

Biodeterioration Studies

Terry Amburgey, Department of Forest Products

SCH Proposal 11

2006

1. No termiticidal soil treatments will be used to control subterranean termites.
2. Termite bait stations will be placed around the perimeter.
 - Half of the stations as commercially available
 - Half of the stations with an experimental termite attractant technology patented by Amburgey et al and developed as a PhD research topic by Kevin Ragon.
 - Under half of slab put Non-Biocidal Soil Amendment (N-BSA) materials and other half treat as usual per PhD research by Shane Kitchens
 - Place N-BSA around parts of the perimeter of structure per PhD research by Shane Kitchens
3. Wall Framing (2x4 or 2x6) (with or without siding attached to horizontal purlins)
 - Sill plates and studs pressure-treated with borate by Osmose
 - Sill plates with ACQ or CuAzole treatment and lower two feet of untreated studs treated in place with 1:1 (vol/vol) BoraCare (borate in glycol) in water.
 - Sill plates treated with ACQ or CuAzole and studs untreated.
4. Insulation
 - Batt insulation between studs
 - Panel insulation on stud inner face
5. Sheathing
 - Louisiana-Pacific treated OSB (ZnB)
 - Potlatch treated OSB
 - Untreated OSB
 - SYP plywood
 - Black building board
6. Windows (measure framing moisture weekly or monthly)
 - Protected by wide roof overhang in most of the structure but little overhang in a portion of the structure.
 - “Standard” flashing and caulking
 - “Standard” flashing and caulking and looser fit of siding to permit wider bead of caulk.
 - Framing adjacent to and below windows treated prior to window installation with a spray treatment of 1:1 (vol/vol) BoraCare in water.
 - Experimental paper “flashing” impregnated with borate (TimBor15% in water or BoraCare 1:1 in water).
7. Foundation Drainage
 - French drains constructed at the roof drip lines and with no vegetation or organic materials (eg, bark or mulch) between the drains and the foundation walls.
8. NOT to be DONE BECAUSE NOW on OPEN PIER SUPPORTS.....Foundation Ventilation (measure floor joist moisture weekly or monthly)
 - In one portion of the structure, one square foot of clear vent area for every 150 square feet of crawlspace area (80 – 100%P) soil in crawlspace covered with 6 mil polyethylene).
 - In another portion of the structure, one square foot of clear vent area for every 1500 square

feet of crawlspace area but with a minimum of two vents placed in opposite walls (80 – 100% of soil in crawlspace covered with 6 mil polyethylene).

- After 12 months, two fans will be placed in each crawlspace at diagonal corners and oriented to blow in the same direction (eg, clockwise). They will be on timers set on cycles to turn the fans on for one hour and off for two hours during the daylight hours.
- After another 12 months, the circulating fans will be turned off and one exhaust fan will be placed in each crawlspace and the timers will be set to cycle the fans on for one hour and off for two hours during the daylight hours.

9. Siding-wood

- Studs-sheathing-house wrap-siding
- Smooth wrap (eg. Tyvec)
- Ridged wrap (eg. New wrinkled product)
- Studs-sheathing-15 lb felt-siding
- Studs-sheathing-house wrap-horizontal purlins-siding
- Smooth wrap
- Ridged wrap
- Studs-sheathing-15 lb felt-horizontal purlins-siding
- Window detail with purlins

10. Perimeter

- 18" rock or washed gravel --- French drain around ½ --- plantings with regular or amended (SCK—N-BSA) mulch

11. Moisture measurements

- Floor joists
- Subfloor
- Studs

12. Temperature measurements---attic

13. Beams

- Solid wood
- TimTek

*All or most of these studies will be replicated in one of the skeletal test structures to be fabricated at the Formosan termite field test site in McNeill, MS.