Structural Consideration for A&A and Conversion Works

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1. One Way Slab
2. Two Way Slab
3. Ribbed Slab
4. Flat Slab
5. Prestressed Slab
6. Composite Slabs with Profiled Steel Sheets
Figure 6.8 - Types of column head
Figure 6.9 - Division of panels in flat slabs

- $l_x$ (longer span)
- Middle strip $l_x - l_x/2$
- Column strip
- Slab without drops
- Drop
- Middle strip $l_x -$ drop size
- Column strip = drop size
- Slab with drops

- $l_x$: shorter span of flat slab panel
- $l_y$: longer span of flat slab panel
Figure 10.1 - Typical composite beams

b) Composite beam with composite slab using trapezoidal and re-entrant sheet profiles
(beam span perpendicular to slab span)

Composite beam with composite slab using re-entrant sheet profile
(beam span parallel to slab span)
1. Simply Supported Beam
2. Continuous Beam
3. Cantilever Beam
4. Prestressed Beam
5. Structural Steel Beam
6. Composite Beam
Continuous beams: Bending moment diagrams: Two and three equal spans

<table>
<thead>
<tr>
<th>Two spans</th>
<th>Three spans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead load (all spans loaded)</td>
<td>Dead load (all spans loaded)</td>
</tr>
<tr>
<td>Imposed load</td>
<td>Imposed load</td>
</tr>
</tbody>
</table>

Equal total load $F$ on each loaded span
Bending moment = coefficient $\times F \times$ span
Diagrams are symmetrical but are not drawn to scale

Moments indicated thus * do not result from loading arrangement prescribed in Code, which gives zero positive moment at all supports. Values indicated thus (++) give maximum percentage reduction of span moment due to imposed load possible when support moments have already been reduced by full 30%.
1. Concrete Column
2. Steel Column
3. Composite Column
4. Shear Wall
5. Core Wall
PART OF FIRST FLOOR (1/F) FRAMING PLAN

1. ALL EX. SLABS THICKNESS TO BE 150mm UNLESS STATED OTHERWISE.
2. ALL EX. BEAMS TO BE 300x600mm UNLESS STATED OTHERWISE.
3. ALL EX. SCREEN WALLS AND SHEAR WALLS TO BE 300mm THICK UNLESS STATED OTHERWISE.
4. TOP LEVEL OF SB1-SB3 ARE TO BE +23.20.
FRONT ELEVATION FACING D’AGUILAR STREET
(BEFORE MODIFICATION WORKS)
(1 : 100)
STAGE 1
PROBABLE SEQUENCE FOR CONSTRUCTION OF UNAUTHORIZED BASEMENT AFTER OCCUPATION PERMIT

LEGEND:
- APPROVED BUILDING WORKS
- SOIL
- SHEET PILE (TEMPORARY SHORING WORK)
- ON-GRADE SLAB
- BLINDING LAYER

STAGE 1:
AS-BUILT & APPROVED STRUCTURE BEFORE STARTING OF UNAUTHORISED BASEMENT CONSTRUCTION.

SECTION '2-2'
1:100
STAGE 2
PROBABLE SEQUENCE FOR CONSTRUCTION OF UNAUTHORIZED BASEMENT AFTER OCCUPATION PERMIT

SECTION ’2–2’
1:100

LEGEND:
- APPROVED BUILDING WORKS
- SOIL
- SHEET PILE (TEMPORARY SHORING WORK)
- ON-GRADE SLAB
- BLINDING LAYER
- REMOVED BEAMS / SLABS

STAGE 2:
PARTIAL DEMOLITION OF LOWER GROUND BEAMS, SLABS AND SWIMMING POOL, THEN REMOVE SOIL TO A LEVEL BELOW +15.30 mPD.
STAGE 3: RECONSTRUCT ALL LOWER GROUND FLOOR BEAMS & SLABS WITH 300mm THICK HANGER WALL DOWN TO LEVEL +15.30mPD. RECONSTRUCT SWIMMING POOL SUBSEQUENTLY. THEN INSTALL 2ND LAYER TEMPORARY STRUTTING FOR LATER EXCAVATION DOWN TO TOP LEVEL OF FOOTING.
STAGE 4
PROBABLE SEQUENCE FOR CONSTRUCTION OF UNAUTHORISED BASEMENT AFTER OCCUPATION PERMIT

LEGEND:
- APPROVED BUILDING WORKS
- SOIL
- SHEET PILE (TEMPORARY SHORING WORK)
- ON-GRADE SLAB
- BLINDING LAYER
- UNAUTHORISED STRUCTURE (STAGE 1)
- UNAUTHORISED STRUCTURE (STAGE 2)

STAGE 4:
REMOVE SOIL DOWN TO BELOW +12.50mPD.
CONSTRUCT UNAUTHORISED 300mm THICK HANGER WALL DOWN
TO TOP OF FOOTINGS, THEN CONSTRUCT UNAUTHORISED 300mm
THICK BASEMENT SLAB.

SECTION '2-2'
1:100
STAGE 5
PROBABLE SEQUENCE FOR CONSTRUCTION OF UNAUTHORIZED BASEMENT AFTER OCCUPATION PERMIT

SECTION '2-2'

LEGEND:

- APPROVED BUILDING WORKS
- SOIL
- SHEET PILE (TEMPORARY SHORING WORK)
- ON-GRADE SLAB
- BLINDING LAYER
- UNAUTHORISED STRUCTURE (STAGE 1)
- UNAUTHORISED STRUCTURE (STAGE 2)

STAGE 5:
BACKFILL SOIL UP TO GROUND LEVEL & REINSTATE ON-GRADE SLAB.