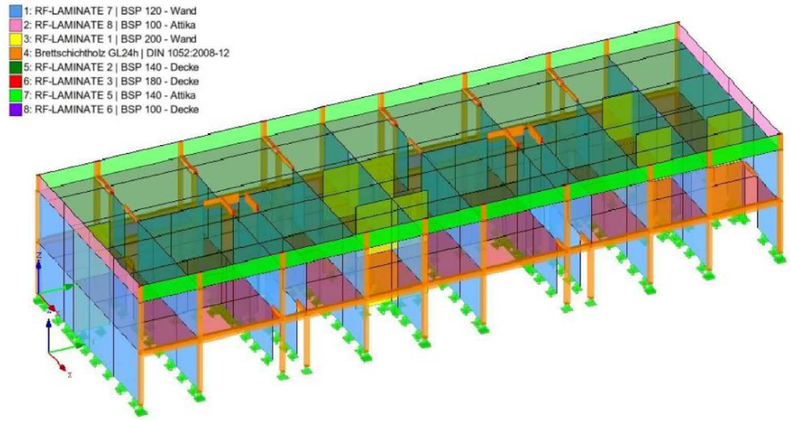
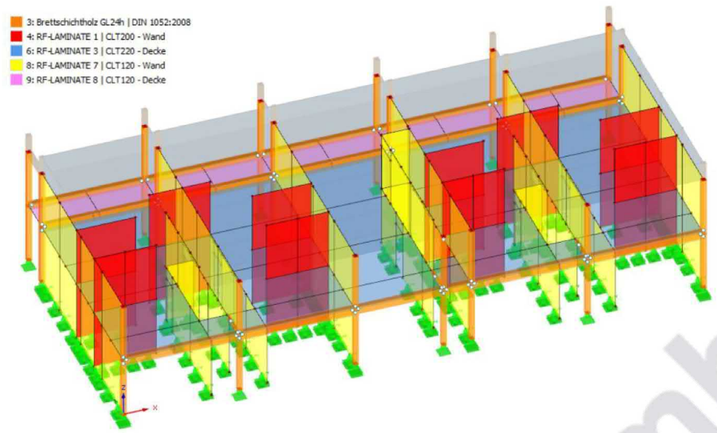
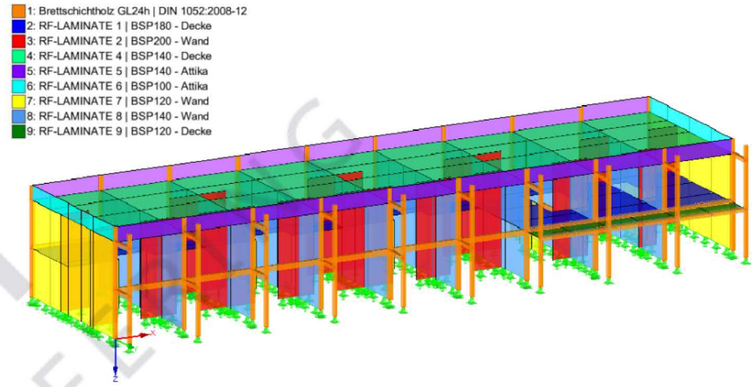
## Haus B,D



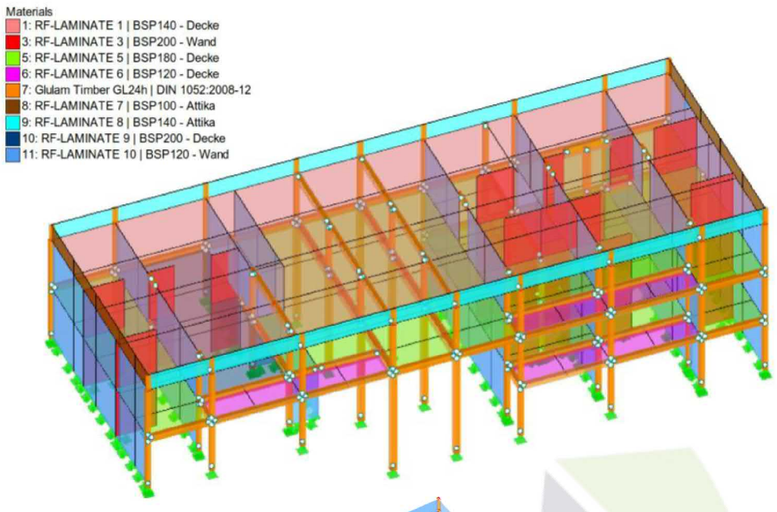

## Haus C

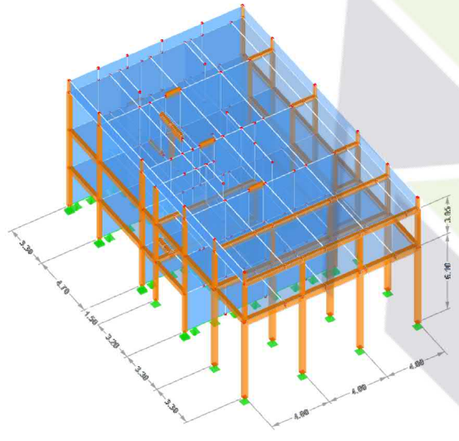


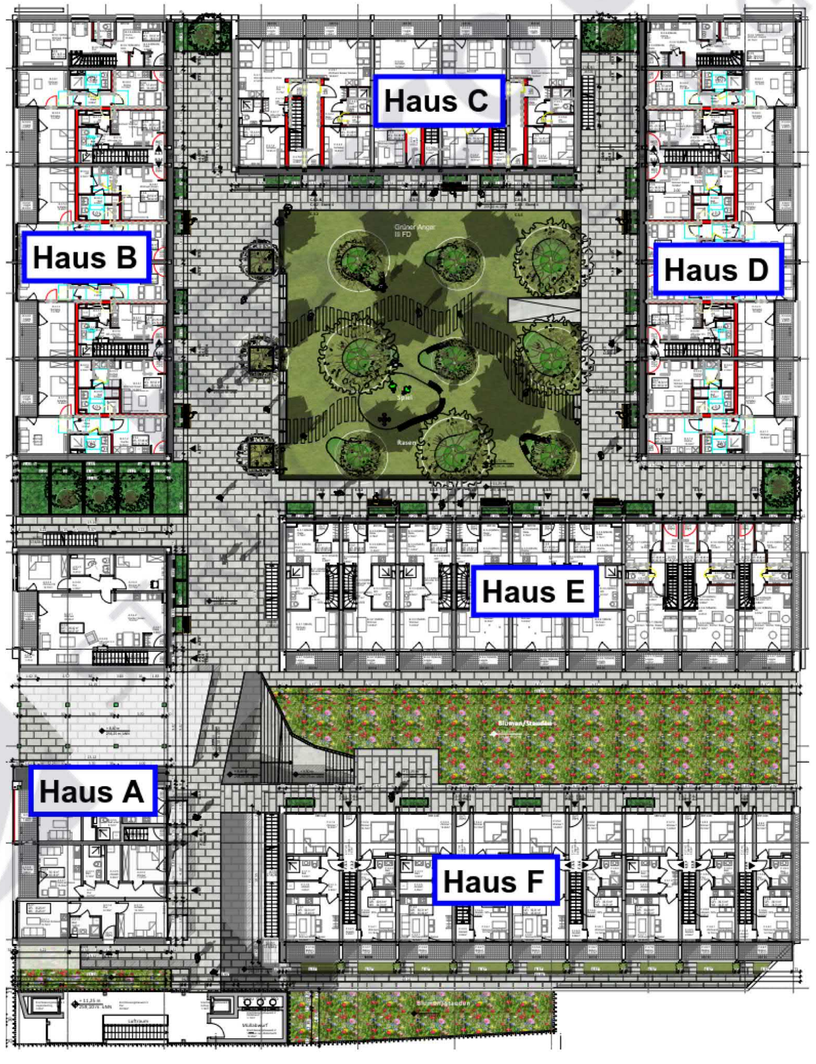

## Haus E



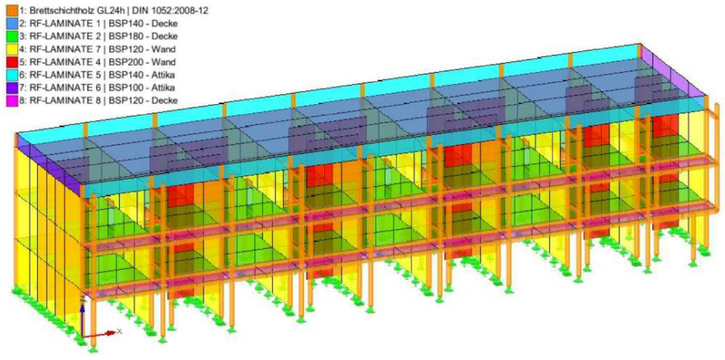

## Haus A

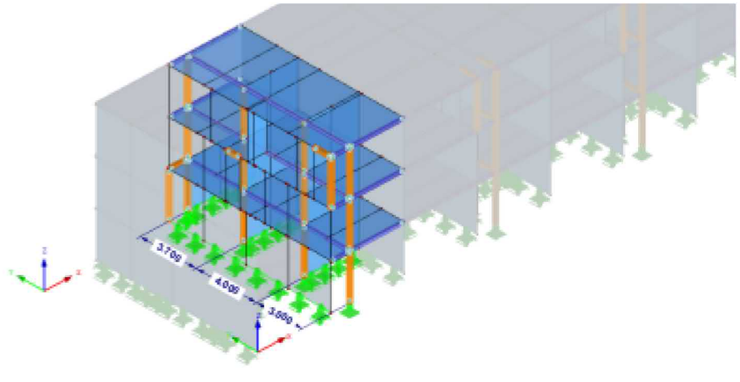





## Haus F



**HAUS C**

g_DL = 113700 kg
q_DL = 0
s_DL = 30500 kg

g_4.0G = 170200 kg
q_4.0G = 86800 kg

g_3.0G = 108800 kg
q_3.0G = 69000 kg

kx = 81081 kN/m

ky = 152542 kN/m

**HAUS B**

g_DL = 152100 kg
q_DL = 0
s_DL = 42900 kg

g_4.0G = 211800 kg
q_4.0G = 104300 kg

g_3.0G = 150500 kg
q_3.0G = 102600 kg

kx = 215323 kN/m

ky = 75852 kN/m

**HAUS D**

g_DL = 152100 kg
q_DL = 0
s_DL = 42900 kg

g_4.0G = 211800 kg
q_4.0G = 104300 kg

g_3.0G = 150500 kg
q_3.0G = 102600 kg

kx = 215323 kN/m

ky = 75852 kN/m

**HAUS E**

g_DL = 158400 kg
q_DL = 0
s_DL = 44600 kg

g_4.0G = 180000 kg
q_4.0G = 76600 kg

g_3.0G = 158100 kg
q_3.0G = 104200 kg

kx = 84938 kN/m

ky = 234310 kN/m

Bereich, in dem Lasten nicht in die Massenberechnung einbezogen wurden. Sie sollten im 3D-FEM-Modell auf der Ebene 3.OG angewendet werden:
g=2.5kN/m2
q=2.3kN/m2

Bereich, in dem Lasten nicht in die Massenberechnung einbezogen wurden. Sie sollten im 3D-FEM-Modell auf der Ebene 2.OG angewendet werden:
g=2.5kN/m2
q=?? kN/m2

**HAUS A**

g_DL = 127700 kg
q_DL = 0
s_DL = 38500 kg

g_4.0G = 196500 kg
q_4.0G = 82000 kg

g_3.0G = 84000 kg
q_3.0G = 41500 kg

g_2.0G = 62500 kg
q_2.0G = 34700 kg

kx = 147273 kN/m

ky = 43615 kN/m

**HAUS F**

g_DL = 156300 kg
q_DL = 0
s_DL = 54900 kg

g_4.0G = 258000 kg
q_4.0G = 132000 kg

g_3.0G = 275900 kg
q_3.0G = 135300 kg

g_2.0G = 165300 kg
q_2.0G = 104200 kg

kx = 65971 kN/m

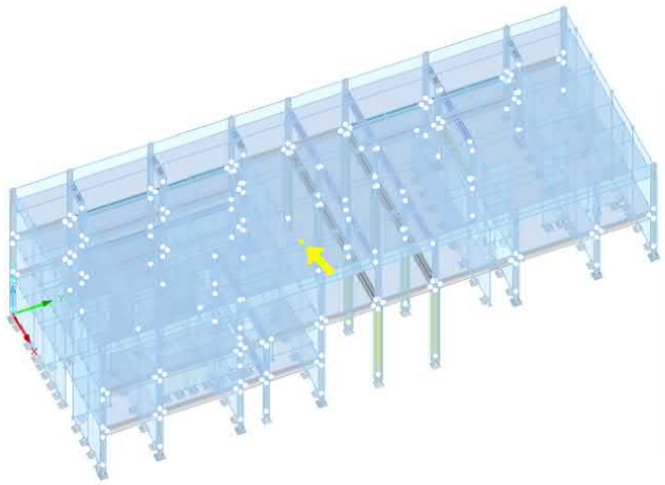
ky = 130673 kN/m

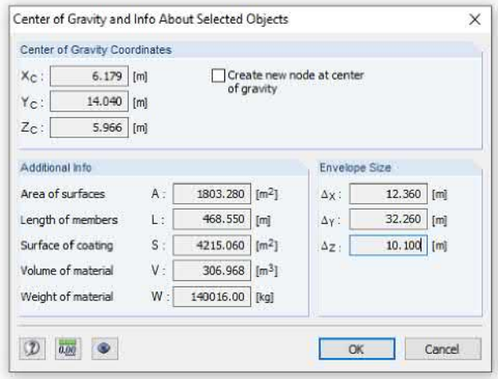
| INDEX | DATUM + NAME | ÄNDERUNG | |
|---|---|---|---|
| | | | |
| | | | |
| c | 13.01.2025 DM | Geänderte Wandstärken, Verbindungen der CLT-Paneele, Lasten, zusätzlich angepasste Modelle an die neueste Architektur | |
| b | 06.12.2024 DM | Geänderte Wandstärken, längsseitige Verbindungen der CLT-Paneele, zusätzlich angepasste Modelle an die neueste Architektur | |
| a | 16.07.2024 DM | Änderungen in Haus A; Schneelast hinzugefügt | |

# Schwerpunkt, Massen, Bauwerkssteifigkeit - 2025.01.13

## HAUS A

1. **Schwerpunkt.**



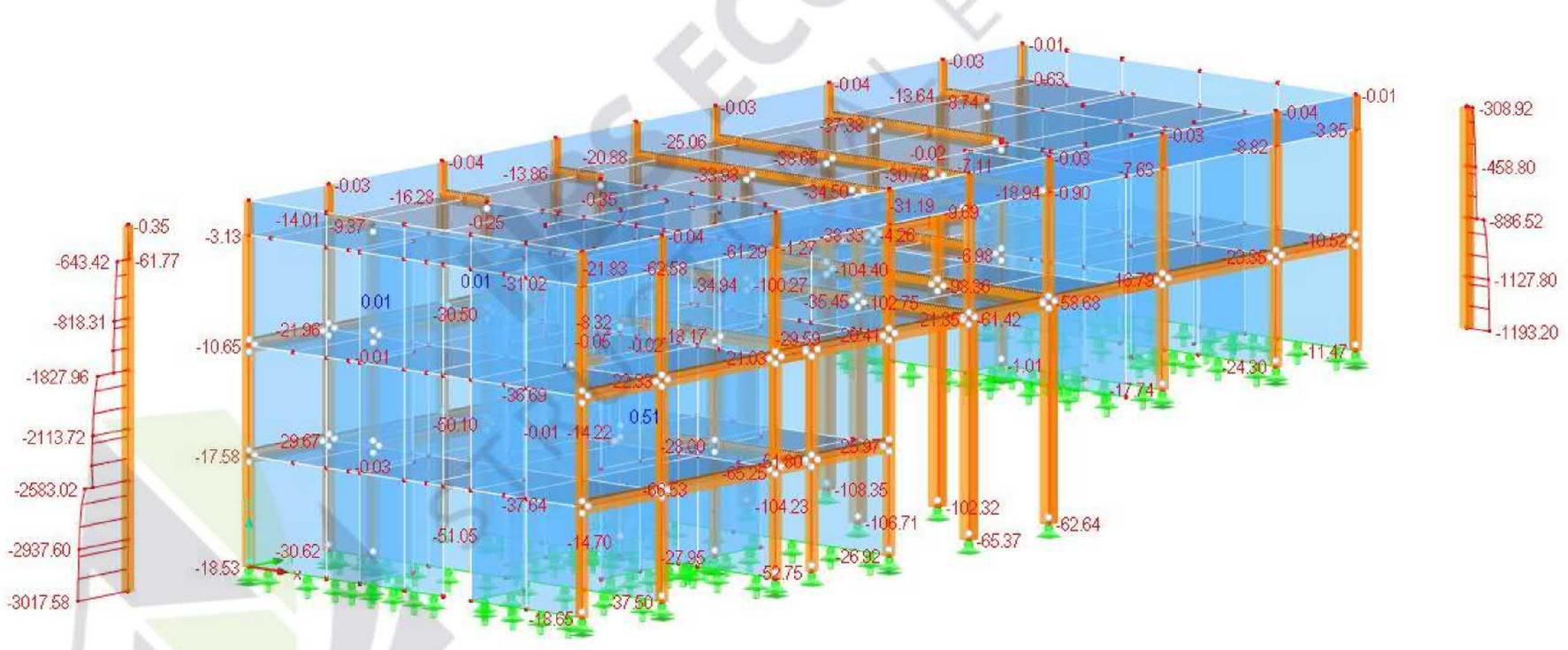



**Schwerpunkt:**

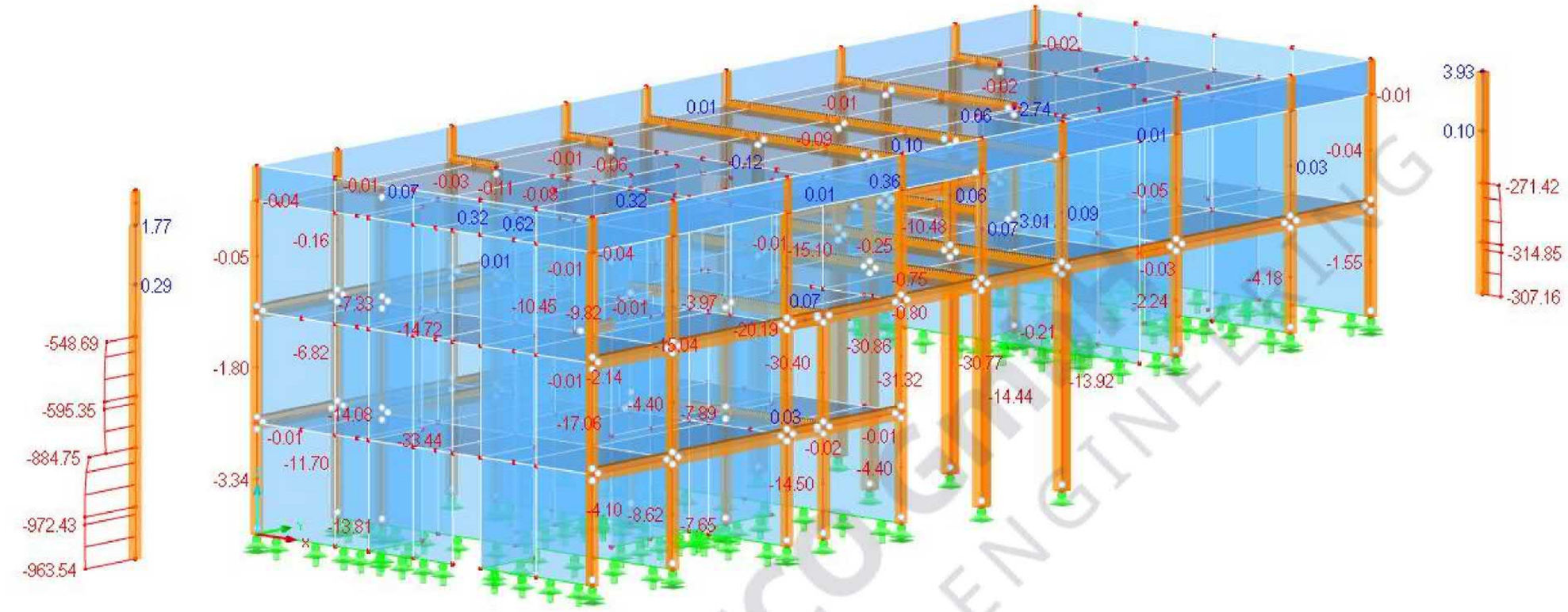
X = 6.18m

Y = 14.04m

2. **Massen/Lasten für jede Ebene.**
   Ermittelt mit dem Ergebnisbalken.
   G – Ständige Last:




Q – Nutzlast:




Lasten für die Dachebene:
g_DL = 818 kN + 459 kN = 1277 kN = 127700 kg
q_DL = 0
s_DL = 397 m2 * 0.68 kN/m2 + (12.4m+ 32m)*2 * 5m * 0.52kN/m2 * 1/2 = 385 kN = 38500 kg

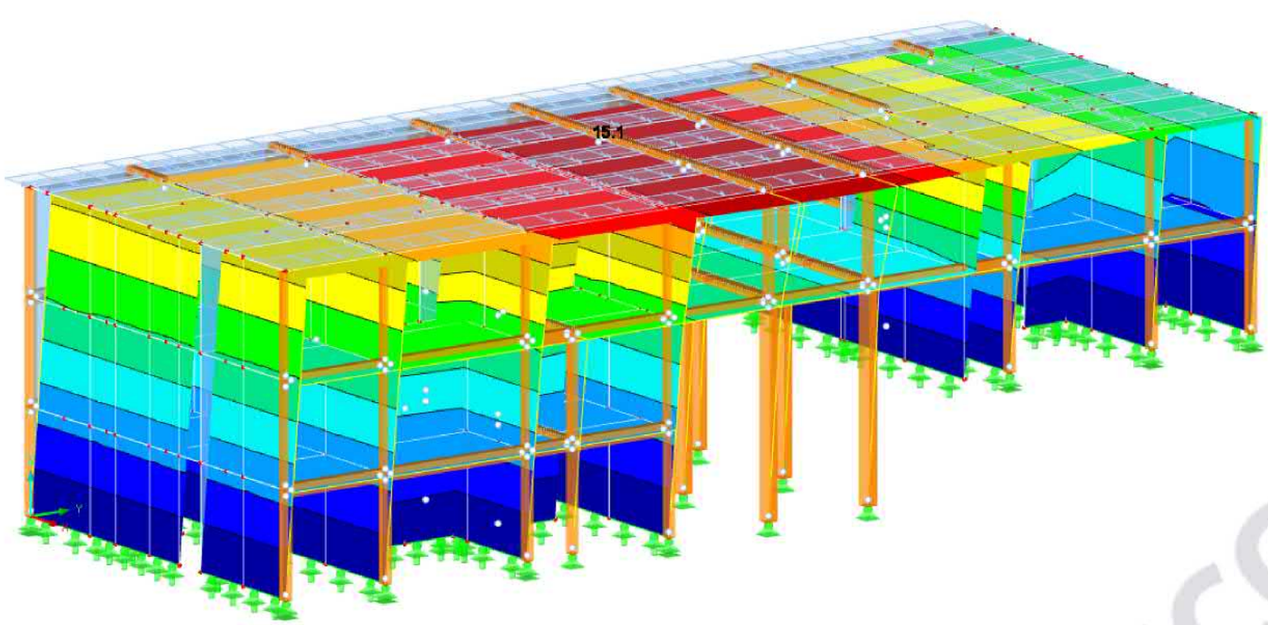
Lasten für 4.OG:
g_4.OG = 2114-818 + 1128-459 = 1965 kN = 196500 kg
q_4.OG = 549 + 271 = 820 kN = 82000 kg

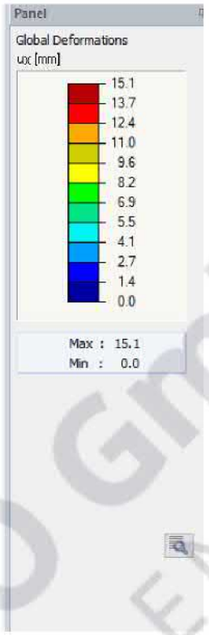
Lasten für 3.OG:
g_3.OG = 2938-2114 = 824 kN = 82400 kg
q_3.OG = 964-549 = 415 kN = 41500 kg

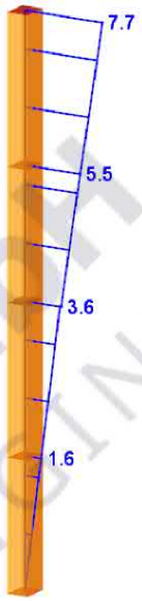
Lasten für 2.OG (Betonplatte):
g_2.OG = 3018 kN – 2938 kN + 151 m2 * 2.5 kN/m2 + 2 * 37.2 m * 2.25 kN/m = 625 kN = 62500 kg
q_2.OG = 151 m2 * 2.3 kN/m2 = 347 kN = 34700 kg

## 3. Haus A - Bauwerkssteifigkeit

X Richtung




f,x = 3 kN/m$^2$ * 378 m$^2$ = 1134 kN

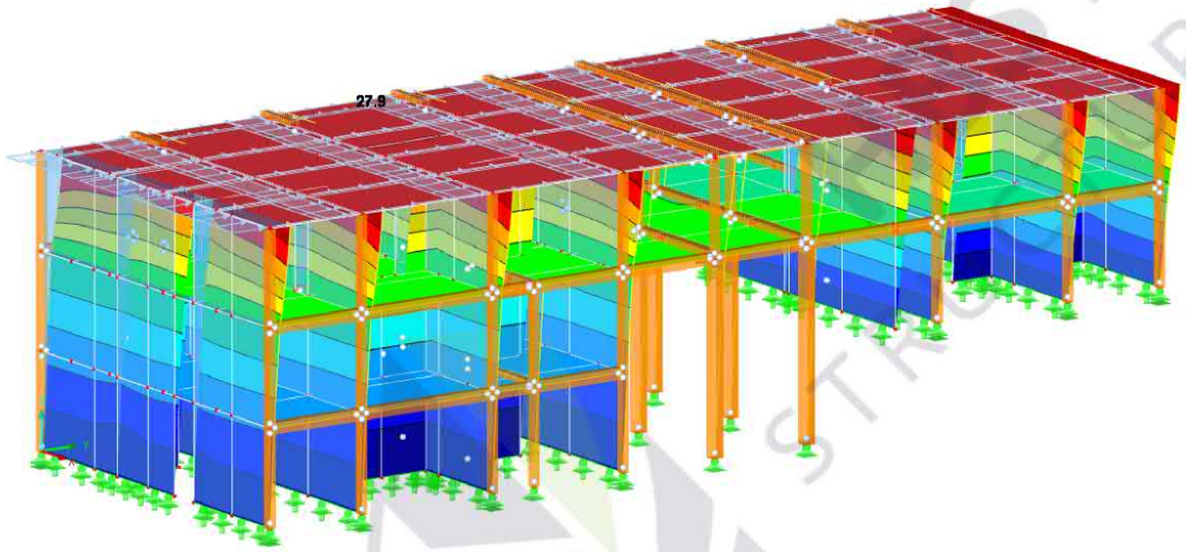
F,x = 1134 kN

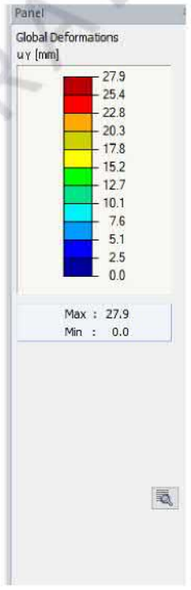
Ux = 7.70 mm = 0.0077 m

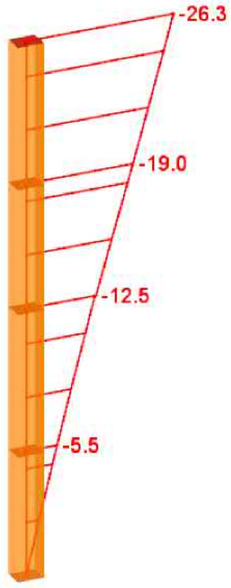
kx = Fx / ux = 1134/0.0077 = 147273 kN/m

**kx = 147273 kN/m**

Y Richtung




f,y = 3 kN/m$^2$ * 378 m$^2$ = 1134 kN

F,y = 1134 kN

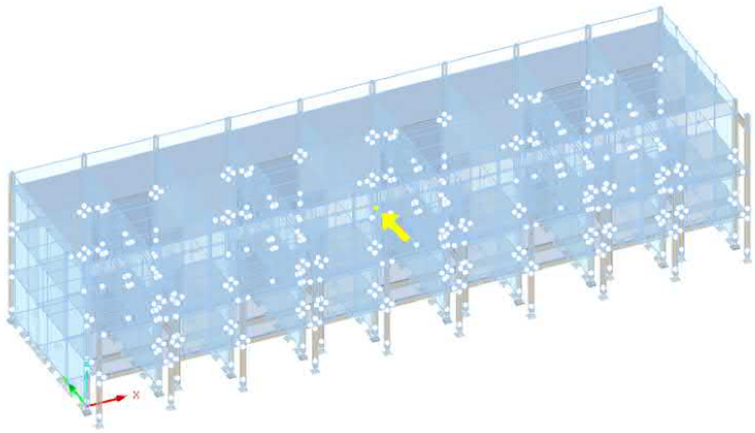
Uy = 26.30 mm = 0.026

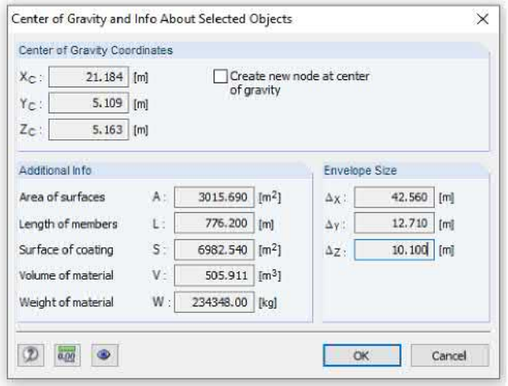
ky = Fy / uy = 1134/0.026= 43615 kN/m

**ky = 43615 kN/m**

# HAUS F

1. **Schwerpunkt.**



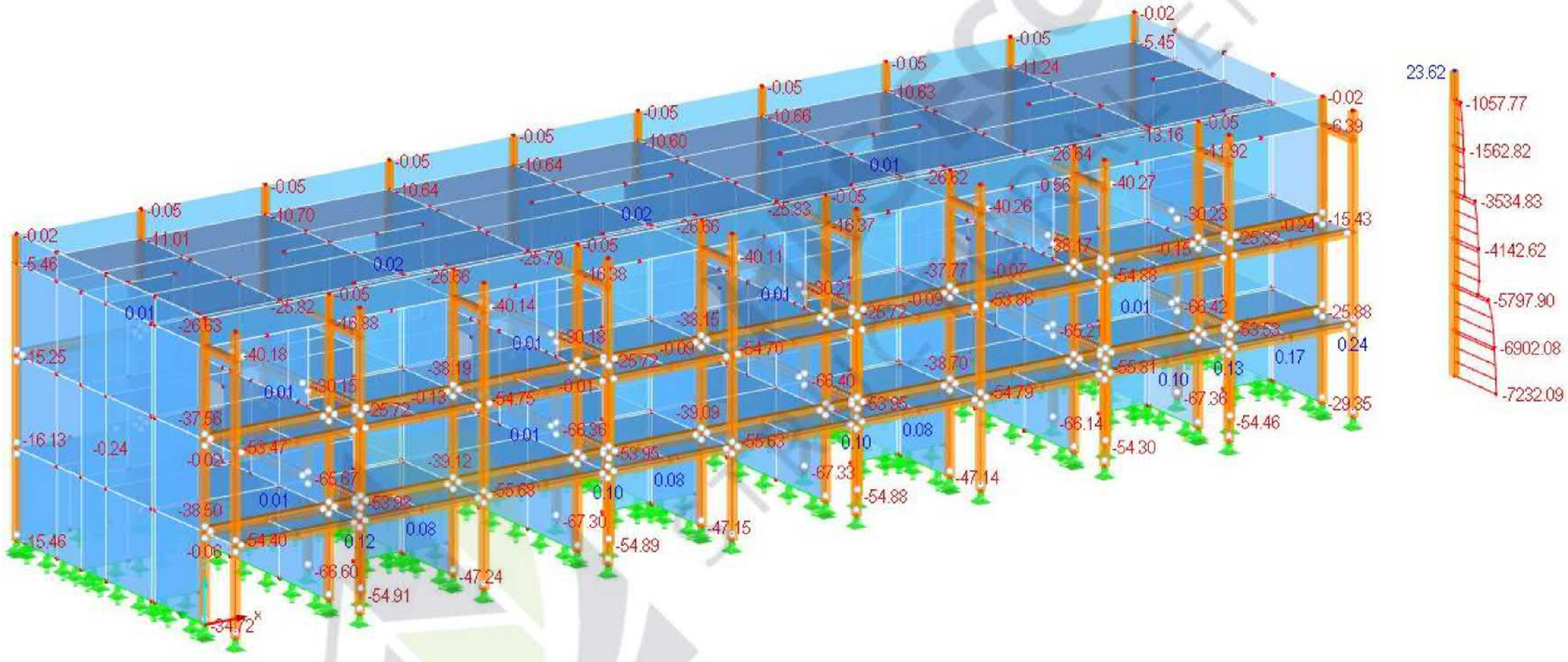



**Schwerpunkt:**

X = 21.18 m

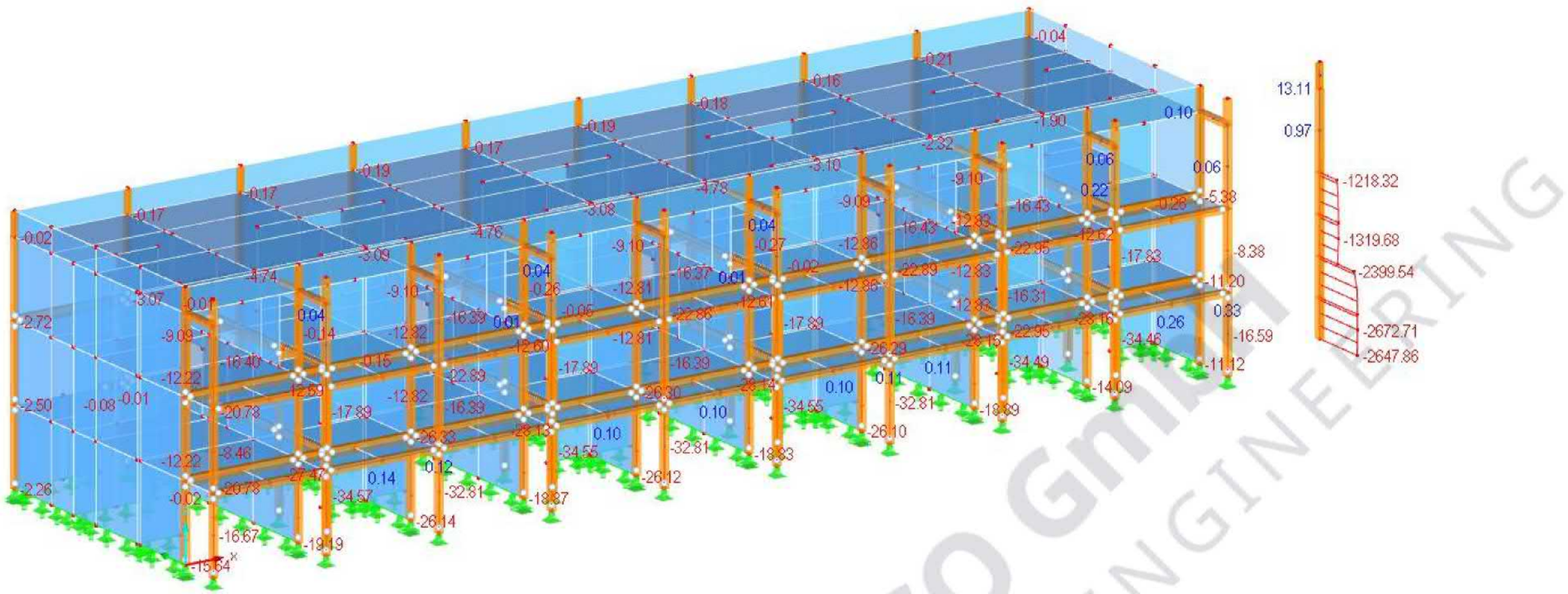
Y = 5.11 m

2. **Massen/Lasten für jede Ebene.**
   Ermittelt mit dem Ergebnisbalken.
   G – Ständige Last:






Q – Nutzlast:




Lasten für die Dachebene:
g_DL = 1563 kN = 156300 kg
q_DL = 0
s_DL = Dach + Balkone = 453 m2 * 0.68 kN/m2 + (10.7m+ 42.3m)*2 * 5m * 0.52kN/m2 * 1/2  +  (43.2m * 1.75m) * 2 * 0.68kN/m2 = 446 kN + 103 kN = 54900 kg

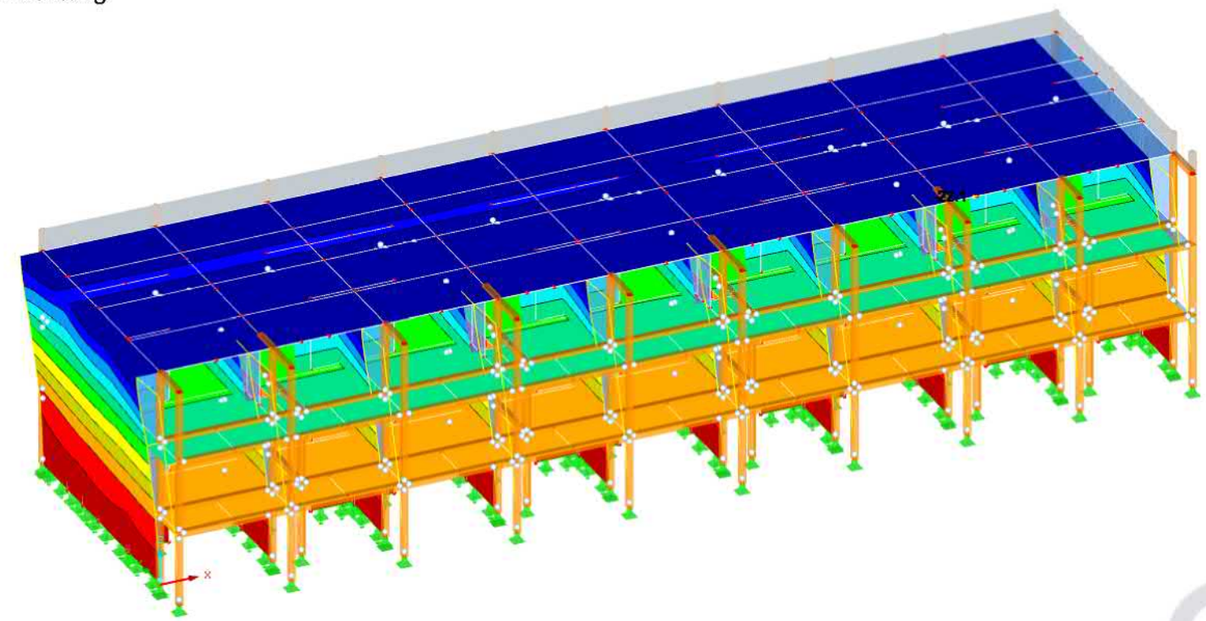
Lasten für 4.OG:
g_4.OG = 4143-1563 = 2580 kN = 258000 kg
q_4.OG = 1320 kN = 132000 kg

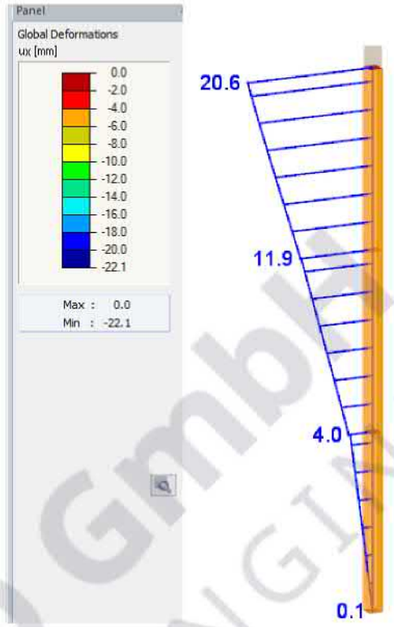
Lasten für 3.OG:
g_3.OG = 6902-4143 = 2759 kN = 275900 kg
q_3.OG = 2673-1320 = 1353 kN = 135300 kg

Lasten für 2.OG (Betonplatte):
g_2.OG = 7232 kN – 6902 kN + 453 $m^2$ * 2.5 kN/$m^2$ + 2 * 42.3 m * 2.25 kN/m = 1653 kN = 165300 kg
q_2.OG = 453 $m^2$ * 2.3 kN/$m^2$ = 1042 kN = 104200 kg

## 3. Haus F - Bauwerkssteifigkeit

X Richtung









f,x = 3 kN/m$^2$ *453 m$^2$ = 1359 kN

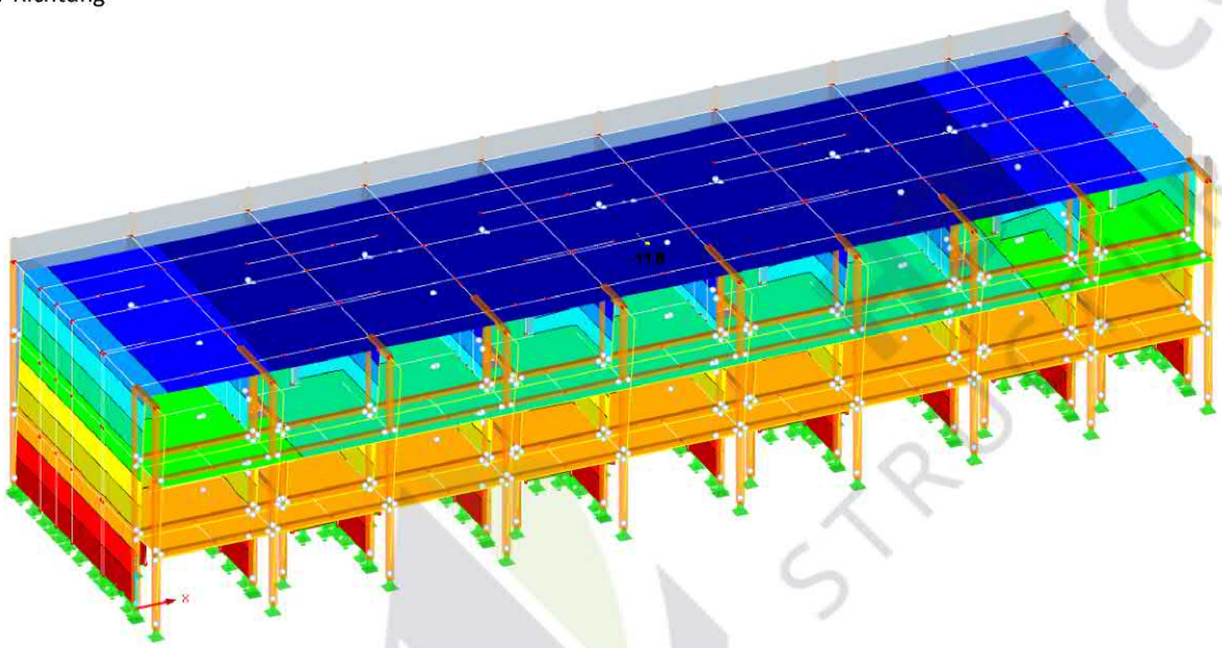
F,x = 1359 kN

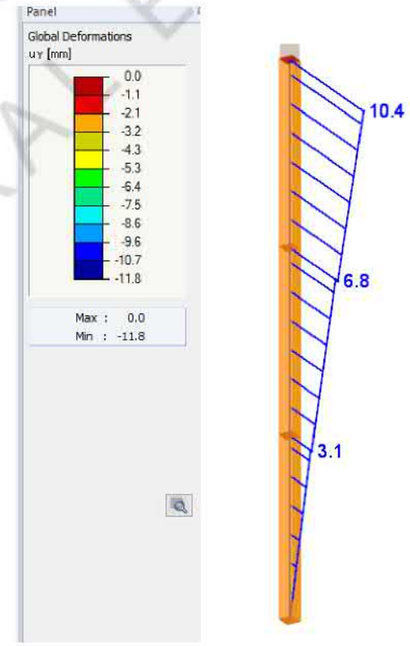
Ux =20.6 mm = 0.0206 m

kx = Fx / ux = 1359/0.0206 = 65971 kN/m

**kx = 65971 kN/m**

Y Richtung









f,y = 3 kN/m$^2$ *453 m$^2$ = 1359 kN

F,y = 1359 kN

Uy = 10.40 mm = 0.01040 m

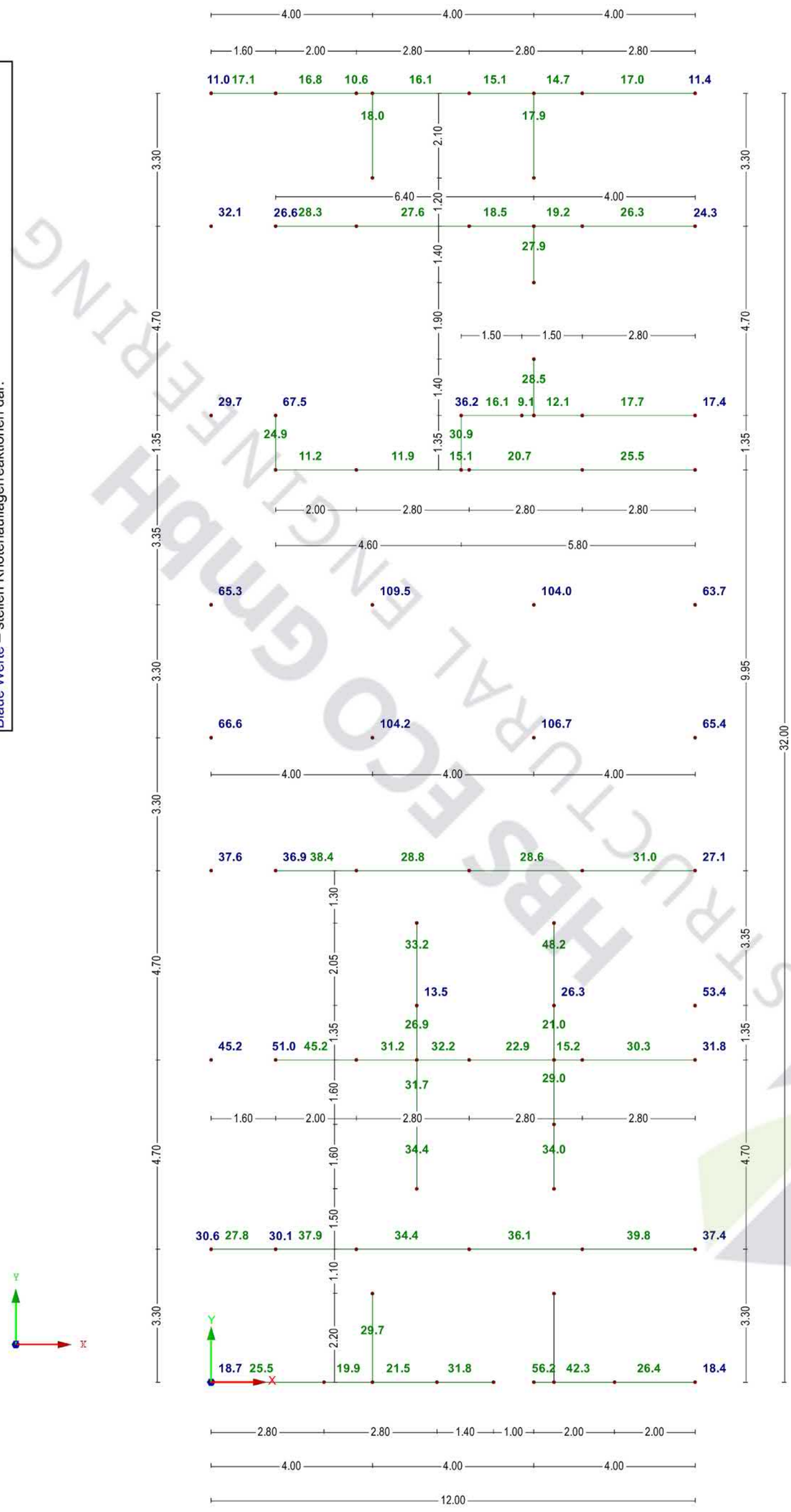
ky = Fy / uy =1359/0.0104 = 130673 kN/m

**ky = 130673 kN/m**

LF1 : G
Lagerreaktionen[kN], [kN/m]

Entgegen der Z-Richtung

Grüne Werte – stellen angenäherte, konstant verteilte Werte aus den Linienauflagerreaktionen dar.
Blaue Werte – stellen Knotenauflagerreaktionen dar.




LAGERREAKTIONEN

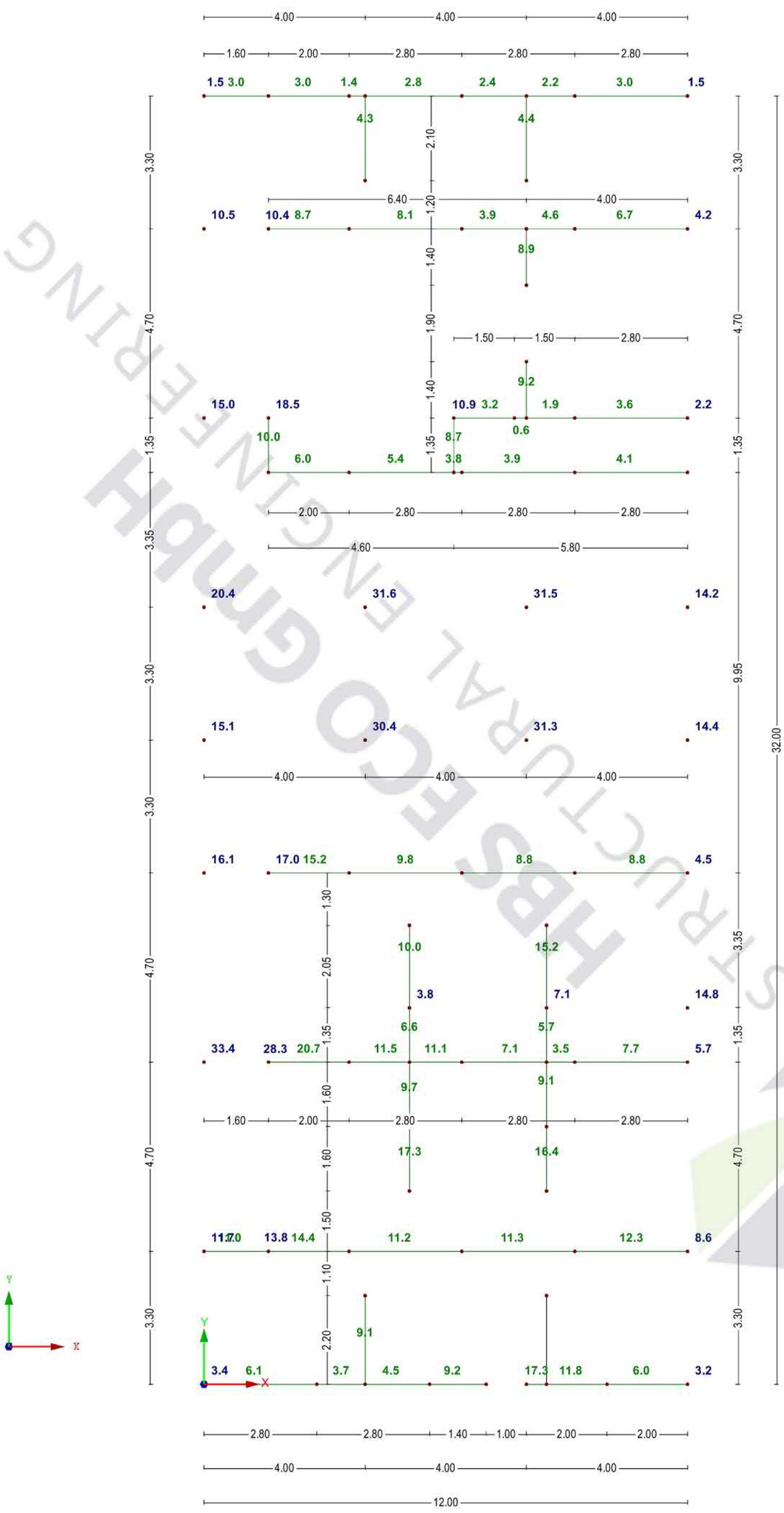
Max P-Z': -11.0, Min P-Z': -109.5 kN
Max p-z': -9.1, Min p-z': -56.2 kN/m

2.102 m

Modell: Haus A

LF2 : Q
Lagerreaktionen[kN], [kN/m]

Entgegen der Z-Richtung



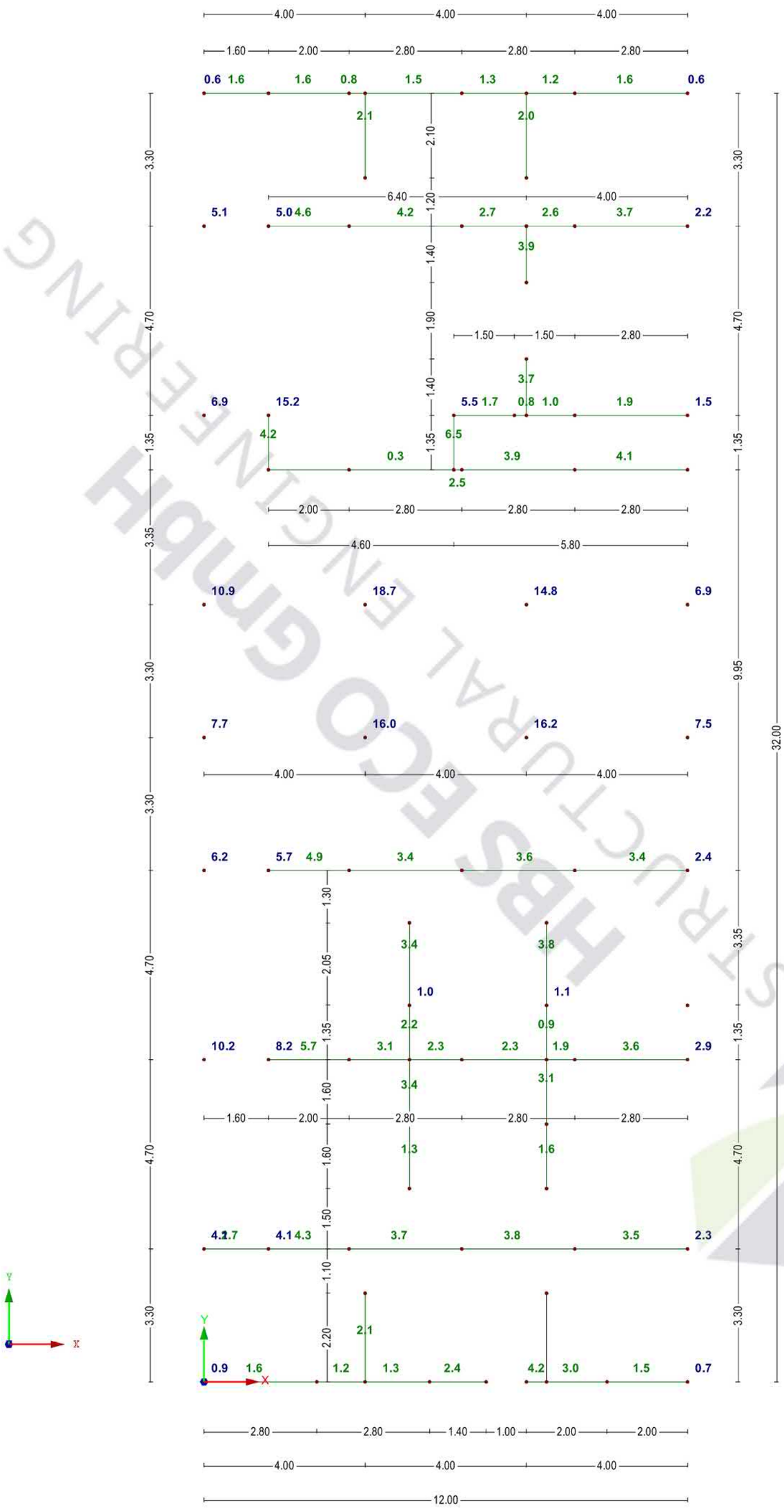

LAGERREAKTIONEN

Max P-Z': -1.5, Min P-Z': -33.4 kN
Max p-z': -0.6, Min p-z': -20.7 kN/m

2.102 m

LF3 : S
Lagerreaktionen[kN], [kN/m]

Entgegen der Z-Richtung






Modell: Haus A

LAGERREAKTIONEN

Max P-Z': 0.0, Min P-Z': -18.7 kN
Max p-z': 0.0, Min p-z': -6.5 kN/m

2.102 m