

Mecano

Sheds



Industrial Shed

Kit Assembly

Thinking about building your own Industrial Commercial shed or Farm shed?



Farm Shed



- 1. Portal Frame**
- 2. Panel Frame with Truss**
- 3. Panel Frame with Cathedral Truss**

The Portal frame is limited to 24m span and 6m high with bay spacings at 6 meters (Mecano recommends structural steel for larger sheds)

The panel frame is limited to 12m span with 3.6m high walls. It is more suitable for commercial retail stores or office areas.

The following booklet is designed to help you choose the type of frame to best suit your need.

The advantage of the Panel frame with the conventional flat roof truss is convenience of lining the internal walls where retail and office areas are required.



Why choose a Mecano Shed?



1. Portal Frame design

The weakest points in the bigger portal frame sheds are the connections at the knee and apex. There is a risk of failure if strength is compromised- particularly in cyclonic regions. Mecano recommend the heavier structural steel such as Universal Beams or Web Trusses where spans exceed 18m in cyclonic areas. However, if you intend to build in a fairly well protected area such as Industrial areas where existing buildings around your site provide reasonable shielding, you may consider spans up to 24m, providing the knee and apex and tie down connections are adequate- and particularly where bay spacings and heights do not exceed 6 meters.

Theoretically, anything bigger just simply doesn't work (at least that's Mecano's opinion). There is a tendency for some within the engineering fraternity of the *light frame shed industry* to use the whole frame as a diaphragm. This means rather than have a separate portal frame that doesn't fail under its own strength, clever engineers use the roof and wall battens as well as the bracing and tie downs, to add impetus and support to the Portal. This engineering "trick" may work for those lucky enough not to have their structure put under stress when that freak storm strikes, but sensible ordinary everyday people realise that one day, it just may happen to them.

Now I know what you're thinking! Sounds like Mecano is doing a sales spiel? Well that's not quite true, but the following experience may help you understand what this "spiel" is about.

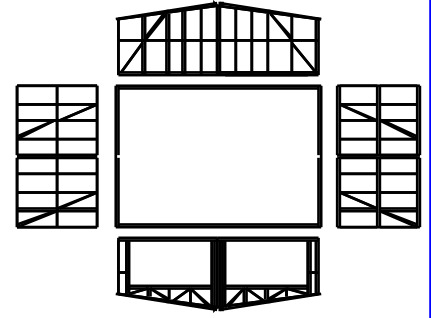
In 1987 Mecano were the first to release a commercially viable bolt-up shed, but getting it off the ground proved to be very difficult. Finding an engineer who was willing to put his name to something that had no welds was the difficult part. The concept of simply ordering pre-punched C sections that could be fixed together on site was something not heard of back in those days. Eventually a structural engineer designed a 6 meter span- non-welded bolt-up shed! And what did he suggest for a portal? A back to back- 200C24 section. (That's at least quadruple the strength of what is used today for a 6 meter span in the cold form shed industry).

Now the point is: Even though the engineer tried every trick in the book to make that portal lighter (not to mention his consulting with other engineers) he just simply wasn't able to get that portal to stand alone under the engineering code of a fifty meters per second wind speed. But that's all history - today, clever engineers somehow span 12M to 15m with back to back 200C 24 sections- and up to 40 metre free standing spans with 350C sections back to back. But of course, the portal is dependant on the entire structure, so if you decide to go beyond a free standing 20 metre span in cyclonic areas, our advice is: Make sure you have an experienced shed erector who knows every trick in the book, and pray for good luck if that freak storm ever hits.

Did you know: If you are considering an Industrial Shed wider than 20 metre, the price between the heavier cold formed 'C' sections back to back and "structural steel" such as 'I' beam or 'Webbed Trusses' may not be as large a price difference as expected, providing the difference in price is balanced with safety, strength, and peace of mind.

2. Panel Frame design

Standard flat roof trusses in office and display areas.



Flat ceiling trusses are ideal in situations where office areas are required. This particular design may be easily adapted so that it can be insulated and lined. Speak to the salesperson about double studs at 1200mm centers if blue board and rendering is required.

The Panel Frames may be ordered from the factory as a “Flat Pack” or as “Assembled Walls”. The benefit of the “Flat Pack” is the ease of transport. The “Flat Pack” is made up of individual pre-punched and pre-cut studs, plate and noggin. Each wall is numbered and individually packaged with an easy to read assembly manual. Each frame is Tek-Screwed into pre-punched dimples so as the location of studs and plates are pre-set. This enables you to assemble the walls on site without the aid of a jig because of the precise measurements due to the specialized computer program.

3. Panel Frame with Cathedral type ceiling

The design is similar to the previous illustration except the trusses are C section rafters that simply sit on top of the wall frame. Once the wall panels are in place, the rafters are lowered onto the top of the wall panels. It's that simple! In fact, Mecano have named it the Too Ezi[®] system.



You have the option to line the office and display centre, as well as having the extra height to give your display area that roomier look.

If you intend to have an office on the front or side of your building, consider using the panel frame with a choice of cathedral trusses or conventional flat ceiling trusses. Simply give Mecano the positions of the doors and windows - and presto! You will have the frames ready to line with all the openings pre-cut, ready for fixing. It's really that simple!

Mezzanines Floors: (Optional)



The Mecano steel floor system is simple and easy to construct. Standard engineering complies with 1.5 KPA (150 kilos per square meter) . Should you require 3KPA or 5KPA the heavier structural steel will be needed.

Shed heights should be a minimum 5.4 meters high so that you have 2.4m clearance minimum head height .



Panel frame walls may be pre-assembled or in flat pack -with windows and door openings ready to go



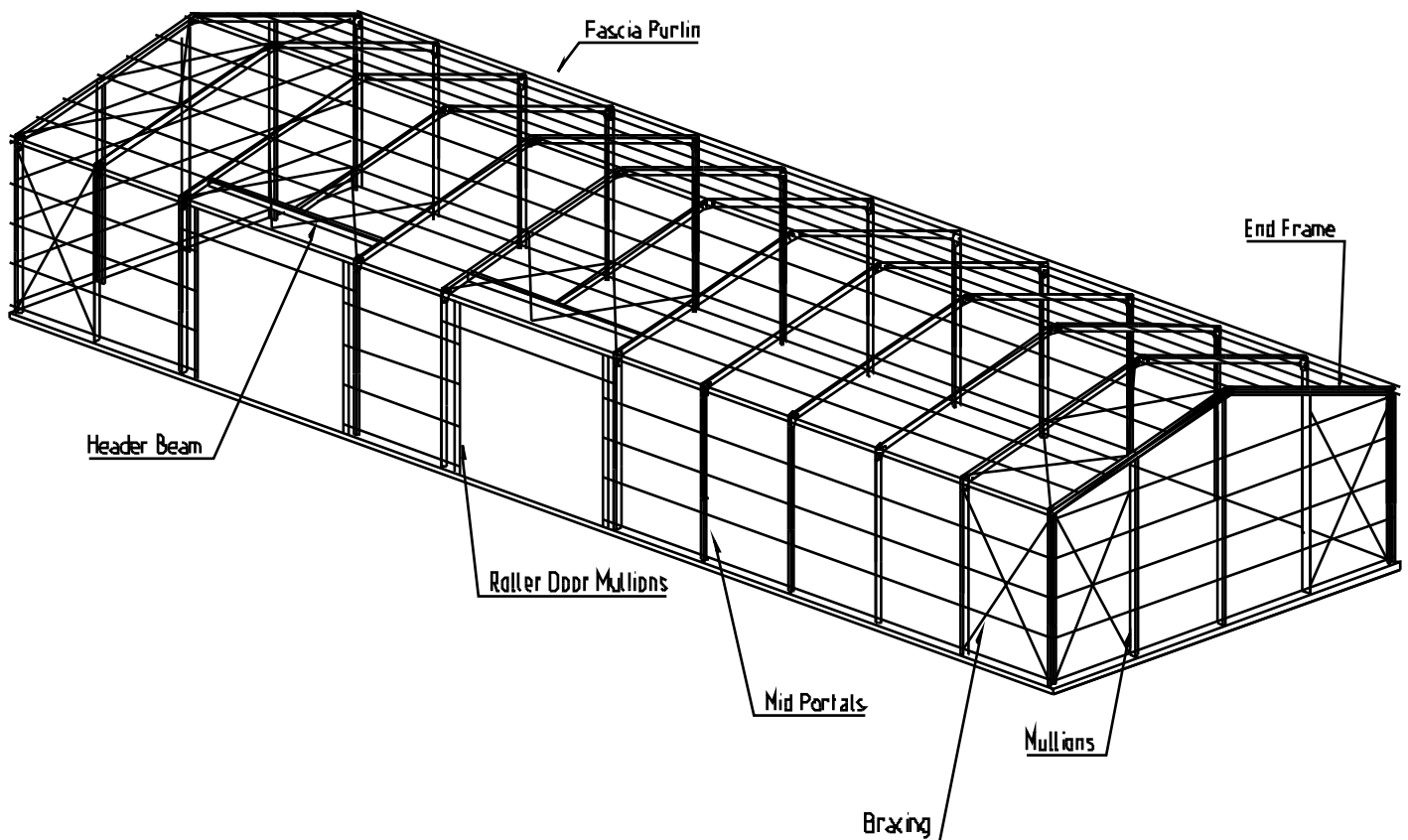
Looking for an extra flare for that commercial building you may be considering?

Consider this- The main shed can be standard metal cladding with a rendered blue board front with the office or showroom either on the outside or on the inside. Send Mecano a simple concept plan and let us send you a few ideas! .

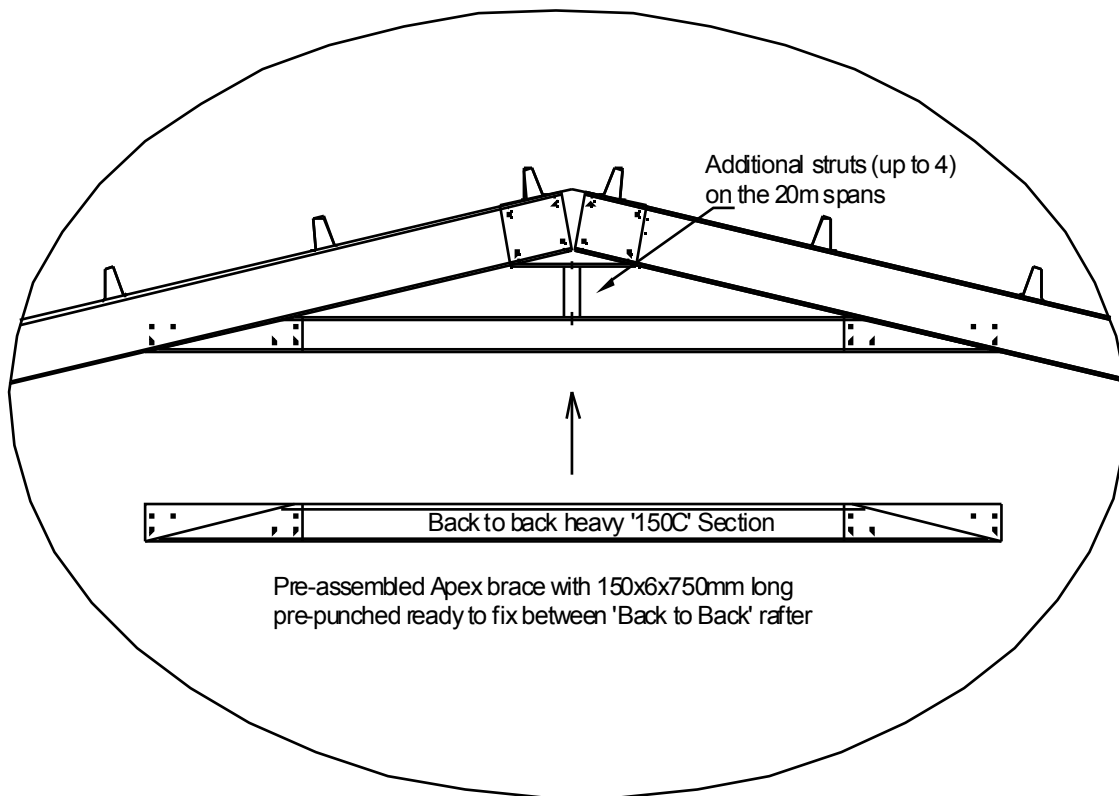
Why Mecano Industrial Sheds are stronger!

1. Mid Portal Roof and Wall battens are high tensile 125mm hat sections.
Note: C and Z sections used with all Mecano Universal Beam structures.
2. End wall intermediate posts are back to back where openings exceed 6M.
3. An actual C section Fascia is used to tie in the wall and Roof cladding.
4. Heavy duty Knee and Apex braces are used with 6mm end plates
5. Separate Webbed Header Beams if Mid bays exceed 6M
6. High tensile bolts to Mid Portal base plate connections.
7. Knee and Apex plates are not only bolted, but also supported with heavy duty tek-screws to prevent any slippage during construction.

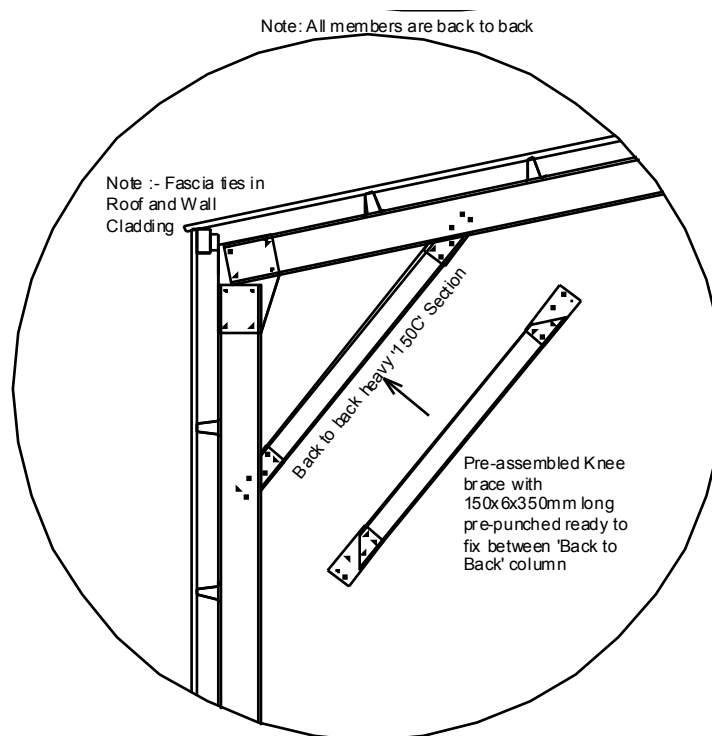
Portal Frame structural members



Knee and Apex Connection



Columns and rafters are pre-punched. Knee Plates and Apex brackets are simply fixed between the back to back columns and rafters. You will have an easy step by step manual on just how easy it is to have the portals ready for standing.



Ensure that when you are ready to lift the portals you have licensed riggers experienced with cold form section sheds.

All knee and apex braces are mitred where they join the column and rafters- giving your building that finished look.



Custom designed
commercial
buildings

The strength of Portal
Frame sheds with stud panel
in-fills where office areas
are required to be lined.



Your choice
of external
cladding.

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C
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Dennis Little Drive Gympie Industrial Estate.
Ph: 54-825614 Fax: 54-824527

8 Maddison Court Bundaberg
Ph: 41-527211 Fax: 51-528211