점검통로 구조검토서

2015. 11.

㈜ 건 교 산 업

§1. 검토목적

공용중에 있는 교량의 교대, 교각부 점검시설은 상판하부, 주형받침, 교대를 유지관리 작업시 작업원의 안전을 확보하기 위함. 교각부 균열, 파손 등의 점검과 유지관리 및 보수작업의 효율성을 제고하기 위해 설치하는 것으로 점검통로 구조적 안전성 검토

§2. 설치조건

구분	설치조건	점검대상	비고
교 대 부	·교량 하부조건이 앞채움 성토가 없는 교대로 별도의 장비 없이는 접근관찰이 곤란한 경우	·교대측 상판하부, 주형받침, 교대의 균열, 파손등 점검 및 유지보수	
점검시설	·교고(주형하단부터 지면, 수면, 노면 등 까지의 거리)가 7m 이상인 경우⇒매 교각마다 설치	·교대측 상판하부, 주형받침, 교대의 균열, 파손등 유지보수	
교 각 부	·교고가 7m 미만이라도 별도의 장비설치시 하부 도로를 점유하거나 고속도로 교통소통에 지장을 초래할 경우 ⇒설치를 요하는 교각에 적용		
점검시설	·신축이음 장치가 있는 교각⇒일상 점검이 가능토록 교고에 제한을 받지 않고 설치		

※ 단, ① 교량 점검시설로 인하여 하부 주행차량에 지장을 줄 경우에는 현장여건을 감안하여 제외할 수 있다.

② 연장이 긴 장대교는 경제성, 시공성, 유지관리 측면에 대하여 이동식 점검시설과 설치 타당성을 비교 검토하여 설계에 반영

※ 점검시설 설치조건은 한국도로공사 유지관리시설 설계기준에 의한 것임.

§3. 설계조건

1. 구조형식 : 교대, 교각 점검대용 난간
2. 설계방법 : 허용응력 설계법
3. 설치간격 : 1.500m
4. 설계하중
   1) 고정하중 : 사용부재 단위중량적용
   2) 활하중

구 분	설 계 조 건	비 고
바닥판(보도)	▪ 보도 등에 작용시키는 설계활하중은 $3.5\times10^{-3}MPa$로 한다.	▪ 도로교 설계기준 (한국도로교통협회) - P. 2-3 ▪ 도로설계요령 (한국도로공사) - P. 349 ▪ 도로설계실무편람 (한국도로공사) - P. 770
난 간	▪ 난간의 설계하중은 수직하중 600N/m, 수평하중 400N/m를 난간상단에 작용시키는 것으로 한다.	
출입사다리	▪ 사다리에 작용하는 설계활하중은 집중하중으로 고정하중 1kN/인이 2.1m간격으로 걸려있는 것으로 한다.	

5. 사용재료

   1) 알루미늄합금
      (1) 재 질 : A6063S - T5 - KSD 6759 P 9 참조
      (2) 물리상수
      · 인장강도(f_u) = 150MPa
      · 항복강도(f_y) = 110MPa
      · 단위중량(γ) = 2800kg/m^3

      (3) 허용응력도
      · 축방향 인장응력(f_{ta}) = 60MPa
      · 축방향 압축응력(f_{ca}) = 60MPa
      · 휨 응 력(f_a) = 60MPa
      · 전단응력(v_a) = 35MPa
      · 지압응력(f_{ba}) = 100MPa

2) Stainless Steel

(1) 재　　질 : STS304 - KSB 0241 P 7 참조

(2) 물리상수

· 인장강도(f_u) = 500MPa

· 항복강도(f_y) = 210MPa

· 단위중량(γ) = 7850kg/m^3

(3) 허용응력도

· 축방향 인장응력(f_{ta}) = 210MPa

· 축방향 압축응력(f_{ca}) = 210MPa

· 휨 응 력(f_a) = 210MPa

· 전단응력(v_a) = 120MPa

6. 참고문헌

1) 도로교설계기준 (한국도로교통협회)

2) 도로설계요령 (한국도로공사)

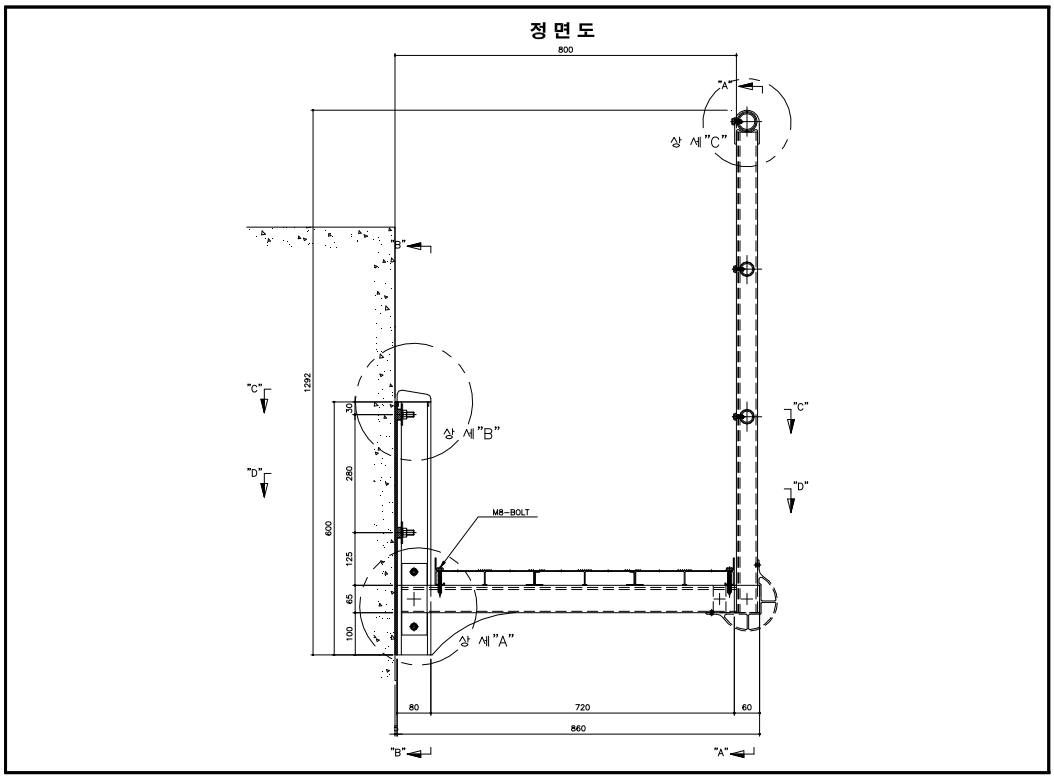
3) 도로설계 실무편람 (한국도로공사)

4) 교량점검시설 개선검토 참고자료 (한국도로공사)

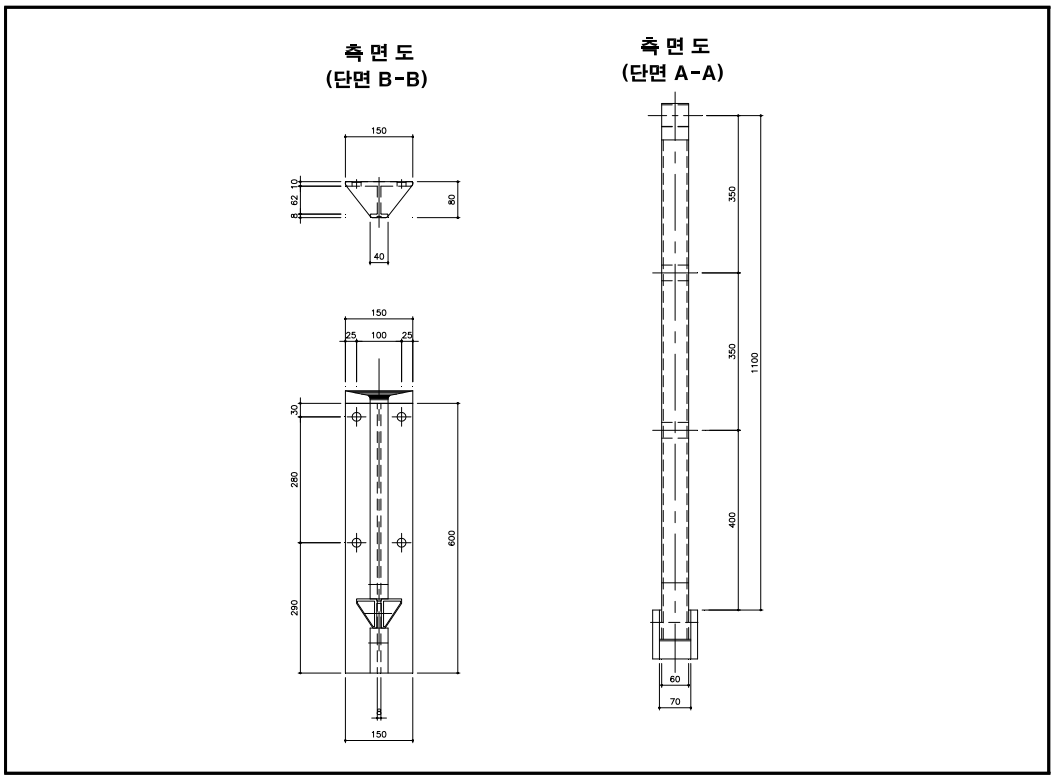
5) 기타 관련도서

§4. 설계단면

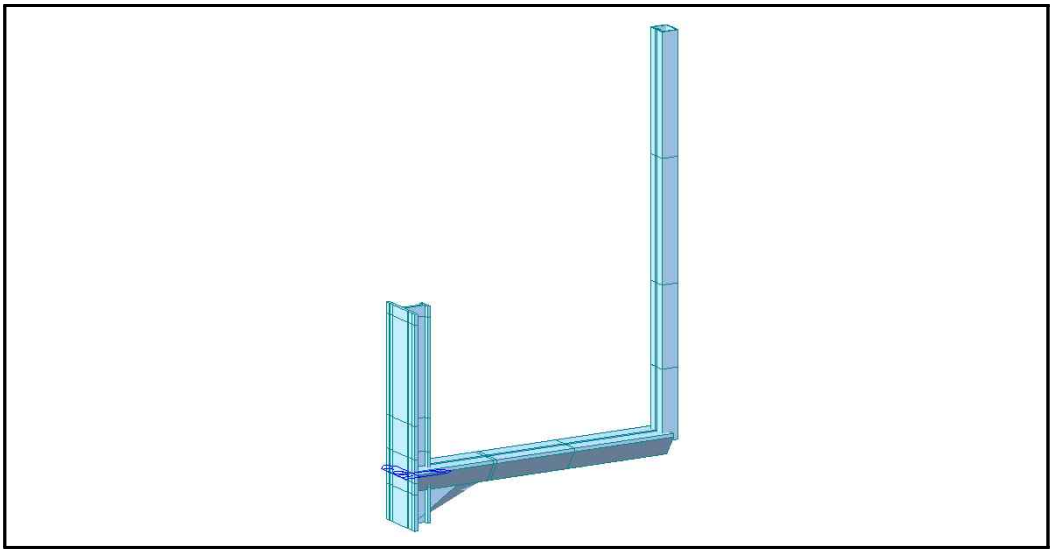
1. 설치 정면도



2. 설치 측면도



3. 모 델 링

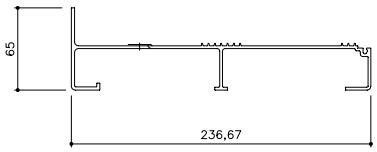
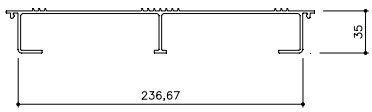
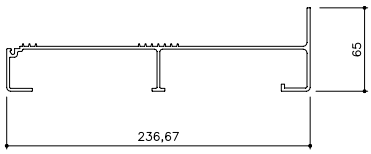


4. 하중산정 및 하중재하

1.바닥판 하중

- 구조물 자중은 프로그램 자동 재하로 고려하였고 기타 상재하중은 1.5m 로 환산하여 등분포하중으로 재하함

- wd : 바닥판 하중

-바닥판 단부하중	바닥판중앙부 하중	-바닥판 단부하중
		
28kN/㎥ x 0.000898㎡ x 1.5 = 0.0377kN/m	28kN/㎥ x 0.000762㎡ x 1.5 = 0.0320kN/m	28kN/㎥ x 0.000898㎡ x 1.5 = 0.0377kN/m
- wd1 : 0.0377kN/m	- wd2 : 0.0320kN/m	- wd3 : 0.0377 kN/m

2.작업하중

- wl = $3.5\times10^{-3}MPa$ x 1.5m = 5.25kN/m

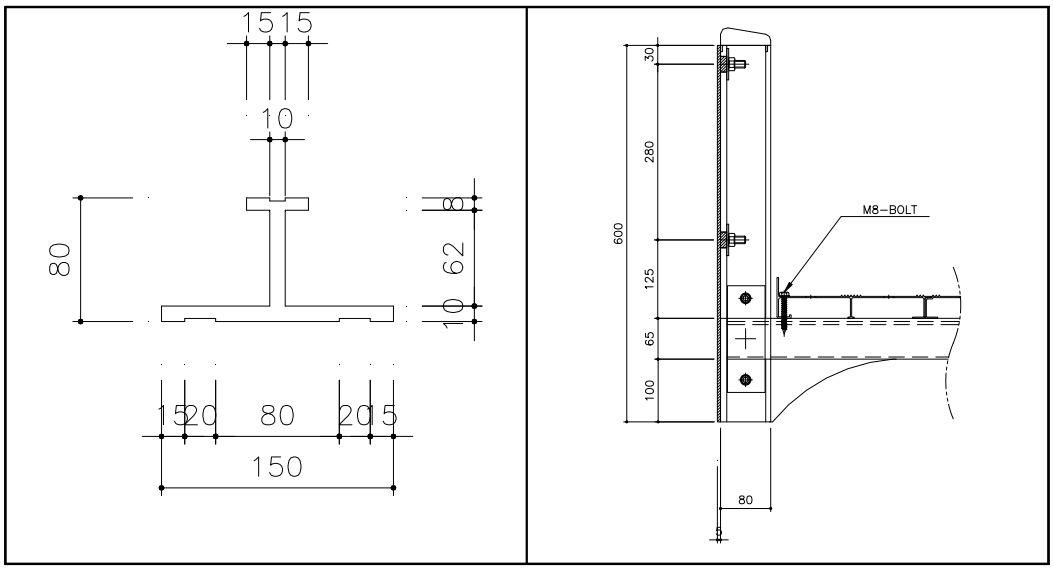
3. 난간 하중

- 수직하중 : 0.6kN/m x 1.5m = 0.9kN/m

- 수평하중 : 0.4kN/m x 1.5m = 0.6kN/m

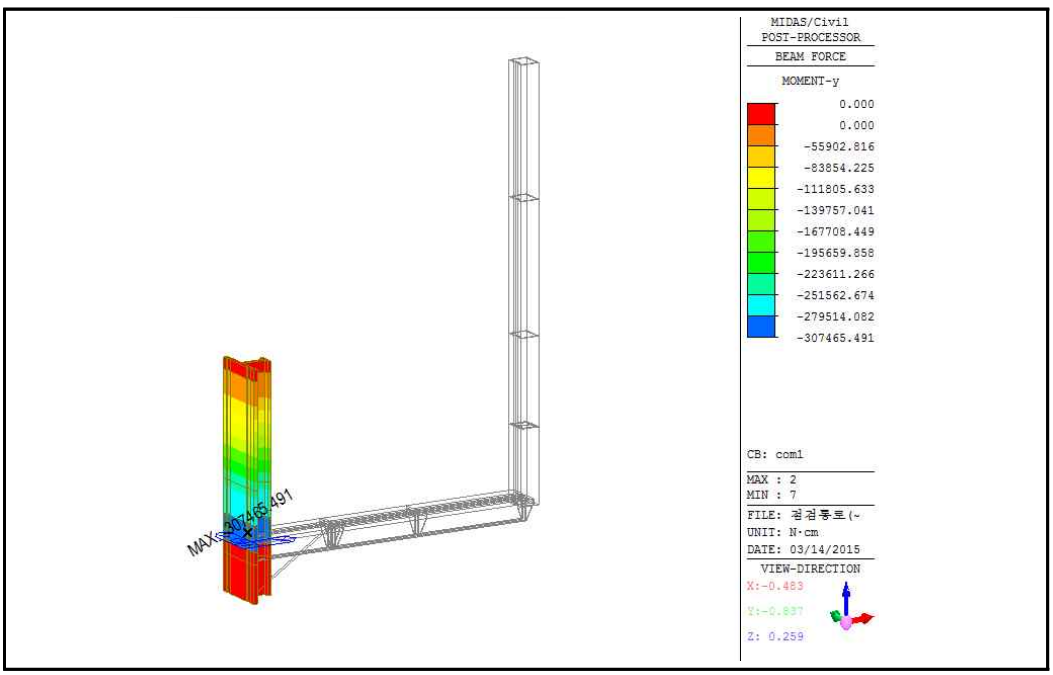
§5. 부재검토

1. Main Post

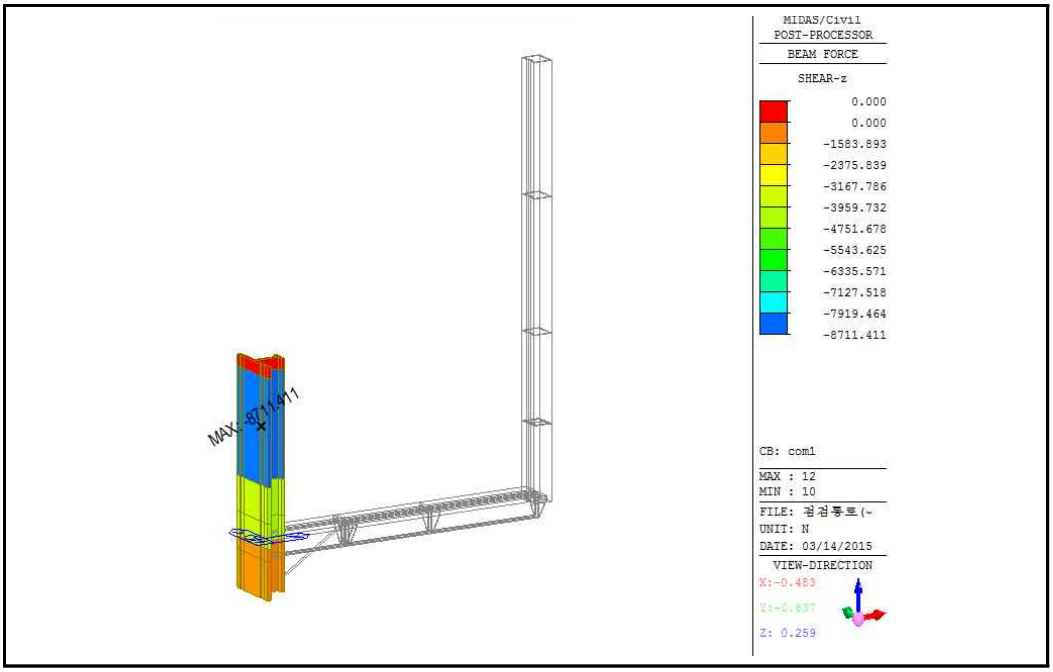


1) 설계단면력산정

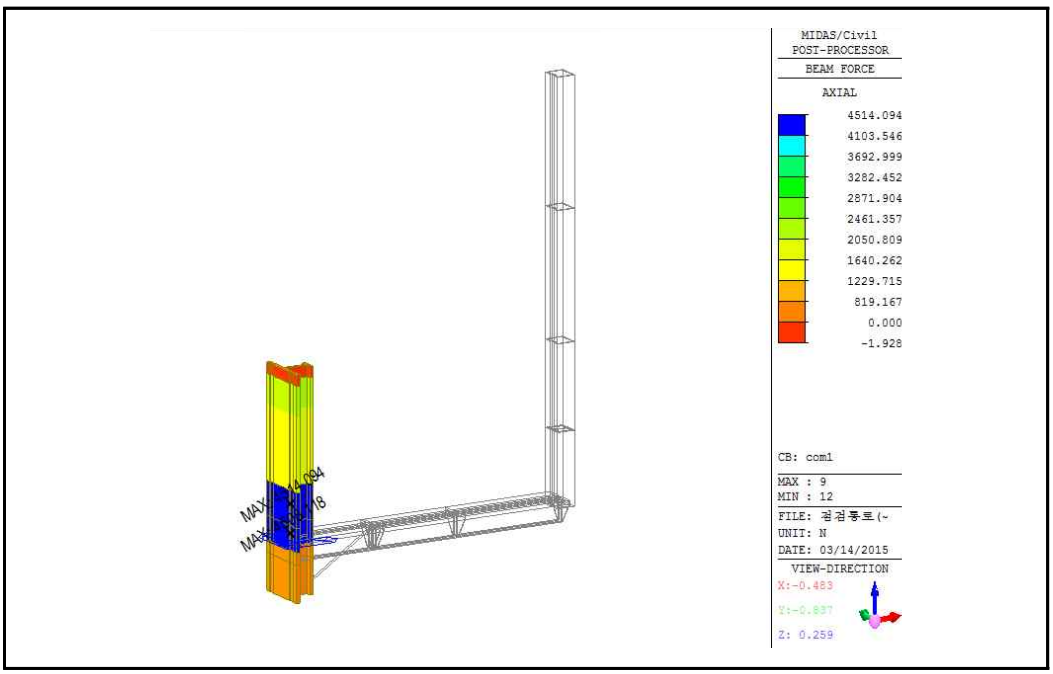
◎모멘트도



◎전단력도



◎축력도

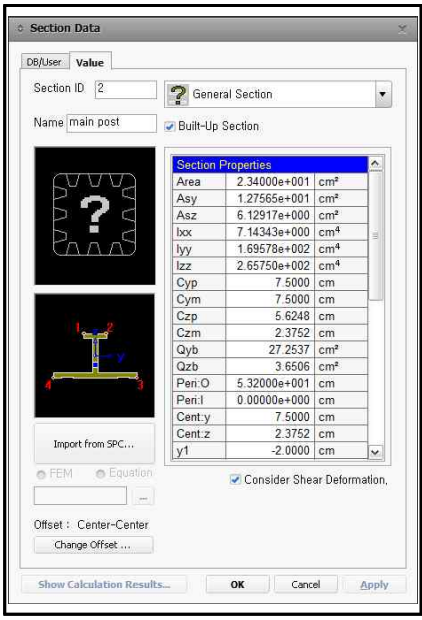


∴ P_A = 4514.094N

∴ V_A = 8711.411N

∴ M_A = 307465.491N · cm

2) 단면제원



- A_S = 23.400cm^2
- A_{web} = 1.0 x 6.00 = 6.000cm^2
- I_y ≒ 169.578cm^4
- $Z_{yu} = I_y / Y_u$

  = 169.578 / 5.6248 = 30.148cm^3
- $Z_{yL} = I_y / Y_L$

  = 169.578 / 2.3752 = 71.395cm^3

3) 응력검토

· 전단응력검토

- $v = V_A / A_{WEB}$

  = 8711.411 / 6.000

  = 1451.901N/cm^2 = 14.519MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

- $f_b = P_A / A_S + M_A / Z_{yL}$

  = 4514.094/23.400 + 307465.491/ 71.395

  = 192.910N/cm^2 + 4306.540N/cm^2
- f_b = 4499.450N/cm^2 = 44.994MPa < f_{ba} = 60MPa ∴ O.K

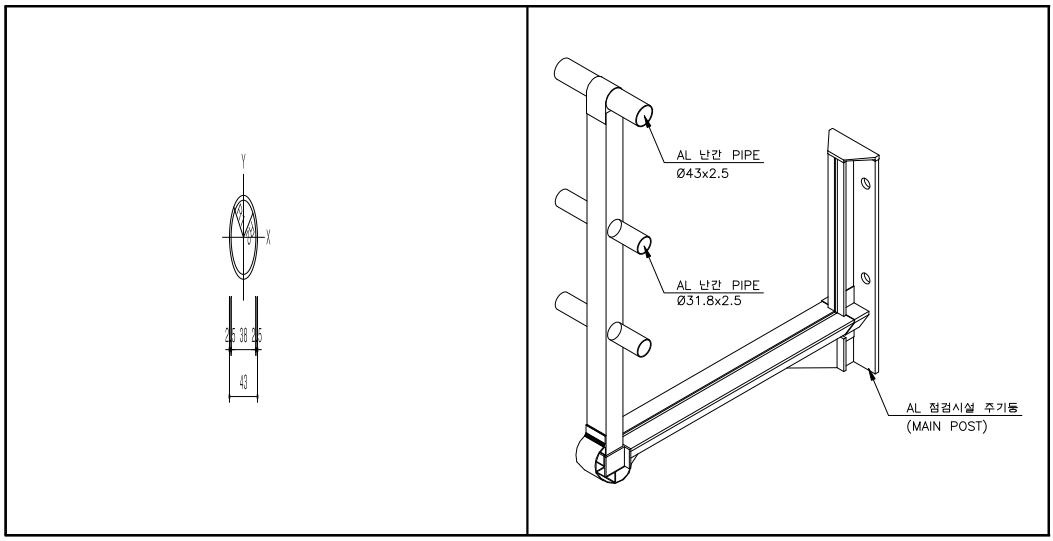
· 합성응력검토

$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \le 1.2$$

$$\left(\frac{44.994}{60}\right)^2 + \left(\frac{14.519}{35}\right)^2 \le 1.2$$

= 0.734 ≤ 1.2 ∴ O.K

2. 난간 PIPE (ϕ43 x 2.5t)



1) 설계단면력산정

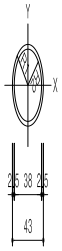
- V_{Ax} = 0.4kN/m x 1.5m x 1/2 = 0.3kN
- V_{Ay} = 0.6kN/m x 1.5m x 1/2 = 0.45kN

∴ $V_A = \sqrt{(V_{Ax}^2 + V_{Ay}^2)}$ = 0.541kN

- 모멘트 연속보로 검토
- M_{Ax} = 0.4kN/m x 1.5^2m x 1/12 = 0.075kN • m
- M_{Ay} = 0.6kN/m x 1.5^2m x 1/12 = 0.113kN • m

∴ $M_A = \sqrt{(M_{Ax}^2 + M_{Ay}^2)}$ = 0.135kN • m

2) 단면제원



- R_1 = 2.150cm
- R_2 = 1.900cm
- $A_S = \pi/4 \times (4.300^2 - 3.800^2)$
  $= 3.181cm^2$
- $I_X = I_y = \pi/64 \times (4.300^4 - 3.800^4)$
  $= 6.547cm^4$
- $Z_X = Z_y = Z_X / y$
  $= 6.547 / 2.150 = 3.045cm^3$

3) 응력검토

· 전단응력 검토

$$- v = \frac{4V_A}{3A_S} \quad \frac{R_2^2 + R_2R_1 + R_1^2}{R_2^2 + R_1^2}$$

$$= \frac{4\times541.00}{3\times3.180} \times \frac{4.30^2+4.30\times3.80+3.80^2}{4.30^2+3.80^2}$$

= 226.834 x 1.496 = 339.343N/cm^2 = 3.393MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

$$- f_b = M_A / Z$$

= 13500.00 / 3.045

= 4433.497N/cm^2 = 44.334MPa < f_{ba} = 60MPa ∴ O.K

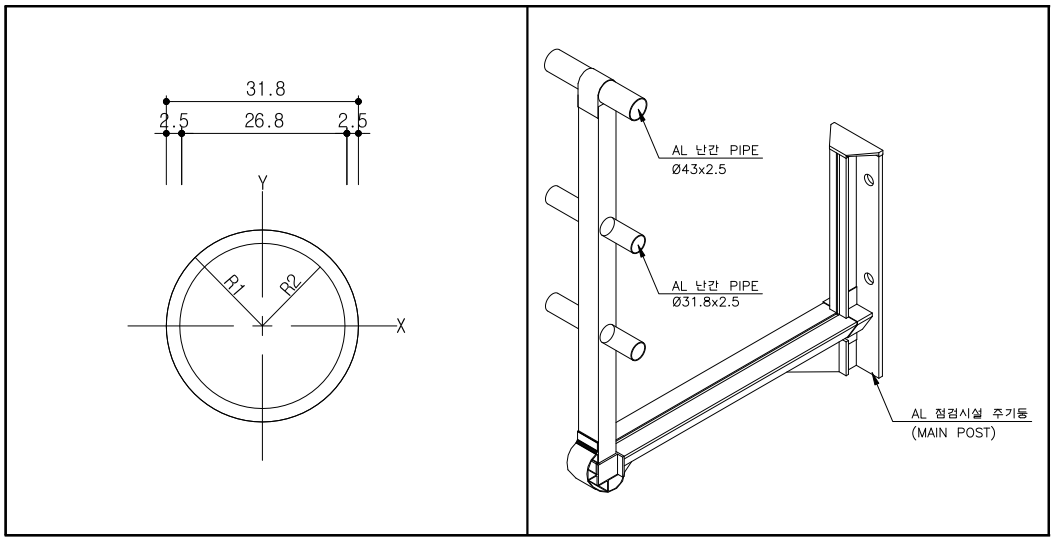
· 합성응력검토

$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

$$\left(\frac{44.334}{60}\right)^2 + \left(\frac{3.393}{35}\right)^2 \leq 1.2$$

= 0.556 ≤ 1.2 ∴ O.K

3. 난간 PIPE (ϕ31.8 x 2.5t)



1) 설계단면력산정

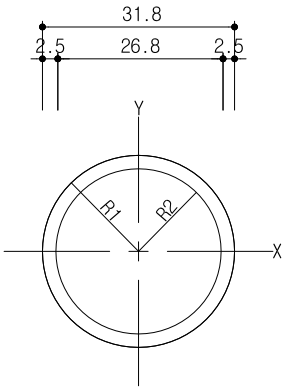
- V_{Ax} = 0.4kN/m x 1.5m x 1/2 = 0.3kN
- V_{Ay} = 0.6kN/m x 1.5m x 1/2 = 0.45kN

∴ $V_A = \sqrt{(V_{Ax}^2 + V_{Ay}^2)}$ = 0.541kN

- 모멘트 연속보로 검토
- M_{Ax} = 0.4kN/m x 1.5^2m x 1/12 = 0.075kN • m

∴ M_A = 0.075kN • m

2) 단면제원



- R_1 = 1.590cm
- R_2 = 1.340cm
- $A_S = \pi/4 \times (3.180^2 - 2.680^2)$
  $= 2.301cm^2$
- $I_X = I_y = \pi/64 \times (3.180^4 - 2.680^4)$
  $= 2.487cm^4$
- $Z_X = Z_y = Z_X / y$
  $= 2.487 / 1.590 = 1.564cm^3$

3) 응력검토

· 전단응력 검토

$$- v = \frac{4V_A}{3A_S} \quad \frac{R_2^2 + R_2R_1 + R_1^2}{R_2^2 + R_1^2}$$

$$= \frac{4\times541.00}{3\times2.301} \times \frac{3.18^2+3.18\times2.68+2.68^2}{3.180^2+2.680^2}$$

= 313.486 x 1.492 = 467.721/cm^2 = 4.677MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

$- f_b = M_A / Z$

= 7500 / 1.564

= 4795.396N/cm^2 = 47.953MPa < f_{ba} = 60MPa ∴ O.K

· 합성응력검토

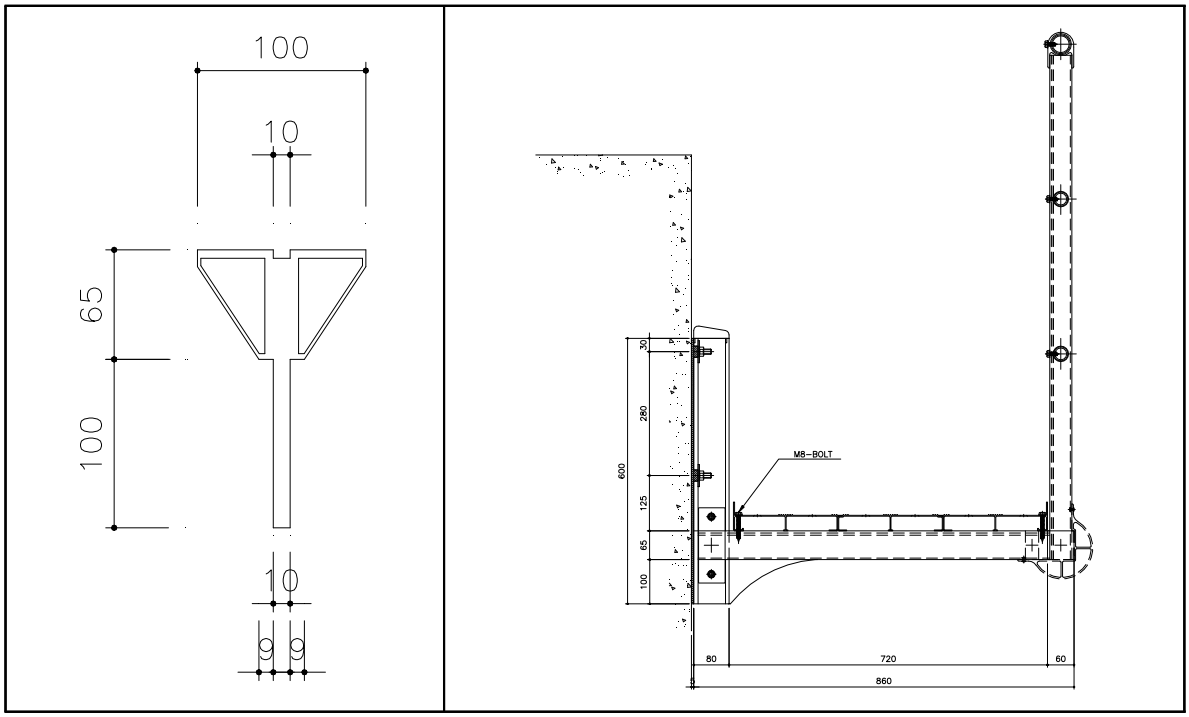
$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

$$\left(\frac{47.953}{60}\right)^2 + \left(\frac{4.677}{35}\right)^2 \leq 1.2$$

= 0.656 ≤ 1.2 ∴ O.K

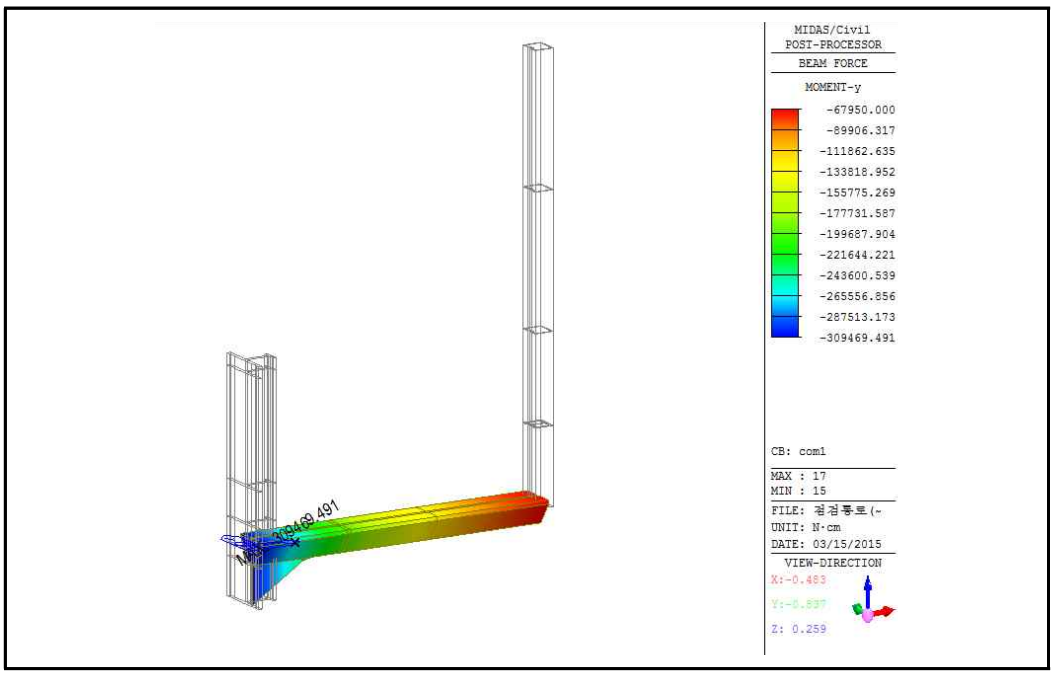
4. 바닥 CHANNEL

(1) h= 16.5 ㎝

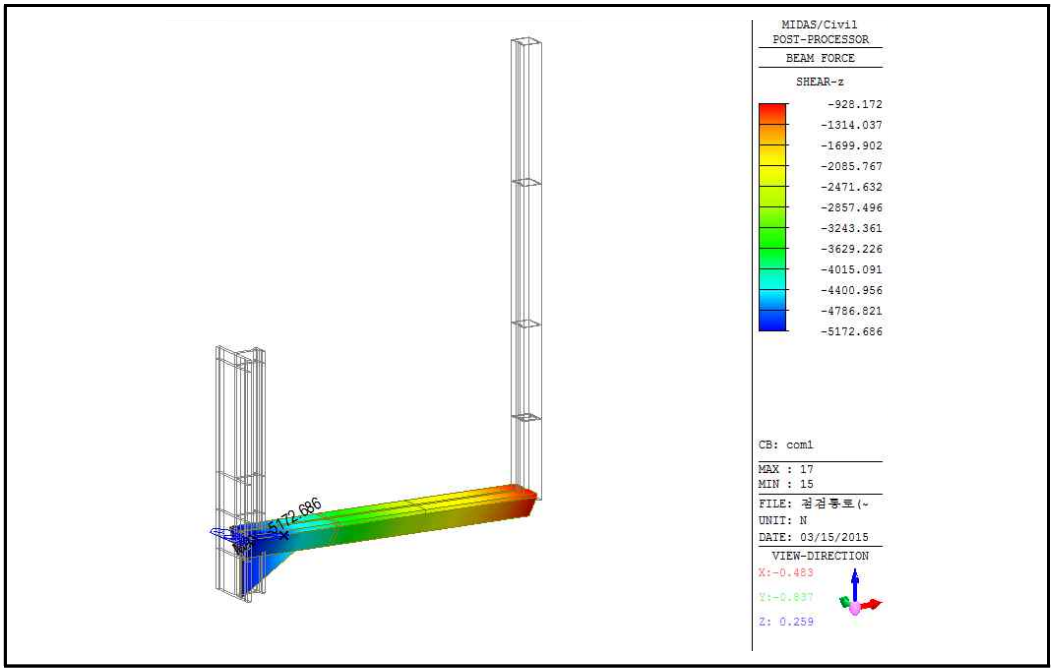


1) 설계단면력산정

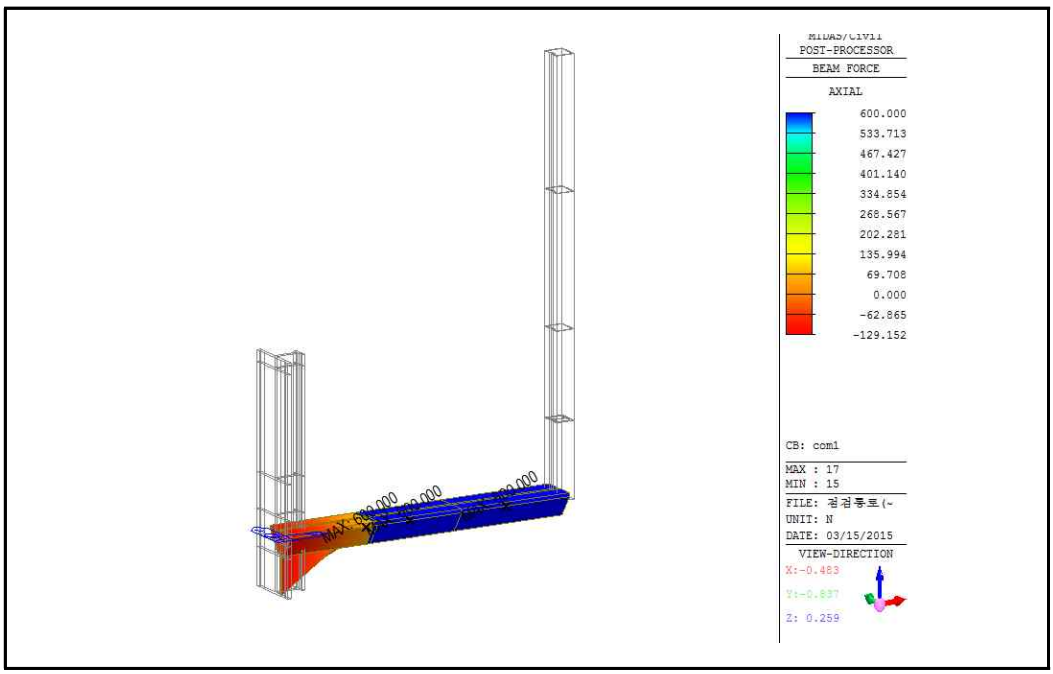
◎모멘트도



◎전단력도



◎축력도

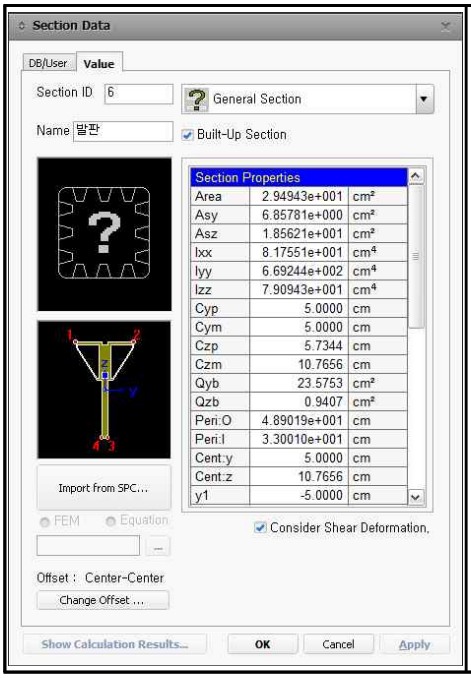


∴ P_A = 600.00N

∴ V_A = 5172.686N

∴ M_A = 309469.491N · cm

2) 단면제원



- A_S = 29.494cm^2
- A_{web} = 10.000 × 1.65 = 16.50cm^2
- I_y = 669.244cm^4
- Z_{yu} = I_y / Y_u

  = 669.244 / 5.7344 = 116.706cm^3
- Z_{yL} = I_y / Y_L

  = 669.244/ 10.7656 = 62.165cm^3

3) 응력검토

· 전단응력검토

- v = V_A / A_{WEB}

  = 5172.686 / 16.500

  = 313.496N/cm^2 = 3.134MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

- f_t = P_A / A_S + M_A / Z_{yu}

  = 600.00/29.494 + 309469.491/ 116.706

  = 20.343N/cm^2 +2651.701N/cm^2
- f_t = 2672.044N/cm^2 = 26.720MPa < f_{ta} = 60MPa ∴ O.K
- f_c = P_A / A_S + M_A / Z_{yL}

  = 600.00/29.494 + 309469.491/ 62.165

  = 20.343N/cm^2 +4978.194N/cm^2
- f_c = 4998.537N/cm^2 = 49.985MPa < f_{ca} = 60MPa ∴ O.K

· 합성응력검토

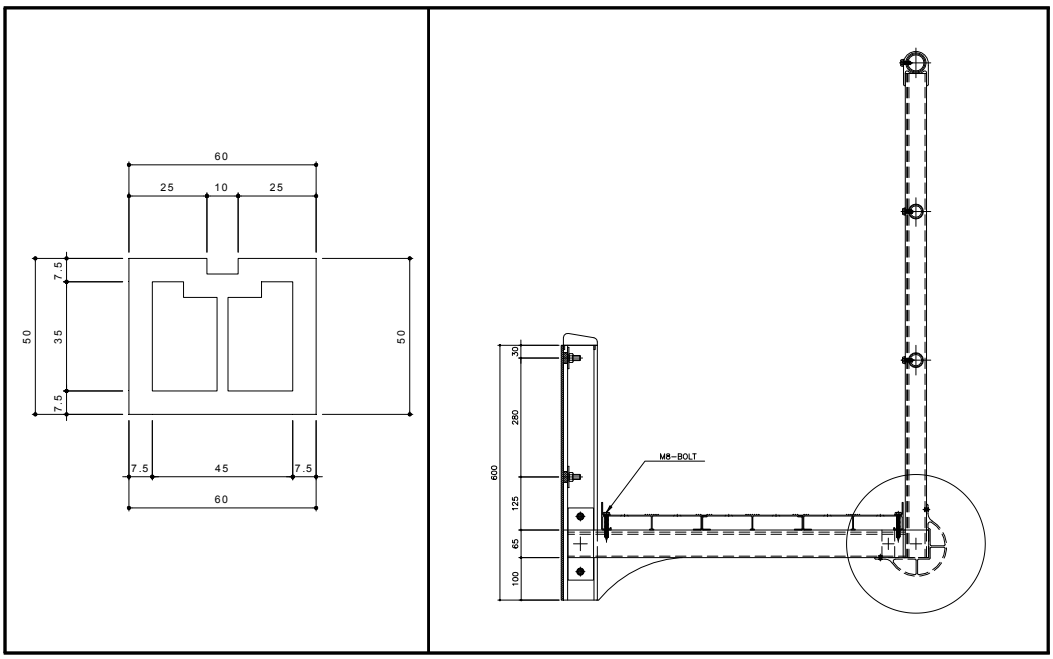
$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

$$\left(\frac{49.985}{60}\right)^2 + \left(\frac{3.134}{35}\right)^2 \leq 1.2$$

= 0.702 ≤ 1.2 ∴ O.K

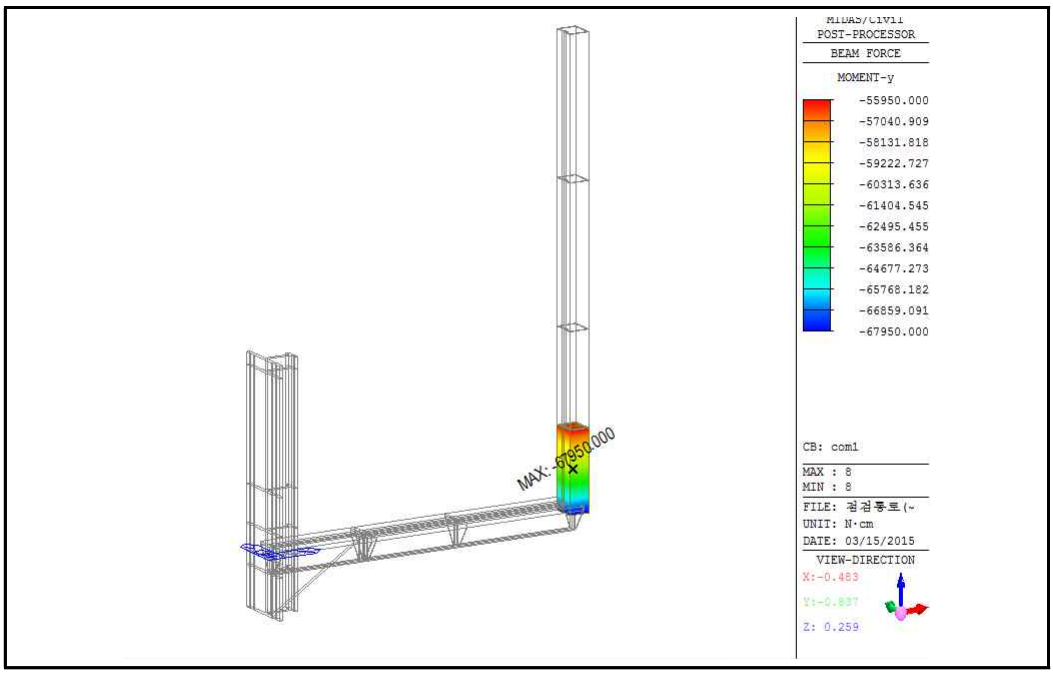
5. 난간 POST

(1) 단부

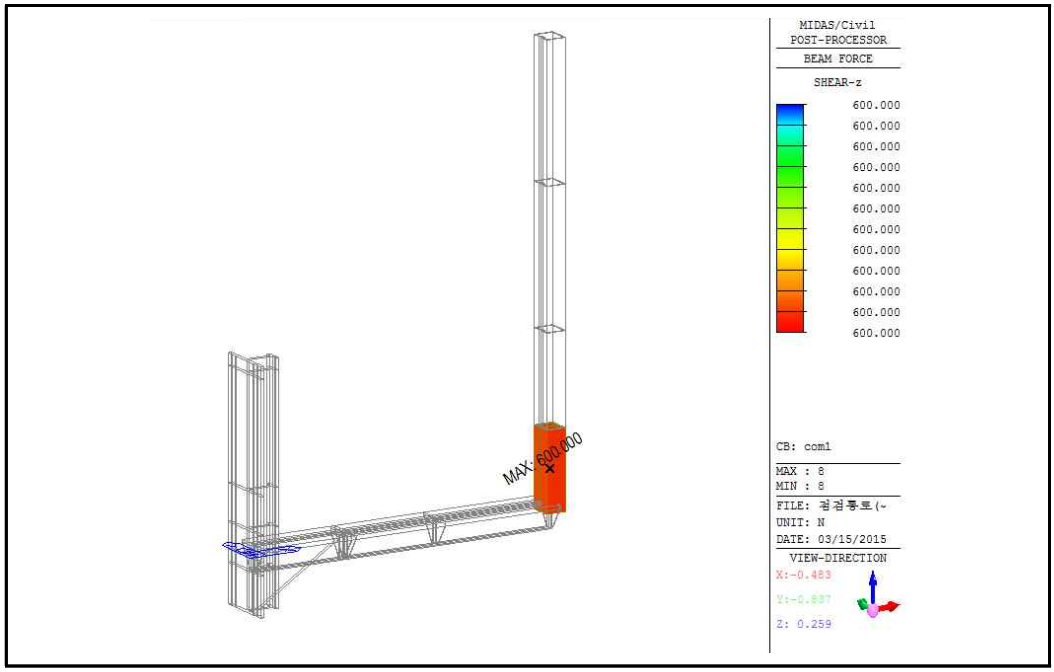


1) 설계단면력산정

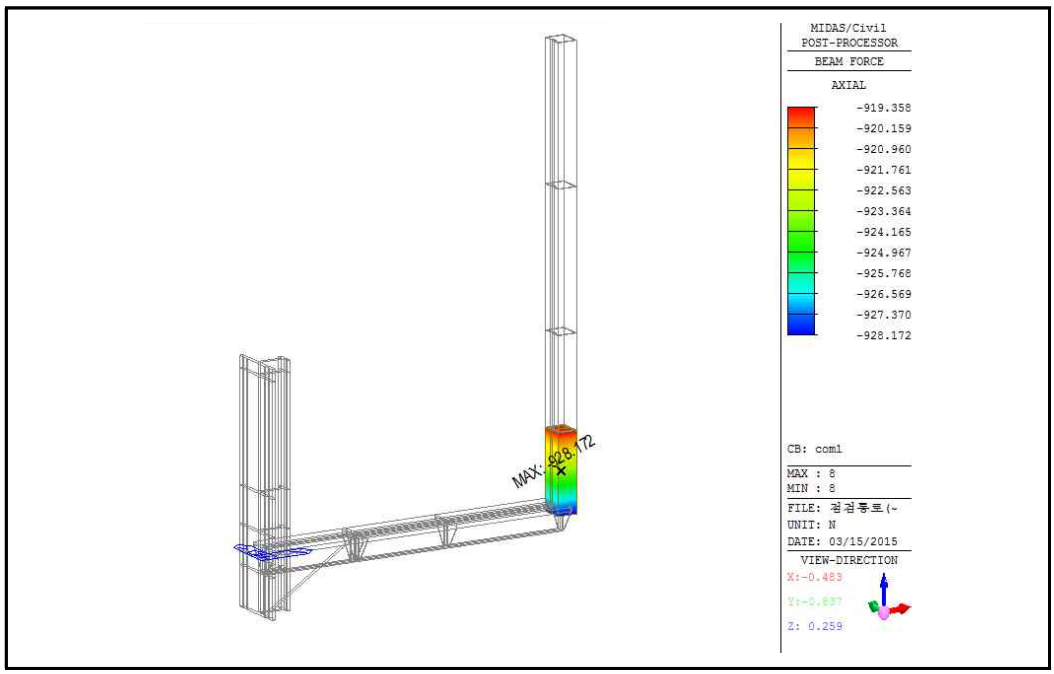
◎모멘트도



◎전단력도



◎축력도

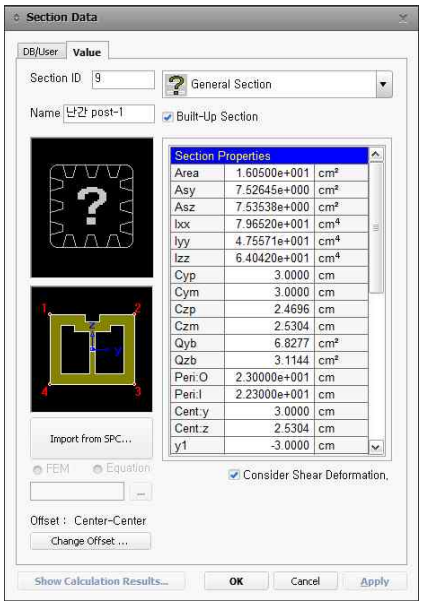


∴ P_A = 928.172N

∴ V_A = 600.00N

∴ M_A = 67950.000N · cm

2) 단면제원



- A_S = 16.050cm^2
- A_{web} = 5.0 x 0.75 x 2 = 7.5cm^2
- I_y = 47.557cm^4
- Z_{yu} = I_y / Y_u

  = 47.557 /2.4696 = 19.256cm^3
- Z_{yL} = I_y / Y_L

  = 47.557 /2.5304 = 18.794cm^3

3) 응력검토

· 전단응력검토

- v = V_A / A_{WEB}

  = 600.00 / 7.500

  = 80.000N/cm^2 = 0.800MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

- f_t = P_A / A_S + M_A / Z_{yu}

  = 928.172/16.050 + 67950.000/ 19.256

  = 57.830N/cm^2 + 3528.770N/cm^2
- f_t = 3586.600N/cm^2 = 35.866MPa < f_{ta} = 60MPa ∴ O.K
- f_c = P_A / A_S + M_A / Z_{yL}

  = 928.172/16.050 + 67950.000/ 18.794

  = 57.830N/cm^2 + 3615.515N/cm^2
- f_c = 3673.345N/cm^2 = 36.733MPa < f_{ca} = 60MPa ∴ O.K

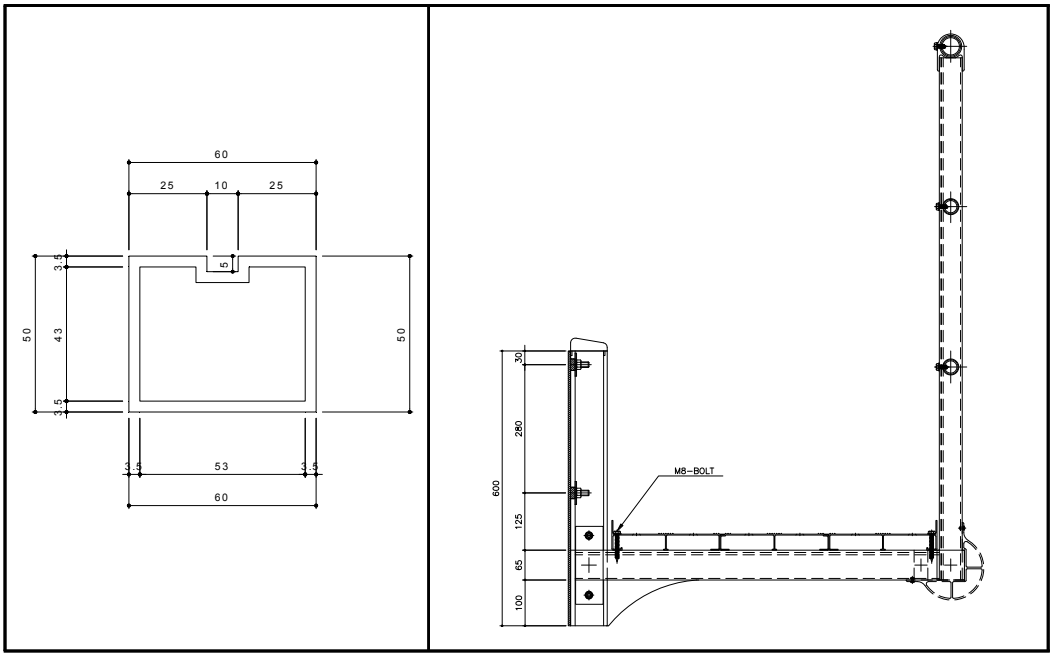
· 합성응력검토

$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

$$\left(\frac{36.733}{60}\right)^2 + \left(\frac{0.800}{35}\right)^2 \leq 1.2$$

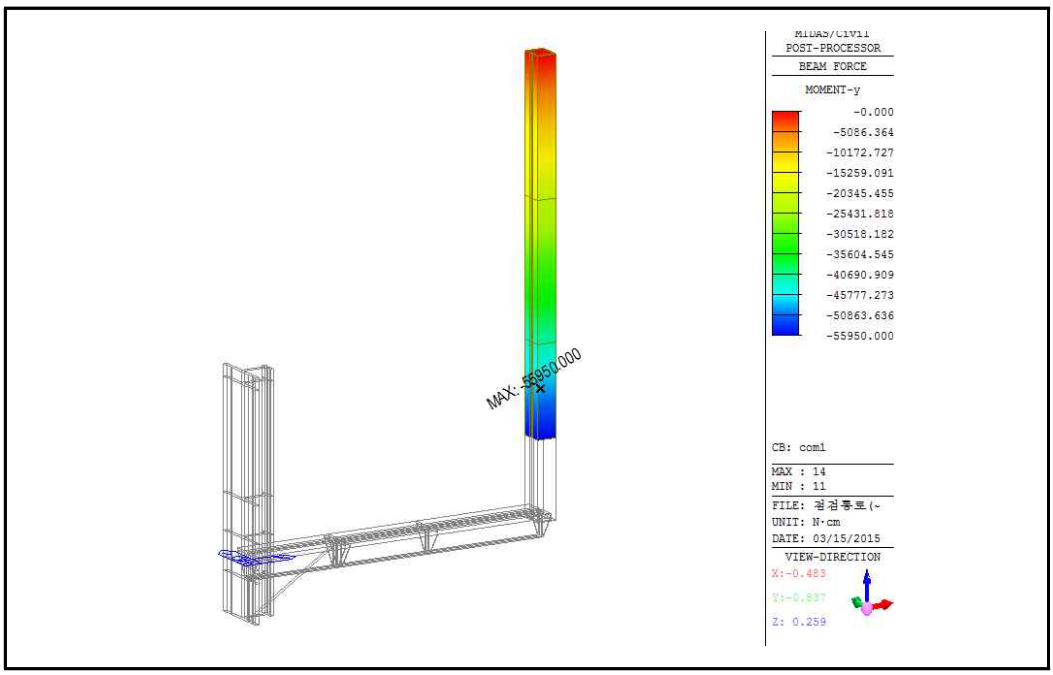
= 0.375 ≤ 1.2 ∴ O.K

(2) 일반부

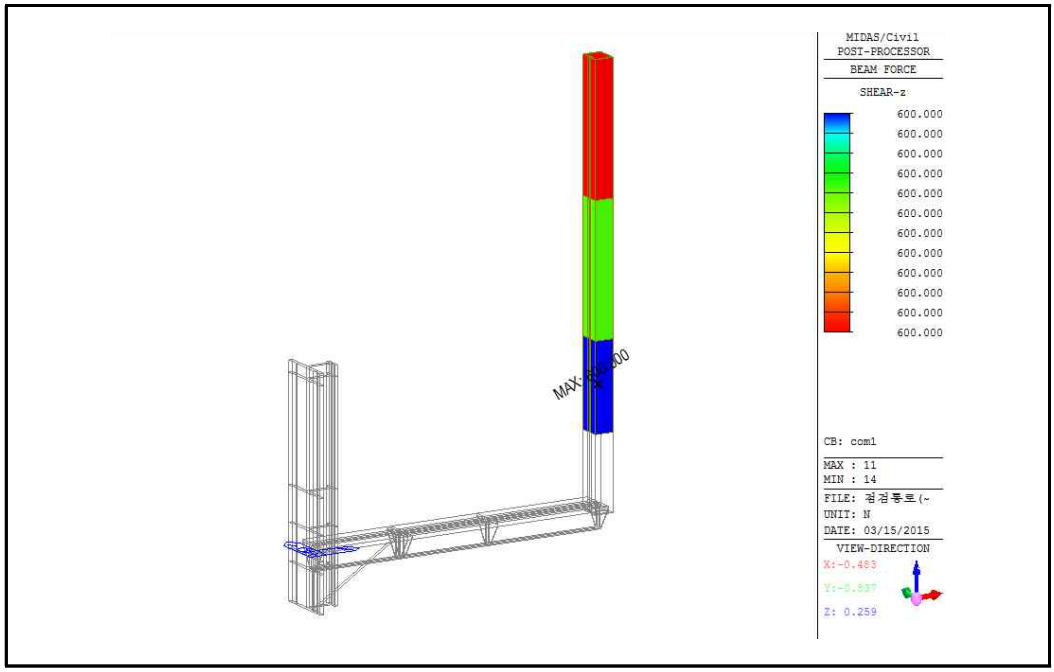


1) 설계단면력산정

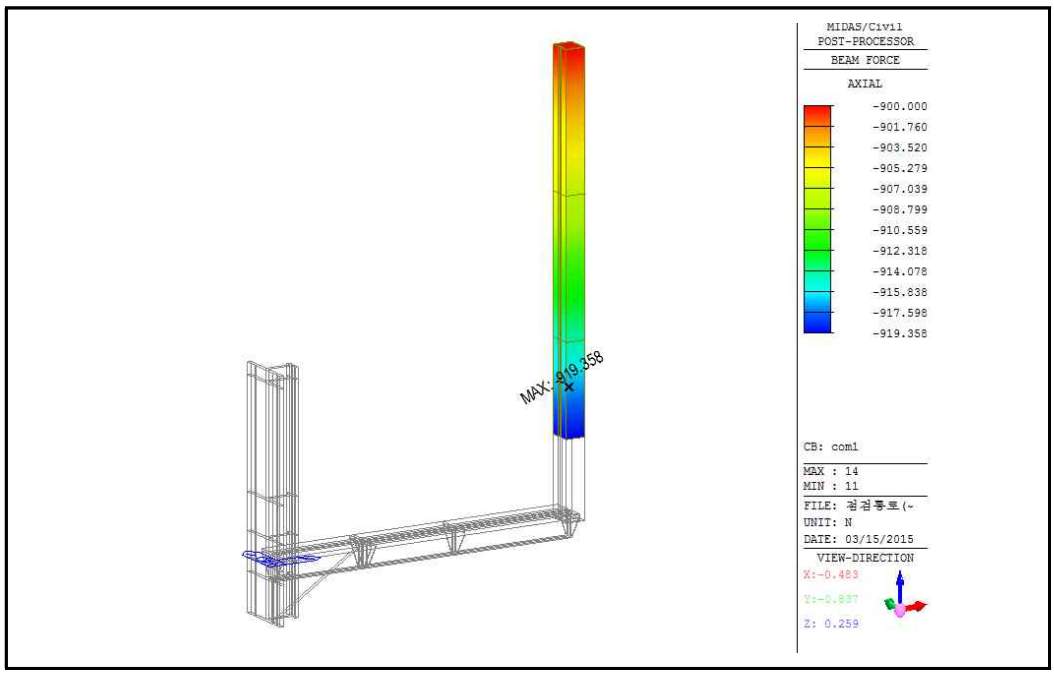
◎모멘트도



◎전단력도



◎축력도

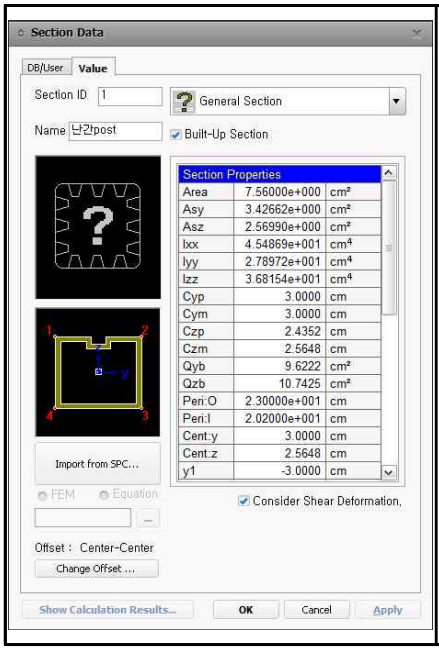


∴ P_A = 919.358N

∴ V_A = 600.00N

∴ M_A = 55950.000N · cm

2) 단면제원



- A_S = 7.560cm^2
- A_{web} = 5.0 x 0.35 x 2 = 3.5cm^2
- I_y = 27.897cm^4
- Z_{yu} = I_y / Y_u

  = 27.897 /2.4352 = 11.455cm^3
- Z_{yL} = I_y / Y_L

  = 27.897 /2.5648 = 10.876cm^3

3) 응력검토

· 전단응력검토

- v = V_A / A_{WEB}

  = 600.00 / 3.500

  = 171.428N/cm^2 = 1.714MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

- f_t = P_A / A_S + M_A / Z_{yu}

  = 919.358/7.560 + 55950.000/ 11.455

  = 121.608N/cm^2 + 4884.329N/cm^2
- f_t = 50.059N/cm^2 = 50.059MPa < f_{ta} = 60MPa ∴ O.K
- f_c = P_A / A_S + M_A / Z_{yL}

  = 919.358/7.560 + 55950.000/ 10.876

  = 121.608N/cm^2 + 5144.354N/cm^2
- f_c = 5265.962N/cm^2 = 52.659MPa < f_{ca} = 60MPa ∴ O.K

· 합성응력검토

$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

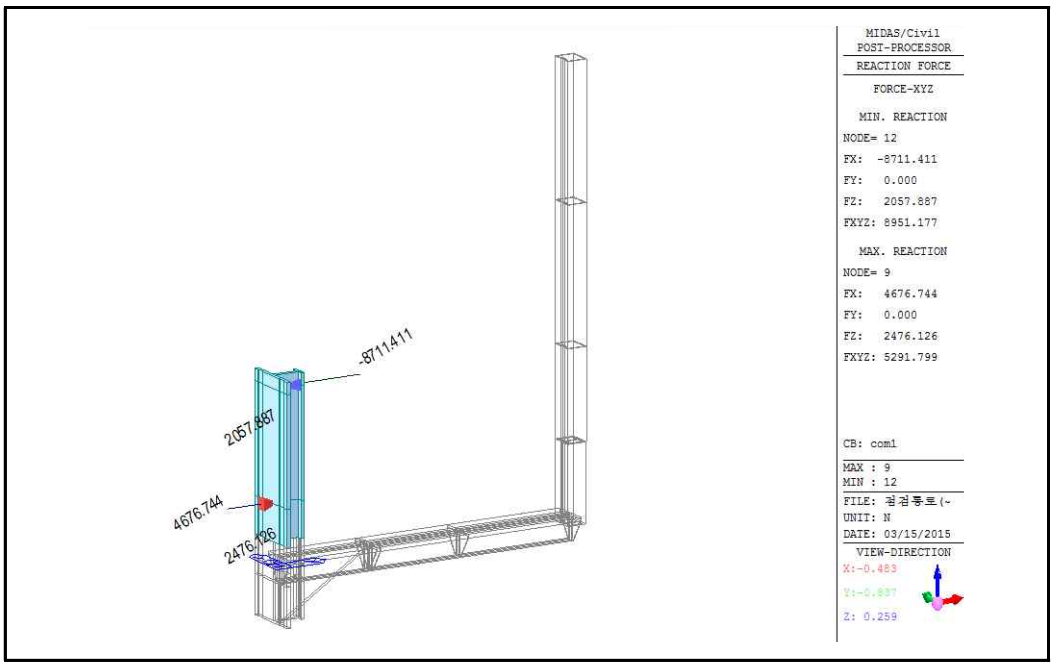
$$\left(\frac{52.659}{60}\right)^2 + \left(\frac{1.714}{35}\right)^2 \leq 1.2$$

= 0.772≤ 1.2 ∴ O.K

6. Anchor Bolt 검토 (M12 x 120)-STS304

1) 앙카의 작용하중

◎반력도



∴ N_{ua} = 1.7 x 8711.411 N / 2ea = 7404.699 N (앵커1개에 작용하는 인장력)

∴ V_{ua} = 1.7 x 2476.226 N / 2ea = 2104.792 N (앵커1개에 작용하는 전단력)

2) 앵커의 재료평가 - 탄소강 제작된 것으로 앵커품질에 대한 부록참조

∴ f_{uta} = 795 *MPa* - *설계기준 인장강도 (KSB 0241방법적용, 시험성적서 참조)*

∴ f_{ya} = 616 *MPa* - *설계기준 항복강도 (KSB 0241방법적용, 시험성적서 참조)*

콘크리트용 앵커 설계기준은 단면적 감소 30% 이상, 연신율 14% 이상을 연성강재요소의 요건으로 정의하고 있고 주어진 앵커재료는 연성강재이다.

3) 인장하중 하에서 강재강도

$\varnothing N_{sa} \geq N_{ua}$

$N_{sa} = nA_{se} f_{uta}$

$\varnothing nA_{se} f_{uta} \geq N_{ua}$ = 7404.699 N

연성강재요소의 인장파괴에 지배되는 경우 강도감소계수 $\varnothing$=0.75 이고 단일앵커이므로 $n = 1$ 이다.

$\varnothing N_{sa}$ = 0.75 x 1 x 84.4 x 795 = 50323.500 N > 7404.699 N ∴ O.K

강재의 직경 12mm 앵커의 강재강도는 인장하중에 적합함

4) 최소연단거리 - 콘크리트 구조설계기준(2007) 5.4절

∴ 철근의 최소피복두께 이상 : 100 ㎜ 이상

∴ ACI 355.2 에 의한 제품시험에서 최소 모서리 거리 : 65 ㎜ 이상

∴ 최대 골재크기의 2배이상 : 2 x 25 = 50 ㎜ 이상

$c_{a,min}$ = *150mm 적용* ∴ O.K

5) 인장하중 하에서 콘크리트 파괴강도

$\varnothing N_{cb} \geq N_{ua}$

∴ "앵커가 범주2 (즉, 중간설치 민감도와 중간신뢰도), 콘크리트쪼개짐을 제어하기위한 별도의 보조철근이 없는 것으로 가정" 이때 강도감소계수 ∅=0.55 로 적용

$$N_{cb} = \frac{A_{Nc}}{A_{Nco}} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$$

$$N_b = k_c \sqrt{f_{ck}} h_{ef}^{1.5}$$

$$N_{cb} = \frac{A_{Nc}}{A_{Nco}} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} k_c \sqrt{f_{ck}} h_{ef}^{1.5} \geq N_{ua} = 7404.699 \text{ N}$$

$k_c = k_{cr} = 7$

$\psi_{ed,N} = 0.7 + 0.3\frac{c_{a,\min}}{1.5h_{ef}}$, $c_{a,\min} < 1.5h_{ef}$ 이므로

$\psi_{ed,N} = 0.7 + 0.3\frac{150}{1.5(80)} = 1.075$

$\psi_{c,N}$ = 1.0 사용하중하에서 콘크리트 균열이 발생하는 경우 ($f_t > f_r$)

$\psi_{cp,N}$ = 1.0 사용하중하에서 콘크리트 균열이 발생하는 경우 ($f_t > f_r$)

$A_{Nco} = 9h_{ef}^2$ = 9 x $(80)^2$ =57600 ㎟

$A_{Nc} = (c_{a1} + 1.5h_{ef})(2 \times 1.5h_{ef})$ = (150 + 1.5x80)(2x1.5x80) = 64800 ㎟

$\frac{A_{Nc}}{A_{Nco}} = \frac{64800}{57600} = 1.125$

∴ N_{cb} = 1.075 x 1.125 x 1.0 x 1.0 x 7 x $\sqrt{}$24 x $(80)^{1.5}$ = 29675.608 N

∴ $\varnothing N_{cb}$ = 0.55 x 29675.608 = 16321.584 N > 7404.699 N ∴ O.K

6) 앵커뽑힘강도

$\varnothing N_{pn} > N_{ua}$

$N_{pn} = \psi_{c,p} N_p$

∴ “앵커가 범주2 (즉, 중간설치 민감도와 중간신뢰도), 콘크리트쪼개짐을 제어하기위한 별도의 보조철근이 없는 것으로 가정” 이때 강도감소계수 ∅=0.55 로 적용

또한 $N_p = N_{p,cr}$ = 13.930kN 로 한다.(콘크리트 구조기준해설(2012)- 부록 II.26 참조 “II.26 - 콘크리트용 앵커 설계법 및 예제집 P 141 참조) 매입깊이가 80mm 로 매입깊이가 65mm 와 90mm의 중간값으로 적용함

$\psi_{c,p} = 1$

ΦN_{pn} = 사용하중하에서 콘크리트 균열이 발생하는 경우 ($f_t > f_r$)

ΦN_{pn} = 0.55 x 13930 = 7661.500 N > 7404.699 N

6) 인장하중 하에서 모든 파괴 형태 확인

인장에 대한 파괴 형태별 설계강도 요약

구 분	계산결과	비고
앵커강재 파괴	50323.500 N	
콘크리트 파괴	16321.584 N	
앵 커 뽑 힘	7661.500 N	지배강도

7) 전단하중 하에서 강재강도

$\varnothing V_{sa} \geq V_{ua}$

$V_{sa} = nx0.6xA_{se} f_{uta}$

$\varnothing nx0.6xA_{se} f_{uta} \geq V_{ua}$ = 2104.792 N

연성강재요소의 강도에 지배되는 경우 강도감소계수 $\varnothing=0.65$ 이고 단일앵커이므로 $n = 1$ 이다.

$\varnothing V_{sa}$ = 0.65 x 0.6 x 84.4 x 795 = 26168.220 N > 2104.792 N ∴ O.K

강재의 직경 12mm 앵커의 강재강도는 전단하중에 적합함

8) 전단하중 하에서 콘크리트 파괴강도

$\varnothing V_{cb} \geq V_{ua}$

∴ "전단하중에 대하여 콘크리트파괴가 지배적인 경우 강도감소계수 ∅=0.70 로 적용

(조건 B 보조철근이 없는 것으로 가정)

$$V_{cb} = \frac{A_{Vc}}{A_{Vco}} \psi_{ed,V} \psi_{c,V} V_b$$

$$V_b = 0.6 \left[\frac{l_e}{d_0} \right]^{0.2} \sqrt{d_0} \sqrt{f_{ck}} (c_{a1})^{1.5} \geq V_{ua}$$

$$\Phi V_{cb} = \Phi \frac{A_{Vc}}{A_{Vco}} \psi_{ed,V} \psi_{c,V} 0.6 \left[\frac{l_e}{d_0} \right]^{0.2} \sqrt{d_0} \sqrt{f_{ck}} (c_{a1})^{1.5} \geq V_{ua} = 2104.792 \text{ N}$$

$\frac{A_{Vc}}{A_{Vco}} = 1$ 그리고 c_{a1} = 150mm (연단거리)

c_{a2} 는 c_{a1} 에 수직인 방향으로 앵커중심으로부터 콘크리트 가장자리까지 거리

c_{a2} = 625mm 이므로 거리가 1.5 h_{ef} = 1.5 x 80 = 120mm 이상이다.

$\psi_{ed,V} = 1.0$ $c_{a2} > 1.5 c_{a1}$ 인 경우

$\psi_{c,V}$ = 1.0 사용하중하에서 콘크리트 균열이 발생하는 경우 ($f_t > f_r$)

d_0 = 12mm

$l_e = h_{ef}$ = 80 mm 그러나 $l_e \leq 8d_0$; $8d_0$ = 8 x 12 = 96mm

l_e = 80 mm 적용

ΦV_{cb} = 0.7 x 1.0 x 1.0 x 1.0 x 0.6 x $\left(\frac{80}{12}\right)^{0.2}$ x $\sqrt{12}$ x $\sqrt{24}$ x $(150)^{1.5}$ = 19136.573 N

∴ $\varnothing V_{cb} \geq V_{ua}$ = 19136.573 N > 2104.792 N ∴ O.K

9) 콘크리트 프라이아웃강도

$\varnothing V_{CP} > V_{ua}$

$V_{cp} = k_{cp} N_{cb}$

∴ "전단하중에 대하여 콘크리트파괴가 지배적인 경우 강도감소계수 ∅=0.70 로 적용

(조건 B 보조철근이 없는 것으로 가정)

또한 k_{cp} =2.0, h_{ef} = 80mm > 65mm 인 경우 N_{cb} = 29675.608 N (인장하중검토참조)

ΦV_{cp} = 0.7 x 2.0 x 29675.608 = 41545.851 N > 2104.792 N

10) 전단 하중 하에서 모든 파괴 형태 확인

인장에 대한 파괴 형태별 설계강도 요약

구 분	계산결과	비고
앵커강재 파괴	26168.220 N	
콘크리트 파괴	19136.573 N	지배강도
콘크리트 프라이아웃	41545.851 N	

11) 인장 - 전단 상관 작용 검토

- $V_{ua} \leq 0.2\Phi V_n$ 인 경우 앵커는 인장강도로 지배
- $N_{ua} \leq 0.2\Phi N_n$ 인 경우 앵커는 전단강도로 지배

$V_{ua} \leq 0.2\Phi V_n$ 인 경우, 전체 인장강도를 사용할 수 있음 : $\Phi N_n \geq N_{ua}$

$0.2\Phi V_n$ = 0.2 x 19136.573 N = 3827.315 N > 2104.792 N ∴ 조건에 만족

$N_{ua} \leq 0.2\Phi N_n$ 인 경우, 전체 전단강도를 사용할 수 있음 : $\Phi V_n \geq V_{ua}$

$0.2\Phi N_n$ = 0.2 x 7661.500 N = 1532.300 N < 7404.699 N ∴ 조건에 미흡

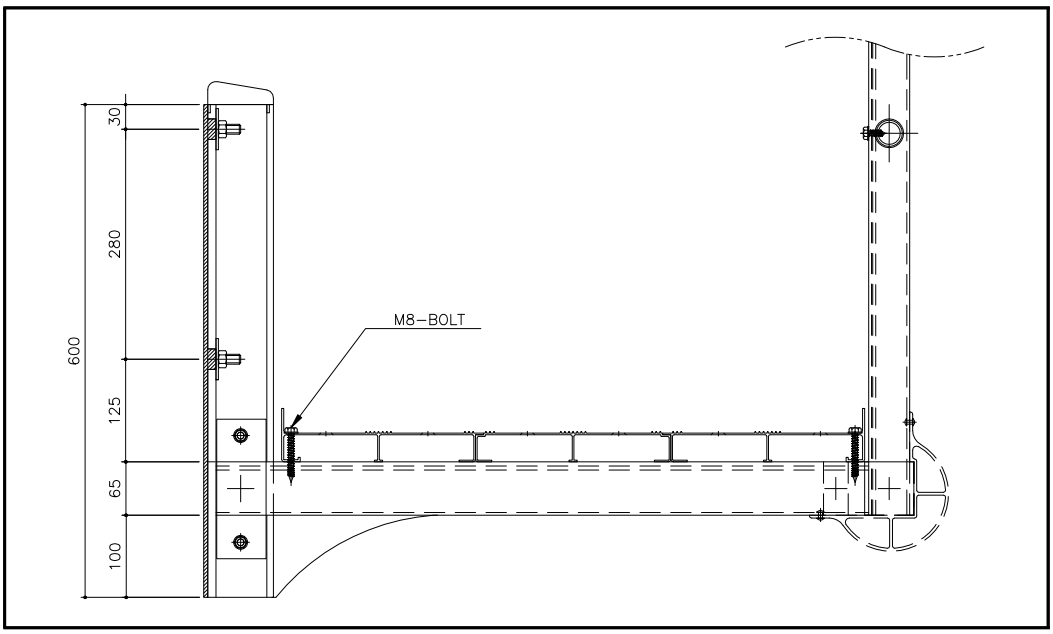
$V_{ua} \leq 0.2\Phi V_n$ 이고 $N_{ua} \geq 0.2\Phi N_n$ 이므로 인장과 전단 상관 작용을 검토 하여야 한다.

$$\frac{N_{ua}}{\Phi N_n} + \frac{V_{ua}}{\Phi V_n} \leq 1.2$$

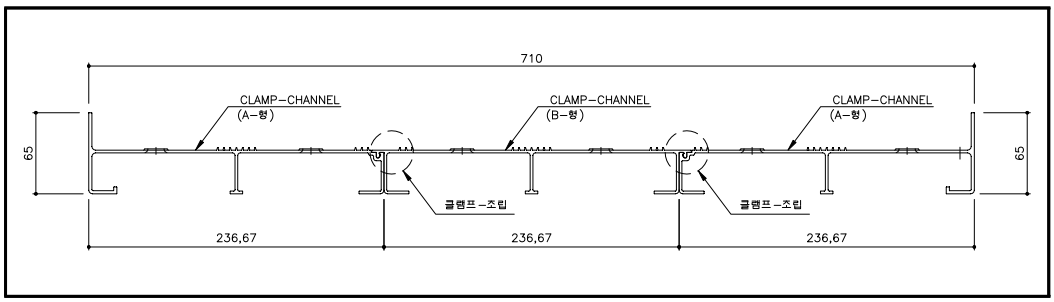
$$\frac{7404.699}{7661.500} + \frac{2104.792}{19136.573} = 1.076 \leq 1.2$$ ∴ O.K

7. 점검통로 바닥판 구성요소 해석

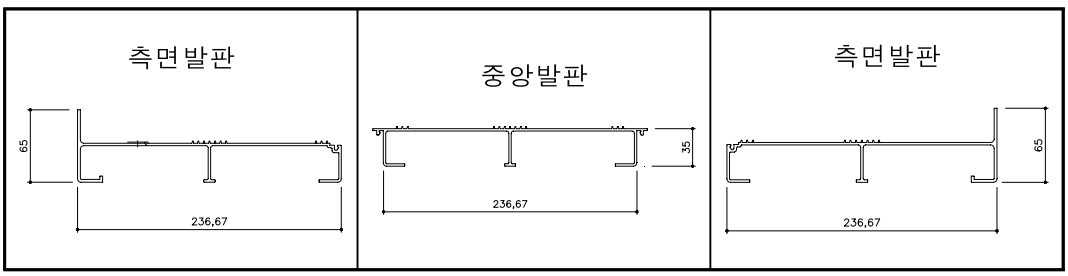
1) 설치 정면도



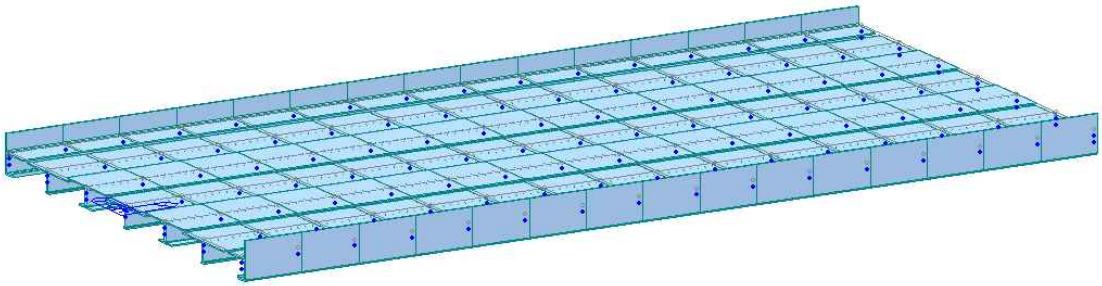
2) 설치 단면도



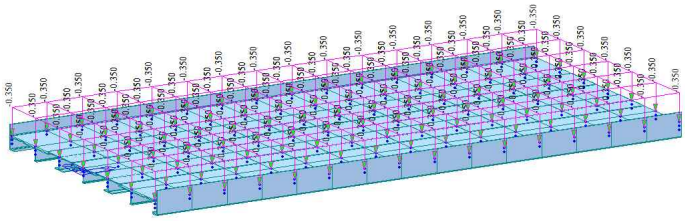
3) 설치 상세도



4) 모델링

Beam 요소


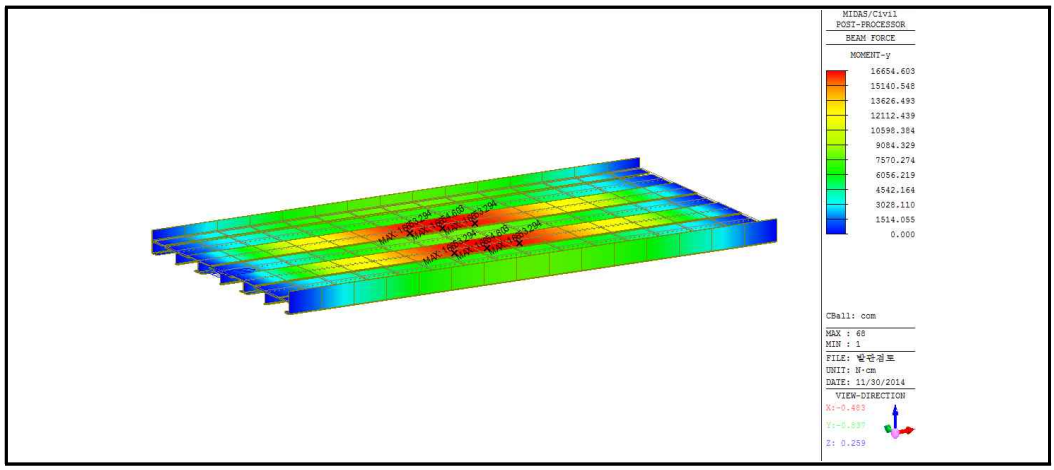
5) 하중산정 및 하중재하

1.바닥판 하중 - 상재하중은 1.5m 로 모델링 하여 등분포하중으로 재하 - 자중 : 구조물 자중은 프로그램 자동재하며 작업하중은 상부 판요소로 가부재로 선정하여 재하함.	
	작업하중 : WL= $3.5\times10^{-3}MPa$

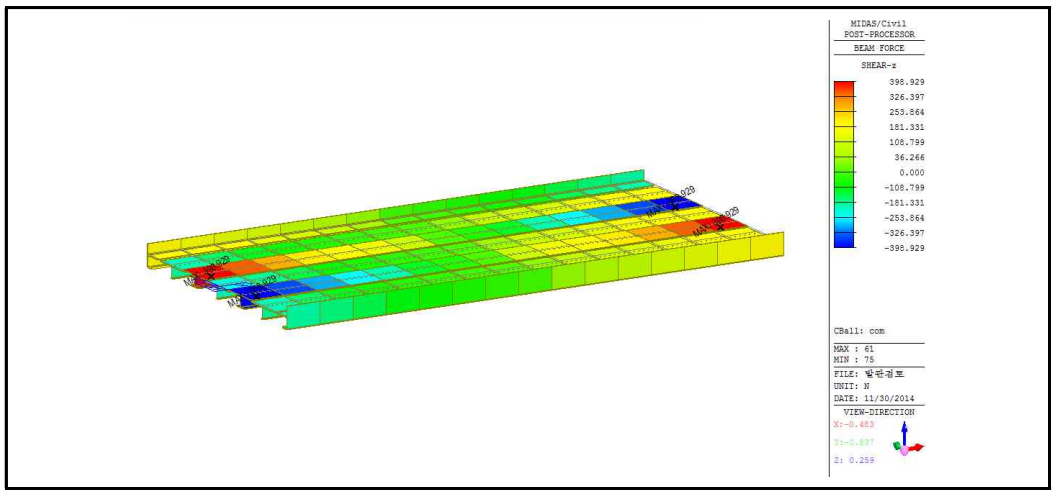
7.1 측면 발판 검토

1) 부재력도

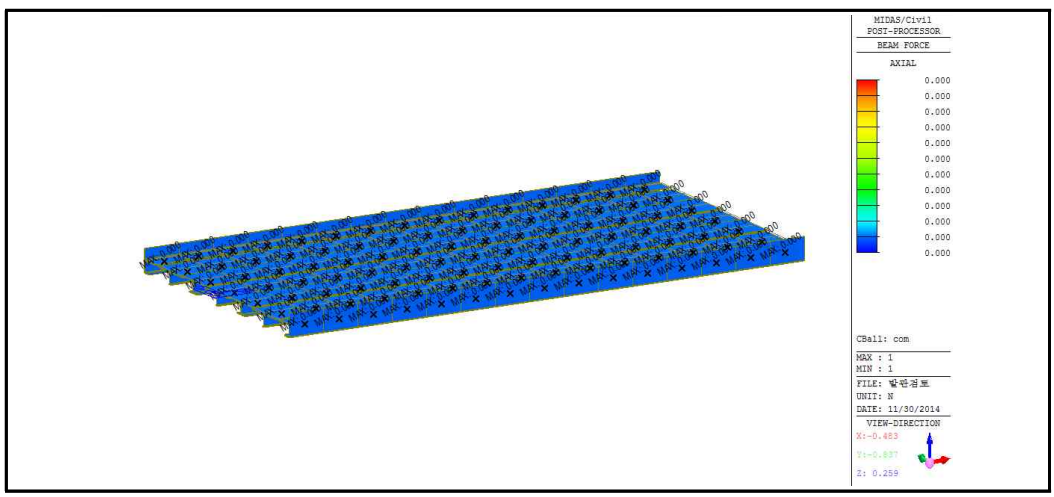
◎모멘트도



◎전단력도

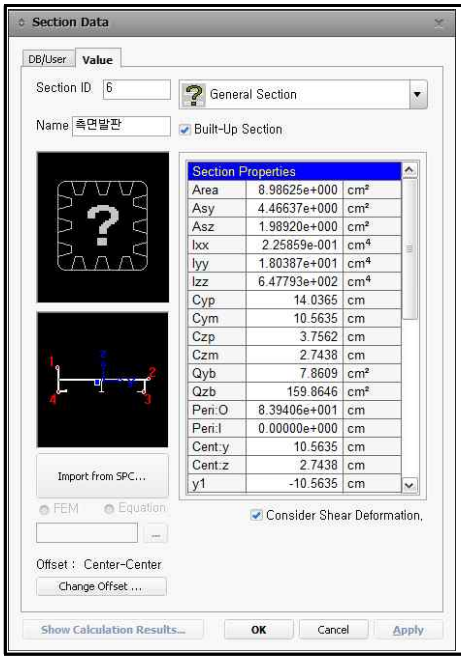


◎축력도



∴ P_A = 0.000N ∴ V_A = 398.929N ∴ M_A = 16654.603N · cm

2) 단면제원



- A_S = 8.986 cm^2
- A_{web} = 6.25 x 0.25 +3.1 x 0.2 x 2EA

  = 2.802cm^2
- I_y = 18.0387cm^4
- Z_{yu} = I_y / Y_u

  = 18.0387/ 3.7562 = 4.802cm^3
- Z_{yL} = I_y / Y_L

  = 18.0387/ 2.7438 = 6.574cm^3

3) 응력검토

· 전단응력검토

- $v = V_A / A_{WEB}$

  = 398.929 / 2.802

  = 142.372N/cm^2 = 1.423MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

- $f_t = P_A / A_S + M_A / Z_{yu}$

  = 0.000/3.255 + 16654.603/ 4.802

  = 0.000N/cm^2 + 3468.263N/cm^2
- f_t = 3468.263N/cm^2 = 34.683MPa < f_{ta} = 60MPa ∴ O.K
- $f_c = P_A / A_S + M_A / Z_{yL}$

  = 0.000/3.255 + 16654.603/ 6.574

  = 0.000N/cm^2 + 2533.404N/cm^2
- f_c = 2533.404N/cm^2 = 25.334MPa < f_{ca} = 60MPa ∴ O.K

· 합성응력검토

$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

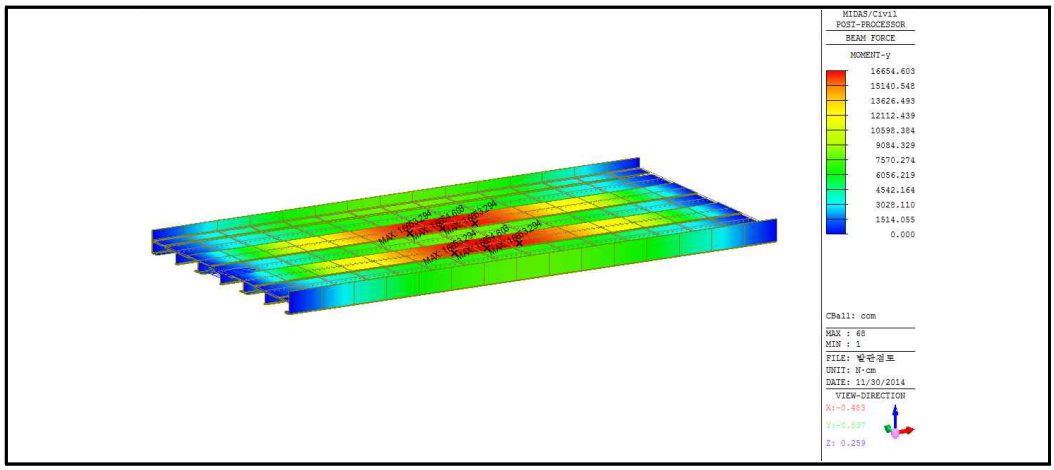
$$\left(\frac{34.683}{60}\right)^2 + \left(\frac{1.423}{35}\right)^2 \leq 1.2$$

= 0.336≤ 1.2 ∴ O.K

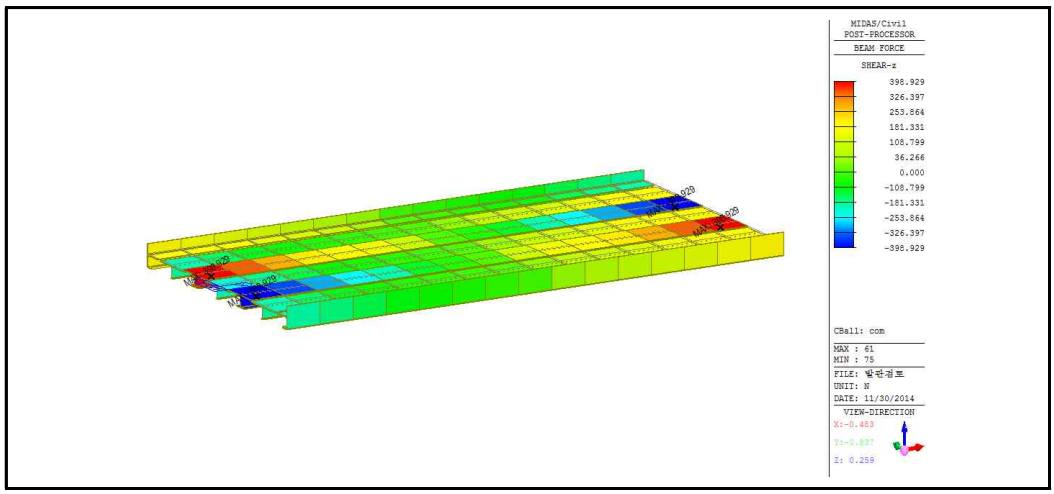
7.2 중앙발판검토

1) 부재력도

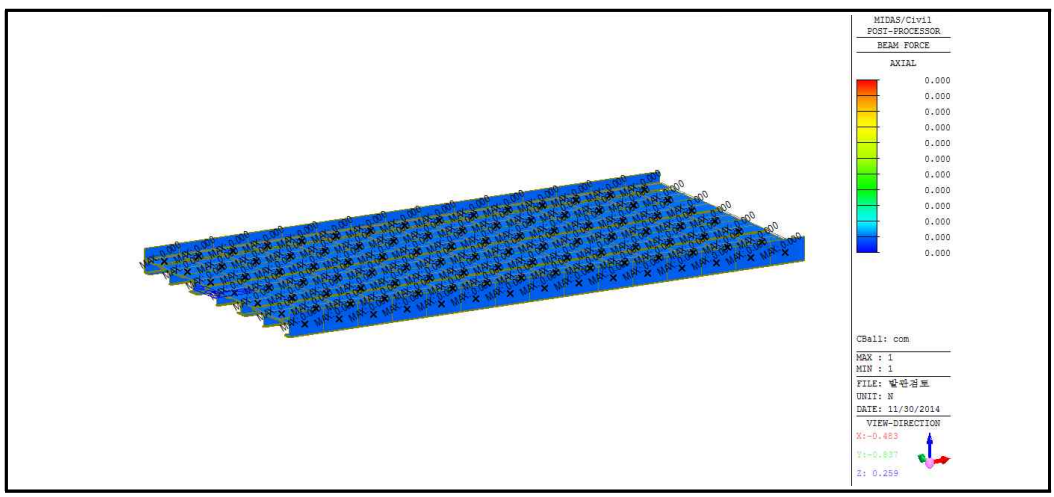
◎모멘트도



◎전단력도

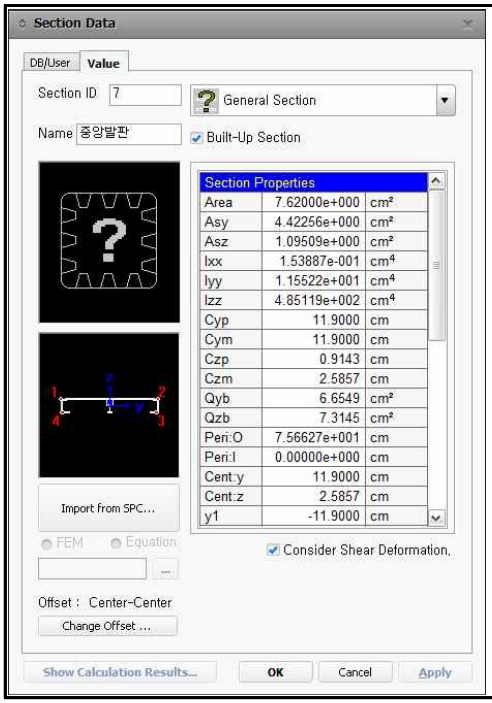


◎축력도



∴ P_A = 0.000N ∴ V_A = 398.929N ∴ M_A = 16654.603N · cm

2) 단면제원



- A_S = 7.620 cm^2
- A_{web} = 3.1 x 0.2 x 3EA= 1.860cm^2
- I_y = 11.552cm^4
- $Z_{yu} = I_y / Y_u$

  = 11.552/ 0.9143 = 12.634cm^3
- $Z_{yL} = I_y / Y_L$

  = 11.552/ 2.5857 = 4.468cm^3

3) 응력검토

· 전단응력검토

- $v = V_A / A_{WEB}$

  = 398.929 / 1.860

  = 214.477N/cm^2 = 2.144MPa < v_a = 35MPa ∴ O.K

· 휨응력검토

- $f_t = P_A / A_S + M_A / Z_{yu}$

  = 0.000/3.255 + 16654.603/ 12.634

  = 0.000N/cm^2 + 1318.236N/cm^2
- f_t = 1318.236N/cm^2 = 13.182MPa < f_{ta} = 60MPa ∴ O.K
- $f_c = P_A / A_S + M_A / Z_{yL}$

  = 0.000/3.255 + 16654.603/ 4.468

  = 0.000N/cm^2 + 3727.529N/cm^2
- f_c = 3727.529N/cm^2 = 37.275MPa < f_{ca} = 60MPa ∴ O.K

· 합성응력검토

$$\left(\frac{f_b}{f_{ba}}\right)^2 + \left(\frac{v}{v_a}\right)^2 \leq 1.2$$

$$\left(\frac{37.525}{60}\right)^2 + \left(\frac{2.144}{35}\right)^2 \leq 1.2$$

= 0.395≤ 1.2 ∴ O.K

7.3 연결볼트 검토

1) 볼트의 허용하중 (STS 304)

· M12 (STS 304)

- 인장강도 : 500MPa - KSB 0241 P 7 참조
- 항복강도 : 210MPa - KSB 0241 P 7 참조
- 허용인발하중 : 12.00kN - 원진화스닝 P 24 참조
- 허용전단하중 = 10.60kN - 원진화스닝 P 24 참조

· M10(STS 304)

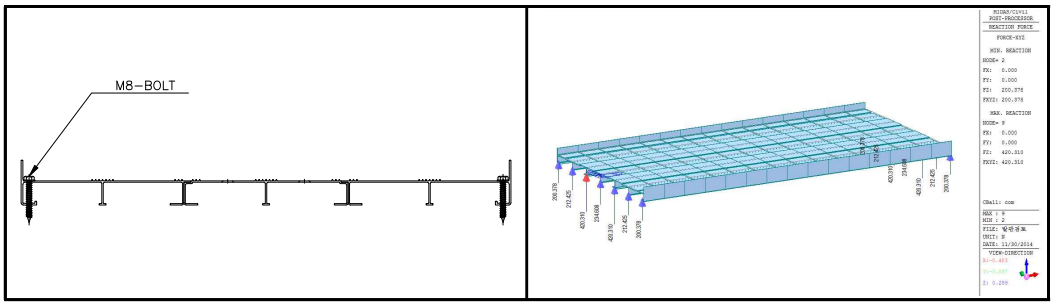
- 인장강도 : 500MPa - KSB 0241 P 7 참조
- 항복강도 : 210MPa - KSB 0241 P 7 참조
- 허용인발하중 : 7.60kN - 원진화스닝 P 24 참조
- 허용전단하중 = 7.90kN - 원진화스닝 P 24 참조

· M8 (STS 304)

- 인장강도 : 500MPa - KSB 0241 P 7 참조
- 항복강도 : 210MPa - KSB 0241 P 7 참조
- 허용인발하중 : 5.00kN - 원진화스닝 P 24 참조
- 허용전단하중 = 4.60kN - 원진화스닝 P 24 참조

2) 발판 연결볼트 검토 - M8 (STS 304)

◎발판볼트 설치도



· M 8 볼트검토 및 볼트너트

작용하중은 수직력으로 인발 및 전단검토

수직전단력 볼트(M8) 검토

- F_Z = 420.310N (설치단면 인발하중 작용)

= 420.310N/EA = 0.420kN/EA

< F_a(허용인장하중) = 5.0kN/EA ∴ O.K

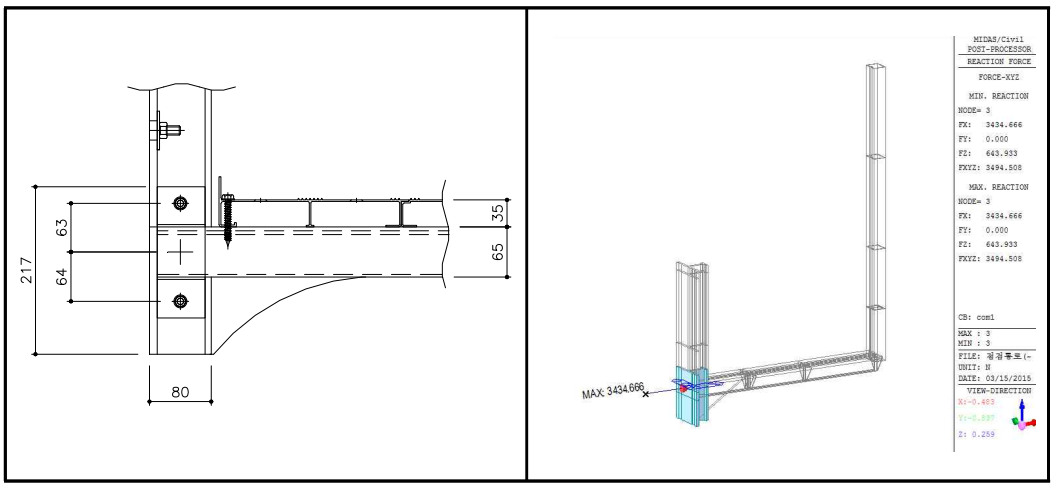
- F_Z = 420.310N (설치단면 전단하중 작용)

= 420.310N/EA = 0.420kN/EA

< V_a(허용전단하중) = 4.60kN/EA ∴ O.K

3) 메인 포스트 연결볼트 검토 - M10 (STS 304)

◎메인 POST 볼트 설치도



- M 10 볼트검토

수평 인장력

- F_y = 3434.666N

= 3434.666N/EA = 3.434kN/EA

< F_a(허용인장하중) = 7.60kN/EA ∴ O.K

수직 전단력

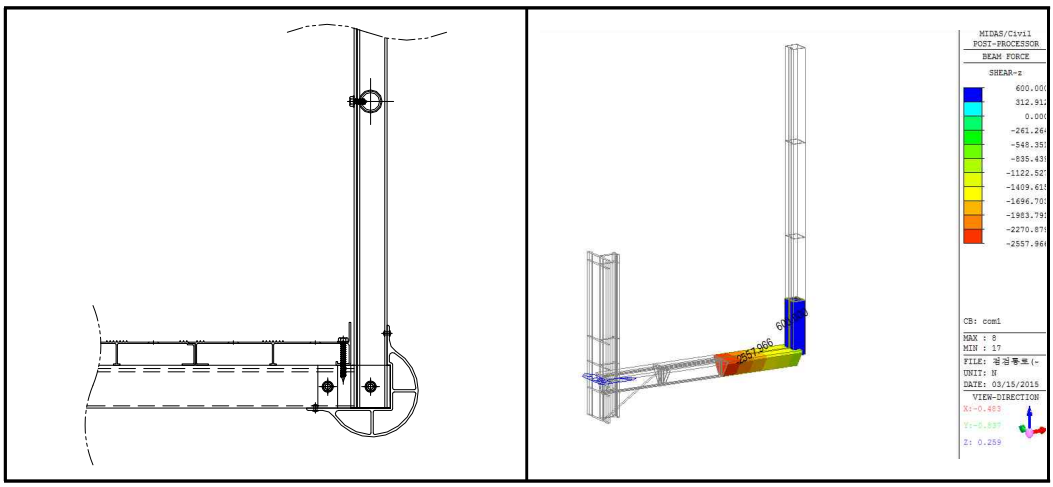
- F_Z = 643.933N

= 643.933N/EA = 0.643kN/EA

< V_a(허용전단하중) = 7.90kN/EA ∴ O.K

4) 난간 포스트 연결볼트 검토 - M10 (STS 304)

◎메인 POST 볼트 설치도



- M 10 볼트검토

포스트에 작용하는 전단력

- F_y = 600.0N

= 600.0N/EA = 0.600kN/EA

< F_a(허용인장하중) = 7.60kN/EA ∴ O.K

지지보에 작용하는 전단력

- F_Z = 2557.966N

= 2557.966N/EA = 2.557kN/EA

< V_a(허용전단하중) = 7.90kN/EA ∴ O.K

§8. 결　　론

상기 검토내용과 같이 점검통로의 각 부재별 응력 및 작용하중은 허용치를 초과하지 않으며 소요안전도를 충분히 확보하였으므로 이 점검통로의 Main post 및 각 부재는 구조적으로 적절한 안전도를 갖는 단면인 것으로 사료됨.

검토자 :　토목구조기술사　　김　달　성

§9. 부 록

- 입력자료

```
;------------------------------------------------------------------------------
;   MIDAS/Civil Text(MCT) File.
;   Date : 2015/3/15
;------------------------------------------------------------------------------
*VERSION
    8.1.5
*UNIT      ; Unit System
; FORCE, LENGTH, HEAT, TEMPER
    N      , CM, KCAL, C
*PROJINFO      ; Project Information

*REBAR-MATL-CODE      ; Rebar Material Code
; CONC_CODE, CONC_MDB, SRC_CODE, SRC_MDB
 KS01-Civil(RC), SD300, KS01-Civil(RC), SD300
*NODE      ; Nodes
; iNO, X, Y, Z
       1, 0, 0, -13.25
       2, 0, 0, -3.25
       3, 0, 0, 0
       7, 79, 0, 0
       8, 0, 0, 6.45
       9, 0, 0, 15.75
      10, 79, 0, 20
      11, 79, 0, 43.25
      12, 0, 0, 43.75
      13, 0, 0, 46.75
      14, 79, 0, 78.25
      15, 79, 0, 113.25
      16, 23.5, 0, 0
      17, 48.4, 0, 0
      18, 24.6, 0, 0
*ELEMENT      ; Elements
; iEL, TYPE, iMAT, iPRO, iN1, iN2, ANGLE, iSUB, EXVAL, iOPT(EXVAL2) ; Frame  Element
; iEL, TYPE, iMAT, iPRO, iN1, iN2, ANGLE, iSUB, EXVAL, EXVAL2, bLMT ; Comp/Tens Truss
; iEL, TYPE, iMAT, iPRO, iN1, iN2, iN3, iN4, iSUB, iWID          ; Planar  Element
; iEL, TYPE, iMAT, iPRO, iN1, iN2, iN3, iN4, iN5, iN6, iN7, iN8      ; Solid  Element
; iEL, TYPE, iMAT, iPRO, iN1, iN2, REF, RPX, RPY, RPZ, iSUB, EXVAL  ; Frame(Ref. Point)
       1, BEAM   ,      1,       2,       1,       2,       0
       2, BEAM   ,      1,       2,       2,       3,       0
       7, BEAM   ,      1,       2,       3,       8,       0
       8, BEAM   ,      1,       9,      10,       7,     180
       9, BEAM   ,      1,       2,       8,       9,       0
      10, BEAM   ,      1,       2,       9,      12,       0
      11, BEAM   ,      1,       1,      11,      10,     180
      12, BEAM   ,      1,       2,      12,      13,       0
      13, BEAM   ,      1,       1,      14,      11,     180
      14, BEAM   ,      1,       1,      15,      14,     180
      15, BEAM   ,      1,       7,       3,      16,       0
      16, BEAM   ,      1,       3,      16,      18,       0
      17, BEAM   ,      1,       3,      17,       7,       0
      18, BEAM   ,      1,       3,      18,      17,       0
*GROUP      ; Group
; NAME, NODE_LIST, ELEM_LIST, PLANE_TYPE
    발판        , 3 7, , 0
    main post , 1to3 8 9 12 13, 1 2 7 9 10 12, 0
    난간post  , 7 11 14 15, 8 11 13 14, 0
*MATERIAL      ; Material
; iMAT, TYPE, MNAME, SPHEAT, HEATCO, PLAST, TUNIT, bMASS, DAMPRATIO, [DATA1]          ; STEEL, CONC, USER
; iMAT, TYPE, MNAME, SPHEAT, HEATCO, PLAST, TUNIT, bMASS, DAMPRATIO, [DATA2], [DATA2] ; SRC
; [DATA1] : 1, DB, NAME, CODE
; [DATA1] : 2, ELAST, POISN, THERMAL, DEN, MASS
; [DATA1] : 3, Ex, Ey, Ez, Tx, Ty, Tz, Sxy, Sxz, Syz, Pxy, Pxz, Pyz, DEN, MASS    ; Orthotropic
; [DATA2] : 1, DB, NAME, CODE or 2, ELAST, POISN, THERMAL, DEN, MASS
      1, USER , A6063S-T5          , 0, 0, , C, YES, 0, 2, 6.8941e+006,    0.3, 1.2000e-005, 0.0274586, 2.80176e-005
      2, USER , STS                , 0, 0, , C, YES, 0, 2, 1.9700e+007,    0.3, 1.2000e-005, 0.0793, 8.08e-005
*MATL-COLOR
; iMAT, W_R, W_G, W_B, HF_R, HF_G, HF_B, HE_R, HE_G, HE_B, bBLEND, FACT
      1, 255,    0,    0,      0, 255,    0,    0,    0, 255,   NO, 0.5
      2, 255,    0,    0,      0, 255,    0,    0,    0, 255,   NO, 0.5
*SECT-PSCVALUE      ; PSC Value, General Section, Composite PC, Composite General
; SECT=iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, bBU, bEQ          ; 1st line
;        [STIFF1]                                                 ; 2nd line
;        [STIFF2]                                                 ; 3rd line
;        [STIFF3]                                                 ; 4th line
;        T1, T2, BT, HT                                           ; 5th line(PSC)
;        bSHEARCHK, [SCHK], [WT]                                    ; 6th line(PSC)
;        SW, GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc               ; 7th line(COMPOSITE-PC)
;        OPOLY=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Outer Polygon(PLANE)
;        IPOLY=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Inner Polygon(PLANE)
;        ...
;        IPOLY=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Inner Polygon(PLANE)
;        VERTEX=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Vertex(General-LINE)
;        LINE=VI1, VJ1, dTHIK1, iALIGN1                           ; Line(General-LINE)
;        ...
;        LINE=VIn, VJn, dTHIKn, iALIGNn                           ; Line(General-LINE)
;        LOOP=COUNT1, LIX11, LIX12, ..., LIXn                     ; Line(General-LINE)
;        ...
;        LOOP=COUNTn, LIXn1, LIXn2, ..., LIXnn                    ; Line(General-LINE)
; SECT=iSEC, TYPE, SNAME, [OFFSET2], bSD, SHAPE, iyVAR, izVAR, bEQ ; 1st line - TAPERED
;        [STIFF1-I]                                               ; 2nd line
;        [STIFF2-I]                                               ; 3rd line
;        [STIFF3-I]                                               ; 4th line
;        [STIFF1-J]                                               ; 5th line
;        [STIFF2-J]                                               ; 6th line
;        [STIFF3-J]                                               ; 7th line
;        T1-I, T2-I, BT-I, HT-I, T1-J, T2-J, BT-J, HT-J           ; 8th line(PSC)
;        bSHEARCHK, [SCHK-I], [WT-I], [SCHK-J], [WT-J]              ; 9rd line(PSC)
;        OPOLY=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Outer Polygon(PLANE)
;        IPOLY=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Inner Polygon(PLANE)
;        ...
;        IPOLY=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Inner Polygon(PLANE)
;        VERTEX=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Vertex(General-LINE)
;        LINE=bI, VI1, VJ1, dTHIK1, iALIGN1                       ; Line(General-LINE)
;        ...
;        LINE=bI, VIn, VJn, dTHIKn, iALIGNn                       ; Line(General-LINE)
;        LOOP=bI, COUNT1, LIX11, LIX12, ..., LIXn                 ; Line(General-LINE)
;        ...
```

```
;       LOOP=bl, COUNTn, LIXn1, LIXn2, ..., LIXnn                   ; Line(General-LINE)
; SECT=iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, bBU, bEQ, BPRT ; 1st line - COMPOSITE-GEN
;       [PART1]                                                     ; 2nd line
;       [PART2]                                                     ; 3rd line
;       ...
; SECT=iSEC, TYPE, SNAME, [OFFSET2], bSD, SHAPE, iyVAR, izVAR, bEQ, PARTNUM ; 1st line - COMPOSITE-GEN(TAPERED)
;       [PART1]-I                                                   ; 2nd line
;       [PART2]-I                                                   ; next lines
;       ...
;       [PART1]-J                                                   ; next lines
;       [PART2]-J                                                   ; next lines
;       ...
; [OFFSET] : OFFSET, iCENT, iREF, iHORZ, HUSER, iVERT, VUSER
; [OFFSET2]: OFFSET, iCENT, iREF, iHORZ, HUSERI, HUSERJ, iVERT, VUSERI, VUSERJ
; [STIFF1] : AREA, ASy, ASz, Ixx, Iyy, Izz
; [STIFF2] ; Cyp, Cym, Czp, Czm, Qyb, Qzb, PERI_OUT, PERI_IN, Cy, Cz
; [STIFF3] ; Y1, Y2, Y3, Y4, Z1, Z2, Z3, Z4
; [SCHK]   : Z1, Z3, bAUTO_QY1, QY1, bAUTO_QY2, QY2, bAUTO_QY3, QY3
; [WT]     : TOR, bAUTO_SHR1, SHR1, bAUTO_SHR2, SHR2, bAUTO_SHR3, SHR3
; [PART] : PART=part_num
;        : [STIFF1]
;        : [STIFF2]
;        : [STIFF3]
;        : [STIFF1]                                                 ; [STIFF1] of Part Sum.
;        : [STIFF2]                                                 ; [STIFF2] of Part Sum.
;        : [STIFF3]                                                 ; [STIFF3] of Part Sum.
;        : OPOLY=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                    ; Outer Polygon(PLANE)
;        : IPOLY=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                   ; Inner Polygon(PLANE)
;        : ...
;        : IPOLY=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                   ; Inner Polygon(PLANE)
;        : VERTEX=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                   ; Vertex(General-LINE)
;        : LINE=(bl-Tapered), VI1, VJ1, dTHIK1, iALIGN1                       ; Line(General-LINE)
;        : ...
;        : LINE=(bl-Tapered), VIn, VJn, dTHIKn, iALIGNn                       ; Line(General-LINE)
;        : LOOP=(bl-Tapered), COUNT1, LIX11, LIX12, ..., LIXn                 ; Line(General-LINE)
;        : ...
;        : LOOP=(bl-Tapered), COUNTn, LIXn1, LIXn2, ..., LIXnn                ; Line(General-LINE)
 SECT=    1, VALUE      , 난간post          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        7.56, 3.42662, 2.5699, 45.4869, 27.8972, 36.8154
        3, 3, 2.43519, 2.56481, 9.62217, 10.7425, 23, 20.2, 3, 2.56481
        -3, 3, 3, -3, 2.43519, 2.43519, -2.56481, -2.56481
        OPOLY=-3, 2.43519, -3, -2.56481, 3, -2.56481, 3, 2.43519, 0.5, 2.43519, 0.5, 1.93519
                -0.5, 1.93519, -0.5, 2.43519
        IPOLY=-2.65, 2.08519, -0.85, 2.08519, -0.85, 1.58519, 0.85, 1.58519, 0.85, 2.08519
                2.65, 2.08519, 2.65, -2.21481, -2.65, -2.21481
 SECT=    2, VALUE      , main post         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        23.4, 12.7565, 6.12917, 7.14343, 169.578, 265.75
        7.5, 7.5, 5.62479, 2.37521, 27.2537, 3.65064, 53.2, 0, 7.5, 2.37521
        -2, 2, 7.5, -7.5, 5.62479, 5.62479, -2.37521, -2.37521
        OPOLY=-7.5, -1.37521, -7.5, -2.37521, -6, -2.37521, -6, -2.17521, -4, -2.17521
                -4, -2.37521, 4, -2.37521, 4, -2.17521, 6, -2.17521, 6, -2.37521
                7.5, -2.37521, 7.5, -1.37521, 0.5, -1.37521, 0.5, 4.82479
                2, 4.82479, 2, 5.62479, 0.5, 5.62479, 0.5, 5.42479, -0.5, 5.42479
                -0.5, 5.62479, -2, 5.62479, -2, 4.82479, -0.5, 4.82479
                -0.5, -1.37521
 SECT=    3, VALUE      , 발판지지          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
       13.9943, 4.0037, 7.1979, 36.4584, 61.8553, 77.8026
       5, 5, 2.39444, 4.10556, 8.82775, 26.2277, 39.9019, 33.001, 5, 4.10556
       -5, 5, 1.35, -1.35, 2.39444, 2.39444, -4.10556, -4.10556
       OPOLY=-5, 2.39444, -5, 1.39444, -1.35, -4.10556, -0.5, -4.10556, -0.5, 1.39444
                0.5, 1.39444, 0.5, -4.10556, 1.35, -4.10556, 5, 1.39444
                5, 2.39444, 0.5, 2.39444, 0.5, 1.89444, -0.5, 1.89444
                -0.5, 2.39444
       IPOLY=-4.8, 1.89444, -1, 1.89444, -1, -3.76552, -1.33563, -3.76552, -4.8, 1.45477
       IPOLY=1, 1.89444, 4.8, 1.89444, 4.8, 1.45477, 1.33563, -3.76552, 1, -3.76552
 SECT=    6, VALUE      , 발판          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
       29.4943, 6.85781, 18.5621, 81.7551, 669.244, 79.0943
       5, 5, 5.73445, 10.7656, 23.5753, 0.940709, 48.9019, 33.001, 5, 10.7656
       -5, 5, 0.5, -0.5, 5.73445, 5.73445, -10.7656, -10.7656
       OPOLY=-5, 5.73445, -5, 4.73445, -1.35, -0.765555, -0.5, -0.765555, -0.5, -10.7656
                0.5, -10.7656, 0.5, -0.765555, 1.35, -0.765555, 5, 4.73445
                5, 5.73445, 0.5, 5.73445, 0.5, 5.23445, -0.5, 5.23445
                -0.5, 5.73445
       IPOLY=-4.8, 5.23445, -1, 5.23445, -1, -0.425515, -1.33563, -0.425515, -4.8, 4.79478
       IPOLY=1, 5.23445, 4.8, 5.23445, 4.8, 4.79478, 1.33563, -0.425515, 1, -0.425515
 SECT=    7, TAPERED    , 변단면            , CT, 1, 0, 0, 0, 0, 1, 3.34, 0, YES, GEN, 1, 1, YES
       29.4943, 6.85781, 18.5621, 81.7551, 669.244, 79.0943
       5, 5, 5.73445, 10.7656, 23.5753, 0.940709, 48.9019, 33.001, 5, 10.7656
       -5, 5, 0.5, -0.5, 5.73445, 5.73445, -10.7656, -10.7656
       13.9943, 4.0037, 7.1979, 36.4584, 61.8553, 77.8026
       5, 5, 2.39444, 4.10556, 8.82775, 26.2277, 39.9019, 33.001, 5, 4.10556
       -5, 5, 1.35, -1.35, 2.39444, 2.39444, -4.10556, -4.10556
       OPOLY=YES, -5, 5.73445, -5, 4.73445, -1.35, -0.765555, -0.5, -0.765555, -0.5, -10.7656
                  0.5, -10.7656, 0.5, -0.765555, 1.35, -0.765555, 5, 4.73445
                  5, 5.73445, 0.5, 5.73445, 0.5, 5.23445, -0.5, 5.23445
                  -0.5, 5.73445
       IPOLY=YES, -4.8, 5.23445, -1, 5.23445, -1, -0.425515, -1.33563, -0.425515, -4.8, 4.79478
       IPOLY=YES, 1, 5.23445, 4.8, 5.23445, 4.8, 4.79478, 1.33563, -0.425515, 1, -0.425515
       OPOLY=NO, -5, 2.39444, -5, 1.39444, -1.35, -4.10556, -0.5, -4.10556, -0.5, 1.39444
                 0.5, 1.39444, 0.5, -4.10556, 1.35, -4.10556, 5, 1.39444
                 5, 2.39444, 0.5, 2.39444, 0.5, 1.89444, -0.5, 1.89444
                 -0.5, 2.39444
       IPOLY=NO, -4.8, 1.89444, -1, 1.89444, -1, -3.76552, -1.33563, -3.76552, -4.8, 1.45477
       IPOLY=NO, 1, 1.89444, 4.8, 1.89444, 4.8, 1.45477, 1.33563, -3.76552, 1, -3.76552
 SECT=    8, VALUE      , 바닥판            , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
       19.4943, 6.5884, 11.1524, 76.4183, 82.975, 78.261
       5, 5, 2.77689, 3.72311, 7.1461, 2.30023, 28.9019, 33.001, 5, 3.72311
       -5, 5, 1.35, -1.35, 2.77689, 2.77689, -3.72311, -3.72311
       OPOLY=-5, 2.77689, -5, 1.77689, -1.35, -3.72311, 1.35, -3.72311, 5, 1.77689
                5, 2.77689, 0.5, 2.77689, 0.5, 2.27689, -0.5, 2.27689
                -0.5, 2.77689
       IPOLY=-4.8, 2.27689, -1, 2.27689, -1, -3.38307, -1.33563, -3.38307, -4.8, 1.83722
       IPOLY=1, 2.27689, 4.8, 2.27689, 4.8, 1.83722, 1.33563, -3.38307, 1, -3.38307
 SECT=    9, VALUE      , 난간 post-1       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
       16.05, 7.52645, 7.53538, 79.652, 47.5571, 64.042
       3, 3, 2.46963, 2.53037, 6.82768, 3.11437, 23, 22.3, 3, 2.53037
       -3, 3, 3, -3, 2.46963, 2.46963, -2.53037, -2.53037
       OPOLY=-3, 2.46963, -3, -2.53037, 3, -2.53037, 3, 2.46963, 0.5, 2.46963, 0.5, 1.96963
                -0.5, 1.96963, -0.5, 2.46963
       IPOLY=-2.25, 1.71963, -1.25, 1.71963, -1.25, 1.21963, -0.175, 1.21963
                -0.175, -1.78037, -2.25, -1.78037
       IPOLY=0.175, 1.21963, 1.25, 1.21963, 1.25, 1.71963, 2.25, 1.71963, 2.25, -1.78037
                0.175, -1.78037
 SECT=   10, VALUE      , main post-1       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
       26.74, 13.5539, 6.53663, 10.5674, 249.617, 277.898
       7.5, 7.5, 5.3193, 2.9807, 37.4287, 3.74283, 54.4, 0, 7.5, 2.9807
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-2.3, 2.3, 7.5, -7.5, 5.3193, 5.3193, -2.9807, -2.9807
OPOLY=-7.5, -1.9807, -7.5, -2.9807, -6, -2.9807, -6, -2.8307, -4, -2.8307
-4, -2.9807, 4, -2.9807, 4, -2.8307, 6, -2.8307, 6, -2.9807
7.5, -2.9807, 7.5, -1.9807, 0.5, -1.9807, 0.5, 3.9193, 2.3, 3.9193
2.3, 5.3193, -2.3, 5.3193, -2.3, 3.9193, -0.5, 3.9193
-0.5, -1.9807
SECT= 11, VALUE , 지지보(165) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
32.8903, 8.16941, 19.5136, 92.1479, 695.916, 83.6111
5, 5, 5.48618, 11.0138, 20.023, 1.06276, 48.9019, 31.801, 5, 11.0138
-5, 5, 0.500002, -0.499998, 5.48618, 5.48618, -11.0138, -11.0138
OPOLY=-5, 5.48618, -5, 4.48618, -1.35, -1.01382, -0.499998, -1.01382
-0.499998, -11.0138, 0.500002, -11.0138, 0.500002, -1.01382
1.35, -1.01382, 5, 4.48618, 5, 5.48618, 0.500002, 5.48618
0.500002, 4.98618, -0.499998, 4.98618, -0.499998, 5.48618
IPOLY=-4.8, 4.98618, -1.3, 4.98618, -1.3, -0.673781, -1.33562, -0.673781
-4.8, 4.54651
IPOLY=1.3, 4.98618, 4.8, 4.98618, 4.8, 4.54651, 1.33563, -0.673781, 1.3, -0.673781
SECT= 12, VALUE , 지지보(65) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
17.3903, 4.12695, 9.97328, 36.994, 73.3131, 82.3194
5, 5, 2.57713, 3.92287, 7.59759, 30.1333, 39.9019, 31.801, 5, 3.92287
-5, 5, 1.35, -1.35, 2.57713, 2.57713, -3.92287, -3.92287
OPOLY=-5, 2.57713, -5, 1.57713, -1.35, -3.92287, -0.499996, -3.92287
-0.499996, 1.57713, 0.500004, 1.57713, 0.500004, -3.92287
1.35, -3.92287, 5, 1.57713, 5, 2.57713, 0.500004, 2.57713
0.500004, 2.07713, -0.499996, 2.07713, -0.499996, 2.57713
IPOLY=-4.8, 2.07713, -1.3, 2.07713, -1.3, -3.58283, -1.33562, -3.58283, -4.8, 1.63746
IPOLY=1.3, 2.07713, 4.8, 2.07713, 4.8, 1.63746, 1.33563, -3.58283, 1.3, -3.58283
SECT= 13, VALUE , 메인 post-2 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
29.1, 14.24, 6.78224, 14.9387, 298.498, 285.275
7.5, 7.5, 5.13918, 3.36082, 43.7277, 3.87794, 55.6, 0, 7.5, 3.36082
-2.5, 2.5, 7.5, -7.5, 5.13918, 5.13918, -3.36082, -3.36082
OPOLY=-7.5, -2.36082, -7.5, -3.36082, -6, -3.36082, -6, -3.21082, -4, -3.21082
-4, -3.36082, 4, -3.36082, 4, -3.21082, 6, -3.21082, 6, -3.36082
7.5, -3.36082, 7.5, -2.36082, 0.5, -2.36082, 0.5, 3.33918
2.5, 3.33918, 2.5, 5.13918, -2.5, 5.13918, -2.5, 3.33918
-0.5, 3.33918, -0.5, -2.36082
SECT= 14, VALUE , 지지보(80) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
16.004, 3.55005, 9.13781, 46.4021, 107.867, 84.1838
4.99999, 5.00001, 3.05347, 4.94653, 12.7087, 28.9423, 45.4889, 38.5579, 5.00001, 4.94653
-5.00001, 4.99999, 1.34999, -1.35001, 3.05347, 3.05347, -4.94653, -4.94653
OPOLY=-5.00001, 3.05347, -5.00001, 2.05347, -1.35001, -4.94653, -0.500005, -4.94653
-0.500005, 2.05347, 0.499995, 2.05347, 0.499995, -4.94653
1.34999, -4.94653, 4.99999, 2.05347, 4.99999, 3.05347
0.499995, 3.05347, 0.499995, 2.55347, -0.500005, 2.55347
-0.500005, 3.05347
IPOLY=-4.80001, 2.55347, -1.00001, 2.55347, -1.00001, -4.60649, -1.30176, -4.60649
-4.80001, 2.10248
IPOLY=0.999995, 2.55347, 4.79999, 2.55347, 4.79999, 2.10248, 1.30173, -4.60649
0.999995, -4.60649
SECT= 15, VALUE , 지지보(165-80) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
31.504, 6.4172, 21.255, 107.049, 673.703, 85.4755
5, 5, 5.85617, 10.6438, 24.5858, 1.02554, 48.4889, 38.5579, 5, 10.6438
-5, 5, 0.500003, -0.499997, 5.85617, 5.85617, -10.6438, -10.6438
OPOLY=-5, 5.85617, -5, 4.85617, -1.35, -2.14383, -0.499997, -2.14383
-0.499997, -10.6438, 0.500003, -10.6438, 0.500003, -2.14383
1.35, -2.14383, 5, 4.85617, 5, 5.85617, 0.500003, 5.85617
0.500003, 5.35617, -0.499997, 5.35617, -0.499997, 5.85617
IPOLY=-4.8, 5.35617, -0.999997, 5.35617, -0.999997, -1.80379, -1.30174, -1.80379
-4.8, 4.90518
IPOLY=1, 5.35617, 4.8, 5.35617, 4.8, 4.90518, 1.30175, -1.80379, 1, -1.80379
SECT= 16, VALUE , 지지보(80-5.5) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
16.8614, 3.6841, 9.81713, 47.7426, 112.897, 87.4458
5, 5, 3.09098, 4.90902, 12.4797, 30.2331, 45.4889, 37.9162, 5, 4.90902
-5, 5, 1.35, -1.35, 3.09098, 3.09098, -4.90902, -4.90902
OPOLY=-5, 3.09098, -5, 2.09098, -1.35, -4.90902, -0.5, -4.90902, -0.5, 2.09098
0.5, 2.09098, 0.5, -4.90902, 1.35, -4.90902, 5, 2.09098
5, 3.09098, 0.5, 3.09098, 0.5, 2.59098, -0.5, 2.59098
-0.5, 3.09098
IPOLY=-4.7, 2.59098, -1.05, 2.59098, -1.05, -4.50902, -1.33302, -4.50902
-4.7, 1.94821
IPOLY=1.05, 2.59098, 4.7, 2.59098, 4.7, 1.94821, 1.33302, -4.50902, 1.05, -4.50902
SECT= 17, VALUE , 지지보(165-5.5) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
32.3614, 6.75074, 21.6514, 111.693, 681.85, 88.7376
5, 5, 5.80146, 10.6985, 24.0124, 1.06588, 48.4889, 37.9162, 5, 10.6985
-5, 5, 0.500002, -0.499998, 5.80146, 5.80146, -10.6985, -10.6985
OPOLY=-5, 5.80146, -5, 4.80146, -1.35, -2.19854, -0.499998, -2.19854
-0.499998, -10.6985, 0.500002, -10.6985, 0.500002, -2.19854
1.35, -2.19854, 5, 4.80146, 5, 5.80146, 0.500002, 5.80146
0.500002, 5.30146, -0.499998, 5.30146, -0.499998, 5.80146
IPOLY=-4.7, 5.30146, -1.05, 5.30146, -1.05, -1.79854, -1.33301, -1.79854
-4.7, 4.65869
IPOLY=1.05, 5.30146, 4.7, 5.30146, 4.7, 4.65869, 1.33302, -1.79854, 1.05, -1.79854
SECT= 18, VALUE , 지지보(80-8) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
20.4114, 3.79479, 12.8266, 48.4063, 130.507, 92.3655
5, 5, 3.25778, 4.74222, 11.1153, 34.4043, 45.4889, 36.9162, 5, 4.74222
-5, 5, 1.35, -1.35, 3.25778, 3.25778, -4.74222, -4.74222
OPOLY=-5, 3.25778, -5, 2.25778, -1.35, -4.74222, -0.5, -4.74222, -0.5, 2.25778
0.5, 2.25778, 0.5, -4.74222, 1.35, -4.74222, 5, 2.25778
5, 3.25778, 0.5, 3.25778, 0.5, 2.75778, -0.5, 2.75778
-0.5, 3.25778
IPOLY=-4.7, 2.75778, -1.3, 2.75778, -1.3, -4.34222, -1.33302, -4.34222, -4.7, 2.11501
IPOLY=1.3, 2.75778, 4.7, 2.75778, 4.7, 2.11501, 1.33302, -4.34222, 1.3, -4.34222
SECT= 19, VALUE , 지지보(165-8) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
35.9114, 7.99727, 23.3563, 125.206, 706.577, 93.6574
5, 5, 5.62832, 10.8717, 21.2171, 1.19623, 48.4889, 36.9162, 5, 10.8717
-5, 5, 0.500002, -0.499998, 5.62832, 5.62832, -10.8717, -10.8717
OPOLY=-5, 5.62832, -5, 4.62832, -1.35, -2.37168, -0.499998, -2.37168
-0.499998, -10.8717, 0.500002, -10.8717, 0.500002, -2.37168
1.35, -2.37168, 5, 4.62832, 5, 5.62832, 0.500002, 5.62832
0.500002, 5.12832, -0.499998, 5.12832, -0.499998, 5.62832
IPOLY=-4.7, 5.12832, -1.3, 5.12832, -1.3, -1.97168, -1.33301, -1.97168, -4.7, 4.48555
IPOLY=1.3, 5.12832, 4.7, 5.12832, 4.7, 4.48555, 1.33302, -1.97168, 1.3, -1.97168
SECT= 20, VALUE , 지지보(80-8-8) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
22.4514, 4.90768, 12.7697, 49.2353, 143.135, 112.691
5, 5, 3.02083, 4.97917, 12.2605, 40.5243, 45.4889, 35.7162, 5, 4.97917
-5, 5, 1.35, -1.35, 3.02083, 3.02083, -4.97917, -4.97917
OPOLY=-5, 3.02083, -5, 2.02083, -1.35, -4.97917, -0.5, -4.97917, -0.5, 2.02083
0.5, 2.02083, 0.5, -4.97917, 1.35, -4.97917, 5, 2.02083
5, 3.02083, 0.5, 3.02083, 0.5, 2.52083, -0.5, 2.52083
-0.5, 3.02083
IPOLY=-4.7, 2.22083, -1.3, 2.22083, -1.3, -4.57917, -1.33302, -4.57917, -4.7, 1.87806
IPOLY=1.3, 2.22083, 4.7, 2.22083, 4.7, 1.87806, 1.33302, -4.57917, 1.3, -4.57917
SECT= 21, VALUE , 지지보(165-8-8) , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
37.9514, 10.3387, 23.8271, 127.704, 754.433, 113.983
5, 5, 5.36072, 11.1393, 22.6281, 1.38748, 48.4889, 35.7162, 5, 11.1393
-5, 5, 0.500002, -0.499998, 5.36072, 5.36072, -11.1393, -11.1393

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        OPOLY=-5, 5.36072, -5, 4.36072, -1.35, -2.63928, -0.499998, -2.63928
                -0.499998, -11.1393, 0.500002, -11.1393, 0.500002, -2.63928
                1.35, -2.63928, 5, 4.36072, 5, 5.36072, 0.500002, 5.36072
                0.500002, 4.86072, -0.499998, 4.86072, -0.499998, 5.36072
        IPOLY=-4.7, 4.56072, -1.3, 4.56072, -1.3, -2.23928, -1.33301, -2.23928, -4.7, 4.21795
        IPOLY=1.3, 4.56072, 4.7, 4.56072, 4.7, 4.21795, 1.33302, -2.23928, 1.3, -2.23928
SECT=   22, VALUE       , 지지보-85             , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        24.8903, 8.03389, 16.5929, 89.4, 133.21, 82.9444
        5, 5, 3.23187, 5.26813, 8.05758, 2.00052, 32.9019, 31.801, 5, 5.26813
        -5, 5, 0.500003, -0.499997, 3.23187, 3.23187, -5.26813, -5.26813
        OPOLY=-5, 3.23187, -5, 2.23187, -1.35, -3.26813, -0.499997, -3.26813
                -0.499997, -5.26813, 0.500003, -5.26813, 0.500003, -3.26813
                1.35, -3.26813, 5, 2.23187, 5, 3.23187, 0.500003, 3.23187
                0.500003, 2.73187, -0.499997, 2.73187, -0.499997, 3.23187
        IPOLY=-4.8, 2.73187, -1.3, 2.73187, -1.3, -2.92809, -1.33562, -2.92809, -4.8, 2.2922
        IPOLY=1.3, 2.73187, 4.8, 2.73187, 4.8, 2.2922, 1.33563, -2.92809, 1.3, -2.92809
SECT=   23, VALUE       , 지지보-100            , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        26.3903, 8.05972, 17.9594, 89.9144, 184.73, 83.0694
        5, 5, 3.57393, 6.42607, 9.54612, 1.70438, 35.9019, 31.801, 5, 6.42607
        -5, 5, 0.500002, -0.499998, 3.57393, 3.57393, -6.42607, -6.42607
        OPOLY=-5, 3.57393, -5, 2.57393, -1.35, -2.92607, -0.499998, -2.92607
                -0.499998, -6.42607, 0.500002, -6.42607, 0.500002, -2.92607
                1.35, -2.92607, 5, 2.57393, 5, 3.57393, 0.500002, 3.57393
                0.500002, 3.07393, -0.499998, 3.07393, -0.499998, 3.57393
        IPOLY=-4.8, 3.07393, -1.3, 3.07393, -1.3, -2.58603, -1.33562, -2.58603, -4.8, 2.63426
        IPOLY=1.3, 3.07393, 4.8, 3.07393, 4.8, 2.63426, 1.33563, -2.58603, 1.3, -2.58603
SECT=   24, VALUE       , 지지보(100-80단면), CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        25.004, 6.33759, 17.0465, 104.832, 203.096, 84.9338
        5, 5, 3.93408, 6.06592, 12.6284, 1.64169, 35.4889, 38.5579, 5, 6.06592
        -5, 5, 0.500003, -0.499997, 3.93408, 3.93408, -6.06592, -6.06592
        OPOLY=-5, 3.93408, -5, 2.93408, -1.35, -4.06592, -0.499997, -4.06592
                -0.499997, -6.06592, 0.500003, -6.06592, 0.500003, -4.06592
                1.35, -4.06592, 5, 2.93408, 5, 3.93408, 0.500003, 3.93408
                0.500003, 3.43408, -0.499997, 3.43408, -0.499997, 3.93408
        IPOLY=-4.8, 3.43408, -0.999997, 3.43408, -0.999997, -3.72588, -1.30174, -3.72588
                -4.8, 2.98309
        IPOLY=1, 3.43408, 4.8, 3.43408, 4.8, 2.98309, 1.30175, -3.72588, 1, -3.72588
SECT=   25, VALUE       , 단면                  , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        18.9411, 8.86947, 5.43042, 148.005, 333.176, 206.038
        5.99897, 6.00103, 5.00426, 4.99692, 62.8494, 28.2995, 61.9801, 28.9279, 6.00103, 4.99692
        -6.00103, 5.99897, 5.99897, -6.00098, 5.00426, 5.00426, -4.99574, -4.99692
        OPOLY=-6.00103, 5.00426, -6.00103, 4.50426, -3.66101, 4.50426, -3.76656, 4.33142
                -3.83098, 4.09818, -3.6793, 3.9465, -3.03651, 4.51148
                -2.60729, 4.26072, -2.53651, 4.00426, -3.03651, 3.50426
                -3.18651, 3.52729, -3.18651, -3.51877, -3.00494, -3.49673
                -2.53651, -3.99574, -2.61895, -4.27077, -3.03651, -4.49574
                -3.6793, -3.93797, -3.83098, -4.08965, -3.66101, -4.49574
                -6.00103, -4.49574, -6.00098, -4.99692, 5.99897, -4.99574
                5.99897, -4.49574, 3.659, -4.49574, 3.77247, -4.30462
                3.82897, -4.08965, 3.69921, -3.93956, 3.0345, -4.49574
                2.61694, -4.27077, 2.5345, -3.99574, 3.0345, -3.49574
                3.1845, -3.51877, 3.1845, 3.52729, 3.0345, 3.50426
                2.5345, 4.00426, 2.61694, 4.2793, 3.0345, 4.50426
                3.69921, 3.94809, 3.82897, 4.09818, 3.659, 4.50426
                5.99897, 4.50426, 5.99897, 5.00426
        IPOLY=-2.88651, 3.21845, -2.28599, 3.7273, -2.23651, 4.0771, -2.41201, 4.50426
                2.41, 4.50426, 2.2345, 4.00426, 2.28397, 3.7273, 2.8845, 3.21845
                2.8845, -3.20992, 2.24659, -3.71877, 2.24659, -4.1343
                2.41, -4.49574, -2.41201, -4.49574, -2.23651, -3.99574
                -2.28599, -3.71877, -2.88651, -3.20992
SECT=   26, VALUE       , 165-100-70            , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        31.3414, 8.7587, 18.6162, 125.466, 667.38, 103.231
        5, 5, 5.79349, 10.7065, 24.3268, 1.13936, 51.4018, 34.8253, 5, 10.7065
        -5, 5, 0.5, -0.5, 5.79349, 5.79349, -10.7065, -10.7065
        OPOLY=-5, 5.79349, -5, 4.79349, -3.5, -0.706507, -0.5, -0.706507, -0.5, -10.7065
                0.5, -10.7065, 0.5, -0.706507, 3.5, -0.706507, 5, 4.79349
                5, 5.79349, 0.5, 5.79349, 0.5, 5.29349, -0.5, 5.29349
                -0.5, 5.79349
        IPOLY=-4.8, 5.29349, -1, 5.29349, -1, -0.206507, -3.42906, -0.206507, -4.8, 4.82027
        IPOLY=1, 5.29349, 4.8, 5.29349, 4.8, 4.82027, 3.42906, -0.206507, 1, -0.206507
SECT=   27, VALUE       , 65-100-70             , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        15.8415, 4.11057, 7.84181, 66.9139, 89.0081, 101.94
        4.99999, 5.00001, 2.90071, 3.59929, 12.0631, 32.5848, 42.4018, 34.8253, 5.00001, 3.59929
        -5.00001, 4.99999, 3.49999, -3.50001, 2.90071, 2.90071, -3.59929, -3.59929
        OPOLY=-5.00001, 2.90071, -5.00001, 1.90071, -3.50001, -3.59929, -0.500006, -3.59929
                -0.500006, 1.90071, 0.499994, 1.90071, 0.499994, -3.59929
                3.49999, -3.59929, 4.99999, 1.90071, 4.99999, 2.90071
                0.499994, 2.90071, 0.499994, 2.40071, -0.500006, 2.40071
                -0.500006, 2.90071
        IPOLY=-4.80001, 2.40071, -1.00001, 2.40071, -1.00001, -3.09929, -3.42907, -3.09929
                -4.80001, 1.9275
        IPOLY=0.999994, 2.40071, 4.79999, 2.40071, 4.79999, 1.9275, 3.42904, -3.09929
                0.999994, -3.09929
SECT=   28, VALUE       , 165-100-80            , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        31.7783, 9.23388, 18.6277, 135.893, 667.189, 113.29
        5, 5, 5.80333, 10.6967, 24.44, 1.20537, 52.1803, 35.5398, 5, 10.6967
        -5, 5, 0.5, -0.5, 5.80333, 5.80333, -10.6967, -10.6967
        OPOLY=-5, 5.80333, -5, 4.80333, -4, -0.696665, -0.5, -0.696665, -0.5, -10.6967
                0.5, -10.6967, 0.5, -0.696665, 4, -0.696665, 5, 4.80333
                5, 5.80333, 0.5, 5.80333, 0.5, 5.30333, -0.5, 5.30333
                -0.5, 5.80333
        IPOLY=-4.8, 5.30333, -1, 5.30333, -1, -0.196665, -3.88763, -0.196665, -4.8, 4.82136
        IPOLY=1, 5.30333, 4.8, 5.30333, 4.8, 4.82136, 3.88763, -0.196665, 1, -0.196665
SECT=   29, VALUE       , 65-100-80             , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        16.2783, 4.21616, 7.86475, 74.5526, 94.1331, 111.998
        5, 5, 2.99756, 3.50244, 12.703, 34.6968, 43.1803, 35.5398, 5, 3.50244
        -5, 5, 4, -4, 2.99756, 2.99756, -3.50244, -3.50244
        OPOLY=-5, 2.99756, -5, 1.99756, -4, -3.50244, -0.5, -3.50244, -0.5, 1.99756
                0.5, 1.99756, 0.5, -3.50244, 4, -3.50244, 5, 1.99756, 5, 2.99756
                0.5, 2.99756, 0.5, 2.49756, -0.5, 2.49756, -0.5, 2.99756
        IPOLY=-4.8, 2.49756, -1, 2.49756, -1, -3.00244, -3.88763, -3.00244, -4.8, 2.01559
        IPOLY=1, 2.49756, 4.8, 2.49756, 4.8, 2.01559, 3.88763, -3.00244, 1, -3.00244
SECT=   30, VALUE       , 80-100-60             , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        16.864, 3.68614, 9.75404, 74.6845, 130.178, 101.003
        5, 5, 3.3461, 4.6539, 14.7918, 32.8555, 47.5602, 40.5534, 5, 4.6539
        -5, 5, 3, -3, 3.3461, 3.3461, -4.6539, -4.6539
        OPOLY=-5, 3.3461, -5, 2.3461, -3, -4.6539, -0.5, -4.6539, -0.5, 2.3461, 0.5, 2.3461
                0.5, -4.6539, 3, -4.6539, 5, 2.3461, 5, 3.3461, 0.5, 3.3461
                0.5, 2.8461, -0.5, 2.8461, -0.5, 3.3461
        IPOLY=-4.8, 2.8461, -1, 2.8461, -1, -4.31386, -2.88915, -4.31386, -4.8, 2.37412
        IPOLY=1, 2.8461, 4.8, 2.8461, 4.8, 2.37412, 2.88915, -4.31386, 1, -4.31386
SECT=   31, VALUE       , 165-100-60            , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        32.364, 7.1901, 21.4356, 148.203, 676.356, 102.295
        5, 5, 5.93417, 10.5658, 25.3356, 1.14783, 50.5602, 40.5534, 5, 10.5658
        -5, 5, 0.5, -0.5, 5.93417, 5.93417, -10.5658, -10.5658
        OPOLY=-5, 5.93417, -5, 4.93417, -3, -2.06583, -0.5, -2.06583, -0.5, -10.5658
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0.5, -10.5658, 0.5, -2.06583, 3, -2.06583, 5, 4.93417, 5, 5.93417
0.5, 5.93417, 0.5, 5.43417, -0.5, 5.43417, -0.5, 5.93417
IPOLY=-4.8, 5.43417, -1, 5.43417, -1, -1.72579, -2.88915, -1.72579, -4.8, 4.96219
IPOLY=1, 5.43417, 4.8, 5.43417, 4.8, 4.96219, 2.88915, -1.72579, 1, -1.72579
SECT= 32, VALUE , 80-100-60-폐합 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
17.2041, 5.94595, 9.86182, 135.79, 136.882, 101.031
5, 5, 3.43472, 4.56528, 15.3603, 19.6065, 33.5602, 55.8733, 5, 4.56528
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OPOLY=-5, 3.43472, -5, 2.43472, -3, -4.56528, 3, -4.56528, 5, 2.43472, 5, 3.43472
0.5, 3.43472, 0.5, 2.93472, -0.5, 2.93472, -0.5, 3.43472
IPOLY=-4.8, 2.93472, -1, 2.93472, -1, -4.22524, -2.88915, -4.22524, -4.8, 2.46274
IPOLY=-0.5, 2.43472, 0.5, 2.43472, 0.5, -4.22524, -0.5, -4.22524
IPOLY=1, 2.93472, 4.8, 2.93472, 4.8, 2.46274, 2.88915, -4.22524, 1, -4.22524
SECT= 33, VALUE , 165-100-60-폐합 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
32.364, 7.19004, 21.4404, 148.204, 676.355, 102.294
5, 5, 5.93417, 10.5658, 25.3356, 1.14783, 50.5602, 40.5534, 5, 10.5658
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OPOLY=-5, 5.93417, -5, 4.93417, -3, -2.06583, -0.5, -2.06583, -0.5, -10.5658
0.5, -10.5658, 0.5, -2.06583, 3, -2.06583, 5, 4.93417, 5, 5.93417
0.5, 5.93417, 0.5, 5.43417, -0.5, 5.43417, -0.5, 5.93417
IPOLY=-4.8, 5.43417, -1, 5.43417, -1, -1.72579, -2.88915, -1.72579, -4.8, 4.96218
IPOLY=1, 5.43417, 4.8, 5.43417, 4.8, 4.96218, 2.88915, -1.72579, 1, -1.72579
SECT= 34, VALUE , 165(90)-100-80 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
33.4229, 8.03416, 22.3045, 171.691, 683.761, 129.255
5, 5, 6.3544, 10.1456, 30.1195, 1.35372, 55.5908, 44.3041, 5, 10.1456
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OPOLY=-5, 6.3544, -5, 5.3544, -3.14323, -1.83307, -3.13529, -1.8956
-3.18764, -2.04868, -3.38529, -2.1456, -4.3, -2.1456
-4.44142, -2.20418, -4.5, -2.3456, -4.5, -2.4456
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0.5, -10.1456, 0.5, -2.6456, 4.3, -2.6456, 4.44142, -2.58702
4.5, -2.4456, 4.5, -2.3456, 4.44142, -2.20418, 4.3, -2.1456
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3.14324, -1.83307, 5, 5.3544, 5, 6.3544, 0.5, 6.3544, 0.5, 5.8544
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IPOLY=-4.8, 5.8544, -0.85, 5.8544, -0.85, -2.1456, -2.70103, -2.1456
-2.8235, -2.10372, -2.89467, -1.99562, -4.8, 5.37982
IPOLY=0.85, 5.8544, 4.8, 5.8544, 4.8, 5.37982, 2.89468, -1.99562, 2.8235, -2.10372
2.70104, -2.1456, 0.85, -2.1456
SECT= 35, VALUE , 90-100-80 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
17.9229, 2.98895, 8.95072, 83.0517, 207.557, 127.963
5, 5, 4.28264, 4.71736, 25.0232, 39.4441, 56.5908, 44.3041, 5, 4.71736
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OPOLY=-5, 4.28264, -5, 3.28264, -3.14323, -3.90482, -3.13529, -3.96736
-3.18764, -4.12044, -3.38529, -4.21736, -4.3, -4.21736
-4.44142, -4.27593, -4.5, -4.41736, -4.5, -4.51736
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4.5, -4.51736, 4.5, -4.41736, 4.44142, -4.27593, 4.3, -4.21736
3.38529, -4.21736, 3.18764, -4.12044, 3.13529, -3.96736
3.14324, -3.90482, 5, 3.28264, 5, 4.28264, 0.5, 4.28264
0.5, 3.78264, -0.5, 3.78264, -0.5, 4.28264
IPOLY=-4.8, 3.78264, -0.85, 3.78264, -0.85, -4.21736, -2.70103, -4.21736
-2.8235, -4.17548, -2.89467, -4.06738, -4.8, 3.30806
IPOLY=0.85, 3.78264, 4.8, 3.78264, 4.8, 3.30806, 2.89468, -4.06738, 2.8235, -4.17548
2.70104, -4.21736, 0.85, -4.21736
SECT= 36, VALUE , 165-110-100 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
34.787, 9.11153, 22.3405, 171.794, 707.064, 159.579
5.50006, 5.49994, 6.3082, 10.1918, 31.0475, 1.54523, 59.6745, 44.8819, 5.49994, 10.1918
-5.49994, 5.50006, 0.500062, -0.499938, 6.3082, 6.3082, -10.1918, -10.1918
OPOLY=-5.49994, 6.3082, -5.49994, 5.3082, -2.79109, -1.50713, -2.75573, -1.6918
-2.84201, -1.97257, -3.25573, -2.1918, -4.79994, -2.1918
-4.94136, -2.25038, -4.99994, -2.3918, -4.99994, -2.4918
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5.00006, -2.3918, 4.94149, -2.26034, 4.80006, -2.1918
3.25586, -2.1918, 2.84213, -1.97257, 2.75586, -1.6918
2.79122, -1.50713, 5.50006, 5.3082, 5.50006, 6.3082
0.500062, 6.3082, 0.500062, 5.8082, -0.499938, 5.8082
-0.499938, 6.3082
IPOLY=-5.29994, 5.8082, -0.849938, 5.8082, -0.849938, -2.1918, -2.16801, -2.1918
-2.28032, -2.1573, -2.35387, -2.06568, -5.29994, 5.34649
IPOLY=0.850062, 5.8082, 5.30006, 5.8082, 5.30006, 5.34649, 2.35399, -2.06568
2.28044, -2.1573, 2.16814, -2.1918, 0.850062, -2.1918
SECT= 37, VALUE , 90-110-100 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
19.287, 3.30007, 8.74536, 83.4332, 230.053, 158.287
5.50011, 5.49989, 4.34585, 4.65415, 27.0552, 45.5723, 60.6745, 44.8819, 5.49989, 4.65415
-5.49989, 5.50011, 4.94154, -4.94131, 4.34585, 4.34585, -4.59558, -4.59558
OPOLY=-5.49989, 4.34585, -5.49989, 3.34585, -2.79104, -3.46948, -2.75568, -3.65415
-2.84196, -3.93492, -3.25568, -4.15415, -4.79989, -4.15415
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4.80011, -4.65415, 4.94154, -4.59558, 5.00011, -4.45415
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-0.499888, 4.34585
IPOLY=-5.29989, 3.84585, -0.849888, 3.84585, -0.849888, -4.15415, -2.16796, -4.15415
-2.28027, -4.11965, -2.35382, -4.02803, -5.29989, 3.38414
IPOLY=0.850112, 3.84585, 5.30011, 3.84585, 5.30011, 3.38414, 2.35404, -4.02803
2.28049, -4.11965, 2.16819, -4.15415, 0.850112, -4.15415
SECT= 38, VALUE , 165-100-90 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
34.0472, 8.1499, 22.6948, 166.327, 686.289, 130.052
5.00006, 4.99994, 6.35818, 10.1418, 29.3292, 1.38956, 56.3353, 43.5402, 4.99994, 10.1418
-4.99994, 5.00006, 0.500057, -0.499943, 6.35818, 6.35818, -10.1418, -10.1418
OPOLY=-4.99994, 6.35818, -4.99994, 5.35818, -2.79109, -1.45715, -2.75573, -1.64182
-2.84201, -1.92259, -3.25573, -2.14182, -4.29994, -2.14182
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-0.499943, -10.1418, 0.500057, -10.1418, 0.500057, -2.64182
4.30006, -2.64182, 4.44149, -2.58325, 4.50006, -2.44182
4.50006, -2.34182, 4.44149, -2.21036, 4.30006, -2.14182
3.25586, -2.14182, 2.84213, -1.92259, 2.75586, -1.64182
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IPOLY=-4.79994, 5.85818, -0.849943, 5.85818, -0.849943, -2.14182, -2.16801, -2.14182
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IPOLY=0.850057, 5.85818, 4.80006, 5.85818, 4.80006, 5.39647, 2.35399, -2.0157
2.28044, -2.10732, 2.16814, -2.14182, 0.850057, -2.14182
SECT= 39, VALUE , 90-100-90 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
18.5472, 2.83015, 9.18536, 76.5093, 213.189, 128.761
5.0001, 4.9999, 4.35931, 4.64069, 24.6422, 40.591, 57.3353, 43.5402, 4.9999, 4.64069

```
        -4.9999, 5.0001, 4.44153, -4.44132, 4.35931, 4.35931, -4.58212, -4.58212
        OPOLY=-4.9999, 4.35931, -4.9999, 3.35931, -2.79105, -3.45602, -2.75569, -3.64069
                -2.84197, -3.92146, -3.25569, -4.14069, -4.2999, -4.14069
                -4.44132, -4.19927, -4.4999, -4.34069, -4.4999, -4.44069
                -4.44132, -4.58212, -4.28172, -4.64069, -0.499895, -4.64069
                -0.499895, 3.35931, 0.500105, 3.35931, 0.500105, -4.64069
                4.3001, -4.64069, 4.44153, -4.58212, 4.5001, -4.44069
                4.5001, -4.34069, 4.44153, -4.20923, 4.3001, -4.14069
                3.2559, -4.14069, 2.84217, -3.92146, 2.7559, -3.64069
                2.79126, -3.45602, 5.0001, 3.35931, 5.0001, 4.35931
                0.500105, 4.35931, 0.500105, 3.85931, -0.499895, 3.85931
                -0.499895, 4.35931
        IPOLY=-4.7999, 3.85931, -0.849895, 3.85931, -0.849895, -4.14069, -2.16797, -4.14069
                -2.28028, -4.10619, -2.35383, -4.01457, -4.7999, 3.3976
        IPOLY=0.850105, 3.85931, 4.8001, 3.85931, 4.8001, 3.3976, 2.35403, -4.01457
                2.28048, -4.10619, 2.16818, -4.14069, 0.850105, -4.14069
SECT=  40, VALUE      , p-150-80-60         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        26.561, 14.1198, 6.35226, 9.35612, 238.265, 281.677
        7.49997, 7.50003, 5.0699, 2.9301, 36.4873, 3.96512, 55.2298, 0, 7.50003, 2.9301
        -2.94145, 2.94139, 7.44139, -7.44145, 5.01132, 5.01132, -2.87152, -2.87152
        OPOLY=-7.50003, -2.1301, -7.50003, -2.7301, -7.44145, -2.87152, -7.30003, -2.9301
                -6.00003, -2.9301, -6.00003, -2.7801, -4.00003, -2.7801
                -4.00003, -2.9301, 3.99997, -2.9301, 3.99997, -2.7801
                5.99997, -2.7801, 5.99997, -2.9301, 7.29997, -2.9301
                7.44139, -2.87152, 7.49997, -2.7301, 7.49997, -2.1301
                7.44139, -1.98868, 7.29997, -1.9301, 0.499966, -1.9301
                0.499966, 3.5699, 0.806106, 3.93551, 1.26364, 4.0699
                2.79997, 4.0699, 2.94139, 4.12848, 2.99997, 4.2699
                2.99997, 4.8699, 2.94139, 5.01132, 2.79997, 5.0699
                -2.80003, 5.0699, -2.94145, 5.01132, -3.00003, 4.8699
                -3.00003, 4.2699, -2.94145, 4.12848, -2.80003, 4.0699
                -1.25003, 4.0699, -0.800474, 3.93174, -0.500034, 3.5699
                -0.500034, -1.9301, -7.30003, -1.9301, -7.44145, -1.98868
SECT=  41, VALUE      , p-150-80-70         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        27.561, 15.04, 6.34678, 9.73037, 258.475, 292.11
        7.49997, 7.50003, 4.90409, 3.09591, 39.201, 4.16678, 57.2298, 0, 7.50003, 3.09591
        -3.44145, 3.44139, 7.44139, -7.44145, 4.84551, 4.84551, -3.03733, -3.03733
        OPOLY=-7.50003, -2.29591, -7.50003, -2.89591, -7.44145, -3.03733, -7.30003, -3.09591
                -6.00003, -3.09591, -6.00003, -2.94591, -4.00003, -2.94591
                -4.00003, -3.09591, 3.99997, -3.09591, 3.99997, -2.94591
                5.99997, -2.94591, 5.99997, -3.09591, 7.29997, -3.09591
                7.44139, -3.03733, 7.49997, -2.89591, 7.49997, -2.29591
                7.44139, -2.15449, 7.29997, -2.09591, 0.499967, -2.09591
                0.499967, 3.40409, 0.806107, 3.7697, 1.26364, 3.90409
                3.29997, 3.90409, 3.44139, 3.96267, 3.49997, 4.10409
                3.49997, 4.70409, 3.44139, 4.84551, 3.29997, 4.90409
                -3.30003, 4.90409, -3.44145, 4.84551, -3.50003, 4.70409
                -3.50003, 4.10409, -3.44145, 3.96267, -3.30003, 3.90409
                -1.25003, 3.90409, -0.800473, 3.76593, -0.500033, 3.40409
                -0.500033, -2.09591, -7.30003, -2.09591, -7.44145, -2.15449
SECT=  42, VALUE      , p-150-81-70         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        28.261, 15.3165, 6.45765, 10.5756, 275.208, 294.969
        7.49997, 7.50003, 4.88146, 3.21854, 41.2255, 4.19096, 57.4298, 0, 7.50003, 3.21854
        -3.44145, 3.44139, 7.44139, -7.44145, 4.82288, 4.82288, -3.15996, -3.15996
        OPOLY=-7.50003, -2.41854, -7.50003, -3.01854, -7.44145, -3.15996, -7.30003, -3.21854
                -6.00003, -3.21854, -6.00003, -3.06854, -4.00003, -3.06854
                -4.00003, -3.21854, 3.99997, -3.21854, 3.99997, -3.06854
                5.99997, -3.06854, 5.99997, -3.21854, 7.29997, -3.21854
                7.44139, -3.15996, 7.49997, -3.01854, 7.49997, -2.41854
                7.44139, -2.27712, 7.29997, -2.21854, 0.499968, -2.21854
                0.499968, 3.28146, 0.806108, 3.64707, 1.26364, 3.78146
                3.29997, 3.78146, 3.44139, 3.84004, 3.49997, 3.98146
                3.49997, 4.68146, 3.44139, 4.82288, 3.29997, 4.88146
                -3.30003, 4.88146, -3.44145, 4.82288, -3.50003, 4.68146
                -3.50003, 3.98146, -3.44145, 3.84004, -3.30003, 3.78146
                -1.25003, 3.78146, -0.800472, 3.6433, -0.500032, 3.28146
                -0.500032, -2.21854, -7.30003, -2.21854, -7.44145, -2.27712
SECT=  43, VALUE      , p-150-80-80         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        28.461, 16.1918, 6.30323, 9.89464, 275.058, 306.012
        7.49997, 7.50003, 4.7664, 3.2336, 41.4752, 4.45381, 59.4298, 0, 7.50003, 3.2336
        -3.94145, 3.94139, 7.44139, -7.44145, 4.70782, 4.70782, -3.17502, -3.17502
        OPOLY=-7.50003, -2.4336, -7.50003, -3.0336, -7.44145, -3.17502, -7.30003, -3.2336
                -6.00003, -3.2336, -6.00003, -3.0836, -4.00003, -3.0836
                -4.00003, -3.2336, 3.99997, -3.2336, 3.99997, -3.0836
                5.99997, -3.0836, 5.99997, -3.2336, 7.29997, -3.2336
                7.44139, -3.17502, 7.49997, -3.0336, 7.49997, -2.4336
                7.44139, -2.29218, 7.29997, -2.2336, 0.499968, -2.2336
                0.499968, 3.2664, 0.806108, 3.63201, 1.26364, 3.7664
                3.79997, 3.7664, 3.94139, 3.82498, 3.99997, 3.9664
                3.99997, 4.5664, 3.94139, 4.70782, 3.79997, 4.7664
                0.499968, 4.7664, 0.499968, 4.6664, -0.500032, 4.6664
                -0.500032, 4.7664, -3.80003, 4.7664, -3.94145, 4.70782
                -4.00003, 4.5664, -4.00003, 3.9664, -3.94145, 3.82498
                -3.80003, 3.7664, -1.25003, 3.7664, -0.800472, 3.62824
                -0.500032, 3.2664, -0.500032, -2.2336, -7.30003, -2.2336
                -7.44145, -2.29218
*SECTION     ; Section
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, [DATA1], [DATA2]                    ; 1st line - DB/USER
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, BLT, D1, ..., D8, iCEL              ; 1st line - VALUE
;       AREA, ASy, ASz, Ixx, Iyy, Izz                                         ; 2nd line
;       CyP, CyM, CzP, CzM, QyB, QzB, PERI_OUT, PERI_IN, Cy, Cz               ; 3rd line
;       Y1, Y2, Y3, Y4, Z1, Z2, Z3, Z4, Zyy, Zzz                              ; 4th line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, ELAST, DEN, POIS, POIC, SF         ; 1st line - SRC
;       D1, D2, [SRC]                                                         ; 2nd line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, 1, DB, NAME1, NAME2, D1, D2        ; 1st line - COMBINED
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, 2, D11, D12, D13, D14, D15, D21, D22, D23, D24
; iSEC, TYPE, SNAME, [OFFSET2], bSD, SHAPE, iyVAR, izVAR, STYPE               ; 1st line - TAPERED
;       DB, NAME1, NAME2                                                      ; 2nd line(STYPE=DB)
;       [DIM1], [DIM2]                                                        ; 2nd line(STYPE=USER)
;       D11, D12, D13, D14, D15, D16, D17, D18                                ; 2nd line(STYPE=VALUE)
;       AREA1, ASy1, ASz1, Ixx1, Iyy1, Izz1                                   ; 3rd line(STYPE=VALUE)
;       CyP1, CyM1, CzP1, CzM1, QyB1, QzB1, PERI_OUT1, PERI_IN1, Cy1, Cz1     ; 4th line(STYPE=VALUE)
;       Y11, Y12, Y13, Y14, Z11, Z12, Z13, Z14, Zyy1, Zyy2                    ; 5th line(STYPE=VALUE)
;       D21, D22, D23, D24, D25, D26, D27, D28                                ; 6th line(STYPE=VALUE)
;       AREA2, ASy2, ASz2, Ixx2, Iyy2, Izz2                                   ; 7th line(STYPE=VALUE)
;       CyP2, CyM2, CzP2, CzM2, QyB2, QzB2, PERI_OUT2, PERI_IN2, Cy2, Cz2     ; 8th line(STYPE=VALUE)
;       Y21, Y22, Y23, Y24, Z21, Z22, Z23, Z24, Zyy2, Zzz2                    ; 9th line(STYPE=VALUE)
;       OPT1, OPT2, [JOINT]                                                   ; 2nd line(STYPE=PSC)
;       ELAST, DEN, POIS, POIC                                                ; 2nd line(STYPE=PSC-CMPW)
;       bSHEARCHK, [SCHK-I], [SCHK-J], [WT-I], [WT-J], WI, WJ, bSYM, bSIDEHOLE ; 3rd line(STYPE=PSC)
;       bSHEARCHK, bSYM, bHUNCH, [CMPWEB-I], [CMPWEB-J]                       ; 3rd line(STYPE=PSC-CMPW)
;       bUSERDEFMESHSIZE, MESHSIZE, bUSERINPSTIFF, [STIFF-I], [STIFF-J]       ; 4th line(STYPE=PSC)
;       [SIZE-A]-i                                                            ; 5th line(STYPE=PSC)
;       [SIZE-B]-i                                                            ; 6th line(STYPE=PSC)
;       [SIZE-C]-i                                                            ; 7th line(STYPE=PSC)
;       [SIZE-D]-i                                                            ; 8th line(STYPE=PSC)
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;         [SIZE-A]-j                                                                    ; 9th  line(STYPE=PSC)
;         [SIZE-B]-j                                                                    ; 10th line(STYPE=PSC)
;         [SIZE-C]-j                                                                    ; 11th line(STYPE=PSC)
;         [SIZE-D]-j                                                                    ; 12th line(STYPE=PSC)
;         GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc, bMULTI, EsEc-L, EsEc-S               ; 2nd line(STYPE=CMP-B/I)
;         SW_i, Hw_i, tw_i, B_i, Bf1_i, tf1_i, B2_i, Bf2_i, tf2_i                       ; 3rd line(STYPE=CMP-B/I)
;         SW_j, Hw_j, tw_j, B_j, Bf1_j, tf1_j, B2_j, Bf2_j, tf2_j                       ; 4th line(STYPE=CMP-B/I)
;         N1, N2, Hr, Hr2, tr1, tr2                                                     ; 5th line(STYPE=CMP-B)
;         GN, CTC, Bc, Tc, Hh, EgdEsb, DgdDsb, Pgd, Psb, bSYM, SW_i, SW_j               ; 2nd line(STYPE=CMP-CI/CT)
;         OPT1, OPT2, [JOINT]                                                           ; 3rd line(STYPE=CMP-CI/CT)
;         [SIZE-A]-i                                                                    ; 4th line(STYPE=CMP-CI/CT)
;         [SIZE-B]-i                                                                    ; 5th line(STYPE=CMP-CI/CT)
;         [SIZE-C]-i                                                                    ; 6th line(STYPE=CMP-CI/CT)
;         [SIZE-D]-i                                                                    ; 7th line(STYPE=CMP-CI/CT)
;         [SIZE-A]-j                                                                    ; 8th line(STYPE=CMP-CI/CT)
;         [SIZE-B]-j                                                                    ; 9th line(STYPE=CMP-CI/CT)
;         [SIZE-C]-j                                                                    ; 10th line(STYPE=CMP-CI/CT)
;         [SIZE-D]-j                                                                    ; 11th line(STYPE=CMP-CI/CT)
; iSEC, TYPE, SNAME, [OFFSET], bSD, STYPE1, STYPE2                                          ; 1st line - CONSTRUCT
;         SHAPE, ...(same with other type data from shape)                              ; Before (STYPE1)
;         SHAPE, ...(same with other type data from shape)                              ; After  (STYPE2)
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - COMPOSITE-SB
;         Hw, tw, B, Bf1, tf1, B2, Bf2, tf2                                             ; 2nd line
;         N1, N2, Hr, Hr2, tr1, tr2                                                     ; 3rd line
;         SW, GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc, bMulti, Elong, Esh               ; 4th line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - COMPOSITE-SI
;         Hw, tw, B, tf1, B2, tf2                                                       ; 2nd line
;         SW, GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc, bMulti, Elong, Esh               ; 3rd line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - COMPOSITE-CI/CT
;         OPT1, OPT2, [JOINT]                                                           ; 2nd line
;         [SIZE-A]                                                                      ; 3rd line
;         [SIZE-B]                                                                      ; 4th line
;         [SIZE-C]                                                                      ; 5th line
;         [SIZE-D]                                                                      ; 6th line
;         SW, GN, CTC, Bc, Tc, Hh, EgdEsb, DgdDsb, Pgd, Psb                             ; 7th line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - PSC
;         OPT1, OPT2, [JOINT]                                                           ; 2nd line
;         bSHEARCHK, [SCHK], [WT], WIDTH, bSYM, bSIDEHOLE                               ; 3rd line
;         bUSERDEFMESHSIZE, MESHSIZE, bUSERINPSTIFF, [STIFF]                            ; 4th line
;         [SIZE-A]                                                                      ; 5th line
;         [SIZE-B]                                                                      ; 6th line
;         [SIZE-C]                                                                      ; 7th line
;         [SIZE-D]                                                                      ; 8th line
; [DATA1] : 1, DB, NAME or 2, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10
; [DATA2] : CCSHAPE or iCEL or iN1, iN2
; [SRC]   : 1, DB, NAME1, NAME2 or 2, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, iN1, iN2
; [DIM1], [DIM2] : D1, D2, D3, D4, D5, D6, D7, D8
; [OFFSET] : OFFSET, iCENT, iREF, iHORZ, HUSER, iVERT, VUSER
; [OFFSET2]: OFFSET, iCENT, iREF, iHORZ, HUSERI, HUSERJ, iVERT, VUSERI, VUSERJ
; [JOINT]  :  8(1CELL, 2CELL), 13(3CELL),  9(PSCM),  8(PSCH), 9(PSCT),  2(PSCB), 0(nCELL),  2(nCEL2)
; [SIZE-A] :  6(1CELL, 2CELL), 10(3CELL), 10(PSCM),  6(PSCH), 8(PSCT), 10(PSCB), 5(nCELL), 11(nCEL2)
; [SIZE-B] :  6(1CELL, 2CELL), 12(3CELL),  6(PSCM),  6(PSCH), 8(PSCT),  6(PSCB), 8(nCELL), 18(nCEL2)
; [SIZE-C] : 10(1CELL, 2CELL), 13(3CELL),  9(PSCM), 10(PSCH), 7(PSCT),  8(PSCB), 0(nCELL), 11(nCEL2)
; [SIZE-D] :  8(1CELL, 2CELL), 13(3CELL),  6(PSCM),  7(PSCH), 8(PSCT),  5(PSCB), 0(nCELL), 18(nCEL2)
; [STIFF]  : AREA, ASy, ASz, Ixx, Iyy, Izz
; [SCHK]   : bAUTO_Z1, Z1, bAUTO_Z3, Z3
; [WT]     : bAUTO_TOR, TOR, bAUTO_SHR1, SHR1, bAUTO_SHR2, SHR2, bAUTO_SHR3, SHR3
; [CMPWEB] : EFD, LRF, A, B, H, T
    4, DBUSER     , 난간pipe(43x2.5)  , CC, 0, 0, 0, 0, 0, 0, YES, P   , 2, 4.3, 0.25, 0, 0, 0, 0, 0, 0, 0, 0
    5, DBUSER     , 난간pipe(31.8x2.5), CC, 0, 0, 0, 0, 0, 0, YES, P   , 2, 3.18, 0.25, 0, 0, 0, 0, 0, 0, 0, 0
*SECT-COLOR
; iSEC, W_R, W_G, W_B, HF_R, HF_G, HF_B, HE_R, HE_G, HE_B, bBLEND, FACT
    1, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    2, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    3, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    4, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    5, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    6, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    7, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    8, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
    9, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   10, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   11, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   12, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   13, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   14, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   15, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   16, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   17, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   18, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   19, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   20, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   21, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   22, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   23, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   24, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   25, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   26, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   27, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   28, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   29, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   30, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   31, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   32, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   33, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   34, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   35, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   36, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   37, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   38, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   39, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   40, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   41, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   42, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
   43, 255,   0,   0,   0, 255,   0,   0,   0, 255,  NO, 0.5
*DGN-SECT
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, [DATA1], [DATA2]                                 ; 1st line - DB/USER
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, BLT, D1, ..., D8, iCEL                           ; 1st line - VALUE
;         AREA, ASy, ASz, Ixx, Iyy, Izz                                                 ; 2nd line
;         CyP, CyM, CzP, CzM, QyB, QzB, PERI_OUT, PERI_IN, Cy, Cz                       ; 3rd line
;         Y1, Y2, Y3, Y4, Z1, Z2, Z3, Z4, Zyy, Zzz                                      ; 4th line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, ELAST, DEN, POIS, POIC, SF                       ; 1st line - SRC
;         D1, D2, [SRC]                                                                 ; 2nd line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, 1, DB, NAME1, NAME2, D1, D2                      ; 1st line - COMBINED
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, 2, D11, D12, D13, D14, D15, D21, D22, D23, D24
; iSEC, TYPE, SNAME, [OFFSET2], bSD, SHAPE, iyVAR, izVAR, STYPE                             ; 1st line - TAPERED
```

```
;         DB, NAME1, NAME2                                                                  ; 2nd line(STYPE=DB)
;         [DIM1], [DIM2]                                                                    ; 2nd line(STYPE=USER)
;         D11, D12, D13, D14, D15, D16, D17, D18                                            ; 2nd line(STYPE=VALUE)
;         AREA1, ASy1, ASz1, Ixx1, Iyy1, Izz1                                               ; 3rd line(STYPE=VALUE)
;         CyP1, CyM1, CzP1, CzM1, QyB1, QzB1, PERI_OUT1, PERI_IN1, Cy1, Cz1                 ; 4th line(STYPE=VALUE)
;         Y11, Y12, Y13, Y14, Z11, Z12, Z13, Z14, Zyy1, Zyy2                                ; 5th line(STYPE=VALUE)
;         D21, D22, D23, D24, D25, D26, D27, D28                                            ; 6th line(STYPE=VALUE)
;         AREA2, ASy2, ASz2, Ixx2, Iyy2, Izz2                                               ; 7th line(STYPE=VALUE)
;         CyP2, CyM2, CzP2, CzM2, QyB2, QzB2, PERI_OUT2, PERI_IN2, Cy2, Cz2                 ; 8th line(STYPE=VALUE)
;         Y21, Y22, Y23, Y24, Z21, Z22, Z23, Z24, Zyy2, Zzz2                                ; 9th line(STYPE=VALUE)
;         OPT1, OPT2, [JOINT]                                                               ; 2nd line(STYPE=PSC)
;         ELAST, DEN, POIS, POIC                                                            ; 2nd line(STYPE=PSC-CMPW)
;         bSHEARCHK, [SCHK-I], [SCHK-J], [WT-I], [WT-J], WI, WJ, bSYM, bSIDEHOLE            ; 3rd line(STYPE=PSC)
;         bSHEARCHK, bSYM, bHUNCH, [CMPWEB-I], [CMPWEB-J]                                   ; 3rd line(STYPE=PSC-CMPW)
;         bUSERDEFMESHSIZE, MESHSIZE, bUSERINPSTIFF, [STIFF-I], [STIFF-J]                   ; 4th line(STYPE=PSC)
;         [SIZE-A]-i                                                                        ; 5th line(STYPE=PSC)
;         [SIZE-B]-i                                                                        ; 6th line(STYPE=PSC)
;         [SIZE-C]-i                                                                        ; 7th line(STYPE=PSC)
;         [SIZE-D]-i                                                                        ; 8th line(STYPE=PSC)
;         [SIZE-A]-j                                                                        ; 9th line(STYPE=PSC)
;         [SIZE-B]-j                                                                        ; 10th line(STYPE=PSC)
;         [SIZE-C]-j                                                                        ; 11th line(STYPE=PSC)
;         [SIZE-D]-j                                                                        ; 12th line(STYPE=PSC)
;         GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc, bMULTI, EsEc-L, EsEc-S                   ; 2nd line(STYPE=CMP-B/I)
;         SW_i, Hw_i, tw_i, B_i, Bf1_i, tf1_i, B2_i, Bf2_i, tf2_i                           ; 3rd line(STYPE=CMP-B/I)
;         SW_j, Hw_j, tw_j, B_j, Bf1_j, tf1_j, B2_j, Bf2_j, tf2_j                           ; 4th line(STYPE=CMP-B/I)
;         N1, N2, Hr, Hr2, tr1, tr2                                                         ; 5th line(STYPE=CMP-B)
;         GN, CTC, Bc, Tc, Hh, EgdEsb, DgdDsb, Pgd, Psb, bSYM, SW_i, SW_j                   ; 2nd line(STYPE=CMP-CI/CT)
;         OPT1, OPT2, [JOINT]                                                               ; 3rd line(STYPE=CMP-CI/CT)
;         [SIZE-A]-i                                                                        ; 4th line(STYPE=CMP-CI/CT)
;         [SIZE-B]-i                                                                        ; 5th line(STYPE=CMP-CI/CT)
;         [SIZE-C]-i                                                                        ; 6th line(STYPE=CMP-CI/CT)
;         [SIZE-D]-i                                                                        ; 7th line(STYPE=CMP-CI/CT)
;         [SIZE-A]-j                                                                        ; 8th line(STYPE=CMP-CI/CT)
;         [SIZE-B]-j                                                                        ; 9th line(STYPE=CMP-CI/CT)
;         [SIZE-C]-j                                                                        ; 10th line(STYPE=CMP-CI/CT)
;         [SIZE-D]-j                                                                        ; 11th line(STYPE=CMP-CI/CT)
; iSEC, TYPE, SNAME, [OFFSET], bSD, STYPE1, STYPE2                                          ; 1st line - CONSTRUCT
;         SHAPE, ...(same with other type data from shape)                                  ; Before (STYPE1)
;         SHAPE, ...(same with other type data from shape)                                  ; After  (STYPE2)
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - COMPOSITE-SB
;         Hw, tw, B, Bf1, tf1, B2, Bf2, tf2                                                 ; 2nd line
;         N1, N2, Hr, Hr2, tr1, tr2                                                         ; 3rd line
;         SW, GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc, bMulti, Elong, Esh                   ; 4th line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - COMPOSITE-SI
;         Hw, tw, B, tf1, B2, tf2                                                           ; 2nd line
;         SW, GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc, bMulti, Elong, Esh                   ; 3rd line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - COMPOSITE-CI/CT
;         OPT1, OPT2, [JOINT]                                                               ; 2nd line
;         [SIZE-A]                                                                          ; 3rd line
;         [SIZE-B]                                                                          ; 4th line
;         [SIZE-C]                                                                          ; 5th line
;         [SIZE-D]                                                                          ; 6th line
;         SW, GN, CTC, Bc, Tc, Hh, EgdEsb, DgdDsb, Pgd, Psb                                 ; 7th line
; iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE                                                   ; 1st line - PSC
;         OPT1, OPT2, [JOINT]                                                               ; 2nd line
;         bSHEARCHK, [SCHK], [WT], WIDTH, bSYM, bSIDEHOLE                                   ; 3rd line
;         bUSERDEFMESHSIZE, MESHSIZE, bUSERINPSTIFF, [STIFF]                                ; 4th line
;         [SIZE-A]                                                                          ; 5th line
;         [SIZE-B]                                                                          ; 6th line
;         [SIZE-C]                                                                          ; 7th line
;         [SIZE-D]                                                                          ; 8th line
; [DATA1] : 1, DB, NAME or 2, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10
; [DATA2] : CCSHAPE or iCEL or iN1, iN2
; [SRC]   : 1, DB, NAME1, NAME2 or 2, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, iN1, iN2
; [DIM1], [DIM2] : D1, D2, D3, D4, D5, D6, D7, D8
; [OFFSET] : OFFSET, iCENT, iREF, iHORZ, HUSER, iVERT, VUSER
; [OFFSET2]: OFFSET, iCENT, iREF, iHORZ, HUSERI, HUSERJ, iVERT, VUSERI, VUSERJ
; [JOINT]  :  8(1CELL, 2CELL), 13(3CELL),  9(PSCM),  8(PSCH), 9(PSCT),  2(PSCB), 0(nCELL),  2(nCEL2)
; [SIZE-A] :  6(1CELL, 2CELL), 10(3CELL), 10(PSCM),  6(PSCH), 8(PSCT), 10(PSCB), 5(nCELL), 11(nCEL2)
; [SIZE-B] :  6(1CELL, 2CELL), 12(3CELL),  6(PSCM),  6(PSCH), 8(PSCT),  6(PSCB), 8(nCELL), 18(nCEL2)
; [SIZE-C] : 10(1CELL, 2CELL), 13(3CELL),  9(PSCM), 10(PSCH), 7(PSCT),  8(PSCB), 0(nCELL), 11(nCEL2)
; [SIZE-D] :  8(1CELL, 2CELL), 13(3CELL),  6(PSCM),  7(PSCH), 8(PSCT),  5(PSCB), 0(nCELL), 18(nCEL2)
; [STIFF]  : AREA, ASy, ASz, Ixx, Iyy, Izz
; [SCHK]   : bAUTO_Z1, Z1, bAUTO_Z3, Z3
; [WT]     : bAUTO_TOR, TOR, bAUTO_SHR1, SHR1, bAUTO_SHR2, SHR2, bAUTO_SHR3, SHR3
; [CMPWEB] : EFD, LRF, A, B, H, T
    4, DBUSER     , 난간pipe(43x2.5)  , CC, 0, 0, 0, 0, 0, 0, YES, P   , 2, 4.3, 0.25, 0, 0, 0, 0, 0, 0, 0, 0
    5, DBUSER     , 난간pipe(31.8x2.5), CC, 0, 0, 0, 0, 0, 0, YES, P   , 2, 3.18, 0.25, 0, 0, 0, 0, 0, 0, 0, 0
*DGN-SECT-PSCVALUE     ; Design Section of PSC Value
; SECT=iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, bBU, bEQ          ; 1st line
;         [STIFF1]                                                ; 2nd line
;         [STIFF2]                                                ; 3rd line
;         [STIFF3]                                                ; 4th line
;         T1, T2, BT, HT                                          ; 5th line(PSC)
;         bSHEARCHK, [SCHK], [WT]                                 ; 6th line(PSC)
;         SW, GN, CTC, Bc, Tc, Hh, EsEc, DsDc, Ps, Pc             ; 7th line(COMPOSITE-PC)
;         OPOLY=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Outer Polygon(PLANE)
;         IPOLY=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Inner Polygon(PLANE)
;         ...
;         IPOLY=X1, Y1, X2, Y2, ..., Xn, Yn                       ; Inner Polygon(PLANE)
;         VERTEX=X1, Y1, X2, Y2, ..., Xn, Yn                      ; Vertex(General-LINE)
;         LINE=VI1, VJ1, dTHIK1, iALIGN1                          ; Line(General-LINE)
;         ...
;         LINE=VIn, VJn, dTHIKn, iALIGNn                          ; Line(General-LINE)
;         LOOP=COUNT1, LIX11, LIX12, ..., LIXn                    ; Line(General-LINE)
;         ...
;         LOOP=COUNTn, LIXn1, LIXn2, ..., LIXnn                   ; Line(General-LINE)
; SECT=iSEC, TYPE, SNAME, [OFFSET2], bSD, SHAPE, iyVAR, izVAR, bEQ ; 1st line - TAPERED
;         [STIFF1-I]                                              ; 2nd line
;         [STIFF2-I]                                              ; 3rd line
;         [STIFF3-I]                                              ; 4th line
;         [STIFF1-J]                                              ; 5th line
;         [STIFF2-J]                                              ; 6th line
;         [STIFF3-J]                                              ; 7th line
;         T1-I, T2-I, BT-I, HT-I, T1-J, T2-J, BT-J, HT-J          ; 8th line(PSC)
;         bSHEARCHK, [SCHK-I], [WT-I], [SCHK-J], [WT-J]           ; 9rd line(PSC)
;         OPOLY=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Outer Polygon(PLANE)
;         IPOLY=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Inner Polygon(PLANE)
;         ...
;         IPOLY=bI, X1, Y1, X2, Y2, ..., Xn, Yn                   ; Inner Polygon(PLANE)
;         VERTEX=bI, X1, Y1, X2, Y2, ..., Xn, Yn                  ; Vertex(General-LINE)
;         LINE=bI, VI1, VJ1, dTHIK1, iALIGN1                      ; Line(General-LINE)
;         ...
;         LINE=bI, VIn, VJn, dTHIKn, iALIGNn                      ; Line(General-LINE)
;         LOOP=bI, COUNT1, LIX11, LIX12, ..., LIXn                ; Line(General-LINE)
```

```
;
;       ...
;       LOOP=bl, COUNTn, LIXn1, LIXn2, ..., LIXnn                   ; Line(General-LINE)
; SECT=iSEC, TYPE, SNAME, [OFFSET], bSD, SHAPE, bBU, bEQ, BPRT ; 1st line - COMPOSITE-GEN
;       [PART1]                                                     ; 2nd line
;       [PART2]                                                     ; 3rd line
;       ...
; SECT=iSEC, TYPE, SNAME, [OFFSET2], bSD, SHAPE, iyVAR, izVAR, bEQ, PARTNUM ; 1st line - COMPOSITE-GEN(TAPERED)
;       [PART1]-I                                                   ; 2nd line
;       [PART2]-I                                                   ; next lines
;       ...
;       [PART1]-J                                                   ; next lines
;       [PART2]-J                                                   ; next lines
;       ...
; [OFFSET] : OFFSET, iCENT, iREF, iHORZ, HUSER, iVERT, VUSER
; [OFFSET2]: OFFSET, iCENT, iREF, iHORZ, HUSERI, HUSERJ, iVERT, VUSERI, VUSERJ
; [STIFF1] : AREA, ASy, ASz, Ixx, Iyy, Izz
; [STIFF2] ; Cyp, Cym, Czp, Czm, Qyb, Qzb, PERI_OUT, PERI_IN, Cy, Cz
; [STIFF3] ; Y1, Y2, Y3, Y4, Z1, Z2, Z3, Z4
; [SCHK]   : Z1, Z3, bAUTO_QY1, QY1, bAUTO_QY2, QY2, bAUTO_QY3, QY3
; [WT]     : TOR, bAUTO_SHR1, SHR1, bAUTO_SHR2, SHR2, bAUTO_SHR3, SHR3
; [PART] : PART=part_num
;        : [STIFF1]
;        : [STIFF2]
;        : [STIFF3]
;        : [STIFF1]                                                 ; [STIFF1] of Part Sum.
;        : [STIFF2]                                                 ; [STIFF2] of Part Sum.
;        : [STIFF3]                                                 ; [STIFF3] of Part Sum.
;        : OPOLY=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                  ; Outer Polygon(PLANE)
;        : IPOLY=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                  ; Inner Polygon(PLANE)
;        : ...
;        : IPOLY=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                  ; Inner Polygon(PLANE)
;        : VERTEX=(bl-Tapered), X1, Y1, X2, Y2, ..., Xn, Yn                 ; Vertex(General-LINE)
;        : LINE=(bl-Tapered), VI1, VJ1, dTHIK1, iALIGN1                     ; Line(General-LINE)
;        : ...
;        : LINE=(bl-Tapered), VIn, VJn, dTHIKn, iALIGNn                     ; Line(General-LINE)
;        : LOOP=(bl-Tapered), COUNT1, LIX11, LIX12, ..., LIXn               ; Line(General-LINE)
;        : ...
;        : LOOP=(bl-Tapered), COUNTn, LIXn1, LIXn2, ..., LIXnn              ; Line(General-LINE)
 SECT=    1, VALUE       , 난간post          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        7.56, 3.42662, 2.5699, 45.4869, 27.8972, 36.8154
        3, 3, 2.43519, 2.56481, 9.62217, 10.7425, 23, 20.2, 3, 2.56481
        -3, 3, 3, -3, 2.43519, 2.43519, -2.56481, -2.56481
        OPOLY=-3, 2.43519, -3, -2.56481, 3, -2.56481, 3, 2.43519, 0.5, 2.43519, 0.5, 1.93519
                -0.5, 1.93519, -0.5, 2.43519
        IPOLY=-2.65, 2.08519, -0.85, 2.08519, -0.85, 1.58519, 0.85, 1.58519, 0.85, 2.08519
                2.65, 2.08519, 2.65, -2.21481, -2.65, -2.21481
 SECT=    2, VALUE       , main post         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        23.4, 12.7565, 6.12917, 7.14343, 169.578, 265.75
        7.5, 7.5, 5.62479, 2.37521, 27.2537, 3.65064, 53.2, 0, 7.5, 2.37521
        -2, 2, 7.5, -7.5, 5.62479, 5.62479, -2.37521, -2.37521
        OPOLY=-7.5, -1.37521, -7.5, -2.37521, -6, -2.37521, -6, -2.17521, -4, -2.17521
                -4, -2.37521, 4, -2.37521, 4, -2.17521, 6, -2.17521, 6, -2.37521
                7.5, -2.37521, 7.5, -1.37521, 0.5, -1.37521, 0.5, 4.82479
                2, 4.82479, 2, 5.62479, 0.5, 5.62479, 0.5, 5.42479, -0.5, 5.42479
                -0.5, 5.62479, -2, 5.62479, -2, 4.82479, -0.5, 4.82479
                -0.5, -1.37521
 SECT=    3, VALUE       , 발판지지          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        13.9943, 4.0037, 7.1979, 36.4584, 61.8553, 77.8026
        5, 5, 2.39444, 4.10556, 8.82775, 26.2277, 39.9019, 33.001, 5, 4.10556
        -5, 5, 1.35, -1.35, 2.39444, 2.39444, -4.10556, -4.10556
        OPOLY=-5, 2.39444, -5, 1.39444, -1.35, -4.10556, -0.5, -4.10556, -0.5, 1.39444
                0.5, 1.39444, 0.5, -4.10556, 1.35, -4.10556, 5, 1.39444
                5, 2.39444, 0.5, 2.39444, 0.5, 1.89444, -0.5, 1.89444
                -0.5, 2.39444
        IPOLY=-4.8, 1.89444, -1, 1.89444, -1, -3.76552, -1.33563, -3.76552, -4.8, 1.45477
        IPOLY=1, 1.89444, 4.8, 1.89444, 4.8, 1.45477, 1.33563, -3.76552, 1, -3.76552
 SECT=    6, VALUE       , 발판              , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        29.4943, 6.85781, 18.5621, 81.7551, 669.244, 79.0943
        5, 5, 5.73445, 10.7656, 23.5753, 0.940709, 48.9019, 33.001, 5, 10.7656
        -5, 5, 0.5, -0.5, 5.73445, 5.73445, -10.7656, -10.7656
        OPOLY=-5, 5.73445, -5, 4.73445, -1.35, -0.765555, -0.5, -0.765555, -0.5, -10.7656
                0.5, -10.7656, 0.5, -0.765555, 1.35, -0.765555, 5, 4.73445
                5, 5.73445, 0.5, 5.73445, 0.5, 5.23445, -0.5, 5.23445
                -0.5, 5.73445
        IPOLY=-4.8, 5.23445, -1, 5.23445, -1, -0.425515, -1.33563, -0.425515, -4.8, 4.79478
        IPOLY=1, 5.23445, 4.8, 5.23445, 4.8, 4.79478, 1.33563, -0.425515, 1, -0.425515
 SECT=    7, TAPERED     , 변단면            , CT, 1, 0, 0, 0, 0, 1, 3.34, 0, YES, GEN, 1, 1, YES
        29.4943, 6.85781, 18.5621, 81.7551, 669.244, 79.0943
        5, 5, 5.73445, 10.7656, 23.5753, 0.940709, 48.9019, 33.001, 5, 10.7656
        -5, 5, 0.5, -0.5, 5.73445, 5.73445, -10.7656, -10.7656
        13.9943, 4.0037, 7.1979, 36.4584, 61.8553, 77.8026
        5, 5, 2.39444, 4.10556, 8.82775, 26.2277, 39.9019, 33.001, 5, 4.10556
        -5, 5, 1.35, -1.35, 2.39444, 2.39444, -4.10556, -4.10556
        OPOLY=YES, -5, 5.73445, -5, 4.73445, -1.35, -0.765555, -0.5, -0.765555, -0.5, -10.7656
                0.5, -10.7656, 0.5, -0.765555, 1.35, -0.765555, 5, 4.73445
                5, 5.73445, 0.5, 5.73445, 0.5, 5.23445, -0.5, 5.23445
                -0.5, 5.73445
        IPOLY=YES, -4.8, 5.23445, -1, 5.23445, -1, -0.425515, -1.33563, -0.425515, -4.8, 4.79478
        IPOLY=YES, 1, 5.23445, 4.8, 5.23445, 4.8, 4.79478, 1.33563, -0.425515, 1, -0.425515
        OPOLY=NO, -5, 2.39444, -5, 1.39444, -1.35, -4.10556, -0.5, -4.10556, -0.5, 1.39444
                0.5, 1.39444, 0.5, -4.10556, 1.35, -4.10556, 5, 1.39444
                5, 2.39444, 0.5, 2.39444, 0.5, 1.89444, -0.5, 1.89444
                -0.5, 2.39444
        IPOLY=NO, -4.8, 1.89444, -1, 1.89444, -1, -3.76552, -1.33563, -3.76552, -4.8, 1.45477
        IPOLY=NO, 1, 1.89444, 4.8, 1.89444, 4.8, 1.45477, 1.33563, -3.76552, 1, -3.76552
 SECT=    8, VALUE       , 바닥판            , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        19.4943, 6.5884, 11.1524, 76.4183, 82.975, 78.261
        5, 5, 2.77689, 3.72311, 7.1461, 2.30023, 28.9019, 33.001, 5, 3.72311
        -5, 5, 1.35, -1.35, 2.77689, 2.77689, -3.72311, -3.72311
        OPOLY=-5, 2.77689, -5, 1.77689, -1.35, -3.72311, 1.35, -3.72311, 5, 1.77689
                5, 2.77689, 0.5, 2.77689, 0.5, 2.27689, -0.5, 2.27689
                -0.5, 2.77689
        IPOLY=-4.8, 2.27689, -1, 2.27689, -1, -3.38307, -1.33563, -3.38307, -4.8, 1.83722
        IPOLY=1, 2.27689, 4.8, 2.27689, 4.8, 1.83722, 1.33563, -3.38307, 1, -3.38307
 SECT=    9, VALUE       , 난간 post-1       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        16.05, 7.52645, 7.53538, 79.652, 47.5571, 64.042
        3, 3, 2.46963, 2.53037, 6.82768, 3.11437, 23, 22.3, 3, 2.53037
        -3, 3, 3, -3, 2.46963, 2.46963, -2.53037, -2.53037
        OPOLY=-3, 2.46963, -3, -2.53037, 3, -2.53037, 3, 2.46963, 0.5, 2.46963, 0.5, 1.96963
                -0.5, 1.96963, -0.5, 2.46963
        IPOLY=-2.25, 1.71963, -1.25, 1.71963, -1.25, 1.21963, -0.175, 1.21963
                -0.175, -1.78037, -2.25, -1.78037
        IPOLY=0.175, 1.21963, 1.25, 1.21963, 1.25, 1.71963, 2.25, 1.71963, 2.25, -1.78037
                0.175, -1.78037
 SECT=   10, VALUE       , main post-1       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        26.74, 13.5539, 6.53663, 10.5674, 249.617, 277.898
```

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        7.5, 7.5, 5.3193, 2.9807, 37.4287, 3.74283, 54.4, 0, 7.5, 2.9807
        -2.3, 2.3, 7.5, -7.5, 5.3193, 5.3193, -2.9807, -2.9807
        OPOLY=-7.5, -1.9807, -7.5, -2.9807, -6, -2.9807, -6, -2.8307, -4, -2.8307
                -4, -2.9807, 4, -2.9807, 4, -2.8307, 6, -2.8307, 6, -2.9807
                7.5, -2.9807, 7.5, -1.9807, 0.5, -1.9807, 0.5, 3.9193, 2.3, 3.9193
                2.3, 5.3193, -2.3, 5.3193, -2.3, 3.9193, -0.5, 3.9193
                -0.5, -1.9807
SECT=   11, VALUE       , 지지보(165)          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        32.8903, 8.16941, 19.5136, 92.1479, 695.916, 83.6111
        5, 5, 5.48618, 11.0138, 20.023, 1.06276, 48.9019, 31.801, 5, 11.0138
        -5, 5, 0.500002, -0.499998, 5.48618, 5.48618, -11.0138, -11.0138
        OPOLY=-5, 5.48618, -5, 4.48618, -1.35, -1.01382, -0.499998, -1.01382
                -0.499998, -11.0138, 0.500002, -11.0138, 0.500002, -1.01382
                1.35, -1.01382, 5, 4.48618, 5, 5.48618, 0.500002, 5.48618
                0.500002, 4.98618, -0.499998, 4.98618, -0.499998, 5.48618
        IPOLY=-4.8, 4.98618, -1.3, 4.98618, -1.3, -0.673781, -1.33562, -0.673781
                -4.8, 4.54651
        IPOLY=1.3, 4.98618, 4.8, 4.98618, 4.8, 4.54651, 1.33563, -0.673781, 1.3, -0.673781
SECT=   12, VALUE       , 지지보(65)           , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        17.3903, 4.12695, 9.97328, 36.994, 73.3131, 82.3194
        5, 5, 2.57713, 3.92287, 7.59759, 30.1333, 39.9019, 31.801, 5, 3.92287
        -5, 5, 1.35, -1.35, 2.57713, 2.57713, -3.92287, -3.92287
        OPOLY=-5, 2.57713, -5, 1.57713, -1.35, -3.92287, -0.499996, -3.92287
                -0.499996, 1.57713, 0.500004, 1.57713, 0.500004, -3.92287
                1.35, -3.92287, 5, 1.57713, 5, 2.57713, 0.500004, 2.57713
                0.500004, 2.07713, -0.499996, 2.07713, -0.499996, 2.57713
        IPOLY=-4.8, 2.07713, -1.3, 2.07713, -1.3, -3.58283, -1.33562, -3.58283, -4.8, 1.63746
        IPOLY=1.3, 2.07713, 4.8, 2.07713, 4.8, 1.63746, 1.33563, -3.58283, 1.3, -3.58283
SECT=   13, VALUE       , 메인 post-2          , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        29.1, 14.24, 6.78224, 14.9387, 298.498, 285.275
        7.5, 7.5, 5.13918, 3.36082, 43.7277, 3.87794, 55.6, 0, 7.5, 3.36082
        -2.5, 2.5, 7.5, -7.5, 5.13918, 5.13918, -3.36082, -3.36082
        OPOLY=-7.5, -2.36082, -7.5, -3.36082, -6, -3.36082, -6, -3.21082, -4, -3.21082
                -4, -3.36082, 4, -3.36082, 4, -3.21082, 6, -3.21082, 6, -3.36082
                7.5, -3.36082, 7.5, -2.36082, 0.5, -2.36082, 0.5, 3.33918
                2.5, 3.33918, 2.5, 5.13918, -2.5, 5.13918, -2.5, 3.33918
                -0.5, 3.33918, -0.5, -2.36082
SECT=   14, VALUE       , 지지보(80)           , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        16.004, 3.55005, 9.13781, 46.4021, 107.867, 84.1838
        4.99999, 5.00001, 3.05347, 4.94653, 12.7087, 28.9423, 45.4889, 38.5579, 5.00001, 4.94653
        -5.00001, 4.99999, 1.34999, -1.35001, 3.05347, 3.05347, -4.94653, -4.94653
        OPOLY=-5.00001, 3.05347, -5.00001, 2.05347, -1.35001, -4.94653, -0.500005, -4.94653
                -0.500005, 2.05347, 0.499995, 2.05347, 0.499995, -4.94653
                1.34999, -4.94653, 4.99999, 2.05347, 4.99999, 3.05347
                0.499995, 3.05347, 0.499995, 2.55347, -0.500005, 2.55347
                -0.500005, 3.05347
        IPOLY=-4.80001, 2.55347, -1.00001, 2.55347, -1.00001, -4.60649, -1.30176, -4.60649
                -4.80001, 2.10248
        IPOLY=0.999995, 2.55347, 4.79999, 2.55347, 4.79999, 2.10248, 1.30173, -4.60649
                0.999995, -4.60649
SECT=   15, VALUE       , 지지보(165-80)       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        31.504, 6.4172, 21.255, 107.049, 673.703, 85.4755
        5, 5, 5.85617, 10.6438, 24.5858, 1.02554, 48.4889, 38.5579, 5, 10.6438
        -5, 5, 0.500003, -0.499997, 5.85617, 5.85617, -10.6438, -10.6438
        OPOLY=-5, 5.85617, -5, 4.85617, -1.35, -2.14383, -0.499997, -2.14383
                -0.499997, -10.6438, 0.500003, -10.6438, 0.500003, -2.14383
                1.35, -2.14383, 5, 4.85617, 5, 5.85617, 0.500003, 5.85617
                0.500003, 5.35617, -0.499997, 5.35617, -0.499997, 5.85617
        IPOLY=-4.8, 5.35617, -0.999997, 5.35617, -0.999997, -1.80379, -1.30174, -1.80379
                -4.8, 4.90518
        IPOLY=1, 5.35617, 4.8, 5.35617, 4.8, 4.90518, 1.30175, -1.80379, 1, -1.80379
SECT=   16, VALUE       , 지지보(80-5.5)       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        16.8614, 3.6841, 9.81713, 47.7426, 112.897, 87.4458
        5, 5, 3.09098, 4.90902, 12.4797, 30.2331, 45.4889, 37.9162, 5, 4.90902
        -5, 5, 1.35, -1.35, 3.09098, 3.09098, -4.90902, -4.90902
        OPOLY=-5, 3.09098, -5, 2.09098, -1.35, -4.90902, -0.5, -4.90902, -0.5, 2.09098
                0.5, 2.09098, 0.5, -4.90902, 1.35, -4.90902, 5, 2.09098
                5, 3.09098, 0.5, 3.09098, 0.5, 2.59098, -0.5, 2.59098
                -0.5, 3.09098
        IPOLY=-4.7, 2.59098, -1.05, 2.59098, -1.05, -4.50902, -1.33302, -4.50902
                -4.7, 1.94821
        IPOLY=1.05, 2.59098, 4.7, 2.59098, 4.7, 1.94821, 1.33302, -4.50902, 1.05, -4.50902
SECT=   17, VALUE       , 지지보(165-5.5)      , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        32.3614, 6.75074, 21.6514, 111.693, 681.85, 88.7376
        5, 5, 5.80146, 10.6985, 24.0124, 1.06588, 48.4889, 37.9162, 5, 10.6985
        -5, 5, 0.500002, -0.499998, 5.80146, 5.80146, -10.6985, -10.6985
        OPOLY=-5, 5.80146, -5, 4.80146, -1.35, -2.19854, -0.499998, -2.19854
                -0.499998, -10.6985, 0.500002, -10.6985, 0.500002, -2.19854
                1.35, -2.19854, 5, 4.80146, 5, 5.80146, 0.500002, 5.80146
                0.500002, 5.30146, -0.499998, 5.30146, -0.499998, 5.80146
        IPOLY=-4.7, 5.30146, -1.05, 5.30146, -1.05, -1.79854, -1.33301, -1.79854
                -4.7, 4.65869
        IPOLY=1.05, 5.30146, 4.7, 5.30146, 4.7, 4.65869, 1.33302, -1.79854, 1.05, -1.79854
SECT=   18, VALUE       , 지지보(80-8)         , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        20.4114, 3.79479, 12.8266, 48.4063, 130.507, 92.3655
        5, 5, 3.25778, 4.74222, 11.1153, 34.4043, 45.4889, 36.9162, 5, 4.74222
        -5, 5, 1.35, -1.35, 3.25778, 3.25778, -4.74222, -4.74222
        OPOLY=-5, 3.25778, -5, 2.25778, -1.35, -4.74222, -0.5, -4.74222, -0.5, 2.25778
                0.5, 2.25778, 0.5, -4.74222, 1.35, -4.74222, 5, 2.25778
                5, 3.25778, 0.5, 3.25778, 0.5, 2.75778, -0.5, 2.75778
                -0.5, 3.25778
        IPOLY=-4.7, 2.75778, -1.3, 2.75778, -1.3, -4.34222, -1.33302, -4.34222, -4.7, 2.11501
        IPOLY=1.3, 2.75778, 4.7, 2.75778, 4.7, 2.11501, 1.33302, -4.34222, 1.3, -4.34222
SECT=   19, VALUE       , 지지보(165-8)        , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        35.9114, 7.99727, 23.3563, 125.206, 706.577, 93.6574
        5, 5, 5.62832, 10.8717, 21.2171, 1.19623, 48.4889, 36.9162, 5, 10.8717
        -5, 5, 0.500002, -0.499998, 5.62832, 5.62832, -10.8717, -10.8717
        OPOLY=-5, 5.62832, -5, 4.62832, -1.35, -2.37168, -0.499998, -2.37168
                -0.499998, -10.8717, 0.500002, -10.8717, 0.500002, -2.37168
                1.35, -2.37168, 5, 4.62832, 5, 5.62832, 0.500002, 5.62832
                0.500002, 5.12832, -0.499998, 5.12832, -0.499998, 5.62832
        IPOLY=-4.7, 5.12832, -1.3, 5.12832, -1.3, -1.97168, -1.33301, -1.97168, -4.7, 4.48555
        IPOLY=1.3, 5.12832, 4.7, 5.12832, 4.7, 4.48555, 1.33302, -1.97168, 1.3, -1.97168
SECT=   20, VALUE       , 지지보(80-8-8)       , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        22.4514, 4.90768, 12.7697, 49.2353, 143.135, 112.691
        5, 5, 3.02083, 4.97917, 12.2605, 40.5243, 45.4889, 35.7162, 5, 4.97917
        -5, 5, 1.35, -1.35, 3.02083, 3.02083, -4.97917, -4.97917
        OPOLY=-5, 3.02083, -5, 2.02083, -1.35, -4.97917, -0.5, -4.97917, -0.5, 2.02083
                0.5, 2.02083, 0.5, -4.97917, 1.35, -4.97917, 5, 2.02083
                5, 3.02083, 0.5, 3.02083, 0.5, 2.52083, -0.5, 2.52083
                -0.5, 3.02083
        IPOLY=-4.7, 2.22083, -1.3, 2.22083, -1.3, -4.57917, -1.33302, -4.57917, -4.7, 1.87806
        IPOLY=1.3, 2.22083, 4.7, 2.22083, 4.7, 1.87806, 1.33302, -4.57917, 1.3, -4.57917
SECT=   21, VALUE       , 지지보(165-8-8)      , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        37.9514, 10.3387, 23.8271, 127.704, 754.433, 113.983
        5, 5, 5.36072, 11.1393, 22.6281, 1.38748, 48.4889, 35.7162, 5, 11.1393
```

-5, 5, 0.500002, -0.499998, 5.36072, 5.36072, -11.1393, -11.1393
OPOLY=-5, 5.36072, -5, 4.36072, -1.35, -2.63928, -0.499998, -2.63928
-0.499998, -11.1393, 0.500002, -11.1393, 0.500002, -2.63928
1.35, -2.63928, 5, 4.36072, 5, 5.36072, 0.500002, 5.36072
0.500002, 4.86072, -0.499998, 4.86072, -0.499998, 5.36072
IPOLY=-4.7, 4.56072, -1.3, 4.56072, -1.3, -2.23928, -1.33301, -2.23928, -4.7, 4.21795
IPOLY=1.3, 4.56072, 4.7, 4.56072, 4.7, 4.21795, 1.33302, -2.23928, 1.3, -2.23928
SECT= 22, VALUE , 지지보-85 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
24.8903, 8.03389, 16.5929, 89.4, 133.21, 82.9444
5, 5, 3.23187, 5.26813, 8.05758, 2.00052, 32.9019, 31.801, 5, 5.26813
-5, 5, 0.500003, -0.499997, 3.23187, 3.23187, -5.26813, -5.26813
OPOLY=-5, 3.23187, -5, 2.23187, -1.35, -3.26813, -0.499997, -3.26813
-0.499997, -5.26813, 0.500003, -5.26813, 0.500003, -3.26813
1.35, -3.26813, 5, 2.23187, 5, 3.23187, 0.500003, 3.23187
0.500003, 2.73187, -0.499997, 2.73187, -0.499997, 3.23187
IPOLY=-4.8, 2.73187, -1.3, 2.73187, -1.3, -2.92809, -1.33562, -2.92809, -4.8, 2.2922
IPOLY=1.3, 2.73187, 4.8, 2.73187, 4.8, 2.2922, 1.33563, -2.92809, 1.3, -2.92809
SECT= 23, VALUE , 지지보-100 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
26.3903, 8.05972, 17.9594, 89.9144, 184.73, 83.0694
5, 5, 3.57393, 6.42607, 9.54612, 1.70438, 35.9019, 31.801, 5, 6.42607
-5, 5, 0.500002, -0.499998, 3.57393, 3.57393, -6.42607, -6.42607
OPOLY=-5, 3.57393, -5, 2.57393, -1.35, -2.92607, -0.499998, -2.92607
-0.499998, -6.42607, 0.500002, -6.42607, 0.500002, -2.92607
1.35, -2.92607, 5, 2.57393, 5, 3.57393, 0.500002, 3.57393
0.500002, 3.07393, -0.499998, 3.07393, -0.499998, 3.57393
IPOLY=-4.8, 3.07393, -1.3, 3.07393, -1.3, -2.58603, -1.33562, -2.58603, -4.8, 2.63426
IPOLY=1.3, 3.07393, 4.8, 3.07393, 4.8, 2.63426, 1.33563, -2.58603, 1.3, -2.58603
SECT= 24, VALUE , 지지보(100-80단면), CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
25.004, 6.33759, 17.0465, 104.832, 203.096, 84.9338
5, 5, 3.93408, 6.06592, 12.6284, 1.64169, 35.4889, 38.5579, 5, 6.06592
-5, 5, 0.500003, -0.499997, 3.93408, 3.93408, -6.06592, -6.06592
OPOLY=-5, 3.93408, -5, 2.93408, -1.35, -4.06592, -0.499997, -4.06592
-0.499997, -6.06592, 0.500003, -6.06592, 0.500003, -4.06592
1.35, -4.06592, 5, 2.93408, 5, 3.93408, 0.500003, 3.93408
0.500003, 3.43408, -0.499997, 3.43408, -0.499997, 3.93408
IPOLY=-4.8, 3.43408, -0.999997, 3.43408, -0.999997, -3.72588, -1.30174, -3.72588
-4.8, 2.98309
IPOLY=1, 3.43408, 4.8, 3.43408, 4.8, 2.98309, 1.30175, -3.72588, 1, -3.72588
SECT= 25, VALUE , 단면 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
18.9411, 8.86947, 5.43042, 148.005, 333.176, 206.038
5.99897, 6.00103, 5.00426, 4.99692, 62.8494, 28.2995, 61.9801, 28.9279, 6.00103, 4.99692
-6.00103, 5.99897, 5.99897, -6.00098, 5.00426, 5.00426, -4.99574, -4.99692
OPOLY=-6.00103, 5.00426, -6.00103, 4.50426, -3.66101, 4.50426, -3.76656, 4.33142
-3.83098, 4.09818, -3.6793, 3.9465, -3.03651, 4.51148
-2.60729, 4.26072, -2.53651, 4.00426, -3.03651, 3.50426
-3.18651, 3.52729, -3.18651, -3.51877, -3.00494, -3.49673
-2.53651, -3.99574, -2.61895, -4.27077, -3.03651, -4.49574
-3.6793, -3.93797, -3.83098, -4.08965, -3.66101, -4.49574
-6.00103, -4.49574, -6.00098, -4.99692, 5.99897, -4.99574
5.99897, -4.49574, 3.659, -4.49574, 3.77247, -4.30462
3.82897, -4.08965, 3.69921, -3.93956, 3.0345, -4.49574
2.61694, -4.27077, 2.5345, -3.99574, 3.0345, -3.49574
3.1845, -3.51877, 3.1845, 3.52729, 3.0345, 3.50426
2.5345, 4.00426, 2.61694, 4.2793, 3.0345, 4.50426
3.69921, 3.94809, 3.82897, 4.09818, 3.659, 4.50426
5.99897, 4.50426, 5.99897, 5.00426
IPOLY=-2.88651, 3.21845, -2.28599, 3.7273, -2.23651, 4.0771, -2.41201, 4.50426
2.41, 4.50426, 2.2345, 4.00426, 2.28397, 3.7273, 2.8845, 3.21845
2.8845, -3.20992, 2.24659, -3.71877, 2.24659, -4.1343
2.41, -4.49574, -2.41201, -4.49574, -2.23651, -3.99574
-2.28599, -3.71877, -2.88651, -3.20992
SECT= 26, VALUE , 165-100-70 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
31.3414, 8.7587, 18.6162, 125.466, 667.38, 103.231
5, 5, 5.79349, 10.7065, 24.3268, 1.13936, 51.4018, 34.8253, 5, 10.7065
-5, 5, 0.5, -0.5, 5.79349, 5.79349, -10.7065, -10.7065
OPOLY=-5, 5.79349, -5, 4.79349, -3.5, -0.706507, -0.5, -0.706507, -0.5, -10.7065
0.5, -10.7065, 0.5, -0.706507, 3.5, -0.706507, 5, 4.79349
5, 5.79349, 0.5, 5.79349, 0.5, 5.29349, -0.5, 5.29349
-0.5, 5.79349
IPOLY=-4.8, 5.29349, -1, 5.29349, -1, -0.206507, -3.42906, -0.206507, -4.8, 4.82027
IPOLY=1, 5.29349, 4.8, 5.29349, 4.8, 4.82027, 3.42906, -0.206507, 1, -0.206507
SECT= 27, VALUE , 65-100-70 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
15.8415, 4.11057, 7.84181, 66.9139, 89.0081, 101.94
4.99999, 5.00001, 2.90071, 3.59929, 12.0631, 32.5848, 42.4018, 34.8253, 5.00001, 3.59929
-5.00001, 4.99999, 3.49999, -3.50001, 2.90071, 2.90071, -3.59929, -3.59929
OPOLY=-5.00001, 2.90071, -5.00001, 1.90071, -3.50001, -3.59929, -0.500006, -3.59929
-0.500006, 1.90071, 0.499994, 1.90071, 0.499994, -3.59929
3.49999, -3.59929, 4.99999, 1.90071, 4.99999, 2.90071
0.499994, 2.90071, 0.499994, 2.40071, -0.500006, 2.40071
-0.500006, 2.90071
IPOLY=-4.80001, 2.40071, -1.00001, 2.40071, -1.00001, -3.09929, -3.42907, -3.09929
-4.80001, 1.9275
IPOLY=0.999994, 2.40071, 4.79999, 2.40071, 4.79999, 1.9275, 3.42904, -3.09929
0.999994, -3.09929
SECT= 28, VALUE , 165-100-80 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
31.7783, 9.23388, 18.6277, 135.893, 667.189, 113.29
5, 5, 5.80333, 10.6967, 24.44, 1.20537, 52.1803, 35.5398, 5, 10.6967
-5, 5, 0.5, -0.5, 5.80333, 5.80333, -10.6967, -10.6967
OPOLY=-5, 5.80333, -5, 4.80333, -4, -0.696665, -0.5, -0.696665, -0.5, -10.6967
0.5, -10.6967, 0.5, -0.696665, 4, -0.696665, 5, 4.80333
5, 5.80333, 0.5, 5.80333, 0.5, 5.30333, -0.5, 5.30333
-0.5, 5.80333
IPOLY=-4.8, 5.30333, -1, 5.30333, -1, -0.196665, -3.88763, -0.196665, -4.8, 4.82136
IPOLY=1, 5.30333, 4.8, 5.30333, 4.8, 4.82136, 3.88763, -0.196665, 1, -0.196665
SECT= 29, VALUE , 65-100-80 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
16.2783, 4.21616, 7.86475, 74.5526, 94.1331, 111.998
5, 5, 2.99756, 3.50244, 12.703, 34.6968, 43.1803, 35.5398, 5, 3.50244
-5, 5, 4, -4, 2.99756, 2.99756, -3.50244, -3.50244
OPOLY=-5, 2.99756, -5, 1.99756, -4, -3.50244, -0.5, -3.50244, -0.5, 1.99756
0.5, 1.99756, 0.5, -3.50244, 4, -3.50244, 5, 1.99756, 5, 2.99756
0.5, 2.99756, 0.5, 2.49756, -0.5, 2.49756, -0.5, 2.99756
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IPOLY=1, 2.49756, 4.8, 2.49756, 4.8, 2.01559, 3.88763, -3.00244, 1, -3.00244
SECT= 30, VALUE , 80-100-60 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
16.864, 3.68614, 9.75404, 74.6845, 130.178, 101.003
5, 5, 3.3461, 4.6539, 14.7918, 32.8555, 47.5602, 40.5534, 5, 4.6539
-5, 5, 3, -3, 3.3461, 3.3461, -4.6539, -4.6539
OPOLY=-5, 3.3461, -5, 2.3461, -3, -4.6539, -0.5, -4.6539, -0.5, 2.3461, 0.5, 2.3461
0.5, -4.6539, 3, -4.6539, 5, 2.3461, 5, 3.3461, 0.5, 3.3461
0.5, 2.8461, -0.5, 2.8461, -0.5, 3.3461
IPOLY=-4.8, 2.8461, -1, 2.8461, -1, -4.31386, -2.88915, -4.31386, -4.8, 2.37412
IPOLY=1, 2.8461, 4.8, 2.8461, 4.8, 2.37412, 2.88915, -4.31386, 1, -4.31386
SECT= 31, VALUE , 165-100-60 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
32.364, 7.1901, 21.4356, 148.203, 676.356, 102.295
5, 5, 5.93417, 10.5658, 25.3356, 1.14783, 50.5602, 40.5534, 5, 10.5658
-5, 5, 0.5, -0.5, 5.93417, 5.93417, -10.5658, -10.5658

OPOLY=-5, 5.93417, -5, 4.93417, -3, -2.06583, -0.5, -2.06583, -0.5, -10.5658
0.5, -10.5658, 0.5, -2.06583, 3, -2.06583, 5, 4.93417, 5, 5.93417
0.5, 5.93417, 0.5, 5.43417, -0.5, 5.43417, -0.5, 5.93417
IPOLY=-4.8, 5.43417, -1, 5.43417, -1, -1.72579, -2.88915, -1.72579, -4.8, 4.96219
IPOLY=1, 5.43417, 4.8, 5.43417, 4.8, 4.96219, 2.88915, -1.72579, 1, -1.72579
SECT= 32, VALUE , 80-100-60-폐합 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
17.2041, 5.94595, 9.86182, 135.79, 136.882, 101.031
5, 5, 3.43472, 4.56528, 15.3603, 19.6065, 33.5602, 55.8733, 5, 4.56528
-5, 5, 3, -3, 3.43472, 3.43472, -4.56528, -4.56528
OPOLY=-5, 3.43472, -5, 2.43472, -3, -4.56528, 3, -4.56528, 5, 2.43472, 5, 3.43472
0.5, 3.43472, 0.5, 2.93472, -0.5, 2.93472, -0.5, 3.43472
IPOLY=-4.8, 2.93472, -1, 2.93472, -1, -4.22524, -2.88915, -4.22524, -4.8, 2.46274
IPOLY=-0.5, 2.43472, 0.5, 2.43472, 0.5, -4.22524, -0.5, -4.22524
IPOLY=1, 2.93472, 4.8, 2.93472, 4.8, 2.46274, 2.88915, -4.22524, 1, -4.22524
SECT= 33, VALUE , 165-100-60-폐합 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
32.364, 7.19004, 21.4404, 148.204, 676.355, 102.294
5, 5, 5.93417, 10.5658, 25.3356, 1.14783, 50.5602, 40.5534, 5, 10.5658
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0.5, -10.5658, 0.5, -2.06583, 3, -2.06583, 5, 4.93417, 5, 5.93417
0.5, 5.93417, 0.5, 5.43417, -0.5, 5.43417, -0.5, 5.93417
IPOLY=-4.8, 5.43417, -1, 5.43417, -1, -1.72579, -2.88915, -1.72579, -4.8, 4.96218
IPOLY=1, 5.43417, 4.8, 5.43417, 4.8, 4.96218, 2.88915, -1.72579, 1, -1.72579
SECT= 34, VALUE , 165(90)-100-80 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
33.4229, 8.03416, 22.3045, 171.691, 683.761, 129.255
5, 5, 6.3544, 10.1456, 30.1195, 1.35372, 55.5908, 44.3041, 5, 10.1456
-5, 5, 0.5, -0.5, 6.3544, 6.3544, -10.1456, -10.1456
OPOLY=-5, 6.3544, -5, 5.3544, -3.14323, -1.83307, -3.13529, -1.8956
-3.18764, -2.04868, -3.38529, -2.1456, -4.3, -2.1456
-4.44142, -2.20418, -4.5, -2.3456, -4.5, -2.4456
-4.44142, -2.58702, -4.3, -2.6456, -0.5, -2.6456, -0.5, -10.1456
0.5, -10.1456, 0.5, -2.6456, 4.3, -2.6456, 4.44142, -2.58702
4.5, -2.4456, 4.5, -2.3456, 4.44142, -2.20418, 4.3, -2.1456
3.38529, -2.1456, 3.18764, -2.04868, 3.13529, -1.8956
3.14324, -1.83307, 5, 5.3544, 5, 6.3544, 0.5, 6.3544, 0.5, 5.8544
-0.5, 5.8544, -0.5, 6.3544
IPOLY=-4.8, 5.8544, -0.85, 5.8544, -0.85, -2.1456, -2.70103, -2.1456
-2.8235, -2.10372, -2.89467, -1.99562, -4.8, 5.37982
IPOLY=0.85, 5.8544, 4.8, 5.8544, 4.8, 5.37982, 2.89468, -1.99562, 2.8235, -2.10372
2.70104, -2.1456, 0.85, -2.1456
SECT= 35, VALUE , 90-100-80 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
17.9229, 2.98895, 8.95072, 83.0517, 207.557, 127.963
5, 5, 4.28264, 4.71736, 25.0232, 39.4441, 56.5908, 44.3041, 5, 4.71736
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OPOLY=-5, 4.28264, -5, 3.28264, -3.14323, -3.90482, -3.13529, -3.96736
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4.5, -4.51736, 4.5, -4.41736, 4.44142, -4.27593, 4.3, -4.21736
3.38529, -4.21736, 3.18764, -4.12044, 3.13529, -3.96736
3.14324, -3.90482, 5, 3.28264, 5, 4.28264, 0.5, 4.28264
0.5, 3.78264, -0.5, 3.78264, -0.5, 4.28264
IPOLY=-4.8, 3.78264, -0.85, 3.78264, -0.85, -4.21736, -2.70103, -4.21736
-2.8235, -4.17548, -2.89467, -4.06738, -4.8, 3.30806
IPOLY=0.85, 3.78264, 4.8, 3.78264, 4.8, 3.30806, 2.89468, -4.06738, 2.8235, -4.17548
2.70104, -4.21736, 0.85, -4.21736
SECT= 36, VALUE , 165-110-100 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
34.787, 9.11153, 22.3405, 171.794, 707.064, 159.579
5.50006, 5.49994, 6.3082, 10.1918, 31.0475, 1.54523, 59.6745, 44.8819, 5.49994, 10.1918
-5.49994, 5.50006, 0.500062, -0.499938, 6.3082, 6.3082, -10.1918, -10.1918
OPOLY=-5.49994, 6.3082, -5.49994, 5.3082, -2.79109, -1.50713, -2.75573, -1.6918
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3.25586, -2.1918, 2.84213, -1.97257, 2.75586, -1.6918
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-0.499938, 6.3082
IPOLY=-5.29994, 5.8082, -0.849938, 5.8082, -0.849938, -2.1918, -2.16801, -2.1918
-2.28032, -2.1573, -2.35387, -2.06568, -5.29994, 5.34649
IPOLY=0.850062, 5.8082, 5.30006, 5.8082, 5.30006, 5.34649, 2.35399, -2.06568
2.28044, -2.1573, 2.16814, -2.1918, 0.850062, -2.1918
SECT= 37, VALUE , 90-110-100 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
19.287, 3.30007, 8.74536, 83.4332, 230.053, 158.287
5.50011, 5.49989, 4.34585, 4.65415, 27.0552, 45.5723, 60.6745, 44.8819, 5.49989, 4.65415
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OPOLY=-5.49989, 4.34585, -5.49989, 3.34585, -2.79104, -3.46948, -2.75568, -3.65415
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-0.499888, 4.34585
IPOLY=-5.29989, 3.84585, -0.849888, 3.84585, -0.849888, -4.15415, -2.16796, -4.15415
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IPOLY=0.850112, 3.84585, 5.30011, 3.84585, 5.30011, 3.38414, 2.35404, -4.02803
2.28049, -4.11965, 2.16819, -4.15415, 0.850112, -4.15415
SECT= 38, VALUE , 165-100-90 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
34.0472, 8.1499, 22.6948, 166.327, 686.289, 130.052
5.00006, 4.99994, 6.35818, 10.1418, 29.3292, 1.38956, 56.3353, 43.5402, 4.99994, 10.1418
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OPOLY=-4.99994, 6.35818, -4.99994, 5.35818, -2.79109, -1.45715, -2.75573, -1.64182
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0.500057, 6.35818, 0.500057, 5.85818, -0.499943, 5.85818
-0.499943, 6.35818
IPOLY=-4.79994, 5.85818, -0.849943, 5.85818, -0.849943, -2.14182, -2.16801, -2.14182
-2.28032, -2.10732, -2.35387, -2.0157, -4.79994, 5.39647
IPOLY=0.850057, 5.85818, 4.80006, 5.85818, 4.80006, 5.39647, 2.35399, -2.0157
2.28044, -2.10732, 2.16814, -2.14182, 0.850057, -2.14182
SECT= 39, VALUE , 90-100-90 , CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
18.5472, 2.83015, 9.18536, 76.5093, 213.189, 128.761

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        5.0001, 4.9999, 4.35931, 4.64069, 24.6422, 40.591, 57.3353, 43.5402, 4.9999, 4.64069
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                -2.28028, -4.10619, -2.35383, -4.01457, -4.7999, 3.3976
        IPOLY=0.850105, 3.85931, 4.8001, 3.85931, 4.8001, 3.3976, 2.35403, -4.01457
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 SECT=  40, VALUE      , p-150-80-60        ; CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        26.561, 14.1198, 6.35226, 9.35612, 238.265, 281.677
        7.49997, 7.50003, 5.0699, 2.9301, 36.4873, 3.96512, 55.2298, 0, 7.50003, 2.9301
        -2.94145, 2.94139, 7.44139, -7.44145, 5.01132, 5.01132, -2.87152, -2.87152
        OPOLY=-7.50003, -2.1301, -7.50003, -2.7301, -7.44145, -2.87152, -7.30003, -2.9301
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                5.99997, -2.7801, 5.99997, -2.9301, 7.29997, -2.9301
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                2.99997, 4.8699, 2.94139, 5.01132, 2.79997, 5.0699
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 SECT=  41, VALUE      , p-150-80-70        ; CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        27.561, 15.04, 6.34678, 9.73037, 258.475, 292.11
        7.49997, 7.50003, 4.90409, 3.09591, 39.201, 4.16678, 57.2298, 0, 7.50003, 3.09591
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        OPOLY=-7.50003, -2.29591, -7.50003, -2.89591, -7.44145, -3.03733, -7.30003, -3.09591
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                -4.00003, -3.09591, 3.99997, -3.09591, 3.99997, -2.94591
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                7.44139, -2.15449, 7.29997, -2.09591, 0.499967, -2.09591
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 SECT=  42, VALUE      , p-150-81-70        ; CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
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                5.99997, -3.06854, 5.99997, -3.21854, 7.29997, -3.21854
                7.44139, -3.15996, 7.49997, -3.01854, 7.49997, -2.41854
                7.44139, -2.27712, 7.29997, -2.21854, 0.499968, -2.21854
                0.499968, 3.28146, 0.806108, 3.64707, 1.26364, 3.78146
                3.29997, 3.78146, 3.44139, 3.84004, 3.49997, 3.98146
                3.49997, 4.68146, 3.44139, 4.82288, 3.29997, 4.88146
                -3.30003, 4.88146, -3.44145, 4.82288, -3.50003, 4.68146
                -3.50003, 3.98146, -3.44145, 3.84004, -3.30003, 3.78146
                -1.25003, 3.78146, -0.800472, 3.6433, -0.500032, 3.28146
                -0.500032, -2.21854, -7.30003, -2.21854, -7.44145, -2.27712
 SECT=  43, VALUE      , p-150-80-80        ; CC, 0, 0, 0, 0, 0, 0, YES, GEN, YES, YES
        28.461, 16.1918, 6.30323, 9.89464, 275.058, 306.012
        7.49997, 7.50003, 4.7664, 3.2336, 41.4752, 4.45381, 59.4298, 0, 7.50003, 3.2336
        -3.94145, 3.94139, 7.44139, -7.44145, 4.70782, 4.70782, -3.17502, -3.17502
        OPOLY=-7.50003, -2.4336, -7.50003, -3.0336, -7.44145, -3.17502, -7.30003, -3.2336
                -6.00003, -3.2336, -6.00003, -3.0836, -4.00003, -3.0836
                -4.00003, -3.2336, 3.99997, -3.2336, 3.99997, -3.0836
                5.99997, -3.0836, 5.99997, -3.2336, 7.29997, -3.2336
                7.44139, -3.17502, 7.49997, -3.0336, 7.49997, -2.4336
                7.44139, -2.29218, 7.29997, -2.2336, 0.499968, -2.2336
                0.499968, 3.2664, 0.806108, 3.63201, 1.26364, 3.7664
                3.79997, 3.7664, 3.94139, 3.82498, 3.99997, 3.9664
                3.99997, 4.5664, 3.94139, 4.70782, 3.79997, 4.7664
                0.499968, 4.7664, 0.499968, 4.6664, -0.500032, 4.6664
                -0.500032, 4.7664, -3.80003, 4.7664, -3.94145, 4.70782
                -4.00003, 4.5664, -4.00003, 3.9664, -3.94145, 3.82498
                -3.80003, 3.7664, -1.25003, 3.7664, -0.800472, 3.62824
                -0.500032, 3.2664, -0.500032, -2.2336, -7.30003, -2.2336
                -7.44145, -2.29218
*THICKNESS      ; Thickness
; iTHK, TYPE, bSAME, THIK-IN, THIK-OUT, bOFFSET, OFFTYPE, VALUE ; TYPE=VALUE
; iTHK, TYPE, SUBTYPE, RPOS, WEIGHT                              ; TYPE=STIFFENED, SUBTYPE=VALUE
;          SHAPE, THIK-IN, THIK-OUT, HU, HL                     ;       for yz section
;          SHAPE, THIK-IN, THIK-OUT, HU, HL                     ;       for xz section
; iTHK, TYPE, SUBTYPE, RPOS, PLATETHIK                          ; TYPE=STIFFENED, SUBTYPE=USER
;          bRIB {, SHAPE, DIST, SIZE1, SIZE2, ..., SIZE6}       ;       for yz section
;          bRIB {, SHAPE, DIST, SIZE2, SIZE2, ..., SIZE6}       ;       for xz section
; iTHK, TYPE, SUBTYPE, RPOS, PLATETHIK, DBNAME                  ; TYPE=STIFFENED, SUBTYPE=DB
;          bRIB {, SHAPE, DIST, SNAME}                          ;       for yz section
;          bRIB {, SHAPE, DIST, SNAME}                          ;       for xz section
     1, VALUE, YES, 0.25, 0,  NO, 0, 0
*THIK-COLOR
; iTHK, W_R, W_G, W_B, HF_R, HF_G, HF_B, HE_R, HE_G, HE_B, bBLEND, FACT
     1, 255,    0,    0,     0, 255,    0,     0,    0, 255,   NO, 0.5
*STLDCASE      ; Static Load Cases
; LCNAME, LCTYPE, DESC
    자중 , USER,
    난간수직하중, USER,
    난간수평하중, USER,
    작업하중, USER,
    WD1   , USER,
    WD2   , USER,
    WD3   , USER,
*SPRING      ; Point Spring Supports
; NODE_LIST, Type, SDx, SDy, SDz, SRx, SRy, SRz, GROUP, FROMTYPE, EFFAREA, Kx, Ky, Kz                                                    ; LINEAR
; NODE_LIST, Type, Direction, Vx, Vy, Vz, Stiffness, GROUP, FROMTYPE, EFFAREA                                                          ; COMP, TENS
; NODE_LIST, Type, Multi-Linear Type, Direction, Vx, Vy, Vz, ax, ay, bx, by, cx, cy, dx, dy, ex, ey, fx, fy, GROUP, FROMTYPE, EFFAREA  ; MULTI
    9, LINEAR, 64.902, 64.902, 64.902, 0, 0, 0, , 1, 2797.5, 0.0232, 0.0232, 0.0232
```

```
    3, LINEAR, 16.878, 16.878, 16.878, 0, 0, 0, , 1, 727.5, 0.0232, 0.0232, 0.0232
    12, LINEAR, 53.94, 53.94, 53.94, 0, 0, 0, , 1, 2325, 0.0232, 0.0232, 0.0232
*USE-STLD, 자중
; *SELFWEIGHT, X, Y, Z, GROUP
*SELFWEIGHT, 0, 0, -1,
; End of data for load case [자중] --------------------------
*USE-STLD, 난간수직하중
*CONLOAD     ; Nodal Loads
; NODE_LIST, FX, FY, FZ, MX, MY, MZ, GROUP
  15, 0, 0, -900, 0, 0, 0,
; End of data for load case [난간수직하중] --------------------------
*USE-STLD, 난간수평하중
*CONLOAD     ; Nodal Loads
; NODE_LIST, FX, FY, FZ, MX, MY, MZ, GROUP
  15, 600, 0, 0, 0, 0, 0,
; End of data for load case [난간수평하중] --------------------------
*USE-STLD, 작업하중
*BEAMLOAD     ; Element Beam Loads
; ELEM_LIST, CMD, TYPE, DIR, bPROJ, [ECCEN], [VALUE], GROUP
; ELEM_LIST, CMD, TYPE, TYPE, DIR, VX, VY, VZ, bPROJ, [ECCEN], [VALUE], GROUP
; [VALUE]         : D1, P1, D2, P2, D3, P3, D4, P4
; [ECCEN]         : bECCEN, ECCDIR, I-END, J-END, bJ-END
; [ADDITIONAL]  : bADDITIONAL, ADDITIONAL_I-END, ADDITIONAL_J-END, bADDITIONAL_J-END
    15, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -52.5, 1, -52.5, 0, 0, 0, 0, , NO, 0, 0, NO
    16, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -52.5, 1, -52.5, 0, 0, 0, 0, , NO, 0, 0, NO
    17, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -52.5, 1, -52.5, 0, 0, 0, 0, , NO, 0, 0, NO
    18, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -52.5, 1, -52.5, 0, 0, 0, 0, , NO, 0, 0, NO
; End of data for load case [작업하중] --------------------------
*USE-STLD, WD1
*BEAMLOAD     ; Element Beam Loads
; ELEM_LIST, CMD, TYPE, DIR, bPROJ, [ECCEN], [VALUE], GROUP
; ELEM_LIST, CMD, TYPE, TYPE, DIR, VX, VY, VZ, bPROJ, [ECCEN], [VALUE], GROUP
; [VALUE]         : D1, P1, D2, P2, D3, P3, D4, P4
; [ECCEN]         : bECCEN, ECCDIR, I-END, J-END, bJ-END
; [ADDITIONAL]  : bADDITIONAL, ADDITIONAL_I-END, ADDITIONAL_J-END, bADDITIONAL_J-END
    15, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -0.377, 1, -0.377, 0, 0, 0, 0, , NO, 0, 0, NO
; End of data for load case [WD1] --------------------------
*USE-STLD, WD2
*BEAMLOAD     ; Element Beam Loads
; ELEM_LIST, CMD, TYPE, DIR, bPROJ, [ECCEN], [VALUE], GROUP
; ELEM_LIST, CMD, TYPE, TYPE, DIR, VX, VY, VZ, bPROJ, [ECCEN], [VALUE], GROUP
; [VALUE]         : D1, P1, D2, P2, D3, P3, D4, P4
; [ECCEN]         : bECCEN, ECCDIR, I-END, J-END, bJ-END
; [ADDITIONAL]  : bADDITIONAL, ADDITIONAL_I-END, ADDITIONAL_J-END, bADDITIONAL_J-END
    16, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -0.32, 1, -0.32, 0, 0, 0, 0, , NO, 0, 0, NO
    18, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -0.32, 1, -0.32, 0, 0, 0, 0, , NO, 0, 0, NO
; End of data for load case [WD2] --------------------------
*USE-STLD, WD3
*BEAMLOAD     ; Element Beam Loads
; ELEM_LIST, CMD, TYPE, DIR, bPROJ, [ECCEN], [VALUE], GROUP
; ELEM_LIST, CMD, TYPE, TYPE, DIR, VX, VY, VZ, bPROJ, [ECCEN], [VALUE], GROUP
; [VALUE]         : D1, P1, D2, P2, D3, P3, D4, P4
; [ECCEN]         : bECCEN, ECCDIR, I-END, J-END, bJ-END
; [ADDITIONAL]  : bADDITIONAL, ADDITIONAL_I-END, ADDITIONAL_J-END, bADDITIONAL_J-END
    17, BEAM    , UNILOAD, LZ, NO , NO, aDir[1], , , , 0, -0.377, 1, -0.377, 0, 0, 0, 0, , NO, 0, 0, NO
; End of data for load case [WD3] --------------------------
*LOADCOMB     ; Combinations
; NAME=NAME, KIND, ACTIVE, bES, iTYPE, DESC, iSERV-TYPE, nLCOMTYPE    ; line 1
;         ANAL1, LCNAME1, FACT1, ...                                                ; from line 2
    NAME=com1, GEN, ACTIVE, 0, 0, , 0, 0
          ST, 난간수직하중, 1, ST, 난간수평하중, 1, ST, 작업하중, 1, ST, WD1, 1
          ST, WD2, 1, ST, WD3, 1, ST, 자중, 1
*LC-COLOR     ; Diagram Color for Load Case
; ANAL, LCNAME, iR1(ALL), iG1(ALL), iB1(ALL), iR2(MIN), iG2(MIN), iB2(MIN), iR3(MAX), iG2(MAX), iB2(MAX)
 ST, 자중, 78, 0, 255, 192, 128, 0, 0, 128, 57
 ST, 난간수직하중, 0, 128, 255, 0, 192, 128, 0, 128, 192
 ST, 난간수평하중, 212, 160, 255, 255, 255, 255, 210, 210, 210
 ST, 작업하중, 0, 128, 192, 0, 192, 192, 0, 128, 128
 CB, com1, 146, 0, 255, 146, 0, 255, 0, 128, 128
 ST, WD3, 192, 192, 192, 0, 128, 57, 0, 192, 128
 ST, WD1, 255, 0, 192, 255, 192, 87, 0, 128, 192
 ST, WD2, 192, 128, 0, 0, 128, 128, 128, 192, 0
*SECTION MANAGER-GROUP & PART     ; Section Manager - Group & Part
; SECT = NO, bSAMEJ                                                              ; line 1
;          GRPDISIZE, GRPDJSIZE, PARTISIZE, PARTJSIZE                            ; line 2
; ..................................................................  ;
;          LOOP UTIL (GRPDISIZE, GRPDJSIZE)                                      ;
;          GROUPID, GROUPNAME, GROUPTYPE                                              ; line n
; ..................................................................  ;
;          LOOP UTIL (PARTISIZE, PARTJSIZE)                                     ;
;          PARTTYPE, GROUPID, PARTNAME, PARTSHAPE, bSTIFFENER                         ; line n
;          LINESIZE, LINEINDEX[i].....                                  ; line n
; ..................................................................  ;
    SECT=1, YES
 0, 0, 0, 0
    SECT=2, YES
 0, 0, 0, 0
    SECT=3, YES
 0, 0, 0, 0
    SECT=6, YES
 0, 0, 0, 0
    SECT=7, YES
 0, 0, 0, 0
    SECT=8, YES
 0, 0, 0, 0
    SECT=9, YES
 0, 0, 0, 0
    SECT=10, YES
 0, 0, 0, 0
    SECT=11, YES
 0, 0, 0, 0
    SECT=12, YES
 0, 0, 0, 0
    SECT=13, YES
 0, 0, 0, 0
    SECT=14, YES
 0, 0, 0, 0
    SECT=15, YES
 0, 0, 0, 0
    SECT=16, YES
 0, 0, 0, 0
    SECT=17, YES
 0, 0, 0, 0
    SECT=18, YES
 0, 0, 0, 0
    SECT=19, YES
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0, 0, 0, 0
   SECT=20, YES
0, 0, 0, 0
   SECT=21, YES
0, 0, 0, 0
   SECT=22, YES
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   SECT=23, YES
0, 0, 0, 0
   SECT=24, YES
0, 0, 0, 0
   SECT=25, YES
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   SECT=26, YES
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   SECT=27, YES
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   SECT=28, YES
0, 0, 0, 0
   SECT=29, YES
0, 0, 0, 0
   SECT=30, YES
0, 0, 0, 0
   SECT=31, YES
0, 0, 0, 0
   SECT=32, YES
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   SECT=33, YES
0, 0, 0, 0
   SECT=34, YES
0, 0, 0, 0
   SECT=35, YES
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   SECT=36, YES
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   SECT=37, YES
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   SECT=38, YES
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   SECT=40, YES
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   SECT=41, YES
0, 0, 0, 0
   SECT=42, YES
0, 0, 0, 0
   SECT=43, YES
0, 0, 0, 0
*SECTION MANAGER-STIFFENER     ; Section Manager - Stiffener
; SECT = NO, bSAMEJ                                                    ; line 1
;          STFNISIZE, STFNJSIZE                                       ; line 2
; ..................................................................  ;
;          LOOP UTIL (STFNISIZE, STFNJSIZE)                           ;
;          TYPE, Z, STANDREF, POSLINE, STANDREFL, NUM, CTC                  ; line n
;          STIFFTYPE, dSIZE(0 ~ 20)                                   ; line n
;          LINESIZE, LINEINDEX[i].....                                ; line n
; ..................................................................  ;
   SECT=1, YES
0, 0
   SECT=2, YES
0, 0
   SECT=3, YES
0, 0
   SECT=6, YES
0, 0
   SECT=7, YES
0, 0
   SECT=8, YES
0, 0
   SECT=9, YES
0, 0
   SECT=10, YES
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   SECT=11, YES
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0, 0
   SECT=17, YES
0, 0
   SECT=18, YES
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0, 0
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   SECT=22, YES
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   SECT=24, YES
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   SECT=25, YES
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   SECT=28, YES
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   SECT=29, YES
0, 0
   SECT=30, YES
0, 0
   SECT=31, YES
0, 0
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    SECT=32,  YES
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    SECT=33,  YES
  0,  0
    SECT=34,  YES
  0,  0
    SECT=35,  YES
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    SECT=36,  YES
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    SECT=41,  YES
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    SECT=42,  YES
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    SECT=43,  YES
  0,  0
*ENDDATA
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