School Sanitation and Hygiene Education Programme

School Toilet/Urinal Design and Drawing

UNICEF, Nepal
March, 2006
School Toilet/Urinal Design and Drawing
A. Opening Details
1. Doors (D) 75 x 180 cm = 2 Nos.
2. Collapsible Gate 90 x 180 cm = 2 Nos.
3. Ventilations (V) 75 x 45 cm = 4 Nos.
98.5 x 45 cm = 8 Nos.

B. Value of X

<table>
<thead>
<tr>
<th>S.No</th>
<th>No. of Students</th>
<th>Value of X</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Up to 200</td>
<td>326.75 cm</td>
</tr>
<tr>
<td>2</td>
<td>201 to 400</td>
<td>463.00 cm</td>
</tr>
</tbody>
</table>

All measurements are in centimeters

SCHOOL SANITATION PROGRAMME
Water Supply and Sanitation Division
Office/UNICEF
Parsa/Chitwan/Nawalparasi/Kapilvastu/Dang

Designed By: Yagya Shrestha
Consultant, UNICEF

SCHOOL TOILET/URINAL
(Capacity: students<400)

PLAN

Revised Date: January, 2005

Date: October 14, 2003

Drg.No.: 1 of 7
Door Frame

- 40 x 40 x 4mm thk MS angle
- 25 x 25 x 4mm thk MS angle frame for shutter
- 250 mm long tower-bolt
- GI coloured sheet
- 5 mm thk MS plate holdfast
- Door bolt

Door Shutter

- Inner face of shutter
- 25 x 4 mm MS strips

Ventilation

- 25 x 25 x 4 mm MS angle frame
- 12 mm dia MS rod @ 100 occ

(All measurements are in mm)
Note:–

<table>
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Value of X

S.No.          | No. of Students | Value of X  |
-------------|-----------------|-------------|
1            | Up to 200       | 326.75 cm   |
2            | 201 to 400      | 463.00 cm   |

All measurements are in centimeters.
A. Opening Details
1. Doors (D)
2. Collapsible Gate
3. Ventilations (V)

All measurements are in centimeters

Note:-
A. Opening Details
1. Doors (D) 75 x 180 cm = 4 Nos.
2. Collapsible Gate 90 x 145 cm = 2 Nos.
3. Ventilations (V) 90 x 45 cm = 6 Nos.
100 x 45 cm = 2 Nos.

B. Value of X

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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>401 to 600</td>
<td>165 cm</td>
</tr>
<tr>
<td>2</td>
<td>601 to 800</td>
<td>240 cm</td>
</tr>
<tr>
<td>3</td>
<td>801 to 1000</td>
<td>315 cm</td>
</tr>
<tr>
<td>4</td>
<td>1001 and above</td>
<td>390 cm</td>
</tr>
</tbody>
</table>

All measurements are in centimeters.

SCHOOL SANITATION PROGRAMME
Water Supply and Sanitation Division Office/UNICEF
Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

Designed By: Yagya Shrestha
Consultant, UNICEF

SCHOOL TOILET/URINAL
(Capacity: students>401)

PLAN

Revised Date: January, 2005

Date: October 14, 2003

Drg. No.: 1 of 8
10 cm thk RCC roof
CGI Roof with 2 nos of transparent sheets in each side

All measurements are in centimeters.

SCHOOL SANITATION PROGRAMME
Water Supply and Sanitation Division Office/UNICEF
Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

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Consultant, UNICEF

SCHOOL TOILET/URINAL
(Capacity: students>401)

ELEVATIONS

Revised Date: January, 2005
Date: October 14, 2003
Org. No.: 2 of 8
10 cm thick RCC roof slab over toilet block.

Natural Ground

90 cm high Separators

SECTION 'C-C'

All measurements are in centimeter.

SCHOOL SANITATION PROGRAMME

Water Supply and Sanitation Division Office/UNICEF

Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

Designed By:

Yagya Shrestha
Consultant, UNICEF

SCHOOL TOILET/URINAL
(Capacity: students>401)

SECTION

Revised Date: January, 2005

Date: October 14, 2003

Drg. No.: 5 of 8
Roof Truss

(Material: MS Circular Pipes, Span = 471 cm)

Details of B

Details of A

All measurements are in centimeters
**Door Frame**

- 40 x 40 x 4mm thk MS angle
- 25 x 25 x 4mm thk MS angle frame for shutter
- 250 mm long tower-bolt
- 5 mm thk MS plate holdfast
- GI coloured sheet
- Handle
- Door bolt

**Door Shutter**

- 25 x 4 mm MS strips

*All measurements are in mm*

---

**SCHOOL SANITATION PROGRAMME**

**Water Supply and Sanitation Division**
Office/UNICEF

Parsa/Chitwan/Nawalparasi/Kapilvastu/Dang

**Designed By:**
Yagya Shrestha
Consultant, UNICEF

**SCHOOL TOILET/URINAL**

**DETAILS OF DOORS & VENTILATIONS**

**Revised Date:** January 2005

**Date:** 14 October 2003

**Drg No.:** 7 of 8
Note:-

Value of X

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All measurements are in centimeters.

SCHOOL SANITATION PROGRAMME

Water Supply and Sanitation Division Office/UNICEF

Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

SCHOOL URINAL
(Capacity: students>401)

PLAN

Designed By:
Yagya Shrestha
Consultant, UNICEF

Revised Date: January, 2005

Date: October 14, 2003

Org. No.: 1 of 7
CGI Roof

FRONT

SCHOOL SANITATION PROGRAMME
Water Supply and Sanitation Division Office/UNICEF

Designed By:
Yagya Shrestha
Consultant, UNICEF

SCHOOL URINAL
(Capacity: students>401)

ELEVATIONS

Revised Date: January, 2005

Date: October 14, 2003

All measurements are in centimeter.

Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

Drg. No.: 2 of 7
ELEVATION (right)

SECTION 'A-A'

All measurements are in centimeter

SCHOOL SANITATION PROGRAMME
Water Supply and Sanitation Division Office/UNICEF
Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

Designed By:
Yagya Shrestha
Consultant, UNICEF

SCHOOL URINAL
(Capacity: students>401)

REVISED DATE: January, 2005

Date: October 14, 2003
Deg. No.: 3 of 7
All measurements are in centimeter.

SCHOOL SANITATION PROGRAMME
Water Supply and Sanitation Division Office/UNICEF
Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

SCHOOL URINAL
(Capacity: students>401)

Designed By:
Yagya Shrestha
Consultant, UNICEF

SECTION

Revised Date: January, 2005
Date: October 14, 2003
Org. No.: 4 of 7
Roof Truss

(Material: MS Circular Pipes, Span = 471 cm)

.prominent_text_32 mm \( \phi \) MS Pipe

M10 Nut-bolts

32 mm \( \phi \) MS Pipe

50 mm \( \phi \) MS Pipe

30.00

Details of B

M10 Nut-bolts

4 mm thk guessel plate

25 mm \( \phi \) MS Pipe

32 mm \( \phi \) MS Pipe

Details of A

All measurements are in centimeter

SCHOOL SANITATION PROGRAMME

Water Supply and Sanitation Division Office/UNICEF

Parsa, Chitwan, Nawalparasi, Kapilvastu & Dang

Designed By:

Yagya Shrestha
Consultant, UNICEF

SCHOOL URINAL

TRUSS DETAILS

Revised Date: January, 2005

Date: October 14, 2003

Org. No.: 5 of 7
Door Frame

Door Shutter

Door Frame

Door Shutter

(All measurements are in mm)
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All measurements are in centimeters.
Single Unit Toilet Block
OPENING SCHEDULE

<table>
<thead>
<tr>
<th>S. No</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
<th>No. of</th>
<th>MATERIAL</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DOOR (D2)</td>
<td>900 X 2175</td>
<td>1</td>
<td>METAL FRAME</td>
<td>LEFT OPENING</td>
</tr>
<tr>
<td>2</td>
<td>DOOR (D3)</td>
<td>592 X 2175</td>
<td>3</td>
<td>METAL FRAME</td>
<td>RIGHT OPENING</td>
</tr>
<tr>
<td>3</td>
<td>DOOR (D3)</td>
<td>592 X 2175</td>
<td>3</td>
<td>METAL FRAME</td>
<td>RIGHT OPENING</td>
</tr>
<tr>
<td>4</td>
<td>ENTRANCE GATE (EG1)</td>
<td>1200 X 1560</td>
<td>1</td>
<td>METAL FRAME</td>
<td>RIGHT OPENING</td>
</tr>
<tr>
<td>5</td>
<td>ENTRANCE GATE (EG2)</td>
<td>875 X 1900</td>
<td>1</td>
<td>METAL FRAME</td>
<td>LEFT OPENING</td>
</tr>
<tr>
<td>6</td>
<td>WINDOW GRILL (WG1)</td>
<td>875 X 450</td>
<td>9</td>
<td>METAL FRAME</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>WINDOW GRILL (WG2)</td>
<td>1250 X 450</td>
<td>6</td>
<td>METAL FRAME</td>
<td></td>
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</table>
GROUND FLOOR PLAN

OPENING SCHEDULE

<table>
<thead>
<tr>
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<td>DOOR (D2)</td>
<td>1200 X 2175</td>
<td>1</td>
<td>METAL FRAME</td>
<td>LEFT OPENING</td>
</tr>
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<td>2</td>
<td>DOOR (D3)</td>
<td>592 X 2175</td>
<td>3</td>
<td>METAL FRAME</td>
<td>RIGHT OPENING</td>
</tr>
<tr>
<td>3</td>
<td>DOOR (D4)</td>
<td>592 X 2175</td>
<td>3</td>
<td>METAL FRAME</td>
<td>RIGHT OPENING</td>
</tr>
<tr>
<td>4</td>
<td>ENTRANCE GATE (EG1)</td>
<td>875 X 1950</td>
<td>1</td>
<td>METAL FRAME</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ENTRANCE GATE (EG2)</td>
<td>875 X 1950</td>
<td>1</td>
<td>METAL FRAME</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>WINDOW GRILL (WG1)</td>
<td>875 X 450</td>
<td>9</td>
<td>METAL FRAME</td>
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<td>1250X 450</td>
<td>6</td>
<td>METAL FRAME</td>
<td></td>
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</tbody>
</table>
Lintel Detail for openings above 1200mm

DETAIL 1

DETAIL 2

Bk. Facta wrih

Header Finisl

Cement Plaster at Iraide wall

- B0 BAR @150 C/C

- Qernent Plaster

al (op of partition

- Nr -

Lintel Detail for

openings above 1200mm

DETAIL 1

DETAIL 2

40 MM CEMENT SCREEDING

EPOXY LAYER

CEMENT PUNNING

+3710 RIDGE LVL.

+2100 LINTEL LVL.

+1650 SILL LVL.

FLOOR LEVEL

150 MM SAND FILLING

RAMMED EARTH FILLING

2.5% SILT COMPACTED EARTH

SAND AND GRAVEL

FLOWER BED

EPOXY Paint up to 600MM HI.

from Floor Level

600

650

200

500

600

250

300

1200

500

200

850

850

500

200

600

250

SECTION AT AA'

SILT Consultants (P) Ltd IN ASSOCIATION
WITH CERID, NLA and BTTC
Lintel Detail for openings above 1200mm

DETAIL 1

- 1000 Litres Water Tank
- Epoxy Paint onto 600mm Wide Pipe
- Epoxy Paint onto 600mm Pipe

DETAIL 2

- One 10cm Header High Lintel Band
- Br. faced wall 65mm Thk. Side wall for Urinal (1m High for Girls & 1.2m High for Boys)
- Epoxy Paint upto 1M Ht. (for Girls) & 1.25M Ht. (Boys) from Floor Level

SECTION AT AA'

- 40 MM CEMENT SCREED(1:6)
- 75MM PCC (1:2:4)
- 150 MM SAND FILLING
- RAMMED EARTH FILLING

Cement Plaster at inside wall

Cement Plaster at top of partition wall

+3710 RIDGE LVL.

+2100 LINTEL LVL.

+1850 SILL LVL.

+1500 PLINTH LVL.

450 GROUND LVL

FLOWER BED

FACED WALL

100 BAR @ 150 C/C

4 NOSS 100 BAR

60 BAR @ 150 C/C

Cement Plaster at inside wall

COMPACTED EARTH

SAND AND GRAVEL

HIS MAJESTY'S GOVERNMENT OF NEPAL

UNICEF-Nepal

PRIMARY SCHOOL IMPROVEMENT PROJECT (PSIP)

Single Unit Toilet Block (Alternate)

SECTION AT AA'

Drawing no: A - Scale:

Date: 25th December, 2005

Drawn by: P. Thakur

Approved by:

SILT Consultants (P) Ltd IN ASSOCIATION WITH CERID, NLA and BTTC
REF. DETAIL 4,
FOR CGI SHEET FIXING

TOILET ROOM TRUSS
WHEREVER PURLINS ARE CONNECTED
TRT-1

40 NB (M) RAFTER PIPE
40 NB (M) PURLIN PIPE
32 NB (L) BOTTOM TIE PIPE

TRT-2

40 NB (M) RAFTER PIPE
25 NB (M) PURLIN PIPE
40 NB (M) PURLIN PIPE

22 GAUGE 900mm PLAIN CGI SHEET
8 mmØ Plain Rod

WELDED JOINT
32 NB (L) BOTTOM TIE PIPE

DATE: 3rd Jan, 2006
DRAWN BY: S. Upreti
CHECKED BY: [Signature]
APPROVED BY: [Signature]

UNICEF-Nepal
PRIMARY SCHOOL IMPROVEMENT PROJECT (PSIP)
TYPE DESIGN
Truss Details (Toilet Block)
900
25 NB (M) PURLIN PIPE
40 NB (M) RAFTER PIPE
40 NB (M) PURLIN PIPE
ONE BK. HEADER HIGH INCLINED GABLE BAND
ONE BK. HEADER HIGH HORIZONTAL GABLE BAND
8 mmØ Plain Rod
ONE BK. HEADER HIGH LINTEL BAND

TOILET BLOCK GABLE TRUSS IN BETWEEN TWO WALLS
WHEREVER PURLINS ARE CONNECTED
22 GAUGE 900mm PLAIN GI SHEET
25 NB (M) PURLIN PIPE
40 NB (M) RAFTER PIPE
40 NB (M) PURLIN PIPE
8" 6" LONG CGI SHEET

HIS MAJESTY'S GOVERNMENT OF NEPAL
UNICEF-Nepal
PRIMARY SCHOOL IMPROVEMENT PROJECT (PSiP)
TYPE DESIGN
Truss Details (Toilet Block)

Drawing no: 3
Date: 3rd Jan, 2006
Drawn by: S. Upreti
Checked by:
Approved by:
SILT Consultants (P) Ltd IN ASSOCIATION WITH CERID, NLA and BTTC
1. Complete fabricated door to be hot dip galvanized.

Dimensions are in mm.
Refer dimensions as mentioned in drawing. Dimensions are not to measure only to read.
Dimensions are in mm

-3 Nos. 7mm Torxari reinforcing bar hold fast on both sides.
-2 Nos. @ 200 mm from both ends.
-1 No. @ center (length - 140 mm)

**Note:**
1. Frame Profile to be made from 1.6 mm thk Galvanized MS sheet.
2. Shutter to be made from 1.2 mm Galvanized MS Sheet.

**Drawn by:** 
SILT Consultants (P) Ltd IN ASSOCIATION WITH CERID, NLA and BTTC
HIS MAJESTY'S GOVERNMENT OF NEPAL
UNICEF-Nepal

PRIMARY SCHOOL IMPROVEMENT PROJECT (PSIP)

Single Unit Toilet Block
Window Grill Details

Drawing no: A
Date: 25th December 2005

Scale

SILT Consultants (P) Ltd IN ASSOCIATION WITH CERID, NLA and BTTC
Double Unit Toilet Block
Unit A and Unit B
UNICEF-Nepal

PRIMARY SCHOOL IMPROVEMENT PROJECT (PSIP)

Drawing no: A
Date: 25th December, 2005
Scale

HIS MAJESTY'S GOVERNMENT OF NEPAL

SILT Consultants (P) Ltd IN ASSOCIATION WITH CERID, NLA and BTTC
TRT-1

TOILET ROOM TRUSS
WHEREVER PURLINS ARE CONNECTED

TRT-2

TOILET ROOM TRUSS
WHEREVER PURLIN CONTINUE.
WINDOW GRILL (WG1)

3x20 MS flat welded on MS Angle Frame

25x25mm X 2.5mm MS Angle Frame

7mm ROD HOLD FAST

200

WINDOW GRILL (WG2)

3x20 MS flat welded on MS Angle Frame

25x25mm X 2.5mm MS Angle Frame

HOLD FAST 7mm ROD

225

UNICEF-Nepal

HIS MAJESTY’S GOVERNMENT OF NEPAL

PRIMARY SCHOOL IMPROVEMENT PROJECT (PSIP)

Double Unit Toilet Block

Window Grill Details

Drawing no: A

Scale:

Date: 29th December, 2000

Drawn by: P. Aryal

Checked by:

Approved by:

SILT Consultants (P) Ltd IN ASSOCIATION WITH CERID, NLA and STTC
250 mm brick Wall

125 mm Nickel
plated steel hinges
(IS 1341 heavy duty)

All internal members 20 x 3 mm flat

720 mm long
120 A duct

Ø ½ x 25 mm pipe

5 x 6 mm MS flat welded
on top of internal member
& 3 mm 6k. MS plate welded
on 5 x 40 mm MS flat

125 mm Nickel
plated steel hinges
(IS 1341 heavy duty)

Door Elevation
Scale: 1:16

Dimensions are in mm

TOILET ENTRANCE MS GATE

Note:
1. Complete fabricated door to be hot dip galvanized

HIS MAJESTY'S
GOVERNMENT OF
NEPAL

UNICEF-Nepal

PRIMARY SCHOOL IMPROVEMENT
PROJECT (PSIP)

TOILET BLOCK
Entrance Gate Details (EG1)

Drawing no: A-

Scale:

Date: 20th Dec. 2005

Drawn by: P. Aryal

Checked by: Approved by:

SILT Consultants (P) Ltd IN ASSOCIATION
WITH CERID, NLA and BTTC
Toilet Door Elevation

Wall OmiifaJ

Plan of MS Flat Holdfast

Refer dimensions as mentioned in drawing. Dimensions are not to measure only to read.
Dimensions are in mm

Section at Y-Y
Scale: 1:16
Wall and hole fast omitted

3 Nos. 7mm Torkari reinforcing bar
Hold fast on both sides
2 Nos. @ 200 mm from both ends
1 No. @ center (length-140 mm)

Section at Y-Y
Scale: 1:10

Aldrop Fastener

Hinge fixing detail of Door Frame

Aldrop Fastener

Hinge fixing detail of Door Frame

Note:
1. Frame Profile to be made from 1.6 mm thick
Galvanized MS sheet
2. Shutter to be made from 1.2 mm Galvanised MS Sheet

HIS MAJESTY'S
GOVERNMENT OF
NEPAL

UNICEF-Nepal

PRIMARY SCHOOL IMPROVEMENT
PROJECT (PSIP)

TOILET BLOCK
Door Details (D2)

Drawing no: A-

Date: 21st Dec, 2005

Drawn by: P. Aryal

SILT Consultants (P) Ltd In ASSOCIATION
WITH CERID, NLA and BTTC