
TerraTonics

Terratonics mission is to replace expensive and environmentally damaging concrete in the foundations of most modern homes and commercial buildings.

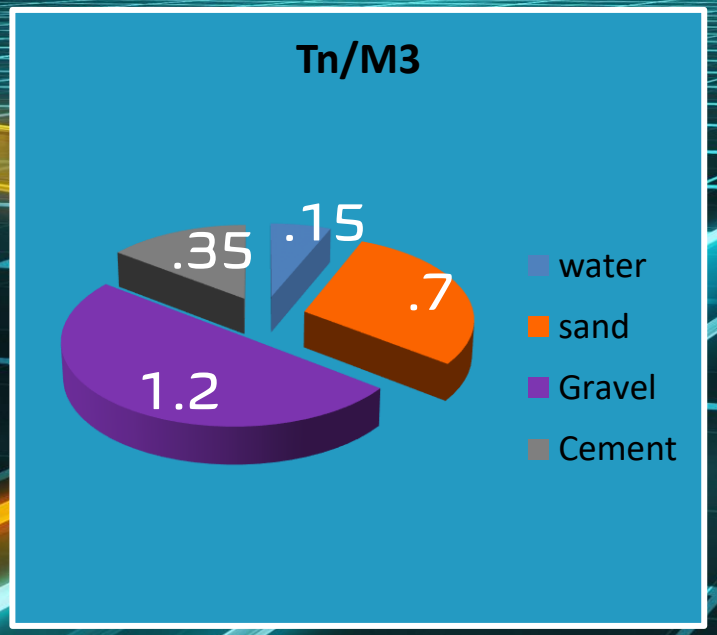
Company Status

- The Terratonics Foundation System eliminates the need for using environmentally damaging concrete
- Production Version 3 Developed
- International PCT Patent pending
- 1st Batch of Terrapods produced
- BRE Testing (EU Certification) campaign commenced
- Irish Finalist of Climate KIC 2019
- HPSU Clients of Enterprise Ireland – Irish Government
- Seismic partnership with Mc Avoy Group
- First pilot confirmed with Hariot Watt for Dubai 2021 Dubai Expo
- Commercial launch March 2021
- €1.2m investment required.
- Additional products being developed

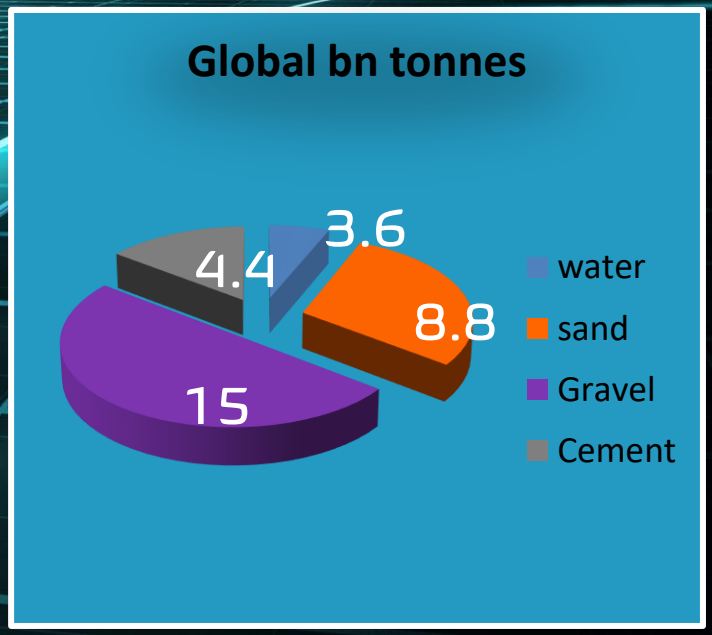
WHY DO WE NEED SO MUCH CONCRETE?

- Infrastructures, such as carriageways and railway lines can be constructed without the need for environmentally damaging concrete
- This can be achieved by engineering the soil/ground with compacted aggregates and geo textiles creating a firm base which large dynamic loads can operate without sinking into the ground below
- Modern methods of construction allow for buildings to be manufactured off site
- MMC buildings are much lighter that traditional masonry buildings so why are we still using traditional concrete foundations?

Concrete is Unsustainable



EVER CUBIC METER OF CONCRETE CONSUMES THIS RATIO OF RESOURCES



RESOURCES CONSUMED BY CONCRETE PRODUCTION EVERY YEAR

Consequences Of Concrete

- 3 Billion Tonnes Of CO2 = 1700 Km3
- (472 LN)

10% Global CO2 Emissions
In comparison Global Forest fires emit 5%

- 3.6 Billion Tonnes of Water

Lough Neagh 3.6 km3

10% Global H20 Consumption
= 3.6 Billion tonnes of fresh water or draining Lough Neagh every year

9 Billion Tonnes Of Sand

SAND WARS
Building sand is running out & many people have been murdered for control of quarries

SOLUTION

- The Terratonics System eliminates the need for concrete.
- It is a pedestal system connected by structural beams.
- The Terrapods are manufactured using an extremely strong and lightweight polymer called Nyrim.
- Production Version 3 Developed
- 1st Batch of Terrapods produced
- BRE Testing begun October.
- No competitive product on the marketplace – only Screw Piles
- Terratonics will develop it own strengthened beams and SIPs enabling new revenue streams – see appendices.

NYRIM

EXCAVATOR TRACKS MADE FROM NYRIM

Typical advantages of Nyrim material

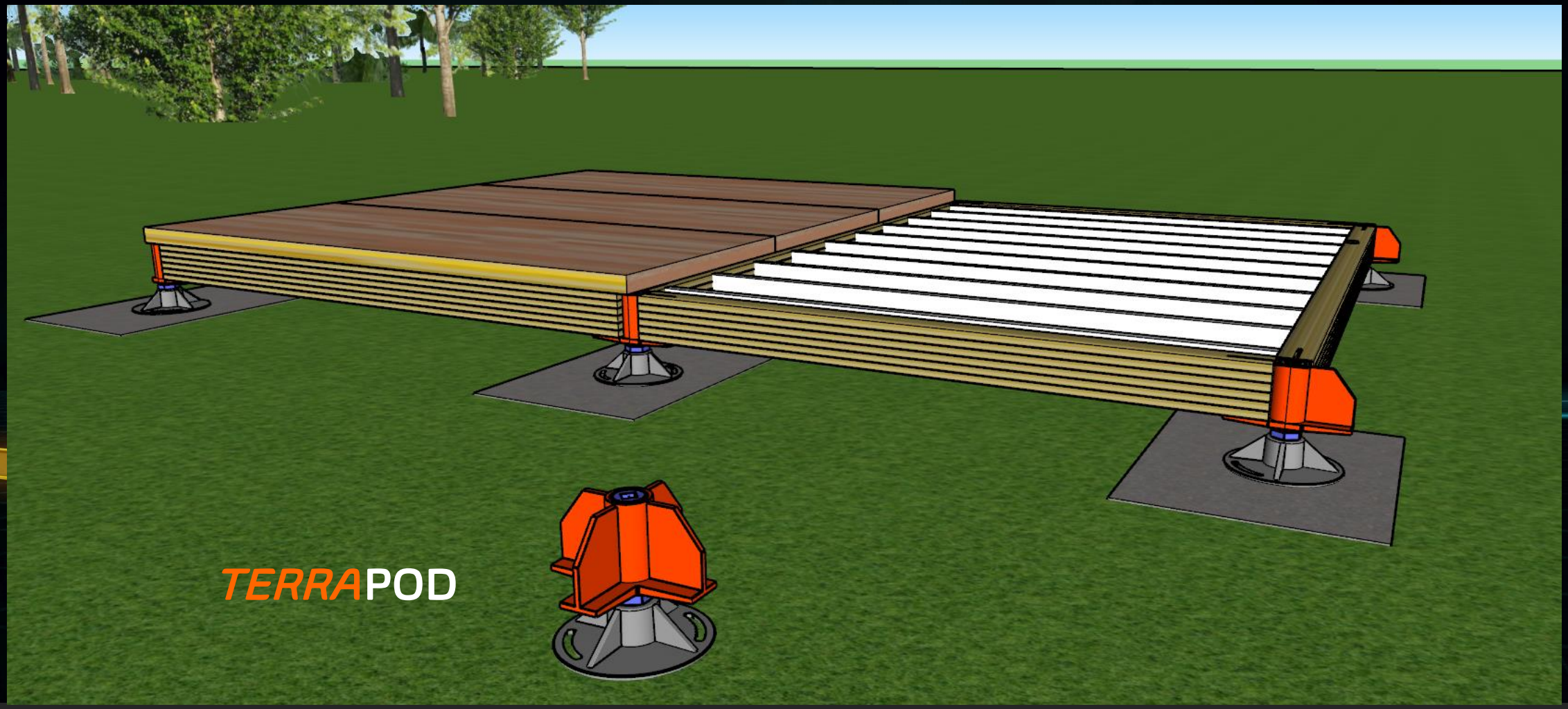
- Highly impact resistant, robust and abrasion-resistant
- Operational Range between -60 °C and +140 °C (180°C short term)
- Hardness infinitely adjustable within a range of Shore D 50 to 75
- Absorbs energy and vibration
- 100% recyclable
- Properties can be customised by adjusting reinforcing materials
- Colouring or on-line coating available with larger quantities

TESTING

NUI Galway
OÉ Gaillimh

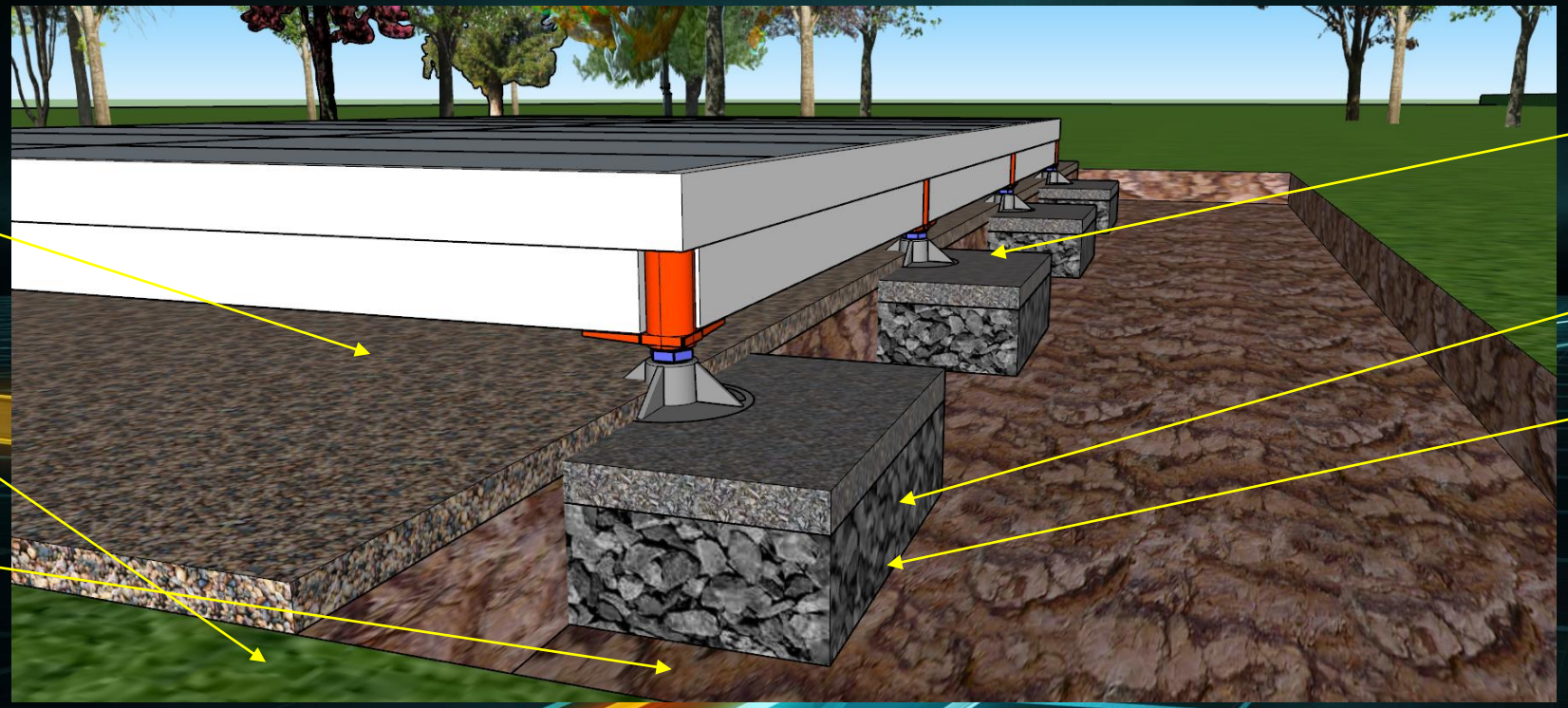
breglobal

43
Tonne



TERRADECK Our Sustainable & Rapid Build Foundation And Flooring System

*TERRA*DECK on Engineered Stone Pads



- Ground conditions vary from site to site.
- Determine load bearing capacity California load bearing test or similar
- Engineer the ground accordingly.
- The engineered ground can encompass the entire building’s perimeter or be excavated into either strips or pads below the load points.

EURO MARKET

Traditional Masonry

Masonry onsite Construction 30% Market Share

MMC Modern Methods Of Construction

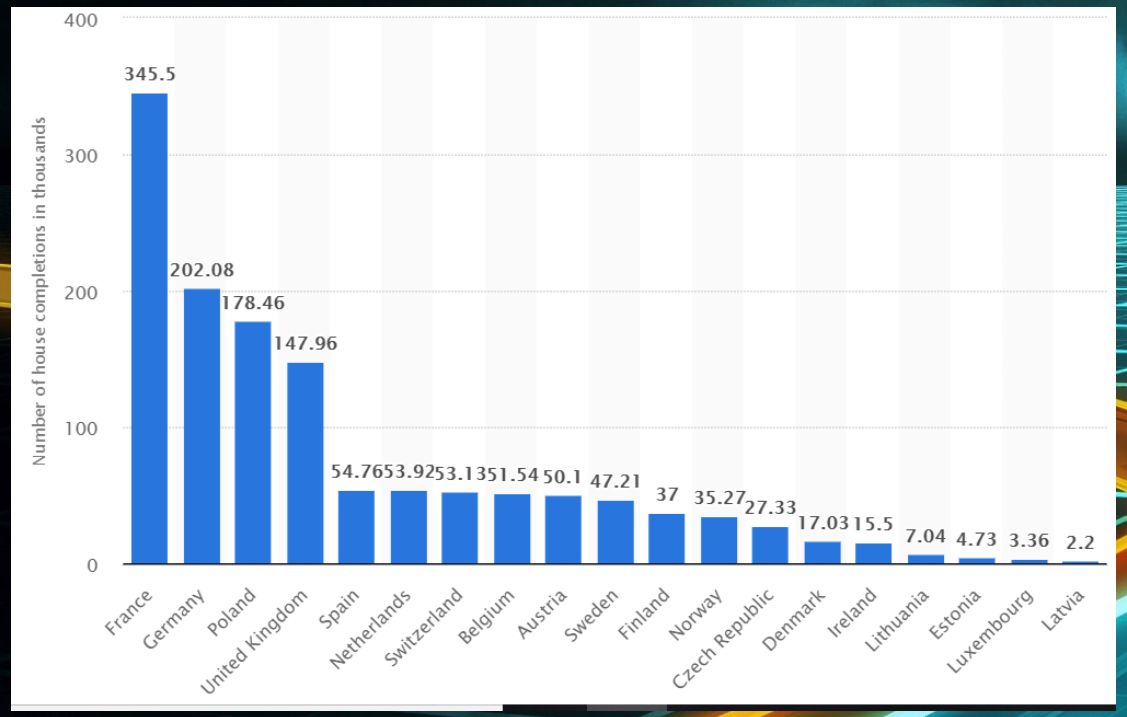
MMC's Onsite Construction 70% EU Market Share Foundation Value €27bn

Timber Frame

Steel Frame

Sip Frame

THE EUROPEAN MARKET SIZE AND OPPORTUNITY



- Global movement away from on-site build to off-site manufacturer.
- 2.5m New homes completed per year.
- 70% are MMC – Timber Frame/Pre Fabricated.
- Average Price €150,000.
- Foundation costs 10%.
- Addressable European Foundation **Market Value €27 billion.**

TARGET CUSTOMERS

Business Model

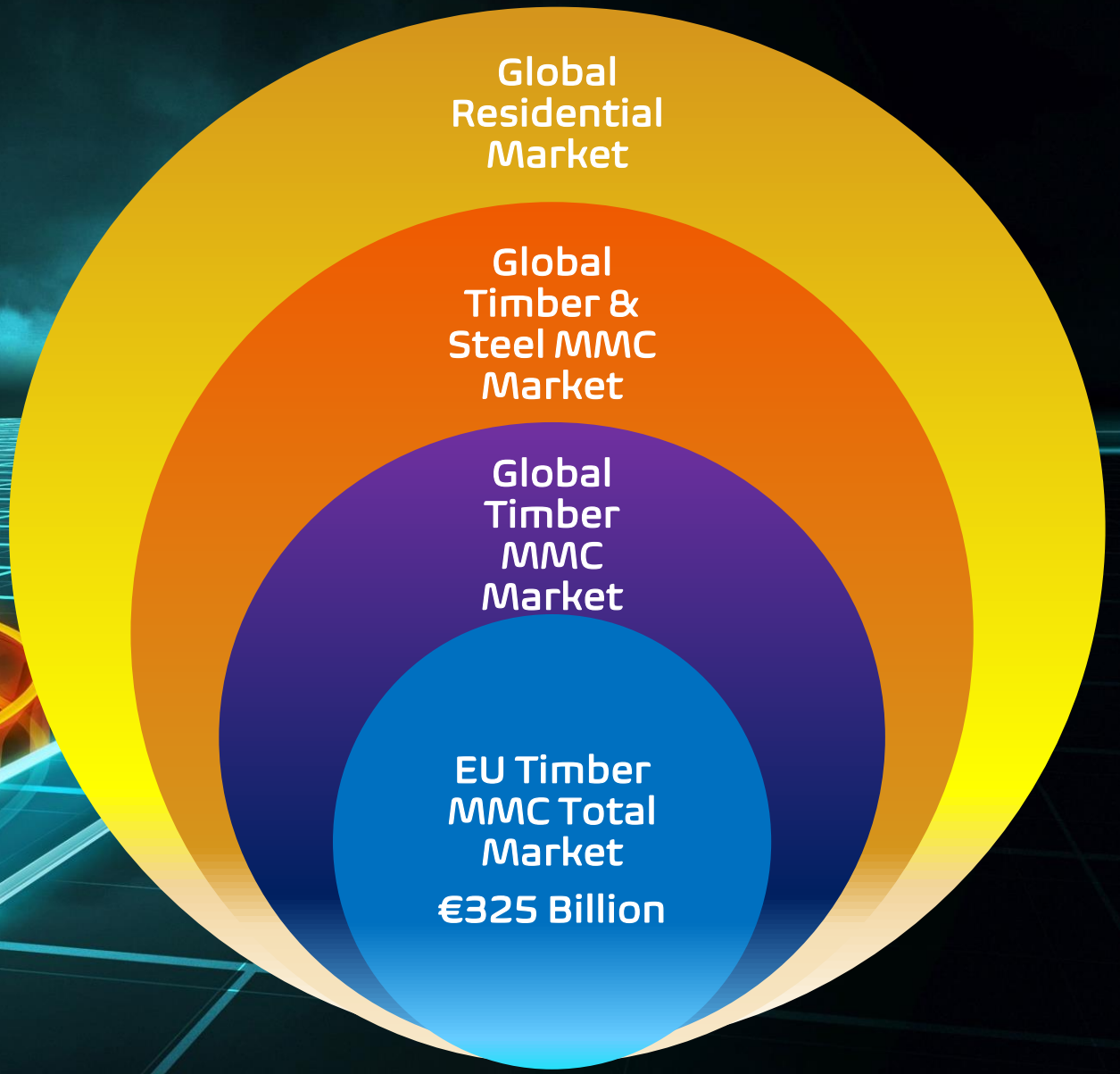
1. Direct

- Contractors & Self Build

2. Wholesale

- Developers
- MMC Manufactures
- Government
- Councils

3. Licensing/MMCs



THE TEAM

Alan Ledwith
Founder & CEO

30 Years Building Contractor

- Timberframe Manufacturing
- Scandinavian Log Building Specialist Contractor/ Importer
- Engineering & Inventing
- Residential, Commercial, Industrial

Garvan Quish
CCO

30 Years in Sales & Commercial Management

- Benex Technologies S&M Director Future Ticketing Sales Director
- Europcar Sales Director Ireland
- Capital Eyes Int Co-Founder Business Development Director
- Kindle Banking Systems European Sales Director

Finbarr McCartney
Technical Sales Manager

- Structural & Civil Engineer
- Kingspan Eco Systems Sales Manger
- Punch Engineering Resident Structural Engineer
- Meath County Council Resident C&S Engineer
- Louth County Council Resident C&S Engineer

Andrew Hammelmann
Manufacturing Advisor

CEO of FF Polymers Irl

- 30 years' experience in product design and manufacturing
- specialising in engineering polymers and composites.

Declan?

Benefits Comparison			Concrete	Terratonics	% Differ
Cost Percentage Savings			£43,337	£31,681	26.90
Elements/stages of build		Item	37.00	18.00	51
Deliveries & surplice removal	13.40	Item	34.76	13.40	61
Total Carbon Emissions	-4.5	Tonnes	34.00	-4.51	113
Water used in Production and on site		m3	17.00	0.00	100
Base Volumetric flood displacement equivalent		m3	75.5	0.3	99.5
Build time allowing for recommended curing times		Days	21.0	3.0	86
Tensile strength		Mpa	12.00	56.00	367
Compressive strength		Mpa	28.00	56.00	100
Fatigue			Poor	Excellent	
Recyclable			Poor	Excellent	
Reusable			Poor	Excellent	
Skill Requirements			High	Mid	
Ease of use it remote areas			Poor	Excellent	
Low local environmentally impact			High	Low	
Level of labour effort requirement			High	Low	
Hazardous handling, toxic dust			High	None	
Adjustability			None	High	
Suitability in Seismic Zones			Low	High	

PARTNERS

ENTERPRISE IRELAND

eit Climate-KIC

FF POLYMERS

SAINT-GOBAIN

HERIOT WATT UNIVERSITY

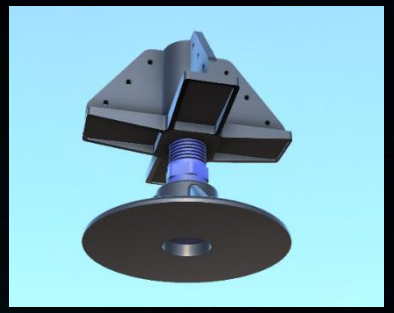
breglobal

mcavoy

EXPO 2020 DUBAI UAE

IGBC
MEMBER | 2019

SUMMARY



- Terratonics offers an innovative foundation and floor system, that will allow offsite Manufacturers (MMC's) to fully detach from using environmentally damaging concrete, while pioneering a sustainable way to construct residential, commercial & industrial buildings.

Up To 10 Times Faster	80% Reduction In Site Excavations
80 % Less CO2 Emissions	Not Weather Depended
No Water Required	Safer In Seismic Zones
Minimal Flood Water Displacement	Long Life Span
80% Reduction In Site Deliveries	Long Guarantee
Simple To Install	Semi Skilled Labour
Lightweight And Ergonomic For Workers	Flexible Modular Design, Easy To Extend

*TERRA*TONICS MAKES SUSTAINABLE CONSTRUCTION POSSIBLE

TerraTonics

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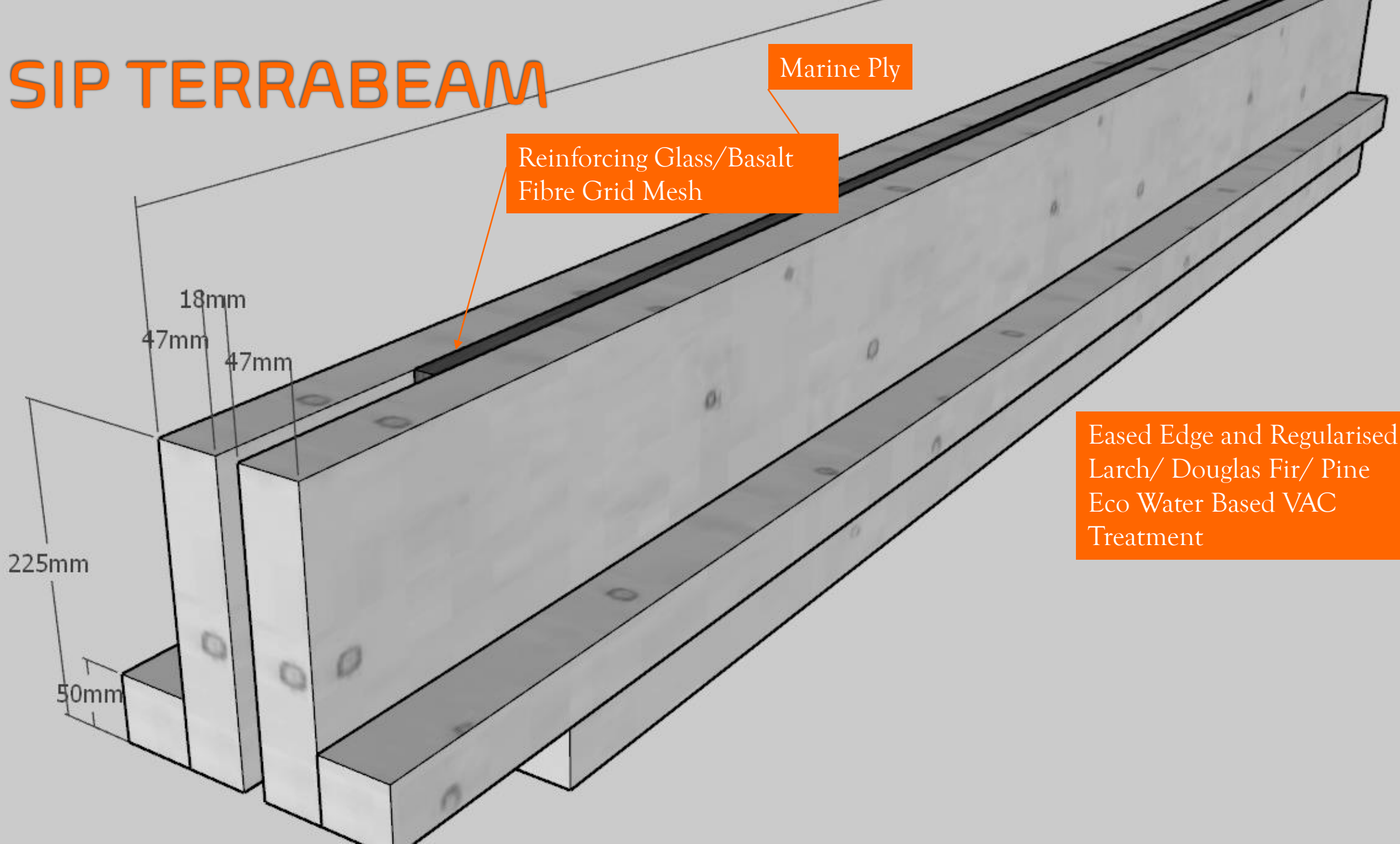
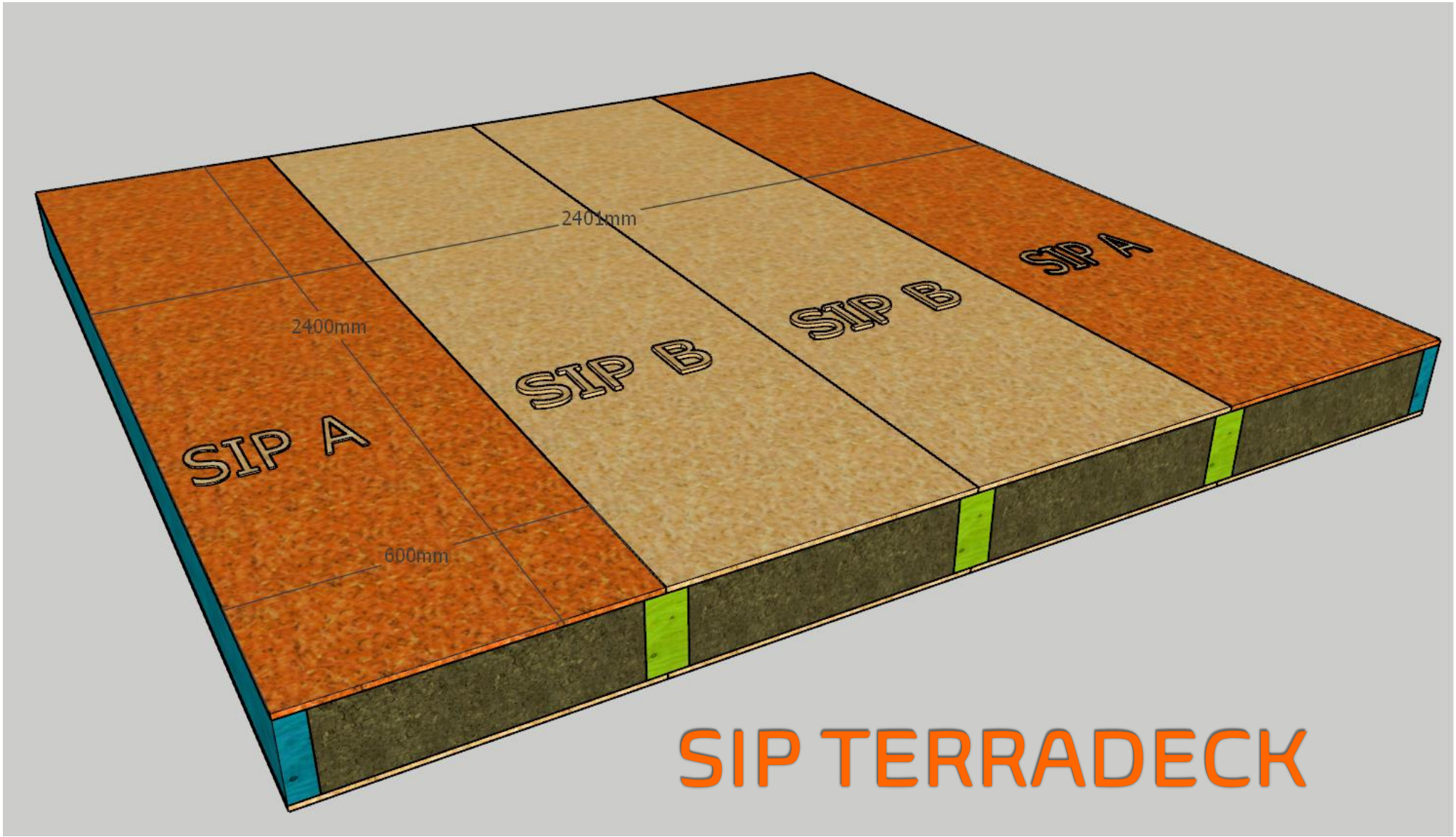
- Email: Info@terratonics.ie
- Alan Ledwith: alan.terratonics@gmail.com 00353857591669
- Garvan Quish garvan.terratonics@gmail.com 00353876175877
- Terratonics Ltd, Knock Killua, Clonmellon, Navan, Co Meath, Ireland

- Irish Times Article https://www.irishtimes.com/business/innovation/not-just-another-brick-in-the-wall-1.4364423

SIP TERRABEAM





SIP TERRADECK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SIP A
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