Broadening the Perspective of Technology in Architectural Practice

October 19, 2012 | Stanford, CA
Stanford University Center for Integrated Facility Engineering

Light & Agile

Information flow in design and collaboration

Shane Burger

Director of Design Technology

WOODS BAGOT

Broadening the Perspective of Technology in Architectural Practice is registered with AIA CES.
Online + Components: **TAP101912W**
Stanford CIFE Live Event: **TAP101912S**
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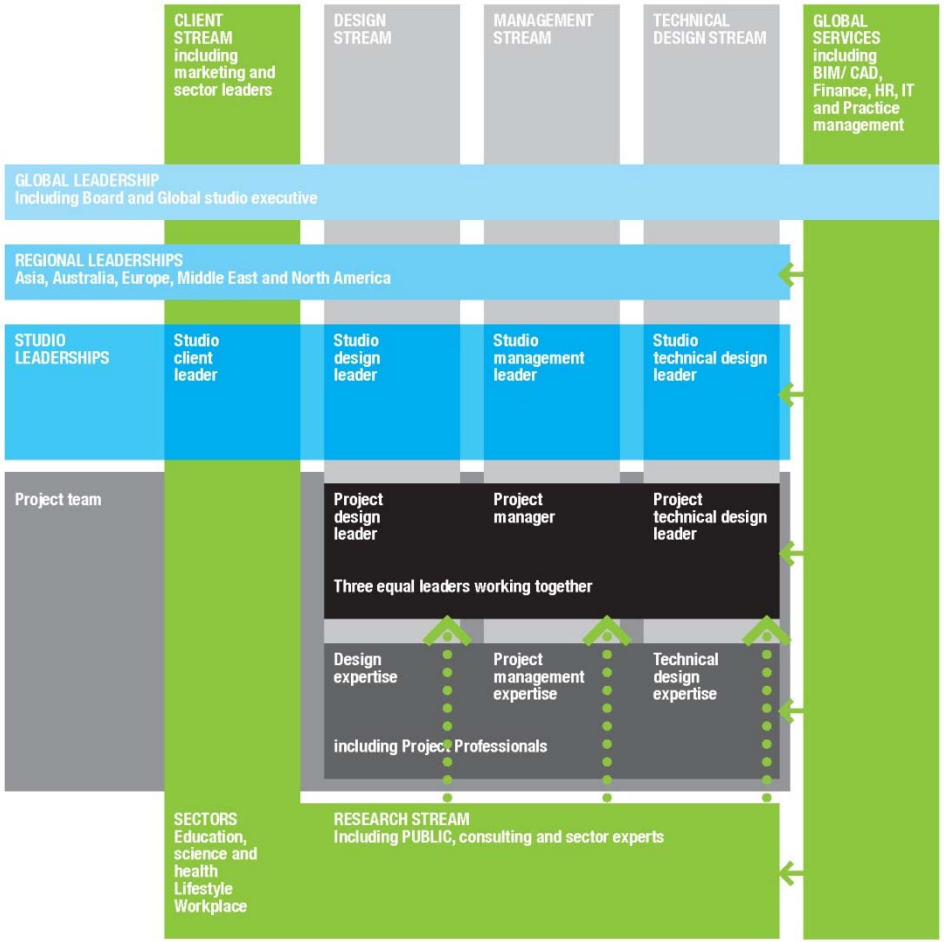
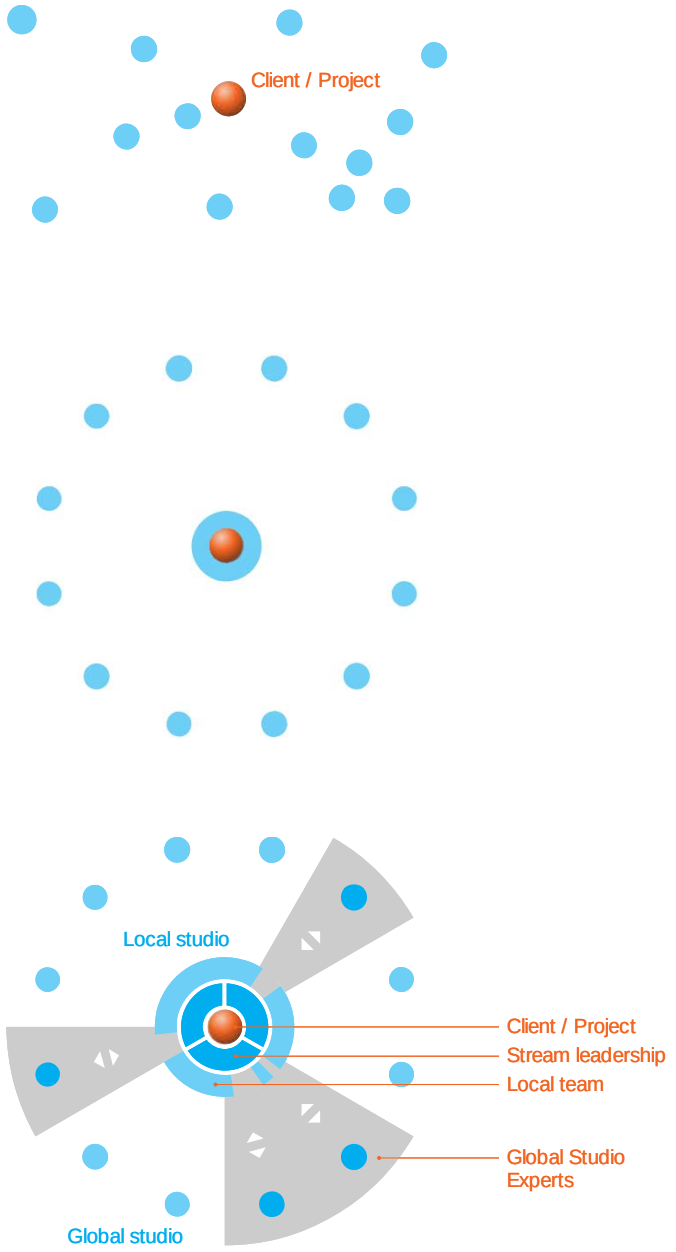
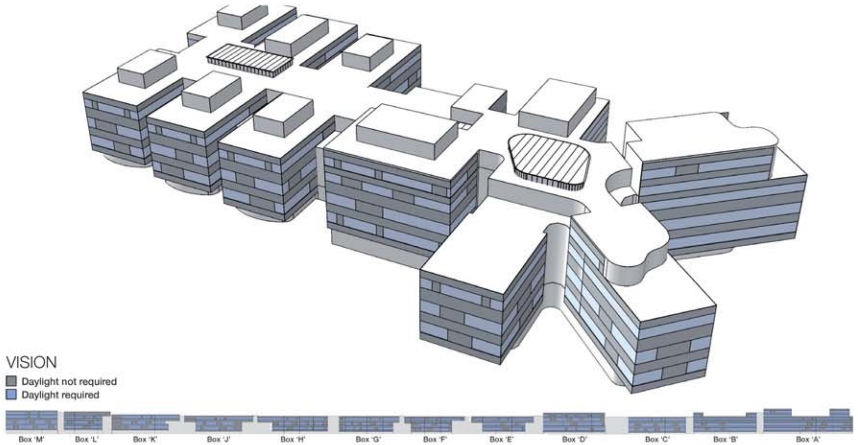

CLIENT STREAM including marketing and sector leaders
DESIGN STREAM
MANAGEMENT STREAM
TECHNICAL DESIGN STREAM
GLOBAL SERVICES including BIM/ CAD, Finance, HR, IT and Practice management
GLOBAL LEADERSHIP
Including Board and Global studio executive
REGIONAL LEADERSHIPS
Asia, Australia, Europe, Middle East and North America
STUDIO LEADERSHIPS
Studio client leader
Studio design leader
Studio management leader
Studio technical design leader
Project team
Project design leader
Project manager
Project technical design leader
Three equal leaders working together
Design expertise
Project management expertise
Technical design expertise
including Project Professionals
SECTORS
Education, science and health
Lifestyle
Workplace
RESEARCH STREAM
Including PUBLIC, consulting and sector experts


Client / Project
Local studio
Client / Project
Stream leadership
Local team
Global Studio Experts
Global studio

04
Horizontal Cuts

05
Large Cut-outs

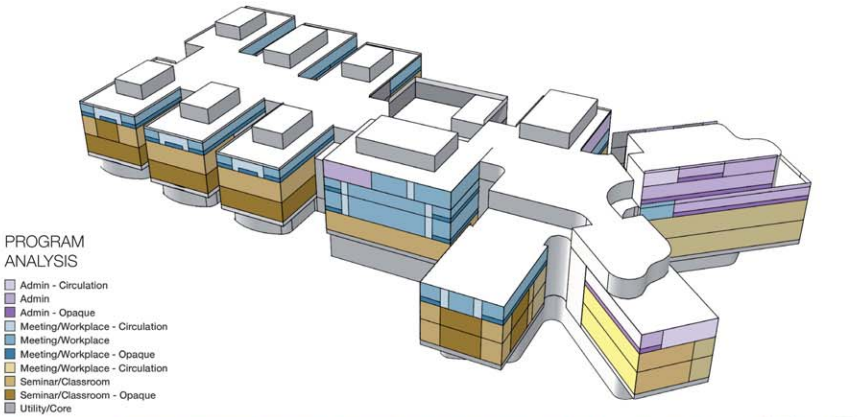
06
Rotated Louvres



VISION

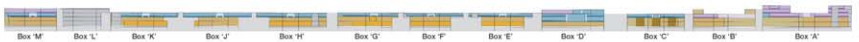
- Daylight not required
- Daylight required

Unwrapped Elevation

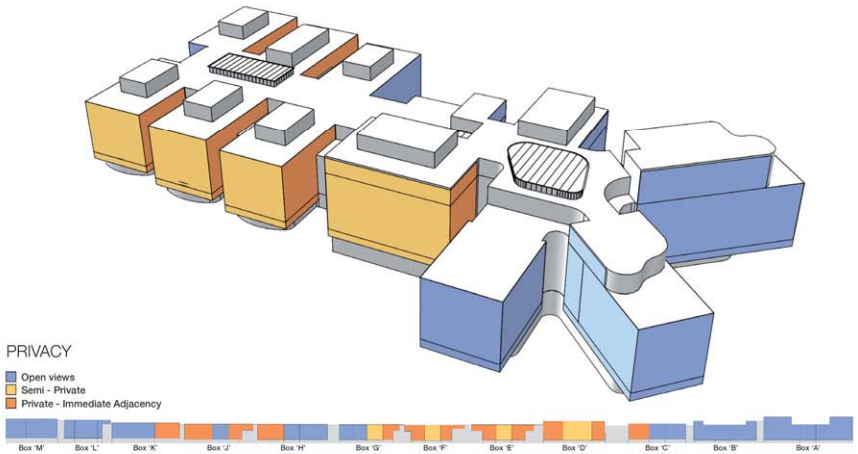


PROGRAM
ANALYSIS

- Admin - Circulation
- Admin
- Admin - Opaque
- Meeting/Workplace - Circulation
- Meeting/Workplace
- Meeting/Workplace - Opaque
- Meeting/Workplace - Circulation
- Seminar/Classroom
- Seminar/Classroom - Opaque
- Utility/Core



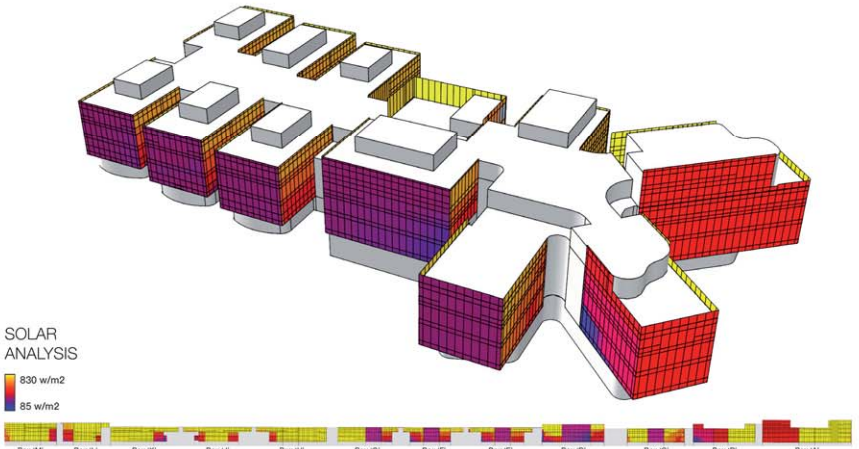
Unwrapped Elevation



PRIVACY

- Open views
- Semi - Private
- Private - Immediate Adjacency

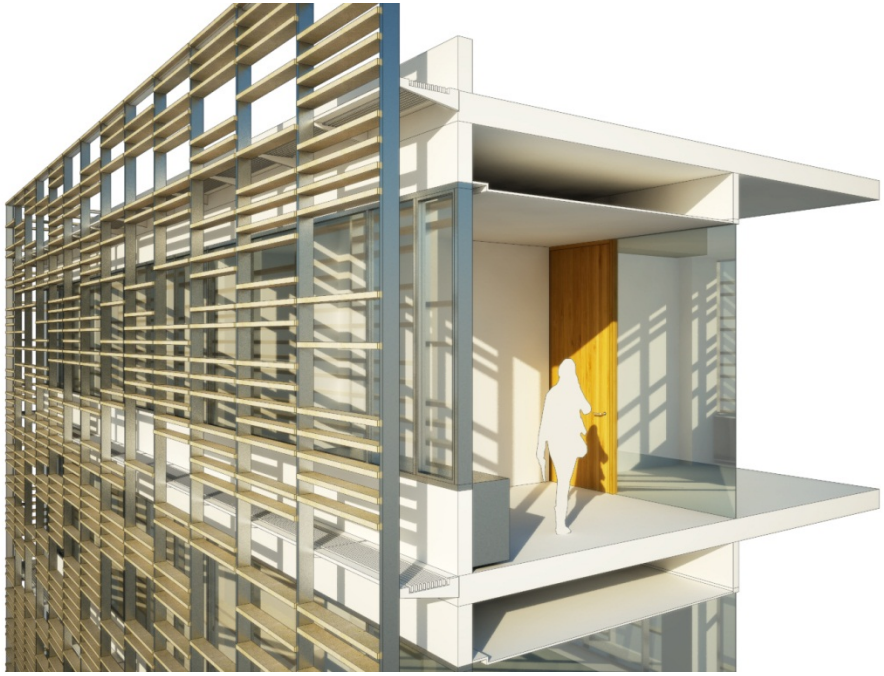
Unwrapped Elevation

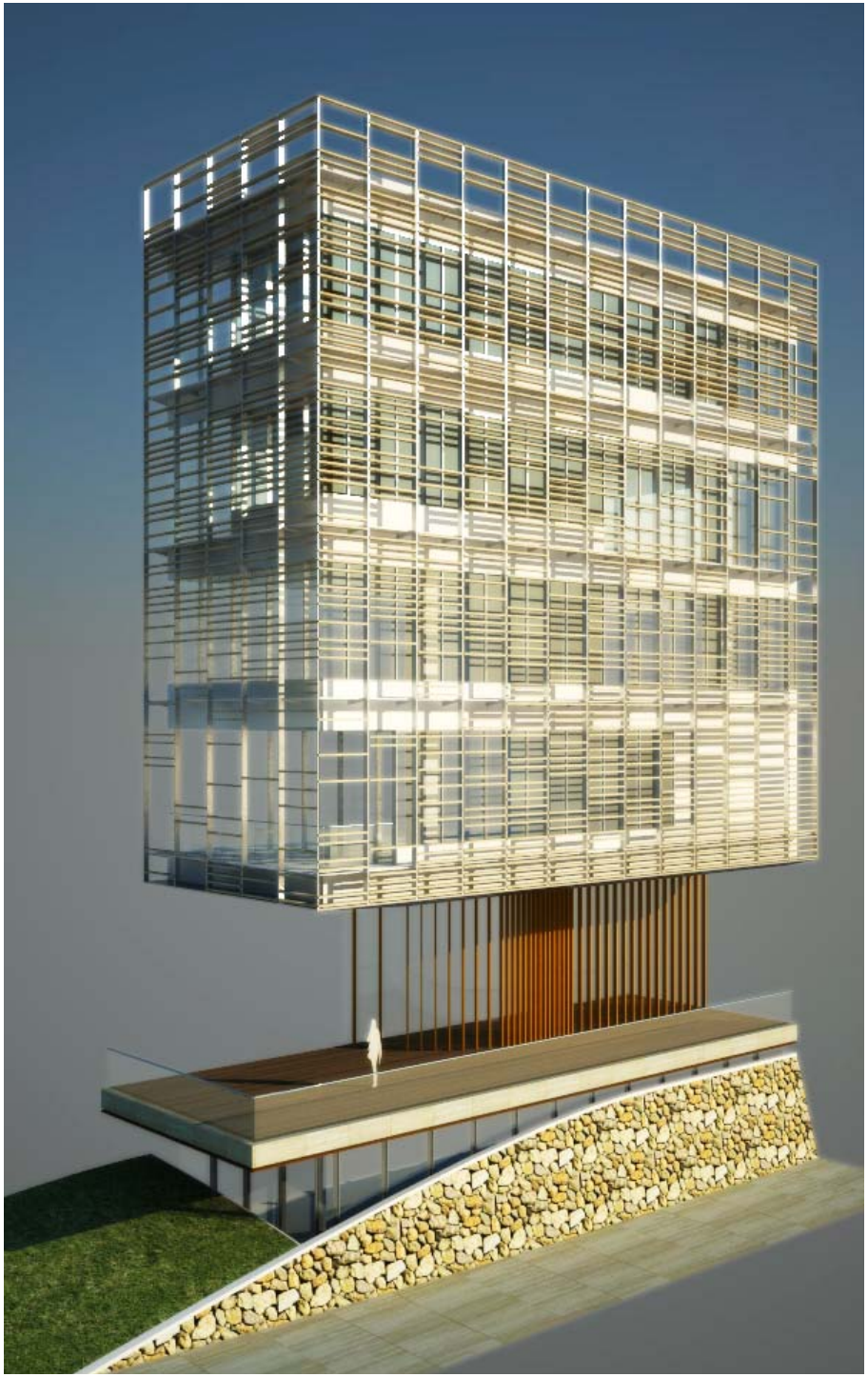


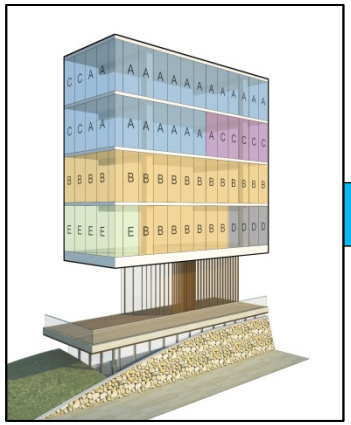
SOLAR
ANALYSIS

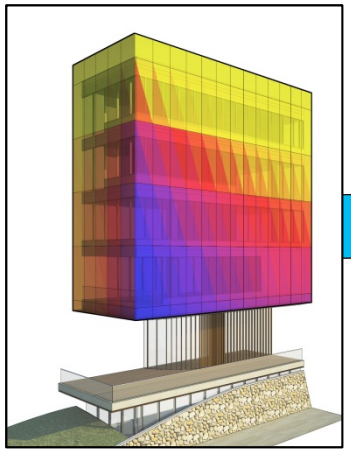
- 830 w/m2
- 85 w/m2

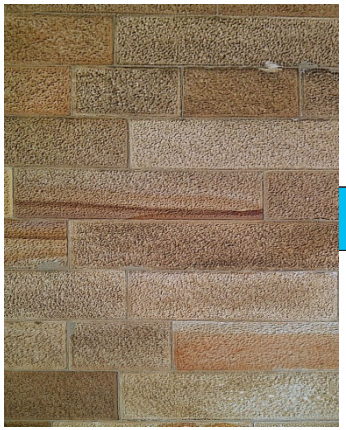
Unwrapped Elevation

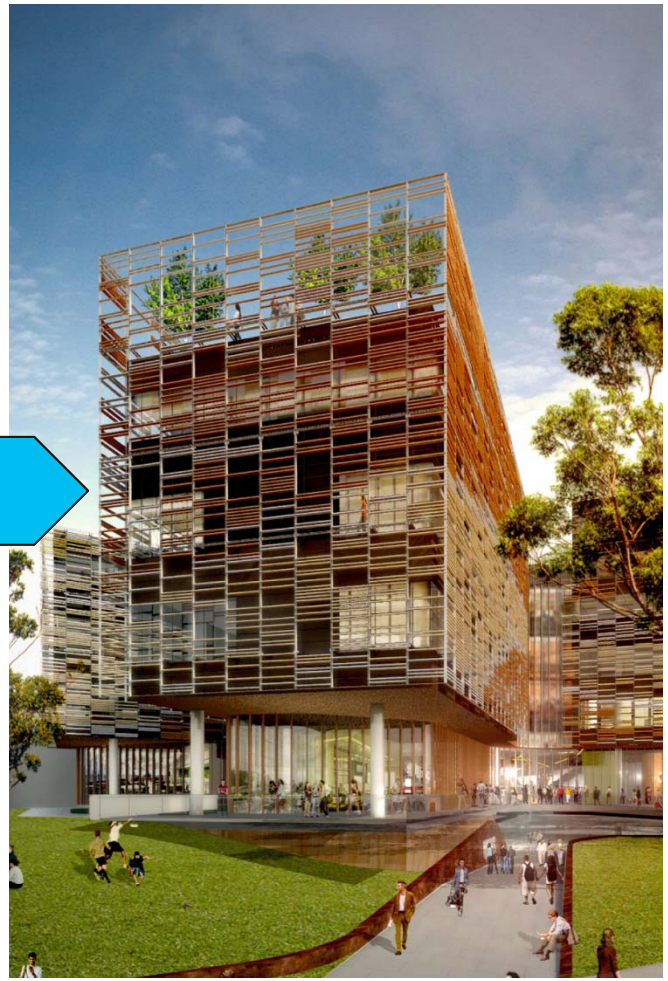




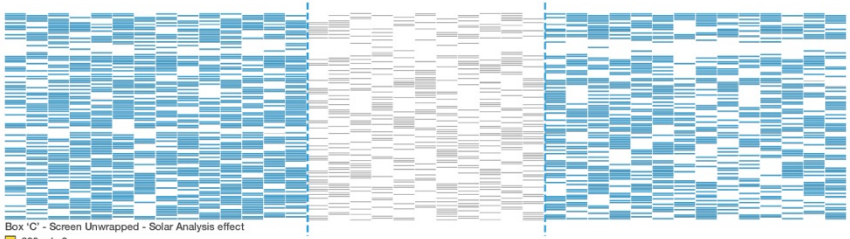








Box 'C' - Solar Analysis Unwrapped

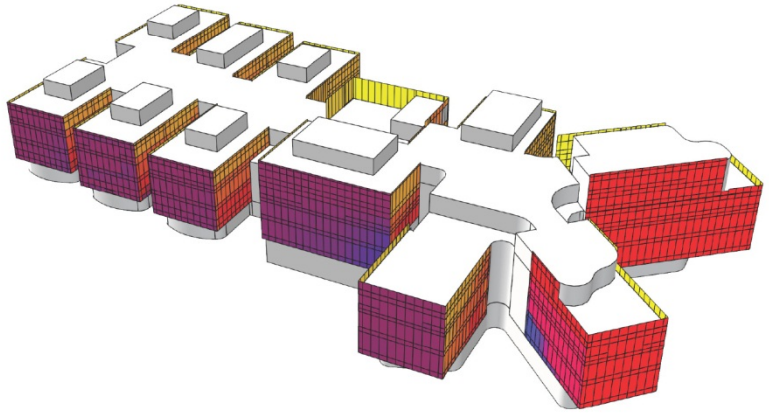


Box 'C' - Screen Unwrapped - Solar Analysis effect

830 w/m2

85 w/m2

Screen Revealed



830 w/m2

85 w/m2

Box 'M' Box 'L' Box 'K' Box 'J' Box 'H' Box 'G' Box 'F' Box 'E' Box 'D' Box 'C' Box 'B' Box 'A'

Unwrapped Elevation

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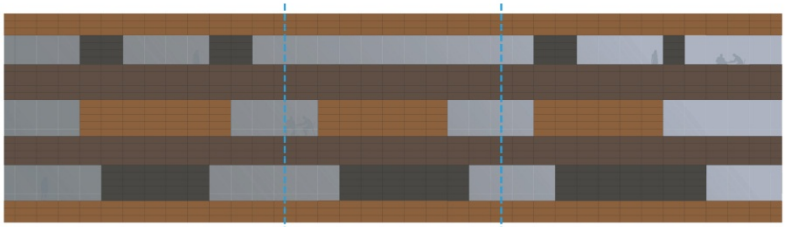
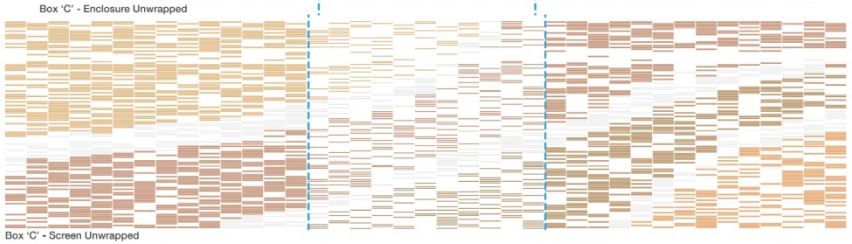
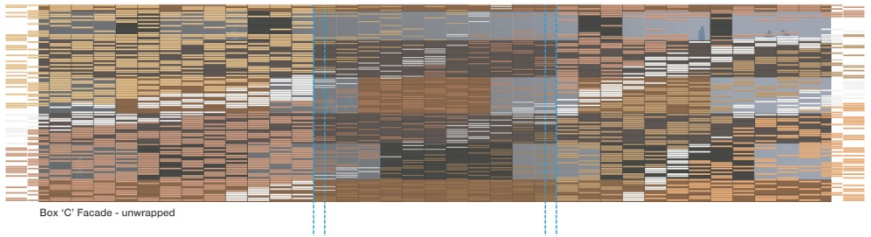


Box 'C' - Enclosure Unwrapped

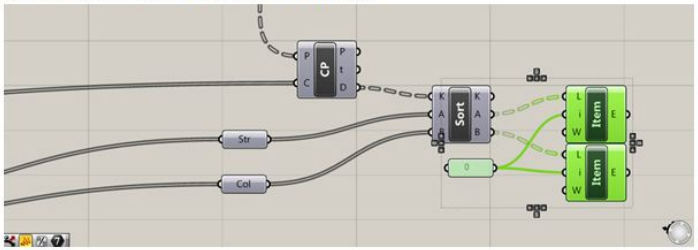


Box 'C' - Screen Unwrapped

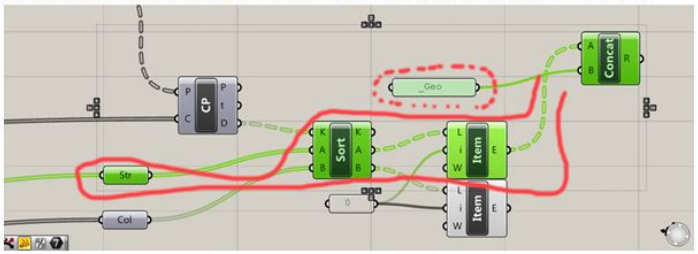


Box 'C' Facade - unwrapped

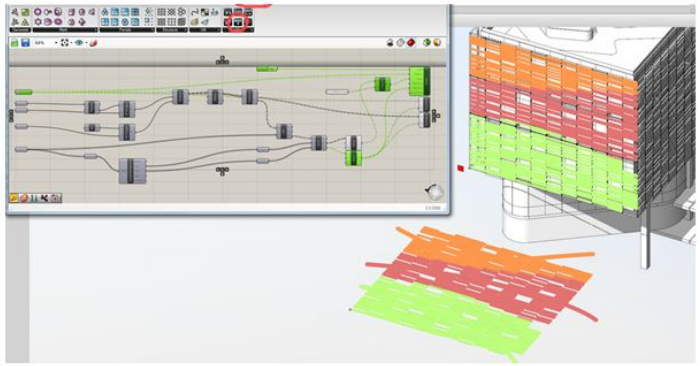
17) Pass the curve layer name (Str) and the curves colour (Clr) through the sort (Sort) component
18) Use **List Item** components on the outputs of (Sort) that correspond with (Clr) and (Str) to select item 0 from each. These are the colour and layer name of the closest curve to the flattened Geometry (Orient).

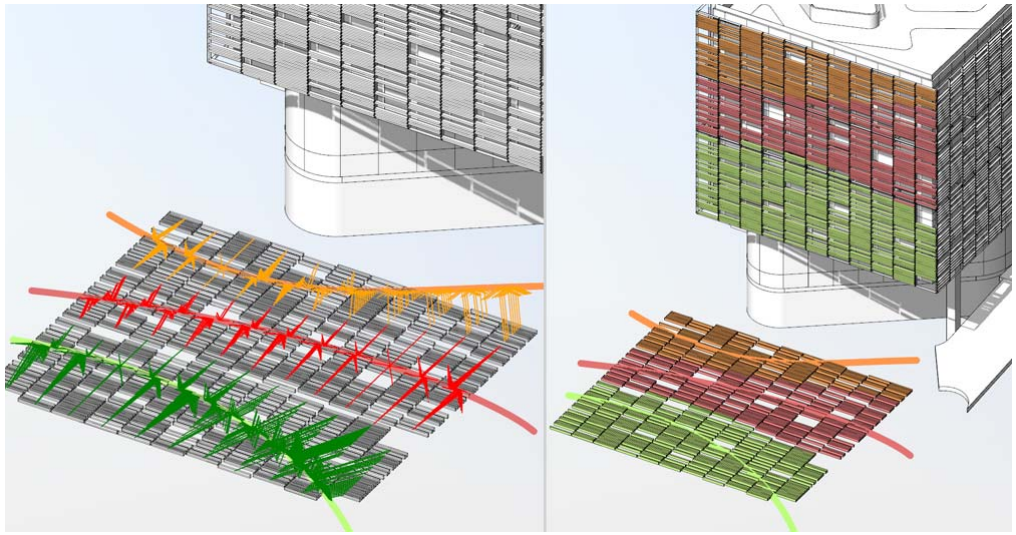


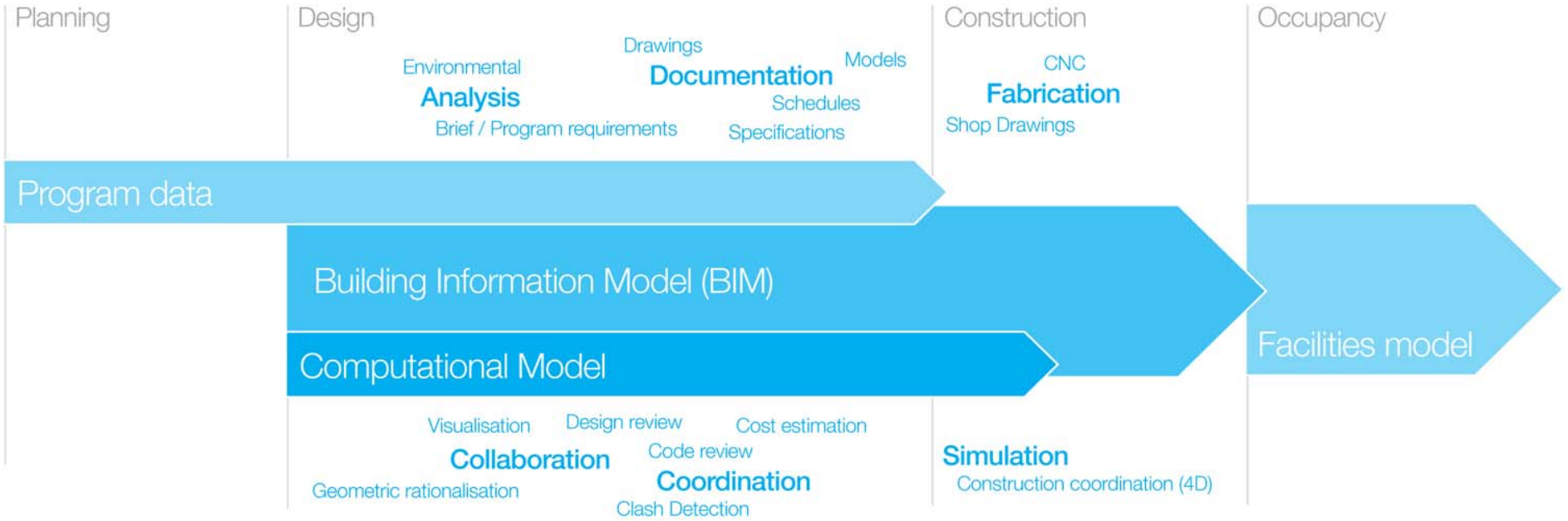
19) Plug the (Str) item into a **Concatenate** component (Concat) making the second input a suffix of some form "_Geo"

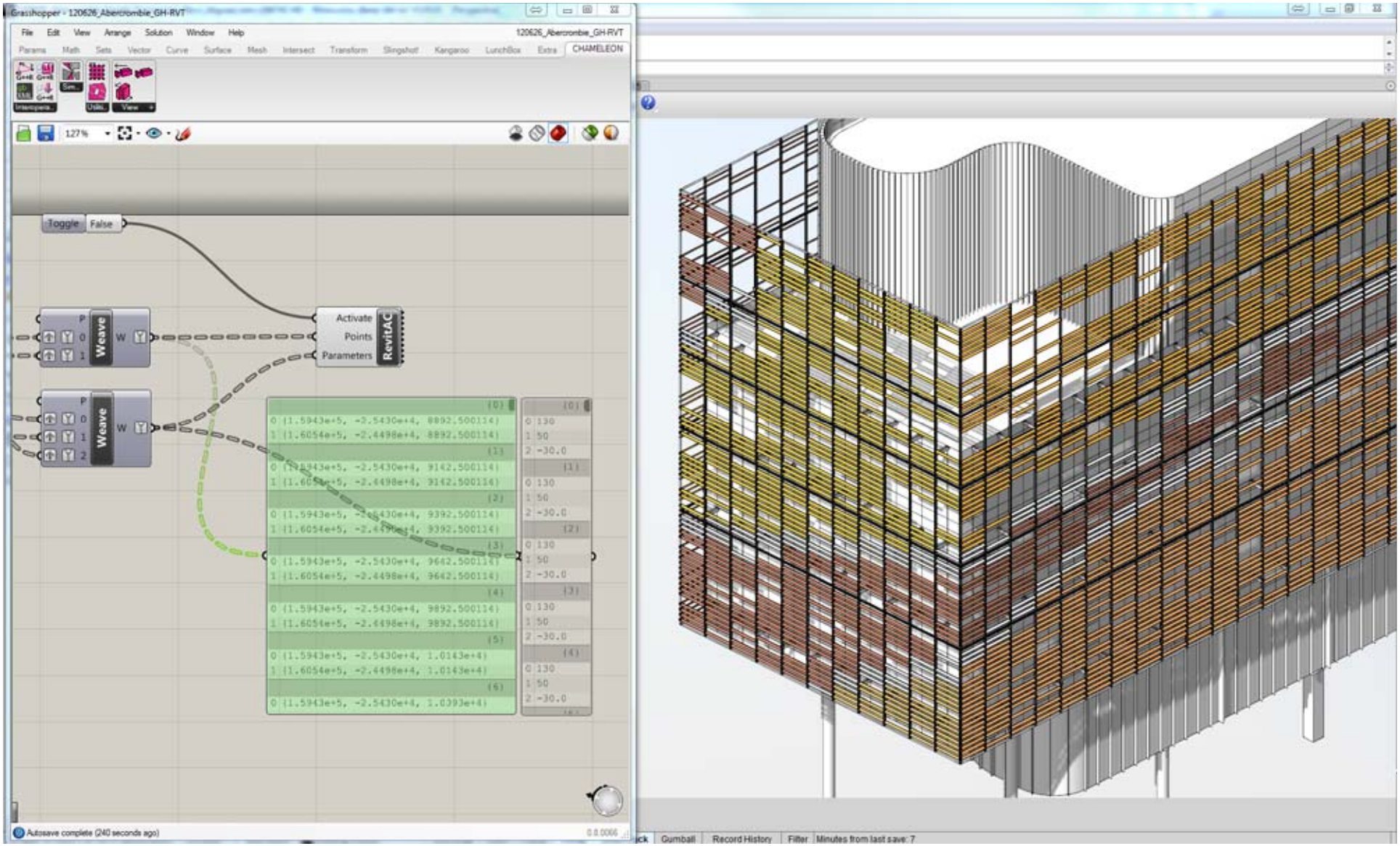


20) Using Lunchbox's **Object Bake** plug the original (Geo) component, the item output for (Clr), and the (Concat) component. For visualization **Preview** components can also be used for both the initial geometry (Geo) as well as the flattened geometry (Orient) colored with the same sorted (Clr) values.






Planning
Design
Construction
Occupancy
Drawings
Environmental
Documentation
Models
CNC
Analysis
Fabrication
Schedules
Brief / Program requirements
Specifications
Shop Drawings
Program data
Building Information Model (BIM)
Facilities model
Computational Model
Visualisation
Design review
Cost estimation
Collaboration
Code review
Simulation
Coordination
Geometric rationalisation
Construction coordination (4D)
Clash Detection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File Edit View Arrange Solution Window Help
120626_Abercrombie_GH-RVT
Params Math Sets Vector Curve Surface Mesh Intersect Transform Slingshot! Kangaroo LunchBox Extra CHAMELEON
127%
Toggle
False
Weave
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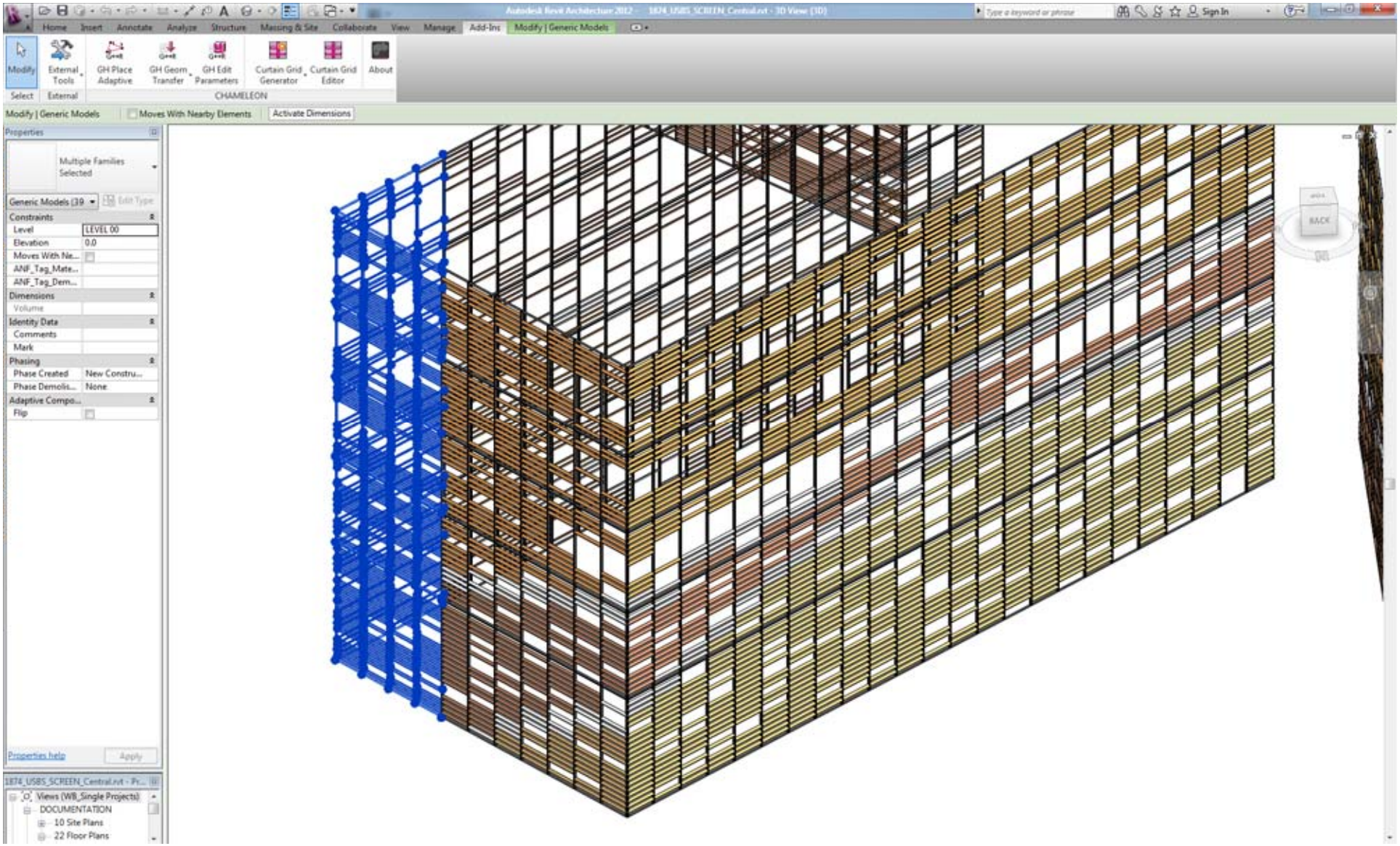
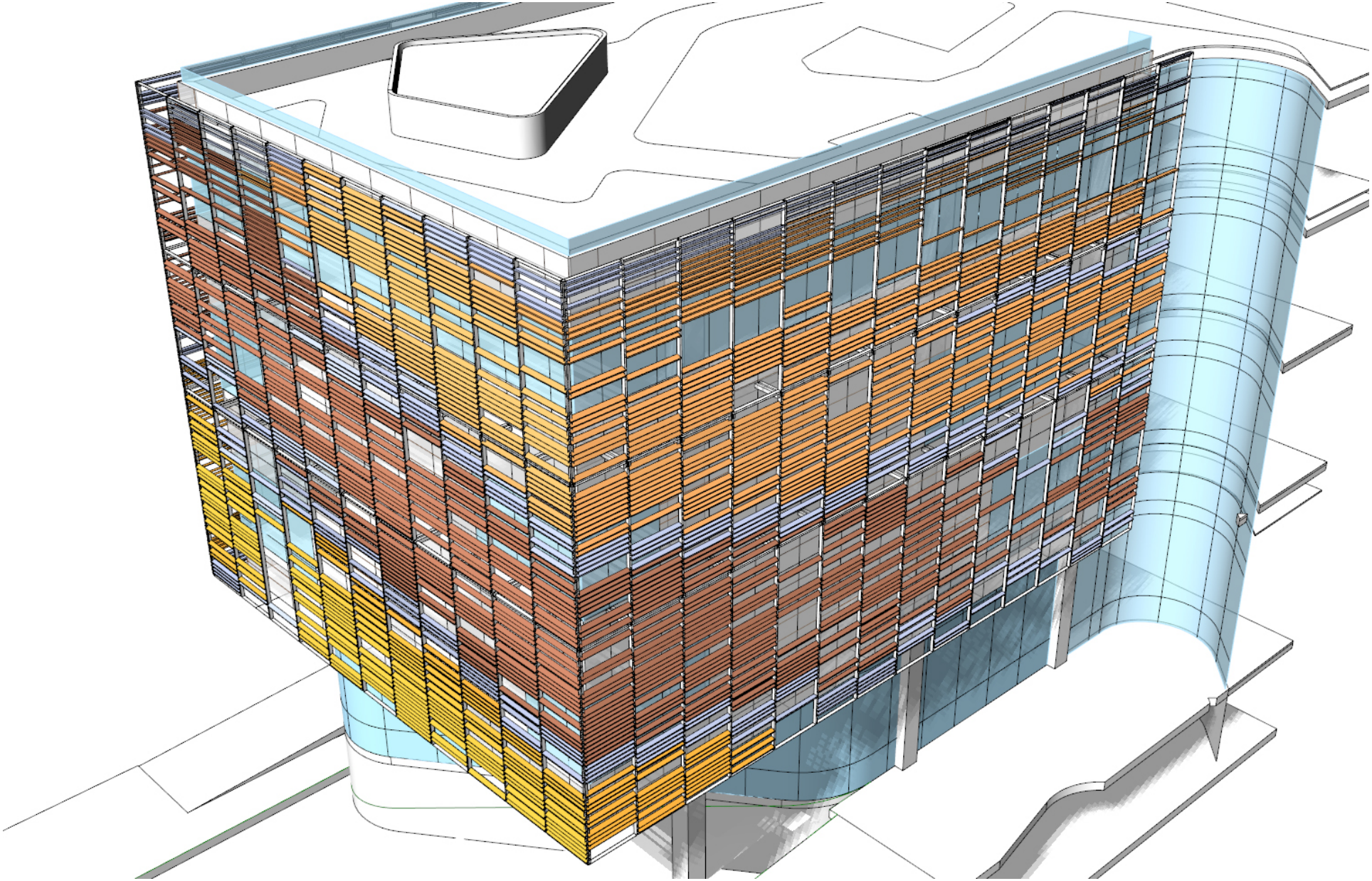
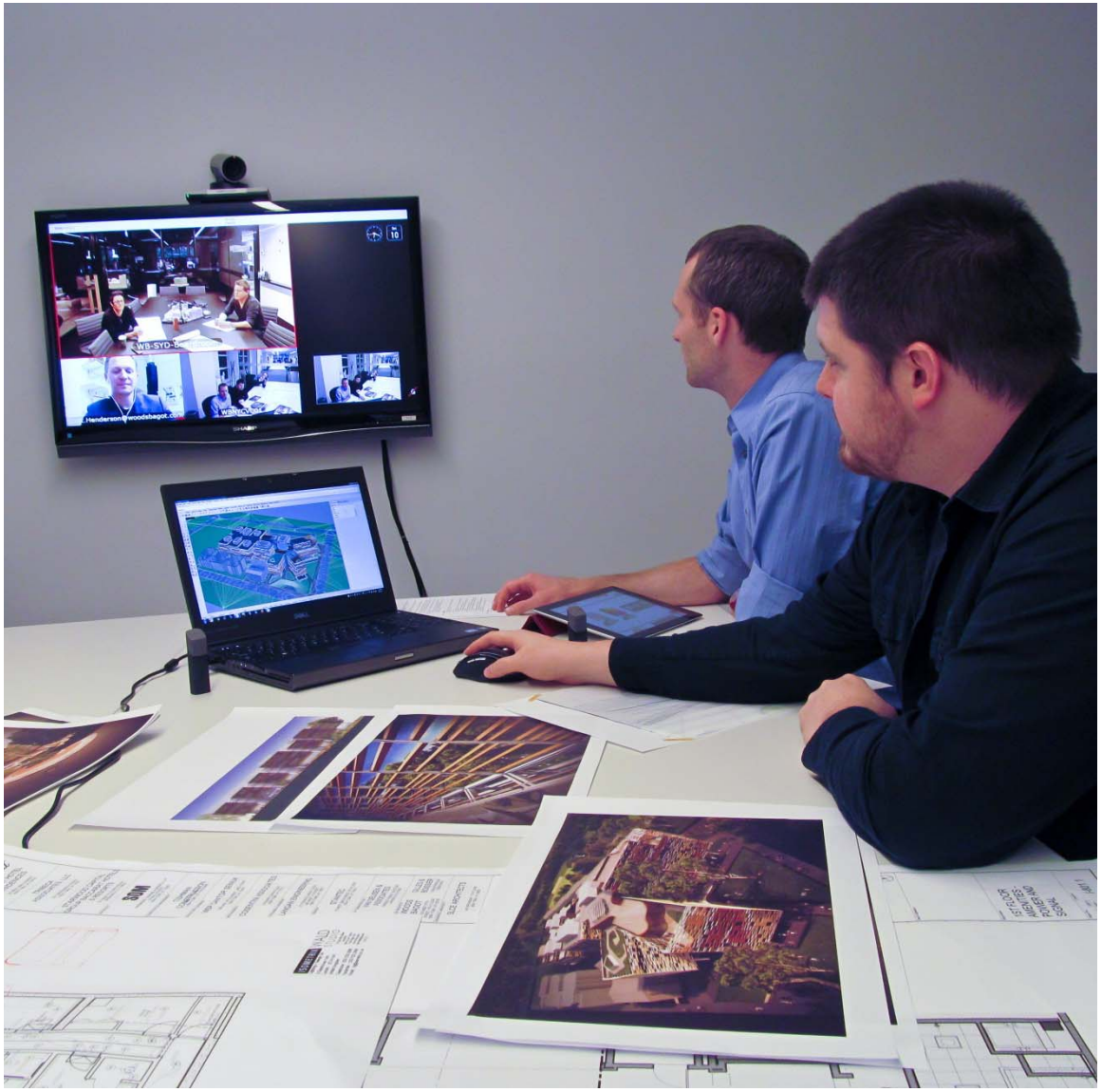
Activate
Points
Parameters
RevitAC
Autosave complete (240 seconds ago)
Gumball
Record History
Filter
Minutes from last save: 7


Autodesk Revit Architecture 2012 - 1874_USBS_SCREEN_Central.rvt - 3D View: {3D}
Home
Insert
Annotate
Analyze
Structure
Massing & Site
Collaborate
View
Manage
Add-Ins
Modify | Generic Models
Modify
External Tools
GH Place Adaptive
GH Geom Transfer
GH Edit Parameters
Curtain Grid Generator
Curtain Grid Editor
About
Select
External
CHAMELEON
Modify | Generic Models
Moves With Nearby Elements
Activate Dimensions
Properties
Multiple Families Selected
Generic Models (39
Edit Type
Constraints
Level
LEVEL 00
Elevation
0.0
Moves With Ne...
ANF_Tag_Mate...
ANF_Tag_Dem...
Dimensions
Volume
Identity Data
Comments
Mark
Phasing
Phase Created
New Constru...
Phase Demolis...
None
Adaptive Compo...
Flip
Properties help
Apply
1874_USBS_SCREEN_Central.rvt - Pr...
Views (WB_Single Projects)
DOCUMENTATION
10 Site Plans
22 Floor Plans
BACK



WB-SYD-Boardroom
WBNYCVC01
Scott.Henderson



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INDEX

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Key Information + Stages
Financial Information
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Stream Dashboards
Design
Management
Technical Design

Content Index
Contacts
— companies
Team
Wiki
Discussions
Calendar
Reviews
Tasks + Prompts
Changes / Additional services
Documents
— categories
Images
Links

Tools
Pin Up

TIMELINE

Bid
1 Nov 2011
8 weeks

Establishment
12 Feb 2012
1 weeks

Briefing/Consulting
19 Feb 2012
3 weeks

Design
10 Mar 2012
8 weeks

Documentation

Site

Wrap-up

Edit stages

PROJECT FEED

Make your contribution here…
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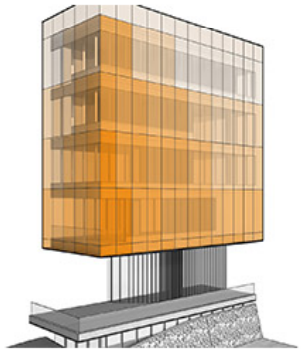
Activity | Documents | Images

Paige Turner 6 hours ago
I'm new to the team, where can I find more information on the Value Proposition for the project?
5 3 2

Georgia Singleton 6 days ago
We have just received client sign-off on the facade treatment changes. Great work team!

Kent Wu 27 May 2012



I've parameterized the facade in #grasshopper and linked to an Excel worksheet, so we now have a model that can directly respond to environmental variables
3 3

John Norman 20 Apr 2012
Does anyone out there have experience with building #parametric facade models linked to a data source?

Kent Wu 22 Apr 2012
John, I started building one in conjuction with @davidmans during the SD phase.

Lucille Ynosencio 3 days ago
There is a great tutorial in the #dt digital craft community

Show more

VALUE PROPOSITION

A sustainable environment that fosters creative business thinkers, encouraging collaboration and agility around teaching, learning, research, community, campus and industry

QUICK LINKS

Project folder: New York
Project folder: Sydney

TEAM

Leadership

Team

Full team list

KEY INFORMATION

Project Location + Involved studios

DI PORTAL
2-20-1874: UNIVERSITY OF SYDNEY ABERCROMBIE PRECINCT

INDEX

Projects Launchpad

Main Dashboard
Key Information + Stages
Financial Information
Project Plan

Stream Dashboards
Design
Management
Technical Design

Content Index
Contacts
— companies
Team
Wiki
Discussions
Calendar
Reviews
Tasks + Prompts
Changes / Additional services
Documents
— categories
Images
Links

Tools
Pin Up

ARTICLE

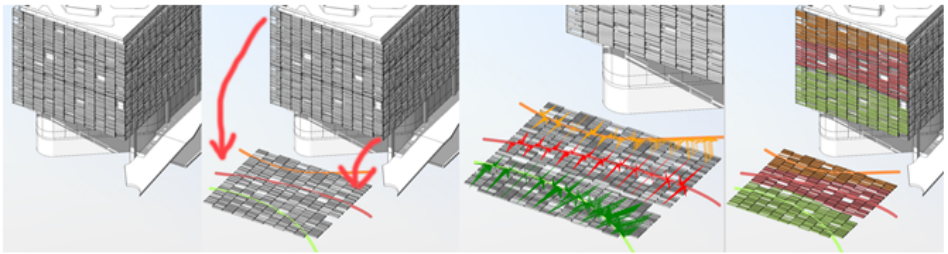
Guide

Draft

Facade color process

Brief

The approach to the coloration of Abercrombie's facade screen is to take the model's three dimensional banquette's, flatten them, draw colour on top, then reference them back to the model. This method allows the design of the facades patterning to be independent of the application of colour, but easy to update. By using the two dimensional flattening method the entire facade can be laid out in one ribbon allowing the development of a continuous colour strategy the spans the building. The use of curves as the driver of the colour pattern allows for intuitive ease of use in the development of the pattern, as well as easy modification of the colour palette. The final result is the baguette geometry updated and placed on a layer with a corresponding colour value, making future development of the colour palette easily accessible.



Process

Pre Requisites:

Horster: http://www.food4rhino.com/project/horsterreference

Lunchbox: http://theprovingground.wikidot.com/plugin-tpg

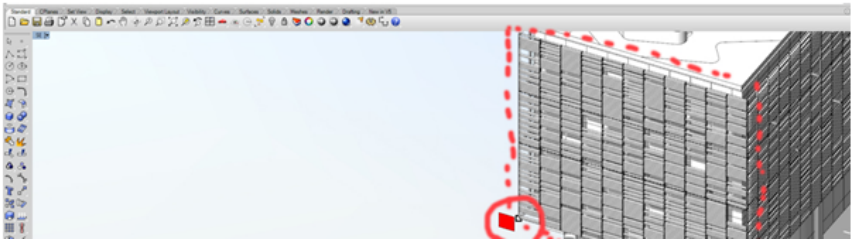
Rhino: Setup

1) Group geometry to colour *(not needed, but good practice)*

2) Create a surface aligned with the geometry's placement plane. This will allow us to tell grasshopper how to flatten the geometry

3) Create an origin point for the evaluation on the lower left hand corner of the set in elevation. This gives a reference point for the flattening to make its location controllable.

4) Place a point at a desired location on Rhino's XY plane for flattening.



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ADDITIONAL INFORMATION

Keywords
Grasshopper Color BIM Facade

COMMENTS & CONTRIBUTIONS

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Scott Henderson made the last of 10 edits 15 mins ago

David Mans 7 Apr 2012
Workflow section needs some work…

Sylvia Feng 7 Apr 2012
I've summarised some BrainTrust text in the workflow section

David Mans created this article 1 Nov 2011

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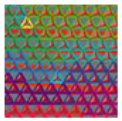

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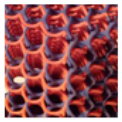

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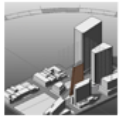

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13 ★ 4

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DIALOGUE

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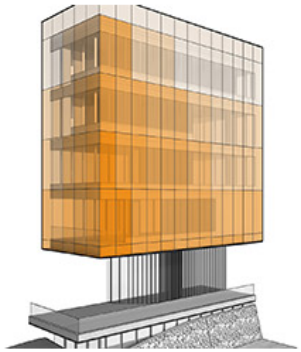
Franz Hein 6 days ago
Off to RTC with @StephenTaskin. Will report back in a week.

Kent Wu ▸ 27 May 2012



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3 | 3

Fergus Hohnen Added a calendar event: RTCNA 2013
7 days ago

Lucille Ynosencio 20 Apr 2012
Is Rhino 5 available for general use? Some guys in NY are using it. I notice it is still in Beta.

Rahul Shah 22 Apr 2012
Not yet. There are rumors that it may be released in July

John Norman 20 Apr 2012
Does anyone out there have experience with building #parametric facade models linked to a data source?

Kent Wu 22 Apr 2012
John, I started building one in conjuction with @davidmans during the SD phase.

Lucille Ynosencio 3 days ago

WELCOME

We believe in enabling the next generation of designers to engage in digital craft by integrating design and production through the agile use of digital tools.

Shane Burger
Director of Design Technology

QUICK LINKS

Create new Desk Ticket
Suggest improvement

TEAM

Global

Studio

More about us

Shane Burger

Director of Design Technology **WOODS BAGOT**

CONTINUING EDUCATION AIA

Learning Objectives

At the end of the this course, participants will be able to:

1. (Insert Learning Objective #1 Here)
2. (Insert Learning Objective #2 Here)
3. (Insert Learning Objective #3 Here)
4. (Insert Learning Objective #4 Here)

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