

Ferro Build

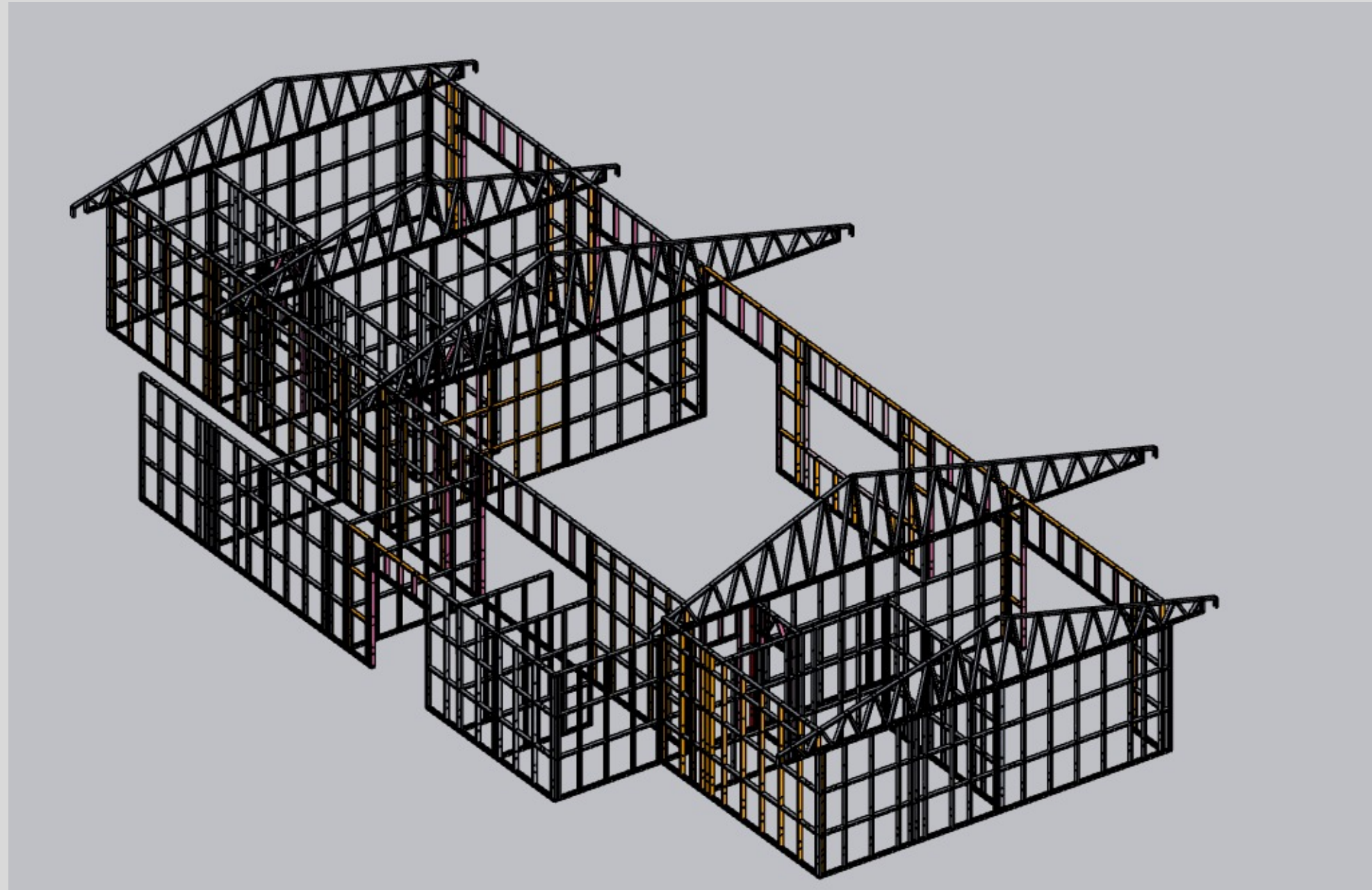
Ferron cladding for LGSF :
A composite structure

FerroBuild is an integrated LGS design and cladding solution provider that specializes in using the properties of the patented ferron panel to generate low steel consumption, yet extremely sturdy modular structures.

www.ferrobuild.in



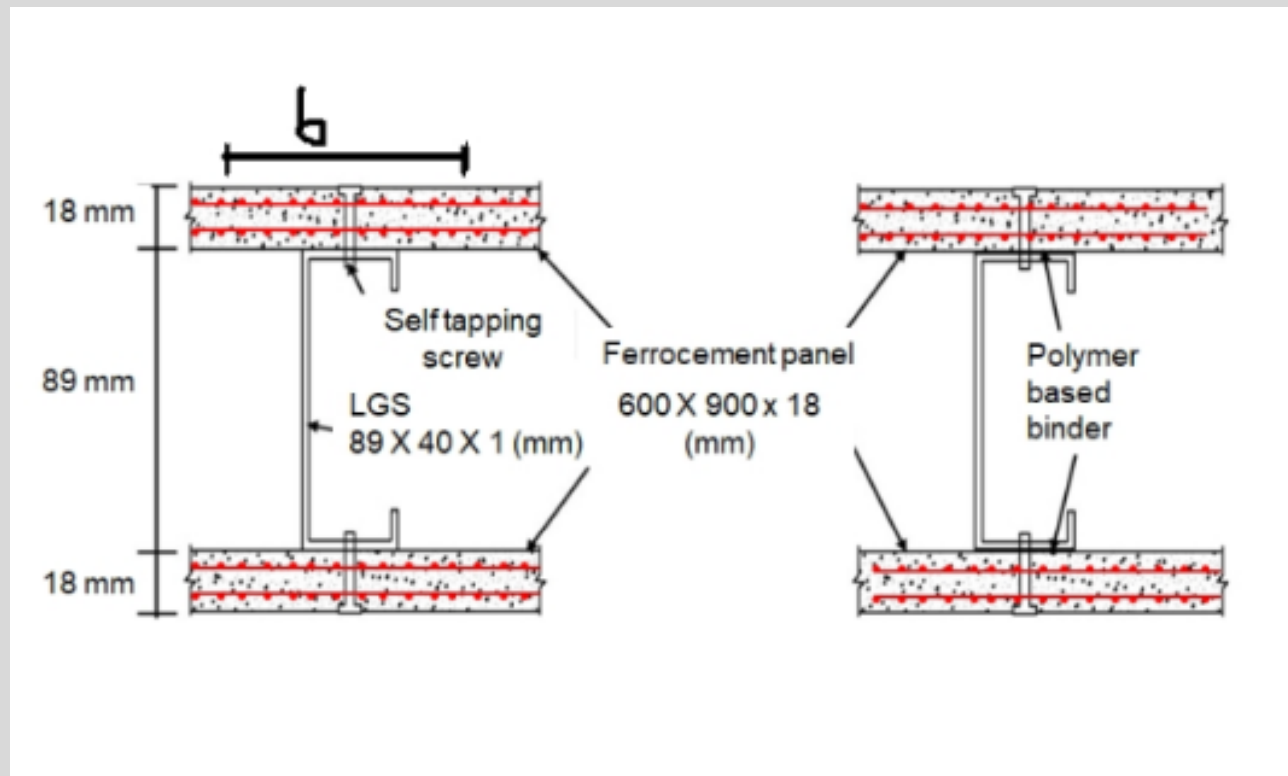
3D RENDER FOR 3BHK



OUR APPROACH TO LGSF STRUCTURES a composite system



LIGHT GAUGE STEEL + FERRON COMPOSITE CONSTRUCTION



Advantages of composite action:

- Enhanced strength
- Reduced deflections
- Reduced steel consumption
- Assured structural integrity
- Enhanced durability

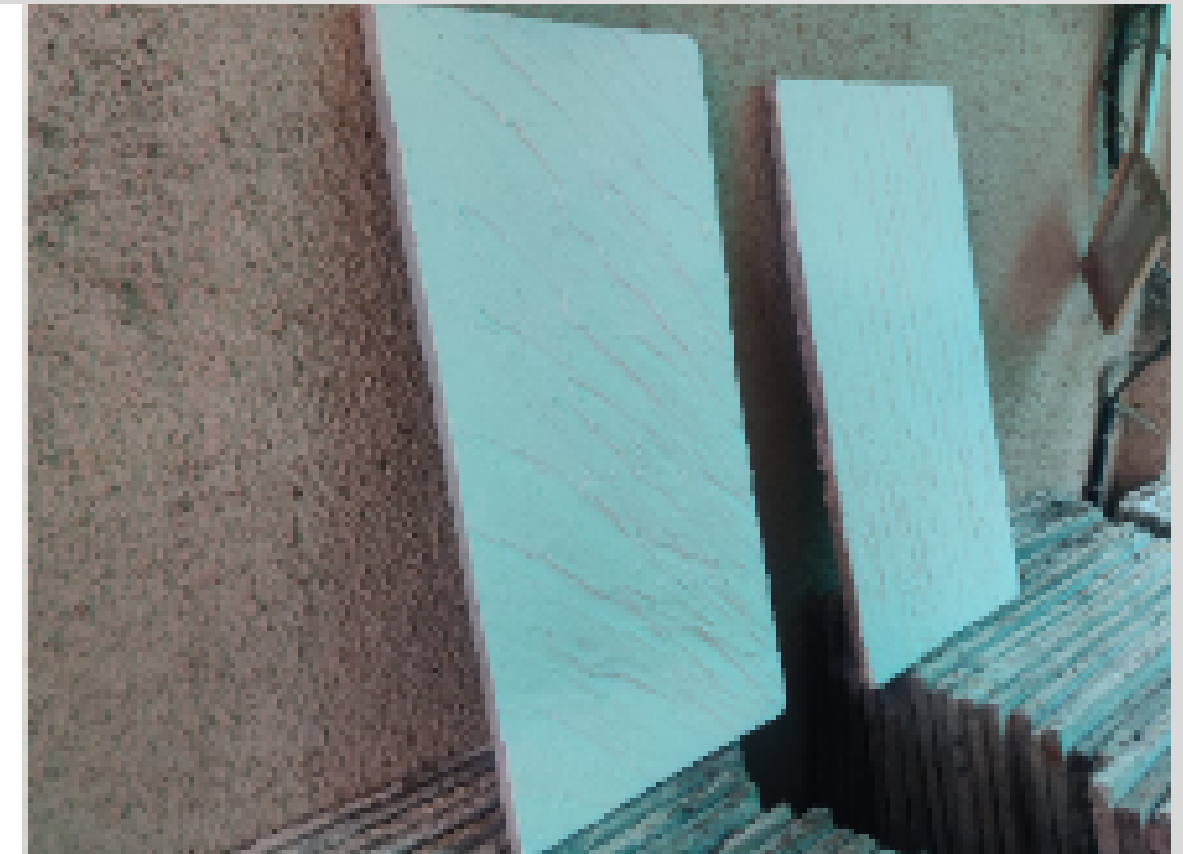
FERRON PANEL (PATENTED)



Size: 600 x 900 x 18 mm Ferron panels have high tensile and compressive strength



Attaching Ferron on steel frames with screws mobilizes the composite action enhancing strength of the steel section



Finished ferron panel of actual size
Size: 600 x 900 x 18 mm

GENERAL SPECIFICATIONS

1. Strength of mortar: 35MPa
2. Size: 900 x 600 x 18 mm
3. Weight per panel: 25 kg
4. Density: 2350 kg/m³-2550 kg/m³
5. Installation: 10 countersunk screws of 4 mm diameter per panel (3 on each of the long edges and 2 on each of the short edges). Nonshrink and high-strength epoxy mortar to be filled in the gap between the adjacent panels.
6. Water absorption ratio: 7.96%
7. Thermal conductivity: 0.45W/mK
8. Strength:
 - a. 24 MPa in hoop and bending tension
 - b. 14 MPa in pure tension
 - c. 9 MPa in shear

*Tests 1,4 & 6 done by Durocrete, Pune

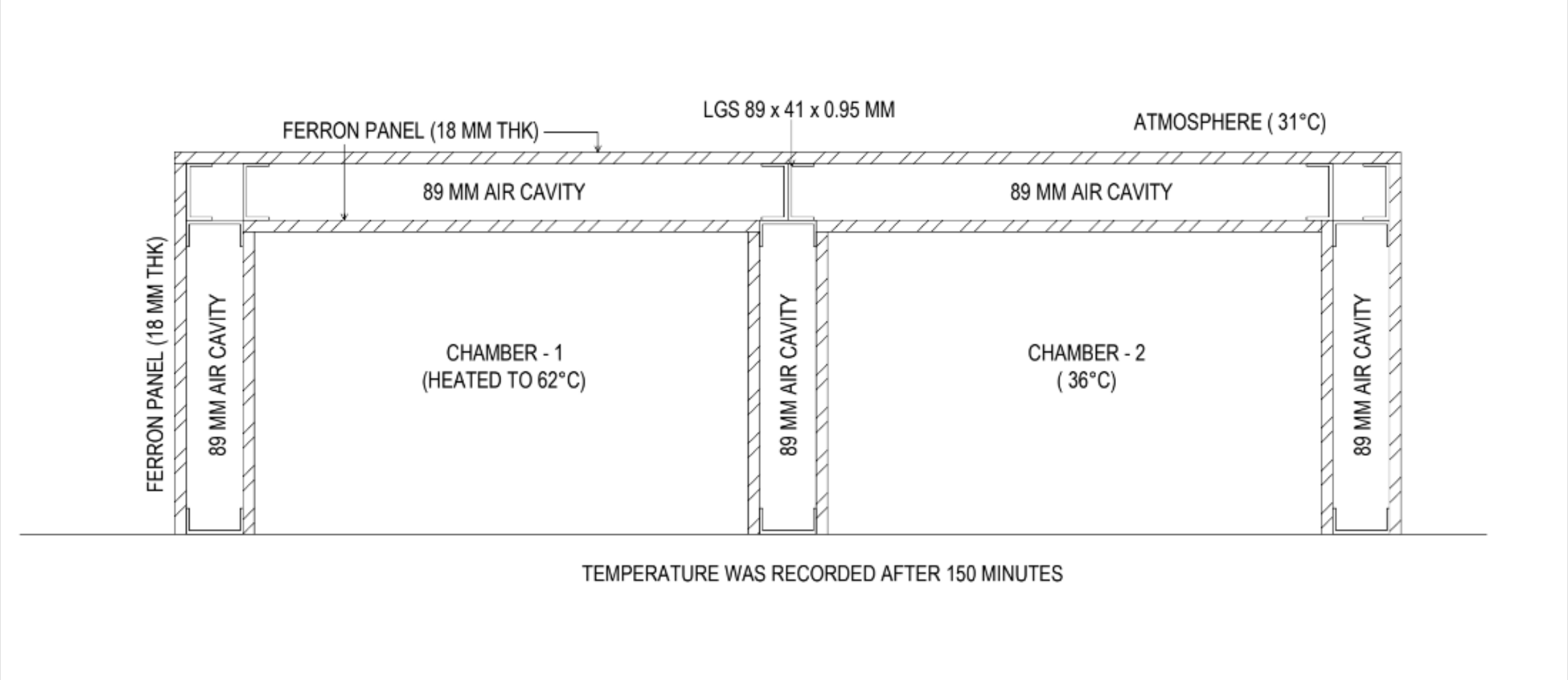
COMPARISON BETWEEN FCB AND FERRON

	FCB	FERRON
Design theory	Column beam	Load bearing
Steel. Kg/m ²	4.3 - 4.5	1.8 - 2.25
Cladding	2 ext + 12mm gypsum intera	18mm ext +int
Insulation	Rockwool / aerated concrete	None
Treatment water	Vapor barrier	None
Joints	Prone to cracks	None
Joint TRt	Joint tape	Polymer filler
Knocking	Yes	None
Longevity	20 yrs	80 yrs

LGSF CONSUMPTION



THERMAL CONDUCTIVITY



Studies done at MIT WPU , Pune

TEMP TABLE

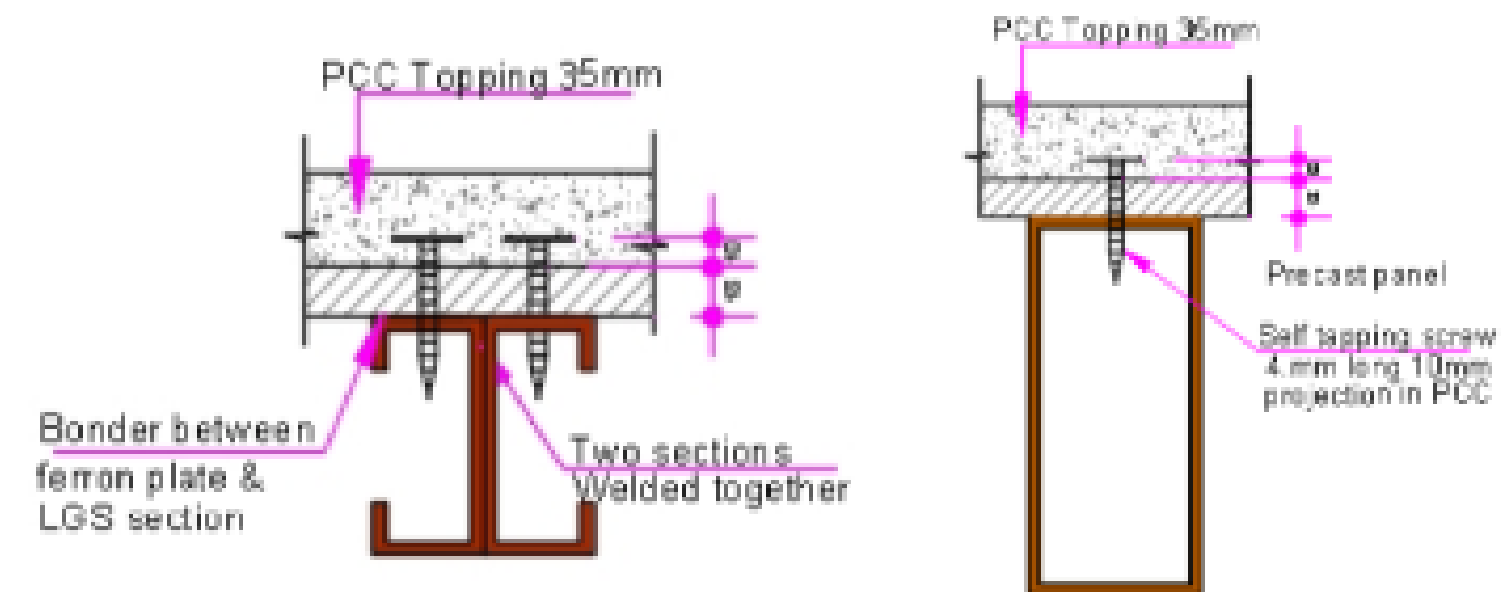
Time (minutes)	Temperature inside the heated compartment (C)	Temperature outside the compartment (C)	Temperature in the adjacent compartment (C)
0	30	30	31
10	33	30	31
20	35	30	31
30	38	30	32
40	40	30	31
50	43	31	31
60	45	31	31
70	46	31	31
80	48	31	33
90	49	32	33
100	51	31	33
110	54	31	33
120	55	31	33
130	57	32	34
140	59	31	35
150	62	31	36

STRENGTH COMPARISON OF FERRON WALLS VS. BRICK WALLS

Table No 2: Comparison of Impact resistance of wall panel

Case	Wall Description	Static Flexural load capacity N	Static flexural strength of LGS+Ferron panel w.r.t, Brick masonry	Dynamic factor $\dot{\eta}$	striking velocity of object	Equivalent Dynamic load N	Impact Strength of LGS+Ferron w.r.t Brick masonry
1	Brick wall 600 mm * 900 mm 230 mm thick	3500 N	--	$\dot{\eta} = 28.35$ velocity	20 KMPH striking velocity	123.46 N	---
			--	$\dot{\eta} = 51.52$ for	50 KMPH striking velocity	61.94 N	----
2	LGS channel with one Ferron panel	35000 N	10 times	$\dot{\eta} = 3.51$	for 20 KMPH striking	9971.5 N	80.76 times
				$\dot{\eta} = 6.391$	50 KMPH striking velocity	5476.45 N	88.41 times
3	LGS channel section with two Ferron panels , each attached to channel flange.	142000 N	40 times	$\dot{\eta} = 2.483$	for 20 KMPH striking	56383 N	456.69 times
				$\dot{\eta} = 4.5152$	50 KMPH striking velocity	31006.38 N	500.58 Times.

FERRON PANEL – AS A SLAB ELEMENT



Loading Capacity of a 18 mm Ferron panel + 32 mm screed is 1600 kg/m²

MEP & FINISHING

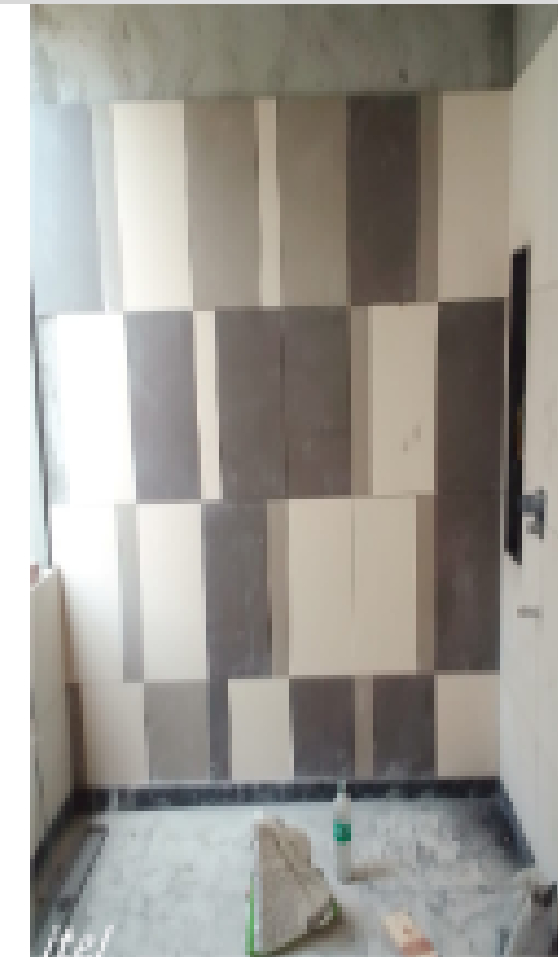
FERRON PANEL – AS WALL CLADDING



(a) Electrical conduits



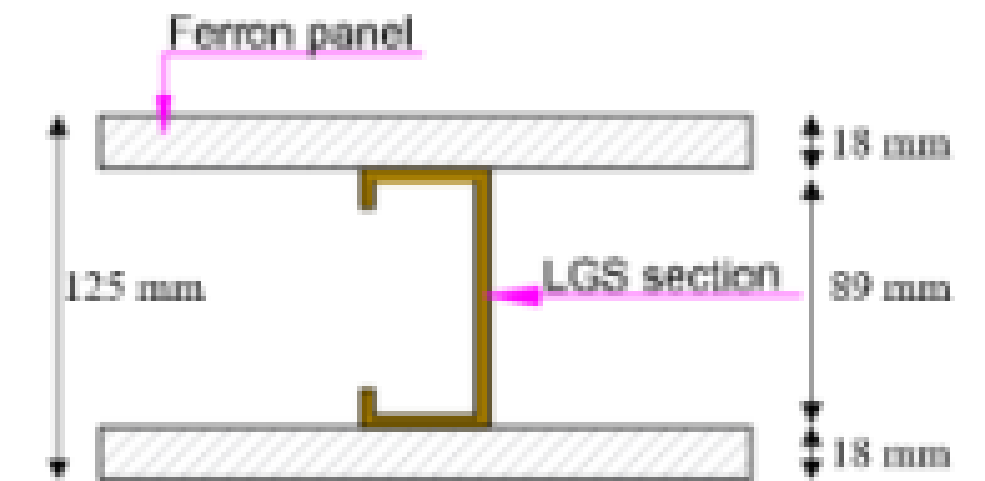
(b) Internal finish and accessories



(c) Tiles on ferron panel wall

FEATURES OF A FERRON-LGSF WALL

1. Overall wall thickness: 125mm (89mm air cavity)
2. Overall wall thickness: 186mm (150mm air cavity)
3. Wall strength in flexure compared to 230 mm thick brick masonry wall
4. Static loading: 40 times stronger
5. Impact loading: 400 times stronger
6. 4. Thermal transmittance (U value):
7. 125 mm thick wall: 0.275 W/m²K
8. 186 mm thick wall: 0.164 W/m²K
9. 5. Thermal comfort: At least 15 times better compared
10. To brick or concrete walls of the same thickness.
11. 6. Lateral load resistance: Very high as every wall acts as
12. A load-bearing shear wall due to high in-plane shear
13. Strength of panels.



Not to scale cross section of ferron and slight gauge steel composite wall



Ferron wall sample

OUR PROJECTS

HEDVI - G+1



G+2 PUNE



INDUSTRIAL SHED



FARMHOUSE



TERRACE EXTENSION



DELHI BUNGALOW



GET IN TOUCH

Website - ferrobuild.in

LinkedIn - [ferrobuild design systems](https://www.linkedin.com/company/ferrobuild-design-systems)

Contact - +91 - 7435033298

