Presented By: Steve Marskell

FOUNDING DIRECTOR OF MAGNESIUM OXIDE BOARD CORPORATIONS GLOBAL GROUP OF COMPANIES

MAGNESIA CEMENT PRODUCTS VS PC CEMENT BASED PRODUCTS

Magnesia (MgO) Cement:

The carbon footprint of MgO cement is not dependent on carbonation during use.

Its footprint is achieved during manufacture by the combination of the following features:

– Use of magnesium silicates minerals, which eliminates the CO2 emissions from raw materials processing.

– Use of a production process that not only requires less energy but also lower temperatures and allows the use of fuels with low energy content or carbon intensity (i.e. biomass).

– Use of hydrated magnesium carbonates in the cement composition that absorb CO2 during their production and therefore have a carbon negative footprint.

Current calculations estimate that the carbon footprint will be in the range of **-100kg CO2 to +100 kg CO2**/tonne magnesia (MgO) cement

VS

Portland Cement:

The ongoing search for alternative materials to that of PC because of its large CO_2 emissions footprint of around **8% of global anthropogenic greenhouse-gas emissions** has led to Magnesia Cement being identified as a potential low-CO_2 alternative to PC

GREENHOUSE GASSES / EMBODIED ENERGY PROTECTION FROM EXTREME WEATHER EVENTS AND FIRE

ALL PLAY A PART IN THE FAVOURABLE RETURN OF MAGNESIA CEMENT BASED HIGH PERFORMANCE BUILDING PRODUCTS AS A PREFERRED GO TO MATERIAL

CONTINUE

This section presents the carbon footprint and carbon uptake information for all the products (50pcs) of this report. Each of the products are presented in more detail in the following chapters of this report.

The following table shows the carbon footprint and carbon uptake information for building boards.

Table 6. Carbon footprint and carbon uptake information for building boards.

Building board	CO_2e g/kg	CO_2 uptake g/kg
Fibreboard (porous) – Finland	475	1531
Chipboard (Raw) – Europe	409	1564
Chipboard (Melamine faced) – Europe	467	1527
Gypsum plasterboard – Europe	1967	–
High Density Fibreboard (Raw) – Germany	661	1437
Medium Density Fibreboard (Raw) – Germany	652	1418
Medium Density Fibreboard (Raw) – Sweden	340	1466
Medium Density Fibreboard (Melamine Faced) – Germany	788	1468
Oriented Strand Board (Raw) – Germany	208	1692
Plywood (Standard Birch) – Finland	718	1188
Plywood (Standard Conifer) – Finland	605	1708
Plywood – Sweden	229	1731

CONTINUE

Magnesium Oxide Board Ratings

	Best 1	2	3	4	5	6	7	Worst 8	9	10	Notes
Environmental Impacts					■	■	■	■			Manufactured in mainland China and exported globally
Embodied Energy			■	■	■						N/A
Waste Generated					■	■	■	■	■		Based on typical single sheet wall lining. Reduction in up to 50 to 67% materials for FRL protection was not calculated
Energy Efficiency	■	■	■	■	■						Sheets are an effective air control layer and resist the loss of energy through shrink and expansion
Material Costs						■	■	■			Base material cost is higher than common gypsum. Cost is greatly reduced to that of multi layer wall systems
Labor Inputs							■	■	■	■	Base labor is simular to gypsum with greater benefits being applied when calculating MgO single layer applications
Skill Level Required by Homeowner					■	■	■	■	■	■	Simular applications to gypsum and FC sheet with ability to gain class 5 finishes with professional skilled trades
Sourcing and Availability			■	■	■	■					Direct sourcing through manufacturer and import of goods that are distributed by local companies
Durability and Longevity	■										Very high multipupose durability and longevity in building and construction with resistance to fire, mould and impact
Building Code Compliance	■	■									Limited access to high quality independant 3rd party certificed and compliant manufacturers
Indoor Air Quality	■										Materials are inert, non nutrient and non toxic. Use of toxic jointing compounds will negatively affect IAQ