Design for Integration

AIA Framework for Design Excellence:

What is the big idea behind this project—and how did the approach toward sustainability inform the design concept? Describe the project, program, and any unique challenges and opportunities. Specifically explain how the design is shaped around the project’s goals and performance criteria, providing utility, beauty, and delight. How does the project engage all the senses for its users, and connect people to place? What makes this building one that people will fight to preserve? Give examples of how individual design strategies provide multiple benefits across the full triple bottom line of social, economic, and environmental value.
Learning Objectives

Attendees will hear, through case studies, how an integrated process can result in successful buildings that are loved by all.

Attendees will learn how social equity and building performance go hand in hand and improve the overall occupant’s experience in the building.

Attendees will hear how the project engages all the senses for its occupants and connect people to place. What makes this building one that people will fight to preserve?

Attendees will learn best practices, high impact strategies, resources, and case studies that promote climate action.
Designing for Integration

- In Sept 2019, the AIA formally adopted the AIA Framework for Design Excellence (formerly known as the COTE TT Measures) and Measure 1 is Design for Integration. What makes this building one that people will fight to preserve and what were the strategies that provide the triple bottom line (social, economic and environmental)? How does it connect people to place?

Four Case Studies

- Retrofit/educational_SF Art Institute, LMS
- Single family w/office_Yin Yang, Brooks + Scarpa
- Multi-family affordable_The Six, Brooks + Scarpa
- Lab_BioInnovation Center, Eskew Dumez Ripple
SF Art Institute, Fort Mason, SF, California  Leedy Maytum Stacy Architects

an historic Army pier converted to a school for the arts
• Phase I, National Park Service historic shed was restored and seismically upgraded.

• Phase II, interior was transformed into a new arts campus for SFAI which includes 160+ studios, public exhibition galleries, performance installation rooms, teaching spaces, black box theater and a workshop.

• 2017 completed
• 69,000 sf
• AIA TT Award 2018
Cross Section: Key Measures of Sustainability

1. Clerestory Light Monitor
2. Heretic Structural Trusses
3. 255 Kw Solar Photovoltaic Array
4. Efficient Dehumidification Fans
5. Increased Supply Ventilation Air
6. Low Level Exhaust Particulate Control
7. Operable Window Shades
8. Hydronic Radiant Heat Flooring System
9. Historic Pier Structure

100%
On Site Renewable Energy Provides all Required Electricity

23 kBtu/SF-yr
Energy Use Intensity

83%
Energy Reduction: Meets AIA 2030 Commitment

75%*
Building Reuse/Embodied Energy

32%
Water Reduction

*Reduction of global warming potential of materials only
**Insulated Hydronic Floor Detail**

- Reinforced Concrete Topping Slab
- Radiant Heating Tube
- Rigid Insulation
- Vapor Barrier
- Existing Concrete Deck

**THERM analysis:**

- Insulation @ Radiant Topping Slab
- Interior: 74°F
- Exterior (S.F. Bay): 40°F

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**UN Insulated Hydronic Floor Detail**

- Reinforced Concrete Topping Slab
- Radiant Heating Tube
- Rigid Insulation
- Vapor Barrier
- Existing Concrete Deck

**THERM analysis:**

- Uninsulated Radiant Topping Slab
- Interior: 48°F
- Topping Slab on Existing Concrete Deck
- Exterior (S.F. Bay): 40°F
ACOUSTIC TREATMENT AT CEILING

ACOUSTICAL METAL DECKING

ACOUSTIC INSULATION
2" GALVANIZED HAT CHANNEL AT 24" O.C. SCREW ANCHORED INTO EXISTING CONCRETE DECK
DIRECT APPLIED 24"x72" 1" SOARE EDGE TECTUM PANEL, PTD TO MATCH CEILING
EXISTING SLOPED CONCRETE ROOF DECK
ACOUSTICAL METAL DECKING

ACOUSTIC TREATMENT AT CEILING

Concrete
Acoustic Element
Acoustic Perforation

2" (51mm) coverage

6" (152mm)
6" (152mm)
6" (152mm)

ACOUSTICAL METAL DECKING
<table>
<thead>
<tr>
<th>Description</th>
<th>kWh</th>
<th>kBtu</th>
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<tbody>
<tr>
<td>Electricity Consumed</td>
<td>268,696</td>
<td>916,791</td>
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<tr>
<td>Natural Gas Consumed</td>
<td>15,870</td>
<td>1,588,032</td>
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<tr>
<td>PV Electricity Generated</td>
<td>345,997</td>
<td>1,180,541</td>
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</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>kBtu/SF</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SFAI NET EUI</td>
<td>14.5</td>
<td></td>
</tr>
<tr>
<td>Baseline EUI (standard higher ed. bldg)</td>
<td>132.0</td>
<td>83% IMPROVEMENT</td>
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Climate Change Scoping Plan

a framework for change
DECEMBER 2008
Pursuant to AB 32
The California Global Warming Solutions Act of 2006

AB32

Predictions:
- Job killer
- Businesses will flee
- Rolling blackouts
- No new investment
- “Will practically shut the state down!”

Reality:
- Surplus of solar power
- Created jobs
- No blackouts
- Grew to 5th largest economy in the world
- 4 years ahead of schedule

Political Leadership

- 2006 AB32 (cut emissions 25% by 2020) met those targets in 2016, 4 years ahead of schedule
- SB32 (double the current rate by 2030)
Yin Yang House, Brooks + Scarpa, Venice, California
a single family house and office

- 2009 completed, partial remodel of 1963 house
- 3,800 sf (incl office)
- AIA TT Award 2013
- Passive design, blown-in insulation
- Solar Hot Water
- 12 kW Solar PV
- Radiant heat/cool
- Bamboo finishes
- $351/sf (payback less than 15 years)
- Base case energy model: Energy Pro 4.3 by EnergySoft for T24, 42% total energy savings on cost
Existing 1963 wood frame house

1. ENTRY
2. OFFICE
3. GARAGE
4. MUDROOM
5. COURTYARD
6. PANTRY
7. KITCHEN
8. DINING
9. LIVING
10. COVERED PATIO
11. PLANTER
12. REC. ROOM
13. PATIO
14. BATHROOM
15. SHOWER
16. FRONT BALCONY
17. BEDROOM
18. STORAGE
19. CLOSET
20. LAUNDRY
21. MECH RM
22. POOL
23. PLAY YARD
24. YING YANG GROUND PLAN
25. 0' 10' 20' 40'
• Project goals: the six zeros
• Zero waste
• Zero energy
• Zero water
• Zero carbon
• Zero emissions
• Zero ignorance
• Bar building is a remodel, save foundations, framing
• Emphasize public space over private space
• Shade with the solar panels themselves
• Capture all stormwater
LADWP invoices for water, power, sewer, trash pickup - no power bill, no trash pickup!
70% of design decisions are made in the first 10% of the process.
COMPLEX STAKEHOLDER MAP
The Six, Brooks + Scarpa, Los Angeles, California
multi-family housing for homeless veterans

- 2016 completed
- 52 units
- 153 du/acre
- Density bonus
- LEED Platinum
- Passive design
- Solar Hot Water
- Solar PV
- $253/sf
- Client needs
- Tenant needs
- Cost
- Operations
- Schedule
- Designing for whom?
• Direct correlation between clg ht, ht of window, amount of natural light in space and structural efficiencies!

• Studies show people record higher levels of energy in naturally lit spaces - promotes well-being.
Planning phase 2002 (across from Tulane Univ Med School on historic Canal Street) then came Hurricane Katrina…. goal was to create a collaborative environment in which fledgling start-ups could grow successful enterprises and spread the wealth

- 2011 completed
- 65,000 sf
- AIA TT Award 2015
- Maximize human performance through daylight, nature views and collaboration spaces
- SW façade horizontal louver exterior shading system allowed 62% glass with the summer solar gain of a façade with only 18% glass.
Front façade is 62% glazed, but maintains the summer solar heat gain of a building with 18% glazing.
• Net EUI 119
• Percent reduction from National Median EUI for Building Type 67%
• Interior landscaped courtyard
Traditional New Orleans shutters :: Louvers filter light creating a shutter-like experience. It addresses the need for privacy, solar control, and storm protection, much like traditional shutters.
Glass recycling has not been restored to the city of New Orleans since Hurricane Katrina, except in the form of art, that is. In recognition of this regional concern, local artist Mitchell Gaudet was commissioned to create a partition wall made with recycled cast glass, hand-crafted and prominently featured in the entrance lobby. Additional recycled glass is also prominently featured throughout major portions of the building in the terrazzo flooring.
Questions?

- Click on the Q&A button located on the black menu bar either on the top or bottom of your computer screen. Type in any questions you might have.
Additional Resources Available Online
www.aiacalifornia.org/climate-action/

AIA & AIA California Resources

- AIA COMMON APP
- AIA Design Data App
- AIA Framework for Design Excellence
- AIA CA: Guide to Integrated Project Delivery

Brooks+Scarpa Recommended Resource

- NYC Design Commission: Quality Affordable Housing

Case Study

- Sweetwater Spectrum Community, Leddy Maytum Stacy Architects, Sonoma, CA