

ROOFING

Recommended
Fiber/ cement shingles, clay tile, wood shingles
standing seam metal, cement tile
Relatively benign materials, metal is tolerated best by chemically sensitive.

Acceptable
Fiberglass shingles, composition shingles
Fiberglass causes significant worker injury, composition tiles use some toxic materials.

Not recommended
Built-up asphalt, asphalt shingles
Very hazardous to workers and occupants during installation.

ROOF SHEATHING

Recommended
Salvaged wood, plank sheathing
Generally benign materials

Acceptable
Cellulose board, plywood, OSB, particle board, plank sheathing (with phenol formaldehyde)
Cellulose uses recycled newspapers with potentially harmful solvents, phenol formaldehyde glue is less toxic.

Not recommended
Plywood, OSB, particle board, plank sheathing with urea formaldehyde
Urea formaldehyde is a carcinogen and a significant health risk to workers and occupants.

BEARING WALL

Recommended
Rammed earth, adobe, straw bale, salvaged wood, steel, solid wood
Natural materials are generally healthy, steel may be the only choice for chemically sensitive.

Acceptable
Concrete, masonry, prefabricated panels
Potential dust and chemicals in concrete and masonry panels may use formaldehyde.

Not recommended
Foam filled panels
Toxic chemicals in foam filling.

FRAMING

Recommended
Wood, steel framing
Steel may be required by chemically sensitive.

Acceptable
Composite lumber - truss joists, open web joists, etc.
Check for type of binders, isolate formaldehyde glues.

Not recommended

EXTERIOR SIDING

Recommended
Cement stucco, hardboard, fiber cement siding, masonry, metal siding
Mostly natural materials, dust is usually only hazard.

Acceptable
Plywood, EFS
Plywood usually contains harmful formaldehyde, EFS uses petroleum products.

Not recommended
Asphalt shingles, vinyl siding
Both are petroleum derivatives, and are very toxic to workers and occupants.

DOORS

Recommended
Metal doors with silicon or felt gasket, hardwood using non-toxic glues.
Natural materials are generally non-toxic, metal may be only choice for chemically sensitive.

Acceptable
Veneer doors with phenol formaldehyde glue, softwood with non-toxic glue, fiberboard
Some softwoods are problematic for chemically sensitive.

Not recommended
Vinyl clad, foam filled doors
Toxic additives are a major ingredient in this chemical soup.

WINDOWS

Recommended
Hardwood without chemical treatment, metal
Wood treatments for rot or pest resistance may be toxic, metal is safest.

Acceptable
Wood
See above.

Not recommended
Vinyl frame, single glazing
Vinyl is a petrochemical product, a major health risk to workers, byproducts are dangerous to surrounding communities.

FURNITURE/ TRIM

Recommended
Salvaged, remilled wood, sustainable yield wood (use low tox glues), fiber/mineral trim, untreated natural fibers, metal
Some people react to coniferous woods, especially cedar, watch for chemical additives.

Acceptable
Low-E particle board, plywood
Phenol formaldehyde (exterior grade plywood) is acceptable, urea formaldehyde is not recommended.

Not recommended
Polyurethane foam, synthetic fabrics, fabric treatments, urea formaldehyde
Significant risks, numerous carcinogens in these chemically based materials.

SILL PLATE/ TERMITES PROTECTION

Recommended
Second growth redwood, plastic wood, nanotubes, liquid nitrogen, sand barrier and metal guard, borax.
All benign to humans.

Acceptable
AOC preservative
AOC is non-toxic to humans

Not recommended
Methyl bromide, pressure treated, creosote
Chemicals and local ground and water pollution, these are particularly hazardous to humans.

HEATING/ APPLIANCES

Recommended
Passive and active solar, wind power, hydroelectric, cool rooms, fire dry clothes
Radiant floor heating, electric appliances

Acceptable
Electric heat, separately vented gas appliances and heaters
Watch for high electromagnetic fields with all electric appliances and wiring.

Not recommended
Unvented gas appliances, furnaces, hot water heaters
Carbon monoxide and dioxide from incomplete combustion are severe health threats.

CONCRETE

Recommended
Lightweight concrete, reusable forms, vegetable oil separators
Minimal toxic exposure, watch for toxic flyash and radon in aggregate.

Acceptable

Not recommended
Petroleum separators, vinyl curing agents, asphalt
Petrochemical products are severe health risks.

INSULATION

Recommended
Silicate foam, thermal mass, cotton batt, cork, perlite, rock wool
These natural materials pose little risk, though fire retardants added to cotton must be avoided.

Acceptable
Cellulose, fiberglass batt with aluminum backing
Cellulose may bother extremely sensitive. Fiberglass must be effectively sealed to be acceptable.

Not recommended
Fiberglass batts, loose fiberglass, polystyrene and polyurethane foam, asphalt paper.
Fiberglass is a strongly suspected carcinogen, much like asbestos. Foams and asphalt use petroleum and produce VOC's.

SITE FEATURES/ DECKING

Recommended
Existing features, salvaged elements, untreated wood, tile, masonry
Generally benign materials.

Acceptable
Plastic wood
Plastic may have residual toxicity, but will air out in the exterior environment.

Not recommended
Creosote and pressure treated woods, asphalt
Chemical exposure and polluting effects are extremely hazardous.

WALLS/ CEILINGS

Recommended
Plaster without additives, gypsum fiberboard, gypsum board
Natural materials with minimal health risks, gypsum must be carefully stored to avoid toxic absorption.

Acceptable

Not recommended
Composite boards, gypsum board with asphalt, petroleum based vinyl compounds, construction adhesives
Urea formaldehyde and petroleum products should be avoided completely.

WALL FINISHES (typical areas)

Recommended
Natural, citrus oil paints, cash paints, plaster veneer, natural fabric wall coverings, stucco, adhesives
All are organic products, some may react to oils. Cash should only be used in dry climates and spaces.

Acceptable
Latex paints with low VOC's, recycled content wallpaper, foil and mylar wallpaper
Check paint for chemical contents, wallpaper for petroleum (plastic) products.

Not recommended
Wood paneling, acrylic paints, vinyl wallcoverings, solvent adhesives
Paneling will contain urea formaldehydes, vinyl and paints contain numerous chemicals and formaldehyde.

WALL FINISHES (wet areas)

Recommended
Ceramic tile
Generally safe, make sure glazing contains no radioactives.

Acceptable
Low emission paints
Tolerated by most people, ventilate while paint is drying.

Not recommended
Oil based paints, most latex paints, solvent adhesives
Fungicides, biocides, antifreeze, and petroleum byproducts are very toxic to workers and occupants.

SHELVING/ CABINETRY

Recommended
Salvaged, sustainable lumber, fiberboard with isocyanate glue, metal, tile counters set in mortar
Safest elements, metal may be only choice for chemically sensitive.

Acceptable
Low E particle board, exterior plywood, cork
Somewhat less harmful, although chemically sensitive should avoid these products.

Not recommended
Plywood or particle board with urea formaldehyde glue, plastic laminates, solvent adhesives
Long term exposure is very hazardous to cabinet makers and occupants.

FLOOR FINISH (typical areas)

Recommended
Salvaged wood, sustainable yield wood, ceramic or terra tile, cotton, wool, jute, or sisal area rugs
Minimal adverse health effects, some are sensitive to softwoods, careful cleaning is needed for all rugs.

Acceptable

Not recommended
Vinyl sheet or tile, synthetic wall to wall carpet, foam undercushions.
Avoid if health is a concern, carpets harbor mites, bacteria, dust, and pesticides brought in on shoes.

FLOOR FINISH (wet areas)

Recommended
Stone, ceramic tile in true mortar, natural linoleum
Watch for radioactive compounds in glazing, radon in stone. Some may be sensitive to linoleum's natural oils.

Acceptable
Concrete with non-toxic sealer
Check concrete for toxics in aggregates or additives.

Not recommended
Vinyl sheet or tile, rubber flooring
Vinyl and rubber are petroleum based and very toxic, rubber flooring with high recycled content (auto tires) is very toxic.

SUBFLOOR

Recommended
Salvaged solid plank, wood fiberboard, particle board, plywood
Generally low pollution.

Acceptable
Cellulose panels
Check paper mills for river and air pollution.

Not recommended

GARAGES

Recommended
Open enclosure, separate from the house
Automobile exhaust and fluids are toxic carcinogens.

Acceptable
Detached garage, sealed attached garage.
Walls must be completely sealed from living spaces, including blocking air infiltration through attics.

Not recommended
Attached, enclosed garages
The carbon monoxide and dioxide, benzene and other petroleum compounds infiltrate or are tracked throughout the house.

HEALTH

NOTE: THIS DRAWING IS PART OF A SET COVERING RESOURCES, POLLUTION AND HEALTH. ALL 3 SHOULD BE UTILIZED TO PROVIDE A FULL SPECTRUM OF DESIGN CONSIDERATIONS.

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