Input Data

Material Property Factors:

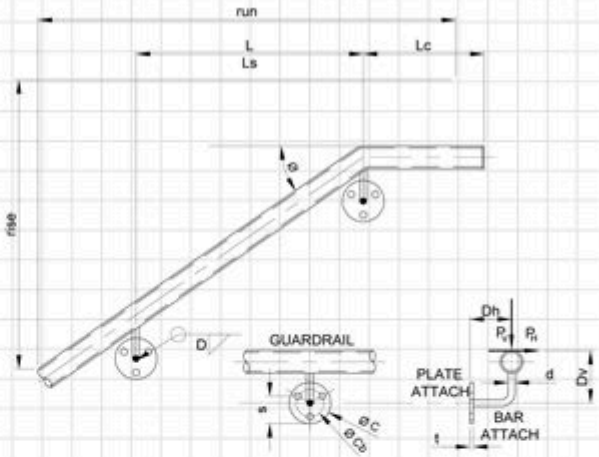
$\varphi_s := 0.90$

$\varphi_w := 0.67$

Load Factors:

$\alpha_L := 1.50$

$\alpha_D := 1.25$



Rail Properties: $stl_{NDX} := 1$

NDX	des	fy	Fu
1	"G40.21-350W"	50 Ksi	65 Ksi
2	"G40.21-300W"	44 Ksi	65 Ksi
3	"A36"	36 Ksi	58 Ksi

$desI_1 := stl_{stl_{NDX},2}$ $f_{y1} := stl_{stl_{NDX},3}$ $F_{u1} := stl_{stl_{NDX},4}$

$\nu := 0.3$ $E_s := 29000$ Ksi $Y_s := 489$ pcf

$G_s := \frac{E_s}{2 \cdot (1 + \nu)}$ $G_s = 11154$ Ksi

Bar Attachment: $stl_{NDX} := 2$ $desI_2 := stl_{stl_{NDX},2}$ $f_{y2} := stl_{stl_{NDX},3}$ $F_{u2} := stl_{stl_{NDX},4}$

Plate Attachment: $stl_{NDX} := 2$ $desI_3 := stl_{stl_{NDX},2}$ $f_{y3} := stl_{stl_{NDX},3}$ $F_{u3} := stl_{stl_{NDX},4}$

Section Properties-HSS C(ircular): $ci_{NDX} := 3$

NDX	desI	desM	ϕ	t
1	"HSS 1.66x0.191"	"HSS 42.2x4.9"	1.66 in	0.191 in
2	"HSS 1.66x0.140"	"HSS 42.2x3.6"	1.66 in	0.140 in
3	"HSS 1.66x0.125"	"HSS 42.2x3.2"	1.66 in	0.125 in

$desI_c := ci_{ci_{NDX},2}$ $desM_c := ci_{ci_{NDX},3}$

$\phi_{od} := ci_{ci_{NDX},4}$ $t_c := ci_{ci_{NDX},5}$

$\phi_{id} := \phi_{od} - 2 \cdot t_c$