

Resources (larger type)

Further Reading and Resources

- ¹ **Relative Health Hazard of Different Waters** oasisdesign.net/greywater/law/FecalLevels.xls Spreadsheet comparing measured and calculated fecal coliform levels. It appears that indicator organisms multiply in greywater plumbing, but there is no indication that pathogens do.
- ² **Sewers, Sludge Treatment, Sludge** www.riles.org/library.htm Various writings on the evils of sewers and advantages of nutrient reclamation. oasisdesign.net/wastewater/sewer/beach.htm A letter about misinterpretation of a study of contamination from oceanfront septs, and the inadvisability of sewerage.
- ³ **Green Land—Clean Streams: The Beneficial Use of Waste Water Through Land Treatment** Temple University's Center for the Study of Federalism, 1972. 1616 Walnut St., Rm. 507, Philadelphia, PA 19103. Phone: 215-204-1482, 215-204-7784, E-mail: v2026r@vm.temple.edu www.temple.edu/federalism Analysis of large scale land treatment facilities. Currently out of print, but photocopies are available. Their summary table of treatment effectiveness, which is amazingly high, even for overland flow, is reprinted in our Builder's Greywater Guide.⁶
- ⁴ **Greywater Policy Center** oasisdesign.net/greywater/law Includes California, Arizona, New Mexico, and other greywater laws, and suggested policy improvements.
- ⁵ **Greywater Pilot Project Final Report** Los Angeles Department of Water Reclamation, 1992. Los Angeles Department of Water and Power, PO Box 1111, Rm. 1315, Los Angeles, CA 90051-0100. Phone: 800-342-5397, 213-481-5411, E-mail: ccenter@ladwp.com www.ladwp.com First quantitative field testing of greywater health safety.
- ⁶ **Builder's Greywater Guide** Art Ludwig, 2006. Oasis Design, 5 San Marcos Trout Club, Santa Barbara, CA 93105-9726. Phone: 805-967-9956, Fax: 805-967-3229. oasisdesign.net/greywater/buildersguide. Supplement to Create an Oasis with information of interest if your project is going to involve permitting, inspection, building a system for someone else, writing or applying codes, or greywater research.
- ⁷ **National Small Flows Clearinghouse** West Virginia University, PO Box 6064, Morgantown, WV 26506-6064. Phone: 800-624-8301, 304-293-4191, Fax: 304-293-3161 www.nesc.wvu.edu/nsfc/nsfc_index.htm Clearinghouse organization with a wealth of information on small to large scale wastewater treatment.
- ⁸ **The Septic System Owner's Manual** Lloyd Kahn, Blair Allen, and Julie Jones, 2000. Shelter Publications Inc., PO Box 279, Bolinas, CA 94924. Phone: 415-868-0280, Fax: 415-868-9053, E-mail: shelter@shelterpub.com www.shelterpub.com Everything you need to know about maintaining a septic system. Includes section on alternative systems.
- ⁹ **Rainwater Harvesting for Drylands** Brad Lancaster, 2006. Rainsource Press, 813 N. 9th Ave. Tucson, AZ 85705. E-mail: brad@harvestingrainwater.com www.harvestingrainwater.com Available from oasisdesign.net/catalog
- ¹⁰ **Water Storage** Art Ludwig, 2006. Oasis Design, 5 San Marcos Trout Club, Santa Barbara, CA 93105-9726. Phone: 805-967-9956, Fax: 805-967-3229 oasisdesign.net/water/storage Tanks, cisterns, aquifers, and ponds for domestic supply, fire, and emergency use. Includes how to make ferrocement water tanks.
- ¹¹ **Residential End Uses of Water Study (REUWS)** Peter W. Mayer, William B. DeOreo, Eva M. Opitz, Jack C. Kiefer, William Y. Davis, Benedykt Dziegielewski, and John Olaf Nelson, 1999. American Water Works Association/ AWWA Research Foundation, 6666 W. Quincy Ave., Denver, CO 80235. Phone: 800-926-7337, 303-794-7711, Fax: 303-347-0804 www.awwa.org/bookstore Considering the volume of water used in homes, we are amazingly ignorant of what it is used for. There are just a handful of studies. In this study special data loggers were attached to the water meters in 1,188 homes, in 14 cities. The data obtained from these devices allowed the researchers to separate water usage into individual end-use categories. A total of 6,000 households responded to a survey about their water use, and 12,000 households had their billing records incorporated into the study.
- ¹² **Unless you are in Texas**, where use of greywater to intentionally keep expansive clay soils around a foundation permanently wet is officially encouraged. Opinions vary on the advisability of this setup. If your greywater system fails your foundation is liable to crack!
- ¹³ **Cost/Benefit Spreadsheet** oasisdesign.net/downloads/rewatergwcalculator.xls Example of a comprehensive cost/benefit analysis from ReWater Systems.⁵³
- ¹⁴ **Complete Home Plumbing. 2nd edition** Scott Atkinson, editor, 2001. Sunset Books, Menlo Park, CA. www.sunset.com/sunset/bookstore All the plumbing know-how you need for repairs, remodels, or even building from scratch can be found in this complete guide. Easy-to-follow text and photographs illustrate basic and advanced projects, from simply fixing a leaky faucet to remodeling a kitchen or adding a bath. There's also a chapter that covers plumbing outdoors. A must for every homeowner's bookshelf.
- ¹⁵ **Principles of Ecological Design** Art Ludwig, 2003. Oasis Design oasisdesign.net/design/principles.htm Principles for redesigning our way of life to live better with less resource use (description on inside back cover).
- ¹⁶ **Ianto Evans** www.cobcottage.com Thanks to Ianto for insights about Radical Plumbing.
- ¹⁷ **Cleaners for Greywater Systems** University of Arizona, Office of Arid Lands Studies, 1955 E. 6th St., Tucson, AZ 85719. Phone: 520-621-1955, Fax: 520-621-3816. Contact: Martin Karpiscak, phone: 520-621-8589, E-mail: karpisca@ag.arizona.edu. www.arid.arizona.edu Independent lab assessment of cleaners for greywater; general principles and lab results only, no interpretation. This information is reproduced in our Builder's Greywater Guide⁶ with some interpretation.
- ¹⁸ **Untried ideas for urine management in dry, clay soil environments:**
 1. A Constructed Wetland populated with plants that extract the nutrients but not the salt (assuming such plants exist). The left-over salty water could be routed to a disposal field, and the nutrient-laden wetland plants harvested and spread around the garden as fertilizing mulch.
 2. I suspect that salinization could be slowed in critical environments by using less dietary salt, perhaps by substituting potassium chloride instead of sodium chloride for seasoning.
- ¹⁹ **Cadillac Desert** Mark Reisner, 1986. Viking Penguin Inc., New York, NY us.penguin.com Exceedingly well researched history of western water.
- ²⁰ **Washington Toxics Coalition** www.watoxics.org Alternatives to most household toxins.

- ²¹ **The Book of Bamboo** David Farrelly, 1984 (reissued in 1995). Sierra Club Books www.sierraclub.org/books
Bamboo World Victor Cusack, Deirdre Stewart, 2000. Simon & Schuster Australia/Kangaroo Press, Pymble, NSW, Australia. www.simonsays.com
- ²² **Designing and Maintaining Your Edible Landscape Naturally** Robert Kourik, 1986. Metamorphic Press, PO Box 1841, Santa Rosa, CA 95402. Phone: 707-814-2606. *Landmark reference work on edible landscaping. A phenomenal quantity of quality information. Out of print, but available used. Edible landscaping is a huge topic. Ideally an edible landscape is designed in "four dimensions" (i.e. time as well as 3D space). Properly selected varieties yield a steady stream of fruit of all kinds all throughout the growing season (which could be all year), instead of an inundation of fruit for a few months. See our website for more information: oasisdesign.net/landscaping/fruittrees.htm*
- ²⁴ **Alternative Septic System: Watson Wick** oasisdesign.net/compostingtoilets/watsonwick.htm Tom Watson, PO Box 8, Embudo, NM 87531. Phone: 505 579-4001. Available for consulting.
- ²⁵ **The Food and Heat Producing Solar Greenhouse: Design, Construction, Operation** Rick Fisher and Bill Yanda, 1980. John Muir Publications, Inc., PO Box 613, Santa Fe, NM 87504. Phone: 505-982-4078, 800-888-7504. *Excellent. Out of print but available used online.*
- ²⁶ **Greywater for the Greenhouse** A.A. Rockefeller, 1979. Clivus Multrum Inc. www.clivusmultrum.com
Greenhouse as Leachfield A.A. Rockefeller, 1978. NSF International (formerly the National Sanitation Foundation), PO Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140. Phone: 800-NSF-MARK, E-mail: info@nsf.org www.nsf.org
- ²⁷ **Design Manual: Constructed Wetlands for Municipal Wastewater Treatment** US Environmental Protection Agency, Office of Research and Development, 1988. Center for Environmental Research Information (CERI), Center for Environmental Research Information, 26 W. Martin Luther King Dr., Cincinnati, OH 45268. Phone: 513-569-7562, Fax: 513-569-7566 es.epa.gov/ncer/publications
- ²⁸ **How to measure a gravity flow of greywater with a dipper box:** *Get the inlet set right so it cannot pin the dipping trough in the down position (adding a double ell to the inlet helps). Then there will be one dip for every 1½ gal of flow. With a battery-powered counter and a magnetic reed switch you can count dips, thus measuring an intermittent flow of cruddy water at atmospheric pressure. This is just about impossible to do any other way.*
- ²⁹ **Can a 4,000 ft² Home Be Green?** oasisdesign.net/faq/green4000ft2home.htm
- ³⁰ **Monitoring Graywater Use: Three Case Studies in California** California Department of Water Resources, Publications and Paperwork Management Office, PO Box 942836, Sacramento, CA 94236-0001. Phone: 916-653-1097. Contact: Susan Sims, 916-653-6192, Fax: 916-653-4684 www.publicaffairs.water.ca.gov/information/pubs.cfm Also available from oasisdesign.net/greywater/SBebmudGWstudy.htm
- ³¹ **Dry Toilets** Centro de Innovación en Tecnología Alternativa, A.C. Ave. San Diego No. 501, Col. Vista Hermosa, C.P. 62290, Cuernavaca, Morelos, Mexico. Phone: 52-777-322-8638 E-mail: acua@terra.com.mx www.laneta.apc.org/esac/citaesp.htm *Well-proven designs for dry toilets.*
- ³³ **Greywater Heat Recovery** NATAS (National Appropriate Technology Assistance Service), PO Box 2525, Butte, MT 59702-2525. Phone: 800-428-2525 www.ncat.org
- ³⁴ **Indoor Greywater Reuse** oasisdesign.net/greywater/indoorreuse.htm *Indoors, the "receiving landscape" is plumbing fixtures rather than plants and soil. Especially noteworthy is the Toronto Healthy House, where all greywater is recycled directly to fixtures.*
- ³⁵ **Residential Water Reuse** Murray Milne, 1979. Report #46. Regents of the University of California. California Water Resources Center, University of California at Davis. University of California Center for Water Resources, Rubidoux Hall 094, University of California, Riverside, CA 92521-0436. Phone: 951-827-4327, Fax: 951-827-5295 www.waterresources.ucr.edu. *Out of print but available from National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161. Phone: 888-584-8332, 703-605-6050 www.ntis.gov 550 pages, highly readable goldmine of fascinating information and history of water reuse. Includes 50 page annotated bibliography.*
- ³⁶ **Excreta Disposal for Rural Areas and Small Communities** E. Wagner and J. Laniox, 1958 (reprinted 1971). Monograph #39, World Health Organization, Geneva, Switzerland www.who.int/publications/en *Information on the effectiveness of soils for containing and processing nutrient and pathogen contamination from human feces, as well as other technologies.*
- ³⁷ **Composting Toilet System Book** David Del Porto and Carol Steinfeld, 1999. Ecowaters Projects, PO Box 1330, Concord, MA 01742. Phone: 978-318-7033 www.cepp.cc *Tons of raw information on composting toilets.*
- ³⁸ **The Toilet Papers: Recycling Waste and Conserving Water** Sim Van Der Ryn, 1978. Reprinted by Chelsea Green Publishing, 1999. Chelsea Green Publishing, PO Box 42885, N. Main St., Ste. 120, White River Jct., VT 05001. Phone: 800-639-4099, 802-295-6300, Fax: 802-295-6444 www.chelseagreen.com
- ³⁹ **Toilet Alternatives** Art Ludwig (book in progress) oasisdesign.net/compostingtoilets/book *Comprehensive guide to alternatives to the flush toilet for homeowners, builders, and regulators.*
- ⁴⁰ **Rainwater Harvesting and Runoff Management** Art Ludwig (book in progress) oasisdesign.net/water/rainharvesting

Suppliers (References s1-)

Caution: *Unless specifically noted, we don't know anything about the suppliers' experience or the quality of their offerings. Supplier information changes rapidly; this list was last updated June 2006.*

^{s1} **North American Salt Co.** 9900 W. 109th St., Ste. 600, Overland Park, KS 66210. Phone: 877-IMC-SALT, Fax: 877-423-7258. Contact: Jerry Poe, Phone: 913-344-9195, Fax: 913-338-7924, E-mail: poe@imcsalt.com www.nasalt.com *Manufacturer of potassium chloride water softener salt.*

^{s2} **Jandy Products** PO Box 6000, Petaluma, CA 94955. Phone: 800-227-1442, 707-776-8200, Fax: 800-526-3928, 707-763-7785, E-mail: info@jandy.com www.jandy.com *Makers of 3-way diverter valves. You'll more likely find these through pool and spa places than regular plumbing supply houses. As a convenience, we also sell these valves through oasisdesign.net/catalog*

- ^{s3} **Orengo Systems** 814 Airway Ave., Sutherlin, OR 97479-9012. Phone: 800-348-9843, 541-459-4449, Fax: 541-459-2884 www.orengo.com *Established makers of residential and small community secondary treatment systems, sells components, gives seminars.*
- ^{s4} **Fluid Dynamic Siphons, Inc.** PO Box 882019, Steamboat Springs, CO 80488-2019. Phone: 800-888-5653, 970-879-2494, Fax: 970-879-4948, E-mail: info@siphons.com www.siphons.com
- ^{s5} **ReWater Systems** 477 Marina Pkwy, Chula Vista, CA 91910. Phone: 619-585-1196, Fax: 619-585-1919. Contact: Steve Bilson www.rewater.com *Maker of plastic distribution cones and a range of GW systems from \$1,295 and up. Source for Zabel effluent pumps and burial rated pump tanks. Active in greywater politics.*
- ^{s6} **Pacific Echo, Inc.** 23540 Telo Ave., Torrance, CA 90505. Phone: 310-539-1822, 800-421-5196, Fax: 310-539-5826 www.pacificecho.com *Makers of flexible PVC. Call for local distributor.*
- ^{s7} **Real Goods** 360 Interlocken Blvd., Ste. 300, Broomfield, CO 80021-3440. 800-919-2400, 303-222-3600, Fax: 800-508-2342 www.realgoods.com *Mail order source for spa-flex, 3-way diverter valves, the "lid" sink, the Earthstar Greywater System (a copy of the old AGWA system). There haven't been that many Earthstar systems sold, and there isn't much data available to say how they are working out in the field — they may be really good.*
- ^{s8} **Little Giant Pump Company** PO Box 12010, Oklahoma City, OK 73157-2010. Phone: 888-956-0000, 405-947-2511, Fax: 405-947-8720, E-mail: CustomerService@LittleGiant.com www.lgpc.com
- ^{s9} **Oasis Design** 5 San Marcos Trout Club, Santa Barbara, CA 93105-9726. Phone: 805-967-9956, Fax: 805-967-3229 oasisdesign.net/catalog *Supplier of double ells pre-drilled with access plugs, 3-way diverter valves, fruit tree and plant lists, books (including this one).*
- ^{s10} **Geoflow** 307-O W. Tremont Ave., Charlotte, NC 28203. Phone: 800-828-3388, 415-927-6000, Fax: 704-347-0706 www.geoflow.com Contact: Karen Ferguson. *Their premium underground drip irrigation tubing is impregnated with herbicide to keep roots out and has a good reliability record.*
- ^{s11} **Oasis Biocompatible Cleaners** Distributed by Bio Pac, Inc., 584 Pinto Court, Incline Village, NV 89451. Phone: 800-225-2855, 866-369-1385, 702-425-5492, Fax: 209-844-2134, 775-201-0596, E-mail: info@bio-pac.com Contact: Collin Harris www.bio-pac.com *Makers of plant and soil biocompatible cleaners.*
- ^{s12} **Aqua-Flo Supply** 30 S. La Patera Ln., Unit 10, Goleta, CA 93117. Phone: 805-967-2374, Fax: 805-967-5509. www.aquaflo.com *A storefront/UPS source for greywater system components.*
- ^{s13} **Infiltrator Systems** 6 Business Park Road, PO Box 768, Old Saybrook, CT 06475. Phone: 800-221-4436800-718-2754, 860-577-7000, Fax: 860-577-7001, E-mail: info@infiltratorsystems.com Web: www.infiltratorsystems.com *Plastic "infiltrator" gravel-less infiltration chambers of good quality.*
- ^{s14} **NutriCycle Systems** (formerly Hanson Associates) 3205 Poffenberger Rd., Jefferson, MD 21755. Phone: 301-371-9172. Contact: John Hanson, E-mail: jhanson@nutricyclesystems.com www.nutricyclesystems.com *"Nutrient recycling system" composting toilet, box trough greywater systems. Leaching chamber and box trough designs are thanks to John Hanson.*
- ^{s15} **Clivus Multrum Inc.** 15 Union St., Lawrence, MA 01840. Phone: 800-4-CLIVUS (800-425-4887), 978-725-5591, Fax: 978-557-9658 www.clivusmultrum.com *Longtime manufacturer and distributor of composting toilets. Supplier of greywater systems and information. Half-pipe infiltration galleries, greenhouse, and freeze switch designs are courtesy of Carl Lindstrom.*
- ^{s16} **John Todd Ecological Design, Inc.** PO Box 497, Woods Hole, MA 02543 USA. Phone: 508-548-2545, E-mail: info@jtecodesign.com www.toddecological.com *Pioneer provider of site specific, integrated ecological wastewater solutions including greenhouse aquatics, Constructed Wetlands, stormwater management, etc.*
- ^{s17} **Tad Montgomery & Associates** 118 Washington St. #2, Brattleboro, VT 05301. Phone/Fax: 802-251-0502, E-mail: eco@tadmontgomery.com tadmontgomery.com *Ecological engineering and design, focus on code-approved systems in northeast US, Constructed Wetlands, composting toilets, etc.*
- ^{s18} **Natural Systems** 3600 Cerrillos Rd., Ste. 1102, Santa Fe, NM 87507. Phone: 505-988-7453, Fax: 505-988-3720, E-mail: nsi@natsys-inc.com Contact: Michael Ogden www.natsys-inc.com *One of the first engineering firms specializing in Constructed Wetlands—a good outfit.*
- ^{s19} **Northwest Water Source** (formerly Greywater Management) PO Box 2766, Friday Harbor, WA 98250. Phone: 360-378-8900, Fax: 360-378-8790. Contact: Tim Pope, E-mail: water@waterstore.com. *"Aquabank" auto-backwashing sand filter and ozone/UV disinfection system. Alternative water sourcing, rainfall catchment.*
- ^{s20} **Polylok Inc.** 60 Capital Dr., Wallingford, CT 06492. Phone: 888-POLYLOK (888-765-9565), Fax: 203-284-8514 www.polylok.com
- ^{s21} **Mid State Concrete**, 1625 E. Donovan Ste. C, Santa Maria, CA, 93454. Phone: 805-928-2855, Fax: 805-928-2114 E-mail: midstate@midstateconcrete.com www.midstateconcrete.com *Our local supplier, who does a great job on custom dippers.*
- ^{s22} **Homestead Utilities** 17366 E. Meadow Ln., Mayer, AZ 86333-4119. Phone: 800 CYCLE-H2O (800-29253-426), Fax: 928-632-9114. Contact: Anton, E-mail: theo@leque.com www.leque.com (click on Products) *According to their literature, makes a \$556 system that filters and chlorinates greywater to reuse for flushing toilets.*
- ^{s23} **WaterFilm Energy Inc.** PO Box 128, Medford, NY 11763. Phone: 631-758-6271, Fax: 631-730-3918, E-mail: info@gfxtechnology.com www.gfxtechnology.com *Makers of a greywater heat exchanger. It likes ≥24" fall to do its job, and works best with extensive shower use.*
- ^{s24} **Valterra Products, Inc.** 15230 San Fernando Mission Blvd., Ste. 107, Mission Hills, CA 91345. Phone: 818-898-1671, Fax 818-361-5389 www.valterra.com *Makers of RV dump valves.*