Continuous Fiber Reinforced Thermo-plastic is a new Phrase for **BHARAT**. **CFRTP** knownas popularly across other countries.

We could happily dream to replace costly, heavier fast eroding steel and some other materialwith plastic. Check the applications as below which we can easily replace steel with plastic.

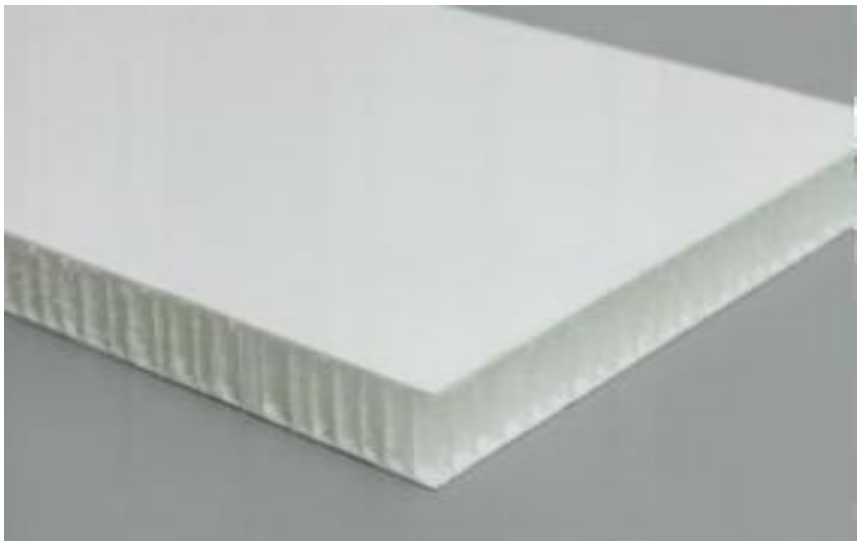
- o Vehicle body for transportation
- o Portable storage containers
- o Combined Container House
- o Portable House
- o Prefabricated Container House
- o Toilet and bathroom containers / Portable toilets
- o Modular office containers
- o Prefabricated and customized office containers
- o Training institutes in containers
- o Bunker bed containers
- o Portable exhibition stall containers
- o Site office cabins
- o Portable on vehicle shop
- o Security Hut Containers
- o Sanitary Containers

This is no dream anymore and this is of course a new business offering nice money-making opportunity. **BHARAT** has one issue, who will initiate, most are followers, who choses to be the leader? And whosoever will initiate this will make huge definitely.

Actual photos of truck bodies made with CFRTP Boards are as above.

Making this tougher board is somewhat technical and also involves some machines, which is a good capital to enter which in fact is an entry barrier too for most Morbi-styled business doers, which is a good sign for such nice product business. Marketing too needs Porsche wayof doing business and so no issues. Simply few can understand the plastics, processing andthis product and so it is risk free to do this business.

"Sandwich" panel made of high-performance thermoplastic composite material and lightweight thermoplastic honeycomb core. The reinforcing surface layer is made of continuous glass fiber reinforced thermoplastic unidirectional tape, which is thermally laminated by multi-angle lay-up; the core layer is low-density high-strength PP honeycomb.



Why plastics for so many applications to replace steel?

- **Durability.** High strength, impact resistance, rigidity, and toughness to physical stressand impact;
- **Lightweight.** For example, a 4.2m truck body assembly using thermoplastic honeycomb panels has a panel weight of 165kg; 270kg lighter than a color steel boxand 195kg lighter than FRP honeycomb panels;
- **Easy to connect and assemble**. Panels can be screwed, bolted, riveted, glued and plastic welded;
- **Resistant to weather conditions.** Can also be used in a temperature range of -40° to +80°C;
- **Waterproof and impermeable**: Why? It is made up of plastics, simple.
- **Excellent chemical resistance.** High resistance to oils, fats and commonly used reagents.
- **Will not delaminate, rot or rust;**
- **Environmentally friendly.** Lighter, environmentally friendly vehicles consume lessfuel produce fewer harmful emissions and is **100% recyclable.**


Let us see this project with one example of Truck body:

A truck body of size 4.15 meter x 2.3 meter x 2.3 meter can need 165 Kgs of Honeycombpanels.

For 1.2mm color steel plates, the weight of the sheet is about 435kg; for 20mm FRP sandwichpanel, the weight of the sheet is about 360kg.

And **CFRTP** reinforced honeycomb panel, the weight of the panel is 165kg; it is 270kg lighter than that of the color steel box and 195kg lighter than that of the glass fiber reinforced plastic(FRP) honeycomb panel. Now here is the net gain.

Total Body Weight Comparison.

KG	805	730	535
Materia l	Color steel	Fiberglass Reinforced	CFRTP

Finally, to start such a project where there is no cheapsters' competition at all, is worth going in for faster to establish faster. The plant and mahcienry can cost about 21 to 22 Cr. INR and the project cost nearing to 27 to 28 Cr. INR Approx. Plus you can need a seasoned person to assist right from step one till the lines are installed.

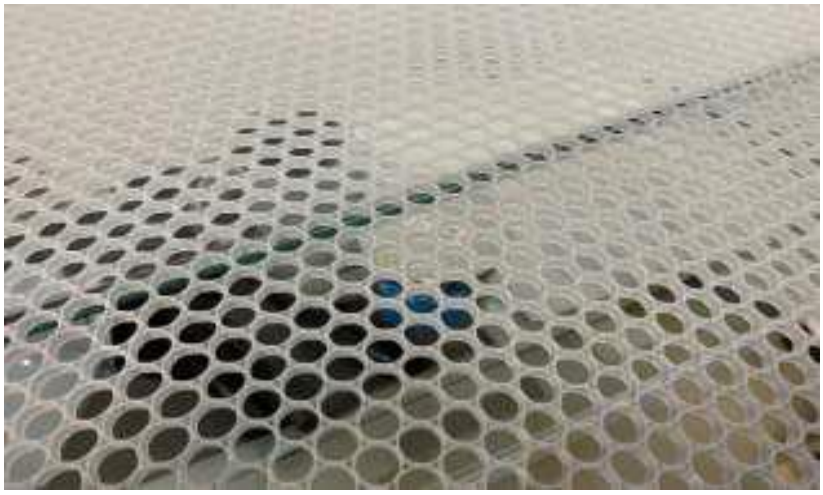
How is this made? Primary Information:

At the first step: Sheets are made from Fibers of PP/PET et-cetera:

Step Two: PP + EVA tubes are made:

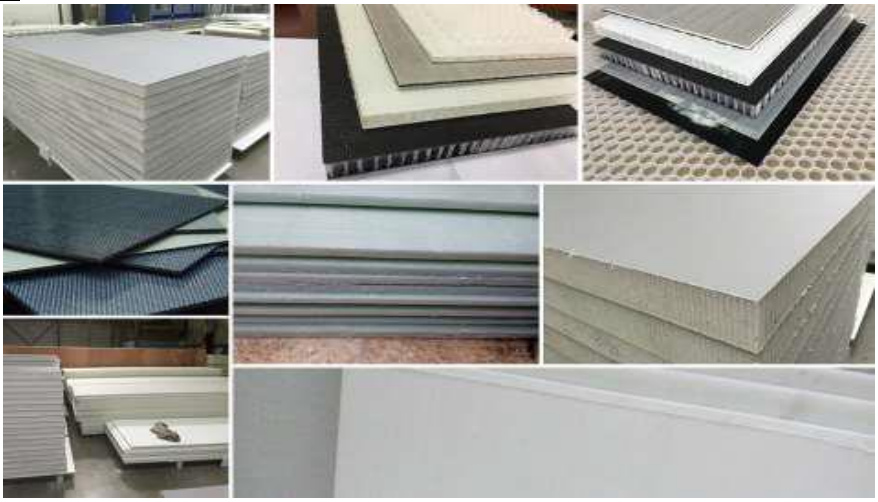
Step Three: The Tubes of PP+EVA are joined together. EVA assists as glue when heated, like hot melt glue.

Step Four: The joined tubes are then cut to make core layer: Hot wire slicing machine to cut and make Honeycomb. It looks as below then:



Step Five: Thermoplastic Honeycomb panel lamination machine to make Composite sheets of Fibber Sheets at top and bottom and PP+EVA honeycomb as center.

Final products:




Jai HIND.

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