



**HIL Limited**

*Upgrading India's Life Spaces*



## Selectivity of material

An Insight on  
Green Building Solutions and Sustainability



# GLOBAL WARMING IS CONCERN OF EVERYBODY

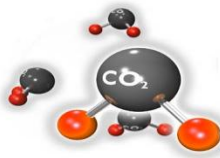


## Emission



1 kg coal  
C 42%

=



+

3800 kcal

1.5 kg CO<sub>2</sub>

By 2030, India will become 3<sup>rd</sup> largest energy consumer.

By 2015, India will become the 3<sup>rd</sup> largest emitter of CO<sub>2</sub>



1 kg fuel oil  
C 84%

=



+

10500 kcal

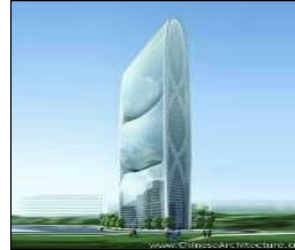
3 kg CO<sub>2</sub>



# Need for Green Buildings

» Building & Construction sector a major contributor to global warming

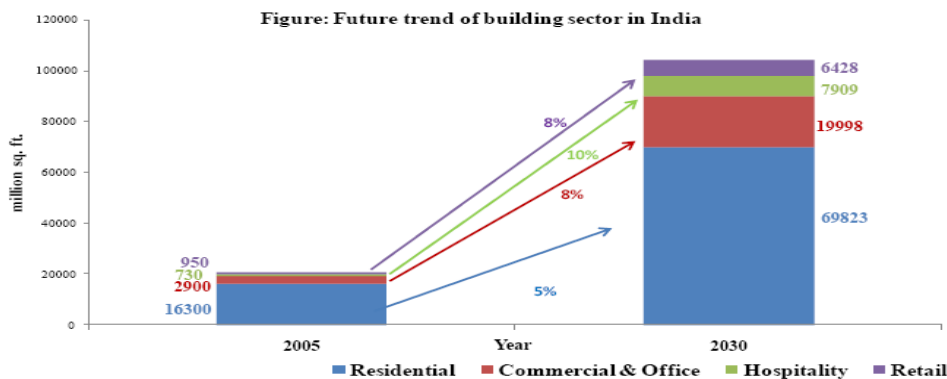
- = 25 – 40% of global energy consumption
- = 30 – 40% of Global Green House Gas Emissions
- = 30 – 40% of solid waste generation



## Building Sector in India – 2030 estimates

» Next 17 years

20 Billion sq.ft → 100 Billion sq.ft



## Energy Conservation is the need

- » Save money
- » Save environment
- » Save fast depleting resources
- » Energy consumption increasing ....



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## Sustainable Habitat





## Expectations from Habitat

- » Adaptable designs for varying climates
- » Maximise use of locally available material which is sustainable
- » **Comfort, Convenience, Choice, Cost and Style**
- » Minimal impact on environment

## Design and Technology in Sustainable Habitat

### **Passive Designs – Climatically adapted designs**

- = Localized approach - Orientation with regards to sun and wind direction
- = Site modification – use of porches, storm windows, landscaping
- = Greening open roofs – roof gardening
- = Interior gardening



## Design and Technology in Sustainable Habitat

### + Active Design – Use of latest technology and state-of-art building management systems

- = Use of green materials
- = Insulating cladding and roofing systems
- = Use of photovoltaic cells
- = Use of under-floor air distribution systems
- = Ground coupled heating and cooling systems



## Feasibility of Sustainable Habitat

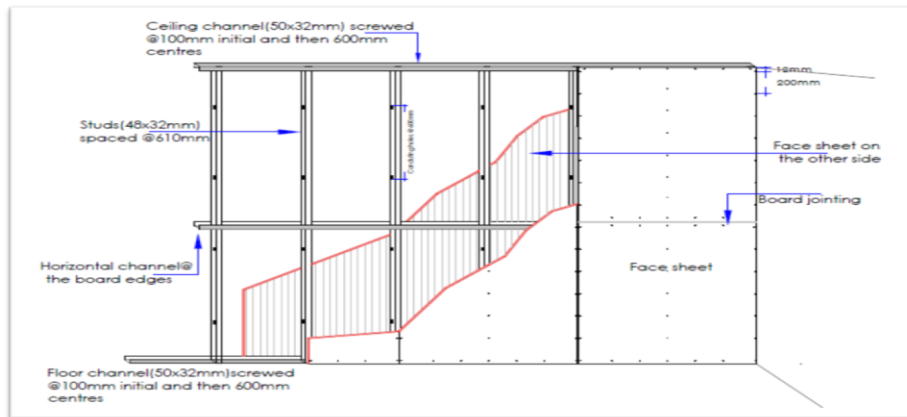
- » Innovative design **implementation** is necessary
- » **Life Cycle Cost** of buildings should be considered
- » Savings in **Energy consumption** to be accounted
- » Look for **solutions** and Not just Products

***Explore Sustainability with Green***





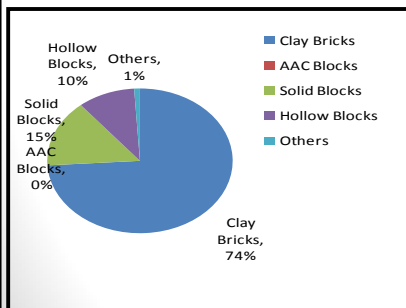
# WALLING SYSTEMS



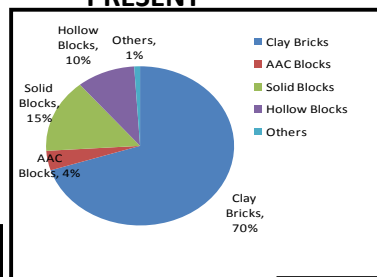
## Walling materials would see a shift !



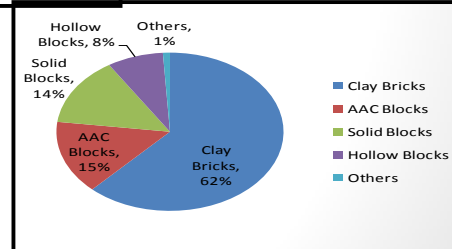
### PAST



### PRESENT



### FUTURE



## Selection of Modern walling material

### CRITICAL

- ❖ Density
- ❖ Compressive Strength
- ❖ Dimensional Stability
- ❖ Flexibility



### VERY IMPORTANT

- ❖ Thermal insulation
- ❖ Sound Insulation
- ❖ Fire Resistance
- ❖ Economical



### IMPORTANT

- ❖ Workability
- ❖ Water Conservation

AND GREEN?



## PANELS



**Aerocon Panels -**  
the ideal solution  
for pre-fab  
structures and  
dry walls.



✓ Patented

✓ Safe

✓ Fast

✓ Light Weight

✓ Green

✓ Reusable , Re-locatable

✓ Value for Money

✓ Space Saving

✓ Fire, Termite, Moisture resistance





# Panel Dry wall Vs Brick wall




S. No.	Properties	Unit	Aerocon Panel (50mm thick)	Clay Brick (115mm Thick + both side 15 mm plastering)
1	Weight	Kg/m <sup>2</sup>	39	268
2	Density	Kg/m <sup>3</sup>	780	2000
3	Thickness	mm	50 mm	145 mm
4	Dead load(3 m height)	kg/run.m	129	804
5	Thermal conductivity	W/m deg. K	0.22	0.84
6	Carpet Area(10' x 10' room)		10% More	-
7	Surface Finish		Factory Finish Surface & ready to paint	Surface finish to be prepared manually at site
8	Fire rating		1 hour	1 hour
9	Water Absorption		Up to 8%	Upto 28.00%
10	Termite Resistance		Yes	Yes
11	Faster & Dry construction		Yes	No
12	Plastering		Not Require	Require
13	Consistency in Quality		Factory Made	Depends on workmanship





## Accommodation







**AEROCON**  
New spaces. New solutions.  
BLOCKS

BLOCKS



### THE BUILDING BLOCKS OF THE FUTURE

- ✓ Light weight AAC blocks
- ✓ Strong
- ✓ Ease of workability
- ✓ Excellent thermal and sound insulation
- ✓ Fire resistance (4 hour fire rating)
- ✓ Dimensionally accurate
- ✓ Eco-friendly





## Aerocon Blocks



- **Light Weight**
  - 1/3 rd weight of clay bricks
  - Ideal for high rise structures
  - Savings in cement and steel
- **Dimensionally Stable**
  - Perfect Finish
  - Perfectly aligned, Smooth walls
  - Savings in cement plaster
- **Sound & Thermal insulation**
- **Fire resistant**



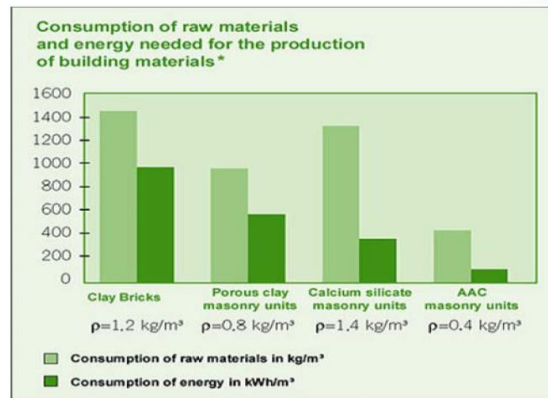


## Low Environmental Impact

### » Low Embodied Energy

= AAC consumes approximately 70% less energy than Clay bricks and 60% less energy than Porous Clay Masonry Units

- Being up to 5 times lighter than concrete, it saves energy in transportation, allowing larger volumes to be carried which can significantly reduce the CO<sub>2</sub> emission.



\*Source: FeBeCel handbook 2000: Le Béton Cellulaire - Matériau d'Avenir, p. 32



## Comparison with Clay brickwork

### » Brick Masonry – 230mm thick

= Wall thickness

= 230mm

= Density of brick masonry

= 1920 kg/m³

= Load per sqm.

= 0.23 x 1920 = 442 kg/m².

= **Total Weight**

= **442 kg/m².**



### » AAC Block Masonry – 200mm thick

= Wall thickness

= 200mm

= Density of AAC block masonry

= 650 kg/m³

= Load per sqm.

= 0.2 x 650 = 130 kg/m².

= **Total Weight**

= **130 kg/m².**



= **Reduction in Weight**

= **71%**



# Thermal Insulation & Energy Savings

- » 4 times higher insulation than bricks
- » Reduction in temperature possible = 4 – 5 °C
- » 15 – 20% savings in AC load
- » Virtually eliminating the need to be used with insulation products which increases the environmental impact and cost of construction



## Testimony





## C-BOARD



**Ideal for partitions, cladding, wall paneling, false ceiling, Doors, siding, Planking**

- ✓ Dimensionally stable
- ✓ High workability
- ✓ Termite Resistant
- ✓ Good sound Insulation
- ✓ Low shrinkage

**Fibre Cement Boards -  
the magical replacement  
for plywood.**



## Live applications



Roof Lining



Furniture



Partitions





## CEILING TILES

**Mineral Fiber Ceiling tiles that are a cut above the rest**

- ✓ Microbe and Germ free
- ✓ Excellent acoustics
- ✓ High thermal insulation
- ✓ High light reflectance of 85%
- ✓ Eco-friendly – made with 45% recycled material

## AFFORDABILITY

- » Aerocon Panels : Panels partition costs are less by almost 25 to 30% than wood based.
- » Aerocon Blocks –Overall wall system costs are not higher than conventional systems
- » Panels and blocks offers more carpet area
- » Faster Construction – faster returns on investment
- » Life time living costs are lower –due to energy saving, lower maintenance etc



## OUR NAME. YOUR REPUTATION.

Ever since our inception in 1946, as a flagship company of the CK Birla Group of Companies, we've established ourselves as one of the foremost leaders in the Building products industry both, domestically and internationally

Our identity stands for innovation in thought and values in action.

Values that have come to define us as a pioneer in the industry





## A rich Legacy

HIL's commitment is further powered by the rich parentage, the CK Birla group, a 2 billion US \$ conglomerate operating across 5 continents & spanning diversified industries and services



Cement



Paper



Building Products



Automobiles



Automotive Engines & Transmissions



Ball Bearings



Engineering



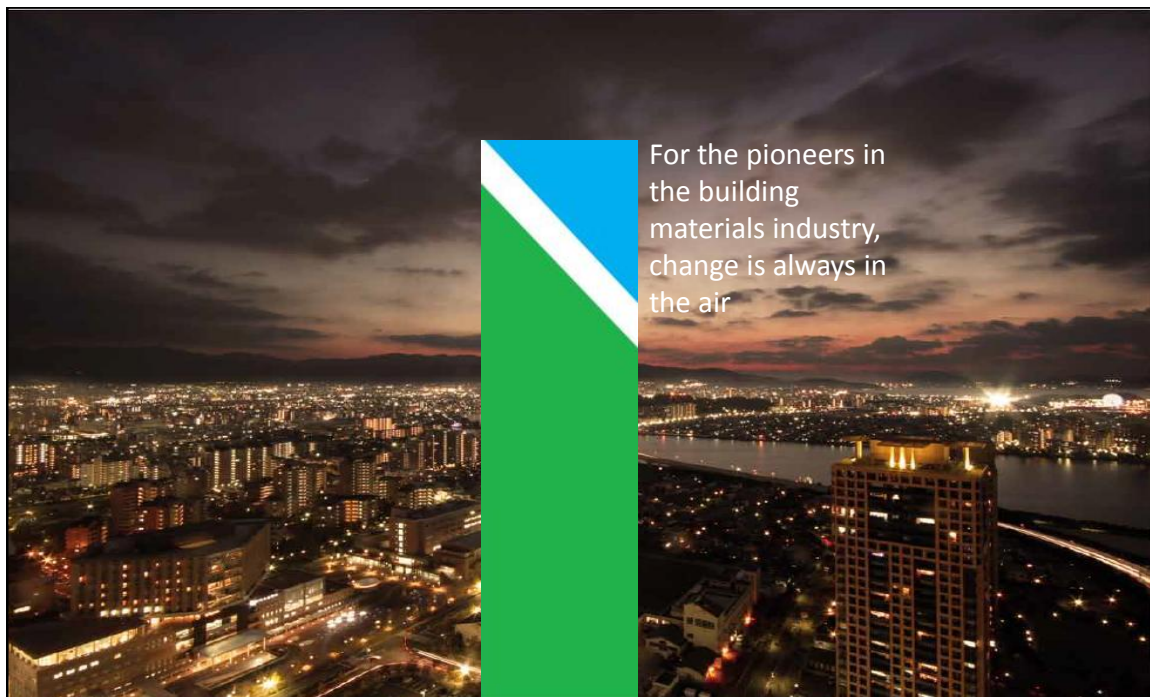
Educational Institutions  
Science Center



IT Services



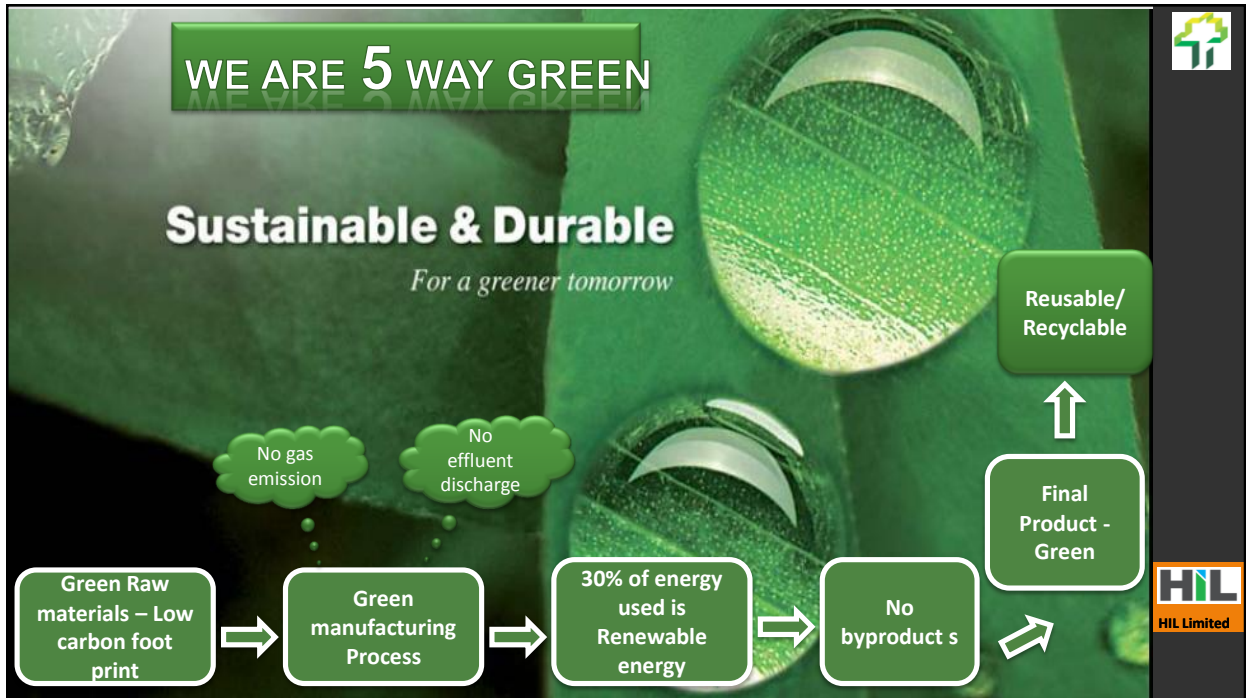
Hospitals



For the pioneers in the building materials industry, change is always in the air







Blocks

Panels

C-Boards

Designer boards

*HIL was an early adaptor  
of Green and sustainable  
habitation. Innovative  
product range*

*A complete walling  
solution*

C-Board

Designer Board

Mineral Fiber Ceiling Tiles

### Ceiling Solutions



## Aerocon advantage...

- Up to 35 % savings on space
- Up to 28% Structural savings
- Energy saving up to 27%
- Time saving by 30%
- Savings on Steel & Cement up to 20%
- Dead load reduction by 30%
- Reusable, Relocatable and Recyclable

Light weight..and.... **GREEN !**



## From the desk of our customers

HIL always delivers and over the years have been one of our most trusted partners. Their understanding of technology is impeccable

Dr. S K Jain - CMD  
Nuclear Power corporation of India

Aerocon blocks helped achieving overall savings. We could complete the project ahead of time

Mr. Yogananda –MD  
Manjeera Builders - Hyderabad

Technology is the key for leadership. We are fortunate to be associated with HIL who strongly believe and deliver

Dr. Jason Elliot- Tech. Director  
Wunderlich - Australia

Aerocon has really brought in a green revolution. It's a sustainable one.

Er. Rammurthy-  
Structural consultant

HIL products have helped in completing challenging projects well ahead of time. We want them to bring in more range of products

Ar. Vidhyadhar Wodeyar  
Chairman –IIA-Karnataka Chapter

Based on evaluation & merit, we have been recommending Hysil to our various projects in India. We are satisfied with quality & services of Hysil team

Mr. Kamal Kumar –CGM-consulting  
HOLTEC consulting

*The list is exhaustive....*





*“Be the change you want to see”*

Gandhi

Mahatma



*We invite you to explore with us the world of possibilities in building your dreams for a safer tomorrow by using Green building products and thereby ensuring environmental sustainability.*

*Let's together build a greener India  
....a greener world*

