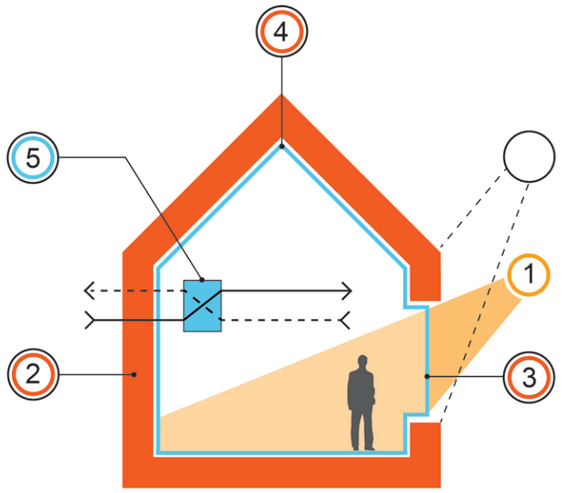
SCRANTON PASSIVE HOUSE



PASSIVE HOUSE PRINCIPLES

1. SOLAR ORIENTATION
2. HIGH INSULATION
3. HIGH PERFORMANCE WINDOWS
4. AIR TIGHT ENCLOSURE
5. BALANCED VENTILATION WITH HEAT RECOVERY

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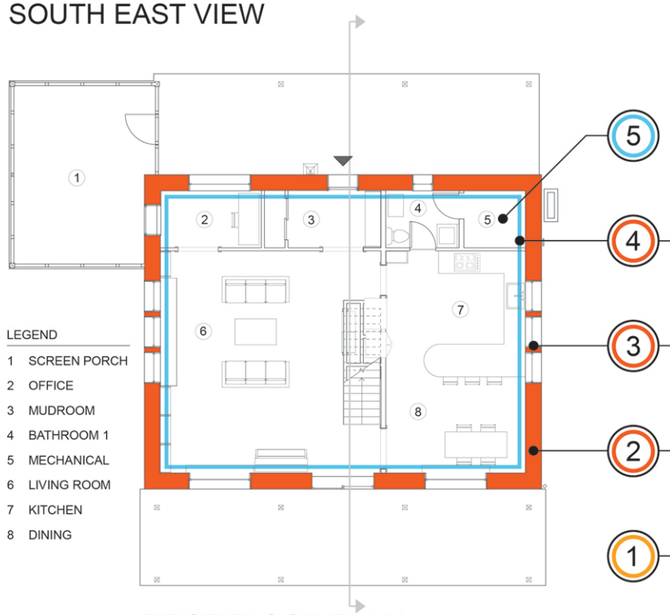
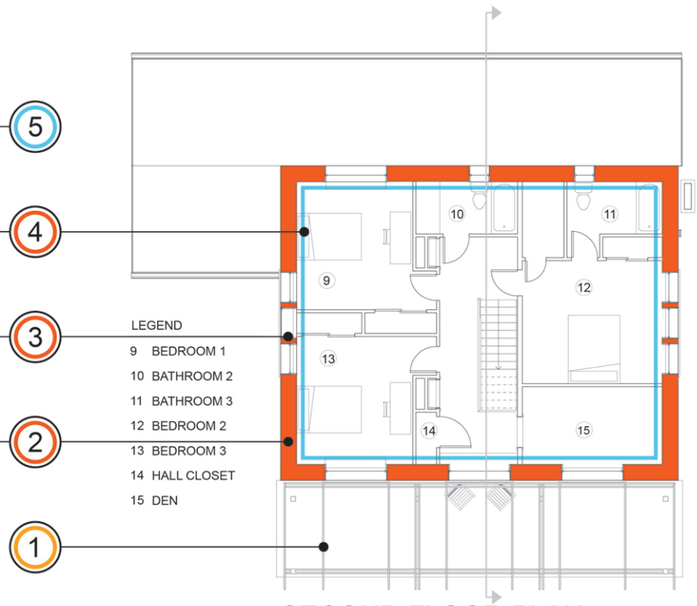
SOUTH EAST VIEW

SITE PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

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PROJECT DESCRIPTION

A NEW 2 STORY SINGLE FAMILY RESIDENCE DESIGNED TO MEET THE PASSIVE HOUSE STANDARD IN SCRANTON, PA. LOCATED IN DOWNTOWN SCRANTON ON A SLOPING VACANT LOT IN THE HILL SECTION, THE HOUSE IS ORIENTED DUE SOUTH FOR SOLAR OPTIMIZATION. THE PROJECT BEGAN CONSTRUCTION IN MAY 2014. COMPLETION IS PROJECTED IN JANUARY 2015.

PHPP VERIFICATION INFORMATION

ANNUAL HEAT DEMAND	4.52 KBTU/(FT2YR)
HEAT LOAD	2.75 BTU/(FT2HR)
PRIMARY ENERGY	31.5 KBTU/(FT2YR)
ENERGY BALANCE	
TRANSMISSION LOSSES	11,632 KBTU/YR
(3) HEAT GAIN SOLAR RADIATION	12,148 KBTU/YR
MORPHOLOGY FACTORS	
ENVELOPE AREA TO TFA	3
SURFACE AREA / VOLUME	.32
ENVELOPE AREA TO GLAZING	14%
(1) SOUTH GLAZING	47%
ENCLOSURE R-VALUE	36.2
TREATED FLOOR AREA (TFA)	
FIRST FLOOR	888
SECOND FLOOR	885
TOTAL TFA	1,773
VOLUME INFORMATION	
NET AIR VOLUME	16,326 CU/FT
GROSS BUILDING VOLUME	25,299 CU/FT
CURRENT AIR TIGHTNESS	0.38 ACH@50Pa
CLIMATE DATA	
(1) CLIMATE ZONE	6
HEATING DEGREE DAYS	6291
COOLING DEGREE DAYS	539
MEAN DAYS CLEAR	70
MEAN DAYS RAIN	140
MEAN DAYS SNOW	13
PERCENT POSSIBLE SUNSHINE	51%
AVERAGE PRECIPITATION YR	36”
AVERAGE SNOWFALL YR	47”

LOCATION	SCRANTON, PA
PRECERTIFIED BY PHIUS	JULY 2013
CONSTRUCTION	JUNE 2013

OUTLINE SPECIFICATION

(2) FLOOR — R = 75.8
6" REINFORCED CONCRETE SLAB OVER 8" OF PERLITE WITH 12" TYPE IX EPS SUB SLAB INSULATION.

EXTERIOR WALL — R = 60.7
LOAD BEARING OVE 2X4 INTERIOR WALLS INSULATED WITH ROCK WOOL AND SHEATHED WITH ½" OSB CAULKED AND TAPED AS AIR BARRIER. 11 7/8" TJI SCREWED TO STRUCTURAL 2X4 WALLS WITH DENSE PACKED CELLULOSE TO 3.5 PCF AND SHEATHED WITH CELOTEX FIBERBOARD, TYVEK, AND VENTED WOOD CLADDING.

ROOF — R = 85.4
30" RAISED HEEL ENGINEERED ROOF TRUSS WITH INTERIOR 1/2" OSB CAULKED AND TAPED AS AIR SEAL. 24" OF BLOWN CELLULOSE.

(3) WINDOW FRAME — U = 0.17 BTU/HR.FT2F
INTUS EFORTE

(3) WINDOW GLAZING — U = 0.09 BTU/HR.FT2F
INTUS STANDARD GLAZING — SHGC = 0.529

(5) VENTILATION
RENEWAIRE EV200 ERV, 84% EFFICIENT, 0.87 W/CFM

[M] HEATING AND COOLING
9,000 BTU AIR SOURCE HEAT PUMP
MITSUBISHI INVERTER MSZ-FE09NA & MUZ-FE09NA

[M] DOMENSTIC HOT WATER
RINNAI RL75I TANKLESS GAS HOT WATER HEATER