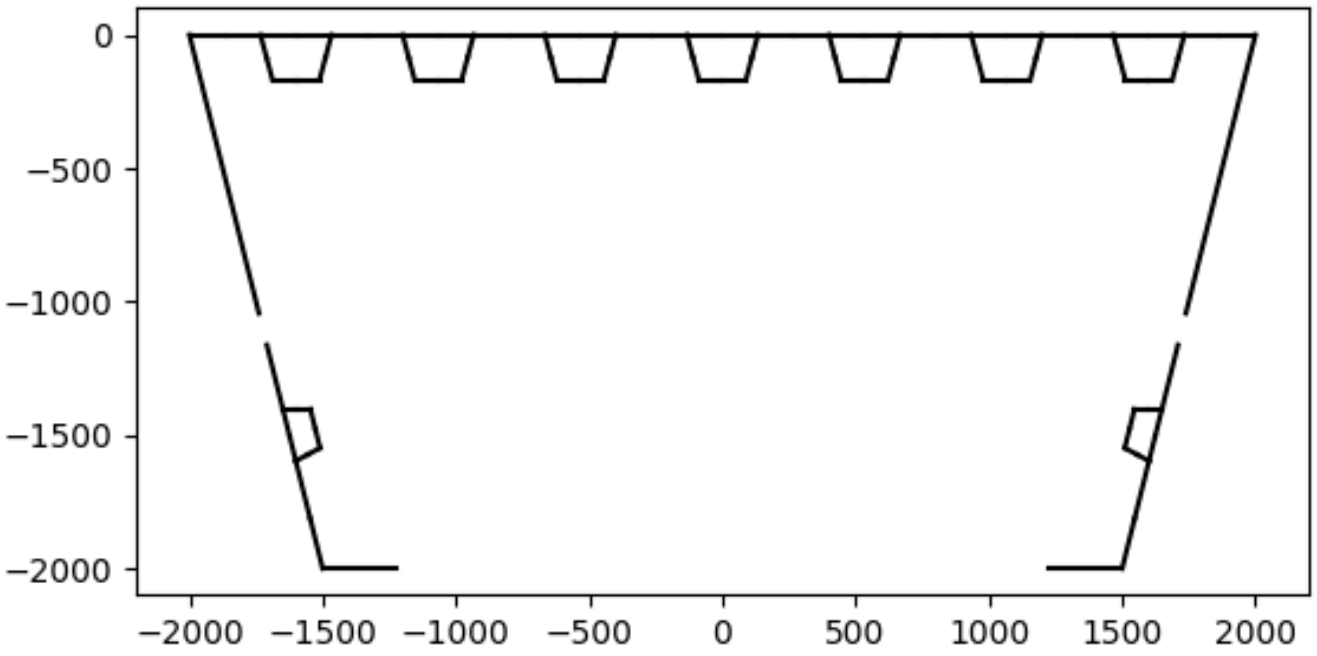


Buckling Proof according to EC 1993 Part 1-5

3.2 Effective width for elastic shear lag

Shear lag reduction for flange 1

Shear Lag is not neglectable

alpha_0: 1.6

Beta: 0.3760575260584114

Shear lag reduction for flange 3

Shear Lag is not neglectable

alpha_0: 1.0

Beta: 0.5980861244019138

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 = 536.1088038309308

Lambda: 0.5501240702223005

Rho_Global: 1.0

4.5.3 Column type buckling behaviour

Column number 8

A_sl=12488.99, A_sl_eff=12065.66, I_sl=3976499.31

sigma_cr_c=6.59

e1=50.79, e2=20.26

All tension =False

Buckling Values 8

beta_A_c =0.9661037496955709

lambda_c_bar =5.865426496467583

Phi_c =18.75429727746104

Chi_c =0.027346472535786502

Critical buckling values

Chi_c: 0.027346472535786502

sigma_cr_c: 6.599217412807469

4.5.4 Interaction between plate and column buckling

all_tension: False

rho_c = 1.0

Side 3

4.5.4 Interaction between plate and column buckling

all_tension: False

rho_c = 1

Side 4

4.5.2 Plate type behaviour

sigma_cr = 536.1088038309308

Lambda: 0.5501240702223005

Rho_Global: 1.0

4.5.3 Column type buckling behaviour

Column number 9

A_sl=12488.99, A_sl_eff=12065.66, I_sl=3976499.31

sigma_cr_c=6.59

e1=50.79, e2=20.26

All tension =False

Buckling Values 9

beta_A_c =0.9661037496955709

lambda_c_bar =5.865426496467547

Phi_c =18.75429727746082

Chi_c =0.027346472535786825

Critical buckling values

Chi_c: 0.027346472535786825

sigma_cr_c: 6.59921741280755

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: 948.277322264861

eta_3: 0.05202212477106263

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: 5.357777777777778

eta_3: 0.03651818154452125

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.031301298466732 49

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.026084415388943745

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.020867532311154995

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.015650649233366246

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.010433766155577498

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.005216883077788748

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 4.448182049079109e-18

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.005216883077788753

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.010433766155577505

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.015650649233366256

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.020867532311155006

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.026084415388943752

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.03130129846673251

eta_3_panel < 1: pass subpanel

5. Resistance to shear

unstiffened plate; (A.5)

k_tau: 5.357777777777778

eta_3: 0.036518181544521265

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: 14.418963815789478

eta_3: 0.16912668900661576

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

unstiffened plate; (A.5)

k_tau: 7.59

eta_3: 0.1772880865116

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: 7.59

eta_3: 0.10603354456435404

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: 14.418963815789478

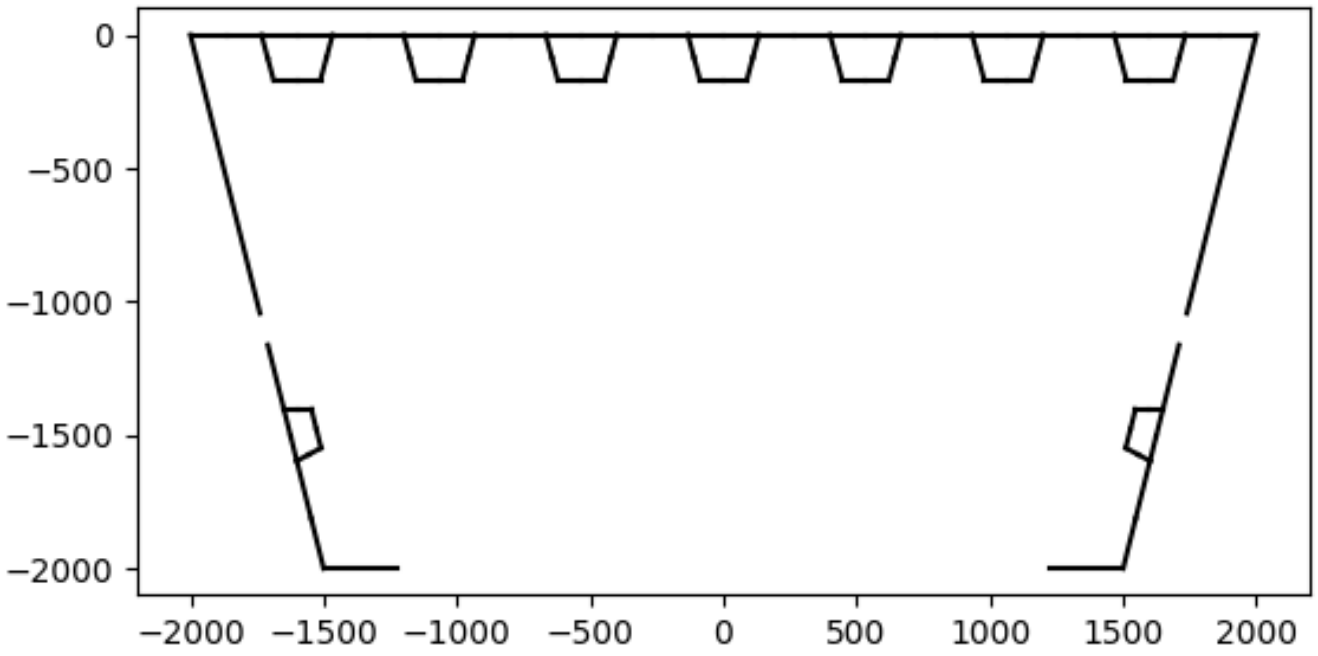
eta_3: 0.16912668900661576

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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2000