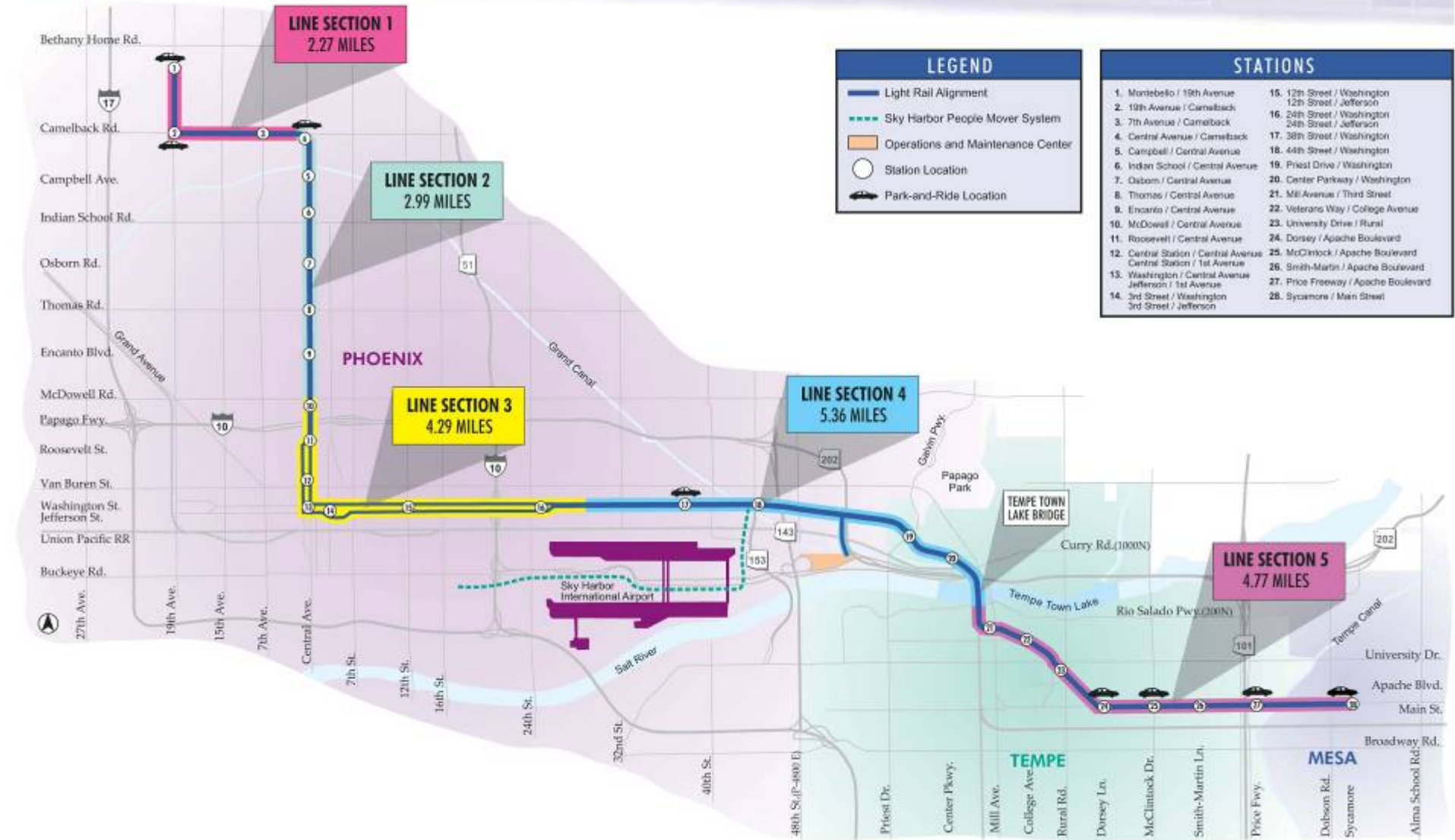
Building the Sustainable Transit Community

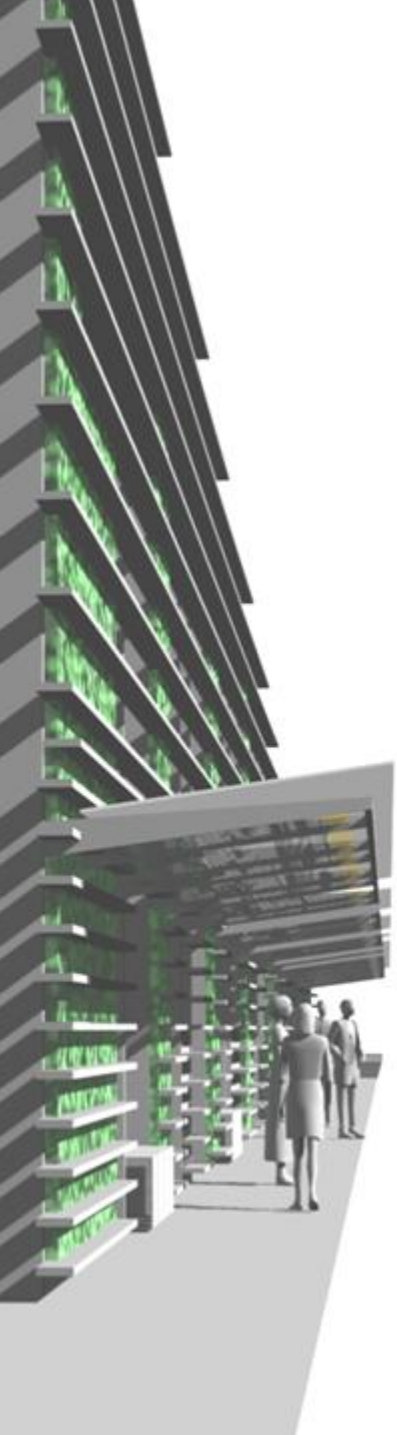
2007 RAIL-VOLUTION
Miami, Florida
Gary J Hartnett AIA
IBI Group

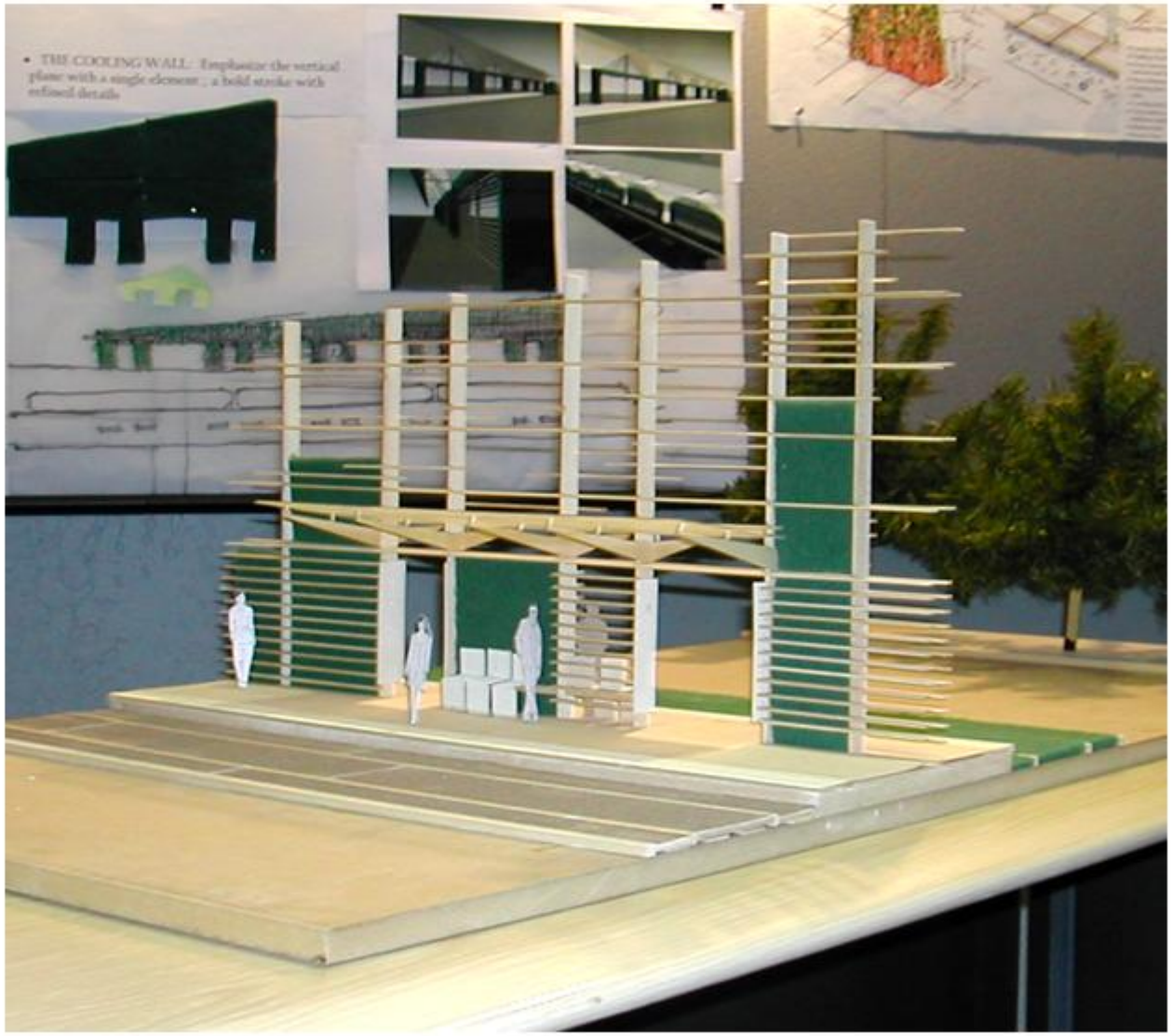
Building the Sustainable Transit Community

- How Public Transportation can be used to introduce sustainability to a community
- Sustainability in the Arizona Desert
- Tempe Transportation Center

LIGHT RAIL STARTER SEGMENT






• THE COOLING WALL: Emphasize the vertical plane with a single element ; a bold stroke with refined details

Tempe Transportation Center

- Design Team Consultants
  - Otak Architects
  - Architekton
  - LSW Engineers
  - A Dye Design
  - Michael Baker Jr. Inc.
  - BDA Engineers
  - Natural Logic Inc.
  - Akali Lighting
  - Thinking Caps
  - Knipp Design
  - Lee Engineering
  - Construction Consultants
  - Natural Systems Inc.
  - Solarc Inc.

City of Tempe Consultants

- Construction Manager at Risk: Adolfson & Peterson Construction
- Commissioning Agent: Sebesta Blomberg
- City Construction Manager: underway
- Environmental Artist: Lorna Jordan

  Focus: Community Room and Coutyard
- Plaza Artist: Tad Savinar

  Focus: Engraved granite pavers and LRT platform sculptures

Key: Early and Integrated

So simple it's easy to miss it:

- Everyone

  All stakeholders at the table, from the beginning (impact on "time to market")

- Everything

  All aspects of the project, from design to materials specification, from energy systems to circulation planning (impact on synergies)

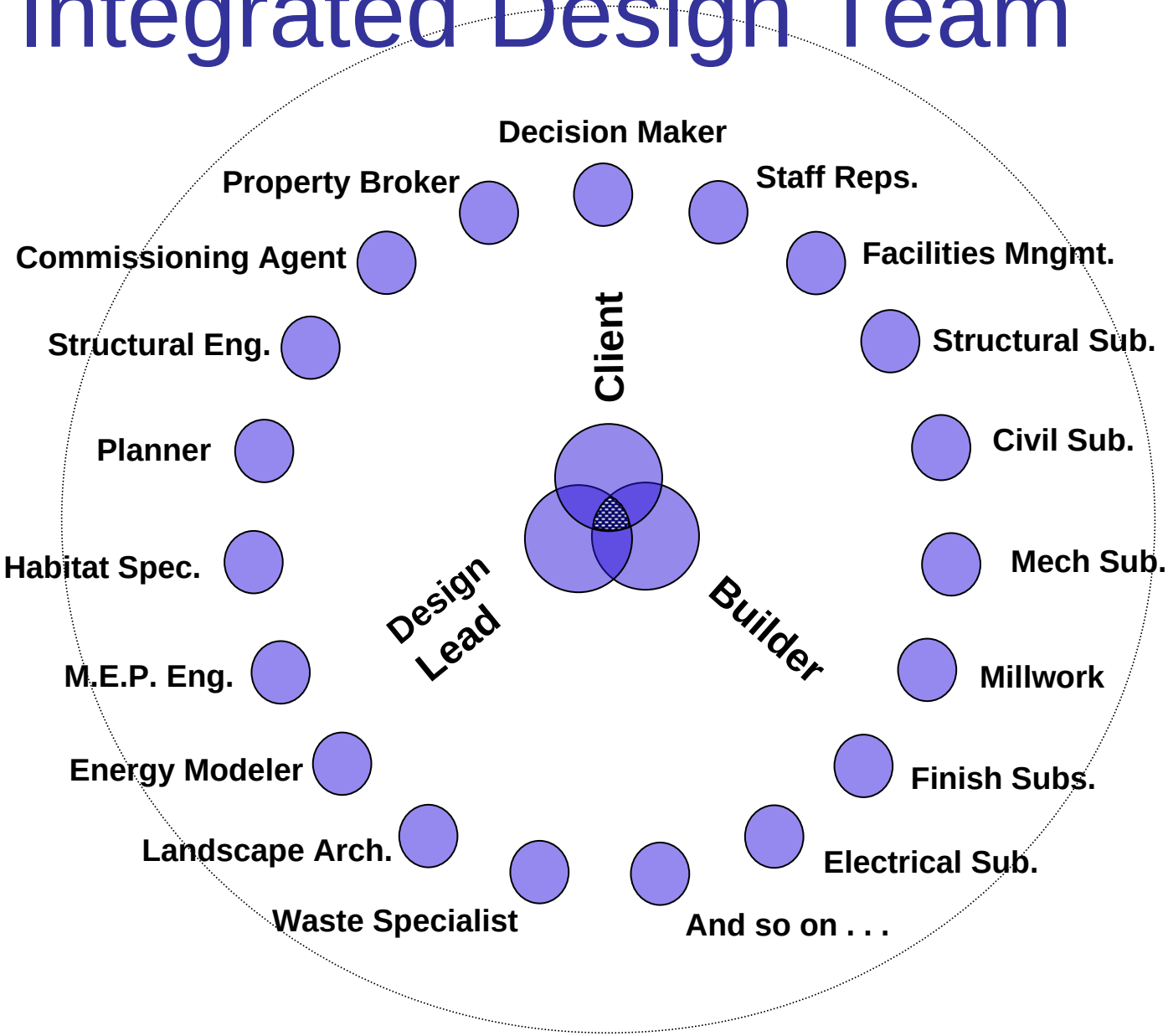
- Early

  High performance, regenerative approach as core driver and design context, not "it would be nice if we could…" that risks getting value engineered out later (impact on economics)

- Exceptional

  Commitment to deliver results that exceed environmental, economic and stakeholder expectations

Integrated Design Team



The Basic Elements of Integrated Design

- Client involvement in the design decision process
  - 100% commitment to the process and goals
  - Indemnification
- Team Selection (Be there early enough to do so)
  - Select the right team: and project delivery method
  - To design ecosystems we need to deal with ego-systems. (Franklin)
- Goal Setting of environmental targets and education
  - with all participants
- Optimization of the design of systems
- Follow through in Construction Process
- Commissioning
- Maintenance and Monitoring

WHOLE-SYSTEM INTEGRATION

LEED Checklist

Sustainable Sites
Site Selection – Density
Alternative Transportation
Reduce Heat Island
Reduce Light Pollution
Stormwater Management
Landscape

Water Efficiency
Water Efficient Landscape

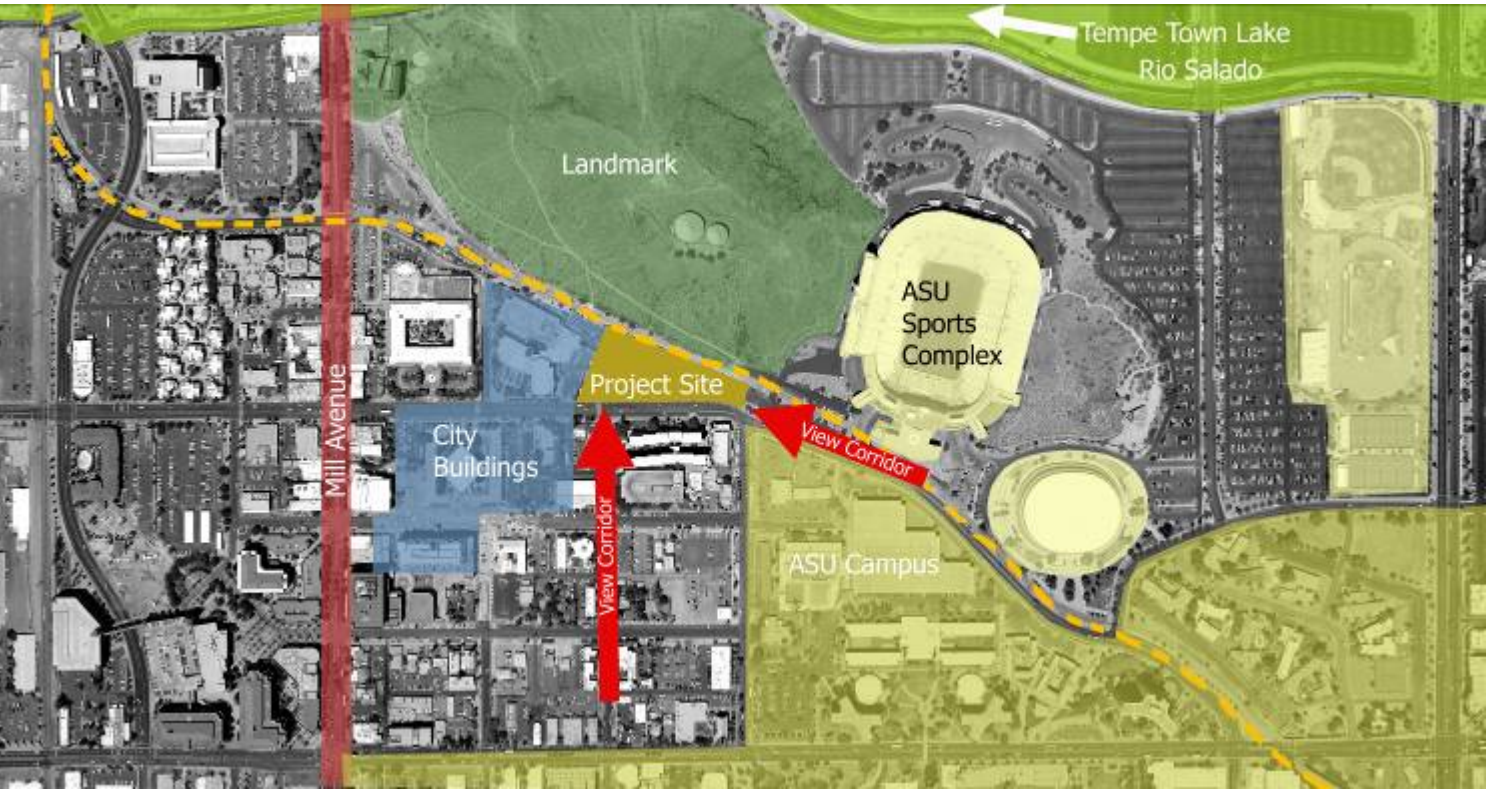
Energy & Atmosphere
Reduce Heat Gain
Efficient HVAC System
Utilize Renewable Energies
Perform Additional Commissioning
Shading Components

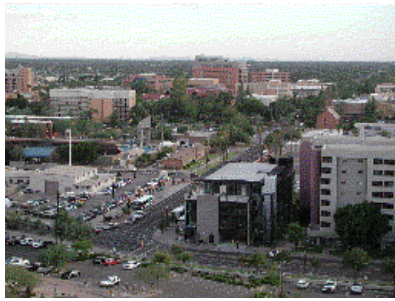
Materials & Resources
Construction Waste Management
Recycled Content
Local/Regional Materials
Rapidly Renewable Materials

Indoor Environmental Air Quality
Low Emitting Materials
Daylighting & Views

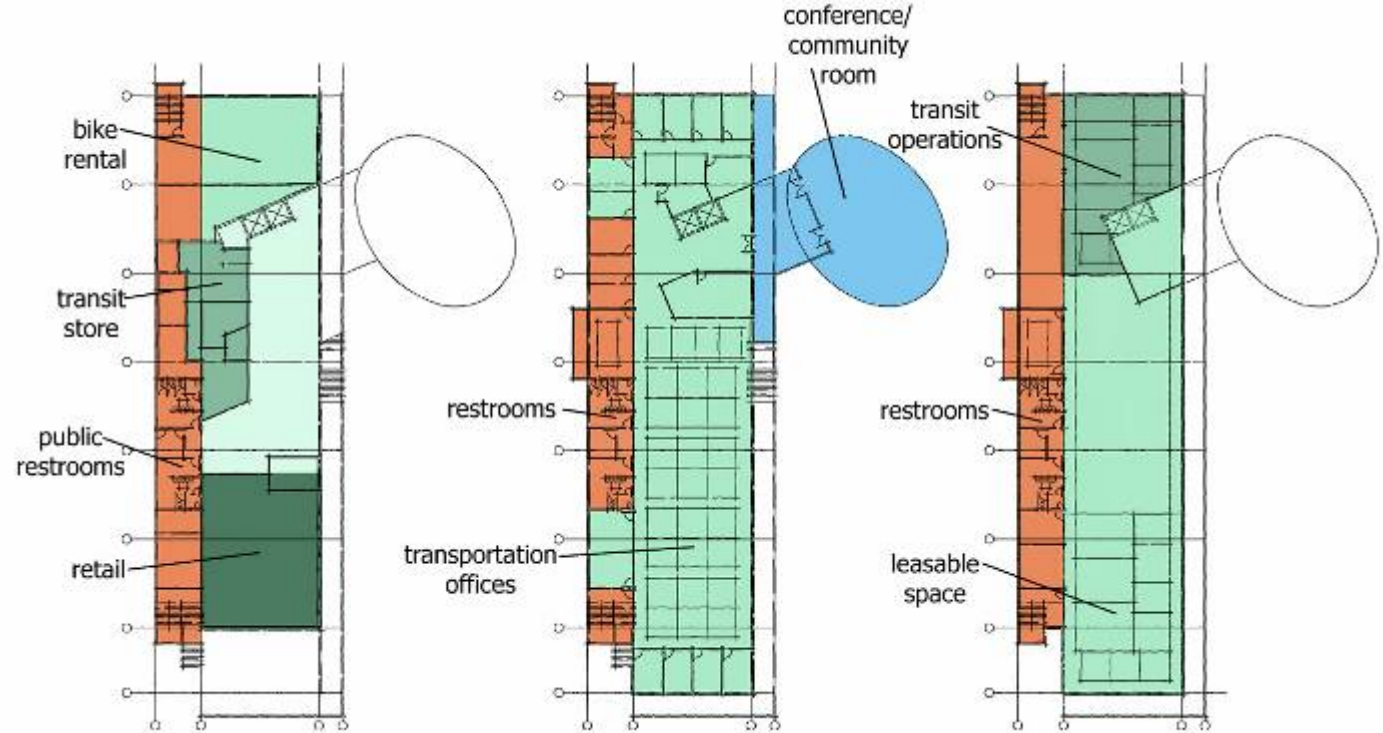
Innovative & Design Process
LEED Accredited Personnel

Site Analysis





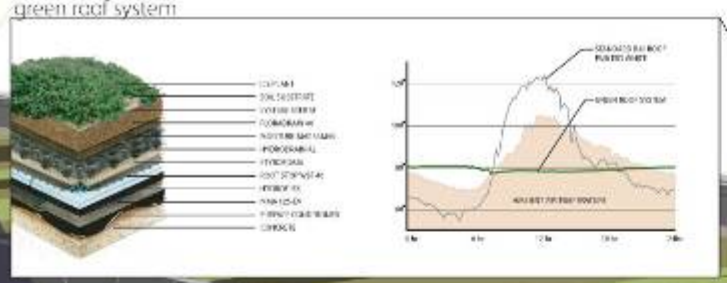
Conceptual Plan/ Program



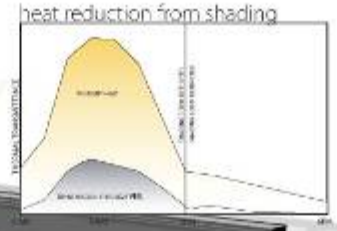
Plaza Design

Solar Energy

green roof system

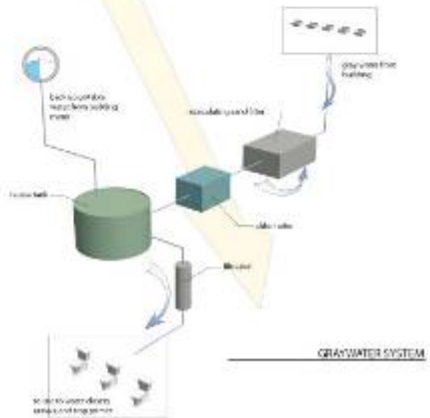


heat reduction from shading



shading veil deployed

shading veil retracted

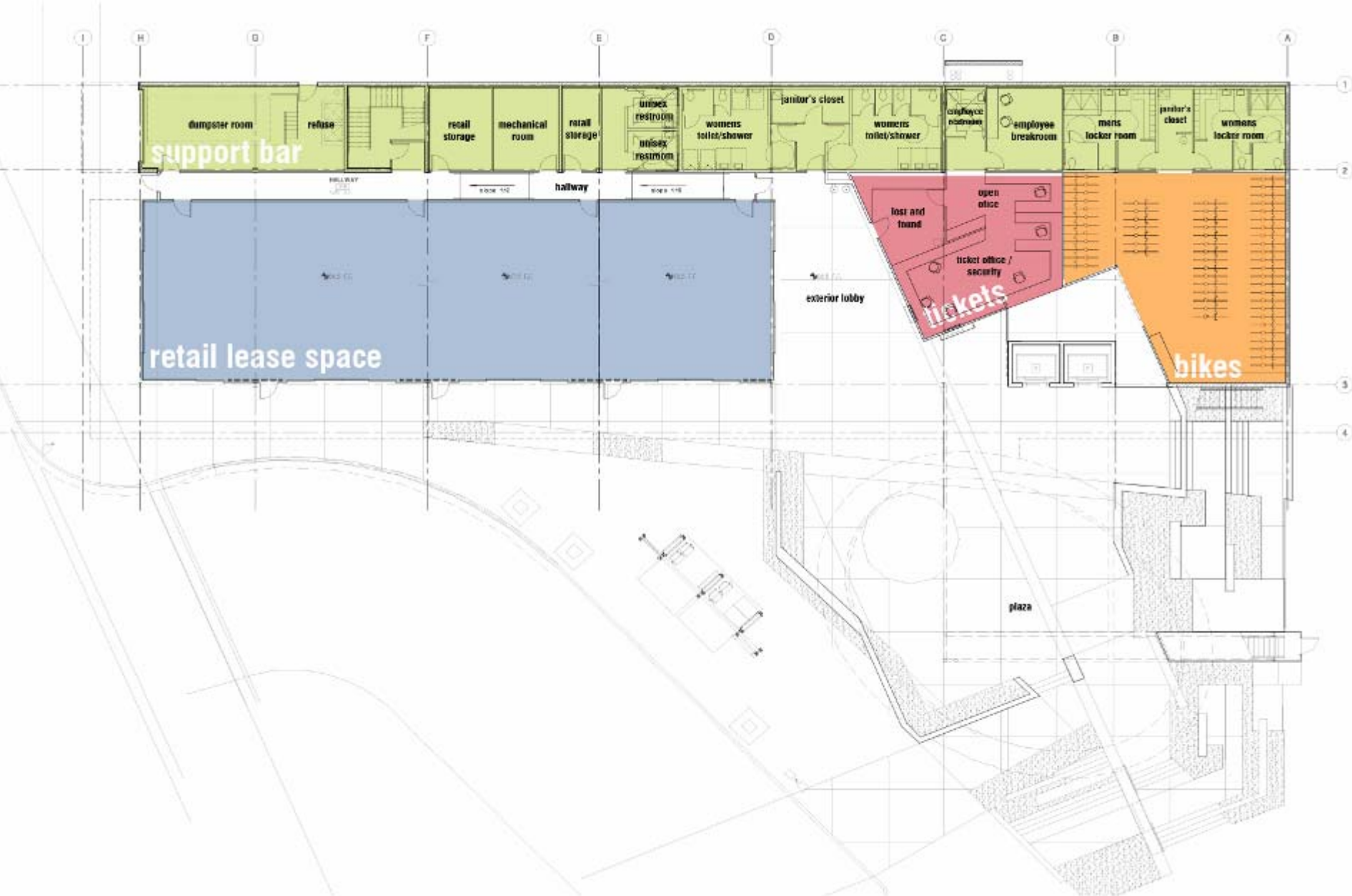


GRAYWATER SYSTEM

The Transit Center building has been organized to balance efficiency with the best possible work environment. Due to the building's unique positioning and proportions, service functions occur within an expressive core that provides a natural buffer on the west elevation. A simple, open floor plan is adjacent to the core, which allows for protected daylight from the south, north and east exposures. This relationship of service and served spaces works on all three levels, creating efficiencies in plumbing, mechanical, and occupant circulation.

All glazing on both the office/retail and community room will be shaded from direct sunlight. This provides an opportunity to create an architecture that expresses its relationship with our specific environment, which also functions well with LEED goals. It is this synergy that we strive for when designing projects. Every form, material, and relationship should have more than one purpose or function. Our goal is to create a Transportation Center that serves public transit patrons, is cost efficient while in harmony with our environment, and is a wonderful icon for the community.

building section


support bar
dumpster room
refuse
retail storage
mechanical room
retail storage
unisex restroom
unisex restroom
womens toilet/shower
janitor's closet
womens toilet/shower
employee breakroom
mens locker room
janitor's closet
womens locker room
hallway
retail lease space
exterior lobby
lost and found
open office
ticket office / security
tickets
bikes
plaza

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HOW IT WORKS
JOIN NOW
MEMBERS
PROJECTS
ORGANIZATION

MAKING CLEAN TRANSPORTATION A REALITY

SELECT YOUR BIKESTATION:

BERKELEY
EMBARCADERO
LONG BEACH
PALO ALTO
SEATTLE

SIGN UP NOW

Bikestation is working to change the way people travel.

Bikestation offers secure bicycle parking. Park your bike at Bikestation and you can be assured that your vehicle is safe, secure and covered.

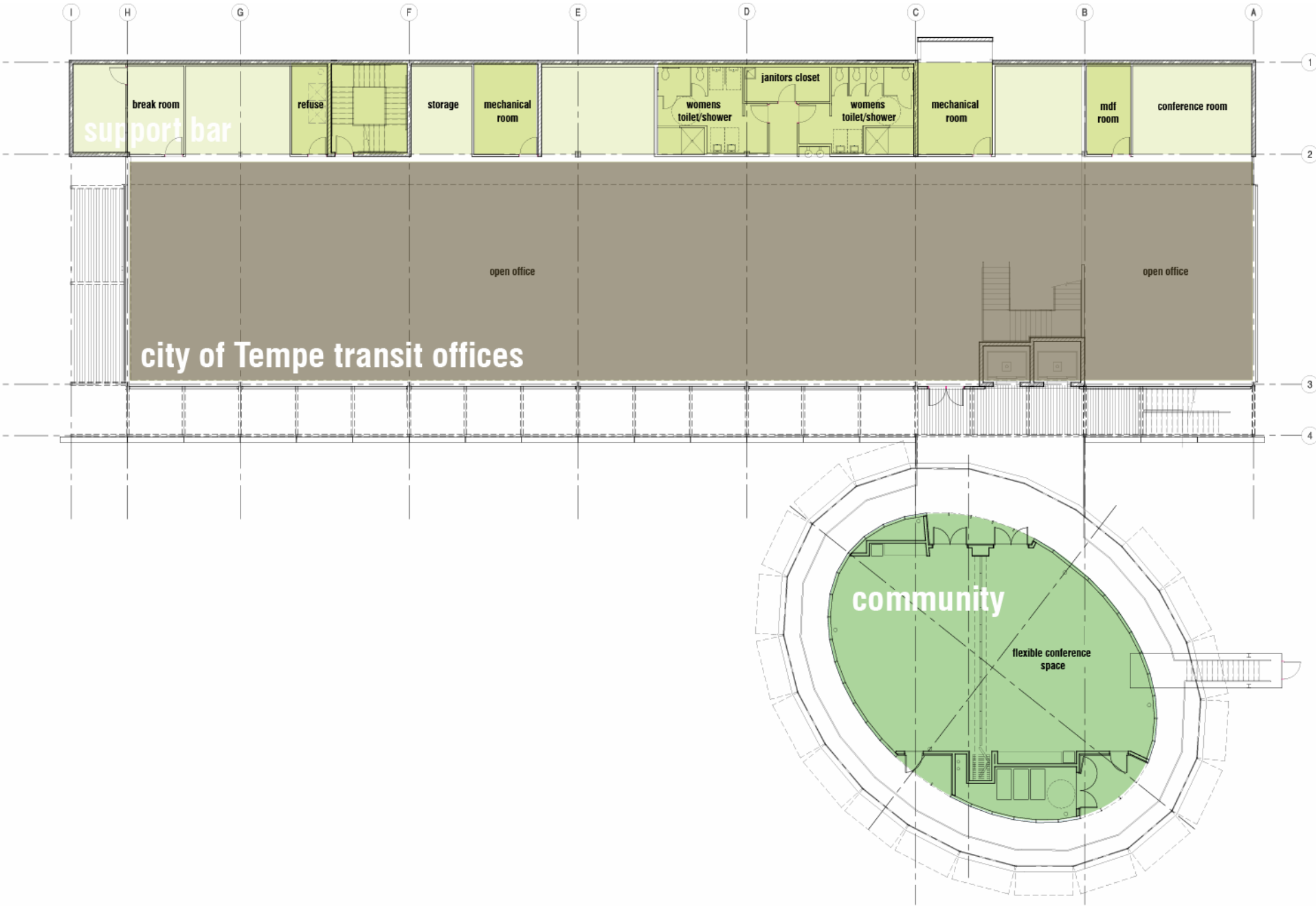
Whether you ride your bike to public transportation, to work, or you simply need a safe place to store your bike for the day, Bikestation is available to serve you. It's simple, convenient and affordable.

Each Bikestation location provides unique services and amenities; but every Bikestation provides:

- A secure parking spot;
- Shared-use bicycle rentals;
- Access to public transportation;
- Convenient operating hours;
- Friendly and helpful staff;
- Information to plan your commute trips.

NEWS

Bikestation Welcomes Andréa White, new Executive Director!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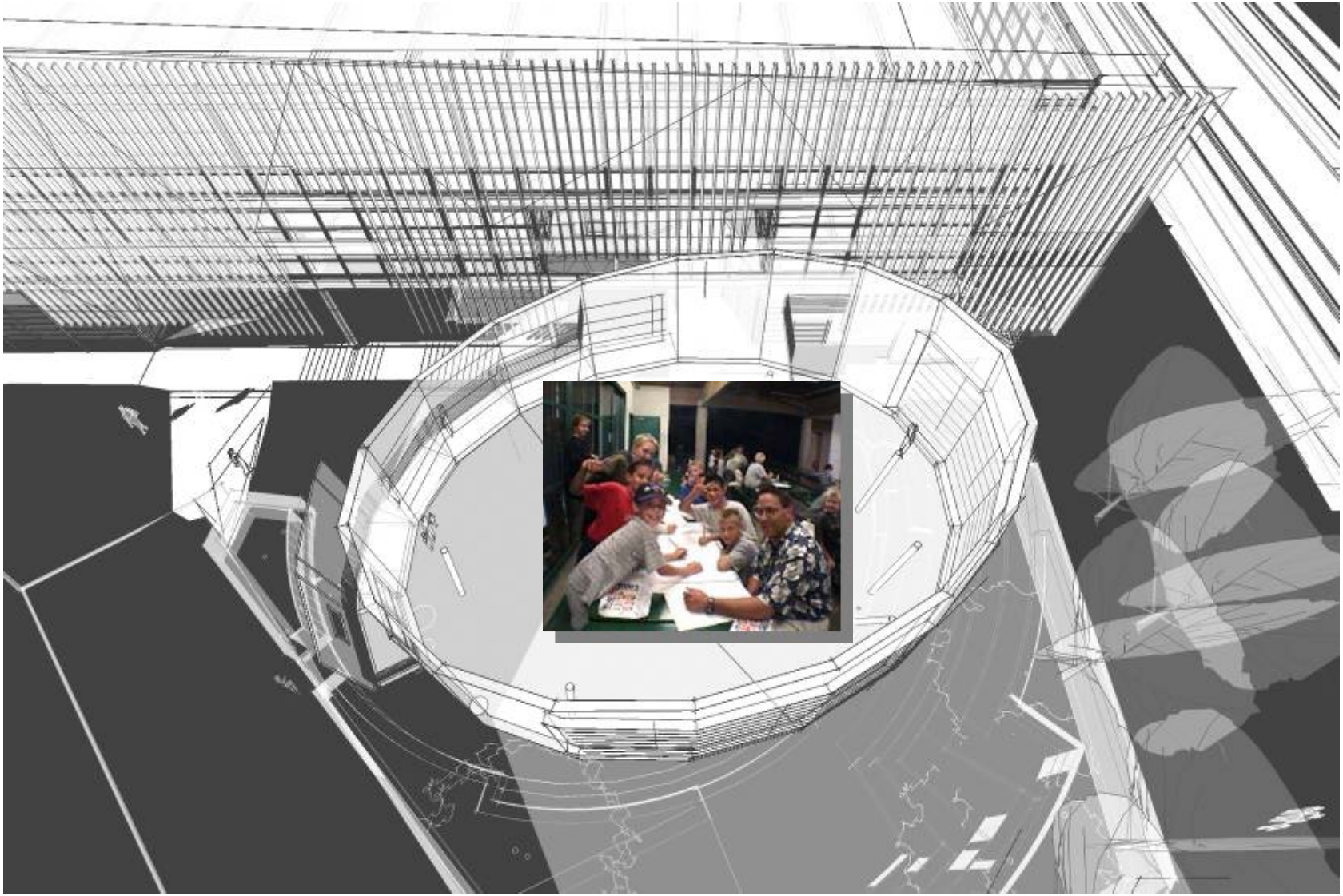
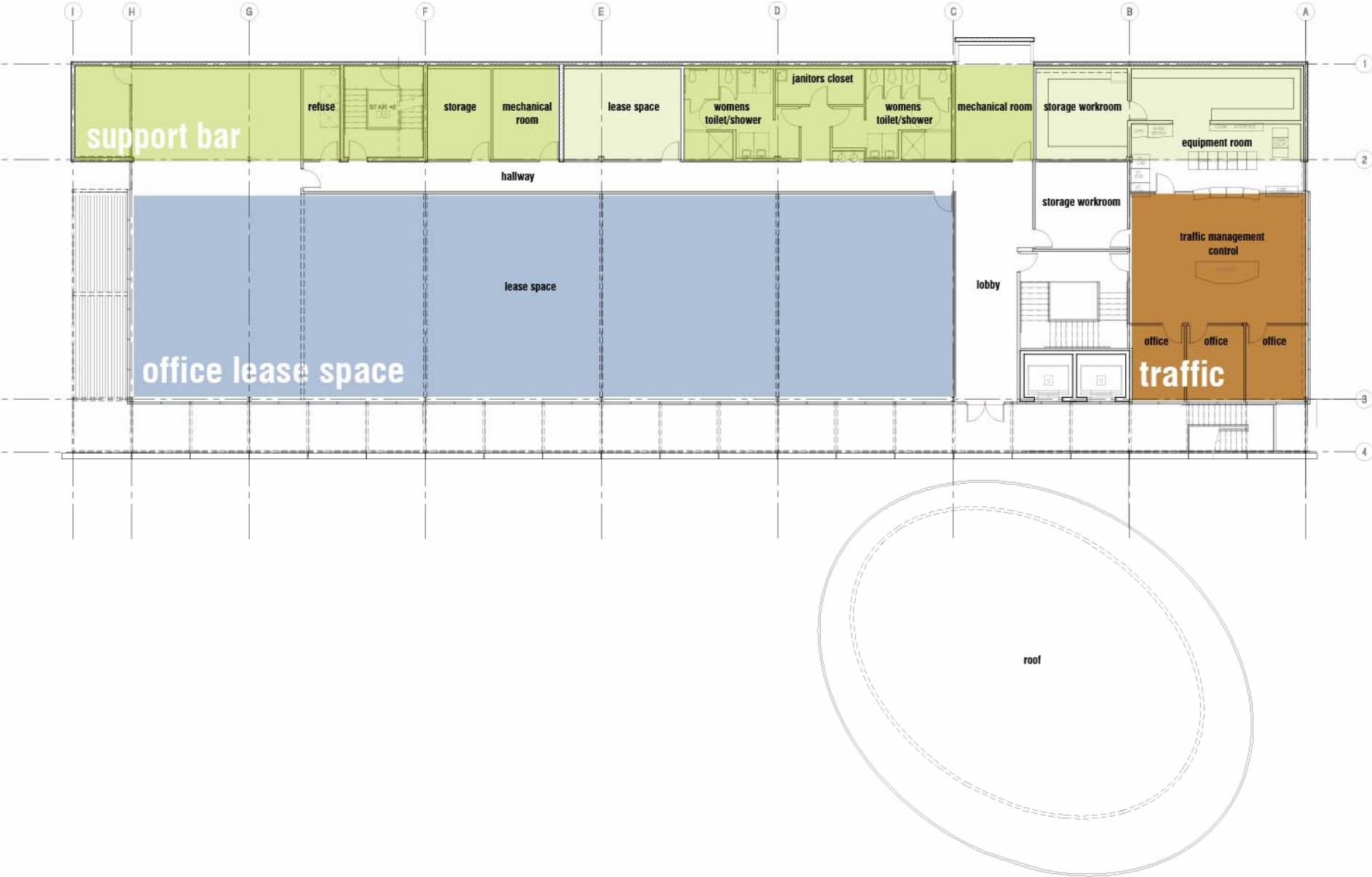
support bar
break room
refuse
storage
mechanical room
womens toilet/shower
janitors closet
womens toilet/shower
mechanical room
mdf room
conference room
open office
open office
city of Tempe transit offices
community
flexible conference space

Community Room

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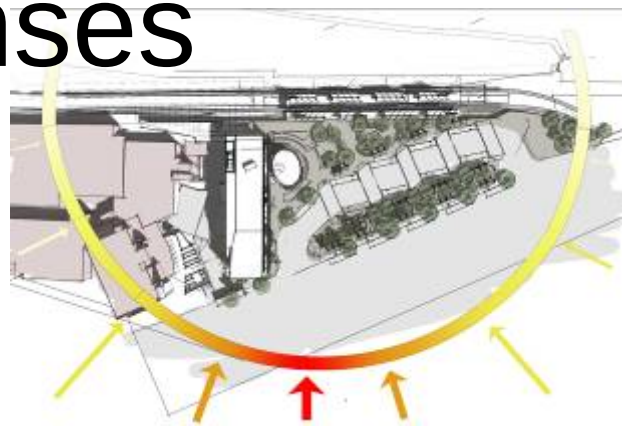
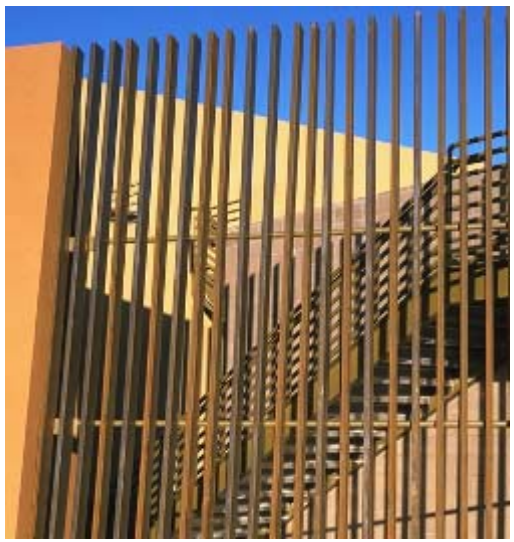
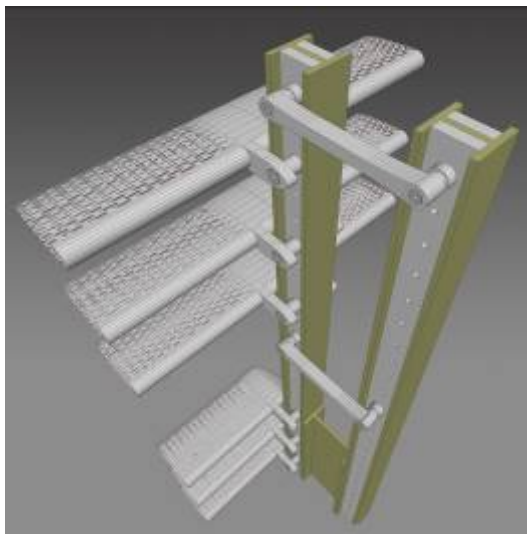
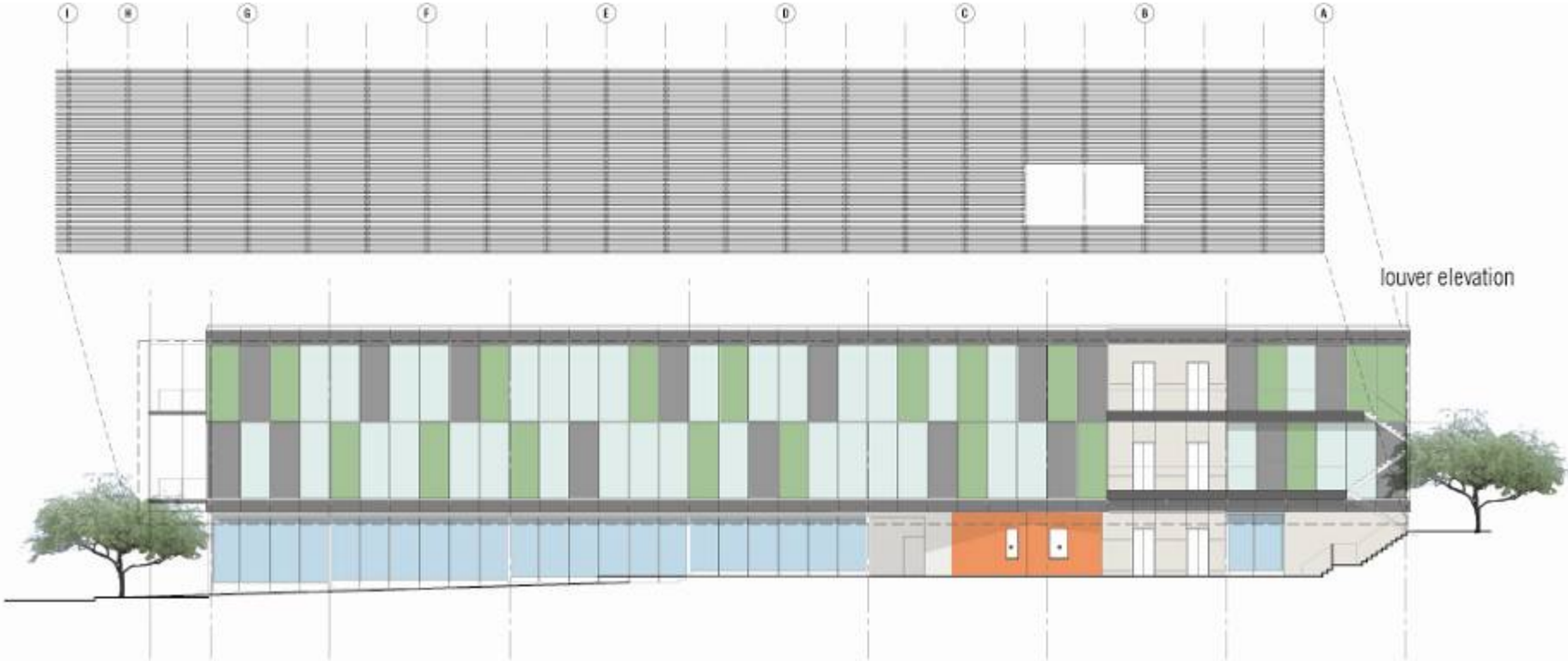
womens toilet/shower
janitors closet
womens toilet/shower
mechanical room
storage workroom
equipment room
hallway
storage workroom
traffic management control
lease space
lobby
office
office
office
office lease space
traffic
roof

Solar Responses

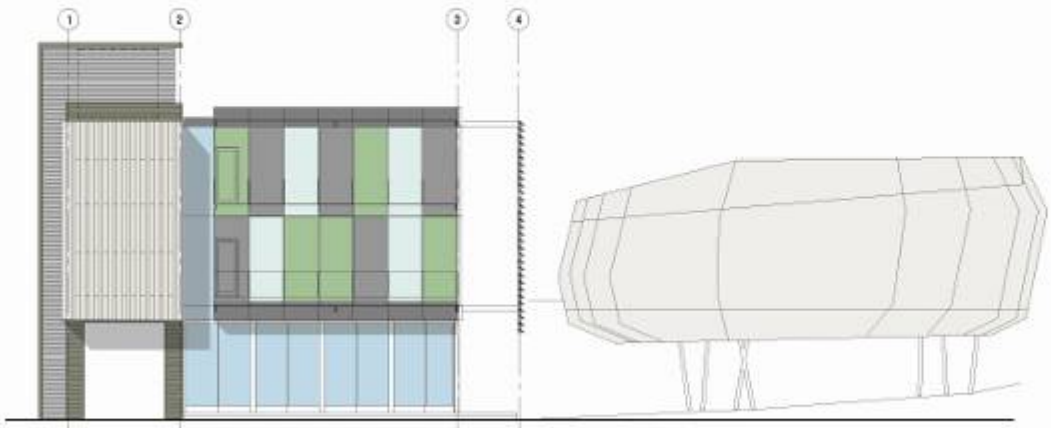








east elevation



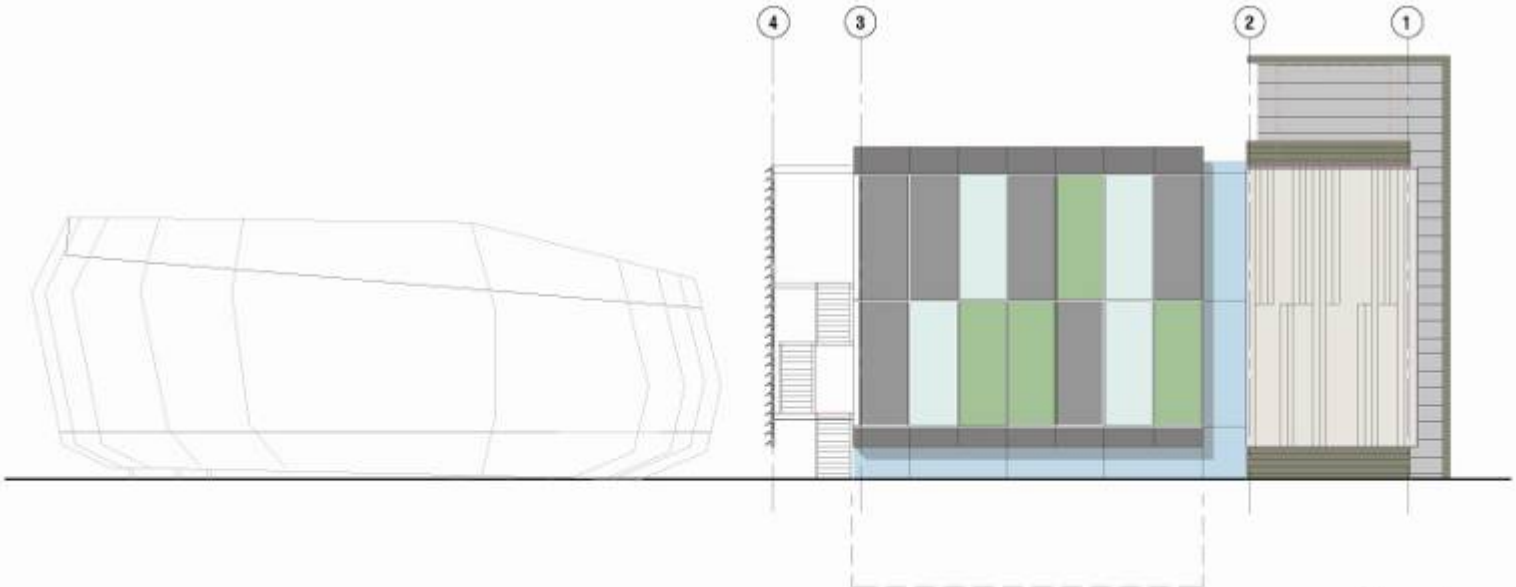
south elevation

Tempe Transportation Center

otak + architekton

design review submittal - July 19, 2005

west elevation



north elevation

Tempe Transportation Center

otak+architekton

design review submittal - July 19, 2005

TEMPE TRANSPORTATION CENTER

site plan

Sustainability Goals

- Overall reduction in energy consumption
- Maximize the use of day lighting
- Use a green roof as a thermal barrier to prevent heat gain
- Minimize construction and occupant waste
- Use fully or partially recycled building products
- Increase the overall quality of the indoor environment
- Reduce water consumed by building occupants
- Re-use waste water for irrigation and gray water systems
- Vegetated roof contributes to water reclamation
- Vegetated roof reduces urban heat island

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VARIABLE MESSAGE BOARD
13


PORTATION CENTER

Bus Station for the City of Tempe

FRAME


13


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BLUE SKY AVIATION