

figure 1



Wespac is currently using Insulated Concrete Forms (ICFs) on the St. Bernadette Gym project. Here's a bit more about the technique and some photos from a recent visit to the job site.

- Formwork for concrete that stays in place as permanent building insulation for energy-efficient, cast-in-place, reinforced concrete walls, floors, and roofs.
- Interlocking modular units that are dry-stacked (without mortar - figure 1) and filled with concrete. The forms lock together somewhat like LEGO bricks and serve to create a form for the structural walls or floors of a building.
- Concrete is pumped into the cavity to form the structural element of the walls (figure 2). Usually reinforcing steel (rebar) is added before concrete placement to give the concrete flexural strength, similar to bridges and high-rise buildings made of concrete. Like with other concrete formwork, the forms are filled with concrete in increment "lifts" to manage the concrete pressure and reduce the risk of blowouts. This is happening every 8' at St. Bernadette.

### Benefits\*:

- ICF structures are much more comfortable, quiet, and energy-efficient than those built with traditional construction methods.
- Minimal, if any, air leaks, which improves comfort and reduces heat loss compared to walls without a solid air barrier
- High sound absorption, which helps produce peace and quiet compared with framed walls
- Structural integrity for better resistance to forces of nature, compared with framed walls
- Higher resale value due to longevity of materials
- When the building is constructed on a concrete slab, the walls and floors form one continuous surface; this keeps out insects.
- Concrete or Polystyrene do not rot when it gets wet
- Reduces HVAC operating costs from 30%-70%
- Designing and Building with ICFs help your construction project attain LEED Green Building status.
- Insulating Concrete Forms create a structural concrete wall (either monolithic or post and beam) that is up to 10 times stronger than wood framed structures.

### Disadvantages\*:

- Adding or moving doors, windows, or utilities is somewhat harder once the building is complete (requires concrete cutting tools).
- During the first weeks immediately after construction, minor problems with interior humidity may be evident as the concrete cures.
- Depending on the form material, concrete mix and pouring procedures, honeycombing may occur during the pour, where gaps are left in the concrete. This can be resolved with the use of a vibrator, using free draining form materials or self-consolidating concrete, though the latter option is much more expensive and not necessary.
- With polystyrene based forms, the exterior foam insulation provides easy access for groundwater and insects. To help prevent these problems, some manufacturers make insecticide-treated foam blocks and promote methods for waterproofing them.

\*As per manufacturers.

# ICF - St. Bernadette

figure 2



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