CAMPION CONCRETE PRODUCTS LTD.

- Campion Concrete has been established since 1989,and are now in their 21st year in business.
- One of the leading manufacturers and suppliers of concrete products in Ireland.
- Manufacturing facility is conveniently situated in the Midlands at Borris-in-Ossory Co Laois.
- Due to the growing demand for highly insulated houses with low carbon emissions, we are now adding to our vast range of products a highly insulated concrete wall panel(U- value 0.18).
- Campion wall panels are made in a controlled factory environment, the plant has over 8000 square metres of a production facility standing on 50 acres in Co Laois.

CAMPION FACTORY

CAMPION HOMES

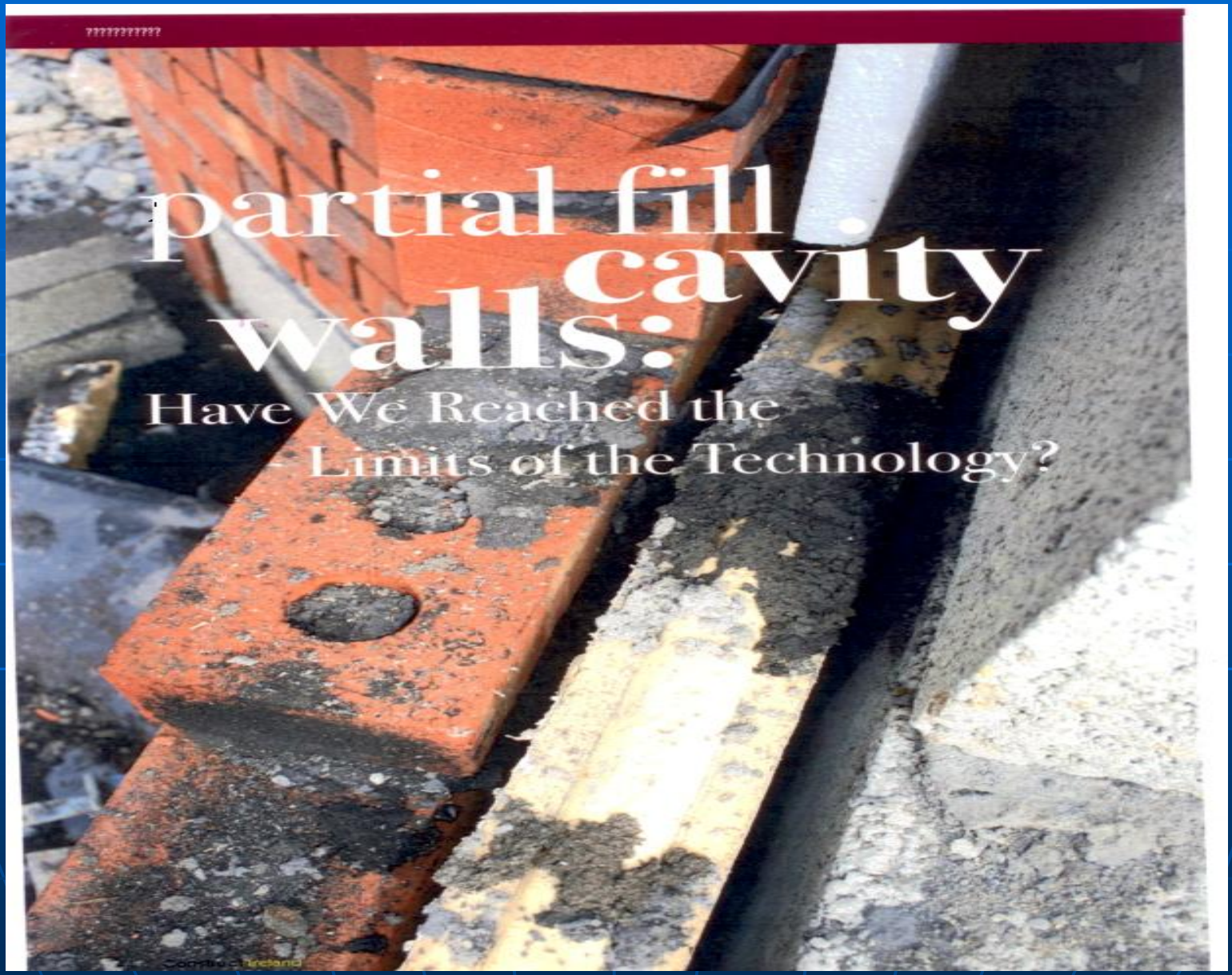
- NEW GENERATION HIGHLY INSULATED HOMES

HIGH DENSITY INSULATION
V
NO INSULATION

POORLY FITTED INSULATION

POORLY FITTED INSULATION

POORLY FITTED INSULATION


partial fill cavity walls:
Have We Reached the Limits of the Technology?

AWARDS

AWARD WINNER
2008

BEST PRODUCT OF
THE SHOW

AT THE RDS
BUILDING EXHIBITION

INSULATED PANELS

- Catnic Lintel and heat transferance

DEBRIS & WASTE MATERIALS

- A couple of bales of blocks are surely wasted during the course a house build.
- Mortar is wasted due to rain and too much being mixed at the one time,wall ties thrown around the site.
- Plastic & sheets of insulation blowing around the fields and ending up in the trees & ditches.
- Bales of insulation used as temporary scaffolding leading to damaged insulation which is no longer useful-you the customer end up paying for more materials.
- Broken blocks and full blocks lying around the site leading to accidents by tripping over them. This could lead to potential insurance claims.
- You the customer are paying for all wasted materials.
- Our system is perfectly clean and there is no waste whatsoever to dispose of.

INSULATED PANELS

INSULATED PANELS

INSULATED WALL PANEL

INSULATED PANELS

ELECTRICAL BOXES FITTED

OUR BUILDING SYSTEM

- Campion homes receive the drawing.
- Cad Engineers produce detailed drawing.
- Computer designed insulation panel is manufactured.
- Electrical boxes, conduits, telephone & data sockets placed in internal concrete wall panel,with an empty conduit connecting sockets for any future electrical alterations.
- 100mm of 50 newton concrete is placed onto the casting beds, forming the inner leaf onto this the high density insulation panel is placed,with a further 50mm layer of concrete, which forms the outer leaf.
- The casting bed is vibrated to produce the strongest, smoothest wall panel possible.
- The outer leaf is scratch coated to receive the clients own preferred finish.
- When the panels have set, they are placed in an upright position ready for transportation.
- Panels when on site are lifted into position by crane.

BENEFITS

- 2 storey house **ERECTED IN 2-3 DAYS.**
- Huge **REDUCTION** of heating bills
- Highly **ENERGY EFFICIENT.**
- Quality and Accuracy.
- Speed of construction **10 TIMES FASTER** than Timber Frame house.
- External wall is scratch coated ready to receive clients preferred finish e.g dash brick stone etc.
- Highly Insulated
- Electrical sockets & conduits are pre-fitted in the panel thereby **ELIMINATING CHASING THE WALL.**
- **SMOOTH FINISH** internally reducing costs for plastering.
- Concrete has a greater **FIRE RESISTANCE** and is NON-COMBUSTABLE and has a high THERMAL MASS.
- Concrete has a greater **WATER RESISTANCE** and will not warp, rust or rot.
- Massive improvement in **SOUND INSULATION.**
- **SEMI –DETACHED HOMES** - Insulated party wall consisting of 100mm concrete, 90/130mm high density. polyisocyanurate insulation and 100mm concrete. In other words you only heat your own home, not your neighbours!
- **MASSIVE REDUCTION** of on site labour.
- **CERTAINTY OF COST** because all elements of prefabrication are calculated in advance to the work starting on site.
- **CERTAINTY OF PROGRAMME** because the system is not weather dependant.

WORK IN PROGRESS

WORK IN PROGRESS

CONCRETE PILE FOUNDATIONS

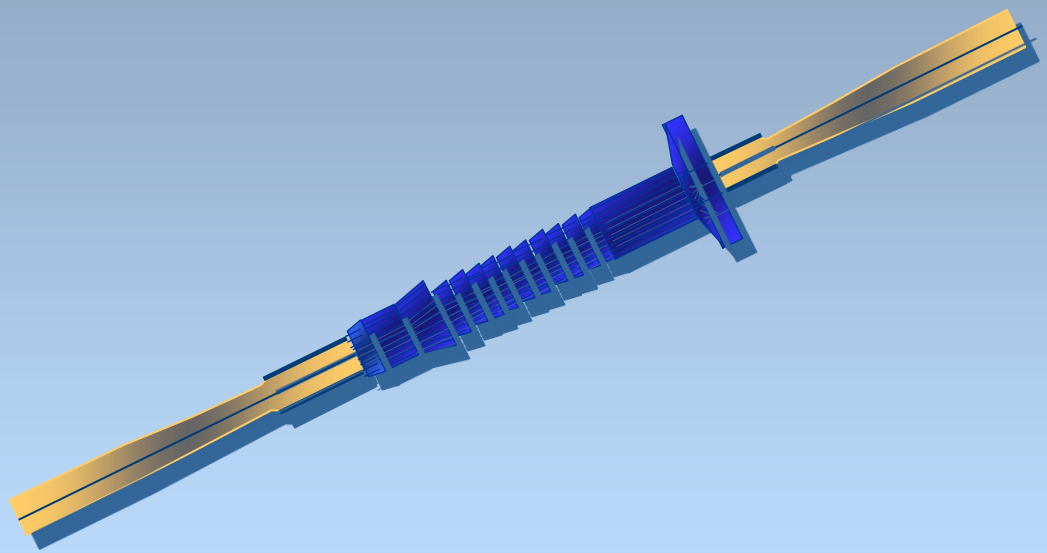
- Campion Concrete group recommend to clients that they use our concrete pile foundations.
- Pile system produces a resistance which is 1.5 times the load of the house.
- Ensures dwelling is sitting on a tried and tested solid foundation.
- To Pile foundation we add our foundation beams, then our suspended concrete floor.
- We then erect the insulated concrete wall panels to the ground floor.
- Then we place the suspended concrete flooring which forms the ground floor ceilings and bedroom floors.
- Additional wall panels are then erected to take the house to the bedroom ceiling height.
- You can have a concrete floor in your attic space for a ready made storage area. Or for future conversion to a habitable space.

PILE FOUNDATION

PILING RIG

Thanks for your attention

What is a Thermomass Connector?



Breakdown

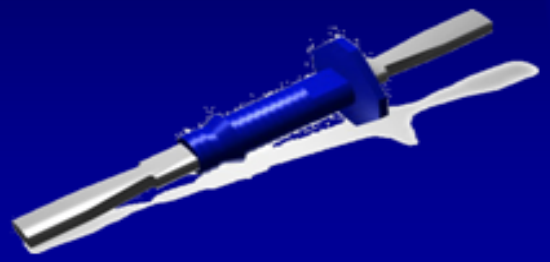
Fiber-Composite Connectors are…

- Not Plastic… *"76,000 glass fibers pultruded through a heated, vinyl ester resin bath and cured to produce":*

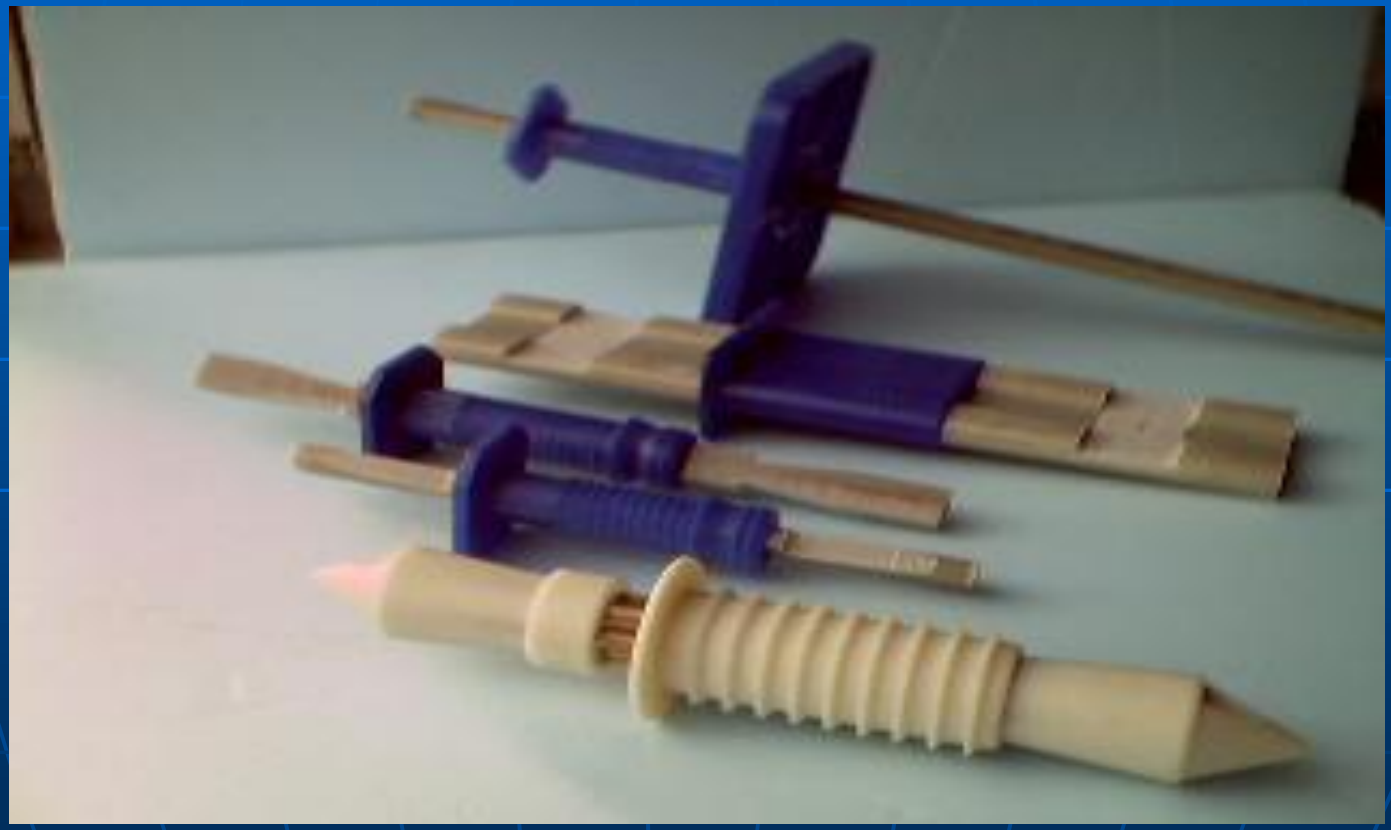
120,000 psi tensile strength

2500 lbs pullout capacity
(sees only 110 lbs during a "normal" lift)

910 lbs ultimate shear capacity
(a 3-in. exterior wythe applies 65 lbs)



Range of Connectors

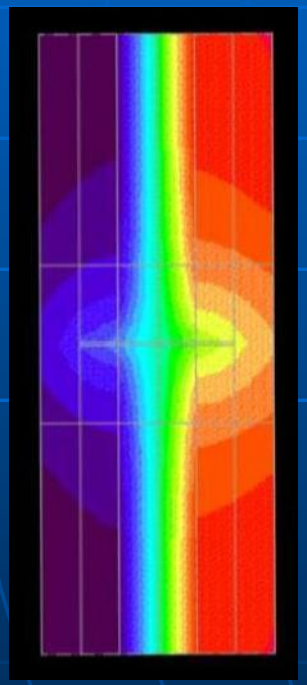


The Thermomass® Connectors

Properties	Unit	Value
Tensile strength	N/mm²	848
Elongation at fracture	%	2,1
Modulus of elasticity	N/mm²	49.600
Flexural strength		
Strong-axis	N/mm²	37,2
Flexural strength		
Weak-axis	N/mm²	33,4
Compressive strength	N/mm²	49.600
Shear strength	N/mm²	400
Flexural elasticity modulus	N/mm²	30.000
Tensile elasticity modulus	N/mm²	40.000

Why a Thermomass connector?

Conductivity of a steel connection device



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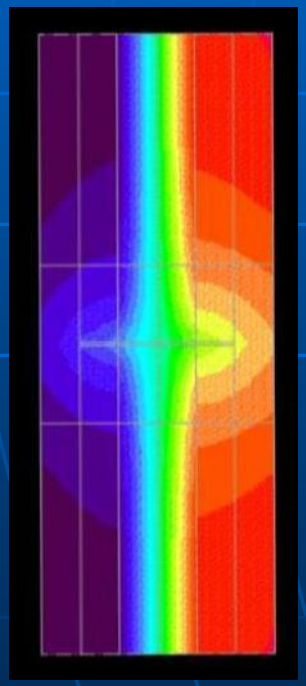
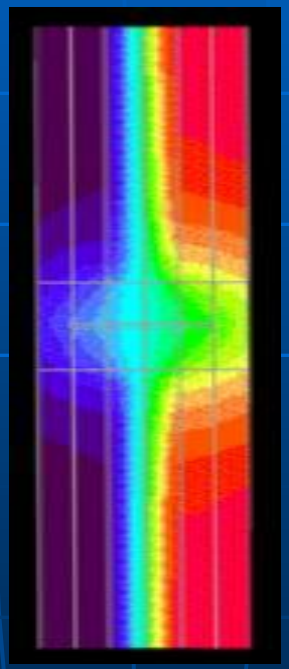


Conductivity of a solid concrete connection



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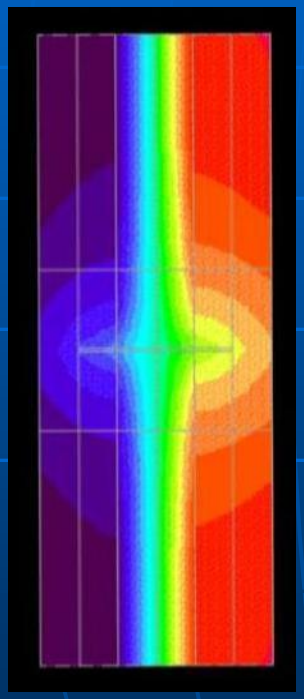
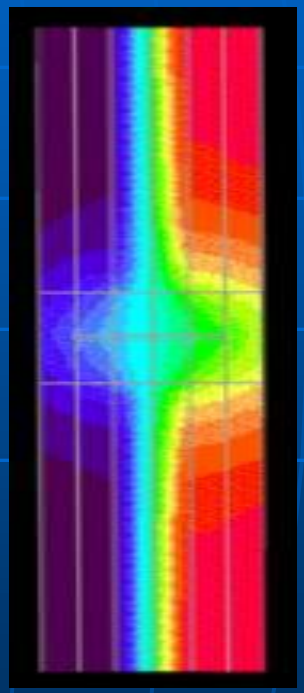
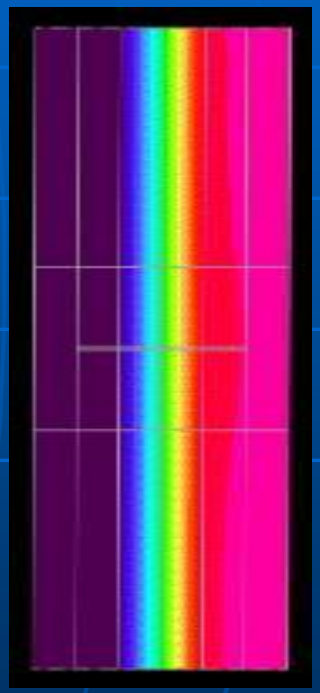
Conductivity of a Thermomass connection



Steel

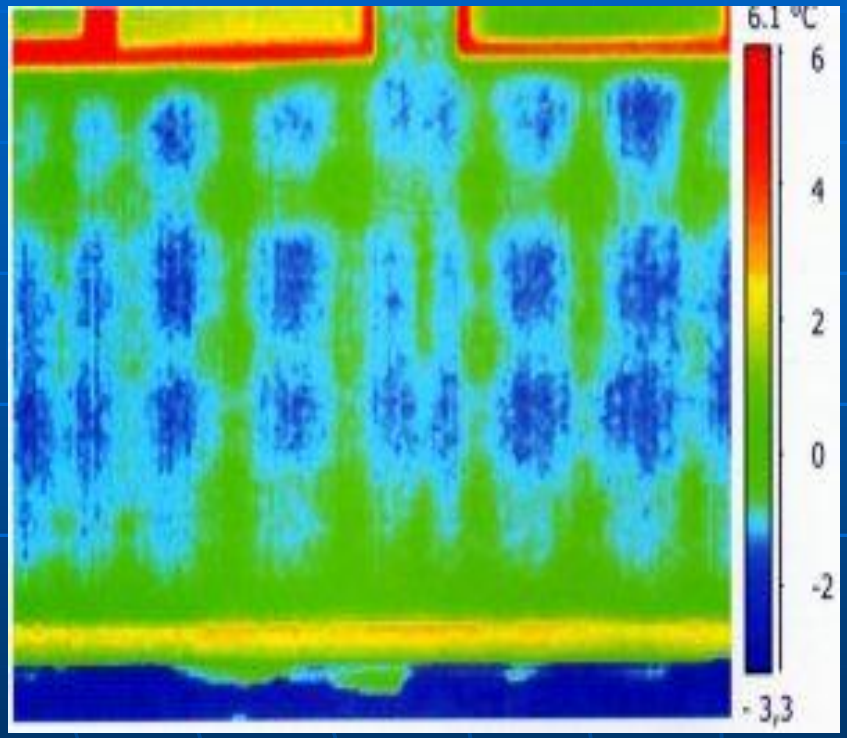


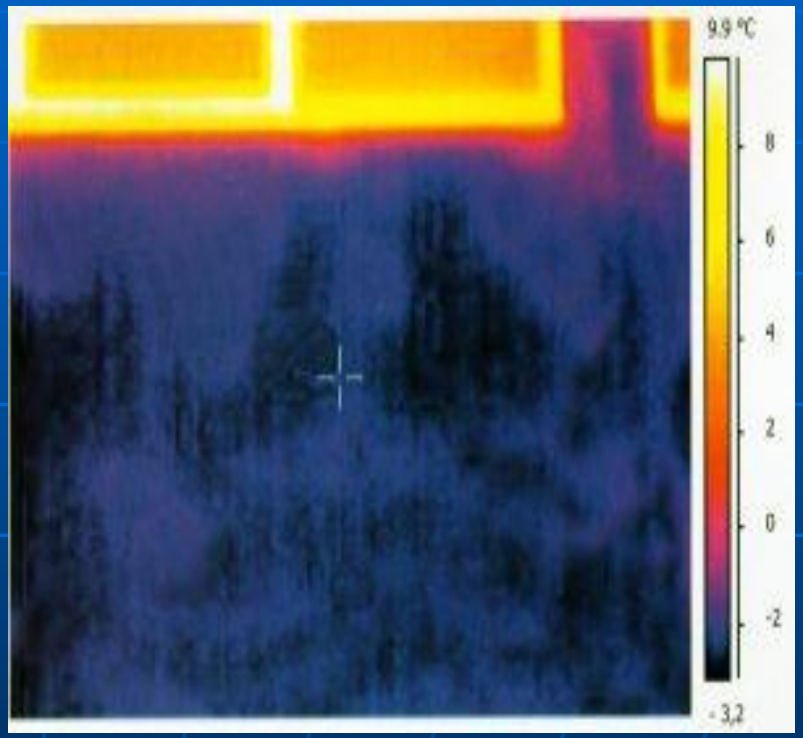
Concrete



Thermomass

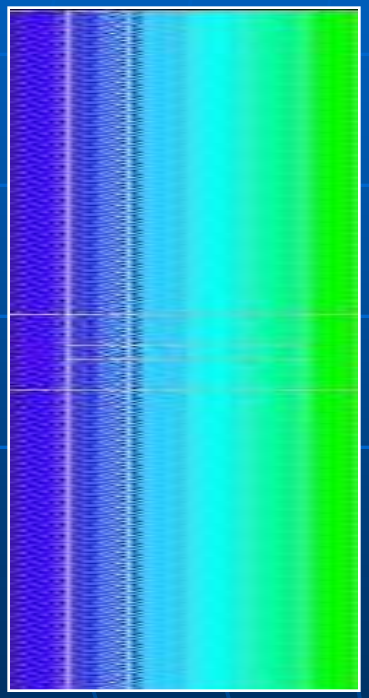
Metal verses Thermomass



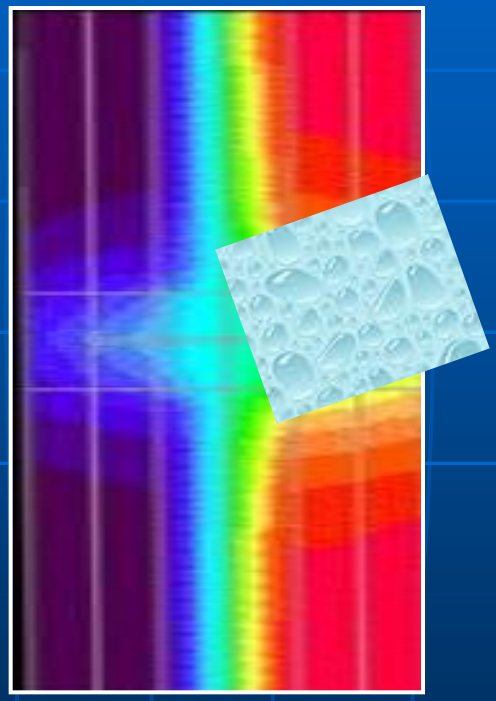


INTERSTITIAL CONDENSATION

- Non-insulated Panel

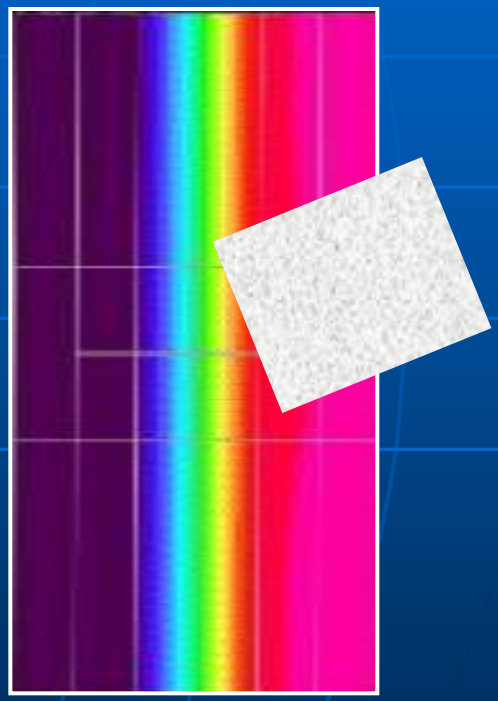


- Panel with metal Thermal Bridge



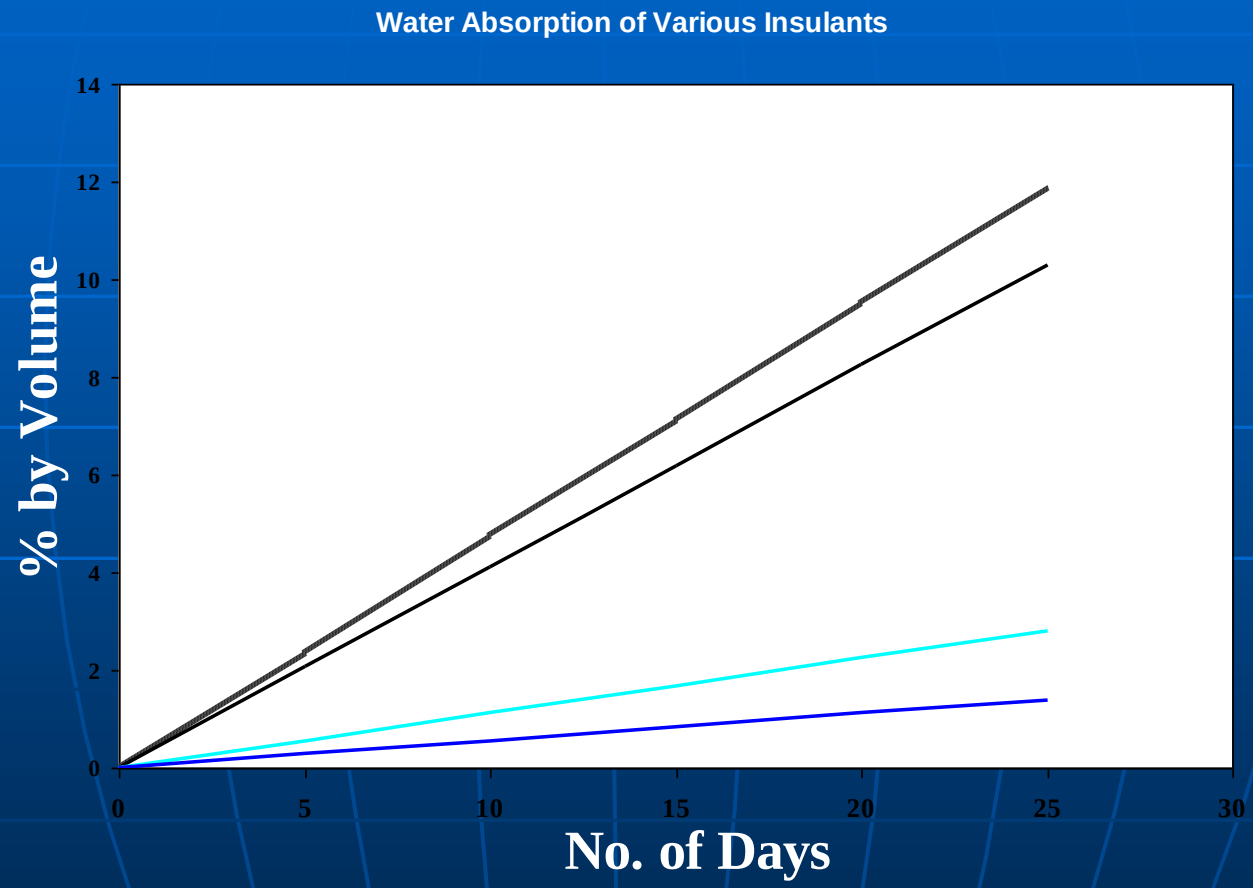
High internal RH = Surface condensation.

- Thermomass Connector System

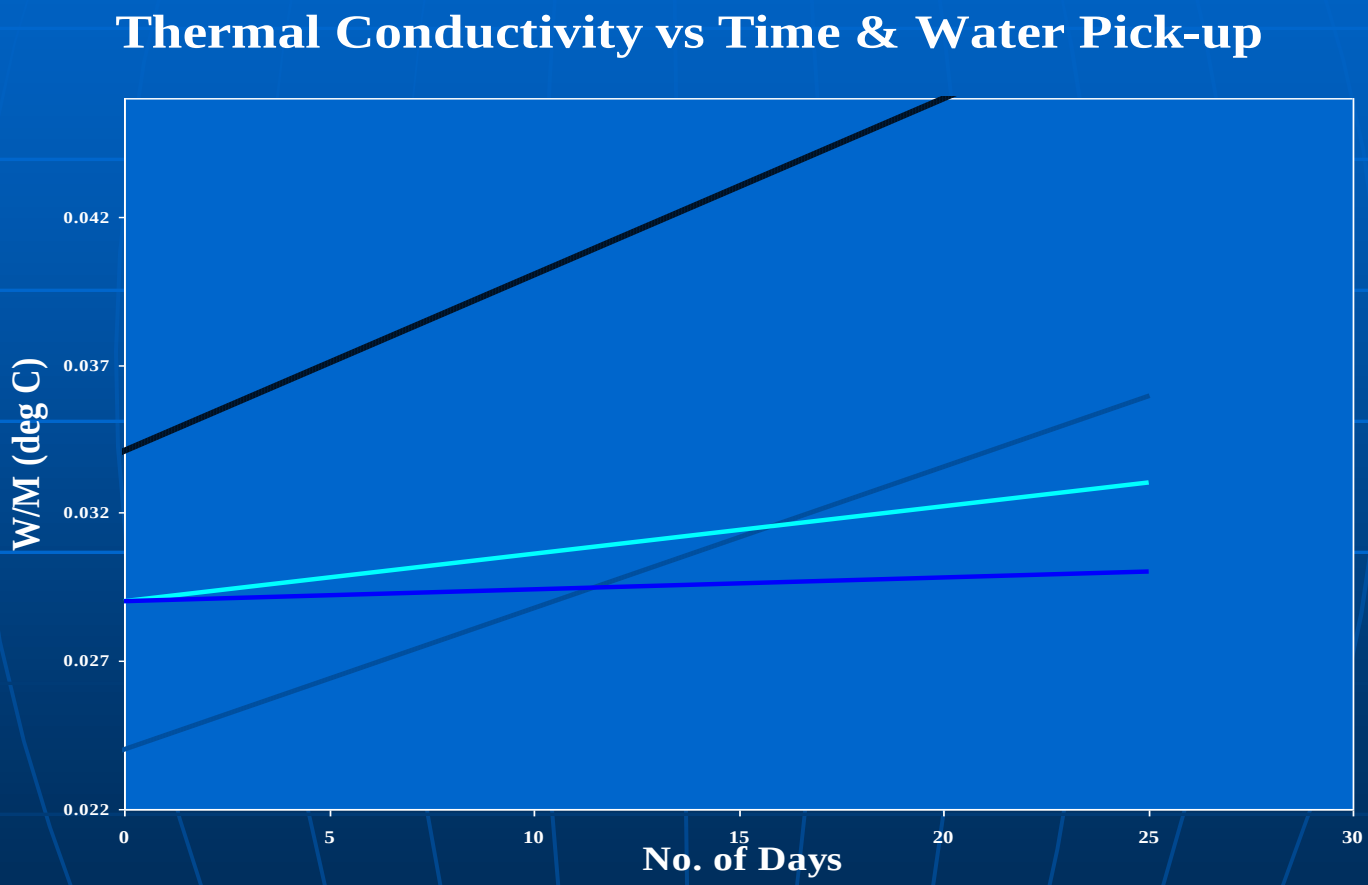


High internal RH = Dry interior surfaces

Which Core? - 1


Water Absorption of Various Insulants
% by Volume
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
No. of Days

Which Core? - 2


Thermal Conductivity vs Time & Water Pick-up
W/M (deg C)
0.042
0.037
0.032
0.027
0.022
0
5
10
15
20
25
30
No. of Days

Which Core? – 3

Comparative wall thickness against target U value

Comparative Overall Wall Thickness

BASED ON AN EXTERNAL WALL OF 50MM, INTERNAL 100MM

Insulation Types→		GEPS	XPS-HFC*	EPS	XPS-CO2	**PE-PIR**
"U" values	**W/m2K ↓**					
	0.25	329	325	299	299	240
	0.18	320	314	365	365	280
	0.10	489	489	580	602	410

GEPS= Graphite expanded polystyrene 120 kPa

XPS-HFC*= Extruded polystyrene HFC Blown, this foam will shortly be withdrawn.

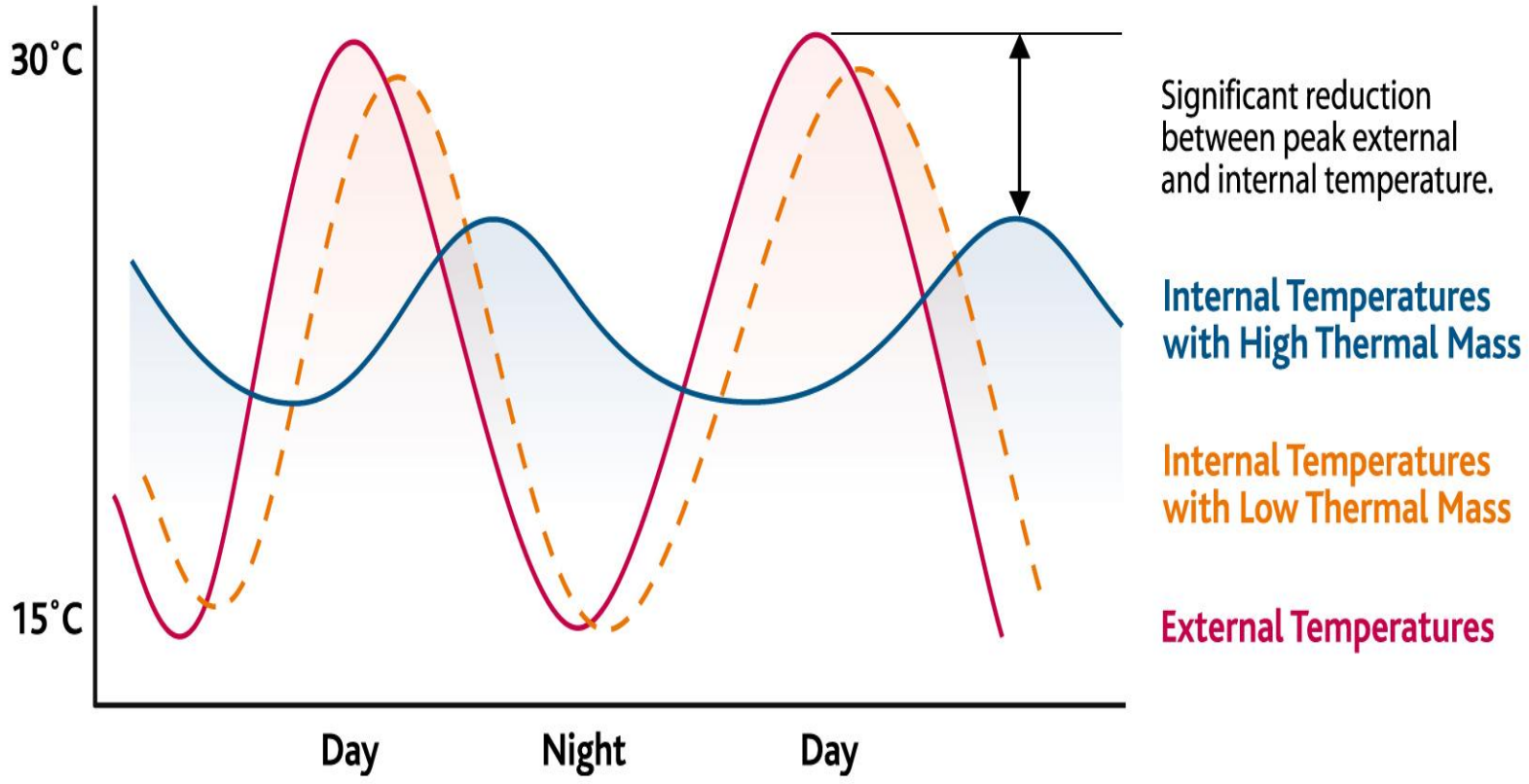
EPS= Expanded polystyrene 150 kPa

XPS-CO2= Extruded polystyrene blown with carbon dioxide

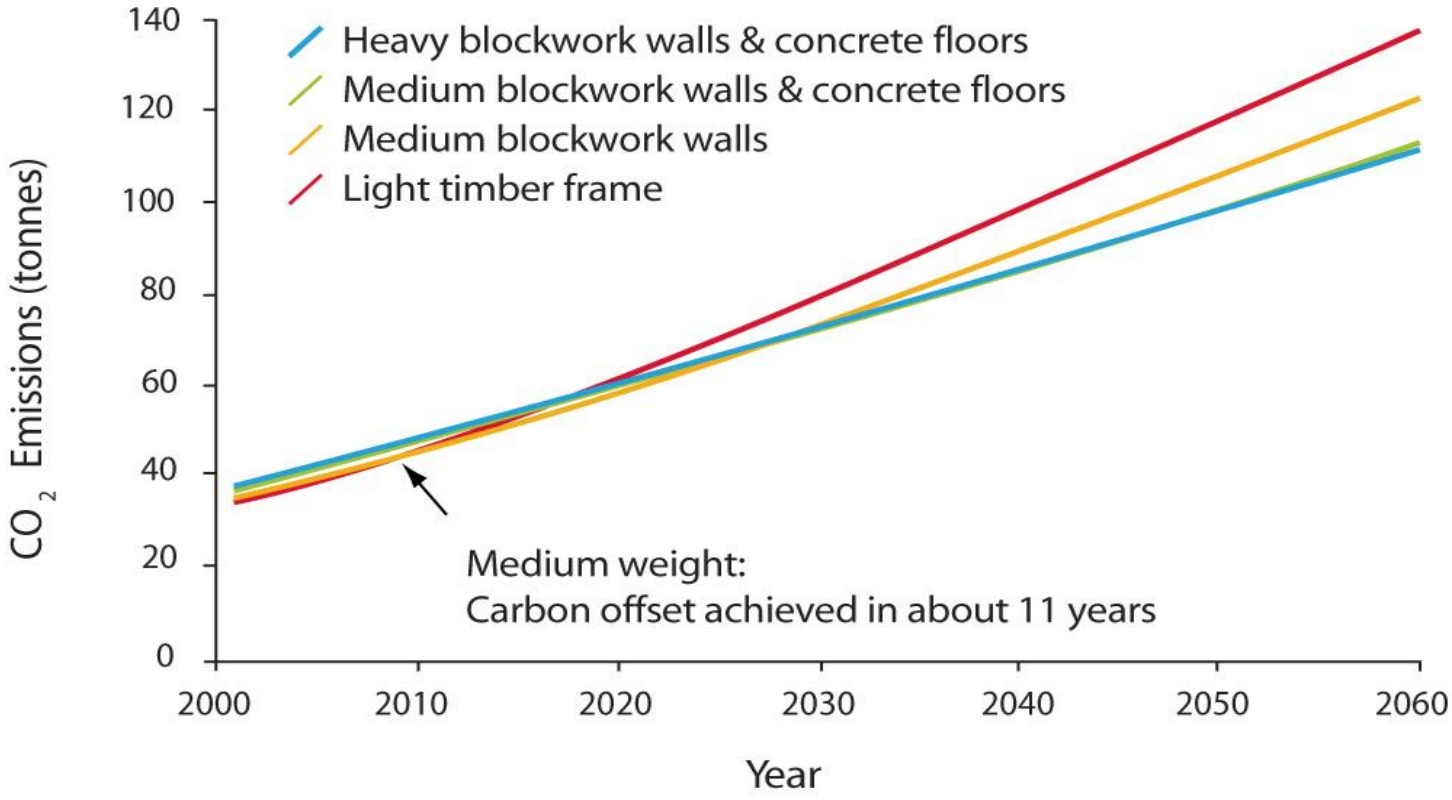
PE-PIR= Polyethylene faced polyisocyanurate

ALL THICKNESS' INDICATIVE AND SUBJECT TO CALCULATIONS

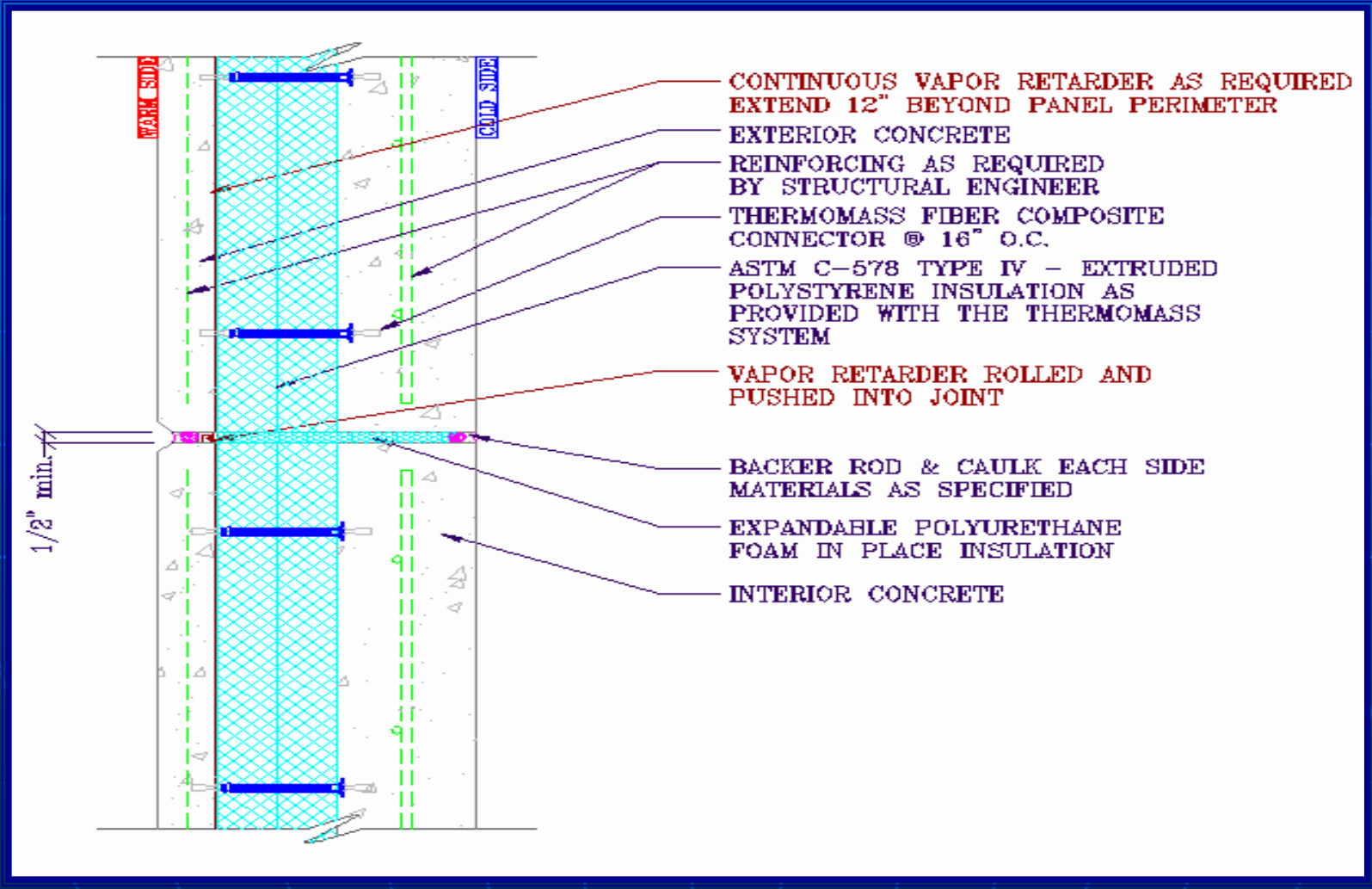
Stabilisation effect of Thermomass



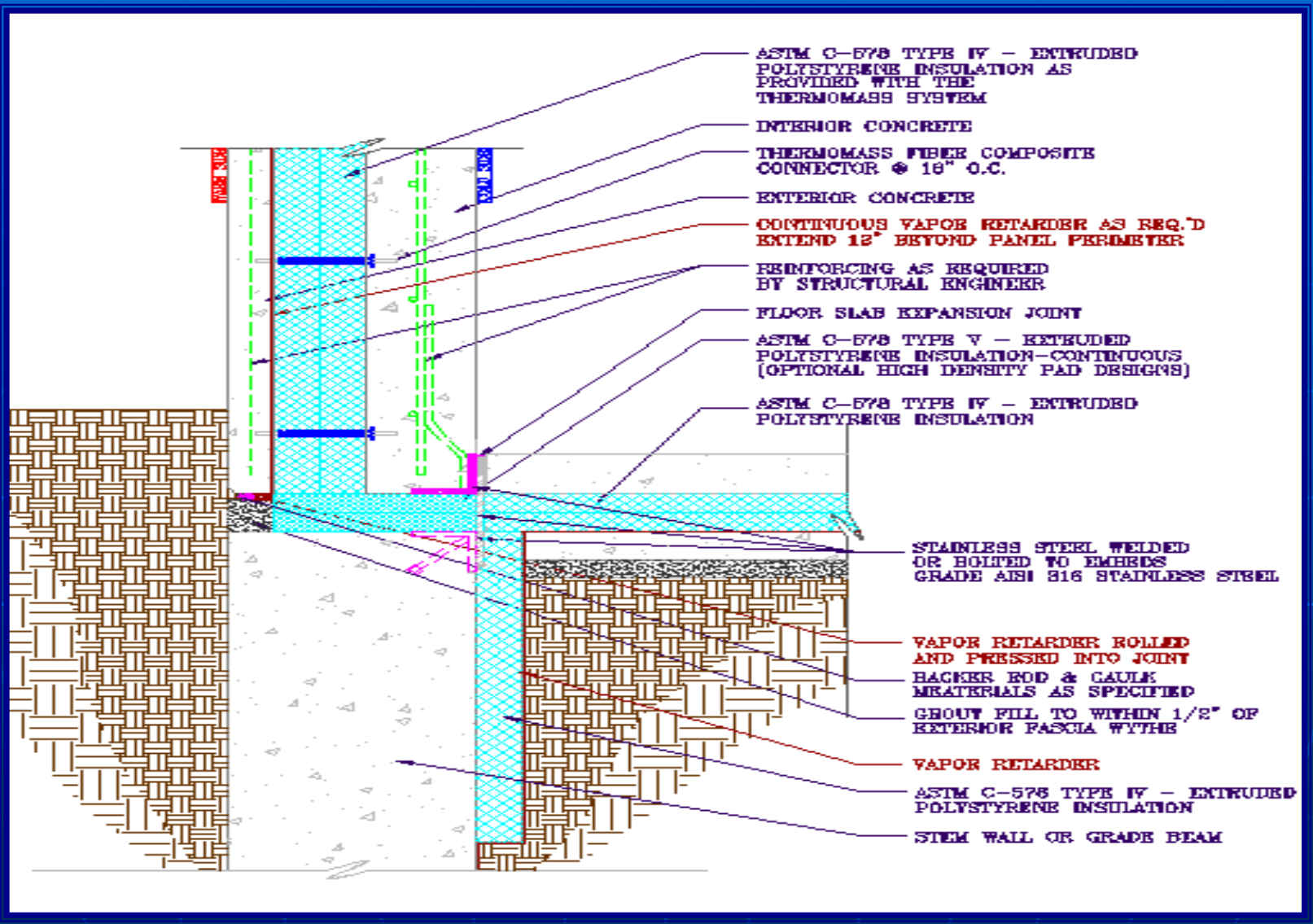
Thermomass Cumulative CO^2



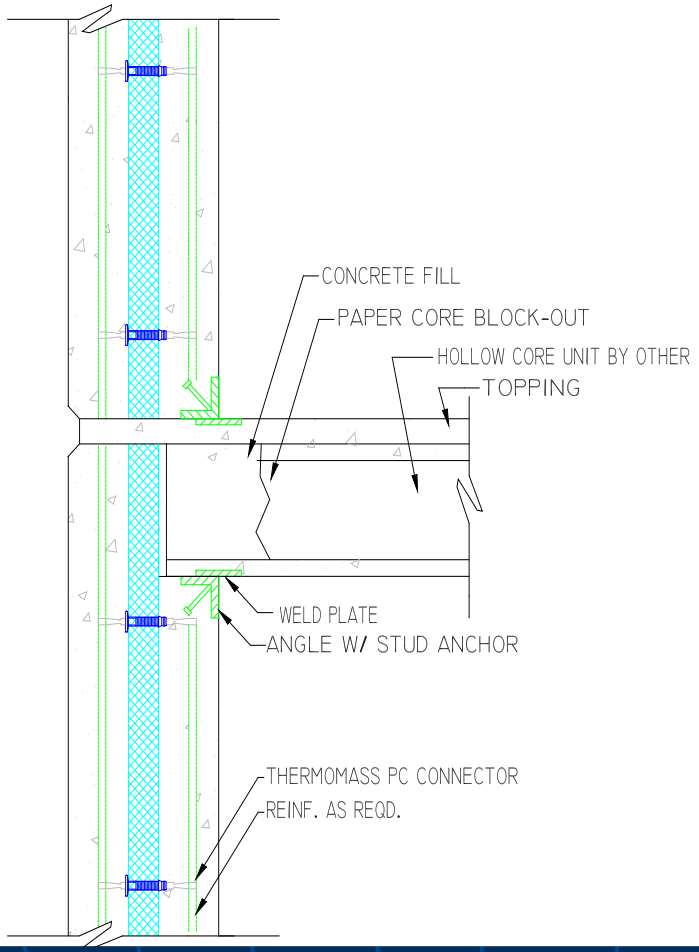
Butt Joint Detail



Ground Floor detail



Intermediate Floor



House in progress

House in progress

House in progress

House in progress

House in progress

House in progress

Summary

- Proven system
- Extremely fast building system
- Highly cost effective
- Improves health and safety
- Satisfies Thermal Building Regulations
- Satisfies Acoustic Building Regulation
- Satisfies Environmental standards

Thanks for your attention

Questions