Construction sequence of a typical floor
(formwork erection based on traditional manual method)
Step 1 – Completion of the lower floor (usually just after the concreting which was carried out on the day before)

Step 2 – Removing of the wall form panel and lift to the upper floor for erection

Wall form panel placed on the floor slab after removal waiting for erection in appropriate sequence

The panel on the outer side being erected that follow by the steel fixing

Wall form panel on the lower floor to be removed and lifted onto the upper floor for erection
Day 1 of the floor cycle – wall form panel after removal from the lower floor will be lifted onto the new floor early in the day for erection in the corresponding wall position.
Close up look of the new wall with the electrical conduit and other boxing out for openings being positioned

Wall form panels being removed on the lower floor and stacked on the new floor waiting for erection onto the new wall

Inner wall panel erected with reinforcing bar being fixed
Step 3 – Completion of the wall formwork and the reinforcement (including inspection of the reinforcing bars)

Wall Reinforcing bar being fixed. After inspection by supervisor, the wall form panel on the inner side to be fixed afterward.
Step 4 – Erection of the floor formwork including the propping and joist grid frame (also the beam formwork if there is beams in the structural design)

Floor form to follow in the next sequence

Floor form including the supporting joist grid securely placed on top of the props

Erection of propping to support the floor form
Placing of joist supported on prop to receive the floor soffit and beams

Wall panels on both sides erected, followed by the stiffening and securing by waling tie

Timber joist

Detail of the floor joist arrangement and its connection to the wall form
Step 5 – Completion of the floor reinforcement. Final re-adjust and secure the wall and floor formwork ready for the concreting.

Fixing of floor reinforcement

Final inspect the formwork and ensure it is in right alignment and secure for concreting
Propping system first erected to support the joist frame grid and the floor soffit
Typical layout of a residential floor with the wall and floor formwork being completed. Note that the work arrangement of this site is to cut the floor into 2 phases. The floor on right-hand-side scheduled as an advanced stage with reinforcing bar and built-in services fixed ready for stage 1 concreting.
General set-up and work layout for typical floor for non-residential building
The completed wall and floor formwork with the floor reinforcement being fixed. Works to do before concreting are:

- Final inspection of the steel fixing,
- check the shape, level, verticality, and alignment of all the formwork elements,
- check whether the condition of formwork is firm and secure enough to withstand the concreting process,
- provide and install the equipment ready for the carrying out of concreting works.
Erection of wall and floor formwork close to final completion as seen inside the floor below
Concreting arrangement by pump – workers to set up the pipe work for the delivery of concrete

Concreting arrangement for small site using manual method – lift the concrete by hoist rack and hopper, labourers place the concrete by wheel barrow.
Concreting arrangement by wheel barrow driven on temporary gangway

Concrete delivered to the floor level by pump and collected using a hopper

Close up look of the concrete hopper and the wheel barrow
Step 6 – Carry out the concreting work to complete a cycle for typical floor.

Formwork erection and concreting cycle can have another option. That is, to complete the wall formwork and do the concreting to wall in an advanced stage. After that, carry out the work for the floor slab.

Start bar for column (or wall)

Concreting to wall and floor completed

Cycle repeated similarly to the upper floors
Other concerns during the erection of formwork
Other less common arrangement – wall, column and floor formwork erected at the same pace (under well coordinated planning of course)
The reality – general work principle of formwork is not difficult. However, when it is a very big site with numerous work front and phasing arrangement to suit actual site condition, the carrying out of works would be very complicated that requires extremely concise planning.
Safety concern – work with formwork can be very dangerous due to:

- Working at high level
- Difficult to get access into the working location
- Lifting of heavy material for human worker
Step 1 – erect the skirting to rest and mark the wall alignment.

Step 2 – erect the wall form panel on one side first in order to provide a firmer ground for the fixing of reinforcing bars.

Annotate drawings to show the erection of wall and floor formwork using traditional method.
Step 3 – fix the wall reinforcing bar and carry out inspection by appropriate person

Step 4 – enclose the wall by erect the other side of form panel
Step 5 – erect the propping and the joist frame support

Timber joist in both direction (usual 50 x 100 in size)

Joist holder which can be level adjustable using screw

Timber or steel bracket to support the outer panel on external wall
Step 6 – placing of plywood board to form the floor soffit

Replaced for the next bay

Plywood boarding

Future concrete line
Close up of the propping detail that support the joist grid
Detail of wall form panel and the way to secure it in position by waling

- Waling strip
- Stiffening stud
- Plywood board
- Tie rod to grasp the two sides of wall form panels through the waling strip by nut and washer
- Spacer to ensure the thickness of wall

Wall
Actual application of panel form to wall