OUR DEDICATED MEMBERS

Wesley González
A

Xiaqing Sia Wang
MEP

Zonglin Jack Li
SE

Hannah Brownell
CM

Anthony Ayllon
SE

Yunyi Zhang
CM
OUR BELOVED OWNERS

Renate Fruchter
SUPER OWNER

Mikki Seidenschnur

Luke Lombardi

Nick Zeman

Camila Hernández
Puerto Rico
Estado Libre Asociado de Puerto Rico
Population: 3,200,000
San Juan
Capital and Largest Municipality
Population: 396,000
University of Puerto Rico
Rio Piedras Campus
Student: 58,000 Faculty: 5,300
SOIL CONDITION

Surface Sandy Clay (1500 psf)
- 0.6 ft

Medium to Very Stiff Clay Soil (5000 psf)
- 17 ft

Water Table

Deepest Excavation
- 19 ft

Main Excavation

Saturated Clay Soil
- 23 ft

+ Foundation Strength
- Excavation
- High water table
- Liquefaction
CLIMATE CONDITION
(ASHRAE Climate Zone 1A, Hot & Humid Climate)

Temperature

Sun Hours - 250 hr monthly

Relative Humidity - 71% ~ 78%

Precipitation - 51 inch. annual
SUN AND SHADING ANALYSIS

Winter Solstice

Summer Solstice
SITE HAZARD

(ASCE 7-16, PDC Global Hurricane Maria Puerto Rico Wind Impact Exposure Report)
SITE HAZARD
(ASCE 7-1, FEMA Seismic Design Category Map)

Seismic Design Category D

Very strong shaking
Considerable damage in ordinary substantial buildings
with partial collapse
Damage great in poorly built structures
SDS = 0.779 g
SD1 = 0.637 g
DESIGN PHASE
TWO IDEAS, TWO DESIGNS

EL CORAZON

EL SPOT
## Decision Matrix

<table>
<thead>
<tr>
<th>Objective</th>
<th>Weight</th>
<th>El Corazon - Concrete</th>
<th>El Corazon - Steel</th>
<th>El Spot - Concrete</th>
<th>El Spot - Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Design</td>
<td>9.5%</td>
<td>6.0</td>
<td>5.2</td>
<td>7.3</td>
<td>7.8</td>
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<tr>
<td>Functionality</td>
<td>11.4%</td>
<td>5.3</td>
<td>4.5</td>
<td>7.4</td>
<td>6.9</td>
</tr>
<tr>
<td>Construction Issues</td>
<td>4.7%</td>
<td>7.2</td>
<td>8.0</td>
<td>5.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Economics</td>
<td>13.1%</td>
<td>8.6</td>
<td>7.2</td>
<td>6.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Sustainability</td>
<td>31.4%</td>
<td>6.1</td>
<td>5.7</td>
<td>5.9</td>
<td>5.5</td>
</tr>
<tr>
<td>Disaster Handling</td>
<td>29.9%</td>
<td>7.5</td>
<td>6.5</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>6.8</strong></td>
<td><strong>6.1</strong></td>
<td><strong>6.6</strong></td>
<td><strong>6.3</strong></td>
</tr>
</tbody>
</table>
RE-EVALUATED DECISION MATRIX

El Corazon

+ Better Sustainability
+ Easier Construction
- Too Conservative
- Not Transparent

El Spot

+ A “21st century classroom”
+ Better Functionality
- More research for sustainability and economic optimization
DESIGN EVOLUTION
1st Conceptual design

3 WEEKS
DESIGN EVOLUTION
Peer Review

3 WEEKS

SUSTAINABILITY
WINTER DESIGN PRODUCT

EL SPOT WINTER
SPRING DESIGN PRODUCT
THE BIG IDEA “EVOLVED”
A SPOT ON CAMPUS
TO MEET,
LEARN,
AND INNOVATE,
IN ALL DIRECTIONS.
THE DISCIPLINES “EVOLVED”
A SPOT ON CAMPUS
ISOMETRIC OVERVIEW
DESIGN STRATEGIES

Interaction
Gradient
Vertical integrity
Inside-Outside

Radial access
Reaching entrances

720 degrees views
Always seeing
Views exchange
CONTRAST VERTICAL CIRCULATION
STRUCTURAL DESIGN STRATEGIES

Concrete: Affordability, Constructability, Availability
Shear Wall Core: Seismic Safety
PT Flat Plate: Flexibility, Floor to Floor Height, Double Cantilever
**LOAD INFORMATION**

Minimum Uniformly Distributed Live Loads (ASCE 7-16 Table 4-1)

**LATERAL LOADS**

- **BASE SHEAR**
  - Major: 1710 kip
  - Minor: 1259 kip

**EARTHQUAKE**

- **BASE SHEAR**
  - 293 kip

**WIND**

**LIVE LOADS**

<table>
<thead>
<tr>
<th>Occupancy of Use</th>
<th>Live Load (psf)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>40</td>
</tr>
<tr>
<td>Lobby and 1st Floor Corridor</td>
<td>100</td>
</tr>
<tr>
<td>2nd Floor Corridor</td>
<td>80</td>
</tr>
<tr>
<td>Lounge</td>
<td>80</td>
</tr>
<tr>
<td>Computer/Server Room</td>
<td>100</td>
</tr>
<tr>
<td>Storage (Light/Heavy)</td>
<td>125/250</td>
</tr>
<tr>
<td>Stairs and Exit Ways</td>
<td>100</td>
</tr>
<tr>
<td>Instructional Lab</td>
<td>150</td>
</tr>
<tr>
<td>Accessible Roof/with PV</td>
<td>20/60</td>
</tr>
</tbody>
</table>
STATIC ANALYSIS - GRAVITY

Max Deflection
= 0.91 in

1.2DL + 1.6LL
Post Tension
Finalized

Max Deflection
= 0.85 in
STATIC DESIGN ITERATION

<table>
<thead>
<tr>
<th></th>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLAB</td>
<td>8”</td>
<td>10”</td>
</tr>
<tr>
<td>COLUMN</td>
<td>12”X12”</td>
<td>18”X18”</td>
</tr>
<tr>
<td>BEAM</td>
<td>12”X24”</td>
<td>12”X32”</td>
</tr>
<tr>
<td></td>
<td>BOT 4 #8</td>
<td>BOT 6 #8</td>
</tr>
</tbody>
</table>
Max Deflection
= 0.63 in

1.2DL + 1.6LL
Post Tension Finalized
< L/240

Max Deflection
= 0.58 in
STATIC ANALYSIS - SERVICE

Service Level Differential Deflection Limit between floors are satisfied for facade and exterior walls

Max Deflection = 0.16 in

1.0DL+1.0LL Service Load < L/500
GRAVITY SYSTEM DETAILING

TYPICAL BEAM DETAILS
~ 2.2% Reinf Ratio

TYPICAL COLUMN DETAILS
~ 3% Reinf Ratio
PT SLAB DESIGN

15 STRAND @ 12"
0.7" Φ GR 270
LOW RELAX MONOSTRAND

Panel Boundaries
Gravity Column
PT Strand Effective Area
DYNAMIC MODAL ANALYSIS
MODE SHAPES AND PARTICIPATION

T1 = 0.207s  
UY Participation

Mode 1 - Mode 12

T2 = 0.185s  
RZ Participation

SUM UX 96.3%  
SUM UY 89.5%  
SUM RZ 90.1%

T3 = 0.171s  
UX Participation
DYNAMIC STORY RESPONSE

<table>
<thead>
<tr>
<th></th>
<th>Max ELF</th>
<th>Max RSA</th>
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</thead>
<tbody>
<tr>
<td>Roof Disp</td>
<td>0.826</td>
<td>0.720</td>
</tr>
<tr>
<td>(in)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max IDR</td>
<td>0.0068</td>
<td>0.0058</td>
</tr>
</tbody>
</table>

ASCE 41 Nonlinear Estimation

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof Disp</td>
<td>1.362</td>
<td></td>
</tr>
<tr>
<td>Max IDR</td>
<td>0.0074</td>
<td></td>
</tr>
</tbody>
</table>

< L/360 Max Roof Disp Limit
< 2% Interstory Drift Limit
SHEAR WALL DESIGN
**SHEAR WALL DETAILING**

**GROUND FLOOR SHEAR WALL SECTION**
- 6" #10 VERT BOUNDARY
- #4 VERT @ 6"
- #4 TIE @ 6"
- 15"
- 12"

**GROUND FLOOR SHEAR WALL ELEVATION**
- #4 @ 6"
- 4'
- 7’5”
## HVAC SYSTEM DECISION MATRIX

<table>
<thead>
<tr>
<th>Primary System</th>
<th>Energy Eff.</th>
<th>Initial Cost</th>
<th>Reliability</th>
<th>Spatial</th>
<th>Water Use</th>
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</thead>
<tbody>
<tr>
<td>Water-Cooled Chiller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air-Cooled Chiller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Cooling Plant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead VAV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCU + DOAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACB + DOAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiant + DOAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

*ISLAND 2019*
HVAC SYSTEM STRATEGIES

AHU 2
- VAV for Zone 2
- 14700 cfm
- 13.5 EER
- Desiccant Wheel

Air-cooled Chiller
- 60 ton
- IPLV EER 13.4

AHU 3
- Displacement Ventilation for Zone 3
- 5700 cfm
- Desiccant Wheel

AHU 1
- VAV for Zone 1
- 7680 cfm
- Desiccant Wheel

Zone 1
Zone 2
Zone 3
MECH ROOM & SHAFT ARRANGEMENT

- Mech Room
- Shaft

- Vertical Supply (Zone 1/2)
- Vertical Return (Zone 1/2)
- Vertical Supply (Zone 3)
- Vertical Return (Zone 3)

- Rainwater Collection
- Non-Potable Water
- Potable Water
- Sewage

Dimensions:
- 22’
- 25’
- 12’
- 5’
PLUMBING SYSTEM STRATEGY

2% Slope Roof Drainage

Rainwater Collection Tank
- 6’ x 6’ x 10’
- 2500 gal each
SITE LOGISTICS
SITE LOGISTICS

Sustainable Aspects on site
Recycling Bins
Green Trailer
No excess space used (fencing)
Noise Pollution and Sound Protection on fence

Extra Site Safety

- Rumble Pads
- Job Trailer
- Restroom Area
- Recycling
- Trash
- Water Tanks Storage
- Material Storage
# EQUIPMENT SELECTION

<table>
<thead>
<tr>
<th>Scope</th>
<th>Equipment</th>
<th>Model</th>
<th>Qty</th>
<th>Rental</th>
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</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>Pump</td>
<td>Putzmeister 20Z</td>
<td>2</td>
<td>Reliable Equipment Corp.</td>
</tr>
<tr>
<td></td>
<td>Mixer</td>
<td>CMT Mariner 55</td>
<td>2</td>
<td>Reliable Equipment Corp.</td>
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<tr>
<td>Earthwork</td>
<td>Bulldozer</td>
<td>Caterpillar D6N</td>
<td>1</td>
<td>Rimco</td>
</tr>
<tr>
<td></td>
<td>Compactor</td>
<td>Caterpillar CS533E</td>
<td>2</td>
<td>Rimco</td>
</tr>
<tr>
<td></td>
<td>Dewater Pump</td>
<td>M SP DD4S</td>
<td>2</td>
<td>Reliable Equipment Corp.</td>
</tr>
<tr>
<td></td>
<td>Dump Truck</td>
<td>Ford F750</td>
<td>10</td>
<td>Blue Line Rental</td>
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<tr>
<td></td>
<td>Excavator</td>
<td>Caterpillar 323F L</td>
<td>2</td>
<td>Rimco</td>
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<tr>
<td>Lifts</td>
<td>Crane</td>
<td>Terex ATT 1354</td>
<td>2</td>
<td>Reliable Equipment Corp.</td>
</tr>
<tr>
<td></td>
<td>Telehandler</td>
<td>Caterpillar TL642D</td>
<td>1</td>
<td>Rimco</td>
</tr>
<tr>
<td></td>
<td>Scissor Lift</td>
<td>Caterpillar JLG-2630ES</td>
<td>1</td>
<td>Rimco</td>
</tr>
</tbody>
</table>
LIFT PLAN

2 Mobile Cranes

Heaviest Pick:
HVAC on Roof
12,000 ton pick

80 ft Placement Radius

30 ft Safety Radius
BUDGET

Total Donation = $12,000,000 (Jan 2019)

Inflation

CPI in Puerto Rico

Inflation* = 1.1%

Change in RSMeans Data

Average inflation** = 2.7%

Return on Interest

ROI in Puerto Rico (5-year deposit)

Deposit               up to: 1.46%
Savings Accounts      up to: 0.55%
All Loans              from: 5.99%
Personal Loans        from: 5.99%
Credit Cards           from: 11.20%

Risk free rate = 1.4%

Budget = $10,000,000

* IMF World Economics Outlook, geometric average 2008~2017
** Geometric average 2017~2019
COST DISTRIBUTION

A Substructure, $580,000
B Shell, $1,500,000
C Interiors, $1,100,000
D Services, $3,000,000
E Equipment and Furnishing, $200,000
F Specialty Construction, $520,000
G Building Sitework, $1,000,000
H General Conditions, $800,000

8.7 millions
## Cost Estimation

<table>
<thead>
<tr>
<th></th>
<th>Estimated Value</th>
<th>Target Value</th>
<th>Value Delta</th>
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</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>$8,700,000</td>
<td>$10,000,000</td>
<td>$1,300,000</td>
</tr>
<tr>
<td>A Substructure</td>
<td>$580,000</td>
<td>$700,000</td>
<td>$120,000</td>
</tr>
<tr>
<td>B Shell</td>
<td>$1,500,000</td>
<td>$1,700,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>C Interiors</td>
<td>$1,100,000</td>
<td>$1,500,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>D Services</td>
<td>$3,000,000</td>
<td>$3,100,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>E Equipment and Furnishing</td>
<td>$200,000</td>
<td>$500,000</td>
<td>$300,000</td>
</tr>
<tr>
<td>F Specialty Construction</td>
<td>$520,000</td>
<td>$700,000</td>
<td>$180,000</td>
</tr>
<tr>
<td>G Building Sitework</td>
<td>$1,000,000</td>
<td>$700,000</td>
<td>$300,000</td>
</tr>
<tr>
<td>H General Conditions</td>
<td>$800,000</td>
<td>$1,100,000</td>
<td>$300,000</td>
</tr>
</tbody>
</table>

*Note: The value delta for Building Sitework shows a negative value of $300,000.*
DATA INTEGRATION AND FLOW

Extract  Filter  Calculate  Format  Export

STV  TVD

R

ISLAND 2019
EXPLORE SCHEDULE ALTERNATIVES

Cost

Time

25 Schedule Alternatives

More workforces?
- Shortened duration
- More cost but less than doubled

More equipment?
- No significant change
CONSTRUCTION SCHEDULE

Total: 200 Workdays

- Excavation: 30 Workdays
- Substructure: 30 Workdays
- Superstructure: 70 Workdays
  - Ground Level
  - Level 1
  - Level 2
- Facade: 50 Workdays
- Interior: 50 Workdays
- Landscape: 50 Workdays
- Services: 50 Workdays
- Commission: 20 Workdays

Project Start: 11/01/2024
Substructure Done: 01/23/2025
Structure Done: 04/30/2025
Enclosure: 05/28/2025
Project Finish: 08/06/2025

Hurricane Season

4D SIMULATION

Excavation
11/01-12/12
MEET
LEARN
INNOVATE
GOAL 1

MEET

COMMUNITY
CIRCULATION FLOW

- **Faculty**
- **Students**
- **Public**
LEARN
21ST CENTURY
EDUCATION
OUR PHILOSOPHY OF MODERN EDUCATION
CASE STUDY: A-SE AUDITORIUM DESIGN

Let’s add a Halo Board!

The speaker could stand in the center

Column Load Transfer

Maximize Flow of People

Hidden Column Elements

Efficient Use of Space

We should have flexible seating and maybe a hologram
CASE STUDY: A-SE AUDITORIUM DESIGN
CASE STUDY: A-SE AUDITORIUM DESIGN

Area Reduced
Area Added

Load Transfer
People Flow
**FOUNDATION DESIGN**

**Columns:** Isolated footing  
**Retaining Walls:** Cantilever footing

---

# of Individual Piles: **18**  
Controlling Axial Load: 
(1.2DL + 1.6LL): **228 kips**
- 7 ft Underground Hurricane Evacuation Zone
Displacement Ventilation Supply Air

- Underfloor Air Supply
- High Supply Temperature (62 F), Low Velocity (70 fpm)
- Lower Energy Use
- Better Thermal Comfort
EXCAVATION & DEWATERING

6 Months before Mobilization

2 Pumps and Storage Tanks

Once water table is below desired level, excavation can begin
FLEXIBLE LEARNING SPACES
FLOOR SANDWICH - LARGE CLASSROOM

Return Air
Overhead Return Duct

Supply Air

Hybrid Supply Mode
- Overhead for Standing Area
- Under-seat for Seating Area

12” Concrete Slab
12” Return Plenum
10’ Clearance
32” Concrete Beam + Slab + Supply Duct
8’ 2”- 9’ 6” Clearance
1’ 6”- 5’ Plenum for Supply Ducts
EXPOSED DUCT: UNDERSTANDING THE SYSTEM
A-SE-MEP LARGE CLASSROOM

24” Beam

Stairs
7’ Clearance
Not Enough

20” Beam

Stairs
9’ 5” Clearance
Good
A-SE CLEARANCE DETAILING

PT TENDON

Shear Reinf Id = 18”

10”

18”

#4 TIE @ 6 in

18”

12”

DROP PANELS

CONNECTION REINFORCEMENT

PUNCHING SHEAR
FLOOR SANDWICH - TYPICAL OFFICE

Return Air

Overhead Return Duct

12” Roof Slab

12” Supply & Return Duct

10’ Clearance

Supply Air

Overhead Supply Duct
GOAL 3

INNOVATE
Everything Else
A-SE-CM PARAMETRIC SKYLIGHT

- 8 Panels
- 45 degrees, 12’6” in radius
- 118 lb/ft perimeter line load
- Aluminum Truss
- ETFE Infill
FACADE DESIGN

NORTH FACADE

SOUTH FACADE
FACADE DESIGN

EAST FACADE

WEST FACADE
A-SE-MEP FACADE & MECH TRADE-OFF

Shear walls are not good to tolerate that much gravitational load

The position of the mechanical room will look incorrect

How can we fix it?

+ SHADING

+ ABOVE GRAVITY COLUMN

+ DYNAMICS

+ EQUIPMENT PROTECTION
BRING THE DYNAMICS
MATERIAL SELECTION

Aluminum with Valwood Finish from Valcore

The simulated wood finish
Coating on Aluminum Panel

+ Puerto Rico Local Company
+ Light Weight
+ Good durability and resistance to corrosion
Renewable Energy
- Monocrystalline PV
- 10000 sf PV Array
- 22% Efficiency
- 314 kWh / yr
- 82% Coverage on Energy USE

Daylighting
Control
- Photosensor
- Automatic Daylight Responsive Control
- Manual Control
- 22% Lighting Energy Savings
- 5% Energy Savings

Better Envelope
- 5% Energy Savings

Rainwater Collection
- 58% Coverage on Non-potable Water Use

Facade Shading
- 8% Energy Savings
FACADE SHADING

Winter Solstice with Lowest Sun Angle

12:00 pm
10:00 am / 4 pm
FACADE & SKYLIGHT SHADING

Solar Irradiance Without Shading

Solar Irradiance With Shading

40% Less Irradiance Received
8% Energy Savings
RAINWATER COLLECTION

52 inch/yr
80% Catchment Eff.

Collection Tanks (5000 gal)

Non-potable Filtration

Rainwater Collection Capacity (gallon)

58% Coverage on Non-potable Water Use

Puerto Rico Aqueduct and Sewer Authority
DAYLIGHTING CONTROL

70% ON
100% ON

50% ON
100% ON

20% ON
70% ON

OFF
40% ON

22% Lighting Energy Savings
**BETTER ENVELOPE**

- **Low-e Glass**
  - U 0.276
  - SHGC 0.32
  - VT 0.71

- **Concrete Exterior Wall**
  - Continuous Insulation
  - Overall R-30

- **Cool Roof**
  - 0.87 Solar Reflectance Coating
  - Overall R-35
ENERGY USE REDUCTION

Space Cooling
Pumps
Fans
Heat Rejection
Internal Lighting
Receptacle
PV Coverage
PREFAB DESIGN - CURVED PANEL SYSTEM

Type A

Type B

Type C

~ 5 degrees curvature
PREFAB SCHEDULE

Hurricane Season


Excavation  Substructure  Superstructure  Facade  Landscape  Interior, Services  Commission

30 Workdays  30 Workdays  70 Workdays  50 Workdays  20 Workdays

Prefab - Total: 200 Workdays, Shell: 150 Workdays

Excavation  Substructure  Superstructure  Exterior  Interior  Facade  Landscape  Services  Commission

30 Workdays  30 Workdays  70 Workdays  30 Workdays  30 Workdays  20 Workdays

No Prefab - Total: 230 Workdays, Shell: 180 Workdays
PEAK DAY WORKFLOW
FUZOR HURRICANE ENVIRONMENT
IN ALL DIRECTIONS
SUSTAINABILITY – STV ITERATION

- GWP (kgCO2e)
- Energy (MJ)
- Water (kg)

- Baseline Design
- Target
- Proposed Design

Water (kg)
Energy (MJ)
GWP (kgCO2e)

- 300%
- 250%
- 200%
- 150%
- 100%
- 50%
- 0%

- 82%
- 38%
- 21%
DPR - INNOVATION RECAP

Not your typical Design-Bid-Build

Curved Prefabricated Walls
Safety on Site increase
Workdays reduced by 30 days

Technology Collaboration
IT FOR QUALITY

VR troubleshooting
IT FOR PRECISION

Clash Detection

Fuzor
IT FOR COMMUNICATION

Communications Channels

Slack

Zoom

Iris VR

Share Channels

Span

Google Drive

BIM 360
IT FOR COORDINATION

IPD Commitment List

- Lack of Motivation
- Lack of Transparency

Passively Receiving

Slack Callout Scheduling

- Lack of Consistency
- Lack of Transparency

Receiving

TeamGantt

Actively Receiving

+ Motivation
+ Consistency
+ Transparency

Wesley: Are we meeting now?

Yunyi: What?

Hannah: No way!!! I'm working!!!
IT FOR COORDINATION

Average Callout Frequency per Week

- **IPD Commitment**: 2
- **Slack Callout**: 11
- **TeamGantt**: 2

Tasks Completion On Time/Total Assigned

- **Callout Frequency**
  - **IPD Commitment**: 9%
  - **Slack Callout**: 67%
  - **TeamGantt**: 90%
IT for COLLABORATION

Individual Work
- No quality assurance
- Wait for response

Manual Co-work
- Time consuming
- Inaccurate
- No response to change
- Lots of rework

Automated Work
+ Once for all
+ Rapid response to change
+ Give chance to iteration
SO...
WHAT HAVE WE LEARNED?
LET’S TALK ABOUT IT?

Some people HATE it...

Others said it would be too hard..

But, at least everyone is talking about...

EL SPOT on Campus!!!
“But what about a CIRCLE.”
-Wesley
“But Wesley…”
-Jack
“It’s never too late to start over!”
-Anthony
“Shading, Shading, Shading...

-Sia
*Laughs Internally*
-Yunyi
"Good slide, NEXT!"
-Hannah
WAKE UP!
SPECIAL THANKS
SUPERVISOR:
RENATE FRUCHTER

OWNERS:
CAMILA HERNÁNDEZ
LUKE LOMBARDI
MIKKI SEIDENSCHNURR
NICK ZEMAN
ARCH MENTORS:

DAVID BENDET
HUMBERTO CAVALIN
ANJA JUTRAŽ
WILLEM KYMMELL
SINAN MIHELČIC

SE MENTORS:

NICK ARENSON
MATT BREINDENTHAL

CM MENTORS:

FOREST PETERSON
HENRY TOORYANI

MEP MENTORS:

JOESEPH HWELINGS
ISOMETRIC UNDERGROUND
ISOMETRIC LEVEL 1
FLOOR PLAN GROUND LEVEL

100 ft. diameter Square building footprint

- Bathroom
- Cafe
- Instructional Lab
- Janitor
- Large Classroom
- Shaft
- Storage
FLOOR PLAN LEVEL 1

- Green: Bathroom
- Gray: Janitor
- Orange: Large Classrooms
- Blue: Shaft
- Yellow: Small Classrooms
- Purple: Student Offices
- Red: Open Collaborative Workspace

30 ft. diameter atrium
FLOOR PLAN LEVEL 2

- Administrative Assistants
- Bathroom
- Department Chair’s Office
- Faculty Lounge
- Faculty Office
- Janitor
- Senior Administrative Office
- Shaft
STRUCTURAL FLOOR PLAN - LEVEL 2

18"x18" Column
24"x24" Purlin
10" RC Shear Wall
DISTRIBUTION TREE - GROUND