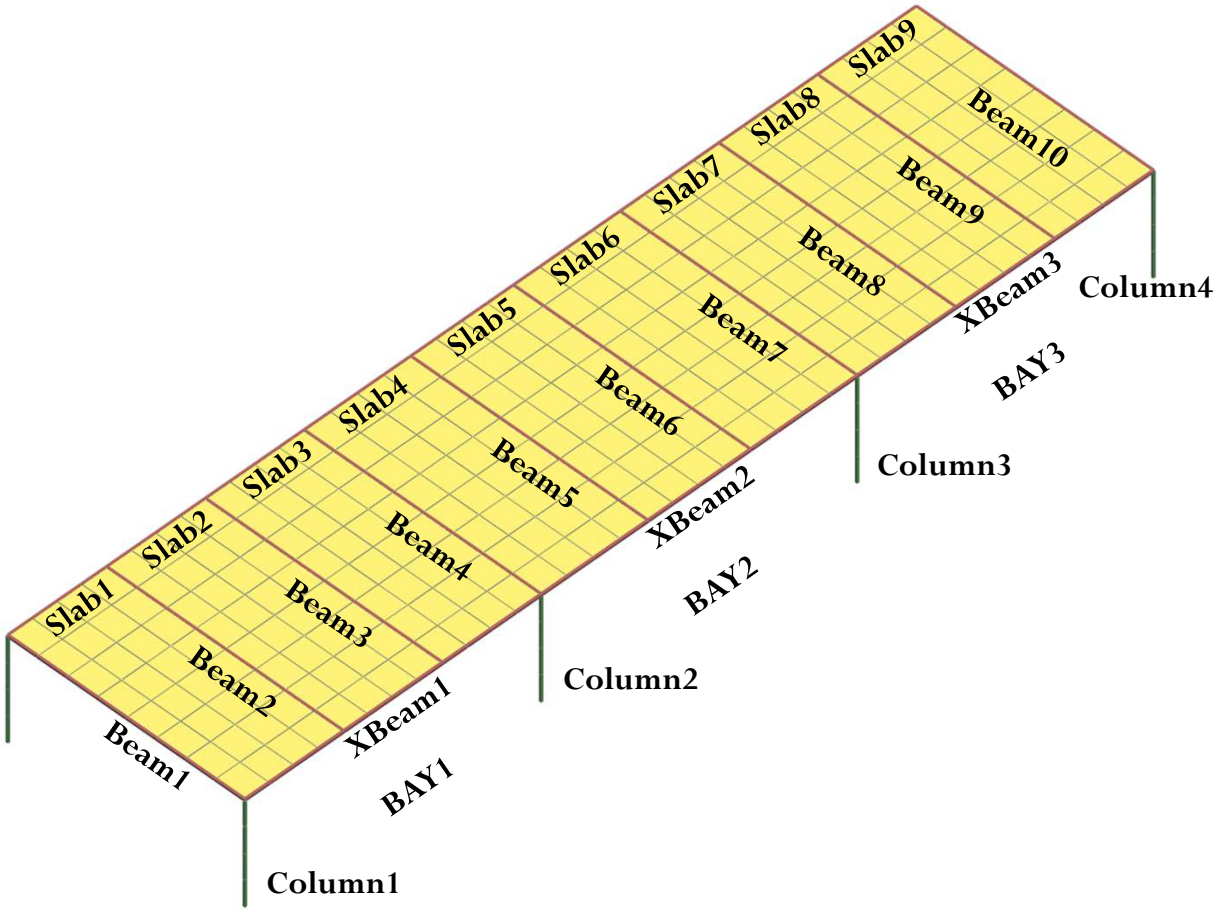
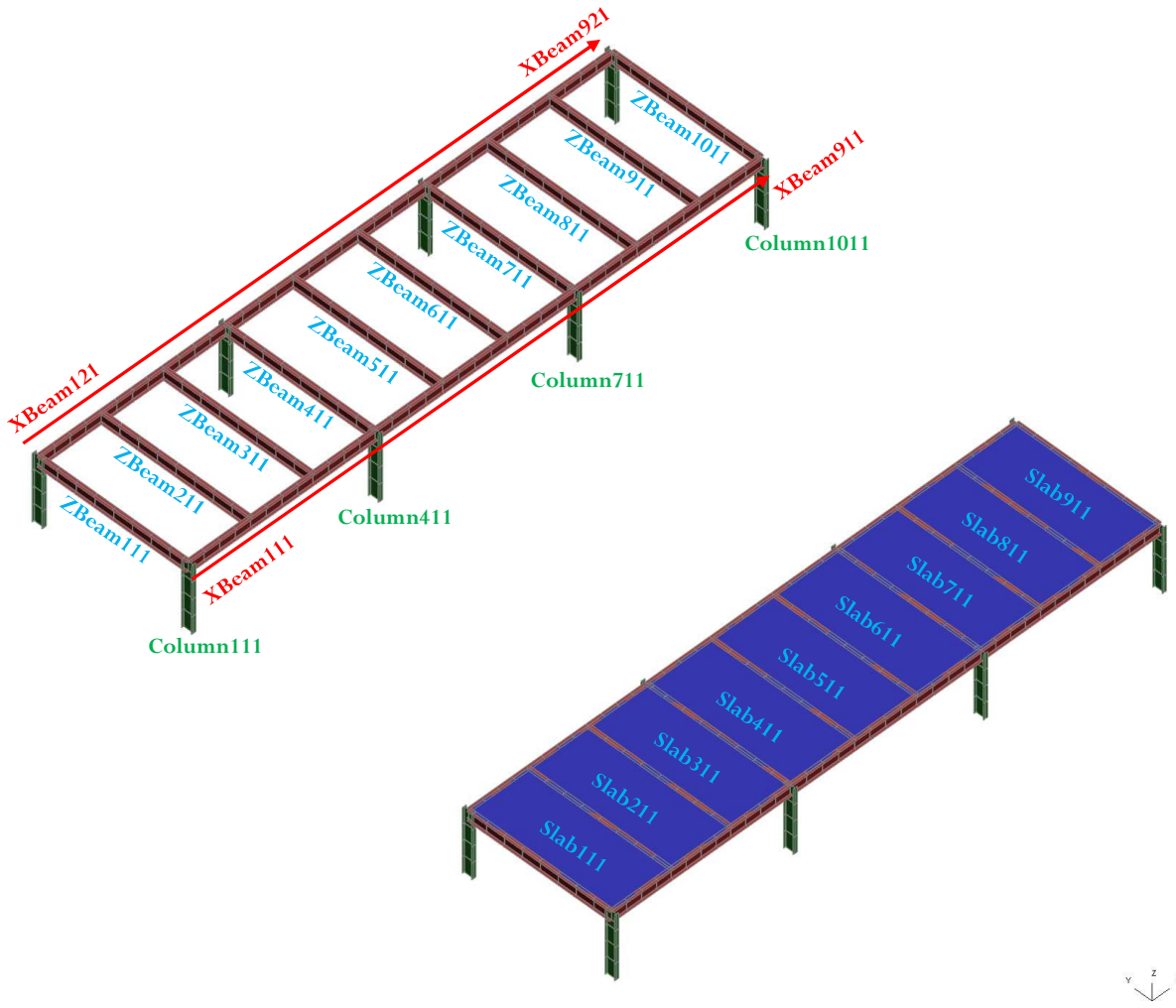
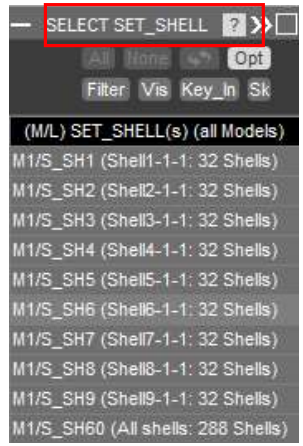
Schematic diagram

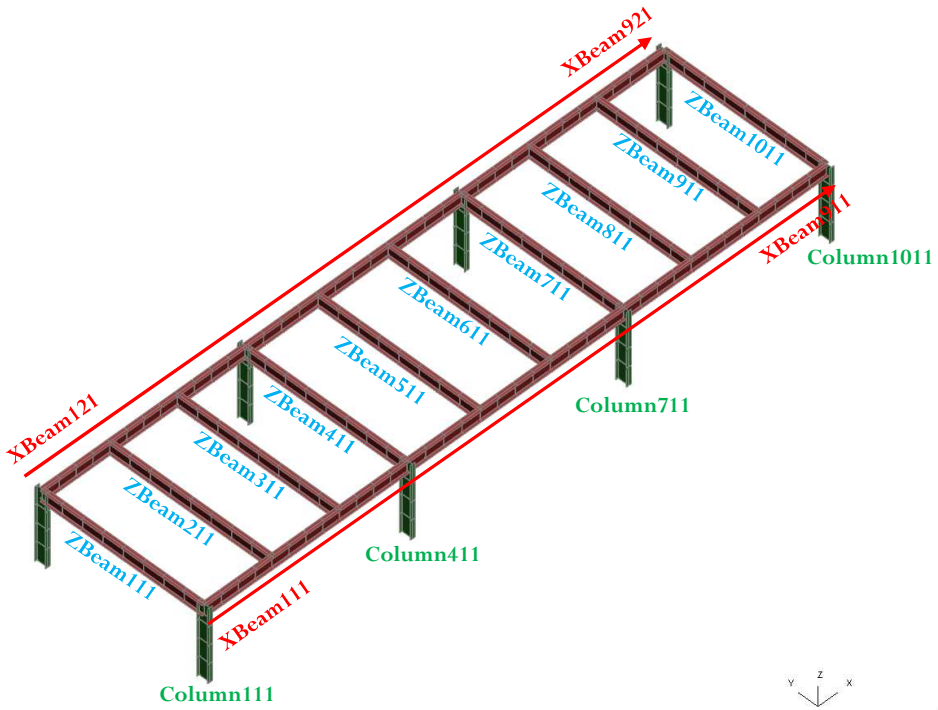


Set of Elements in LS-DYNA





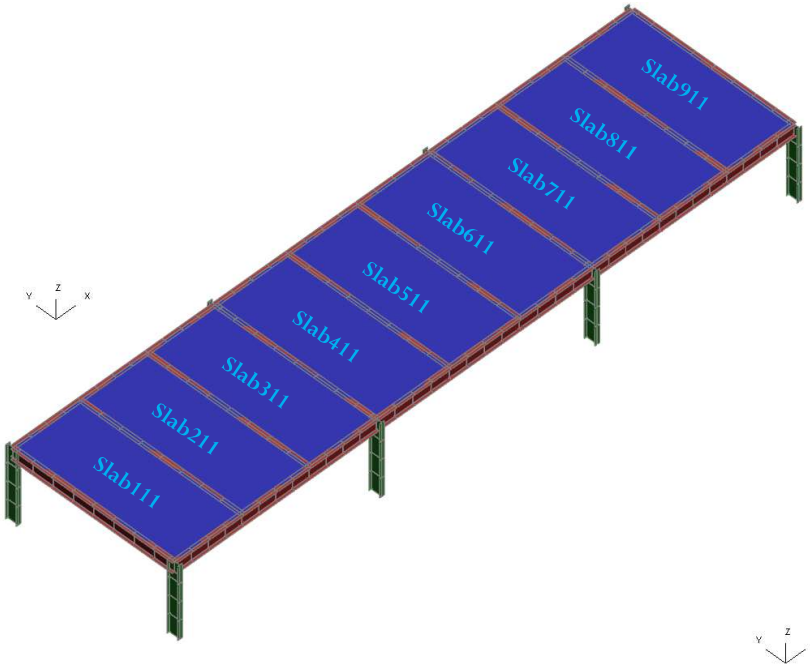
Thermal Load for structure in LS-DYNA



Thermal load generate by OpenSEES (i.e. .out file)

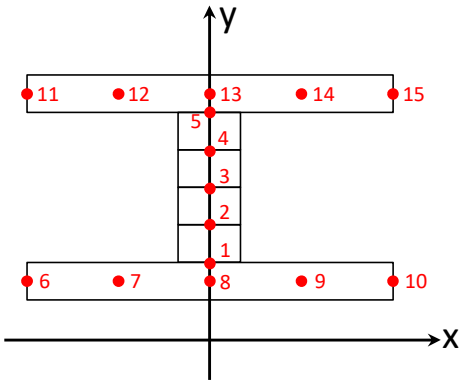
HT_SIFZBeam_i_1_1.out for ZBeami11
HT_SIFXBeam_i_1_1.out for Xbeami(1/2)1
HT_SIFSlab_i_1_1.out for Slabi11

HT_SIFZBeam_1/4/7/10_1_1.out Node8(middle of lower flange) for Column 1/4/7/10(1/2)1
***for column temperature factor is 0.7**

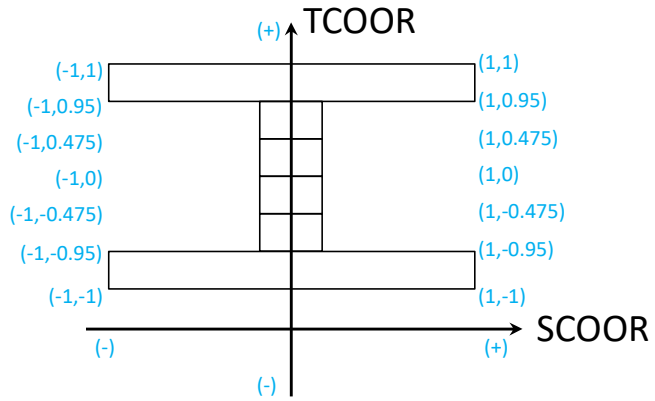


Sectional heat transfer definition - Beam

In SIFBuilider, considering SFRM, there are 15 output points in I-section the tag of points are shown as follow,



In LS-DYNA
the coordinates for heat transfer analysis are shown as follow,



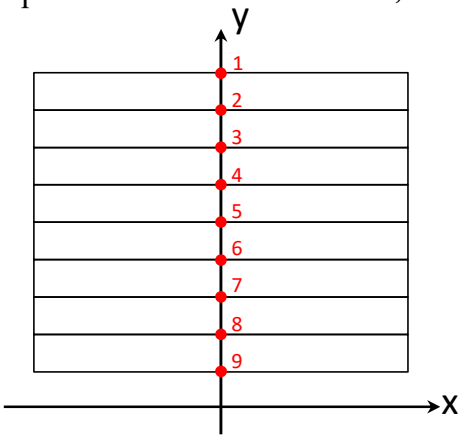
Example of beam heat transfer definition in LS-DYNAS (i.e. ZBeam111/Beam1)

*LOAD_THERMAL_VARIABLE_BEAM_SET

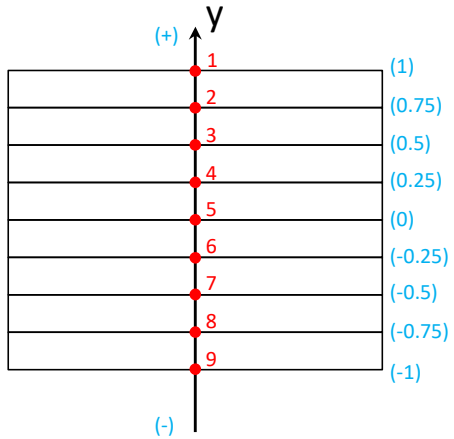
1	1	0				
0.0	1.0	1226	Node8	0	-1.0	-1.0
0.0	1.0	1226		0	1.0	-1.0
0.0	1.0	1219	Node1	0	-1.0	-0.95
0.0	1.0	1219		0	1.0	-0.95
0.0	1.0	1220	Node2	0	-1.0	-0.475
0.0	1.0	1220		0	1.0	-0.475
0.0	1.0	1221	Node3	0	-1.0	0.0
0.0	1.0	1221		0	1.0	0.0
0.0	1.0	1222	Node4	0	-1.0	0.475
0.0	1.0	1222		0	1.0	0.475
0.0	1.0	1223	Node5	0	-1.0	0.95
0.0	1.0	1223		0	1.0	0.95
0.0	1.0	1231	Node13	0	-1.0	1.0
0.0	1.0	1231		0	1.0	1.0
TBASE	TSCALE	TCURVE		TCURDR	SCOOR	TCOOR

Sectional heat transfer definition – Concrete Slab

In SIFBuilider, considering SFRM, there are 9 output points in cross-section the tag of points are shown as follow,



In LS-DYNA
the coordinates for heat transfer analysis are shown as follow,



Example of beam heat transfer definition in LS-DYNAS (i.e. Slab111/Slab1)

```
*LOAD_THERMAL_VARIABLE_SHELL_SET
         1        37
       0.0       1.0      1013 Node9     0      -1.0
       0.0       1.0      1012           0     -0.75
       0.0       1.0      1011           0      -0.5
       0.0       1.0      1010           0     -0.25
       0.0       1.0      1009           0       0.0
       0.0       1.0      1008           0      0.25
       0.0       1.0      1007           0       0.5
       0.0       1.0      1006           0      0.75
       0.0       1.0      1005 Node1     0       1.0
```