

# ENERGIZED URBAN TAPESTRY

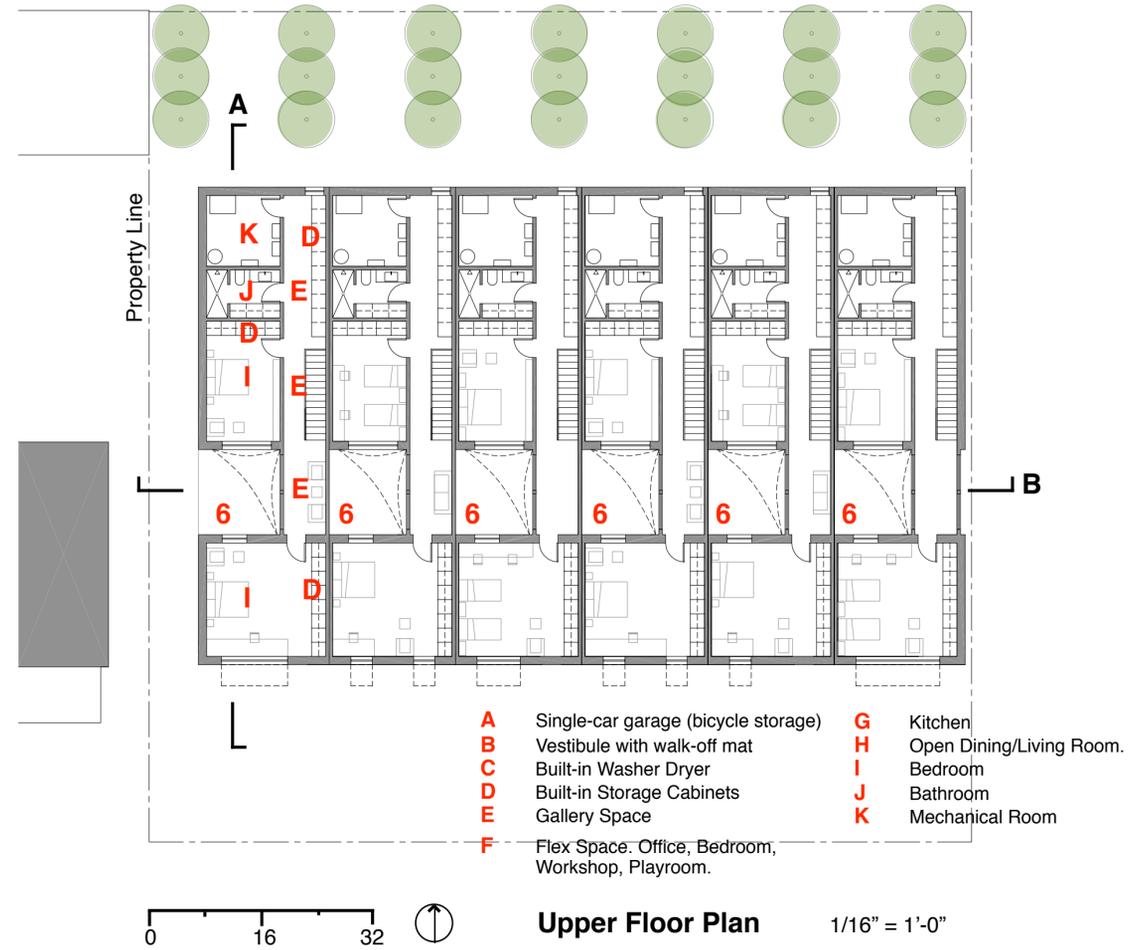
"Energized Urban Tapestry" is a 6 unit, 2 story, multi-family development for the Minneapolis "Artists' Core". The design is a rich, complex, and vibrant quilt assembled of renewable energy elements, landscaping, and colorful reclaimed siding which combines the natural, high-tech, and "found" components to create a living environment that is energy independent and revitalized.

All units have south frontage to provide passive heating and individual solar energy production to every home. Courtyards offer a more holistic interior environment with access to passive heating, natural light, natural ventilation, and exterior views for all habitable rooms.

The super-insulated building enclosure reduces space heating by 90% and is simplified with a shallow foundation and a SIP prefabricated system. The remaining energy demand can easily be provided by the small photovoltaic panels integrated into the facade design.

The result is a building that is ambitious and extroverted, but also is private and contemplative.

- 1 Public Art & Community Green Space shall be coordinated with south building facade to create a rich and energized urban square.
- 2 Vegetated Areas of no-maintenance and no-irrigation native and adaptive plants and mulch which will hold & infiltrate stormwater.
- 3 Permeable Paver Hardscape Area. Hardscape for parking and driveways is kept to a minimum with the building and garage entrance pushed to the North. Individual driveway/parking stalls are clearly defined for each unit to encourage independent maintenance.
- 4 Setback Variance required at Sheridan Ave.
- 5 Concrete sidewalk.
- 6 Private Courtyards increase access to passive heating, natural light, natural ventilation, and exterior views which is especially important for units and rooms located in the middle of the property. The Courtyard is an ideal place for an outdoor art workshop, drying clothes, gardening, children's play area, and outdoor dining. It will make the interior living spaces feel larger. The private space gives the owner freedom for individual expression in plantings and outdoor lifestyle that will not visibly impact their neighbors.
- 7 Universal Design. All ground floor spaces are on the same level and include all the essentials: an accessible bathroom, flex space/bedroom, living room, accessible kitchen design, dining room, washer/dryer, and accessible doorways. All exterior building entrances are accessible.

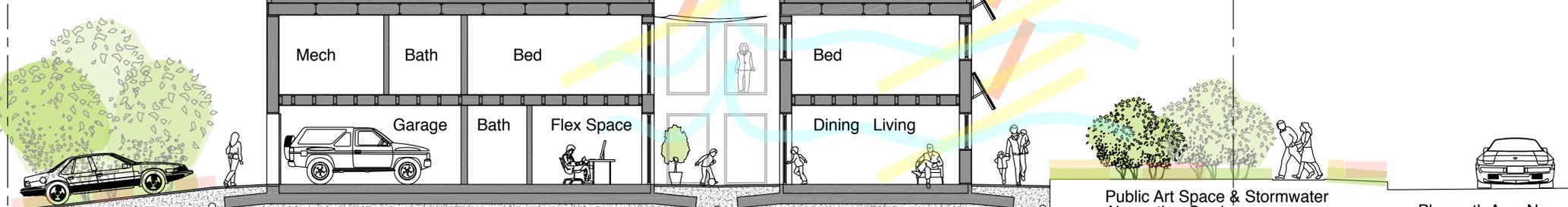


14" SIP roof with 5" tapered foam insulation above. 14" SIP exterior walls. 12" open web floor joists 24" o.c. Thermal bridge-free & air tight construction.

Non-Habitable Spaces and reduced windows to the North

Wind Block Trees.

Driveway / Parking & Stormwater Absorption Garden

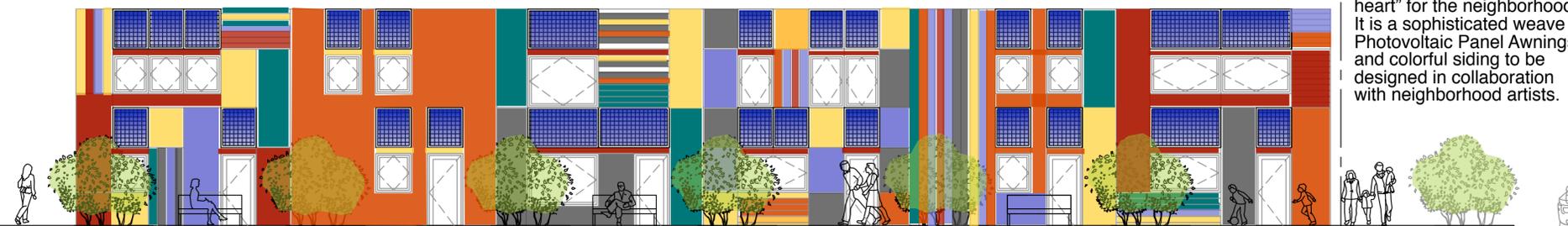
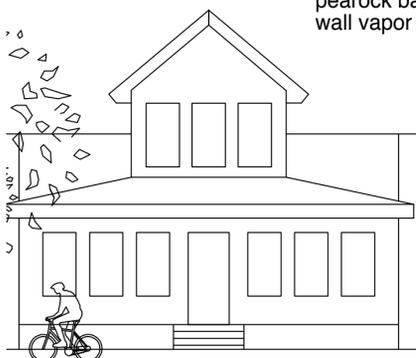


10" Monolithic Engineered Concrete Slab with 12" Engineered Foam underneath, 4" foam skirting, & 12" x 48" foam horizontal extension. Clean, compacted pearock base sloped to drain. Continuous vapor barrier under slab sealed to wall vapor barrier above. Sealed concrete slab is finished floor surface.

Private Courtyard for gardening, drying clothes, outdoor workshop, play yard, outdoor dining & lounge.

Public Art Space & Stormwater Absorption Garden

Plymouth Ave. No.



The South facade is a "joyful heart" for the neighborhood. It is a sophisticated weave of Photovoltaic Panel Awnings and colorful siding to be designed in collaboration with neighborhood artists.

Public Art & Community Green Space along Plymouth Ave.

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**Estimated Project Cost and Size** This design is focused on the added market value of energy independent living and a holistic interior layout, and this is where the cost is directed. Interior finishes shall not be the focus and those costs must be kept very minimal. A simple foundation system and prefabricated wall and roof systems will reduce construction costs and waste.  
 1550 sf NET/townhome = \$116/sf      1800 sf GROSS/townhome = \$100/sf (excluding patio and garage)

**Performance** This design has been modeled in the Passive House Planning Package PHPP. As specified, it meets Passive House requirements. It will exceed MN GreenStar Bronze requirements.  
 0 HERS rating w/ Photovoltaic System      20 HERS rating w/o Photovoltaic System  
 5.37 BTU/sf/hr Heating Load      2.80 BTU/sf/hr Cooling Load  
 3.46 kBtu/sf/yr      **Specific Space Heat Demand**  
 (average for development, interior townhomes will be less, exterior townhomes will be more.)

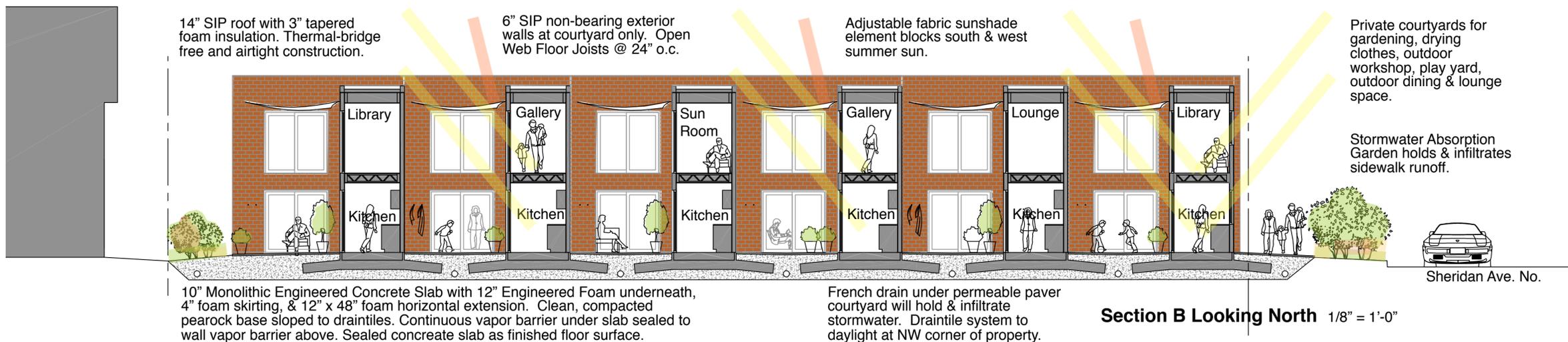
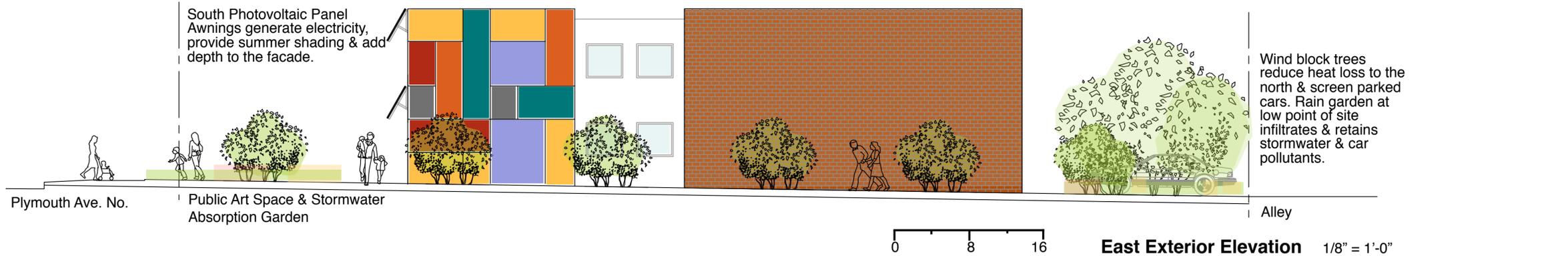
**Finishes**  
**Interior** Exposed concrete floor slab with zero-VOC clear sealer. CRI Green Label carpet tile floor finish at second floor. Inexpensive white ceramic tile floor and showers in bathrooms. Mold-free Gypsum board finish at all ceilings and walls with zero-VOC paint finish. NAUF and low-VOC white laminate cabinetry throughout. Fully-Adhered EPDM white membrane roof. VAST recycled content and local composite permeable pavers. All siding to be a rain screen application so exterior walls can breathe to the outside. All finishes to be maintenance free. South siding to be discounted/reclaimed kymar painted metal panels, pattern and quantity designed by Architect in coordination with local sheetmetal suppliers and local artists. North and courtyard siding to be neutral and monolithic material such as brick or stucco, which provides a contrast to the vibrant south facade and gives the place a sense of age with an "added-on-to" effect.

**Systems** Assumes 2.5 occupants per townhome. No gas or wood burning systems.  
**3000 kwh/yr/townhome**      **Photovoltaic System** required to be **NET ZERO**. Using standard panels mounted on aluminum awning rack, grid connected.  
**1.1 kwh/ft/yr**      **Direct Electric Space Heating.** Using simple cost-effective ECO-Heater, a high-efficiency electric wall mounted panel. Using 95% efficient ERV RecoupAerator with electric coil post heater for each townhome, 85 cfm/ townhome.  
**1.0 kwh/ft/yr**      **Direct Electric Space Cooling.** Using Mini-Split wall mounted units ( 1 per floor) connected to 1 condenser on roof. AC for limited use, not necessary because Passive Cooling system and sun shading is designed.  
**1.2 kwh/ft/yr**      **Direct Electric DHW Heating.** Using a combination of point-source (kitchen) and whole-house tankless hot water heaters.  
**1.3 kwh/ft/yr**      **Direct Electric Household Appliances, Plug Loads, and Lighting.** Use Energy Star rated range, refrigerator/freezer, washer and dryer, dishwasher and microwave. Use CFL fixtures throughout.  
**R-52.5 Wall**      Exterior walls to be 14" SIP. Thermal bridge-free & air tight. No electrical chases. All wiring to be placed in floor or interior walls.  
**R-78.6 Roof**      Roofs to be 14" SIP with 5" tapered EPS above. Thermal bridge-free & air tight. No electrical chases.  
**R-48.7 Slab**      10" monolithic concrete slab, over 12" engineered insulation over 6" clean & compacted rock sloped to draitiles along perimeter.  
**R-5.2 Windows**      Triple-pane glass in thermally-broken fiberglass or vinyl window frame. SHGC = 0.54  
**Plumbing**      Use low-flow and low-volume fixtures and fittings. Use non-irrigation landscaping. Budget is too limited for greywater/rainwater system  
**Fire Protection**      Install Sprinkler System in each townhome.  
**0.60 ACH50**      Continuous and undisturbed air tight layer shall be installed under slab, on exterior walls, party walls, roof, and blower door testing shall be completed to meet this requirement. Air seal between units.



Perspective Looking North West

Building mass broken up by different finishes and a recess at the courtyard location. Limited windows on the North, East, and West to control costs, overheating, and heat loss.  
 Low building height of 19 feet connects the building to the ground and landscape and softens the expression.



## BEARDEN PLACE A Housing Competition in the "Artists' Core"