**Columbia University -** The Graduate School of Architecture Planning and Preservation

**Spring 2022**

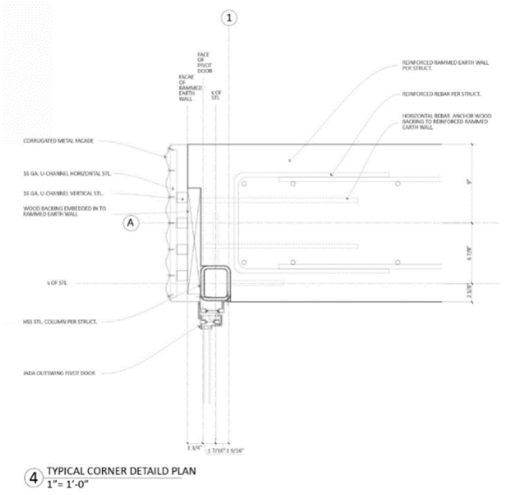
# **A4444-1 Façade Detailing**: *A Material Understanding*

Building Science & Technology Elective

Instructor: Kevin Schorn
Contact: kls2233@columbia.edu

Full Semester, 3 Points
Thursday, 9am – 11am
409 Avery Hall

The subject of this course is the detailed design of building cladding through an understanding of materials and their physical properties. Students will learn what the consequences and opportunities are of their design choices for the exterior cladding of a building at a construction document level of resolution. There will be an emphasis on sketching details at large scales (often 1:1) by hand to facilitate a proper understanding of everything involved at the interface between the interior and exterior environments and the other necessary building systems. Upon completion of the course the students will have a deep understanding of many different cladding materials and what it takes to remain in command of the entire architectural process from design concept to constructed work.




The first half of the course will be focused on researching cladding materials and understanding all physical properties (basic, mechanical, thermal, environmental, etc.) as well as manufacturing and construction limitations and processes. Precedent projects and their façade system details will be dissected and understood.

The second half of the course will employ the new knowledge toward developing cladding details for a previous studio project or any other project which is at a level of design such that typical façade details can be developed. Details will be sketched by hand and once a solution is found, they will be drawn accurately in two-dimensions with the option of augmenting the representation with a three-dimensional drawing. Emphasis will be placed on thinking through sketching as well as how to draw and annotate clear and legible drawings. The final deliverable will be detailed drawings and rendered elevations of the area detailed.

| Density (lb/ft$^3$) | Modulus of Elasticity (ksi) | Yield Strength (ksi) |
|---|---|---|
| 168.5 | 10,000 | 31 |
| 93.64 -112.3 | 1,410 - 5,000 | 0.3 |
| 130 | 580 | 0.3 |
| 156 | 4,350 | 0.5 |
| 70 - 117 | 126 - 245 | 0.73-4.35 |
| 90 | 900 | 12 |
| 160 | 10,100 | 5.8 |
| " | " | 17-29 |
| 70-80 | 260-470 | 8.5-10.2 |
| 144 | 0-1,450 | - |
| 490 | 29,000 | 36 |
| 499 | 28,000 | 31 |

**Schedule**:

01/20 Week 1: Lecture: Introduction and background, Assignment of **Project #1 - Research**

01/27 Week 2: Lecture: Material properties: Metals, Glass

02/03 Week 3: Lecture: Material properties: Concrete, Masonry, Wood

02/10 Week 4: Guest presentation: Stone façade design

02/17 Week 5: Lecture: Designing the façade of the new Whitney Museum of American Art

02/24 Week 6: **Presentations of Project #1**

03/03 Week 7: **Presentations of Project #1**

03/10 Week 8 (KINNE WEEK): Lecture: An Approach to Detailed Design
Assignment of **Project #2 - Design**

03/17 Week 9: SPRING BREAK

03/24 Week 10: Lecture: Drafting Details and Presenting the Design

03/31 Week 11: Working session – reviewing work-in-progress

04/07 Week 12: Working session – reviewing work-in-progress

04/14 Week 13: **Presentations of Project #2**

*Note: Schedule is subject to change.*