



Load Transfer Construction Method or LTCM

LTCM is a patented concrete superstructure “system” that has been successfully used in the construction of three apartment buildings and one Hilton Hotel in Western Australia.



Hilton Hotel, Albany



Reside on Money, Northbridge

The first LTCM patent was granted on the 27th of June 2019 in Australia. Our first US patent was granted on the 3rd of November 2020. We now have patents granted or pending grant in Europe (West and East), the UK, Canada, most of South America, China, Japan, most of SE Asia and most of Africa.

In Australia, LTCM has an operational “partnership” with The Kanji Group (Metroll, Reomart, Bondor) and BlueScope Steel (TrueCore).

The LTCM difference

LTCM increases the finished built form’s dimensional accuracy, finished quality, safety, and comfort compliance, while also increasing construction productivity, saving time, and reducing overall construction costs.

LTCM is designed to easily fit into any local supply chain and deliver genuine transformation in the built environment.

Problem LTCM solves

Construction has barely changed or holistically adopted new technology for decades. We believe to genuinely evolve; construction must become digitized and industrialized. More digitization, automation, modularization, manufacturing and on-site assembly, and less bespoke on-site construction.

The construction supply chain is made up of disparate parties with competing agendas – developers, consultants, builders/general contractors, sub-contractors, and product suppliers. The result is every new building is created by a bespoke collection of the lowest cost operators engaging in trench warfare hoping to eke out a margin. Imagine a Boeing 797 being built this way? Would you fly in it? I wouldn’t!

The LTCM solution

Use existing technology (3D modelling), more collaboration, more manufacturing and on-site assembly, and less bespoke construction on-site to build a concrete frame building at an **equivalent/lower cost and faster** than a timber or load bearing CFS framed alternative.

The LTCM system provides US building developers with a rapid, concrete framed, structural alternative to the current timber framed structure commonly specified in the mid-rise multi-residential and mixed-use markets.

The system has numerous benefits over timber frame including, structural strength, seismic performance, wind resistance, fire rating, acoustic performance and building longevity, even materially lower insurance premiums.

The LTCM system centres around genuinely light gauge CFS framing that is load bearing during construction but is subsequently released to become non load bearing walls as the concrete frame cures and is capable of taking the structural loads in the building. It is worth noting that the LTCM CFS wall frames are 50% - 80% lighter gauge than permanently load bearing CFA wall frames, and therefore use 50% - 80% less steel.

LTCM doesn't require a bespoke factory or machines, just an appropriate size and overhead crane.



The roll formers produce the benches for the templated factory layout. Low skilled labour to run roll formers and assemble frames.

Finished frames are bar coded and packed vertically in stillages.



40% - 100% less propping required as steel wall frames bearing load during construction, delivering substantial labour and time saving.



19 Clydesdale Street, Como under construction



19 Clydesdale Street, Como the finished product

Proven localised “industrialised construction”

100% of the LTCM’s steel and concrete components are manufactured locally using existing “off the shelf” technology and machinery, and from any appropriately sized factory anywhere in the world.

LTCM brings the supply chain right back to your local city or large town.

LTCM is a templated, technology driven manufacturing business producing standardised components, that fits easily into the existing construction supply chain, replacing the disparate and bespoke alternatives.

LTCM consist of 4 standard components:

- Very light gauge CFS wall frames
- Pre-cast columns
- Pre-cast decks
- pre-cast segmented cores

4 standard components



CFS wall frames



Pre-cast column



Pre-cast deck



Segmented cores

Unlike other panelised systems in the market, LTCM can be adapted to suit existing plans without the need for specific dimensions, finishes or complex bespoke and expensive manufacturing facilities. Both Prescient (<https://prescientco.com/>) and Kattera (collapsed after raising over US\$2billion in venture capital) require hundreds of millions in capex to set up a bespoke, robotic

factory, whereas a templated LTCM factory can be set up in any circa 32,000sqft (3,000sqm) factory with an overhead crane for less than US\$1million. In other words, you could have 150 LTCM factories across the US for the same cost as 2 Prescient factories.

The LTCM manufacture of the components and the assembly on site has been templated so that a McDonalds like approach can be taken to establishing and owning (or franchising) manufacturing facilities across the US to meet the demand of the system.

The United States

The United States' mid-rise (3-15 storeys) building market is made up of multi-family (what we call "build to rent"), condominiums (what we call "build to sell"), student accommodation (on university and college campuses) and hotels. Construction in this space is dominated by timber framed structures. Yes, timber! Not because it is the safest, best quality, longest lasting, most comfortable or customer preference, but because **it is the cheapest**. Off-site manufactured load bearing cold formed steel (CFS) frames is slowly replacing timber, but, like timber, it is not the premium solution.

Reinforced concrete frame is the safest, best quality, longest lasting and the most comfortable, and the end user customer's absolute preference. Consequently, concrete frame is the lowest "lifecyle" cost building and therefore most desired and valuable finished product.

The US opportunity is to build a concrete frame building for "close to" the cost of load bearing timber or load bearing CFS, and much faster.

In November 2020 we were approached by the American Concrete Institute (<https://www.acifoundation.org/>) to present the LTCM system to their annual Technology Forum happening in February 2021.

After seeing our ACI presentation, one of the largest concrete contractors in the US, contacted us with a view to bringing LTCM into the US market.

The Contractor is a "cast in place" concrete contractor – erect formwork, place reinforcing steel, pour and finish concrete, all done on-site. They are one of the largest cast in place contractors in the US, performing over 200 projects per year from 19 offices across the US. Their core business is being eroded by load bearing timber and CFS as an alternative superstructure, hence their interest in the LTCM system.

The Contractor has completed an extensive due diligence on the LTCM system since their initial contact in March 2021. They have analysed the LTCM system versus their traditional cast in place, plus also hybrid cast in place ('block and plank'), load bearing CFS and load bearing timber. LTCM has been materially cheaper and faster than cast in place (traditional or hybrid) and load bearing CFS, and the same cost as load bearing timber. LTCM also enables a materially faster build for the entire building.

They tell us they can see LTCM immediately recovering their superstructure project losses and they reckon they "can keep 6 LTCM factories busy, just in Florida".

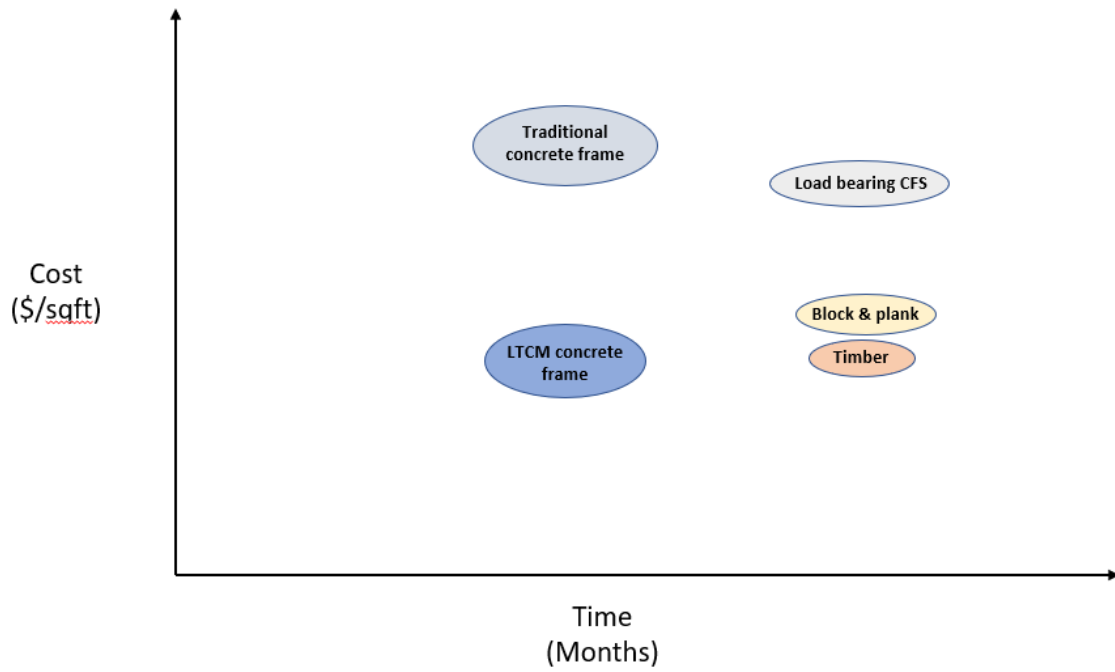
Contractor has committed to sell, certify and install the LTCM system and components in the US market.

Further, they have agreed to provide support by way of helping LTCM establish trading accounts with material suppliers (steel and concrete) and offsite payments (paying for manufactured components not yet delivered to site).

LTCM's 'sweet spot' is in multi-family apartments, hotels, student accommodation and aged care, 2 - 10 storeys. LTCM can however, be used in any height concrete frame building.

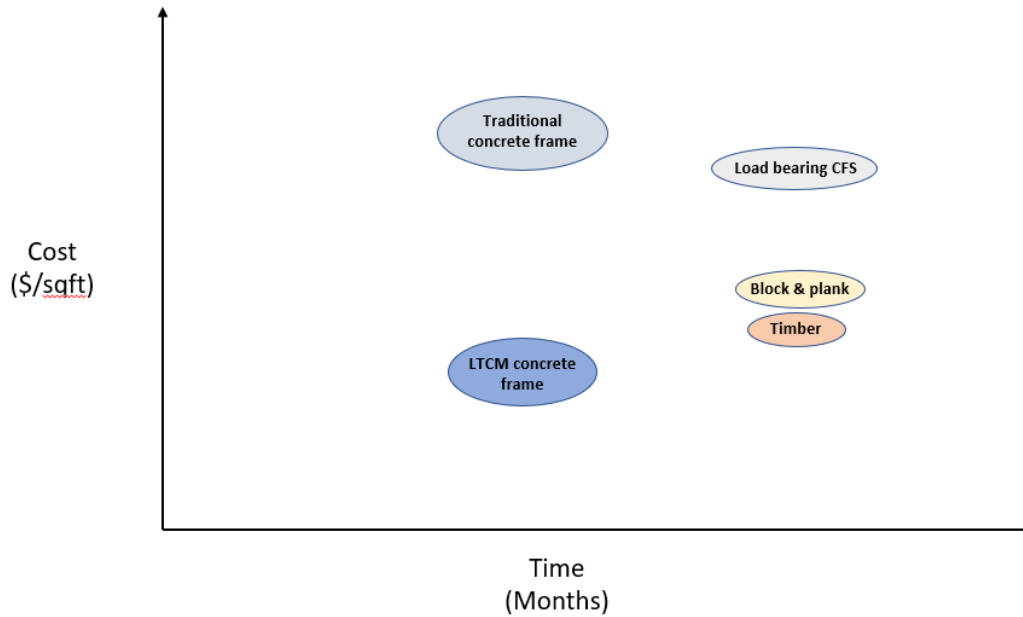
Why LTCM will achieve substantial market share in the US construction market

Gross Construction Cost (GCC) US Market



Net Construction Cost (NCC) US Market

GCC minus time cost savings (prelims, finance etc) minus Early Occupation Income minus lifecycle cost savings (maintenance, insurance etc)



Investment opportunity

We are currently planning a Lighthouse Project with the Building 4.0 CRC to measure the time/cost/quality/waste reduction/embedded carbon benefits of BIM (including the LTCM system) versus contemporary construction methods to build mid-rise affordable housing. The Lighthouse project will be a circa 30 apartment project in Perth, with a construction target of sub 12 months. There is an opportunity to invest in the Lighthouse project and follow on with an investment into the US opportunity.

Provenance and Intellectual Property

The LTCM system was born in 2017 and has been developed and proven (technically, operationally and commercially) in Perth, Western Australia by Ian Jackson and Campbell Smith. Ian is a registered builder (general contractor) and experienced developer, with over 45 years in the industry. Campbell has over 35 years general business management experience including 11 years in the role of Founder and Managing Director of an ASX listed company. Campbell's experience covers business strategy, finance and legal.

LTCM's first Australian patents were granted in 2018 and its first United States patent was granted in November 2020. See the list of LTCM's patents and applications below.

Patent/patent application number	Title	Jurisdiction
2018316356	Building construction method	Australia
2018101021	Formwork and reinforcement for a suspended concrete slab	Australia

2018101022	Incorporation of pods in multi storey constructions	Australia
2018100643	Load Transfer Construction Method	Australia
2019101290	Method of creating a building framework deck (decks with void formers)	Australia
2019203289	Incorporation of pods in multi-storey constructions	Australia
2019204109	A wall frame component used within a building construction method	Australia
WO2019/051538A1	Load Transfer Construction Method	World
US 10,822,786 B2	Load Transfer Construction Method	USA
US 11,377,838 B2	Load Transfer Construction Method	USA
2020904112	Construction of a lift shaft or stair core	Australia
18856159.1	Building Construction Method	Europe/UK
ZL 2018 8 0059020.2	Building Construction Method	China
PG/P/2020/00018	Building Construction Method	PNG
PCT/AU2018/050977	Building Construction Method	International PCT
763293	Building Construction Method	New Zealand
3075306	Building Construction Method	Canada
7199439	Building Construction Method	Japan
2.02017E+11	Building Construction Method	India
P00202002679	Building Construction Method	Indonesia
P00202002679	Building Construction Method	South Korea
2001001451	Building Construction Method	Thailand
1-2020-02029	Building Construction Method	Vietnam
BR1120200049590	Building Construction Method	Brazil
MX/a/2020/002781	Building Construction Method	Mexico
(app no 1202000104) Granted no 19564	Building Construction Method	OAPI
TBA	Building Construction Method	ARIPO
202090706	Building Construction Method	Eurasia
62021023987	Building Construction Method	Hong Kong