RAM - design report (seismic provision;IMF)

Z=1346000mm^3

```
Bolts shear                                          [KN]        389.74     268.06     LC-2       0.79       AISC 358-05 Eq. 2.4.3-1
Cpr = min((Fy + Fu)/(2*Fy), 1.2) = min((0.2532[KN/mm2] + 0.4078[KN/mm2])/(2*0.2532[KN/mm2]), 1.2) = 1.2        AISC 358-05 Eq. 2.4.3-2
Mpr = (Cpr/1.0)*Ry*Fy*Ze = (1.2/1)*1.5*0.2532[KN/mm2]*1350000[mm3] = 615.28[KN*m]        AISC 358-05 Eq. 2.4.3-1
Vp = 2*Mpr/L' + Vg = 2*615.28[KN*m]/4590.6[mm] + 0[KN] = 268.06[KN]                      FEMA-350 p. 3-8
ϕRn = 4 * (ϕ*Fnv*Ab) = 4 * (0.9*0.330948[KN/mm2]*285.16[mm2]) = 339.74[KN]              Eq. J3-1

Connector bolt bearing                               [KN]       1188.56     268.06     LC-2       0.23       AISC 358-05 Eq. 2.4.3-1,
Cpr = min((Fy + Fu)/(2*Fy), 1.2) = min((0.2532[KN/mm2] + 0.4078[KN/mm2])/(2*0.2532[KN/mm2]), 1.2) = 1.2        AISC 358-05 Eq. 2.4.3-2
Mpr = (Cpr/1.0)*Ry*Fy*Ze = (1.2/1)*1.5*0.2532[KN/mm2]*1350000[mm3] = 615.28[KN*m]        AISC 358-05 Eq. 2.4.3-1
Vp = 2*Mpr/L' + Vg = 2*615.28[KN*m]/4590.6[mm] + 0[KN] = 268.06[KN]                      FEMA-350 p. 3-8
Lc-end = max(0.0, Lc - dh/2) = max(0.0, 44.449999[mm] - 20.6375[mm]/2) = 34.131249[mm]   Sec. J4.10
Lc-spa = max(0.0, s - dh) = max(0.0, 90.499997[mm] - 20.6375[mm]) = 69.862498[mm]        Sec. J4.10
ϕRn = ϕ*(min(k1*Lc-end, k2*d) + min(k1*Lc-spa, k2*d)*(n - 1))*tp*Fu*                      nc = 0.9*(min(1.2*34.131249[mm], 2.4*19.05[mm]) + min(1.2*69.862498[m
```

AISC-358-05

$$V_u = \frac{2M_{pe}}{L'} + V_{gravity} \qquad (6.9\text{-}16)$$

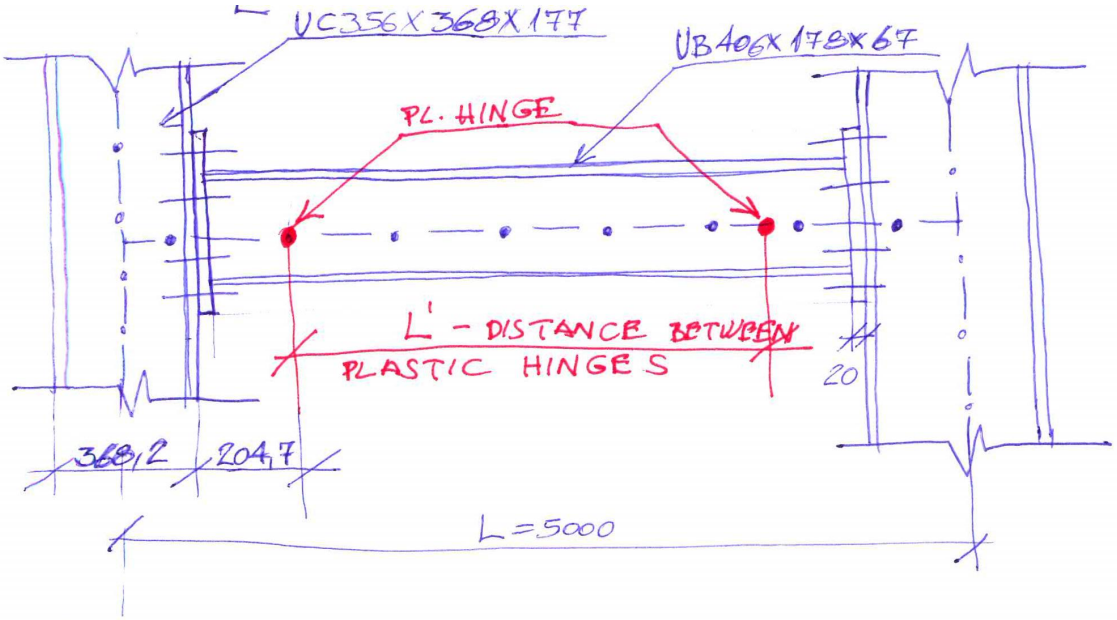
L' = distance between plastic hinges, in. (mm)

$V_{gravity}$ = beam shear force resulting from $1.2D + f_1L + 0.2S$, kips (N)

C_{pr} = Factor to account for peak connection strength, including strain hardening, local restraint, additional reinforcement, and other connection conditions, as given in Equation 2.4.3-2

V_u = shear force at the end of the beam, kips (N)

f_1 = load factor determined by the applicable building code for live loads, but not less than 0.5



$L' = 5000 - 368,2 - 2X204,7 = 4222$ mm (AS PER NSC 358-05)

$L' = 5000 - 368,2 - 2X20 = 4591,8$ mm (RAM) - BETWEEN END PLATE FACES