<table>
<thead>
<tr>
<th>DRAWING No.</th>
<th>DRAWING TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD/001D</td>
<td>DRAWING LIST OF SEB TYPICAL DETAILS</td>
</tr>
<tr>
<td>SD/002A</td>
<td>GENERAL NOTES</td>
</tr>
<tr>
<td>SD/003A</td>
<td>CRANKING OF BARS, STANDARD HOOKS AND BENDS</td>
</tr>
<tr>
<td>SD/004A</td>
<td>STEEL REINFORCEMENT ANCHORAGE AND LAP LENGTH REQUIREMENT</td>
</tr>
<tr>
<td>SD/005B</td>
<td>TYPICAL DETAIL OF SPACER BARS AND STIRRUPS AT BEAMS</td>
</tr>
<tr>
<td>SD/006B</td>
<td>TYPICAL DETAIL OF TORSION STIRRUPS AND COLUMN BINDERS</td>
</tr>
<tr>
<td>SD/007</td>
<td>TYPICAL WALL JUNCTION DETAILS</td>
</tr>
<tr>
<td>SD/008</td>
<td>TYPICAL DETAIL OF BRICK OR R.C. PARTITION WALL AND WALL BASE</td>
</tr>
<tr>
<td>SD/009</td>
<td>TYPICAL DETAIL OF R.C. STRUCTURAL WALL</td>
</tr>
<tr>
<td>SD/010</td>
<td>TYPICAL DETAIL OF TRIMMING BARS FOR WALL OPENING</td>
</tr>
<tr>
<td>SD/011</td>
<td>TYPICAL DETAIL OF TRIMMING BARS FOR PERMANENT SLAB OPENING</td>
</tr>
<tr>
<td>SD/012</td>
<td>TYPICAL DETAIL OF TRIMMING BARS FOR TEMPORARY SLAB OPENING</td>
</tr>
<tr>
<td>SD/013</td>
<td>TYPICAL DETAIL FOR TEMPORARY PIPE DUCT OPENING IN SLAB</td>
</tr>
<tr>
<td>SD/014</td>
<td>REQUIREMENT OF SPACER BLOCK, 'U' BARS AND STEEL CHAIRS FOR STRUCTURAL ELEMENTS</td>
</tr>
<tr>
<td>SD/015</td>
<td>CURTAILMENT OF LONGITUDINAL BARS IN BEAMS</td>
</tr>
<tr>
<td>SD/016</td>
<td>TYPICAL DETAIL OF BEAM AND BEAM 'L' JUNCTION</td>
</tr>
<tr>
<td>SD/017C</td>
<td>TYPICAL DETAIL OF COLUMNS</td>
</tr>
<tr>
<td>SD/018</td>
<td>TYPICAL DETAIL OF ROOF BEAM &amp; EXTERIOR COLUMN JUNCTION</td>
</tr>
<tr>
<td>SD/019B</td>
<td>TYPICAL DETAIL OF 100 THICK GROUND SLAB ON GRADE</td>
</tr>
<tr>
<td>SD/020B</td>
<td>TYPICAL DETAIL OF 150 THICK GROUND SLAB ON GRADE</td>
</tr>
<tr>
<td>SD/021B</td>
<td>TYPICAL DETAIL OF 200 THICK GROUND SLAB ON GRADE</td>
</tr>
<tr>
<td>SD/022A</td>
<td>TYPICAL DETAIL OF EXTERNAL DRIVEWAY AND CARPARK GROUND SLAB ON GRADE (1 OF 5)</td>
</tr>
<tr>
<td>SD/023A</td>
<td>TYPICAL DETAIL OF EXTERNAL DRIVEWAY AND CARPARK GROUND SLAB ON GRADE (2 OF 5)</td>
</tr>
<tr>
<td>SD/024A</td>
<td>TYPICAL DETAIL OF EXTERNAL DRIVEWAY AND CARPARK GROUND SLAB ON GRADE (3 OF 5)</td>
</tr>
<tr>
<td>SD/025A</td>
<td>TYPICAL DETAIL OF EXTERNAL DRIVEWAY AND CARPARK GROUND SLAB ON GRADE (4 OF 5)</td>
</tr>
<tr>
<td>SD/026B</td>
<td>TYPICAL DETAIL OF EXTERNAL DRIVEWAY AND CARPARK GROUND SLAB ON GRADE (5 OF 5)</td>
</tr>
</tbody>
</table>

**Checked:**

CSE/1 M.K. WONG  
DEC., 2014

**Approved:**

AD(SE) K.T. LEUNG  
DEC., 2014

**Drawing No.:** SD/001  
**Rev.:** D  
**Scale:** N.T.S.

**STRU. ENGG. BRANCH ARCH. SERVICES DEPT.**
GENERAL NOTES:

1. DRAWINGS SD/001 TO SD/026 (FIG. 1 TO 16 INCLUSIVE) INDICATE THE REQUIREMENT AND DETAILS GENERALLY ADOPTED IN R.C. WORKS. IF DIFFERENT DETAILS ARE GIVEN IN R.C. DRAWINGS ISSUED IN THE CONTRACT, THE DETAILS IN THE LATTER SHALL TAKE PRECEDENCE.

2. ABBREVIATIONS:
   a) GENERAL:
      DIA DIAMETER
      VERT VERTICAL
      HOR HORIZONTAL
      TYP TYPICAL
   b) RELATING TO REINFORCEMENT:
      AS AREA OF STEEL
      B1 BOTTOM LAYER OF BOTTOM REINFORCEMENT
      B2 SECOND LAYER OF BOTTOM REINFORCEMENT
      T1 TOP LAYER OF TOP REINFORCEMENT
      T2 SECOND LAYER OF TOP REINFORCEMENT
      EF BARS IN EACH FACE
      NF BARS IN NEAR FACE OF WALL
      FF BARS IN FAR FACE OF WALL
      BW BOTH WAYS
      LV LENGTH VARIES
      DS DOUBLE STIRRUPS
      TS TRIPLE STIRRUPS
      ALT PLACED ALTERNATELY
      STGD STAGGERED
      CAL COMPRESSION ANCHORAGE LENGTH
      CLL COMPRESSION LAP LENGTH
      TAL TENSION ANCHORAGE LENGTH
      TLL TENSION LAP LENGTH
      b BREADTH OF BEAM OR WALL OR COLUMN
      h DEPTH OF BEAM OR COLUMN OR WALL THICKNESS
      L SPAN OF BEAM OR SLAB
      ø DIAMETER

3. TYPE OF BEAM STIRRUPS AND COLUMN BINDERS ARE SHOWN ON TYPICAL DETAIL DRAWING Nos. SD/005 AND SD/006 RESPECTIVELY.

   e.g.
   T10-101(A),102(B)-200 DS

4. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

5. i) MILD STEEL BARS TO CS2 : 1995 OR PLAIN BARS TO CS2 : 2012 DENOTED BY R
   ii) HIGH YIELD BARS TO CS2 : 1995 OR RIBBED BARS TO CS2 : 2012 DENOTED BY T
90° BEND

STANDARD HOOK

<table>
<thead>
<tr>
<th>BAR SIZE (mm)</th>
<th>MINIMUM INTERNAL RADIUS (r) OF BEND (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REBARS TO CS2: 1995</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>16</td>
<td>48</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>25</td>
<td>100</td>
</tr>
<tr>
<td>32</td>
<td>128</td>
</tr>
<tr>
<td>40</td>
<td>160</td>
</tr>
</tbody>
</table>

TABLE 1  STANDARD HOOKS AND BENDS REQUIREMENT
(FOR BEAM STIRRUPS AND COLUMN BINDERS, SEE DRAWING Nos. SD/005 & SD/006)

FIG. 1  CRANKING OF BARS
<table>
<thead>
<tr>
<th>FOR REBARS TO CS2 : 1995</th>
<th>CONCRETE GRADE</th>
<th>SIZE OF BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>TENSION ANCHORAGE LENGTH (TAL) OR TENSION LAP LENGTH (TLL) OR COMPRESSION LAP LENGTH (C LL)</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>300</td>
</tr>
<tr>
<td>≥60</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td>COMPRESSION ANCHORAGE LENGTH (CAL)</td>
<td>30</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>300</td>
</tr>
<tr>
<td>≥60</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOR REBARS TO CS2 : 2012</th>
<th>CONCRETE GRADE</th>
<th>SIZE OF BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>TENSION ANCHORAGE LENGTH (TAL) OR TENSION LAP LENGTH (TLL) OR COMPRESSION LAP LENGTH (C LL)</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>350</td>
</tr>
<tr>
<td>≥60</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td>COMPRESSION ANCHORAGE LENGTH (CAL)</td>
<td>30</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>≥60</td>
<td>250</td>
<td>300</td>
</tr>
</tbody>
</table>

SIZE AND LENGTH ALL IN MILLIMETRES

NOTES:
1. FOR ANCHORAGE OR LAP BETWEEN BARS OF SAME BAR SIZE, USE ø = SIZE OF BARS.
2. FOR LAP BETWEEN BARS OF DIFFERENT BAR SIZE, USE ø = SIZE OF SMALLER BARS.

TABLE 2 ANCHORAGE & LAP LENGTH REQUIREMENT
FOR REBARS TO CS2 : 1995 / CS2 : 2012
NOTE: IN LIEU OF THE TYPES OF BEAM STIRRUPS SHOWN ON THE R.C. DRAWINGS, THE CONTRACTOR MAY PROPOSE FOR SO'S APPROVAL ALTERNATIVE TYPES OF BEAM STIRRUPS.

**SPACER BARS**

- **TYPE A**
  - \( \phi = 1500 \) c/c
  - \( \phi = \) MAIN BAR SIZE BUT 25 MIN.
  - \( \phi_1 = 10 \) BUT \( \geq 70 \) mm

- **TYPE B**
  - \( \phi_2 = 10 \) BUT \( \geq 70 \) mm

- **TYPE C**
  - \( \phi_3 = 10 \) BUT \( \geq 70 \) mm

- **TYPE D**
  - \( \phi_4 = 10 \) BUT \( \geq 70 \) mm

- **TYPE E**
  - \( \phi_5 = 10 \) BUT \( \geq 70 \) mm

- **TYPE F**
  - \( \phi_6 = 10 \) BUT \( \geq 70 \) mm

- **TYPE G**
  - \( \phi_7 = 10 \) BUT \( \geq 70 \) mm

- **TYPE H**
  - \( \phi_8 = 10 \) BUT \( \geq 70 \) mm

- **TYPE J**
  - \( \phi_9 = 10 \) BUT \( \geq 70 \) mm

- **TYPE M**
  - \( \phi_{10} = 10 \) BUT \( \geq 70 \) mm

**FIG. 1 BEAM STIRRUPS**

(\( a_1 \)) REFER TO TABLE 1 (SD/003)
(\( a_2 \)) REFER TO TABLE 3 (SD/006)

---

**Drawing Title:** TYPICAL DETAIL OF SPACER BARS AND STIRRUPS AT BEAMS

**Checked:** CSE/1 M.K. WONG  DEC., 2014

**Approved:** AD(SE) K.T. LEUNG  DEC., 2014

**Drawing No.:** SD/005

**Scale:** N.T.S.

---

**STRU. ENGG. BRANCH ARCH. SERVICES DEPT.**
FIG. 2a TORSION STIRRUPS

NOTE: 1. IN LIEU OF THE TYPES OF COLUMN BINDERS SHOWN ON THE R.C. DRAWINGS, THE CONTRACTOR MAY PROPOSE FOR SO'S APPROVAL ALTERNATIVE TYPES OF COLUMN BINDERS.

2. TYPE F CROSSTIES ENGAGING THE SAME LONGITUDINAL BAR SHALL HAVE THEIR 90-DEG HOOKS ALTERNATIVELY FIXED ON OPPOSITE SIDES OF COLUMN.

FIG. 2b TYPICAL DETAIL OF COLUMN BINDERS

FOR COLUMN BINDERS: ( ) REFER TO TABLE 1 (SD/003)
T = SPACING OF BARS

WALL END

S = SPACING OF BARS

TEE JUNCTION

TWO BARS SHOULD BE PLACED WITHIN LOOP
FOR WALL THICKNESS \( \leq 200\)mm,
FOUR BARS SHOULD BE INCLUDED AS SHOWN
FOR WALL THICKNESS OVER 200mm.

"I" JUNCTION

FIG. 3  TYPICAL WALL JUNCTION DETAILS (PLAN)
### WALL THICKNESS, h (mm)

<table>
<thead>
<tr>
<th>WALL THICKNESS, h (mm)</th>
<th>VERT. REINF'T</th>
<th>NO FRP REQUIREMENT</th>
<th>COMPARTMENT WALL WITH FIRE RESISTING PERIOD (FRP) REQUIREMENTS</th>
<th>HORI. REINF'T</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 ≤ h &lt; 120</td>
<td>T10-250</td>
<td>T12-150</td>
<td>T16-200</td>
<td>T10-250</td>
</tr>
<tr>
<td>120 ≤ h &lt; 160</td>
<td>T10-300 EF</td>
<td>T10-300 EF</td>
<td>T12-220 EF</td>
<td>T10-300 EF</td>
</tr>
<tr>
<td>160 ≤ h &lt; 180</td>
<td>T10-300 EF</td>
<td>T10-300 EF</td>
<td>T10-300 EF</td>
<td>T10-250 EF</td>
</tr>
<tr>
<td>180 ≤ h &lt; 200</td>
<td>T10-250 EF</td>
<td>T10-250 EF</td>
<td>T10-250 EF</td>
<td>T10-250 EF</td>
</tr>
<tr>
<td>200 ≤ h &lt; 240</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
</tr>
<tr>
<td>240 ≤ h ≤ 250</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
</tr>
</tbody>
</table>

Indicates that wall thickness is not preferred as 1% reinforcement of the min. wall thickness is needed for the FRP requirement. Wall thickness should be increased in this case if possible so that normal reinforcement ratio could be used.

### TABLE 3 BAR SIZES AND SPACING FOR NON-LOADBEARING PARTITION WALL

- **NOTES:**
  1. Partition walls with nominal reinforcement are not considered as loadbearing structural members and hence reinforcement will not be measured separately, but deemed included in the rates as for other architectural features.
  2. Slab thickness & reinforcement applicable to brick partition wall bases.

**FIG. 4 TYPICAL DETAIL OF BRICK OR R.C. PARTITION WALL & WALL BASE**

**drawing title**
TYPICAL DETAIL OF BRICK OR R.C. PARTITION WALL & WALL BASE

**checked**
CSE/1 C.T. WONG

**date**
JULY, 2008

**drawing no.**
SD/008

**scale**
N.T.S.

**approved**
AD(SE) W.W. LI

**date**
JULY, 2008

**STRU. ENGG. BRANCH**
ARCH. SERVICES DEPT.
<table>
<thead>
<tr>
<th>WALL THICKNESS, h</th>
<th>VERT. REINF'T</th>
<th>HORI. REINF'T</th>
</tr>
</thead>
<tbody>
<tr>
<td>(mm)</td>
<td>NO FRP</td>
<td>FIRE RESISTING</td>
</tr>
<tr>
<td></td>
<td>REQUIREMENT</td>
<td>1 HOUR</td>
</tr>
<tr>
<td>150 ≤ h &lt; 160</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
</tr>
<tr>
<td>160 ≤ h &lt; 180</td>
<td>T10-200 EF</td>
<td>T10-200 EF</td>
</tr>
<tr>
<td>180 ≤ h &lt; 200</td>
<td>T12-250 EF</td>
<td>T12-250 EF</td>
</tr>
<tr>
<td>200 ≤ h &lt; 240</td>
<td>T12-200 EF</td>
<td>T12-200 EF</td>
</tr>
<tr>
<td>240 ≤ h ≤ 250</td>
<td>T12-170 EF</td>
<td>T12-170 EF</td>
</tr>
</tbody>
</table>

Indicates that wall thickness is not preferred as 1% reinforcement of the wall thickness is needed for the FRP requirement. Wall thickness should be increased in this case if possible so that normal reinforcement ratio could be used.

**TABLE 4** BAR SIZES AND SPACING FOR R.C. STRUCTURAL WALL

(See also detail drawings which shall take precedence over this table.)

For size and reinforcement of wall refer to Table 4 or as specified on the detail drawings.

**FIG. 5** TYPICAL DETAIL OF R.C. STRUCTURAL WALL

---

**Drawing Title:** TYPICAL DETAIL OF R.C. STRUCTURAL WALL

**Checked:** C.T. WONG

**Date:** JULY, 2008

**Drawing No.:** SD/009

**Scale:** N.T.S.

**Approved:** W.W. LI

**Date:** JULY, 2008

**STRU. ENGG. BRANCH ARCH. SERVICES DEPT.**
1. TABLE 5 AND FIG. 6 ARE APPLICABLE FOR NON-LOADBEARING WALLS WHERE OPENING WIDTH (L1) ≤ 2m.

<table>
<thead>
<tr>
<th>WALL THICKNESS, h (mm)</th>
<th>TRIMMING BARS TO OPENING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L1 &lt; 1m</td>
</tr>
<tr>
<td>h &lt; 120</td>
<td>1T12 (SINGLE LAYER)</td>
</tr>
<tr>
<td>120 ≤ h &lt; 200</td>
<td>1T12 EF</td>
</tr>
<tr>
<td>200 ≤ h ≤ 250</td>
<td>1T16 EF</td>
</tr>
</tbody>
</table>

TABLE 5 TRIMMING BARS FOR WALL OPENING AT NON-LOADBEARING WALLS

2. FOR NON-LOADBEARING WALLS WHERE OPENING WIDTH (L1) > 2m, OR FOR ALL SIZE OF OPENING IN STRUCTURAL WALLS, THE LOCATION AND SIZE OF THE OPENING SHALL BE APPROVED BY THE PROJECT STRUCTURAL ENGINEER. DETAILS AND AMOUNT OF TRIMMING BARS SHALL BE SPECIFIED BY THE PROJECT STRUCTURAL ENGINEER. REFER ALSO TO WALL DETAIL DRAWINGS.

3. UNDER NORMAL SITUATION, IF OPENING WIDTH (L1) < BAR SPACING, NO TRIMMING BAR IS REQUIRED.

FIG. 6 TYPICAL DETAIL OF TRIMMING BARS FOR WALL OPENING
NOTES:

1. FIG. 7 IS APPLICABLE FOR OPENINGS THAT:
   a. WITH SLAB THICKNESS \( \leq 200\text{mm} \)
   b. HAVE OPENING SIZE NOT MORE THAN 600mm OR 0.25 x SPAN LENGTH OF SLAB
   c. DETAIL NOT APPLICABLE TO OPENINGS IN CANTILEVER SLABS

2. IF SIZE OF OPENING < 200mm, DISPLACE BARS TO SIDES OF OPENING, NO EXTRA TRIMMING BARS REQUIRED.

3. FOR SIZE OF OPENING BETWEEN 200mm & 600mm, ADD TRIMMING BARS AS STATED IN THE FIGURE, OR THE AREA OF TRIMMING BAR ON ONE SIDE EQUAL TO HALF THE AREA OF THE AFFECTED BARS IN THE CORRESPONDING DIRECTION CUT BY THE OPENING, WHICHEVER IS THE GREATER.

4. FOR LARGER SIZE OF SLAB OPENING, DETAILS OF STEEL ARRANGEMENT SHALL BE SPECIFIED BY THE PROJECT STRUCTURAL ENGINEER. REFER ALSO TO SLAB DETAIL DRAWINGS.

FIG. 7 TYPICAL DETAIL OF TRIMMING BARS FOR PERMANENT SLAB OPENING
SLAB REINFORCEMENT

TRIMMING BARS TO BE SPECIFIED BY THE PROJECT STRUCTURAL ENGINEER IF NEEDED

PLAN

TRIMMING BARS TO BE SPECIFIED BY THE PROJECT STRUCTURAL ENGINEER IF NEEDED

FORMWORK TO BE SLOTTED FOR PASSAGE OF BARS

SLAB REINFORCEMENT

SEC. A – A

NOTES:

THE FIGURE IS APPLICABLE TO TEMPORARY SLAB OPENING THE SIZE AND LOCATION OF WHICH SHALL BE APPROVED BY THE PROJECT STRUCTURAL ENGINEER BEFORE CONSTRUCTION.

FIG. 8 TYPICAL DETAIL OF TRIMMING BARS FOR TEMPORARY SLAB OPENING
PIPE DUCT OPENINGS TO BE CONCRETED AFTER INSTALLATION OF PIPES

SLAB REINF'T.

DIA & SPACING SAME AS SLAB REINF'T.

SLAB REINF'T.

DIA & SPACING SAME AS SLAB REINF'T.

WALL

WIDTH OF OPENING < 1500mm

TRIMMING BARS TO BE SPECIFIED BY THE PROJECT STRUCTURAL ENGINEER IF NEEDED.

NOTES:

THE FIGURE IS APPLICABLE TO TEMPORARY SLAB OPENING THE SIZE AND LOCATION OF WHICH SHALL BE APPROVED BY THE PROJECT STRUCTURAL ENGINEER BEFORE CONSTRUCTION.

FIG. 9 TYPICAL DETAIL FOR LARGER TEMPORARY PIPE DUCT OPENINGS

CSE/1 C.T. WONG

JULY, 2008

AD(SE) W.W. LI

JULY, 2008

STRU. ENGG. BRANCH
ARCH. SERVICES DEPT.
T12 STEEL CHAIR @1500 c/c MAX.

SECTION OF SLAB

COVER SPACERS @600 c/c MAX.

FORMWORK

REINFORCEMENT OF SLAB
SIZE OF BAR = Ø

SECTION OF BEAM

NOTES:
The diameter and spacing of chairs are given as minimum requirement, the contractor has to put in additional chairs where necessary to support the reinforcement from sagging or displacement.

FIG. 10 REQUIREMENT OF SPACER BLOCK, "U" BARS AND STEEL CHAIRS FOR STRUCTURAL ELEMENTS
1. FOR ARRANGEMENT OF REINFORCEMENT IN EXTERIOR COLUMN AND BEAM JUNCTION AT ROOF LEVEL REFER TO DRC NO. SD/018.

FIG. 11 CURTAILMENT OF LONGITUDINAL BARS IN BEAM
NOTES:

1. FOR ANTICRACK BARS AT THE CORNER OF L JUNCTION USE T12 – 250 c/c (MIN.) OR IF BEAM DEPTH GREATER THAN 750mm, USE ANTICRACK BARS AS SPECIFIED ON BEAM DETAIL DRAWING.

FIG. 12 TYPICAL DETAIL OF BEAM AND BEAM ‘L’ JUNCTION
NOTES:
1. FOR ARRANGEMENT OF BEAM REINFORCEMENT IN EXTERIOR COLUMN AND BEAM JUNCTION AT ROOF LEVEL REFER TO DRAWING NO. SD/018.
2. "H": RESPECTIVE FLOOR HEIGHT.
3. IN LIEU OF THE BINDERS, THE CONTRACTOR MAY SUBMIT FOR SO'S APPROVAL AN ALTERNATIVE METHOD OF FIXING COLUMN STARTER BARS IN POSITION.

**FIG. 13 TYPICAL DETAIL OF COLUMNS**

<table>
<thead>
<tr>
<th>COLUMN BASE</th>
<th>Y</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL</td>
<td>0</td>
<td>TAL</td>
</tr>
<tr>
<td>FIXED</td>
<td>(H/4 - LAP LENGTH/2) ≥ (TAL + d/2) AND (TAL + 8 BAR DIA)</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE**

<table>
<thead>
<tr>
<th>BAR DIA (mm)</th>
<th>Min. BINDER FOR EACH BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>T10 - 150</td>
</tr>
<tr>
<td>25</td>
<td>T10 - 135</td>
</tr>
<tr>
<td>30</td>
<td>T12 - 150</td>
</tr>
<tr>
<td>40</td>
<td>T12 - 135</td>
</tr>
</tbody>
</table>
FIG. 14.1 ROOF BEAM & EXTERIOR COLUMN JUNCTION
- TYPICAL DETAIL (I)

FIG. 14.2 ROOF BEAM & EXTERIOR COLUMN JUNCTION
- TYPICAL DETAIL (II)
1. The in-situ field density of the soil beneath hardcore shall not be less than 90% of the maximum dry density.

2. Ground slabs to be cast in alternate panels not greater than 6m x 6m. Every third joint shall be an expansion joint, the remainder being contraction joints. (Contractor is required to submit layout of joints for PSE's approval prior to construction of the ground slabs on grade.)

3. Hardcore shall be of suitable material complying with clause 3.01(v) of the general specification.

4. If grade 200 recycled rockfill is specified, particular specification for use of grade 200 recycled rockfill for hardcore layer shall be followed.

Detailed description of the diagram:
- Steel fabric reinforcement, at top (0.4x4.3 A185 3.22 kg/m², where required).
- One layer of 65-80 μm polythene sheet with 150mm lap min.
- Two coats of bituminous paint.
- Bond breaker.
- Approved polyurethane foam joint filler.
- 20 x 12 approved polysulphide joint sealant.

Cover:
- 150mm min.
- 200mm min.
- Grade 200 recycled rockfill as specified.

NOTES:
1. The insitu field density of the soil beneath hardcore shall not be less than 90% of the maximum dry density.

2. Ground slabs to be cast in alternate panels not greater than 6m x 6m. Every third joint shall be an expansion joint, the remainder being contraction joints. (Contractor is required to submit layout of joints for PSE's approval prior to construction of the ground slabs on grade)

3. Hardcore shall be of suitable material complying with clause 3.01(vi) of the general specification.

4. If grade 200 recycled rockfill is specified, particular specification for use of grade 200 recycled rockfill for hardcore layer shall be followed.

Fig. 15.2 Typical detail of 150 thick ground slab on grade
STEEL FABRIC REINFORCEMENT (BS4483 A193 3.02 kg/sq. m) WITH 300mm LAP MIN. WHERE REQUIRED.

FOR DOWEL BARS REFER SEPARATE DRAWINGS (INTERNAL R.C. WALL OR BRICKWALL)

ONE LAYER OF 65-80 μm POLYTHENE SHEET WITH 150mm LAP MIN.

600 (MIN.)

TWO COATS OF BITUMINOUS PAINT

600 (MIN.)

20 x 12 APPROVED POLYSULPHIDE / POLYURETHANE JOINT SEALANT

20 APPROVED POLYETHYLENE FOAM JOINT FILLER

150mm MIN. HARDCORE OR 200mm MIN. GRADE 200 RECYCLED ROCKFILL AS SPECIFIED

CONTRACTION JOINT

EXPANSION JOINT

NOTES:

1. THE INSITU FIELD DENSITY OF THE SOIL BENEATH HARDCORE SHALL NOT BE LESS THAN 90% OF THE MAXIMUM DRY DENSITY.

2. GROUND SLABS TO BE CAST IN ALTERNATE PANELS NOT GREATER THAN 6m x 6m. EVERY THIRD JOINT SHALL BE AN EXPANSION JOINT, THE REMAINDER BEING CONTRACTION JOINTS. (CONTRACTOR IS REQUIRED TO SUBMIT LAYOUT OF JOINTS FOR PSE’S APPROVAL PRIOR TO CONSTRUCTION OF THE GROUND SLABS ON GRADE)

3. HARDCORE SHALL BE OF SUITABLE MATERIAL COMPLYING WITH CLAUSE 3.01(vi) OF THE GENERAL SPECIFICATION.

4. IF GRADE 200 RECYCLED ROCKFILL IS SPECIFIED, PARTICULAR SPECIFICATION FOR USE OF GRADE 200 RECYCLED ROCKFILL FOR HARDCORE LAYER SHALL BE FOLLOWED.

FIG. 15.3 TYPICAL DETAIL OF 200 THICK GROUND SLAB ON GRADE
FIG. 16.1 TYPICAL PART PLAN OF REINFORCED CONCRETE EXTERNAL DRIVEWAY AND CAR PARKING AREAS

NOTES:
1. DRAWINGS No. SD/022 TO SD/026 ARE NOT APPLICABLE TO WORKS THAT WILL BE HANDED OVER TO HIGHWAYS DEPARTMENT.
2. CONCRETE TO BE GRADE 40/20 MIN.
3. LONGITUDINAL JOINTS SHOULD BE PROVIDED SO THAT SLABS ARE NOT WIDER THAN THE MAX. WIDTH IN TABLE 7.
4. EVERY THIRD JOINT IN THE TRANSVERSE DIRECTION SHOULD BE AN EXPANSION JOINT, THE REMAINDER BEING CONTRACTION JOINTS.
5. CONTRACTOR IS REQUIRED TO SUBMIT LAYOUT OF JOINTS FOR PSE'S APPROVAL PRIOR TO CONSTRUCTION OF THE EXTERNAL SLABS ON GRADE.
6. GRANULAR SUB-BASE MATERIAL REFER TO TABLE 8 ON DRG No. SD/026.

### TABLE 7

<table>
<thead>
<tr>
<th>MAX. SLAB WIDTH BETWEEN LONGITUDINAL JOINTS, 'B'</th>
<th>STEEL MESH TO BS 4483</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5 m</td>
<td>C503 (4.34 kg/sq. m)</td>
</tr>
<tr>
<td>6.0 m</td>
<td>B503 (5.93 kg/sq. m)</td>
</tr>
</tbody>
</table>
FIG. 16.2 SEC. A–A DETAIL OF CONTRACTION JOINT
IN EXTERNAL DRIVEWAY AND CAR PARKING AREAS

NOTES:

1. All the filling materials for road formation shall be compacted in compliance with Clause 3.19(vi) of the general specification; or, as approved by the SO, Clause 3.20 of the general specification.

2. Immediately prior to laying the sub-base, carry out preparation and surface treatment of the road formation in accordance with Clause 3.26 of the general specification.

3. Unless otherwise specified, sub-base shall be compacted in accordance with Clause 3.20 of the general specification or as approved by the SO.
FIG. 16.3 SEC. B-B DETAIL OF LONGITUDINAL JOINT IN EXTERNAL DRIVEWAY AND CAR PARKING AREAS

NOTES:

1. ALL THE FILLING MATERIALS FOR ROAD FORMATION SHALL BE COMPACTED IN COMPLIANCE WITH CLAUSE 3.19(vi) OF THE GENERAL SPECIFICATION; OR, AS APPROVED BY THE SO, CLAUSE 3.20 OF THE GENERAL SPECIFICATION.

2. IMMEDIATELY PRIOR TO LAYING THE SUB-BASE, CARRY OUT PREPARATION AND SURFACE TREATMENT OF THE ROAD FORMATION IN ACCORDANCE WITH CLAUSE 3.26 OF THE GENERAL SPECIFICATION.

3. UNLESS OTHERWISE SPECIFIED, SUB-BASE SHALL BE COMPACTED IN ACCORDANCE WITH CLAUSE 3.20 OF THE GENERAL SPECIFICATION OR AS APPROVED BY THE SO.
FIG. 16.4 SEC. C–C DETAIL OF EXPANSION JOINT
IN EXTERNAL DRIVEWAY AND CAR PARKING AREAS

NOTES:

1. ALL THE FILLING MATERIALS FOR ROAD FORMATION SHALL BE COMPACTED IN COMPLIANCE WITH CLAUSE 3.19(vi) OF THE GENERAL SPECIFICATION; OR, AS APPROVED BY THE SO, CLAUSE 3.20 OF THE GENERAL SPECIFICATION.

2. IMMEDIATELY PRIOR TO LAYING THE SUB-BASE, CARRY OUT PREPARATION AND SURFACE TREATMENT OF THE ROAD FORMATION IN ACCORDANCE WITH CLAUSE 3.26 OF THE GENERAL SPECIFICATION.

3. UNLESS OTHERWISE SPECIFIED, SUB-BASE SHALL BE COMPACTED IN ACCORDANCE WITH CLAUSE 3.20 OF THE GENERAL SPECIFICATION OR AS APPROVED BY THE SO.
RANGE OF GRADING

<table>
<thead>
<tr>
<th>B. S. SIEVE SIZE</th>
<th>PERCENTAGE BY WEIGHT PASSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 mm</td>
<td>100</td>
</tr>
<tr>
<td>37.5 mm</td>
<td>85 ~ 100</td>
</tr>
<tr>
<td>20 mm</td>
<td>60 ~ 85</td>
</tr>
<tr>
<td>10 mm</td>
<td>40 ~ 70</td>
</tr>
<tr>
<td>5 mm</td>
<td>25 ~ 45</td>
</tr>
<tr>
<td>600 μm</td>
<td>8 ~ 22</td>
</tr>
<tr>
<td>75 μm</td>
<td>0 ~ 10</td>
</tr>
</tbody>
</table>


b. THE MATERIAL PASSING THE B.S. SIEVE 425 μm WHEN TESTED IN ACCORDANCE WITH GEOSPEC 3, TEST METHOD 6.1 SHALL BE NON-PLASTIC.

c. THE MATERIAL SHALL BE LAID AND COMPACTED TO THE REQUIREMENTS OF CLAUSE 3.20 OF THE GENERAL SPECIFICATION.

TABLE 8 GRANULAR SUB-BASE MATERIAL