



PORTAL FRAME CONSTRUCTIONS

- This construction method is used in a wide range of buildings, from small domestic garages to vast commercial storage depots, making it a common feature of the modern built environment.
- A portal frame involves a construction technique where vertical supports or columns are connected to horizontal beams or trusses through fixed joints. These “rigid” joints allow the beams to have a thinner cross-section while spanning large distances.
- A secondary framework of side rails attached to columns and purlins fixed to rafters is necessary to support cladding, such as profiled sheeting or prefabricated composite metal panels. Bracing is typically added to the sides and roof to provide the row of parallel frames with rigidity and the stability needed to withstand strong winds. Masonry cladding may also be included at a low level to increase resistance to damage and improve security.
- Portal frames are most often fabricated from structural steel, though reinforced precast concrete and laminated timber are also used as alternatives.

Advantages of portal frames

- **Lightweight construction:** Portal frames are relatively lightweight compared to other building methods.
- **Rapid assembly:** They can be prefabricated off-site and quickly assembled and erected on-site.
- **Cost-effective:** This method is relatively simple, low-cost, and weatherproof.
- **Wide clear span:** Portal frames provide a large, unobstructed internal space, making them ideal for various commercial and agricultural uses.

HERITAGE AND TRADITIONAL METHODS

The built environment includes many historic buildings and structures of special architectural or historic importance and are worth protecting.

It is essential that the maintenance and renovation of such buildings are carried out by architects and tradespersons who are qualified and experienced in heritage and traditional methods.

This ensures:

- The history and character of the building are maintained.
- Compliance with planning regulations within conservation areas.
- Preservation of heritage for present and future generations.
- Retention of traditional skills and knowledge required for such work.

Effective maintenance methods should include:

- A regular programme of inspections to prevent small problems from escalating or further deterioration.
- Efforts to match existing materials and construction methods wherever possible.
- Retention of as much of the original building fabric (e.g. floors, walls, roof, windows, doors) as practicably possible.

Heritage and traditional maintenance methods as practised by traditional trades include:

- Masonry and stone carving.
- Timber framing, including rafter and purlin roofs, carpentry, and joinery.
- Thatching and roofing with natural shingles.
- Leadwork, including sheeting and ornamental detailing.
- Plasterwork, including mouldings and repairs.
- Blacksmithing and ornamental metalwork.