MainLine

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A modeler's guide to steel framed industrial structures

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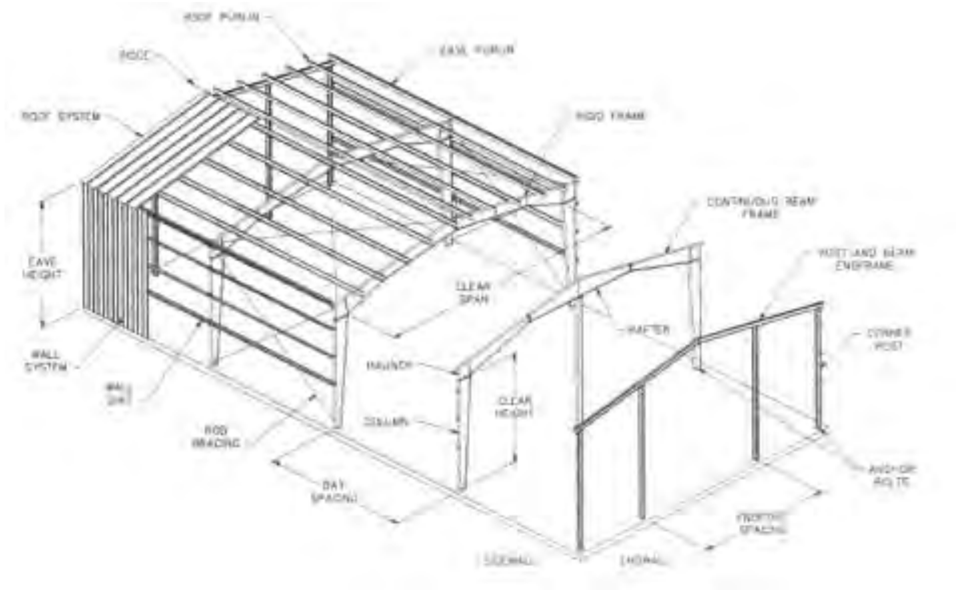
There are many excellent kits available for railway related structures in the major scales. Industrial buildings are less well catered for, especially the steel framed metal or asbestos clad buildings typical of the twen eth century. In Australia this type of industrial building predominated un l the advent of the precast lt up slab concrete walled buildings commonly built since the late 1990s.

The steel frames of these buildings were typically trusses un l the late 1960s. The steeper roof slopes required for the mul ple sheet cladding systems then in use favored truss roof framing. In the late 1960s the introduc on of structurally more e cient hot rolled beams, long length roof shee ng allowing a er roof slopes and new methods of structural analysis made building frames made from beams more common.

The typical roof shee ng used prior to the late 1960s was asbestos cement. It was durable and did not need pain ng. This type of shee ng needed a roof slope of around een degrees (for se ng out purposes a slope of one in four). Natural ligh ng was provided in these buildings by skylights on gable roof structures or the glazed ver cal face of the roof of south light roof structures. An advantage of truss roof framing was the underside of the roof structure was at. This was convenient for hanging services piping, cabling and parts conveyor systems from the underside of the framing.

Road transport limita ons of the day effe vely limited the width of a load to a maximum of ten feet (three metres in French). With a roof slope of four to one the largest gable roof truss you could move in one piece was 80 feet long. If you went for a south light or saw tooth roof structure the triangular roof trusses were up to forty feet long. The transverse rectangular trusses suppor ng the triangular roof trusses were typically limited to a length ten mes their depth. A ten feet deep roof truss gave you a maximum length transverse truss of around one hundred feet. Depending on the area available and the use of the building the spans of the roof structure could be less than the maximum practica span and the depth of the roof trusses reduced propor onally to suit the span chosen.

The advent of long length roof shee ng in the late 1960s allowed a er roof slopes, typically around ve degrees. The other welcome innova on in those days was transparent shee ng



to match the pro le of the long length roof shee ng. Fi ng a panel of transparent shee ng in the roof cladding at regular intervals provided natural ligh ng without the risk of rain leaking into the building.

These shallower roof slopes favoured portal framed roof structures. Typically portal framed structures have a maximum span of around forty metres. The typical depth of a portal frame ra er is around one for eth of the span. The cladding support members limit the spacing of portal framed building frames to around six metres. This limits the width of doorways between frames to around ve metres.

Many processes and businesses in Australia don't need fully enclosed buildings. Oft n the end of the building opposite the street, backing onto the railway line is not clad. This provides the opportunity to model the building framing and equipment inside the building.