Child Friendly Schools in Rwanda

Typical drawings of school building and toilet block

For building site

Approved by MINEDUC/UCEFS
Eng. Warren Habimana _____________________________

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31 August 2010
Child Friendly School - classrooms building

typical plan

classroom 50.9 sqm

director office 13.2 sqm

sport equipment 5.6 sqm
didactic equipment 7.2 sqm

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scale 1:50

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Child Friendly School - classrooms building

typical plan odd layout

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scale 1:50
Child Friendly School - classrooms building

typical N-S front elevation when on smooth slope

max 8%

scale 1:50

plastering for wall painting

max slope 8%

metal grating for wheelchairs passage

ramp

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Child Friendly School - classrooms building

typical N-S front elevation when on steep slope

plastering for wall parking

metal grating for wheelchairs passage

main drainage

metal grating for wheelchairs passage

ramp

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scale 1:50
Child Friendly School - classrooms building

typical longitudinal section when on slope

- roof structure above classroom
- roof structure above partition wall with concrete beam
- 40 x 40 metal brace
- wall for displaying
- 400x115 black board
- additional blackboard for pupils
- safety exit
- increased plinth for double pillar
- 40 x 40 metal brace
- wardrobe
- double pillar
- plan of odd settle
- plan of even settle
- plan of foundations

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typical E-W elevation

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Child Friendly School - classrooms building

typical crossing section B-B

roof structure above classroom

false ceiling

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typical crossing section B-B left

- 6x4x4.0 metal purlins
- 6x4x2.5 metal rafter
- 15x25 RC ring beam 4Ø12-Ø8/20
- 15x20x50 CHB
- 20x20 metal roof gutter 1.5mm
- 5x5 timber structure 120x80
- 120x80 Triplex panel
- 120x240 full Triplex panel
- window opening part
- window fixed part
- concrete windows base
- iron wire supporting false ceiling
- Ø16mm iron bar/15cm
- main metal frame
- 1,2x10cm concrete skirting
- 5x5 timber structure 120x80
- iron wire supporting false ceiling
- 120x240 full Triplex panel
- plastic membrane
- 15x20x50 CHB
- 3cm internal plaster as additional black board for pupils
- 1.2x10cm concrete skirting
- 10cm concrete flooring
- 20cm rubble stone filling
- 90x90cm RC pinch
- 5cm concrete
- 40cm stone foundation
- stone masonry drainage
- 5cm concrete
- 4cm concrete smooth floor
- 3cm external plaster
- 3cm internal plaster as additional black board for pupils
- detail of joints 1:5
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scale 1:20
Child Friendly School - classrooms building

typical plan even layout
Child Friendly School - classrooms building

typical crossing section A-A right

scale 1:20

2%

stone masonry foundations

external plaster

additional black board for pupils

5cm concrete

Depending on soil consistency

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scale 1:20
Child Friendly School - classrooms building

typical crossing
section A-A left

metal grating for wheelchairs passage

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typical N-S back elevation

scale 1:50

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scale 1:50
Child Friendly School - classrooms building

- typical window section and elevation from inside
- additional door as safety exit
- typical upper opening window

- front door
- rounded corner
- OUTSIDE iron bar fixed on main metal frame
- INSIDE putty hinge
- windows frame with T metal profile
glass
- handle only inside

- OUTSIDE T metal profile
- INSIDE handle max height 2.2
- T metal profile
- window opening part (2 glass sections)
- T metal profile
- window fixed part (2 glass sections)
- metal profile

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Date: 4 Jun 09
Child Friendly School - TRC and SNE

Teachers Resource Center (TRC) 63.2 sqm

Special Needs Education (SNE) 50.9 sqm

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Child Friendly School - classrooms building

typical E-W elevation of reservoir and fountain

± 2,70
± 0,50
± 0,00
± 3,08
± 0,00
± 3,30

anchorage

± 0,50
± 3,00

10cm wall
main tap
outlet

± 0,00

plastered

± 65x40 removable metal cover

drainage

detailed section of fountain 1:20

depending on soil consistency

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scale 1:50
Child Friendly School - classrooms building

typical sections of reservoir and fountain

section X-X

- 8-10cm RC slab
- precast office
- Ø10 15x15
- plastered
- bucket

section Y-Y

- Ø11 PVC pipe
- bracket
- overflow outlet
- 10,000 l cylindrical plastic water tank

- 20cm sand
- compacted soil
- 20cm sand
- stone circular walls
- 5cm concrete

- 40x15 RC ring foundation beam 3 Ø12-26/30

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scale 1:50
Child Friendly School - sport grounds: basket-ball and volleyball

1. Basketball court
- Dimensions: 30.45m x 15.8m
- Basketball board: 1.2m x 1.8m
- Basket-ball outline: Ø0.45m
- Hole for basket-ball poles: 1.05m x 1.8m

2. Volleyball court
- Dimensions: 6.0m x 3.0m
- Volleyball net: 0.8m x 0.6m
- Volleyball outline: Ø0.45m
- Hole for volleyball poles: 1.05m x 1.8m

Scale 1:100

Date: 10 September 08
Child Friendly School - 12 percolate VIP toilets

typical 12 unit provided with:
- toilet for handicapped
- rain water harvesting system
- 2m³ PVC water tank with taps
- urinals for boys
- shower for girls

NB. solution to be adopted according to water table position and geological nature of the soil

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scale 1:100
Child Friendly School - 12 percolate VIP toilets

140x40 RC removable slabs
prefcast offsite ±135 Kg
10cm thick Ø10 15x15

Urinal
Tap
Soil pit for washwater
Washwater drainage to dedicated soak pit

2000L water tank
Ramp
80
150
125

Water pipe supply system anchored to walls

Ø110 PVC vent pipe with fly-proof screen
Child Friendly School - 12 percolate VIP toilets

typical plan even and odd layout

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scale 1:50
typical plan of foundations and RC slabs

Child Friendly School - 12 percolate VIP toilets

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scale 1:50
**Child Friendly School - 12 percolate VIP toilets**

- **15x15 RC ring beam**
- **4Ø12-Ø6/20**
- **20cm concrete foundation**
- **scale 1:50**
- **180cm**
- **40cm**

**Details of cubicle and squatting hole 1:20**

- **10cm wall plastered**
- **20cm rubble stone filling**
- **40cm stone wall**

- **max depth depending on local soil type and watertable position**

- **40cm stone foundation**
- **10cm concrete floor**
- **40x40 stone foundation**

- **20cm thick RC slab Ø19/20 cm x Ø19/20 cm**
- **32x40 RC beam connected to slab Ø12-Ø6/20 cm**

- **roof gutter for rain harvesting**
- **4x4cm metal purlins with fly-proof screen**
- **6x4cm metal rafter with rafter claustra**

- **15x20x50 CHB wall with 2 cm joints**
- **70x185 single leaf timber door with metal frame**
- **15x15x50 CHB wall with 2 cm joints**

- **CIS 28BG 6x4cm metal rafter**
- **4x4cm metal purlins**

- **Ø110 PVC vent pipe with fly-proof screen**

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typical longitudinal section through pit

max depth depending on local soil type and watertable position

2000l water tank

200cm concrete foundation

20cm rubble stone filling

20cm concrete floor

180cm stone wall

40cm stone wall

20cm plastering

roof-gutter for rain harvesting

140x40 RC removable slabs precast offsite (±135 Kg) with handles 15cm thick Ø10 15x15

Ø110 PVC vent pipe with fly-proof screen

120x40 RC removable slabs precast offsite (±135 Kg) with handles 15cm thick Ø10 15x15

32x40 RC removable slabs precast offsite (±135 Kg) with handles 15cm thick Ø10 15x15

20x40 RC beam 6Ø12-Ø6/20 cm

20x40 RC beam 6Ø12-Ø6/20 cm

32x40 RC beam 6Ø12-Ø6/20 cm

120x40 RC removable slabs precast offsite (±135 Kg) with handles 15cm thick Ø10 15x15

32x40 RC beam 6Ø12-Ø6/20 cm

32x40 RC beam 6Ø12-Ø6/20 cm

32x40 RC beam 6Ø12-Ø6/20 cm

32x40 RC beam 6Ø12-Ø6/20 cm

32x40 RC beam 6Ø12-Ø6/20 cm

details of RC beam 1:20

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scale 1:50
Child Friendly School - 8 percolate VIP toilets

- toilet for handicapped
- rain water harvesting system
- 2m³ PVC water tank with taps
- urinals for boys
- shower for girls

NB. solution to be adopted according to water table position and geological nature of the soil
Child Friendly School - 8 percolate VIP toilets

- 140x40 RC removable slabs
- precast offsite ±135 Kg
- 10cm thick Ø10 15x15
- tap
- paved surface
- soak pit for washwater
- washwater drainage to dedicated soak pit
- 557.5 l water tank
- ramp
- water pipe supply system anchored to walls
- Ø110 PVC vent pipe with fly-proof screen
- 140x40 RC removable slabs precast offsite (±135 Kg) 10cm thick Ø10 15x15
- 2000 l water tank
- tap
- paved surface
- urinal

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Scale 1:50
Child Friendly School - 8 percolate VIP toilets
Child Friendly School - 8 percolate VIP toilets

typical plan of foundations and RC slabs

385x260 RC slab
12cm thick Ø10 20x20

40x40 stone foundation

140x40 RC removable slabs
precast offsite (±135 Kg) with handles
10cm thick Ø10 15x15

305x260 RC slab
12cm thick Ø10 20x20

40x40 stone foundation

Ø18

soak pit

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scale 1:50
Child Friendly School - 8 percolate VIP toilets

- 15x15 RC ring beam 4Ø12-Ø6/20 cm
- 20cm concrete foundation
- 180x40 stone foundation
- 10cm concrete floor
- 40x40 stone foundation
- 20cm rubble stone filling
- 40cm stone wall
- 20cm concrete foundation
- gravel bed
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Details of cubicle and squatting hole 1:20

Typical crossing section through pit

- 70x185 single leaf timber door with metal frame
- 15x20x50 CHB wall with 2 cm joints
- roof gutter for rain harvesting
- internal plastering
- wall plastered for urinals
- squatting hole
- iron bar welded with rafter
- CIS 28BG 6x4cm metal rafter
- 4x4cm metal purlins
- Ø110 PVC vent pipe with fly-proof screen
- Ø63 PVC pipe for urinal
- 15x15x50 CHB wall with 2 cm joints
- 15x120x20 cm
- 20cm rubble stone filling
- 10cm concrete floor
- metal rung anchored to wall
- Ø63 PVC pipe for urinal
- Child Friendly School - 8 percolate VIP toilets

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Scale 1:50
Child Friendly School - 8 percolate VIP toilets

140x40 RC removable slabs
precast offsite (±135 Kg)
10cm thick Ø10 15x15

40x40 stone foundation
10cm concrete floor
20cm rubble
stone filling

140x40 RC removable slabs
precast offsite (±135 Kg)
10cm thick Ø10 15x15

40x40 stone foundation
10cm concrete floor
20cm rubble
stone filling

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typical sections through special unit and corridors

scale 1:50