Title of the program

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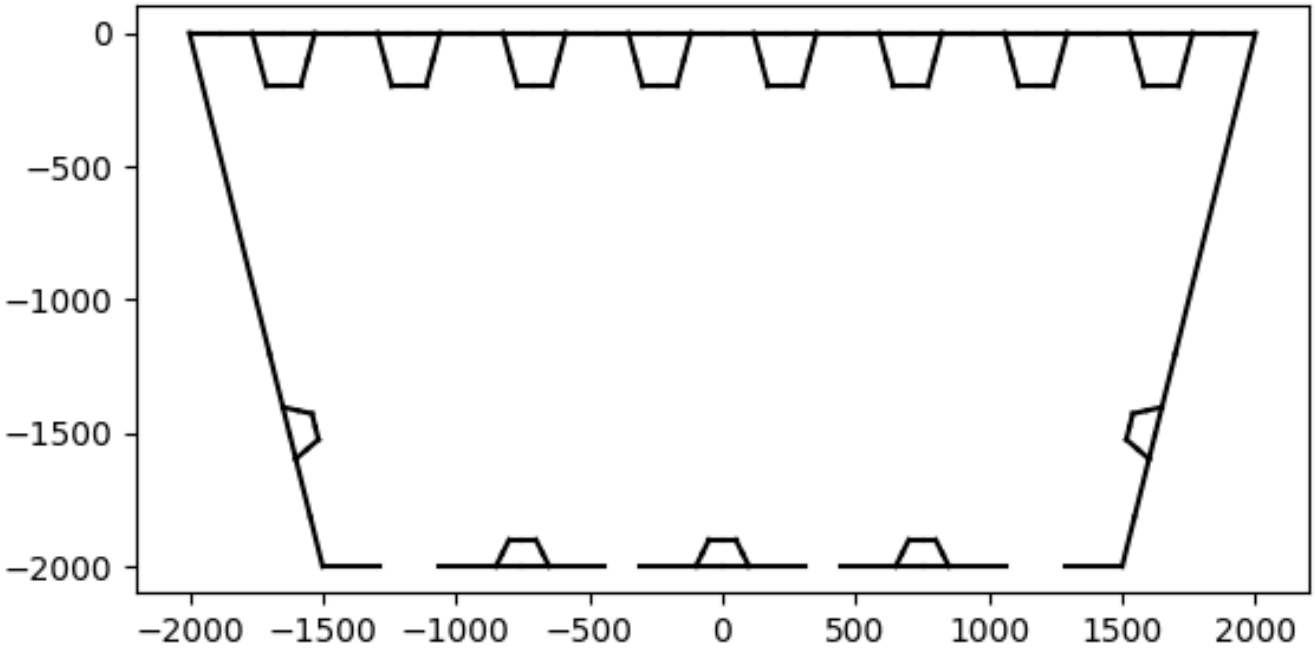


Buckling Proof according to EC 1993 Part 1-5

3.2 Effective width for elastic shear lag

Shear lag reduction for flange 1

Shear Lag is not neglectable

alpha_0: 1.6

Beta: 0.25724575536114325

Shear lag reduction for flange 3

Shear Lag is not neglectable

alpha_0: 1.3

Beta: 0.40025199920737786

4.4 Plate elements without longitudinal stiffeners

Iteratively changing the widths until M_Rd_el_eff converges to a limit of 0.02

4.5 Stiffened plate elements with longitudinal stiffeners

Side 2

4.5.2 Plate type behaviour

sigma_cr = 522.4143226040272

Lambda: 0.5877065783278207

Rho_Global: 1.0

4.5.3 Column type buckling behaviour

Column number 9

A_sl=10767.86, A_sl_eff=10767.86, I_sl=3665672.6

sigma_cr_c=44.09

e1=45.78, e2=19.66

All tension =False

Buckling Values 9

beta_A_c =1.0

lambda_c_bar =2.497208701442107

Phi_c =4.0502131751899215

Chi_c =0.13814118355314237

Critical buckling values

Chi_c: 0.13814118355314237

sigma_cr_c: 44.09841850781154

4.5.4 Interaction between plate and column buckling

all_tension: False

rho_c = 1.0

Side 3

4.5.2 Plate type behaviour

sigma_cr = 196.96928045577778

Lambda: 1.0913208361352436

Rho_Global: 0.7315991721765777

4.5.3 Column type buckling behaviour

Column number 10

A_sl=11236.06, A_sl_eff=9470.98, I_sl=3669574.27

sigma_cr_c=42.3

e1=46.6, e2=18.85

All tension =False

Buckling Values 10

beta_A_c =0.842909245288696

lambda_c_bar =2.3407582597641206

Phi_c =3.6408620587067286

Chi_c =0.15553211060054334

Column number 11

A_sl=10736.06, A_sl_eff=9386.04, I_sl=3665407.6

sigma_cr_c=44.22

e1=45.72, e2=19.72

All tension =False

Buckling Values 11

beta_A_c =0.8742530418187606

lambda_c_bar =2.331561535522126

Phi_c =3.6192180775979015

Chi_c =0.15655942315247914

Column number 12

A_sl=11236.06, A_sl_eff=9470.98, I_sl=3669574.27

sigma_cr_c=42.3

e1=46.6, e2=18.85

All tension =False

Buckling Values 12

beta_A_c =0.842909245288696

lambda_c_bar =2.3407582597641206

Phi_c =3.6408620587067286

Chi_c =0.15553211060054334

Critical buckling values

Chi_c: 0.15553211060054334

sigma_cr_c: 42.30584579765595

4.5.4 Interaction between plate and column buckling

all_tension: False

rho_c = 0.7315991721765778

Side 4

4.5.2 Plate type behaviour

sigma_cr = 522.4143226040272

Lambda: 0.5877065783278206

Rho_Global: 1.0

4.5.3 Column type buckling behaviour

Column number 13

A_sl=10767.86, A_sl_eff=10767.86, I_sl=3665672.6

sigma_cr_c=44.09

e1=45.78, e2=19.66

All tension =False

Buckling Values 13

beta_A_c =1.0

lambda_c_bar =2.4972087014421063

Phi_c =4.050213175189919

Chi_c =0.13814118355314248

Critical buckling values

Chi_c: 0.13814118355314248

sigma_cr_c: 44.09841850781156

4.5.4 Interaction between plate and column buckling

all_tension: False

rho_c = 1.0

Resistance to shear and interaction shear force and bending moment for side 1

5. Resistance to shear

stiffened plate; EBPlate

k_tau: 1198.4975736689557

eta_3: 0.05817517583071978

7.1 Interaction between shear force, bending moment and axial force

Flange -> (7.1), comment (5)

eta_3 <= 0.5; no interaction needed

utilisation: -1

Proofing Resistance to shear for each subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.02817000856440626

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.024648757493855478

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.02112750642330469

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.01760625535275391

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.014085004282203132

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.010563753211652349

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.007042502141101569

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.0035212510705507857

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 3.509054114976687e-18

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.003521251070550779

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.00704250214110156

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.010563753211652342

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.014085004282203127

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.01760625535275391

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.021127506423304698

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.024648757493855478

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.353840830449827

eta_3: 0.028170008564406258

eta_3_panel < 1: pass subpanel

Resistance to shear and interaction shear force and bending moment for side 2

5. Resistance to shear

stiffened plate; EBPlate

k_tau: 14.216809210526318

eta_3: 0.15745109647187344

7.1 Interaction between shear force, bending moment and axial force

Web -> (7.1) without iterating

eta_3 <= 0.5; no interaction needed

utilisation: -1

Resistance to shear and interaction shear force and bending moment for side 3

5. Resistance to shear

stiffened plate; EBPlate

k_tau: 136.7971843988621

eta_3: 0.049271263977155824

7.1 Interaction between shear force, bending moment and axial force

Flange -> (7.1), comment (5)

eta_3 <= 0.5; no interaction needed

utilisation: -1

Proofing Resistance to shear for each subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.445625

eta_3: 0.03089611099285203

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.35

eta_3: 0.019720921910331084

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.4156249999999995

eta_3: 0.00986046095516554

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.35

eta_3: 0.0013147281273554058

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.4156249999999995

eta_3: 0.00986046095516554

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.35

eta_3: 0.019720921910331084

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.445625

eta_3: 0.03089611099285203

eta_3_panel < 1: pass subpanel

Resistance to shear and interaction shear force and bending moment for side 4

5. Resistance to shear

stiffened plate; EBPlate

k_tau: 14.216809210526318

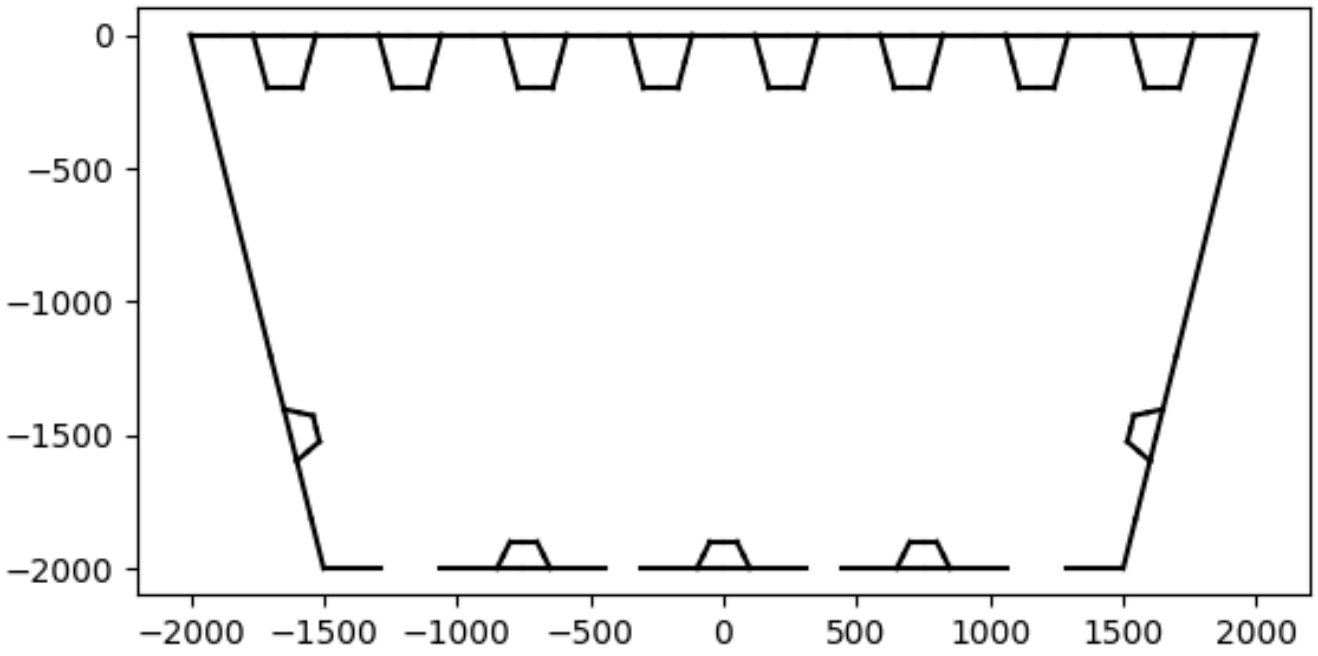
eta_3: 0.15745109647187344

7.1 Interaction between shear force, bending moment and axial force

Web -> (7.1) without iterating

eta_3 <= 0.5; no interaction needed

utilisation: -1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