



Questionnaires
on
CFS Building.

1. Does steel attract lightning

No, protection system transmits the lightning to land.

2. Does steel corrode in time?

No, galvanised structural steel is used. Steel coated with galvanise doesn't corrode. Following are the typical coating used for projects

Units	Coating Weight						
	Imperial Units	G30	G40	G60	G90	G115	G140
SI Units	Z90	Z120	Z180	Z275	Z350	Z450	Z500

3. Is steel earthquake resistant?

Yes, the most important precaution to be taken against earthquake is to lessen the weight of the building. Steel buildings are 5 to 10 times lighter than reinforced concrete buildings. Steel absorbs the earthquake energy to a great extend and saves you and your belongings.

4. Are there any standard cold-formed steel shapes?

There are no standard shapes for CFS like that of hot rolled steel. However, the most common shape MGI used is the 89 mm and 150 mm C-stud.

5. Is steel cost efficient?

Yes, fabricated loadbearing members ensure high quality for reasonable prices, shorten the construction period, reduce the labour costs; steel is long-lasting.

6. Can I hang an LCD TV that weighs about 35 kg on a steel framed wall that is clad with 12.5 mm gypsum board? If so, what fasteners should I use?

Yes. TV's, pictures, cabinets, and other fixtures can be hung from a steel framed wall using connectors and screws. For this particular question, #10 self drilling tapping screws can be used for hanging the LCD TV.

7. What are the most common methods of anchoring steel walls to concrete foundations?

There are several different methods for wall anchorage depending upon the design loads and the seismic loads. The most common methods are anchor bolts and powder actuated fasteners (PAFs). There are design equations for anchor bolts in all light gauge specifications and codes.

8. What are the different design methods that can be used to design light gauge steel members?

There are three main design methods that are recognized internationally:

- a. Allowable Stress Design (ASD)
- b. Load Resistance Factored Design (LRFD)
- c. Direct Strength Method

9. Does steel damage the house in time?

No, it doesn't get bug-infested, doesn't deflect, wear off or burn. Galvanized steel doesn't corrode.

10. What are service holes used for in light gauge steel members?

Service holes that are punched through the webs of steel members are typically used for:

- a. Electric wiring
- b. Plumbing
- c. Bracing

11. Where can I find information on the life expectancy of steel framed structures?

The life expectancy or the service life of light gauge steel components depends on many variables such as, but not limited to:

- Location of the steel component in the building
- Coating thickness of the steel component
- Function of the steel member (load bearing or non-load bearing)
- Environmental conditions (such as temperature, humidity, weather patterns, etc.)
- Class of exposure
- Cladding materials
- Quality of construction

12. What is the density of cold-formed steel?

The density depends on the grade of the steel, but 7.85 g/cm^3

13. What is the cost of the houses?

It depends on the project selected, however it is more cost efficient than a reinforced concrete house which is the same size and of the same quality.

14. How long does it take to construct these houses?

It takes 2 to 4 weeks depending on the size of the building after the subbasement concrete is poured.

15. How should be the heating, mechanical and electric installment?

Depending on the location natural gas, LPG or air conditioner can be used. Mechanical and electric installment pipes are mounted in the walls and ceilings on the spots that are identified at the stage project.

16. Can we change the places of the walls after the construction?

Only non-load bearing walls can be changed with the approval of the engineer.

17. Is the insulation of the houses suitable to all climate types?

Yes, insulation materials are selected according to the climate conditions of the location of the house.

18. Can we have a fireplace and barbeque?

Yes, when necessary precautions to protect the steel load bearing system are taken, fireplace and barbeque can be installed.

19. How much steel is in a typical square meter of floor area in a steel framed building?

This question cannot be easily answered without having additional information. The amount of steel depends on many factors such as:

- The complexity of the structure
- The number of rooms and walls in the building
- The number of stories (levels)
- The environmental conditions (wind load, snow load, seismic load, etc.)
- The occupancy classification of the building (residential, office, commercial, etc.)
- The steel profile, thickness, and yield strength available for the job

Once the required factors are known, the designer can look at the building and perform a quick check to estimate the weight of the steel per square meter or foot. Some companies have developed a rule of thumb based on their product (equipment, steel, and software). Our software system for example, estimates that for a one story residential building the weight of steel is approximately 18 kg/m² and for a two story building the weight is approximately 25 kg/m². These weights are approximate and cannot be used for estimating or designing projects.

20. How many stories can a cold-formed steel framed building up to?

3 -4 storey's . However introducing hybrid construction (Hot and cold rolled steel) can achieve more than 12 storey.

21. What is the maximum span a steel truss can achieve?

One of the biggest advantages of cold-formed steel is its high strength to weight ratio. This allows manufacturers and framers to fabricate long trusses that can reach up to 25 meters. Moreover, one should check on the transportation limitations when trusses exceed 15 meters.

22. How do you estimate the cost of the steel framing package?

It varies with the design. We estimate the amount of material required for a particular design and use that for our cost basis. On some designs that are common or that we have done before and have a cost history we estimate on a square foot basis.

23. Does my electric wiring have to be run in electrical conduit?

There are code approved plastic grommets that allow to be used. No conduit is required by the electrical code. Your electrician or the local building inspector should be able to find it in the later editions of the NEC (National Electric Code).

24. Do building codes allow steel framing in homes?

In the past few years there have been many code changes that address steel framed residential construction. The latest editions of the major national codes (SBC, BOCA, UBC, ABC.) all have new sections and revisions that address residential steel framing. Excalibur has never had a house where local building officials would not approve our design.

25. How do I find out the spacing of the studs in a finished steel wall (faced with gypsum board)?

The easiest way is to get a magnet and place it on the wall to find the exact location of each stud.

26. While inspecting a steel building, I saw the framers torch cutting the steel members. Is that acceptable?

Torch cutting is not permitted for cold-formed steel members. There are many tools available to cut the steel.

27. How can I find out more information about cold-formed steel?

There are many sources where you can find information about the design and construction of cold-formed steel framing. A lot of that information can be found on the web site. The following are some recommended resources that you can check out:

Steel Framing Alliance (USA)

www.steel framing.org

National Association of Steel Framed Homes (NASH, New Zealand)

www.nashnz.org.nz

National Association of Steel Framed Homes (NASH, Australia)

www.nash.asn.au

Southern African Light Steel Frame Building Association (S. Africa)

www.sasfa.co.za

Cold-Formed Steel Engineers Institute (CFSEI, USA)

www.cfsei.org

28. When using light gauge steel framing, do we use the same foundations (and footings) as we do when we build with concrete?

Light gauges steel is much lighter than concrete. As a matter of fact light gauge steel weighs approximately 5 psf (35 kPa) while concrete weight ranges from 30 to 70 psf (207 to 482 kPa). Therefore, you should be able to reduce the amount of concrete used in the foundations. Your structural or foundation engineer should be made aware of the loads acting on the concrete so that he or she can design the foundations accordingly.

29. Why do I see white powder on light gauge steel members that left exposed to the outdoor environment?

The white powder (also called white rust) is an indication that the zinc coating is performing its intended function, to protect the steel. Zinc is a sacrificial element which means it sacrifices its life to protect the life of the steel. When steel becomes exposed to corrosive environment the zinc starts working by covering the steel with white powder.

30. I want to build green cold-formed steel framed buildings. What are the available green programs that I should be aware of?

There are many green programs worldwide with the most popular ones originated in the USA or Europe. The following is a summary of these programs:

- LEED for Homes
 - Created by the U.S. Green Building Council for residential & multi-family construction
 - Participation is voluntary

- 136 total points available
- 4 certification levels

Certified	45-59
Silver	60-74
Gold	75-89
Platinum	90-136

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Green Building Standards (ANSI 700)

- Created by NAHB (in the USA) for residential & multi-family construction
- Participation is voluntary
- 697 total points available
- 4 certification levels

Bronze	222
Silver	406
Gold	558
Emerald	697

- **Green Globe (released by the Green Building Initiative (GBI))**
 - Created by the Green Building Initiative for commercial buildings & major renovations
 - Participation is voluntary
 - Life Cycle Assessment (LCA) is used as primary means of determining point values

4 Globe	850-1000 points
3 Globe	700-840 points
2 Globe	550-690 points
1 Globe	350-540 points

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LEED New Construction

- Created by the U.S. Green Building Council for new commercial buildings or major renovation projects
- Participation is voluntary
- 110 total points available
- 4 certification levels

Certified	40-49
Silver	50-59
Gold	60-79
Platinum	80-110