

One Hundred Points for Heathy Buildings

By George Hughes

Nontoxic.

1. No synthetic glue, pressed wood, laminates.
2. No synthetic carpeting.
3. No-VOC, low-odor paint, stain, sealants.
4. Non-toxic insulation.
5. Minimal caulking: use only biocide-free 100% silicone.
6. No vinyl, less plastic.
7. Test dry wall for chemical contaminants.
8. No petroleum on concrete forms.
9. No lubricants, biocides, fragrances, formaldehyde in any building materials.
10. No flame retardants or vinyl in furnishings.
11. Wash unpainted metal components to remove oil residue.
12. Carefully observe construction process to prevent contamination of materials with diesel fumes, cigarette smoke, fragrance, machine oil, etc.
13. Weather proof construction site and material storage sites to protect materials from mold and chemical exposure.

Mold Proof.

1. Simple roof design; minimize valleys, provide adequate pitch and overhangs.
2. Siding and windows designed to be water proof without dependence on caulking.
3. Gutter and use rain water or drain it away from building.
4. No basement or use gravel and plastic under concrete and ventilate well.
5. Vapor barrier under slab or between crawlspace and building.
6. Good site slope and elevation.
7. Post and pier foundation recommended.
8. Walls should be equally breathable all the way through or have vapor barrier inside and outside.
9. Plumbing leak alert system, access to inspect plumbing, P-traps.
10. No lawn sprinklers within 10 feet of building.
11. Easy access to clean Air Coniditioning coils and condensate drain.

Pest proof.

1. Physical barriers for ants and termites, not chemicals. Use borate or naturally resistant woods, if code requires.
2. Good seal between crawlspace and the underside of the floor.
3. Pest proof materials.
4. Foil barriers between units, and between each story.
5. Screens on attic vents.
6. Use diatomaceous earth boundry around foundation.
7. Plan for food storage and waste disposal that is unavailable to vermin.

Asthma friendly.

1. No carpet.
2. Whole house HEPA filtration.
3. No gas appliances.
4. Smooth, cleanable surfaces.
5. Low-odor, no-VOC paints, etc
6. Vapor barrier between units.
7. Chlorine filter on water supply.
8. No glues, formaldehyde.
9. Few or no ornamental, long pollenating plants.
10. Openable windows.
11. No fiberglass insulation.
12. Avoid upholstered furniture.

Low EMF.

1. No cell tower on building.
2. No wireless. Provide hardwired communication.
3. Hardwire all systems (thermostats, fire alarms, security etc).
4. Design layout to provide maximum three dimensional distance between living working areas and breaker box, wiring bundles, meters, etc.
5. No smart meters on house. No smart appliances.
6. Use twisted wire cable and or use grounded metal conduits.
7. Each room should be on its own circuit. Provide access to, and clear labeling on circuits.
8. No tied neutrals or neutral wire to ground wire shorts. Neutral and ground wires should only come together at the circuit panel.
9. No dimmers switches, fluorescent lights, variable speed motors, induction ranges.
10. On-off switches for bath fans, and refrigerator, freezer circuits.
11. Metal roofing and siding helps reflect some frequencies.
12. Provide a 3-pole disconnect switch. Use SWD circuit breakers.

HVAC.

1. Openable windows, good cross ventilation.
2. Don't mix air from one housing unit to another, or between offices and garages, manufacturing areas, etc.
3. No oil or gas heat.
4. Hydronic heating (radiator or in floor), radiant or forced air electric recommended.
5. Design not to need AC (window placement, shading, thermal mass).
6. Maintain positive pressure with filtered air.
7. Exhaust fans in bathroom.
8. Design for easy cleaning of ducts and filter replacement.

Energy Efficient.

1. Passive solar windows with adequate overhang for summer shade.
2. Thick walls, hyper insulation.
3. Light color roof, walls.

4. Good attic ventilation, preferably ridge and soffit vents.
5. Reflective perforated foil in attic.
6. Use solar panels; provide adequate distance between daytime living space and inverters.
7. Direct solar water heating.
8. Grape arbor on south side or plantings appropriate to climate.
9. Plant an edible wind break.

Outdoor ecology.

1. Use rainwater.
2. Plant edible, low maintenance landscaping instead of lawns or long blooming ornamentals.
3. Permeable parking, no asphalt.
4. Living, edible fencing (filberts, berries, etc).
5. Re-use graywater.
6. No herbicides, artificial fertilizers.
7. No pesticides.
8. Provide bird and toad habitat.
9. Shaded porches, outdoor living/working spaces.
10. Detached garage, parking.
11. Provide compost piles or pits for food waste. Fence or cover with dirt to discourage vermin.

Longevity.

1. Metal, slate or tile roof.
2. Metal, stucco or adobe siding.
3. Waterproof design. Adequate overhangs above windows.
4. Ridge vents.
5. Fewest possible plumbing vent penetrations through roof.
6. Aluminum (untreated) window screens.
7. Hard flooring.
8. Gravity flow septic (no sump pump).
9. Fewest possible mechanical systems.
10. No pressed wood structural products ("engineered" I-joists, rafters etc.).
11. Simple roof lines with adequate slopes.

Miscellaneous.

1. Radon test soil and granite (avoid granite if possible). Install radon mediation system in radon areas.
2. Easy access to replace or clean filters.
3. Easy access to water shut off, power shut off.
3. Compile manuals and schematic of buildings with warranties and maintenance and usage instructions.
4. Design for aging in place, mobility impairment.
5. Individual laundry and clothesline (for housing).
6. All remodeling follows rules above.