

PROTOTYPE 1

This house is designed with building science in mind. From the foundation to the roof, in section and in plan, a number of strategies have been utilized to make the house comfortable, efficient, healthy, accessible, and affordable to operate.

The house is built on concrete piers and an engineered floor system. This enables the floor to be fully insulated. It also lifts the house off of the damp ground, reducing common drainage and moisture problems associated with crawlspace construction. The pier foundation will have less impact on the site, as well.

The walls and roof are constructed with structural insulated panels (SIPs), which may be a viable option for a number of the prototypes used in Cottages at Cannontown. SIPs consist of a foam core sandwiched between two layers of sheathing. They are manufactured in Georgia and offer a number of advantages over conventional stick framing. Advantages include less waste, better insulation, less labor, and longer spans. SIPs are also stronger and lighter than conventional framing.

The thermal envelope has been pushed to the outermost portion of the floor, walls, and roof. This strategy will provide a more comfortable interior, and will eliminate some common problems associated with standard construction techniques. There is no crawlspace or attic in this design. The ductwork and air handler are located within the thermal envelope. This allows the HVAC system to operate with efficiency.

A rain screen exterior finish assembly will deter rainwater, reduce thermal bridging, and allow the walls to breathe.

The house is also designed to passively take advantage of solar gain. The roof overhang, header and sill heights, and floor plan and window arrangement will allow the low-angle winter sun to heat the interior, while blocking the high-angle summer sun.

The following target R-values are possible with this proposal: R-30 floor, R-40 walls, and R-40 roof. These numbers greatly exceed the code and will provide a comfortable environment and affordable operating costs.

The front porch, patio, and plantings help to connect the house with the neighborhood context. The planters establish a perimeter and allow the patio to become an extension of the living area. This connects the house with the sidewalk. The goal is to foster community through simple architectural details.



① SOUTH PERSPECTIVE



② EAST PERSPECTIVE

11-14-11

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PROTOTYPE 1 PROPOSAL

ATHENS LAND TRUST CHALLENGE

COTTAGES AT CANNONTOWN

ATHENS, GEORGIA

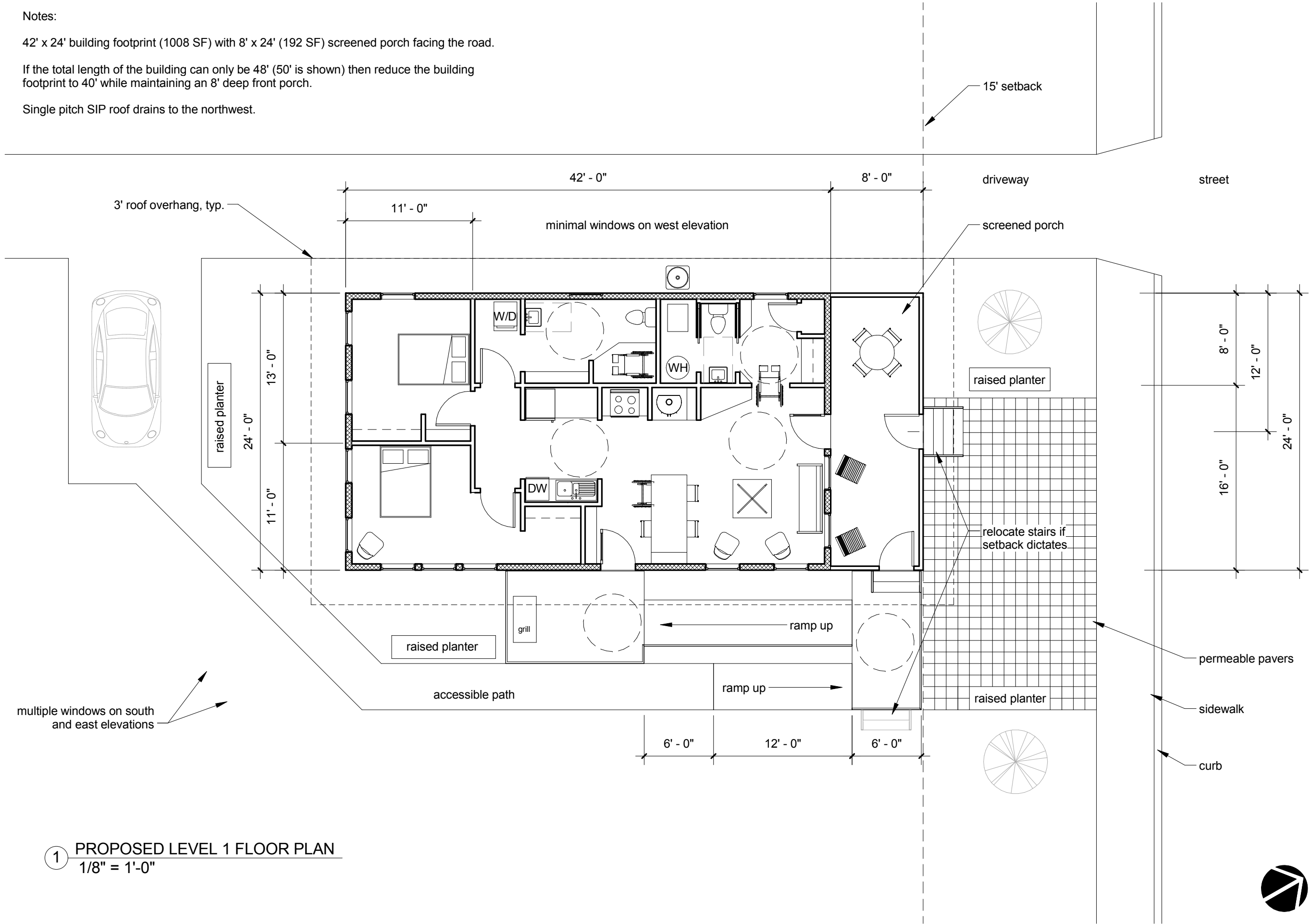
A-1

Notes:

42' x 24' building footprint (1008 SF) with 8' x 24' (192 SF) screened porch facing the road.

If the total length of the building can only be 48' (50' is shown) then reduce the building footprint to 40' while maintaining an 8' deep front porch.

Single pitch SIP roof drains to the northwest.



1 PROPOSED LEVEL 1 FLOOR PLAN
1/8" = 1'-0"

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PROTOTYPE 1 PROPOSAL
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COTTAGES AT CANNONTOWN
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A-2

COST ESTIMATE

SITE WORK - 2000
 UTILITIES - 1000
 EXCAVATION AND BACKFILL - 1000
 CONCRETE - 2000
 STRUCTURAL FRAMING - 4000
 SIPS - 15000
 PLUMBING - 6000
 ELECTRICAL - 4000
 HVAC - 5000
 SPECIALTY SYSTEMS - 1000
 ROOFING - 4000
 WINDOWS & DOORS - 8000
 INSULATION - 3000
 EXTERIOR FINISH & TRIM - 5000
 PAINTING - 3000
 DRYWALL - 2000
 FINISH FLOORING - 3000
 INTERIOR TRIM - 4000
 CABINETS - 3000
 COUNTERTOPS - 1000
 APPLIANCES - 2000
 INTERIOR SPECIALTIES - 1000
 BUILDING CLEAN-UP - 2000
 LANDSCAPING - 2000
 SUBTOTAL - 84000
 CONTRACTOR'S FEE (15%) - 12600
 TOTAL = \$96,600

CONSTRUCTION NOTES

CONCRETE
 8-12" sonotube over compacted gravel - set base below frost line

FRAMING
 8' minimum porch depth to allow for movement around furniture
 lower panels to have hardware cloth and screen

SIPs (structural insulated panels)
 SIPs are proposed for the walls and roof. manufactured in Atlanta by SIP Supply polyurethane foam between OSB skins 6.5" panels (R-40)

PLUMBING
 undermount stainless sinks with wall mount fixtures
 delta plumbing
 wheelchair accessible sinks (no lower cabinets below accessible sinks)

ELECTRICAL
 switch height @ 3' AFF
 rocker light switches

HVAC
 make-up fresh air will be required in a house this tight
 work with HVAC contractor to properly size the system based on SIP construction
 A small woodstove should be able to comfortably heat the entire living area of this size house. The ACC Building Department has confirmed that woodstoves are allowable by code.

WINDOWS & DOORS
 Marvin integrity - black frames
 spectrally selective glazing by elevation
 casement windows for maximum ventilation - arranged in a butterfly pattern to increase air flow

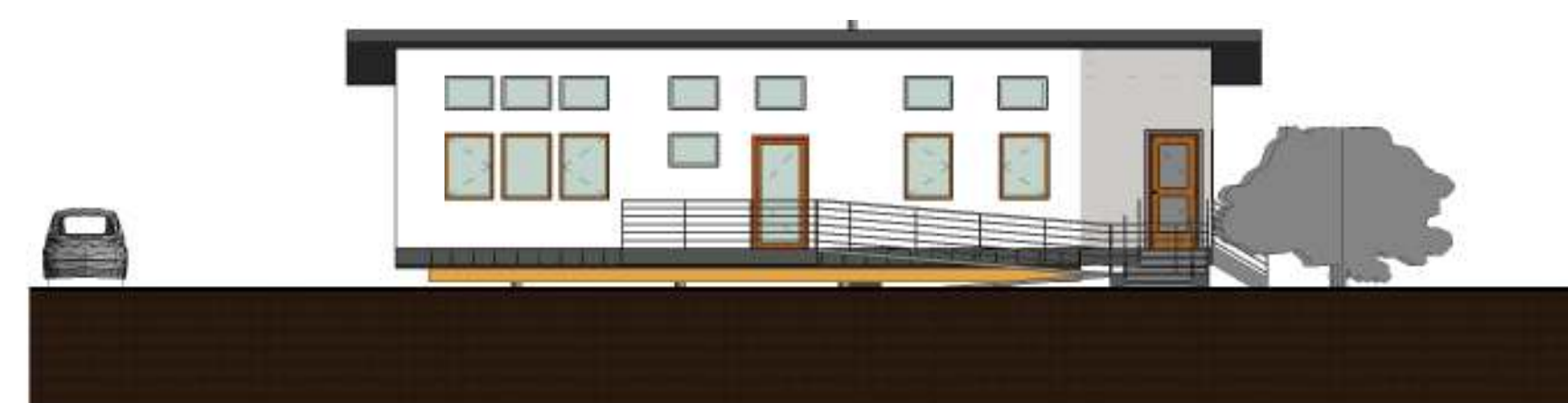
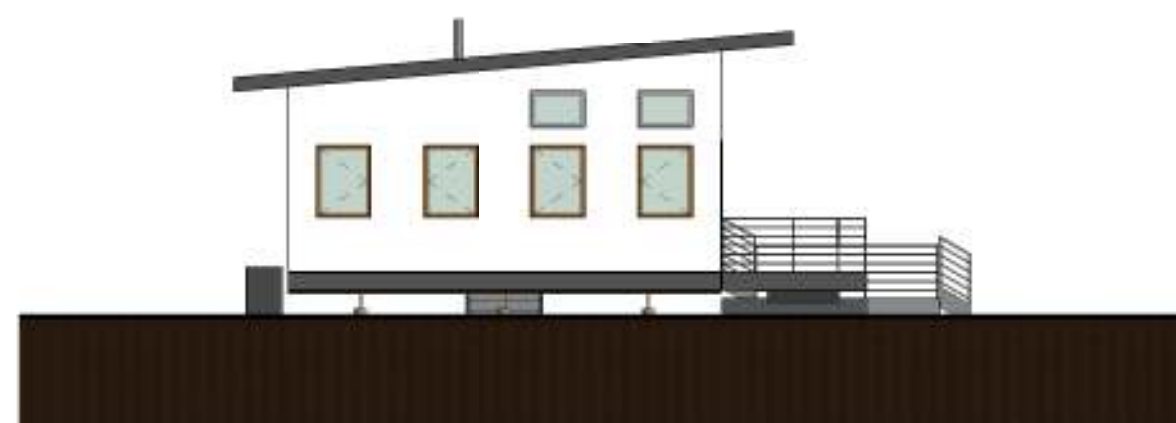
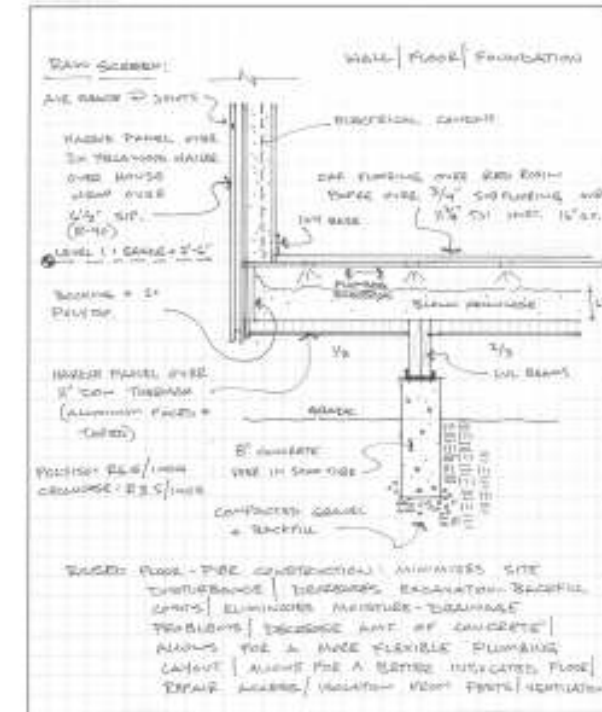
EXTERIOR FINISH
 hardie panel - rain screen assembly

PAINT
 latex interior paint

CABINETS
 high toe kicks
 pullout cutting board
 knee space under sinks

EARTHCRAFT ESTIMATE

SITE PLANNING - 21
 CONSTRUCTION WASTE MANAGEMENT - 7
 RESOURCE EFFICIENCY - 30
 DURABILITY AND MOISTURE MANAGEMENT - 15
 INDOOR AIR QUALITY - 18
 HIGH PERFORMANCE BUILDING ENVELOPE - 10
 ENERGY EFFICIENT SYSTEMS - 28
 WATER EFFICIENCY - 5
 EDUCATION AND OPERATIONS - 2
 INNOVATION - 0
 TOTAL = 136



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