


**IAN HYMAS**
*BSc (Hons) MEngSc*

- Structural engineer for over 40 years.
- Founding partner of the firm Henry and Hymas.
- Member of the current BD-066 Standards committee for the Tilt Up and Precast Concrete Code AS3850.


**PROGRAMME (8.30 - 9.00 Registration)**
**9.00 - 10.30 Session 1**
**- PORTAL FRAME ANALYSIS AND DESIGN**

- Portal frame analysis and member sizing
- Elastic vs Plastic design
- Tapered members in frames
- Latticed portal frames
- Frames with central columns
- Economies of frame spacing
- Fixed vs Pinned bases
- Footing considerations

**10.30 - 11.00 Morning Tea**
**11.00 - 12.30 Session 2**
**- ROOF AND WALL SYSTEM**

- Roof structure layout & panel layout
- Alternative rafter designs
- Fly bracing
- Roof bracing systems.
- Economies of steelwork design
  - Portal frame vs load bearing panels
  - Various cladding systems that can be used for Industrial buildings such as steel sheeting (connected to purlins and girts)
- Design of purlins and girts, panels as cladding to portal frame and steel column buildings; fire ties.
- Advantages and disadvantages of cladding alternatives.

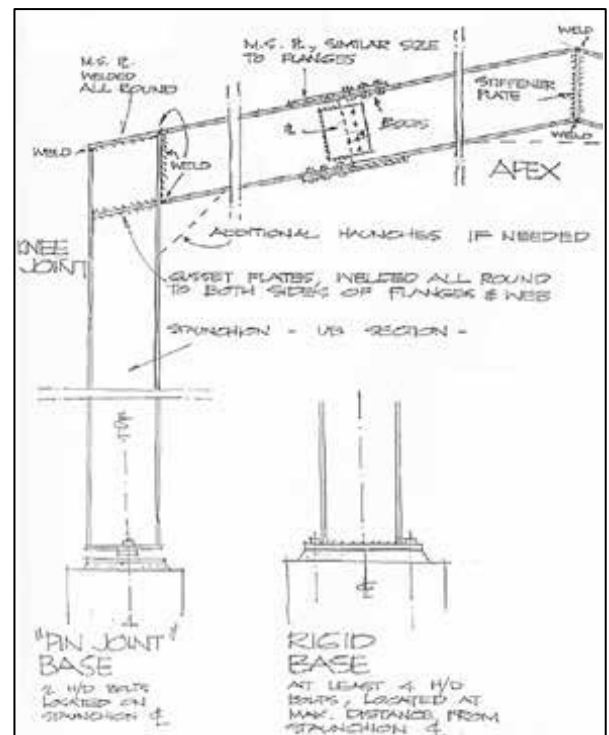
**12.30 - 1.30 Lunch (Provided at Venue)**
**1.30 - 3.00 Session 3**
**- CONNECTIONS IN INDUSTRIAL BUILDINGS**

- Connections that are used in portal frame building.
- Steel to steel connections, portal frame knee and apex moment connections, bracing connections and prying forces on plates.
- Steel to concrete connections, holding down bolts, steelwork to concrete panel connections, fixings into concrete cast-in, and mechanical (expansion anchors) chemical anchors.

**3.00 - 3.30 Afternoon Tea**

**3.30 - 5.00 Session 4**
**- DEFLECTIONS, TOLERANCES, CASE STUDIES**

- Deflections of portal frames and concrete panel supported rafters as well as deflections in bracing systems. Consideration of 'bolt slip', effect of tolerances on design assumptions and erection methods.
- Problems that have occurred while erecting industrial buildings.
- Actual jobs will be shown (in keeping with client confidence).

**5.00 - 5.15 Certificate of Attendance & Feedback sheets**

**CALCULATORS REQUIRED**
**COURSE COST**

- 1 day course – \$790 pp

**DATES, VENUES & REGISTRATION**

- Registration form (back of catalogue)
- Visit our website [www.etia.net.au](http://www.etia.net.au)

**FURTHER INFORMATION**

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