


| | |
|-------------------------------|--|
| Generalinis projektuotojas | IĮ SAULIAUS REMEIKOS DIZAINO STUDIJA |
| Projektuotojas | MB „CONATUS FRAME“ |
| Statytojas (užsakovas) | BIRŽŲ RAJONO SAVIVALDYBĖ |
| Statinio projekto pavadinimas | MOKSLO PASKIRTIES PASTATO (LOPŠELIO- DARŽELIO "DRUGELIS") ŽEMOJI G. 9, BIRŽUOSE, PAPRASTOJO REMONTO APRAŠAS ŽEMOJI G. 9, BIRŽUOSE, PAPRASTASIS REMONTAS |
| Statinio kategorija | YPATINGASIS STATINYS |
| Statinio grupė | NEGYVENAMIEJI PASTATAI |
| Naudojimo paskirtis | MOKSLO PASKIRTIES PASTATAI |
| Statybos rūšis | KAPITALINIS REMONTAS |
| Statinio projekto etapas | TECHNINIS PROJEKTAS |
| Statinio projekto dalis | KONSTRUKCINĖ |
| Statinio projekto numeris | 292000-01-A |
| Bylos (segtuvo) žymuo | SK-IS |
| Bylos (segtuvo) laidos žymuo | 0 |
| Direktorius | SAULIUS REMEIKA |
| Projekto vadovas | GVYTAUTAS GRYKŠAS Atestato Nr. A1945 |
| Projekto dalies vadovas | ZBIGNEV STANSKI Atestato Nr. 17521 |

AIŠKINAMASIS RAŠTAS

Aiškinamojo rašto turinys

1. STEEL LINTEL

| | | | | | | |
|-------------------------------|---|--|---|------------|------------|-----------|
| 0 | 2024-05-17 | | | | | |
| Laida | Išleidimo data | Laidos statusas. Keitimo priežastis (jei taikoma) | | | | |
| KVAL. PATV. DOK. NR. |  | IĮ Sauliaus Remeikos dizaino studija Vilniaus g. 44, Šiauliai Tel. +37061012269 El. p. remeika.design@gmail.com | STATINIO PROJEKTO PAVADINIMAS Pastato, Rytų g. 19, Kaune dalies vidaus patalpų (660,37 m2), kapitalinio remonto techninis projektas | | | |
| A1939 | PV | Gražvydas Sabaliauskas | STATINIO NUMERIS IR PAVADINIMAS | | | |
| KVAL. PATV. DOK. NR. | MB "Conatus Frame" Įm. k. 305750603, Adresas: Vilnius, Pylimo g. 20-15 el. paštas: conatuslt@gmail.com | | 01-Mokslo paskirties pastatas | | | |
| 17521 | PDV | Zbignevas Stanski | DOKUMENTO PAVADINIMAS | | | |
| | | | INŽINERINIAI SKAIČIAVIMAI | | | |
| LT | STATYTOJAS: Kauno miesto savivaldybė | | DOKUMENTO ŽYMUO 284809-01-TP-SK-IS | LAIDA 0 | LAPAS 1 | LAPŲ 1 |

STEEL LINTEL - GENERAL DATA

| | | |
|------------------|---|---|
| General | Model name | : Peremichka Misha |
| | Project name | : 2XX |
| | Type of model | : 3D |
| | Positive direction of global axis Z | : Upward |
| | Classification of load cases and combinations | : According to Standard: EN 1990 National Annex: LST - Lithuania |
| | <input checked="" type="checkbox"/> Automatically create combinations | : <input checked="" type="checkbox"/> Load Combinations |
| | Options | <input type="checkbox"/> RF-FORM-FINDING - Find initial equilibrium shapes of membrane and cable structures |
| | <input type="checkbox"/> RF-CUTTING-PATTERN | |
| | <input type="checkbox"/> Piping analysis | |
| | <input type="checkbox"/> Use CQC Rule | |
| | <input type="checkbox"/> Enable CAD/BIM model | |
| Standard Gravity | g | : 10.00 m/s ² |

1.3 MATERIALS

| Matl. No. | Modulus E [kN/cm ²] | Modulus G [kN/cm ²] | Poisson's Ratio ν [-] | Spec. Weight γ [kN/m ³] | Coeff. of Th. Ex α [1/°C] | Partial Factor γ_M [-] | Material Model |
|-----------|--|---------------------------------|---------------------------|--|----------------------------------|-------------------------------|--------------------------|
| 1 | Steel S 355 EN 10025-2:2004-11 21000.00 | 8076.92 | 0.300 | 78.50 | 1.20E-05 | 1.00 | Isotropic Linear Elastic |
| 2 | Steel S 355 EN 10025-2:2004-11 21000.00 | 8076.92 | 0.300 | 78.50 | 1.20E-05 | 1.00 | Isotropic Linear Elastic |
| 3 | Steel S 355 EN 10025-2:2004-11 21000.00 | 8076.92 | 0.300 | 78.50 | 1.20E-05 | 1.00 | Isotropic Linear Elastic |
| 4 | Steel S 355 EN 10025-2:2004-11 21000.00 | 8076.92 | 0.300 | 78.50 | 1.20E-05 | 1.00 | Isotropic Linear Elastic |

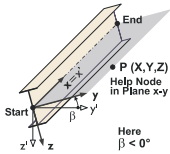
1.13 CROSS-SECTIONS

| Section No. | Matl. No. | J [cm ⁴] | I _y [cm ⁴] | I _z [cm ⁴] | Principal Axes α [°] | Rotation α' [°] | Overall Dimensions [mm] | |
|-------------|-----------------------------------|----------------------|-----------------------------------|-----------------------------------|-----------------------------|------------------------|-------------------------|----------|
| | | A [cm ²] | A _y [cm ²] | A _z [cm ²] | | | Width b | Height h |
| 2 | 2UV UPE 240-70/10 EN 10279 1 | 11490.52 77.00 | 7198.00 45.61 | 7881.68 29.31 | 0.00 | 0.00 | 250.0 | 240.0 |

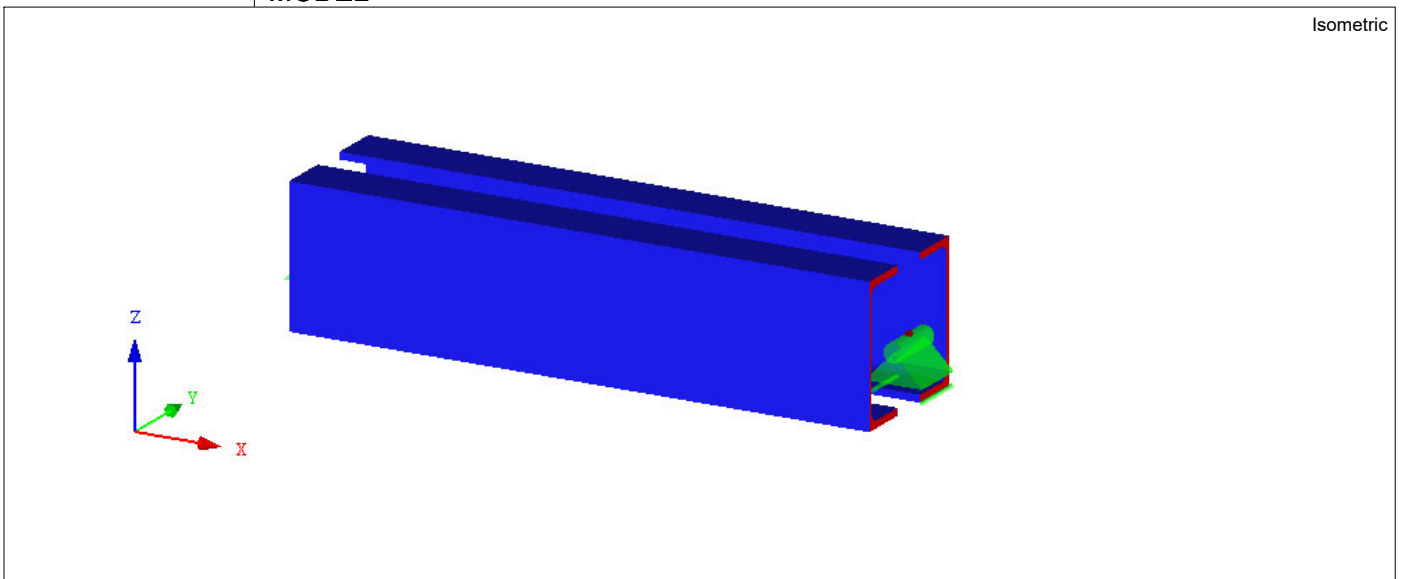


1.17 MEMBERS

| Mbr. No. | Line No. | Member | Rotation | | Cross-Section | | Hinge No. | | Ecc. No. | Div. No. | Length L [m] | X |
|----------|----------|--------|----------|-------------|---------------|-----|-----------|-----|----------|----------|--------------|---|
| | | | Type | β [°] | Start | End | Start | End | | | | |
| 1 | 1 | Beam | Angle | 0.00 | 2 | 2 | - | - | - | - | 1.000 | X |



MODEL



2.5 LOAD COMBINATIONS

| Load Combin. | DS | Load Combination | | No. | Factor | | Load Case | |
|--------------|------|-------------------------------|--|-----|--------|-----|--------------|--|
| | | Description | | | | | | |
| CO1 | STR | 1.35*LC1 | | 1 | 1.35 | LC1 | Self-weight | |
| CO2 | STR | 1.35*LC1 + 1.3*LC2 | | 1 | 1.35 | LC1 | Self-weight | |
| | | | | 2 | 1.30 | LC2 | Imposed load | |
| CO3 | STR | 1.35*LC1 + 1.3*LC2 + 0.91*LC3 | | 1 | 1.35 | LC1 | Self-weight | |
| | | | | 2 | 1.30 | LC2 | Imposed load | |
| | | | | 3 | 0.91 | LC3 | Snow | |
| CO4 | STR | 1.35*LC1 + 1.3*LC3 | | 1 | 1.35 | LC1 | Self-weight | |
| CO5 | STR | 1.35*LC1 + 0.91*LC2 + 1.3*LC3 | | 1 | 1.35 | LC1 | Self-weight | |
| | | | | 2 | 0.91 | LC2 | Imposed load | |
| CO6 | S Ch | LC1 + LC2 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 1.00 | LC2 | Imposed load | |
| | | | | 3 | 1.30 | LC3 | Snow | |
| CO7 | S Ch | LC1 + LC2 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 1.00 | LC2 | Imposed load | |
| | | | | 3 | 0.70 | LC3 | Snow | |
| CO8 | S Ch | LC1 + LC2 + 0.7*LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 1.00 | LC2 | Imposed load | |
| | | | | 3 | 0.70 | LC3 | Snow | |
| CO9 | S Ch | LC1 + LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| CO10 | S Ch | LC1 + 0.7*LC2 + LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.70 | LC2 | Imposed load | |
| CO11 | S Fr | LC1 + 0.5*LC2 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.50 | LC2 | Imposed load | |
| | | | | 3 | 0.20 | LC3 | Snow | |
| CO12 | S Fr | LC1 + 0.5*LC2 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.50 | LC2 | Imposed load | |
| | | | | 3 | 0.20 | LC3 | Snow | |
| CO13 | S Fr | LC1 + 0.5*LC2 + 0.2*LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.50 | LC2 | Imposed load | |
| | | | | 3 | 0.20 | LC3 | Snow | |
| CO14 | S Fr | LC1 + 0.5*LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| CO15 | S Fr | LC1 + 0.3*LC2 + 0.5*LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.30 | LC2 | Imposed load | |
| CO16 | S Qp | LC1 + 0.3*LC2 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.30 | LC2 | Imposed load | |
| | | | | 3 | 0.20 | LC3 | Snow | |
| CO17 | S Qp | LC1 + 0.3*LC2 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.30 | LC2 | Imposed load | |
| | | | | 3 | 0.20 | LC3 | Snow | |
| CO18 | S Qp | LC1 + 0.3*LC2 + 0.2*LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.30 | LC2 | Imposed load | |
| | | | | 3 | 0.20 | LC3 | Snow | |
| CO19 | S Qp | LC1 + 0.2*LC3 | | 1 | 1.00 | LC1 | Self-weight | |
| | | | | 2 | 0.20 | LC3 | Snow | |

2.7 RESULT COMBINATIONS

| Result Combin | Description | Loading |
|---------------|--|-------------------|
| RC1 | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 | CO1/p or to CO5 |
| RC2 | SLS - Characteristic | CO6/p or to CO10 |
| RC3 | SLS - Frequent | CO11/p or to CO15 |
| RC4 | SLS - Quasi-permanent | CO16/p or to CO19 |

LC1
Self-weight

3.2 MEMBER LOADS

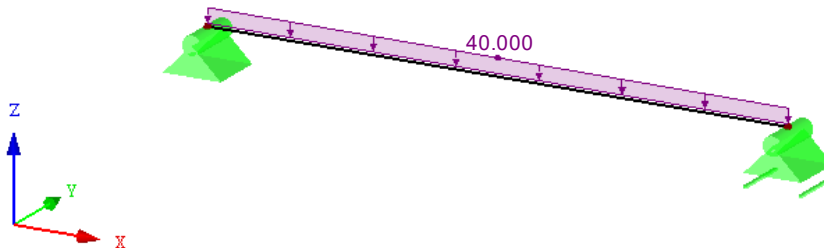
LC1: Self-weight

| No. | Reference to | On Members No. | Load Type | Load Distribution | Load Direction | Reference Length | Load Parameters | | |
|-----|--------------|----------------|-----------|-------------------|----------------|------------------|-----------------|---------|------|
| | | | | | | | Symbol | Value | Unit |
| 1 | Members | 1 | Force | Uniform | ZL | True Length | p | -40.000 | kN/m |

LC1: SELF-WEIGHT

LC1 : Self-weight
Loads [kN/m]

Isometric



LC2
Imposed load

3.2 MEMBER LOADS

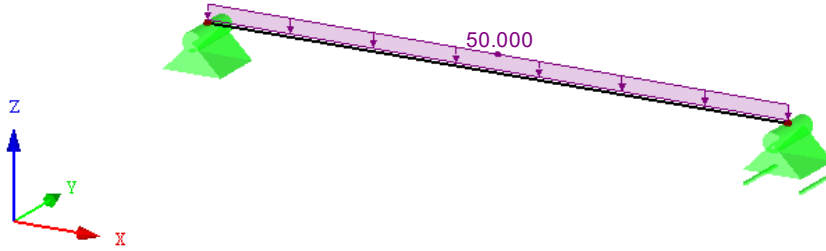
LC2: Imposed load

| No. | Reference to | On Members No. | Load Type | Load Distribution | Load Direction | Reference Length | Load Parameters | | |
|-----|--------------|----------------|-----------|-------------------|----------------|------------------|-----------------|---------|------|
| | | | | | | | Symbol | Value | Unit |
| 1 | Members | 1 | Force | Uniform | ZL | True Length | p | -50.000 | kN/m |

LC2: IMPOSED LOAD

LC2 : Imposed load
Loads [kN/m]

Isometric



LC3
Snow

3.2 MEMBER LOADS

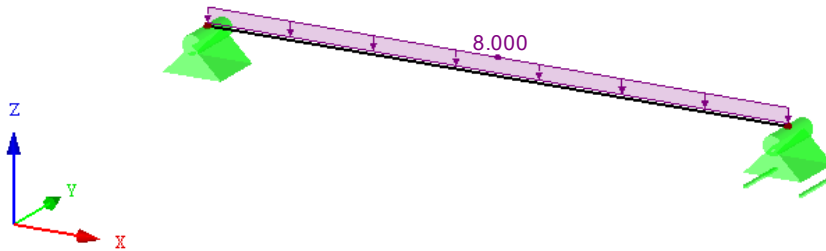
LC3: Snow

| No. | Reference to | On Members No. | Load Type | Load Distribution | Load Direction | Reference Length | Load Parameters | | |
|-----|--------------|----------------|-----------|-------------------|----------------|------------------|-----------------|--------|------|
| | | | | | | | Symbol | Value | Unit |
| 1 | Members | 1 | Force | Uniform | ZL | True Length | p | -8.000 | kN/m |

LC3: SNOW

LC3 : Snow
Loads [kN/m]

Isometric



4.1 NODES - SUPPORT FORCES

| Node No. | LC/CO | Support Forces [kN] | | | Support Moments [kNm] | | | |
|----------|-------|---------------------|-----------------|-----------------|-----------------------|-----------------|-----------------|--------------|
| | | P _{x'} | P _{y'} | P _{z'} | M _{x'} | M _{y'} | M _{z'} | |
| 1 | LC1 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | Self-weight |
| | LC2 | 0.00 | 0.00 | -25.00 | 0.00 | 0.00 | 0.00 | Imposed load |
| | LC3 | 0.00 | 0.00 | -4.00 | 0.00 | 0.00 | 0.00 | Snow |
| | CO1 | 0.00 | 0.00 | -27.41 | 0.00 | 0.00 | 0.00 | |
| | CO2 | 0.00 | 0.00 | -59.91 | 0.00 | 0.00 | 0.00 | |
| | CO3 | 0.00 | 0.00 | -63.55 | 0.00 | 0.00 | 0.00 | |
| | CO4 | 0.00 | 0.00 | -32.61 | 0.00 | 0.00 | 0.00 | |
| | CO5 | 0.00 | 0.00 | -55.36 | 0.00 | 0.00 | 0.00 | |
| | CO6 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | |
| | CO7 | 0.00 | 0.00 | -45.30 | 0.00 | 0.00 | 0.00 | |
| | CO8 | 0.00 | 0.00 | -48.10 | 0.00 | 0.00 | 0.00 | |
| | CO9 | 0.00 | 0.00 | -24.30 | 0.00 | 0.00 | 0.00 | |
| | CO10 | 0.00 | 0.00 | -41.80 | 0.00 | 0.00 | 0.00 | |
| | CO11 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | |
| | CO12 | 0.00 | 0.00 | -32.80 | 0.00 | 0.00 | 0.00 | |
| | CO13 | 0.00 | 0.00 | -33.60 | 0.00 | 0.00 | 0.00 | |
| | CO14 | 0.00 | 0.00 | -22.30 | 0.00 | 0.00 | 0.00 | |
| | CO15 | 0.00 | 0.00 | -29.80 | 0.00 | 0.00 | 0.00 | |
| | CO16 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | |
| CO17 | 0.00 | 0.00 | -27.80 | 0.00 | 0.00 | 0.00 | | |
| CO18 | 0.00 | 0.00 | -28.60 | 0.00 | 0.00 | 0.00 | | |
| CO19 | 0.00 | 0.00 | -21.10 | 0.00 | 0.00 | 0.00 | | |
| 2 | LC1 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | Self-weight |
| | LC2 | 0.00 | 0.00 | -25.00 | 0.00 | 0.00 | 0.00 | Imposed load |
| | LC3 | 0.00 | 0.00 | -4.00 | 0.00 | 0.00 | 0.00 | Snow |
| | CO1 | 0.00 | 0.00 | -27.41 | 0.00 | 0.00 | 0.00 | |
| | CO2 | 0.00 | 0.00 | -59.91 | 0.00 | 0.00 | 0.00 | |
| | CO3 | 0.00 | 0.00 | -63.55 | 0.00 | 0.00 | 0.00 | |
| | CO4 | 0.00 | 0.00 | -32.61 | 0.00 | 0.00 | 0.00 | |
| | CO5 | 0.00 | 0.00 | -55.36 | 0.00 | 0.00 | 0.00 | |
| | CO6 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | |
| | CO7 | 0.00 | 0.00 | -45.30 | 0.00 | 0.00 | 0.00 | |
| | CO8 | 0.00 | 0.00 | -48.10 | 0.00 | 0.00 | 0.00 | |
| | CO9 | 0.00 | 0.00 | -24.30 | 0.00 | 0.00 | 0.00 | |
| | CO10 | 0.00 | 0.00 | -41.80 | 0.00 | 0.00 | 0.00 | |
| | CO11 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | |
| | CO12 | 0.00 | 0.00 | -32.80 | 0.00 | 0.00 | 0.00 | |
| | CO13 | 0.00 | 0.00 | -33.60 | 0.00 | 0.00 | 0.00 | |
| | CO14 | 0.00 | 0.00 | -22.30 | 0.00 | 0.00 | 0.00 | |
| | CO15 | 0.00 | 0.00 | -29.80 | 0.00 | 0.00 | 0.00 | |
| | CO16 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 | |
| CO17 | 0.00 | 0.00 | -27.80 | 0.00 | 0.00 | 0.00 | | |
| CO18 | 0.00 | 0.00 | -28.60 | 0.00 | 0.00 | 0.00 | | |
| CO19 | 0.00 | 0.00 | -21.10 | 0.00 | 0.00 | 0.00 | | |
| Σ Supp. | LC1 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Loads | LC1 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | LC2 | 0.00 | 0.00 | -50.00 | | | | |
| Σ Loads | LC2 | 0.00 | 0.00 | -50.00 | | | | |
| Σ Supp. | LC3 | 0.00 | 0.00 | -8.00 | | | | |
| Σ Loads | LC3 | 0.00 | 0.00 | -8.00 | | | | |
| Σ Supp. | CO1 | 0.00 | 0.00 | -54.82 | | | | |
| Σ Supp. | CO1 | 0.00 | 0.00 | -54.82 | | | | |
| Σ Supp. | CO2 | 0.00 | 0.00 | -119.82 | | | | |
| Σ Supp. | CO2 | 0.00 | 0.00 | -119.82 | | | | |
| Σ Supp. | CO3 | 0.00 | 0.00 | -127.10 | | | | |
| Σ Supp. | CO3 | 0.00 | 0.00 | -127.10 | | | | |
| Σ Supp. | CO4 | 0.00 | 0.00 | -65.22 | | | | |
| Σ Supp. | CO4 | 0.00 | 0.00 | -65.22 | | | | |
| Σ Supp. | CO5 | 0.00 | 0.00 | -110.72 | | | | |
| Σ Supp. | CO5 | 0.00 | 0.00 | -110.72 | | | | |
| Σ Supp. | CO6 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | CO6 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | CO7 | 0.00 | 0.00 | -90.60 | | | | |
| Σ Supp. | CO7 | 0.00 | 0.00 | -90.60 | | | | |
| Σ Supp. | CO8 | 0.00 | 0.00 | -96.20 | | | | |
| Σ Supp. | CO8 | 0.00 | 0.00 | -96.20 | | | | |
| Σ Supp. | CO9 | 0.00 | 0.00 | -48.60 | | | | |
| Σ Supp. | CO9 | 0.00 | 0.00 | -48.60 | | | | |
| Σ Supp. | CO10 | 0.00 | 0.00 | -83.60 | | | | |
| Σ Supp. | CO10 | 0.00 | 0.00 | -83.60 | | | | |
| Σ Supp. | CO11 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | CO11 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | CO12 | 0.00 | 0.00 | -65.60 | | | | |
| Σ Supp. | CO12 | 0.00 | 0.00 | -65.60 | | | | |
| Σ Supp. | CO13 | 0.00 | 0.00 | -67.20 | | | | |
| Σ Supp. | CO13 | 0.00 | 0.00 | -67.20 | | | | |
| Σ Supp. | CO14 | 0.00 | 0.00 | -44.60 | | | | |
| Σ Supp. | CO14 | 0.00 | 0.00 | -44.60 | | | | |
| Σ Supp. | CO15 | 0.00 | 0.00 | -59.60 | | | | |
| Σ Supp. | CO15 | 0.00 | 0.00 | -59.60 | | | | |
| Σ Supp. | CO16 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | CO16 | 0.00 | 0.00 | -40.60 | | | | |
| Σ Supp. | CO17 | 0.00 | 0.00 | -55.60 | | | | |
| Σ Supp. | CO17 | 0.00 | 0.00 | -55.60 | | | | |
| Σ Supp. | CO18 | 0.00 | 0.00 | -57.20 | | | | |
| Σ Supp. | CO18 | 0.00 | 0.00 | -57.20 | | | | |
| Σ Supp. | CO19 | 0.00 | 0.00 | -42.20 | | | | |
| Σ Supp. | CO19 | 0.00 | 0.00 | -42.20 | | | | |

4.12 CROSS-SECTIONS - INTERNAL FORCES

| Member No. | LC/CO | Node No. | Location x [m] | Forces [kN] | | | Moments [kNm] | | |
|---|-------|----------|----------------|-------------|----------------|----------------|----------------|----------------|----------------|
| | | | | N | V _y | V _z | M _T | M _y | M _z |
| Section No. 2: 2UV UPE 240-70/10 EN 10279 | | | | | | | | | |
| 1 | LC1 | 1 | 0.000 | 0.00 | 0.00 | 20.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 |
| | LC2 | 1 | 0.000 | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -25.00 | 0.00 | 0.00 | 0.00 |
| LC3 | 1 | 0.000 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 | |
| | 2 | 1.000 | 0.00 | 0.00 | -4.00 | 0.00 | 0.00 | 0.00 | |

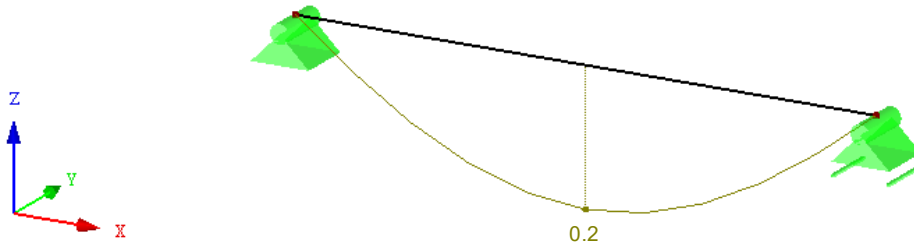
■ 4.12 CROSS-SECTIONS - INTERNAL FORCES

| Member No. | LC/CO | Node No. | Location x [m] | Forces [kN] | | | Moments [kNm] | | |
|------------|-------|----------|----------------|-------------|----------------|----------------|----------------|----------------|----------------|
| | | | | N | V _y | V _z | M _T | M _y | M _z |
| 1 | CO1 | 1 | 0.000 | 0.00 | 0.00 | 27.41 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | -0.00 | -27.41 | 0.00 | 0.00 | 0.00 |
| | CO2 | 1 | 0.000 | 0.02 | 0.00 | 59.91 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.02 | -0.00 | -59.91 | 0.00 | 0.00 | 0.00 |
| | CO3 | 1 | 0.000 | 0.02 | 0.00 | 63.55 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.02 | 0.00 | -63.55 | 0.00 | 0.00 | 0.00 |
| | CO4 | 1 | 0.000 | 0.01 | 0.00 | 32.61 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.01 | 0.00 | -32.61 | 0.00 | 0.00 | 0.00 |
| | CO5 | 1 | 0.000 | 0.02 | 0.00 | 55.36 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.02 | 0.00 | -55.36 | 0.00 | 0.00 | 0.00 |
| | CO6 | 1 | 0.000 | 0.00 | 0.00 | 20.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 |
| | CO7 | 1 | 0.000 | 0.01 | 0.00 | 45.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.01 | -0.00 | -45.30 | 0.00 | 0.00 | 0.00 |
| | CO8 | 1 | 0.000 | 0.01 | 0.00 | 48.10 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.01 | -0.00 | -48.10 | 0.00 | 0.00 | 0.00 |
| | CO9 | 1 | 0.000 | 0.00 | 0.00 | 24.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | -0.00 | -24.30 | 0.00 | 0.00 | 0.00 |
| | CO10 | 1 | 0.000 | 0.01 | 0.00 | 41.80 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.01 | 0.00 | -41.80 | 0.00 | 0.00 | 0.00 |
| | CO11 | 1 | 0.000 | 0.00 | 0.00 | 20.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 |
| | CO12 | 1 | 0.000 | 0.01 | 0.00 | 32.80 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.01 | 0.00 | -32.80 | 0.00 | 0.00 | 0.00 |
| | CO13 | 1 | 0.000 | 0.01 | 0.00 | 33.60 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.01 | -0.00 | -33.60 | 0.00 | 0.00 | 0.00 |
| | CO14 | 1 | 0.000 | 0.00 | 0.00 | 22.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | -0.00 | -22.30 | 0.00 | 0.00 | 0.00 |
| | CO15 | 1 | 0.000 | 0.00 | 0.00 | 29.80 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -29.80 | 0.00 | 0.00 | 0.00 |
| | CO16 | 1 | 0.000 | 0.00 | 0.00 | 20.30 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -20.30 | 0.00 | 0.00 | 0.00 |
| | CO17 | 1 | 0.000 | 0.00 | 0.00 | 27.80 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | -0.00 | -27.80 | 0.00 | 0.00 | 0.00 |
| | CO18 | 1 | 0.000 | 0.00 | 0.00 | 28.60 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | -0.00 | -28.60 | 0.00 | 0.00 | 0.00 |
| | CO19 | 1 | 0.000 | 0.00 | 0.00 | 21.10 | 0.00 | 0.00 | 0.00 |
| | | 2 | 1.000 | 0.00 | 0.00 | -21.10 | 0.00 | 0.00 | 0.00 |

GLOBAL DEFORMATIONS u

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10
Global Deformations u [mm]
Result Combinations: Min Values

Isometric

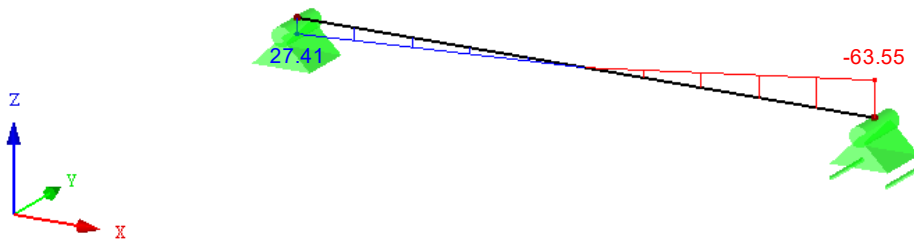


Factor of deformations: 1300.00
Max u: 0.2, Min u: 0.0 mm

INTERNAL FORCES V_z

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10
Internal Forces V-z
Result Combinations: Min Values

Isometric

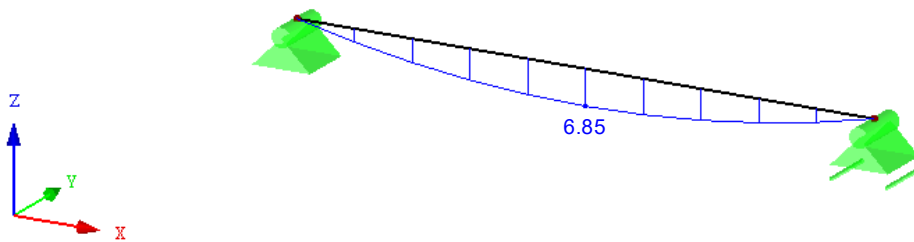


Max V-z: 27.41, Min V-z: -63.55 [kN]

INTERNAL FORCES M_y

RC1 : ULS (STR/GEO) - Permanent / transient - Eq. 6.10
Internal Forces M-y
Result Combinations: Min Values

Isometric



Max M-y: 6.85, Min M-y: 0.00 [kNm]

1.1 GENERAL DATA

| | | | |
|---|-----|--|--|
| Members to design: | 1 | | |
| Sets of members to design: | | | |
| National Annex: | CEN | | |
| Ultimate Limit State Design Result combinations to design: | RC1 | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 | |
| Serviceability Limit State Design Result combinations to design: | RC1 | ULS (STR/GEO) - Permanent / transient - Eq. 6.10 | |

1.2 MATERIALS

| Matl. No. | Material Description | E- Modulus E [kN/cm ²] | Shear Modulus G [kN/cm ²] | Poisson's Ratio ν [-] | Yield Stress f_{yk} [kN/cm ²] | Max. Thickness t [mm] |
|-----------|----------------------------------|---------------------------------------|--|------------------------------|--|--------------------------|
| 1 | Steel S 355 EN 10025-2:2004-11 | 21000.00 | 8076.92 | 0.300 | 35.50 | 3.0 |
| | | | | | 35.50 | 16.0 |
| | | | | | 34.50 | 40.0 |
| | | | | | 33.50 | 63.0 |
| | | | | | 32.50 | 80.0 |
| | | | | | 31.50 | 100.0 |
| | | | | | 29.50 | 150.0 |
| | | | | | 28.50 | 200.0 |

1.3 CROSS-SECTIONS

| Sect. No. | Matl. No. | Cross-Section Description | Cross-Section Type | Max Design Ratio | Comment |
|-----------|-----------|--|--------------------|------------------|---------|
| 2 | 1 | 2UV UPE 240-70/10 EN 10279 Type General - Only Class 3 and Class 4 possible | General | 0.11 | |

1.5 EFFECTIVE LENGTHS - MEMBERS

| Member No. | Buckling Possible | Buckling About Axis y | | | Buckling About Axis z | | | Lateral-Torsional Buckling | | | | |
|------------|-------------------------------------|-------------------------------------|------------|----------------|-------------------------------------|------------|----------------|----------------------------|-------|-------|-----------|-----------|
| | | Possible | $k_{cr,y}$ | $L_{cr,y}$ [m] | Possible | $k_{cr,z}$ | $L_{cr,z}$ [m] | Possible | k_z | k_w | L_w [m] | L_T [m] |
| 1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.00 | 1.000 | <input checked="" type="checkbox"/> | 1.00 | 1.000 | <input type="checkbox"/> | 1.0 | 1.0 | 1.000 | 1.000 |

1.9 SERVICEABILITY DATA

| No. | Reference to | Members/Sets No. | Reference Length | | Direct. | Precamber e_0 [mm] | Beam Type |
|-----|--------------|------------------|--------------------------|-------|---------|-------------------------|-----------|
| | | | Manually | l [m] | | | |
| 1 | Member | 1 | <input type="checkbox"/> | 1.000 | y, z | 0.0 | Beam |
| 2 | Member | 2 | <input type="checkbox"/> | 2.520 | y, z | 0.0 | Beam |
| 3 | Member | 4 | <input type="checkbox"/> | 2.520 | y, z | 0.0 | Beam |

1.12 PARAMETERS - MEMBERS

| Member No. | Description | Parameter |
|------------|---|----------------------------------|
| 1 | Cross-Section | 2 - 2UV UPE 240-70/10 EN 10279 |
| | Shear panel | <input type="checkbox"/> |
| | Rotational restraint | <input type="checkbox"/> |
| | Cross-sectional area for tension design | <input type="checkbox"/> |

2.4 DESIGN BY MEMBER

| Member No. | Location x [m] | LC/CO/ RC | Design | Equation No. | Description |
|------------|---|--------------|--------|-----------------|---|
| 1 | Cross-section No. 2 - 2UV UPE 240-70/10 EN 10279 | | | | |
| | 0.500 | RC1 | 0.07 | ≤ 1 | CS112) Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 3 |
| | 0.000 | RC1 | 0.11 | ≤ 1 | CS122) Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4 |
| | 0.500 | RC1 | 0.07 | ≤ 1 | CS143) Cross-section check - Bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section |
| | 0.000 | RC1 | 0.00 | ≤ 1 | SE400) Serviceability - Negligible deformations |
| | 0.500 | RC1 | 0.05 | ≤ 1 | SE401) Serviceability - Combination of actions 'Characteristic' - z-direction |



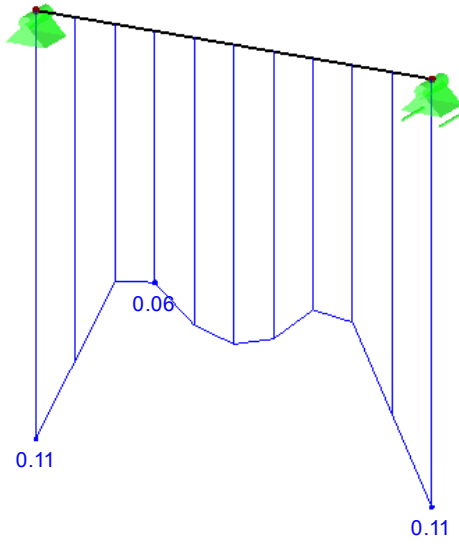
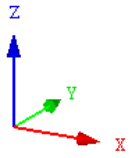
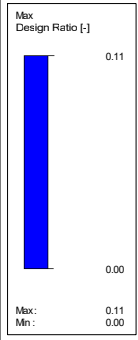
DESIGN RATIO

RF-STEEL EC3 CA1

Ultimate Limit State: Cross-Section Design, Stability Design, Weld Design, Pressure Design, Plastic Design

Serviceability Limit State: Deformations, Web Breathing

Isometric



Max Design Ratio: 0.11