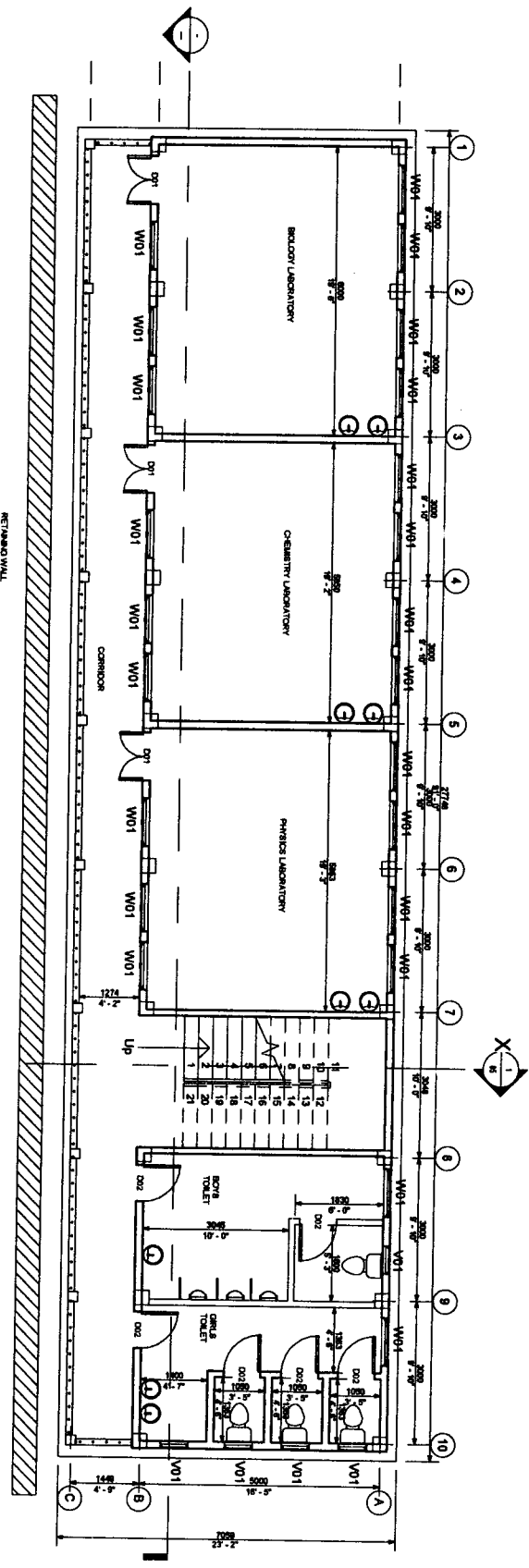

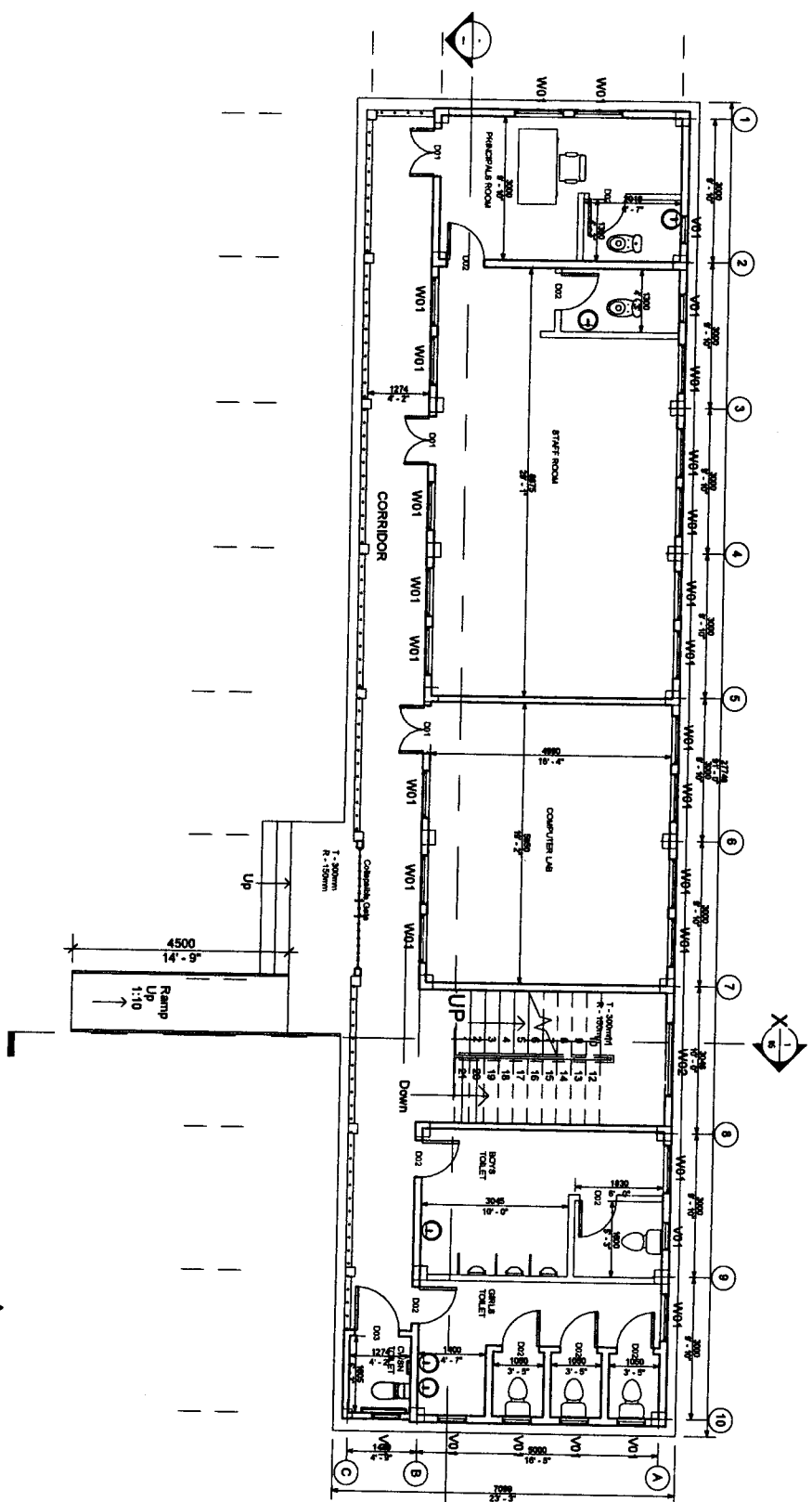


CONSTRUCTION OF
NGOPA HIGHER SECONDARY SCHOOL-
SCIENCE & COMMERCE STREAM AT SAITUAL
DISTRICT



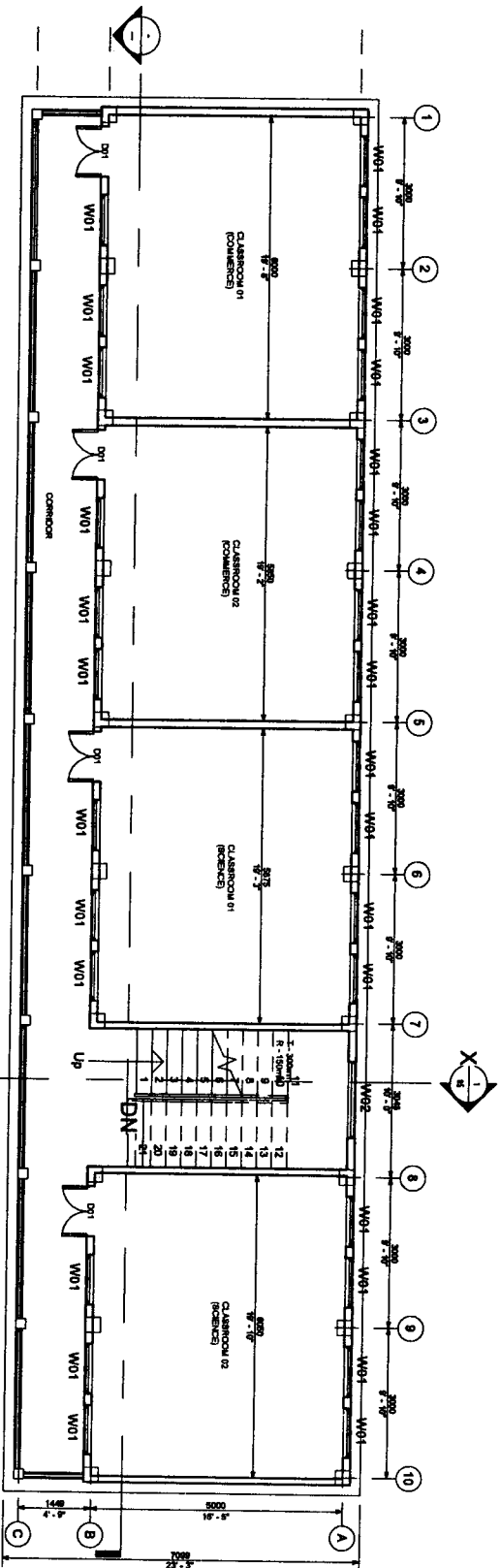

 Programing Officer
 Civil Works
 Samagra Shiksha, Mizoram

PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT NGOPA - SCIENCE & COMMERCE STREAM - SAITUAL DISTRICT	D01 - 1000mmx2000mm D02 - 762mmx2000mm D03 - 1000mmx2000mm W01 - 1000mmx1828.8mm W02 - 1000mmx1524mm V01 - 500mmx762mm	SHEET NO.: 01	SHEET: BASEMENT SCALE: 1 : 125	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM
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Program Director
 Civil Works
 Samagra Shiksha, Mizoram

PROJECT:	CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT NGOPA - SCIENCE & COMMERCE STREAM - SALTUAL DISTRICT	
	D01 - 1000mmx2000mm D02 - 762mmx2000mm D03 - 1000mmx2000mm W01 - 1000mmx1828.8mm W02 - 1000mmx1524mm V01 - 500mmx762mm	SHEET NO:
	SHEET:	GROUND FLOOR
	SCALE:	1 : 125
ENGINEERING CELL		SAMAGRA SHIKSHA
		MIZORAM




 Programing Officer
 Civil Works
 Samagra Shiksha Mizoram

PROJECT:

CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT
 NGOPA - SCIENCE & COMMERCE STREAM - SALTIAL DISTRICT

- D01 - 1000mmX2000mm
- D02 - 762mmX2000mm
- D03 - 1000mmX2000mm
- W01 - 1000mmX1828.8mm
- W02 - 1000mmX1524mm
- V01 - 500mmX762mm

SHEET NO:

03

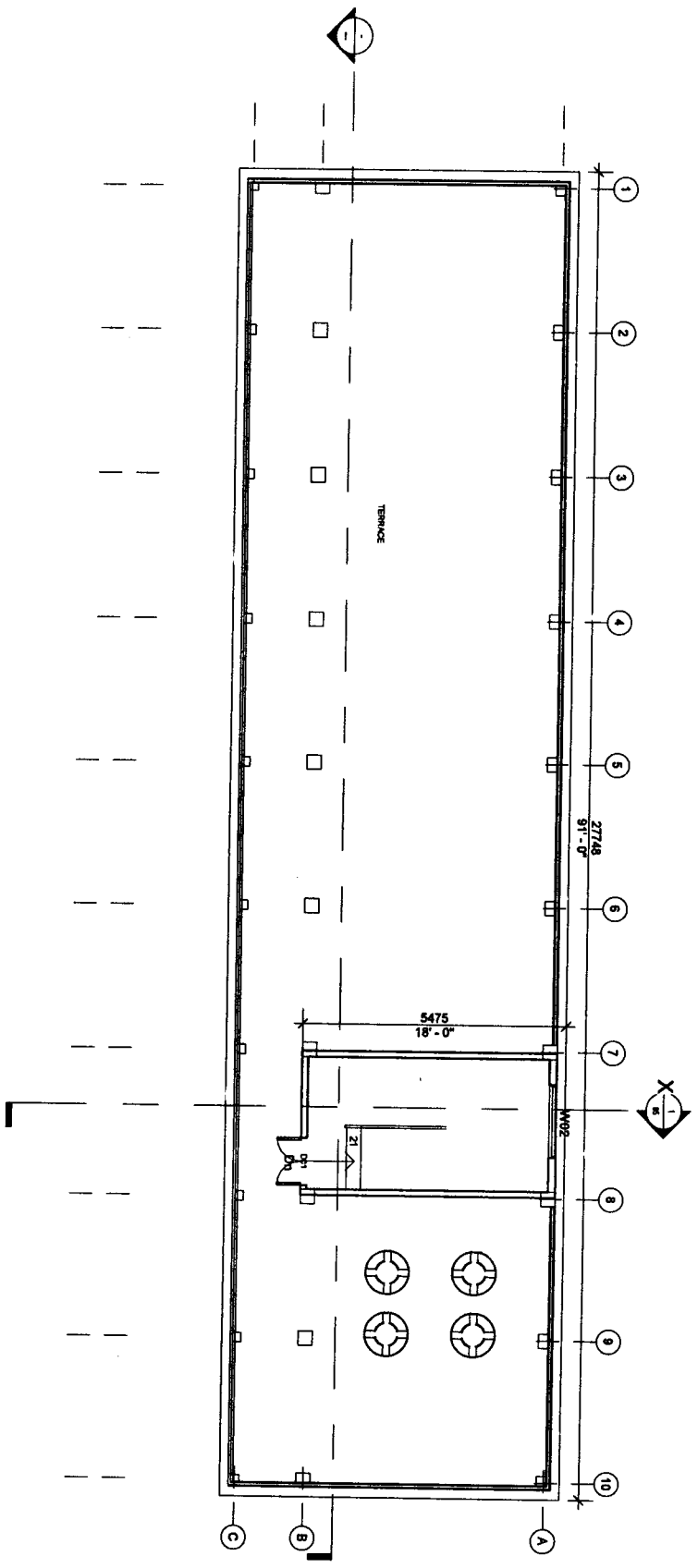
SHEET:

FIRST FLOOR

SCALE:

1 : 125

ENGINEERING CELL
SAMAGRA SHIKSHA
MIZORAM



Project Engineer
 CIVIL ENGINEER
 SANGRAM MIZORAM

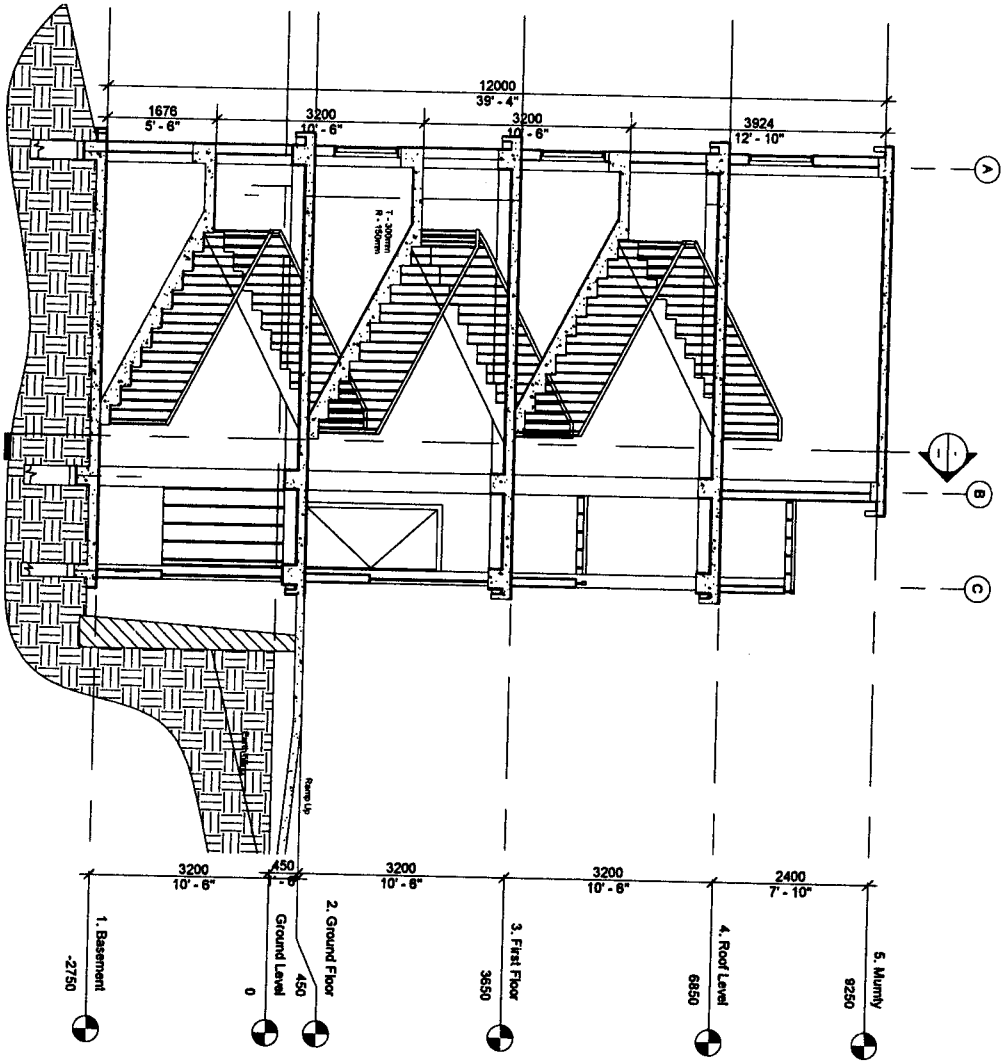
PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT NGOPA - SCIENCE & COMMERCE STREAM - SALTUAL DISTRICT	D01 - 1000mmX2000mm D02 - 762mmX2000mm D03 - 1000mmX2000mm W01 - 1000mmX1828.8mm W02 - 1000mmX1524mm V01 - 500mmX762mm	SHEET NO: 04	SHEET: ROOF PLAN
			SCALE: 1 : 125
			ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM

PROJECT:
 CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT
 NGOPA - SCIENCE & COMMERCE STREAM - SATUAL DISTRICT

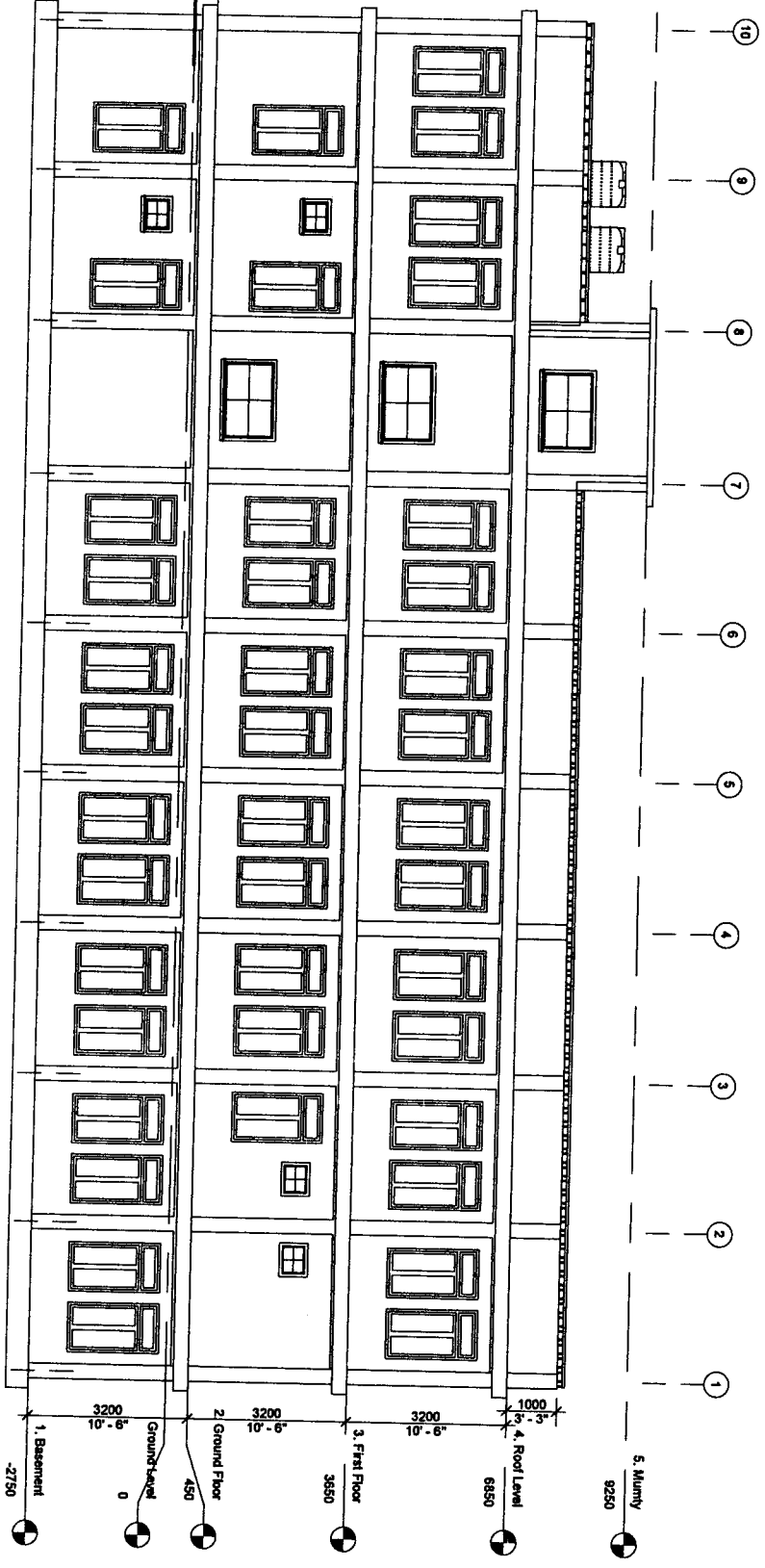
SHEET NO:
 05

SHEET:
 SECTION
 SCALE: 1 : 100

ENGINEERING CELL
 SAMAGRA SHIKSHA
 MIZORAM



DESIGNED BY: MIZORAM
 PROJECT
 MIZORAM




 Project No: 13/05/2016
 Date: 13/05/2016
 Location: Mizoram

PROJECT:

CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT
 NGOPA - SCIENCE & COMMERCE STREAM - SAITUAL DISTRICT

SHEET NO:

06

SHEET:

REAR ELEVATION

SCALE:

1 : 125

ENGINEERING CELL
 SAMAGRA SHIKSHA
 MIZORAM

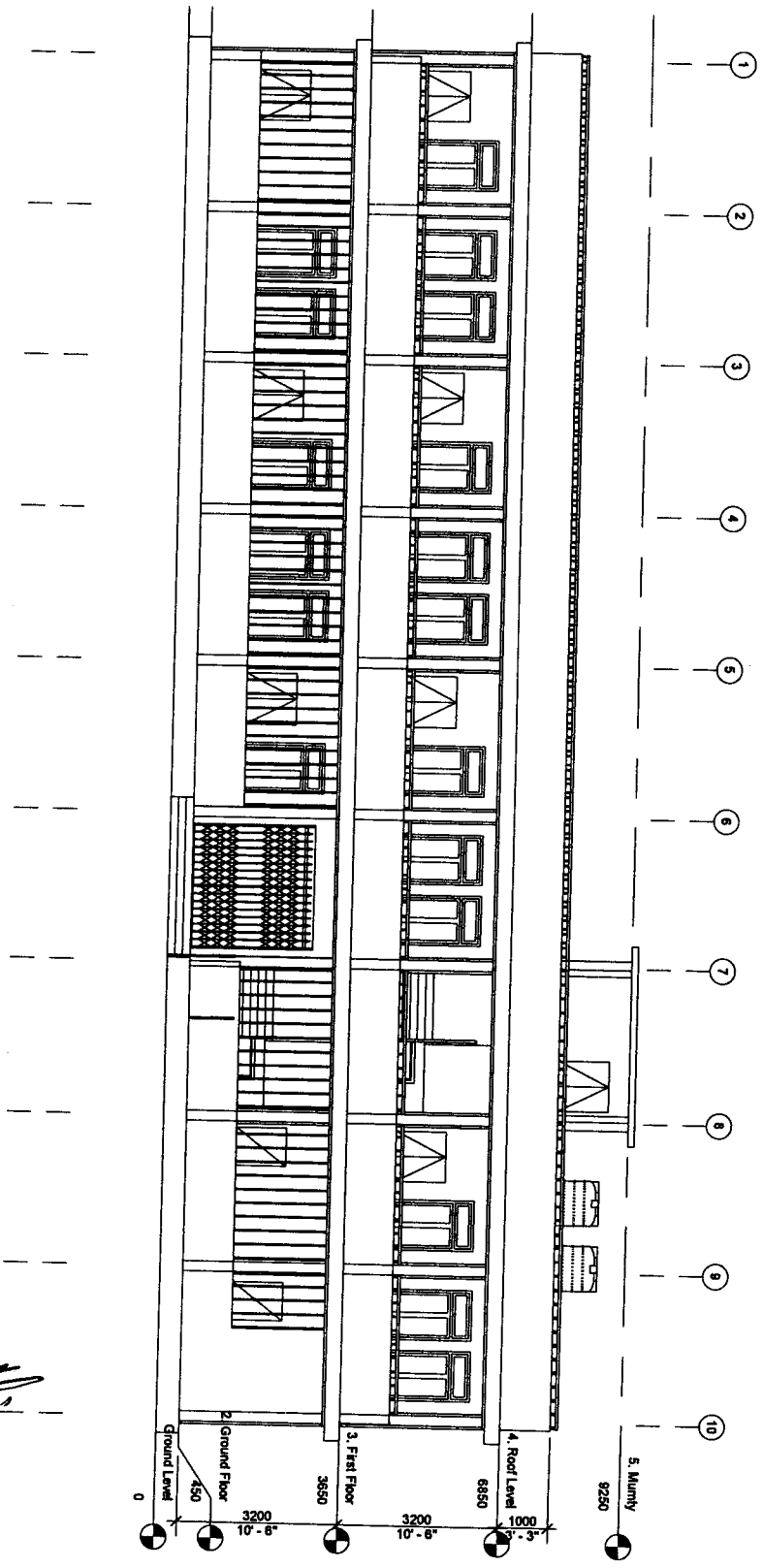
PROJECT:
 CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT
 NGOPA - SCIENCE & COMMERCE STREAM - SATUAL DISTRICT

SHEET NO: 07

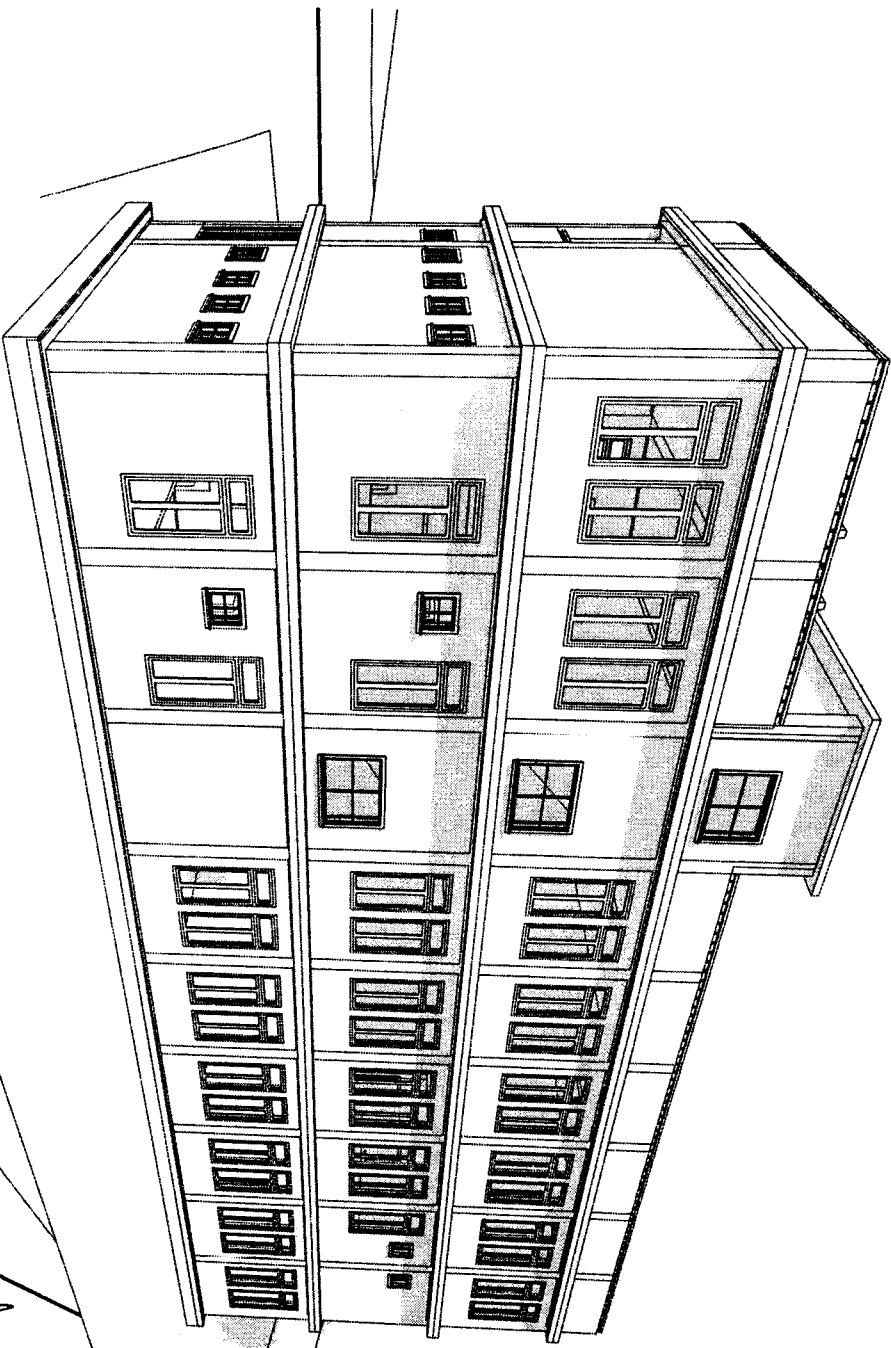
SHEET:
 FRONT ELEVATION

SCALE: 1 : 125

ENGINEERING CELL
 SAMAGRA SHIKSHA
 MIZORAM



DATE: 10/10/2023



N.
Proposed by
Civil Works
Samagra Shiksha, Mizoram

PROJECT:

CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT
NGOPA - SCIENCE & COMMERCE STREAM - SAITUAL DISTRICT

SHEET NO:

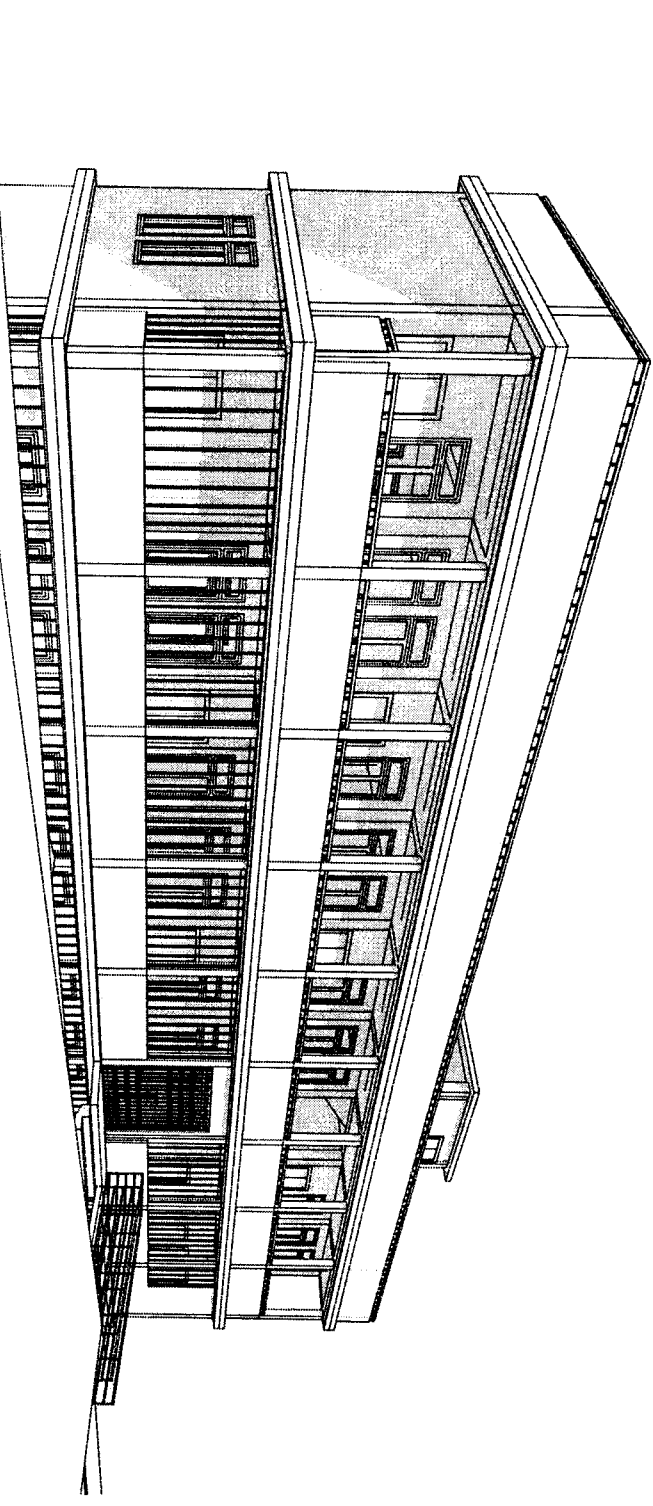
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SHEET:

REAR VIEW

SCALE:

ENGINEERING CELL
SAMAGRA SHIKSHA
MIZORAM



[Signature]
Chief Engineer
Civil Works
Muzoram
Mizoram

PROJECT:

CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT
NGOPA - SCIENCE & COMMERCE STREAM - SALTUAL DISTRICT

SHEET NO:

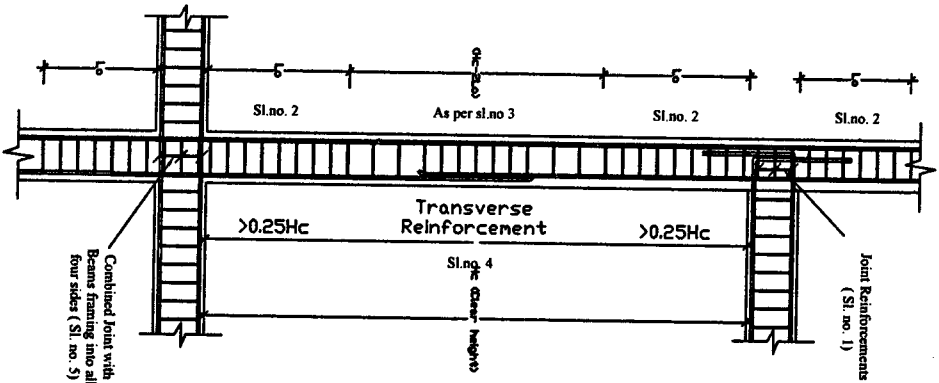
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SHEET:

FRONT VIEW

SCALE:

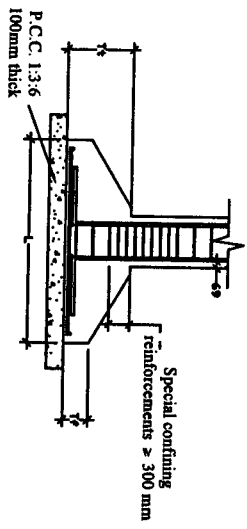
ENGINEERING CELL
SAMAGRA SHIKSHA
MIZORAM



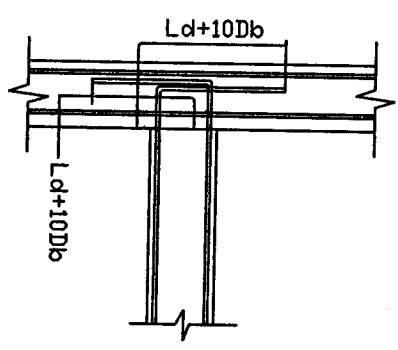
Column and joint detailing

NOTES :

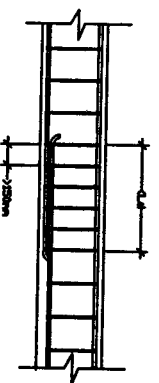
1. Joint which has beam framing into one/two sides shall be provided with special confining steel with a spacing equal to Sl.No 2 within the joint
2. Special Confining Reinforcements shall be provided over a length 'L_o' from each joint face, towards mid span and on either side of any section where flexural yielding may occur under the effect of earthquake forces. The length 'L_o' shall not be less than -
 a). Larger lateral dimension of the member at the section where yielding occurs. b). 1/6 of the clear span of the member. c). 450mm. The spacing of hoops used as special confining steel shall not exceed 1/4 of minimum member dimension but need not be less than 75mm nor more than 100mm.
3. The spacing of hoops within 'Hc-2L_o' shall not exceed half the least lateral dimension of the column, except where special confining reinforcements is provided for splice.
4. Lap length shall be 69 times the diameter of longitudinal reinforcements.
5. A Joint which has beams framing into all four faces shall be provided with a spacing double the special confining steel required at the end of the column. The spacing of the hoop within the joint shall not exceed 150mm.
6. Beam with higher reinforcement should be adopted at the point where two different types of beam meet.



TYPICAL FOUNDATION

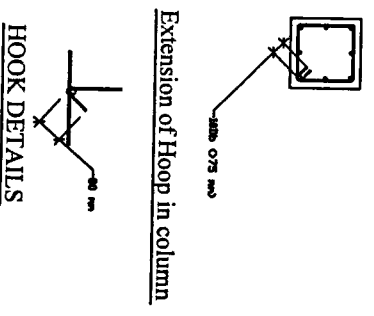


ANCHORAGE OF BEAM AND BAR IN EXTERNAL JOINT



LAP SPLICE IN BEAM

L_d = Development length in tension
 D_b = Bar diameter



Extension of Hoop in column

HOOK DETAILS

DESIGNED BY:

(Er. DENNIS LALHAKHIA) (A)
 State Project Engineer
 Civil Works
 Samagra Shiksha, Mizoram

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)

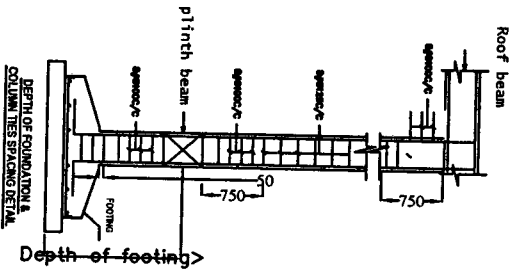
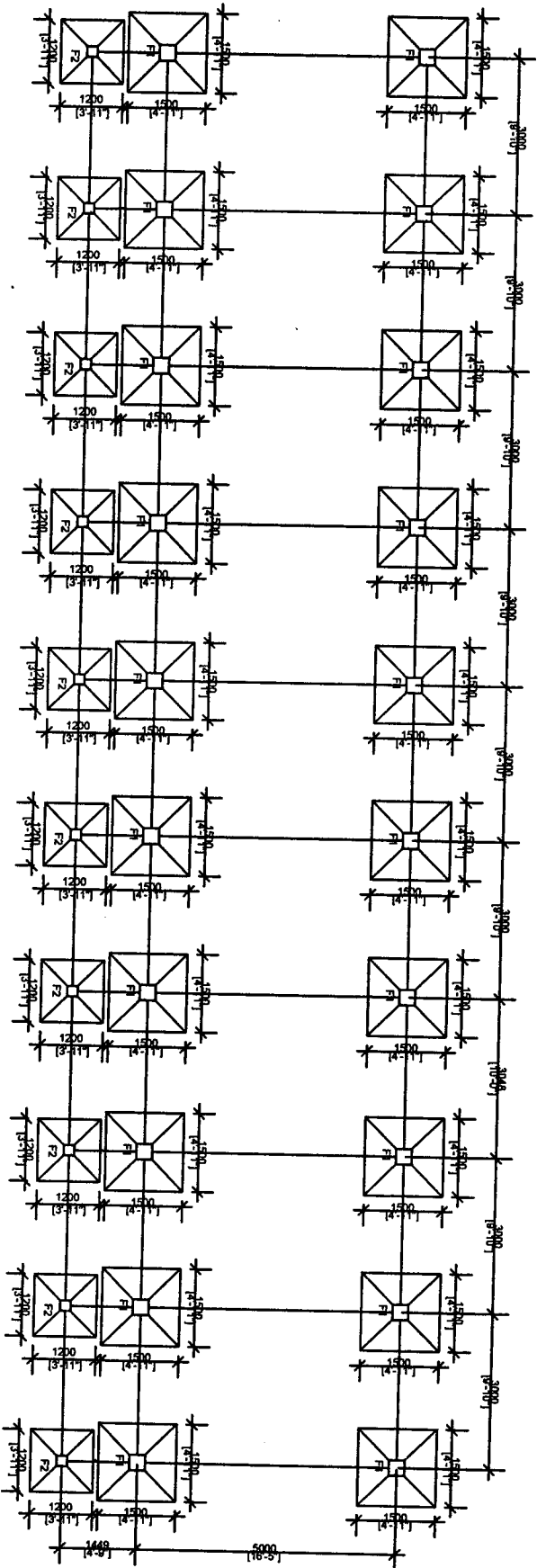
GENERAL SPECIFICATIONS FOR STRUCTURAL DETAILS

SCALE : DRAWING NO:

NTS 1


ALL DIMENSIONS ARE IN MM

FOUNDATION LAYOUT

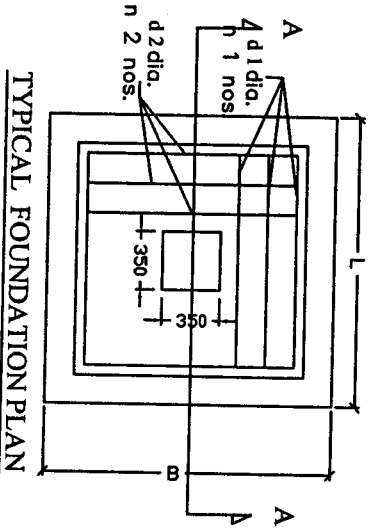
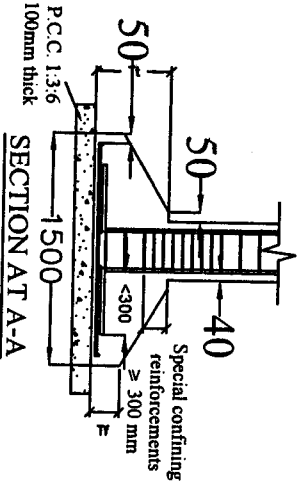


- NOTES:**
1. P.C.C. 1:3:6 100mm thick shall be provided for leveling course below foundation.
 2. Special confining reinforcement shall be extended at least 300mm into the footing or mat when column terminates into the footing of mat.
 3. Clear Cover = 50 mm.
 4. Concrete Grade = M20, Steel = Fe415(Tor Steel)

<p>CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)</p>	<p>SHEET NO. 2</p>
<p>Scale: Not to Scale</p>	<p>Prepared by:</p>
<p><i>All dimensions in mm.</i></p>	


(E. DENNIS LALHLIAM A)
 State Project Engineer
 Civil Works
 Samagra Shiksha, Mizoram

FOUNDATION DETAILS



NOTES :

1. P.C.C. 1:3:6 100mm thick shall be provided for levelling course below foundation.
2. Special confining reinforcement shall be extended at least 300mm into the footing or mat when column terminates into the footing of mat.
3. Clear Cover = 50 mm.
4. Concrete Grade = M20, Steel = Fe415(Tor Steel)

Type of Footing :	Dimensions :		Tf	Tt	L Direction :		B Direction :	
	L	B			d 1 dia.	n 1 nos.	Dia. d 2	n 2 nos.
F1	1500	1500	150	300	12 mm	15	12 mm	15
F2	1200	1200	150	300	12 mm	12	12 mm	12

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)

SHEET NO: 3

Scale:
Not to Scale

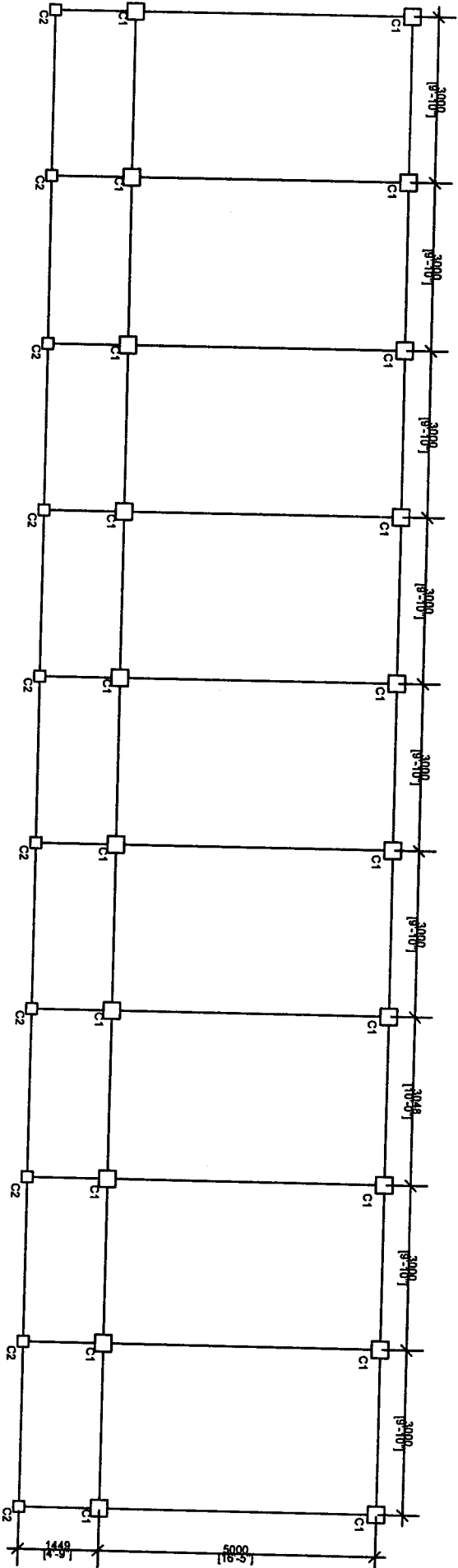
*All dimensions
in mm*

Prepared by:

(E. DENNIS LALITHA)
State Project Engineer
Civil Works

Samagra Shiksha, Mizoram

COLUMNS LAYOUT

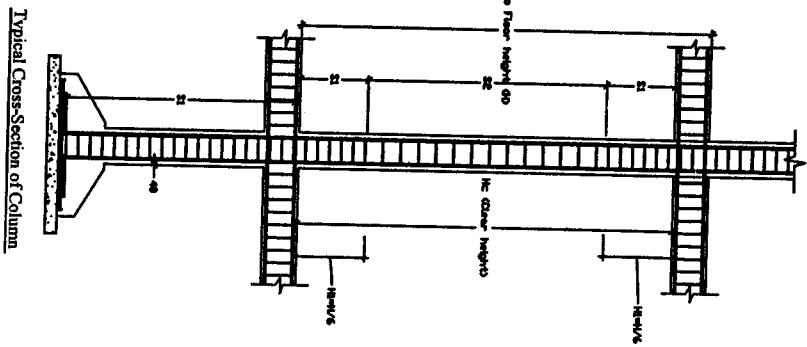
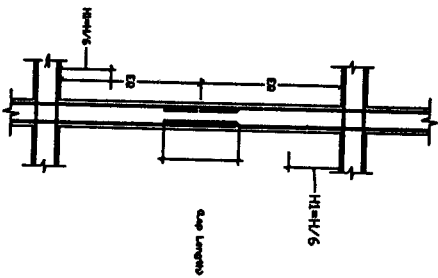


- NOTES :**
1. Main Reinforcement and Lateral ties shall be of Top Steel Fe-415 Grade.
 2. Lap length of steel in compression members shall be at least 480 mm and lapping to be provided at a distance beyond beam-column joint with less than @ 150 mm c/c.
 3. Clear Cover shall be maintained as specified.
 4. Provide 135 degree hook, hook length = 80mm at each hook.
 5. Grade of Concrete = M20.

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)		SHEET NO. : 4
Scale: Not to Scale		Prepared by:
All dimensions in mm		

Dr. DENNIS LATHIMPUTAY
 State Project Engineer
 Civil Works
 Samagra Shiksha, Mizoram

COLUMN DETAILS



COLUMN MARKED	DETAIL OF COLUMN SECTIONS			Lateral Ties			
	AT GROUND FLOOR	AT FIRST FLOOR LEVEL	MULTIPLY	S1 mm	S2 mm	H1 mm	Dia. mm
C1				100	150	500	8
C2				100	150	500	8

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)

STRUCTURAL DETAILS FOR ALL FLOOR COLUMNS

DRAWING NO: 5

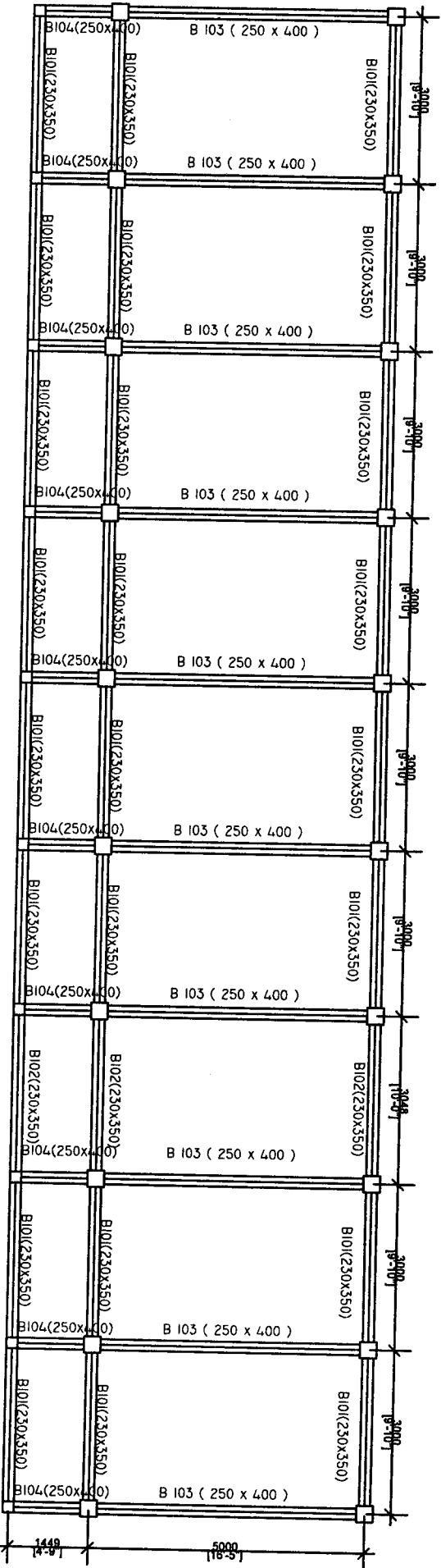
DESIGNED BY:

SCALE : N T S

ALL DIMENSIONS ARE IN MM

(E. DENNIS LALHIMPUIA)
 State Project Engineer
 Civil Works
 Samagra Shiksha, Mizoram

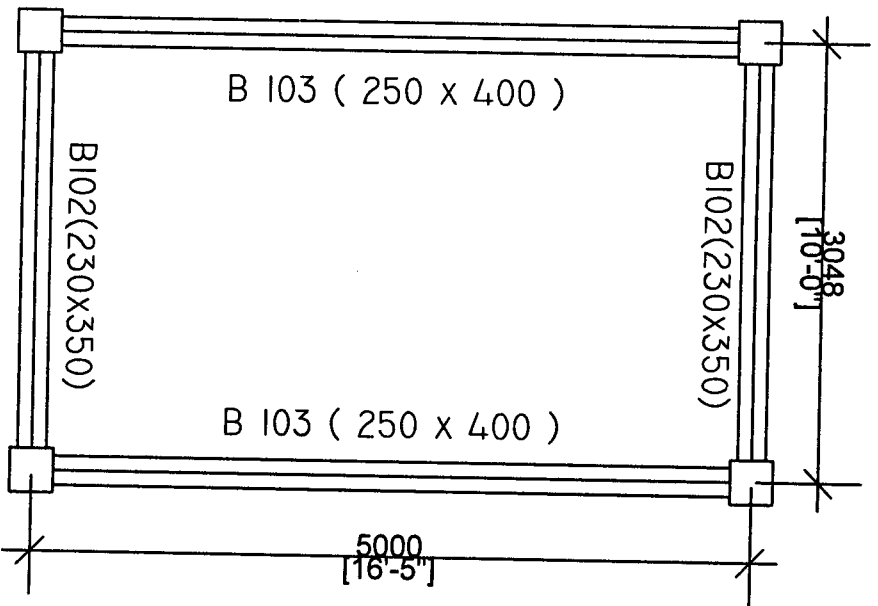
DETAILS OF BEAM



CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)	
Scale: Not to Scale	Prepared by:
<i>All dimensions in mm</i>	
SHEET NO.- 6	

(E. DENNIS LALHIMPUIA)
 State Project Engineer
 Civil Works
 Samagra Shiksha, Mizoram

DETAILS OF MUMTTY BEAM



SHEET NO: 7

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)

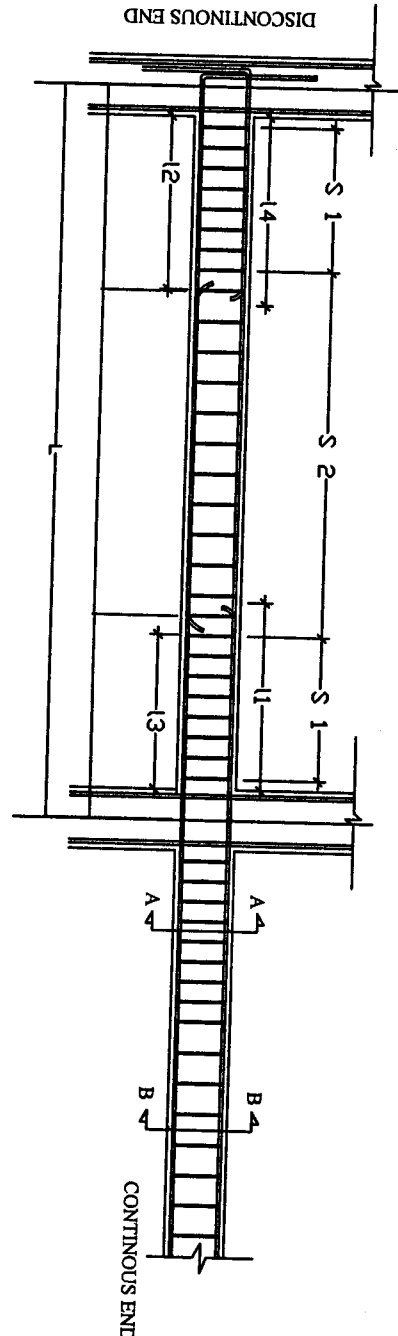
Scale:
Not to Scale

All dimensions
in mm

Prepared by:

(E. DENNIS LALHLIM (A)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

TYPICAL LONG SECTION OF BEAM



LAP SPlice IN BEAM
 L_d = Development length in tension
 D_b = Bar diameter

Where,
 S_1 = Spacing of stirrups for a length of $2d$
 S_2 = Spacing of stirrups in the mid-span
 L_d = development length of bar in tension
 L = Length of beam (C/C of column)

Typical long section of beam

Type of Beam :	Dimensions : (mm)	Section at A-A	Section at B-B	L (mm)	l 1 (mm)	l 2 (mm)	l 3 (mm)	l 4 (mm)	S 1	S 2
B 101	230 x 350			3000	900	450	760	600	Beam dia. 170 mm. Top steel. 2-legged. 100 mm c/c.	Beam dia. 170 mm. Top steel. 2-legged. 150 mm c/c.
B 102	230 x 350			3048	920	460	760	600	Beam dia. 170 mm. Top steel. 2-legged. 100 mm c/c.	Beam dia. 170 mm. Top steel. 2-legged. 150 mm c/c.
B 103	250 x 400			5000	1500	750	1250	1000	Beam dia. 170 mm. Top steel. 2-legged. 100 mm c/c.	Beam dia. 170 mm. Top steel. 2-legged. 150 mm c/c.
B 104	250 x 400			1449	430	220	360	290	Beam dia. 170 mm. Top steel. 2-legged. 100 mm c/c.	Beam dia. 170 mm. Top steel. 2-legged. 150 mm c/c.

- SPECIFICATIONS :**
1. Clear Cover for Beam = 25mm.
 2. Grade of Steel = Fe 415
 3. Grade of Concrete = M 20
 4. The first hoop shall be at a distance not exceeding 50mm from the joint face.
 5. Minimum Curing Period = 28 days
 6. Beam with higher reinforcement should be adopted at the point where two different types of beam meet.

(E. DENNIS LALHIM A)
 State Project Engineer
 Civil Works
 Sarmaga Shiksha, Mizoram

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)

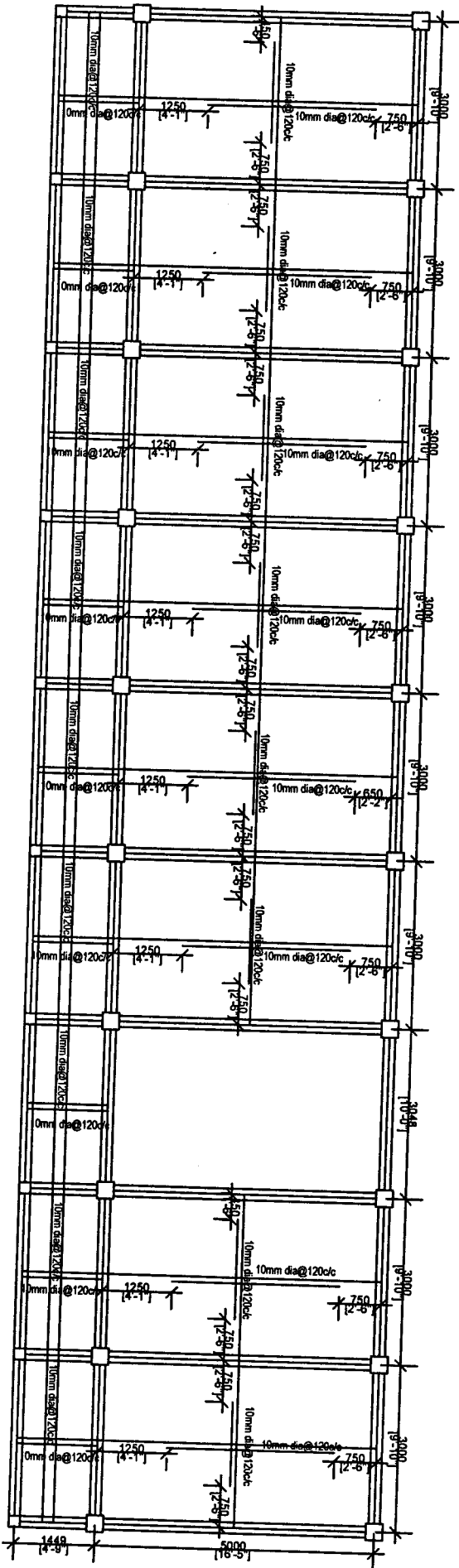
Certified that the requirements of Regulation 30 of the Aizawl Municipal Council Building regulations, 2012, have been complied with in the preparation of this structural drawing.

SHEET NO: 8

Scale: All dimensions in mm

Not to Scale

DETAILS OF SLAB

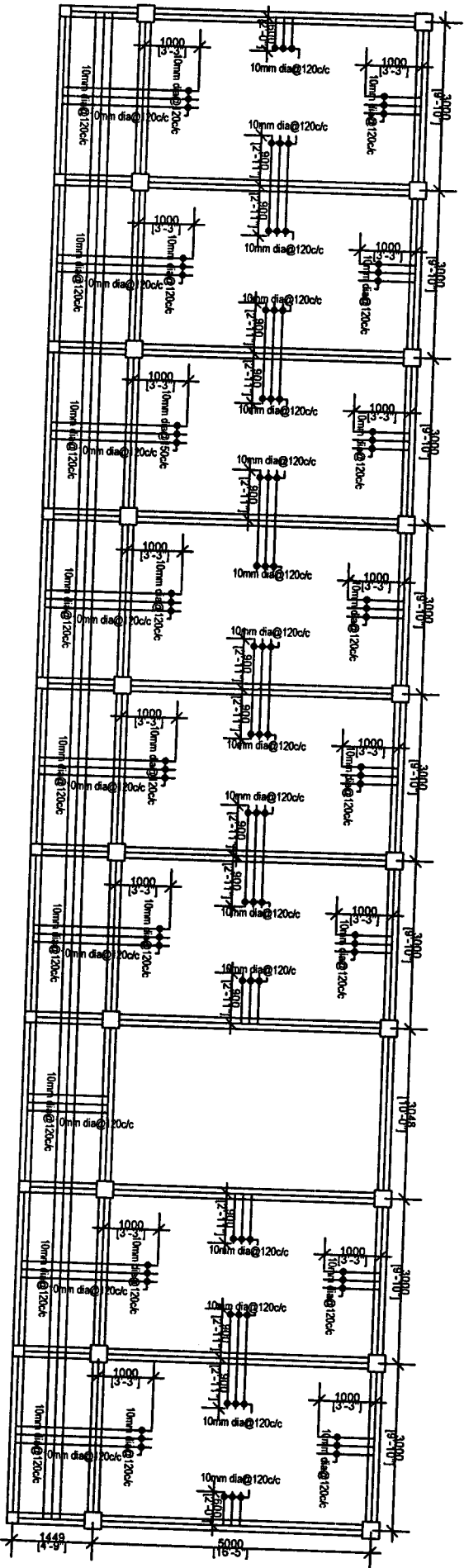


BOTTOM REINFORCEMENT

<p>CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)</p>	<p>SHEET NO: 9</p>
<p>Scale: Not to Scale</p>	
<p><i>All dimensions in mm</i></p>	
<p>Prepared by: <i>[Signature]</i></p>	
<p>(Er DENNIS LALHIMPUJA) State Project Engineer Civil Works</p>	

Samagra Shiksha, Mizoram

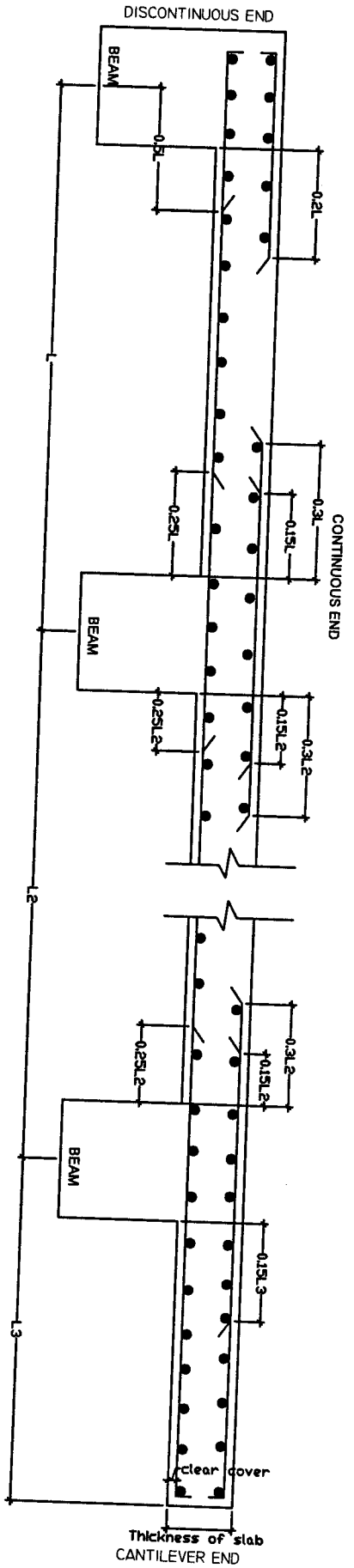
DETAILS OF SLAB



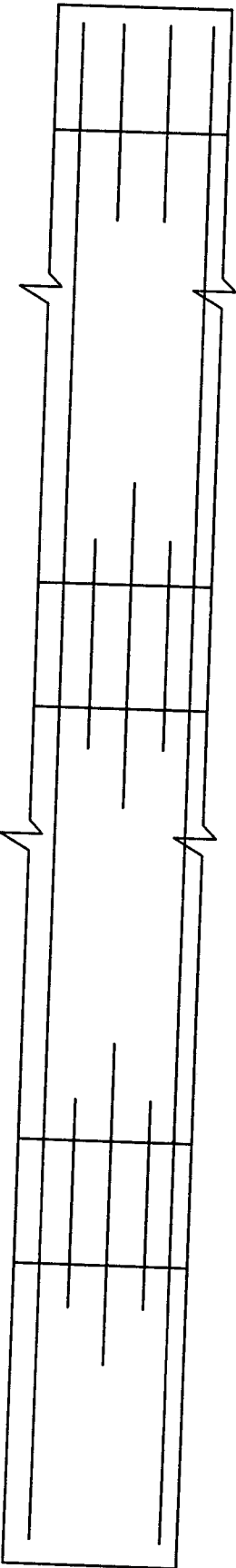
TOP REINFORCEMENT

<p>CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)</p>	<p>SHEET NO: 10</p>
<p>Scale: Not to Scale</p>	<p>Prepared by:</p>
<p><i>All dimensions in mm</i></p>	<p>(E. DENNIS LALHIMPUIA) State Project Engineer Civil Works Samagra Shiksha, Mizoram</p>

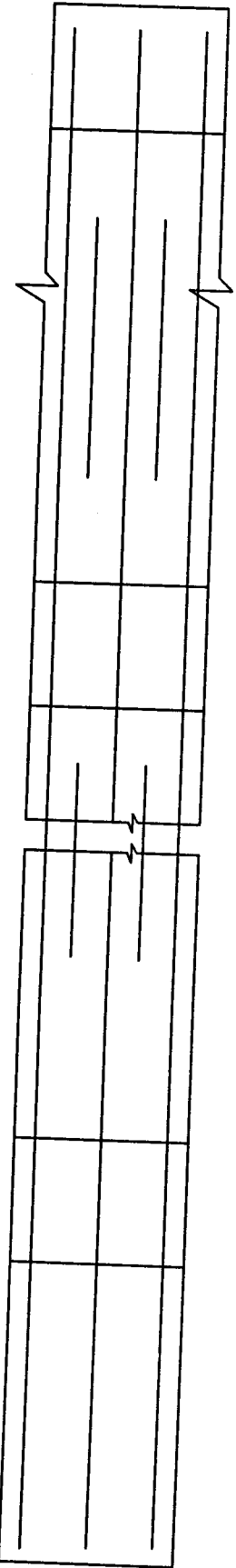
TYPICAL SLAB DRAWING



TYPICAL LONG SECTION OF SLAB AT MID STRIP X-X



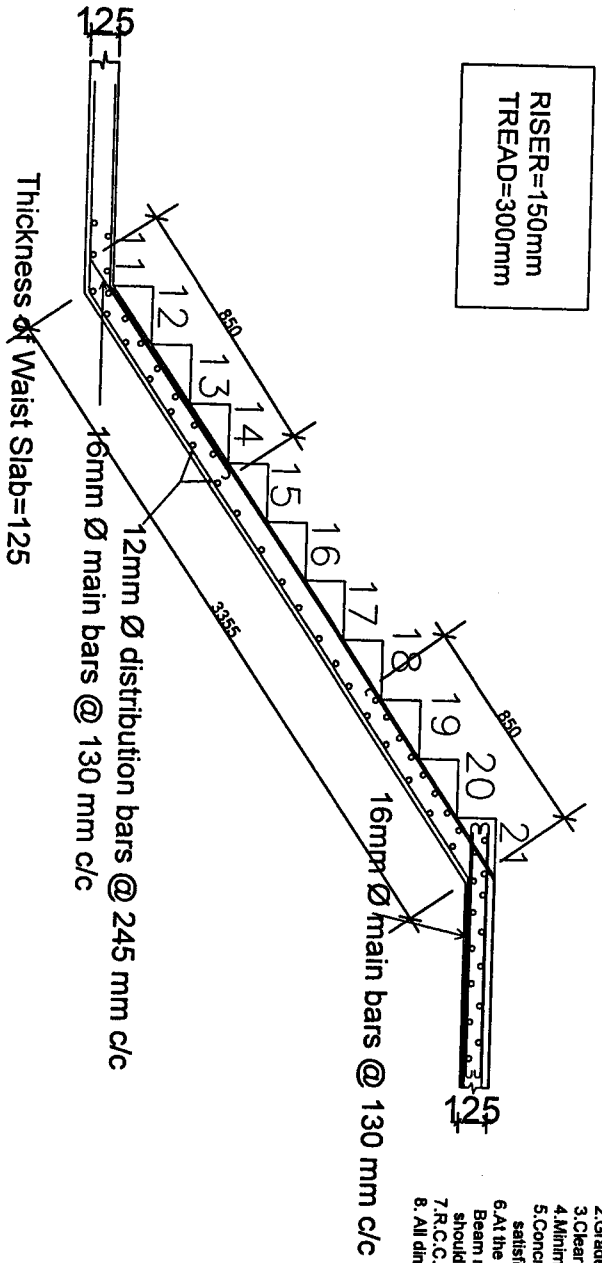
PLAN OF TOP MAIN REINFORCEMENT



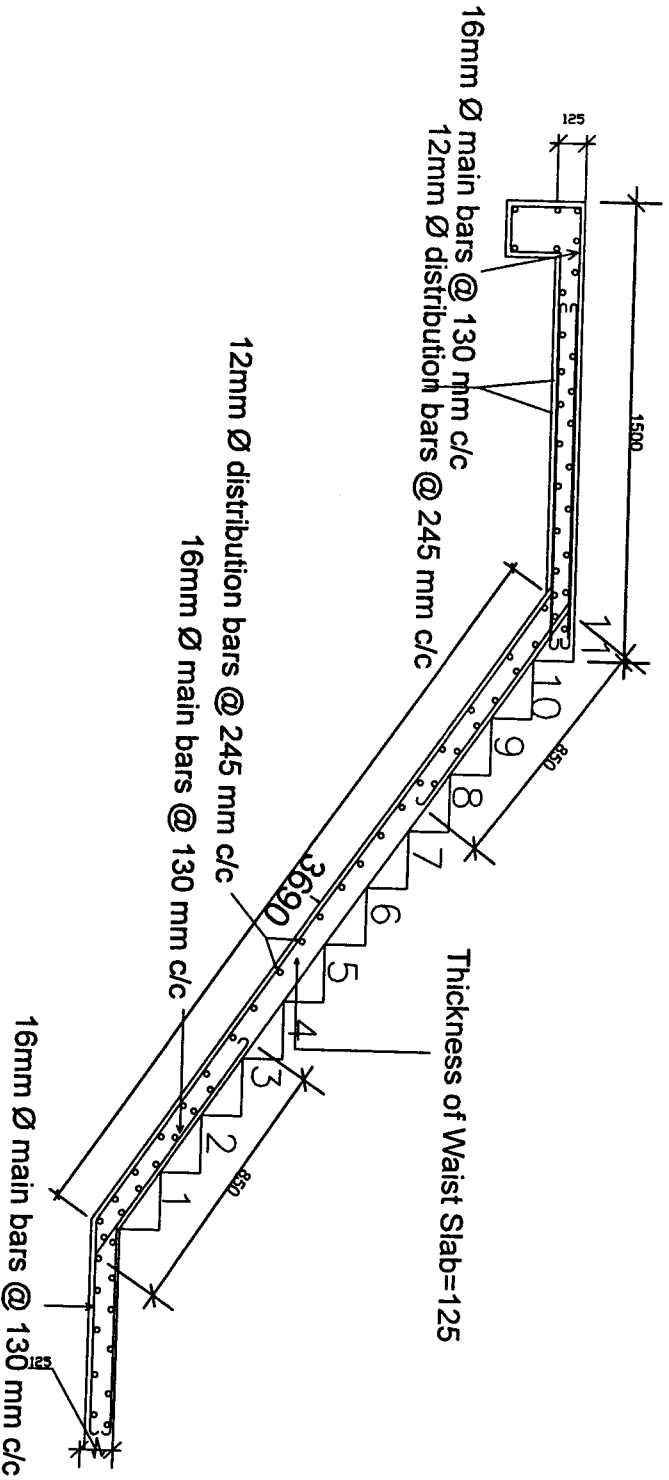
PLAN OF BOTTOM MAIN REINFORCEMENT

CONSTRUCTION OF NGOIPA HSS (SCIENCE & COMMERCE STREAM)		SHEET NO. 11
Scale: Not to Scale	Prepared by: P. T. D.	
All Dimensions in mm	State: Mizoram	
Sangmeeta Shiksha, Mizoram		Civil Works

RISER=1500mm
TREAD=3000mm



1. Grade of Cement Concrete = M20.
2. Grade of Steel = Fe 415.
3. Clear Cover = 20mm.
4. Minimum Curing Period = 28 days.
5. Concrete and Steel must be tested and should satisfy the strength specified above.
6. At the point where two different types of Beam meet, Beam with higher reinforcement should be adopted.
7. R.C.C. Slab & Brick Walling
8. All dimension are in mm, but not to scale.



CONSTRUCTION OF NGOPA HSS
(SCIENCE & COMMERCE
STREAM)

STRUCTURAL DETAILS FOR
STAIRCASE

DESIGNED BY:

(E. DENNIS LALHLIPUIJA)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

SCALE :

NTS

ALL DIMENSIONS ARE IN MM

BILL OF QUANTITIES FOR CONSTRUCTION OF NEW HSS- SCIENCE & COMMERCE STREAM AT NGOPA

Sl.no	Description of Items	Unit	Qty	Rate		Amount
				in figure	in words	
1/2.06	Earthwork in excavation over areas (exceeding 30cm in depth, 1.5m in width as well as 10sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
	(a) Ordinary and Hard Soil	cum	781.800			
2/2.08	Earthwork in excavation in foundation trenches etc. not exceeding 2 meters depth including dressing of bottom and sides of trenches and subsequent filling and compaction in 15cm layers as in column foundations, fence posts, etc. and disposal of all surplus soil as directed within a lead of 30 metres.					
	(a) Ordinary Soil	cum	111.600			
3/2.17	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.					
	2/3 of qty taken from 2/2.08	cum	74.400			
4/4.03	Providing and laying in position cement concrete of specified grade excluding cost of centering and shuttering - All work upto plinth level:					
	b) 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size)	cum	30.469			
5/5.01	Providing and laying in position reinforced cement concrete excluding cost of centering and shuttering, finishing and reinforcement in -					
	All work upto plinth level :					
	(a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)	cum	26.138			

(E. DENNIS LALHIMPUIA)
State Project Engineer
Civil Works

6/5.02	Reinforced cement concrete work in walls including attached plasters, columns, pillars, posts, piers, abutments, return walls, retaining walls, struts, buttresses, string or lacing courses, fillers etc. upto floor five level excluding cost of centering shuttering etc complete.					
	a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)	cum	30.25			
7/5.03	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement complete.					
	a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)	cum	152.25			
8/5.18	Steel reinforcement for RCC work including straightening, cutting, bending, placing in position and binding all complete					
	b) Thermo-Mechanically Treated Bars	kg	36880.744			
9/5.10	Centering and shuttering including strutting, propping, etc. and removal of form works in -					
	(a) Foundations, footings, bases of columns etc. for mass concrete.	sqm	72.8			
	(b) Columns, pillars, piers, abutments, posts and struts.					
	(c) Column					
	350x350 mm	sqm	210.000			
	250x250 mm	sqm	64.000			
	Lintels, beams, plinth beams, girders, bressumers and cantilevers, etc.	sqm	274.000			
	(d) Beams.					
	230x350 mm	sqm	232.500			
	250x400 mm	sqm	176.400			
		sqm	408.90			

	e)	Suspended floors, roofs, landings, shelves and their support, balconies and chajjaj, etc.	sgm	766.39		
	f)	Staircases (except spiral staircase) excluding landings.	sgm	48.50		
10/6.09		7.5 cm thick brick masonry with first class brick in superstructure above plinth level upto floor two level including curing, etc. complete.				
	a)	in cement mortar 1:3 (1 cement : 3 coarse sand)	sgm	680.516		
11/9.06		Providing 1st class local wood dressed in frames of chaukat for doors, windows, clerestory windows fixed in position.	cum	1.170		
12/9.10		Providing and fixing 1st class teak wood paneled shutters for doors etc. including M.S. butt hinges with necessary screws, etc. complete.				
	a)	40 mm thick.	sgm	44.69		
13/11.01		Providing and fixing anodised aluminium work for doors, windows, ventilators and partitions with extruded built up standard sections/ other sections of approved make conforming to IS : 733 and IS : 1285 fixing with dash fasteners of required dia and size, including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ neoprene gaskets etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including clear angle, aluminium snap beading for glazing/paneling, CP brass /stainless steel screws all complete including fixing of glasses but excluding cost of glasses.				
	a)	Natural colour				
	i)	2 - track sliding windows/ventilators.	sgm	137.10		
14/11.02		Supplying of glass panes at site				
	a)	4mm thick plate sheet glass.	sgm	137.10		
15/20.11		15mm cement plaster 1 : 3 (1 cement : 3 fine sand).	sgm	2919.13		

(Er. DENNIS LALHUMPIIJA)
State Project Engineer
Civil Works

Samagra Shiksha, Mizoram

16/10.10	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer. (round, square or rectangular hollow tubes etc.)					
	a) GI tube 40mm @ 3.72 Kg/m	kg	3613.20			
17/12.11	Providing and ceramic glazed floor tiles of size 300x300mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS: 15622 of approved make in all colours, shades, except white, ivory, grey, fume red brown, laid on 20mm thick cement mortar 1 : 4 (1 cement : 4 course sand) including pointing the joints with white cement and matching pigments etc. complete. as per designed colour.					
	b) Matt/Antiscratch	sqm	21.47			
18/20.51	Applying priming coat with ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood) & Plywood.	sqm	76.85			
19/20.72	Painting with synthetic enamel paint of approved brand and manufacture in all shades on new work (two or more coats).					
	a) General quality	sqm	76.848			
20/20.75	Finishing walls with exterior emulsion of required shade on new work (three or more coats) to give an even shade.					
	a) Regular exterior emulsion like supercote, walmasta etc.	sqm	2919.13			
21/20.50	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface :	sqm	2919.13			
22/14.11	Providing and fixing bright finished M.S two lever mortise door lock with necessary screws, etc. complete.					
	a) Union type	Nos	18.00			
23/14.07	Providing and fixing M.S. Tower bolts (socket bolts) bright finished with necessary screws etc. complete.					
	a) 300 mm	Nos	72.00			


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Civil Works

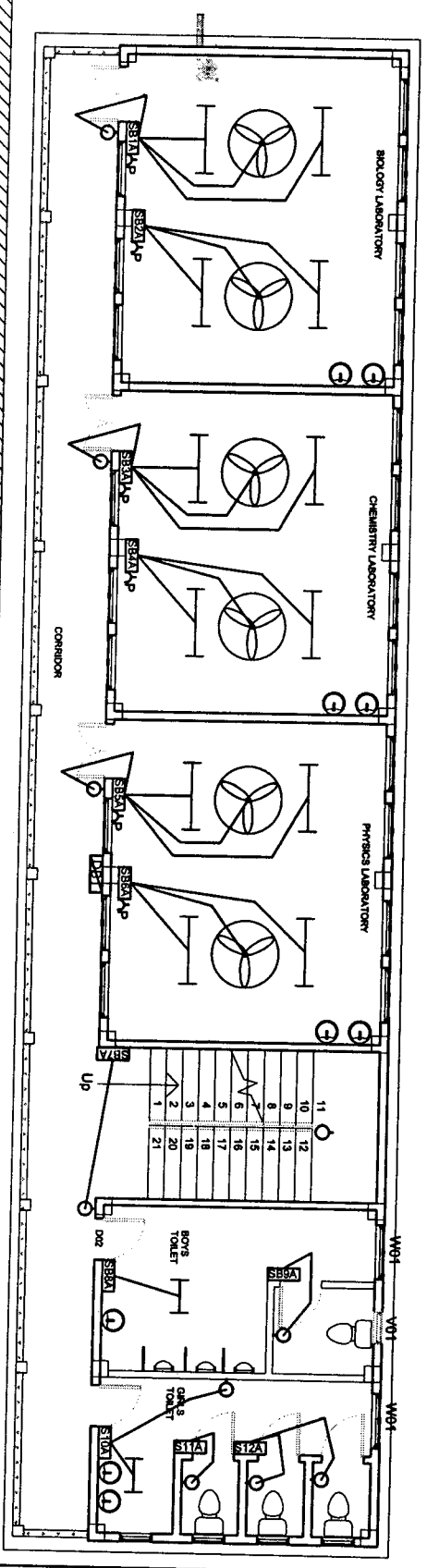
24/14.10	Providing and fixing M.S. handles with necessary screws, etc. complete						
	(a) 150mm	Nos	72.00				
25/18.01	Providing and fixing on terrace (at all floor levels) Polyethylene storage tank of approved brand and manufacture with cover and mosquito proof coupling and suitable locking arrangement and making necessary connections for inlet, outlet and overflow pipes but without the cost for base support.						
	a) Sintex or equivalent	lit	4000.00				
26/17.33	Providing and fixing on wall face SWRPVC soil, waste and vent pipes including jointing with rubber lubricant/cement solvent complete.						
	a) 110mm dia.	m	100.00				
27/17.34	Providing and fixing SWRPVC plain bend of required degree (87.50°) including jointing with rubber lubricant/cement solvent complete.						
	a) 110 mm dia.	Nos	22.00				
28/17.35	Providing and fixing SWRPVC plain bend of required degree (45°) including jointing with rubber lubricant/cement solvent complete.						
	a) 110 mm dia.	Nos	15.00				
29/17.37	Providing and fixing single equal SWRPVC plain junction of required degree (T-junction).						
	a) 110x110x110 mm	Nos	17.00				
30/17.42	Providing and fixing ventilation cowl including jointing with rubber lubricant/cement solvent complete.						
	a) 110 mm dia.	Nos	7.00				
31/17.04	Providing and fixing vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :						
	i) White	Nos	7.00				

32/18.25	Providing and fixing PVC pipes complete with fittings and clamps, including cutting and making good the walls etc. (internal work).						
	b) 20mm dia nominal bore	<i>mm</i>	50.000				
33/18.02	Providing and fixing G.I. pipes complete with G.I. fitting and clamps, including cutting and making good the walls etc. (internal works- exposed on wall).						
	a) 20mm dia nominal bore	<i>mm</i>	50.00				
34/18.07	Providing and fixing brass bib cock of approved quality.						
	b) 20mm nominal bore	<i>Nos</i>	20.000				
35/18.08	Providing and fixing brass stop cock of approved quality.						
	b) 20mm nominal bore	<i>Nos</i>	14.000				
36/18.09	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work).						
	b) 20 mm nominal bore	<i>Nos</i>	15.000				
37/17.16	Providing and fixing White vitreous china wash basin Standard of Parryware/ Hindware/ Cera and equivalent make with R.S. or C.I. brackets, 15mm C.P. brass pillar taps, C.P. brass chain with rubber plugs, 32mm C.P. brass waste of standard pattern, 32mm C.P. brass traps and union complete including painting of fittings and brackets, cutting and making good the walls wherever required.						
	b) Vitreous China Wash basin Compact 450 x 300 mm with single 15 mm C.P. brass pillar taps						
	i) white	<i>Nos</i>	14.000				
38/18.51	Providing and placing in position electric water pump of approved manufacture including connections to G.I pipes etc. complete with accessories.						
	b) 750 watts	<i>each</i>	1.00				


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39/17.24	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :	Nos	14.00			
40/17.29	Providing and fixing anodised aluminium towel rail with two anodised aluminium brackets to wooden cleats with C.P. brass screws.					
	a) 750x20mm size.	Nos	7.00			
41/17.30	Providing and fixing toilet paper holder.					
	b) Plastic toilet paper holder of standard size.	Nos	11.00			
42/17.31	Providing and fixing liquid soap container with C.P. brass lid and brackets fixed to wooden cleats with C.P. brass screws.					
	a) Glass container with C.P. lid and brackets.	Nos	7.00			
43/17.11	Providing and fixing vitreous china Urinal Flat Back Small 44 x 26.5 x 31.5cm size of Parryware/ Hindware/ Cera and equivalent make with flush valve/spray with C.I or R.S brackets standard size of G.I flush pipe and C.P brass spreaders with brass unions and G.I clamps complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required.					
	i) White	Nos	6.00			
44/7.01	Regular coursed rubble masonry with hard stone in foundation upto one storey above and below ground level including curing, etc. complete.					
	c) in cement mortar 1 : 6 (1 cement : 6 fine sand)	cum	67.50			
45/10.16	Steel work welded in built up sections/framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
	b) In a grating, frames, guard bar, ladders, railings, brackets, gates & similar works.	kg	1031.07			

46/12.01	Cement concrete flooring 1:2:4 (1 cement : 2 sand : 4 well graded stone aggregate 20mm size) finished with a floating coat neat cement including cement slurry etc. complete but excluding the cost of nosing of steps etc.						
	40 mm thick with 20 mm nominal size stone aggregate	sqm	440.68				
47/10.04	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size with top and bottom rails of T-iron 40x40x6mm with 40mm dia. steel pulleys complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer.	sqm	10.08				
SEPTIC TANK							
1/2.08	Earthwork in excavation in foundation trenches etc. not exceeding 2 meters depth including dressing of bottom and sides of trenches and subsequent filling and compaction in 15cm layers as in column foundations, fence posts, etc. and disposal of all surplus soil as directed within a lead of 30 metres.						
	(a) Ordinary Soil	m ³	12.400				
2/5.03	Reinforced cement concrete work in beams, suspended floor..... reinforcement complete.						
	(a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)	m ³	1.185				
3/5.10	Centering and shuttering including strutting, propping, etc. and removal of form works in -						
	(c) Suspended floors, roofs, landings,	m ²	4.671				
4/20.08	12mm cement plaster 1 : 4 (1 cement : 4 fine sand).	m ²	14.795				
5/5.18	Steel reinforcement for RCC work including straightening, cutting, bending, placing in position and binding all complete						
	(b) Thermo-Mechanically Treated Bars						
	@ 0.62/ Rm	RM	66.87				



RETAINING WALL

BASEMENT

LEGENDS

- LED Batten fitting 1 x 20W
4' with LED tube
- LED Batten fitting 1 x 12W
2' with LED tube
- 1200mm sweep Ceiling fan
- Wall mounting light(15 W CFL)
- Control Switch board(Modular)
- Semp S/S comb Plug
- 1 temp S/S comb Plug
- Circuit Distribution board
- Main Distribution Board



SHEET NO. : 1

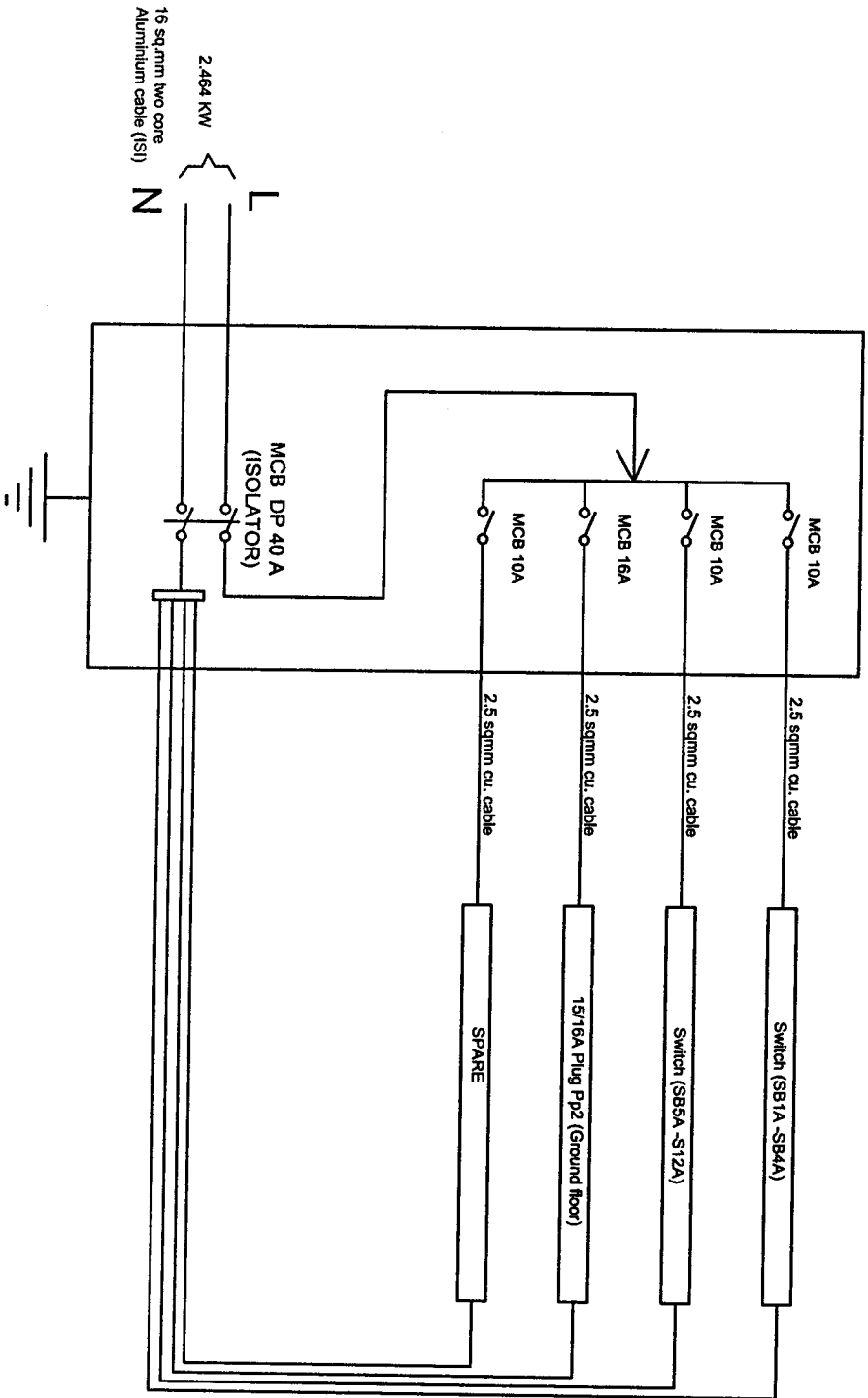
(E. R. LALNUFELA)
Programme Officer
Civil works

Samagra Shiksha, Mizoram

(E. DENNIS LALHIMPUIJA)
State Project Engineer
Civil Works

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6-way MCB DB SP & N D/D



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PROJECT

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SALTUAL DISTRICT

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DRAWING : SINGLE LINE DIAGRAM



DATE : 09/07/2024

SCALE : NOT TO SCALE

SHEET NO : 02

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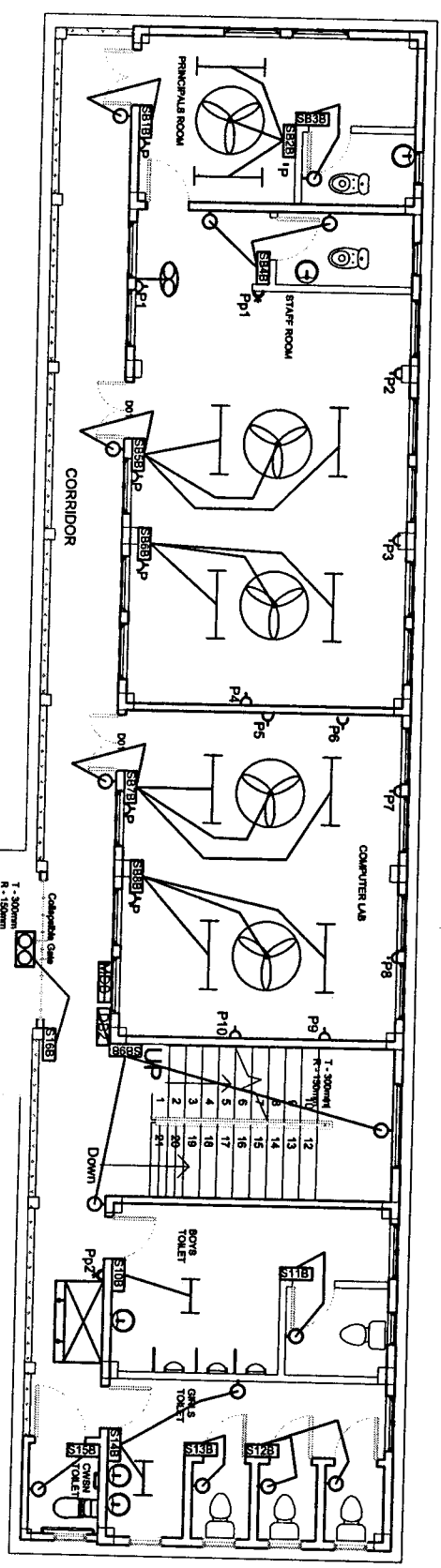
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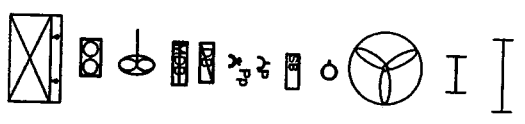
Samagra Shiksha, Mizoram

GROUND FLOOR



LEGENDS

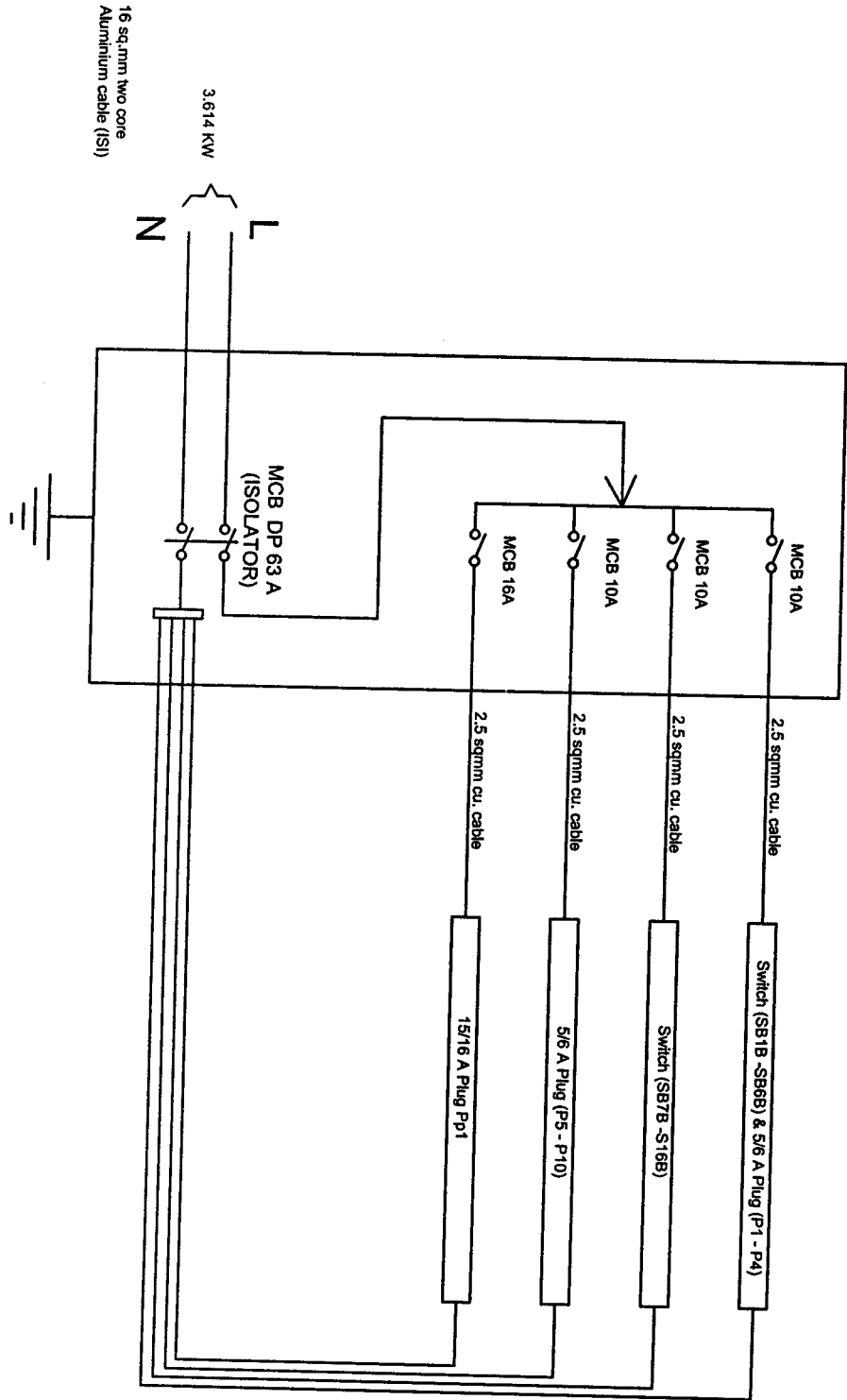
- LED Batten fitting 1 x 20W
4' with LED tube
- LED Batten fitting 1 x 12W
2' with LED tube
- 1200mm sweep Ceiling fan
- Wall mounting light(15 W CFL)
- Control Switch beam(Modular)
- Stamp SS comb Plug
- 1amp SS comb Plug
- Circuit Distribution board
- Main Distribution Board
- Bracket wall mounted fan
400mm sweeps
- Flood light(2X65 W CFL)
- Water Cooler 120 ltrs



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Programme Officer
Civil works
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6-way MCB DB SP & N D/D



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Samagra Shiksha, Mizoram

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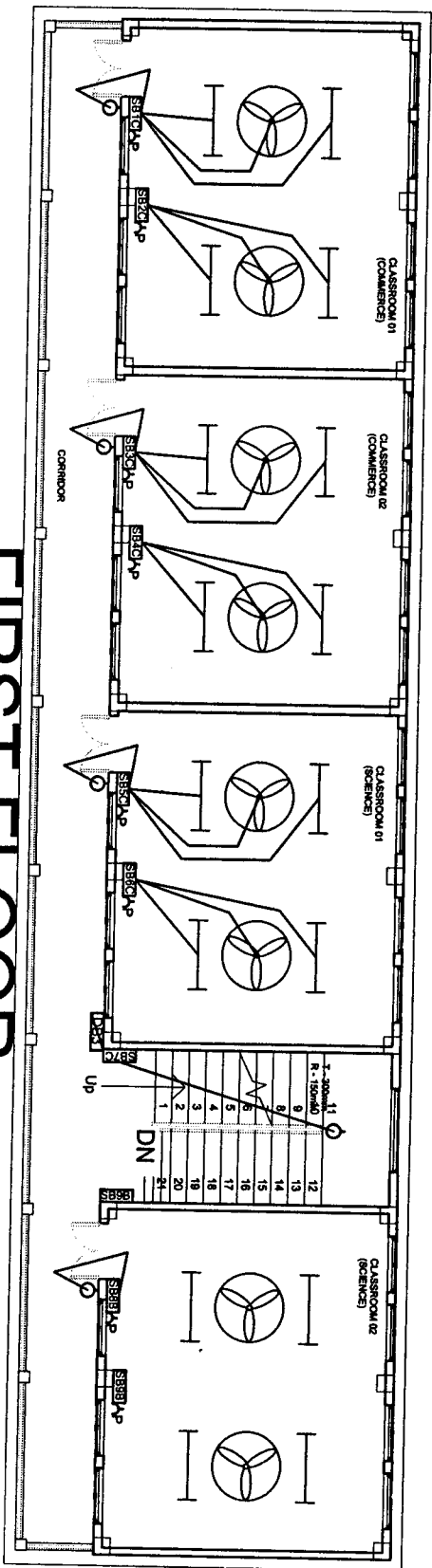
State Project Engineer

Civil Works

Samagra Shiksha, Mizoram

PROJECT	
NCOPA HSS SCIENCE & COMMERCE STREAM SALTUAL DISTRICT	
NOTES	
STATE PROJECT OFFICE SAMAGRA SHIKSHA, MIZORAM	
DRAWING : SINGLE LINE DIAGRAM	
DATE : 09/07/2024	SHEET NO : 04
SCALE : NOT TO SCALE	DRAWN BY
COUNTERSIGNED BY	

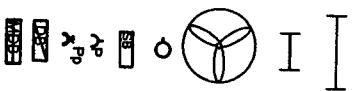
FIRST FLOOR





LEGENDS

SHEET NO. : 5

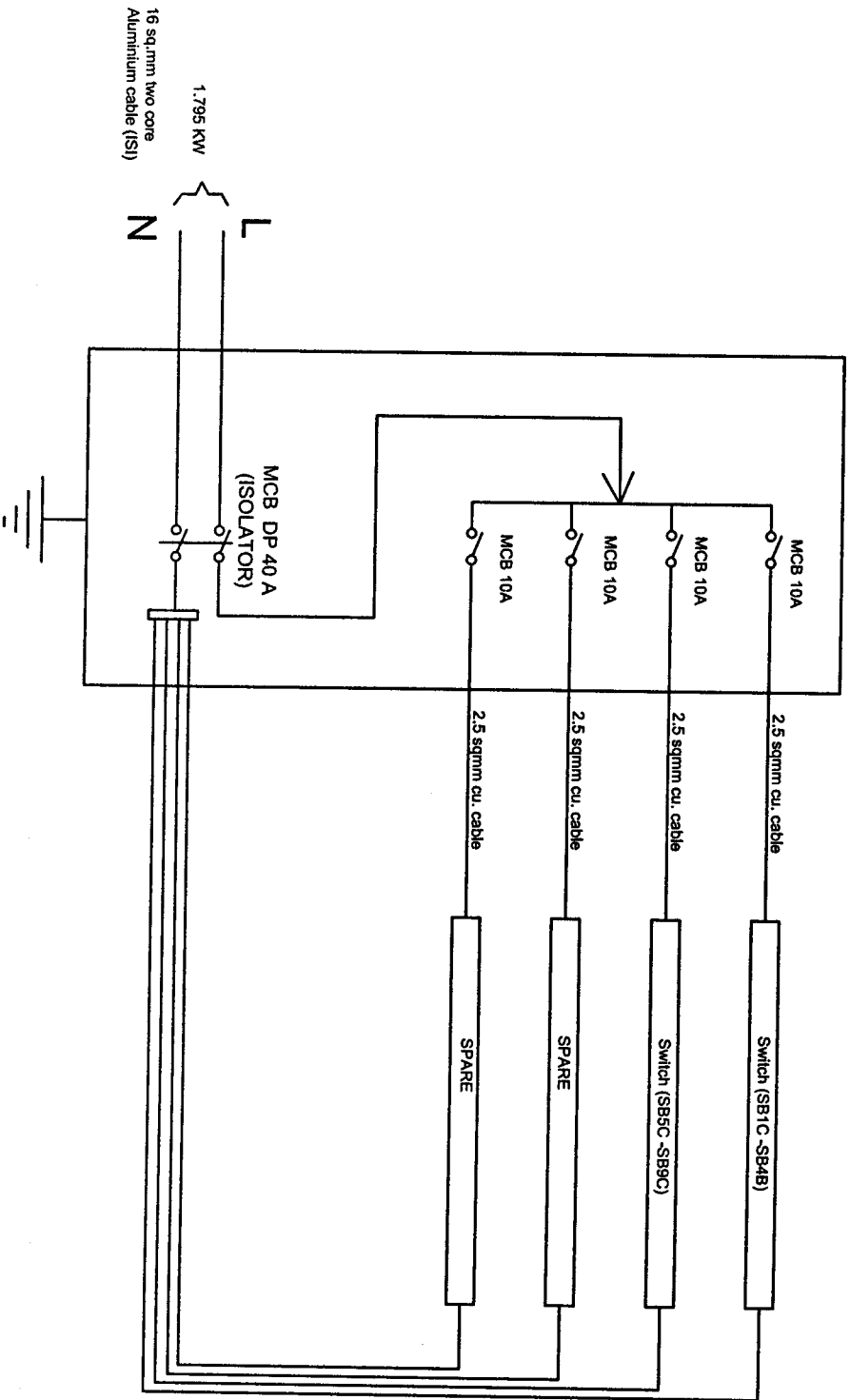
- LED Batten fitting 1 x 20W
4' with LED tube
- LED Batten fitting 1 x 12W
2' with LED tube
- 1200mm sweep Ceiling fan
- Wall mounting light(1.5 W CFL)
- Control Switch beam(Module)
- Temp S/S comb Plug
- Temp S/S comb Plug
- Circuit Distribution board
- Main Distribution Board




(Er. R. LALNUNFELA)
 Programme Officer
 Civil works
 Samagra Shiksha, Mizoram


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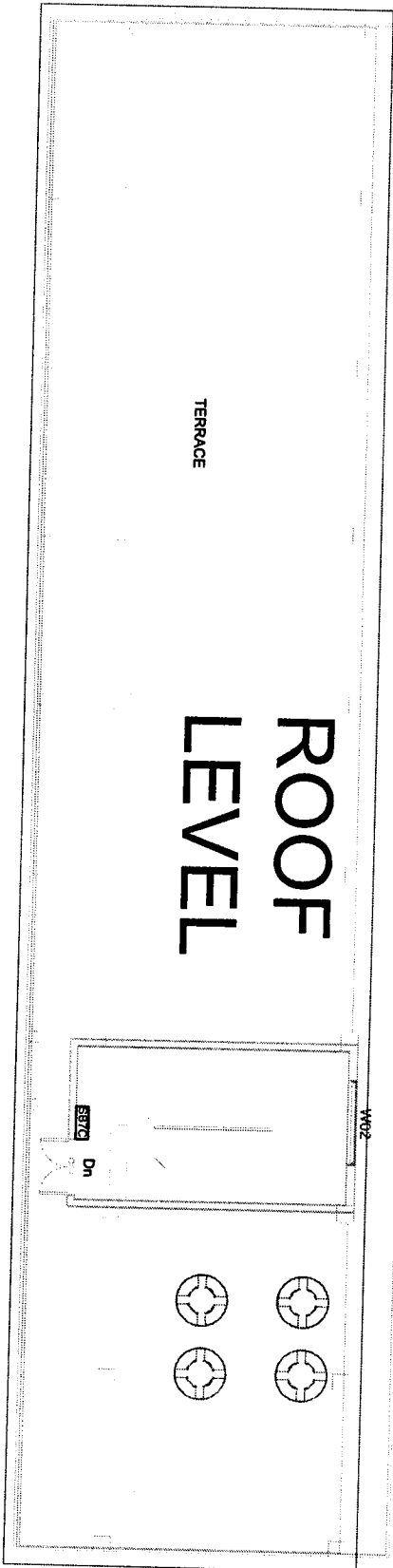
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PROJECT	
NCOPA HSS SCIENCE & COMMERCE STREAM SAITUAL DISTRICT	
NOTES	
STATE PROJECT OFFICE SAMAGRA SHIKSHA, MIZORAM	
DRAWING : SINGLE LINE DIAGRAM	
DATE : 09/07/2024	SHEET NO : 06
SCALE : NOT TO SCALE	DRAWN BY
COUNTERSIGNED BY	
<p>(E. DENNIS LALHIMPUIA) State Project Engineer Civil Works Samagra Shiksha, Mizoram</p>	



ROOF LEVEL

TERRACE

W02

S07C

Dn

LEGENDS

SHEET NO. 7

LED Batten fitting 1 x 20W
4 with LED tube

LED Batten fitting 1 x 12W
2 with LED tube

1200mm sweep Ceiling fan

Wall mounting light (5 W CFL)

Control Switch board/Module

Stamp S/S comb Plug

1temp S/S comb Plug

Circuit Distribution board
Main Distribution Board




[Signature]
 (E. R. LALNUNFELA)
 Programme Officer
 Civil works
 Samagra Shiksha, Mizoram

[Signature]
 (E. DENNIS LALHIMPUIA)
 State Project Engineer
 Civil Works
 Samagra Shiksha, Mizoram

BILL OF QUANTITIES
NAME OF WORK : ELECTRIFICATION OF NGOPA HSS (Sc. & Commerce) ; SAITUAL DISTRICT

SOR	DESCRIPTION OF MATERIAL	UNIT	QUANTITY	RATE		AMOUNT
				In figure	In words	
C:02:01	SURFACE PVC CASING & CAPPING COPPER WIRING (GRADE-II) LIGHT POINT, CEILING FAN POINT, EXHAUST FAN POINT ETC (MODULAR TYPE) Wiring in looping system with PVC wire sheathed standard copper conductor/wires as per IS:694 (1990) and Flame retardant low smoke & Halogen (FR-LSH) 1100 voltage graded copper flexible wire stranded copper running inside PVC casing & capping (Gr-II) 20mm dia fixed, surface on the wall/ceiling/floor as per convenience including junction box having required numbers of ways from control switch to the light point etc as required:- LIGHT POINT					
C:02:02	LIGHT PLUG/SOCKET POINT 5/6 AMPERES (MODULAR TYPE) Wiring in looping system with PVC wire sheathed standard copper conductor/wires as per IS:694 (1990) and Flame retardant low smoke & Halogen (FR-LSH) 1100 voltage graded copper flexible wire stranded copper running inside PVC casing & capping (Gr-II) 20x12mm fixed, surface on the wall/ceiling /floor as per convenience including junction box having required numbers of ways from DB to the light plug/socket 5/6A point etc. as required :- C:02:02(E) Light plug Point Very Long Point (modular)	Each	10			


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C:02:03	<p>POWER PLUG/SOCKET POINT 15/16 AMPERES (MODULAR TYPE) Wiring in looping system with PVC wire sheathed standard copper conductor/wires as per IS:694 1990) and Flame retardant low smoke & Halogen (FR-LSH) 1100 voltage graded copper flexible wire stranded copper running inside PVC casing & capping (Gr-II) 30x12mm fixed, surface on the wall/ceiling /floor as per convenience including junction box having required numbers of ways from DB to the power plug/socket 15/16A point etc. as required :-</p>		2			
C:02:06	<p>MAIN TO SUB-MAIN IN COPPER WIRE GRADE-II SURFACE (SINGLE PHASE TWO WIRES) Wiring in looping system with PVC wire sheathed standard copper conductor/wires as per IS:694 (1990) and Flame retardant low smoke & Halogen (FR-LSH) 1100 voltage graded copper flexible wire stranded copper running inside PVC Casing & capping (Grade-II) of all available sizes diameter fixed, surface on the wall/ceiling/floor as per convenience including junction box having required numbers of ways from Main to Sub-Main/DB/Sub-Main/DB to SDB/SDB/Switch boards/SDB to switch boards as required:-</p>		400			
	C:02:06(A) 2X2.5 Sqmm copper conductor/cable + 1x2.5 Sqmm earth wire	rm	120			
	C:02:06(B) 2X4 Sqmm copper conductor/cable + 1x4 Sqmm earth wire	rm	100			
	C:02:06(C) 2X 6 Sqmm copper conductor/cable + 1 x 6 Sqmm earth wire					
	<p>SUPPLYING AND FIXING OF SWITCH BOARDS (MODULAR TYPE) Grade-II Supplying and fixing of Modular switch board grade-II of the following sizes/modules on surface/recess including PVC/Steel boxes, modular plate and necessary switches, plug/socket, and fan regulators etc. with necessary painting if necessary</p>					
I:02:00	One Module Switch Board (Modular)					
	I:02:01 1 S	No	11			
	I:02:03 1 S two ways	No	6			
	Two modules Switch Board (Modular)					
	I:02:13 2 S	No	7			
	Six modules Switch Board (Modular)					
	I:02:86 2 S + 1 R + 1SOC	No	10			

Eight modules Switch Board (Modular)							
	I:02:158 3 S + 1SOC +1R+ 1BKP	No	9				
N:00:00	MCBs/RCCBs/ELCBs/MCCBs/EARTH FAULT RELAY SP/SPN/DP/DP&N/TP/TP&N/FP						
N:01:00	MCBS SP/SP&N/DP/TP/TP&N/FP Supplying and fixing of all types and rating MCBs, RCCBs, ELCBs etc. 240/415 Volts 50 Hz AC supply in the existing MCB DB complete with connections, testing & commissioning etc in N:01:01 5 to 32 Amps ,SP, MCB B- series N:01:26 40 Amps' DP, MCB Isolator N:01:2763 Amps' DP, MCB Isolator	Each	12				
O:00:00	DISTRIBUTION BOARDS MCB DISTRIBUTION BOARD Supplying, fitting, & fixing of 63 amps' 6-Ways Distribution Board with Bakelite fused fitting with fused links, 240 Volts 50 Hz AC on surface/recess completed including inter-connection, painting etc, as required. O:03:75 6-ways MCB DB SP & N DD metallic Door	Each	3				
J:00:00	LIGHTING FIXTURES(SURFACE/RECESS) LIGHTING FIXTURES CEILING/WALL MOUNTED:-						
J:01:03	Supplying, fitting and fixing Batten Holder including connection etc, as required	Each	28				
J:01:30	(1661) CFL Curvy 15W(SP) B22, E27 Base Havells/Equivalent Installation, testing & commissioning of pre-wired fluorescent Light fittings of all types, with all accessories and tubes etc, directly on ceiling/wall, including connection with 1.5 Sqmm copper conductor single core cable etc as required.	No	28				
J:01:00	(1375) LED Batten fitting 1x12W Linea 2 with LED tube (Phillips/equivalent) (1377) LED Batten fitting 1x26W Linea 4 with LED tube (Phillips/equivalent)	No	4				
J:01:36	Installation, testing & commissioning of ceiling fan and regulator, including wiring the down rod of standard length (upto 30cm) with 2X1.5 sqmm PVC insulated copper conductor single core cable etc, as required (1845) Ceiling fan 1200mm Sweeps ISI marked 3 blades (Usha/Crompton/Equivalent)	Each	19				
	EARTHING AND LOOP EARTHING	No	19				

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Civil Works

Q:01:00	Q:01:07 Earthing with Copper Earth plate 600mmx600mmx6mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and water pipe, etc. (but without charcoal or coke and salt) complete as required.	Each	1				
	Q:01:10 Extra for using salt and coke for G.I or copper plate earth electrode as required.	Each	1				
	Q:01:38 Supplying & Laying of 8 SWG Copper Wire at .50m below ground level for conductor earth electrode, including soldering etc. as required. (8 SWG Copper Wire (4mm dia '))	Metre	20				
	Q:01:55 Supplying and drawing of 1.5 sqmm PVC sheathed copper conductor for loop earthing in the existing surface/recess steel/PVC conduit/PVC casing & capping alongwith others wires as required.	Metre	601.4				
R:01:00	LIGHTNING CONDUCTOR						
	R:01:08 Providing and fixing of ESE type lightning Arrestor PDC 6.5 (DPDC 6.5) with non electric ESE(Early steamer Emission) standardized according to norms UNE 21.186 AND NPC 17.102 Duly tested and certified by CPRI Bangalore, Having coverage area of 63m diameter lightning charge capacity 100 KA and 43 micro second delay (DOKSUN/Equivalent)	Each	1				
	R:01:10 Providing and fixing of Stainless steel pole for ESE lightning Arrestor 50m 3 meters long made of SS-304 material with base plate to mount lightning Arrestor (DOKSUN/Equivalent) in complete	Each	1				
	R:01:67 Providing and laying of copper tape 32mmx6mm thick from earth electrode directly in ground as required.	Metre	24				
	Supplying and fitting of Water Cooler 120 Ltrs with water pipe line as required in Lump Sum	Each	1				
	Single phase service connection 25sqmm twin core Aluminium cable Lump sum		1				
	Total						
	Add 18% GST						
	Add 1% Labour Cess						
GRAND TOTAL	Rs						

(Er. R. LALNUNFELA)
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Rupees in words
(Er. DENNIS LALHIMPUIA)
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