



NATURAL STONE FACADE SOLUTIONS

Victoria BC Stone Install

- 3" out of true ground to roof
- Adjusted with U-Kon Subsystem.



Learning Objectives

- Review Applications for stone ventilated stone systems.
- Explain details of building blocks of high performance stone subsystems.
- Review attachment choices.
- Explain value engineering opportunities including replacing HSS.

Note: all applications discussed are relevant to Dekton, engineered stone

Toughest Challenges – what you are telling us

- **Built ≠ Design**
- Trade-offs; performance vs cost
- Specification pitfalls
- Constructability
- Independence of cladding.
- Best **value engineering** opportunities.
- Initial and Lifecycle costs.
- **Sustainability**

Bespoke Systems “Building Blocks”

#1 Wall Brackets



#2 Profiles

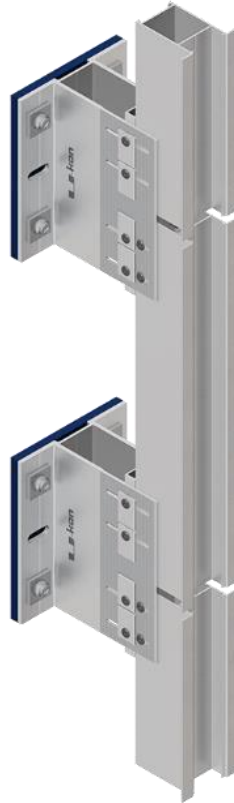


#3 Cladding Attachments



Note: Often different systems are used on the same building, depending on cladding and loads

U-kon Systems offering several options to attach wall brackets to the wall depends on facade design, structural or thermal requirements.



Assembly block “ATS HIGH”
Allowing us to install wall brackets directly to the floor slabs avoiding the installation of wall brackets to the wall. This solution has a lot of advantages:

- Best thermal performance by reducing the number of connections (wall brackets) to the wall
- Fast installation
- Suitable for all U-kon Systems
- Best solution for complex facade design



Assembly block “ATS”
ATS assembly provides an effective installation substructure system Ukon to the concrete, CMU and brick backup walls.
The ATS assembly can be used for heavy cladding panels 250 kg/m² (51 psf)
Suitable for all U-kon Systems



Assembly block “LT”
The most common system to attach wall brackets directly to steel or wood studs wall.
Suitable for all U-kon Systems

System Choices*

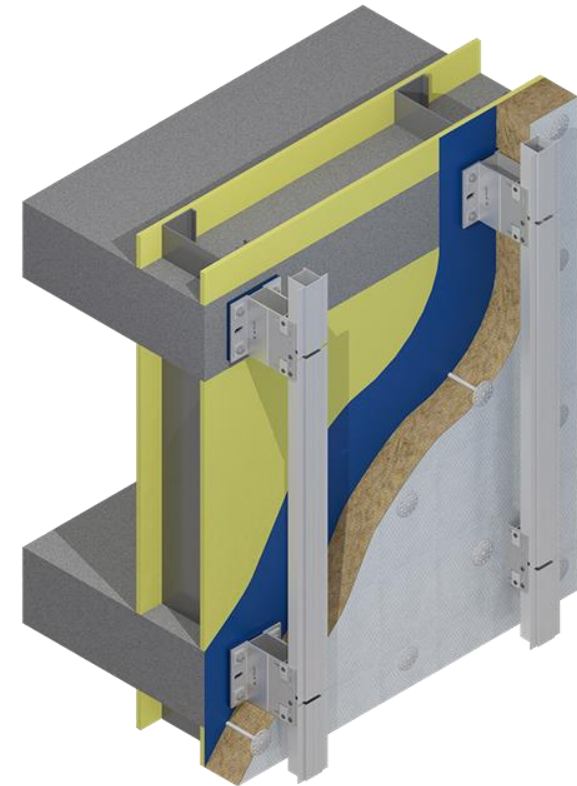
Simple



High Performance



Innovative
(slab-to-slab)

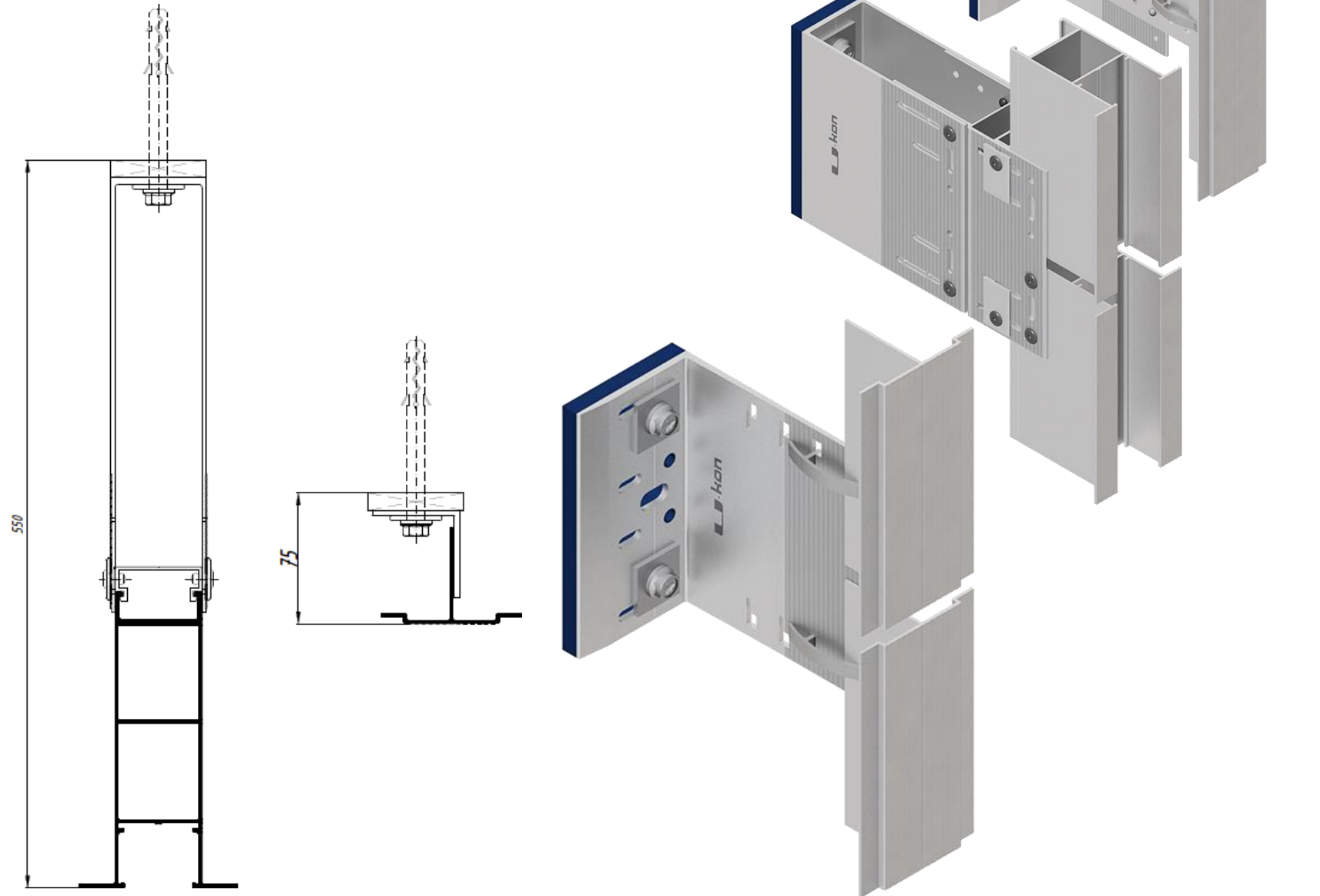


WALL BRACKET ADJUSTABILITY

The U-kon Systems has a wide variety of wall brackets that can accommodate any thickness of exterior insulation.

The maximum standard extension is 550 mm (21.5")

The bracket is adjustable in three directions.



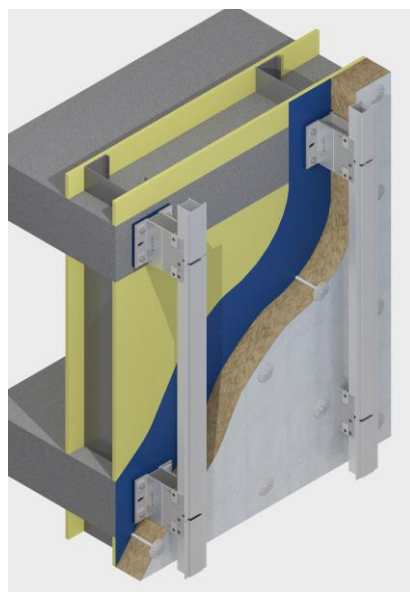
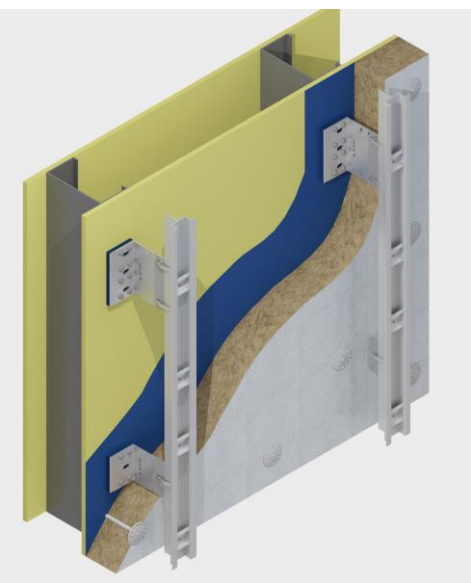


Thermal Performance Explained

Aluminum
Bracket

Stainless
Steel Bracket

Vertical Spacing in	Exterior Insulation Thickness in	Exterior Insulation Nominal R-Value	Assembly Effective R-Value	Assembly Effective R-Value	Assembly Effective R-Value (Stainless steel Bracket HIGH)*
24	4	R-16.8	R-14.3	R-17.7 (20%)	
24	5	R-21.0	R-16.0	R-21.1 (25%)	
24	6	R-25.2	R-17.7	R-24.8 (29%)	
36	4	R-16.8	R-15.8	R-18.3 (14%)	
36	5	R-21.0	R-18.0	R-21.9 (18%)	
36	6	R-25.2	R-20.2	R-25.8 (22%)	
48	4	R-16.8	R-16.7	R-18.7 (11%)	
48	5	R-21.0	R-19.3	R-22.4 (14%)	
48	6	R-25.2	R-21.8	R-26.3 (18%)	
120	4	R-16.8			18.2*
120	5	R-21.0			21.9*
120	6	R-25.2			25.8*



Build = Design Starts at Beginning

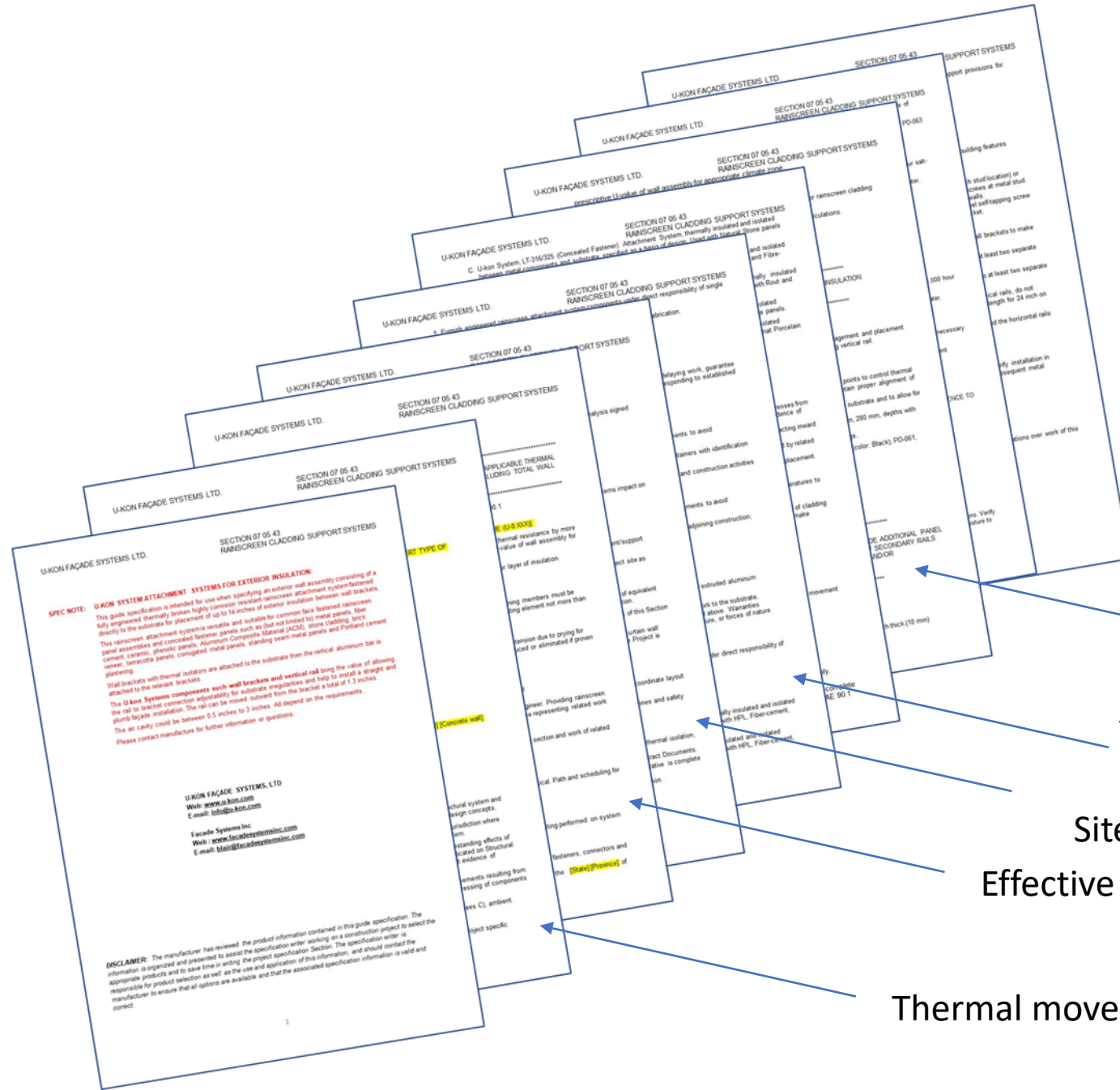
**Best accomplishments are at the beginning;
Greatest Failures Avoided are too.**

- Design review.
- Cladding layout review.
- Initial system recommendation.
- Initial structural engineering and resulting thermal performance.
- Comprehensive value engineering.
- Cladding fabrication recommendations.
- Document creation; details, specifications.
- Budgeting.



You Should Ask for This.

That is a spec!



Sole accountability

Years in business

Site Launch meeting

Effective R value

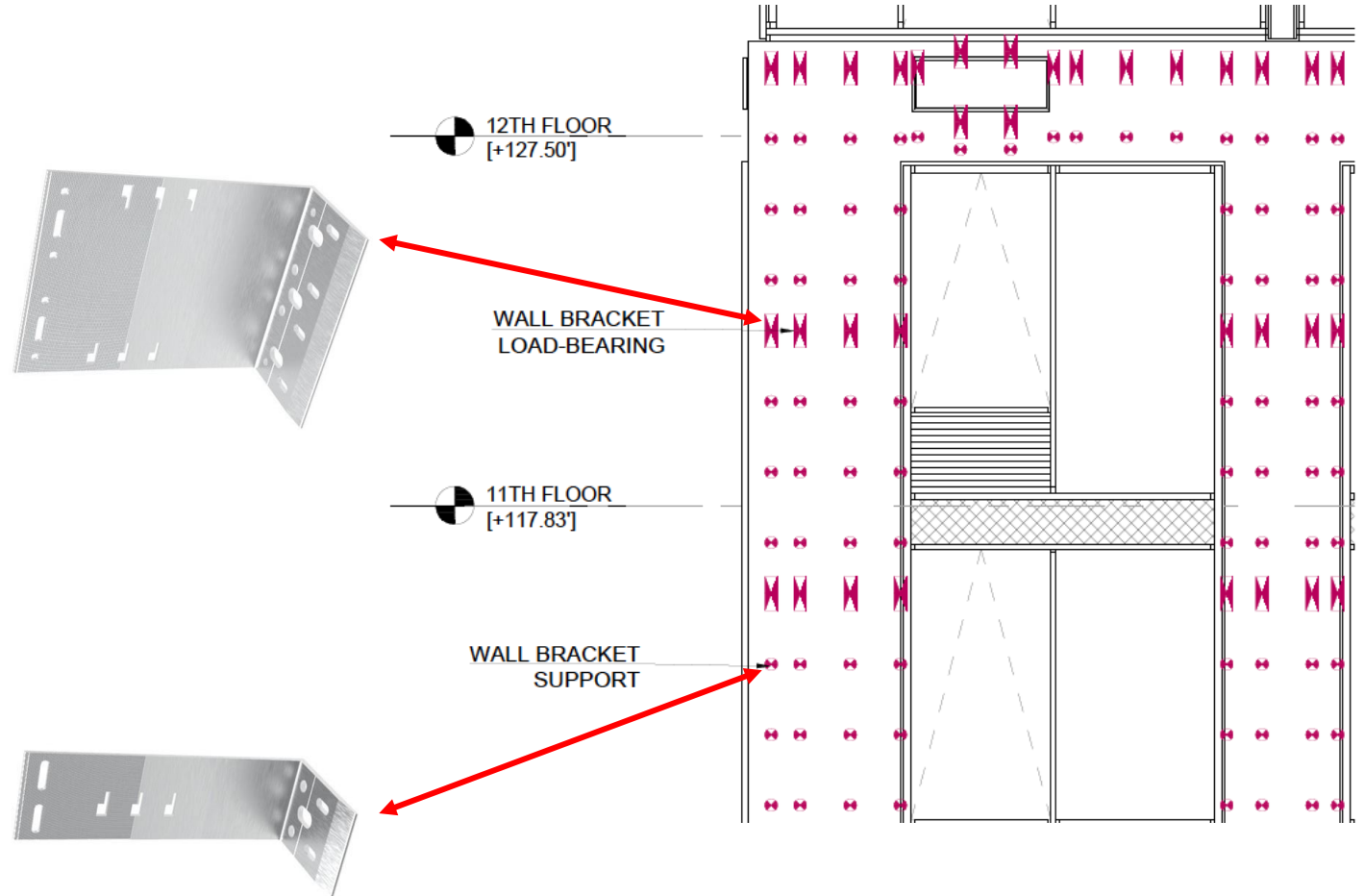
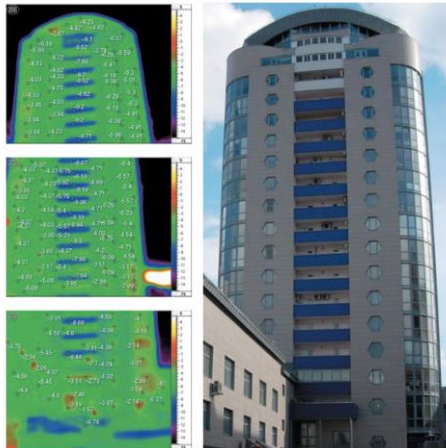
Thermal movements

Structural and Thermal Engineering Together

A façade is modelled for structural requirements and thereby thermal results.

Initial **budgeting** and value engineering opportunities identified.

Problems revealed early.



Location of wall brackets; based on structural analysis



Alexander Mirilenko ·
Facade adviser



Ben Gillam · 1st
Architectural Cladding - Why not stone?



TRADITIONAL STONE CLADDING VS THIN RAINSCREEN STONE



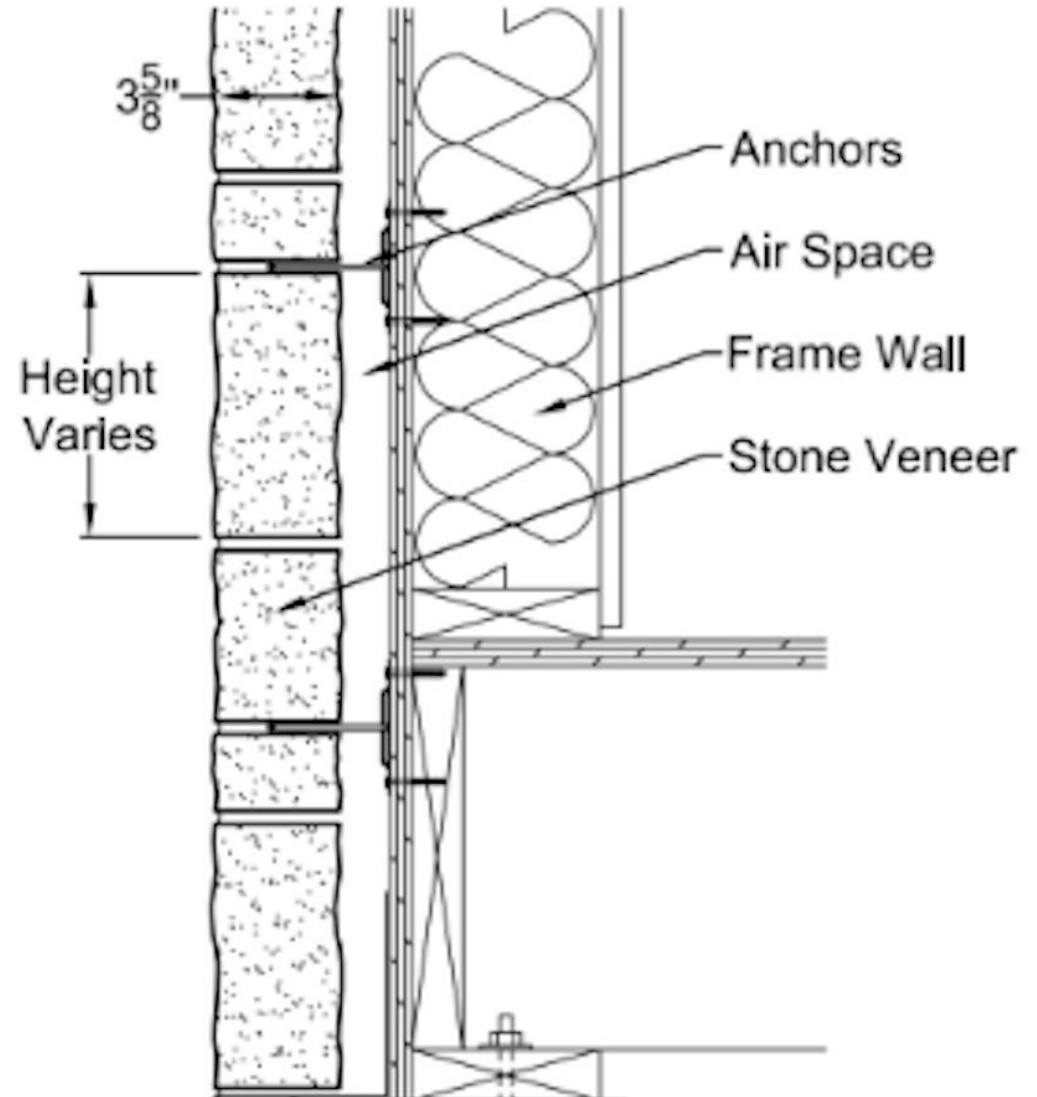


TRADITIONAL STONE CLADDING VS RAINSCREEN THIN STONE



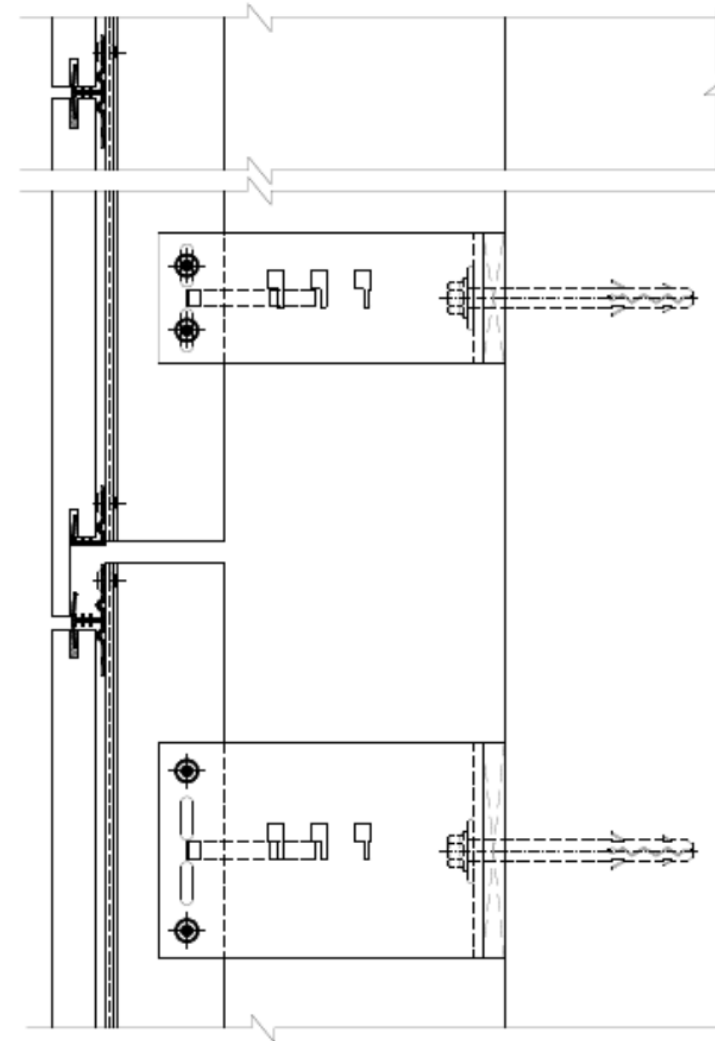
TRADITIONAL STONE CLADDING

- STONE THICKNESS – 3 5/8" (92 mm)
- ALL WEIGHT TRANSFERING TO THE BOTTOM PANEL
- SLOW INSTALLATION PROCESS
- HIGH COST OF THE PANEL
- HEAVY WEIGHT



THIN RAIRNSCREEN STONE

- STONE THICKNESS – 1 3/16" (30 mm)
- EACH STONE IS SUPPORTED BY HORIZONTAL RAILS INDEPENDENTLY
- ADJUSTABLE JOINT
- FLEXIBLE LAYOUT
- LIGHT WEIGHT
- ANY THICKNESS OF EXTERIOR INSTALLATION



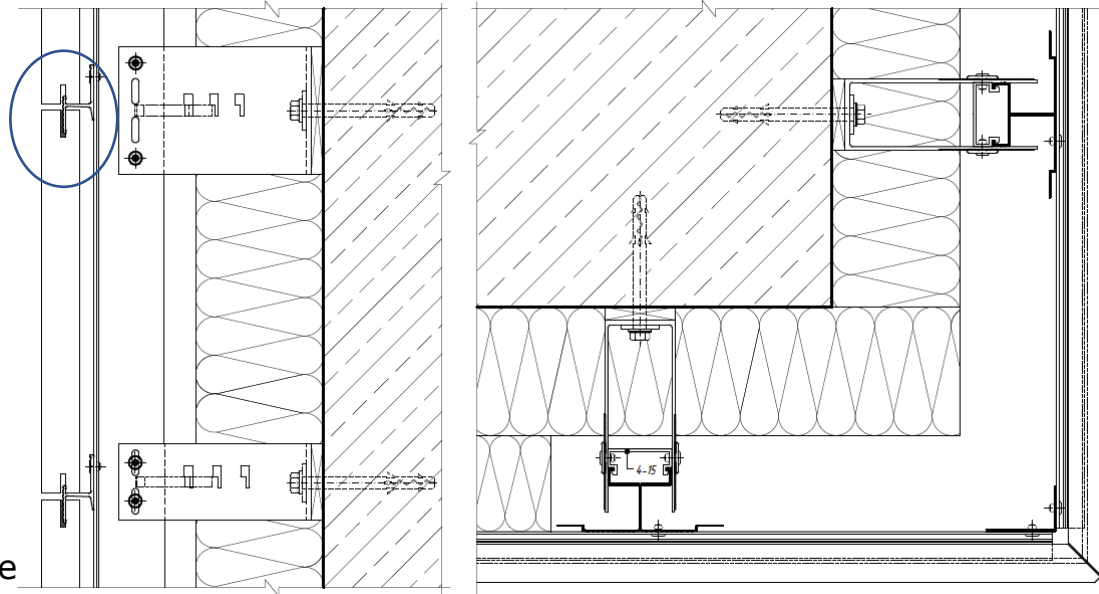
Systems

LT-316

Thermally broken rainscreen system to attach stone wall panels using continuous kerf

BENEFITS:

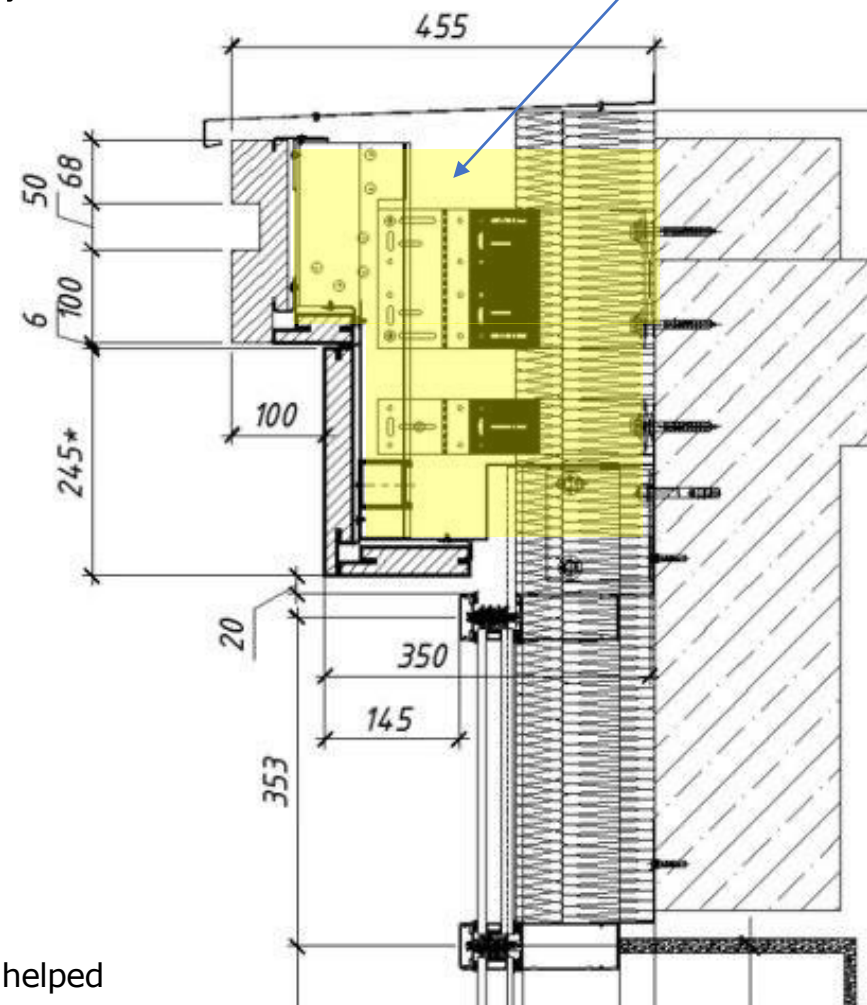
- Fast installation
- Stone thickness 20 mm - 60 mm
- Vertical or horizontal layout
- Various installation pattern available
- Possible to use for soffits application







↓ All U-Kon System, instead of HSS



Value Engineering: removing HSS

ATS type Wall brackets with additional extensions helped to achieve the necessary offset from the wall to create a cornice, cutting cost, and improving adjustability

Using 30 mm panels helped to reduce the weight of the cornice and cost of the materials



Multiple Systems – excellent results



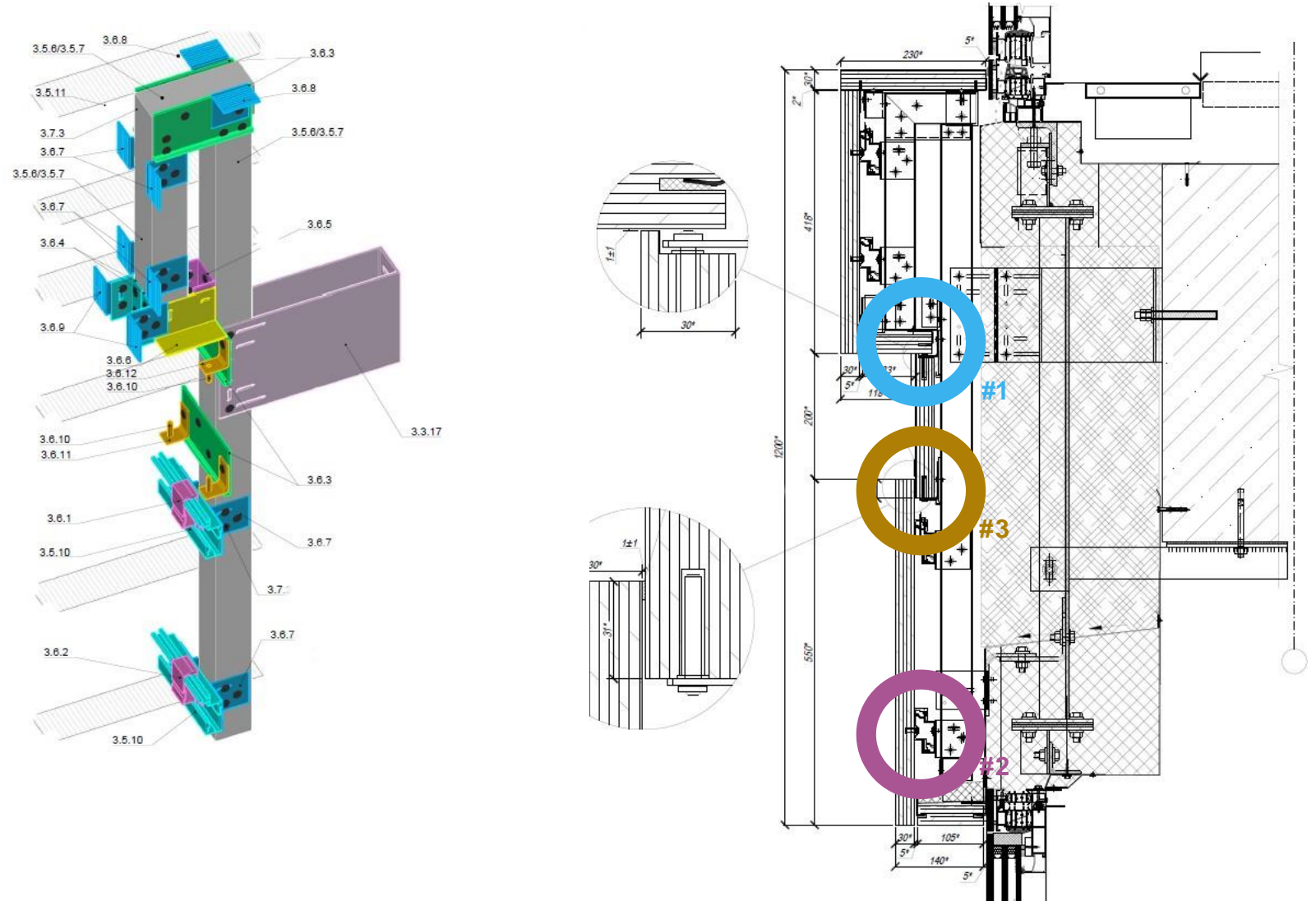
Great example showing how of combination of 3 different assemblies can help to achieve architectural idea.

#1 System 316 (KERF)

#2 System 228 (KEIL)

#3 System 325 (PIN)

Using System #2 allows us to overlap the panel installed with System #3. Both system using the same vertical profile. This method can eliminate additional vertical profiles and wall brackets.



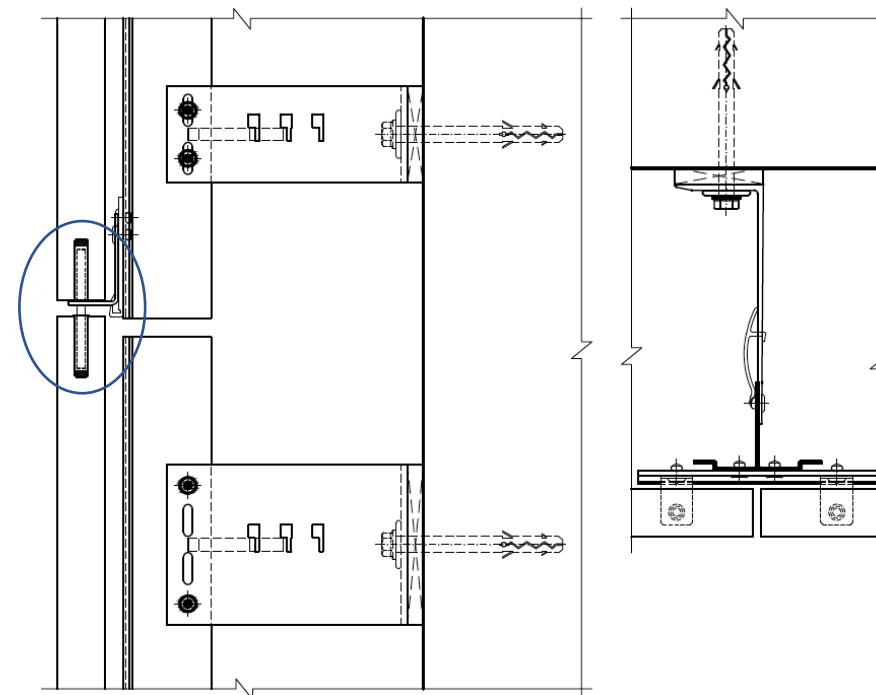


LT-325

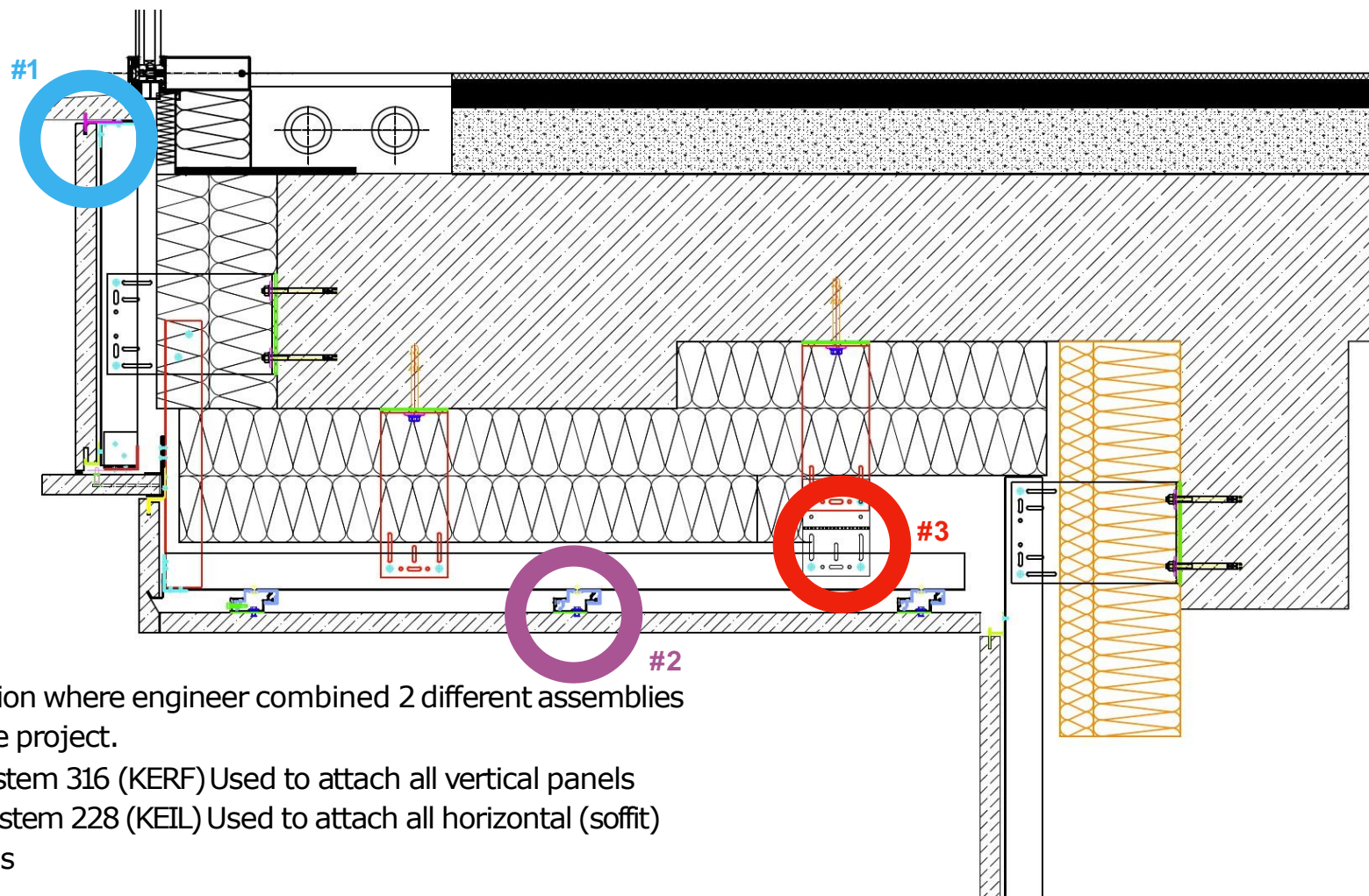
Thermally broken rainscreen system
to attach stone wall panels using pin

BENEFITS:

- Site fabrication
- Stone thickness 20 mm - 60 mm
- Vertical or horizontal layout
- Various installation pattern available
- Possible to use for soffits application
- Possible to install curved panels







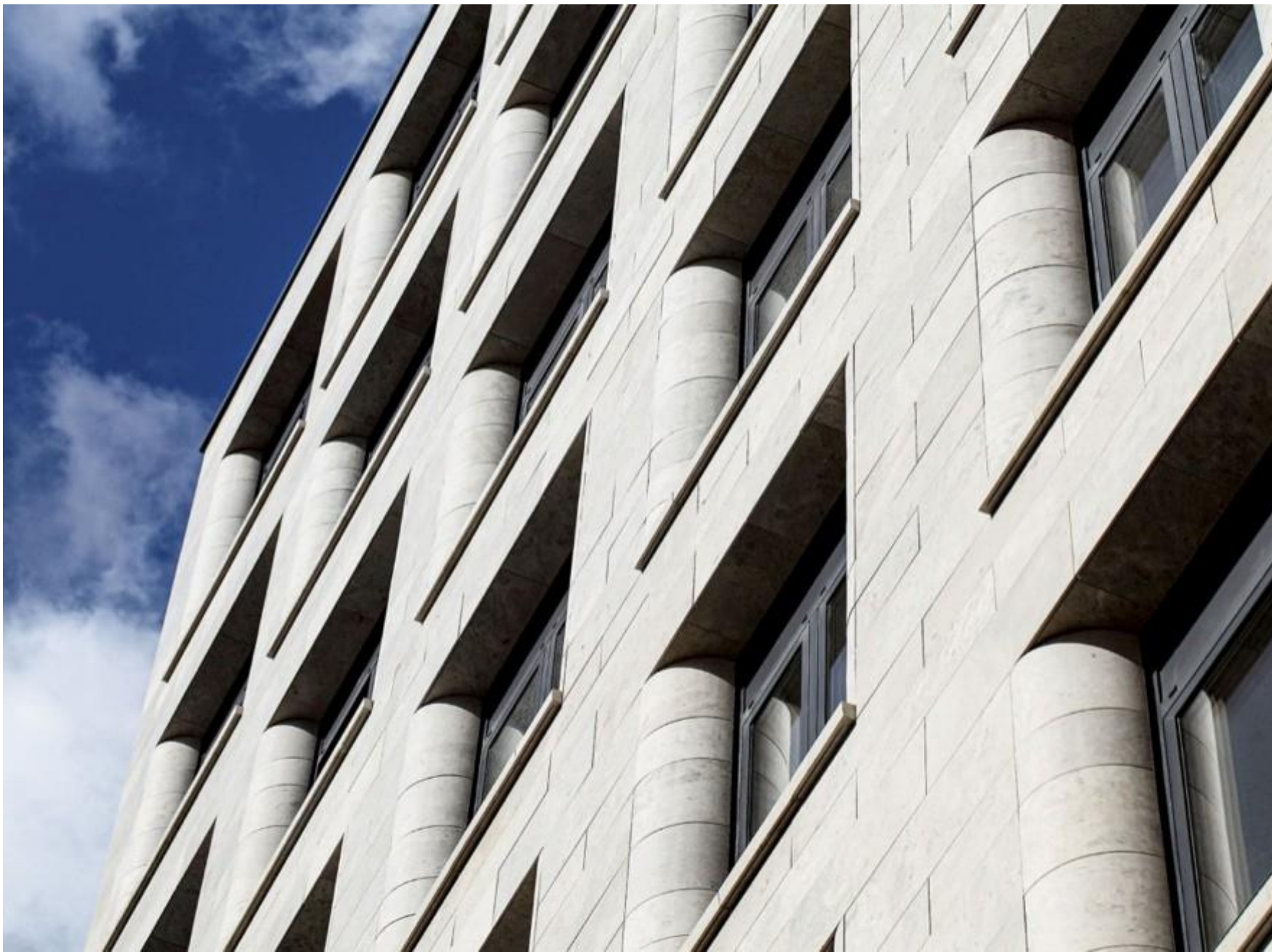
Solution where engineer combined 2 different assemblies in one project.

#1 System 316 (KERF) Used to attach all vertical panels

#2 System 228 (KEIL) Used to attach all horizontal (soffit) panels

Different slab thicknesses necessitate the use of wall bracket extension (#3)



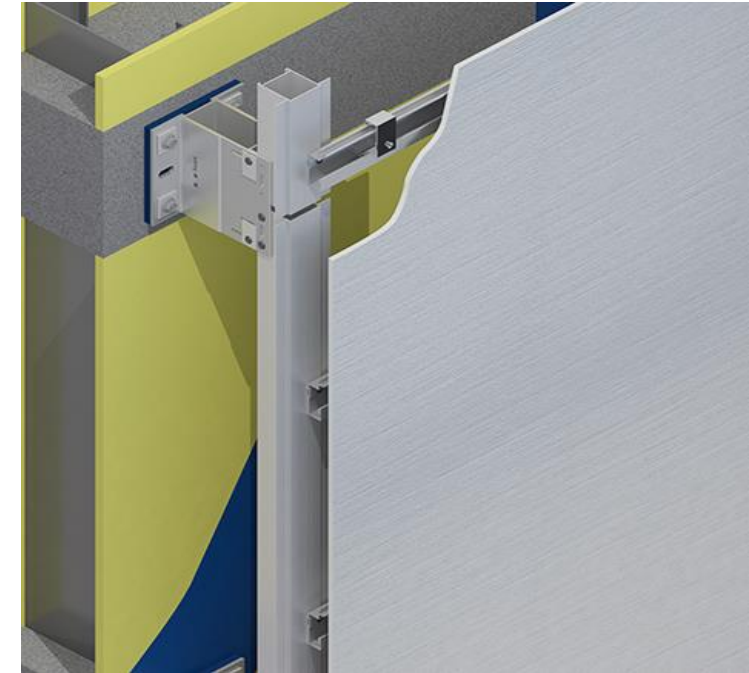
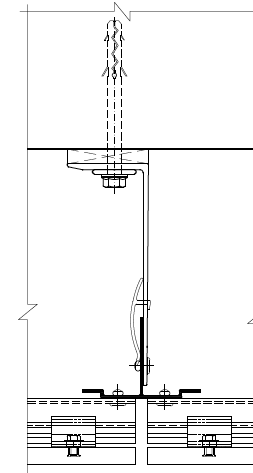
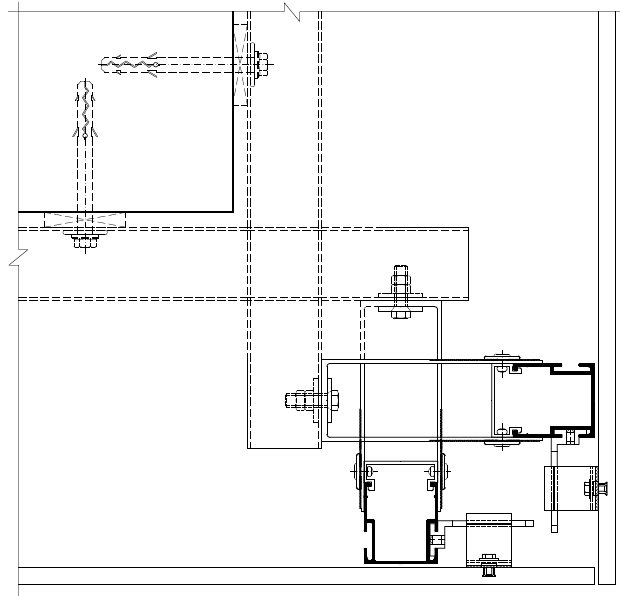


LT-228

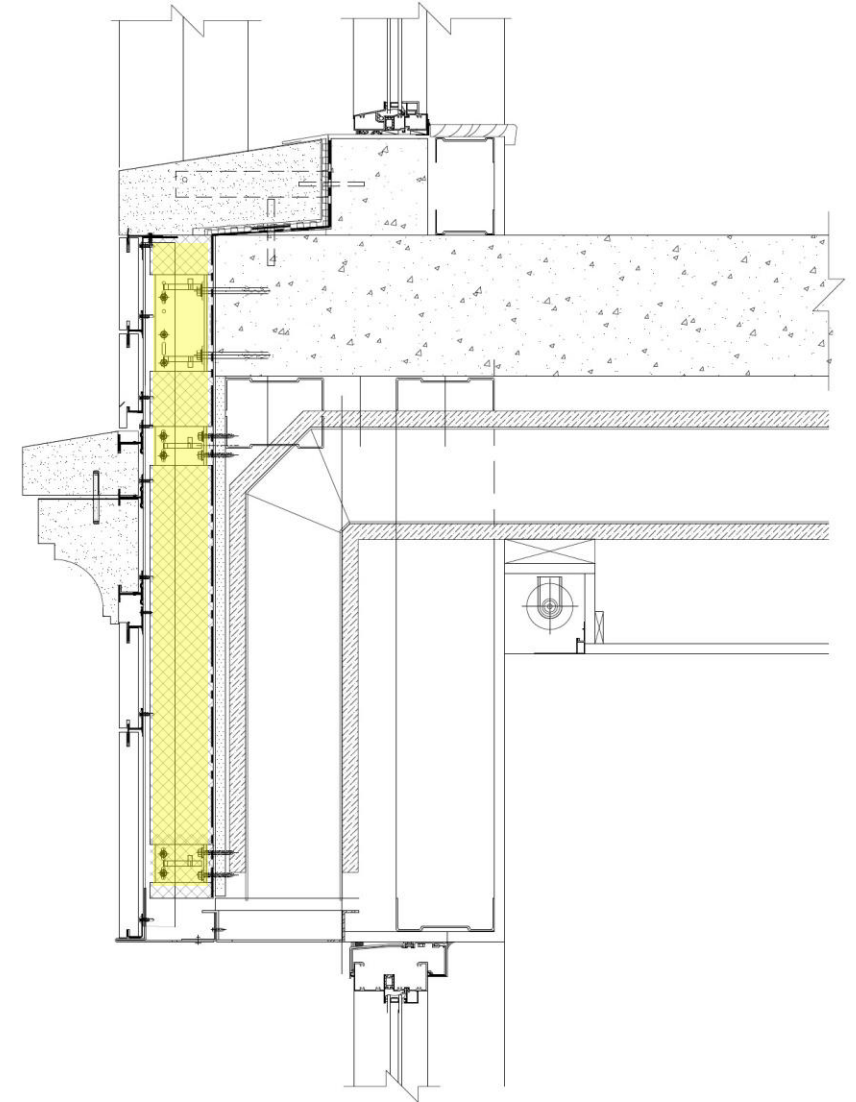
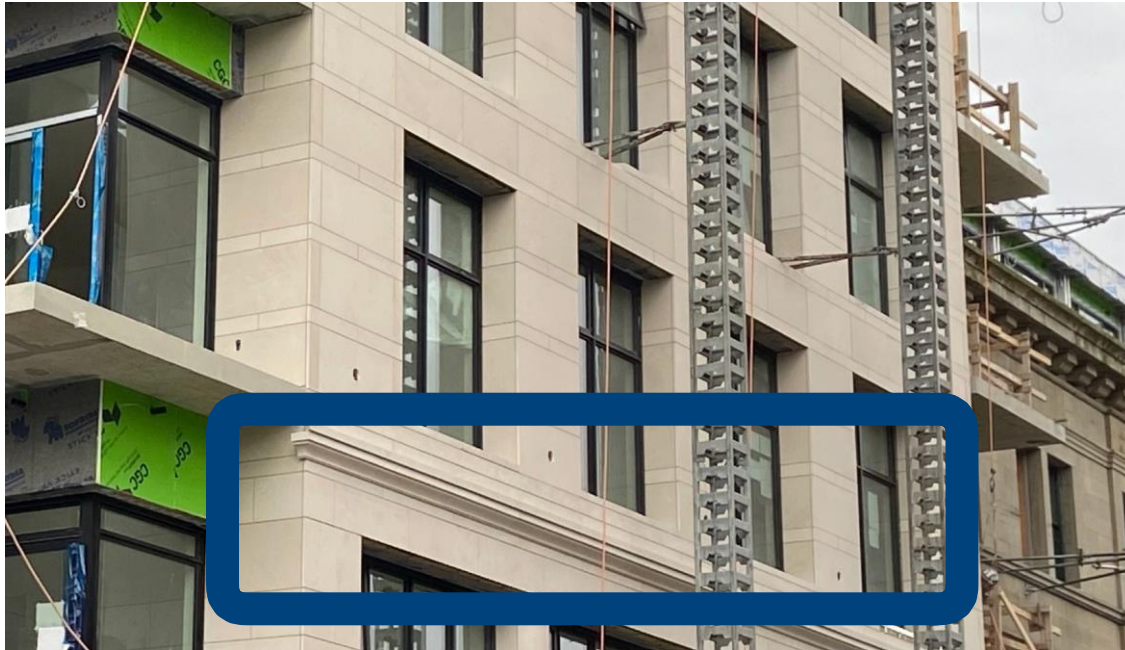
Thermally broken rainscreen system to attach stone wall panels using undercut anchors

BENEFITS:

- Install large size of stone panels
- Vertical or horizontal layout
- Various installation pattern available
- Possible to use for soffits application







Using special shape of horizontal profiles to secure heavy cornice pieces (limestone)

The same substructure were used to attach vertical stone panels above and below cornice .

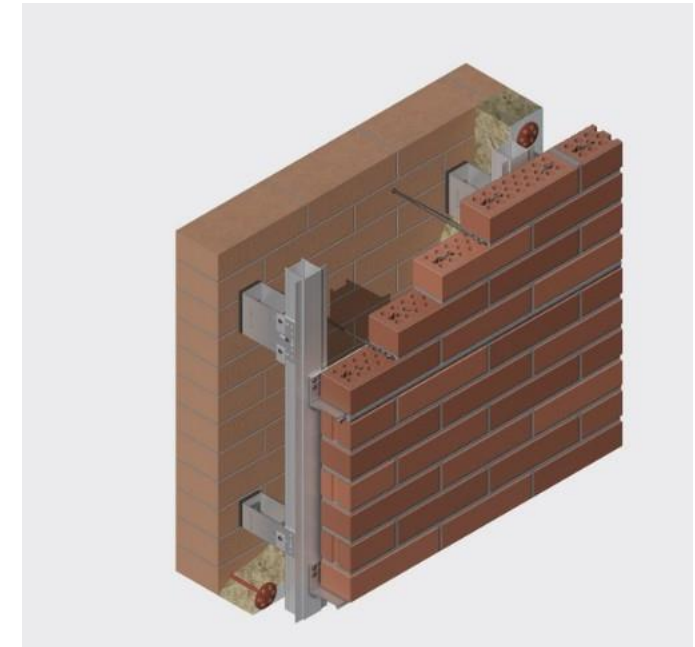
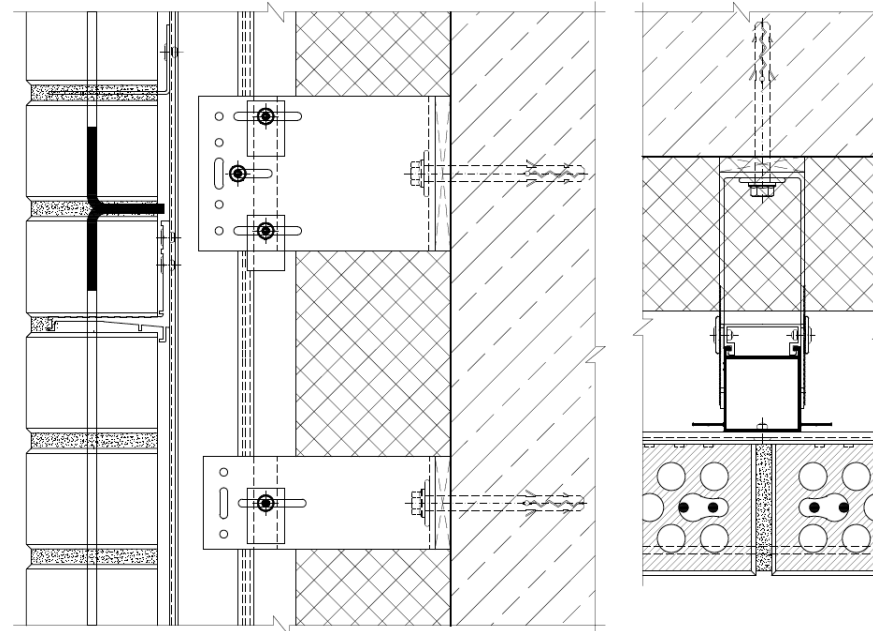


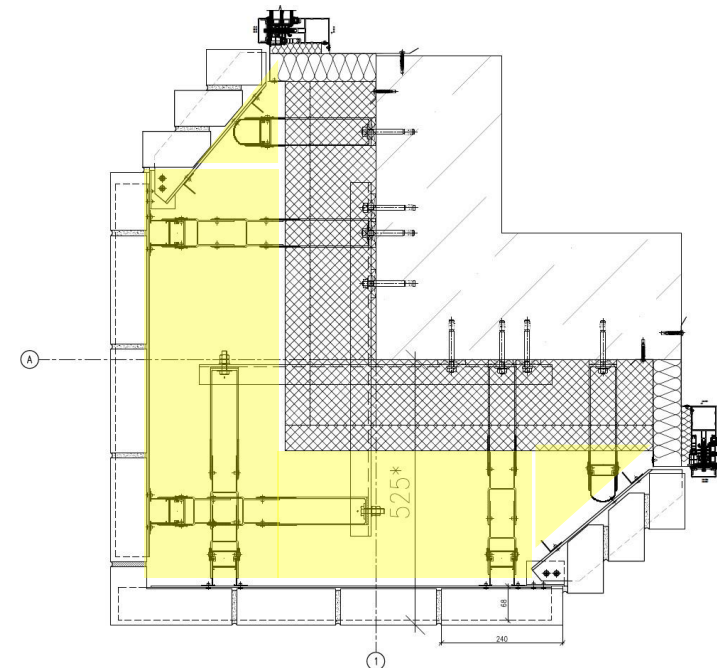
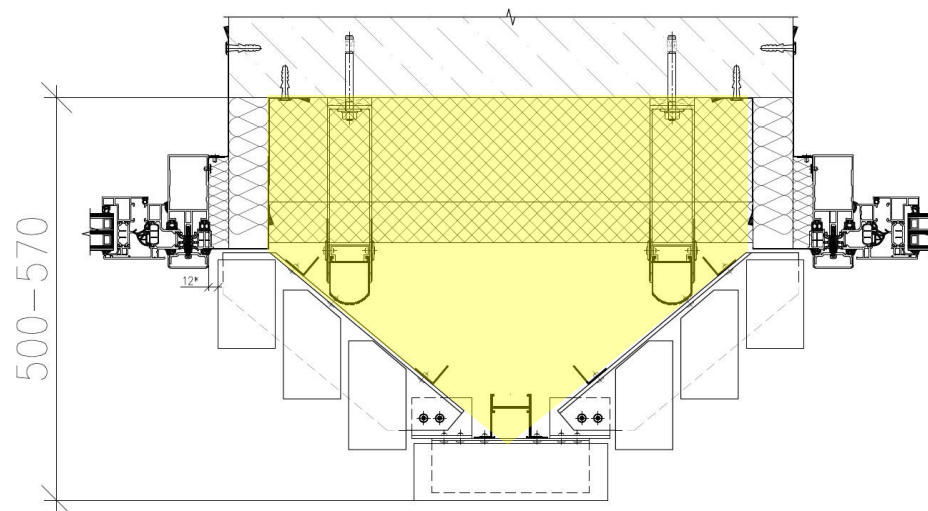
ATS-450

Thermally broken rainscreen system to attach Full size brick

BENEFITS:

- Designed to withstand heavy cladding
- Various installation pattern available





Using heavy duty vertical profiles with combination of "U" shape wall brackets can accommodate any loads and use in complex facade shapes

Learning Objectives

- Review Applications for stone ventilated stone systems.
- Explain details of building blocks of high performance stone subsystems.
- Review attachment choices.
- Explain value engineering opportunities including replacing HSS.

Note: all applications discussed are relevant to Dekton, engineered stone

What is next?

- Tells us your woes, challenges, and curiosities about high performance facades. You can help us help you or guide us on our next webinar.
- Under no obligation, let's review a project at any stage and discuss some ideas.
- or just give us a call. We love learning.

We hope we have set expectations about how you should proceed on thermal and structural aspects of high-performance facades... and taught you a bit about us, wink wink.