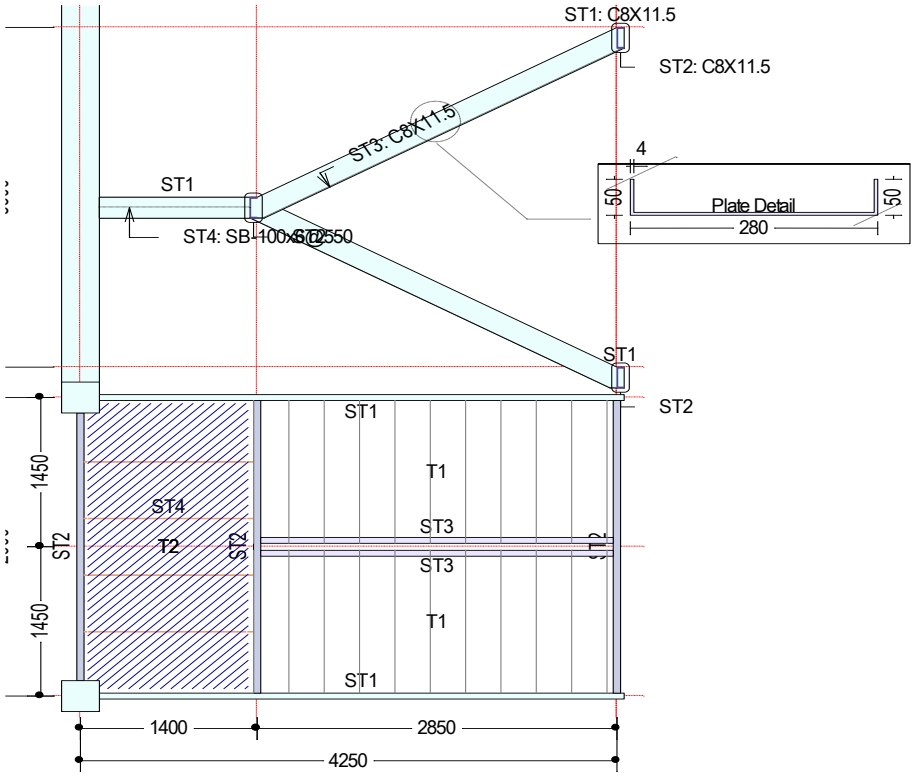
■ ESCALERA MET

1. General Information

(1) Design Code : AISC-LRFD10M
(2) Unit System : N, mm

2. Material

(1) Stringer : A572-50 (F_y = 345MPa, E_s = 199,948MPa)
(2) Plate : A572-50 (F_y = 345MPa, E_s = 199,948MPa)



3. Design Load

(1) Landing
- Dead Load : 3.000kN/m²
- Live Load : 5.000kN/m²

(2) Stairs
- Dead Load : 3.000kN/m²
- Live Load : 5.000kN/m²

4. Size

(1) Stair : 2.850m
(2) Landing (Left) : 1.400m
(3) Landing (Right) : 0.000m
(4) Stair Height : 3.300m
(5) Stair Width : 2.900m

5. Support Conditions

(1) Left Support : Pin
(2) Right Support : Pin

6. Section

(1) Stair Type : TYPE-B
(2) Stringer
- Stringer1 : C8X11.5
- Stringer2 : C8X11.5
- Stringer3 : C8X11.5
- Stringer4 : SB-100x6@0.550m (L_b is not considered.)

(3) Plate (Stairs)
- Thickness : 4.000mm
- Height (H_1) : 50.00mm
- Height (H_2) : 50.00mm
- Width (B_1) : 280mm

(4) Plate (Landing)
- Thickness : 4.000mm

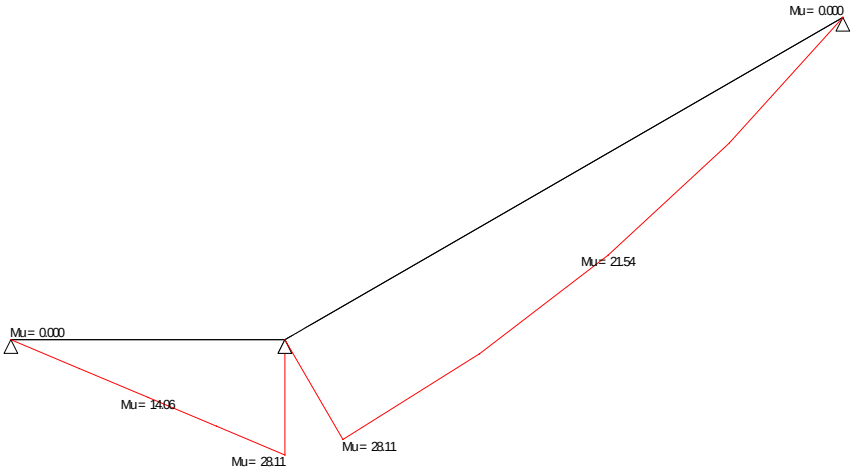
7. Calculate Design Load

(1) Landing
- LCB01 = 4.20kN/m² (1.4D)
- LCB02 = 11.60kN/m² (1.2D+1.6L)
- ω_u = 11.60kN/m²

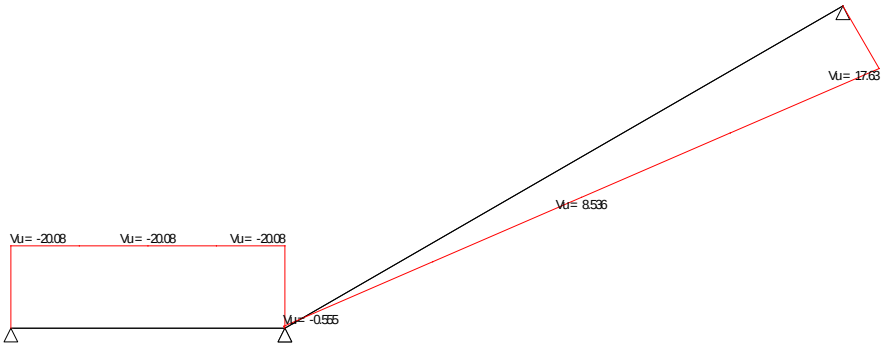
(2) Stairs
- LCB01 = 4.20kN/m² (1.4D)
- LCB02 = 11.60kN/m² (1.2D+1.6L)
- ω_u = 11.60kN/m²

8. Calculate design forces

(1) Moment Diagram (ST1)



(2) Shear Force Diagram (ST1)



(3) Design Forces

-	ST_1	ST_2	ST_3	ST_4	PL_{Stairs}	$PL_{Landing}$
M_u (kN·m)	28.11	21.71	7.485	1.186	0.648	1.186
V_u (kN)	20.08	19.44	9.091	3.388	1.786	3.388

9. Check Sections

(1) Check Sections

-	ST_1	ST_2	ST_3	ST_4	PL_{Stairs}	$PL_{Landing}$
M_u (kN·m)	28.11	21.71	7.485	1.186	0.648	1.186
V_u (kN)	20.08	19.44	9.091	3.388	1.786	3.388
$øM_n$ (kN·m)	45.15	54.40	54.40	5.171	3.037	1.379
$øV_n$ (kN)	235	235	235	124	82.74	827
M_u /$øM_n$	0.692	0.443	0.153	0.255	0.237	0.955
V_u /$øV_n$	0.0950	0.0920	0.0430	0.0303	0.0240	0.00455