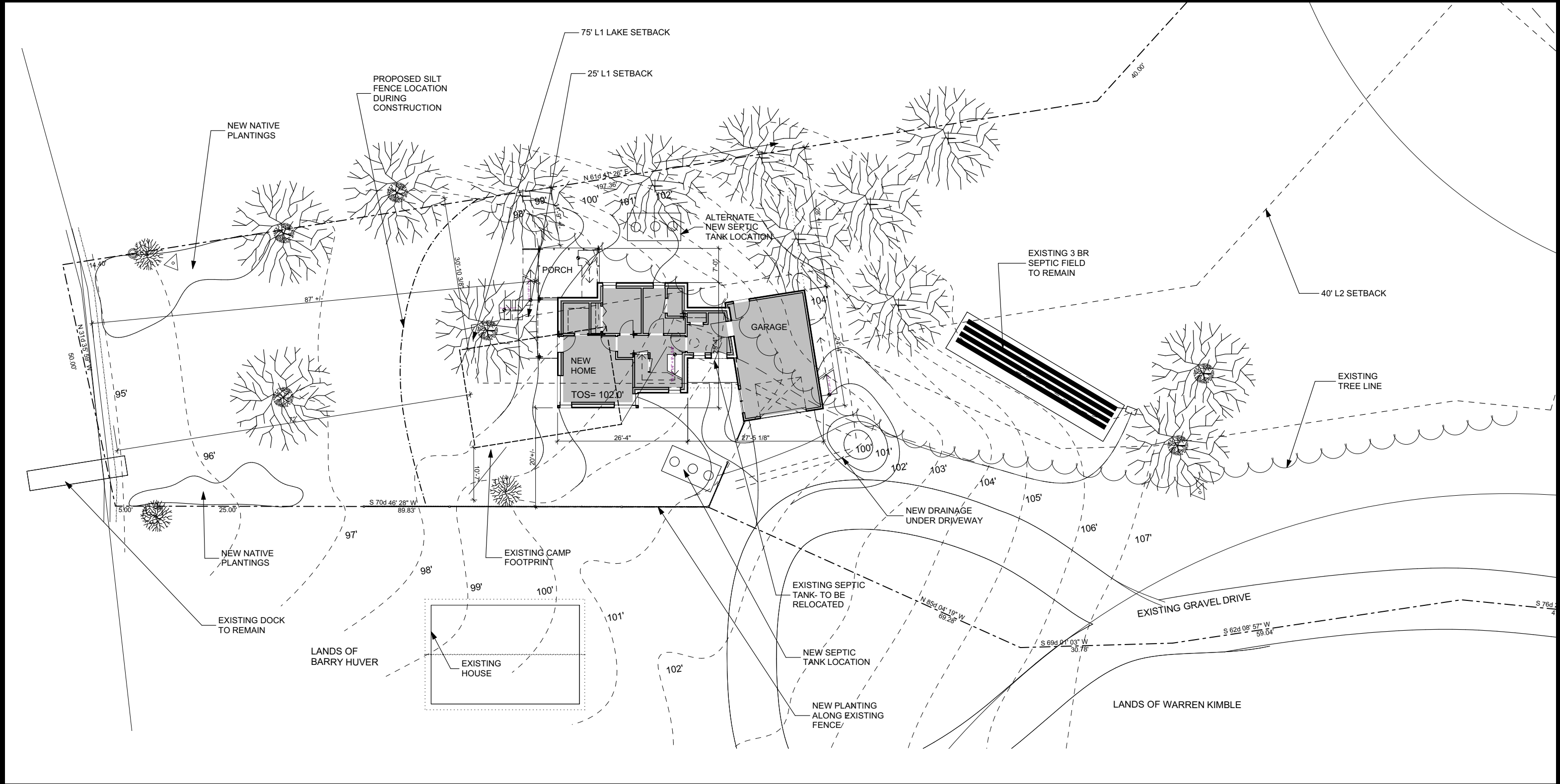




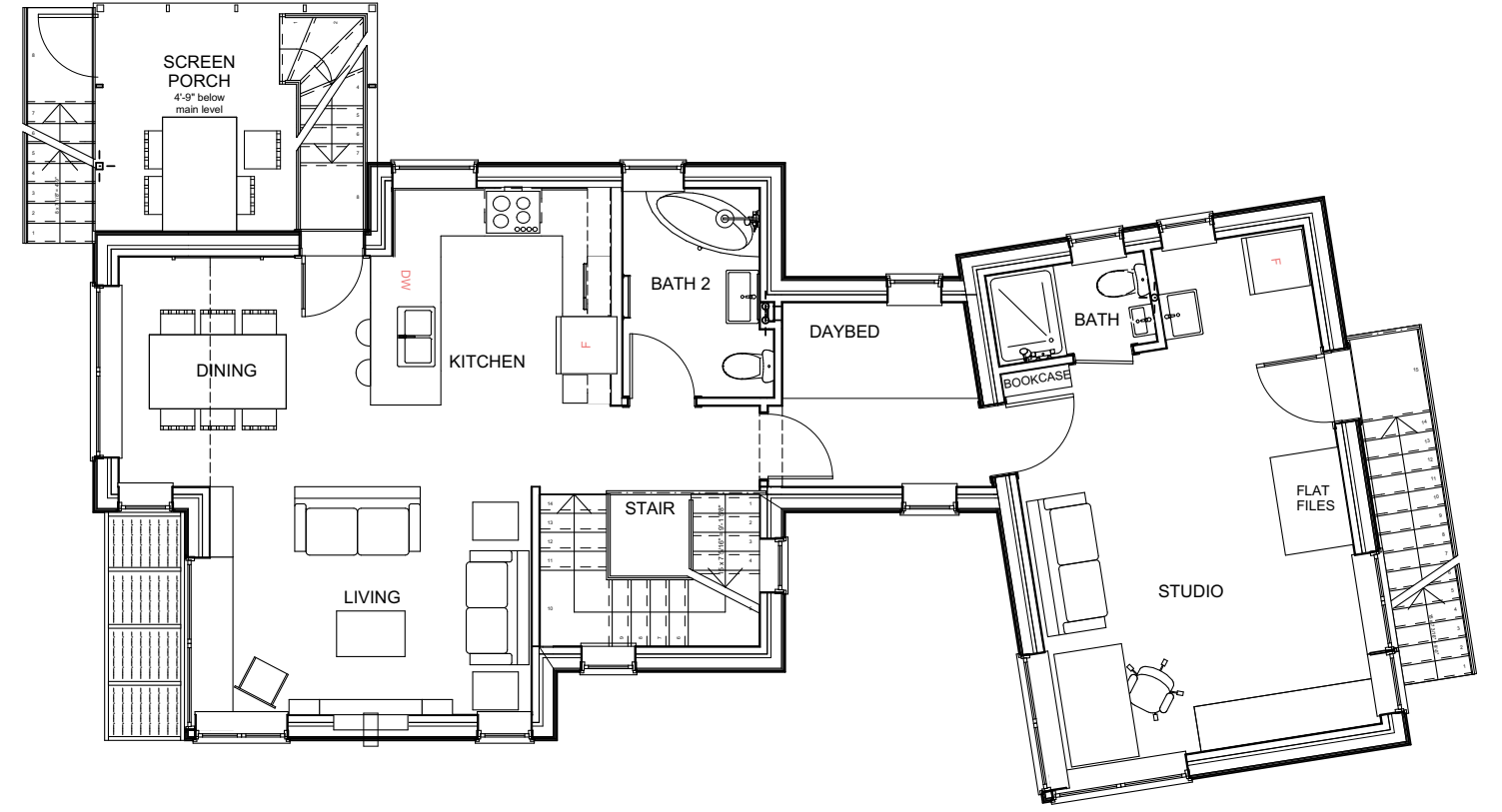
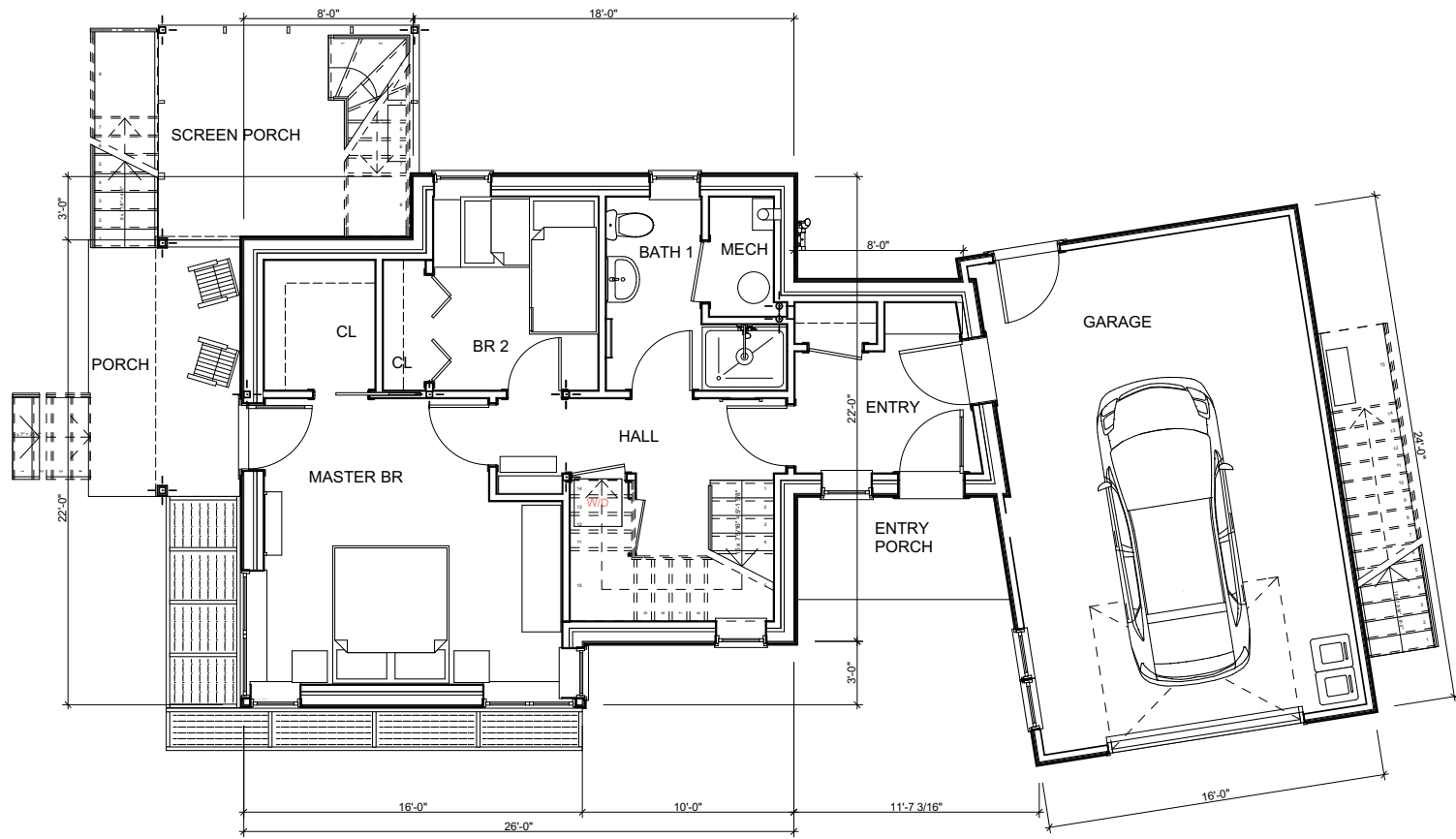
Program:  
Home and professional studio  
Option for air b-n-b rental  
Living space on upper level to improve lake views  
Desire for cathedral ceiling space

LAKE DUNMORE

**GOALS, INSPIRATION & CONSTRAINTS**



LAKE DUNMORE  
**SITE PLAN**



LAKE DUNMORE  
PLANS

# ENVELOPE SYSTEMS:

## Foundation:

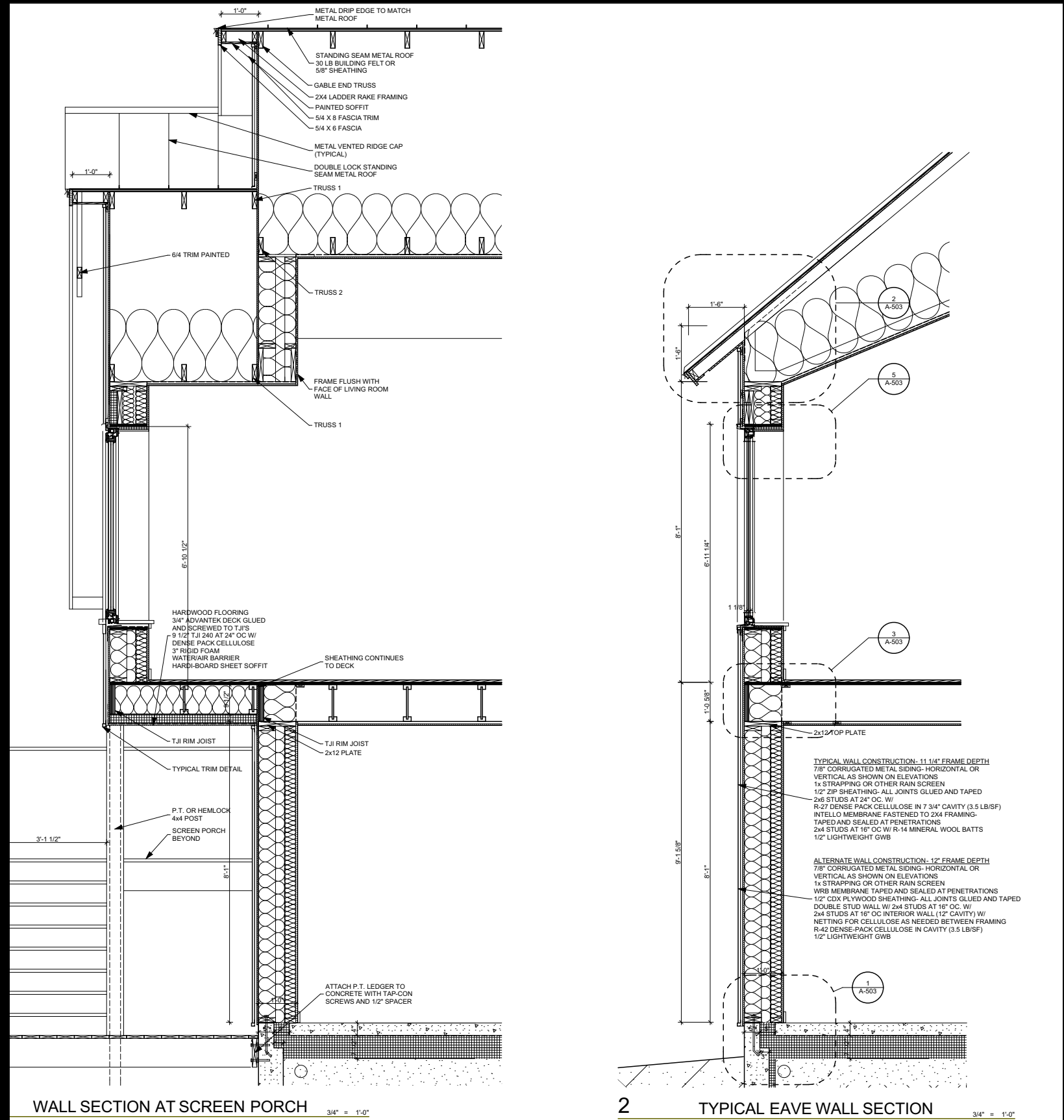
- Concrete footing/frost wall with 2" XPS
- 8" EPS under 4" concrete slab
- 5" polyiso at slab edge

## Wall:

- Double stud wall with airtight drywall
- Dense pack cellulose outer
- Mineral wool in inner stud bay
- Rigid insulation spray foam rim joists
- Zip sheathing, taped
- Corrugated metal siding

## Roof:

- Scissors trusses, various plate heights
- Intello vapor/air control layer
- Loose blown cellulose
- Stick framed screen porch



# HERS: 44

(Home Energy Rating System)

Square Feet: 1790 sf w/studio

Volume: 15,987 cu. ft.

Blower Door: 155 cfm50, .58 ACH50

Predicted energy use:

45.4 MMBtu, 21.9 MMbtu heating

\$2172

Actual Energy Use:

Electric: 9580 kwh/yr, \$1683

Propane: 200 gal., \$650

51 MMBtu, 28.5 kbtu/sf/yr, 18.4 kbtu/sf/yr  
electric only

Moisture monitoring- 5 locations, recorded  
very stable at 8-16% moisture





---

LAKE DUNMORE  
**FOUNDATION, FRAMING AND WINTER CONDITIONS**



LAKE DUNMORE  
INNER STUD WALL WITH MECHANICAL CHASE



LAKE DUNMORE  
**AIR SEALING STRATEGIES**





LAKE DUNMORE  
WINDOW INSTALLATION

## HVAC:

- 3 pair Lunos E2 HRV (60 cfm max.)
- Bath fans
- 3 heat pump heads
- Master bathroom electric towel warmer,
- Gas fireplace
- Heat pump hot water heater



# Wall Assembly Comparison

## Arctic Wall R-48

## Double stud wall R-43

## Double stud with service cavity R-44

### 2x4 and I-joist wall

Plates	\$ 315.20
Studs	\$ 1,255.50
Headers	\$ 419.00
Window and door bucks	\$ 449.65
Sheathing	\$ 540.00
Strapping	\$ 1,012.00
Cellulose Walls 1520 c.f.	\$ 5,320.00
Roxul 2x4 cavity	\$ 2,373.00
All Air sealing	\$ 4,200.00
TJI	\$ 2,024.00
Insulation at window jamb	\$ 450.00
WRB	\$ 800.00

### 2x4 wall

\$ 315.20
\$ 1,255.50
\$ -
\$ 250.00
\$ -
\$ -
\$ -
\$ 4,200.00
\$ -
\$ -

### 2x6 wall(30% increase)

\$ 409.76
\$ 1,632.15
\$ 419.00
\$ -
\$ 540.00
\$ 1,012.00
\$ 6,720.00
\$ 800.00

### 2x4 wall

\$ 315.20
\$ 1,255.50
\$ -
\$ 250.00
\$ -
\$ -
\$ -
\$ 2,373.00
\$ 4,200.00

### 2x6 wall(30% increase)

\$ 409.76
\$ 1,632.15
\$ 419.00
\$ -
\$ 540.00
\$ 1,012.00
\$ 4,760.00
\$ 800.00

<b>Subtotal</b>		<b>\$ 6,020.70</b>	<b>\$ 11,532.91</b>	<b>\$ 8,393.70</b>	<b>\$ 9,572.91</b>
<b>Total</b>	<b>\$ 19,158.35</b>		<b>\$ 17,553.61</b>		<b>\$ 17,966.61</b>

## 1920 sf wall area

Double wall labor is more than Arctic wall for the following:

Air sealing	\$ 480.00
Framing	\$ 1,600.00
Subtract from Arctic Wall total	<b>\$ 2,080.00</b>

### Assumptions:

Cellulose is \$3.50 c.f. for wall dense pack

## CLOSING THOUGHTS:

- HIGH PERFORMANCE BUILDINGS MAKE BEAUTIFUL HOMES! THEY DO TAKE MORE PLANNING.
- ONE PERSON SHOULD TAKE RESPONSIBILITY FOR AIR SEALING!
- YES, DO TRY THESE IDEAS IN YOUR OWN PROJECTS!
- WE SHAPE OUR BUILDINGS, THEREAFTER THEY SHAPE US.- WINSTON CHURCHILL
- USE HIGH PERFORMANCE CONSTRUCTION- YOUR CLIENTS WILL BE WARM AND HAPPY CUSTOMERS!



# THANK YOU! QUESTIONS?



IN THE WOODS-  
**ALEX CARVER**  
NORTHERN TIMBERS  
CONSTRUCTION



RIVER VIEW-  
**TOM LEBOEUF**  
NORTHEAST CRAFTSMEN GROUP  
AND H.J. LEBOEUF INC.



LAKE DUNMORE-  
**JARED MOATS**  
STRUCTURAL ENERGY  
CORPORATION

**JEAN TERWILLIGER, ARCHITECT**  
VERMONT INTEGRATED ARCHITECTURE, P.C., MIDDLEBURY, VT

**THREE HIGH-PERFORMANCE HOMES, THREE APPROACHES**