

Facade Systems

Roman Rod

Arch 2431
Professor Sherman
Spring 2020



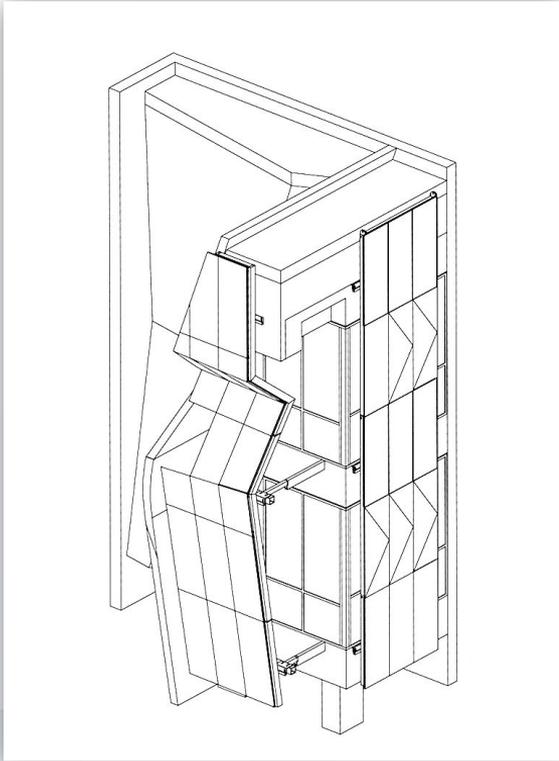
ZAHNER

Perforated Metal Panel

A photograph of the Cooper Union Academic Building, a modern structure with a complex, angular facade of reflective panels. The building is situated in an urban environment, with a traditional brick building on the left and trees on the right. The sky is overcast. The text "Cooper Union Academic Building" is overlaid in the center in a large, white, sans-serif font. At the bottom of the building, the words "THE COOPER UNION" are visible in a smaller font. A white cross is mounted on a pole to the left of the building. A traffic light is visible at the bottom center.

Cooper Union Academic Building

Structure Attachment

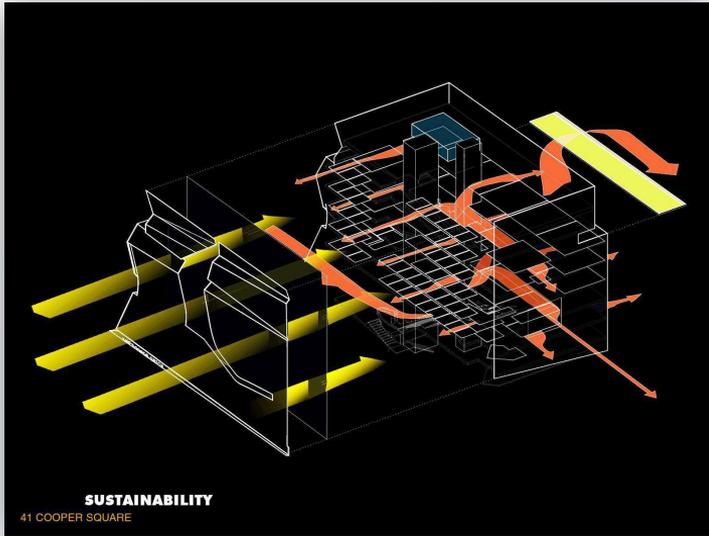


The structural attachment is a double system that requires one surface layer and an exterior barrier skin that goes on the outside. It is a double system.

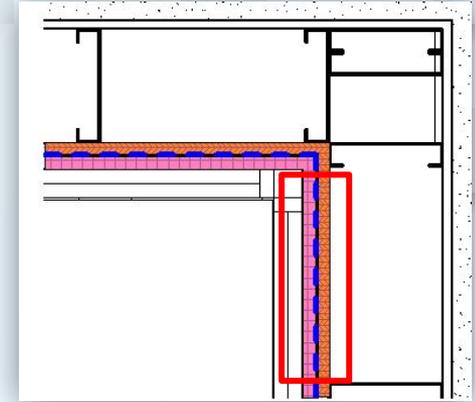


<https://www.emporis.com/images/details/657547/fullheightview-northern-corner>

Thermal Component



The building skin is offset from glass and aluminum walls. The panels ensure that it reduces the impact of heat radiation during the summer and insulates during the winter. The facade helps the building reach LEED standards. It is also covered in a an Angel Hair, a custom metal polish for ambient reflectivity, to soften reflectivity. It helps to scatter the light, provided a diffused surface while still maintaining the desired appearance.

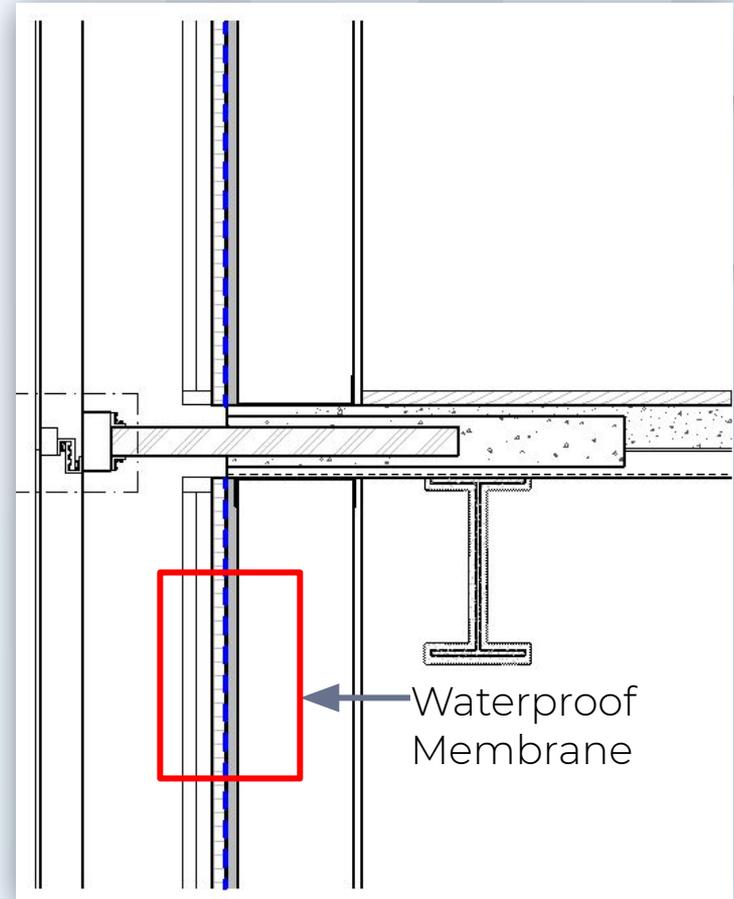


1" Rigid Insulation

Waterproofing



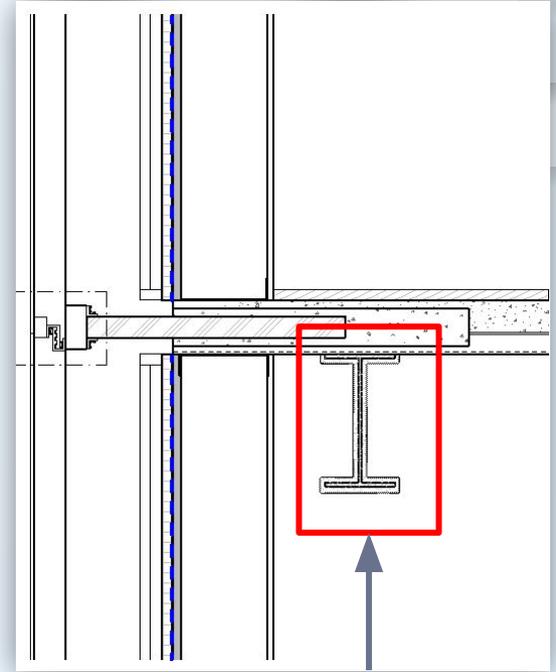
The waterproofing element is a membrane that goes between the sheathing and insulation to prevent from outside forces



Fireproofing

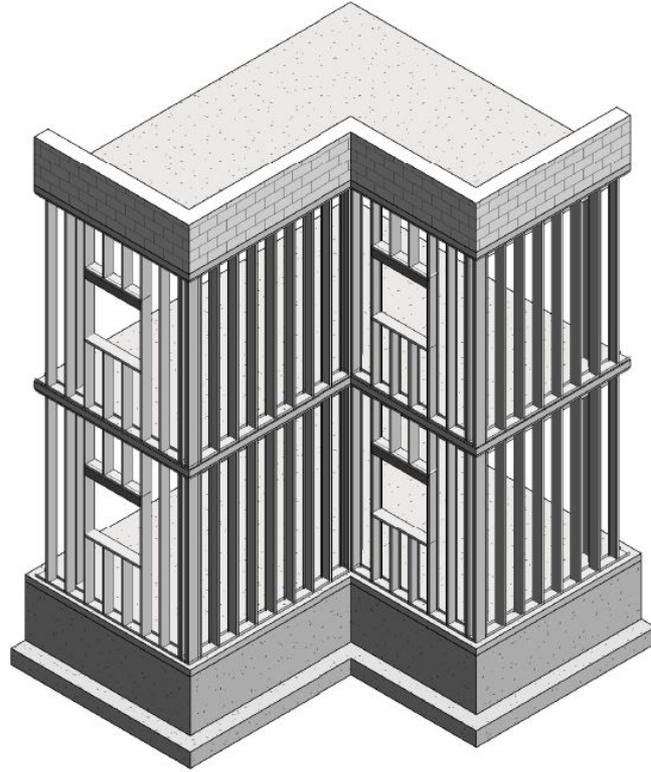


The fireproofing element is a KC Spray Foam Coating that goes over the structural members that come in hourly ratings.

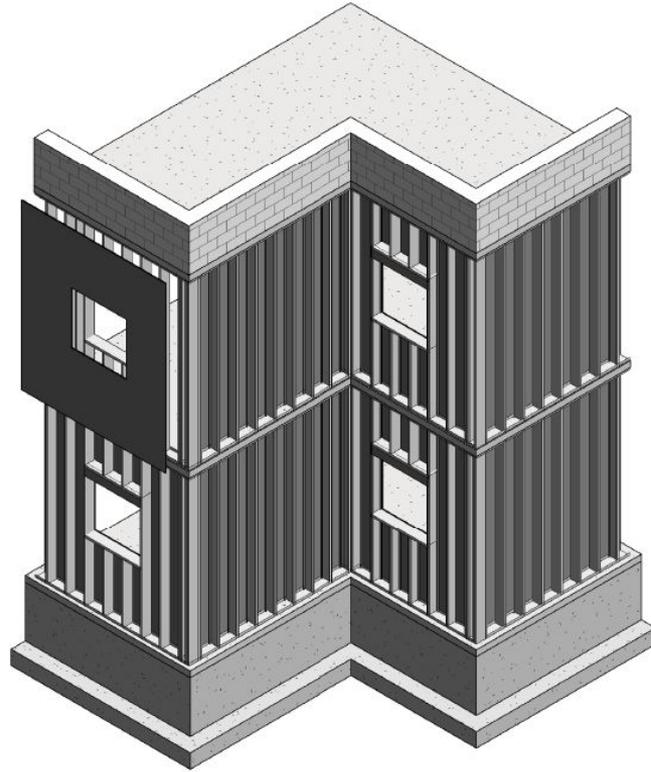


Fireproofing Foam Over Structure

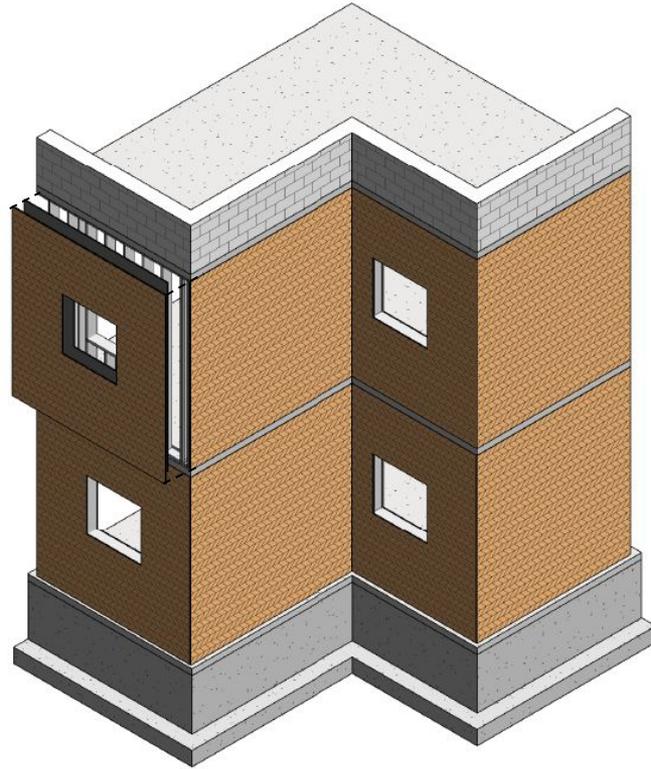
8" Metal Stud Layer



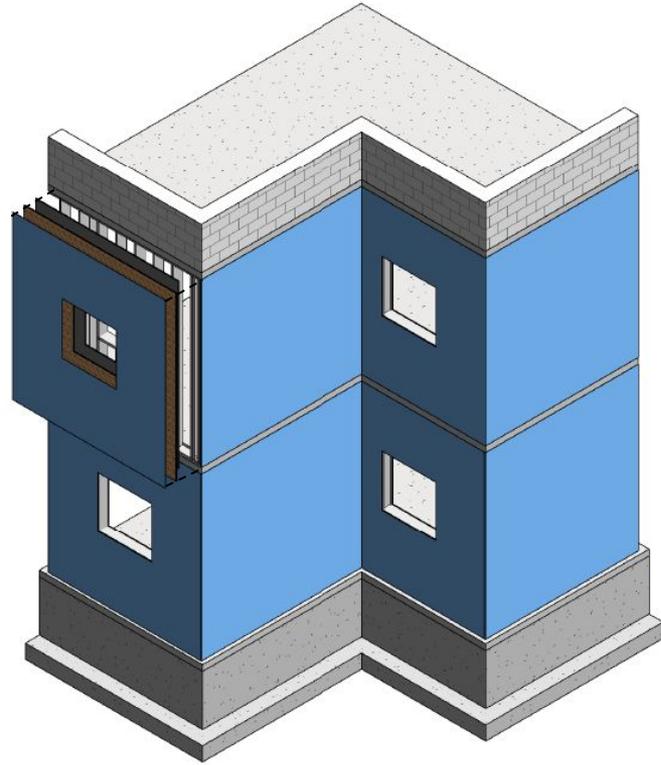
$\frac{5}{8}$ " Interior Gypsum Wallboard



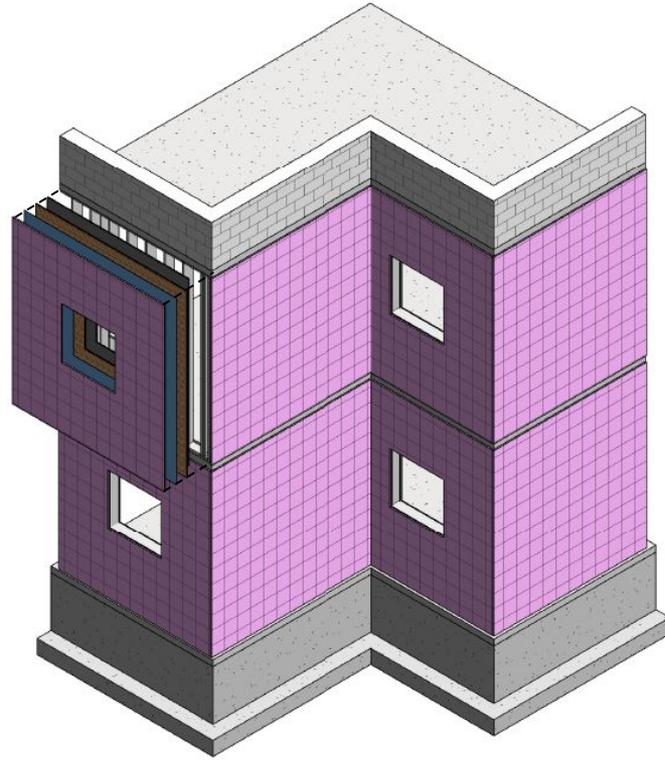
$\frac{3}{4}$ " Plywood Sheathing



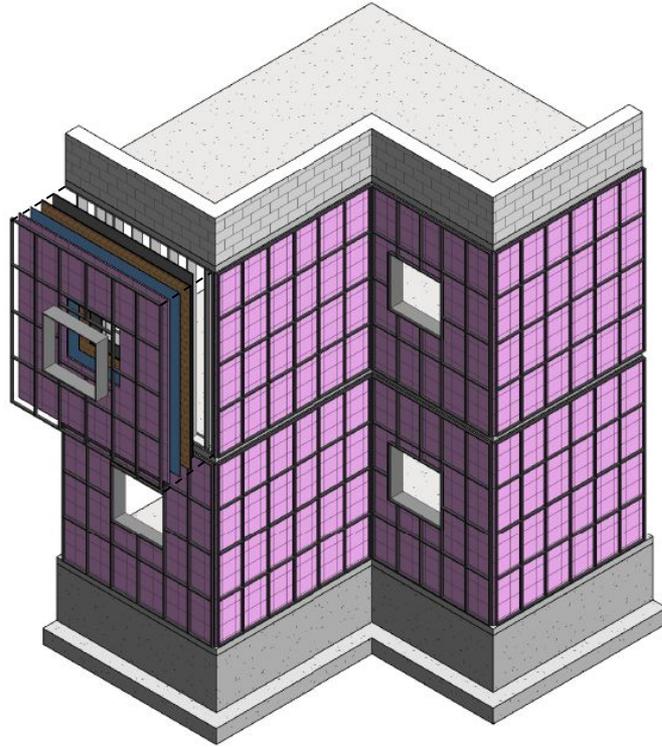
1/16" Waterproofing Barrier



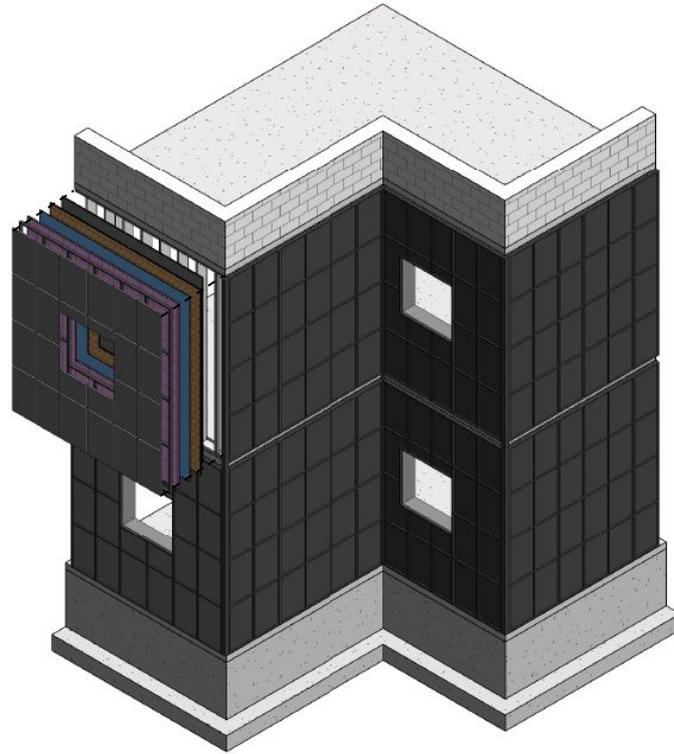
1" Foam Board Insulation



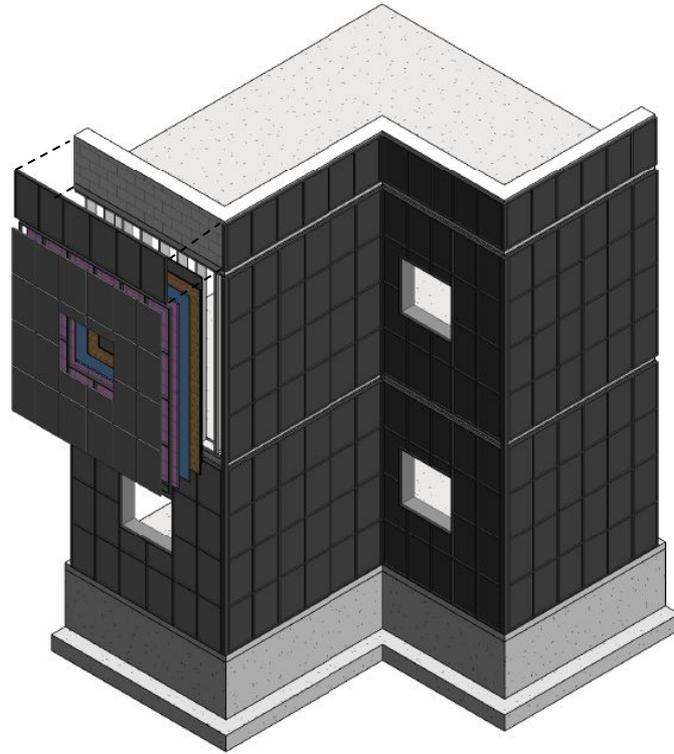
Stainless Steel Frames



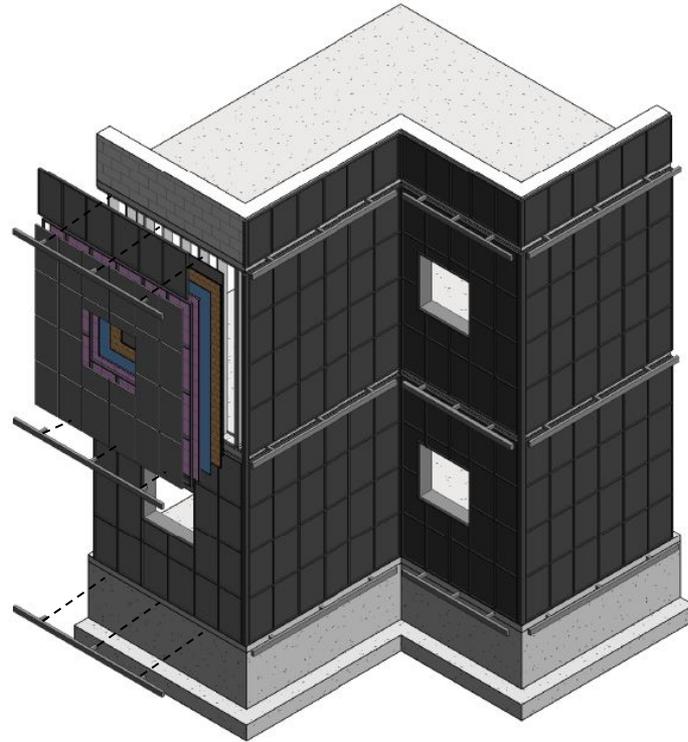
Metal Panels



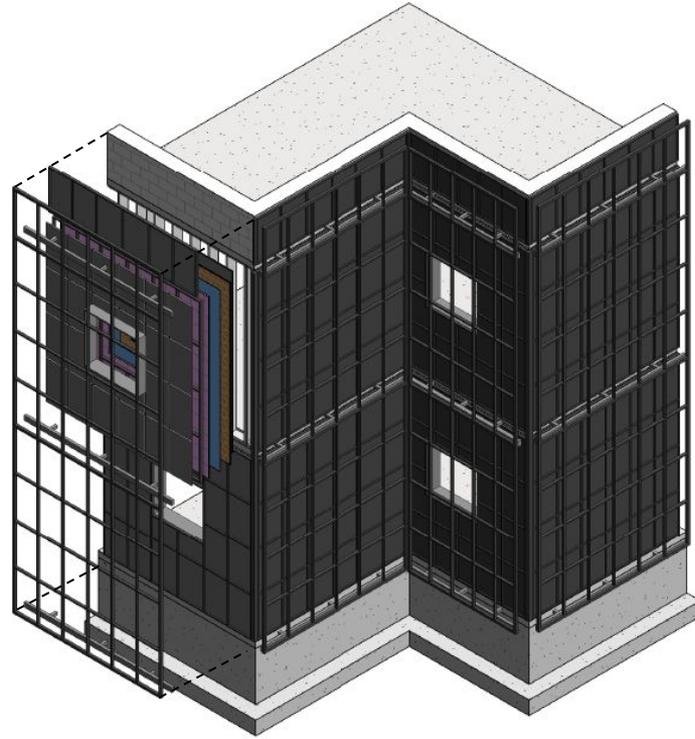
Parapet



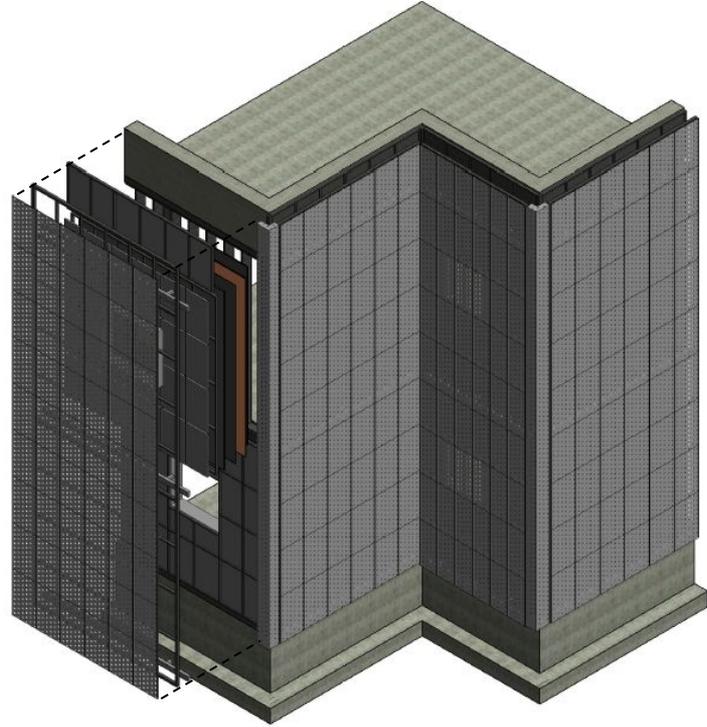
Steel Mounting Bars



Stainless Steel Frames



Perforated Metal Panels



GLASSCON

Tension Rod Spider
Glass Curtain Wall

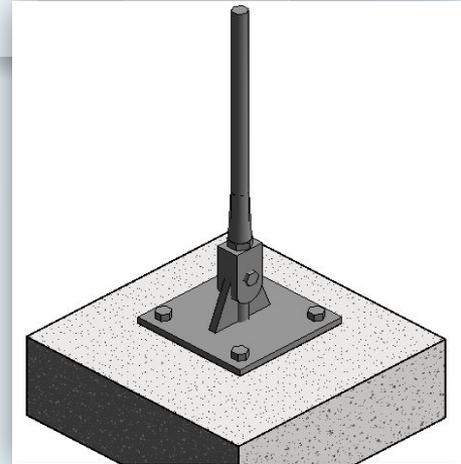


Case Study

Structure Attachment



The structure attachment is a system of tension rods and clips that connect them together. The system is tied together with spider clips that then hold the glazing

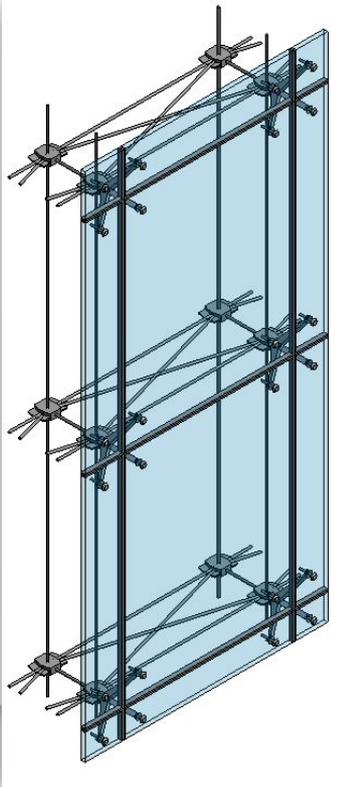


Thermal Component

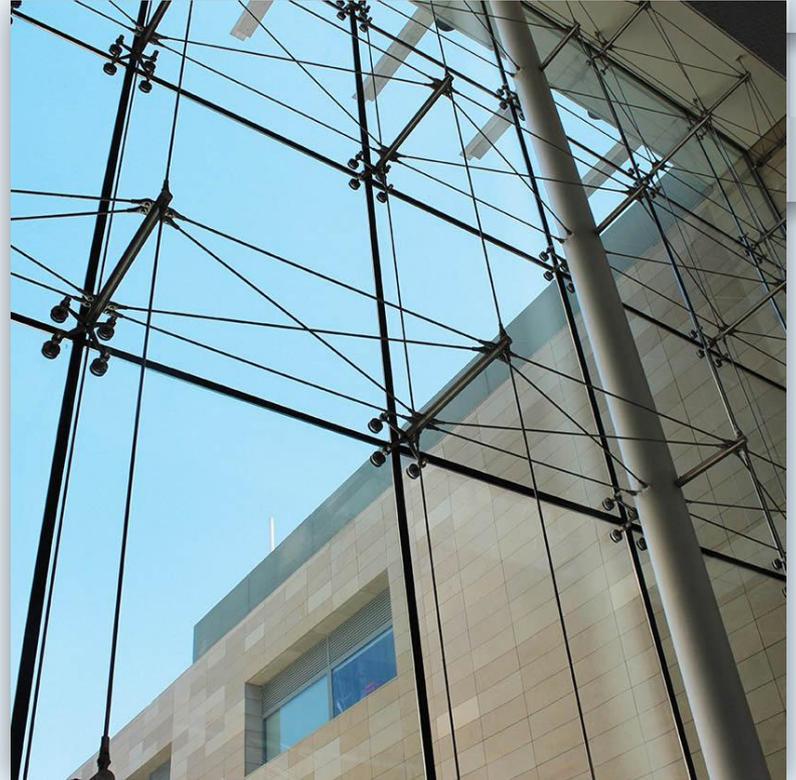


The thermal component of the glass curtain wall is composed of a gasket sealing that goes in between the glazing to secure them from letting warm air leave. The exposure of glass allows the building to heat up throughout the day from natural sunlight.

Waterproofing



The waterproofing aspect is the glazing. It keeps the outside forces away, with the incorporation of tight sealants between the glazing.



Fireproofing

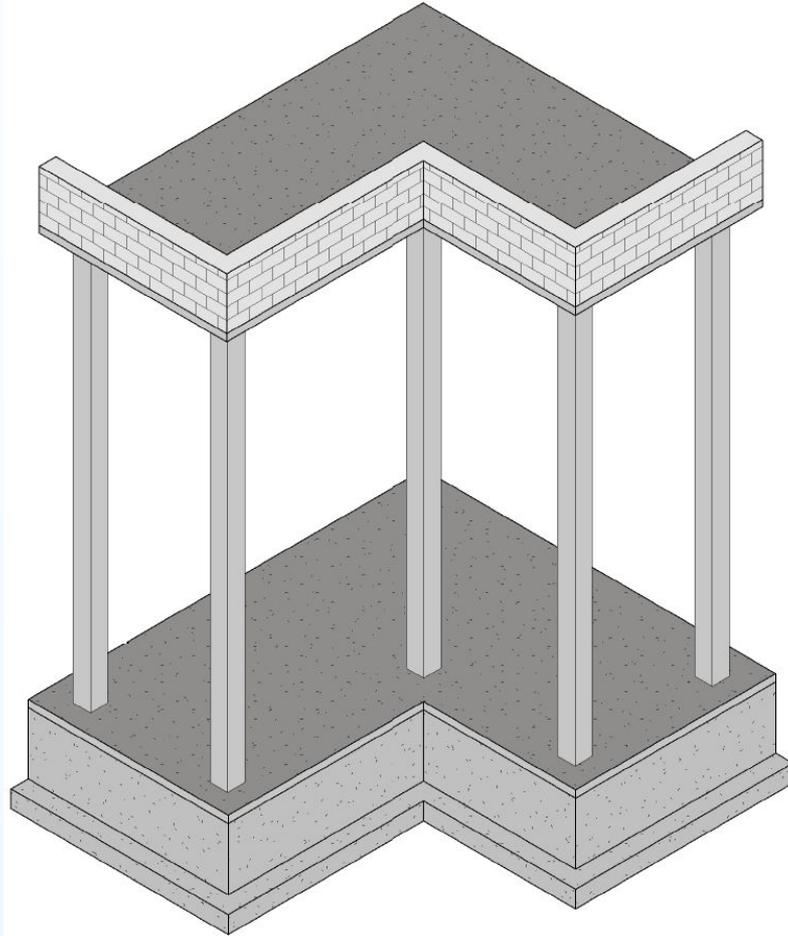


<https://www.hilti.com/content/hilti/W1/US/en/engineering/design-centers/firestop/firestop-curtain-wall-edge-of-slab.html>

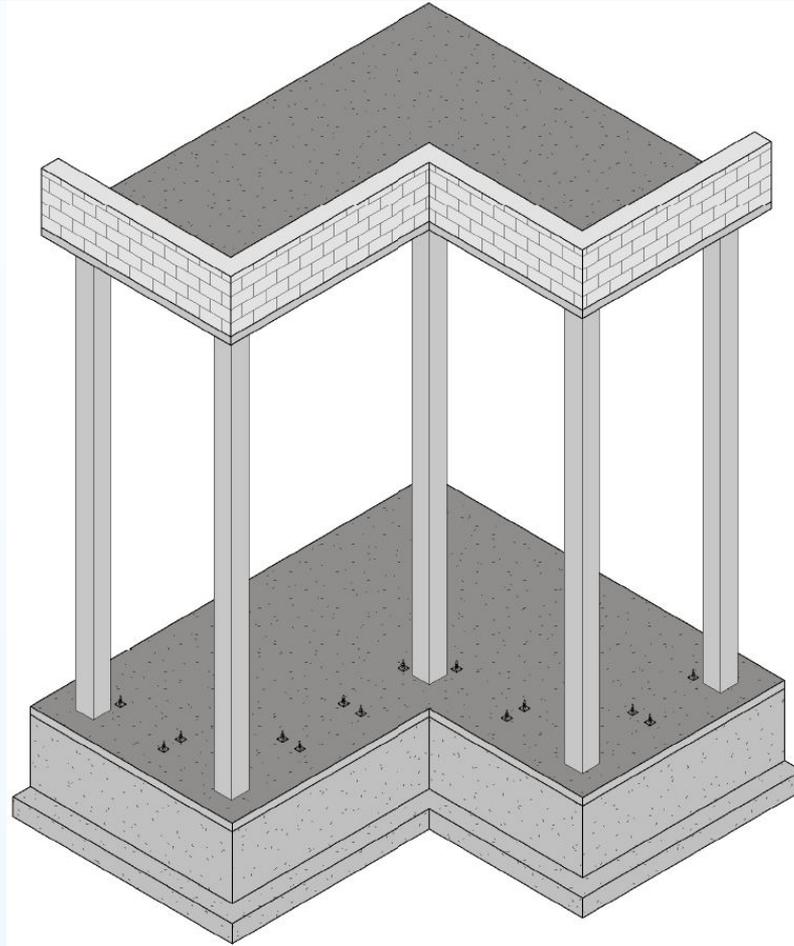
For glass curtain wall use, there is an applied fireproof quickseal that is put on slab edges



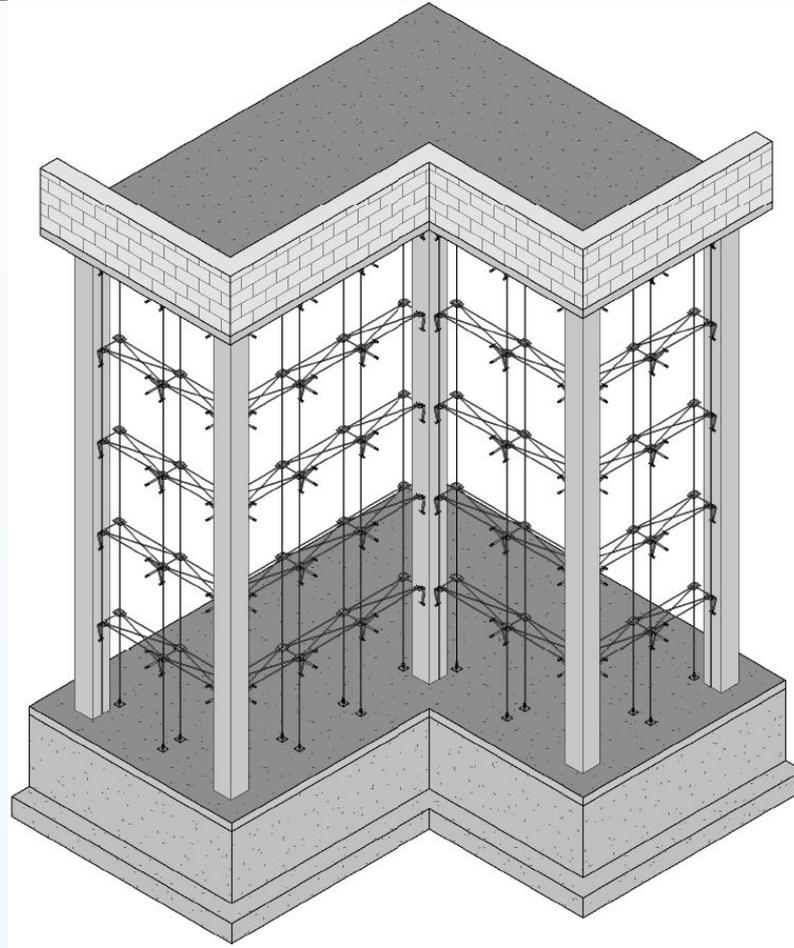
Structure



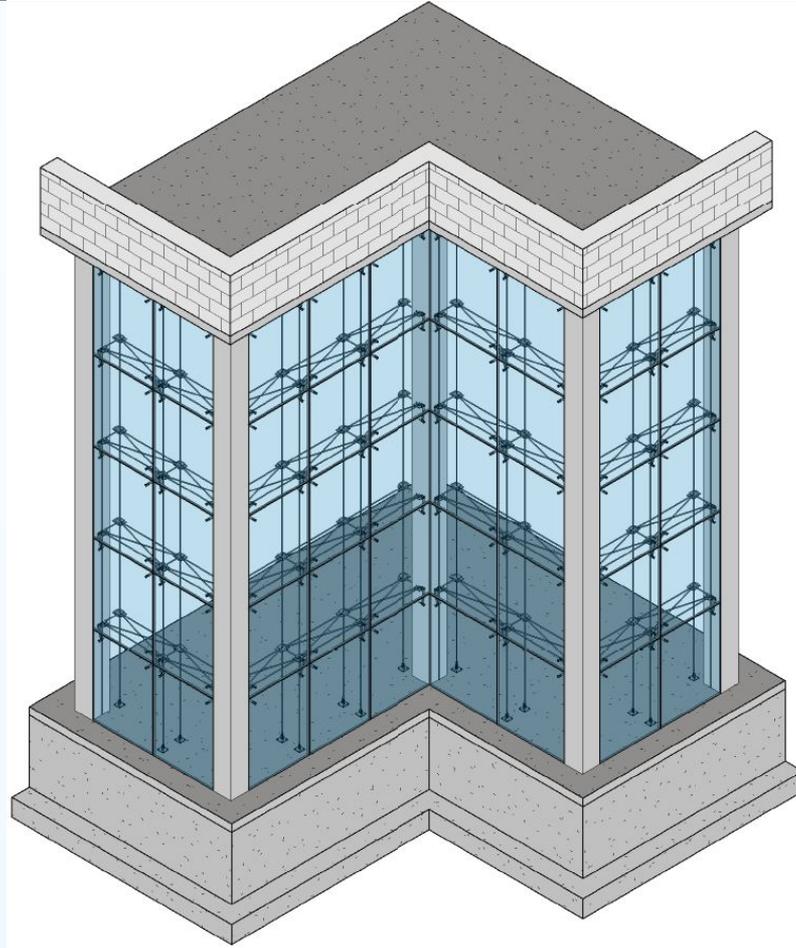
Slab Connections



Tension Rod and Spider Clip Installation



Glass Panels



Aluminum Panel Parapet

