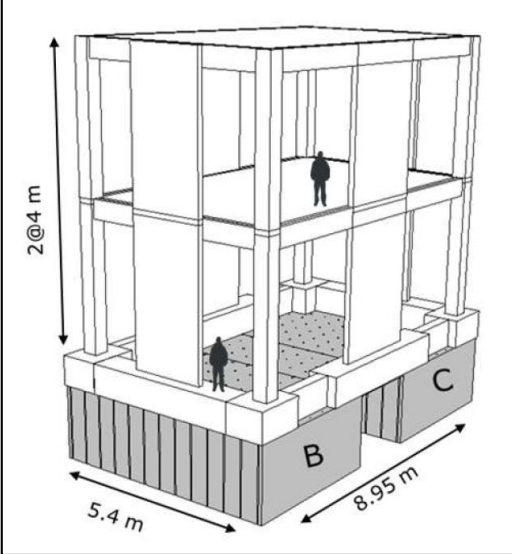
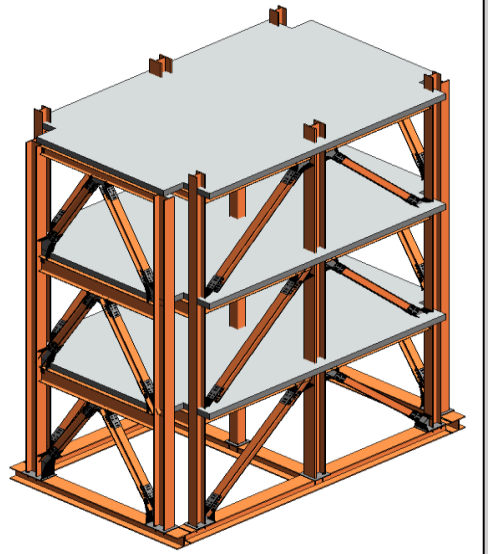


ILEE - QuakeCoRE Collaborative Projects

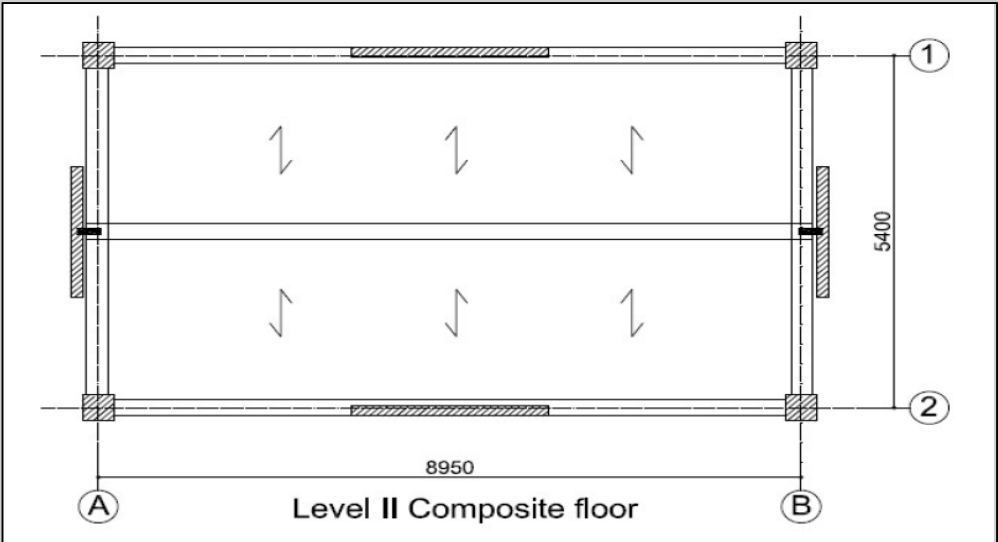
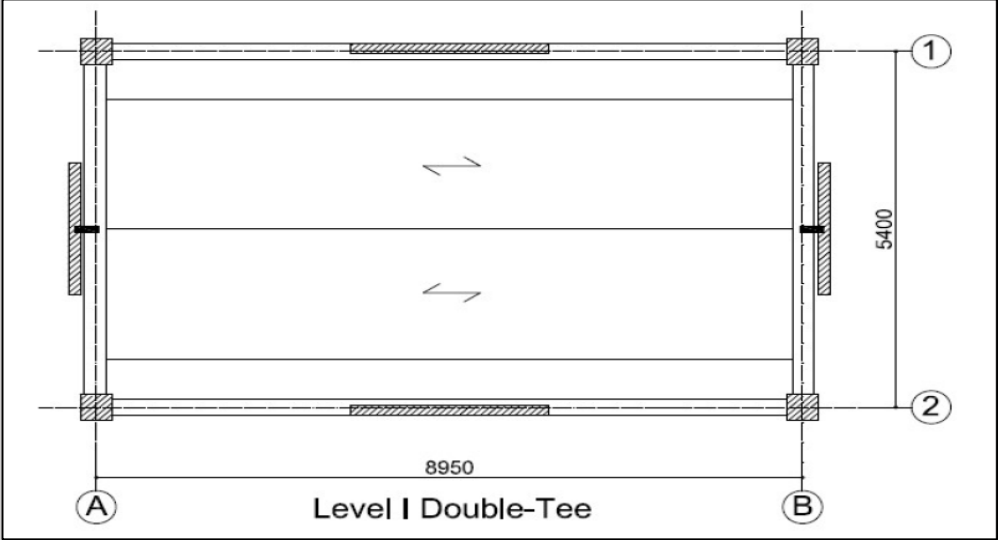
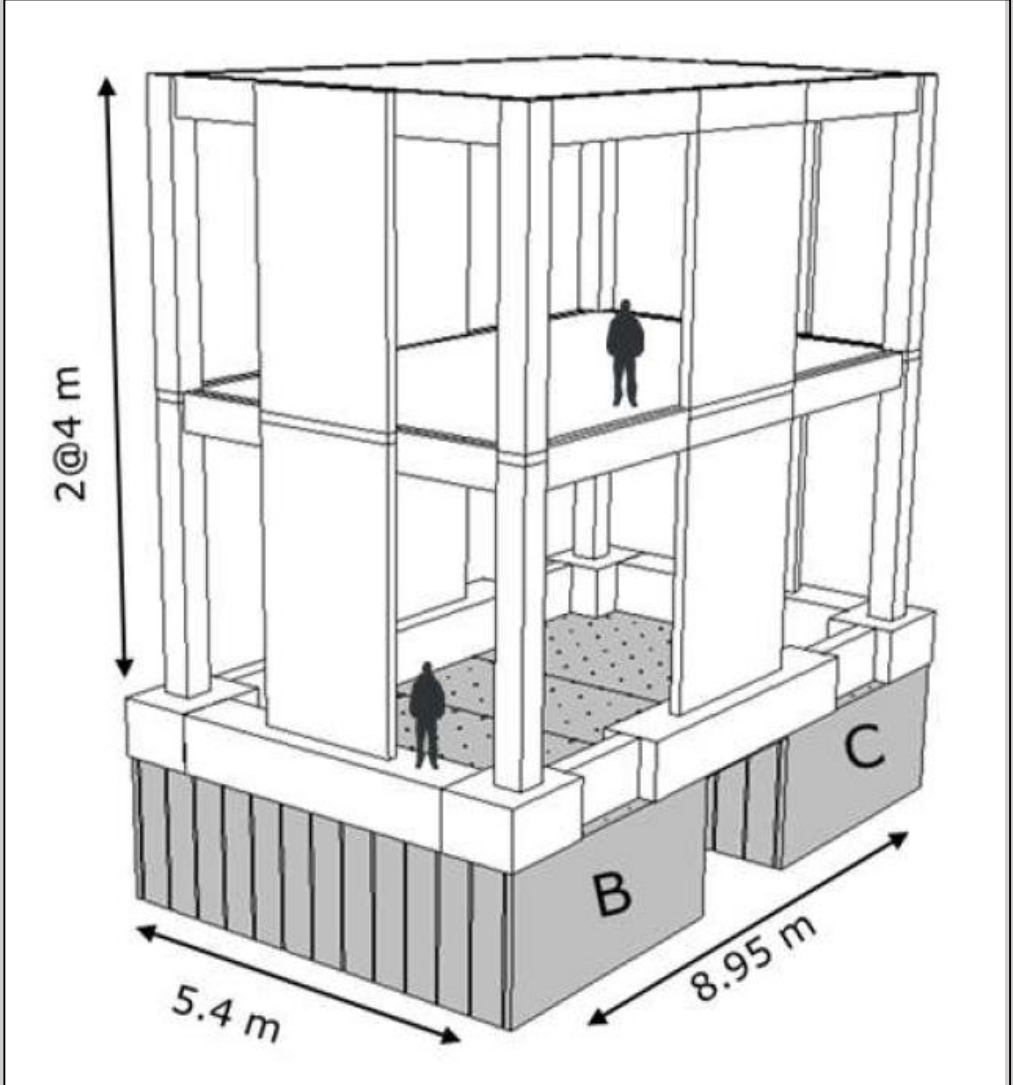
Presented by:

Prof. Rajesh Dhakal

ILEE-QuakeCoRE Collaborative Projects

Low Damage Concrete Wall Building	Robust Steel Building
	
<p>➤ <u>Structural System:</u></p> <ul style="list-style-type: none">• 2 Story - Low Damage RC Shear Wall Building <p>➤ <u>Non-Structural Elements</u></p> <ul style="list-style-type: none">• Suspended Ceilings• Automatic Fire Sprinkler System	<p>➤ <u>Structural System:</u></p> <ul style="list-style-type: none">• 3 Story – Resilient Friction Connections <p>➤ <u>Non-Structural Elements</u></p> <ul style="list-style-type: none">• Suspended Ceilings• Automatic Fire Sprinkler System• Cladding & Glazing• Partition Walls• Cable Tray

ILEE Concrete Building



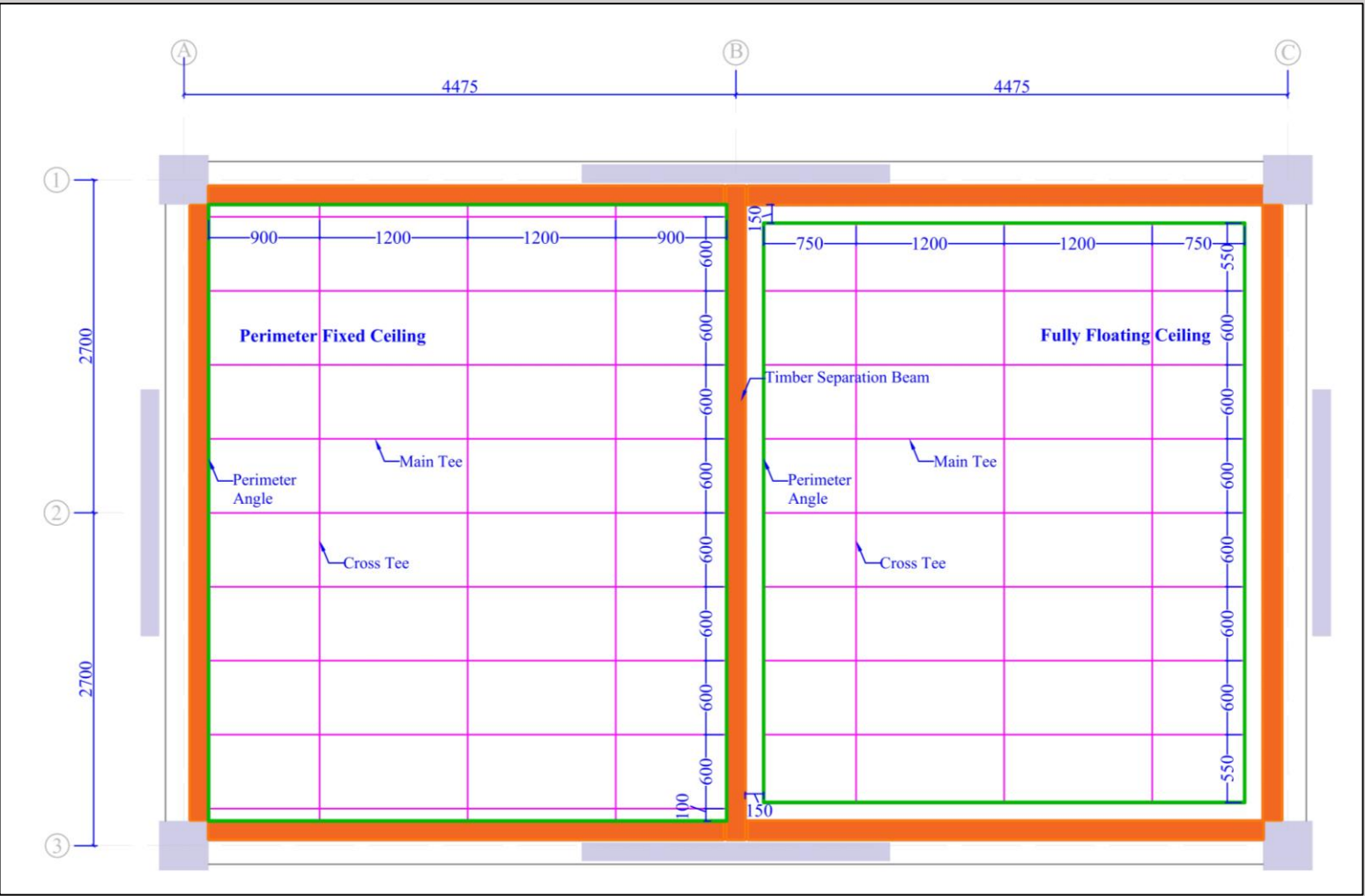
ILEE Concrete Building - NSEs

- **Objectives:**

1. To compare the seismic performance of a perimeter-fixed suspended ceiling with fully floating ceiling.
2. To investigate the seismic performance of a fire sprinkler system with short and long hanger depths.

Non-Structural Element	Floor 1	Floor 2
Suspended Ceilings	Perimeter-fixed ceiling in one half & fully floating in other half	Perimeter-fixed ceiling in one half & fully floating in other half
Automatic Fire Sprinkler System	Braced sprinkler system across the floor with a hanger depth of 350 mm.	Braced sprinkler system across the floor with a hanger depth of 1000 mm.

ILEE Concrete Building - NSEs

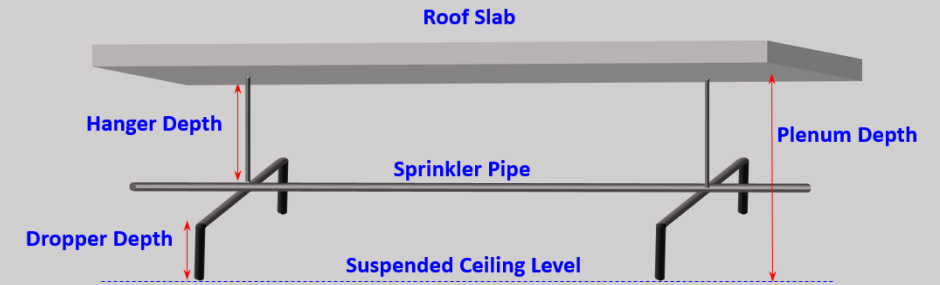
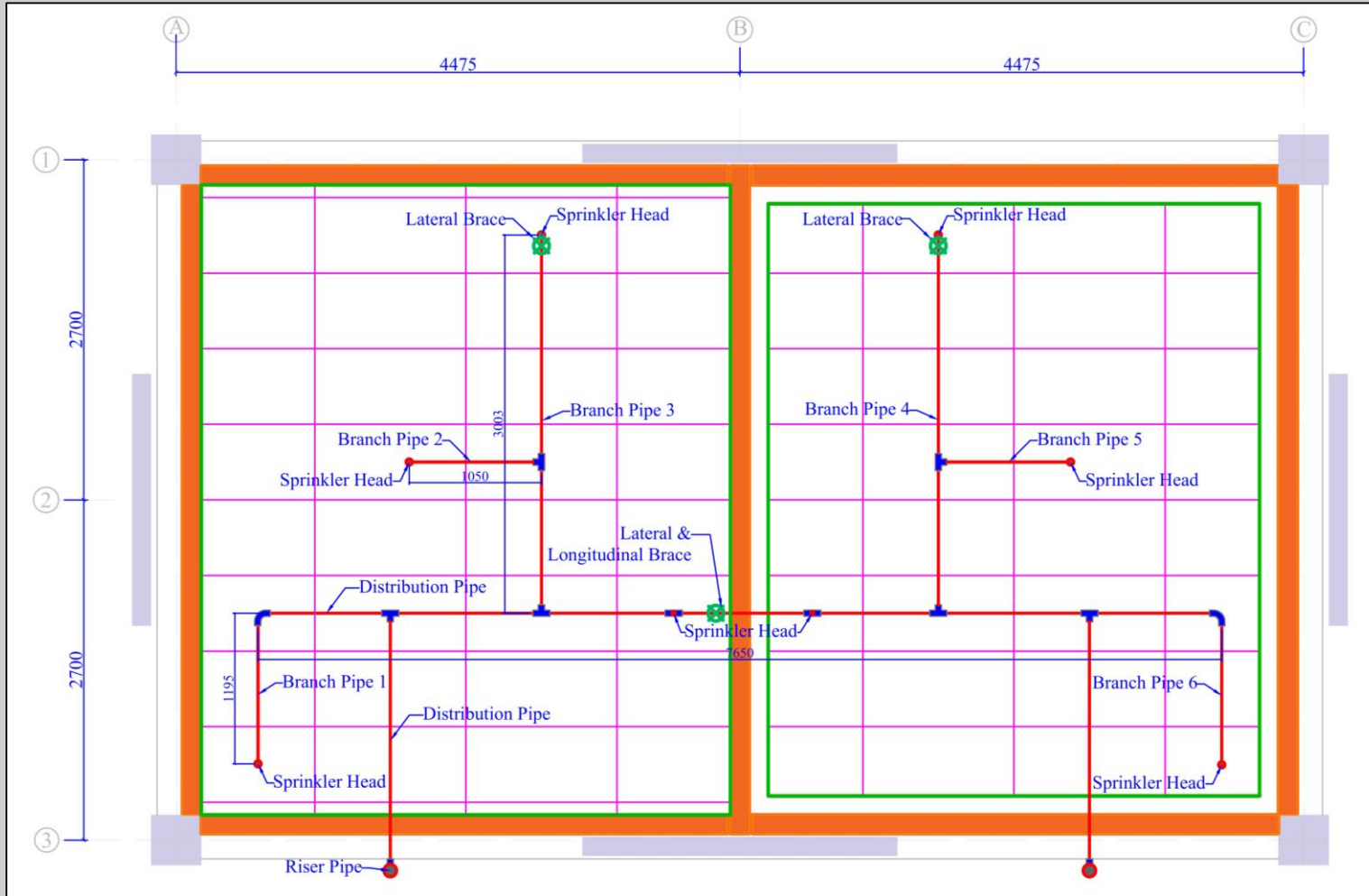


Perimeter-Fixed Ceiling

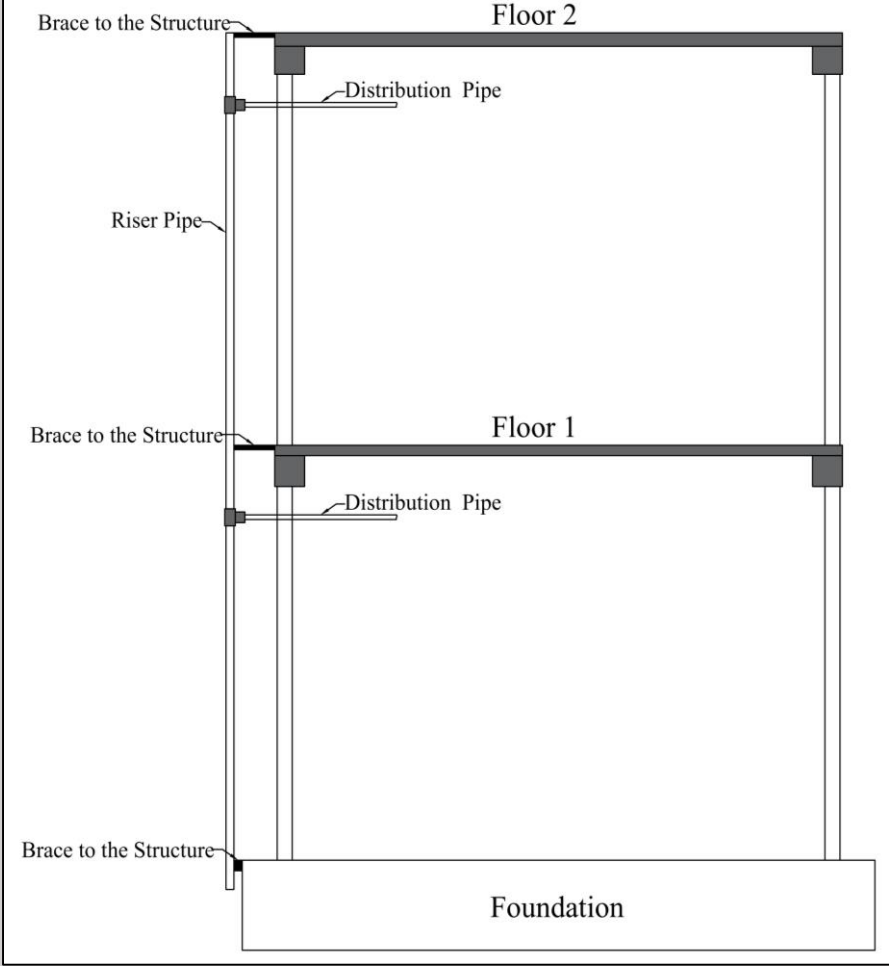
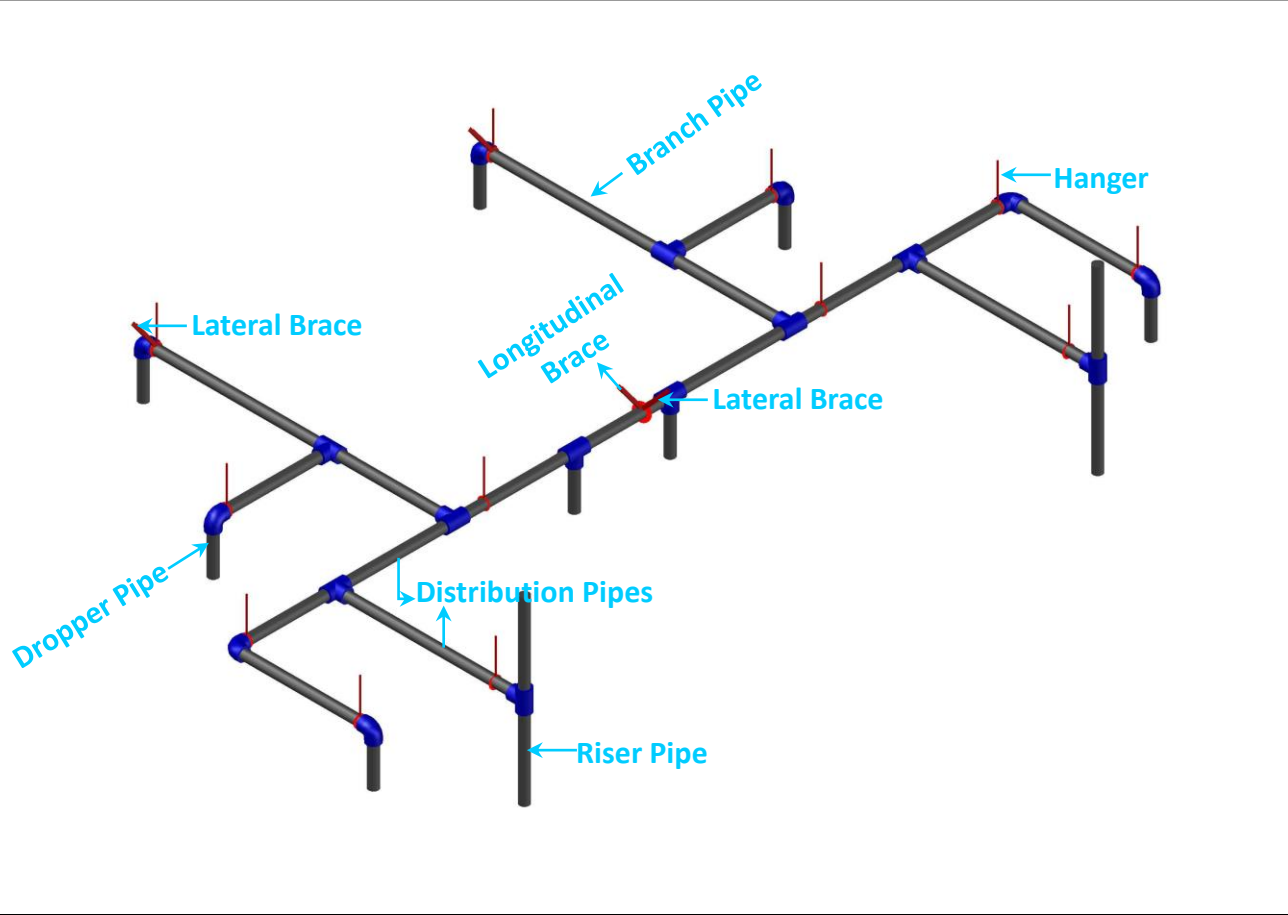


Fully Floating Ceiling

ILEE Concrete Building - NSEs



ILEE Concrete Building - NSEs



ILEE Steel Building - NSEs

➤ Objectives

- *Proof-of-concept of low-damage design of NSEs*

1. To investigate the seismic performance of low-damage corner connections in precast concrete panels and glazing.

- *Compare the seismic performance of traditional vs. low-damage NSEs*

1. To investigate the seismic performance of **planar**, **T** & **L** partitions walls with different low-damage connections

2. To compare the seismic performance of a braced suspended ceiling with fully floating ceiling.

3. To investigate the seismic performance of an automatic fire sprinkler system with droppers longer than 1000 mm.

ILEE Steel Building - NSEs

➤ Objectives

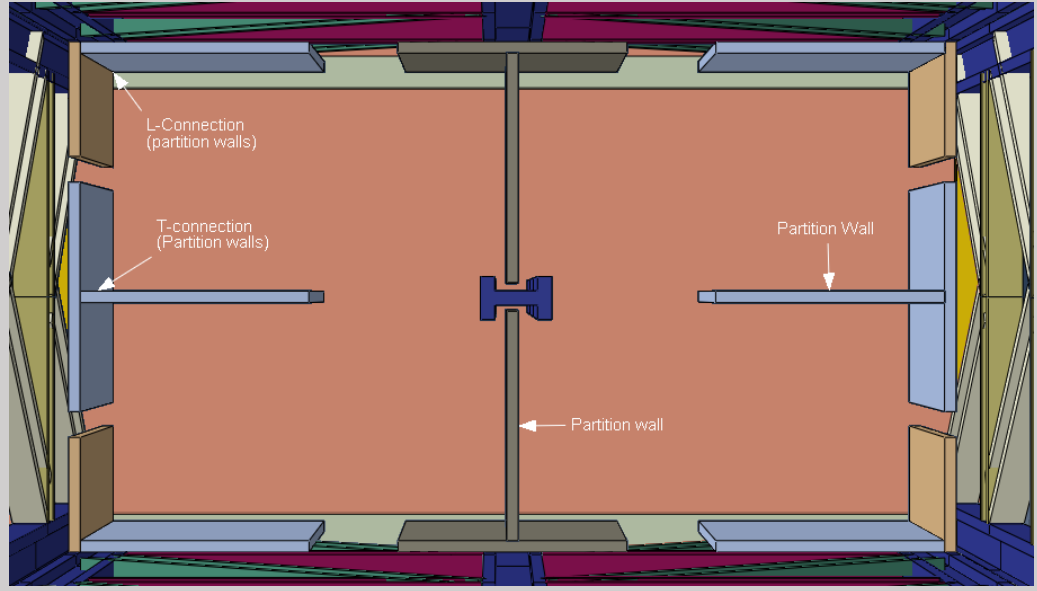
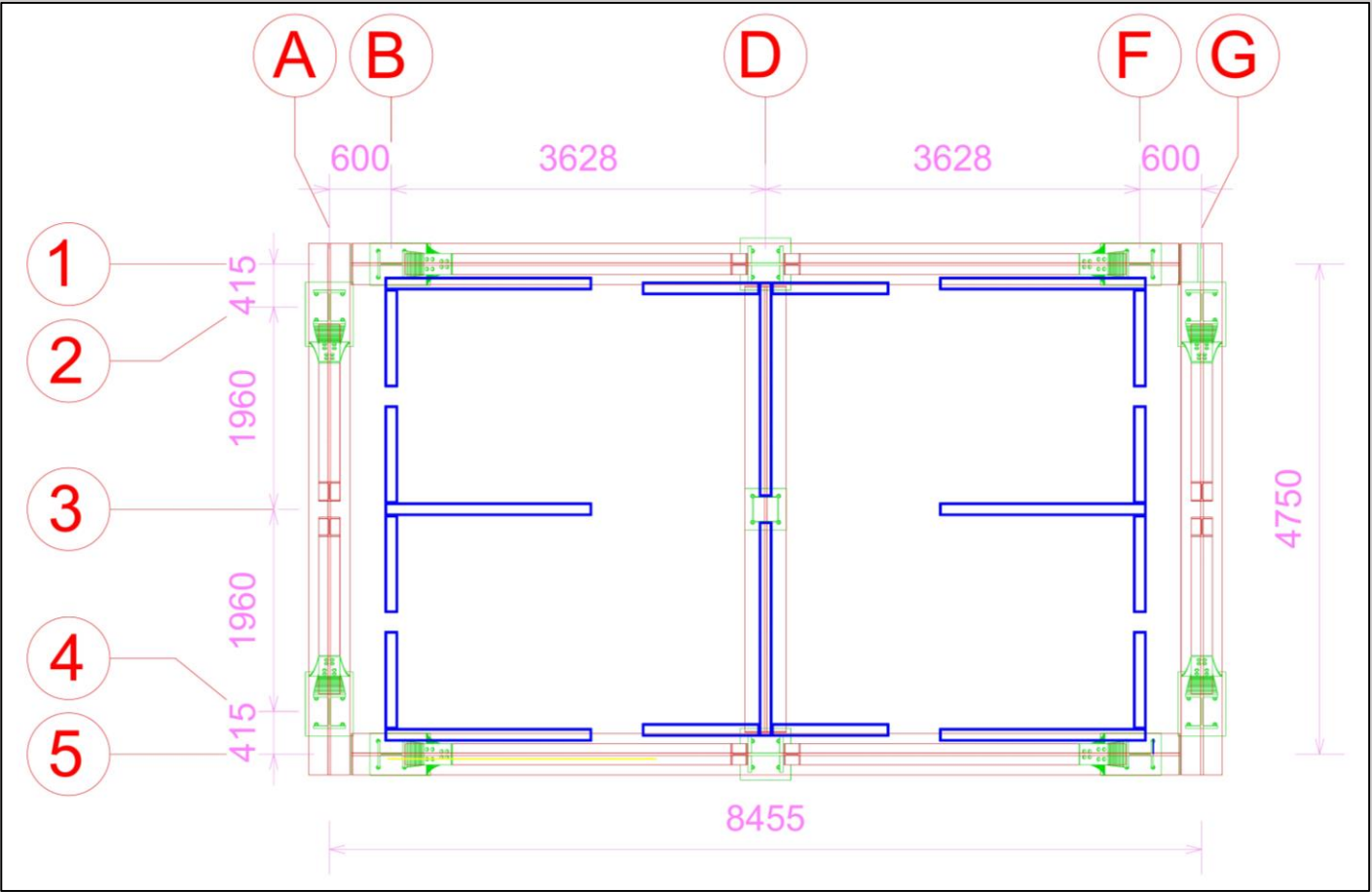
• *Mutual interaction*

1. To investigate the mutual interaction between structural & NSEs, e.g. interaction of partition walls and cladding with the structure.
2. To investigate the mutual interaction between different NSEs, e.g. interaction of suspended ceilings with partition walls and sprinkler system.

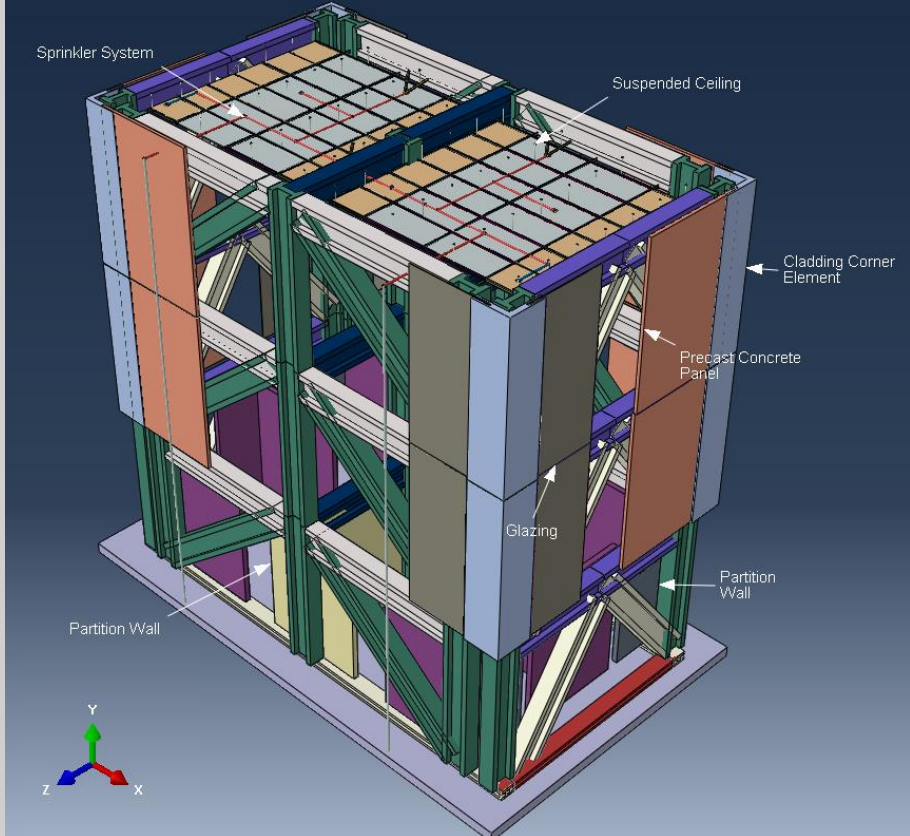
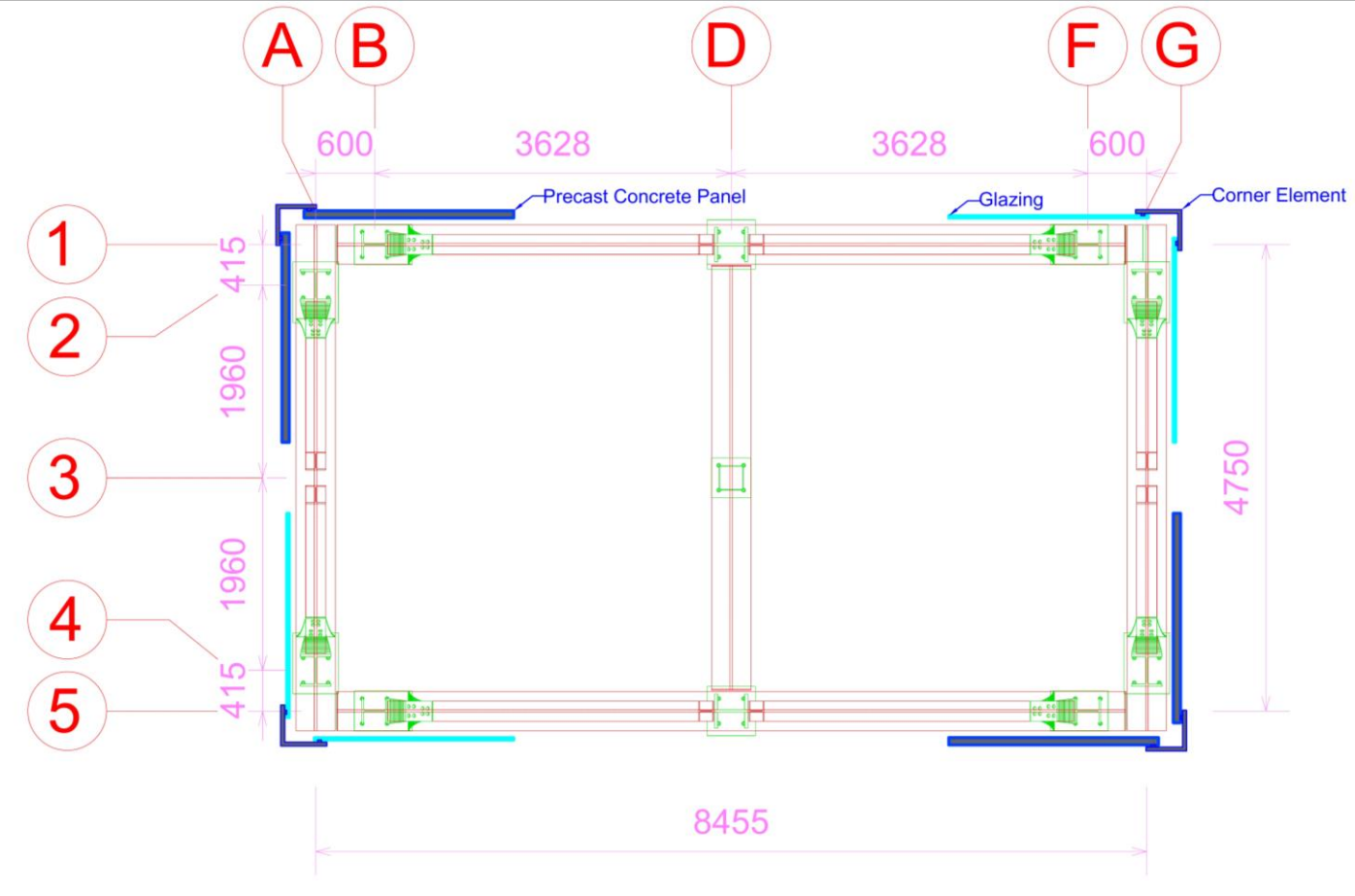
ILEE Steel Building - NSEs

Non-Structural Element	Floor 1	Floor 2	Floor 3
Partitions	Low-damage partition walls with planar, T & L configurations and different connections details.	Low-damage planar partition walls.	---
Claddings	---	Precast concrete panels and glazing on the corners of the building.	Precast concrete panels and glazing on the corners of the building.
Suspended Ceilings	---	---	Braced ceiling in one half & fully floating in the other half.
Automatic Fire Sprinkler System	---	---	Braced fire sprinkler system with long dropper pipes.
Cable Tray		Cable tray with traditional hanger and brace details.	

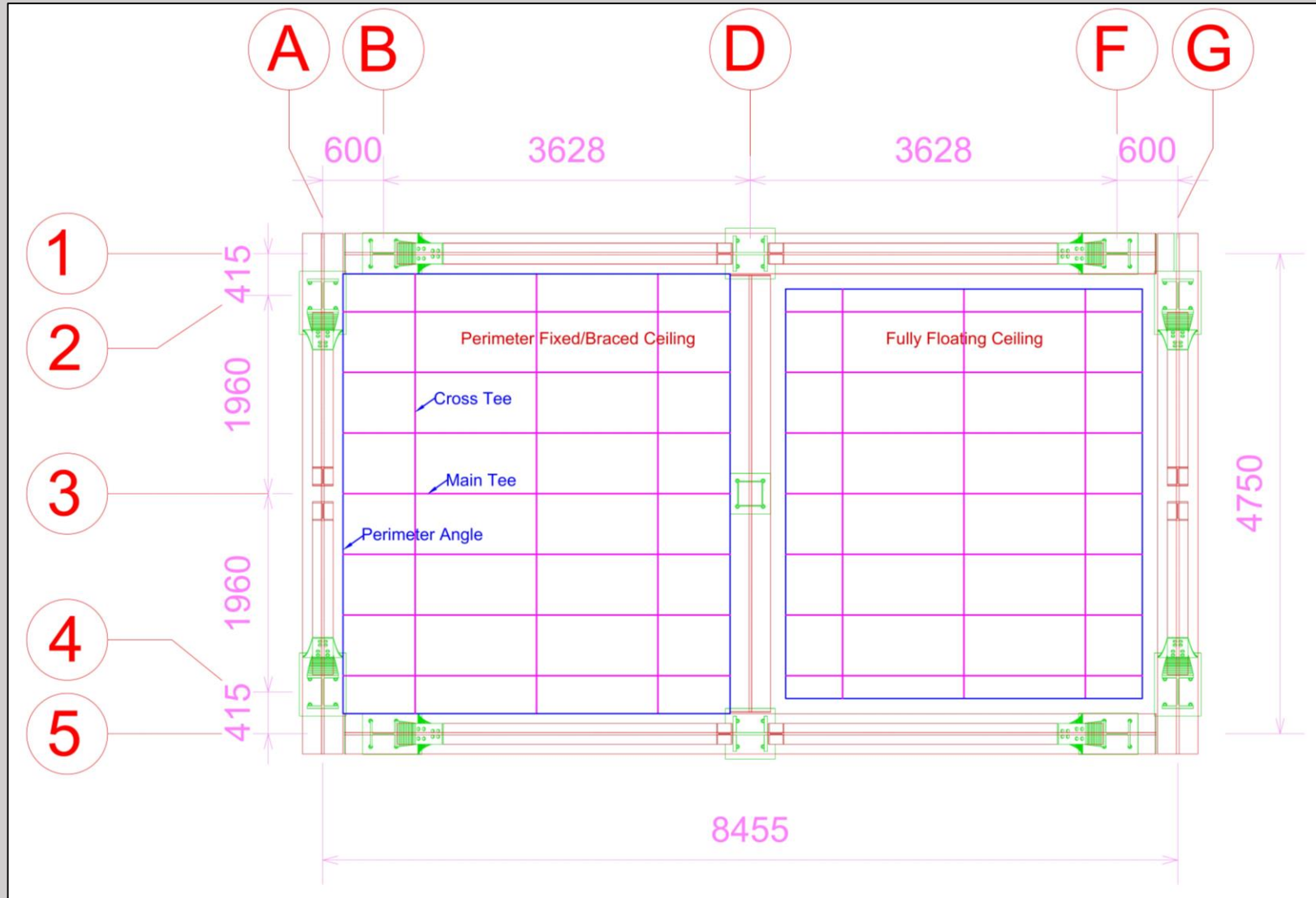
ILEE Steel Building - Partitions Walls



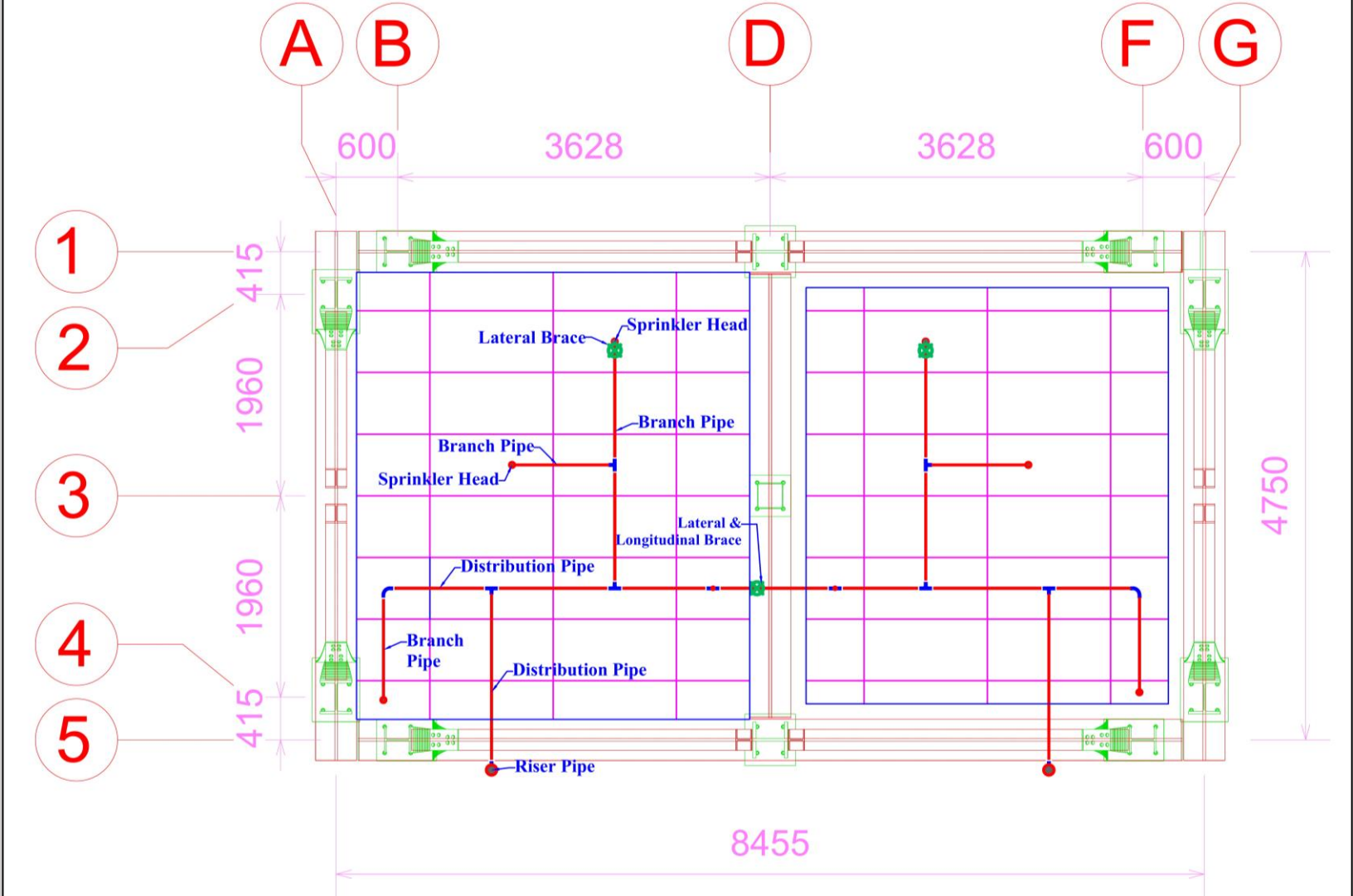
ILEE Steel Building - Cladding & Glazing



ILEE Steel Building - Suspended Ceilings



ILEE Steel Building - Sprinkler System



Thank You !