

GLOBAL CONSTRUCTION MANAGEMENT (PTY) LTD

COMPANY GOALS & OBJECTIVES

- **TO PROMOTE THE IMPLEMENTATION OF LIGHT STEEL FRAMING FOR FASTER, BETTER INSULATED, SAFE & ENGINEERED BUILDINGS – COMMERCIAL, RETAIL, MEDICAL, EDUCATIONAL, RESIDENTIAL**

- **TO ESTABLISH THE CONSTRUCTION OF HIGH QUALITY, ENERGY SAVING & LOW MAINTENANCE ENVIRONMENTS.**

- **TO PROVIDE LIGHT STEEL FRAMING TECHNOLOGY AS A TOOL FOR TRAINING PREVIOUSLY DISADVANTAGED CONTRACTORS ENGAGED IN THE ESTABLISHMENT OF SOCIAL HOUSING DEVELOPMENTS, THUS ASSURING SUSTAINABILITY, QUALITY, DELIVERY AND JOB CREATION.**



1.

LIGHT STEEL FRAMING – AN OVERVIEW

The material used in the world's fastest growing construction technology has a construction pedigree that spans more than 100 years. Around the turn of the last century it built London's Ritz Hotel. Now, as we enter the next, it is pointing the way forward in domestic, commercial and multi-storey buildings. The material is **steel**. The technology is **lightweight, load-bearing** steel frames, manufactured by Global Construction Management (Pty) Ltd (GCM) to the designs of internationally respected engineers and various well-known architects. The technology is built around the use of zinc coated **corrosion-resistant** steel in a "**warm frame**" which retains heat within the building and keeps external heat out.

It has been exhaustively proved not only in the laboratory, but also in the field: on-site evaluation and accelerated corrosion tests show the expected life of a light steel frame to be well over 100 years. The frames are designed on a CAD system directly from the architect's drawings, factory or site fabricated to consistently precise tolerances, and erected on site by specially trained teams.

Examples of construction using L.S.F. (Light Steel Framing) Technology:



2.

LIGHT STEEL FRAMING – AN OVERVIEW (cont.)

Light steel framing has been in use internationally for many decades and GCM has taken title to a system which was originally developed in the United Kingdom. Millions of pounds were spent on the development and testing of the system prior to implementation into Europe. The light steel framing system was successfully introduced to South Africa for the purpose of testing and Agreement Certification was achieved.

GCM has continuously refined the system and integrated the use of external cladding in the form of a **cement/wood particle board**. These boards has proven to be superior to many conventional building materials and prolonged use in areas of extreme freeze/thaw conditions confirmed that the use of the Versapanel boards provides a well **insulated, maintenance free** and **long lasting** construction solution. More on the **Versapanel CP boards** later.

LIGHT STEEL FRAMING – THE MATERIALS:

GCM uses 1,2mm galvanized, Z 275 coated, commercial grade steel from coil stock to form channels of various dimension, which are made up in frames consisting of top and bottom track sections, vertical studs, noggins and bracings. All the frames are designed and signed off by our structural engineers, from whom the cover of continuous structural indemnity arises for the project.

Due to the design of the frames and the grading of the steel, it is possible to build up to 5 floors high, without the introduction of hot rolled steel. Part of the design specification is for the system to withstand winds of up to 160 miles per hour (e.g. Hotel & Spa complex in Barbados, West Indies).

LIGHT STEEL FRAMING – SITE WORKS:

As the light steel framing system, including the board cladding, weighs only approximately 10% of a conventionally constructed wall, the requirement for footings and slabs are vastly reduced. This advantage makes the system very suitable for construction where unstable or low load bearing soils occur or in instances where the sub structure of existing buildings would not carry the imposed loads of a conventionally constructed walling situation. **Over roofing** and **upper floor** construction is not only now possible because of the lesser load, but it is much faster and cleaner as no longer are bricks, sand, stone, etc required on site. As wet works are taken out of the site operations, there is a total saving in the use and wastage of water and site noise and the disruption to adjacent properties are greatly minimized.



3.

LIGHT STEEL FRAMING – SITE WORKS (Cont.)

Concerning the founding situation for a light steel framed building, only a raft slab with dropped anchor beam will be required in most instances.

Each frame is designed for its particular location in a building and to carry the loads imposed on it in that position. The installation of the frames is in accordance with a detailed site lay-out plan on which each frame position is numbered. Correspondingly numbered frames are installed on site.

Frames installation starts according to plan lay-out positions.



LIGHT STEEL FRAMING – THE BENEFITS

- Speed of construction
- Reliability
- High quality, consistent material
- Economy
- Excellent structural properties
- High performance
- Flexibility
- Versatility
- Compatibility
- Proven in use
- Widely approved
- Re-cyclable and re-usable

4.

Speed of Construction:

Light steel framing permits **fast-track** construction. It provides a 'dry envelope' which allows follow-on trades to begin work early in the project.

Services are accommodated within the framing and the installation of plumbing, electrical, gas, telephone and other requirements commences with the installation of the first frames.



Plumbing & Electrical installation commences after first frames are installed



5.

LIGHT STEEL FRAMING – THE BENEFITS (Cont.)

Reliability:

Light steel framing construction is independent of weather conditions and takes masonry out of the critical path, allowing prompt completion.

High quality, consistent material:

A quality-assured product with consistent performance and long-term durability.
Dimensionally stable and accurate.
Resistant to fungal and insect attacks.

Economy:

The speed, quality, and reliability of light steel framing reduce construction costs. Its ease of handling and erection also adds to its economy.

Excellent structural properties:

High strength-to-weight ratio.
Doesn't shrink, warp or crack.
Its light weight can reduce foundation costs.

High performance:

Excellent thermal and acoustic performances achieved economically.
Easily meets fire rating and standards, when used with the usual building materials.

Flexibility:

Offers total freedom to incorporate creative architectural features in any design.
Easy to extend or to adapt to a change of building use.

Versatility:

Light steel framing can be used for domestic, commercial, and industrial applications - both new and refurbishment.

Compatibility:

It can be used with all building materials.

6.

LIGHT STEEL FRAMING – THE BENEFITS (Cont.)

Proven in use:

Light steel framing is developing rapidly, and is widely used in North America and Japan. It is already well proven in practice in the UK and Europe.

Widely approved:

Light steel framing systems have been tested extensively, accredited and approved by the BBA, WIMLAS, NHBC, LANTAC, and HAPM.

Re-cyclable and re-usable:

Despite the abundance of iron ore, steel has for many years been the world's most re-cycled metal. Light steel frames themselves can be re-used as framing. Just as important, steel's strength-to-weight ratio means that when compared with other structural building materials, relatively little steel is used to create the structure.

VERSAPANEL C.P. BOARDS – AN OVERVIEW

Versapanel Cement Particle Boards are imported to South Africa by GCM's sister company Versapanel (Pty) Ltd. under **Exclusive Agreement** with the European Distributor. The Exclusivity Agreement has as its territory the African sub continent.

Board thicknesses are available from 3 to 6mm (Versafire) and from 8mm to 40mm (Versapanel).

GCM specifies the following applications for the Versapanel board cladding:

Residential - 12mm exterior and 6mm or 8mm interior.

Offices - 12mm exterior and 8mm interior.

Commercial and Retail - 12mm exterior and interior.



7.

VERSAPANEL BOARDS – THE PRODUCT:

Versapanel is a cement bonded particle board comprising of wood particles and cement.

Versapanel is smooth in texture and light grey in colour with a smooth hard surface.

Versapanel is T2 cement bonded particle board and is intended for use in both internal and external situations, type T2 boards have very high levels of performance in the presence of moisture and have a high resistance to fire.

Versapanel is a versatile material that is suitable for a wide range of applications and represents an advantage in building board technology to meet increasingly stringent building regulations and demands for ever higher standards of durability, safety and economy.

Versapanel contains no hazardous volatiles, is asbestos and formaldehyde free, non toxic and its process dust is non aggressive and can be planed, sanded, drilled, routed, nailed and screwed.

Versapanel is a modern, practical, cost effective, construction material of outstanding performance.



Examples of Buildings with Versapanel Cladding- Global Construction Management (Pty) Ltd



More examples



VERSAPANEL BOARDS – PROPERTIES:

The properties of a 12mm board are:

- 2 hour fire resistance.
- High impact resistant (with a density of 1 250 kg/m³ it is denser than most cement bricks).
- High acoustic performance (31 dB per single 12mm board – up to 51 dB in a composite wall).
- Smooth flat surface is suitable for painting, tiling, wall papering, staining, etc.
- Suitable for full exterior application.
- Even in an untreated state it is weather resistant and will not degrade with permanent exposure, even to extreme freeze/thaw conditions.
- Rot resistant.
- Rodent proof.
- It has anti fungal properties and can be safely used in areas of hygiene e.g. kitchens, bathroom, food preparation areas etc.
- Waterproof / High density.

9.

VERSAPANEL BOARDS – USES:

INDUSTRIAL:

FIRE PROTECTION * HIGH IMPACT LININGS * MEZZANINE FLOORS *
ACOUSTIC BOOTHS * TEMPORARY ACCOMMODATION * EXTERNAL
CLADDING * CEILINGS * PARTITIONS * FACING BOARD FOR
COMPOSITE CONSTRUCTIONS

COMMERCIAL:

ACOUSTIC PARTITIONS * DEMOUNTABLE PARTITIONS * FLOORS *
CEILING TILES FOR GRID LAY * CARRIER PANEL FOR RAINSCREEN
CLADDING * CURTAIN WALLING * EXTERNAL CLADDING * DOORS *
SOFFITS * LAMINATED COMPOSITION

DOMESTIC:

PERMANENT ACCOMMODATION * LINING TO DAMP AREAS * FLOORS
SOFFITS * FASCIAS * FLAT ROOFS * D.I.Y. * EXTENSIONS
PARTITIONS FOR ACOUSTIC & FIRE

HORTICULTURE & AGRICULTURE:

PLANT RACKS * GREENHOUSE DECKING *
CLAMP SIDES * FENCING * GREENHOUSE
WALLS * STOCK PENS * LININGS TO ANIMAL
HOUSING * FEED BINS * EXTERNAL CLADDING

Examples:



10.

LIGHT STEEL FRAMED BUILDINGS

The light steel system does not only offer engineered durability and savings in the capital costs of the development, it also ensures a much cleaner site environment with no raw materials (sand, stone, bricks etc) on the site. If one evaluates the mere aspect of rubble, then another advantage becomes evident. Especially in areas where the consumption of water is a concern, the implementation of the light steel framing system proves to be a major benefit as it is essentially a dry construction method.

Reflecting on the footprint situation of a project that involves over-roofing, the use of light steel framing and boarding as a construction alternative clearly shows that not only does it vastly reduce the impact of material storage and general logistics on the ground, it also reduces the overall time required to complete the project, thus causing less impact on surrounding buildings and its occupants. Furthermore the lesser mass of the composite walls allows for more floors to be constructed which may have been impossible with conventional methods due to the loading on existing foundations. Whilst the advantages of using the light steel framed method of construction have been clearly illustrated above, this alternative still maintains the aesthetic looks of a building that could have been built using conventional materials.

Global Construction Management (Pty) Ltd – Projects



Hotel & Spa complex on Island of Barbados



Tygerberg Medical Campus-Phase 1- Student Accommodation

11.

Projects (Cont.)



**Tygerberg Medical Campus Phase 2 – Student accommodation
(University of Stellenbosch)**

Global Construction