ARCHITECTURAL ASSEMBLIES
MIT 4.123 Spring 2022

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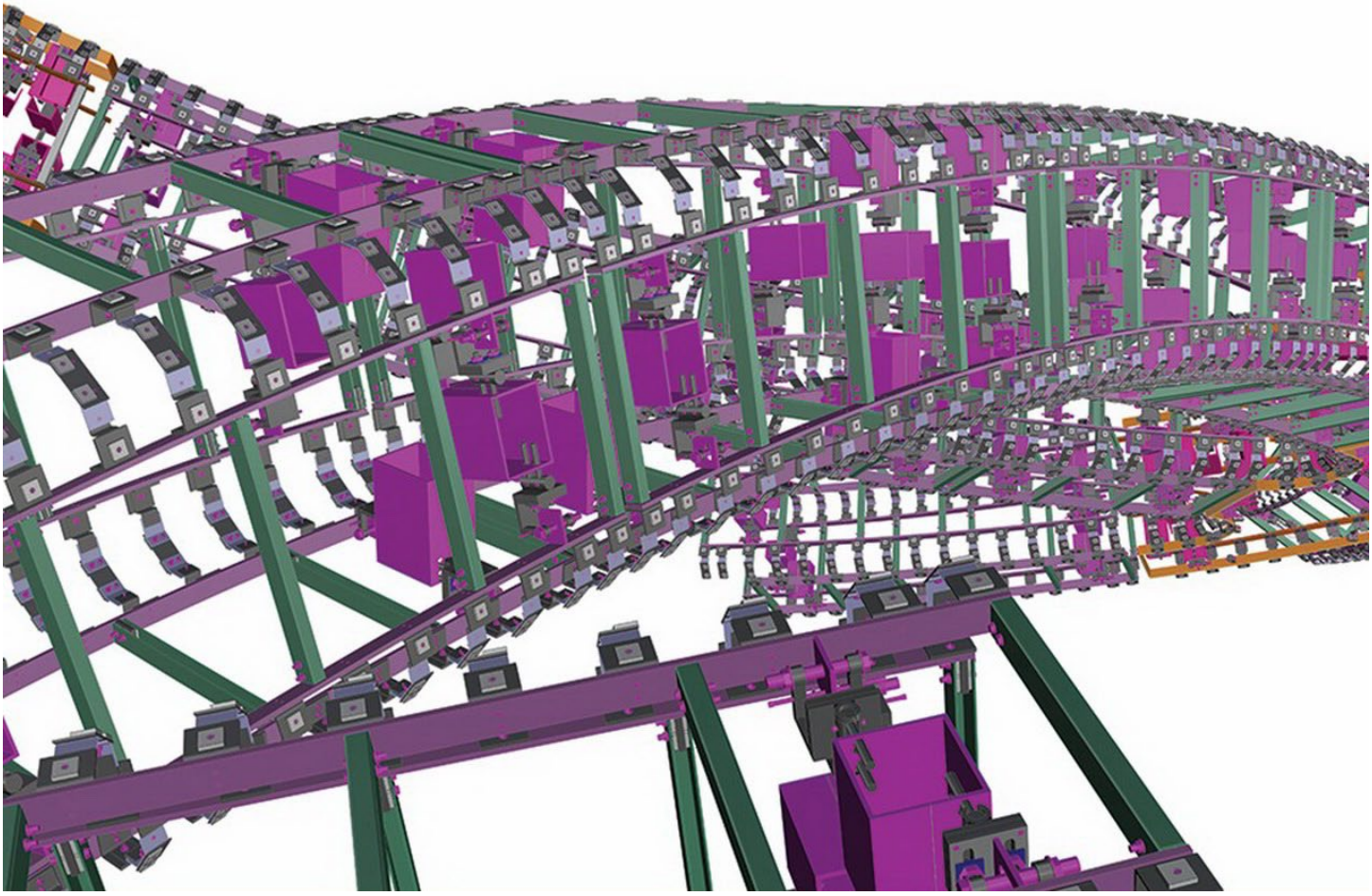
Credits	3-0-6 G
Schedule	Friday 9am-12pm
Location	3-133



Volkswagen Golf product catalogue

Architectural Assemblies, is a framework geared towards the development of innovative architectural systems, with a specific focus on the building envelope.

Delivered through project case studies, Architectural Assemblues presents an overview of materials, processing methods, and their formation into building systems across cultures. Normative and advanced design-delivery techniques will be examined through projects utilizing conventional documentation and BIM coupled with both conventional procurement and file-to-factory processes. A holistic understanding of the architectural-building cycle enables participants to build upon the recent history of design and construction to make informed decisions towards developingboth conventional and innovative building systems.

Course Evaluation

50% Project 1 Group Work
50% Project 2 Individual Work

Course Project Assignments

Project 1 Group Assignment :

Students will be randomly organized into groups and select a case study from the list below. Each group will then research the case study building, program, organizational logic, material and construction systems, tectonics, site, context and subgrade conditions.

Assessment of best tool set and process logic for digital modeling of the study area part of the building. Required representation of the building as both live model, slide presentation and choreographed animation, including surface, wireframe, system and constructability representation, and including detailed tectonics of a key multi material systems

interface. Foundations, site, structure, conceptual mep, interior systems and detailed building envelope shall all be modeled.

Physical modeling at scale 1:5 façade/structural architectural model model of a meaningful, representative part of the building envelope and related structure and MEP systems.

Case Study in Landscape PPT / PDF for presentation
Digital Model
Drawings and 1 to 5 Scale
Physical Model. 1 to 5 Scale
Budget Allowance TBD

Case Study Projects :

1 Juilliard School Tianjin, China – Diller Scofidio Renfro
2 Seattle Space Needle, USA – Olson Kundig
3 4Milstein Hall College of Art, Cornell University, USA – OMA
4 Cummins Indianapolis HQ, USA – Deborah Berke
5 Canadian Parliament West Block – A49 + EVOQ
6 Amazon Spheres – NBBJ
7 Xiqu Center – Revery
8 2050 M Street – REX
9 Grace Farms – SANAA
10 Shenzhen Energy Building – BIG
11 Kimbell Art Museum Expansion – Renzo Piano
12 Isabella Gardner Museum – Renzo Piano
13 Seattle Library – OMA
14 Viceroy Hotel – UAE – Asymptote
15 IMS – Instituto Moreira Salles – Sao Paolo, Brazil – Andrade Morettin

Project 2 : Individual Assignment

Student selects their own case study building, built within last 30 years. Must be a building for which you can obtain good published design and technical information on the building envelope/structure/systems. Submit building selected for pre-approval by instructor by February 18.

Project Requirements

Produce Case Study ~2000 words including history, design narrative, system descriptions, materials and processes, final assemblies, your appreciation or criticism of the project and its materials and systems.

Select study area of building that includes structure, envelope and interiors.

Produce 3d Rhino or Revit model of study area illustrating all elements including connections where possible.

Produce 2d drawings at 1:10, 1:5 and 1:1 of a minimum of 1 plan and 1 section at each of the three scales.

Annotate drawings with all constituent materials and finishes.

Submit drawings as annotated pdf's and 3d assembly file in Rhino or Revit format + 3 jpeg screenshots of 3d views/axonometrics of your 3d model. Produce rendered views if you wish.

SCHEDULE

Week 01	Feb.04	In Person	Course Overview Team Assignments and Case Study Selection
Week 02	Feb.11	in Person	Session 02
Week 03	Feb.18	Remote	Session 03
Week 04	Feb. 25	In Person	Session 04
Week 05	Mar.4	Remote	Session 05
Week 06	Mar.11	In Person	Session 06
Week 07	Mar.18	In Person	Session 07:
Week 08	Mar.25	No Class	SpringBbreak
Week 09	Apr.1	In Person	Session 08
Week 10	Apr.8	Remote	Session 09 Final Deadline for Individual Case Study
Week 11	Apr.15	In Person	Session 10
Week 12	Apr.22	Remote	Session 11
Week 13	Apr. 29	In Person	Session 12 Final Group Case Study Presentations

REFERENCES

Reference Books

Facade Construction Manual - Thomas Herzog
Exterior Building Enclosures - Keith Boswell
Structural Glass Facades - Mic Patterson
Cladding of Buildings - Alan J. Brookes
Building Construction Illustrated - Ching
Fundamentals of Building Construction - Allen + Iano
Materials and the Environment – Michael Ashby
Building Skins – in Detail
Mechanical and Electrical Equipment for Buildings (MEEB) Twelfth Edition – Grondzik + Kwok