

# Bump House - Waitsfield, VT Project

Student designed and built project with instruction by  
UMASS Dept. of Architecture/Yestermorrow Program

UMASS architecture students worked with Yestermorrow staff during the fall of 2016 to collectively design a house in sketch-up, detail the building assemblies and finishes, estimate the cost of all materials and build the house. The goal was to design a \$50,000 house which was 500 sq.ft.

### Construction and Design:

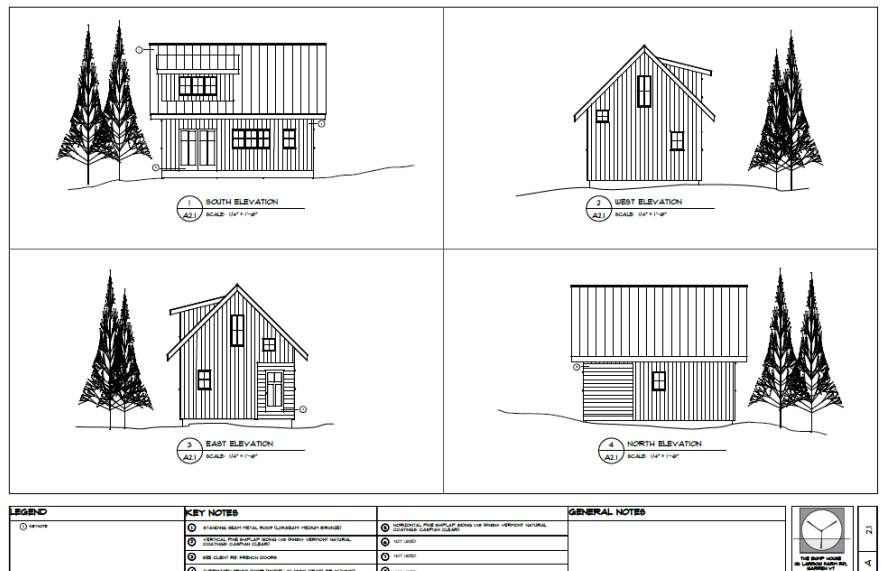
The “bump-in” entryway was key to the group design with the intention of creating a sense of shelter and a feeling of being drawn into the focal point of the entry. An open flexible floor plan was utilized to create as much space as possible that could be adapted for different uses. A dormer in the sleeping loft allowed for standing room, a queen sized bed and operable windows. A 20’ceiling height in the living area and a full span glue lam beam also help to make the space feel large.

### Design details the group came up with:

- 520 sq.ft. 18’x24’w/8’x10’ deck cut “bump in” with conditioned storage above;
- Walls are double stud 2”x4” with 10” wall cavity filled with cellulose;
- Floor joists 2”x8” with dense pack cellulose insulation and ZIP sheathing to maintain the envelope of the building– 4’stem foundation wall with unconditioned walkout for storage underneath;
- Ceiling insulation 8” cellulose and 4” roxul with sheathing above covered in water and ice shield and 2x3 nailers running vertically to attach metal roof to;
- Cold roof with corrugated metal, vented soffit and 24” wide overhangs



UMASS Architecture Students with the Bump House that they designed and built as part of their Yestermorrow Semester in Sustainable Design/Build.



- Zip sheathing and zip taped seams;
- Double pane Marvin windows and resurfaced french doors with trimless finish to save on labor and materials;
- Vertical shiplap local pine siding;
- Mechanicals under stairs and woodstove for heat;
- Single set of Lunos vents for efficient air venting and air intake;
- Kitchen shelving for easy reach with cabinets high up for less used items.

**Cost Details:** Land was provided for project; Utilities were not included in budget including electrical, plumbing, septic, water; and student labor was provided for design and construction.

**Financing:** The project was financed by the landowner who engaged with Yestermorrow for the design and build of the cottage on their land.

**Regulatory:** This is an accessory dwelling to a primary house on a property built as a living space.

**Lessons Learned:**

- KISS Principles – “Keep It Simple Stupid” - Deferring to builders with experience is valuable.
- Sketch-up modeling was helpful for thinking through all of the details before starting. Sketch-up also helped with materials estimating as you could count the components needed for house sections, get a breakdown of components for lumber order and print framing plans for jobsite.
- Dormer is harder to build than a simple straight roof. Regular gable roof with common rafters is easier to build than gambrel roof.
- Bump-out detailing of conditioned storage above may not be worth the amount of space that it created since it was not useable for living space. If they were to build it again they would make this unconditioned space.
- You can design for an elegant, simple, energy efficient house that is also cost effective.

**Learn More:**

<https://yestermorrow.org/blog/reflection-last-day-2016-semester-sustainable-design-build>

<https://yestermorrow.org/learn/semester-program>

<https://www.umass.edu/architecture/special-programs>

The designers and builders of the Bump House included: Yestermorrow instructors: Eric Cook, Jacob Mushlin, & Jesse Cooper and UMASS Architecture students: Arel Blau, Lily Cretekos-Gross, Mary Loomis, Kelly Gill, Pat McInerney, Maya Gamble, Charley Hilliard, & Nick Arena.

