PRE FABRICATED PANELS

Prefabrication

- Prefabrication is the practice of assembling components of a structure in a factory or other manufacturing site, and transporting complete assemblies or sub-assemblies to the construction site

Components of prefabricated structures

- Floors and Roofing slabs
- Beams
- Columns
- Wall panels
- Staircase
- Lintels
- Sunshades/Chajja projections


QUAD-DECK PITCHED ROOF SHORING
Screw through dad liners into Quad-Deck metal furring strips spaced @ 12" o/c
Secure 4x4 liners to shoring beam nailers prior to placing on the Quad-Deck Panels
Note:
6'-0" max. o/c spacing between shoring beams
6" maximum distance between wall and shoring beam
Pour concrete @ 3" slump
Maximum Quad-Deck pitch recommended 12x12
June 20th, 2013

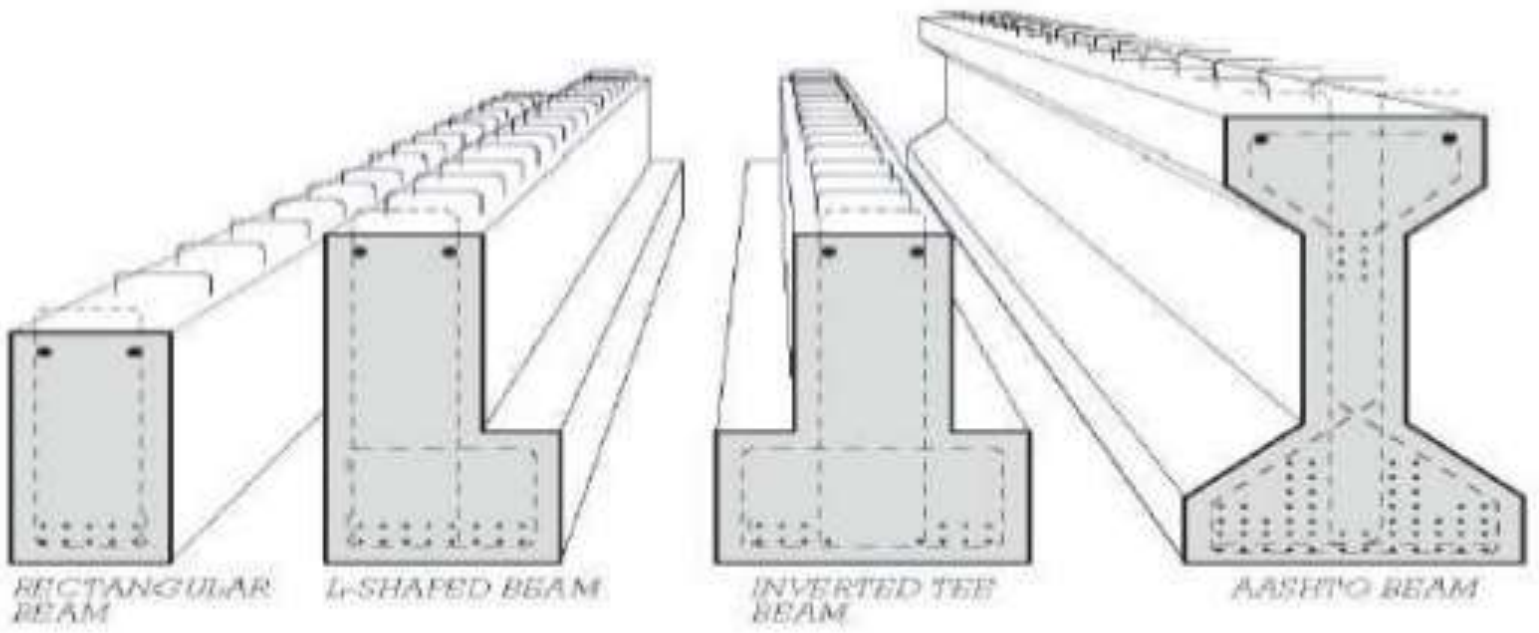
BEAM: BEAM is a horizontal structural member, a long piece of timber or metal used to support the roof or floor of a building. It transfer the load on column. Example : Purlin , girder etc.

OR

A beam is a structural element that is capable of withstanding load primarily by resisting against bending.

TYPES OF BEAM:

1. **RECTANGULAR BEAM**
2. **L SHAPED BEAM**
3. **INVERTED TEE BEAM**
4. **AASHTO BEAM**



STANDARDIZATION

- It may be a national scale, obligatory over the whole country provided that the competent authorities publish catalogues of standard prefabricates and standard housing units or even whole buildings

LARGE PANEL WALL SYSTEM

Structural scheme with precast large wall panels can be classified as

- Cross wall system
  - The **cross walls are load bearing** walls
  - The façade walls are non load bearing
  - This system is suitable for high rise buildings
- Longitudinal wall system
  - The **Cross walls are non load bearing**
  - Longitudinal walls are load bearing
  - This system suitable for low rise buildings

Prefabricated panels serves two functions

- Stability (carries structural loads)
- As good partitions (infill wall panels)

Infill panels, also known as **infill** walls, are non-load-bearing **panels** that are installed between the floors of a building's primary structural frame

Principle Methods of prefabrications

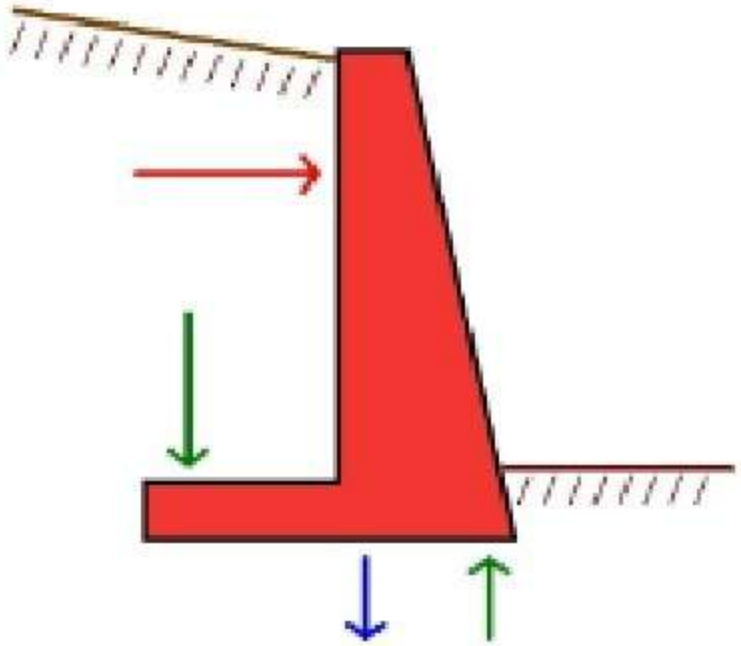
- Plant prefabrication
- Site Prefabrication

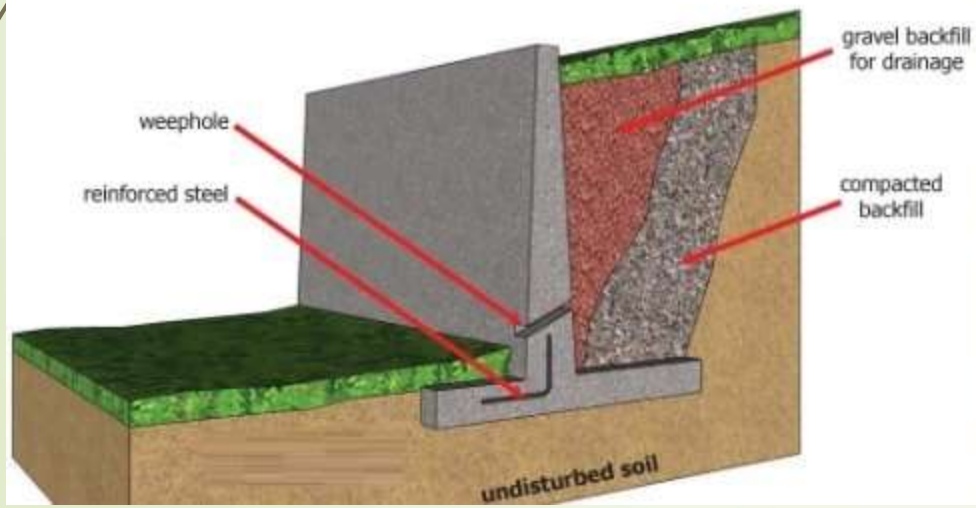
MANUFACTURING PROCESS

- Preparation of moulds
- Reinforcing and prestressing the components
- Concreting the components
- Hardening of the concrete
- Demoulding the components and storage

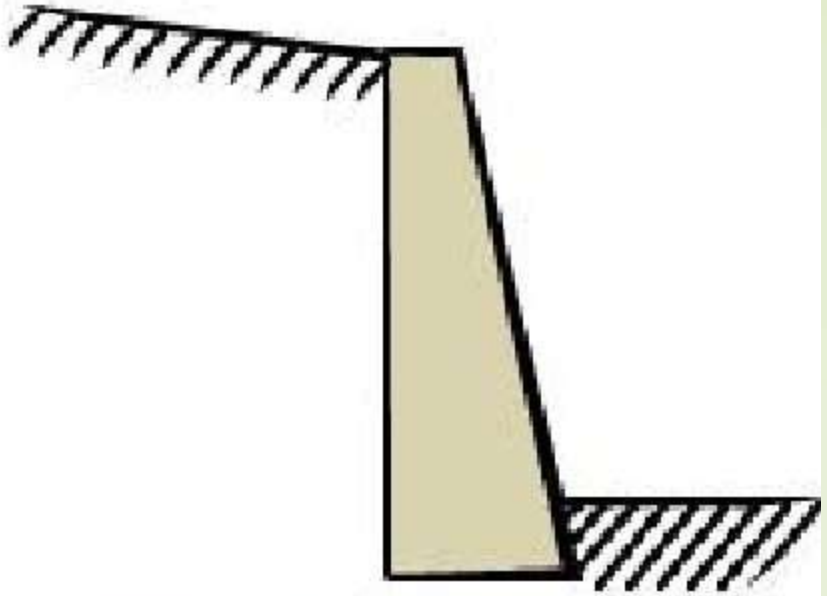
Prestressed concrete is a form of concrete used in construction. It is substantially "prestressed" during production, in a manner that strengthens it against tensile forces which will exist when in service

Cantilever wall



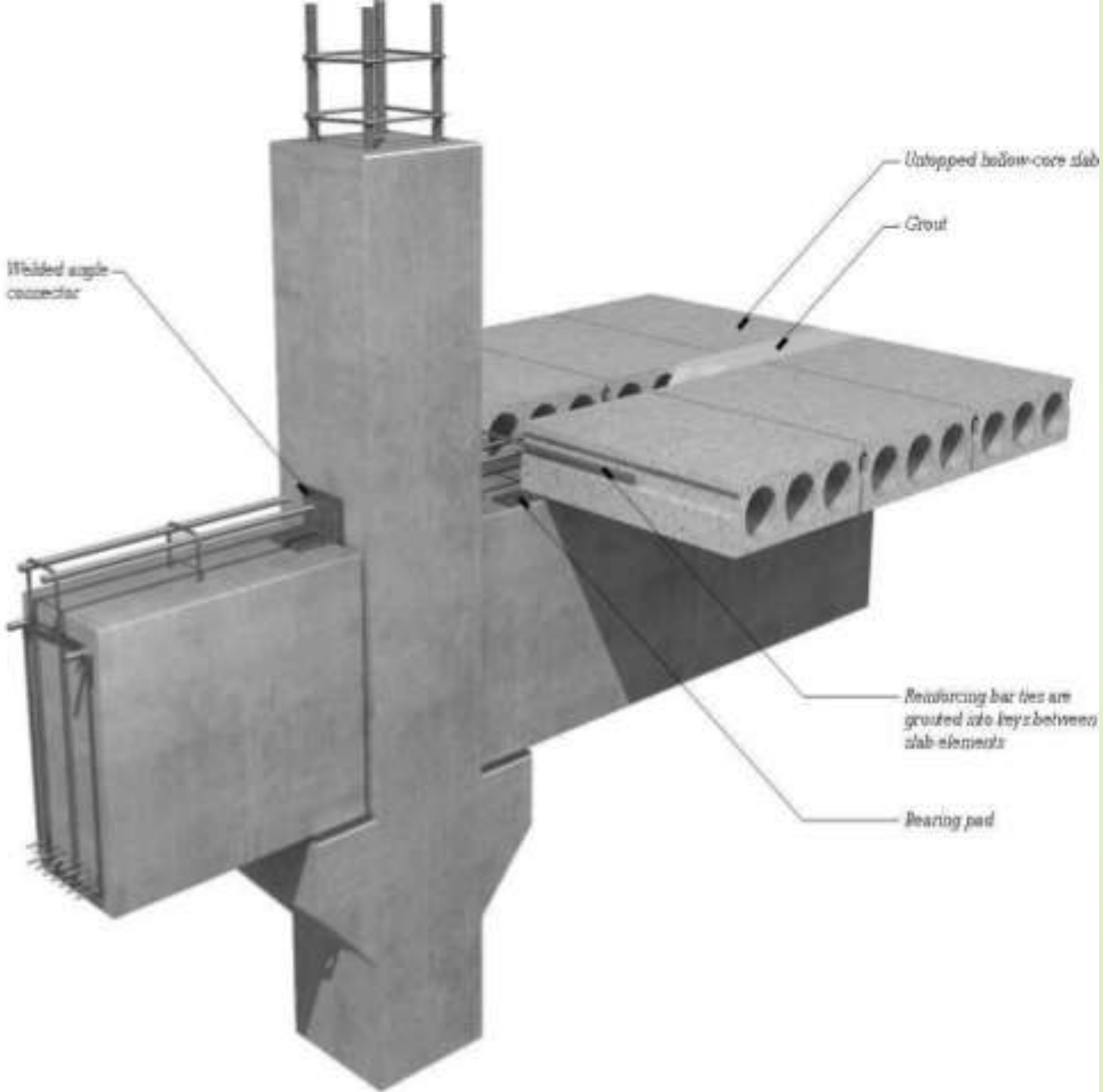


Gravity wall



3. Slab-to-Beam connection:

1. Hollow core slabs are set on bearing pads on precast beams.
2. Steel reinforcing bars are in inserted into the slab keyways to span the joint.
3. The joint is grouted solid.
4. The slab may remain on topped with several inches of cast in place concrete.



ADVANTAGES

- High quality product
- Decorative and good finishing
- Labour related savings
- Savings in time
- Overall efficiency is greatly increased
- Mass production is easier and quick
- Protected and controlled production environment
- Lower production costs and other cost savings
- Independence of climatic conditions
- The disruption of traffic is avoided
- Saves time and energy
- Formworks are reduced
- Earthquake resistance, more secure and safety

Characteristics to be considered:

- Easy availability
- Light weight for easy handling and transport
- Thermal insulation property
- Easy workability
- Durability in all weather condition
- Non combustibility
- Economy in cost
- Sound insulation

DISADVANTAGES

- Careful handling and high skilled supervision needed
- Attention to be paid to the strength and corrosion resistance of joining of prefabricated sections
- Similarly leaks can form at the joints
- Transportation costs may be higher
- Large prefabricated section require heavy duty cranes and precision measurements
- Initial cost is high