

Rationale for using Cross Laminated Timber (CLT) for the construction of the Canadian Carmelite Charity Society Formation House

The BC building Code required that the CCCS Formation House be constructed of materials capable of providing a 1 hour fire resistance rating. This meant only two options were available for this project, solid wood construction (CLT) or concrete. We chose and support the use of CLT (wood) for the following reasons:

- is less expensive than concrete
- takes less time to construct
- achieves the 1 hour fire rating required
- is a far superior environmentally friendly product
- has greater heat insulation properties than concrete for the Canadian climate
- has an aesthetic relationship to the surrounding natural environment
- has excellent earthquake resistant properties (can be repaired unlike concrete)
- responds directly to the Pontiff's message on sustainability and the environment

Other Reasons for using CLT (wood)

Concrete is still required for the footings and underground structure of this project. The goal was not to entirely eliminate the use of concrete but rather minimize its use and supplement wherever possible with environmentally friendly wood product. The manufacturing of cement (one ingredient of concrete) creates large amounts of pollution, requires vast amounts of electricity, and in 3rd world countries where less stringent codes are employed concrete contributes to high death tolls due to collapse.

- Concrete requires five times the amount of energy to produce as a ton of sawn softwood and steel (rebar used in concrete) requires 24 times more energy than wood to produce. Wood is 350 times more insulative than concrete meaning less energy is needed to heat and cool a wood building.
- CLT has a lower carbon footprint than concrete
- CLT is a renewable resource, concrete is not
- Concrete in 3rd world countries is less expensive than in North America because labour costs in 3rd world countries are a fraction of labour costs in North America. Labour in 3rd world countries is unregulated and typically exploits the poor with exposure to unsafe working conditions and Cement generates 1.5 billion tonnes of carbon dioxide (CO₂) per year, which accounts for five per cent of the total CO₂ production in the world.

- Concrete also uses one billion tonnes of water annually. Add to that the nine billion tonnes of aggregate used for concrete, which has a depletion effect on natural resources, and it can be surmised concrete properties themselves are not going to save the environment.

Concrete is one the world's leading contributor's to increased carbon pollution and wasting of natural resources. By using CLT (wood) is a direct response to the Pontiff's message and serves to lead by example with real change in the way we co-exist and respect our surrounding environment for today and our children's future tomorrow.

The Pontiff's Environmental Message

Up to now, he says, the world has accepted a "cheerful recklessness" in its approach to the issue, lacking the will to change habits for the good of the Earth.

"Climate change is a global problem with grave implications: environmental, social, economic, political and for the distribution of goods," the papal statement says. "It represents one of the principal challenges facing humanity in our day."

Encyclical Letter ***Laudato Si'***
Of The Holy Father **Francis**
On Care For Our Common Home

My appeal

13. The urgent challenge to protect our common home includes a concern to bring the whole human family together to seek a sustainable and integral development, for we know that things can change. The Creator does not abandon us; he never forsakes his loving plan or repents of having created us. Humanity still has the ability to work together in building our common home. Here I want to recognize, encourage and thank all those striving in countless ways to guarantee the protection of the home which we share. Particular appreciation is owed to those who tirelessly seek to resolve the tragic effects of environmental degradation on the lives of the world's poorest. Young people demand change. They wonder how anyone can claim to be building a better future without thinking of the environmental crisis and the sufferings of the excluded.

14. I urgently appeal, then, for a new dialogue about how we are shaping the future of our planet. We need a conversation which includes everyone, since the environmental challenge we are undergoing, and its human roots, concern and affect us all. The worldwide ecological movement has already made considerable progress and led to the establishment of numerous organizations committed to raising awareness of these challenges. Regrettably, many efforts to seek concrete solutions to the environmental crisis have proved ineffective, not only because of powerful opposition but also because of a more general lack of interest. Obstructionist attitudes, even on the part of believers, can range from denial of the problem to indifference, nonchalant resignation or blind confidence in technical solutions. We require a new and universal solidarity. As the bishops of Southern Africa have stated: "Everyone's talents and involvement are needed to redress the damage caused by human abuse of God's creation". [22] All of us can cooperate as instruments of God for the care of creation, each according to his or her own culture, experience, involvements and talents.