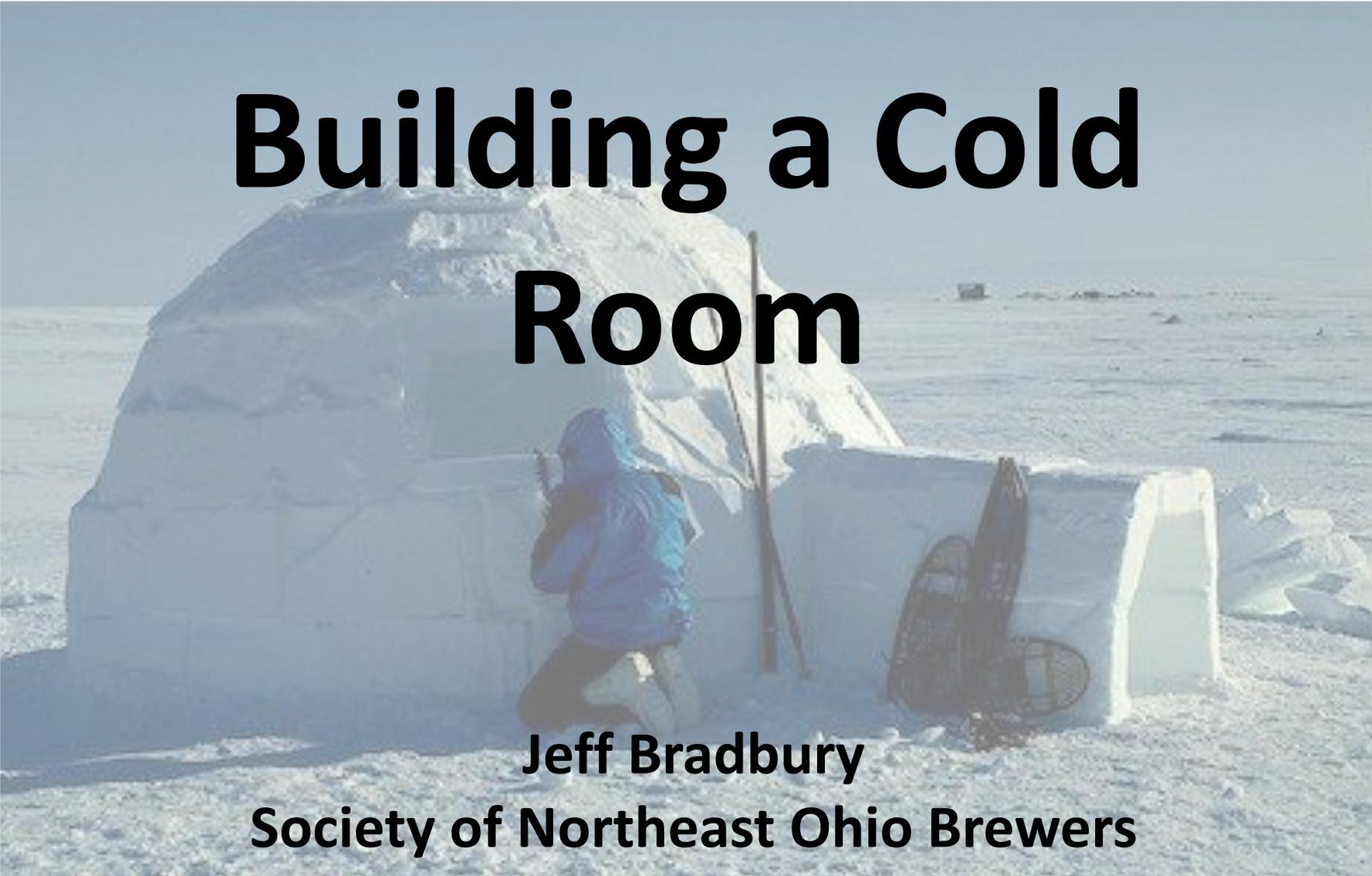


Building a Cold Room

A photograph of a person in a blue jacket and dark pants working on a large, dome-shaped structure made of snow blocks, resembling an igloo. The person is kneeling and appears to be adjusting or stacking the snow blocks. The structure is situated in a flat, snowy landscape under a clear blue sky. To the right of the igloo, there are some pieces of equipment, including what looks like a snowshoe and a white plastic container. The overall scene is bright and clear, suggesting a sunny day in a cold environment.

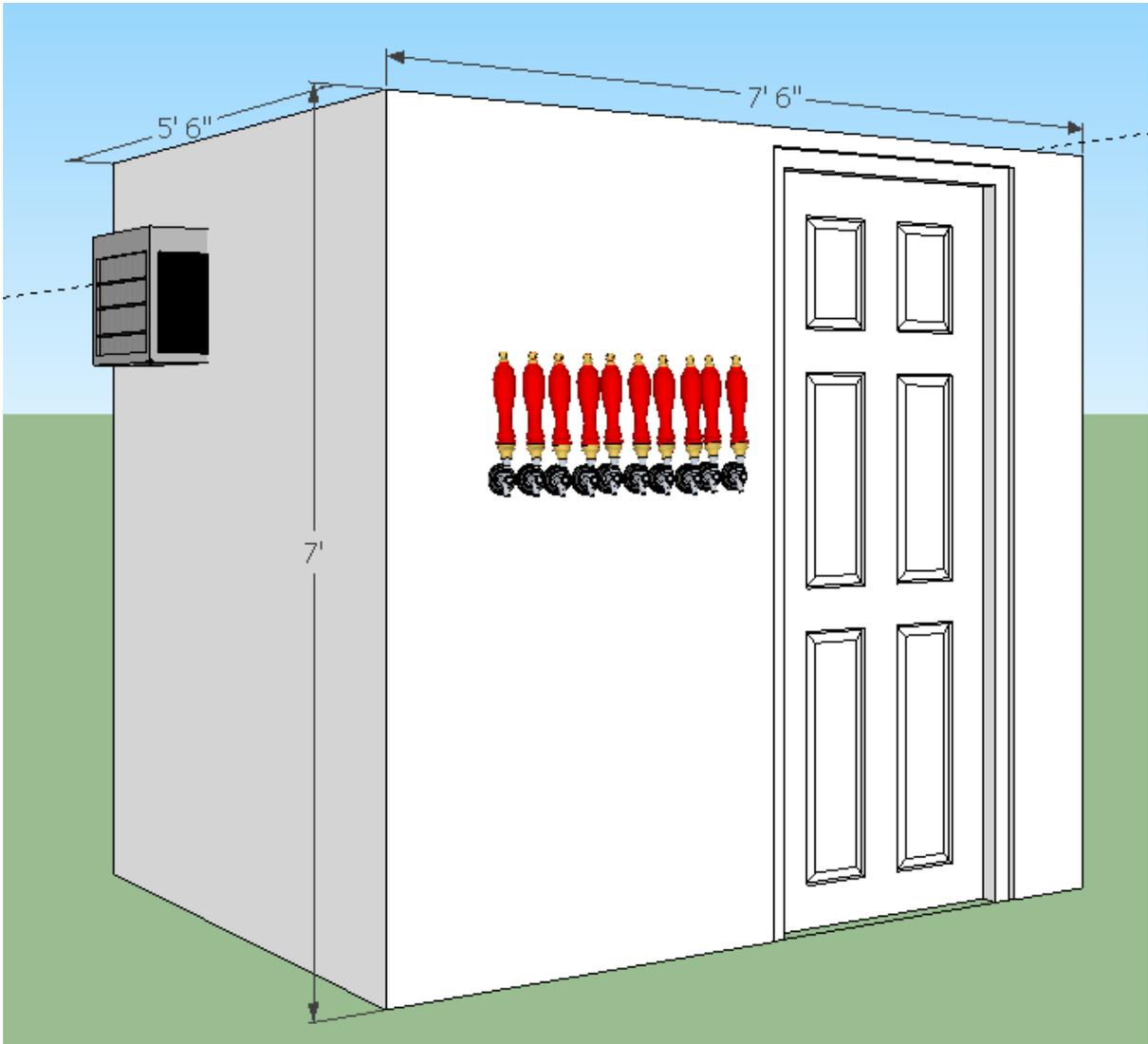
Jeff Bradbury

Society of Northeast Ohio Brewers

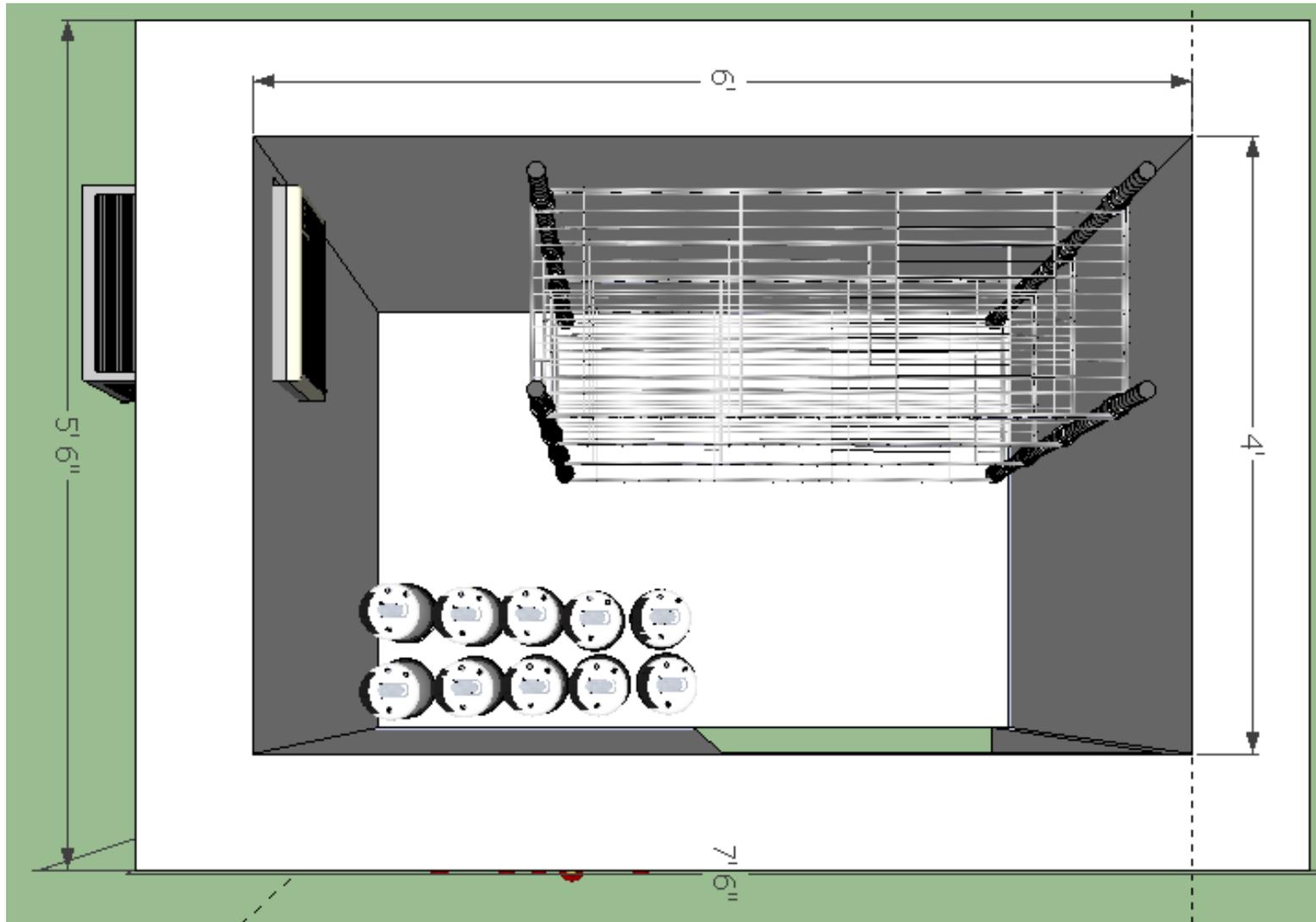
Planning

- Location
 - Chose garage as most convenient
- Size
 - Goal was 4' x 6' internal and room for 10 faucets
- Dimension –
 - How high should it be?
 - Could I still fit cars in garage?
- Google Sketchup

Sketchup: Front and Left View



Sketchup: Top View



Planning: r-value

- **Wall Construction – 9.75” thick (r-36):**
 - 2x4 walls clad with ½” particleboard
 - Owens Corning R-13 Kraft 3 ½” = *net r-13*
 - 1 layer of *Owens Corning Foamular ¾” Tongue and Groove - r-5 per inch = r-3.75*
 - 2 layers of *Owens Corning Foamular F-150 2” = r-5 per inch = r-20*

Planning: cooling

R Value and heat loss:

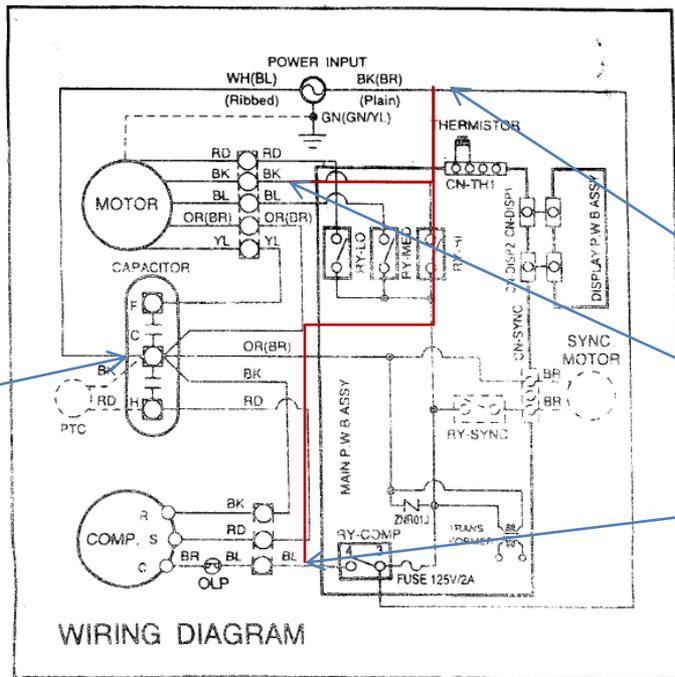
- Surface Area (SA) = 181 square feet (4x6x6'8") with R35
- Operating temperature goal is 39 degrees F
- Maximum temperature differential (ΔT) expected is 60 degrees
- Heat Loss (BTU/Hr) = $SA * \Delta T / r\text{-value}$
- Heat Loss = $(181 * 60) / 36 = 301$ BTU/Hr
- GE AGH10AAG1 10K BTU window air conditioner on Craigslist for \$50

AC Modification Options

- Coolbot - <http://www.storeitcold.com/>
 - No-modification method to use AC Unit
 - Senses coil-icing and shuts off unit
 - \$299.00
- Self Modification of AC Unit
 - Will ice up if door opened too often or rapid temperature drop
 - Could destroy unit or cause bodily harm
 - \$75.00 (Ranco Unit)

AC Modification - Choice

- Connected the hot circuit to the fan motor (medium speed) and compressor so they will always run when the unit is plugged in
- Temperature is controlled by Ranco unit set to 38F



CAUTION: this step could ruin your AC unit and cause serious bodily injury.

Hot

Bypass fan switch

Bypass compressor relay



(de)Construction

1/21/2012

Electrical tie in
for light, AC-Unit



Chalk outline of
planned size

Construction

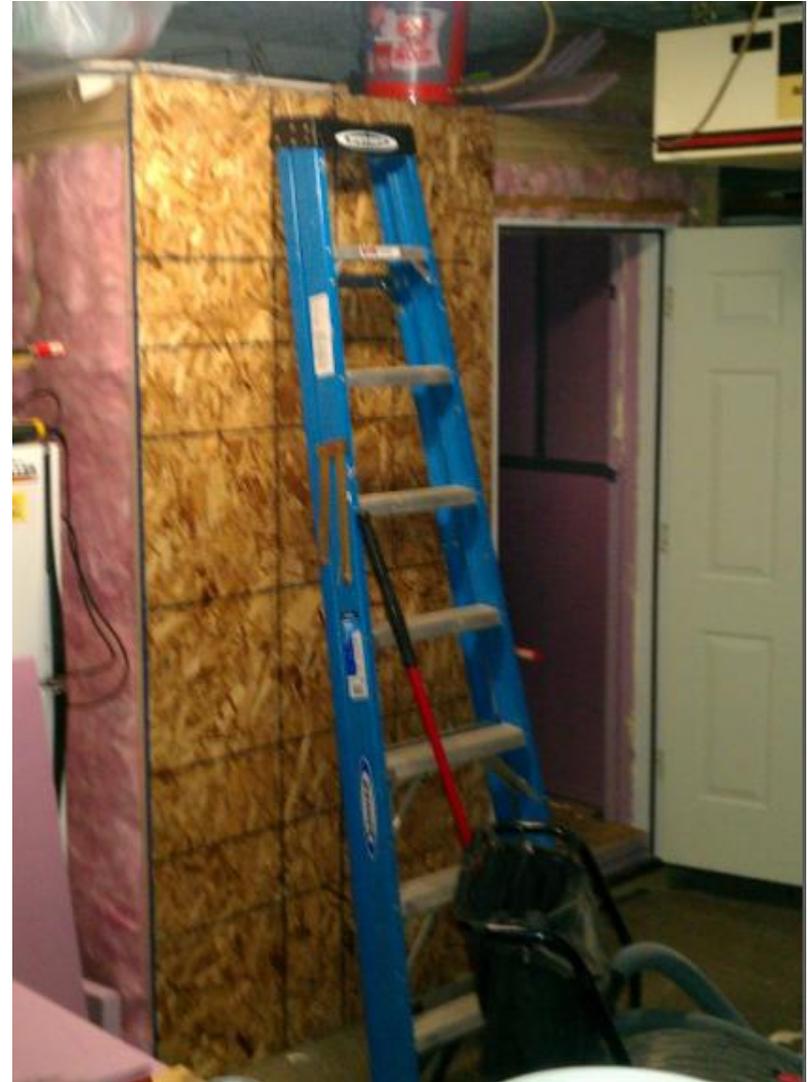


Framed out for
AC - Unit



Floor slopes to
drain

Construction

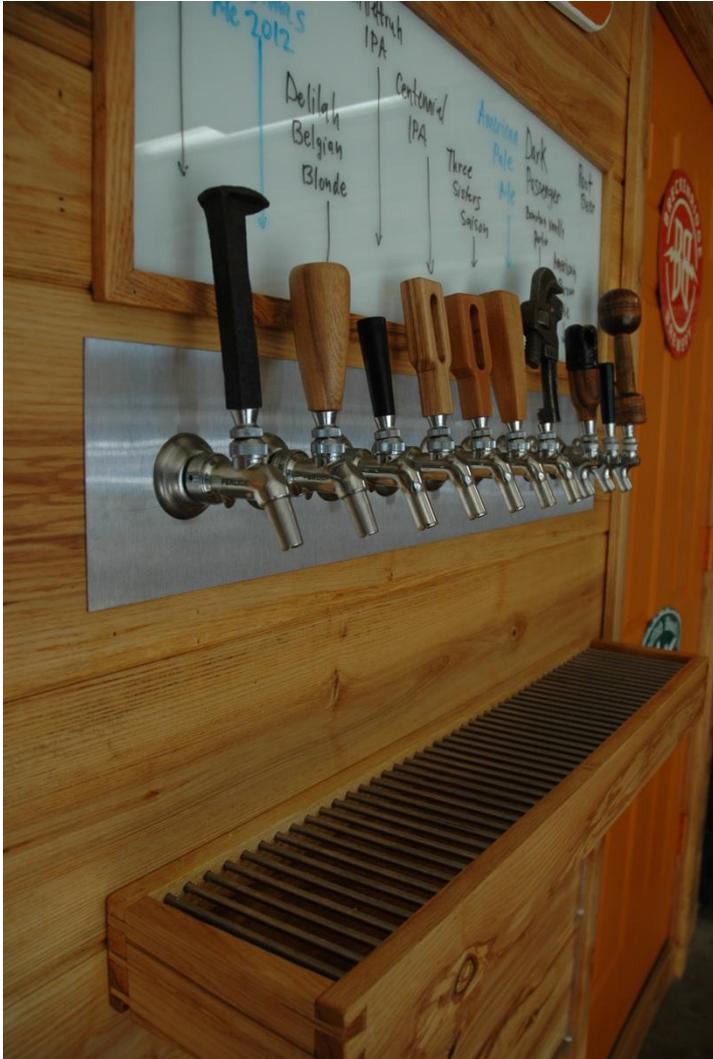


Construction

3/21/2012 - operational



Construction Details



Whiteboard, drip-tray & faucets



Door insulation & handle



Beer lines through front

Completed!



Costs - Framing

- 2x4x8 (25) = \$50
- Exterior Door = \$127
- Romex (wire) = \$35
- OSB (5) = \$100
- Fiberglass insulation= \$45
- $\frac{3}{4}$ " Insulating board (8)= \$120
- 2" Insulating board (16)= \$464
- Great Stuff & duct tape (subtotal ~\$975)

Costs – Beer Hardware & Finish

- 6 x Faucet + Shank = \$350
- 6 x Corny Adapter = \$90
- 6 x 6' Beer line = \$35
- 10 x tap handles = \$35
- 4 x shank flange = \$10
- Ash Siding = \$250
- Paint & Polyurethane \$30 (subtotal \$800)
- With Ranco & AC Unit total ~\$2000

References

- How to Build a Walk-in Beer Cooler by Gabe Fisher, Zymurgy January/February 2007

“Wives and such are constantly filling up any refrigerator they have a claim on, even its ice-compartment, with irrelevant rubbish like food.” -Kingsley Amis