Internal Cavity Wall—Description of Innovation

What is LICW-25? *Precast concrete - non load bearing partition walll*

LICW – 25 is a sustainable technology of manufacturing precast concrete wall that combines greater stiffness matrix with a rib profile, enhancing the structural stability. A thickness of 25mm was achieved due to the configuration which prevents bending along the width. These are **ULTRA LIGHT** in weight with a unique **TWIN** cavity wall panel fixed back to back with a 50 mm air gap, facilitating services to be added after erecting of panels in one direction. LICW25 panels improve the quality of work and reduce load on the structure, cost effective / **SIMPLICITY** of erection by regular construction workers. More durable and affordable, cost effective- alternate solution to: earth / wood walls/ brick / concrete blocks or cast- in – place concrete. Lower thickness - reduction in raw material. Manufactured by using EPS beads.

What it changed or replaced?

In order to save the planet and leave a legacy for our children and their children, we all need to ensure that everything we do is **SUSTAINABLE**, be it at work or home. LICW-25 is shaped and structured to make full use of its profile to provide greater stability and to facilitate services –like electrical, plumbing, etc. A gap of 10 mm is left between the beam bottom and the panel, to prevent load transfer on the panel occurring due to deflection of the structure. Modifications are possible in electrical / services which may arise, after the panels are fixed, modification made can be repaired with cement – sand mortar. Easy to erect and shift – light weight machineries can be used along with local labour force. Curing is negligible – keeping the construction site clean and dry. Sound transmission is reduced –50 mm air gap is given between the panel walls. Increase in floor area. Sustainable type of construction as wastes EPS beads are used further reducing weight of panel as volume of material consumed is minimal. Manufactured by using EPS waste material. Pollution reduced – as wastage material used.

Affordable quality homes – **A HOUSE I CAN AFFORD – A SHELTER OVER MY HEAD – HOPE REASSURED.**
Noise and hassle free construction. **Pollution** reduced.
Zero energy system considers all the aspects manufacturing process of precast elements.

Where & when it originated?

To overcome the reality of reducing skilled labour and escalation in material cost which pushed the project beyond schedule and cost over runs, KT group, partners, came up with a concept of thin twin precast walls. The idea was conceived by Mr. Gautam Janakiram ME. And Mr. Kartik Janakiram BE. Granite is around 20 mm thick and can be lifted and shifted- what was the reason? Why does the column box formwork not bend – and how is its structurally stable? The thickness of our toilet door shutter is 25mm thick. With this in mind and, after preliminary calculations the first prototype was made in 2013 Mysore, Karnataka, India – concrete supplied by Lafarge using EPS beads produced a ultra light weight precast wall panel.

ICW-25 (INTERNAL CAVITY WALL)light weight concrete

PRECAST NON LOAD BEARING LIGHT WEIGHT TWIN PARTATION WALL

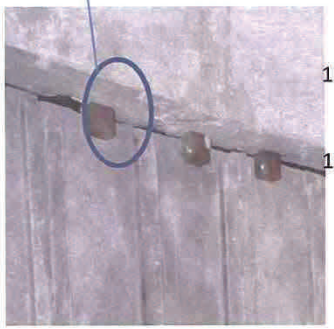
Light panels allowing through twin wall add electrical, plumbing and cooling systems, which can be put everywhere and simplicity of fixing.

Non load bearing internal partition wall(light weight concrete using EPS beads)

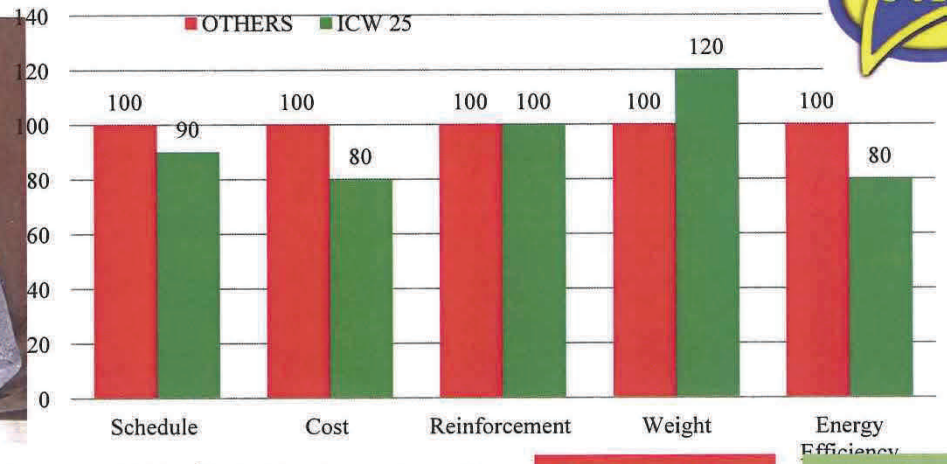
- *Each panel 25 mm thick, duct = 50mm, total thickness of 100 mm.*
- *Joints sealed with weak mortar/ thermal expansion **does not** effect as it is internal wall.*
- *Weight –40.98kg/ sq.m/ panel*
- *10 -20 mm gap, b/n panel and beam bottom for deflection.*
- *Can be used as false floor with secondary supports*
- *Shifting of panel – 24 hours before curing , to curing bay.*

Light weight concrete with EPS beads - LICW25

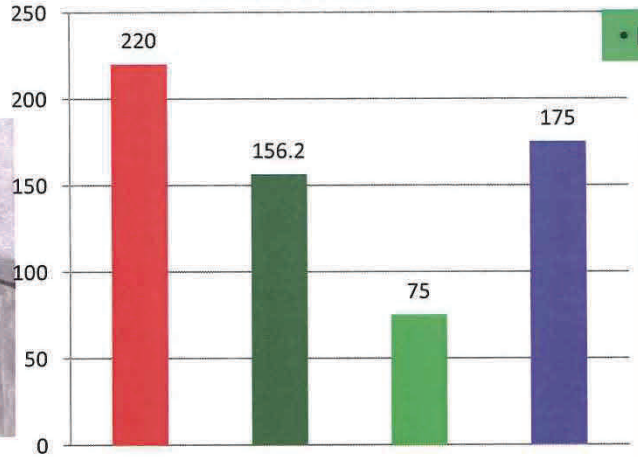
A

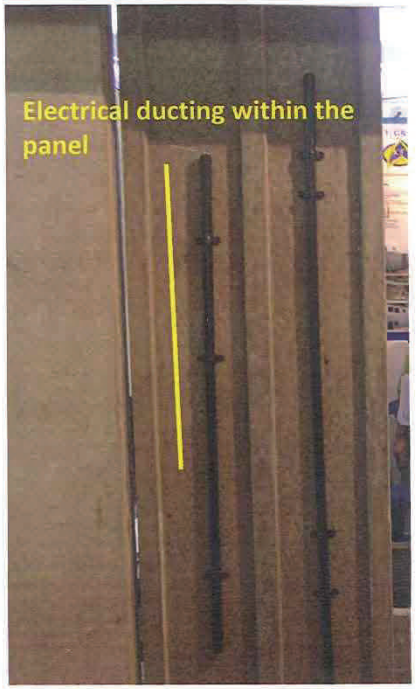


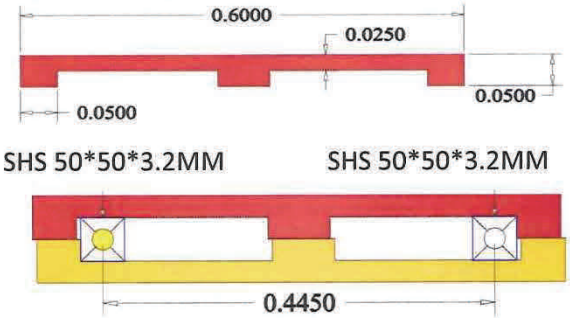
COMPARISON B/N *PRECAST* AND other partition walls



COMPARISON B/N DIFFERENT MAETRIALS WEIGHT IN KGS

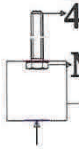






Fixity

Section A



EA M 10 N Fisher sleeve anchor 40 mm deep

M 10 bolt and washer 40 mm deep

SHS 50*50*3.2 mm

20 mm hole left to fix M 10 -40 deepbolt to EA M 10 N sleeve anchor

Construction Innovation Forum • 6494 Latcha Road, Walbridge, OH 43465 • 419-725-3108 • Fax: 419-725-3079 • Email: info@CIF.org • www.CIF.org