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## Green Building Case Study: First Congregational United Church of Christ, Ashland, *A house where love can dwell and all can safely live*



The renovated church building.

**Towards a Vibrant New Church:** The First Congregational United Church of Christ's building was in a sad state of disrepair in 2004, nearly slated to be torn down. And as the building was crumbling, the congregation was transitioning, in between pastors and looking towards a new future. What was the best way for them to move forward? Create a fresh place to worship and grow. And as the small, 40-member congregation worked together in creating an open and welcoming new church, this hymn served as a guide for their hearts and minds:

Let us build a house where love can dwell and all can safely live,  
a place where saints and children tell how hearts learn to forgive.  
Built of hopes and dreams and visions, rock of faith and vault of grace,  
here the love of Christ shall end divisions. All are welcome...in this place.  
--Marty Haugen, "All are welcome"

**A House of Welcome:** Many of the members, including Brad Roupp and Becky Martin, noticed the decaying church building and initiated the regeneration process at First Congregational. The vision emerging from congregants was for a welcoming and healthy space for everyone in not just the church congregation, but the entire community and all the groups who use the building. The primary goals of the building project were threefold: to be environmentally responsible, fully accessible, and more aesthetically welcoming. The cost of renovating the building and starting from scratch were about equal. The congregation wanted to preserve their church home, so they decided to renovate the old building in its original location.

Roupp, a local contractor, assessed the work needed to be done on the 4,000 square-foot building, together with former church member and architect on the project, Raymond Kistler. Martin chaired the capital campaign committee, which raised \$250,000 to finance the project. Two other committees, the Building and Aesthetic committees, formed in order to direct the project from planning through completion.

The sanctuary was originally constructed around 1910 with lumber seconds from local mills. In the 1950's the basement was dug and installed, and large rooms were partitioned into smaller units, creating a cramped and dark feeling in the building. These new additions, not built to code, left the roof unsupported and the walls bowing outward. Unbeknownst to the congregation, the basement was crumbling under the weight of the building's unsupported roof and walls. Moreover, the building's

breakdown was creating unsafe breathing conditions for some members, and the outdated design created accessibility challenges for those with different modes of mobility.

**The Remodeling Process:** In the summer of 2004, the demolition began. The second day into the process, Roupp noticed that the foundation which had been designated as being structurally sound in the building assessment was in fact not sound. Some of the concrete blocks used to build the basement were not filled with the requisite concrete for strength, and instead were hollow and weak. This unexpected challenge added cost and time to the project, yet there was no stopping the renovation now that demolition had begun. Money that had been designated for stained glass windows was reallocated to completely replace the foundation.



The sanctuary in progress.

So the building was raised and the foundation rebuilt. Then the building was lowered onto a new floor, and the roof lifted off. Because the church was built on a slope, the sagging walls were not square; all the corners were cut off and replaced and the walls realigned to building code standards. The roof then was put back into place, the beams and rafters straightened and “sistered” with reinforcements. In the gutted walls still remain the original studs, with new reinforcing studs, insulation, and shear panels (shear panels are nailed in a specific way to counter the effects of lateral loads acting on a structure). The roof and walls were fully insulated, reducing the church’s output of greenhouse gasses by

lowering the amount of fossil fuel used to heat and cool the building, and helping to keep operational costs down.

By the fall of 2005, the project was finished and designated a green business by the City of Ashland’s Green Business Program because it exemplifies the criteria for encouraging environmental stewardship while exhibiting economical and ecologically sound practices.

**The Architect:** Ray Kistler of Ashland was the architect on the project. Overall, making the church structurally sound was the first priority. The church’s footprint remained intact and only the narthex was expanded to create a larger entrance for wheelchair mobility. Kistler, who specializes in mixed-use buildings with an emphasis on green building, designed the interior to be more accommodating to those with special needs. Two handicap bathrooms upstairs and one downstairs, as well as a larger, more functional kitchen for preparing community meals, were key elements in the new design. The old partitions in the basement rooms were removed, allowing larger open gathering spaces.

**Materials:** All new materials used in the refurbishing of First Congregational Church were bought from local businesses, supporting the local economy. Through its research, the building committee found then purchased only products that would be healthy for people and the planet. The committee sourced new materials with zero off-gassing of Volatile Organic Compounds (VOCs) to create a healthy worship space. To reduce the consumption of new materials and the volume of refuse sent to the landfill, all old materials that were deemed safe to use were reused. Old windows were replaced with thermal paned windows. Compact fluorescent light bulbs were installed exclusively in and outside the building to reduce energy consumption.

**Heating and Cooling:** First Congregational uses a hydronic heating system, which is 98% efficient (98% thermal transfer). The system works by pumping hot water to radiator units. Each room has a wall radiator that is controlled by an individual thermostat. The hydronic heat works not just by radiating heat, but by creating a convection air current in the room to circulate hot and cool air and regulate temperature.

Because of the insulation installed in the walls and the new insulated windows, heating costs have significantly dropped.

**An Alternative to Air Conditioning:** In light of Ashland's moderate climate, the church determined that an air conditioning unit was unnecessary, so they did not install one. Instead, they opted to put two earth-friendly mechanisms into place to keep the building cool and dry in the summer. A large attic fan was installed, which automatically turns on every night. When the fan turns on, levers in the basement automatically open to allow cool night air up into the building. Hot air is pulled up and out of the attic, and cool air fills the rooms below.

During the day, at about noon, an evaporative cooler blows cool air into the building. Evaporative coolers function by pulling air through a wet pad, which naturally cools the air through evaporation, and then circulating the air with a fan. Evaporative coolers can generally lower the temperature of the air by 30 degrees in dry climates. The evaporative cooler was less expensive to install than refrigerated air cooling, is less expensive to run, increases the volume of air circulated in the building (so it's fresher) and in dry climates like Ashland's, adds humidity to the air so it feels cooler.

**Landscaping:** The church decided to keep most of the original landscaping, while accommodating the new handicap ramp at the main entry. Flowers, trees, bushes and native grasses take up much of the open area around the building, and one drip line irrigates a 40 by 50 foot area by the main entrance. The parking lot is gravel, allowing water to easily seep back into the soil and reduce channelized water flow into streams during storms. The City of Ashland usually requires parking lots to be paved but the congregation negotiated with the city to keep the lot gravel to reduce cost and use of resources.

**A Welcoming Place for All:** First Congregational added features to the remodeled building so that everyone would be welcome. The universal design included doorknobs, bathrooms, ramps and seating space so that young and old, able and disabled people could all enjoy the building. Becky Martin also notes that it was important to have a large functional kitchen and open social spaces to share in cooking and eating meals together. Since the remodel, the church congregation has experienced new growth and expansion in membership, worship attendance and community gatherings.

Martin and Roupp both agree that the environmental focus was "foundational" on this project. During meetings the committees were in total agreement that caring for creation and creating a welcoming space were the most important factors in making all decisions. "We wanted to build a house of welcome," Martin said, "...to be more inclusive, reach out, and create a space with a welcoming feeling."

*Compiled and written for OIPL by Sarah Pruett.*