buildtec

Modern Building Technology

MODERN CONSTRUCTION METHODS AND SOLUTIONS

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ABOUT US

Buildtec has four core services with each one focusing on specialist markets

STRUCTURES / FACADES
MODULAR / INTERIORS

LSF STRUCTURES

We are able to provide a fully comprehensive service advising our customers at inception through to completion. We will advise on efficiency, viability, offer you a complete design service, manufacture the system and arrange any installation you may require via our approved network.

We can supply our framing system panels either flat packed or assembled and ready for immediate installation.

We also offer individual solution:

- Flooring Systems
- Roofing Systems
- Walling Systems

ABOUT US

FACADES

From Pre-Construction Consultancy to Design Completion, Project Management and System Installation, we make delivering exceptional facade schemes as easy and economical as possible.

ABOUT US

MODULAR

Modular building is fast becoming the preferred building system due to its adaptability and LSS can offer made to specification or pre-designed options that will suite the needs of the project

Offerings:

Stack Systems I SIP Systems I In-Fill Panels

ABOUT US

INTERIORS

Understanding the importance of the interior of a building and its functionality is why we made this a core service and we endeavor to work hand in hand with professionals in providing workable solutions that allows flexibility and design freedom to suite the individual needs of the client.

ADVANTAGES

- Light Weight
- High Impact Resistance
- High Thermal Value
- High Fire Ratings
- High Sound Insulation
- High Durability
- Reduced Project Timelines
- Cleaner and Safer Construction
- Easier Installation of MEP works
- Strong Anchoring Capacity

LIGHT STEEL FRAME BUILDING

Fundamental to offsite construction, light steel is ideal for an array of building applications from housing to medical, commercial and leisure sectors.

Typically used in building structures, steel framing may be used in panelised or volumetric systems, as well as hybrid structures.

Light steel's lightweight, airtightness and thermal benefits make it a frequently specified material across all sectors.

Light steel technologies are ideal for the manufacture of full frames, roofing, modular options and infill wall applications.

An adaptable material, steel frame systems are load-bearing, making them suitable for low, medium and high-rise buildings, renovations and extensions.

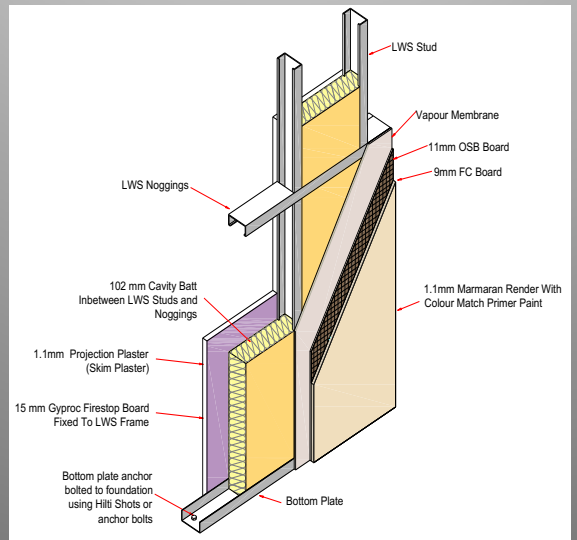
Steel components can be pre-fabricated into modules offsite or at a low level, reducing the need to work at height.

Steel can also be delivered to site when required, reducing the need for onsite storage.

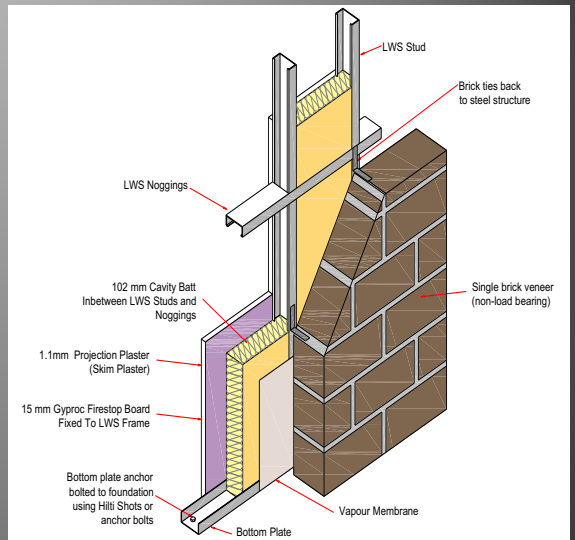
AGREMENT SOUTH AFRICA

SABS
SANS 517

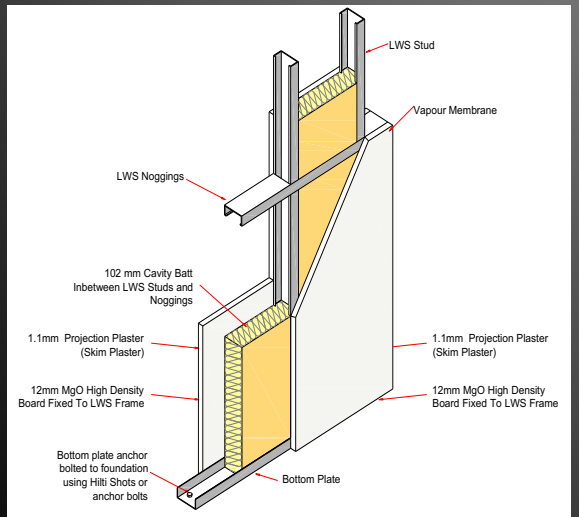
LIGHT WEIGHT WALLING SYSTEMS



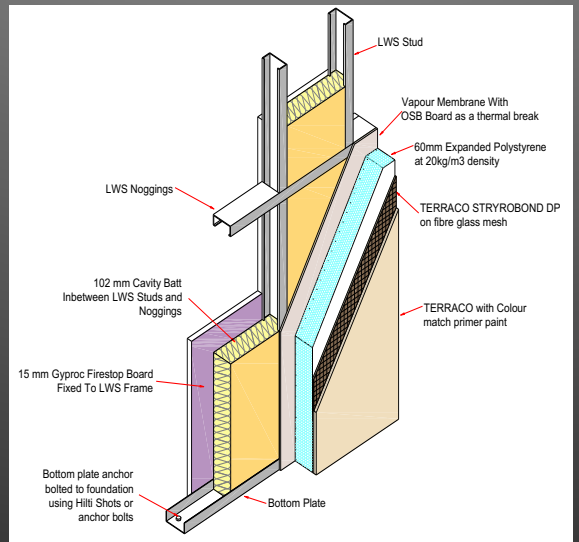
EWT 1 (SANS 517)



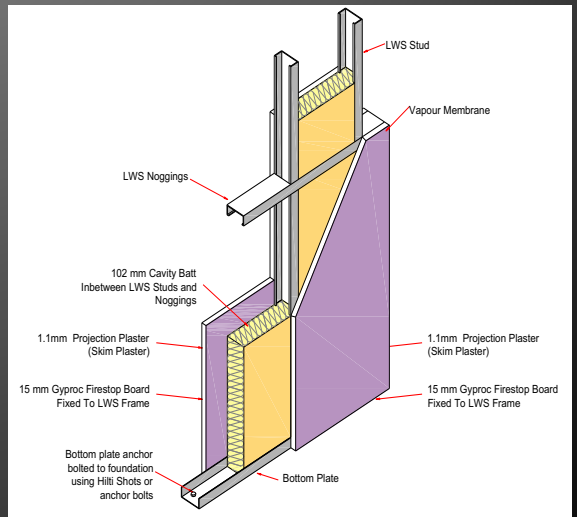
BRICK VENEER



12mm MGO DRY WALLING WITHOUT SHEATH

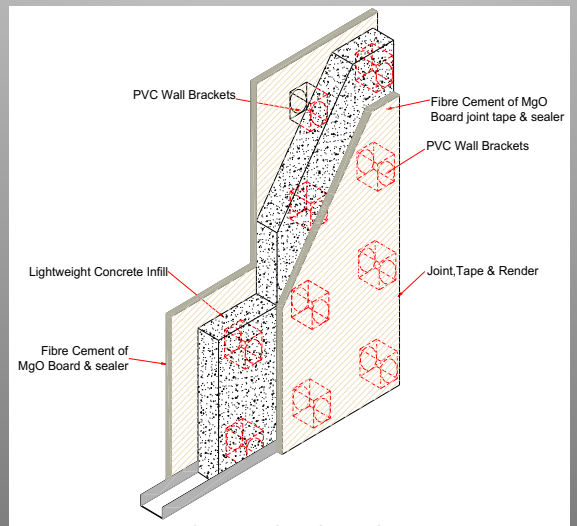


EIFS (TERRACO)

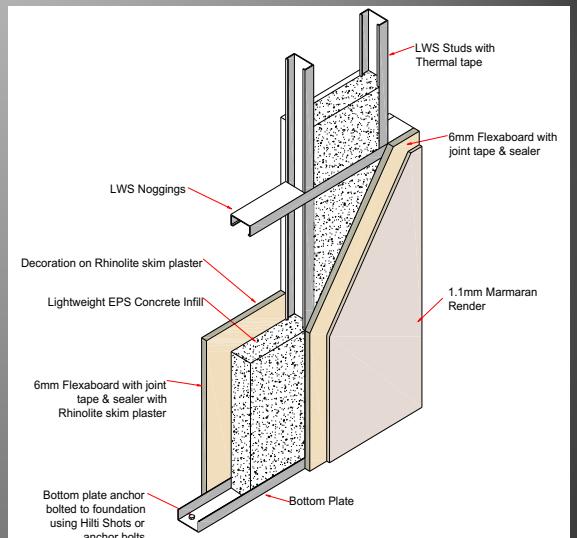


DRY WALLING (15mm FIRESTOP)

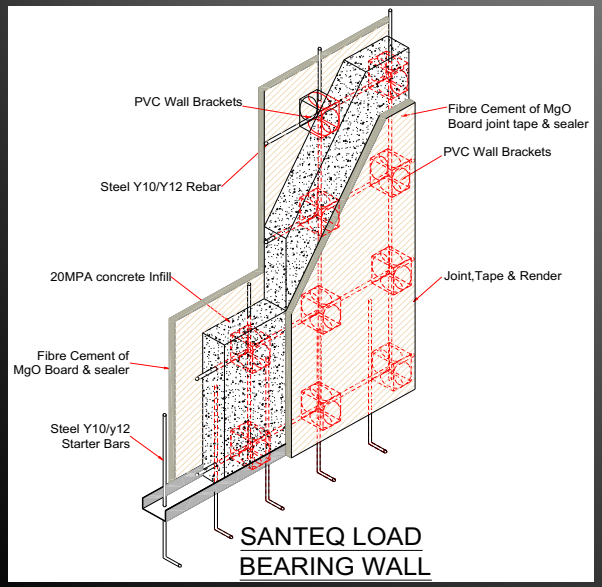
LIGHT WEIGHT WALLING SYSTEMS



SANTEQ NON-LOAD BEARING WALL

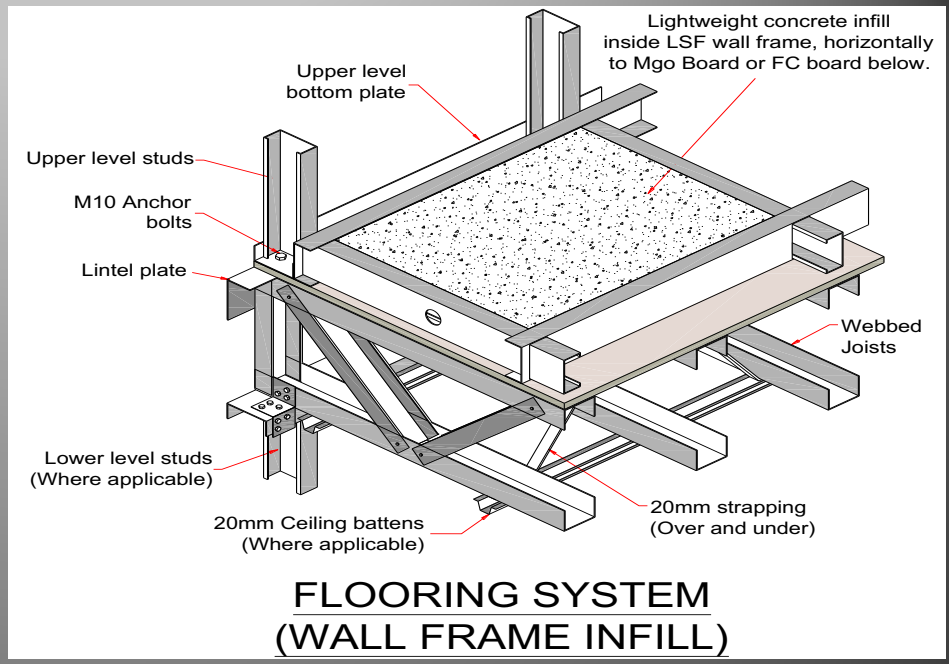


ESW (SOLID WALL)

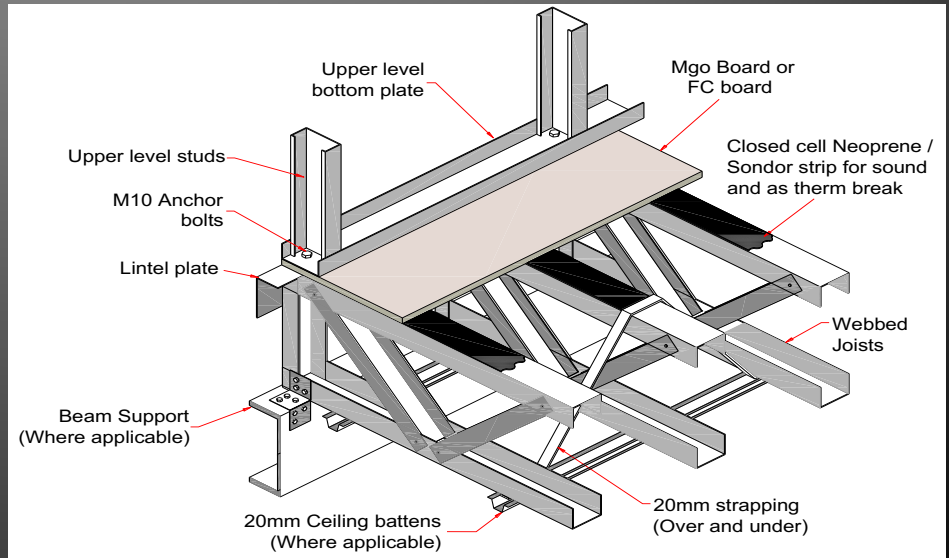


SANTEQ LOAD BEARING WALL

LIGHT WEIGHT FLOORING & STAIRS



FLOORING SYSTEM
(WALL FRAME INFILL)



FLOORING SYSTEM
(BOARD)

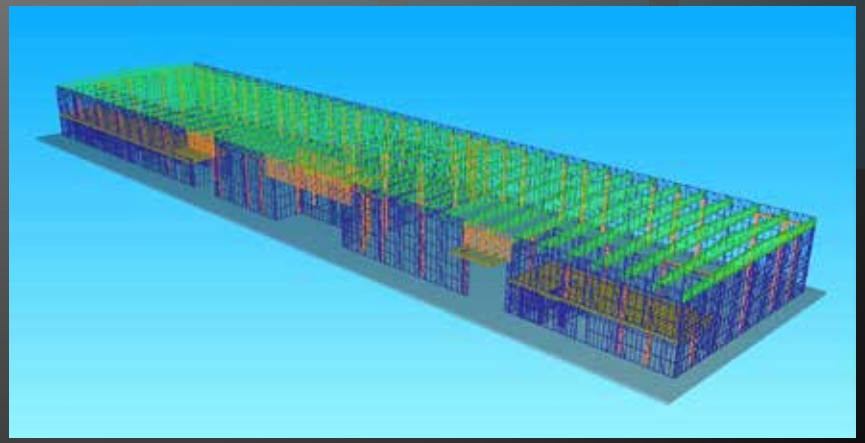
LIGHT WEIGHT STEEL TRUSSES

Increasing GLA for existing buildings

Mezzanine Floors and Extensions

LIGHT STEEL FRAME

Housing/Cottages/Lodges



Warehousing/Mini-factories/Storage

LIGHT CONCRETE INFILL WALLING

- The **SanteQ** lightweight walling system is typically used for non-load bearing walls in hotels, student accommodation, multi-storey affordable housing developments, schools, hospitals, remodelling of existing multi-storey buildings, as well as new builds with lightweight and energy saving considerations.
- Loadbearing capability can be achieved with the addition of light steel frame core that is designed according to SANS 517 and based on rational design and engineers sign-off.
- **SanteQ** system comprises of fibre cement fixed PVC Spacers and pumped filled with EnviroteQ light weight concrete mix.
- It is versatile and lightweight, complying to the required fire-ratings, sound and thermal ratings, impact strength and robustness requirements as well as wet zone needs

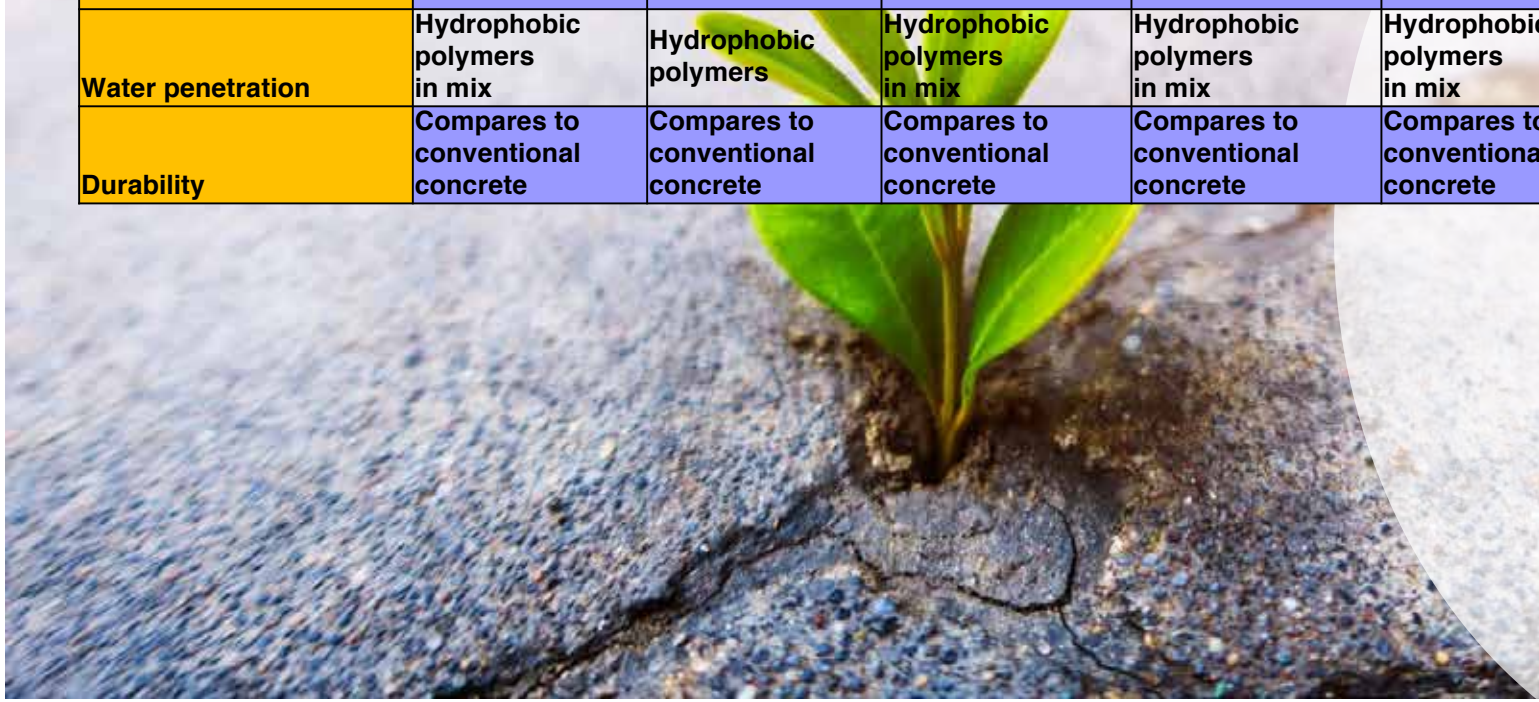
santeQ
Liteweight Building Technology

WALL THICKNESSES incl. 6mm boards both sides	62mm (50mm infill)	112mm (100mm infill)	137mm (125mm infill)	162mm (150mm infill)	229mm (217mm infill)
Density (walling system kg/m^3)	550-600	550-600	550-600	550-600	550-600
Density (infill kg/m^3)	500-550	500-550	500-550	500-550	500-550
Weight (kg per m^2)	37	65	78	91	126
Load-bearing properties (MPa)	3.4	3.4	3.4	3.4	3.4
Compressive strength (500D infill)	1.3	1.3	1.3	1.3	1.3
Thermal Conductivity (W/m.K)	0.1213	0.1213	0.1213	0.1213	0.1213
Thermal Resistance (m^2.K/W)	0.47	0.88	1.09	1.3	1.85
Fire-rating (minutes)	60	120	120	120	120
Acoustic Properties (dB R'w)	TBC	41	TBC	52	TBC
Permitted load tension (kg)	40	60	60	60	60
Permitted load shear (kg)	40	60	60	60	60
Water penetration	Hydrophobic polymers in mix	Hydrophobic polymers	Hydrophobic polymers in mix	Hydrophobic polymers in mix	Hydrophobic polymers in mix
Durability	Compares to conventional concrete	Compares to conventional concrete	Compares to conventional concrete	Compares to conventional concrete	Compares to conventional concrete

santeQ
Liteweight Building Technology

ECO-FRIENDLY ADVANTAGES

- Reduced use of mined aggregates
- Lighter Foundations
- Reduced Reinforcing
- 100% Recycled EPS beads
- Reduced waste to landfill



LIGHT WEIGHT INFILL WALLING



Brownfield projects – Non-loadbearing walling

LIGHTWEIGHT CONCRETE INFILL WALLING



Greenfield projects – Loadbearing walling

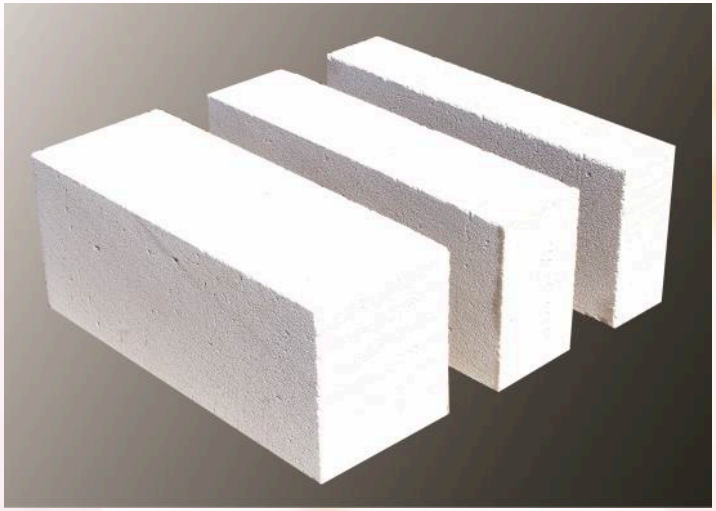
AAC BLOCKS

AUTOCLAVED AERATED CONCRETE

- Hebel is a lightweight autoclaved aerated concrete which is completely cured, inert and stable form of calcium silicate hydrate. It is a structural material, approximately one quarter the weight of conventional concrete, composed of minute cells which give the material light weight and high thermal insulation properties.
- Everite Building Products manufactures AAC under licence and is currently the only manufacturer in Africa producing various size building blocks.

SYSTEM RATINGS

- **Density (System)** 600 – 700kg/m³
- **Thermal insulation** R-value ≈ 1,17
- **System Weight** 85kg/m² - 102kg/m²
- **Compressive strength** 3MPa
- **Fire rating (System)** >2 hours
- **Acoustic (System)** 40 dB – 46dB
- **Water penetration** 44% by mass
- **Overall Thickness** 116mm – 160mm mm



ECO-FRIENDLY ADVANTAGES

- **Reduced use of mined aggregates**
- **Reduced Foundation material**
- **Reduced Waste**

Brownfield projects – Non-loadbearing walling

AAC CONCRETE INFILL WALLING

Greenfield projects – Loadbearing walling



Stackable QC Controlled Units – finished to client specifications

MODULAR POD CONSTRUCTION



Bathroom/Kitchen QC Controlled Units – finished to client specifications

PROJECTS

MODULAR POD CONSTRUCTION

inside.projects

TECHNICAL SPECIFICATION

	ONE BRICK WALL (230MM BRICK & MORTAR)	ACOUSTIC STANDARD DRYWALL SYSTEM	ACOUSTIC 60 MIN FIRE-RATED DRYWALL SYSTEM	ACOUSTIC 120 MIN FIRE-RATED DRYWALL SYSTEM	AAC BLOCK SYSTEM	SANTEQ ABT WALLING SYSTEM	
GENERAL DESCRIPTION	One brick NFP clay stock brick wall, with class II mortar, flush jointed and plastered both sides with 12mm standard cement plaster (one coat plaster only)	Drywall system consisting of one layer 12mm standard plasterboard applied each side to steel studs spaced at 600mm c/c. Maximum wall height = 3.6m. 14-18kg/m³ cavity batt.	Drywall system consisting of one layer 15mm "Firestop or Firecheck" plasterboard applied each side to steel studs spaced at 600mm c/c. Maximum wall height = 3.6m. 14-18kg/m³ cavity batt.	Drywall system consisting of double layer 12,5mm "Firestop or Firecheck" Plasterboard each side with 0,5mm galvanized steel sheet sandwiched between plasterboard sheets and steel studs spaced at 600mm c/c. Maximum wall height = 3.6m. 14-18kg/m³ cavity batt.	Everite Autoclaved Aerated Concrete 600 x 250 x 110mm blocks in non-load bearing walls with 3MPa compressive strength, jointed with 3mm mortar joints using Hebel mortar.	Prefabricated cellulose-fibre formwork with moulded inserts with light weight composite infill material.	Prefabricated cellulose-fibre formwork with moulded inserts with light weight composite infill material.
OVERALL THICKNESS	±230mm	±88mm	±94mm	±115mm	110mm	112mm	162mm
LOAD-BEARING PROPERTIES	7 - 10MPa	None	None	None	None	3.4MPa	3.4MPa
INSULATING PROPERTIES	R-Value - 0.35K/m².w	R-Value - 0.50K/m².w	R-Value - 0.53K/m².w	R-Value - 0.70K/m².w	R-Value - 0.75K/m².w	R-Value - 0.81K/m².w	R-Value - 1.18K/m².w
FIRE RATING	120 Minutes	30 Minutes, insulation non-combustible	60 Minutes, insulation non-combustible	120 Minutes, insulation non-combustible	120 Minutes +	120 Minutes	120 Minutes
ACOUSTIC PROPERTIES (Rw)	49 dB	40 dB	48 dB	53 dB	44 dB	50 dB	50 dB
WEIGHT	367kg/m²	20.7kg/m²	23kg/m²	50kg/m²	85kg/m²	±73kg/m²	±100kg/m²

COMPARISON OF BUILDING METHODS

	ONE BRICK WALL (230MM BRICK & MORTAR)	ACOUSTIC STANDARD DRYWALL SYSTEM	ACOUSTIC 60 MIN FIRE-RATED DRYWALL SYSTEM	ACOUSTIC 120 MIN FIRE-RATED DRYWALL SYSTEM	AAC BLOCK SYSTEM	SANTEQ ABT WALLING SYSTEM	
ERECTION TIME	± 30m² per day	± 56m² per day	± 56m² per day	± 32m² per day	± 15m² per day	± 50m² per day	± 50m² per day
CONSTRUCTION DETAILS & METHODOLOGY	High material wastage, messy construction, vertical transportation challenges on high rise buildings, labour intensive plastering requirements.	Low material wastage, dry and clean construction	Low material wastage, dry and clean construction	Low material wastage, dry and clean construction	Medium-low material wastage, wet construction, high speed erection due to block size, vertical transportation challenges on high rise buildings, labour intensive plastering requirements	Low material wastage, high speed of erection, no plaster required only joint skimming	Low material wastage, high speed of erection, no plaster required only joint skimming
TESTS & APPROVALS	Boards SABS approved (SANS 266). Fire resistant SANS 10177 part 2 – 2005.	Boards SABS approved (SANS 266). Fire resistant SANS 10177 part 2 – 2005	Boards SABS approved (SANS 266). Fire resistant SANS 10177 part 2 – 2005	Boards SABS approved (SANS 266). Fire resistant SANS 10177 part 2 – 2005	SANS 50771-4:2014 adopted from EN 771-4:2011. Fire resistant SANS 10177 part 2 – 2005. Agrément certification	Fire resistant SANS 10177 part 2 – 2005 Thermal resistance SANS 8301:2010 Compressive strength test SANS 5863: 2006. Agrément certification	Fire resistant SANS 10177 part 2 – 2005 Thermal resistance SANS 8301:2010 Compressive strength test SANS 5863: 2006. Agrément certification
GREENSTAR PROPERTIES	Thermal qualities attribute to overall Greenstar points but still high carbon footprint	GBSCA Level B & Greenstar SA: "Interiors v1": INT-MAT-3 & 7	GBSCA Level B & Greenstar SA: "Interiors v1": INT-MAT-3 & 7	GBSCA Level B & Greenstar SA: "Interiors v1": INT-MAT-3 & 7		Level tbc	Level tbc
OTHER NOTABLE COMMENTS	High carbon footprint. Heavy dead load affecting structural design	Light weight	Light weight	Light weight	Reduced weight. Lower carbon footprint due to manufacturing process	Eco friendly building system completed in half the time of conventional brick & mortar walls	Eco friendly building system completed in half the time of conventional brick & mortar walls

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THANK YOU

PROGRESS THROUGH INNOVATION

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