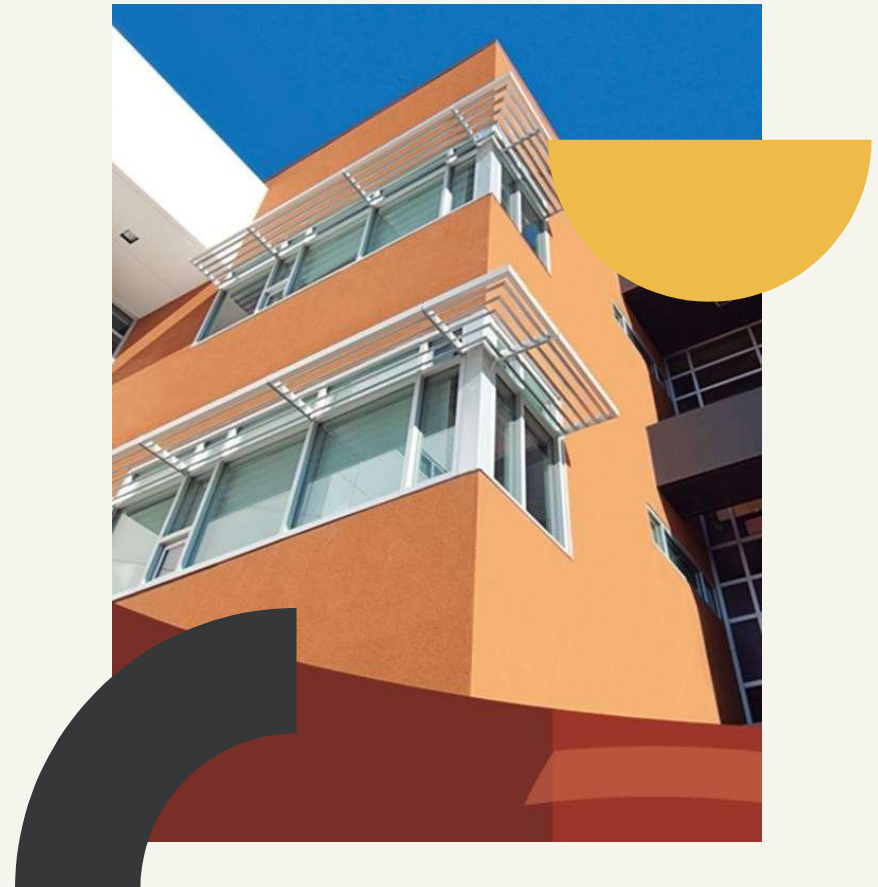




WALACE

EXTERNAL WALL INSULATION AND FINISHING SYSTEM

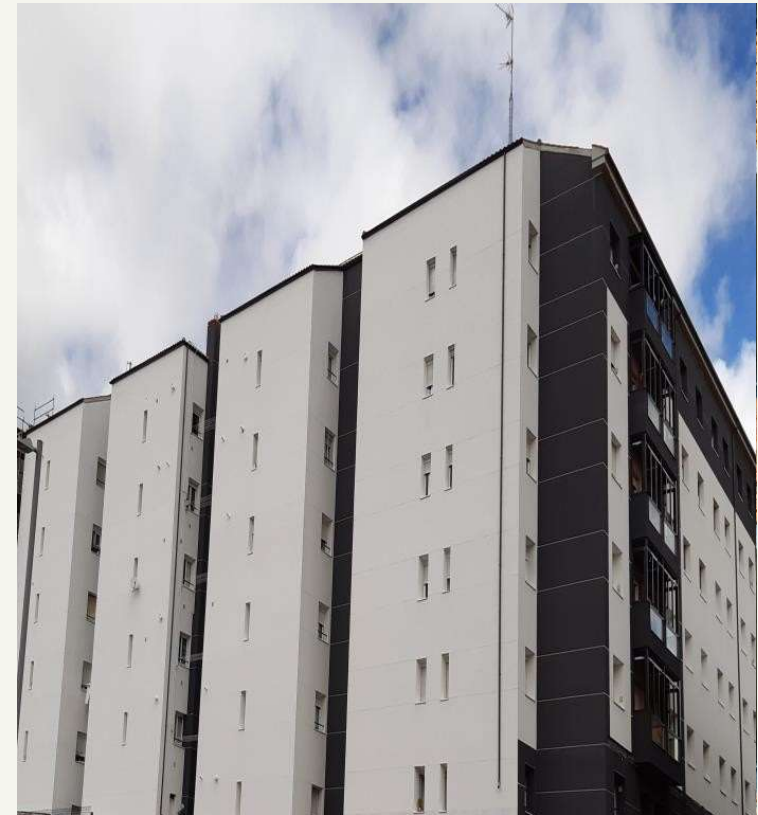
Mallikarjuna G N
Regional Specifications Manager – South
Pidilite Industries Limited – Large Users Business



WALACE EIFS

EXTERNAL INSULATION & FINISHING SYSTEMS

- EIFS is a multi-layered system comprising of rigid insulation, adhesive, base coat, reinforcing mesh and finishing coat.
- Its a polymer-based barrier external wall insulation system incorporating EPS/XPS/Mineral wool as insulation panel.
- The Final finish is done with acrylic based texture as per the desired color enabling high degree of design freedom in creating a vibrant façade.
- It is used in new buildings and for energy rehabilitation of existing buildings.



Most prevalent façade Systems

1. Glass



2. ACP



3. Stone Cladding



Common limitations of these facade systems are

Limited aesthetic features

High energy consumption

Costly to maintain

... IDEAL FAÇADE ATTRIBUTES

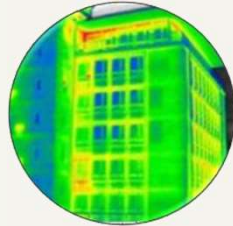
A

AESTHETICS



M

**MINIMUM HEAT
INGRESS**



T

THERMAL COMFORT



R

GOOD ROI



I

EASE OF INSTALLATION



E

**ENVIRONMENTAL
FRIENDLY**



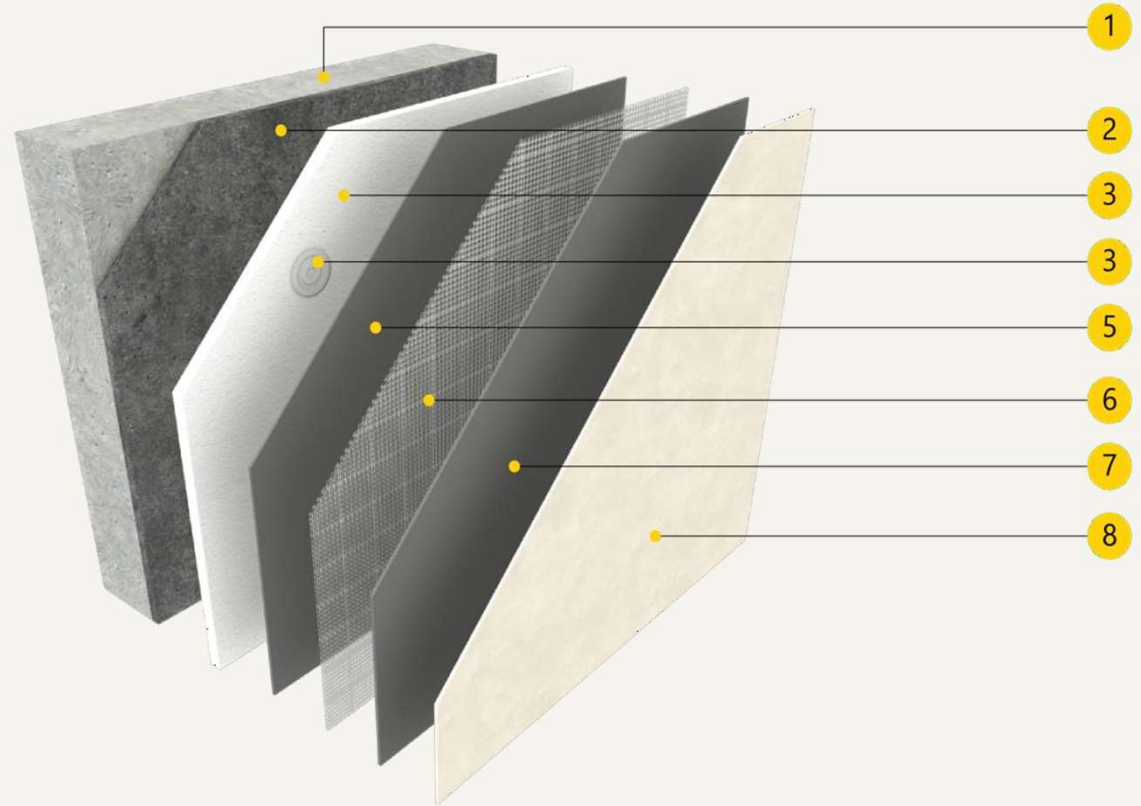
D

OPTIMAL DAYLIGHT



WALACE EIFS

1. Substrate
2. WalAce Mortar (As Adhesive)
3. Insulation Panel (EPS/XPS/Rockwool)
4. WalAce Mortar (As Base coat)
5. WalAce Mesh
6. WalAce Mortar (As Basecoat)
7. UnoFin Acrylic (Final Finish)





EIFS COMBINES AESTHETICS WITH FUNCTIONALITY

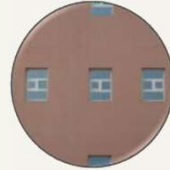
VALUE PROPOSITION – WaAce EIFS



HEAT INSULATION – HIGH ENERGY EFFICIENCY



FIRE RESISTANCE



CRACK RESISTANCE & WATERPROOF



SOUND PROOFING



AESTHETICS – VIBRANT FACADE



DESIGN FLEXIBILITY



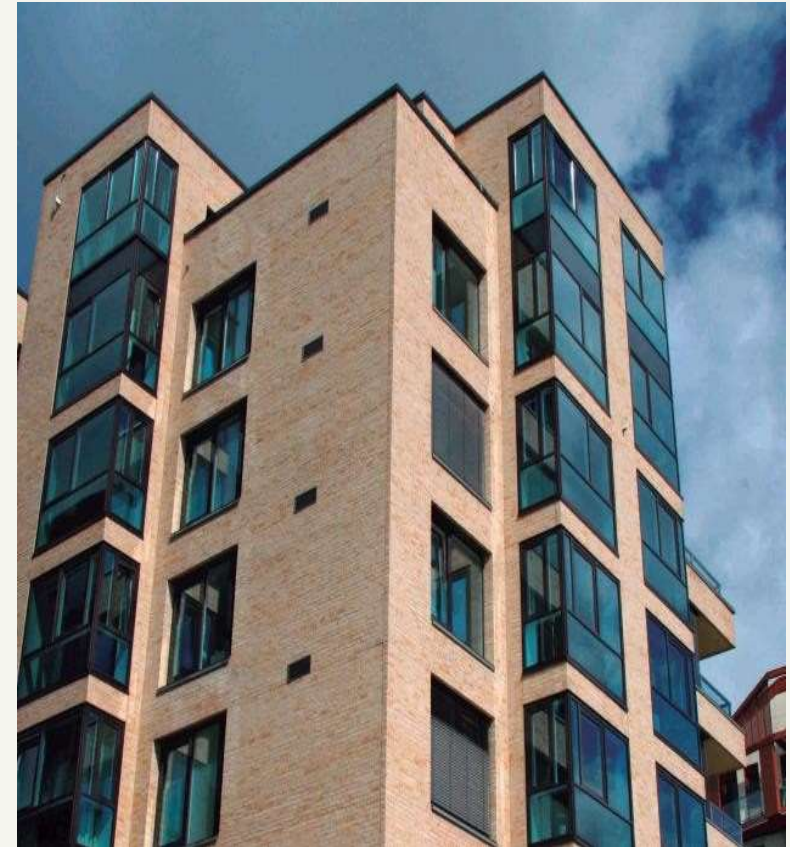
INTEGRAL DETAILS



VARIETY OF FINISHES



EASE OF APPLICATION



The logo for WalAce, featuring a stylized globe with horizontal stripes in shades of brown and tan, set against a dark red background with faint white geometric outlines.

WalAce

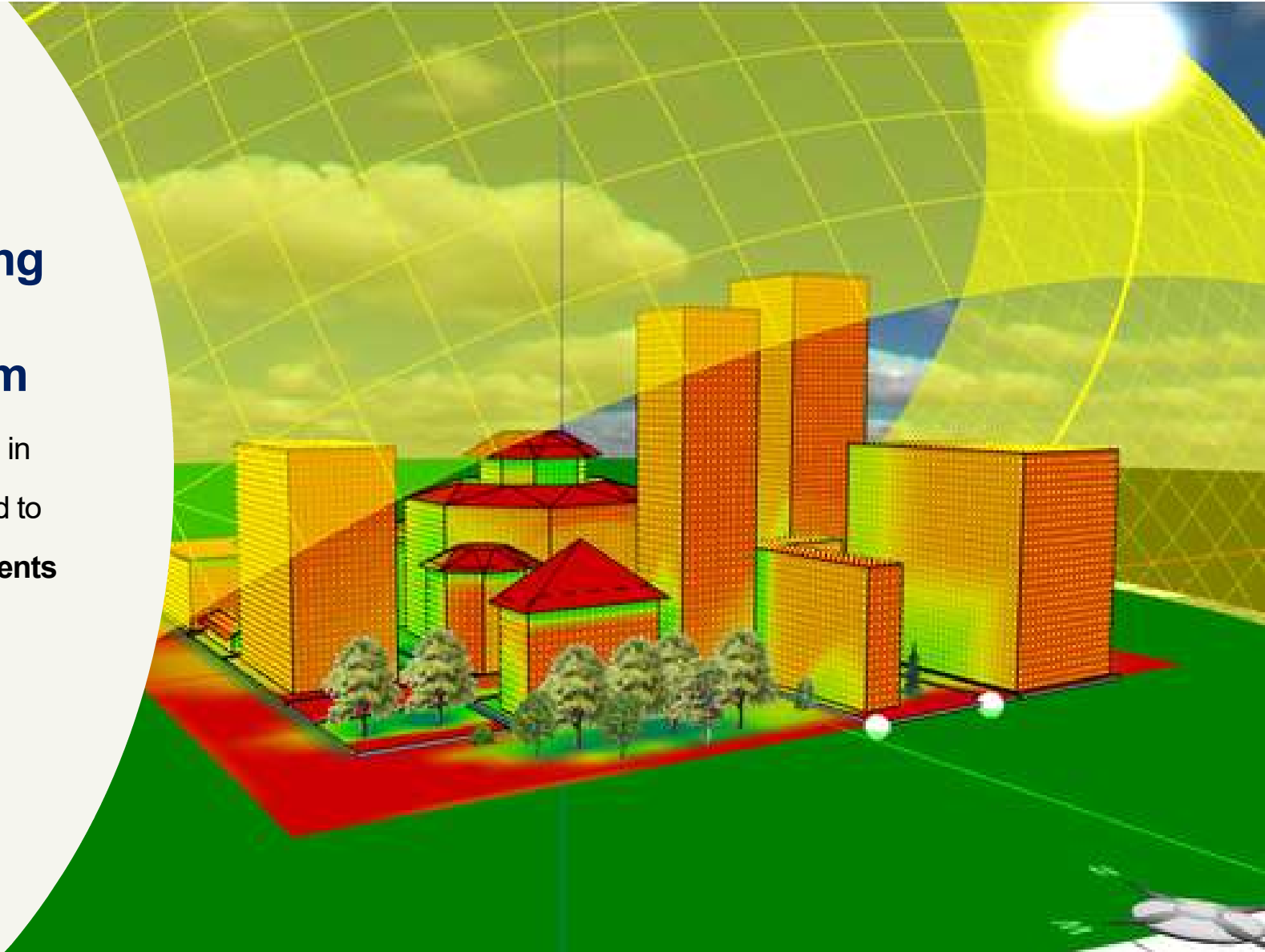
**Thermal Conductance, Comfort &
Savings**

Pidilite

Puma

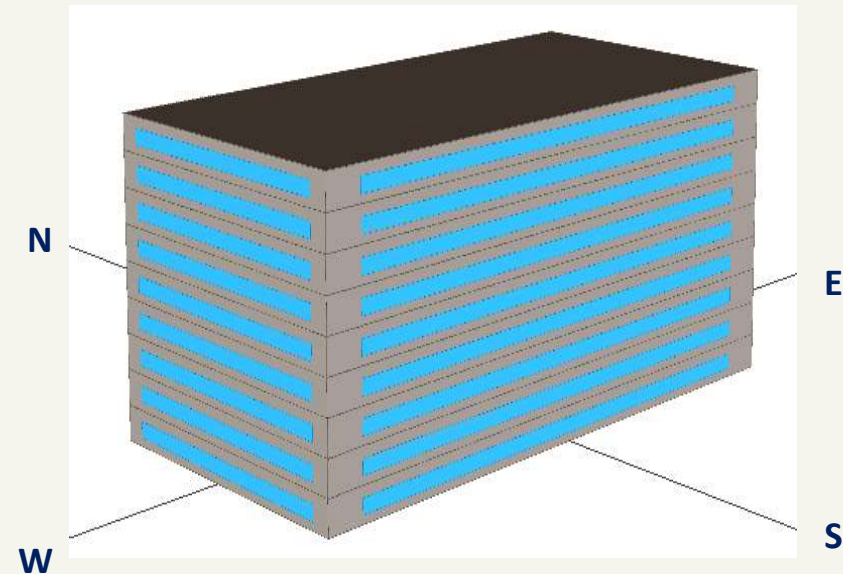
Energy modelling with **WalAce System**

For a commercial building in
Delhi with system designed to
satisfy the **ECBC requirements**

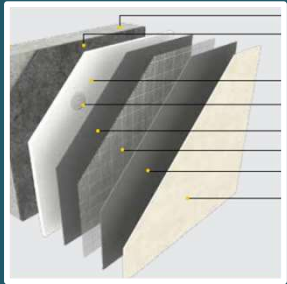


Data Inputs:

1. **Modelled using E-Quest 3.65 Software** authorized by ECBC
2. **Location** : New Delhi with composite climate
3. **Shape/Size of the building** : Rectangular (50m x 100m) with G+8 design with longer side facing south
4. **Type of building**: Commercial
5. **Conditioned area** : 4,84,423 Sq.ft
6. **Occupancy, Lighting & Equipment load, HVAC load** considered as per relevant ECBC/ASHRAE standard

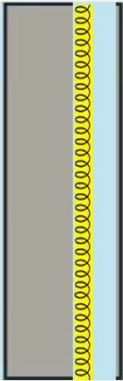


System design as per ECBC: Delhi



As per ECBC for a commercial building in Delhi, the U Value of the wall assembly should be less than 0.4 W/m²K

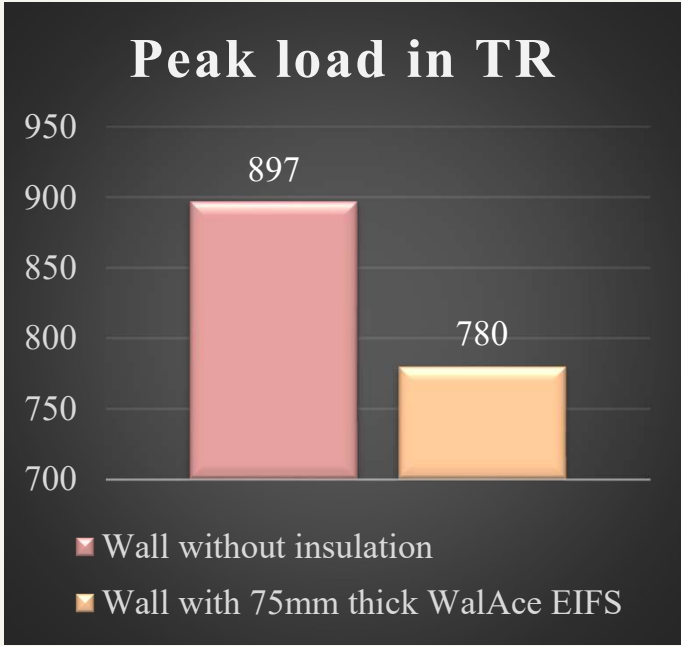
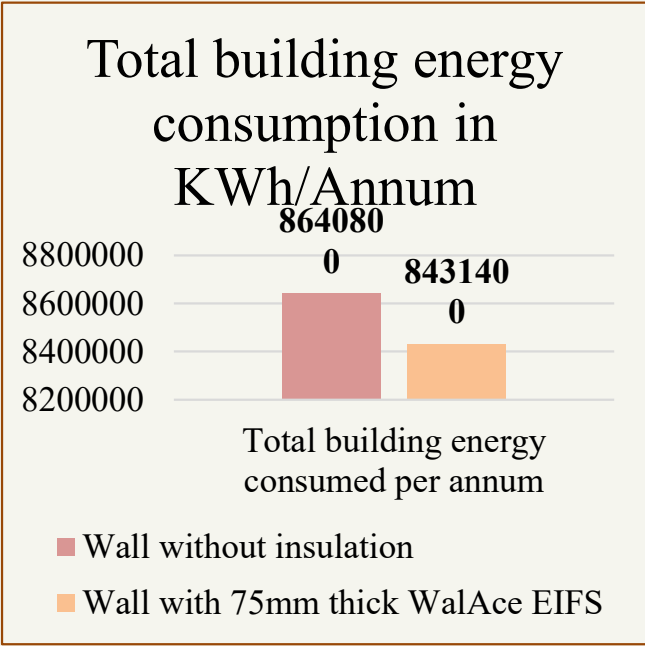
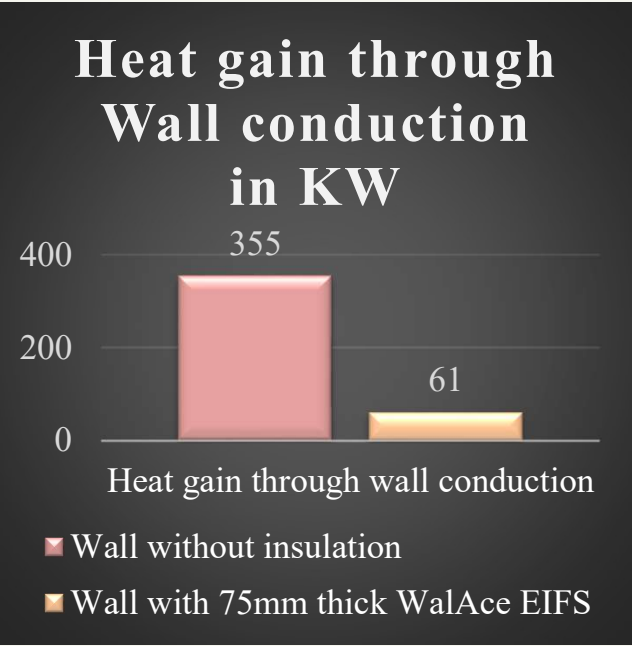
To satisfy the requirements, the WalAce system should be designed with 75mm thick EPS insulation.



200 mm Concrete Wall
With 75 mm insulation

U Value
0.35 W/m²K

Data Analysis:



Reduction in heat gain through wall by more than 82%

Data Analysis:

Wall Built up	Interior Lighting	Equipment	Cooling	Fans	Pumps	Total Energy	Sq.ft/ TR	Peak load in TR
kWh / Annum								
Concrete wall without insulation	2600800	2106100	2811600	789100	333200	8640800	540	897
Concrete wall with 75mm thick WalAce EIFS system	2600800	2106100	2650100	781400	293000	8431400	621	780

Energy savings with insulation = 8640800-8431400 which is 2,09,400 KWh/Annum

Savings in Peak AC load = 897-780 which is 117 TR

Savings Calculation (Op-Ex and Cap-Ex)

Cost of 75mm WalAce EIFS system	Savings in energy consumption per annum	Savings in electricity cost per annum	Savings in design Peak load	Savings in capital investment due to reduction in peak load
For a wall area of 6419 Sqm, considering the approximate unit cost of system to be around 2500 Rs, the entire cost would be 1,60,47,500 Rs	2,09,400 Kwh/Annum	Considering unit energy cost as 8.5 Rs/Kwh, total electricity cost saved is 2,09,400 *8.5 which is 17,79,900 Rs per Annum	117 TR	Considering the cost of 1 TR of central VAV system at 50,000 Rs/TR, savings in capital investment is 117*50000 , which is 58,50,000 Rs

$$\text{Payback period} = \frac{\text{Cost of the system} - \text{Savings in Capital investment}}{\text{Savings in electricity cost every Annum}}$$

$$\frac{1,60,47,500 - 58,50,000}{17,79,900} = 5.72 \text{ years}$$

The payback for 75mm thick WalAce EIFS system is less than 6 years

Analysis Summary

To summarize the results and analysis using energy modelling

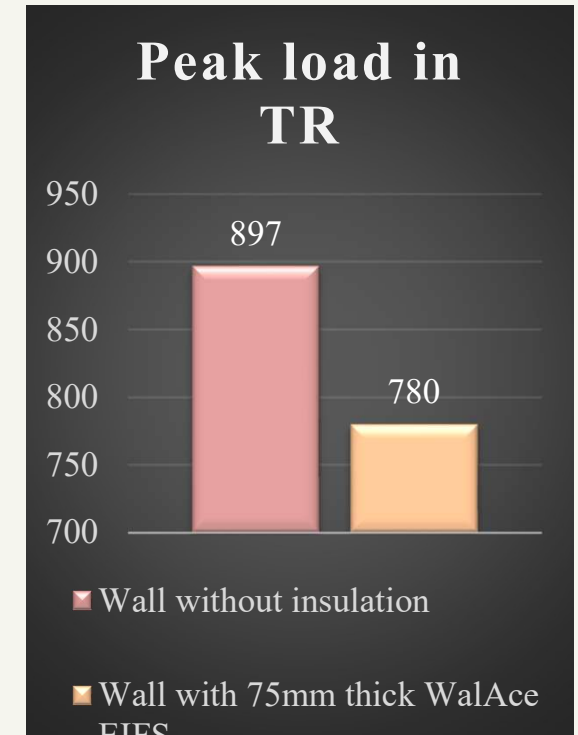
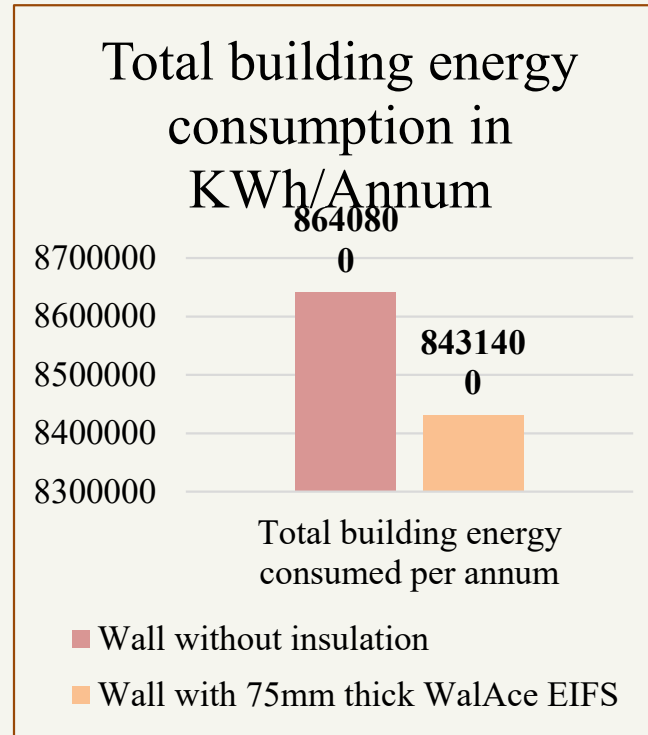
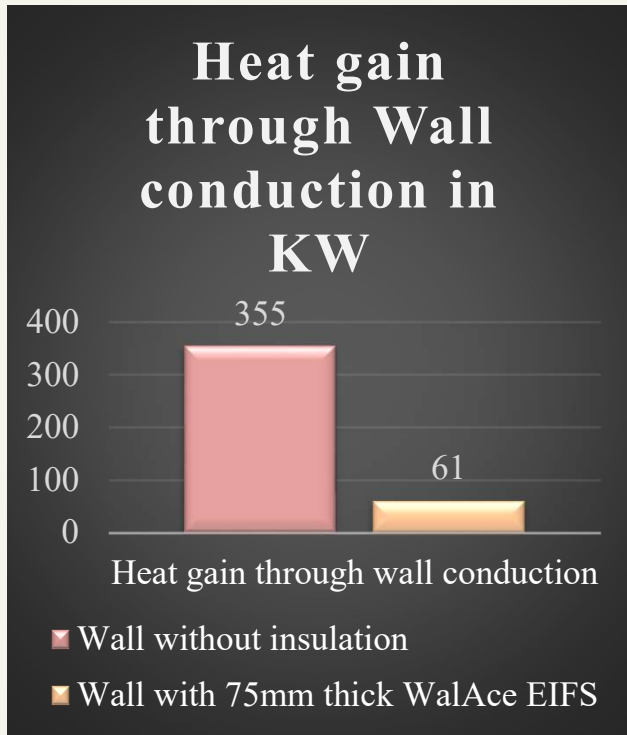
1. Reduction in heat gain through wall by more than 82%
2. Savings in operating cost every year in terms of electricity cost is up to **Rs 18 Lakhs/Annum**
3. Savings in capital investment by downsizing air conditioning requirements **up to Rs 60 Lakhs**
4. **With less than 6 years Payback period for the entire WaAce EIFS system**

What would we be having in our repository ?

Similar results for various scenarios for

1. Different regions spanning across all the climatic zones in India
2. Different type of glass which is being used
3. Different window wall ratio scenarios
4. **Combined solutions for roof and wall across all the climatic zones**

Data Analysis:



Reduction in heat gain through wall by more than 82%

Energy savings with insulation = 2,09,400 kWh/Annum (approx: 17.8 lacs* per year)

Savings in Peak AC load = 117 TR (approx savings in Capital Cost 58.50 lacs)

Pay Back Period = Less than 6 years



BRIEF APPLICATION PROCEDURE

APPLICATION PROCEDURE



Fixing the starter profile



Applying Adhesive on the panel



Fixing insulation panels

APPLICATION PROCEDURE



Mechanical Fixing with Anchors



Panel Rasing



Covering the Anchors

APPLICATION PROCEDURE



Applying First coat of mortar



Applying Glass Fibre mesh



Applying second coat of mortar

APPLICATION PROCEDURE



Applying primer for decorative finish



Applying acrylic texture decorative Finish



Final Finish

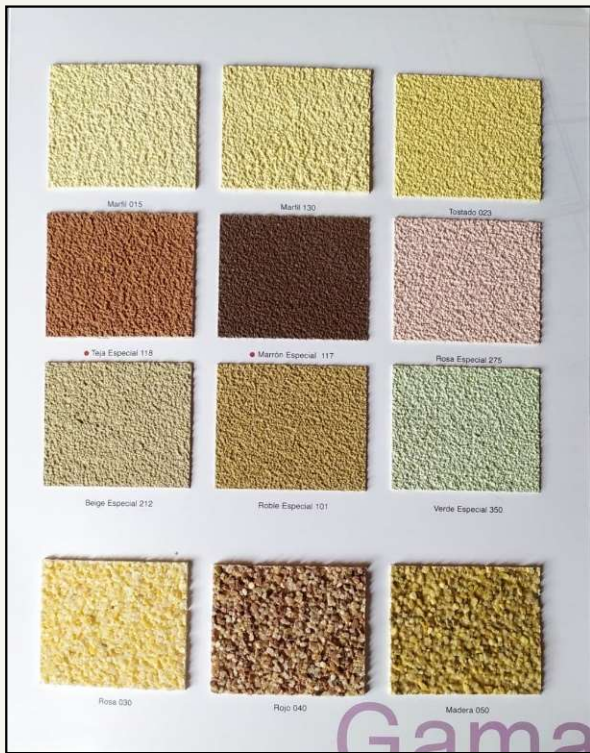
The logo features a stylized sphere with horizontal stripes, positioned to the left of the text. The background is a dark red color with faint white geometric outlines of rectangles and lines.

WalAce

Finishing with Unofin Acrylic System

Pidilite Puma

Unofin Acrylic : Shade Range



System components– WalAce EIFS



WalAceMortar:

Mortar especially designed for fixing and cladding the insulation panels.

25kg bag.

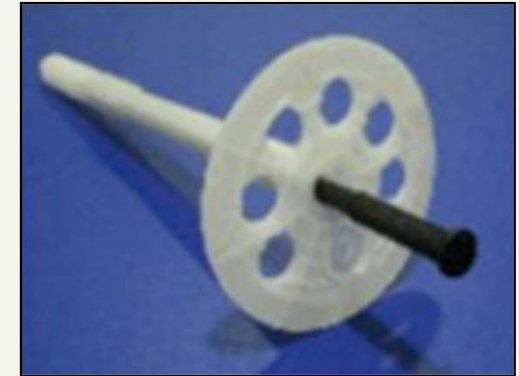
- High Bonding Capacity
- Rainwater resistant
- Resistant to Fire : A1



WalAce Mesh:

Fibreglass mesh with anti-alkaline treatment. It covers the insulation panels and imparts surface resistance and reduced cracks.

- 100% Fiberglass
- 165 & 330 GSM
- Resistance to traction

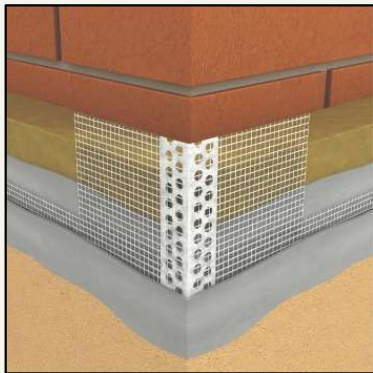
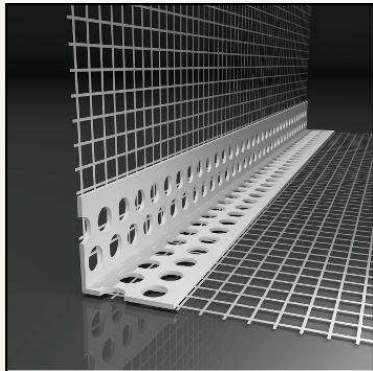


WalAce Anchors:

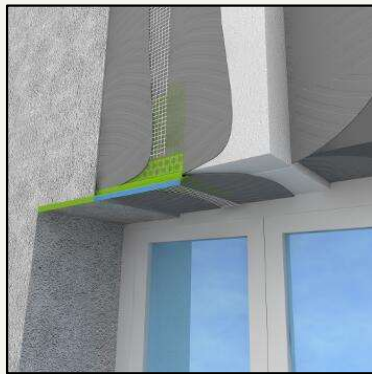
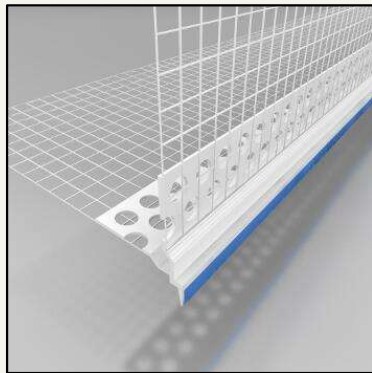
Fixing anchors for Traditerm® Systems.

- Composition: Polypropylene
- Impact anchor.
- Does not rust.
- Range of sizes
- ETA classified

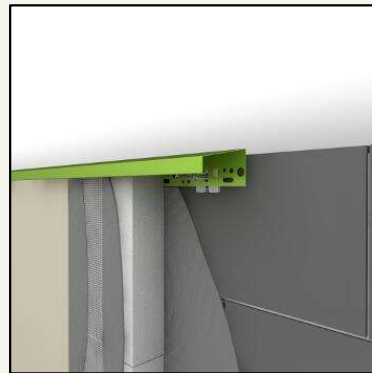
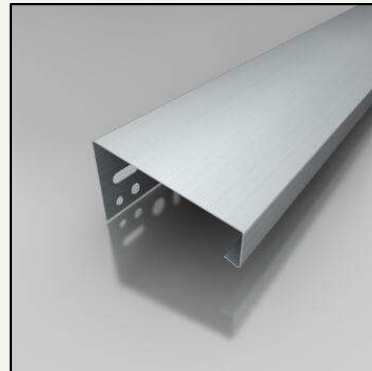
System components– WalAce EIFS



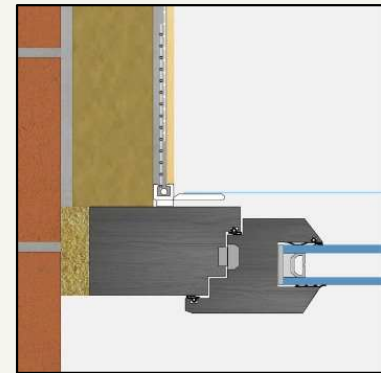
PVC Corner Angle with Mesh



PVC Guttering Profile



Aluminum Crown Profile



PVC Window Finishing Profile

Insulation Medium



EPS

- Expanded Polystyrene
- IS 4671
- Closed cel structure
- k value 0.036 – 0.038



XPS

- Extruded Polystyrene
- Closed cel structure
- k value 0.027 – 0.030

The insulation medium can be selected depending on the requirement.

BENEFITS OF INSULATING THE ENVELOPE

- Reduces heat ingress from outside and thereby reduces energy needs which
 - Limit fossil fuel consumption
 - Reduces GHG (CO₂) emission

- Increase human comfort and thereby improving the efficiency of user
- Creates a healthier environment by preventing issues due to moisture ingress

- Reduction in operating costs every year (Lower electricity/energy bills)
- Reduction in capital investment by downsizing the air-conditioning requirements

Planet



People



Profit



PROJECT REFERENCES

INFOSYS JAIPUR



PROJECT REFERENCES

AMRITHA HOSPITAL FARIDABAD



PROJECT REFERENCES

DLF MALL OF INDIA, NOIDA



PROJECT REFERENCES



PROJECT REFERENCES



PROJECT REFERENCES

Pidilite Puma





Thank you!

Pidilite

Puma