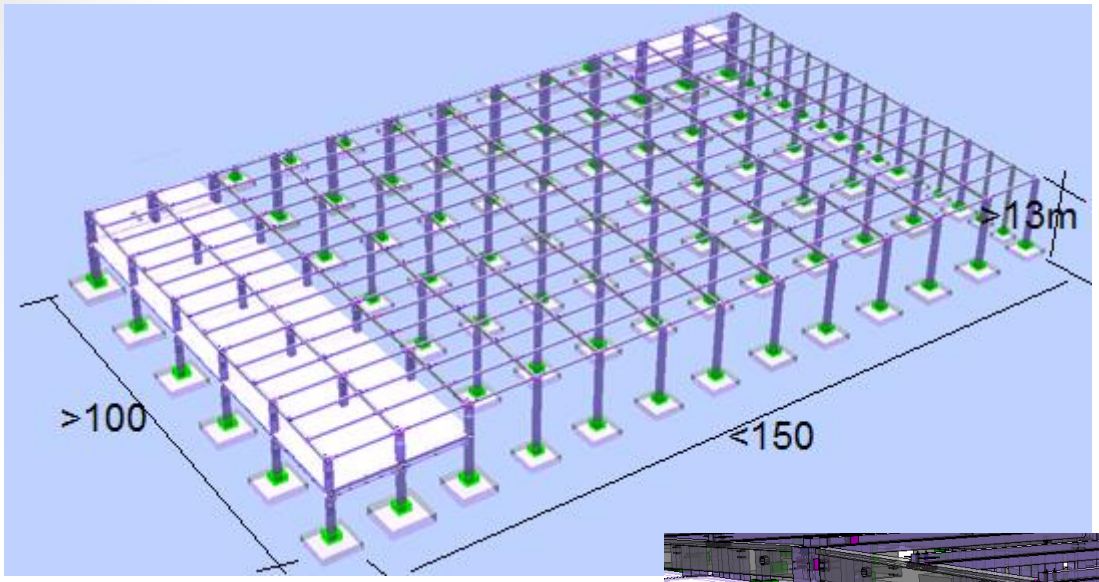
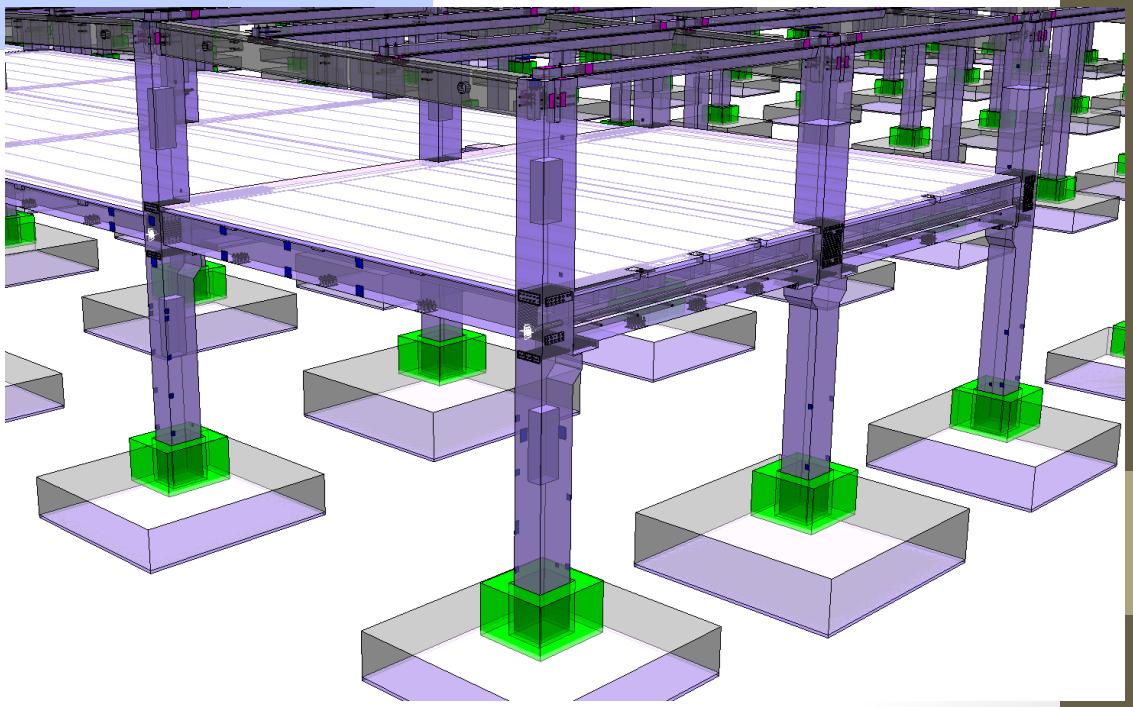
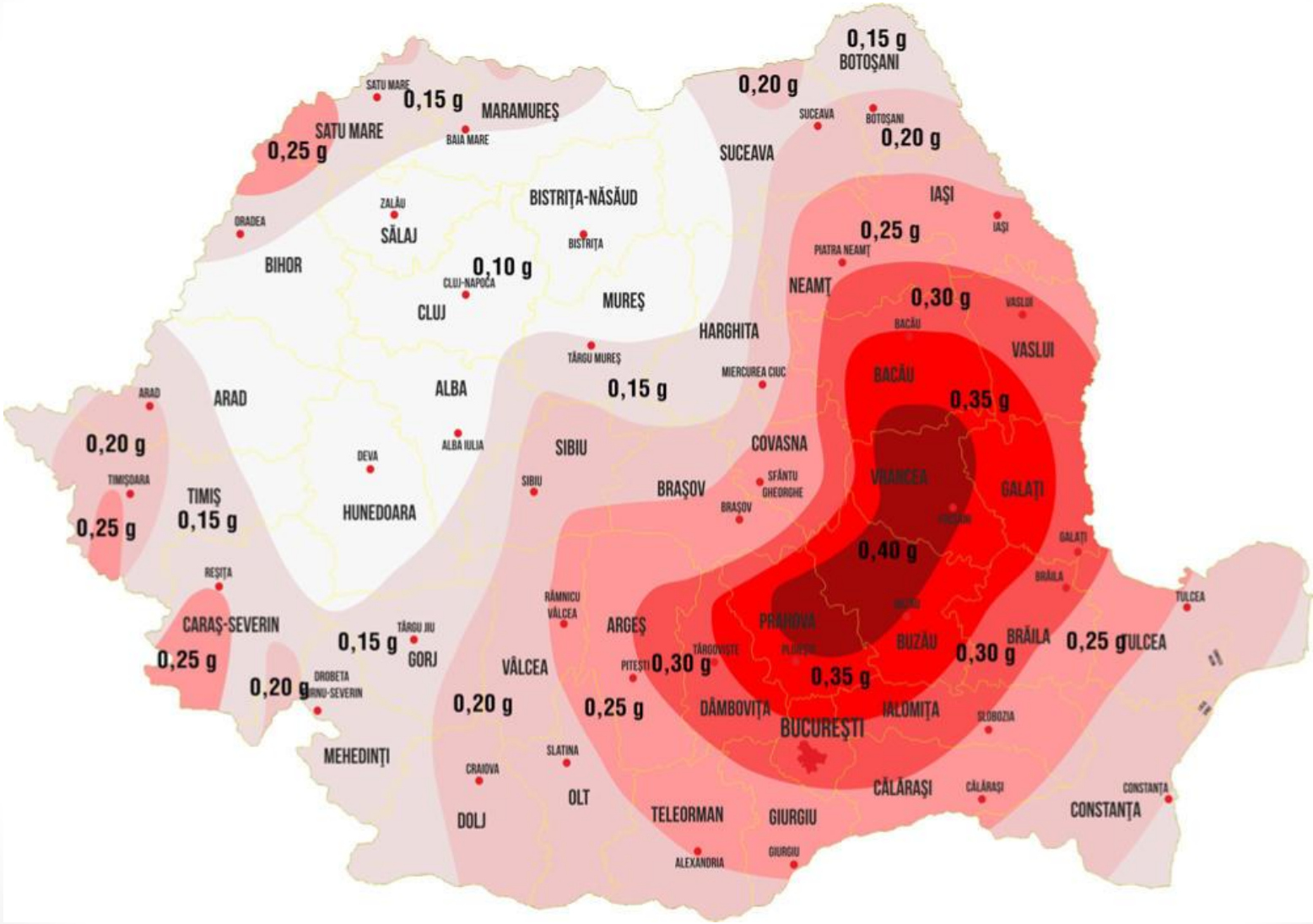
International Conference on Precast Concrete Solutions,
Bucharest, September 21, 2017

Precast concrete frame buildings with rigid connections in areas with high seismic activity

Prof. dr. ing. Zoltán Kiss
ing. Károly Bálint


>13m
>100
<150



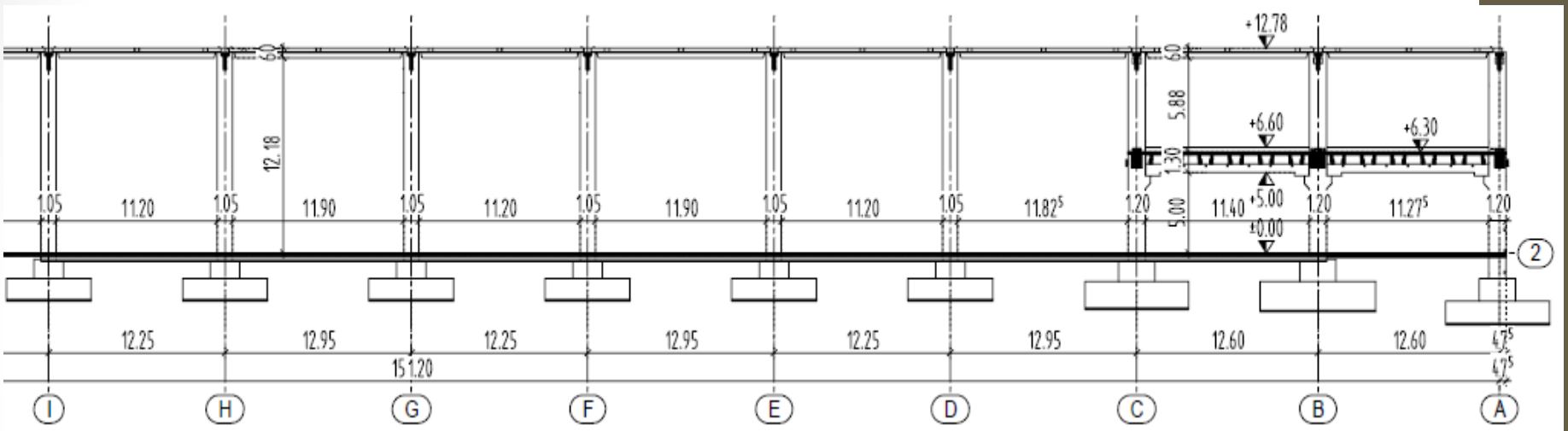

0,15 g
BOTOŞANI
0,20 g
SUCEAVA
0,20 g
SATU MARE
0,15 g
MARAMUREŞ
0,25 g
BAIA MARE
BISTRIŢA-NĂSĂUD
IAŞI
ZALĂU
ORADEA
SĂLAJ
0,25 g
BISTRIŢA
PIATRA NEAMŢ
BIHOR
0,10 g
CLUJ-NAPOCA
NEAMŢ
0,30 g
CLUJ
MUREŞ
VASLUI
HARGHITA
BACĂU
TÂRGU MUREŞ
MIERCUREA CIUC
0,15 g
0,35 g
ARAD
ARAD
ALBA
0,20 g
ALBA IULIA
SIBIU
COVASNA
DEVA
TIMIŞOARA
SFÂNTU GHEORGHE
VRANCEA
GALAŢI
TIMIŞ
0,15 g
HUNEDOARA
SIBIU
BRAŞOV
0,25 g
BRAŞOV
0,40 g
REŞIŢA
BRĂILA
RÂMNICU VÂLCEA
TULCEA
CARAŞ-SEVERIN
TÂRGU JIU
ARGEŞ
PRAHOVA
0,15 g
0,25 g
GORJ
TÂRGOVIŞTE
BUZĂU
BRĂILA
0,25 g
TULCEA
VÂLCEA
PITEŞTI
0,30 g
0,30 g
DROBETA TURNU-SEVERIN
0,20 g
0,35 g
0,20 g
0,25 g
DÂMBOVIŢA
IALOMIŢA
SLOBOZIA
BUCUREŞTI
MEHEDINŢI
SLATINA
CRAIOVA
CĂLĂRAŞI
CĂLĂRAŞI
CONSTANŢA
OLT
CONSTANŢA
DOLJ
TELEORMAN
GIURGIU
GIURGIU
ALEXANDRIA


H≥13m

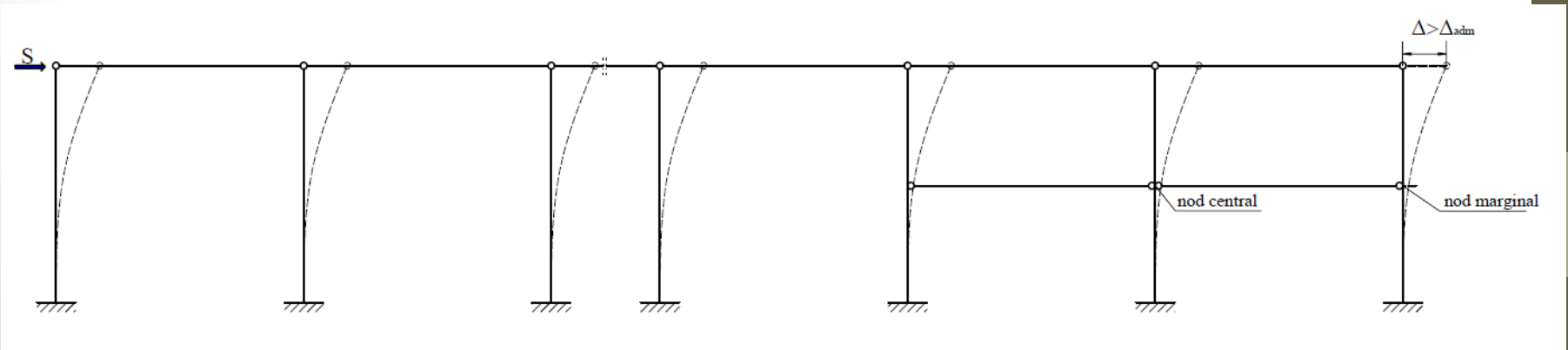
prefbeton
ORGANIZAȚIA PATRONALĂ A PRODUCĂTORILOR DE PREFABRICATE DIN BETON

International Conference on Precast Concrete Solutions,
Bucharest, September 21, 2017

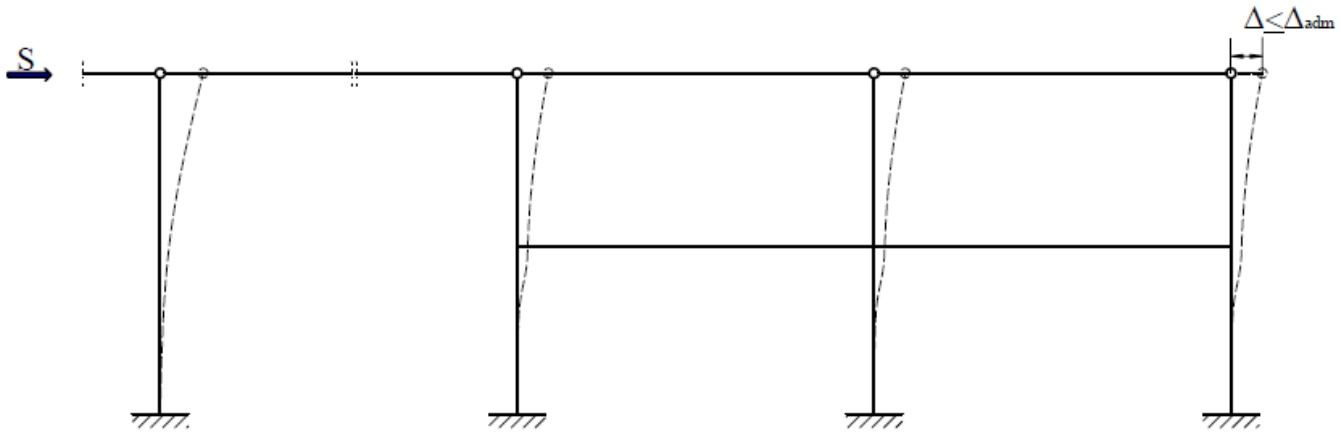
GENERAL SECTION



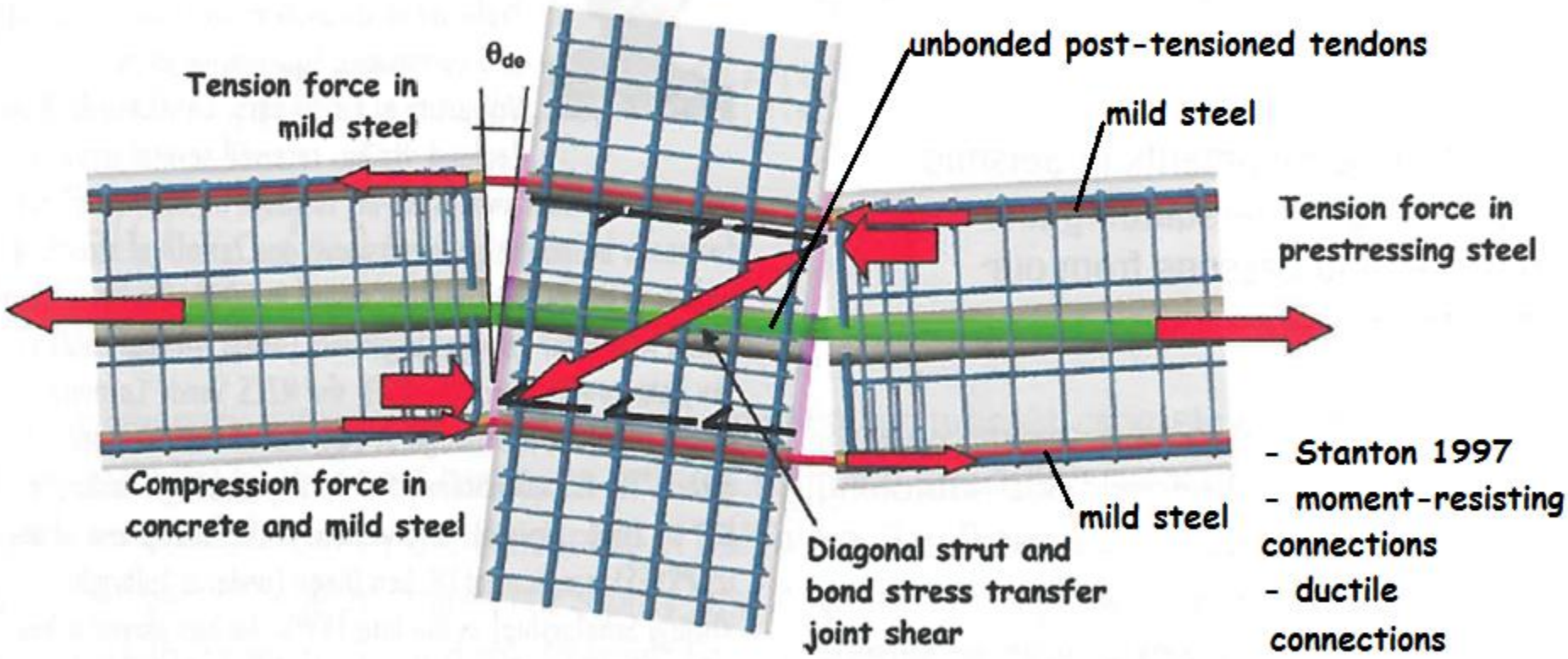
STATIC SCHEME WITH PINNED CONNECTIONS
DEFORMED SHAPE



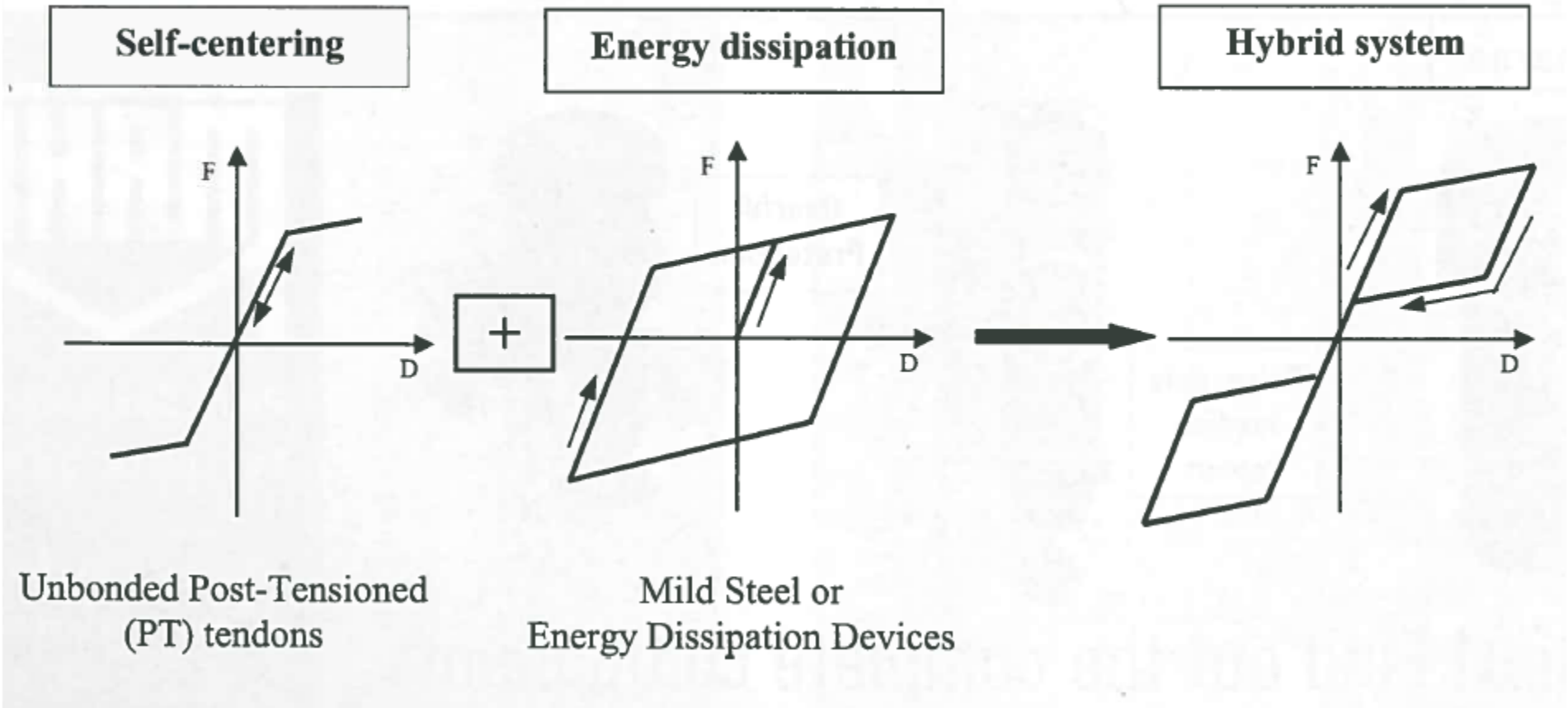
STRUCTURAL SCHEME IF RIGID (MOMENT RESISTING) JOINTS ARE USED DEFORMED SHAPE



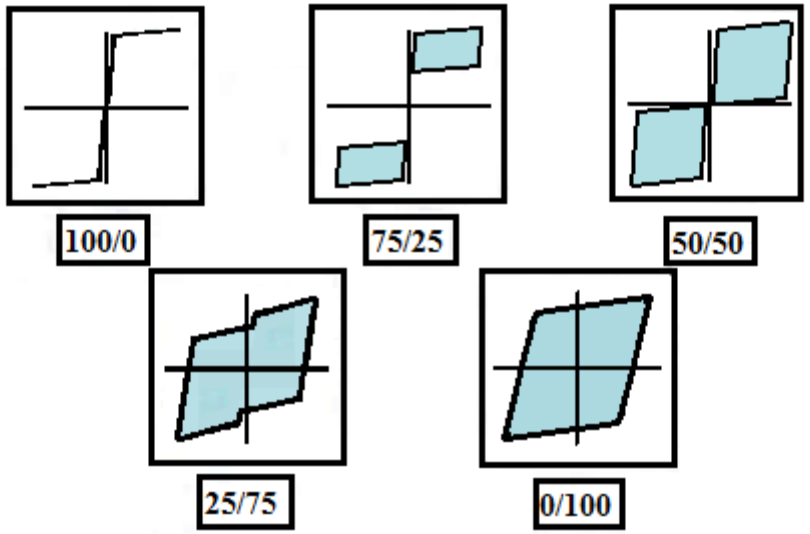
Hybrid beam-column connection: force transfer mechanism



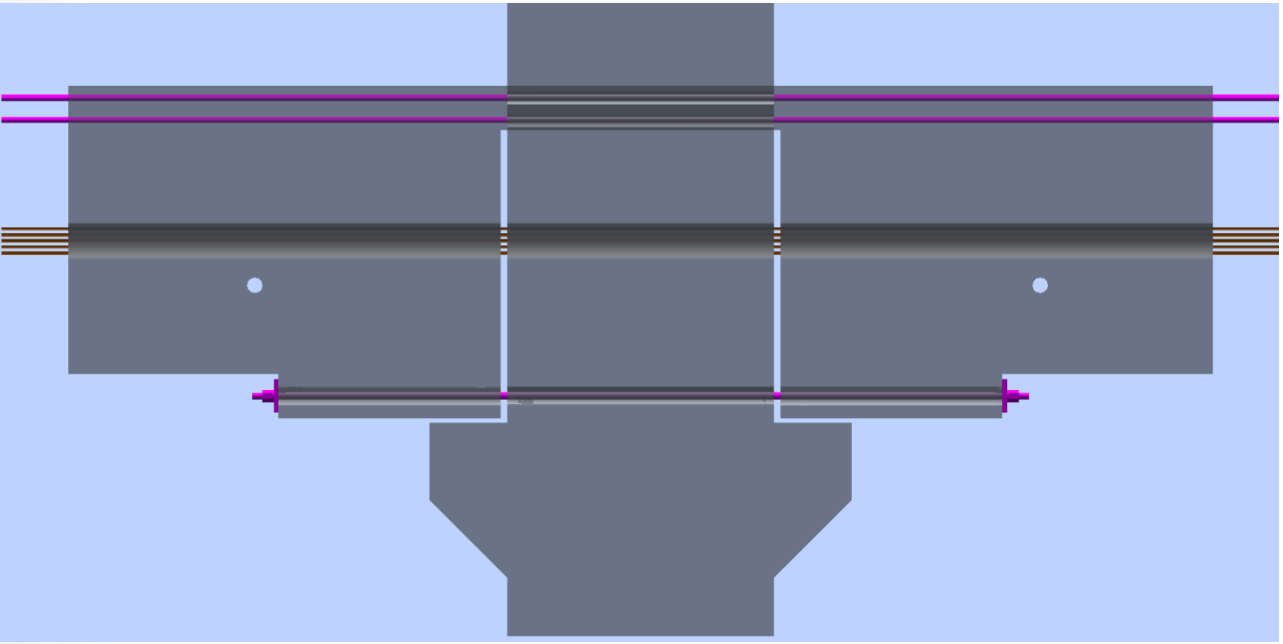
Flag-shape hysteresis loop for a hybrid system

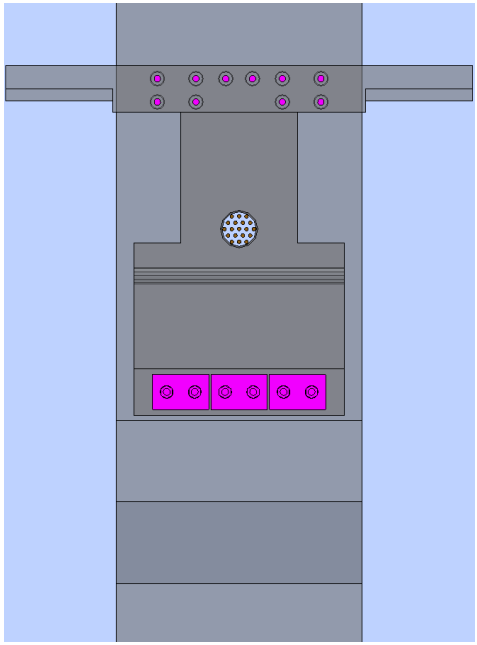


Effects of varying the ratio between $\frac{Ap}{As}$ [%/%]

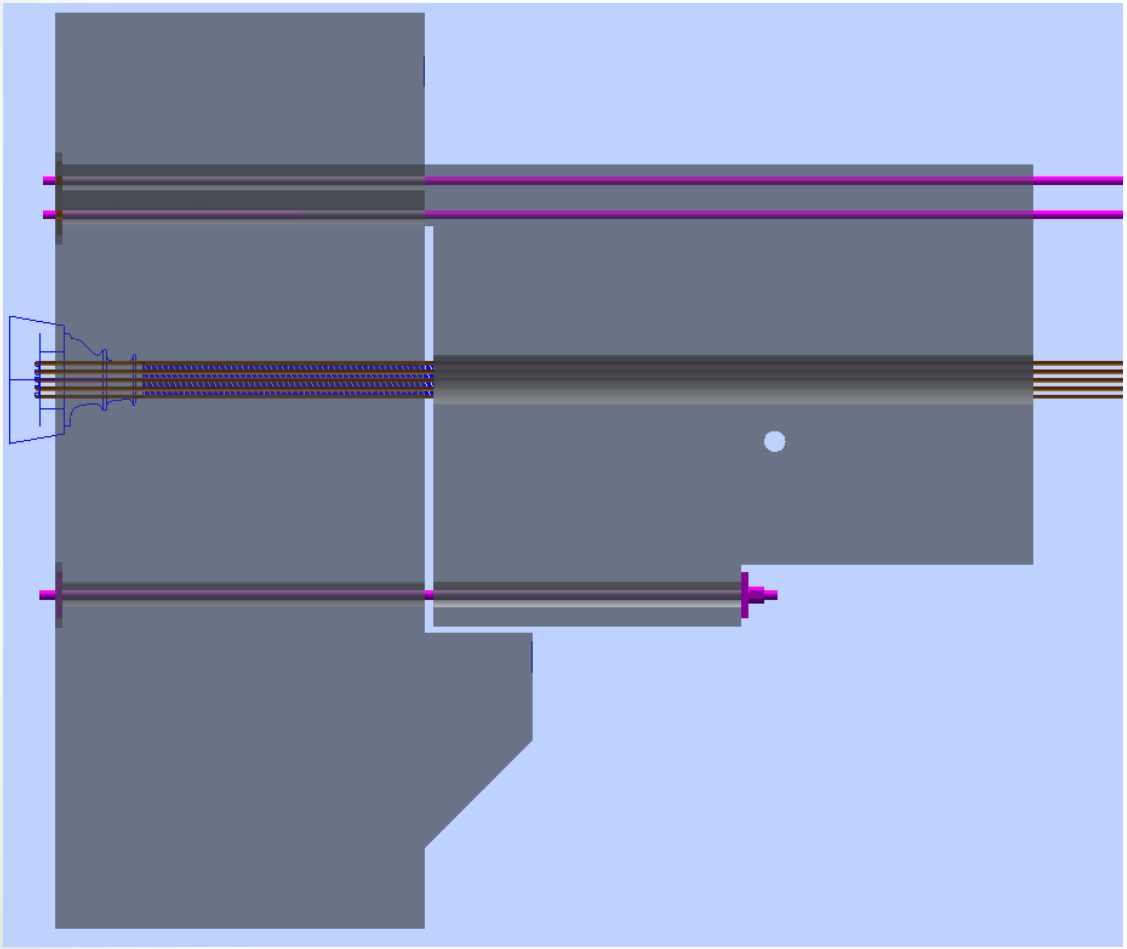


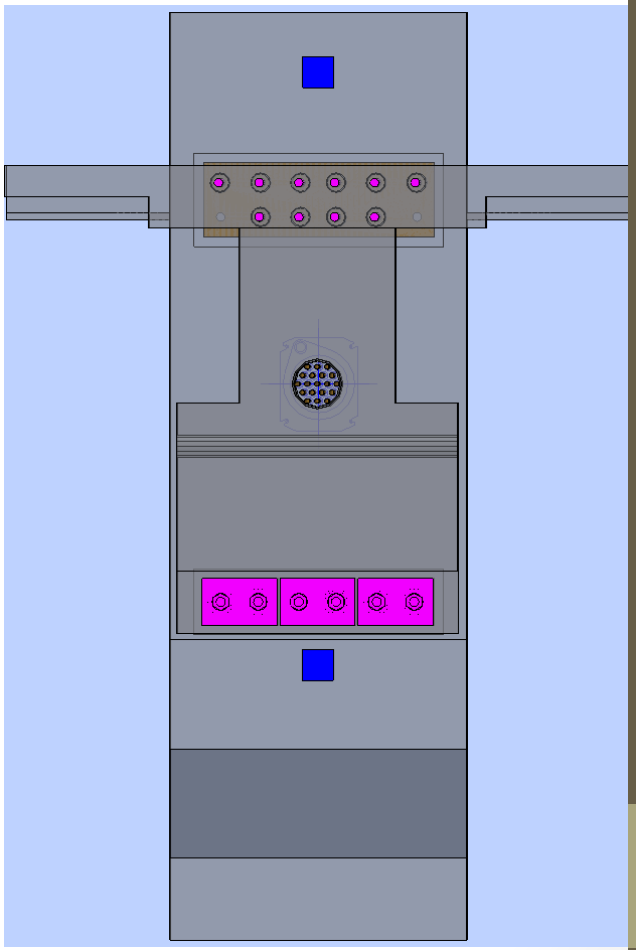
INTERNAL COLUMN – BEAM CONNECTION



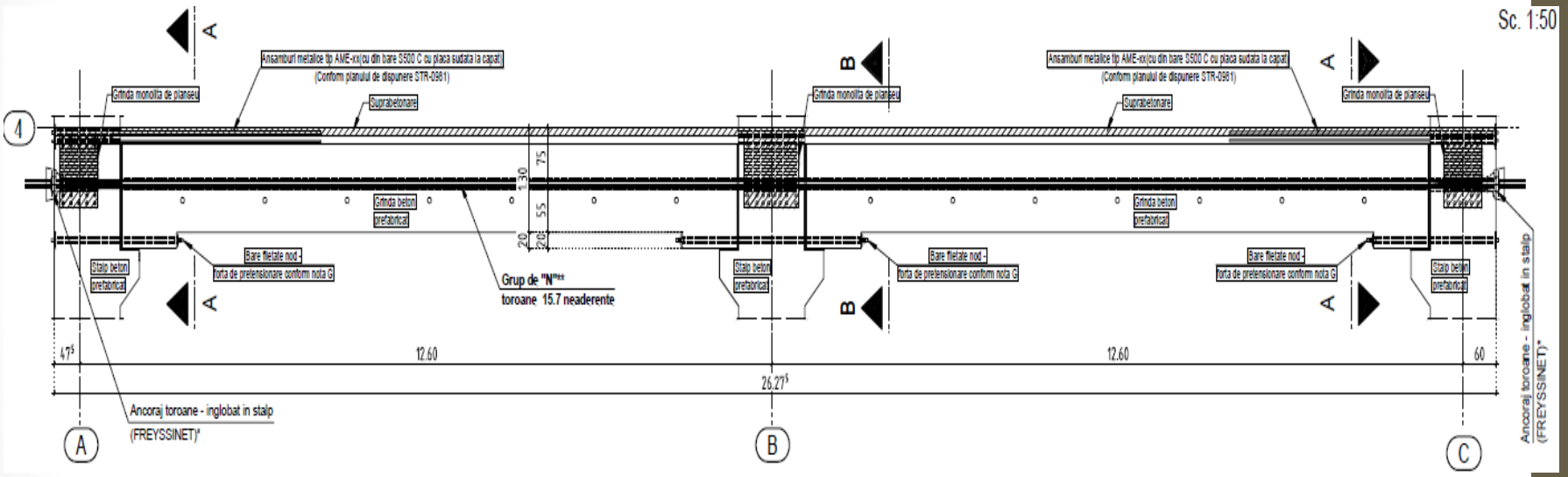


EXTERNAL COLUMN – BEAM CONNECTION

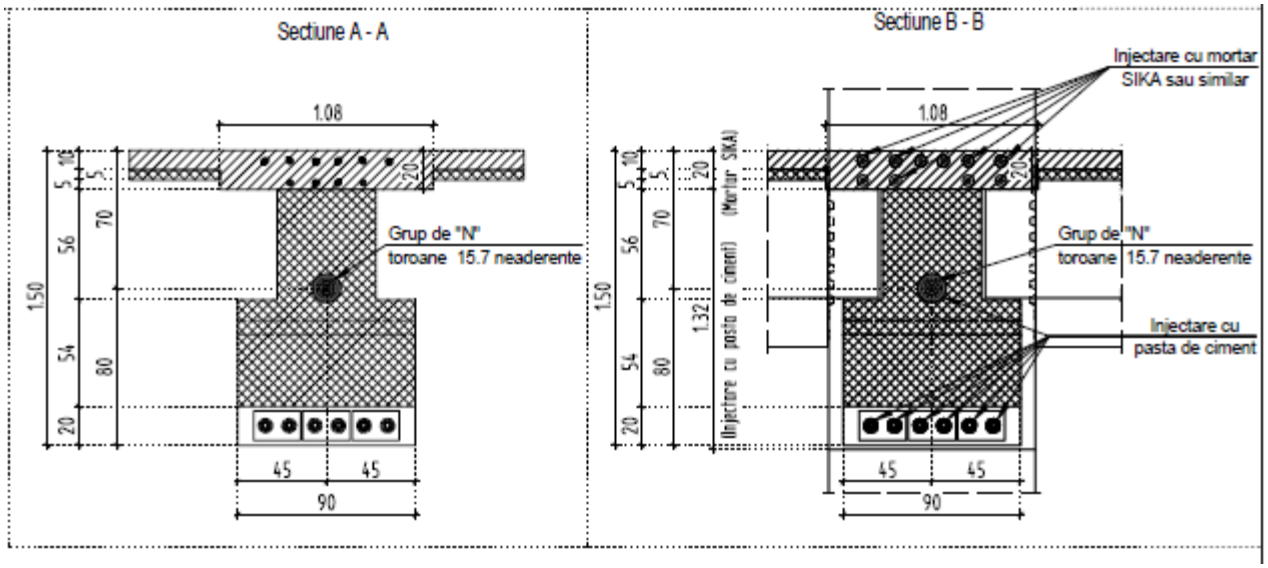




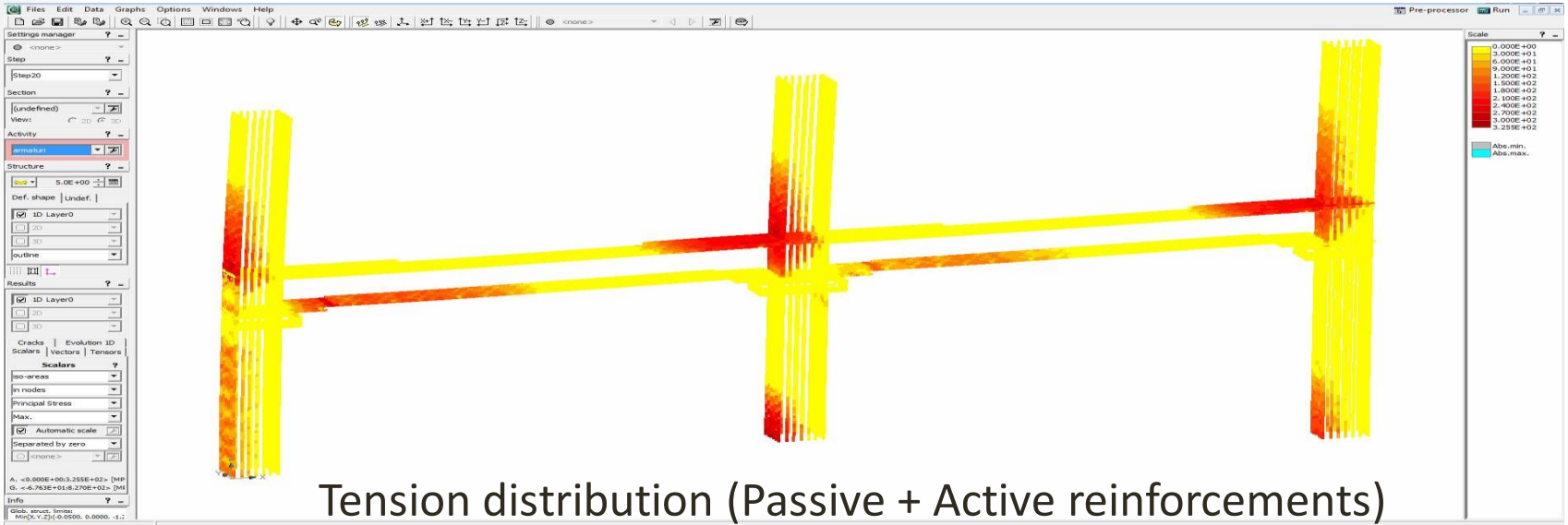
GENERAL VIEW OF THE DESIGNED SOLUTION



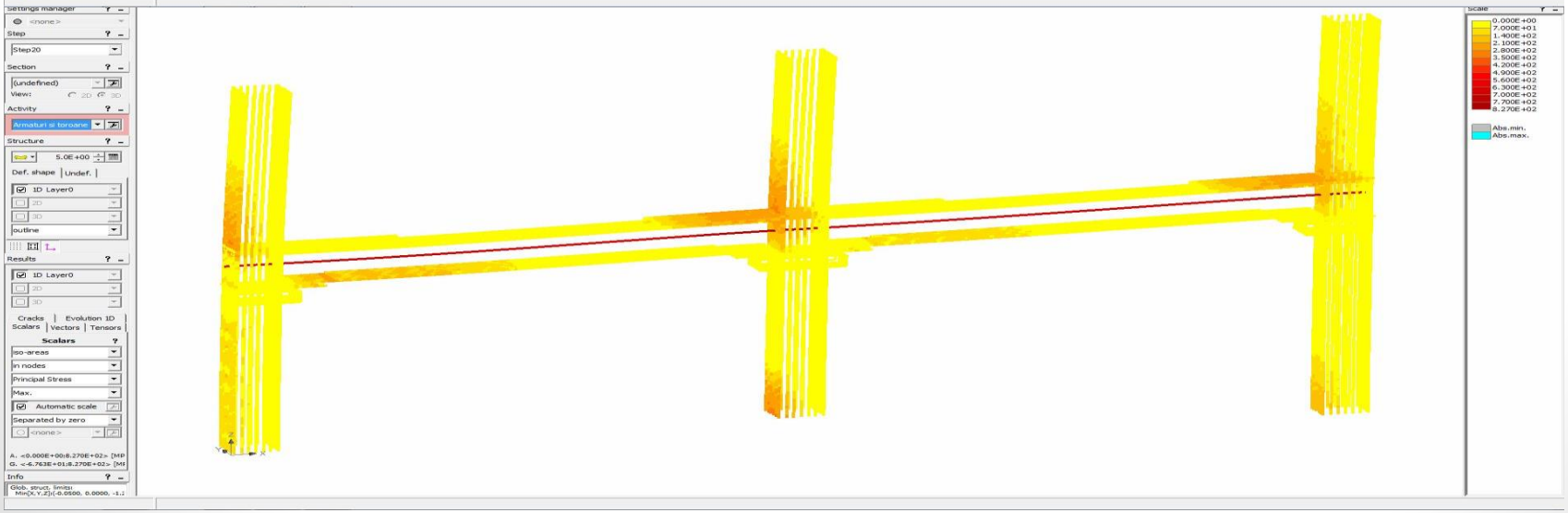
CONNECTION DETAILS FROM THE DESIGNED SOLUTION



Tension distribution (Passive reinforcements only)

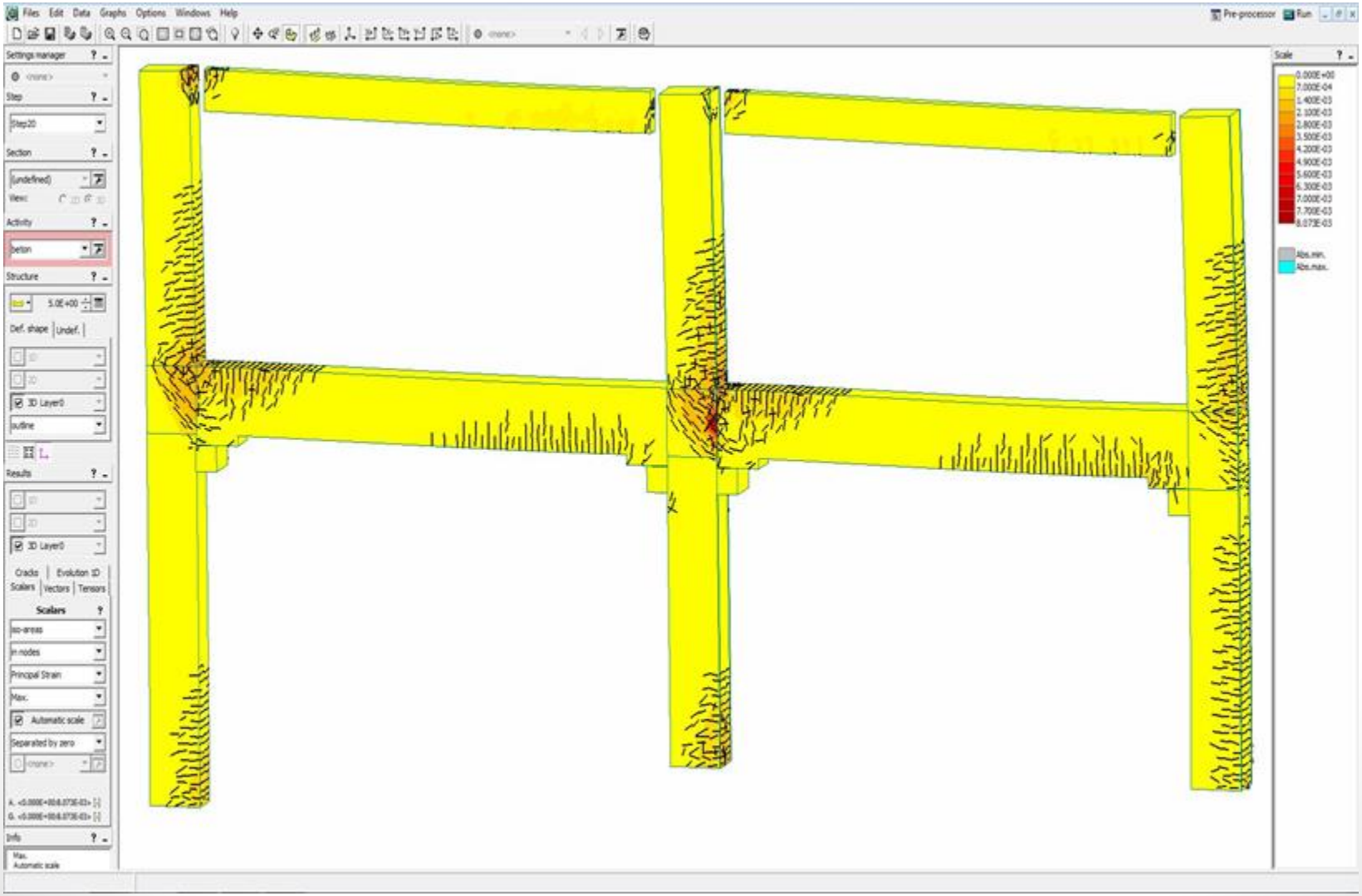


Tension distribution (Passive + Active reinforcements)



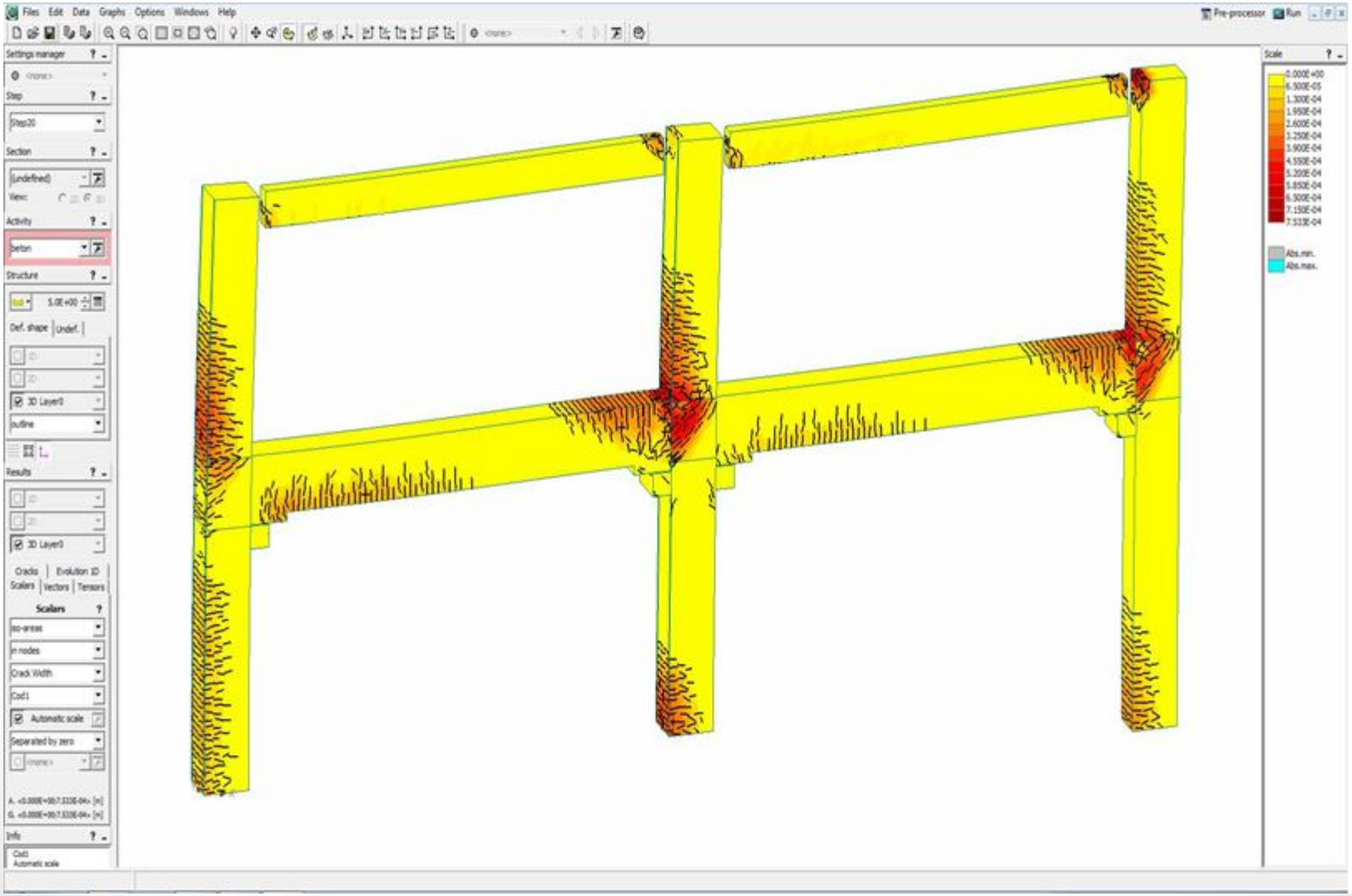
Specific main deformations MAX with all cracks

From lateral seismic load



Cracks opening - all

From lateral seismic load



pref beton
ORGANIZAȚIA PATRONALĂ A PRODUCĂTORILOR DE PREFABRICATE DIN BETON

International Conference on Precast Concrete Solutions,
Bucharest, September 21, 2017


H18 SX

"Good buildings come from good people, and all problems are solved by good design"

Stephen Gardiner(1924-2007) – British Arhitect

Thank you for your attention!