



Foundation

- Once the foundation was dug out to below the frost line, the footing were made of poured concrete with supporting rebar and grounding copper wire.





Laser level used for Building layout.



Foundation walls

2" Styrofoam interlocking forms were used to insulate and provide the frame for 6" poured foundation walls.



Clay excavated from foundation area was ideal for making earth blocks. Clay was trucked to builders home where bricks were made and then brought to site.





Cement Pumping Station used to minimize soil compaction by cement trucks around building. Soil was extra wet due to fall rains making it difficult to just pour directly from the cement mixer truck



Area for 12' X12'
work/Rest room in
the greenhouse NE
corner.

Since a composting
toilet was used a
bottom access area
was needed so the
remaining area was
developed into a
root cellar with
space for the rain
water system pump
used to distribute
rain water in the
building.



Poured 8" walls with whole tree foundation supports structure in center of building– 3 round center pillars . Cement pillars, 12" diameter, base for Whole Tree supports structure of Black Locust trees from Stoddard, WI forest via Whole Tree Architecture and Structures, Middleton, WI.

Root Cellar & Compost Toilet Catchment Area





Curved adobe roof
With vent system
to provide air
circulation in root
cellar. Walls are
adobe plaster.
Vent system is
made from 4" pvc
pipe coming in
next to the door
and exiting via the
roof in the
opposite corner.



Using packed crushed
limestone used as flooring
with drain system in "wet"
root cellar about 5' X 11'
inside. Noth part has
poured cement floor.



Under ground heat venting Heat Sink made of double layer of field tile imbedded in 3' river rock. The 2 large vent pipes with low velocity fans move the hot air from the ceiling area of the green house through the large black tubes on the north side of the building and through the rocks via a double layer systems of vented tile tubes. The air from the rocks is vented out on south side with a series of two large and 4 smaller vents under glaze area. This provides air circulation in the greenhouse as well as heating of the raised bed soil.



The hot air collecting piping stretches to the ceiling where accumulated hot air is captured and transferred to the subterranean rocks via a low-velocity fan system. Air from the rocks reemerges as cooler air through vents by the south wall windows. When the temperature reaches above 85, the external vent fan operates.



Sensor setting to keep building between 60- 78 degrees F.3 sensors – one by external venting fan, one in middle of hot air retrieval system for bed rocks and one at raised bed height.

Venting

- The cooled heat from the underground river rock area is able to escape from the rocks below through vents by the south wall.
- This provides nice air circulation with the greenhouse to help minimize diseases.
- Thermostat controlled are set to go on at 60 F with external venting fan that goes on at about 85 degrees F to provide ideal growing conditions in the greenhouse.





Air lock entrance building, 7'X7', addition completed before winter. Locally milled rough sawn and sanded wood used.



Mid-December – all footing and foundations and limestone rock heat sink as well as air-lock entrance completed.