



# SOCIETY FOR DEVELOPMENT OF COMPOSITES Composites Technology Park

(An R&D Centre established with the Support of Dept. of S&T, BMTPC and HUDCO of Govt. of India and Dep of C&I, KHB and RGRHCL of Govt. of Karnataka)



## New Age Concretes

### LGS- Composite Partition Wall and LGS –Composite Load Bearing Wall

(Fast Track Innovative Technology)



KVQA ISO 9001 Certified



Member, Green Building Council

**Dr. R. Gopalan**  
**VP & CEO**





## RV-TIFAC LGS-SCP Building System

(Shaping the future of Construction to *Simpler, Faster, Better & Eco Green*)

**RV-TIFAC LGS-SCP Walls and Roof System is a Custom Designed,  
Pre-Engineered, Factory Made First of Its Kind Innovation  
Derived From Spin-off of Indian Aerospace Technology**

"Delighted to visit RV-TIFAC Composites Design Centre. Design in Composite technology is Futuristic. It has to be developed and propagated. My Best Wishes"  
- Former President of India, Bharat Ratna Dr. APJ Abdul Kalam.

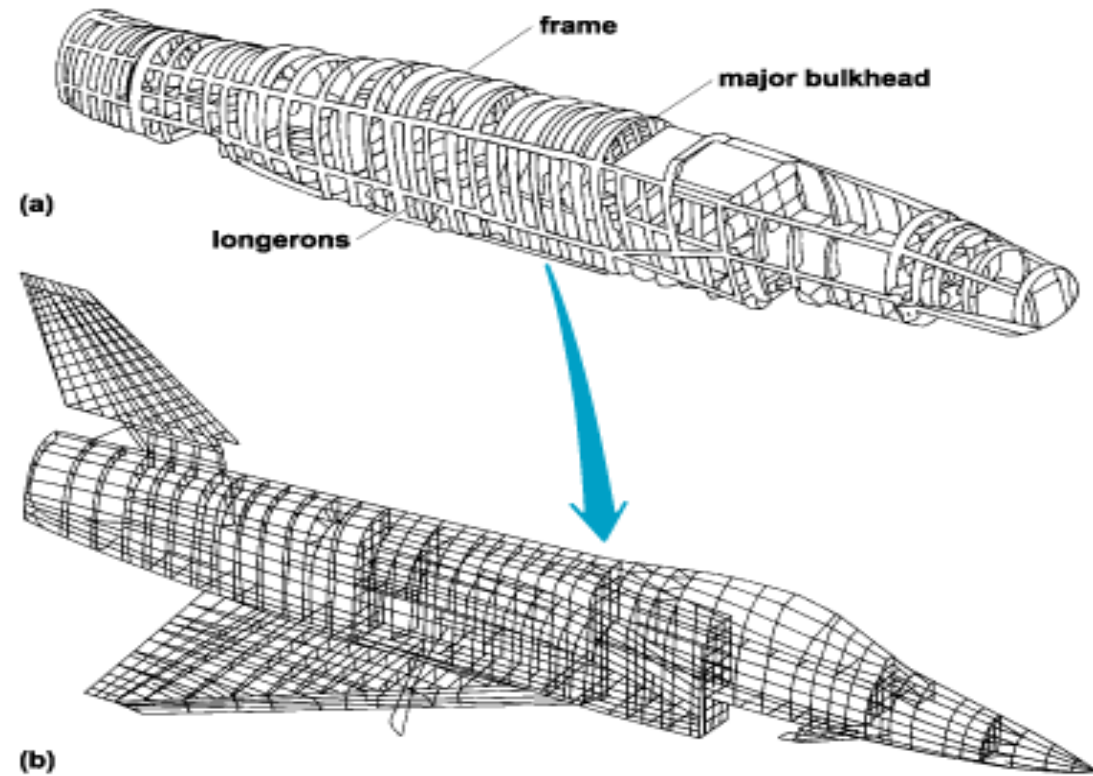
**Go RV-Tifac EcoGreen and Be A Champion**



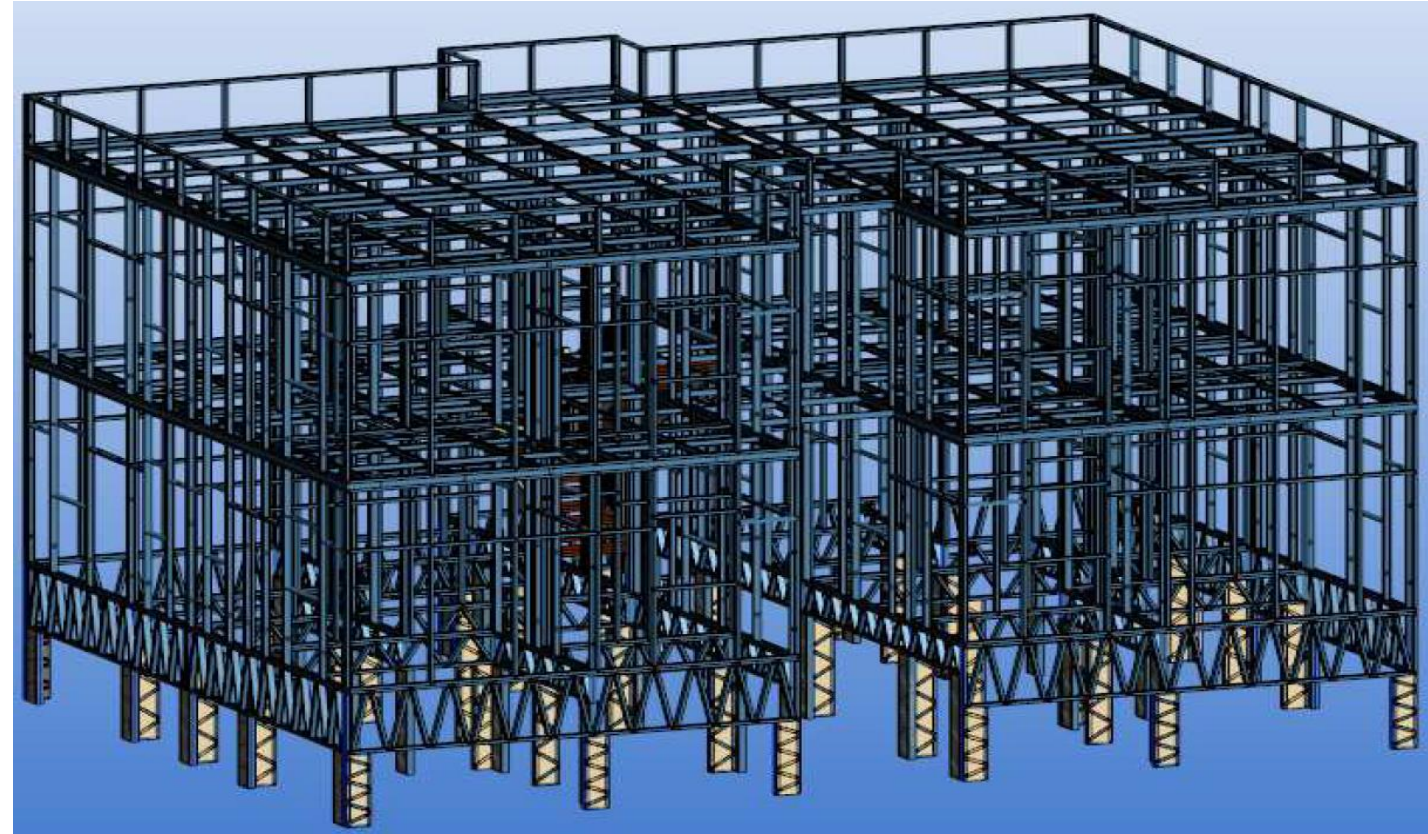


T&B.mp4

# LGSFS Building Construction Technology is Analogous to Aircraft Technology



**Air Frame Metal Structure of a Fighter Aircraft**



**Light Gauge Steel Frame Structure (LGSFS) for Foundation, Wall and Roof Slab of a G + 1 Affordable House**

# Need for ECOFAST Building Systems and Fast Track Building Construction Technology

## Present Challenges...



# Take up R&D activities to develop alternatives to sand



*A sight of lorries waiting for their turn to fill up sand in a dry river bed in Tamil Nadu*

# water crisis hits construction sector in India



# Delhi Air Pollution: Supreme Court Re-imposes Ban on Construction Activities



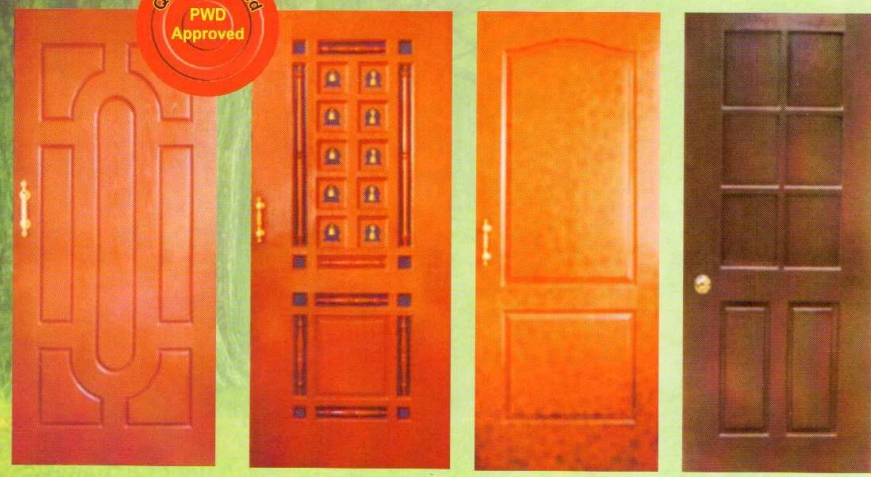


## GRP Sandwich Composite Doors

*(An excellent replacement for wooden doors)*

### ECO-PLAST

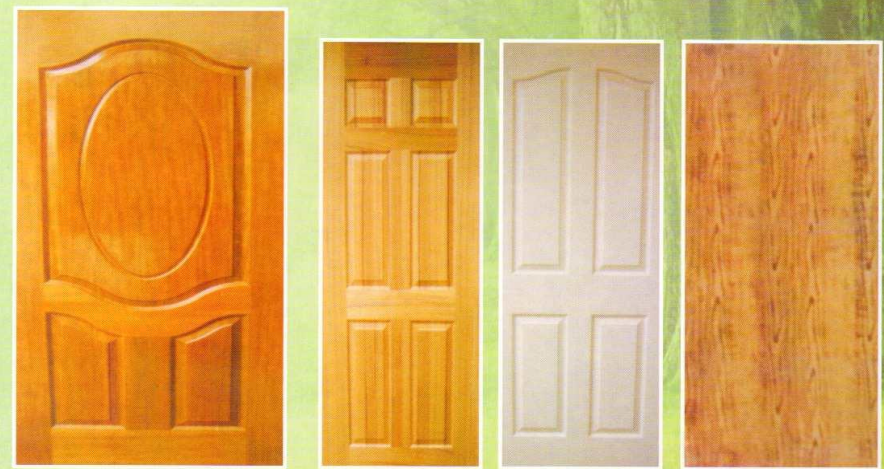
- ◆ GRP Sandwich Composites Doors are unbreakable.
- ◆ Aesthetic Wood Green Design with Attractive Carvings
- ◆ Maintenance Free
- ◆ Pleasing Colours



## HDF-VEENER / HDF Sandwich Composite Doors

### ECO-FIBER

- ◆ WPC Door Frame
- ◆ HDF - Veener / HDF Skin Doors are Manufactured under High Temperature and Pressure
- ◆ More Natural
- ◆ Mallefluous
- ◆ Fresh and Classic
- ◆ Long Life



HDF Veener Composite Door

HDF Skin Doors

Wood Veener Composite Flush Door



## Society for Development of Composites

(A Not-for-Profit Registered R & D Society under the Karnataka Societies Registration Act 1960 - S.No.98/2000-01)

### Composites Technology Park

No. 205, Bande Mutt, Kengeri Satellite Township, Bangalore - 560 060  
☎ : 6599 7605, 2848 2771.

Email: drgopalan2003@yahoo.com website: [www.compositestechologypark.com](http://www.compositestechologypark.com)



GOI Approved Institute

**Dr. R. Gopalan**  
Executive Director

Eco-Friendly Composite Products and Eco-Fast buildings developed by RV-TIFAC – SDC, Composite Technology Park are introduced in the Schedule of Rates 2016-17, in the Karnataka PWD and IWTB, Bangalore Circle. The details are given below:

Sl No	Page no	Description
9.93	59	Providing and fixing factory made single leaf rigid GRP Sandwich composite door shutter of 32mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>
9.94	60	Providing and fixing factory made single leaf rigid GRP Sandwich composite door shutter of 40mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>
9.95	60	Providing and fixing 65mm X 90mm GRP Doorframe fabricated using E-Glass Chopped Strand Mat (CSM) <i>Confirm to RV-TIFAC Standards of Specification</i>
9.96	60	Providing and fixing 65mm X 125mm GRP Doorframe fabricated using E-Glass Chopped Strand Mat (CSM) <i>Confirm to RV-TIFAC Standards of Specification</i>
9.97	61	Providing GRP unbreakable railings available in a wide range of attractive colors <i>Confirm to RV-TIFAC Standards of Specification</i>
9.107	62	Providing and fixing to the existing door frames, factory made single leaf HDF Teak Veneer skin sandwich composite door shutter of 40mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>
9.108	63	Providing and fixing to the existing door frames, factory made single leaf HDF skin sandwich composite door shutter of 32mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>

Promoted by  
Karnataka Housing Board and RV-TIFAC Composites Design Centre  
Supported by

Dept. of C&I, RGRHCL of Govt. of Karnataka and DST, BMTPC & HUDCO of Govt. of India



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**Dr. R. Gopalan**  
Executive Director

9.109	63	Providing and fixing to the existing door frames, factory made single leaf HDF - Teak Veneer skin sandwich composite door shutter of 32mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>
9.110	63	Providing and fixing to the existing door frames, factory made single leaf HDF skin sandwich composite door of 32mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>
9.111	64	Providing and fixing to the existing door frames, factory made single leaf HDF skin sandwich composite door shutter of 32mm thick <i>Confirm to RV-TIFAC Standards of Specification</i>
38.60	316	Light gauge steel frame structure (LGSFS) <i>Confirm to RV-TIFAC Standards of Specification</i>
38.61	317	Providing and fixing with internal and external cement fiber boards / coir composite boards to LGSFS dry wall panel system. <i>Confirm to RV-TIFAC Standards of Specification</i>
38.62	317	Providing and fixing with EPS - Weldmesh - Cement - Sand shotcrete wall panels to LGSFS. <i>Confirm to RV-TIFAC Standards of Specification</i>
38.63	317	Providing and fixing with EPS - Weldmesh - Cement - Sand roof/floor panels to LGSFS. <i>Confirm to RV-TIFAC Standards of Specification</i>
38.64	318	Providing and fixing Engineer coir composite Flush Door Shutters of 30mm thick. <i>Confirm to RV-TIFAC Standards of Specification</i>
38.65	318	Engineered wood plastic composite door frames with cross section of 55mm X 110mm <i>Confirm to RV-TIFAC Standards of Specification</i>
38.66	318	Engineered wood plastic composite door frames with cross section of 75mm X 125mm <i>Confirm to RV-TIFAC Standards of Specification</i>
38.67	319	Engineered wood plastic composite Window frames with cross section of 55mm X 110mm <i>Confirm to RV-TIFAC Standards of Specification</i>

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Part 1.mp4



**LGSEFS Infill Concrete Panel Demo Building at CTP for Full Scale Testing**



CIVIL-AID

**CIVIL-AID TECHNOCLINIC Pvt. Ltd.**

Accredited by NABL as per ISO:17025 for  
NDT, Geo-Technical, Material Testing and Chemical Testing

*Report on*

**PERFORMANCE TESTS CONDUCTED ON NEW  
GENERATION HOUSE CONSTRUCTED BY USING  
FOAM CONCRETE WITH LIGHT GAUGE STEEL**



NOVEMBER 2012

*Report for*

The Executive Director  
Society for Development of Composite  
Bandemutt, Kengeri Satellite Town  
Bangalore - 560 060

Various performance oriented tests on Foam Concrete with Light Gauge steel building constructed by Society for Development of Composites, Bangalore were carried out. They are:

1. Observation of housing unit.
2. Core Test.
3. Load test on roof slab.
4. Rain simulation test on wall surface.
5. Nailing test.
6. Ponding test on roof slab.
7. Door tests.
8. Acoustic comfort test.
9. Thermal comfort test.
10. Fire resistance test.

The results of various performance oriented tests revealed that the tested housing unit performed satisfactorily and meets the requirements of common people.



CIVIL-AID

**CIVIL-AID TECHNOCLINIC Pvt. Ltd.**


(A Bureau Veritas Group Company)

#1030, 13th Cross, Banashankari 2nd Stage, Bangalore - 560 070

Accredited by NABL as per ISO:17025 for  
NDT, Geo-Technical, Material Testing and Chemical Testing

*S. Sudarshan*  
SUDARSHAN S IYENGAR  
SENIOR DIRECTOR  
(NDT, R & R)



  
 ಕರ್ನಾಟಕ ಸರ್ಕಾರ  
 ಕಾಮಗಾರಿ ಸುರೂಪಿಯಂತ್ರಣ ಕಾರ್ಯಾಲಯ  
**TASK FORCE FOR QUALITY ASSURANCE IN PUBLIC CONSTRUCTIONS**  
 ದಿ.ಕೆ.ಎಸ್.ಪರವೇನಿ, ಬಂದರು ಮತ್ತು ಒಳಾಂಗಣ ಅಭಿವೃದ್ಧಿ ಇಲಾಖೆ, ಕೆ.ಆರ್.ಪೇಟೆ, ದಿ.ಕೆ.ಎಸ್.ಪರವೇನಿ ಕಟ್ಟಡ, ಕೆ.ಆರ್.ಪೇಟೆ, ಬೆಂಗಳೂರು-560001.

ಸಂಖ್ಯೆ:ಆಧ್ಯಕ್ಷರು/ಕಾಮಗಾರಿ/ಬರವರ ಸ್ನೇಹಿ ಉತ್ತರ/2016-17 /17 ದಿನಾಂಕ: 21.05.2016

To,

**The Principle Secretary to Government**  
 Department of Housing  
 No.213, IInd Floor  
 Vikasa Soudha  
 Bangalore.

Sir,

**Sub:** Use of eco-friendly products in building construction activities.

**Ref:** This office even no letter dated 22.04.2016 addressed to the Chief Secretary to Government, Bangalore.

\*\*\*\*\*

Considering the most dangerous consequences of Climate Change/Global Warming which is threatening the extinction of Earth's Species and survival of Mankind, the Task Force for Quality Assurance of Public Buildings, Govt. of Karnataka, has decided to act on urgent basis to Source laboratory proven, energy efficient, alternative building materials and construction technologies and introduce their application in the public buildings in Karnataka.

As a major initiative in this direction, coinciding on 21st March 2016, the World's Forest Day, the Task Force visited Composites Technology Park, on 22.03.2016 set up by GOK & GOI and managed by Society for Development of Composites, (SDC) a non-profitable registered Society under Karnataka Societies act at Kengeri Satellite Town, Bangalore, who are involved in R&D and Propagation of Eco-Friendly building materials and Eco-Fast building technologies

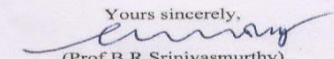
A detailed technical presentation was made by SDC on various composite door shutters and frames, and Fast Track Construction technology using Light Gauge Steel Frame Structure –Infill concrete panel technology. The Task Force committee visited the door manufacturing unit and inspected various raw materials, equipment & machinery including actual manufacturing process, inspection and QC and full scale testing of door shutters and frames. The committee also verified the test certificates and performance evaluation and user feed backs. The committee also verified the

In view of the said facts and to promote the use of eco-friendly products in building construction activities, a letter has already been submitted to the chief secretary to government vide letter dated 22.04.2016 cited as reference.

Under the above circumstances, the Task Force is sending here with details of various products along with technical details for kind information. It is requested that necessary instructions may please be issued to incorporate the above eco-friendly house building components in the estimates of future housing projects coming under your jurisdiction. If possible, it is requested that the eco-friendly products may please be used in the housing projects under progress also.

Thanking you,

**Encl:** 1. Comparative Statement  
 2. Extract of schedule of rates  
 3. Test reports  
 4. Product brochures

Yours sincerely,  
  
 (Prof.B.R.Srinivasmurthy)  
 Chairman  
 Task Force for Quality Assurance  
 Bangalore.

**Approval of LGSFS – Infill Concrete Panel Technology by Task force, GOK**



**2 PC Quarters Constructed using LGSFS Infill Concrete Technology**



police housing.mp4





Completed building ready for inauguration at Adugeodi Police Quarters, Bangalore



निर्माण सामग्री एवं प्रौद्योगिकी संवर्धन परिषद्  
 भारत सरकार की शहरी विकास विभाग, नया दिल्ली  
**Building Materials & Technology Promotion Council**  
 Ministry of Housing & Urban Poverty Alleviation, Government of India

**CERTIFICATION**

In the opinion of Building Materials & Technology Promotion Council's Board of Agreement (BMSA), Light Gauge Steel Framed Structure with Infill Concrete Panel (LGSFS-ICP) Technology bearing the mark manufactured by Society for Development of Composites is satisfactory if used as set out above in the text of the Certificate. This Certificate PAC No.1028-S/2016 is awarded to Society for Development of Composites, Bengaluru.

The period of validity of this Certificate is for two years i.e. from 12-04-2018 to 11-04-2020. This Certificate consists of pages 1 to 51.

  
 Dr. Shyamprasad Agarwal  
 Chairman, TAC  
 & Member Secretary, BMSA  
 Building Materials and Technology Promotion Council  
 Ministry of Housing & Urban Poverty Alleviation, Govt. of India  
 Core SA, 1st Floor, India Habitat Centre, Lodhi Road, New Delhi-110 003



On behalf of BMTPC Board of Agreement, Chairman, Technical Assessment Committee (TAC) of (BMSA) Under Ministry of Housing and Urban Poverty Alleviation, Government of India

Place: New Delhi, India

Date:

यह प्रमाण पत्र केवल निर्माण सामग्री के उपयोग के लिए है।

बिना अन्य शर्तों के, भारत सरकार के शहरी विकास विभाग, नया दिल्ली - 110003; दूरभाष: 01-11-24626700; फैक्स: 01-11-24642840  
 Core SA, 1st Floor, India Habitat Centre, Lodhi Road, New Delhi - 110 003; Tel: 01-11-24626700; Fax: 01-11-24642840  
 E-mail: bmtpc@delhi.nic.in Website: www.bmtpc.org



संघ शासक  
**GOVERNMENT OF INDIA**



PATENT OFFICE  
 INTELLECTUAL PROPERTY BUILDING  
 G.S.T. Road, Guindy, Chennai-600032  
 Tel No. (091)(044) 22502081-84 Fax No. 044 22502066  
 E-mail : Chennai-patent@nic.in  
 Web Site : www.ipindia.gov.in

Docket No : 3852

Date/Time : 02/14/2014

**RAKESH PRABHU**  
**ALMT LEGAL, ADVOCATES & SOLICITORS, #2, LABELLE ROAD, BANGALORE - 560 001 .**

Agent Number:

Serial Number	C.B.R. No	Application Number	Reference Number	Title Of Invention	Amount Paid
1	2350	ORDINARY APPLICATION	692/CHE/2014	ECOFAST BUILDING SYSTEMS AND METHOD OF FAST TRACK CONSTRUCTION OF LOW COST BUILDING	1000
2	--	E-101/8236/2014-CHE	692/CHE/2014	Correspondence	0
3	--	E-2/1118/2014-CHE	692/CHE/2014	Form2	0
4	--	E-5/828/2014-CHE	692/CHE/2014	Form5	0
5	--	E-45/693/2014-CHE	692/CHE/2014	Form26	0

Received a sum of Rs. 1000 (Rupees One Thousand only) through

Payment Mode	Bank Name	Cheque/Draft Number	Cheque/Draft Date	Amount in Rs
Cheque	State Bank of India	717148	13/02/2014	1000

For Controller of Patents & Designs



# INDIAN CONCRETE INSTITUTE

Karnataka Bangalore Centre.

No. 2, UVCE Alumini Association Building,  
Dr. Ambedkar Veedhi, K.R. Circle Bangalore - 560001



## ICI - KBC BIRLA SUPER Endowment Award for Outstanding Concrete Structure of Karnataka - 2013

This Certificate of appreciation given to

**Dr.R.Gopalan**

**Society for Development of Composites, Bangalore**

For Conceptualisation & Execution of the technology in

**Construction of 2 PC Quarters for**

**Karnataka State Police Housing Corporation Limited (KSPHCL),  
Adugodi, Bangalore**

Which won the jury award during Concrete Day Celebrations On 11<sup>th</sup> September, 2013



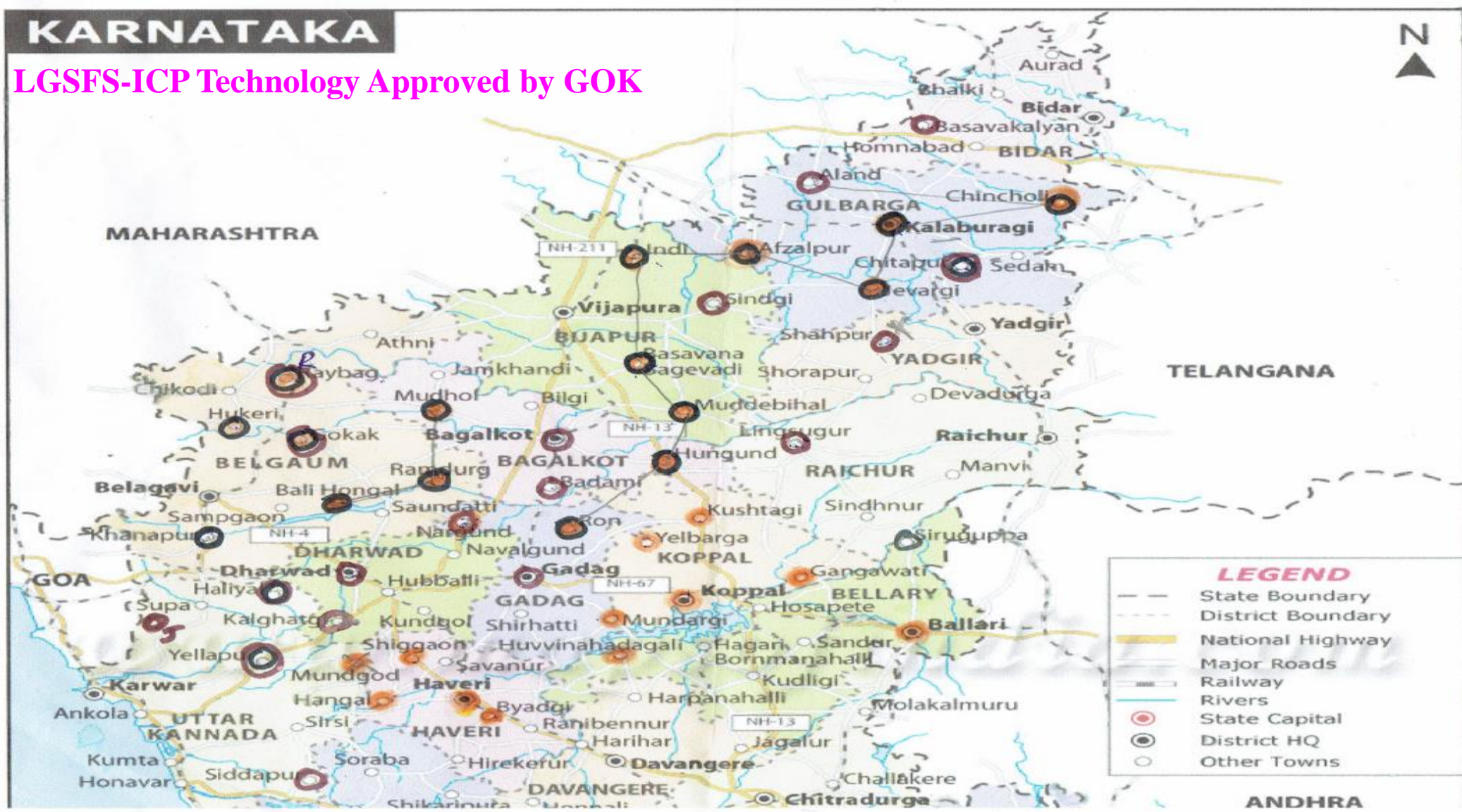
**Sri. S. V. Patil**  
Zonal Head-Marketing  
UltraTech Cements Ltd.



**Dr. R. Nagendra**  
Chairman  
ICI-KBC

# KARNATAKA

**LGSFs-ICP Technology Approved by GOK**



**70 Civic Amenities Centre in District & Taluk Hospitals in Entire North Karnataka**

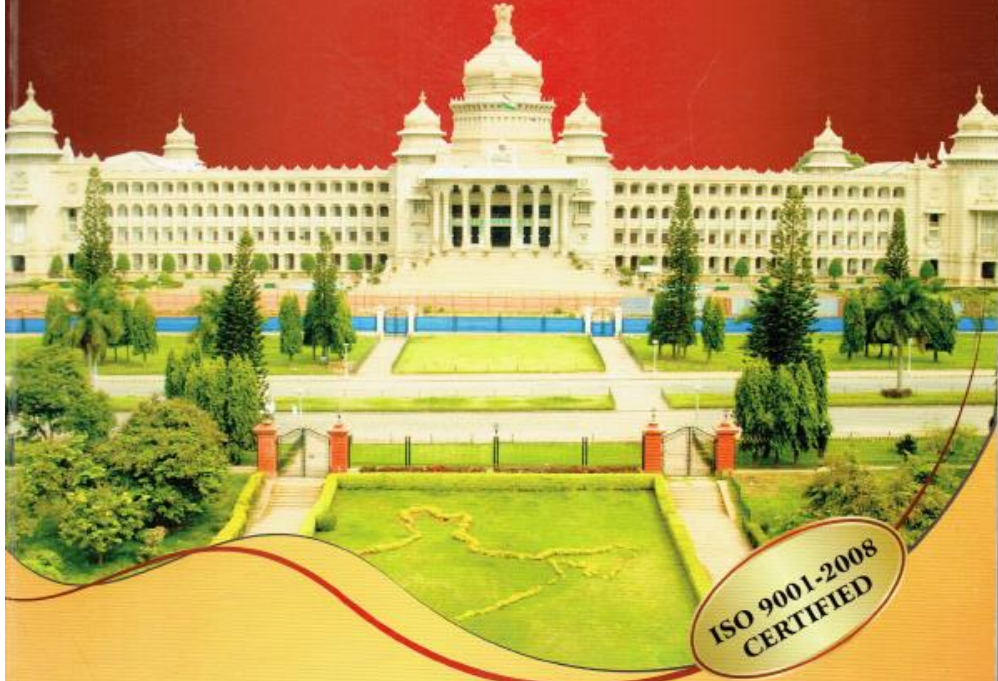


Part 2 (1).mp4



2016-2017 ನೇ ಸಾಲಿನ ದರಪಟ್ಟಿ  
ಲೋಕೋಪಯೋಗಿ, ಬಂದರು ಮತ್ತು  
ಒಳನಾಡು ಜಲಸಾಲಿಗೆ ಇಲಾಖೆ,  
ದಕ್ಷಿಣ ವಲಯ, ಬೆಂಗಳೂರು

**SCHEDULE OF RATES 2016-2017**  
**PW,P & IWTD, SOUTH ZONE**  
**BANGALORE**



ISO 9001-2008  
CERTIFIED

Sl. No.	Description	Unit	Rate Rs. Ps.
38.61	<b>providing and fixing with internal and external cement fibre boards/ coir composite boards to lgsfs dry wall panel system</b> Providing and fixing for both external and internal faces of Light Gauge Steel Frame Structure in two layers, sandwiching a breathable vapour barrier in between layers as per NBC code 2009, with external face having a 6mm thick heavy duty fiber cement board/coir composite board fixed on a 9mm thick heavy duty fiber cement board/coir composite board conforming to IS 14862:2000, Category IV type A or equivalent in standard sizes and internal face with 12.5mm thick gypsum plaster board/coir composite board fixed on 8mm thick fiber cement board/coir composite boards conforming to IS 14862:2000 of category III type B (High pressure steam cured) or equivalent, as per standard sizes with self drilling tapping screws half counter sunk, rib head of 1.60mm to 4mm thick, 8 to 10 gauge, length varying from 25 to 45mm / fasteners @ 600mm c/c of approved make, with a staggered vertical joint of 2mm to 3mm sealed with a silicon based sealant and smooth finished using fiber mesh tape and Epoxy and acrylic based joining compound for seamless finish and the material and process of manufacture and assembly/erection confirming to RV-TIFAC Composite Designs and Specifications including all costs of labour, materials, fabrication, assembling, transportation, erection, incidental and unforeseen charges complete as per the directions of the engineer in charge of the work.	Sqm	3,316.00
38.62	<b>providing and fixing with eps -weld mesh-cement-sand shotcrete wall panels to lgsfs.</b> Providing and fixing in position factory made expanded polystyrene core (EPS core) panels 90 mm thick having a density not less than 10 kg per cum. to both faces of LGSFS FOR WALLS and covered on both sides with welded wire fabric mesh made of 2.2mm dia GI wire with 50mm pitch in both the directions, connected by GI wire of 3mm dia to the LGS frame structure duly plaster finished with short Crete plastering/ guniting equipment in required layers, 30mm thick with cement mortar 1:3 {1 cement: 3 coarse sand not having more than 40% stone chips of size upto 6mm} at a pressure not less than 1 bar (100 KN/m2) and both faces finished with trowel and completed in all respect as per drawings and specifications confirming to RV-TIFAC Composite Designs and Specifications including all costs of labour, materials, fabrication, assembling, transportation, erection, incidental and unforeseen charges complete as per the directions of the engineer in charge of the work.	Sqm	3,241.00
38.63	<b>providing and fixing with eps -weld mesh-cement-sand shotcrete roof/floor panels to lgsfs</b> Providing and fixing in position factory made expanded polystyrene core (EPS core) panels 90 mm thick having a density not less than 10 kg per cum. to both faces of LGSFS FOR ROOF/FLOOR PANELS and covered on both sides with welded wire fabric mesh made of 2.2mm dia GI wire with 50mm pitch in both the directions, connected by GI wire of 3mm dia to the LGS frame structure duly plaster finished with short Crete plastering/guniting equipment in required layers, 30mm thick with cement mortar 1:3 {1 cement: 3 coarse sand not having more than 40% stone chips of size upto 6mm} at a pressure not less than 1 bar (100 KN/m2) and both faces finished with trowel and completed in all respect as per drawings and specifications confirming to RV-TIFAC Composite Designs and Specifications including all costs of labour, materials, fabrication, assembling, transportation, erection, incidental and unforeseen charges complete as per the directions of the engineer in charge of the work.	Sqm	3,387.00









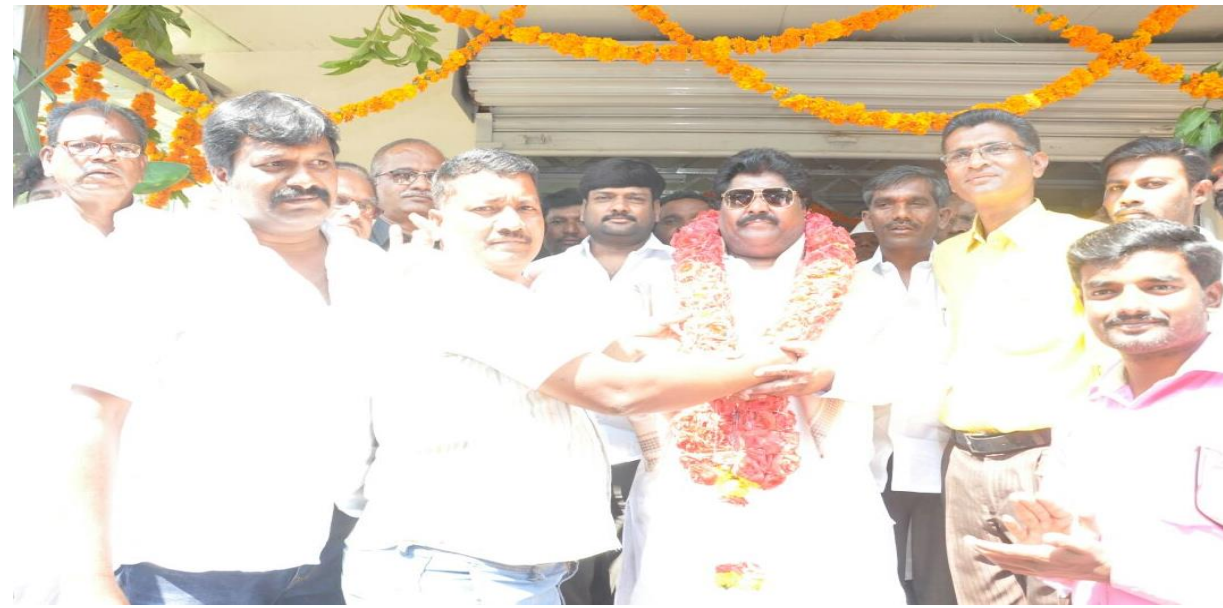
**Finished Photos of Multi Utility Hospital Buildings**



Civic Amenities.mp4



**Inauguration of Multi Utility Hospital Building at Haveri**



**Inauguration of TLH Multi Utility Hospital Building at Afzalpur**

GOVERNMENT OF KARNATAKA  
HEALTH AND FAMILY WELFARE DEPARTMENT  
ENGINEERING WING

(Office of the Chief Engineer, 1<sup>st</sup> Floor, PHI Building, Seshadri Road, Bengaluru-560 001  
(Telephone No.22245041/42 Fax: 22245039 E-mail: cekhndrp@gmail.com)

No:H&FWD/Eng.W/CE/TA-1/AE-4/ Workdone Certificate (2018-19/352) Dt: 31/5/2018


**Workdone Certificate**

To whom so ever it may Concern

**Name of The work** :- Construction of Civic Amenities block building consisting of canteen with Kitchen, Fruit Stall, Dairy Product Stall and Public Toilets for 7 District Hospitals and 60 Taluk Hospitals in Northern part of Karnataka State.

This is to certify that M/s. S.R. Ravi Class 1 Contractors, #317, 5<sup>th</sup> Cross, 4<sup>th</sup> Main, Sadashivanagara, Bangalore-560 080, has been awarded the above work through tender on Package Lump sum Turn Key Basis, based on own design with contract Amount Rs.20,45,26,309.00 (Rupees Twenty Crore Forty Five Lakhs Twenty Six Thousand Three Hundred and Nine Only), vide Agreement No:53/2016-17 dt:15.03.2017.

The Package tender work has been Completed satisfactorily by adopting "Light Gauge Steel with EPS Infill panel Technology" an Innovative Fast Track Construction Technology developed by Society for Development of Composites, Bangalore.

  
Chief Engineer,  
H&FWD, Engineering Wing,  
Bengaluru.



# SOCIETY FOR DEVELOPMENT OF COMPOSITES Composites Technology Park



(An R&D Centre established with the Support of Dept. of S&T, BMTPC and Coir Board of Govt. of India and Dept. of C&I, KHB and RGRHCL of Govt. of Karnataka)



## Light Gauge Steel (LGS)- Composite Partition Wall for Potential Replacement of Brick Masonry Non Load Bearing Wall in Residential and High-Rise Building

(A Fast Track Innovative Technology)

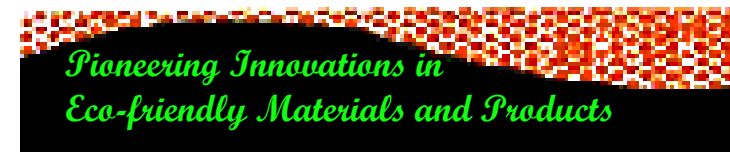


KVQA ISO 9001 Certified



Member, Green Building Council

**Dr. R. Gopalan**  
**VP & CEO**



# Non-Load Bearing Wall

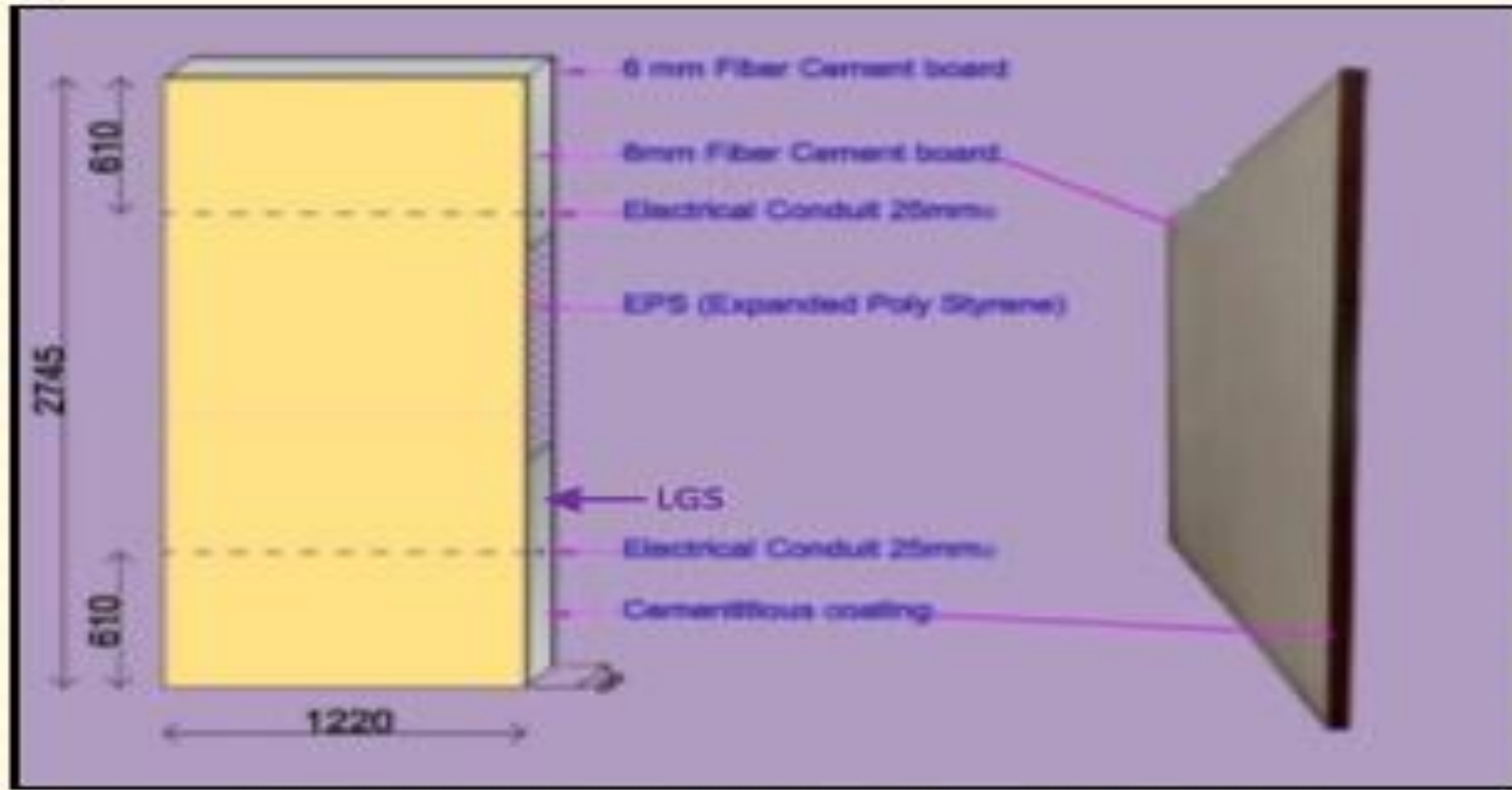
**Definition**- A Wall which doesn't help the structure to stand up and holds up only itself is known as a non-load bearing wall. This wall is also referred to as curtain wall.

- A non load bearing wall doesn't support floor roof loads above
- It is not a part of the structural frame system
- Most of the time they are interior walls whose purpose is to divide the floor in to rooms
- They are built lighter to reduce the dead load of the structure
- One can remove any non load bearing wall without endangering the safety of the building
- Non bearing walls can be identified by the joists and rafters
- They are not responsible for gravitational support for the property.
- It is cost effective.

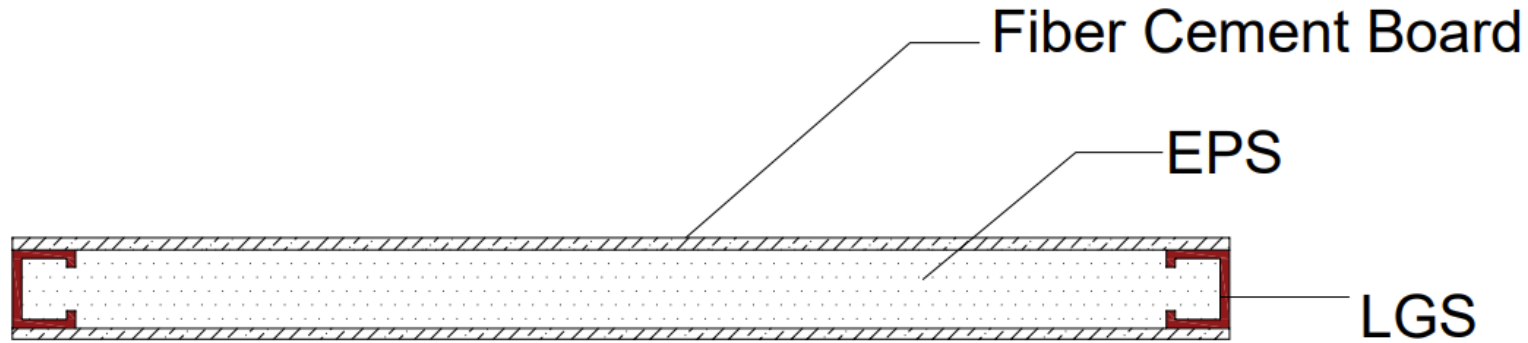


# LIGHT GAUGE STEEL (LGS) SANDWICH COMPOSITE PARTITION WALL

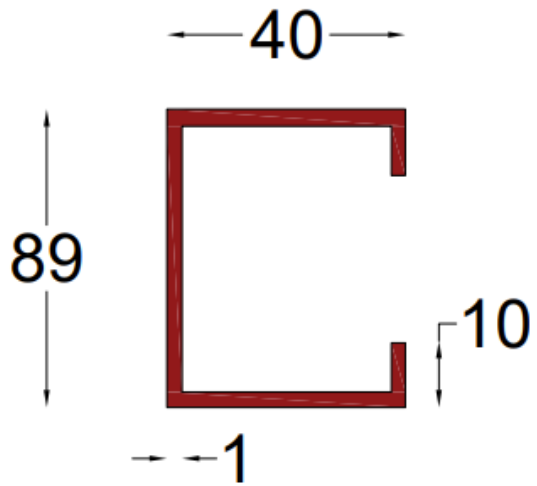
*( A Revolutionary, First Time Ever, Larger Thickness Partition Walls  
to Replace Brick Wall / Aerocon Panel / Hollow Clay Bricks )*







Section view of LGS composite partition wall



Yield Strength = 550Mpa

Compressive strength =  $189 \times 550 / 9.81$   
 = 10596 Kg



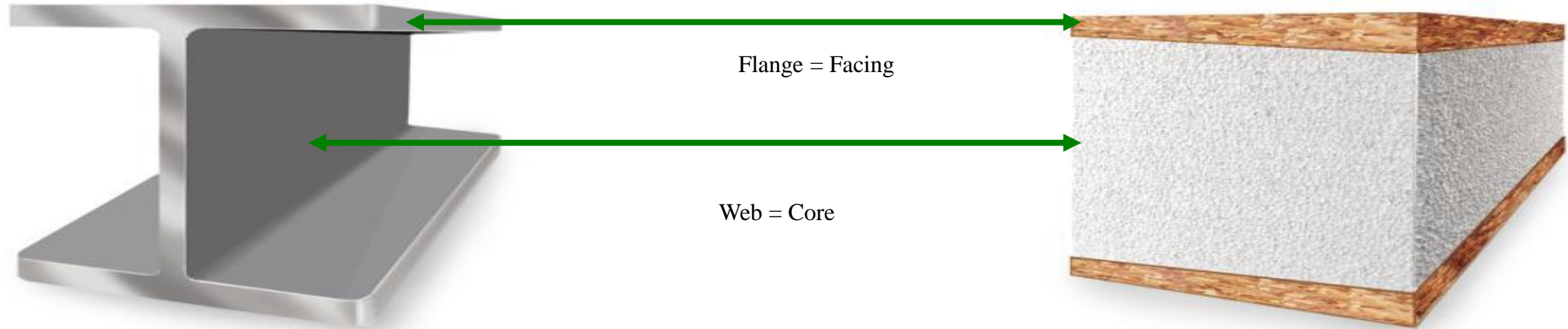
Wall Price: Rs 135 per Sq Ft

Sandwich Composite Partition Wall Photo

# Why LGS-SCP Partition Wall?

(LGS-SCP is a SUPERIOR Version of SIP - Developed by SDC)

A LGS-SCP is like an I-Beam

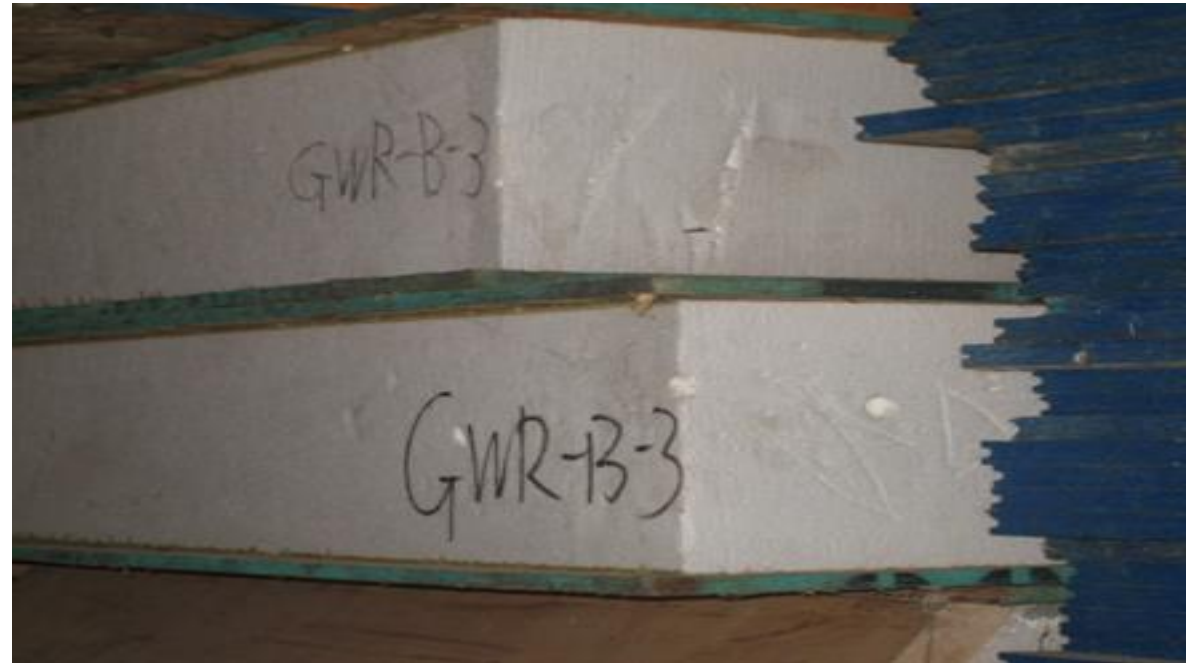


- LGS-SCP partition wall is significantly superior to a conventional Brick Masonry wall.
- SIPs have undergone exhaustive testing by many third party agencies.
- SIPs have proven themselves to be a powerful alternative to conventional construction.



## CASE STUDY

**Hotel Building Constructed at Indo – China Border Trade Centre, Sikkim using SIP Panel Construction Technology**









- *The Partition Wall is a Fibre Cement Board (FCB) –Expanded Poly Styrene (EPS) – Sandwich Panel-manufactured by hot Compression moulding process.*
- *It is provided with concealed electrical pipes, quick and easy to connect /join together by means of Splines.*
- *Surface Finish: FCB, Bamboo, Coir etc.*
- *Standard Size: width= 1220 (4 ft), Length = 2440mm, 2745 mm & 3050mm (8, 9 & 10 ft), Thickness=100mm (higher thinness is also available as per need). Weight = 65Kg.*
- *Application= Partition wall for residential, & high-rise buildings class room partition for school/ college , shopping mall etc., construction of single story resorts, farm house etc.*





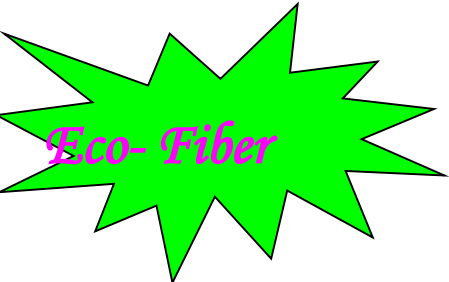




## Technical Specifications for Light Gauge Steel Frame / Structure

### Light Gauge Steel Frame/Structure:

Design, Supply and fixing of factory finished, custom designed cold formed light gauge steel frame super structure manufactured out of minimum 0.75mm, Pretreated, factory finished bare Galvalume/ Hot Dipped GI High Tensile steel sheet (AZ 150 GSM Aluminum Zinc Alloy coated steel and **550 Mpa** yield strength) conforming to **AISI specification and IBC 2009** for cold form steel framing and construction and shall also be as per IS: 8750-1987, IS: 800-1984 Part II. The wind loads shall be as per **IS: 875 (Part III)**. The framing section shall be cold form, C type, having minimum depth of **(89 mm x 40 mm x 10 mm)** in required length as per structural design requirements duly punched with dimple slots at required locations as per approved drawings. The slots will be along the center line of the web, and shall be placed at a minimum of 250 mm away from both edges of the member. The frame can be supplied in specified dimension and fastened wide metal strip of **25 mm x 25 mm x 0.50** mm fastened to both adjoining walls.



*Eco-Fiber*

## Technical Specifications for Expanded Polystyrene (EPS)

### Expanded Poly Styrene (EPS):-

EPS (expanded polystyrene) is an excellent material for packaging and for construction as it is light weight rigid foam with good thermal insulation and high impact resistance. The characteristics of EPS make it ideal for use as light weight filler, insulation, as an element for decorating or imaginative touches, as a lightweight filling material in LGS Structures.

### **The following properties are important for these applications:**

1. Low thermal conductivity.
2. Low water absorption
3. Ease of handling and installation
4. Ageing resistance.
5. Less weight.
6. Low Flammability.
7. EPS is 100% recyclable.

# Technical Specifications for Fibre Cement Board (FCB)



Eco-Fiber

## Fibre Cement Board (FCB):-

Cement Fiber Board is cement bonded wood particle board. The Cement Fiber Board is universally accepted material for internal wall partitions as well as external walls, cupboards and many other structural applications.

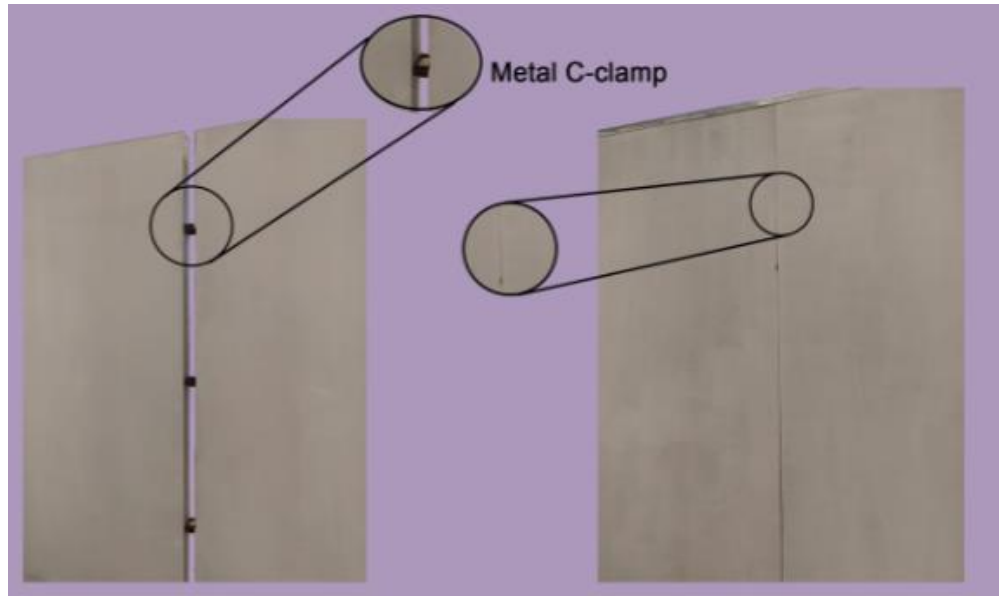
**Cement fiber boards are available in two different types.**

- 1.SHERA/ Everest cement fiber board -(Density= $<1200$  kg/m<sup>3</sup>)
- 2.Standard Visaka Board- (Density= $<1100$  kg/m<sup>3</sup>)

Cement Fiber Boards are available in different thickness and different sizes and also in different textures which will provide aesthetic look for any wall design. Cement fiber board's is fire resistant, water resistant, scratch resistant and anti-termite product. Cement fiber Board has flexural strength of 14 Mpa.

Cement Fiber Board can be used face sheets for LGS-Sandwich walls bonded using high performance structural adhesive by hot compression molding process.

# Wall connecting details





*Wall Size : 4' x 9'. Thickness: 4", 5", 6" & 8"*

# Rate comparison of Brick Masonry Wall vs. Composite Wall

## PWD Karnataka SR 2021-22: Rates for brick masonry wall

Sl no	Thickness	Rate
1	100 mm	Rs.210/sft
2	150 mm	Rs.222/sft
3	200 mm	Rs.234/sft

Contractors rate is about Rs.240-270 / Sft

## RV-TIFAC LGS Composite Wall

Sl no	Thickness	Rate
1	100 mm	Rs.135/sft
2	150 mm	Rs.155/sft
3	200 mm	Rs.175/sft



## *Specific Advantages:*

- *Strong & superior quality, semi load bearing walls.*
- *About 90 % lighter than brick wall.*
- *Less number of joints and superior finish due to width ( $\geq 4$  ft) and built-in concealed electrical pipes.*

*Meets acoustic requirements of class room and hospital wall partitions.*

- LGS composite wall is 85-90% lighter than brick wall and ecofriendly.
- The significant weight reduction of walls will reduce the column and beam cost and weight significantly too.
- In the event of any building collapse due to earth quack, no one will get buried and no casualties.
- By using composite walls, at the most the building will only lean but won't fall IF the concrete columns and beams are designed properly.



# SOCIETY FOR DEVELOPMENT OF COMPOSITES

## Composites Technology Park



(An R&D Centre established with the Support of Dept. of S&T, BMTPC and Coir Board of Govt. of India and Dept. of C&I, KHB and RGRHCL of Govt. of Karnataka)



## Light Gauge Steel (LGS)- Composite Load Bearing Wall for Potential Application in G,G+1 Residential Building

(A Fast Track Innovative Technology)



KVQA ISO 9001 Certified



Member, Green Building Council

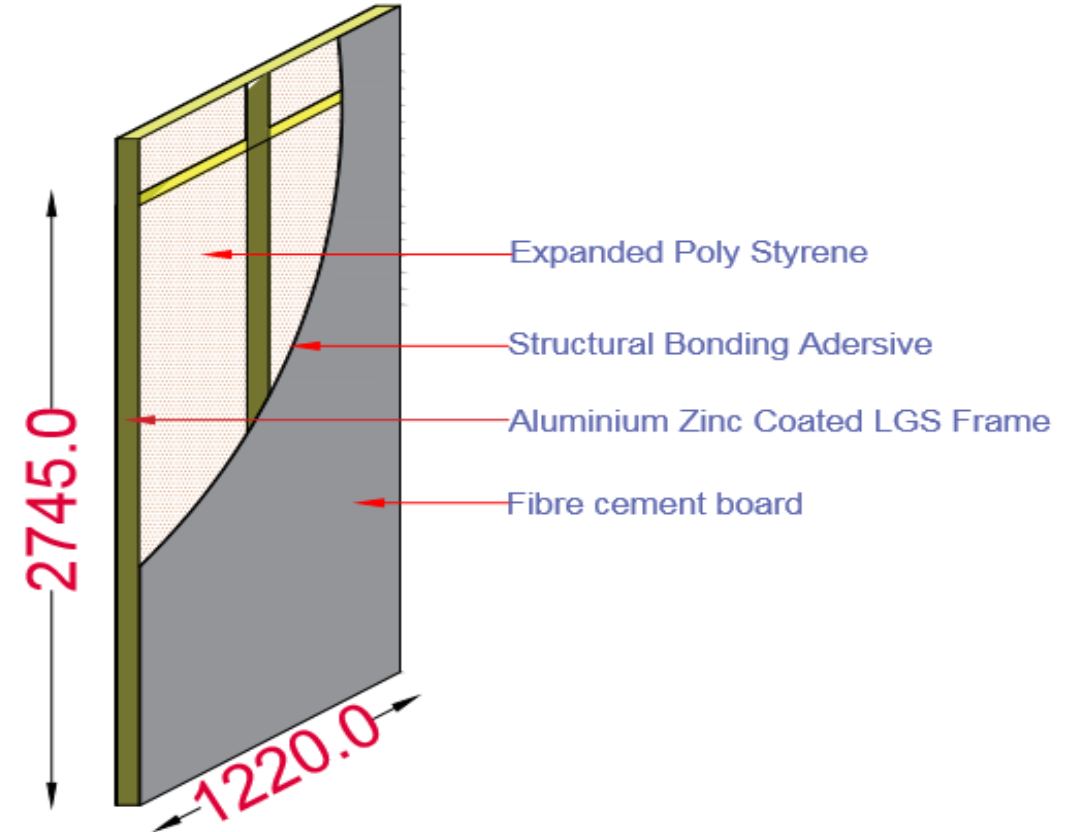
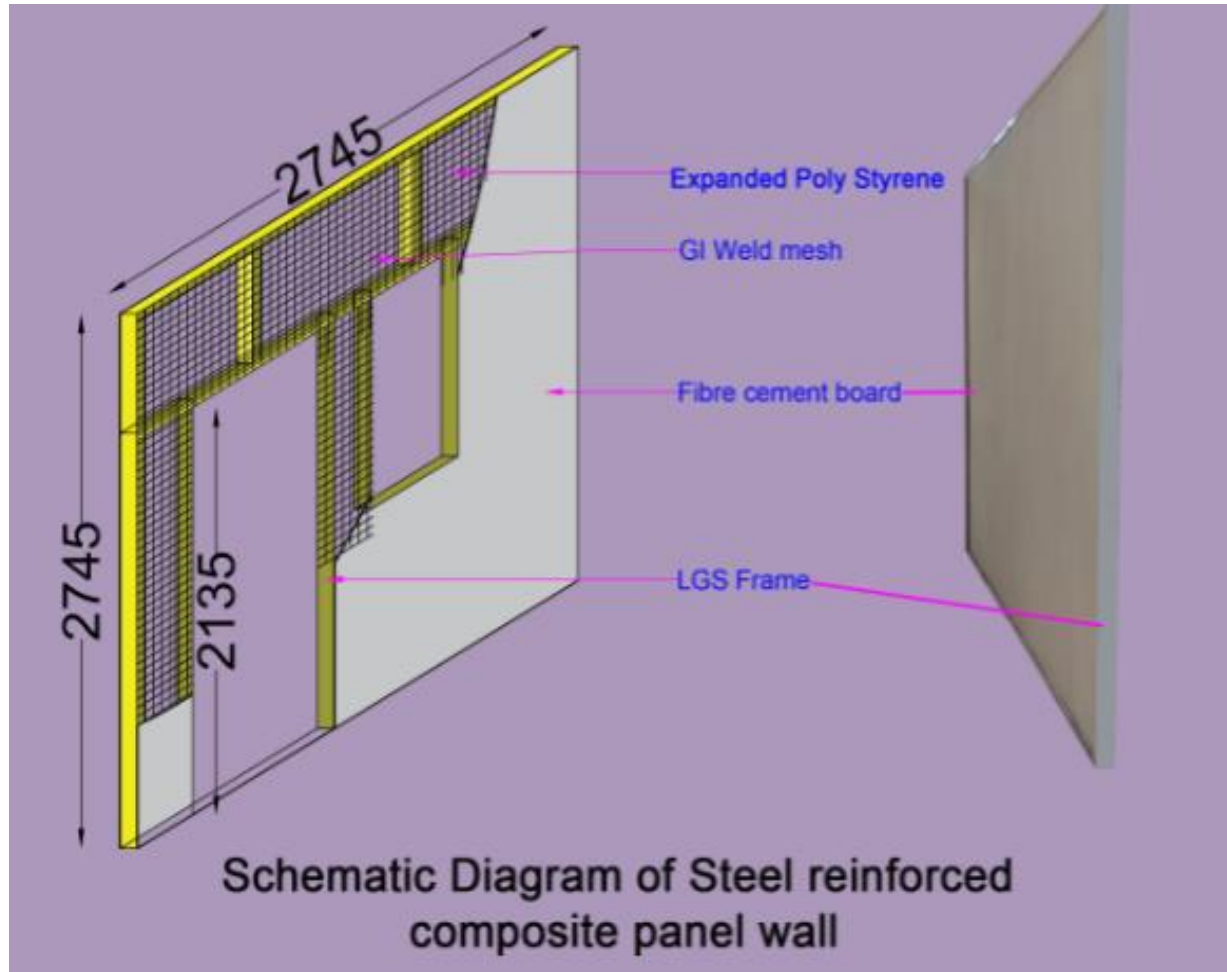
**Dr. R. Gopalan**  
**VP & CEO**

*Pioneering Innovations in  
Eco-friendly Materials and Products*



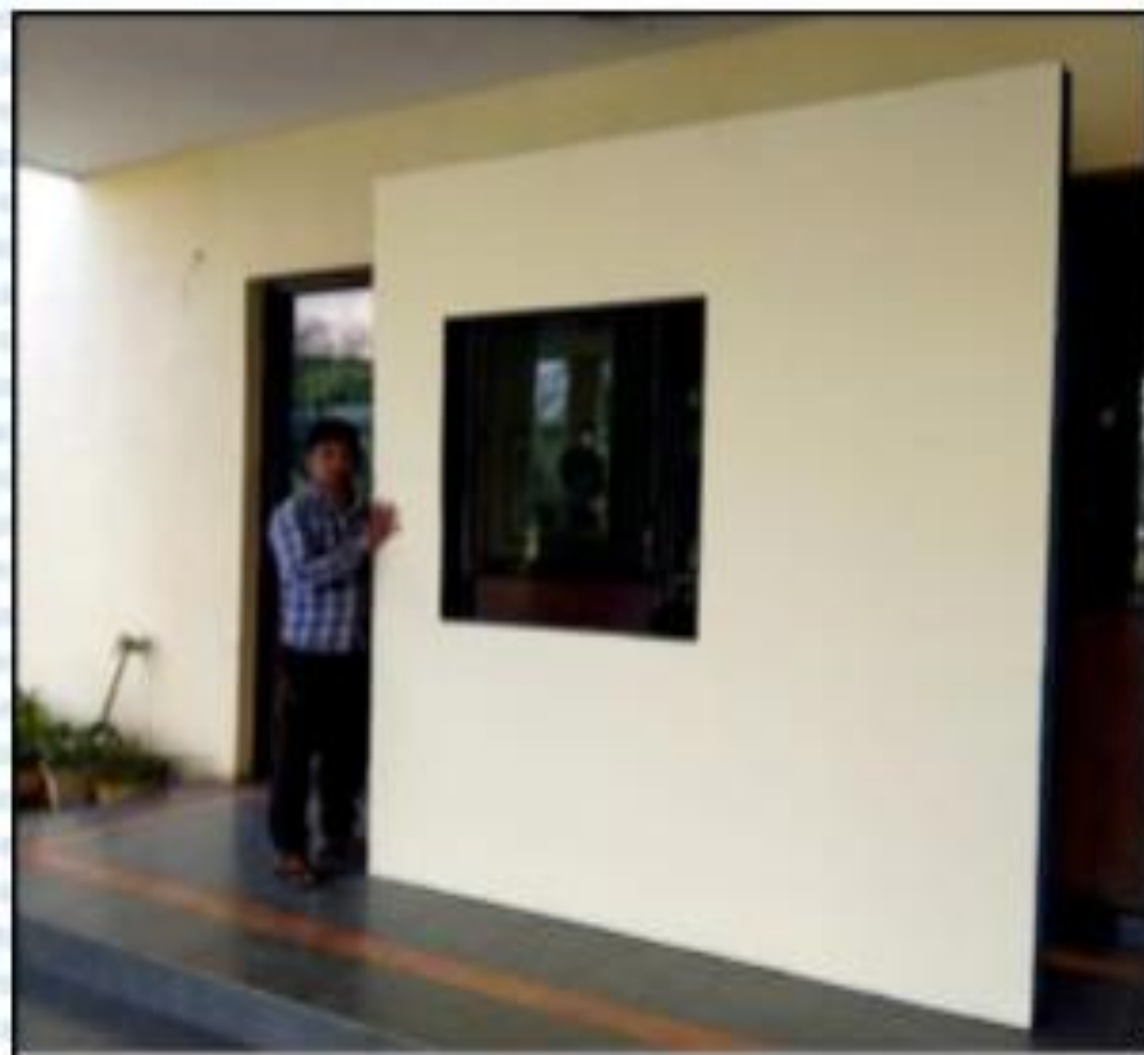
# LIGHT GAUGE STEEL (LGS) COMPOSITE LOAD BEARING WALL

*(A Primary Load Bearing Wall to Replace Brick Wall/ Concrete Wall)*





*Steel Reinforced Sandwich Composite Load Bearing Wall  
with door & window openings Photo.*



- *Prefabricated, high strength load bearing wall suitable for construction of G, G+1 building.*
- *Reinforced with Light Gauge Steel (550 Mpa galvanised). Wall can withstand 20-30 tonnes of load.*
- *Standard Size: 4 ft X 9 ftX101 mm, (customised size is also available) with concealed electrical pipes. Quick fix metal clamp mechanism to join the walls.*
- *Light weight, superior thermal and sound insulation properties.*
- *All walls are ready to construct as per architectural floor plan. Easy to fix wall tiles, claddings, etc.*
- *Life is more than 70 years with low maintenance cost.*
- *Water & fire resistant, suitable for external, internal, bath & toilets walls.*
- *Faster, Better, Cheaper & ECOFRIENDLY.*

## *Specific Advantages:*

- *High strength, custom designed, prefabricated walls (similar to Indira Canteen precast walls in Bangalore)*
- *About 90 % lighter than precast concrete wall.*
- *Superior finish with built-in concealed electrical pipes.*
- *Meets Building Codes requirements of residential, schools/colleges, hospitals and commercial buildings.*

# Summary

## Superior Construction Speed :

- The ease and construction of our LGS-SCP Wall and Roof System results in an extremely fast build time, up to 10-20 times faster than traditional brick wall technology
- The LGS-SCP System is about 10 times lighter than brick wall, ease of handling & transportation, Does not require heavy trucks & cranes.
- It is a dry system, no hassle of labour, site work, water curing etc and thereby huge reduction in waste ,dust and pollution.



# *THANK YOU*



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