall = 29 10 feet emb ok

P1
With Catchment FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P1 with catchment.sh8

Wall Height=26.7 Pile Diameter=3.0 Pile Spacing=4.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=7.57 Min. Pile Length=34.23
MOMENT IN PILE: Max. Moment=150.66 per Pile Spacing=4.0 at Depth=23.27

PILE SELECTION:
Request Min. Section Modulus = 76.1 in3/pile=1246.90 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W10X77 (-1.00) HP12X63 (-0.97) W12X58 (-0.96) HP13X60 (-0.91) HP14X73 (-0.63)
W14X53 (-0.84) W16X50 (-0.69) HP16X88 (-0.41) W16X89 (-0.35) HP16X101 (-0.35)
W16X100 (-0.31) HP16X121 (-0.29) W18X46 (-0.64) HP18X135 (-0.21)

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	12.0	30.0	4.0	47.9	41.5	24.0	13.1	13.6

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
6	0	28.66	1.360	.060
0	0	6	0.480	.08

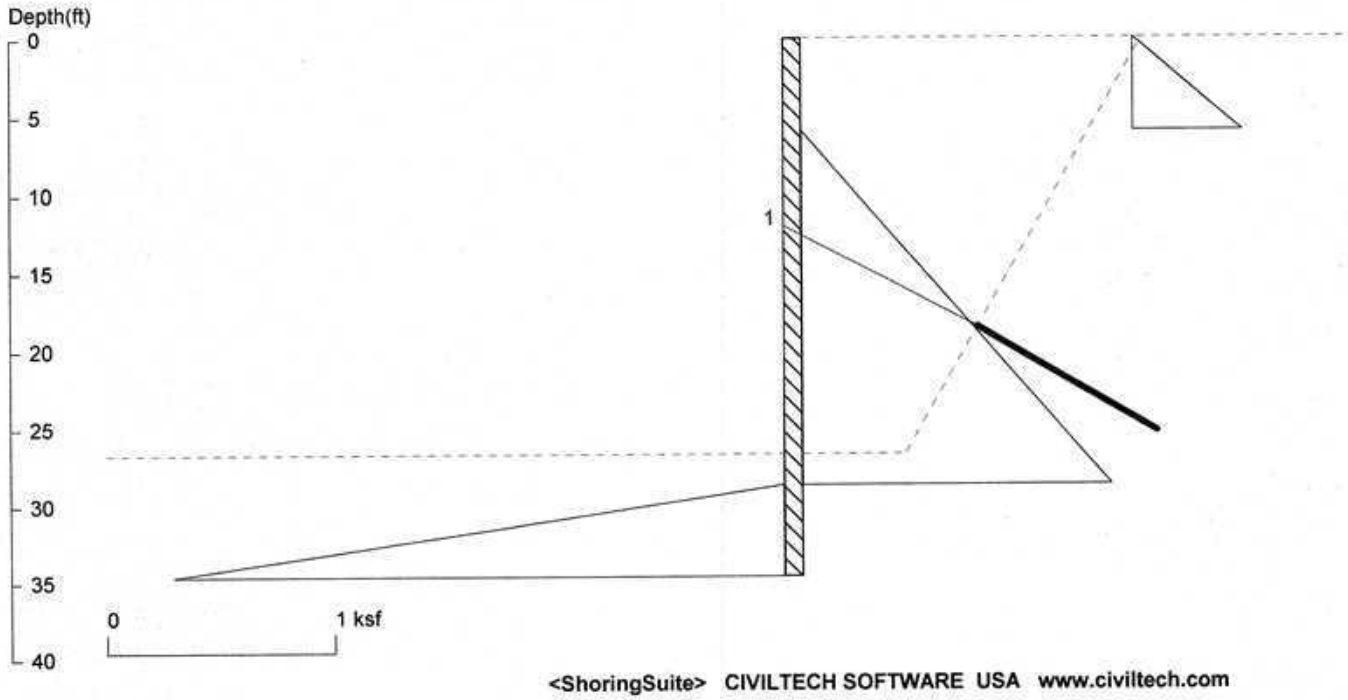
PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
28.66	0	50	9.603	.45

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	4.00
2	26.66	3.00

P2-P7
With Catchment FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P2-P7 with catchment.sh8

Wall Height=26.7 Pile Diameter=3.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=7.97 Min. Pile Length=34.63
MOMENT IN PILE: Max. Moment=287.00 per Pile Spacing=8.0 at Depth=23.11

PILE SELECTION:
Request Min. Section Modulus = 144.9 in3/pile=2375.27 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X106 (-0.94) HP14X102 (-0.83) W14X99 (-0.79) HP16X88 (-0.79) W16X89 (-0.67)
HP16X101 (-0.67) W16X100 (-0.59) HP16X121 (-0.55) W18X76 (-0.66) HP18X135 (-0.40)
W18X130 (-0.36) HP18X157 (-0.34) W18X158 (-0.29) HP18X181 (-0.29)

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	12.0	30.0	4.0	47.2	40.9	23.6	13.1	13.4

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
6	0	28.66	1.360	.060
0	0	6	0.480	.08

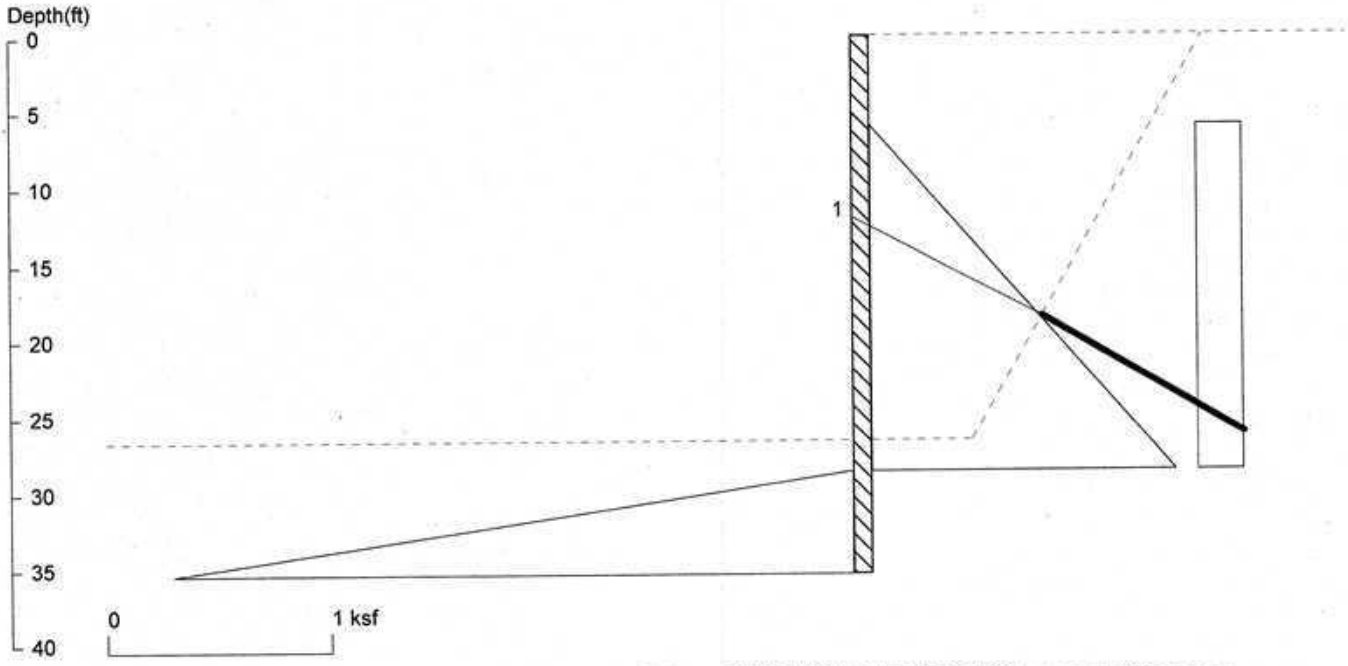
PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
28.66	0	50	9.603	.45

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	26.66	3.00

P2-P7
With Seismic FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P2-P7 with seismic.sh8

Wall Height=26.7 Pile Diameter=3.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=8.75 Min. Pile Length=35.41
MOMENT IN PILE: Max. Moment=405.22 per Pile Spacing=8.0 at Depth=22.69

PILE SELECTION:
Request Min. Section Modulus = 204.7 in3/pile=3353.68 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X152 (-1.31) W14X132 (-1.22) HP16X141 (-1.00) W18X119 (-0.85) HP18X135 (-0.85)
W18X130 (-0.76) HP18X157 (-0.72) W18X158 (-0.61) HP18X181 (-0.62) W18X175J (-0.54)
HP18X204 (-0.54) W18X192J (-0.48) W21X101 (-0.77) W24X94 (-0.69)

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	12.0	30.0	4.0	54.2	47.0	27.1	13.1	15.4

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
6	0	28.66	1.360	.060
6	.204	28.66	0.204	0

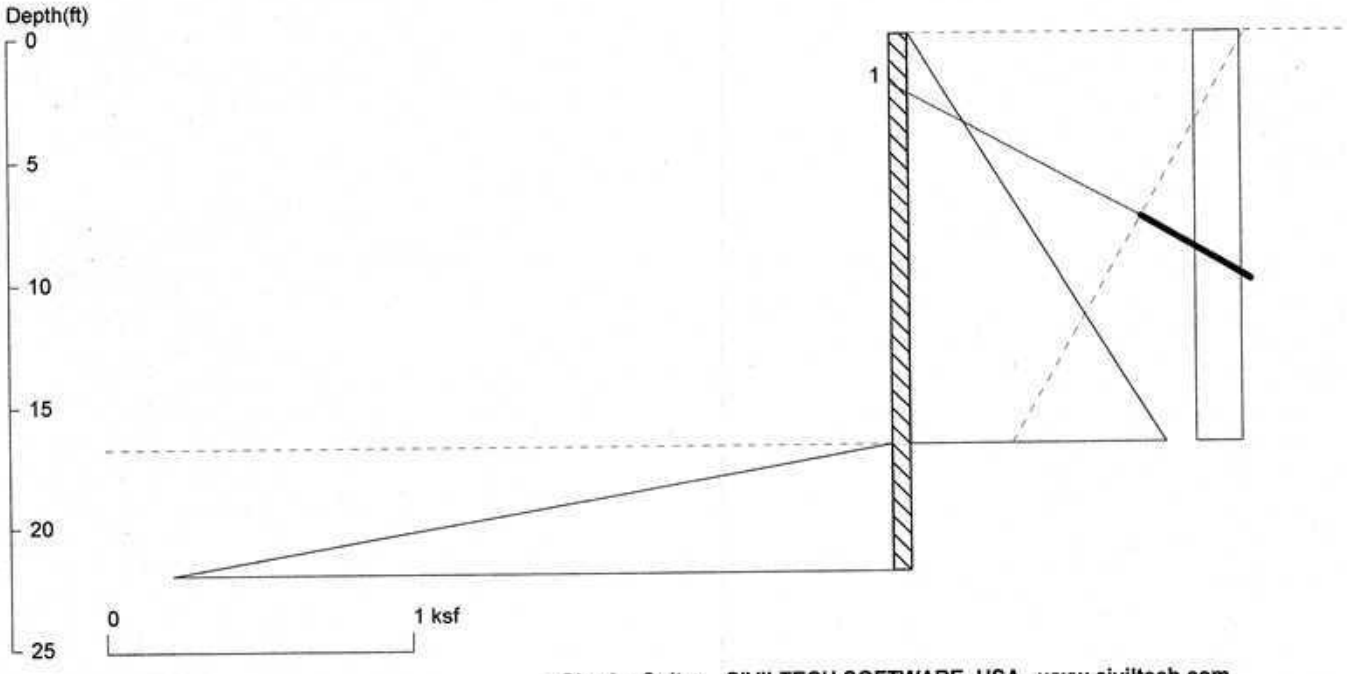
PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
28.66	0	50	9.603	.45

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	26.66	3.00

P8-P10
With Seismic FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P8-P10 with seismic.sh8

Wall Height=16.8 Pile Diameter=3.0 Pile Spacing=7.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=5.24 Min. Pile Length=21.99
MOMENT IN PILE: Max. Moment=182.89 per Pile Spacing=7.0 at Depth=11.62

PILE SELECTION:
Request Min. Section Modulus = 92.4 in3/pile=1513.65 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W10X88 (-0.24) HP12X74 (-0.23) W12X72 (-0.22) HP13X73 (-0.21) HP14X73 (-0.18)
W14X68 (-0.18) W16X67 (-0.14) HP16X88 (-0.12) W16X89 (-0.10) HP16X101 (-0.10)
W16X100 (-0.09) HP16X121 (-0.08) W18X55 (-0.15) HP18X135 (-0.06)

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	2.0	30.0	4.0	23.7	20.5	11.9	11.0	6.7

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	16.75	0.838	.05
0	.151	16.75	0.151	0

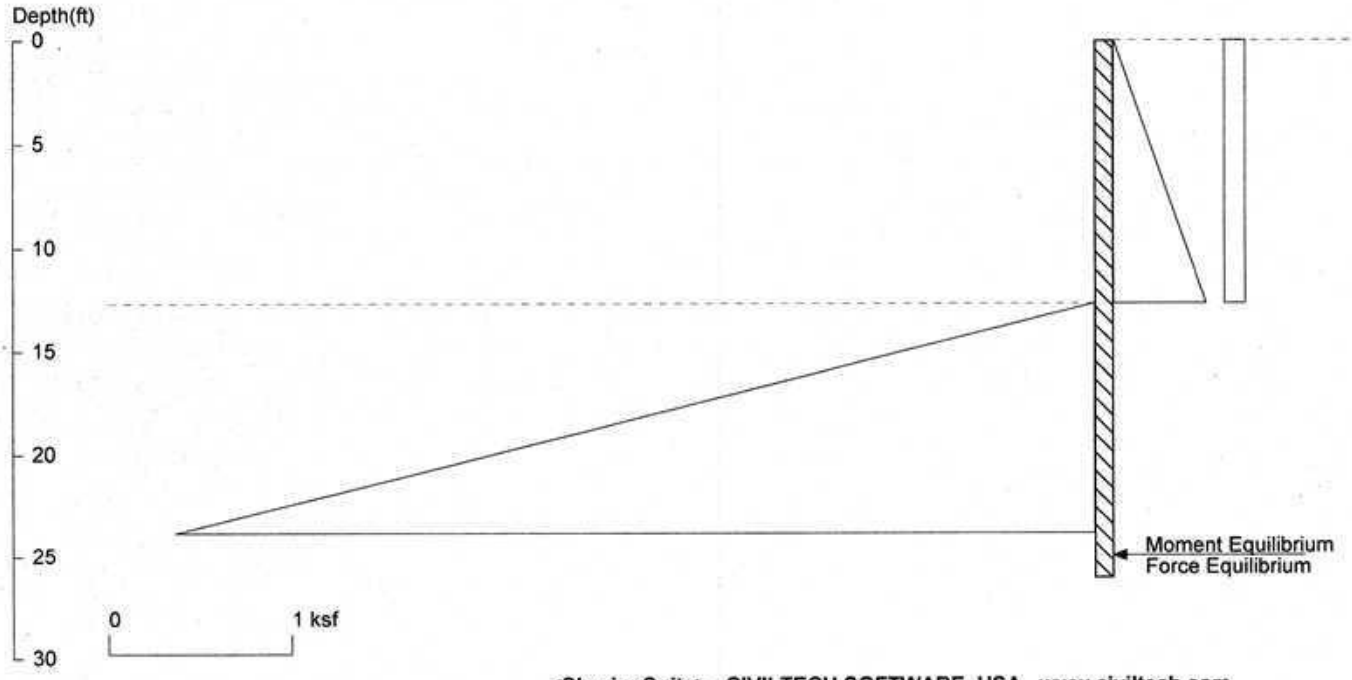
PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
16.75	0	50	14.96	.45

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	7.00
2	16.75	3.00

P11
With Seismic FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P11-P12 with seismic.sh8

Wall Height=12.7 Pile Diameter=3.0 Pile Spacing=7.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=13.40 Min. Pile Length=26.06
MOMENT IN PILE: Max. Moment=275.32 per Pile Spacing=7.0 at Depth=18.03

PILE SELECTION:
Request Min. Section Modulus = 139.0 in3/pile=2278.59 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X106 (1.22) HP14X102 (1.08) W14X90 (1.14) HP16X88 (1.02) W16X89 (0.87)
HP16X101 (0.88) W16X100 (0.76) HP16X121 (0.72) W18X76 (0.85) HP18X135 (0.52)
W18X130 (0.46) HP18X157 (0.44) W18X158 (0.37) HP18X181 (0.38)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	12.66	0.506	.04
0	.114	12.66	0.114	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
12.66	0	50	16.803	.45

ACTIVE SPACING:

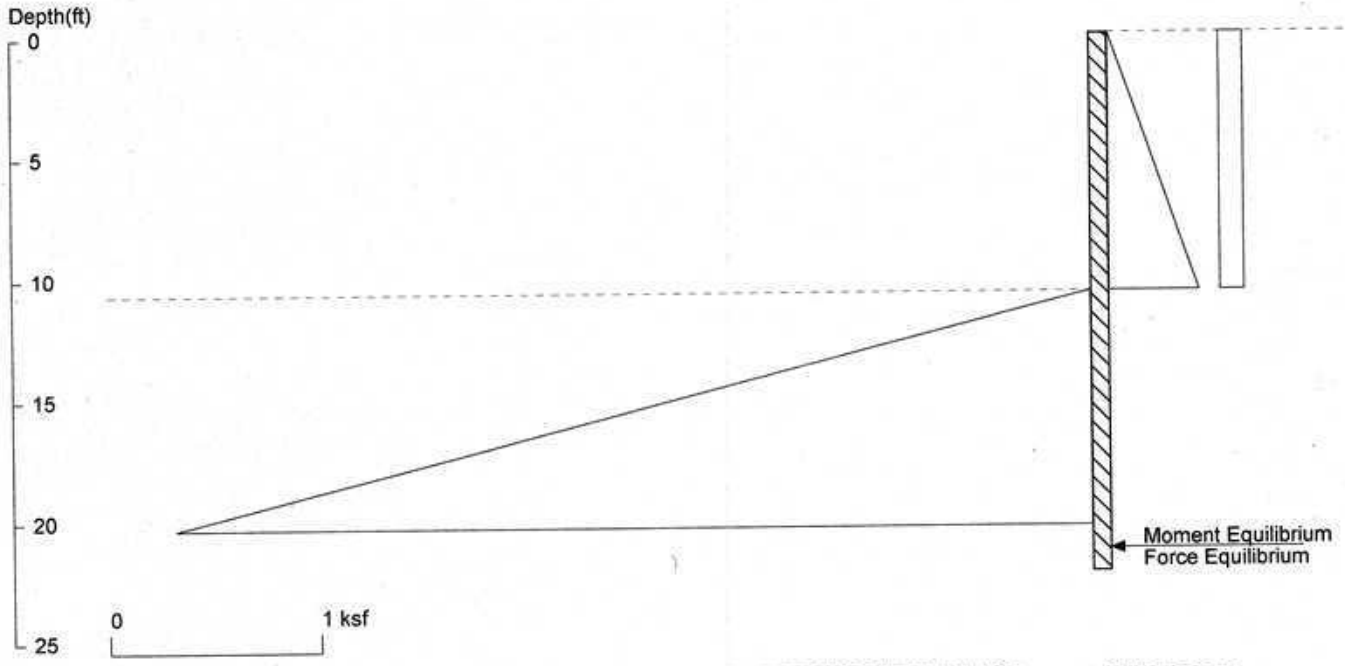
No.	Z depth	Spacing
1	0.00	7.00
2	12.66	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	12.66	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P12
With Seismic FOS = 1.2



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Wall Height=10.7 Pile Diameter=3.0 Pile Spacing=7.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=11.59 Min. Pile Length=22.25
MOMENT IN PILE: Max. Moment=177.70 per Pile Spacing=7.0 at Depth=15.33

PILE SELECTION:
Request Min. Section Modulus = 89.7 in3/pile=1470.69 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W10X88 (1.00) HP12X74 (0.94) W12X72 (0.90) HP13X73 (0.85) HP14X73 (0.73)
W14X61 (0.84) W16X57 (0.71) HP16X88 (0.48) W16X89 (0.41) HP16X101 (0.41)
W16X100 (0.36) HP16X121 (0.34) W18X55 (0.60) HP18X135 (0.24)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	10.66	0.426	.04
0	.114	10.66	0.114	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
10.66	0	50	17.703	.45

ACTIVE SPACING:

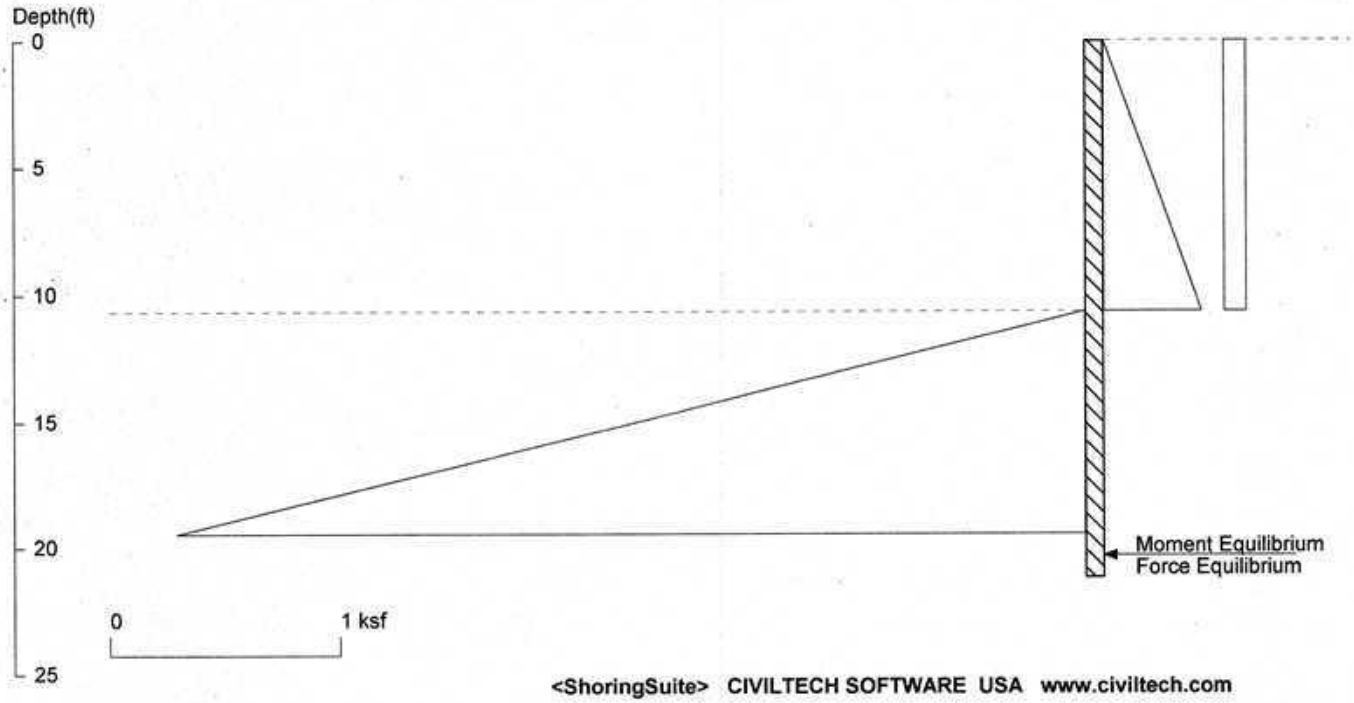
No.	Z depth	Spacing
1	0.00	7.00
2	10.66	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	10.66	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P13
With Seismic FOS = 1.2



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Wall Height=10.7 Pile Diameter=2.0 Pile Spacing=3.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=10.55 Min. Pile Length=21.21
MOMENT IN PILE: Max. Moment=79.60 per Pile Spacing=3.5 at Depth=14.85

PILE SELECTION:
Request Min. Section Modulus = 40.2 in3/pile=658.80 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X48 (1.25) HP10X42 (1.10) W10X39 (1.10) HP12X53 (0.59) W12X35 (0.81)
HP13X60 (0.46) HP14X73 (0.32) W14X30 (0.79) W16X31 (0.61) HP16X88 (0.21)
W16X89 (0.18) HP16X101 (0.18) W16X100 (0.15) HP16X121 (0.15)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	10.66	0.426	.04
0	.096	10.66	0.096	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
10.66	0	50	17.703	.45

ACTIVE SPACING:

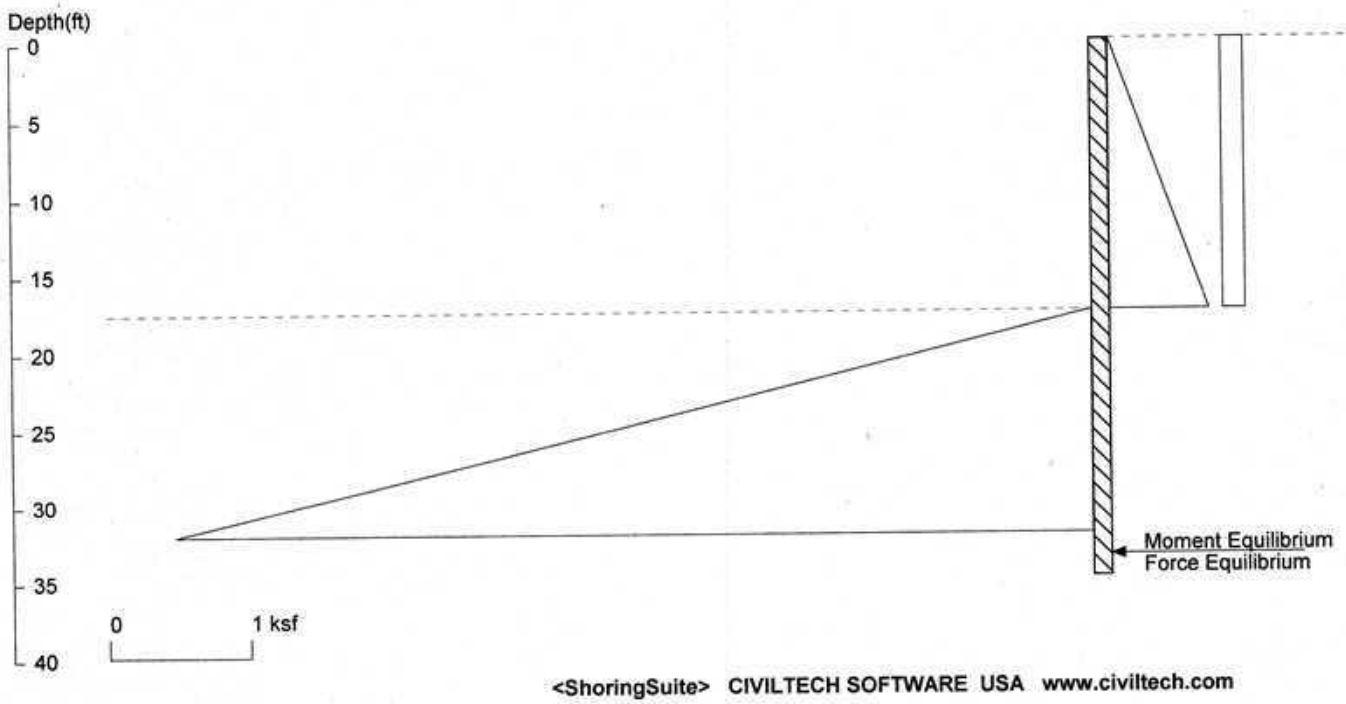
No.	Z depth	Spacing
1	0.00	3.50
2	10.66	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	10.66	3.50

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P14
With Seismic FOS = 1.2



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Wall Height=17.5 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=17.33 Min. Pile Length=34.83

MOMENT IN PILE: Max. Moment=604.39 per Pile Spacing=6.0 at Depth=24.38

PILE SELECTION:

Request Min. Section Modulus = 305.2 in3/pile=5002.12 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66

-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)

W12X230J (1.90) W14X193 (1.92) W18X158 (1.51) HP18X181 (1.53) W18X175J (1.34)
HP18X204 (1.34) W18X192J (1.19) W21X147 (1.27) W24X131 (1.15) W27X129 (0.97)
W30X116 (0.93) W33X118 (0.78) W36X135 (0.59) W40X149 (0.47)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	17.5	0.700	.04
0	.158	17.5	0.158	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
17.5	0	50	14.62	.45

ACTIVE SPACING:

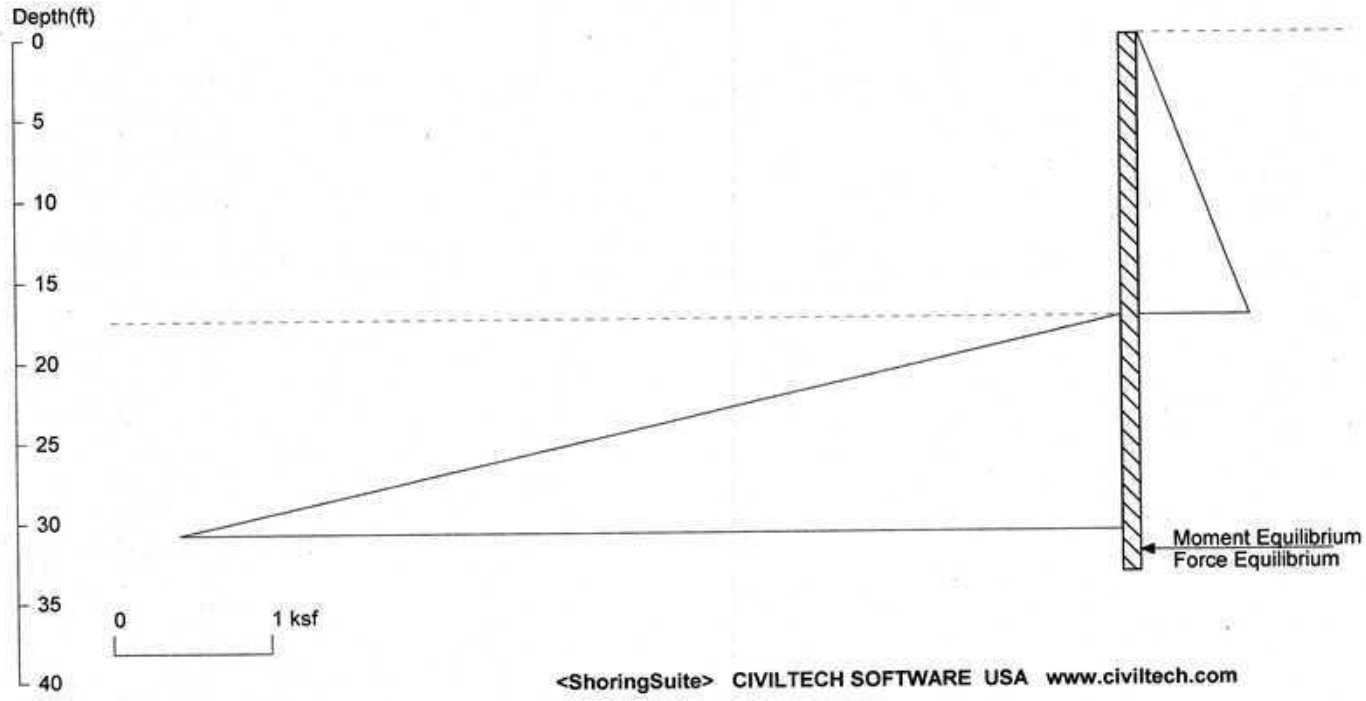
No.	Z depth	Spacing
1	0.00	6.00
2	17.50	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	17.50	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P14
Without Seismic FOS = 1.5



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Wall Height=17.5 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=15.93 Min. Pile Length=33.43

MOMENT IN PILE: Max. Moment=370.93 per Pile Spacing=6.0 at Depth=23.90

PILE SELECTION:

Request Min. Section Modulus = 187.3 in3/pile=3069.93 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66

-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)

W12X152 (1.78) W14X120 (1.84) HP16X121 (1.61) W18X97 (1.45) HP18X135 (1.16)
W18X130 (1.03) HP18X157 (0.99) W18X158 (0.83) HP18X181 (0.84) W18X175J (0.74)
HP18X204 (0.74) W18X192J (0.66) W21X93 (1.23) W24X84 (1.07)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	17.5	0.700	.04

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.5

Z1	P1	Z2	P2	Slope
17.5	0	50	14.62	.45

ACTIVE SPACING:

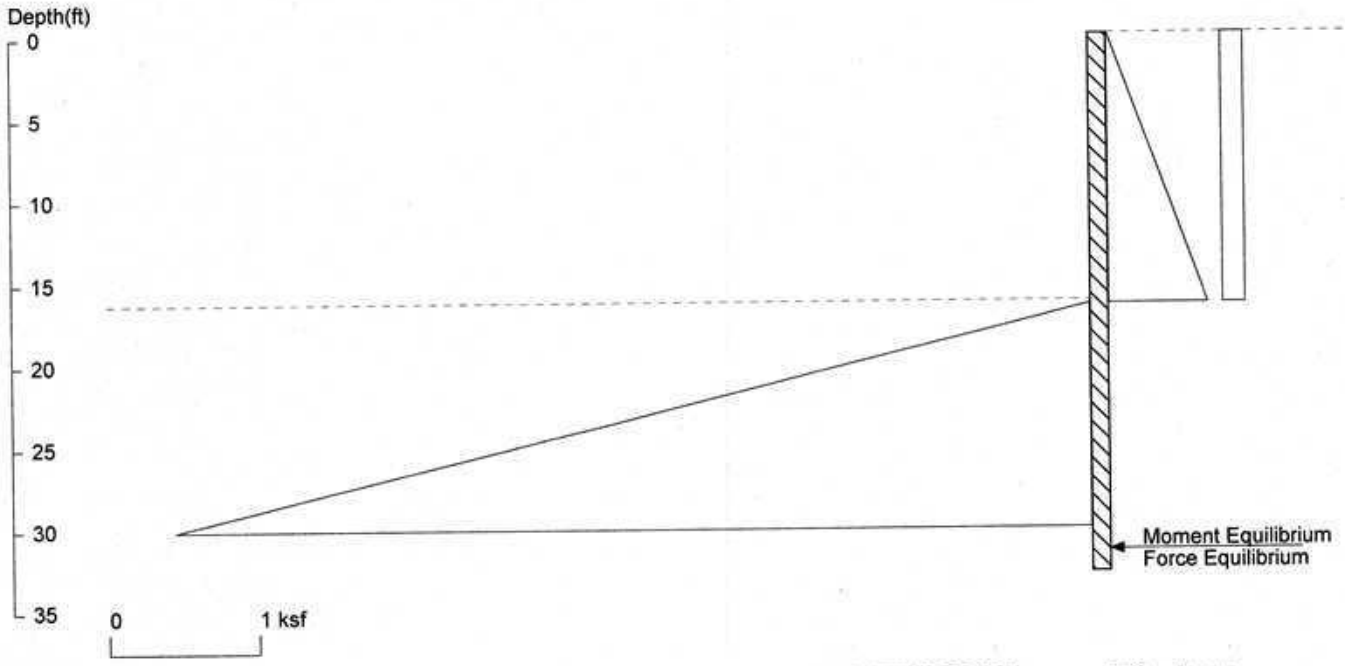
No.	Z depth	Spacing
1	0.00	6.00
2	17.50	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	17.50	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P15
With Seismic FOS = 1.2



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Wall Height=16.3 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=16.58 Min. Pile Length=32.83
MOMENT IN PILE: Max. Moment=502.66 per Pile Spacing=6.0 at Depth=22.95

PILE SELECTION:
Request Min. Section Modulus = 253.9 in3/pile=4160.11 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X190J (1.75) W14X159 (1.74) HP16X162 (1.52) W18X130 (1.35) HP18X157 (1.28)
W18X158 (1.08) HP18X181 (1.10) W18X175J (0.96) HP18X204 (0.96) W18X192J (0.86)
W21X122 (1.12) W24X104 (1.07) W27X102 (0.91) W30X99 (0.83)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	16.5	0.660	.04
0	.149	16.5	0.149	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
16.5	0	50	15.075	.45

ACTIVE SPACING:

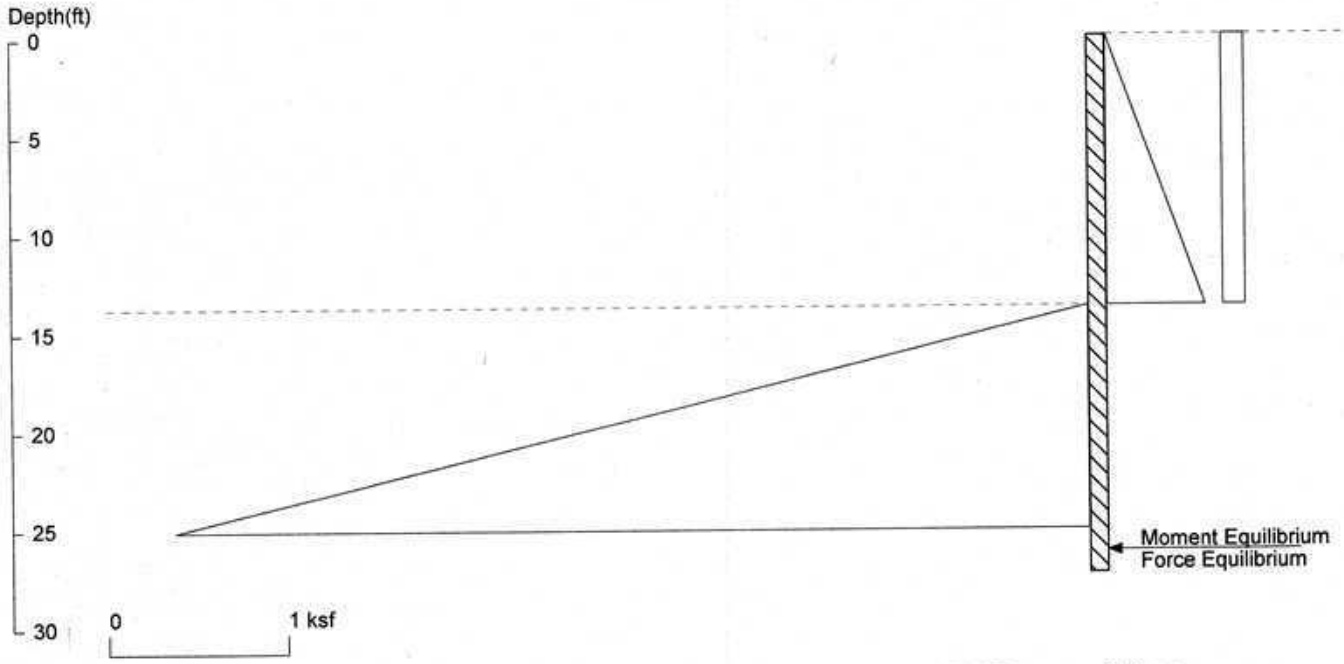
No.	Z depth	Spacing
1	0.00	6.00
2	16.25	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	16.25	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P16
With Seismic FOS = 1.2



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Wall Height=13.8 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=13.62 Min. Pile Length=27.37
MOMENT IN PILE: Max. Moment=293.02 per Pile Spacing=6.0 at Depth=19.15

PILE SELECTION:
Request Min. Section Modulus = 148.0 in3/pile=2425.12 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X120 (1.29) HP14X102 (1.32) W14X99 (1.25) W16X89 (1.07) HP16X101 (1.07)
W16X100 (0.93) HP16X121 (0.88) W18X86 (0.91) HP18X135 (0.63) W18X130 (0.56)
HP18X157 (0.54) W18X158 (0.45) HP18X181 (0.46) W18X175J (0.40)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	13.75	0.550	.04
0	.124	13.75	0.124	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
13.75	0	50	16.313	.45

ACTIVE SPACING:

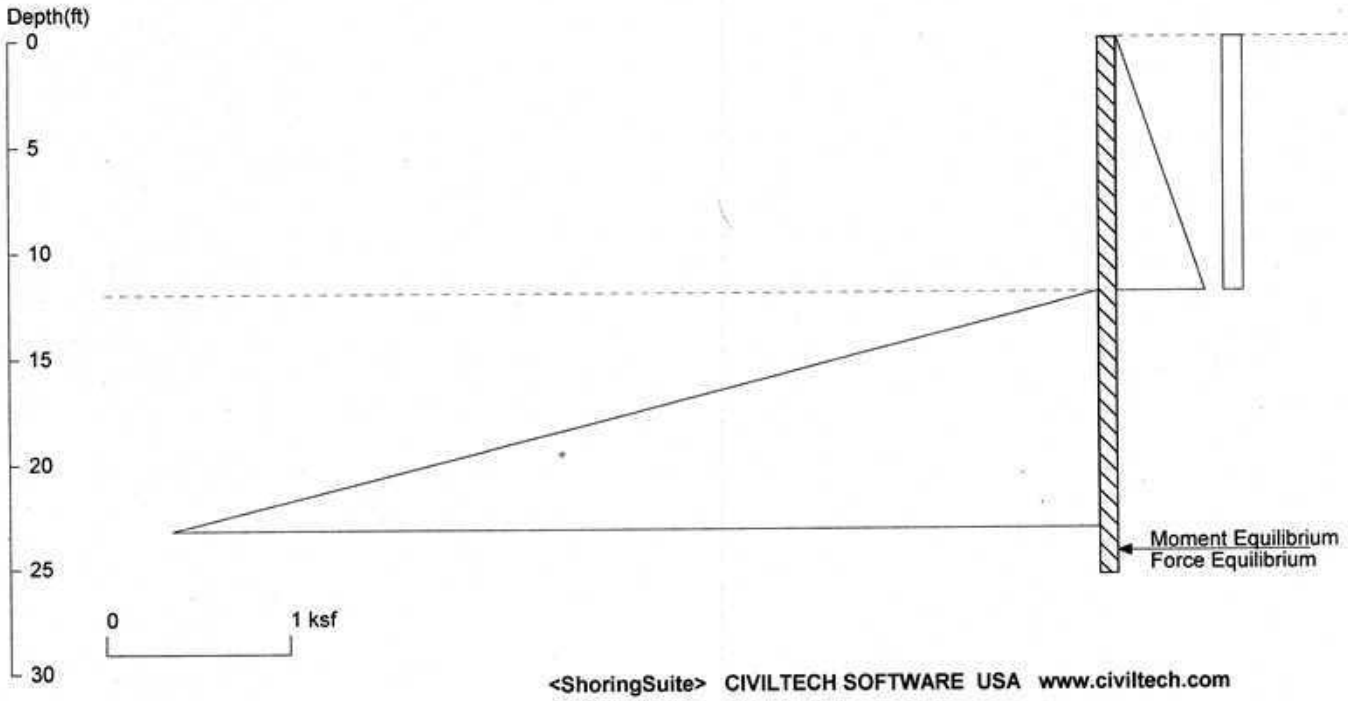
No.	Z depth	Spacing
1	0.00	6.00
2	13.75	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	13.75	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P17
With Seismic FOS = 1.2



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Wall Height=12.0 Pile Diameter=3.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=13.46 Min. Pile Length=25.46
MOMENT IN PILE: Max. Moment=275.74 per Pile Spacing=8.0 at Depth=17.46

PILE SELECTION:
Request Min. Section Modulus = 139.3 in3/pile=2282.07 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X106 (1.13) HP14X102 (1.01) W14X90 (1.06) HP16X88 (0.95) W16X89 (0.81)
HP16X101 (0.81) W16X100 (0.71) HP16X121 (0.67) W18X76 (0.79) HP18X135 (0.48)
W18X130 (0.43) HP18X157 (0.41) W18X158 (0.35) HP18X181 (0.35)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	12	0.480	.04
0	.108	12	0.108	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
12	0	50	17.10	.45

ACTIVE SPACING:

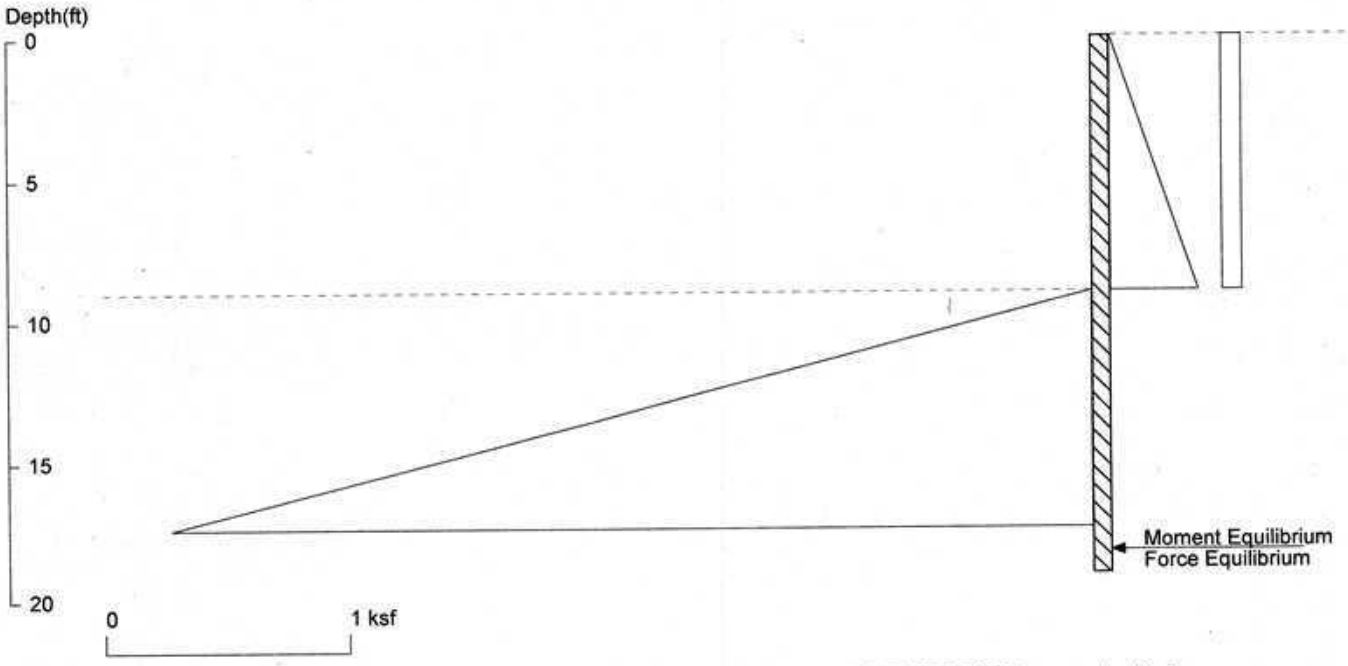
No.	Z depth	Spacing
1	0.00	8.00
2	12.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	12.00	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P18
With Seismic FOS = 1.2



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Wall Height=9.0 Pile Diameter=3.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=10.09 Min. Pile Length=19.09
MOMENT IN PILE: Max. Moment=116.33 per Pile Spacing=8.0 at Depth=13.10

PILE SELECTION:
Request Min. Section Modulus = 58.8 in3/pile=962.75 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X67 (0.93) HP10X57 (0.86) W10X54 (0.84) HP12X53 (0.65) W12X50 (0.65)
HP13X60 (0.50) HP14X73 (0.35) W14X43 (0.59) W16X40 (0.49) HP16X88 (0.23)
W16X89 (0.20) HP16X101 (0.20) W16X100 (0.17) HP16X121 (0.16)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	9	0.360	.04
0	.081	9	0.081	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
9	0	50	18.450	.45

ACTIVE SPACING:

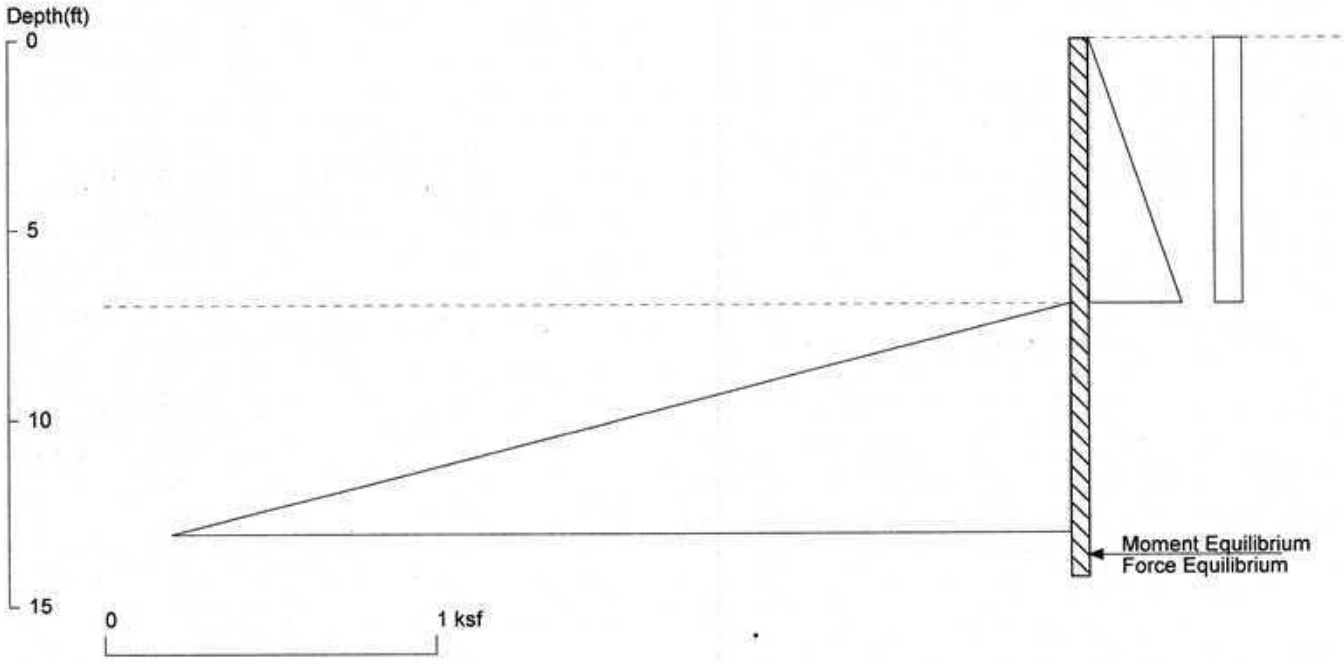
No.	Z depth	Spacing
1	0.00	8.00
2	9.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	9.00	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P19
With Seismic FOS = 1.2



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Wall Height=7.0 Pile Diameter=3.0 Pile Spacing=4.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=7.26 Min. Pile Length=14.26
MOMENT IN PILE: Max. Moment=29.47 per Pile Spacing=4.0 at Depth=9.89

PILE SELECTION:
Request Min. Section Modulus = 14.9 in3/pile=243.90 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W6X25 (0.76) HP8X36 (0.34) W8X18 (0.65) HP10X42 (0.19) W10X17 (0.49)
HP12X53 (0.10) W12X14 (0.46) HP13X60 (0.08) HP14X73 (0.06) W14X22 (0.20)
W16X26 (0.13) HP16X88 (0.04) W16X89 (0.03) HP16X101 (0.03)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	7	0.280	.04
0	.084	7	0.084	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
7	0	50	19.350	.45

ACTIVE SPACING:

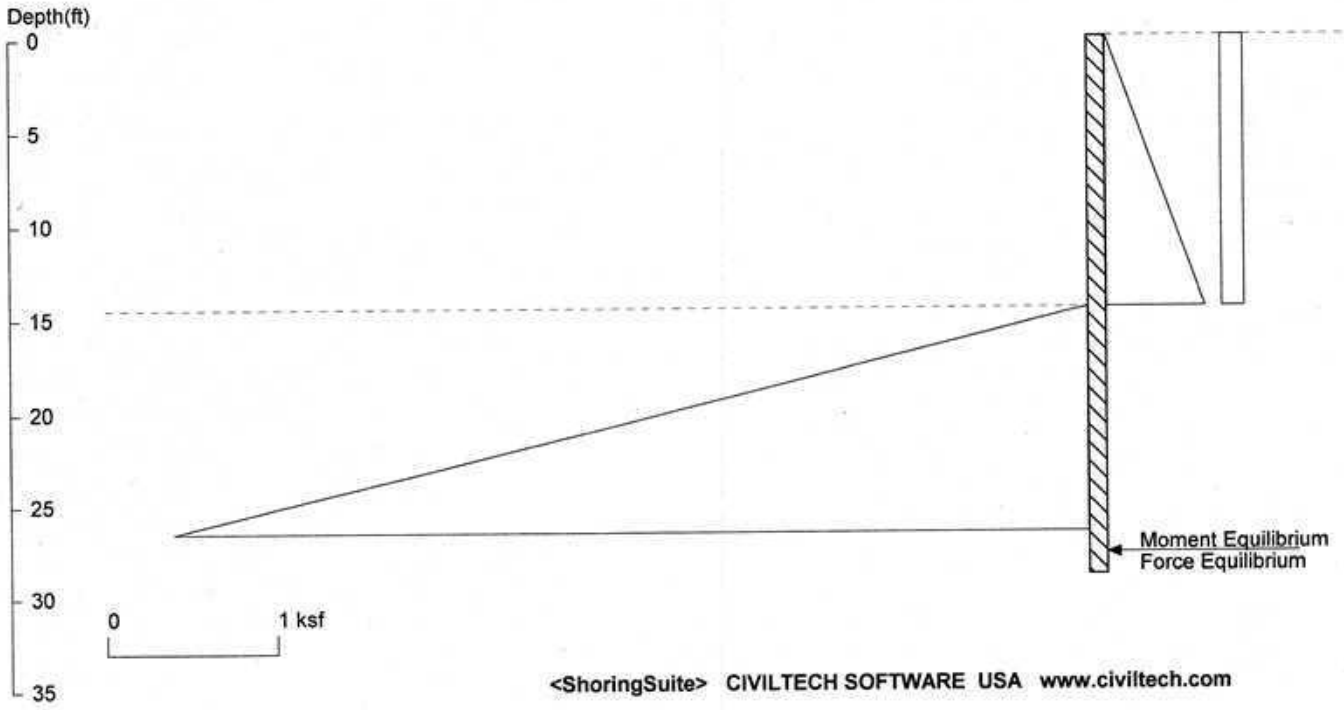
No.	Z depth	Spacing
1	0.00	4.00
2	7.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	7.00	4.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P20
With Seismic FOS = 1.2



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Wall Height=14.5 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=14.36 Min. Pile Length=28.86

MOMENT IN PILE: Max. Moment=343.90 per Pile Spacing=6.0 at Depth=20.20

PILE SELECTION:

Request Min. Section Modulus = 173.7 in3/pile=2846.21 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66

-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)

W12X136 (1.46) W14X120 (1.31) W16X100 (1.21) HP16X121 (1.14) W18X97 (1.03)
HP18X135 (0.82) W18X130 (0.73) HP18X157 (0.70) W18X158 (0.59) HP18X181 (0.60)
W18X175J (0.52) HP18X204 (0.52) W18X192J (0.47) W21X93 (0.87)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	14.5	0.580	.04
0	.131	14.5	0.131	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
14.5	0	50	15.975	.45

ACTIVE SPACING:

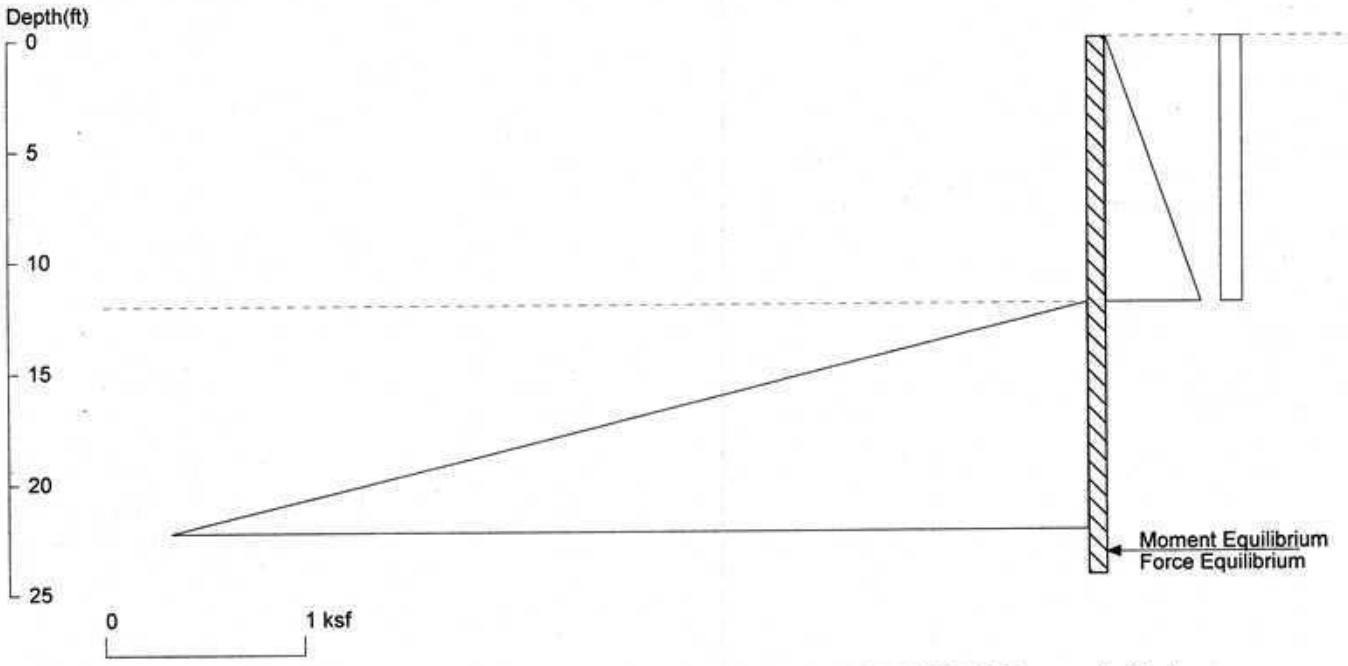
No.	Z depth	Spacing
1	0.00	6.00
2	14.50	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	14.50	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P21
With Seismic FOS = 1.2



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Wall Height=12.0 Pile Diameter=3.0 Pile Spacing=6.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=12.30 Min. Pile Length=24.30
MOMENT IN PILE: Max. Moment=214.31 per Pile Spacing=6.5 at Depth=16.91

PILE SELECTION:
Request Min. Section Modulus = 108.2 in3/pile=1773.70 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W10X100 (1.26) W12X87 (1.06) HP13X87 (1.04) HP14X89 (0.87) W14X74 (0.99)
W16X67 (0.83) HP16X88 (0.71) W16X89 (0.61) HP16X101 (0.61) W16X100 (0.53)
HP16X121 (0.50) W18X65 (0.74) HP18X135 (0.36) W18X130 (0.32)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	12	0.480	.04
0	.108	12	0.108	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
12	0	50	17.100	.45

ACTIVE SPACING:

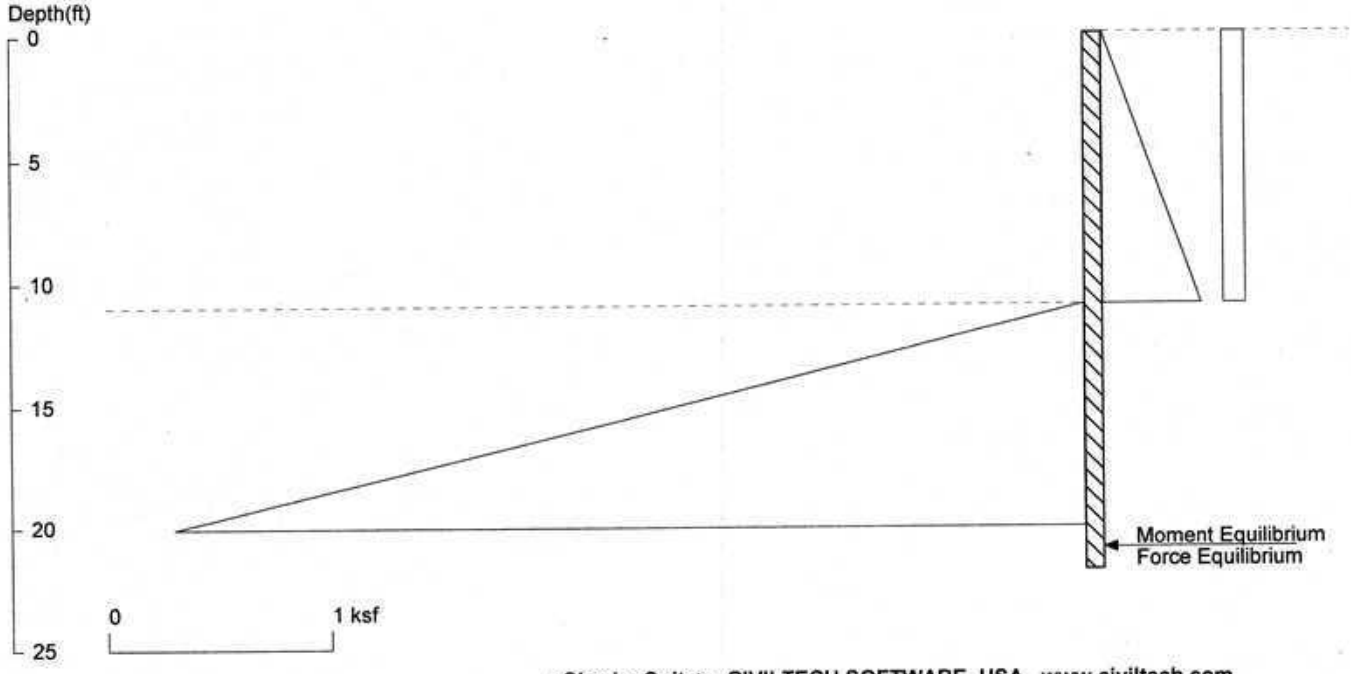
No.	Z depth	Spacing
1	0.00	6.50
2	12.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	12.00	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P22
With Seismic FOS = 1.2



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Wall Height=11.0 Pile Diameter=3.0 Pile Spacing=4.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=10.89 Min. Pile Length=21.89
MOMENT IN PILE: Max. Moment=99.93 per Pile Spacing=4.0 at Depth=15.32

PILE SELECTION:
Request Min. Section Modulus = 50.5 in3/pile=827.06 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X58 (1.34) HP10X57 (1.04) W10X49 (1.12) HP12X53 (0.78) W12X40 (1.00)
HP13X60 (0.61) HP14X73 (0.42) W14X38 (0.79) W16X36 (0.68) HP16X88 (0.28)
W16X89 (0.24) HP16X101 (0.24) W16X100 (0.21) HP16X121 (0.19)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	11	0.440	.04
0	.099	11	0.099	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
11	0	50	17.550	.45

ACTIVE SPACING:

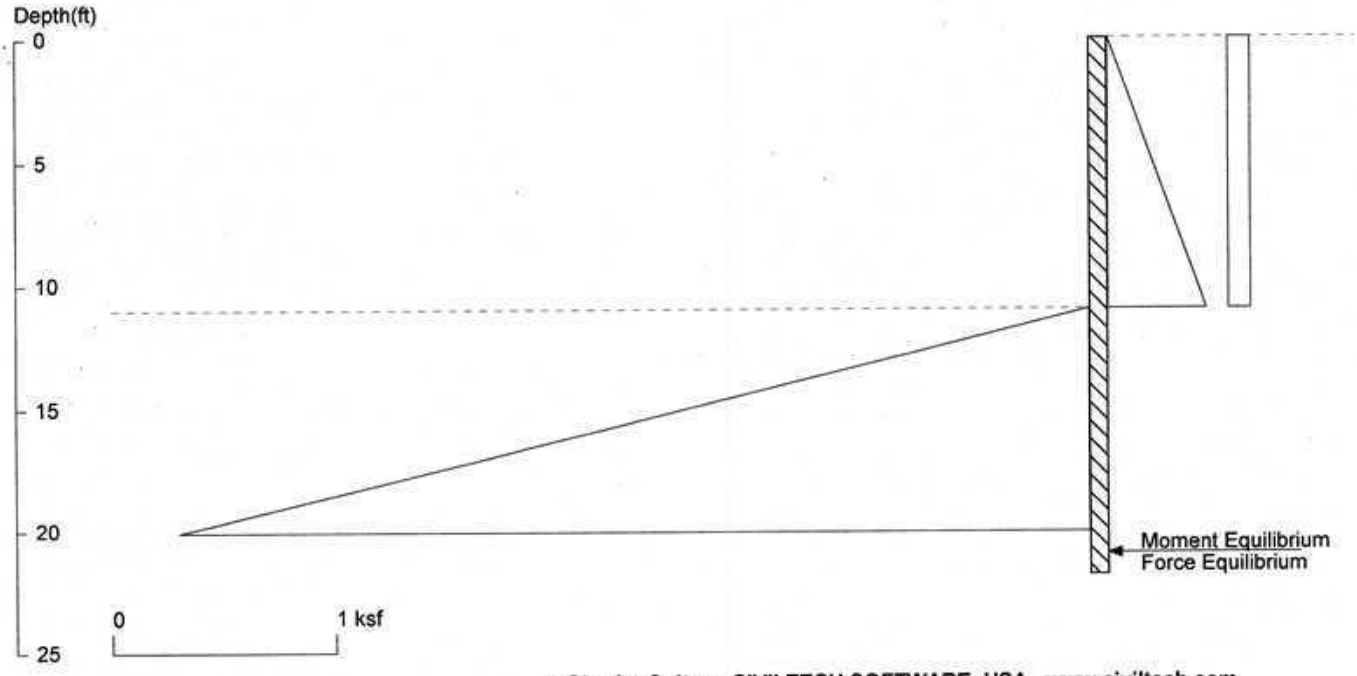
No.	Z depth	Spacing
1	0.00	4.00
2	11.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	4.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P23
With Seismic FOS = 1.2



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Wall Height=11.0 Pile Diameter=3.0 Pile Spacing=4.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=10.89 Min. Pile Length=21.89
MOMENT IN PILE: Max. Moment=99.93 per Pile Spacing=4.0 at Depth=15.32

PILE SELECTION:
Request Min. Section Modulus = 50.5 in3/pile=827.06 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X58 (1.34) HP10X57 (1.04) W10X49 (1.12) HP12X53 (0.78) W12X40 (1.00)
HP13X60 (0.61) HP14X73 (0.42) W14X38 (0.79) W16X36 (0.68) HP16X88 (0.28)
W16X89 (0.24) HP16X101 (0.24) W16X100 (0.21) HP16X121 (0.19)

USE: W14x43

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	11	0.440	.04
0	.099	11	0.099	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
11	0	50	17.550	.45

ACTIVE SPACING:

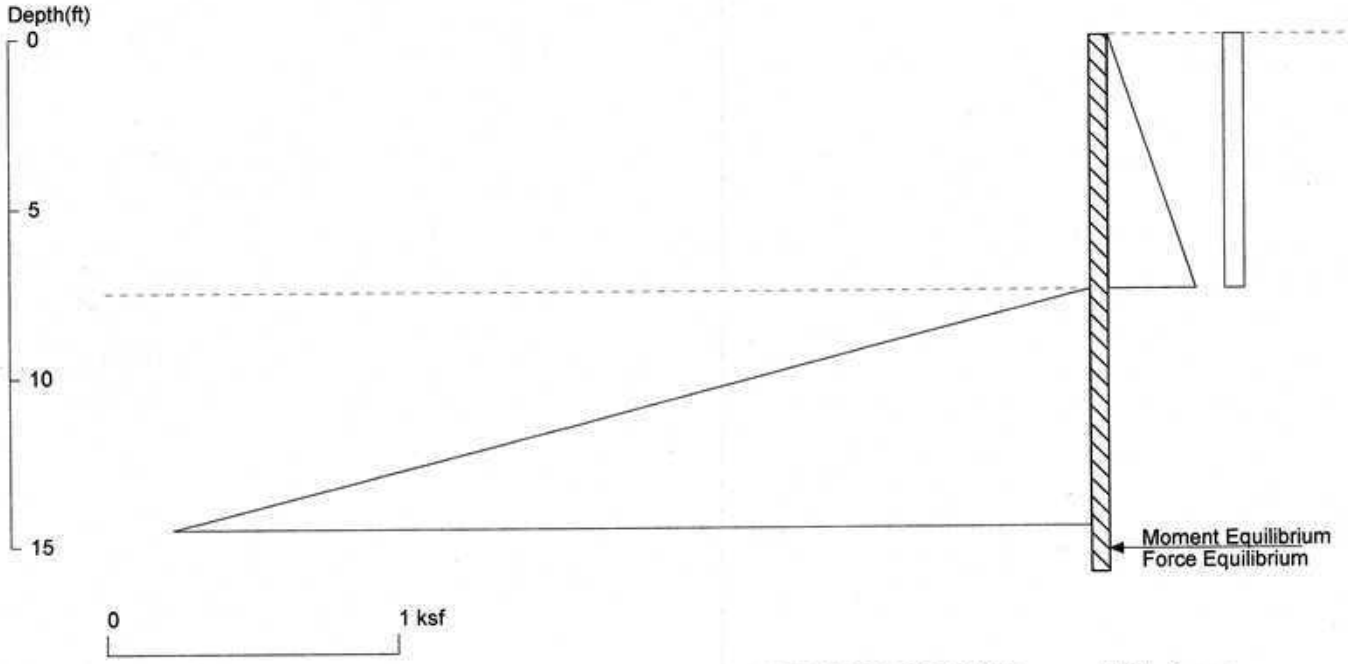
No.	Z depth	Spacing
1	0.00	4.00
2	11.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	4.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P24
With Seismic FOS = 1.2



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Wall Height=7.5 Pile Diameter=3.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=8.42 Min. Pile Length=15.92
MOMENT IN PILE: Max. Moment=67.53 per Pile Spacing=8.0 at Depth=10.90

PILE SELECTION:
Request Min. Section Modulus = 34.1 in3/pile=558.92 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X40 (0.71) HP10X42 (0.50) W10X33 (0.61) HP12X53 (0.27) W12X30 (0.44)
HP13X60 (0.21) HP14X73 (0.14) W14X26 (0.43) W16X26 (0.35) HP16X88 (0.09)
W16X89 (0.08) HP16X101 (0.08) W16X100 (0.07) HP16X121 (0.07)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	7.5	0.300	.04
0	.068	7.5	0.068	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
7.5	0	50	19.125	.45

ACTIVE SPACING:

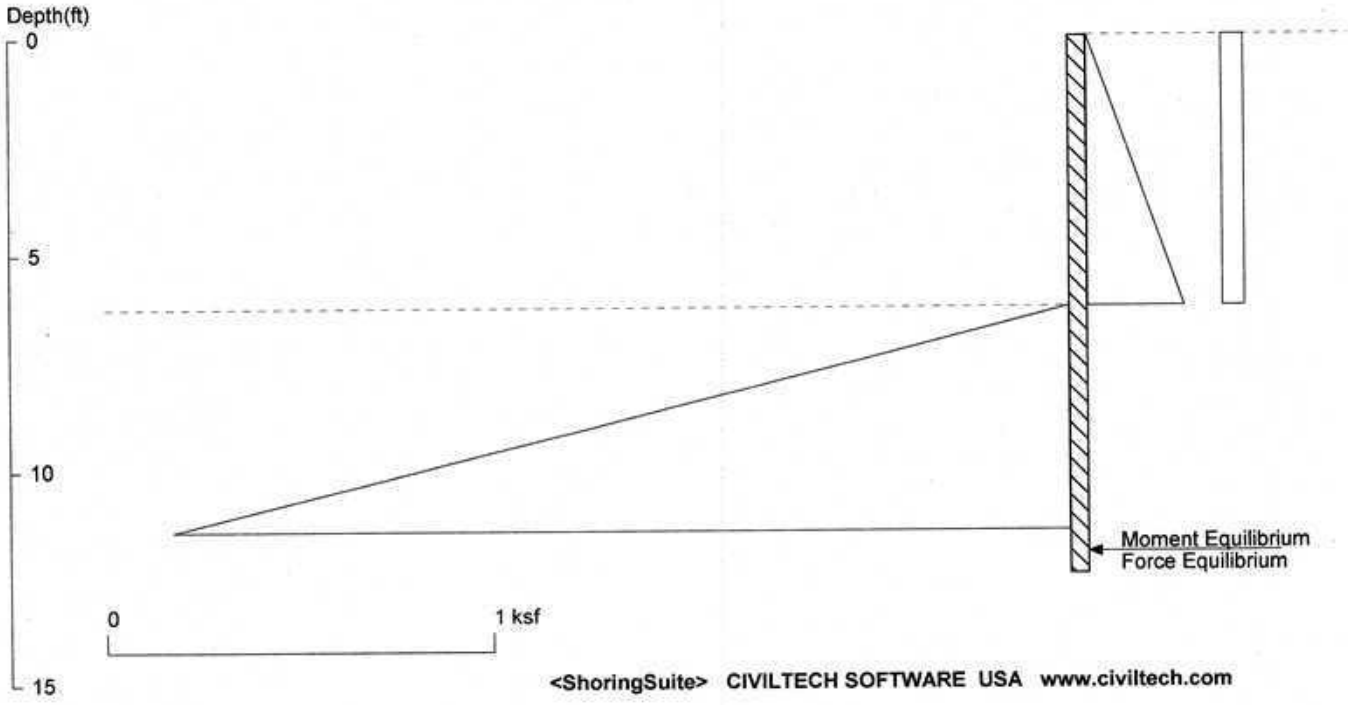
No.	Z depth	Spacing
1	0.00	8.00
2	7.50	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	7.50	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P25
With Seismic FOS = 1.2



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Wall Height=6.3 Pile Diameter=3.0 Pile Spacing=4.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=6.20 Min. Pile Length=12.45
MOMENT IN PILE: Max. Moment=18.43 per Pile Spacing=4.0 at Depth=8.72

PILE SELECTION:
Request Min. Section Modulus = 9.3 in3/pile=152.57 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W5X19 (0.80) W6X16 (0.65) HP8X36 (0.18) W8X13 (0.53) HP10X42 (0.10)
W10X12 (0.39) HP12X53 (0.05) W12X14 (0.24) HP13X60 (0.04) HP14X73 (0.03)
W14X22 (0.11) W16X26 (0.07) HP16X88 (0.02) W16X89 (0.02)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	6.25	0.250	.04
0	.057	6.25	0.057	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
6.25	0	50	19.688	.45

ACTIVE SPACING:

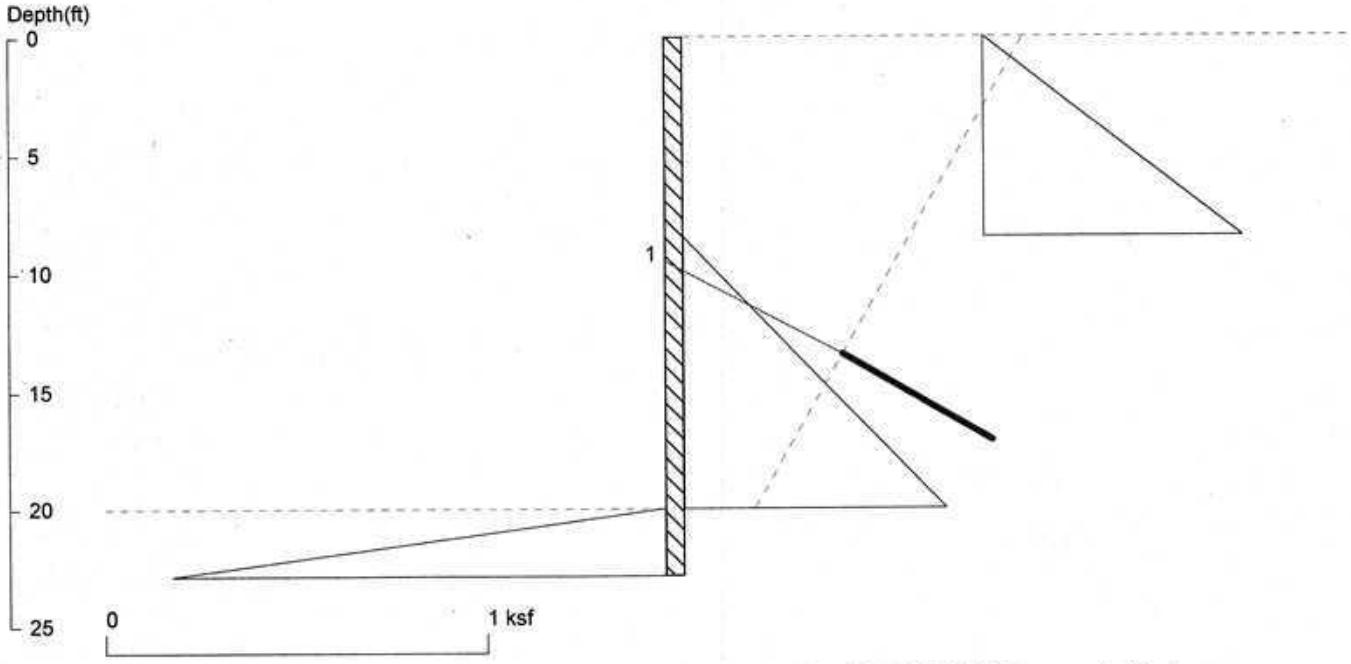
No.	Z depth	Spacing
1	0.00	4.00
2	6.25	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	6.25	4.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P27-P28
With Catchment FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P27-P28 with catchment.sh8

Wall Height=20.0 Pile Diameter=3.0 Pile Spacing=7.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=2.87 (5~10ft is recommended!!!) Min. Pile Length=22.87
MOMENT IN PILE: Max. Moment=82.99 per Pile Spacing=7.5 at Depth=9.49

PILE SELECTION:
Request Min. Section Modulus = 41.9 in3/pile=686.86 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X48 (0.86) HP10X42 (0.75) W10X39 (0.76) HP12X53 (0.40) W12X35 (0.55)
HP13X60 (0.31) HP14X73 (0.22) W14X30 (0.54) W16X31 (0.42) HP16X88 (0.14)
W16X89 (0.12) HP16X101 (0.12) W16X100 (0.11) HP16X121 (0.10)

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	9.5	30.0	4.0	26.0	22.5	13.0	7.8	7.4

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
8.5	0	20	0.690	.06
0	00	8.5	0.680	.08

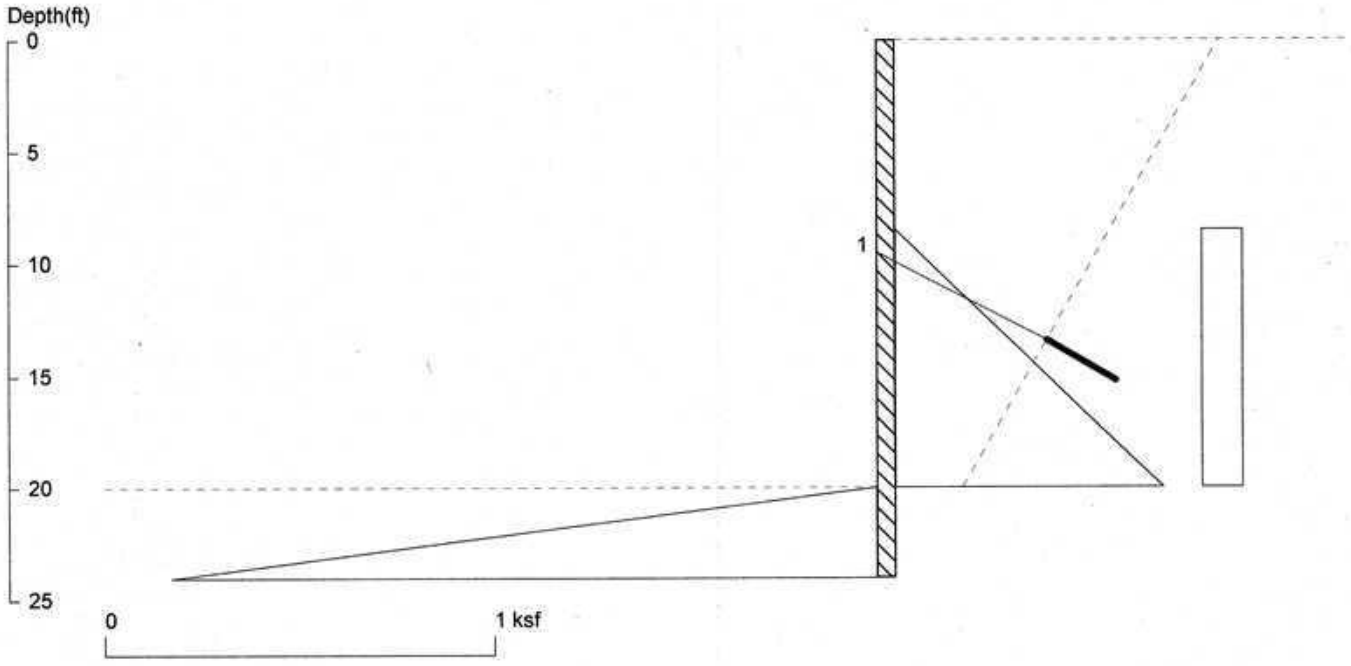
PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
20	0	50	13.500	.45

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	7.50
2	20.00	3.00

P27-P28
With Seismic FOS = 1.2



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P27-P28 with seismic.sh8

Wall Height=20.0 Pile Diameter=3.0 Pile Spacing=7.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=4.03 (5~10ft is recommended!!!) Min. Pile Length=24.03
MOMENT IN PILE: Max. Moment=79.81 per Pile Spacing=7.5 at Depth=16.47

PILE SELECTION:
Request Min. Section Modulus = 40.3 in3/pile=660.52 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X48 (-1.06) HP10X42 (-0.93) W10X39 (-0.94) HP12X53 (-0.50) W12X35 (-0.69)
HP13X60 (-0.39) HP14X73 (-0.27) W14X30 (-0.67) W16X31 (-0.52) HP16X88 (-0.18)
W16X89 (-0.15) HP16X101 (-0.15) W16X100 (-0.13) HP16X121 (-0.12)

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	9.5	30.0	4.0	12.6	10.9	6.3	7.8	3.6

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
8.5	0	20	0.690	.06
8.5	.104	20	0.104	0

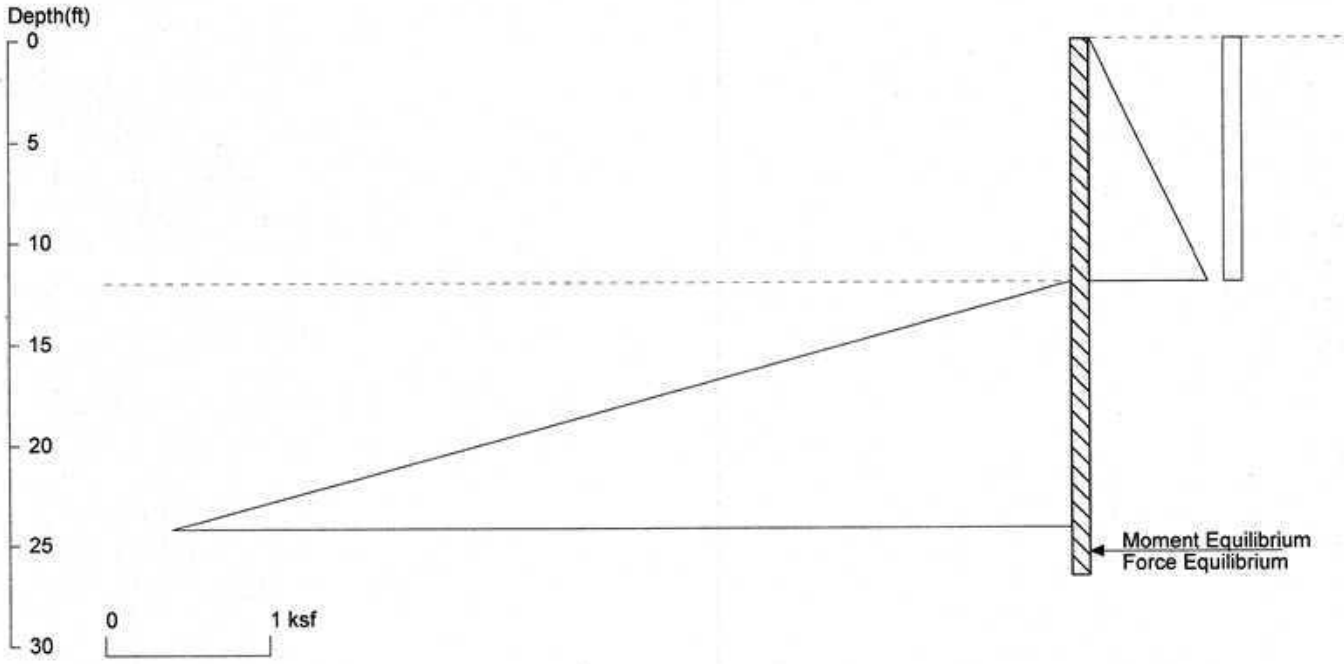
PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
20	0	50	13.500	.45

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	7.50
2	20.00	3.00

P30 - P31
with seismic



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File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P30-P31 with seisic.sh8

Wall Height=12.0 Pile Diameter=2.5 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=14.65 Min. Pile Length=26.65
MOMENT IN PILE: Max. Moment=289.34 per Pile Spacing=6.0 at Depth=18.02

PILE SELECTION:
Request Min. Section Modulus = 146.1 in3/pile=2394.62 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W12X120 (1.07) HP14X102 (1.09) W14X99 (1.03) W16X89 (0.88) HP16X101 (0.88)
W16X100 (0.77) HP16X121 (0.72) W18X86 (0.75) HP18X135 (0.52) W18X130 (0.46)
HP18X157 (0.44) W18X158 (0.37) HP18X181 (0.38) W18X175J (0.33)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	12	0.720	.06
0	.113	12	0.113	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
12	0	50	17.100	.45

ACTIVE SPACING:

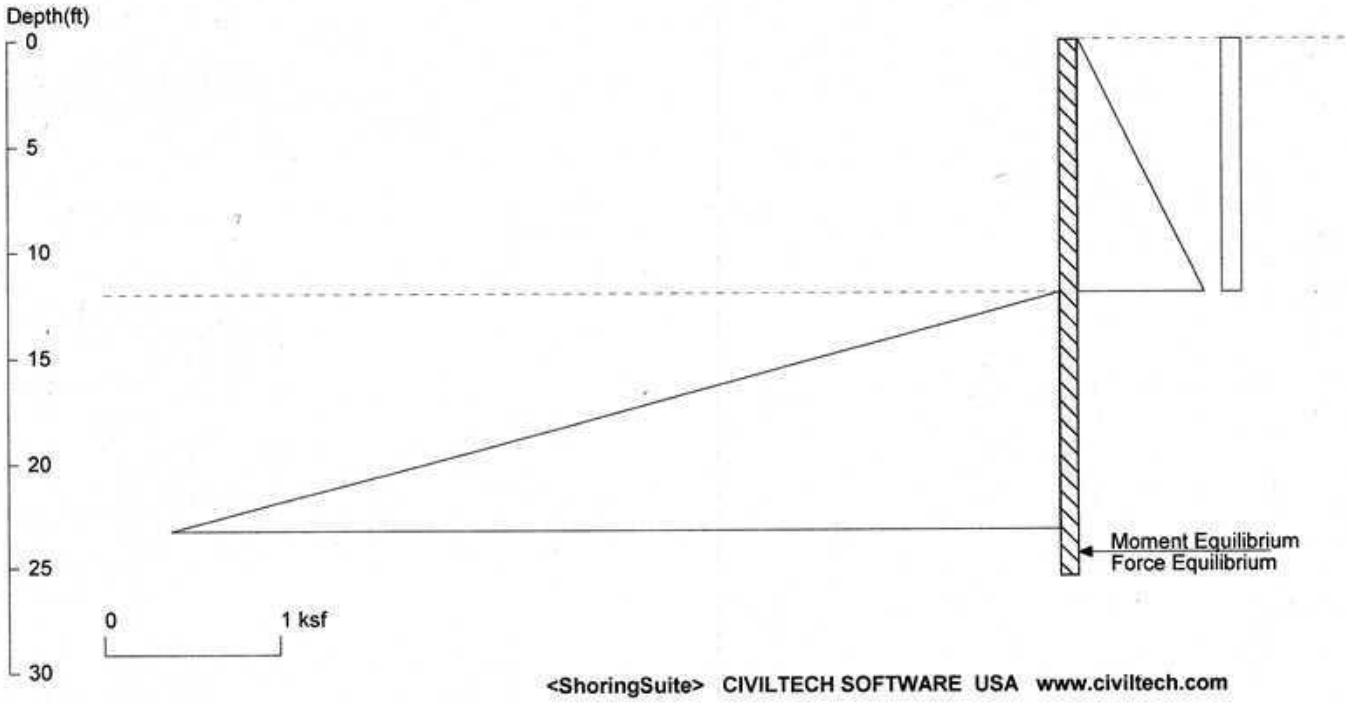
No.	Z depth	Spacing
1	0.00	6.00
2	12.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	12.00	5.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P32
with seismic



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Wall Height=12.0 Pile Diameter=2.5 Pile Spacing=3.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=13.52 Min. Pile Length=25.52
MOMENT IN PILE: Max. Moment=138.71 per Pile Spacing=3.0 at Depth=17.50

PILE SELECTION:
Request Min. Section Modulus = 70.1 in3/pile=1147.97 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W10X68 (1.34) HP12X63 (1.12) W12X53 (1.24) HP13X60 (1.05) HP14X73 (0.72)
W14X48 (1.09) W16X45 (0.90) HP16X88 (0.47) W16X89 (0.41) HP16X101 (0.41)
W16X100 (0.35) HP16X121 (0.33) W18X46 (0.74) HP18X135 (0.24)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	12	0.720	.06
0	.113	12	0.113	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
12	0	50	17.100	.45

ACTIVE SPACING:

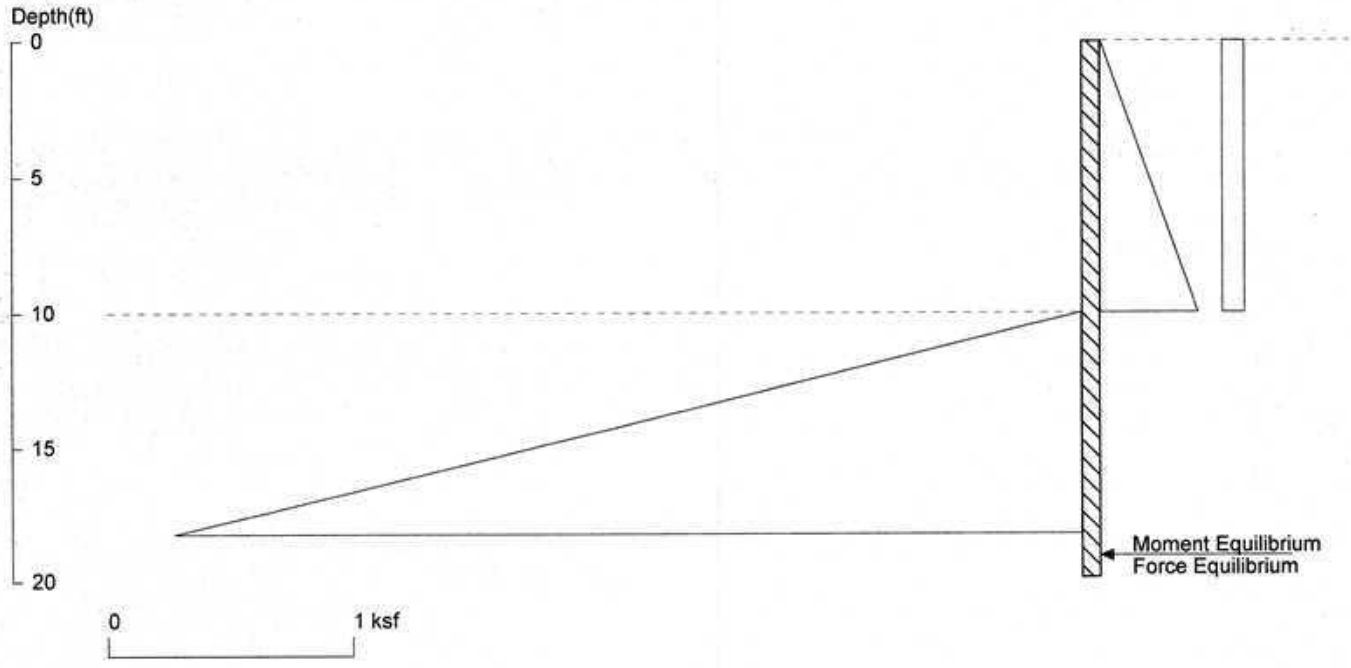
No.	Z depth	Spacing
1	0.00	3.00
2	12.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	12.00	3.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P33
With Seismic FOS = 1.2



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Wall Height=10.0 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=9.90 Min. Pile Length=19.90
MOMENT IN PILE: Max. Moment=112.62 per Pile Spacing=6.0 at Depth=13.93

PILE SELECTION:
Request Min. Section Modulus = 56.9 in3/pile=932.07 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X67 (1.05) HP10X57 (0.97) W10X54 (0.94) HP12X53 (0.73) W12X45 (0.82)
HP13X60 (0.57) HP14X73 (0.39) W14X43 (0.67) W16X40 (0.55) HP16X88 (0.26)
W16X89 (0.22) HP16X101 (0.22) W16X100 (0.19) HP16X121 (0.18)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	10	0.400	.04
0	.09	10	0.090	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
10	0	50	18.000	.45

ACTIVE SPACING:

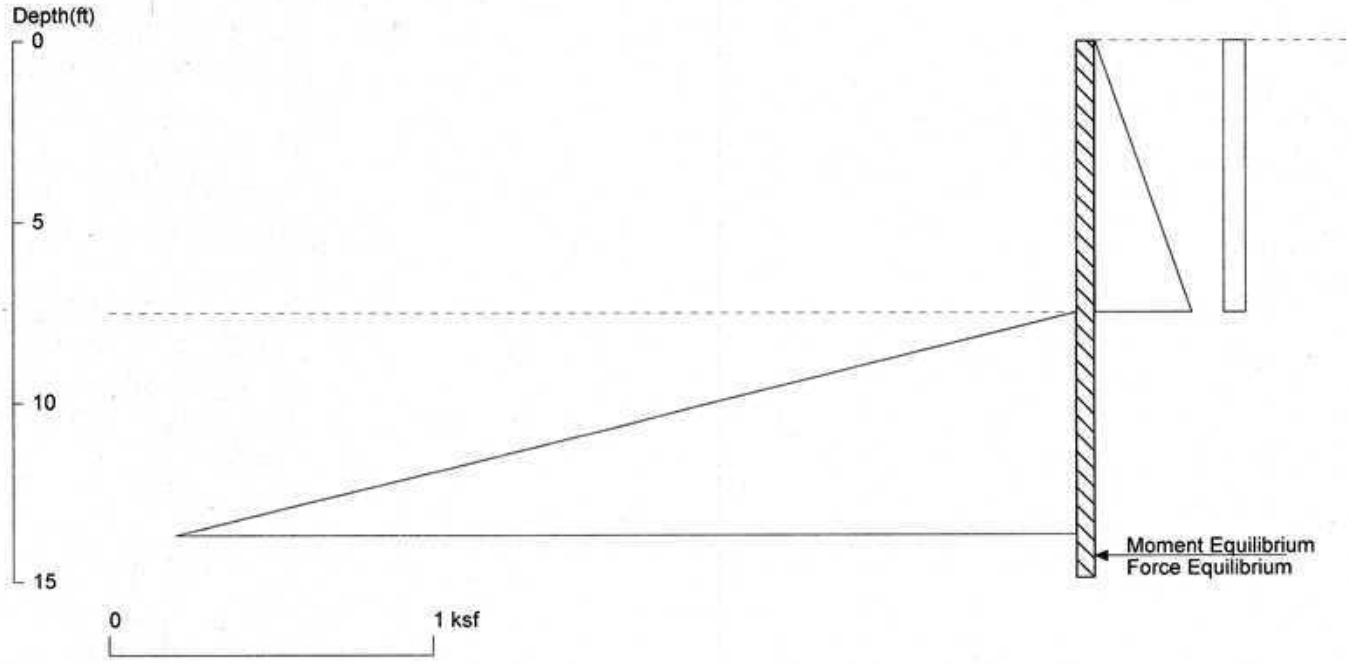
No.	Z depth	Spacing
1	0.00	6.00
2	10.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	10.00	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P34
With Seismic FOS = 1.2



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Wall Height=7.5 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=7.43 Min. Pile Length=14.93
MOMENT IN PILE: Max. Moment=47.66 per Pile Spacing=6.0 at Depth=10.45

PILE SELECTION:
Request Min. Section Modulus = 24.1 in3/pile=394.47 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
HP8X36 (0.59) W8X28 (0.71) HP10X42 (0.33) W10X26 (0.49) HP12X53 (0.18)
W12X22 (0.45) HP13X60 (0.14) HP14X73 (0.10) W14X22 (0.35) W16X26 (0.23)
HP16X88 (0.06) W16X89 (0.05) HP16X101 (0.05) W16X100 (0.05)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	7.5	0.300	.04
0	.068	7.5	0.068	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
7.5	0	50	19.125	.45

ACTIVE SPACING:

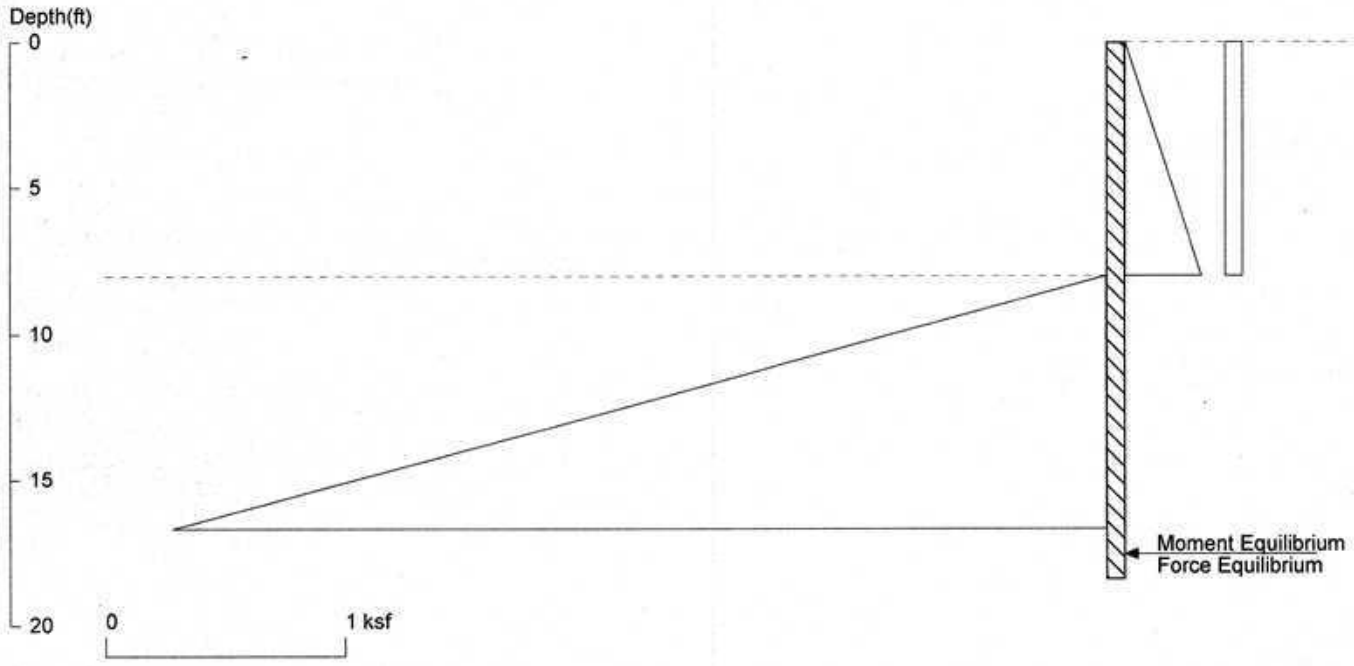
No.	Z depth	Spacing
1	0.00	6.00
2	7.50	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	7.50	6.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in

P35-P37
With Seismic FOS = 1.2



<ShoringSuite> CIVILTECH SOFTWARE USA www.civiltech.com

Licensed to 4324324234 3424343 Date: 8/17/2025
File: C:\Users\gill2\OneDrive\projects\chancellor\shoring\P34 with seismic.sh8

Wall Height=8.0 Pile Diameter=2.0 Pile Spacing=7.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=10.42 Min. Pile Length=18.42
MOMENT IN PILE: Max. Moment=82.86 per Pile Spacing=7.5 at Depth=12.31

PILE SELECTION:
Request Min. Section Modulus = 41.8 in3/pile=685.77 cm3/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.66
-> Piles meet Min. Section Requirements: Top Deflection is shown in (in)
W8X48 (0.85) HP10X42 (0.74) W10X39 (0.74) HP12X53 (0.40) W12X35 (0.55)
HP13X60 (0.31) HP14X73 (0.21) W14X30 (0.53) W16X31 (0.42) HP16X88 (0.14)
W16X89 (0.12) HP16X101 (0.12) W16X100 (0.10) HP16X121 (0.10)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	8	0.320	.04
0	.072	8	0.072	0

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
8	0	50	18.900	.45

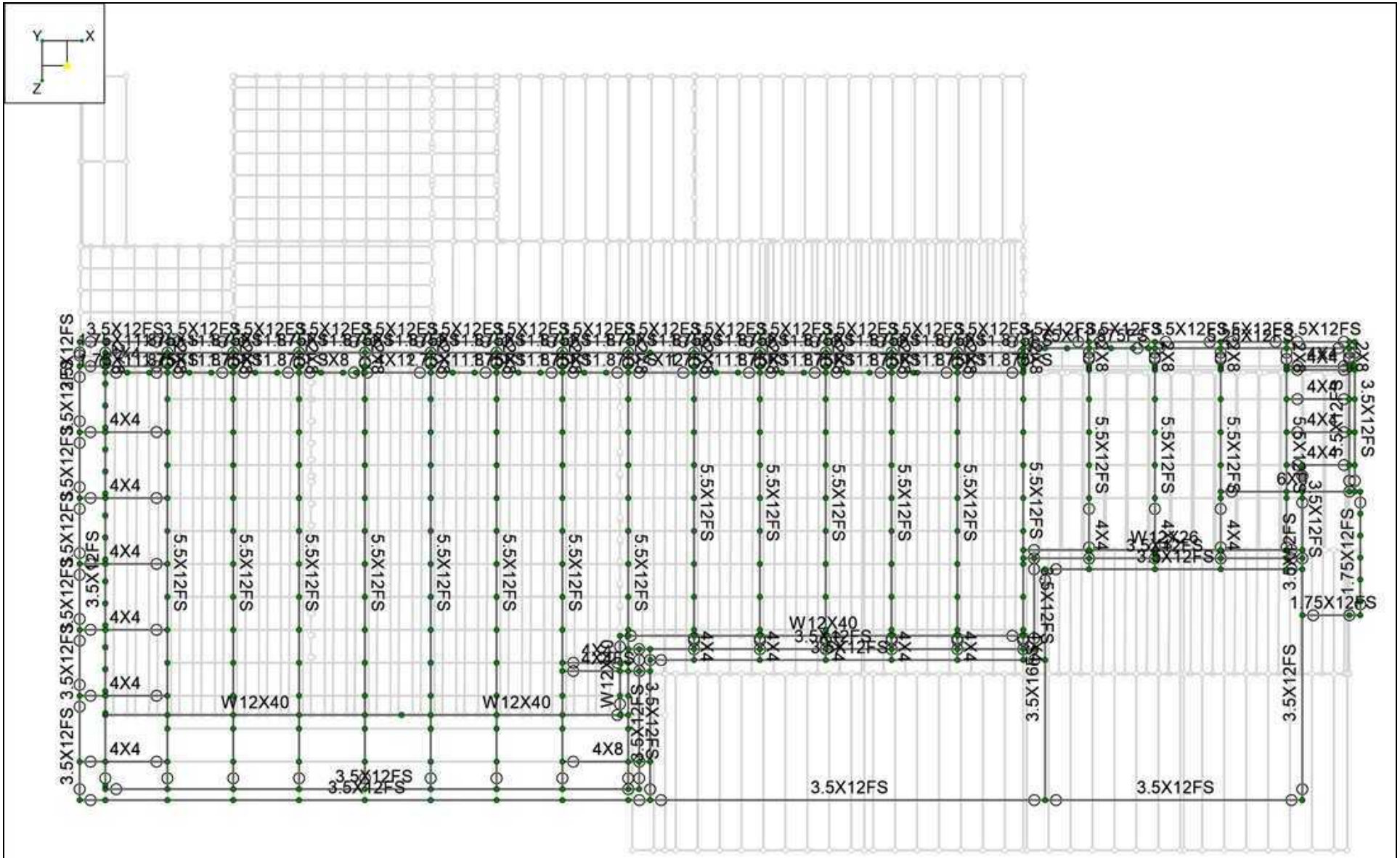
ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	7.50
2	8.00	2.00

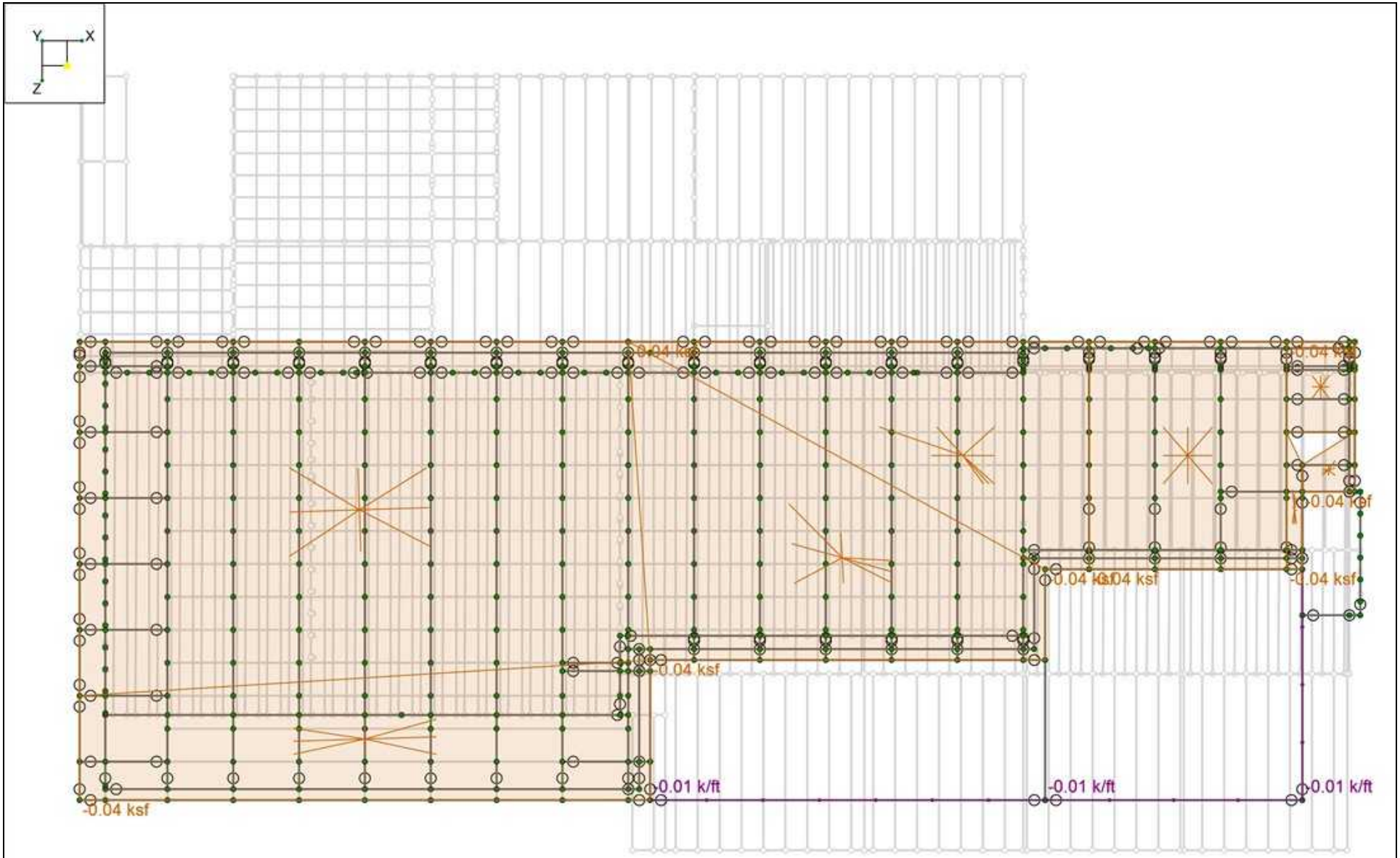
PASSIVE SPACING:

No.	Z depth	Spacing
1	8.00	4.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft3; Deflection - in



RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-1
	aaron		Aug 12, 2025 at 01:25 PM
		Chancellor Roof Member Sizes	Chancellor House Model 8-2-2025.r3d

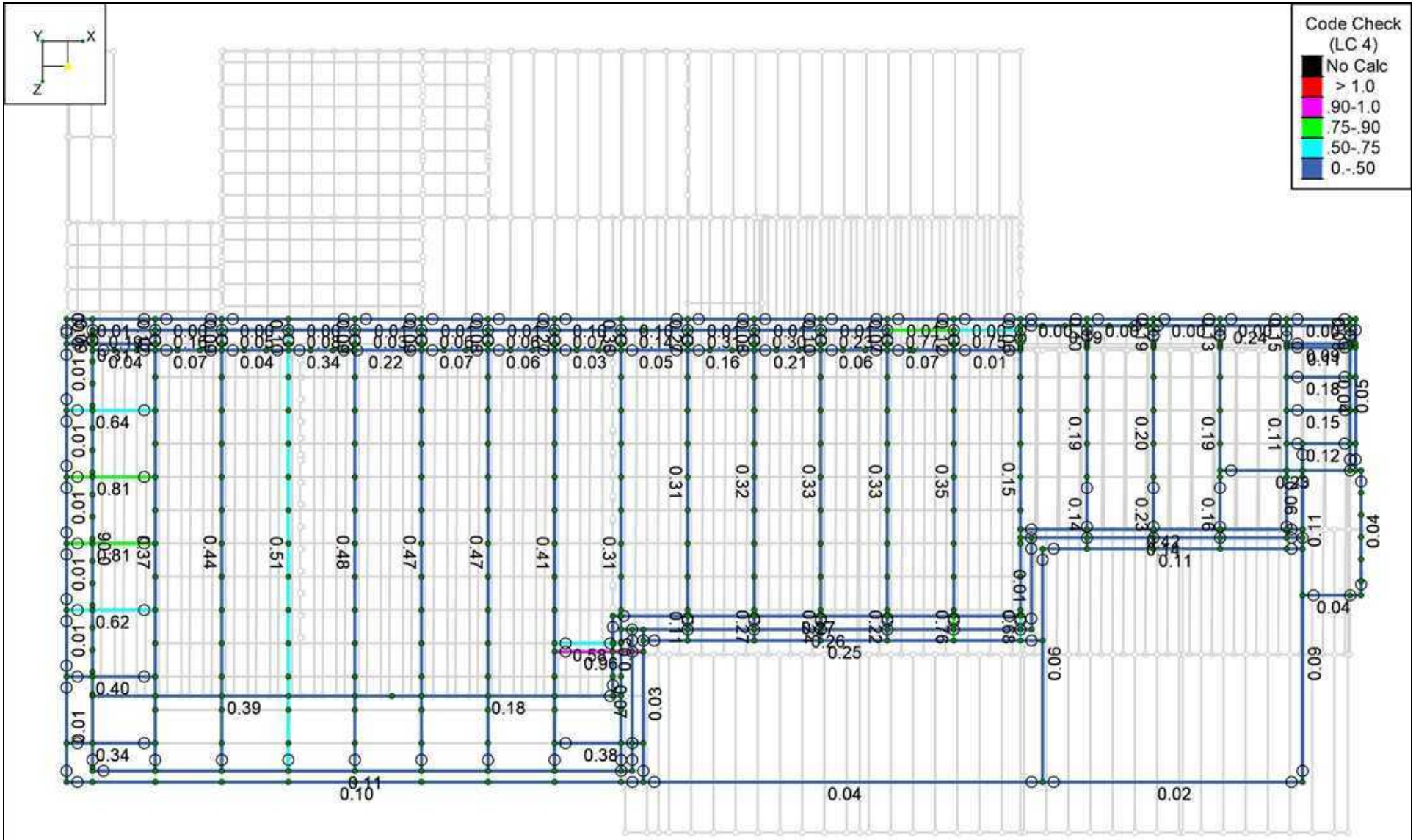


Loads: LC 1, Dead

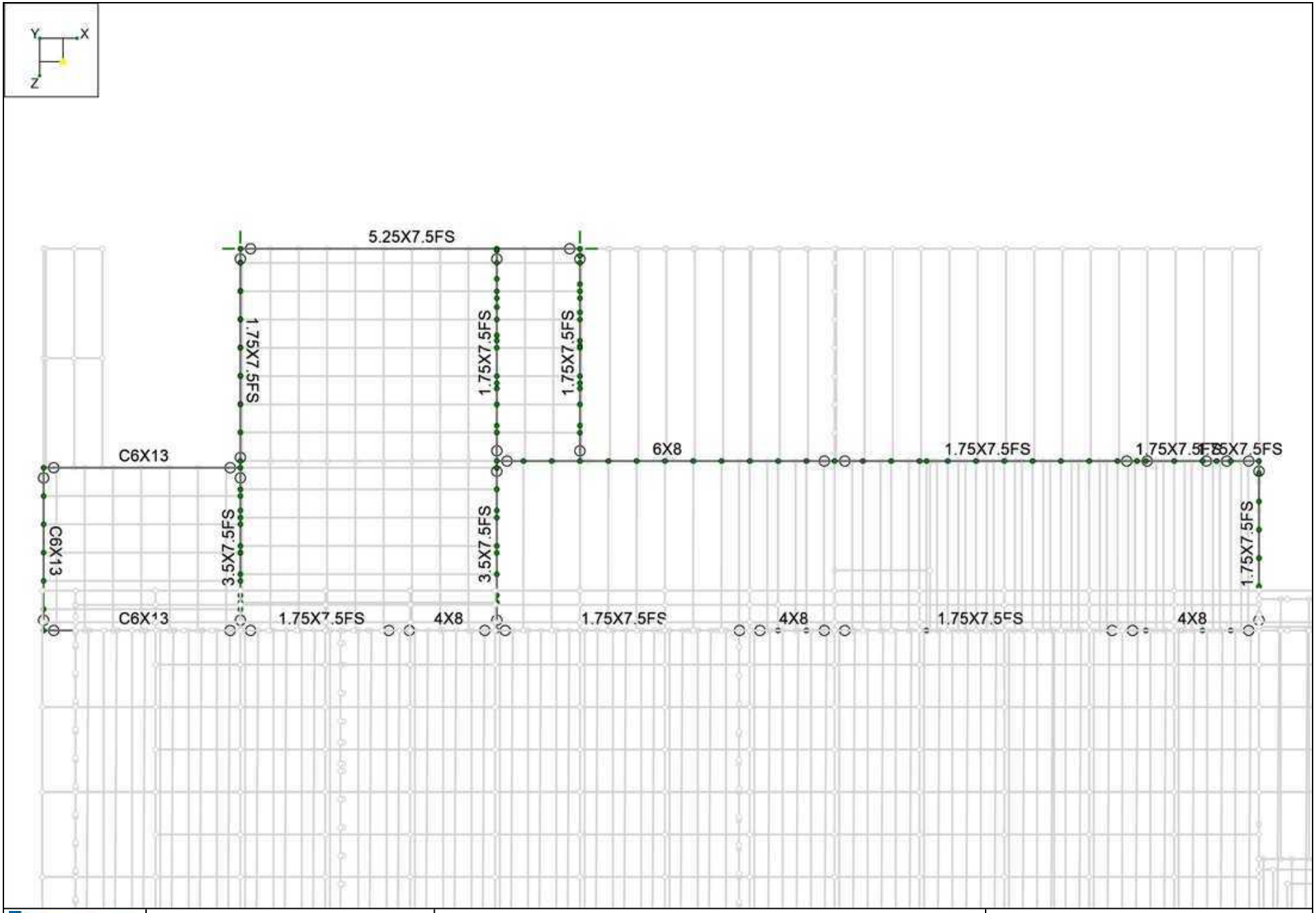
RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-2
	aaron		Aug 12, 2025 at 01:27 PM
		Chancellor Roof Dead Load	Chancellor House Model 8-2-2025.r3d

Loads: LC 2, Snow

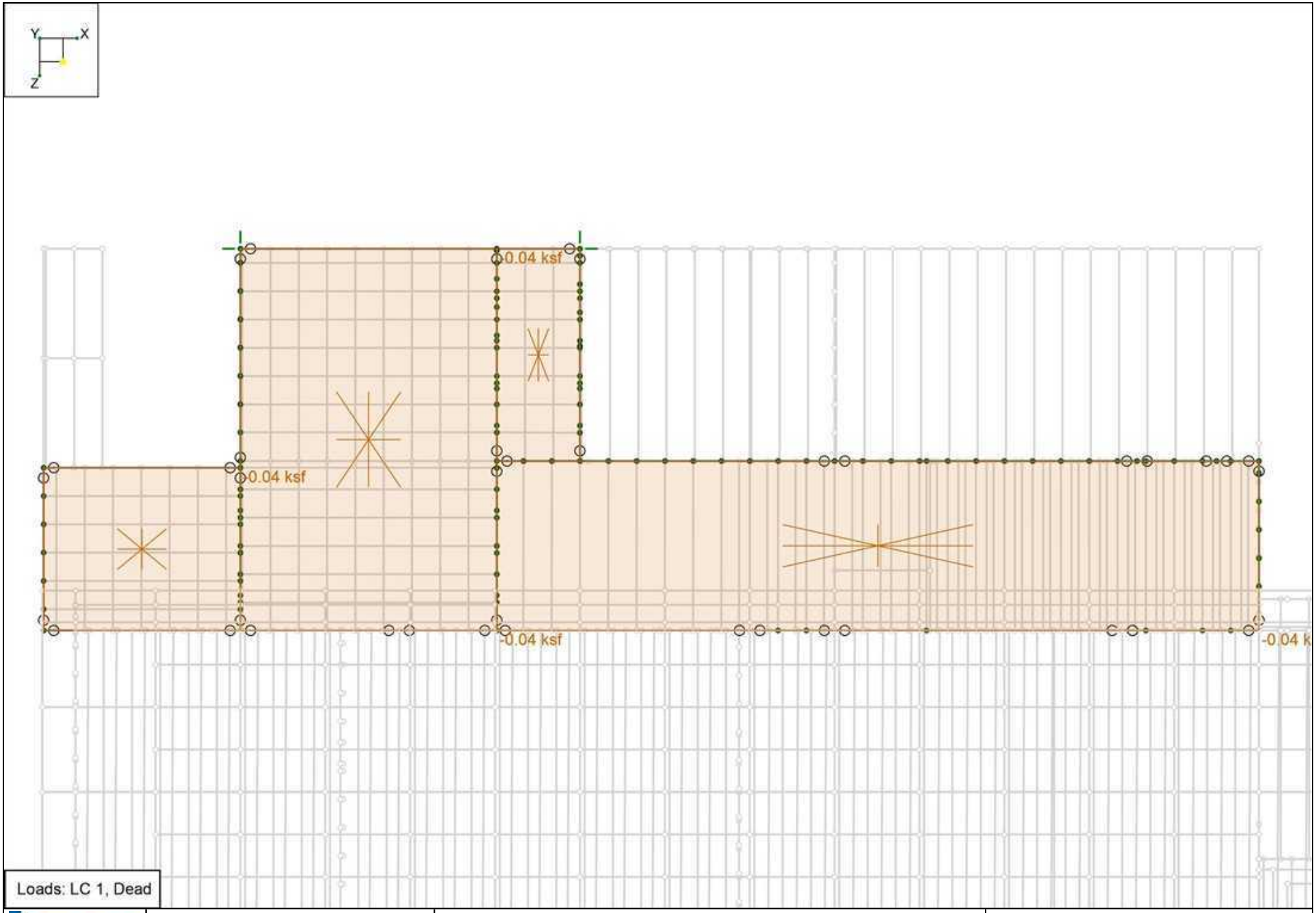
RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-3
	aaron		Aug 12, 2025 at 01:27 PM
		Chancellor Roof Snow Load	Chancellor House Model 8-2-2025.r3d



RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-4
	aaron		Aug 12, 2025 at 01:30 PM
		Chancellor Roof Member Stress Levels	Chancellor House Model 8-2-2025.r3d

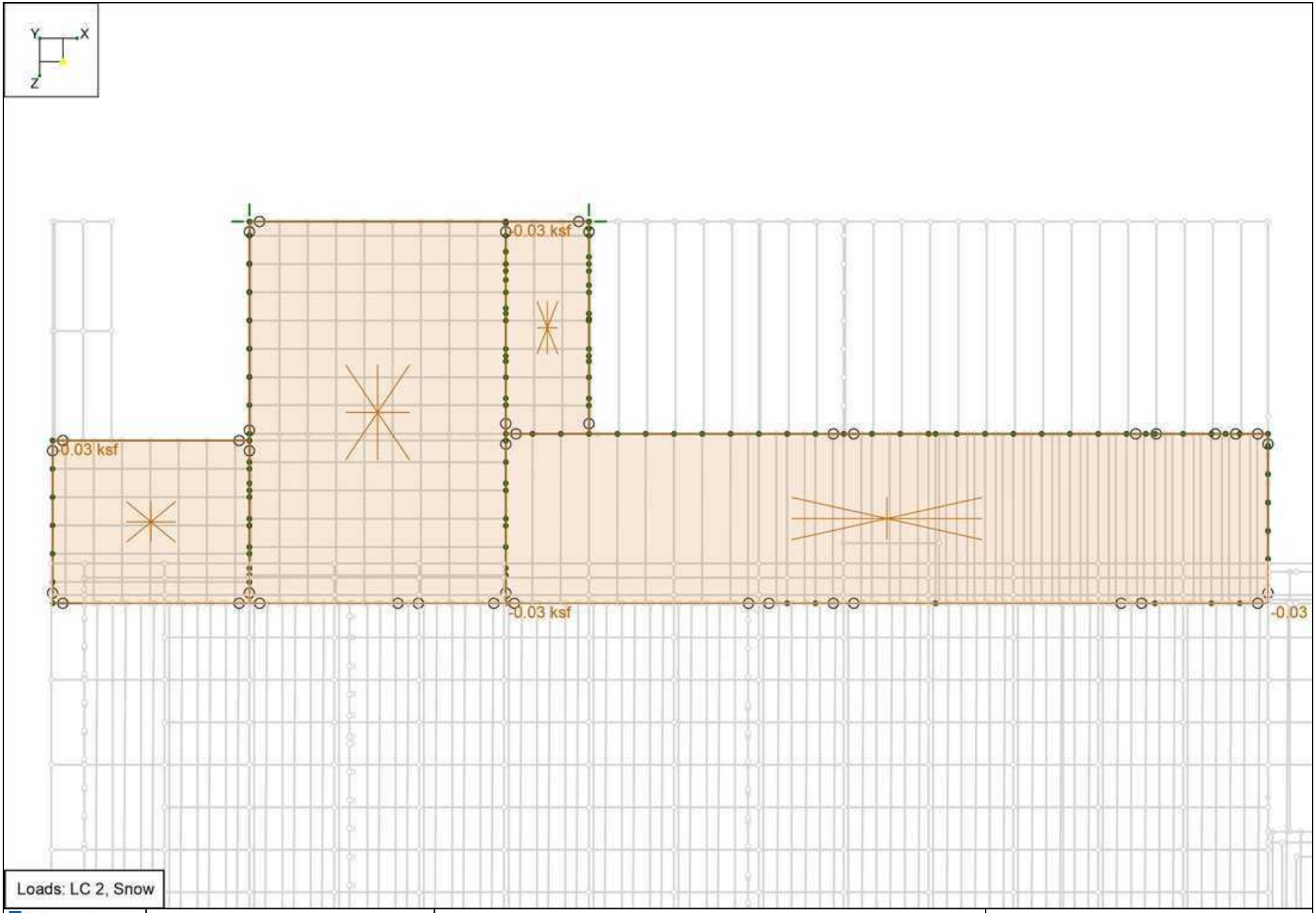


RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-5
	aaron		Aug 12, 2025 at 01:52 PM
		Chancellor Lower Roof Member Sizes	Chancellor House Model 8-2-2025.r3d



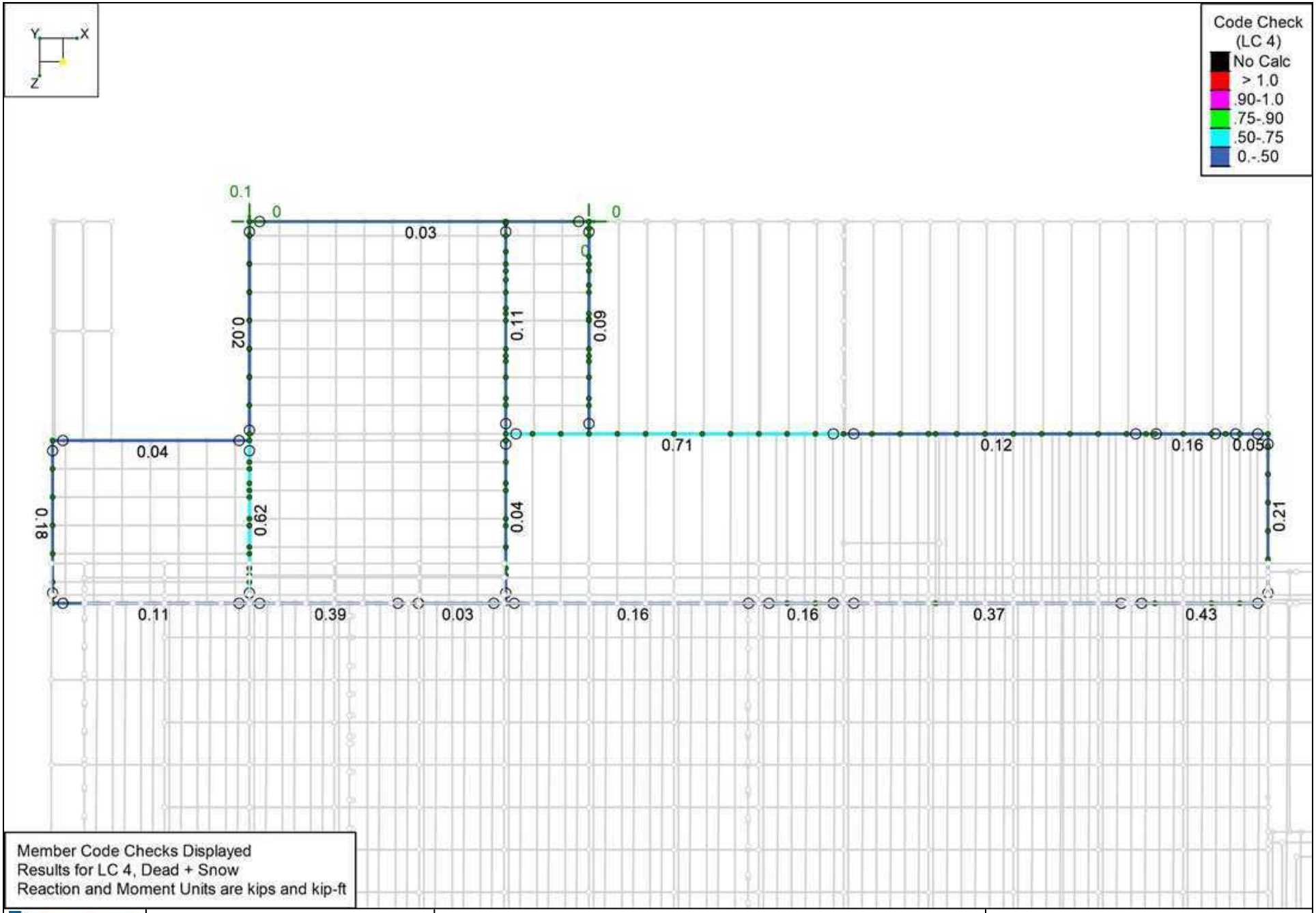
Loads: LC 1, Dead

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-6
	aaron		Aug 12, 2025 at 01:53 PM
		Chancellor Lower Roof Dead Load	Chancellor House Model 8-2-2025.r3d

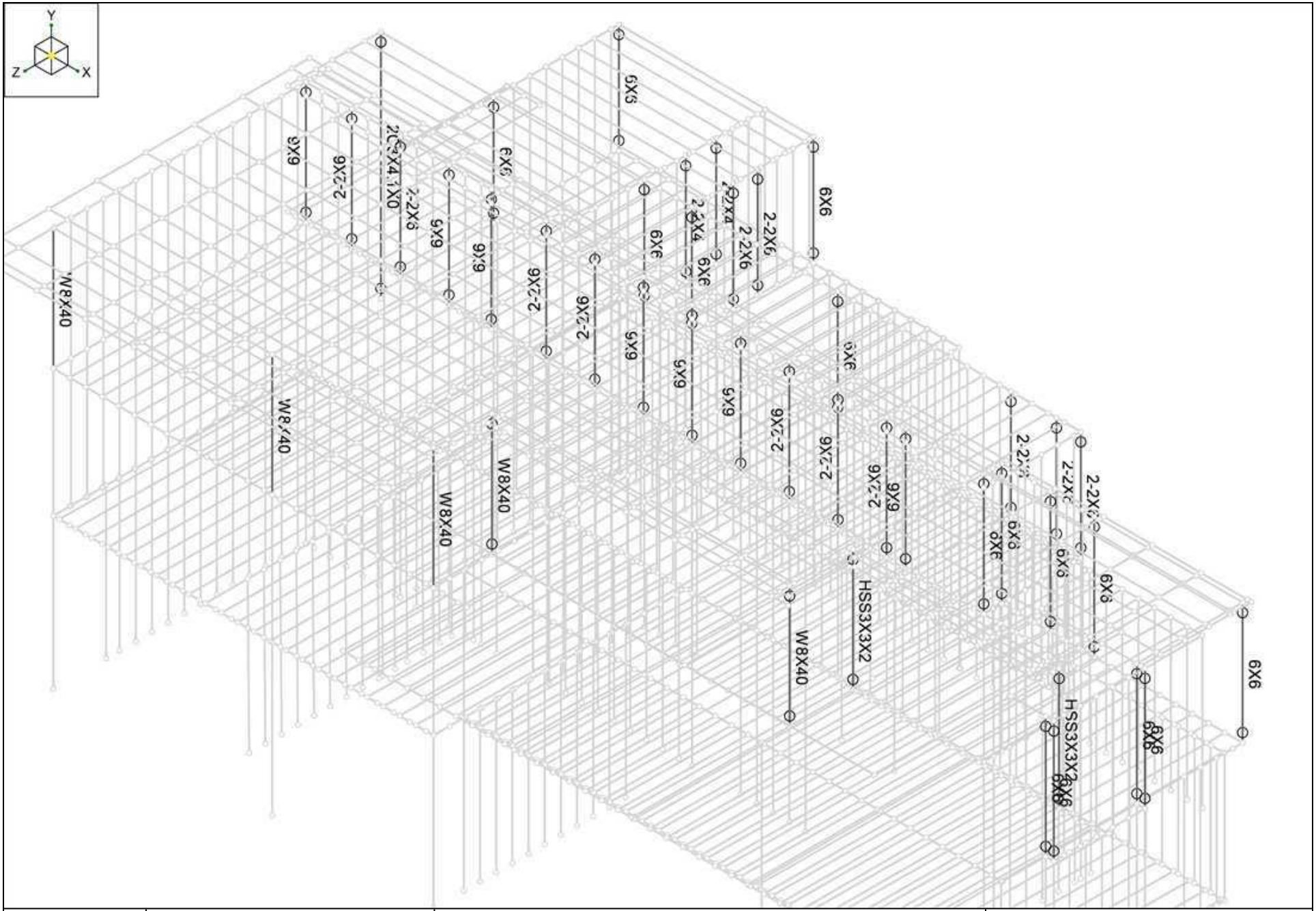


Loads: LC 2, Snow

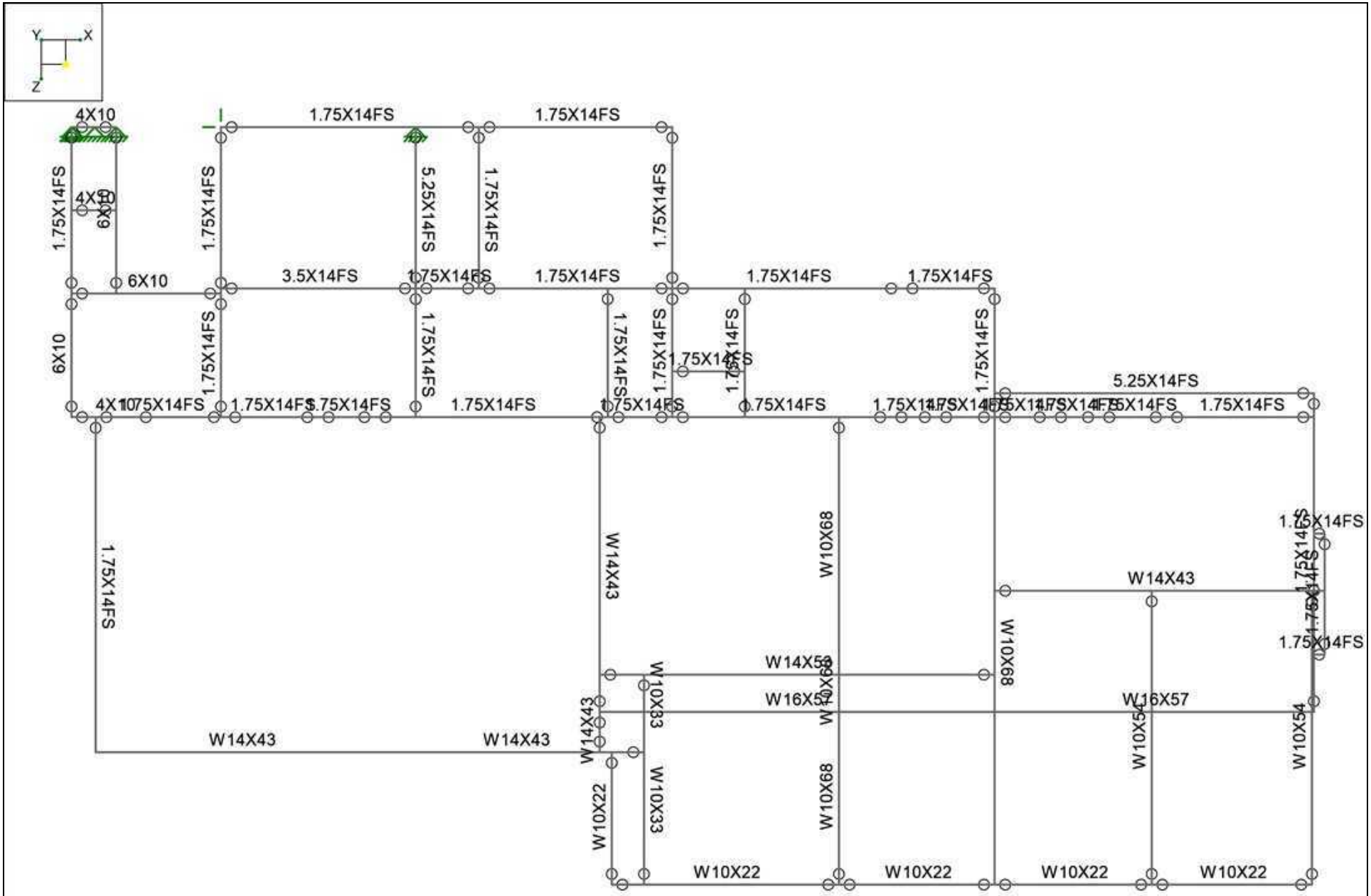
RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-7
	aaron		Aug 12, 2025 at 01:54 PM
		Chancellor Lower Roof Snow Load	Chancellor House Model 8-2-2025.r3d



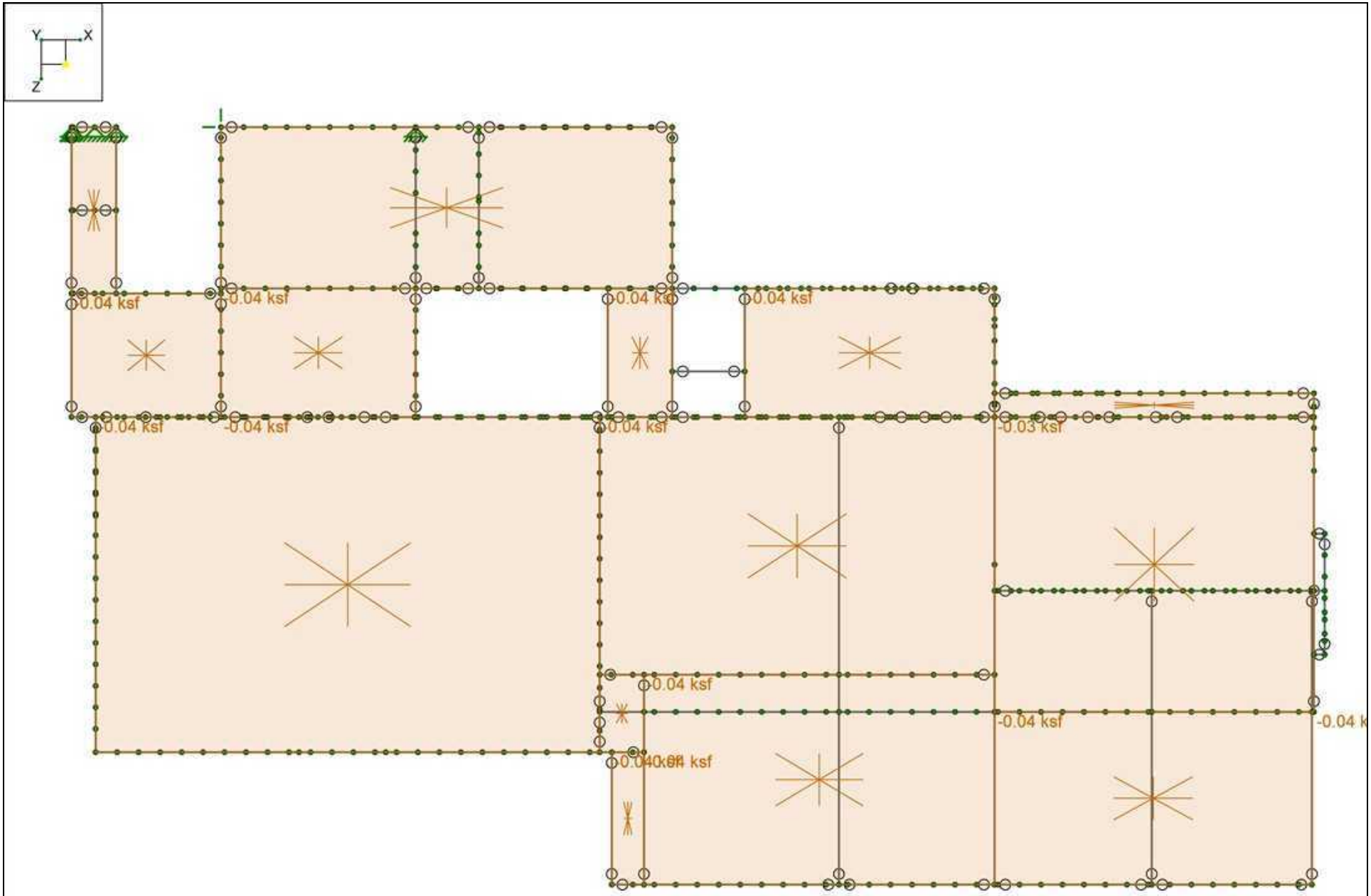
RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-8
	aaron		Aug 12, 2025 at 01:56 PM
		Chancellor Lower Roof Member Stress Levels	Chancellor House Model 8-2-2025.r3d



RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-9
	aaron		Aug 12, 2025 at 02:14 PM
		Chancellor Upper level Column Sizes	Chancellor House Model 8-2-2025.r3d

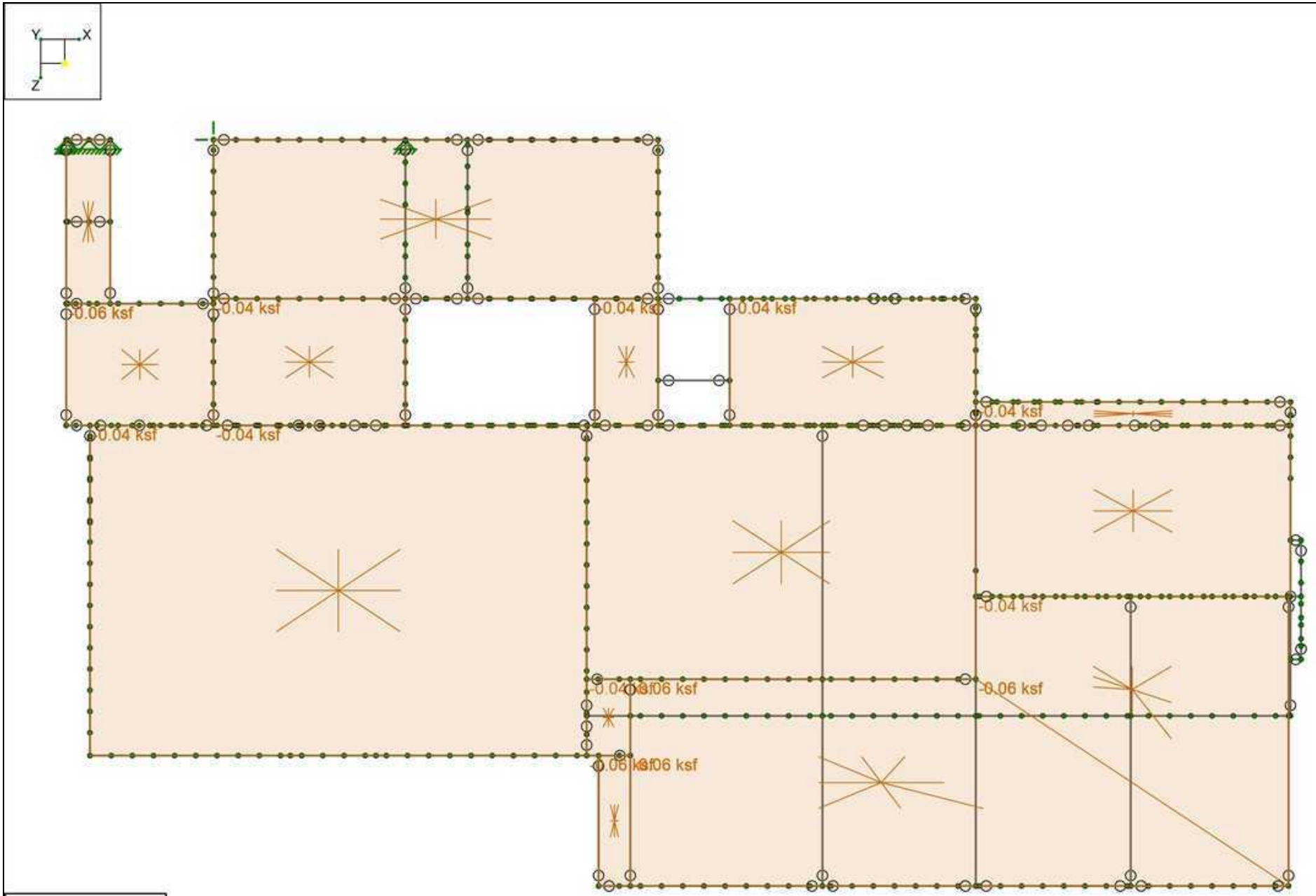


RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-10
	aaron		Aug 12, 2025 at 02:29 PM
		Chancellor Upper Level Floor Member Sizes	Chancellor House Model 8-2-2025.r3d



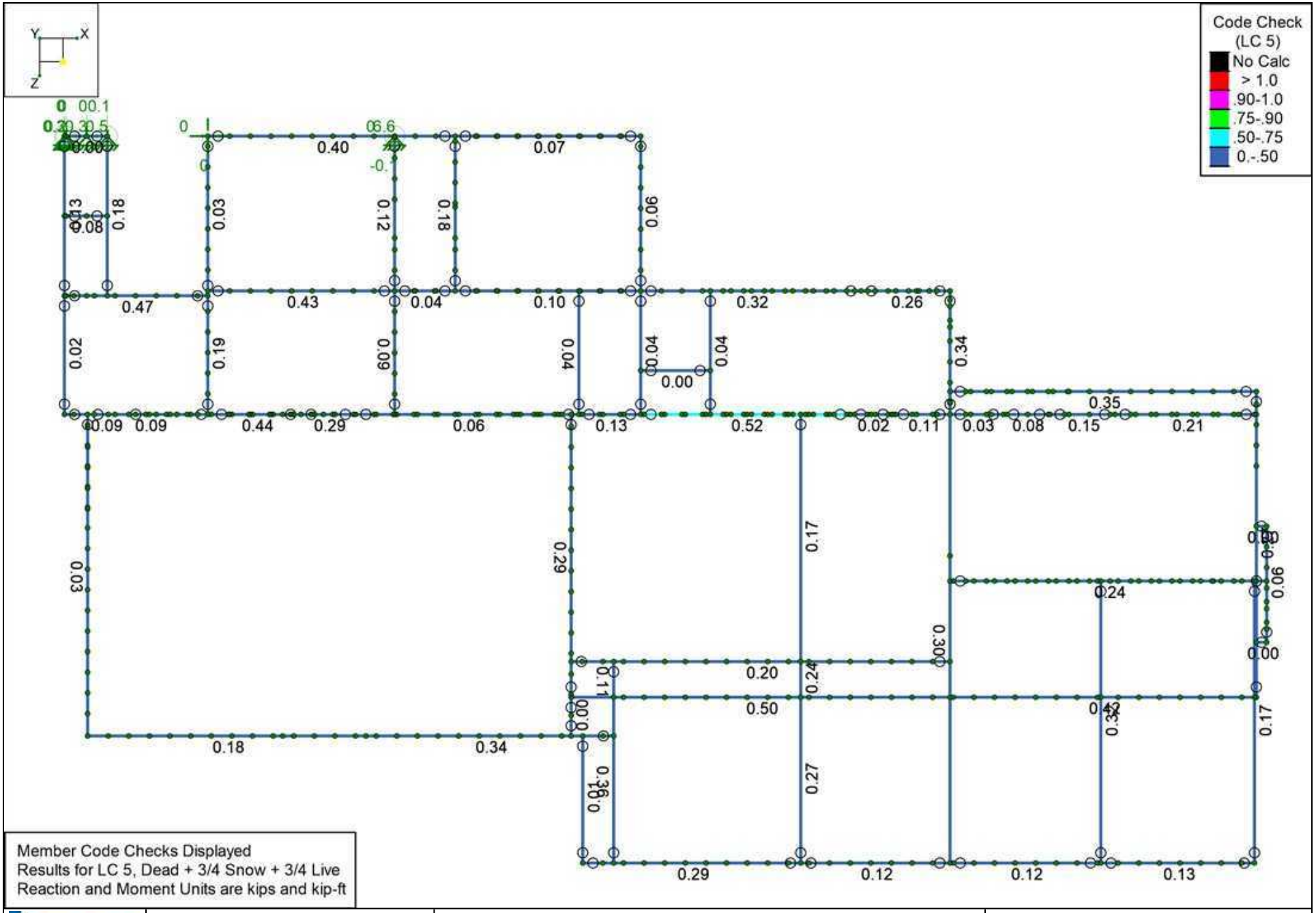
Loads: LC 1, Dead

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-11
	aaron		Aug 12, 2025 at 02:30 PM
		Chancellor Upper Level Floor Dead Load	Chancellor House Model 8-2-2025.r3d

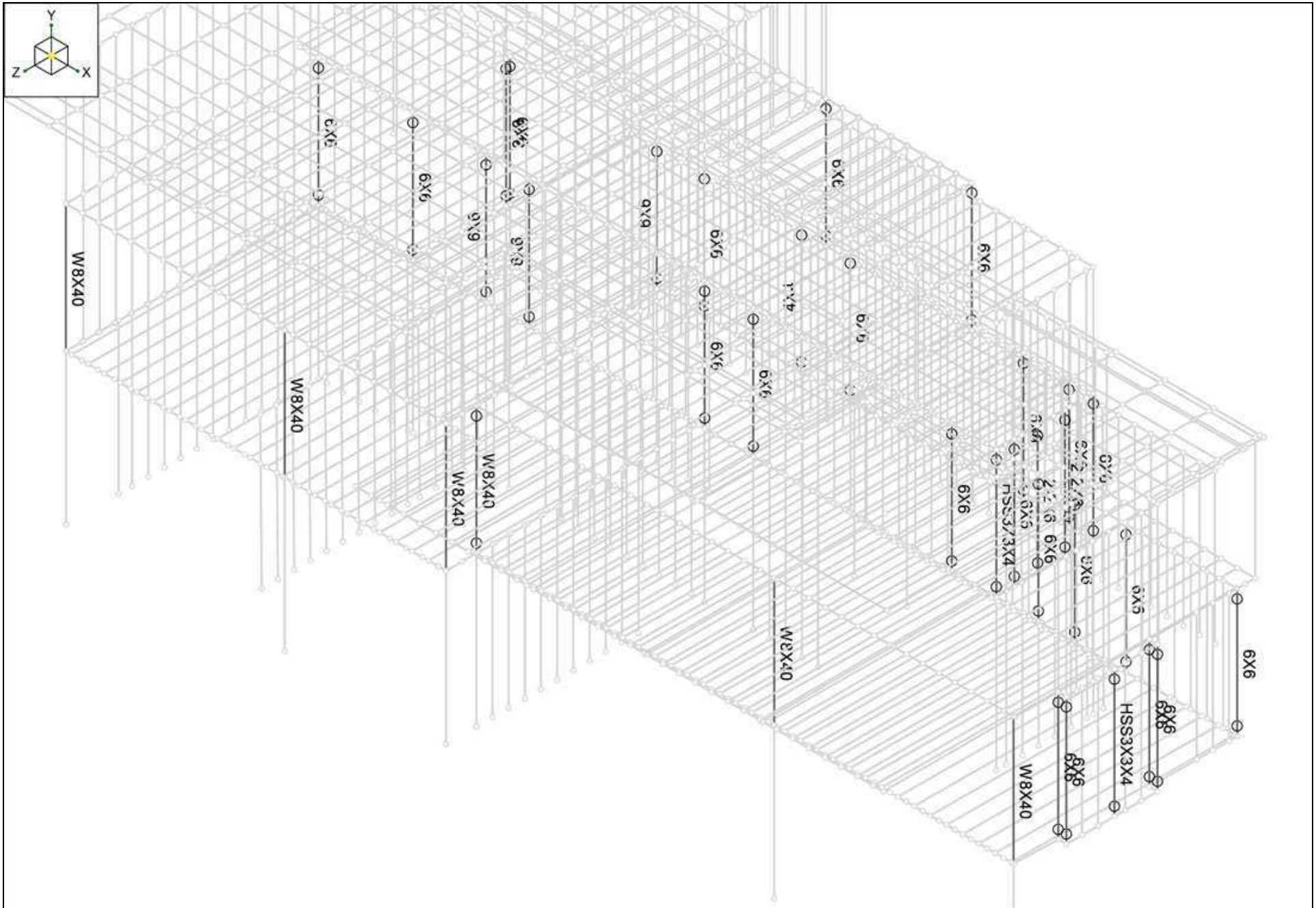


Loads: BLC 3, Live

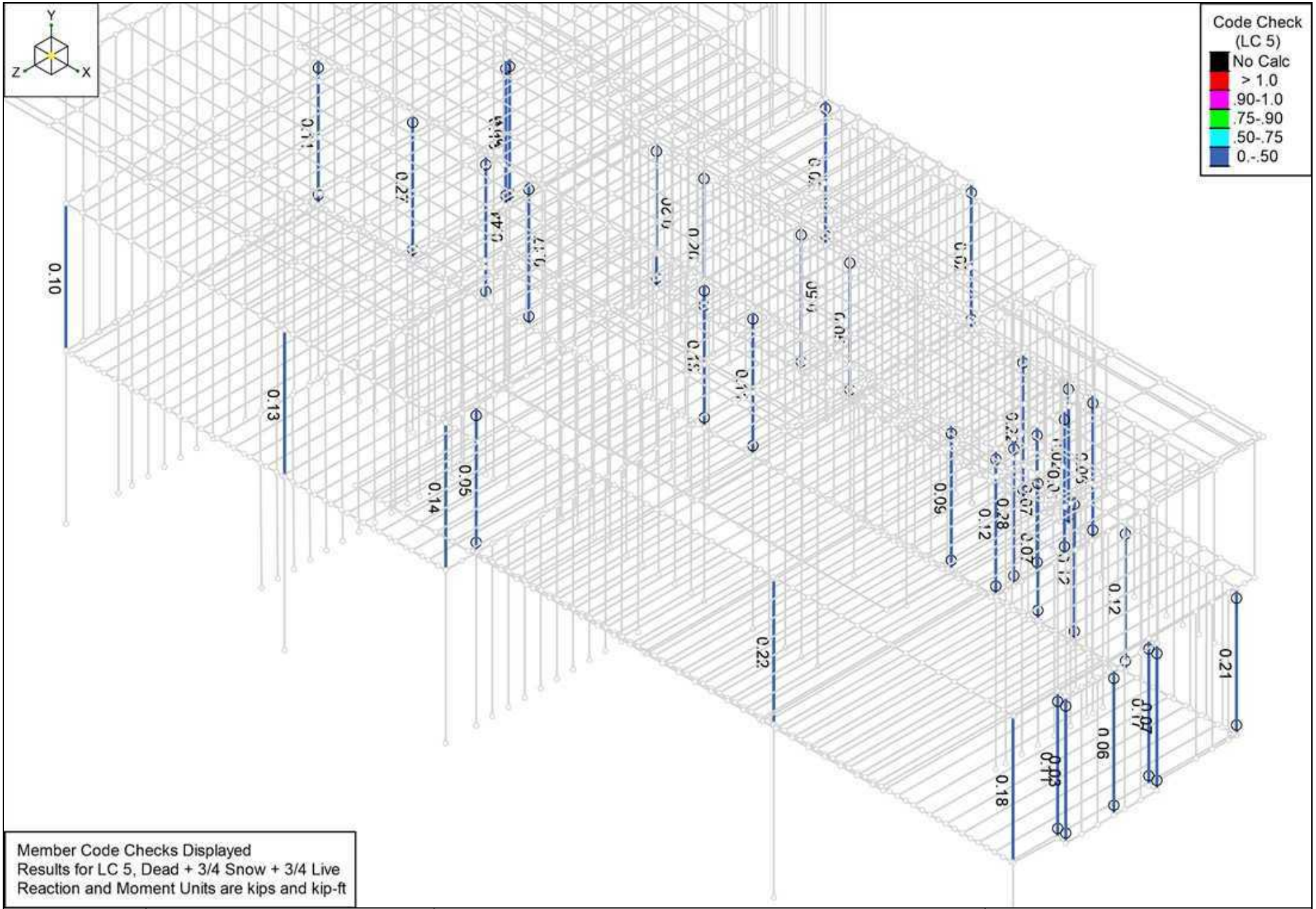
RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-12
	aaron		Aug 12, 2025 at 02:35 PM
		Chancellor Upper Level Floor Live Load	Chancellor House Model 8-2-2025.r3d



RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-13
	aaron		Aug 12, 2025 at 03:20 PM
		Chancellor Upper Level Member Stress Levels	Chancellor House Model 8-2-2025.r3d

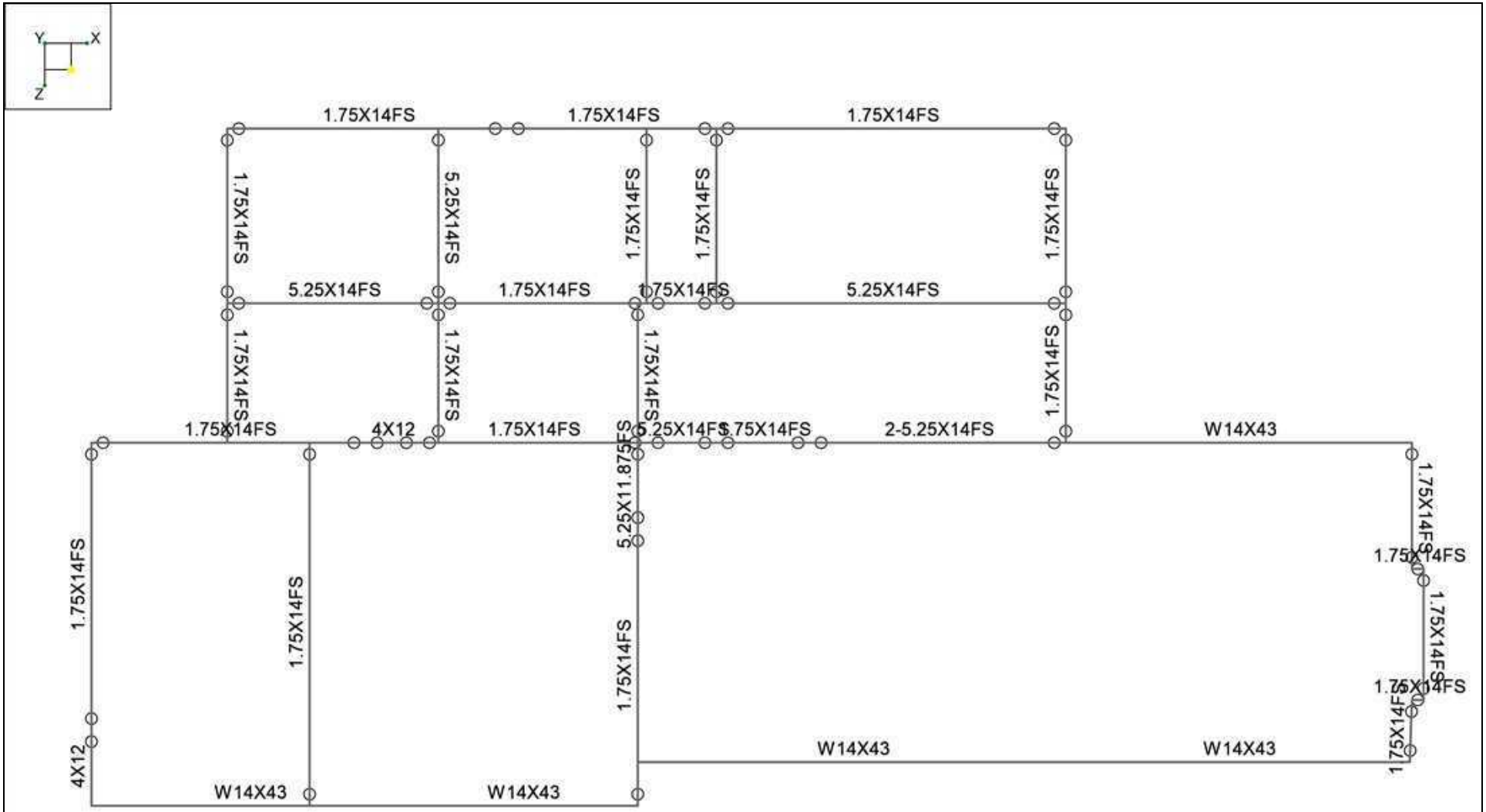


RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-14
	aaron		Aug 12, 2025 at 03:24 PM
		Chancellor Main Level Column Sizes	Chancellor House Model 8-2-2025.r3d

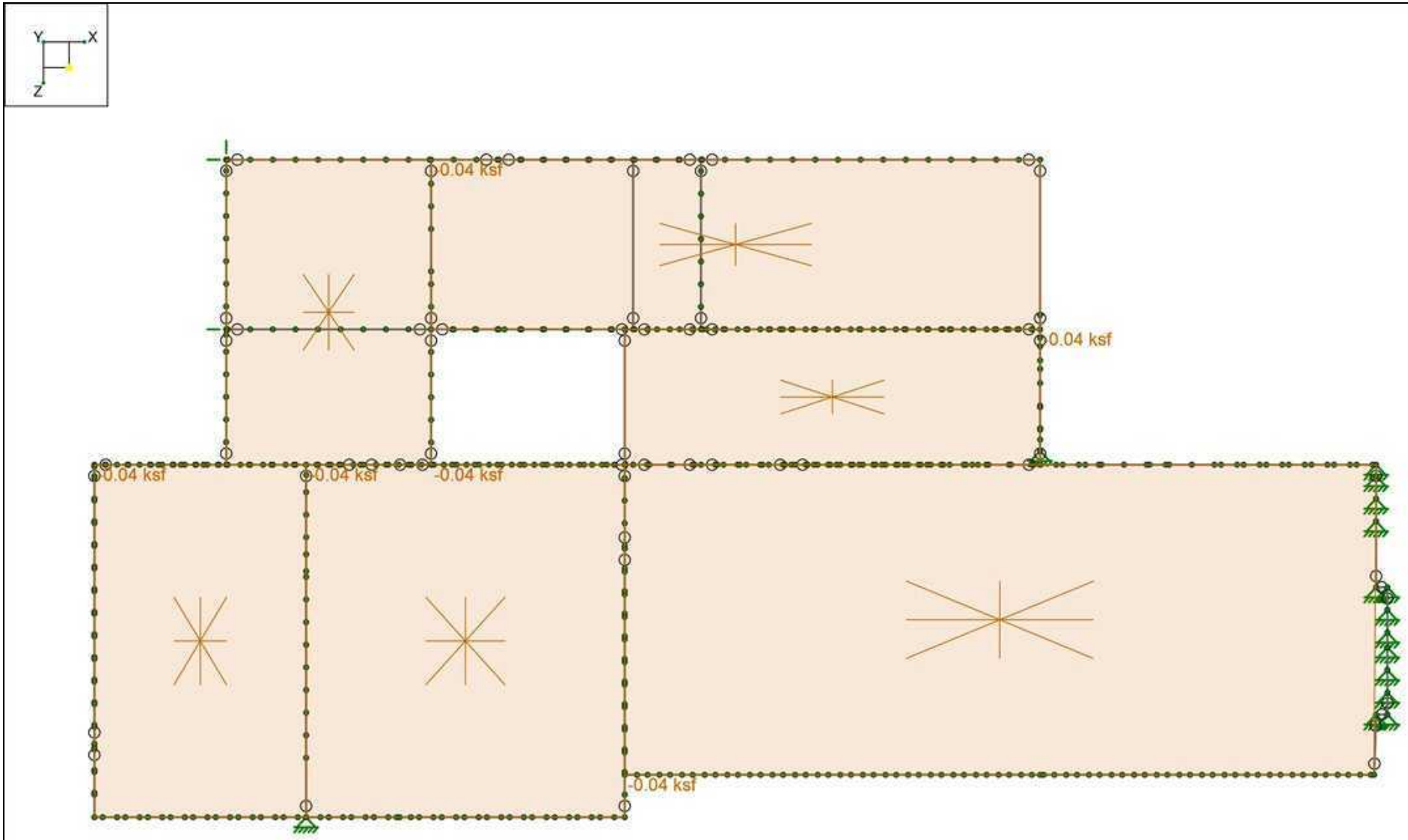


Member Code Checks Displayed
Results for LC 5, Dead + 3/4 Snow + 3/4 Live
Reaction and Moment Units are kips and kip-ft

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-15
	aaron		Aug 12, 2025 at 03:25 PM
		Chancellor Main Level Column Stress Levels	Chancellor House Model 8-2-2025.r3d

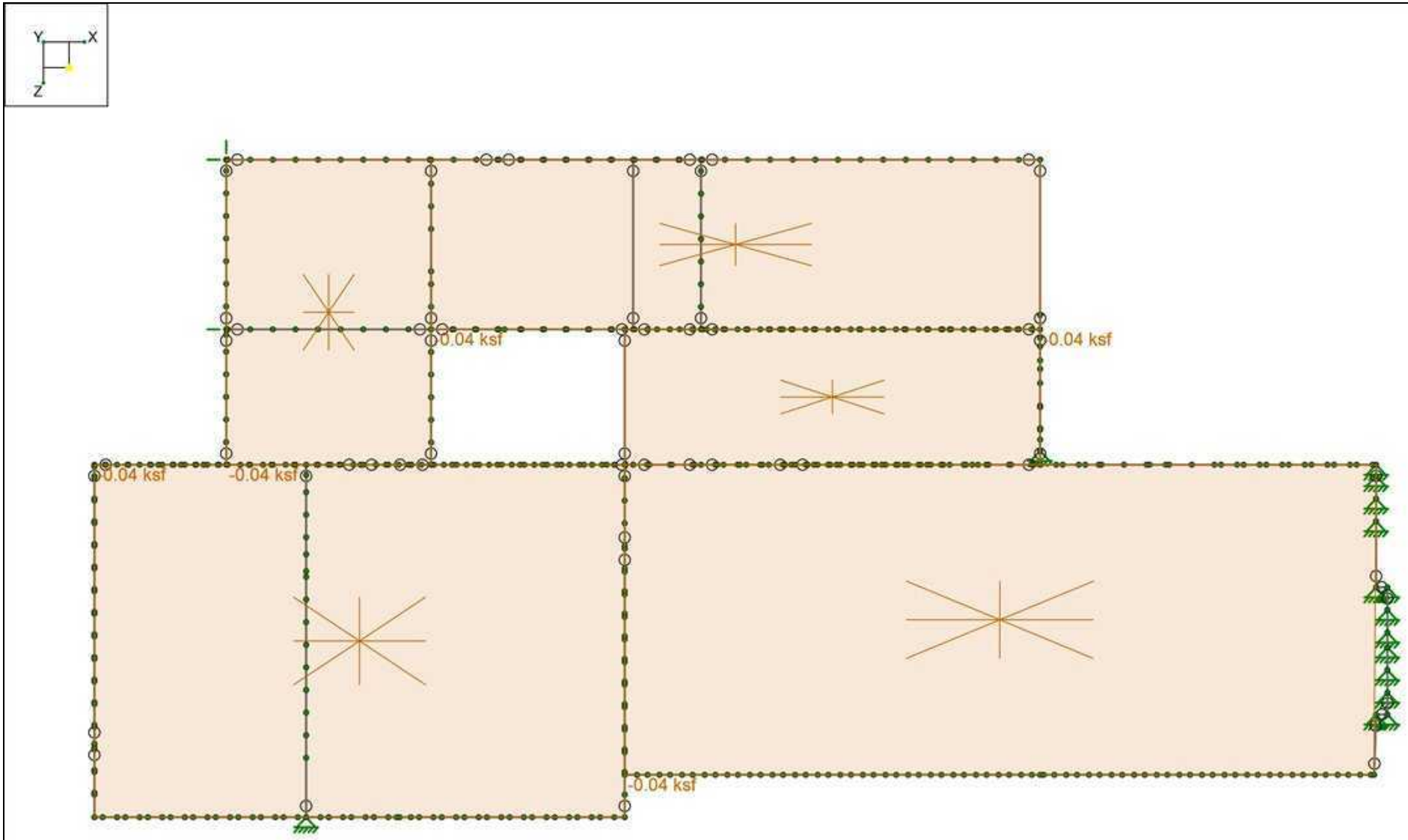


RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-16
	aaron		Aug 12, 2025 at 03:30 PM
		Chancellor Main Level Floor Member Sizes	Chancellor House Model 8-2-2025.r3d



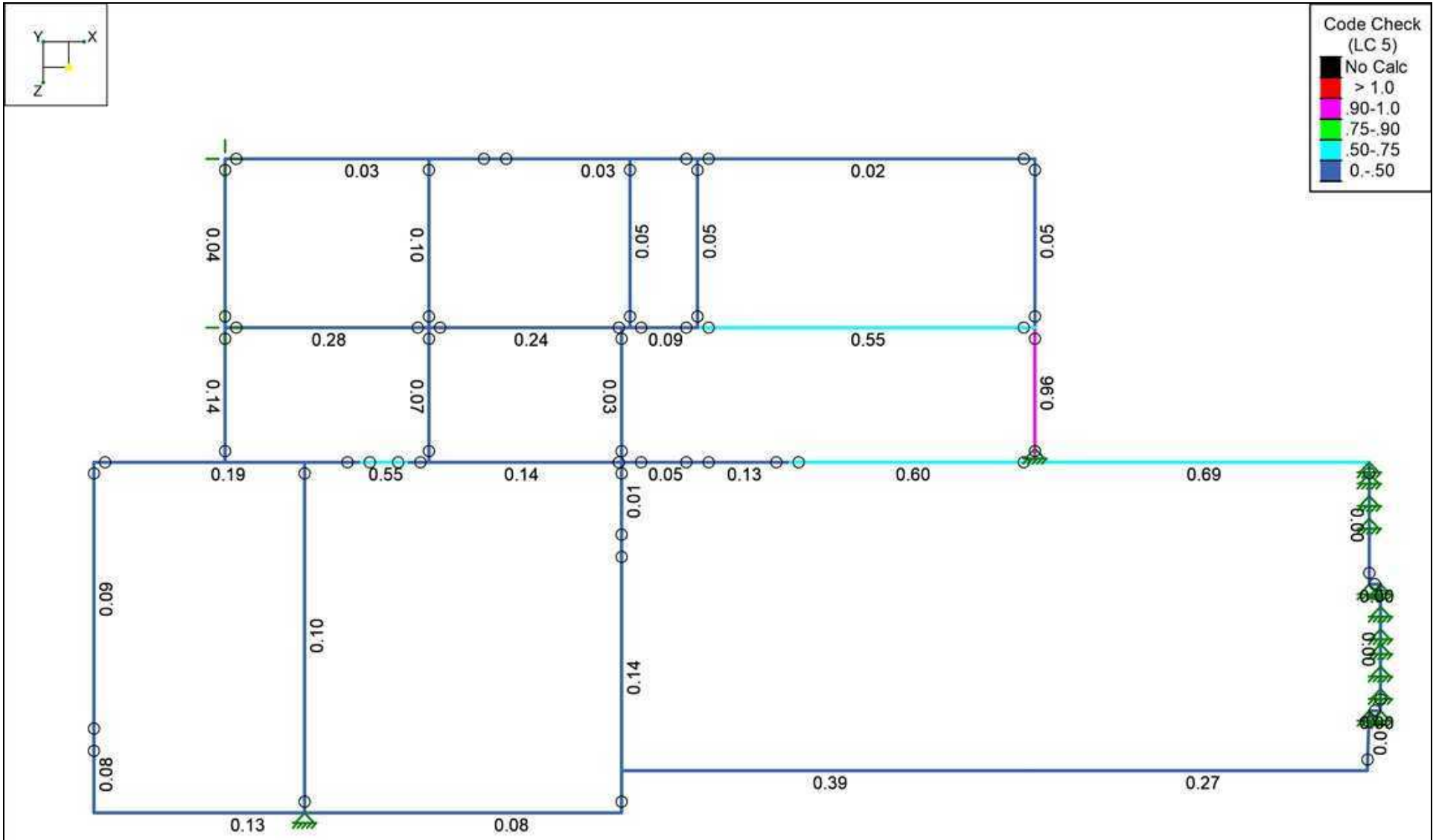
Loads: BLC 1, Dead

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-17
	aaron		Aug 12, 2025 at 03:33 PM
		Chancellor Main Level Floor Dead Load	Chancellor House Model 8-2-2025.r3d



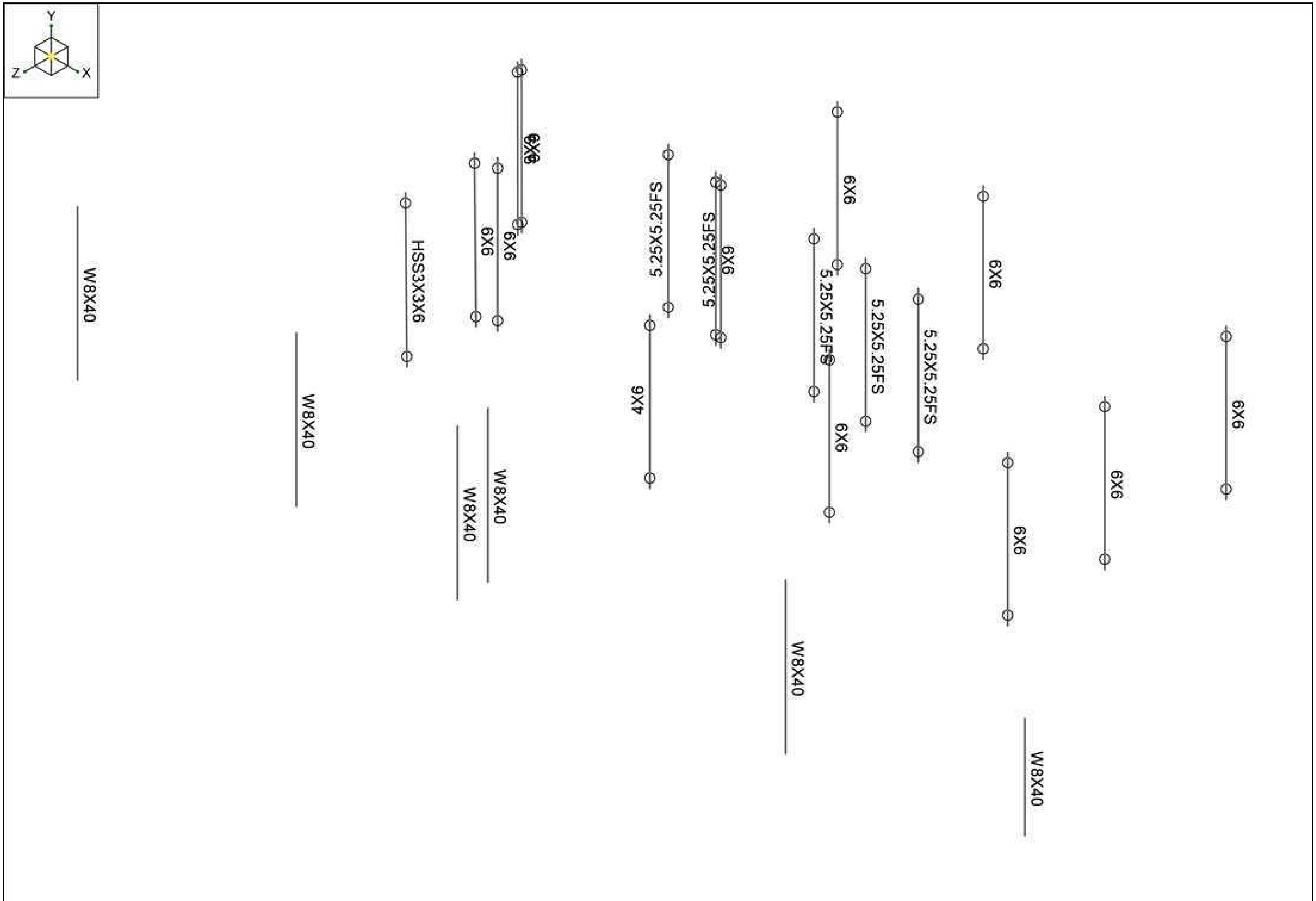
Loads: BLC 3, Live

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-18
	aaron		Aug 12, 2025 at 03:34 PM
		Chancellor Main Level Floor Live Load	Chancellor House Model 8-2-2025.r3d

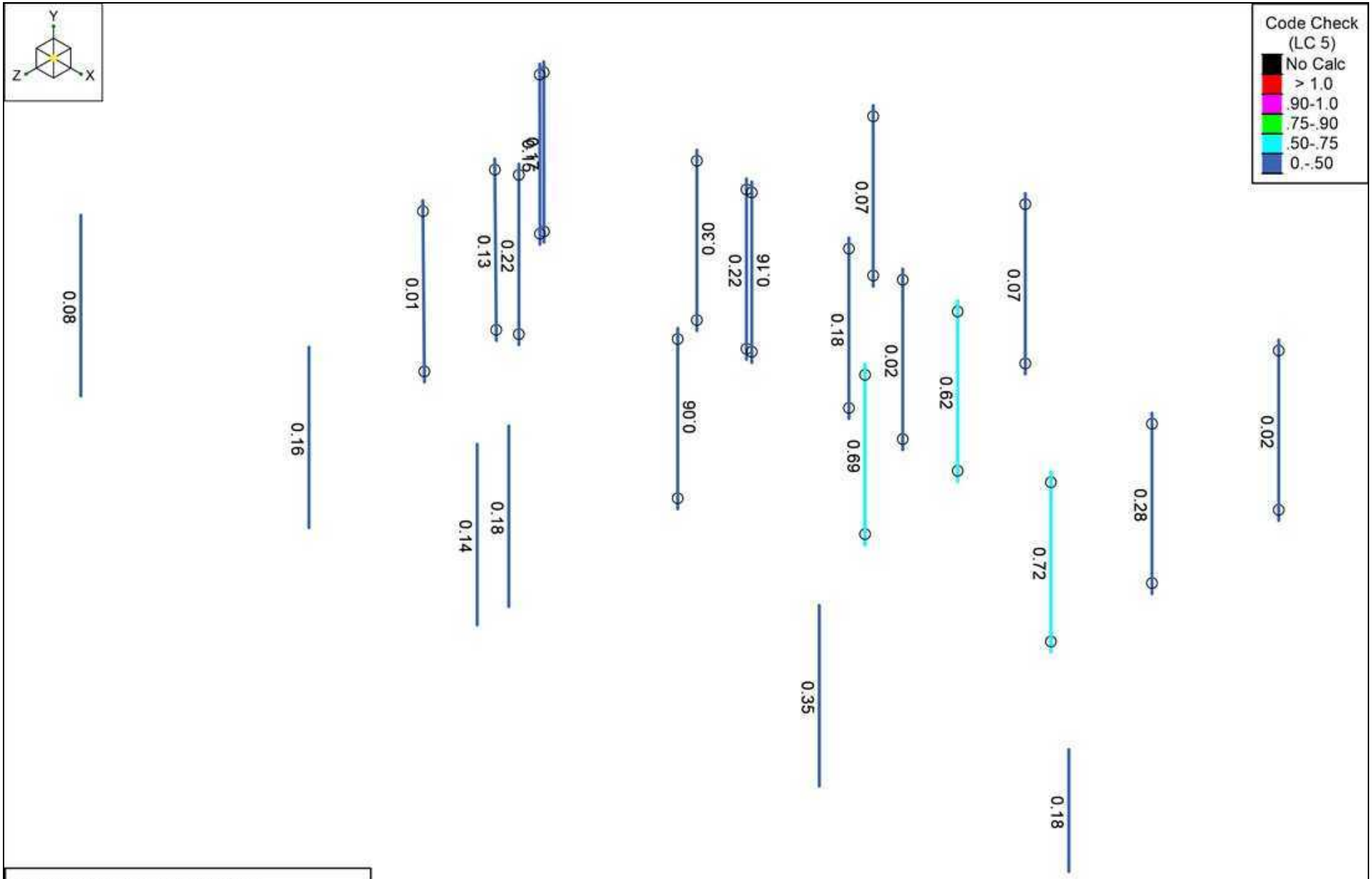


Member Code Checks Displayed
Results for LC 5, Dead + 3/4 Snow + 3/4 Live
Reaction and Moment Units are kips and kip-ft

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-19
	aaron		Aug 12, 2025 at 03:36 PM
		Chancellor Main Level Floor Member Stress Levels	Chancellor House Model 8-2-2025.r3d

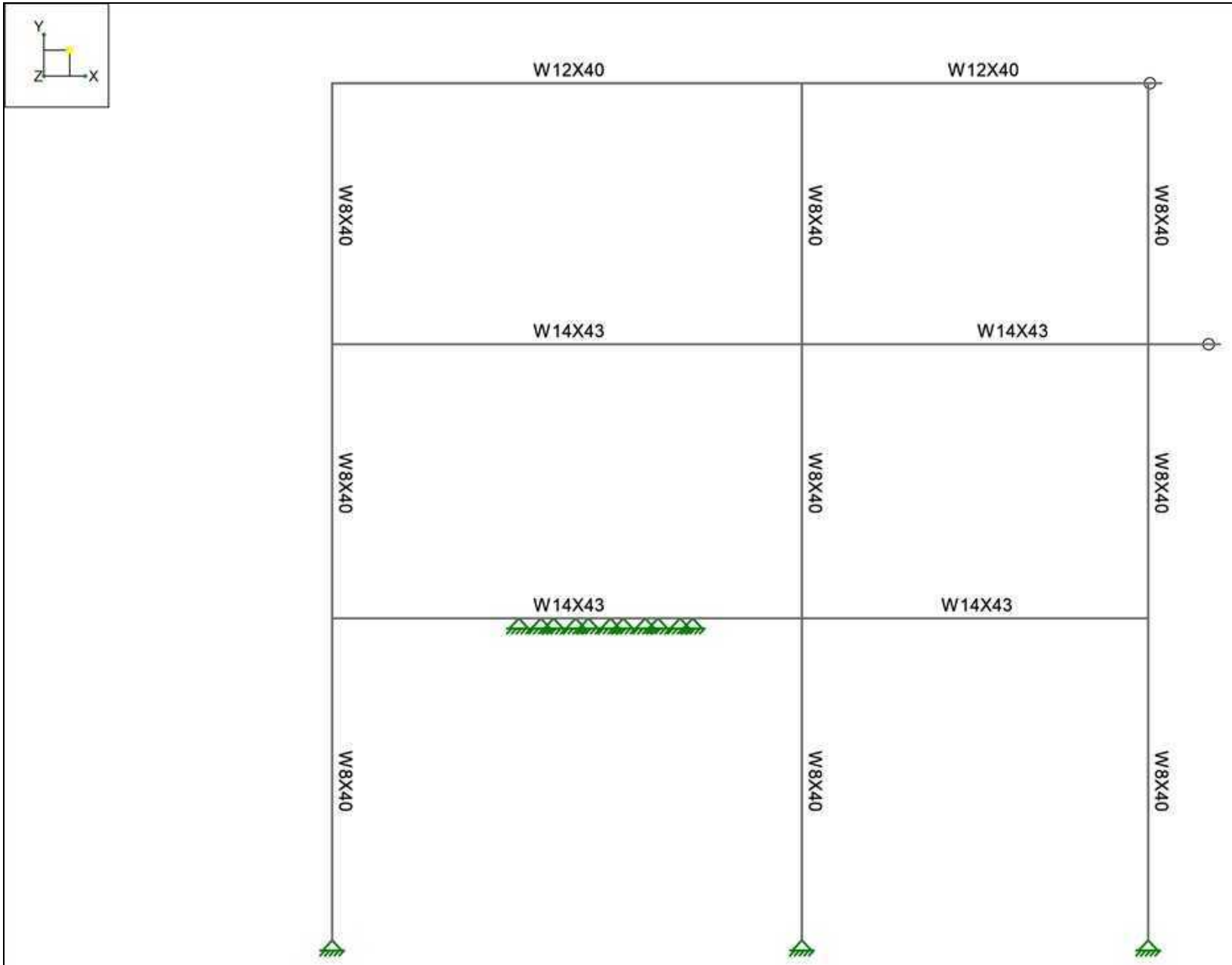


RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-20
	aaron		Aug 12, 2025 at 03:38 PM
		Chancellor Lower Level Column Sizes	Chancellor House Model 8-2-2025.r3d

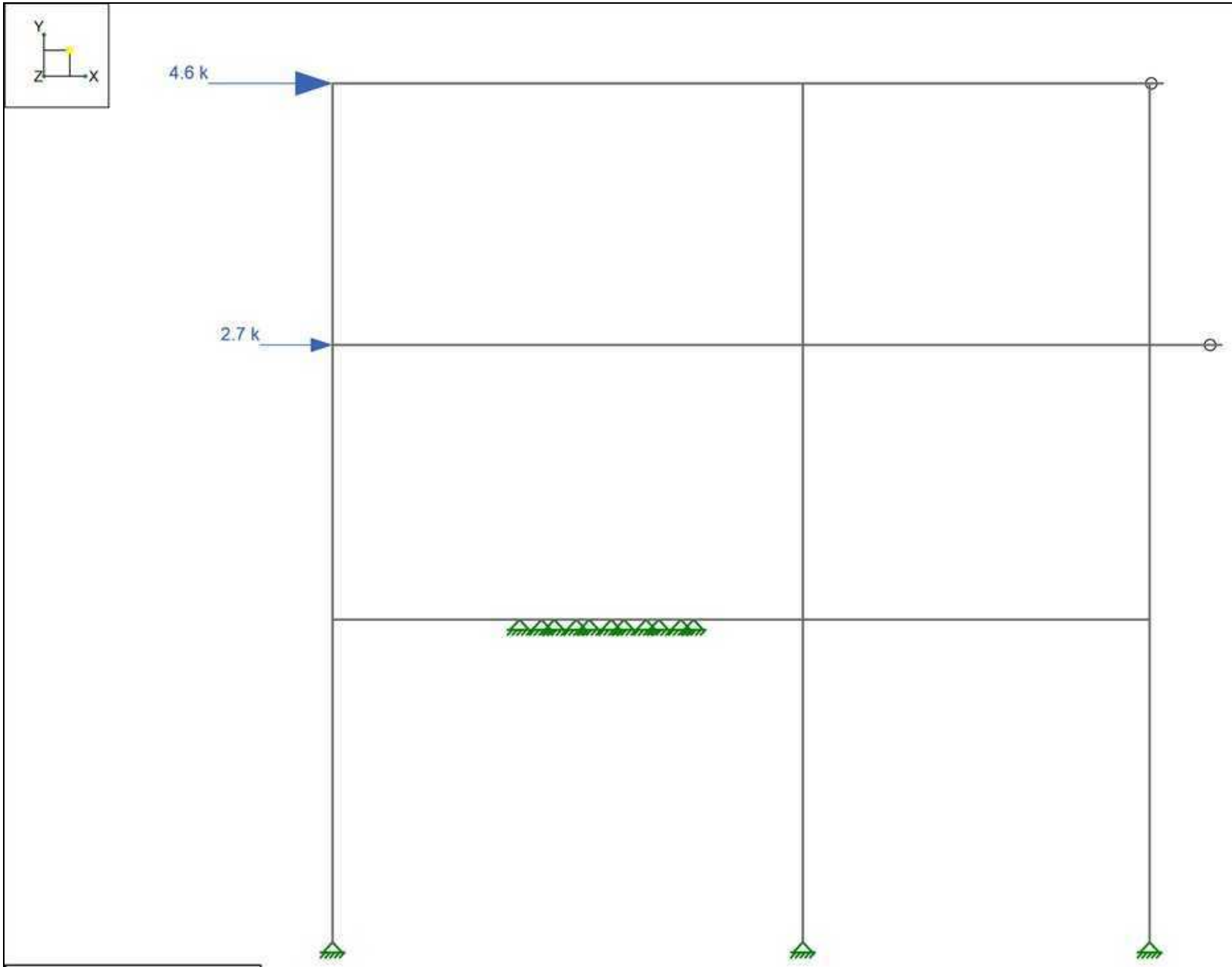


Member Code Checks Displayed
Results for LC 5, Dead + 3/4 Snow + 3/4 Live
Reaction and Moment Units are kips and kip-ft

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-21
	aaron		Aug 12, 2025 at 03:39 PM
		Chancellor Lower Level Column Stress Levels	Chancellor House Model 8-2-2025.r3d

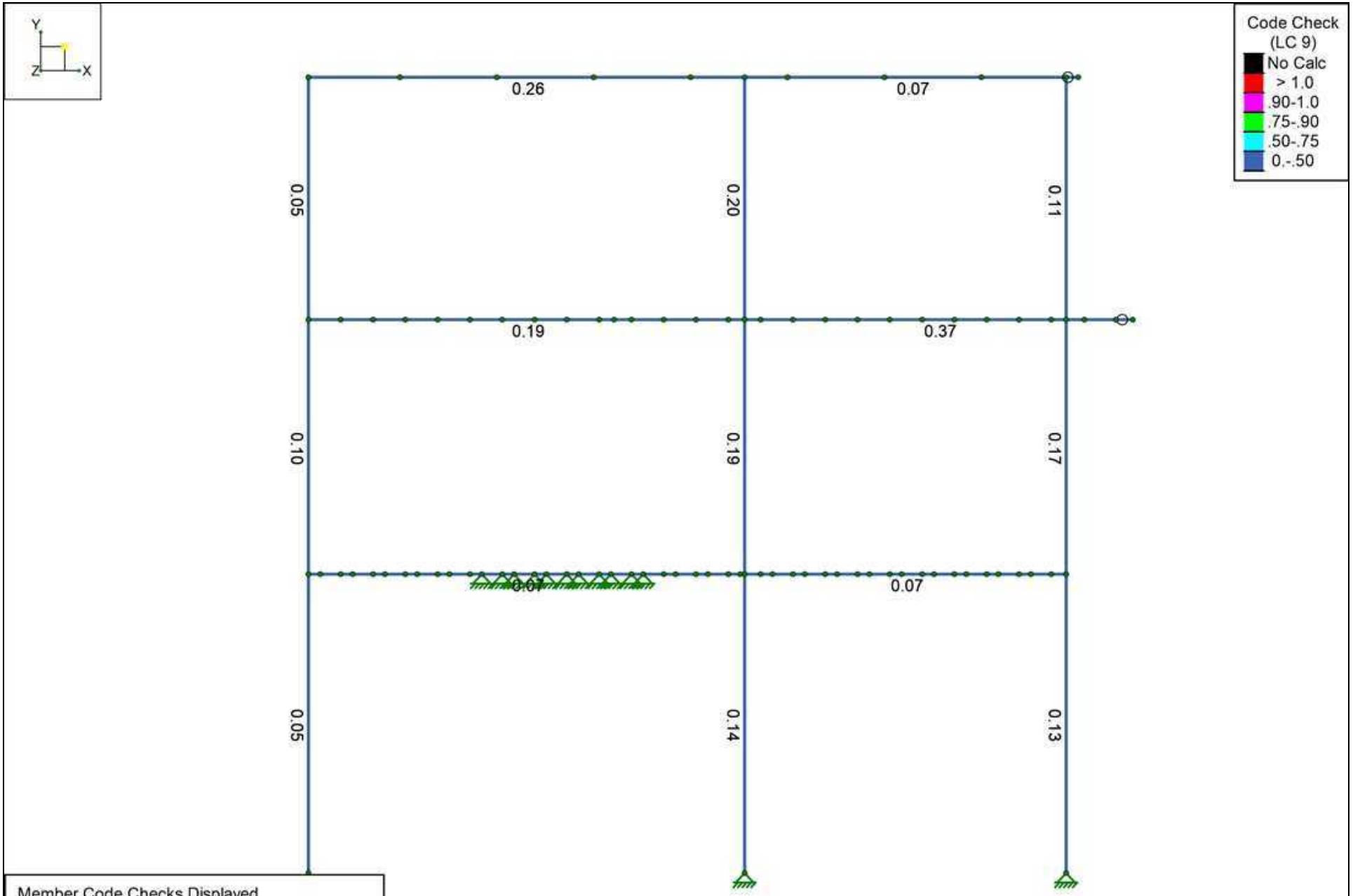


RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-22
	aaron		Aug 12, 2025 at 03:44 PM
		Chancellor Moment Frame Member Sizes	Chancellor House Model 8-2-2025.r3d

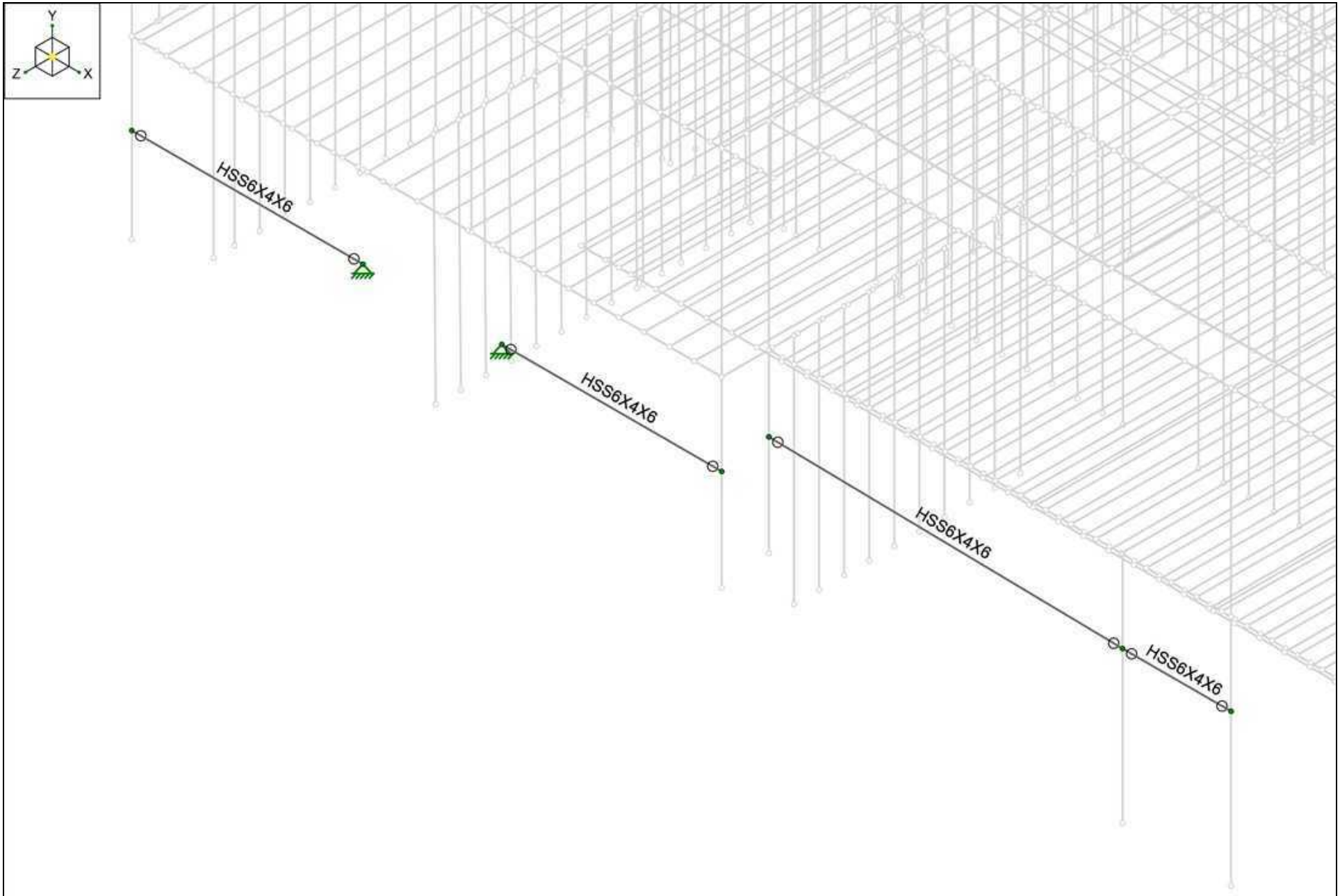


Loads: LC 8, Dead + Seismic

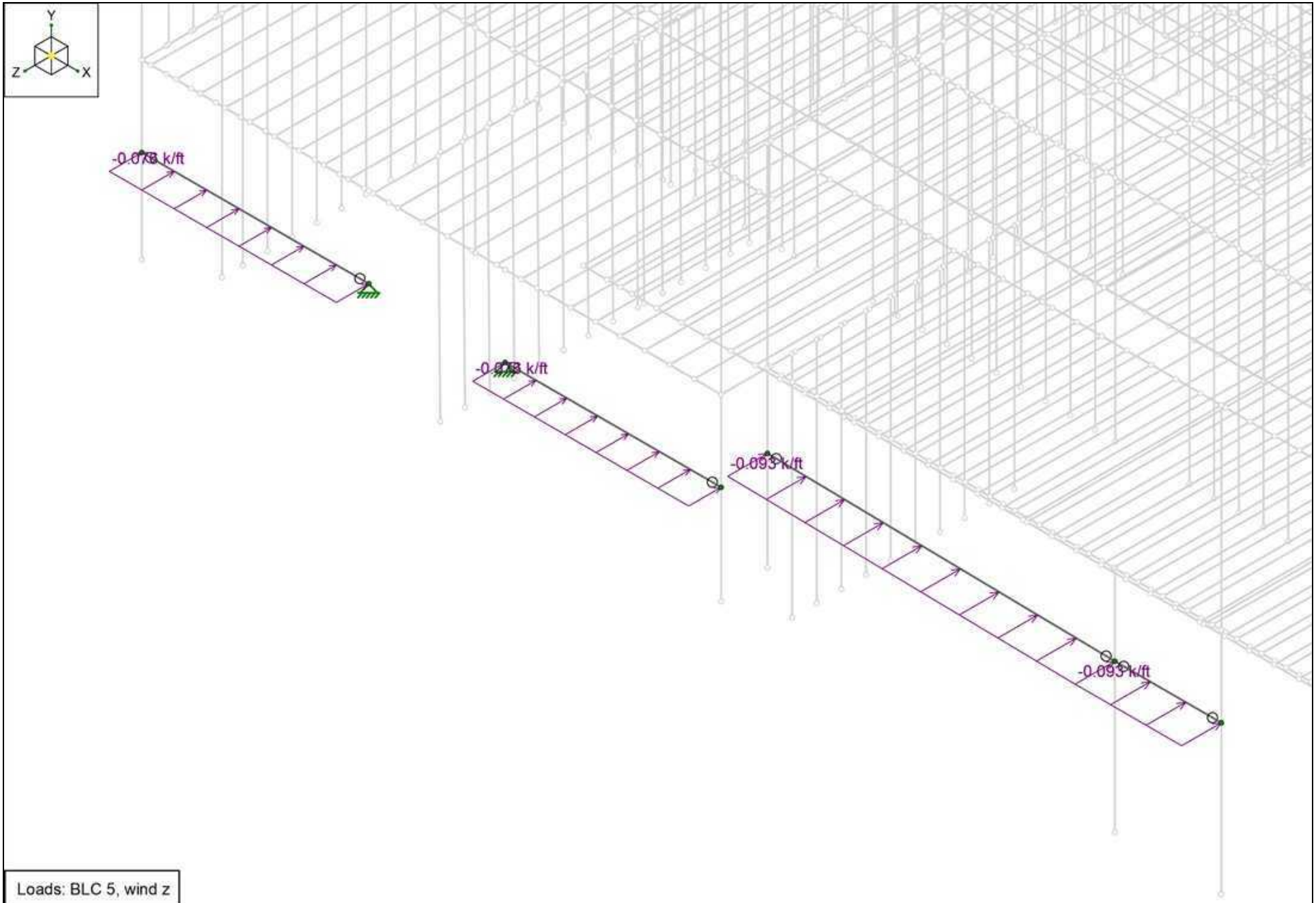
RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-23
	aaron		Aug 12, 2025 at 03:47 PM
		Chancellor Moment Frame Seismic Forces	Chancellor House Model 8-2-2025.r3d



RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-24
	aaron		Aug 12, 2025 at 03:50 PM
		Chancellor Moment Frame Member Stress Levels	Chancellor House Model 8-2-2025.r3d

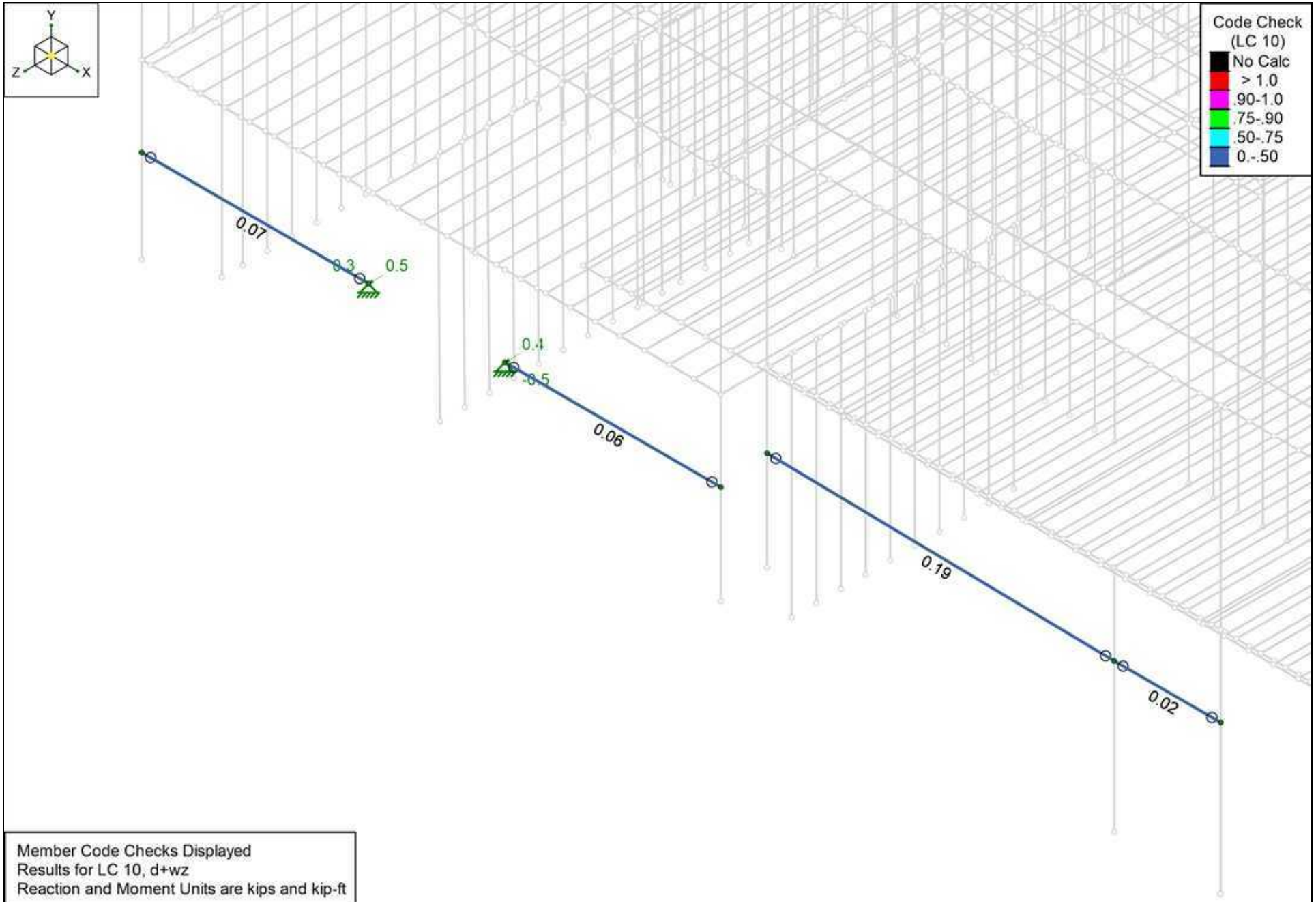


RISA A NEMETSCHEK COMPANY	<Licensed Company>	Chancellor Transom Beam Sizes	SK-1
	aaron		Aug 16, 2025 at 03:07 PM
			Chancellor House Model 8-16-2025.r3d



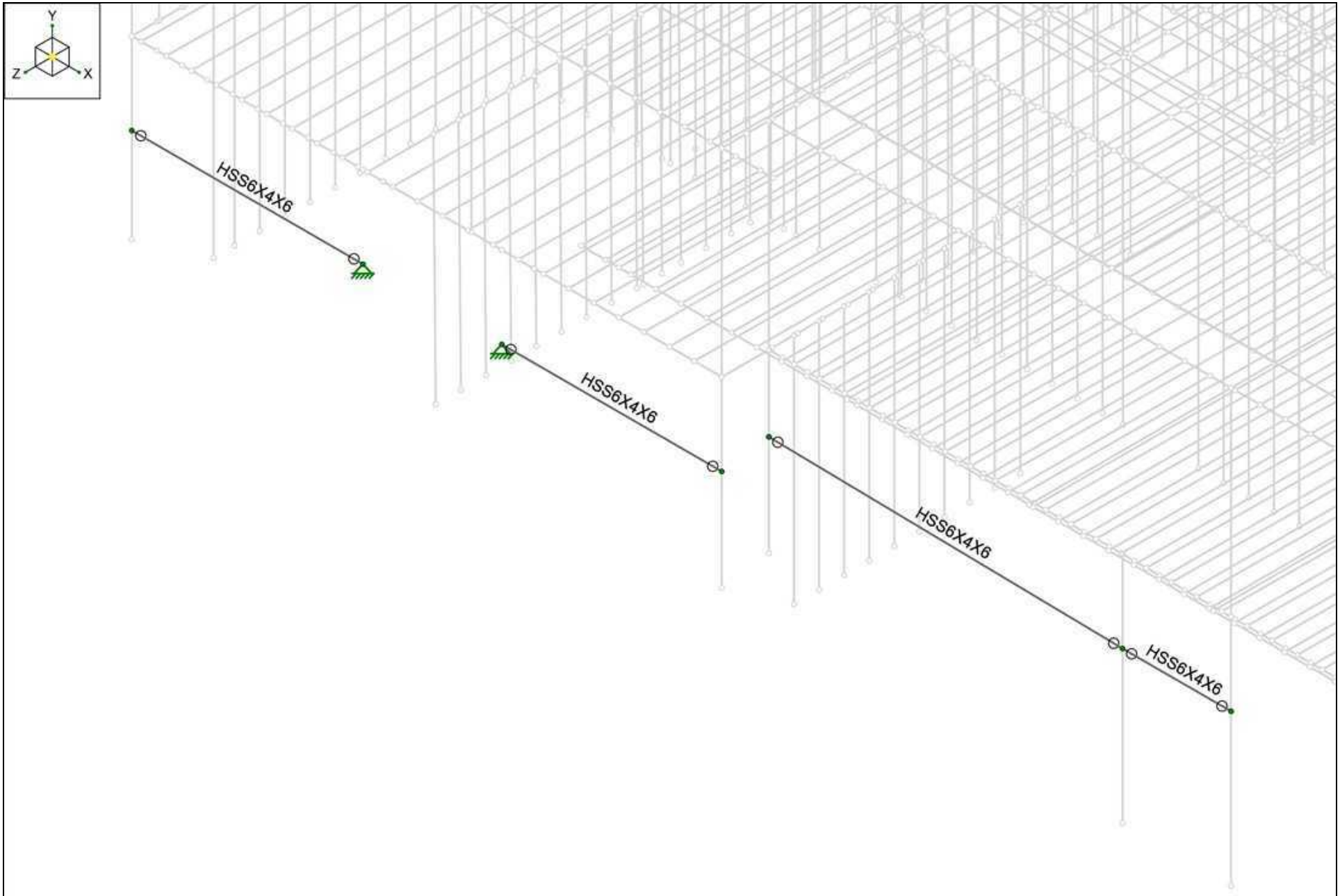
Loads: BLC 5, wind z

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-2
	aaron		Aug 16, 2025 at 03:08 PM
		Chancellor Transom Beam Wind Loads	Chancellor House Model 8-16-2025.r3d

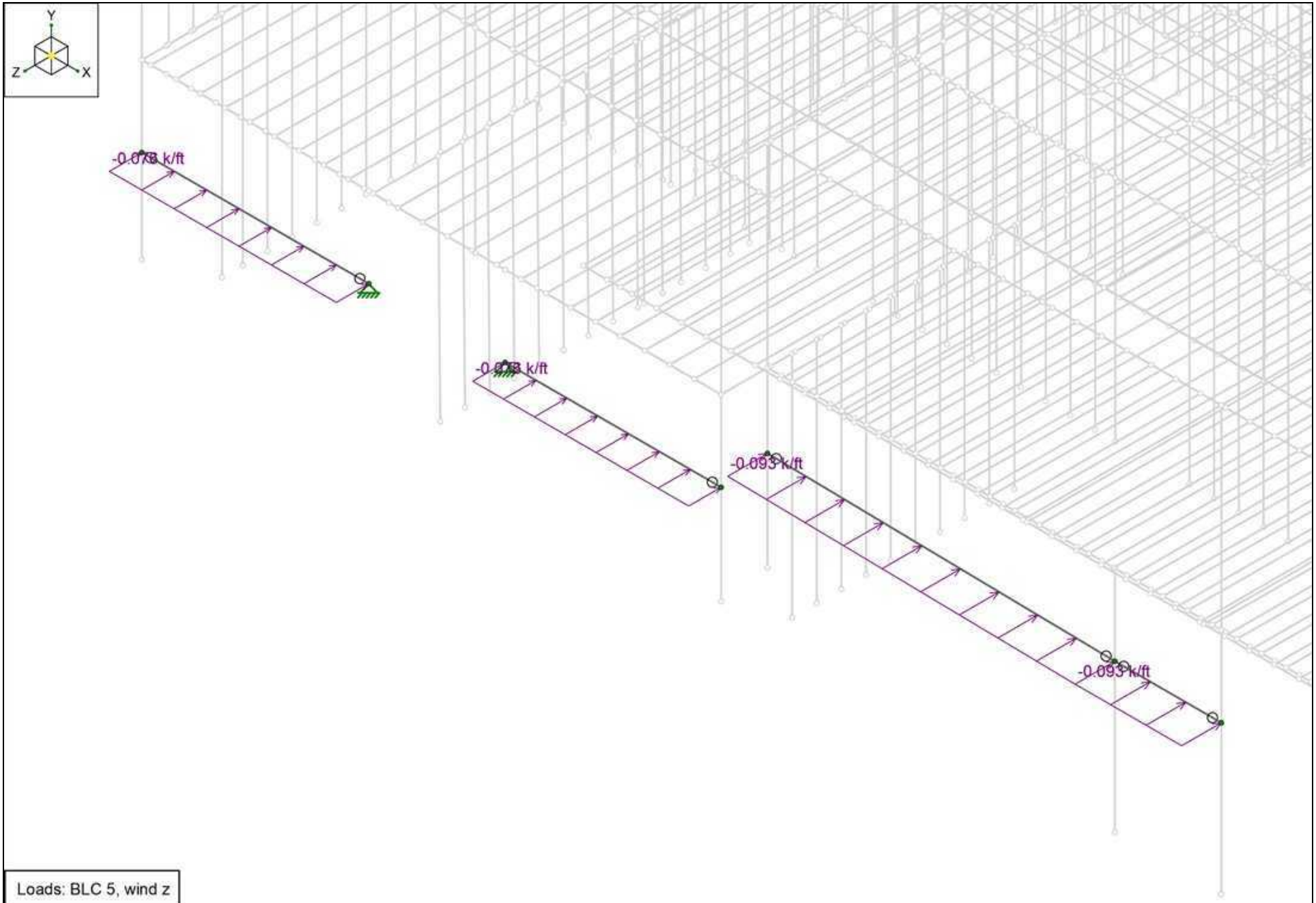


Member Code Checks Displayed
Results for LC 10, d+wz
Reaction and Moment Units are kips and kip-ft

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-3
	aaron		Aug 16, 2025 at 03:09 PM
		Chancellor Transom Beam Stress Levels	Chancellor House Model 8-16-2025.r3d

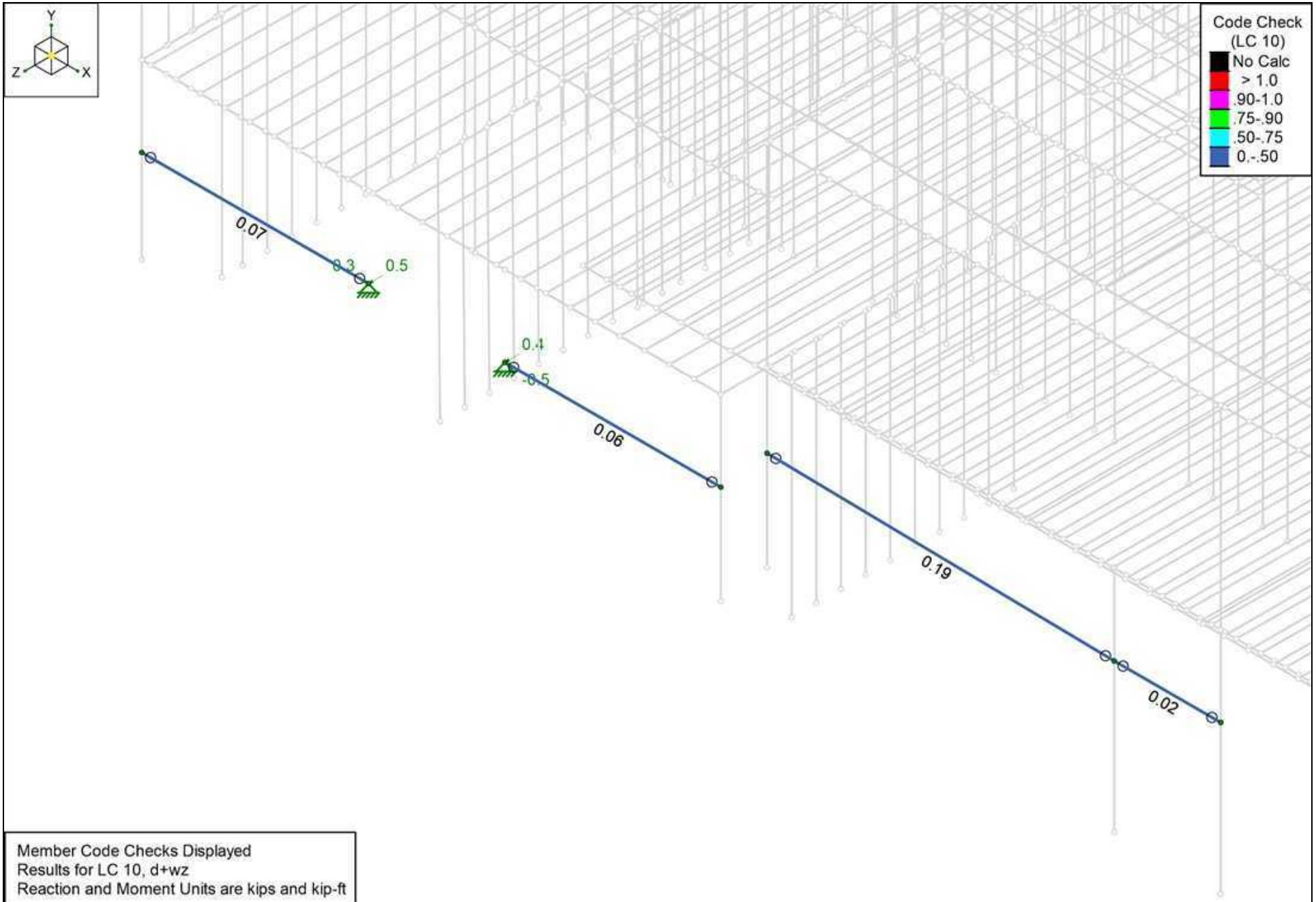


RISA A NEMETSCHEK COMPANY	<Licensed Company>	Chancellor Transom Beam Sizes	SK-1
	aaron		Aug 16, 2025 at 03:07 PM
			Chancellor House Model 8-16-2025.r3d



Loads: BLC 5, wind z

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-2
	aaron		Aug 16, 2025 at 03:08 PM
		Chancellor Transom Beam Wind Loads	Chancellor House Model 8-16-2025.r3d



Member Code Checks Displayed
Results for LC 10, d+wz
Reaction and Moment Units are kips and kip-ft

RISA A NEMETSCHEK COMPANY	<Licensed Company>		SK-3
	aaron		Aug 16, 2025 at 03:09 PM
		Chancellor Transom Beam Stress Levels	Chancellor House Model 8-16-2025.r3d