The San Diego

Friends Center Project

Our 7,200 sq. ft. building is a cooperative project of two historic peace churches and two well-established and respected non-profit organizations in the city of San Diego.

- The First Church of the Brethren (on whose property this building will be located)
- The San Diego Friends Meeting (Quakers)
- The Peace Resource Center of San Diego
- The American Friends Service Committee, U.S.-Mexico Border Program

We are a working partner of Habitat For Humanity, and our project has been endorsed by the City Heights Area Planning Committee.

We are combining our resources and activities to create the Friends Center--a unique building that will house our organizations and be a focus for peaceful social change, and spiritual growth. We will also be providing a facility that can be used by many other organizations in our community for meetings, workshops and programs, as well as providing a demonstration model, using earth-friendly building values for now and for our future.

One reason we are building an ecologically-sensitive building is so we would know we did the very best we could to support life-affirming construction practices in our world. For us, it's a moral statement of doing the least harm possible in our biosphere.

Another reason is to create a demonstration project for builders (personal and corporate) who have developed, or who are developing similar values. In this way, the positive benefits for our earth will go far beyond that of just our building. Our research into the most appropriate materials, systems, and methods has been exhaustive. And since this building will be open to the public and heavily used by many different community groups, it will be easy to share the results of our research, available in our library, with the large numbers of people who visit. We will have volunteer docents available to provide tours as needed.

Friends Center

San Diego, California

As the first permitted strawbale building to be constructed in center city San Diego, the Friends Center project was developed and designed as a showcase “green” building, a demonstration site for state-of-the-art environmentally sustainable building techniques, including strawbale construction, solar power, passive solar design, rainwater capture, and other energy-efficient components.

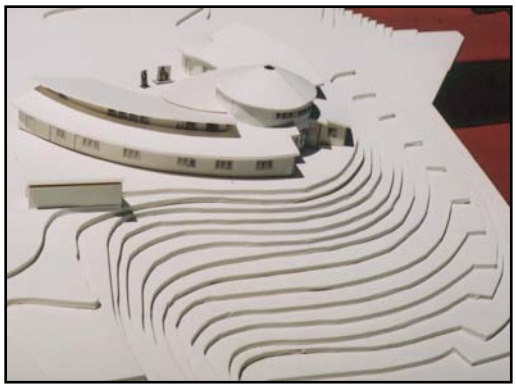
In addition to design skills and knowledge of environmentally-friendly and energy-efficient materials and processes, Hubbell & Hubbell was instrumental in educating the City Building Department on alternative building materials and obtaining building permits, making this the first multipurpose strawbale project in the City. When completed, the structure is expected to receive a minimum of LEED “silver” certification by the US Green Building Council, and was used by the San Diego chapter of the USGBC as an early case-study of sustainable design and implementation.

Construction: **Light-gauge** steel post & beam, strawbale infill

Special Fatures: Strawbale, solar / in-slab hydronic heating, rainwater collection and irrigation, energy efficient doors and windows, high R-value soy-based spray foam roofing insulation, certified lumber (no old growth trees), light-gauge steel with high recycled content produced by Castrip rolling technology (80% energy savings in production and reduced CO_2 emissions), extensive natural lighting and xeriscape landscaping incorporating a permaculture garden and reclaimed paving materials.

Design Issues: Passive ventilation and cooling, natural daylighting, passive solar, freeway noise, integrated green design features.

Awards & Recognition: Featured in S*an Diego Home & Garden* magazine article, “The First Straw”, September 2004; S*an Diego Union Tribune* articles, “Count the Many Ways Bale Construction is Good to the Last Straw” and “Grass-Roots Campaign,” November 2005.



Square Footage (Interior):

Meeting Hall:	822 sq. ft.	Daycare:	343 sq. ft.
North Wing:	1,471 sq. ft.	Caretaker:	448 sq. ft.
South Wing:	1,420 sq. ft.	Total (Ext):	7572 sq. ft.

Services Provided: Planning, Programming, Design Development, Construction Documents, Construction Administration

Project Team:

Architect
Hubbell & Hubbell Architects,
Architect of Record: Drew Hubbell
Project Architect: Juergen Zierler
Production: Richard Boynton, Lisa Moffit

Civil Engineer
Tri-Dimensional Engineering, John Coffey

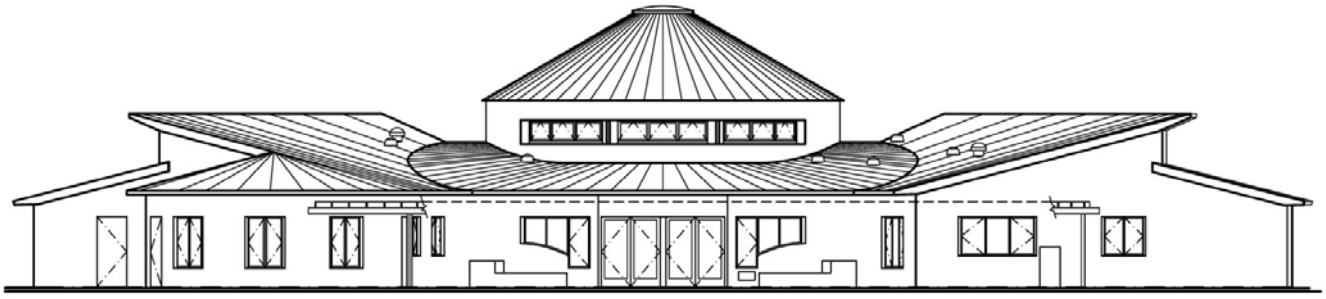
Contractor
Owner/Builder

Energy Consultant
Brummitt Energy Associates, Beth Brummitt

Strawbale Consultant
Sustainable Building Systems, Bob Bolles

Structural Engineer
Palos Verdes Engineering, Paul Christenson

To view the **“Friends’ Center: Design + Materials” video**—a presentation by Juergen Zierler explaining how various aspects of the Friends Center manifest sustainable building philosophies and techniques, visit: http://www.prcsd.org/friendsCenter/PowerPoint.htm.

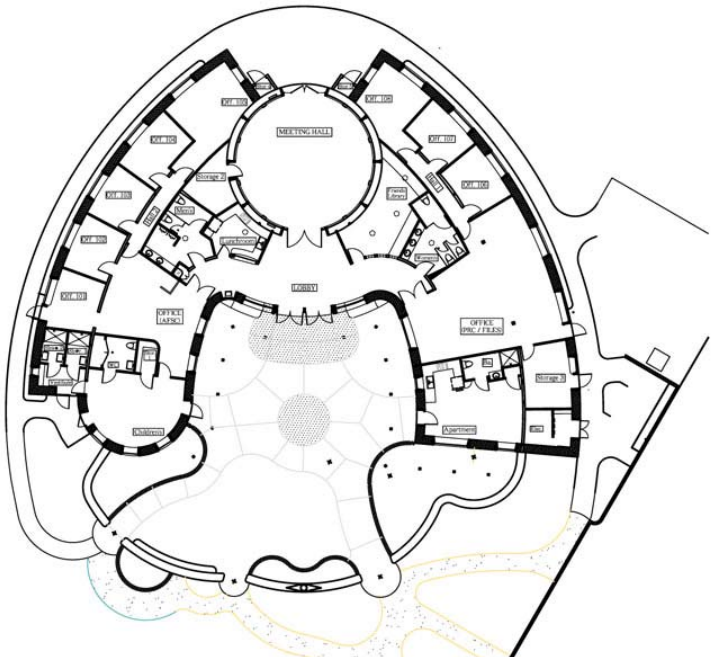


SOUTHEAST ELEVATION

HUBBELL & HUBBELL ARCHITECTS • 1970 SIXTH AVE • SAN DIEGO, CA 92101 • 619.231.0446
WWW.HUBBELLANDHUBBELL.COM

Values for Materials, Components, & Systems Selection

1. **Indoor Air Quality/Occupant Health:** Does this component/system contribute adversely to occupant health? Does this component/system emit VOCs? If so, can it be reliably sealed? We should strongly consider the effects of air, noise, and light pollution for even the environmentally hypersensitive.
2. **Durability:** How long will this component/system last in normal service to which it is about to be exposed? Is there a warranty? How important is it for us to have components that are very long-lived? How likely is the destruction of this component by natural causes (like fire, flood, earthquake, insects, mold, algae, rot, etc.)?
3. **Maintenance:** How much time, effort and/or expense will be necessary to keep this component/system in good operating condition throughout its life? Can this component/system be cleaned by non-toxic means?
4. **Energy Efficiency** (as used in Bldg. when occupied): How much will it cost us in terms of dollars, and the earth in terms of energy and resources to live comfortably in our building with this component/system?
5. **Aesthetics** (if Component/System is Visible): Does this component/system contribute to the overall design aesthetic and architectural character of our building?
6. **Reused:** Since the very least impact on all of the earth's systems (energy, habitat, environment, landfill) would be to use a component/system in our building that is already produced, is this component/system used and acceptable?
7. **Reusable:** Can this component/system be reused at the end of our building's life, thereby keeping it out of the landfill and even the recycle path?
8. **Recycled:** Can this component/system be obtained with a high percentage of recycled content? This could keep materials out of the landfill and reduce the amount of material to be mined or harvested from our environment. The energy required to recycle a material is often many times less than that needed to produce it from virgin materials such as ore. Have we considered post industrial and post consumer percentages?
9. **Recyclable:** Can this component/system be recycled during the construction phase (construction waste) and at the end of its life or that of our building? Is this product biodegradable and/or compostable?
10. **Sustainably Produced:** Has this component/system been produced from materials that have been sustainably mined or harvested so as to minimize the continued destruction of wilderness and environment? Are any of the component materials from rare or endangered resources?



11. **Hazardous By-Products of Production/Demolition:** Has this component/system been produced with the least harm to our environment (air, water, soil) and to production/demolition workers from toxic releases or less than acceptable working conditions? Has this product been tested on animals?
12. **Cost** (Including Installation): Does this component/system have an acceptable cost?
13. **Embodied Energy:** Have we chosen a component/system produced using the least amount of energy? Is this component/system manufactured locally with minimal transportation energy expended?
14. **Local Culture:** Does the component/system contribute to local indigenous building methods or the local economy? Are local cultures and ethnic populations recognized and honored by this component/system, its design and method of construction?
15. **Codes:** Does this component/system meet local building codes?

Friends Center Partners

Our Partners are individuals and companies dealing in materials, services or systems necessary to complete our building and they have pledged to provide them at no charge or very low cost. We are forever indebted to these visionary people who understand the value to society of transforming the construction industry to sustainable practices. Our Partners will be: recognized with a permanent display in the entry-way, listed with links on our website, profiled at our regularly scheduled open houses.

A part of the mission of the Friends Center is to share "green" building technologies with regional architects, engineers, contractors and developers.

Friends Center Partners as of January 1, 2006

California Expanded Metal Co. (CEMCO)
All light-gage steel structural members for post-and-beam exterior walls, interior walls and roof rafters
263 N. Covina Lane
City of Industry, CA 91744
Wes Westmoreland, 800-775-2362; Fax: 626-330-7598
www.cemcosteel.com

ASC Profiles
Standing-seam steel roof
2110 Enterprise Boulevard
W. Sacramento, CA 95691
Foster Gibble, 916-376-2841
www.ascprofiles.com/home.html

Homasote Company
1 3/8" roof sheathing used in lieu of traditional "CDX" plywood sheathing
PO Box 7240
West Trenton, NY 08628-0240
www.homasote.com

Steelscape
Steel-rolling, galvanizing and painting for light-gage steel framing and roof
11200 Arrow Route
Rancho Cucamonga, CA 91730
Renee Baker, 360-673-8200
www.steelscape.com

PPG Industries
Specialized paint for standing-seam roofing for Steelscape
Hugh Wolf , 310-320-1801 x13
http://corporate.ppg.com/ppg/corporate/default.htm

NUCOR Steel
Hot-band steel from their new Castrip plant for light-gage steels framing and roof
Crawfordsville, Indiana
Peter Campbell, 800-777-0950
www.castrip.com

Hardy Frames, Inc.
All 28 Hardy Frames as required by engineer
Gary Hardy, 805-477-0793
www.hardyframe.com

Efficient Heating Technology
Provided thermal calculations and design of hydronics floor heating system.
949-487-2600
www.eht-usa.com

EVI Services--Tenant Improvement Contracting
All interior doors and door frames
San Diego, CA
Enrique Velez, 619-227-9039; Fax: 619-863-5923
eovelez@yahoo.com

Distinctive Builders, General Contractor
Plumbing design and building take-offs
760-942-1014

Skip Fralick, PE, CEM—(Individual Volunteer)
Total energy systems coordination
619-985-2603

Larry Christian, Electrical Engineer— (Individual Volunteer)
Provided design for all electrical systems
858-597-0555

Robert Gales, Acoustical Engineer—(Deceased)
Provided acoustical study for building site CUP

Burgess Group
Mechanical & Electrical Commissioning
Michael Burgess, 619-528-1042
www.burgess.com

Perdue Design—Landscape Architects
Landscape Architecture
Clay Perdue, 401-789-6712
Rhode Island

Sunshine Supply
Waterproofing Consultant
Ed Waldman, 619-276-7442
www.sunshinesupply.com

Drew George and Partners
LEED Consulting and Commissioning
Drew George, 858-272-2123
Info@DGP-inc.com