

Closing Crawl Spaces In Historic Homes

My clients come to me with high energy bills, cold feet in the winter, warped floors, mold and other, related building durability problems. In most of these cases I recommend enclosing the crawl space.

This consultant has much experience doing this but with a few new developments, it has become very important to get this set up just right.

Here are the developments:

The new building code requires "operable" vents to handle floods.

Advanced Energy Corp has demonstrated specifications that save energy etc. They have gone to the trouble to get this set up with all the relevant players in North Carolina as well as DOE and EPA.

LSU and the La House have recently done a study on insulation approaches to crawl spaces in New Orleans but it did not have a specification under consideration for enclosing crawl spaces.

A recent attempt by this author to specify a closed crawl space ran into a push-back from a termite inspection / warranty service. Following that problem, visits to meetings of La Structural Pest Control Commission and the Pest Control Association they regulate, have provided momentum for this report.

A recent set of closed, crawl space, retrofits at the St Roch Project in New Orleans use a somewhat different specification... but tries to reach the same goals.

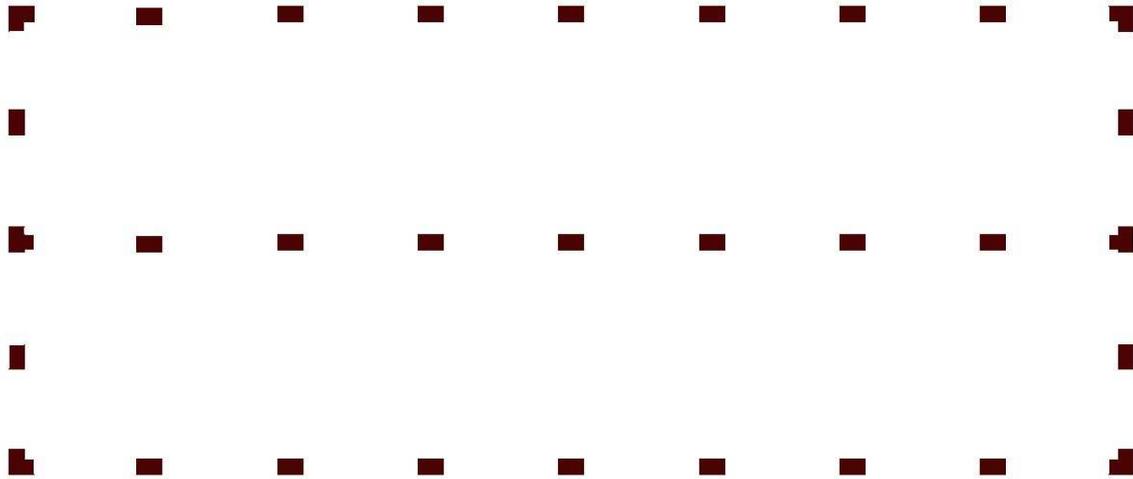
The ground in New Orleans stays very near 71F year round.

The purposed of this document is to describe a new specification.

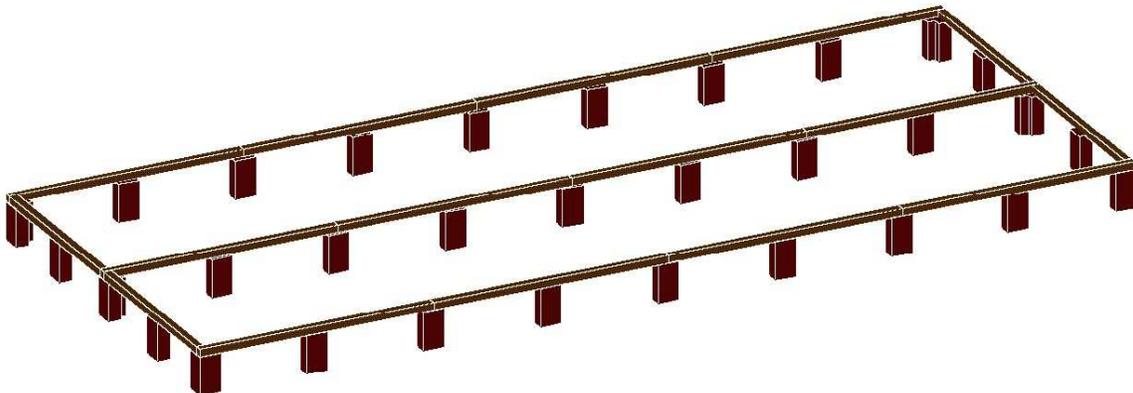
Myron Katz, PhD
Building Science Innovators, LLC
March 24, 2011

Pictures of Construction of a Shotgun Double

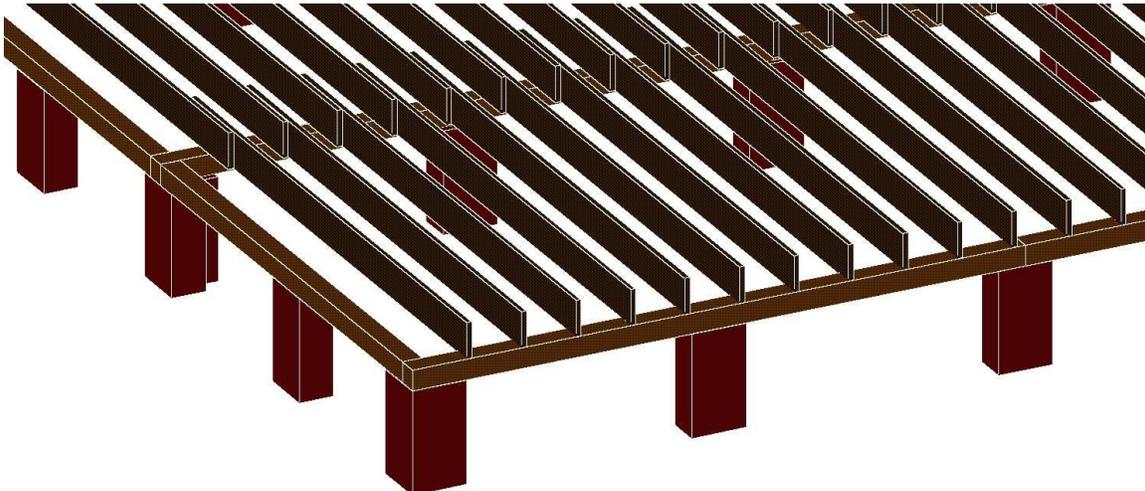
Layout of Piers for 60' deep and 25' wide site structure.



Sills on Piers:



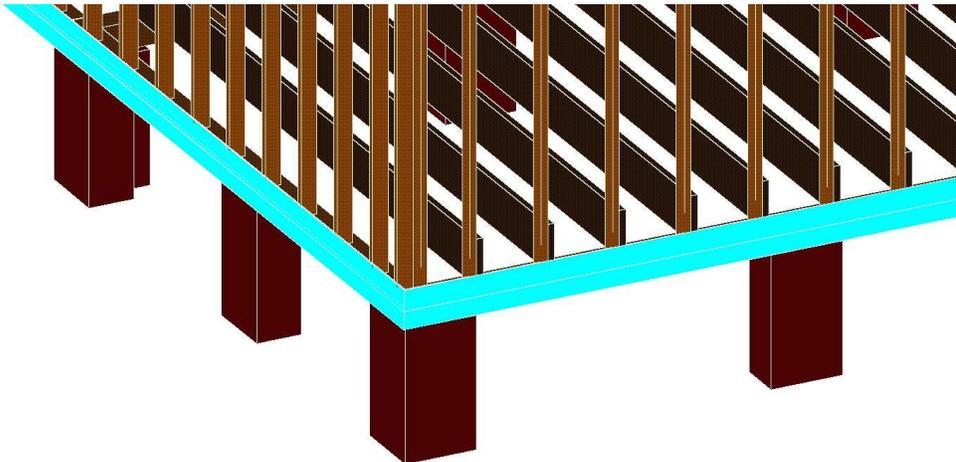
Joists on Sills



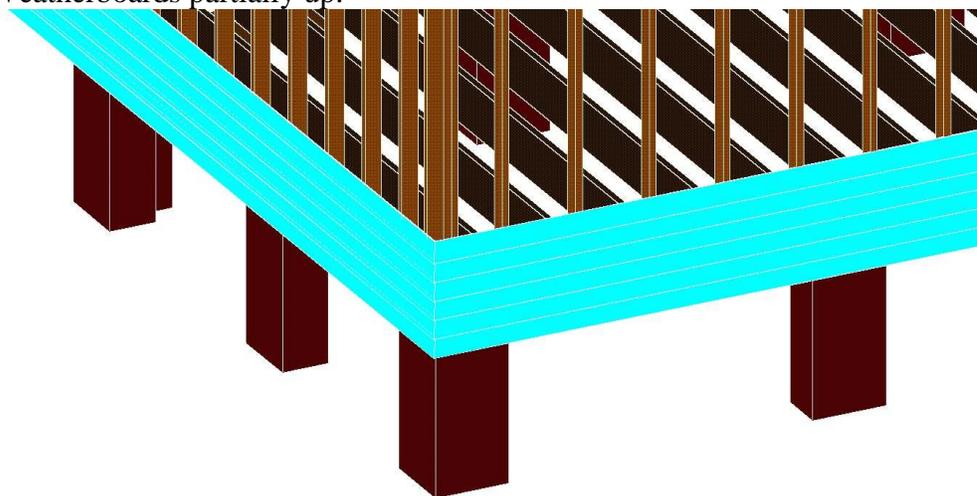
Studs on Sills



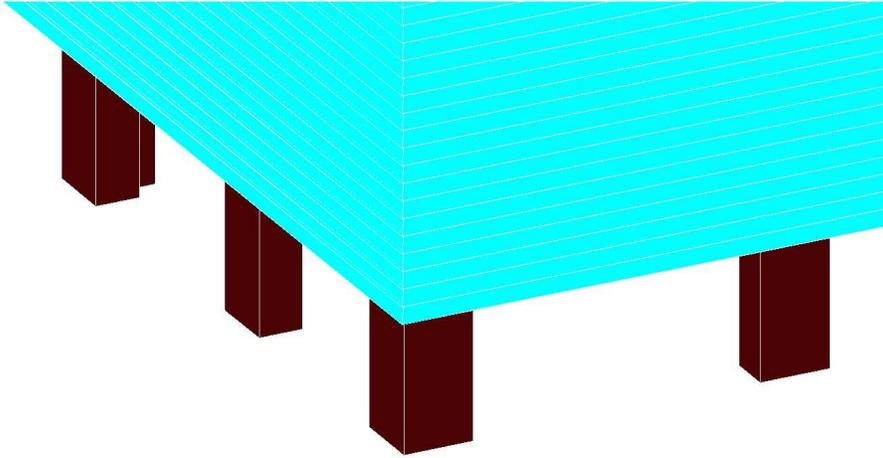
Weatherboards install started:



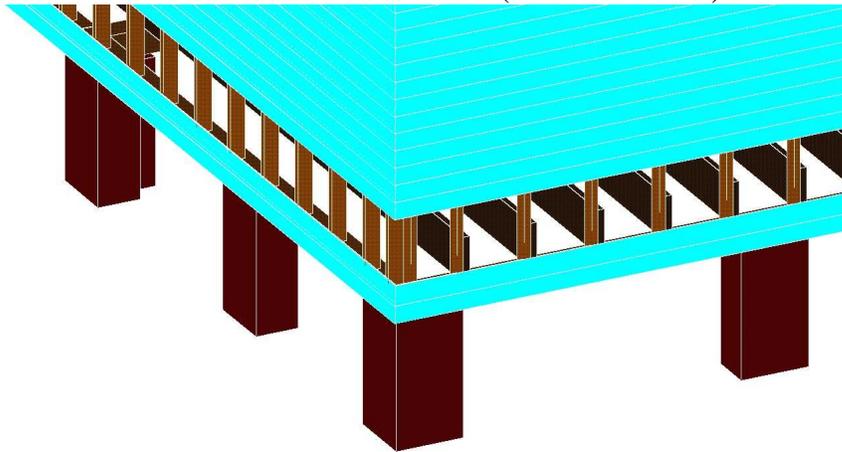
Weatherboards partially up.



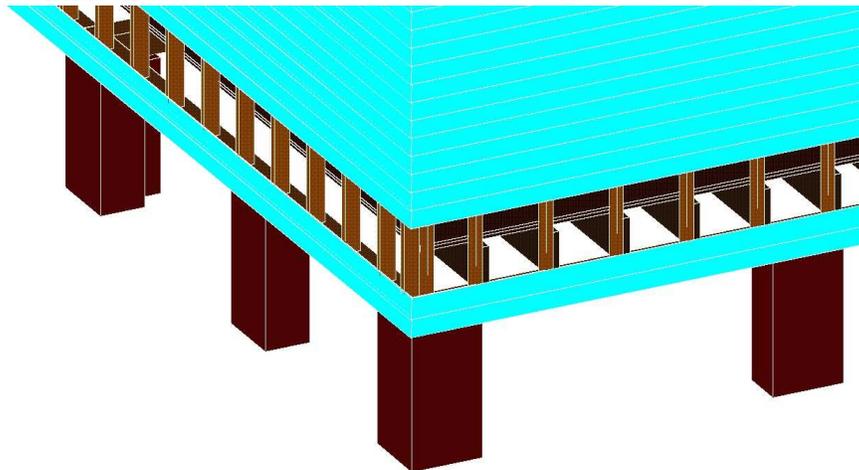
Finished Weatherboard walls.



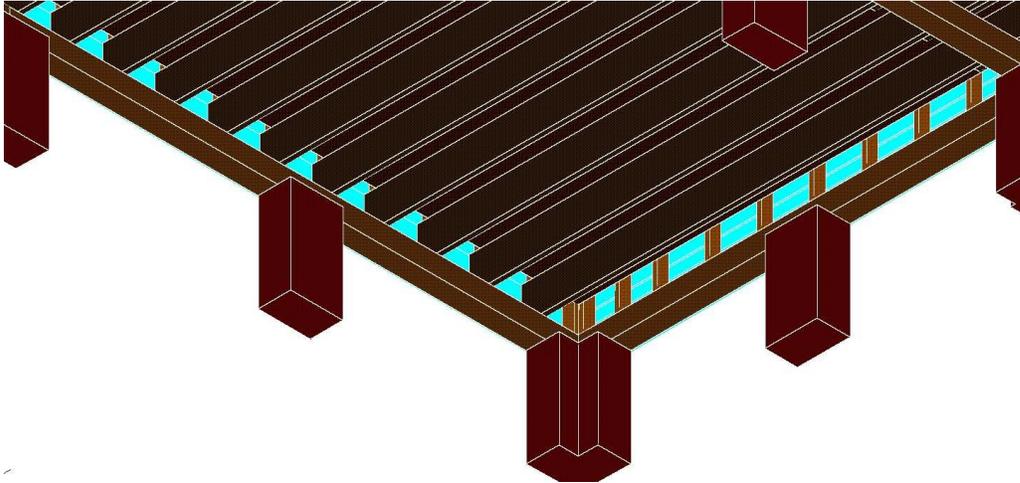
Weatherboards removed at floor level. (for visual effect)



Floor installed



View from Below



The crawl space insulation specification starts here.

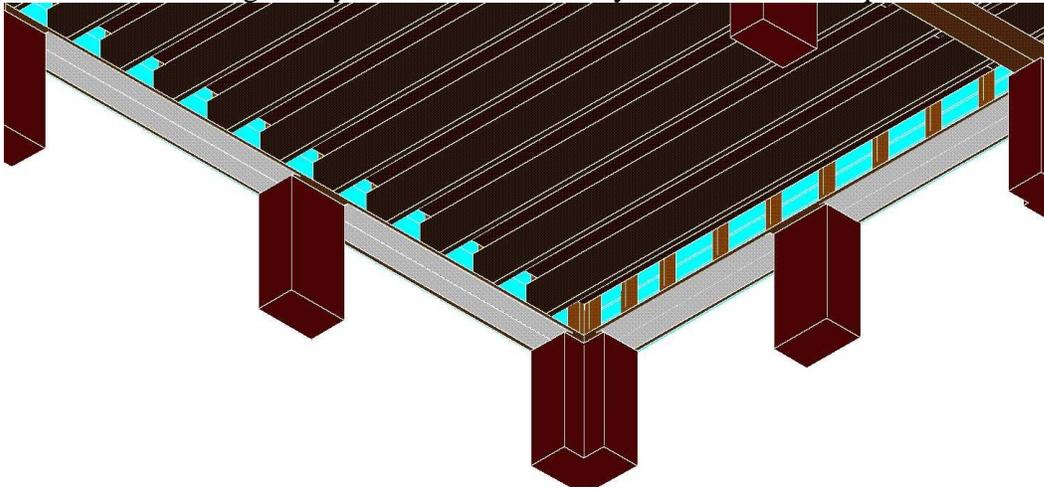
Let h = distance from bottom of sill to ground minus 3.5".

Assembly Order

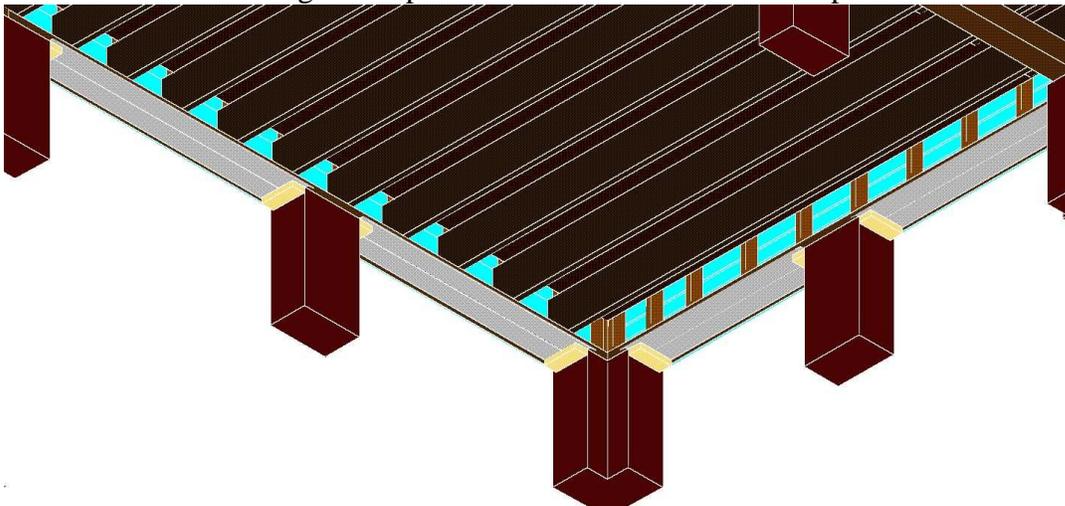
0. Cover ground with 6 mil Visqueen. Overlap edges and hold down with pebbles.
1. Cut flashing and cleats to their proper sizes.
Flashing should span the space between piers and extend to 1/2" beyond them.
2'x4' cleats should have a length equal to the thickness of the piers.
2. Screw cleats onto the bottom of the sills while holding the flashing in place. This will simultaneously install the cleats and the flashing.
3. Cut foam board so that it is 6" less than h wide and 8 feet long.
4. Cut 6 mil Visqueen to rectangles 15" more than h wide and 8'2" feet long.
5. Glue foam board to Visqueen leaving 6" excess along one edge and 1" along the edges.
6. Attach top edge of Visqueen to top edge of Beams with staples; make sure that the foam board will wind up on the inside surface of the Visqueen.
7. Screw beams to cleats while forcing beams to kiss the flashing.

The process will leave a 3" gap above the foam board to the bottom of the beam and a 3" gap below the foam board to the ground. However, the Visqueen will kiss the ground making an airtight seal. Notice that the weight of the foam board is the only force that "closes" these openings.

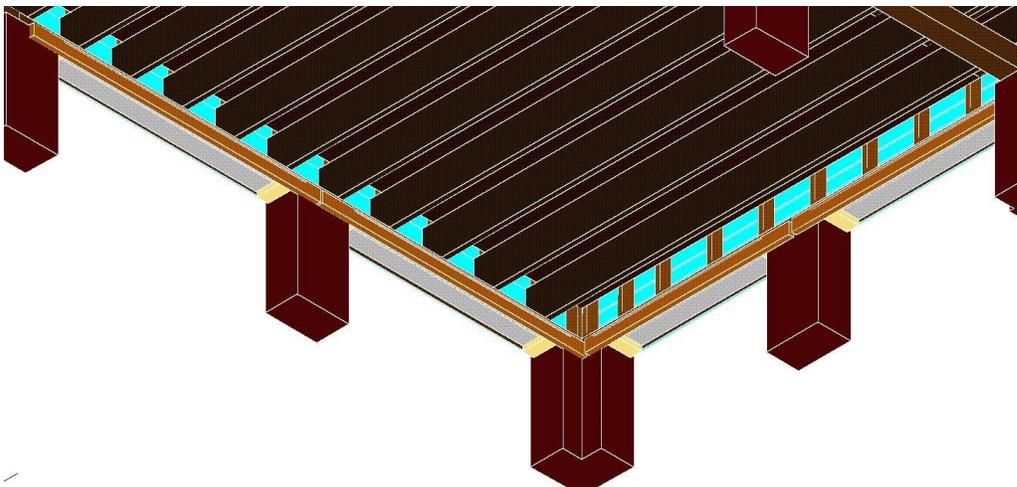
Aluminum Flashing.. They extend a 1/2 inch beyond inside face of piers.



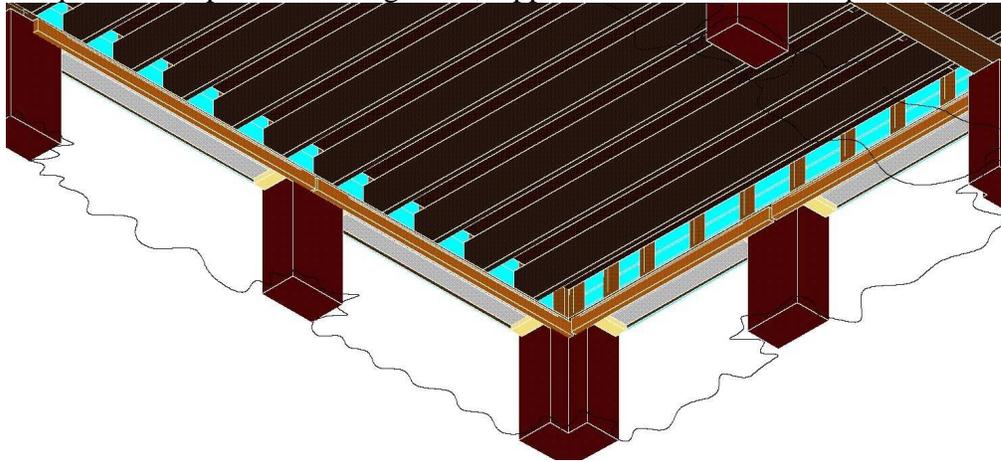
Cleats.. Their inside edge is co-planar with the inside face of the piers.



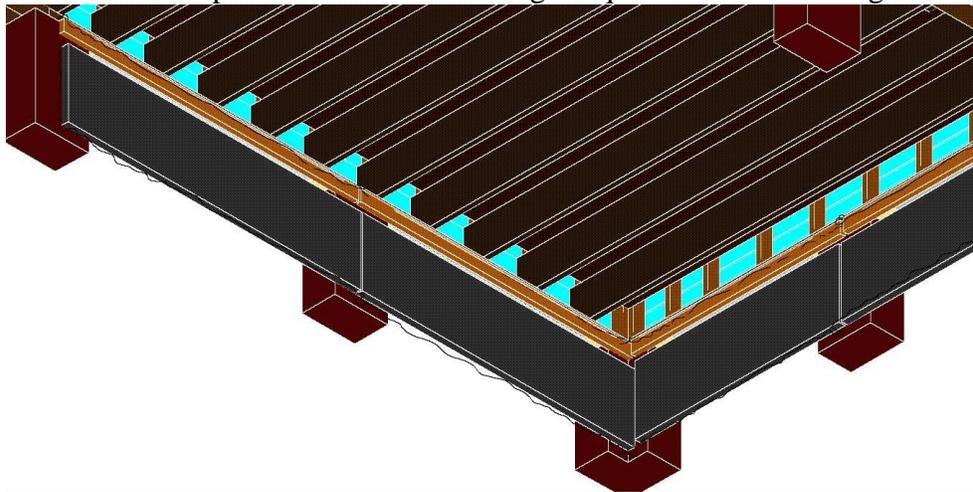
Beams.. These are screwed to the ends of the cleats.



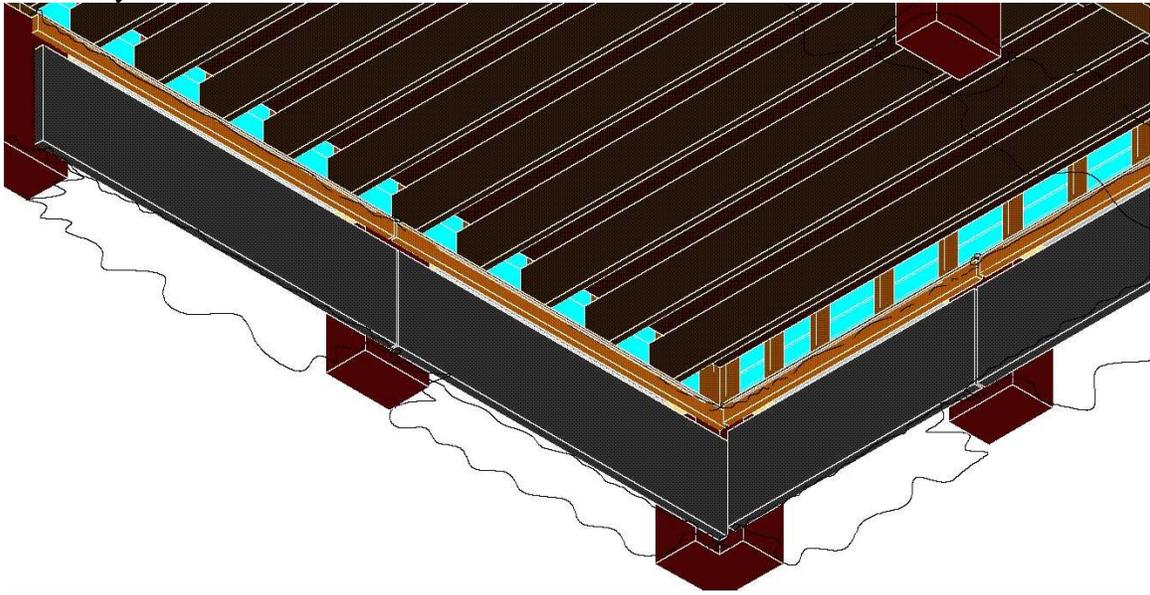
Visqueen.. It is placed on the ground, lapped and held-down with pebbles.



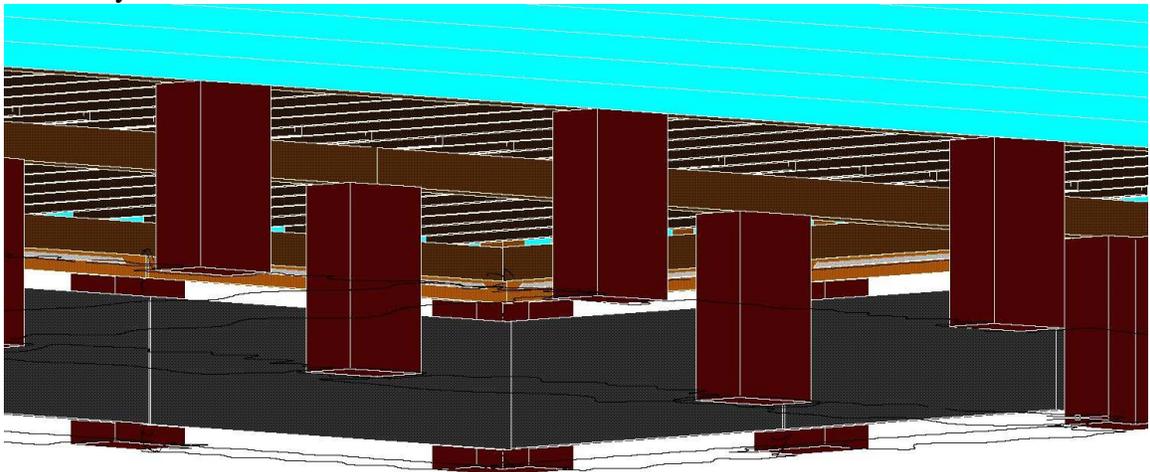
Foam Board suspended from Beams using Visqueen that kisses the ground



Whole System



Whole System another view:



Notice that there is a 3" air space above and below the foam board -- placed there to facilitate termite inspections.

This specification has already received a preliminary acceptance by the Louisiana Pest Control Commission and the association of Pest Control Companies that commission regulates.