



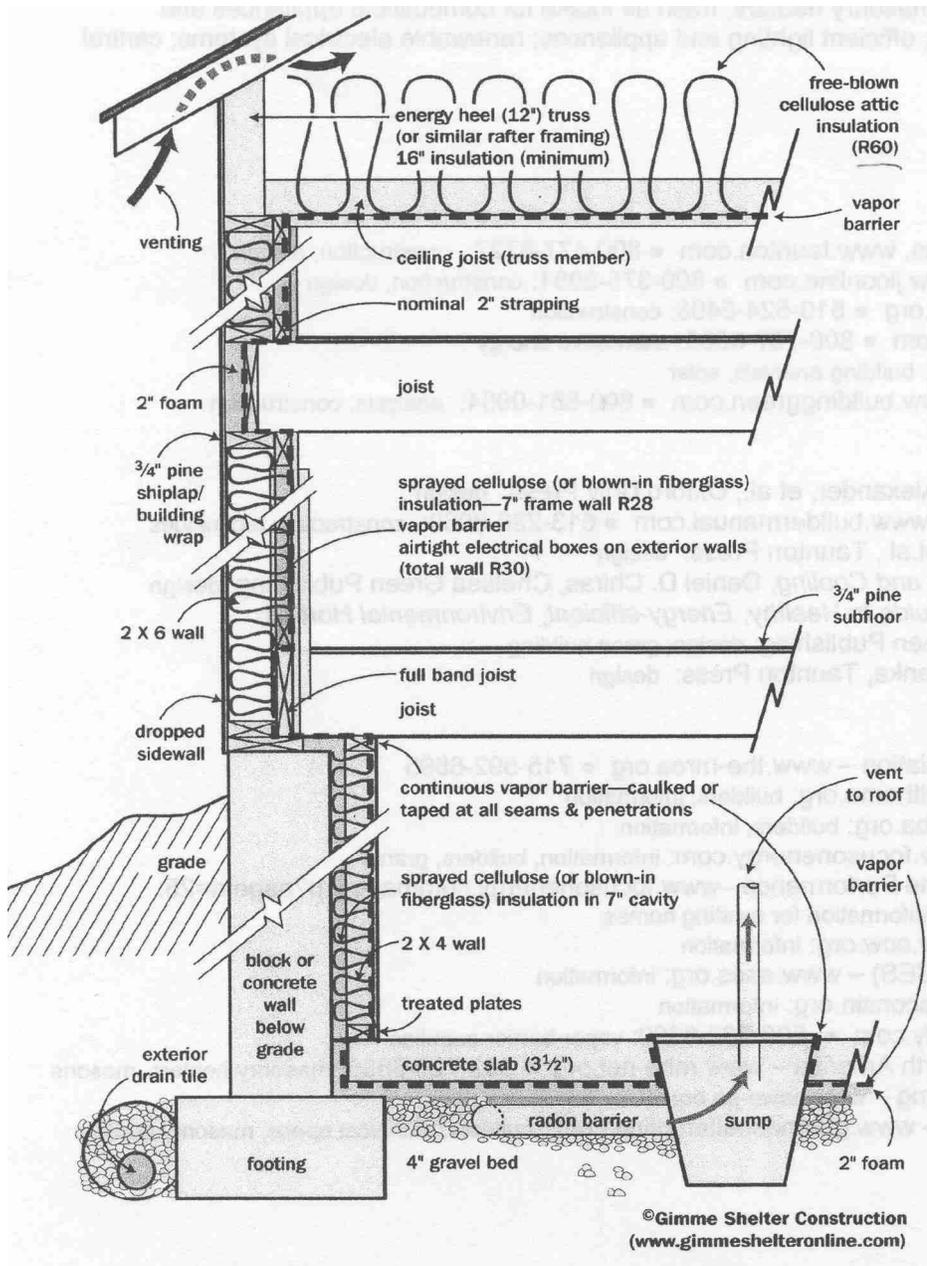
## GIMME SHELTER CONSTRUCTION

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### High Performance Construction Specifications

**Foundation:** Exterior 4" drain tile in gravel bed covered with filter cloth at footing level. Interior radon barrier consisting of a 4" flexible pipe grid in gravel bed below slab, vented through a sump or through roof to outside. 2" minimum rigid insulation under slab, vapor barrier run continuously to connect with wall vapor barrier, caulked and taped at seams and sump penetrations. Interior basement walls are 2x4 walls set away from exterior walls. Entire 7" cavity is then filled with sprayed cellulose or blown-in insulation at R-28. Tu-tuff Vapor barrier is continuously sealed to under slab VB and joist VB. All mechanical penetrations through exterior are taped with 3M sealing tape or caulked with Tremco Acoustical Sealant.



**Framing:** Floor joists are set back 5 1/2" on 2x10 treated plates. A 2' flange of VB is laid on plates before joists are set, assuring a continuous VB connection to basement and sidewall VB. Deck is then glued & nailed down with 1 x 10 shiplap pine boards; VB is temporarily stapled to deck and 2x6 exterior sidewalls are dropped onto treated plates. This "band cavity" can then be filled with sprayed cellulose or blown-in fiberglass insulation and sealed as part of the wall insulation and VB package, assuring a higher R-value and a tighter perimeter than in conventional framing. All penetrations through the band joist are caulked and taped.

**Exterior Walls:** 2x6 walls with horizontal strapping create a 7" wall cavity filled with sprayed cellulose or blown-in fiberglass insulation at R-28. Vapor barrier is sealed to band flange and ceiling VB by tape or caulk assuring a continuous seal. Airtight electrical boxes are caulked and taped to VB. 1x10 pine shiplap boards are used as exterior sheathing and as base for exterior treatments. Alternative exterior is to place the strapping on the outside of the wall and use vertical pine or cedar in a single layer as both sheathing and siding (either in a board & batten or vertical T&G application). Double masonry walls, straw bale construction and cobb (clay/straw) construction are other sidewall choices.

**Roof System:** Truss or rafter framing incorporates a 12" minimum energy heel which allows for the full amount of insulation at perimeter. Blown cellulose at a minimum of 15" for R-60 ceiling insulation. Continuous VB tied to wall VB, all penetrations sealed with caulk and tape. IC airtight ceiling cans sealed to VB when set, prior to insulation (observe code clearances). Galvanized standing-seam metal roof recommended for long term performance.

**Windows & Doors:** Low-E, argon-filled, triple pane glazing with "warm edge" technology; good U-ratings. Insulated steel or fiberglass exterior is most maintenance-free. Casements & awnings most energy-efficient over time. Swinging exterior doors in general are most efficient over time than sliders.

**Exterior Surfaces:** Cement-based stucco; cement siding; natural or stained vertical white pine boards (board & batten); natural or stained cedar fastened with stainless steel nails, galvanized metal; steel lap siding; stone, or brick.

**Interior Surfaces:** Walls - thincoat plaster finish surface (one or two-step) for higher durability and greater thermal mass; wood paneling; masonry. Floors - tile, concrete, soil cement, or stone for mass and durability. Native hardwoods, cork, or bamboo for wood flooring.

**Recommended Systems:** Air-to-air heat exchanger, exhaust only fans with makeup air (controlled ventilation) or breathable walls systems; in-floor radiant heating using high-efficiency (98%) pulse boilers; direct-vent high-efficiency water heaters; masonry heaters; fresh air intake for combustible appliances and wood burning masonry heaters; efficient lighting and appliances; renewable electrical systems; central vacuums.

## RESOURCES

### Periodicals

*Fine Homebuilding* - Taunton Press, [www.taunton.com](http://www.taunton.com) .800-477-8727: construction, design *Journal of Light Construction* - [www.jlconline.com](http://www.jlconline.com) • 800-375-5981: construction, design *Home Energy* - [www.homeenergy.org](http://www.homeenergy.org) • 510-524-5405: construction  
*Homepower* - [www.homepower.com](http://www.homepower.com) .800-707-6585: alternative energy  
*Solar Today* - [www.solartoday.org](http://www.solartoday.org): building analysis, solar  
*Environmental Building News* - [www.buildinggreen.com](http://www.buildinggreen.com) .800-861-0954: analysis, construction

### Books

*A Pattern Language*, Christopher Alexander, et al., Oxford Univ Press: design  
Canadian Home Builder Manual- [www.buildermanual.com](http://www.buildermanual.com) .613-230-3060: construction techniques *Patterns of the Home*, Jacobson, et.al., Taunton Press: design  
*The Solar House: Passive Heating and Cooling*, Daniel D. Chiras, Chelsea Green Publishing: design *The Natural House: A Complete Guide to Healthy, Energy-efficient, Environmental Homes*, Daniel D. Chiras, Chelsea Green Publishing: design, green building  
*The Not So Big House*, Sarah Susanka, Taunton Press: design

### Websites

Midwest Renewable Energy Association - [www.the-mrea.org](http://www.the-mrea.org) .715-592-6595 Green  
Built Home - [www.greenbulthome.org](http://www.greenbulthome.org): builders, information  
Green Building Alliance - [www.wgba.org](http://www.wgba.org): builders, information  
Wisconsin Focus on Energy - [www.focusonenergy.com](http://www.focusonenergy.com): information, builders, grants  
Wisconsin Focus on Energy - Home Performance -[www.focusonenergy.com/page.jsp?pagelid=25](http://www.focusonenergy.com/page.jsp?pagelid=25): performance testing, consultants, information for existing homes  
Energy Center of Wisconsin - [www.ecw.org](http://www.ecw.org): information  
American Solar Energy Society (ASES) - [www.ases.org](http://www.ases.org): information  
Renew Wisconsin - [www.renewwisconsin.org](http://www.renewwisconsin.org): information  
Shelter Supply - [www.sheltersupply.com](http://www.sheltersupply.com) • 800-762-8399: vapor barrier supplies  
Masonry Heater Association of North America - [www.mha-net.org](http://www.mha-net.org) .802-728-5896: masonry heaters, masons North  
American Wetland Engineering - [www.nawe-pa.org](http://www.nawe-pa.org)  
Gimme Shelter Construction, Inc. - [www.gimmeshelteronline.com](http://www.gimmeshelteronline.com): builders, technical specs, masonry heaters