UNHCR PAKISTAN

GPS KESU DROSH, CHITRAL

CONSTRUCTION DRAWINGS

FEB., 2022

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LIMITED

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FEB., 2022

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LIMITED.
NESPAK HOUSE, SECTOR G-5/2, ISLAMABAD.
CONSTRUCTION OF GPS KESU DROSH, CHITRAL

STRUCTURAL LAYOUTS

GENERAL NOTES (SHEET 1 OF 2)

A. GENERAL

1. All concrete shall conform to the requirements of RILEM 1971 (D67) Pakistan of West Pakistan, using reference specifications for 28-days strength.

2. All concrete shall be tested in accordance with relevant American Standard (ACI 318-17) specifications and the minimum cube/cylinder compression strength of concrete at 28 days shall be as follows: Testing of Class 12F & 18F shall be performed if so dictated by the Engineer.

3. All reinforcing steel except 1.5/8 bars shall be deformed. Not hot rolled (buillet) bars conforming to ASTM A 615 Grade 40 shall not be used. Hot rolled deformed bars conforming to ASTM A 615 Grade 60 shall not be less than 60,000 psi nor more than 78,000 psi and ratio of ultimate strength to yield strength shall be not less than 1.25.

4. 1.5/8 bars shall be mild steel deformed bars conforming to ASTM A 307 Bars. Hot rolled deformed bars shall not be less than 40,000 psi nor more than 60,000 psi and ratio of ultimate strength to yield strength shall be not less than 2.5.

5. Grade-50 steel bars are represented using letters symbol "Z" and Grade-60 steel bars are represented using letters symbol "K", whereas the number indicates the bar diameter (inches) as under:

<table>
<thead>
<tr>
<th>BAR NUMBER</th>
<th>DIAMETER (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3/8</td>
</tr>
<tr>
<td>4</td>
<td>5/8</td>
</tr>
<tr>
<td>5</td>
<td>1/2</td>
</tr>
<tr>
<td>6</td>
<td>5/8</td>
</tr>
<tr>
<td>7</td>
<td>3/4</td>
</tr>
</tbody>
</table>

B. FOUNDATION AND EARTHWORK

1. The contractor shall make the available excavation and compaction test to determine the suitability of the soil for the purpose.

2. The design shall be based on the soil testing and compaction data obtained in site.

3. The contractor shall prepare and submit the excavation and compaction test data for review and approval before proceeding with the work. The contractor shall be solely responsible for the accuracy of the data submitted and the contractor's approval shall not relieve the contractor from his responsibility.

C. REINFORCED / PLAIN CONCRETE

1. All reinforcing bars shall be deformed. Not hot rolled (bullet) bars conforming to ASTM A 615 Grade 40 shall not be used. Hot rolled deformed bars conforming to ASTM A 615 Grade 60 shall not be less than 60,000 psi nor more than 78,000 psi and ratio of ultimate strength to yield strength shall be not less than 1.25.

2. All reinforcing steel except 1.5/8 bars shall be deformed. Not hot rolled (bullet) bars conforming to ASTM A 615 Grade 40 shall not be used. Hot rolled deformed bars conforming to ASTM A 615 Grade 60 shall not be less than 60,000 psi nor more than 78,000 psi and ratio of ultimate strength to yield strength shall be not less than 1.25.
K. ABBREVIATIONS & SYMBOLS

- AT THE RATE OF
- B, BOTTOM
- WITHOUT
- $a/b$: CENTRE TO CENTRE
- C/CL: CLEAR
- D, DIAMETER
- EF: EACH FACE
- EJ, EXPANSION JOINT
- EL, STRUCTURAL ELEVATION
- ES, EQUAL
- FF: FAB. FACE
- FEL, FINISHED FLOOR LEVEL
- FGL, FINISHED GROUND LEVEL
- GS, SLAB ON GRADE
- H, HORIZONTAL
- IF, IN FRAME
- IN, EXISTING/NATURAL SURFACE LEVEL
- NSP, NOT SHOWN ON PLAN
- NT, NOT TO SCALE
- SDP, SURVEY OF PAKISTAN
- ST, STIRRUPS
- T, TOP
- TF, TYPICAL
- UNO, UNLESS NOTED OTHERWISE
- V, VERTICAL
- $\leq$: GREATER THAN OR EQUAL TO
- $\geq$: LESS THAN OR EQUAL TO
- $\varnothing$: DIAMETER IN INCHES UNO
- CBE, CENTRE LINE
- G, G-AZ
- CH, SHEEL

REINFORCEMENT DETAIL AT OPENING IN SLABS & WALLS (TYP)

REINFORCEMENT AROUND SLEEVE IN SLABS & WALLS (TYP)

NOTE:
- ENGRAVED TEXT IS TO BE MANDATORY AND IS TO BE USED AS REFERENCE IN DRAWING.
- ALL DRAWINGS ARE TO BE SHOWN TO SCALE.
- ALL DIMENSIONS ARE TO BE SHOWN TO NEAREST $\frac{1}{8}$.
FOOTING SCHEDULE

| FOOTING MARK | SHORT SIZE (A) | LONG SIZE (B) | THICKNESS (C) | REINFORCEMENT
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F-1</td>
<td>4'-0&quot;</td>
<td>4'-0&quot;</td>
<td>18&quot;</td>
<td>#4-6&quot; #4-6&quot;</td>
</tr>
<tr>
<td>F-2</td>
<td>5'-0&quot;</td>
<td>5'-0&quot;</td>
<td>18&quot;</td>
<td>#4-6&quot; #4-6&quot;</td>
</tr>
<tr>
<td>F-3</td>
<td>5'-0&quot;</td>
<td>5'-0&quot;</td>
<td>18&quot;</td>
<td>#4-6&quot; #4-6&quot;</td>
</tr>
<tr>
<td>F-4</td>
<td>6'-0&quot;</td>
<td>6'-0&quot;</td>
<td>18&quot;</td>
<td>#4-5&quot; #4-5&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G01 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN "FT" SYSTEM, EXCEPT NOTED OTHERWISE.
4. FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS OF GEOTECHNICAL INVESTIGATION REPORT.
5. ALL ISOLATED FOOTING SHALL BE PLACED CONCENTRIC WITH THE COLUMNS UNLESS NOTED OTHERWISE.
FRAMING PLAN AT EL +0'-0"

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G04 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN FPS SYSTEM, EXCEPT NOTED OTHERWISE.
4. ALL EXTERNAL PUNTH BEAMS ARE 10"X24" EXCEPT NOTED OTHERWISE.
5. ALL INTERNAL PUNTH BEAMS ARE 10"X18" EXCEPT NOTED OTHERWISE.

SECTION 1-1

SECTION 2-2

FOR REINF. REFER BEAM SCHEDULE

FOR REINF. REFER BEAM SCHEDULE
CONSTRUCTION OF GPS KESU DROSH, CHITRAL
STRUCTURAL LAYOUTS
FRAMING PLAN AT EL+11'-6"

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G001 & 04G002.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN "FT" SYSTEM EXCEPT NOTED OTHERWISE.
4. ALL FLOOR BEAMS ARE 10"X24" EXCEPT NOTED OTHERWISE.
5. ALL GLASS ARE 6"-TH EXCEPT NOTED OTHERWISE.

SECTION 1-1

TYP SECTION OF EXTERNAL FLOOR BEAMS

FOR BEAM REFER BEAM SCHEDULE

UNHCR PAKISTAN
CONSTRUCTION OF GPS KESU DROSH, CHITRAL
STRUCTURAL LAYOUTS
FRAMING PLAN AT EL+11'-6"
CONSTRUCTION OF GPS KESU DROSH, CHITRAL
STRUCTURAL LAYOUTS
SLAB REINFORCEMENT PLAN AT EL.+11'-6"

SLAB REINFORCEMENT PLAN AT EL.+11'-6"

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/C23/C/04G01 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT
   PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'MM' SYSTEM, EXCEPT NOTED OTHERWISE.
4. ALL FLOOR BEAMS ARE 10"x24" EXCEPT NOTED OTHERWISE.
5. ALL SLABS ARE 6"-TH, EXCEPT NOTED OTHERWISE.
6. ALL BINDER BARS SHALL BE #3-12" c/e.

SLAB REINFORCEMENT SCHEDULE

<table>
<thead>
<tr>
<th>SLAB MARKS</th>
<th>SLAB THICKNESS</th>
<th>BOTTOM REINFORCEMENT</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>SHORT BOTTOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LONG BOTTOM</td>
</tr>
<tr>
<td>F1-1</td>
<td>6&quot;</td>
<td>ø3=4&quot;</td>
</tr>
<tr>
<td>F1-2</td>
<td>6&quot;</td>
<td>ø3=5&quot;</td>
</tr>
<tr>
<td>F1-3</td>
<td>6&quot;</td>
<td>ø3=5&quot;</td>
</tr>
</tbody>
</table>
FRAMING PLAN AT EL+23'-0"
& BASE PLATE LAYOUT PLAN

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G01 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN ‘PIS’ SYSTEM EXCEPT NOTED OTHERWISE.
4. ALL ROOF BEAMS ARE 10"X24" EXCEPT NOTED OTHERWISE.
### Elevation Table

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<tbody>
<tr>
<td>From EL+11'-6&quot;</td>
<td>8-#5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To EL+23'-0&quot;</td>
<td>12-#5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From EL(±)0'-0&quot;</td>
<td>8-#5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To EL+11'-6&quot;</td>
<td>12-#5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Top of Foundation</td>
<td>8-#5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To EL(±)0'-0&quot;</td>
<td>12-#5</td>
<td></td>
<td></td>
</tr>
</tbody>
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<table>
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<th>T1</th>
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<tbody>
<tr>
<td>7-2x3-3&quot;</td>
<td>7-3x3-3&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2x3-4&quot;</td>
<td>3x3-4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2x3-3&quot;</td>
<td>3x3-3&quot;</td>
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</table>

**Remarks**

- TYPICAL COLUMN ELEVATION

**NOTES**

1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G01 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN ‘IPS’ SYSTEM, EXCEPT NOTED OTHERWISE.
4. FOR FINAL COLUMN ELEVATION, SEE RESPECTIVE DRAWING PLANS.
TRUSS BOTTOM CHORD LAYOUT PLAN

MATERIAL SPECIFICATIONS OF STEEL WORKS

1. ALL FABRICATION, ERECTION AND QUALITY CONTROL IS TO BE DONE IN ACCORDANCE WITH THE LATEST ASTM SPECIFICATIONS.

2. STRUCTURAL STEEL SHALL BE ASTM A-36 STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A-36 OR EQUIVALENT.

3. ALL WELDING SHALL BE FILLET WELDING CONFORMING TO THE REQUIREMENTS OF AMERICAN WELDING SOCIETY, AWS, SPECIFICATIONS. THE WELD STRENGTH SHALL BE OF GRADE E-70 HAVING YIELD STRENGTH AT LEAST 70,000 PSI.

4. ALL BOLTS SHALL BE MECHANICAL ANCHORS CONFORMING TO AEC STANDARD.

5. MINIMUM EDGE DISTANCE FROM THE CENTER OF BOLT = 2" UNLESS OTHERWISE SPECIFIED.

6. STANDARD HOLE DIA. = BOLT DIA. + 1/16".

7. ALL STEEL SHALL BE GIVEN ONE SHOP COAT OF RED LEAD OXIDE PRIMER AND FIELD TOUCHUP EXCEPT FOR SURFACES TO BE EMBEDDED IN CONCRETE OR CONTACT SURFACES OF FRICTION BOLTED CONNECTIONS.

NOTES

1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G11 & 04G22.

2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.

3. ALL UNITS ARE IN 'FPS' SYSTEM, EXCEPT NOTED OTHERWISE.

UNHCR PAKISTAN
CONSTRUCTION OF GPS KESU DROSH, CHITRAL
STRUCTURAL LAYOUTS
TRUSS BOTTOM CHORD PLAN

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LTD. ISLAMABAD

DRAWING NO. 4199/323/C/04G11

DATE: FEB., 2022
TOP CHORD/PURLIN/SAG ROD LAYOUT PLAN

DETAIL "A"
3/4" DIAM SAG ROD WITH THREADED ENDS AND BOLTED WITH PURLINS USING NUTS AND WASHER ARRANGEMENT

DETAIL "B"
TOP CHORD L 3'x3'x3/4" WELDED WITH #7 WELD ALL AROUND TO TRUSS TOP CHORD

SECTION X-X

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G01 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN "FPS" SYSTEM, EXCEPT NOTED OTHERWISE.

MEMBER MARK | MEMBER SIZE
---|---
1 | L 3"x3"x3/4"
2 | L 23"x23"x1/4"
PURLIN | C 5/6"x7/"SAG ROD | 3/4" DIAM BARS
ELEVATION OF TRUSS T-1

ELEVATION OF TRUSS J-1

DETAIL 'A'

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G01 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'FPS' SYSTEM, EXCEPT NOTED OTHERWISE.
CONSTRUCTION OF GPS KESU DROSH, CHITRAL
STRUCTURAL LAYOUTS
ELEVATION OF TRUSS T-2 & J-2

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04G01 & 04G02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN "FPS" SYSTEM, EXCEPT NOTED OTHERWISE.

GRID ELEVATION OF TRUSS T-2 & J-2

TYPICAL CONNECTION DETAIL OF CGI SHEET
AND PURLINS AT CROWN LOCATION
FRAMING PLAN AT EL +9'-0" & BASE PLATE LAYOUT PLAN

SECTION A-A

SECTION B-B

NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/231/R/02001 & 02002.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN FPS SYSTEM, EXCEPT NOTED OTHERWISE.
4. ALL ROOF BEAMS ARE 10"x24" EXCEPT NOTED OTHERWISE.

UNINCR PAKISTAN
CONSTRUCTION OF GBS KISU DROSH, CENTRAL
STRUCTURAL LAYOUTS
FRAMING PLAN AT EL +9'-0" & BASE PLATE LAYOUT PLAN & DETAILS
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LTD. LAMBHAD
NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/02/2201 & 02/2202.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'FPS' SYSTEM, EXCEPT NOTED OTHERWISE.
ELEVATION OF TRUSS T-1

PURLIN C5x6.7

MATERIAL SPECIFICATIONS OF STEEL WORKS
1. ALL FABRICATION, ERECTION AND QUALITY CONTROL IS TO BE DONE IN ACCORDANCE WITH THE LATEST ASTM SPECIFICATIONS.
2. STRUCTURAL STEEL SHALL BE ASTM A-36 STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A-36 OR EQUIVALENT.
3. ALL WELDING SHALL BE WELD WELDING CONFORMING TO THE REQUIREMENTS OF AMERICAN WELDING SOCIETY AWS, SPECIFICATIONS. THE WELD STRENGTH SHALL BE OF GRADE E-70 HAVING YIELD STRENGTH AT LEAST 70,000 PSI.
4. ALL BOLTS SHALL BE MECHANICAL ANCHORS CONFORMING TO AISC STANDARD.
5. MINIMUM EDGE DISTANCE FROM THE CENTER OF BOLT = 2" UNLESS OTHERWISE SPECIFIED.
6. STANDARD HOLE Dia. = BOLT Dia. + 1/16".
7. ALL STEEL SHALL BE GIVEN ONE SHOP COAT OF RED LEAD OXIDE PRIMER AND FIELD TOUCHUP EXCEPT FOR SURFACES TO BE EMBEDDED IN CONCRETE OR CONTACT SURFACES OF FRICTION GUTTED CONNECTIONS.

MEMBER MARK | MEMBER SIZE
-------------|-----------------
1 L          | 23/8"x23/8"x1/4"
C PURLIN     | C5x6.7
0 NAIL       | 3/4" Dia. Bars

NOTES
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/333/02001 & 02002.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL THE RELevANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'FPS' SYSTEM, EXCEPT NOTED OTHERWISE.

DETAIL 'A'

TYPICAL CONNECTION DETAIL OF CCL SHEET AND PURUNS AT CROWN LOCATION
NOTES:
1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/04001 & 04002.
2. READ THIS DRAWING IN CONJUNCTION WITH THE RELEVANT PLUMBING AND OTHER SERVICES DRAWINGS.
3. ALL STRUCTURAL CONCRETE SHALL BE CLASS 'C' HAVING MINIMUM 28-DAYS CUBE STRENGTH OF 2,400 psi.
4. LEAN CONCRETE SHALL BE TYPE "E" TYPE HAVING MINIMUM 28-DAYS CUBE STRENGTH OF 1200 psi.
5. ALL REINFORCING BARS SHALL BE GRADE-40 DEFORMED STEEL HAVING MINIMUM YIELD STRENGTH OF 40,000 psi CONFORMING TO ASTM A615.
6. CLEAR COVER TO REINFORCEMENT SHALL BE AS UNDER:
   BOTTOM SLAB = ½" (ALL FACES)
   TOP SLAB = 3/4" (ALL FACES)
   WALLS = 1½" (BOTH FACES)
7. BACKFILLING AGAINST THE WALLS SHALL NOT BE DONE UNTIL TOP SLAB IS CAST AND CURED.
8. ALL THE STRUCTURAL SURFACES AGAINST WHICH EARTH IS TO BE FILLED SHALL BE COATED WITH TWO (02) COATS OF NIT BITUMEN AS PER SPECIFICATIONS.
NOTES:

1. FOR GENERAL NOTES, REFER DRAWING NO. 4199/323/C/0401 & 0402.
2. READ THIS DRAWING IN CONJUNCTION WITH THE RELEVANT PLUMBING AND OTHER SERVICES DRAWINGS.
3. ALL STRUCTURAL CONCRETE SHALL BE CLASS ‘C’ HAVING MINIMUM 28-DAYS CUBE STRENGTH OF 2,400.00 psi.
4. ALL REINFORCING BARS SHALL BE GRADE-40 DEFORMED STEEL HAVING MINIMUM YIELD STRENGTH OF 40,000 psi CONFORMING TO ASTM A615.
5. CLEAR COVER TO REINFORCEMENT SHALL BE AS UNDER:
   - SLAB = 3/4” (ALL FACES)
   - BEAMS = 1½”
### LEGEND

<table>
<thead>
<tr>
<th>S.NO</th>
<th>DESCRIPTION</th>
<th>SYMBOL</th>
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<tbody>
<tr>
<td>1.</td>
<td>WATER TAP</td>
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</tr>
<tr>
<td>2.</td>
<td>MUSHLA SHOWER</td>
<td>🛁️</td>
</tr>
<tr>
<td>3.</td>
<td>GULLY TRAP</td>
<td>🚿</td>
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<tr>
<td>4.</td>
<td>ASIAN WATER CLOSET</td>
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<tr>
<td>5.</td>
<td>ENGLISH WATER CLOSET</td>
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<td>6.</td>
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<td>7.</td>
<td>FLOOR TRAP</td>
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<tr>
<td>8.</td>
<td>FLOOR CLEAN OUT PLUG</td>
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</tr>
<tr>
<td>9.</td>
<td>SHOWER</td>
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