GREENSTONE HOLDINGS

PREFABRICATED PANEL CONSTRUCTION

What is Panel Construction

Panel Construction is a property that is built using factory precast concrete (cement) panels to from the exterior and provide a shell upon which the internal layout of the property is constructed.

Precast construction is rapid, economical and structurally sound. While it became popular for large buildings with simple floor plans (Multi story buildings), new techniques have expanded the market to improve design flexibility, making it suitable for residential homes, with more involved layouts, in addition to commercial properties.

The Benefits of using Concrete Panels

Concrete panel precast homes provide a tight thermal building envelope which can reduce a home owners heating and cooling bills. The use of steel reinforced concrete panels make a rock solid durable living environment. You can be at peace knowing that you are in a safe and secure home, that far exceeds the performance levels of conventional building systems.

Panel homes offer increased thermal and acoustical mass, reduces construction waste and the design makes them straight and true. Because Panel Homes are precast in a clean factory environment the finish is of the highest quality.

These benefits make Panel Homes the ideal choice for durable and affordable housing.

Environmentally Conscious

We are committed to changing the regions mind set to environmentally friendly homes, and building Panel Homes is one first step that we have taken towards being green.

Energy efficiency
Concrete wall systems conserve energy through the use of thermal mass and reduce air infiltration. The continuous insulation barrier offered by most concert wall systems reduces drafts and keeps a more even temperature thought the house.

Less chemicals
Panel homes have less joins than traditional building methods. This limited access helps reduce the need for chemical based pest control.The concrete panels combined with H2 will reduce the need for any additional termite protection.

Recycling and waste
Concrete is considered green in most building circles for being made with a combination of recycles and natural products. This reduces the dependency on limited resources such a timber and unnecessary waste place in land fills.

Why is Green Building important

The construction and operation of buildings has a significant impact on the environment. It has been found that buildings account for 39% of the total energy consumption, and 38% of the carbon dioxide emissions in the USA. Green building uses less energy, reducing carbon dioxide emissions, which play an important role in combating climate change.

Buildings also use an enormous amount of natural resources to construct and operate. Green building uses these resources more efficiently, while minimising pollution for a sustainable future.

What is Green Building

Green building is the practice of minimising the impact a building has on the natural environment. The goals of which are to;

Reduce Energy Consumption – Energy is in high demand, and the processes used to generate energy often produce carbon dioxide emission. Decreasing energy and fossil fuel use in buildings is important to prevent large –scale climate change.

Material and Resources Conservation – green designers and builders select building materials and methods that reduce the amount of natural resources required to construct a building.

Healthy Indoor Environment – With people spending 90% of their time indoors, buildings should create a safe environment for occupants, free from mold, volatile organic compounds (VOCs) or other harmful airborne pollutants.

Water Conservation – Water saving systems limit the use of this important natural resource and prevent water pollution that can damage natural ecosystems.

Site Planning – careful site and infrastructure development will minimise water and air pollution.

Benefits of a Panel Home

Concrete homes have stood the test of time against some of the most severe weather conditions on our planet including fires, storms, floods, earthquakes, and cyclone force winds with minimal or no structural damage.

Homes built with insulated concrete walls provide the most superior thermal comfort as well as a strong and safe living space for your family. The weight and mass of the concrete can reduce the amount of external noise entering the house by as much as two-thirds.

Our construction time allows many trades to work in parallel which dramatically reduces the build time, with a fully completed home ready for handover in a fraction of the time of building with traditional materials.

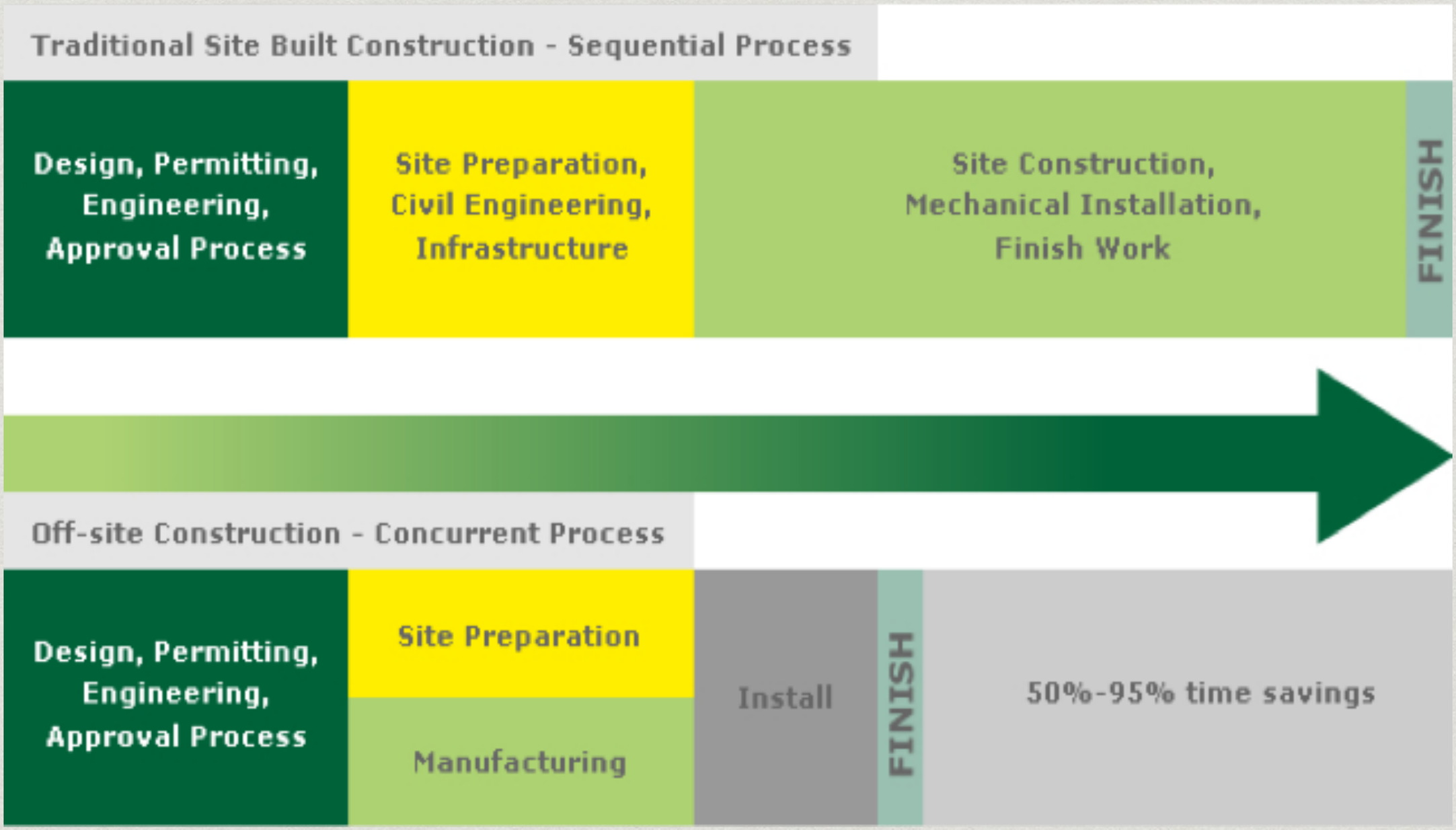
With the thermal mass properties of concrete, combined with internally insulated walls and roof, the energy costs to heat and cool the home are significantly lower.

The sheer mass of reinforced concrete walls provides exceptional strength that resists against external forces like ground movement, earthquakes, and other natural elements.

As the wall panels are factory manufactured the construction is very precise, Other trades repeatedly comment on the ease of working with these buildings.

The well known acoustic properties of concrete produce a significantly quieter environment and reduce noise pollution inside the home.

Building time line comparison



Manufacturing Process

First, the thin hull galvanized C and U profiles are obtained through grinding the supplies to the standard of DIN EN 10326 and used in the carrier system in the Cad-Glass controlled full automatic continue roll-form machines as one-piece. These profiles are jointed by screws and cap screws according to seismic and static calculations depending on the region by using Sap2000, CFS, STA4CAD, BRICSCAD, HAYESCAD programs. Because welding machine are not used during the manufacturing and assembling phases, The system can be dismantled and assembled again and again.
CE certified Decorative Armoured, Jointed and Cemented Trefoil Panels are used as exterior coating. In panel connections on the exterior surface slats which are in 30 mm thick made of Betopan (physical-mixture of cement and non-toxic chemicals) are used. Plaster plaques on suspended ceiling are done with joint and massive.
When the specially developed details and the supplies mentioned above come together developed by our engineers and architects, the very aesthetic house becomes ready for use

General Panel Information

PRODUCTION TECHNOLOGY : DIN EN 10326 standard thin section galvanized C and U profiles, produced by S320GD+Z,+AZ Erdemir quality no:1332, S350GD+Z,+AZ Erdemir quality no:1335, and/or Erdemir quality no: 1322 material in Cad-Cam controlled full automatic continue roll-form machines as one-piece are used on the lifting system. Production does not involve welding.

ASSEMBLY :Wall Panels, Roof Beam, Beams and Mezzanine are assembled with Special Screws and Bolts without Welding. This allows multiple Disassembly-Assembly.

STATIC CALCULATIONS :Calculations regarding compliance of the building to its purpose, and seismic and static calculations depending on the region, are made by Sap2000, CFS, STA4CAD, BRICSCAD, HAYESCAD programs in accordance with the load values defined in project and standards, as well as Turkish Standards and/or International Standards as defined in item 3.

HEAT (CLIMATE) CALCULATION : Outer Wall and Roof are detailed in consideration with the climatic conditions of the region and to comply with the Isolation Values as recommended in TS 825'de. There is isolation material also between dikme C profiles of the panels. Therefore Heat Balance is not required.

ELECTRICAL INSTALLATION :Inner and Outer Wall Panels are produced as UNDERCOATING in our factory and then transferred to the assembly area. Fault Current Relay is available.

COMFORT (Optional) : Europe originated NOISE ABSORBING ceiling roof system. (~ 15 Db) and Europe originated Floating Covering offers a more comfortable building. Suspended Roof Plaster plates are complete and sutured.

AESTHETICS : For Panel connections; PVC T profiles are used in Inner Surfaces, whereas 30 mm thick Cement Shiver Plate (Betopan) laths are used in Outer Surfaces. Outer surface coating is CE approved (Fire and Water Resistant) Decorative Shield and Sutured Cement board.

THE MANUFACTURING PROCESS

Panel Pre-Fabrication Process

Fabricated panels are cut to fit each project at the factory and made ready to assemble. The panel edges are factory routed to accept plates and splines. Window and door rough openings are cut out and routed. Along with having panels cut to fit, vertical and horizontal wire chases are installed in the panels to make the electricians job easier. Panels are typically cut from an 8′ x 24′ master plan. After a panel comes off the CNC machine it could be as large as 7′ – 11″ wide x the height of the ceiling (jumbos), the panel size will be determined by the engineer, because panel sizes will vary depending on the uniqueness of the project.

Assembly Method

All elements of the construction, floor, ceiling, each external wall will be fully fitted in the factory, prior to being shipped to the site, once on site the use of small cranes and lifting equipment will be used to assemble the pieces in place, the completion of the build process will take around two days to complete a home, larger commercial premises will depend on the size of structure, however will be a dramatically shorter build time in comparison to traditional building methods

Housing

Housing – With energy costs rising, Governments are looking at ways to reduce fuel poverty and also develop carbon neutral homes. Owners and Tenants are demanding greater thermal efficiency and improved energy performance in their buildings and homes. SIPs panels can be used for a small extension up to a large executive new build property.

Commercial

Panels can be used in a large range of commercial projects such as Hotels, Schools, Supermarkets, and Universities; with the speed of construction and the fact that the weather conditions do not really disrupt the building process.

Refugee and Disaster Relief

Refugee & Disaster Relief accommodation – modular flat pack shelters for refugee and disaster relief efforts, easy and rapid to assemble, the shelter will provide its user with a safe and secure living environment, units can easily be dismantled for ease of transportation and reassembly as required.

Military Specialist Solutions

Blast protected shelters which are designed to save lives and reduce the threat of injury to a wide range of military and non military personnel. Easily and rapidly assembled, ballistic and blast protected shelters provide its users with a safe living and working environment in some of the most hostile and dangerous situations. Units can be configured to meet a variety of field requirements including, accommodation, medical facilities, and command and control centres providing instant ballistic protection the moment the first panel is secured in place.

Additional options

The prospective residence owners will receive the residence completely finished including the trim works (painting, electricity wiring sanitary installations, joineries, glass, interior and exterior doors etc.) In addition, we can offer at an extra charge for the following elements to be included in the project;

Floor coverings - choices of tiled, carpeted, or veneer flooring.

Heating and cooling installations

Individual solar power capability providing energy to the home for reduced energy costs with off grid power.

Kitchen cabinets installed to complete the kitchen prior to handover

SOME RESIDENTIAL LAYOUT PLAN

1 & 2 BEDROOM LAYOUT

SOME RESIDENTIAL LAYOUT PLAN

3 BEDROOM LAYOUTS

SOME RESIDENTIAL LAYOUT PLAN

4 & 5 BEDROOM LAYOUT

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