

Turnkey Solutions and the Advantages of Steel

Structural steel's low cost, strength, durability, design flexibility, adaptability and recyclability make it the material of choice for a growing number of construction-related businesses.

Cost efficient and quick to build

- Steel possesses the highest strength-to-weight ratio of any building material being used today.
- Light steel frames are very strong and lightweight, so housing frames require less material (compared to timber).
- A steel-framed house can be completed in about one-half to two-thirds the time of a conventional brick and mortar home.
- Light steel frame components are easy to transport and work with.
- Because all the intelligence is built into the modelling and fabrication phase of the steel frame manufacturing process, unskilled labour can do the assembly.
- With steel frame building methods, it's easier to budget accurately and there is less material wastage.
- Steel frames stay straight, unlike timber which can move and warp during and after construction.

Environmentally friendly

Recyclability

- Much of the steel used to make light steel framing is recycled.
- When a steel frame building is demolished, the steel can be recycled.
- It takes approximately one-quarter of an acre of mature trees to produce the wood framing for a typical house. The same house can be steel framed from three or four old cars.
- Steel can be recycled indefinitely without losing any of its qualities.
- When steel buildings are no longer required in their current location, they can be dismantled and re-erected elsewhere.

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Energy Efficiency

- Steel framed buildings can be very energy efficient. The strength of steel requires fewer wall studs, so there are fewer thermal bridges (uninsulated areas) to transmit heat.
- Steel frame buildings do not settle or warp, so they remain more airtight.
- The depth of the steel beams provides a wider space for insulation.
- The design flexibility of steel frame buildings enables architects to focus on energy-efficient housing features.

Manufacturing And Construction Concerns

- Almost half the world's steel production now takes place in electric plants that operate exclusively with recycled scrap and generate no CO2 emissions.
- The by-products arising from steel production are all re-used. For example, slag is employed as a high-value mineral material for highway construction, as ballast, and for the manufacture of cement.
- Steel construction entails the assembly of semi-finished products in a factory, limiting the noise and disruption of open-air operations.
- Steel's light weight allows smaller foundations and less excavation. In some cases, a few piles are sufficient to raise the building completely from the ground.
- Debris from a typical wood framed home account for 1.4 m3 of landfill waste, compared to only 0.1m3 from a steel framed house.



Durable and safe

- Steel will not rot and is immune to termites and other insects.
- Steel is non-combustible and won't contribute to the spread of a fire.
- A steel frame building is more resistant to the effects of severe hurricanes and tornados. Also, there is less likelihood of damage from lightning strikes due to superior earthing characteristics of steel.
- Steel doesn't have to be treated with pesticides, preservatives or glues, so steel frame houses offer indoor air quality benefits.
- Because of steel's inert character and the manner in which steel framed buildings are insulated, floors and walls are not susceptible to moisture build-up, which contributes to the formation of mould.



Design flexibility

- Compared to timber framing, steel framing can span greater distances, allowing greater design flexibility. Interior walls can be placed without load-bearing considerations.
- Any timber frame plan can be easily converted to a steel frame plan, using 3D modelling software.
- Once completed, steel frame homes can look just like traditionally-built homes.
- Modifying an existing steel frame building is relatively simply. Interior walls can be moved without a concern for structural support.



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