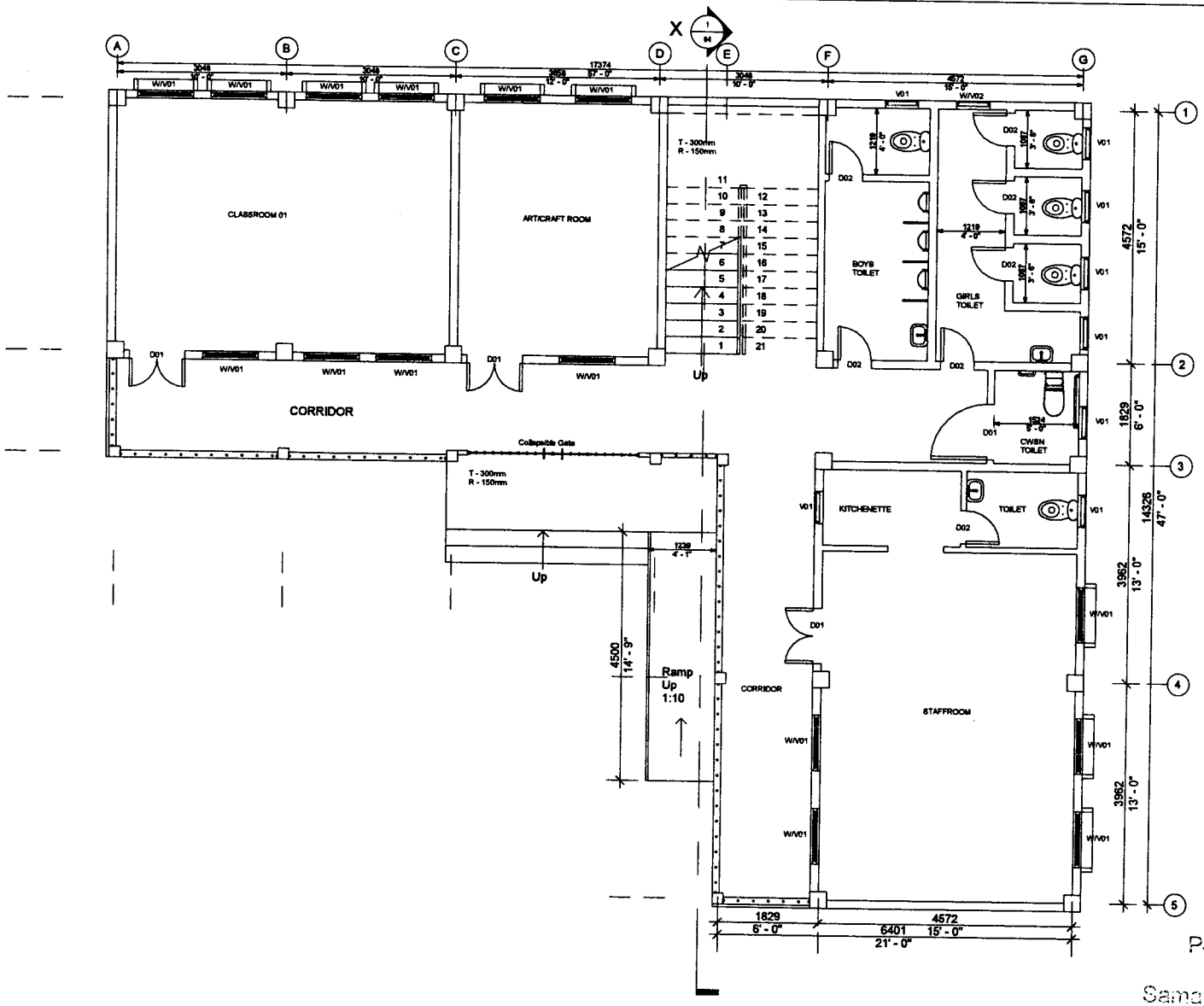
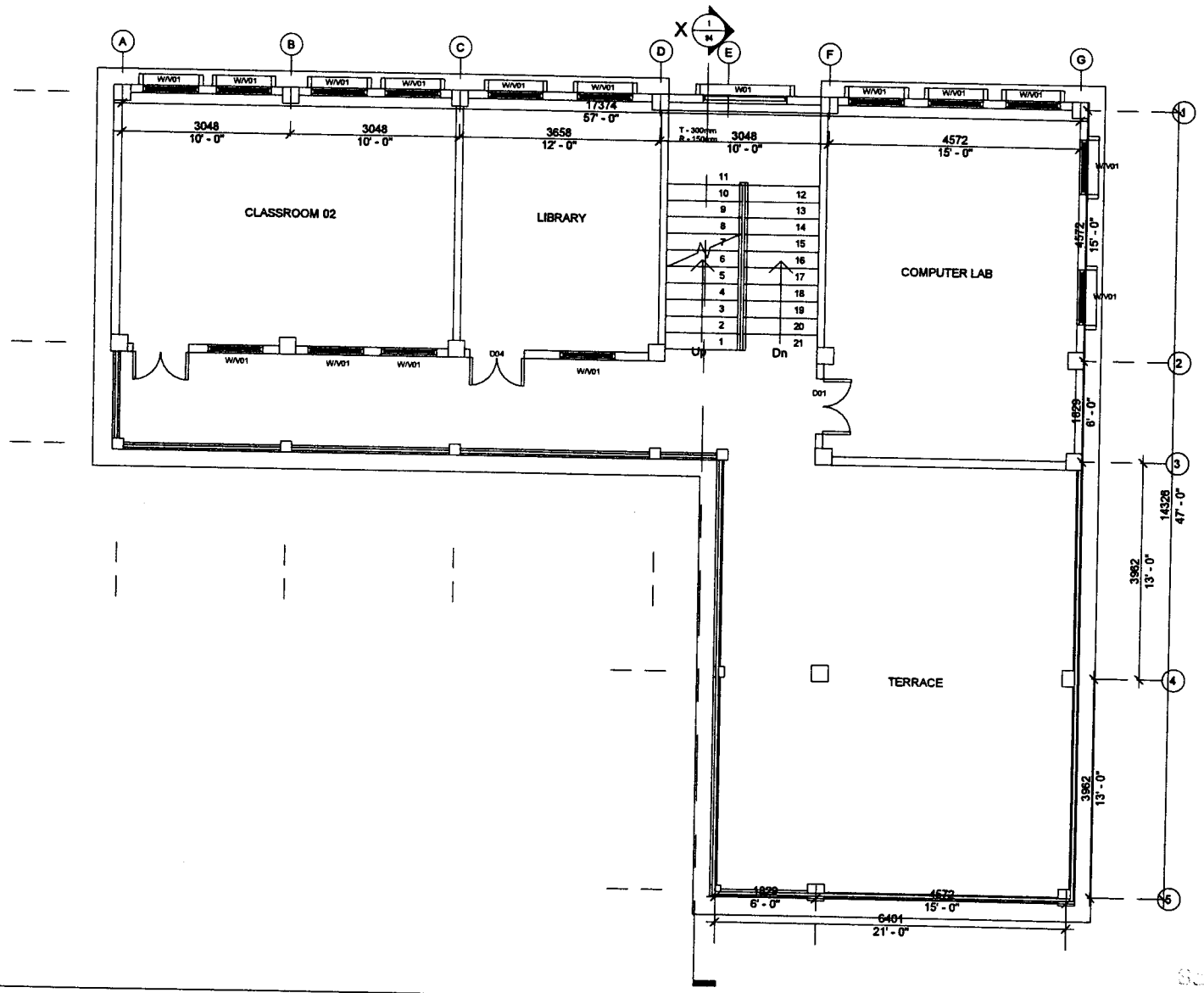
CONSTRUCTION OF
RABUNG HIGHER SECONDARY SCHOOL-
ARTS STREAM AT KHAWZAWL DISTRICT



Programme Officer
Civil Works
Samagra Shiksha, Mizoram

PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT	D01 - 1000mmX2000mm D02 - 600mmX2000mm W/V01 - 1000mmX1828.8mm W/V02 - 600mmX1828.8mm W01 - 1524mmX1200mm V01 - 500mmX600mm	SHEET NO: 01	SHEET: GROUND FLOOR SCALE: 1 : 100	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM



PROJECT:

CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT

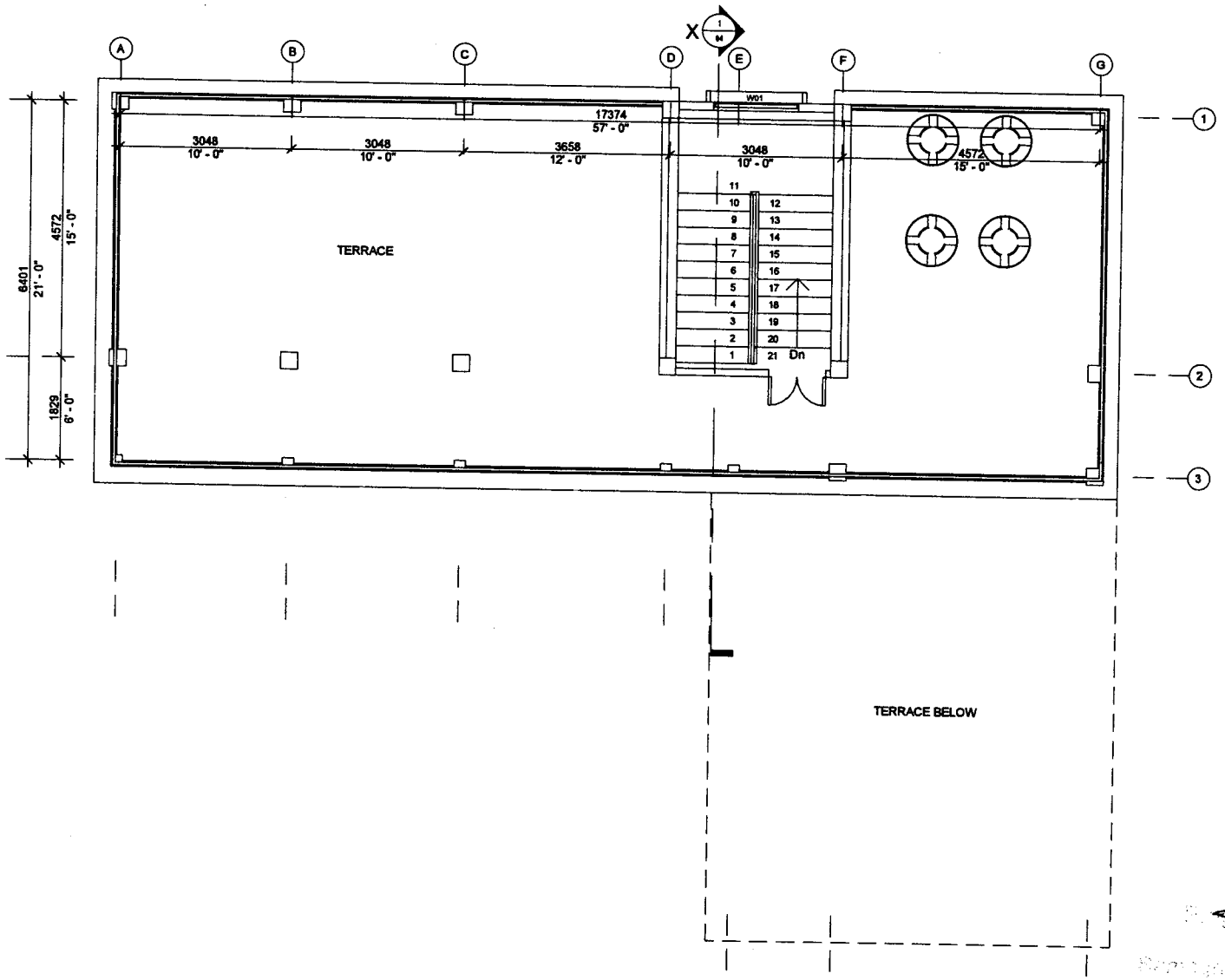
D01 - 1000mmX2000mm
D02 - 600mmX2000mm
W/V01 - 1000mmX1828.8mm
W/V02 - 600mmX1828.8mm
W01 - 1524mmX1200mm
V01 - 500mmX600mm

SHEET NO: 02

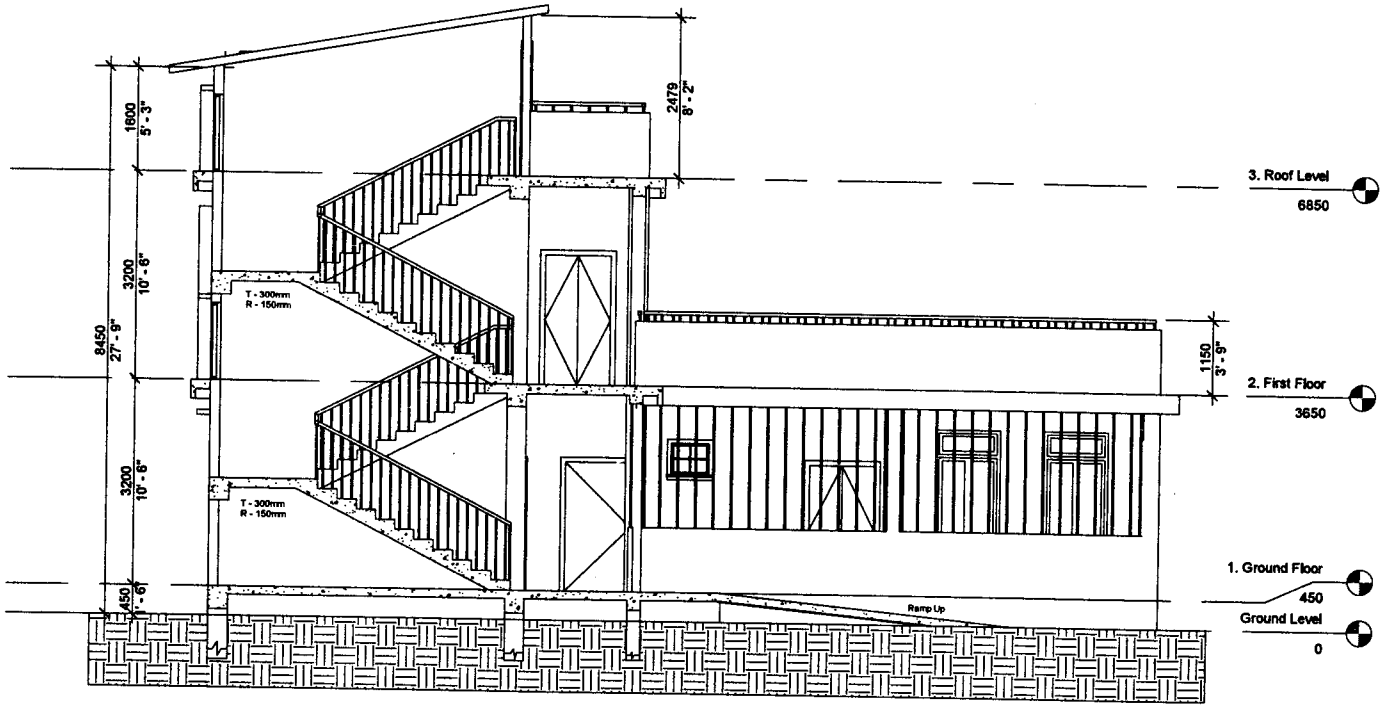
SHEET: FIRST FLOOR

SCALE: 1 : 100

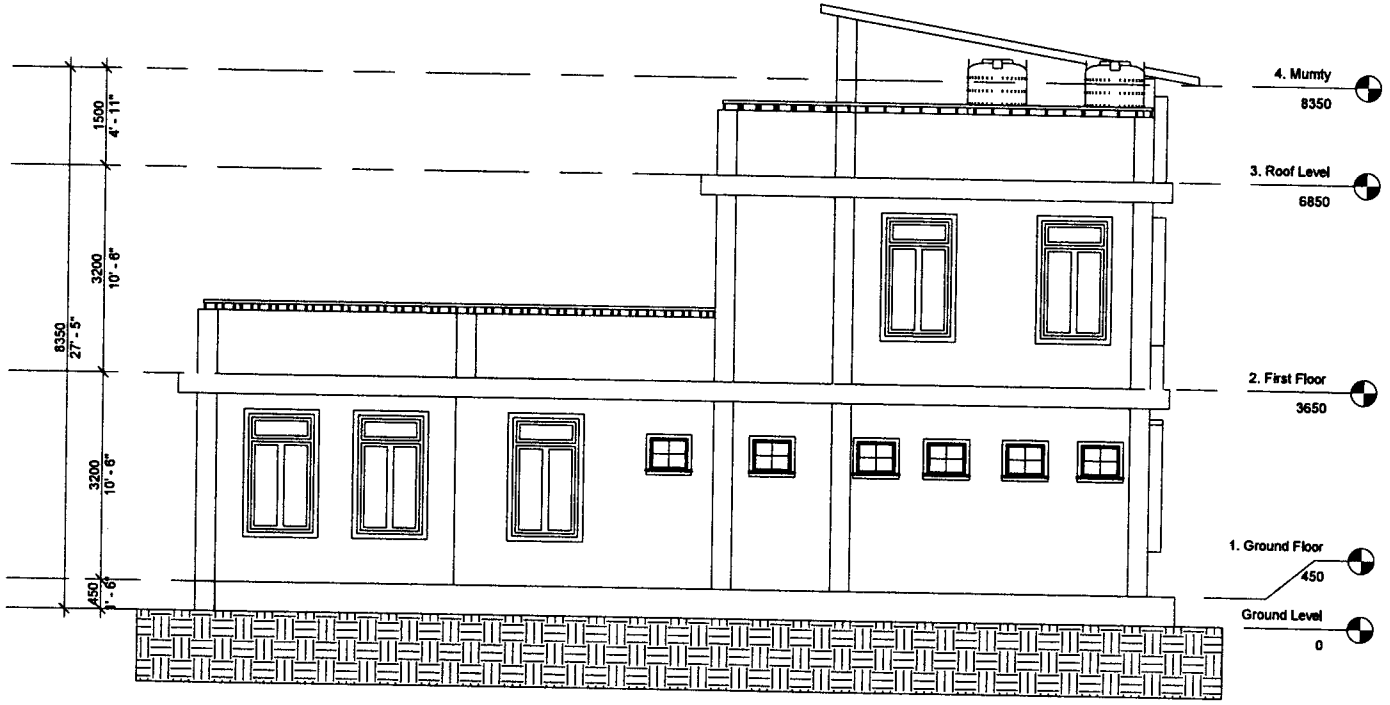
ENGINEERING CELL
SAMAGRA SHIKSHA
MIZORAM



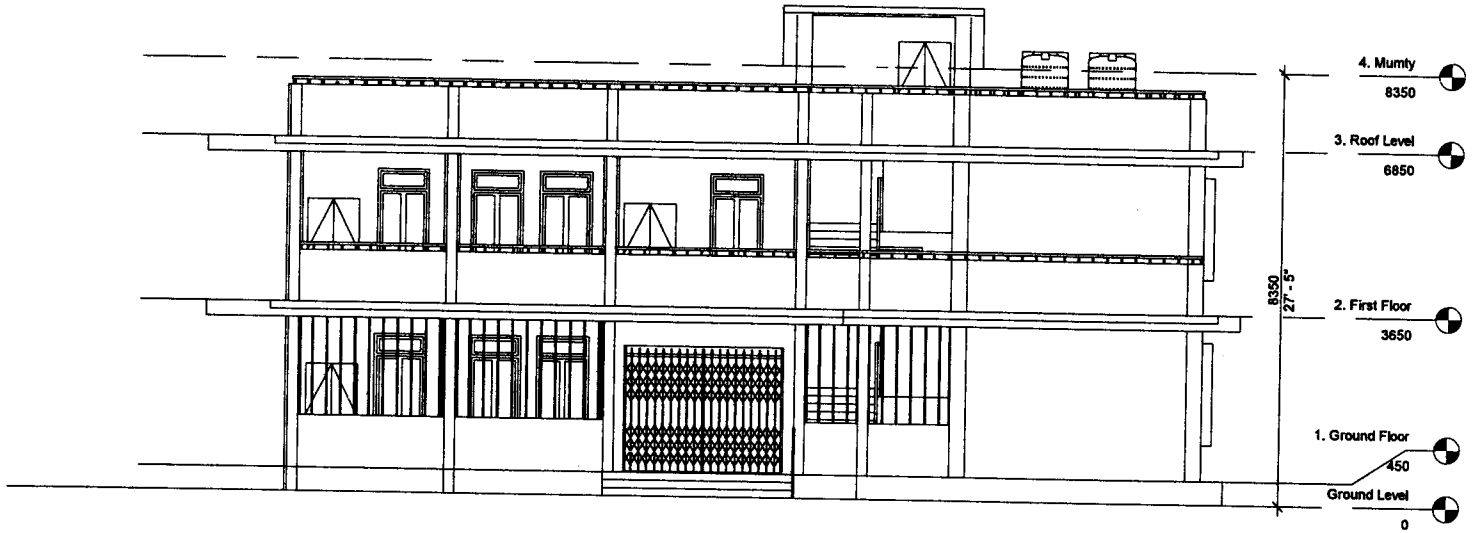
PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT	D01 - 1000mmX2000mm D02 - 600mmX2000mm W/V01 - 1000mmX1828.8mm W/V02 - 600mmX1828.8mm W01 - 1524mmX1200mm V01 - 500mmX600mm	SHEET NO: 03	SHEET: ROOF LEVEL SCALE: 1 : 100	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM



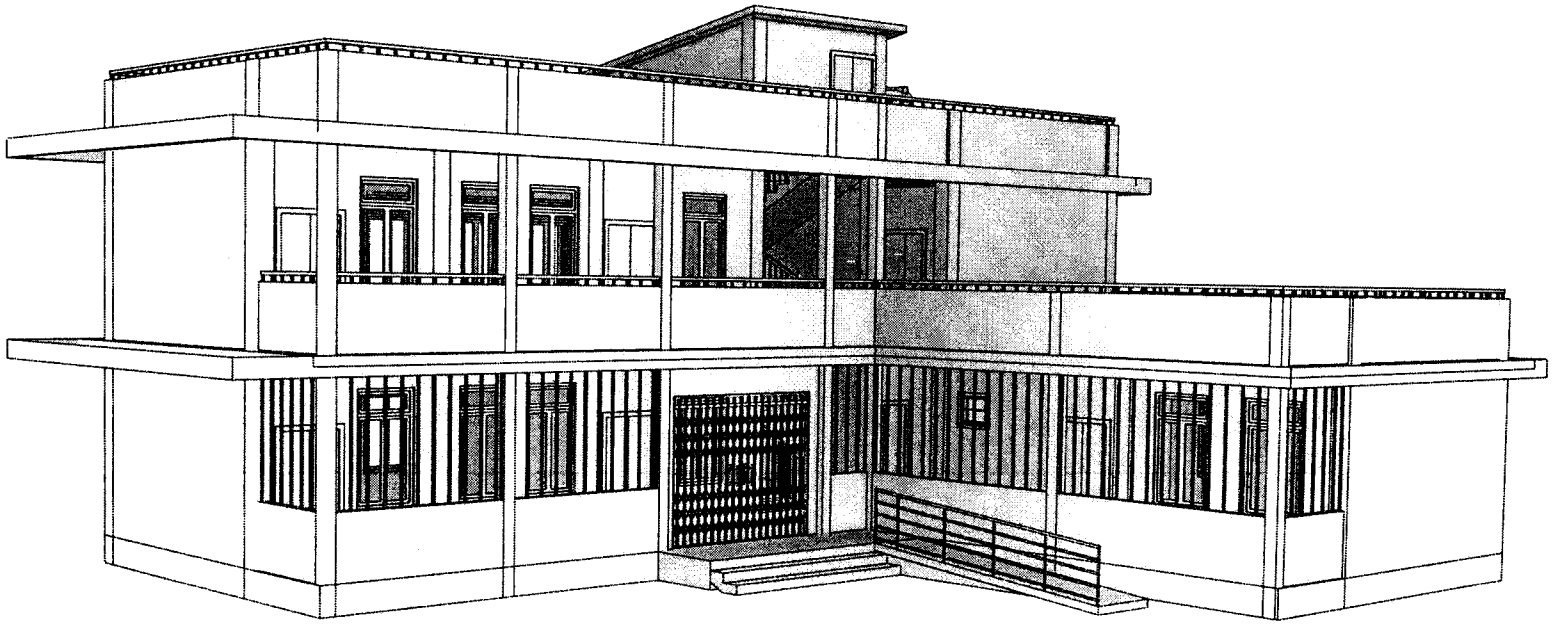
PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT		SHEET NO: 04	SHEET: SECTION SCALE: 1 : 100	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM



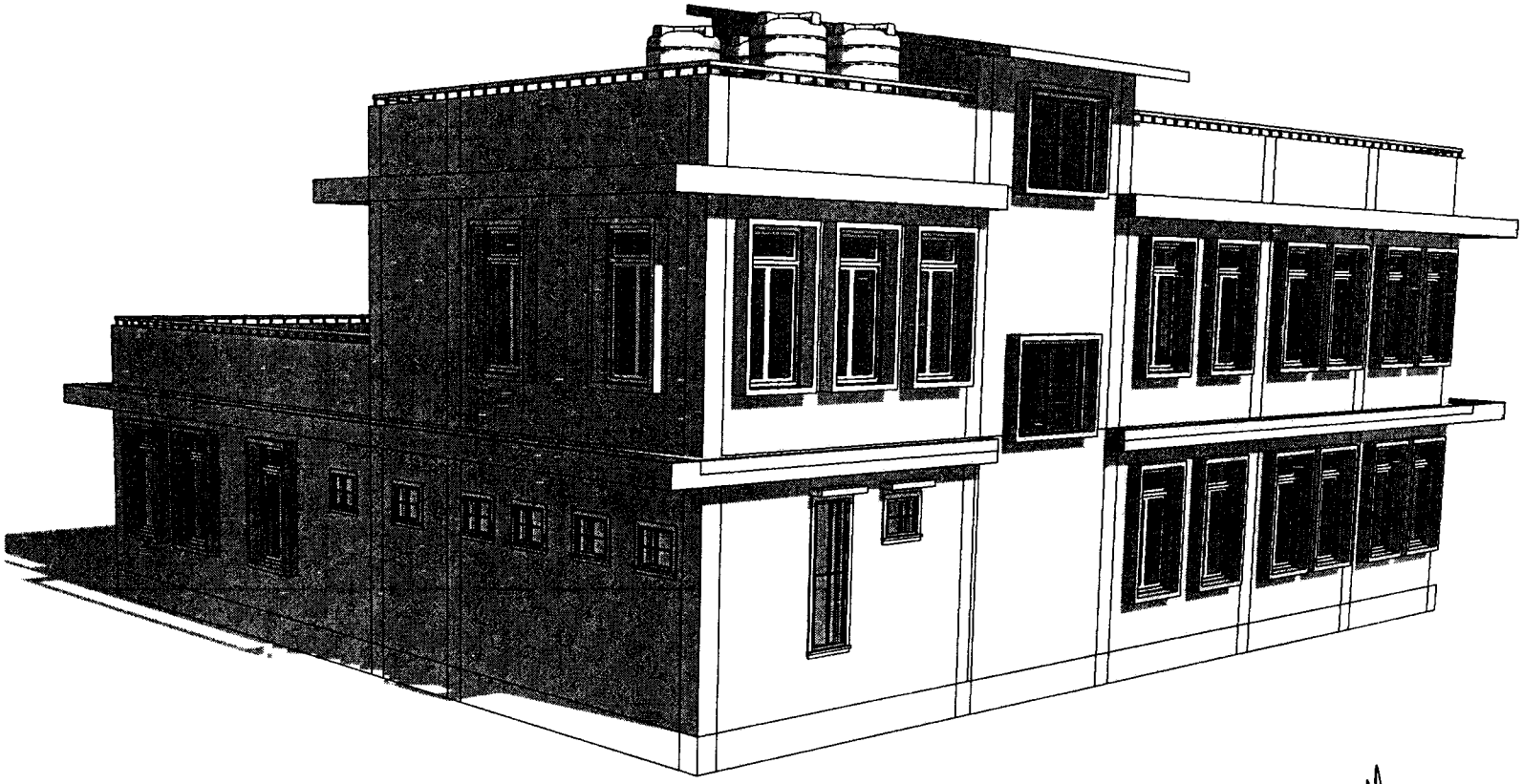
PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT		SHEET NO: 05	SHEET: SIDE ELEVATION SCALE: 1 : 100	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM



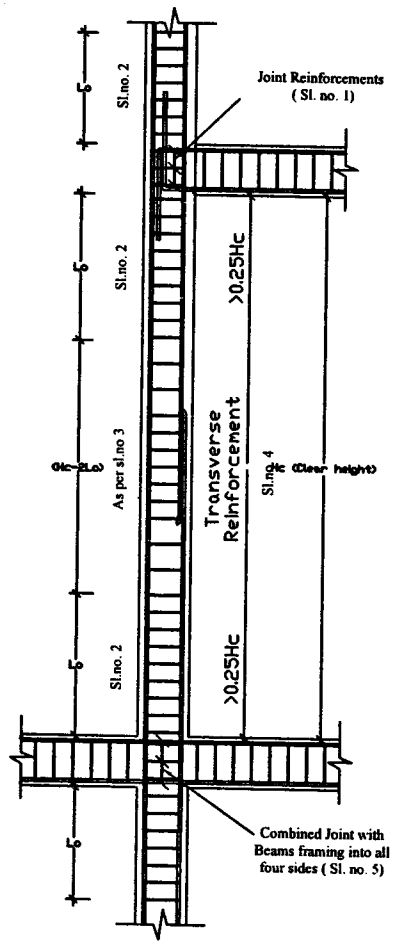
PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT		SHEET NO: 06	SHEET: FRONT ELEVATION SCALE: 1 : 125	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM



PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT		SHEET NO: 07	SHEET: FRONT VIEW SCALE:	ENGINEERING CELL SAMAGRA SHIKSHA MIZORAM



PROJECT: CONSTRUCTION OF NEW HIGHER SECONDARY SCHOOL AT RABUNG - ARTS STREAM - KHAWZAWL DISTRICT		SHEET NO: 08	SHEET: SIDE 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 wih special confining steel with a spacing equal to Sl.No 2 within the joint

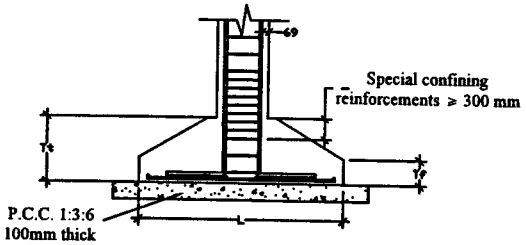
2. Special Confining Reinforcements shall be provided over a length 'Lo' from each joint face, twoards mid span and on either side of any section where flexural yielding may occur under the effect of earthquake forces. The length 'Lo' shall not be less than - a). Larger lateral dimension of the member 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-2Lo' shall not exceed half the least lateral dimension of the column, ecept where special confining reinforcements is provided for splice.

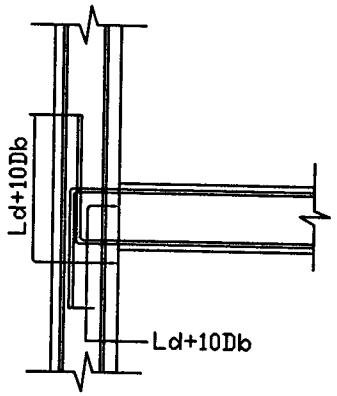
4. Lap length shall be 69 thimes the diameter of longitudinal reinforcements.

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 hoint shall not exceed 150mm.

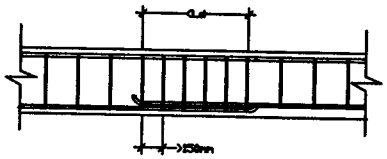
6. Beam with higher reinforcement should be adopted at the point where two different types of beam meet.



TYPICAL FOUNDATION

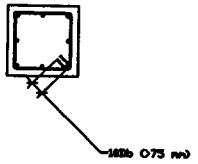


ANCHORAGE OF BEAM AND BAR IN EXTERNAL JOINT

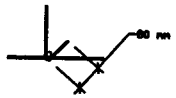


LAP SPLICE IN BEAM

Ld = Devlopment length in tension
Db = Bar diameter



Extension of Hoop in column



HOOK DETAILS

DESIGNED BY:

(Er. DENNIS LALHLIMPUIA)
State Project Engineer
Civil Works
Samagra Sniksha, Mizoram

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

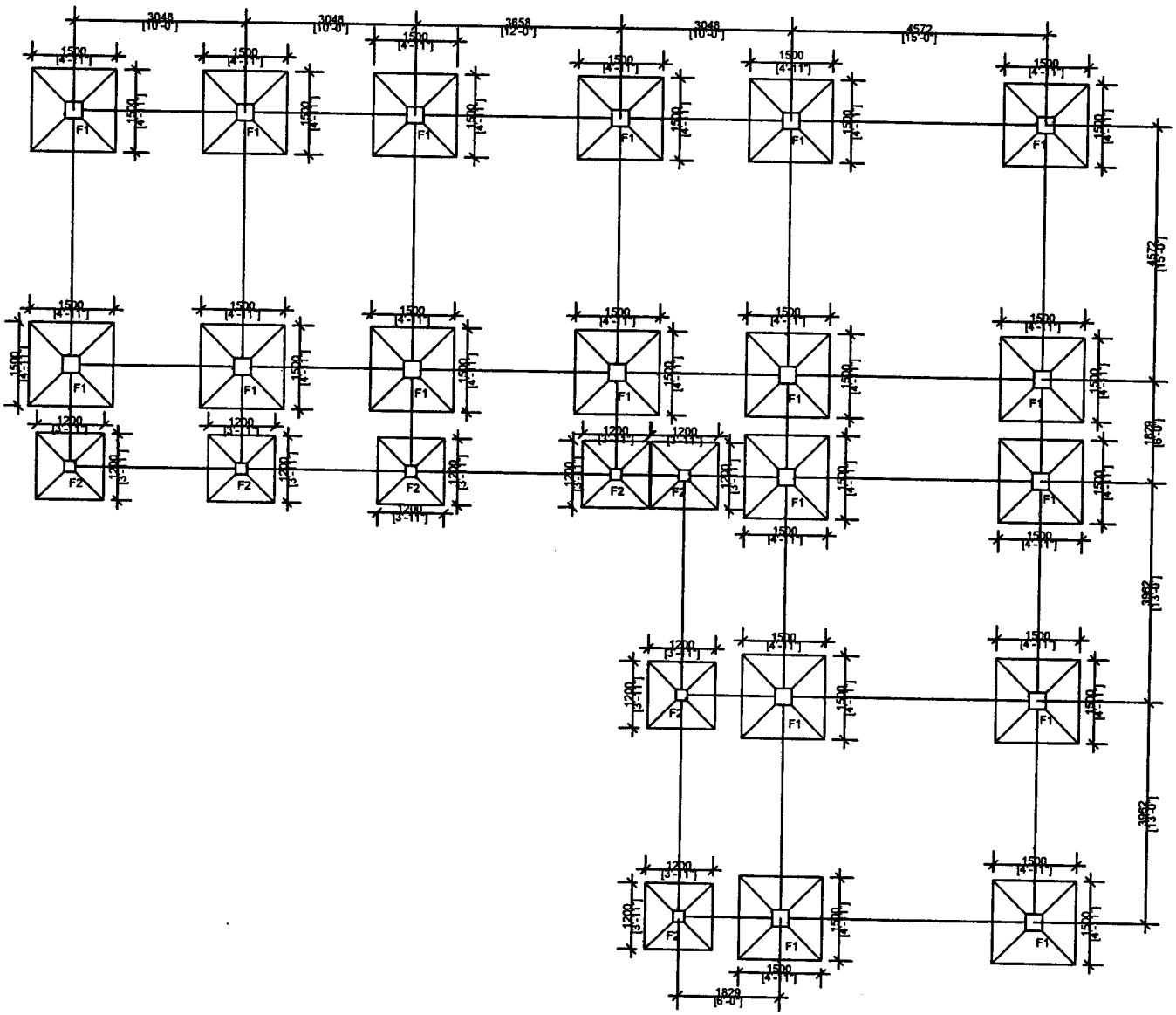
GENERAL SPECIFICATIONS FOR STRUCTURAL DETAILS

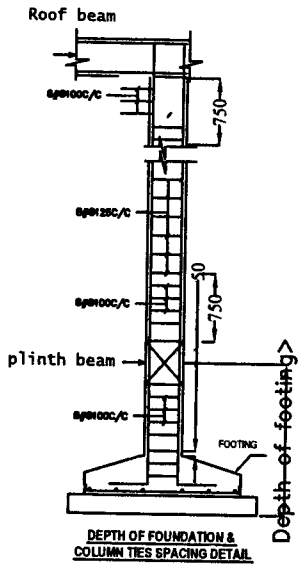
SCALE : N T S

DRAWING NO: 1

ALL DIMENSIONS ARE IN MM

FOUNDATION LAYOUT





DEPTH OF FOUNDATION & COLUMN TIES SPACING DETAIL

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)

SHEET NO: 2

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

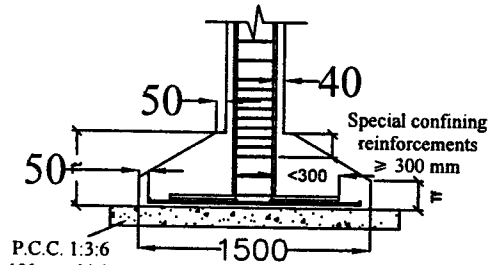
Scale :
Not to Scale

All dimensions in mm

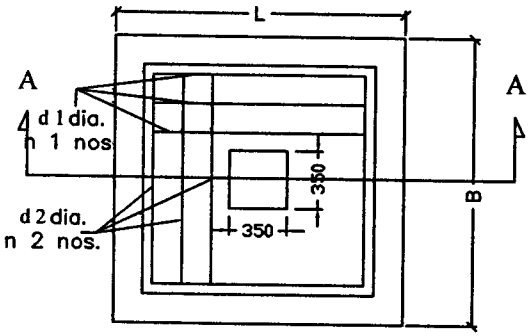
Prepared by:

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

FOUNDATION DETAILS



SECTION AT A-A



TYPICAL FOUNDATION PLAN

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 : L x B	Tf	Tt	L Direction :		B Direction :	
				d 1 dia.	n 1 nos.	Dia. d 2	n 2 nos.
F1	1500 X 1500	150	300	12 mm	15	12 mm	15
F2	1200 X 1200	150	300	12 mm	12	12 mm	12

SHEET NO: 3

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

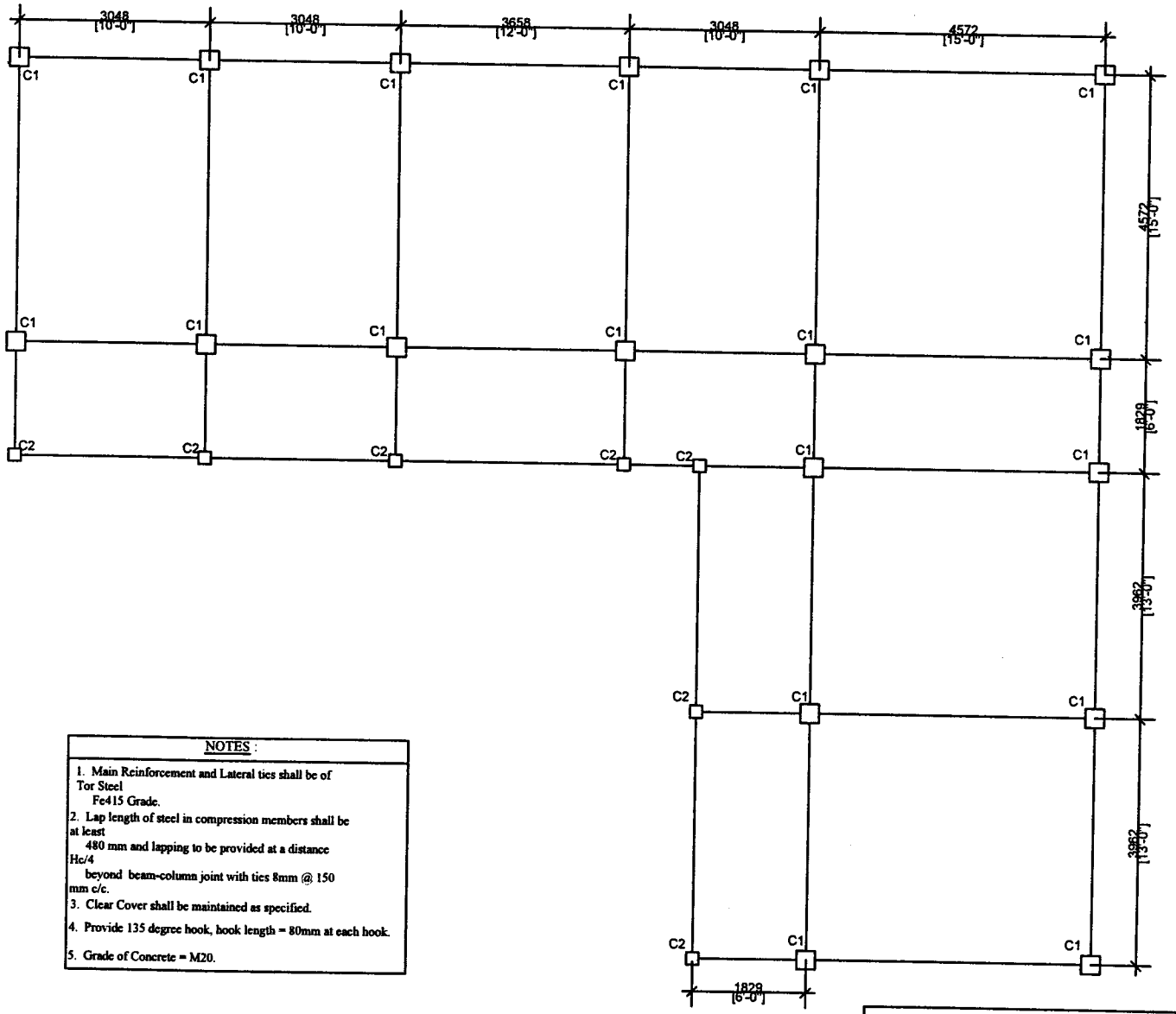
Scale :
Not to Scale

All dimensions in mm

Prepared by:

(Er. DENNIS [illegible])
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

COLUMNS LAYOUT



NOTES :

1. Main Reinforcement and Lateral ties shall be of Tor Steel Fe415 Grade.
2. Lap length of steel in compression members shall be at least 480 mm and lapping to be provided at a distance Hc/4 beyond beam-column joint with ties 8mm @ 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.

SHEET NO: 4

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

Scale :
Not to Scale

All dimensions in mm

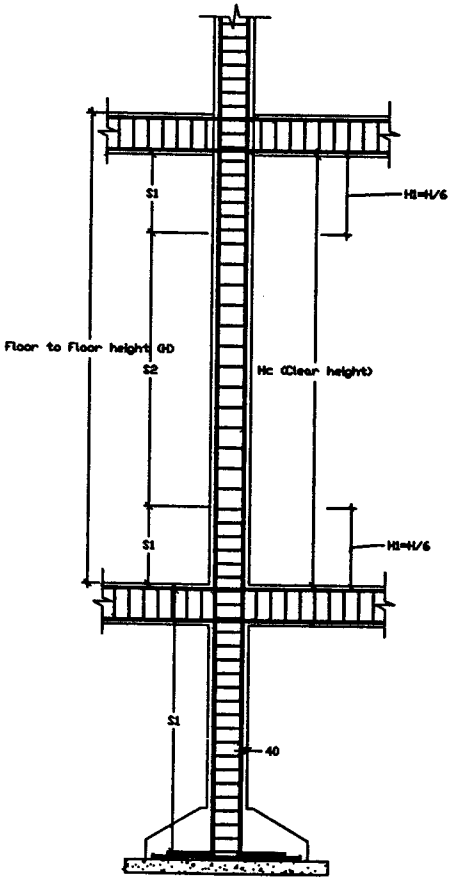
Prepared by:

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

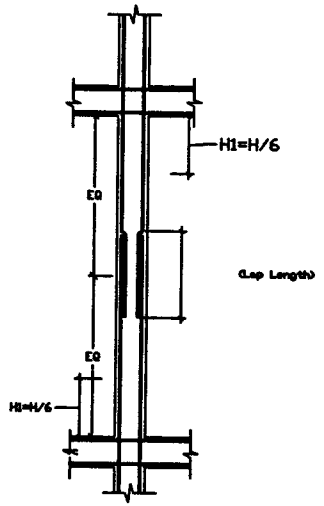
COLUMN DETAILS

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

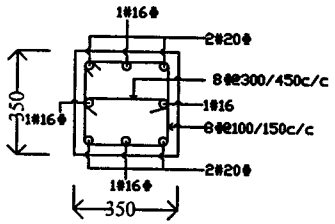
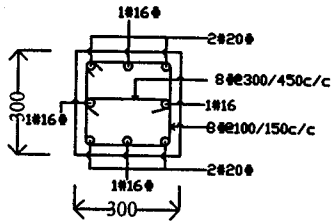
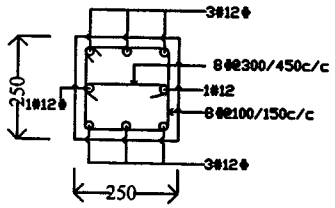
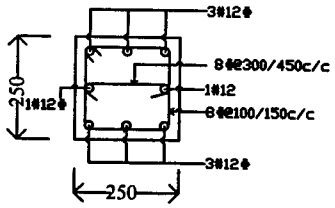
STRUCTURAL DETAILS FOR ALL FLOOR COLUMNS	DRAWING NO: 5
DESIGNED BY:	SCALE : NTS ALL DIMENSIONS ARE IN MM



Typical Cross-Section of Column

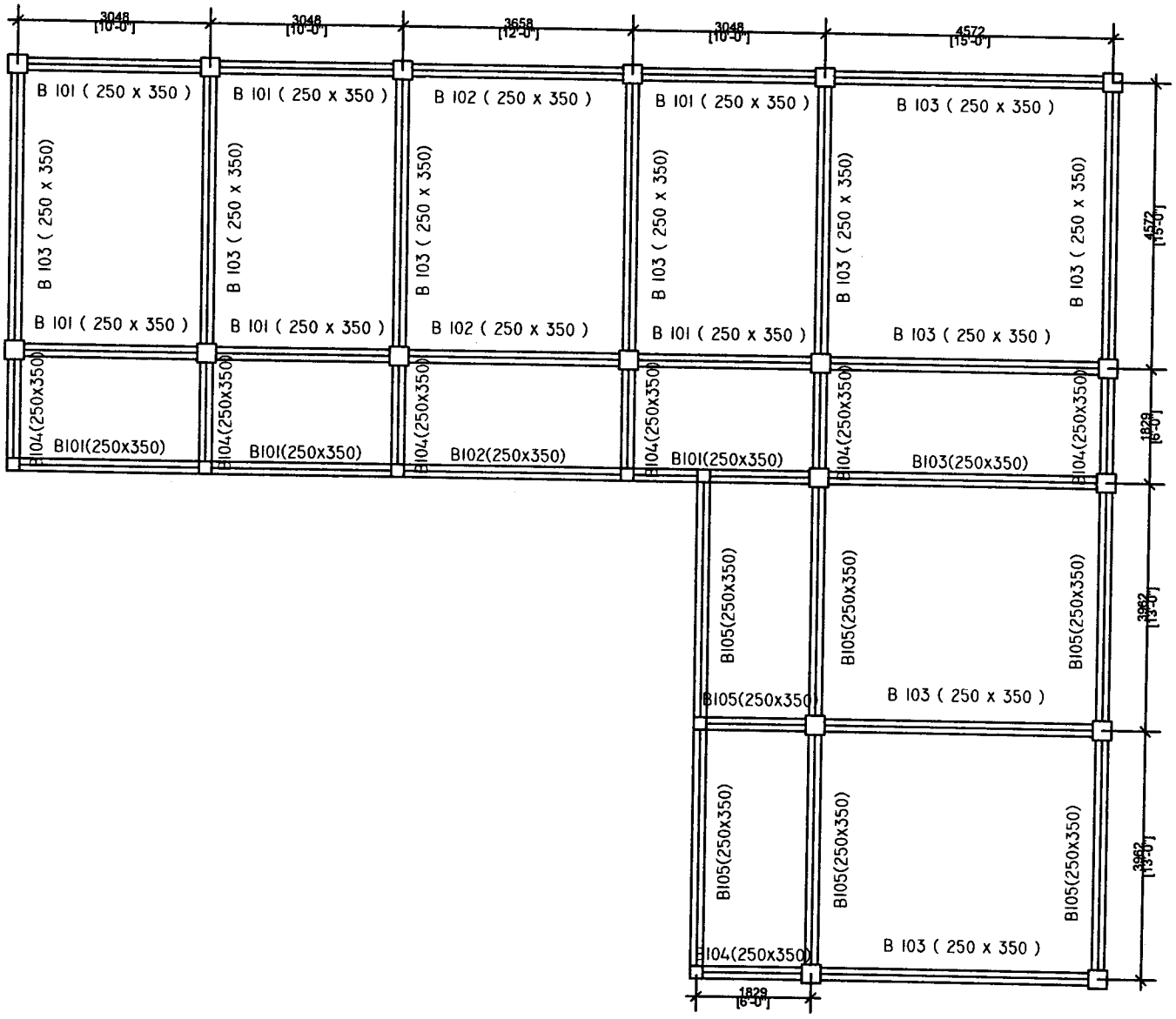


Typical Lap Joint in Column

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

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

DETAILS OF BEAM



SHEET NO: 6

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

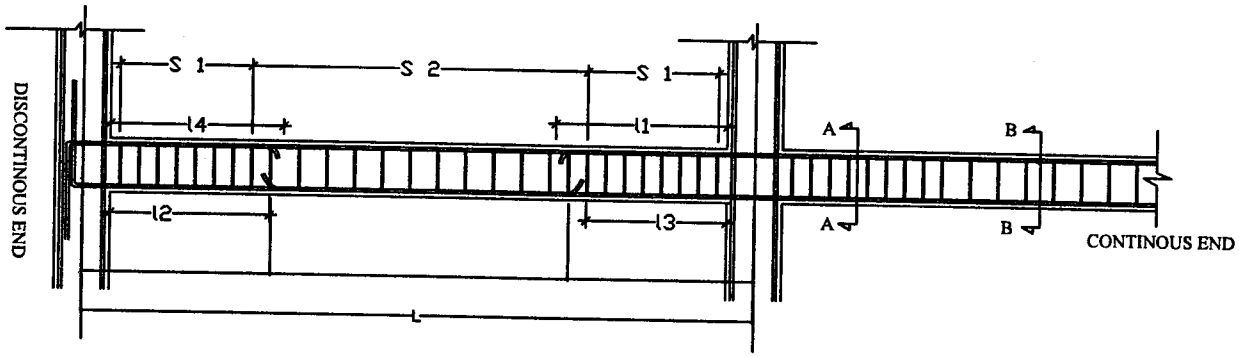
Scale :
Not to Scale

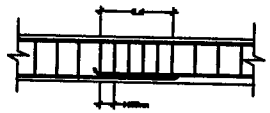
All dimensions in mm

Prepared by:

(Er. DEN[illegible]A)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

TYPICAL LONG SECTION OF BEAM





LAP SPLICE IN BEAM

Ld = Devlopment length in tension
Db = Bar diameter

Where,
S1 = Spacing of stirrups for a length of 2d
S2 = Spacing of stirrups in the mid-span
Ld = 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 B-B'	Section at C-C'	L (mm)	l 1 (mm)	l 2 (mm)	l 3 (mm)	l 4 (mm)	S 1	S 2
B 101	250 x 350			3048	900	450	760	600	8mm dia. Tor steel, 2 legged, @ 100 mm c/c	8mm dia. Tor steel, 2 legged, @ 150 mm c/c
B 102	250 x 350			3658	1100	550	900	730	8mm dia. Tor steel, 2 legged, @ 100 mm c/c	8mm dia. Tor steel, 2 legged, @ 150 mm c/c
B 103	250 x 350			4572	1370	690	1140	900	8mm dia. Tor steel, 2 legged, @ 100 mm c/c	8mm dia. Tor steel, 2 legged, @ 150 mm c/c
B 104	250 x 350			1829	550	250	450	350	8mm dia. Tor steel, 2 legged, @ 100 mm c/c	8mm dia. Tor steel, 2 legged, @ 150 mm c/c
B 105	250 x 350			3962	1150	550	990	790	8mm dia. Tor steel, 2 legged, @ 100 mm c/c	8mm dia. Tor 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.

(Er. DENNIS LALHLIMPUIA)
State Project Engineer
Civil Works
Samagra Shiksha Mizoram

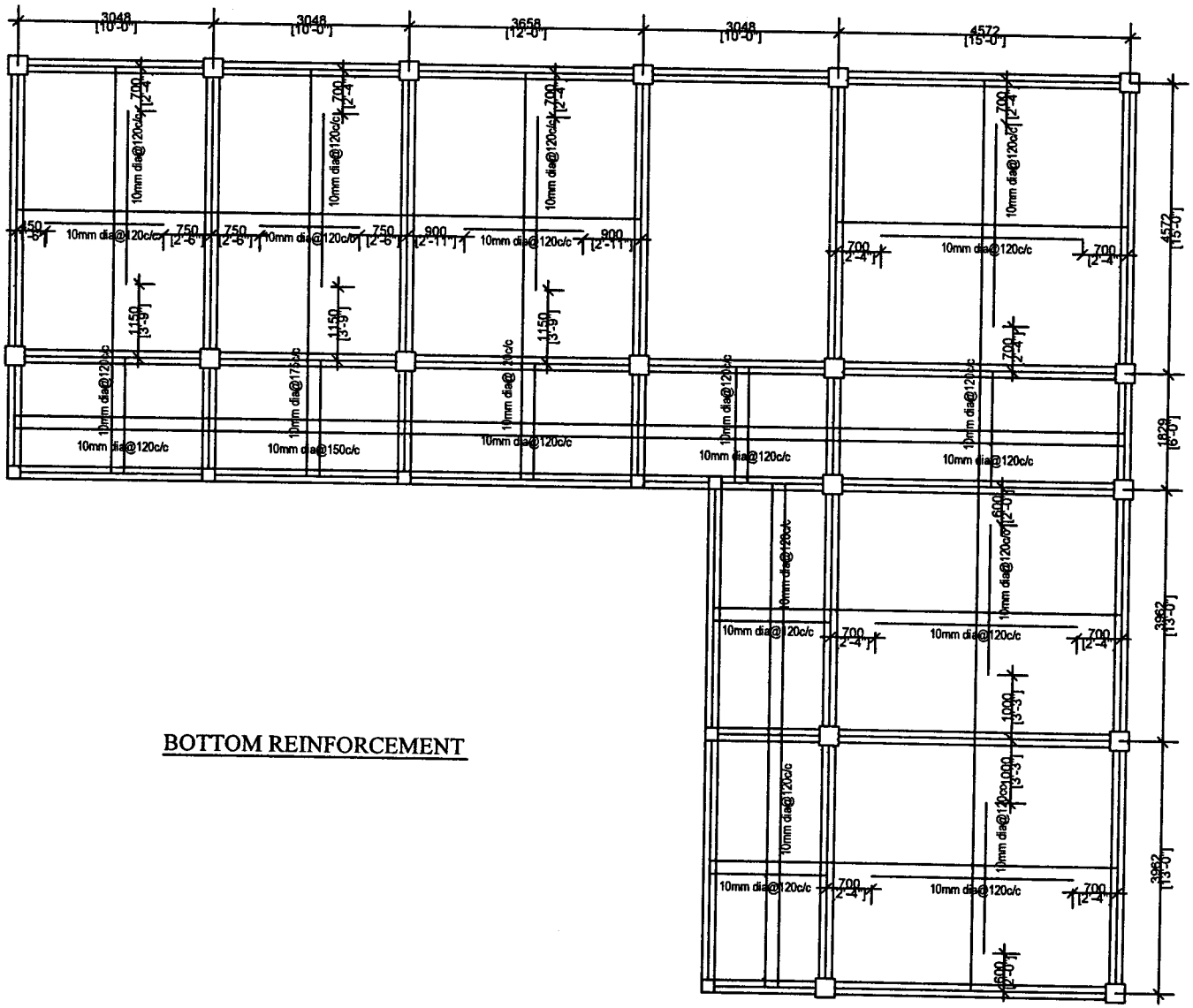
SHEET NO: 7

CONSTRUCTION OF RABUNG HSS - ARTS 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.

Scale : Not to Scale	All dimensions in mm

DETAILS OF SLAB



BOTTOM REINFORCEMENT

SHEET NO: 8

CONSTRUCTION OF RABUNG HSS - ARTS STREAM

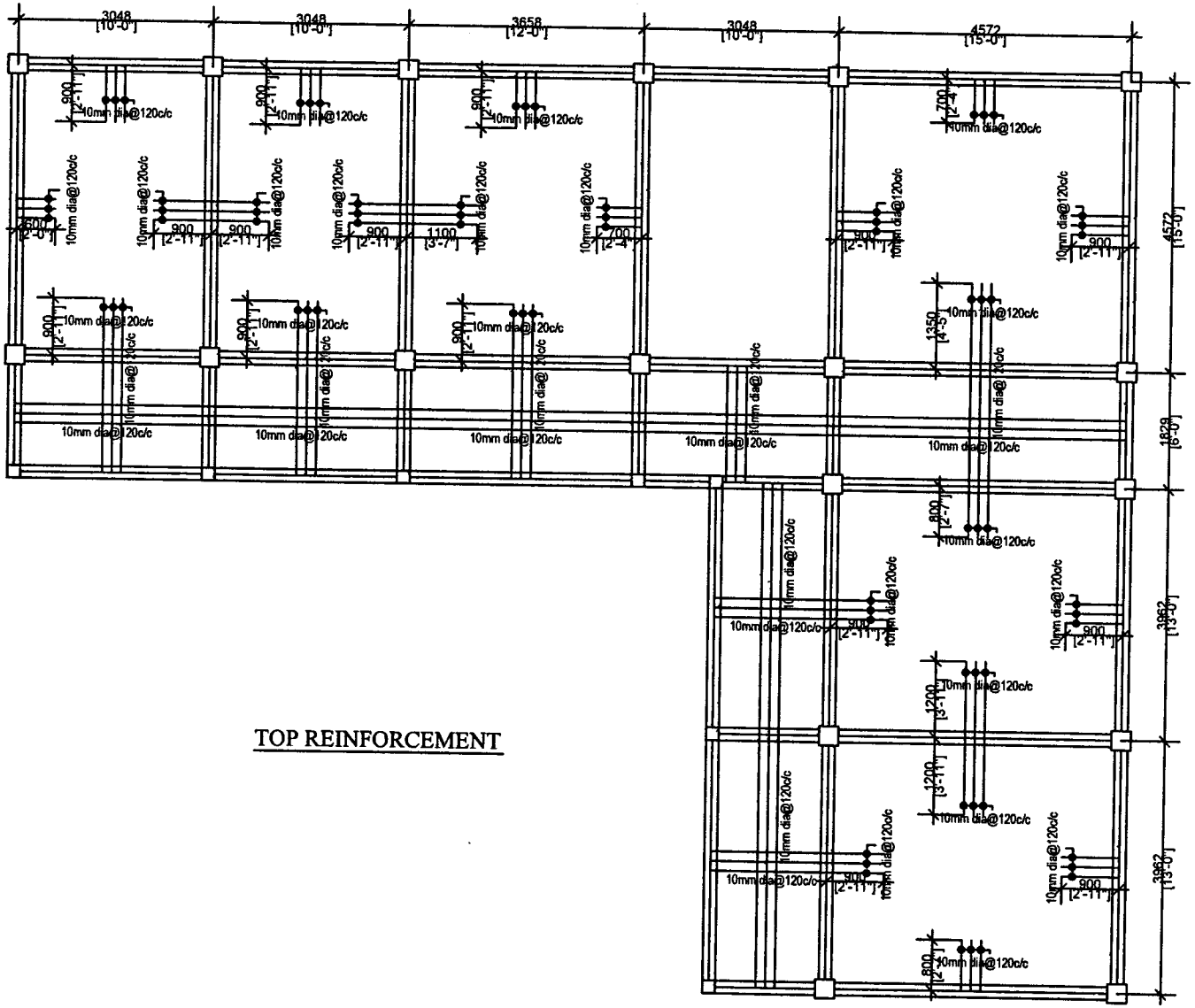
Scale :
Not to Scale

All dimensions in mm

Prepared by:

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

DETAILS OF SLAB



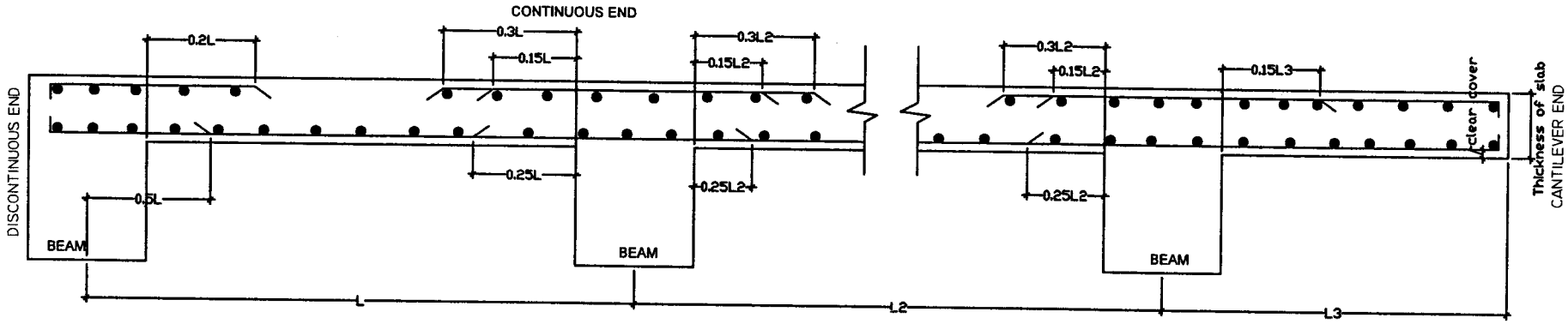
TOP REINFORCEMENT

SHEET NO: 9

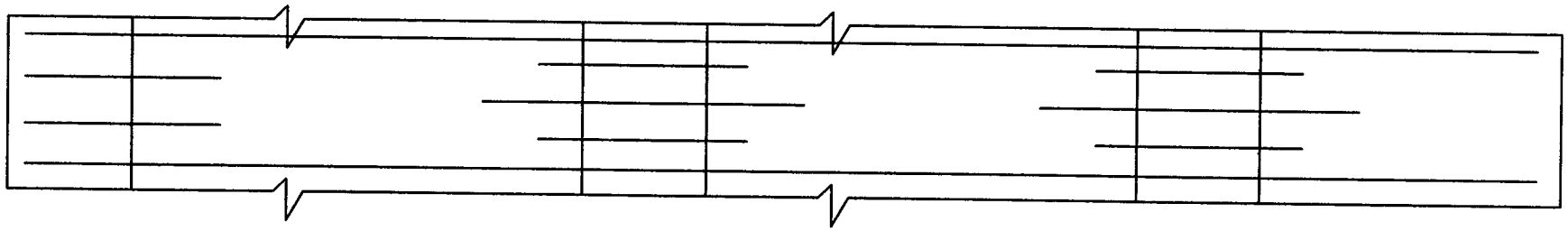
CONSTRUCTION OF RABUNG HSS - ARTS STREAM	
Scale : Not to Scale	Prepared by:
All dimensions in mm	

(Er. DENNIS LALHLIM[illegible]A)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

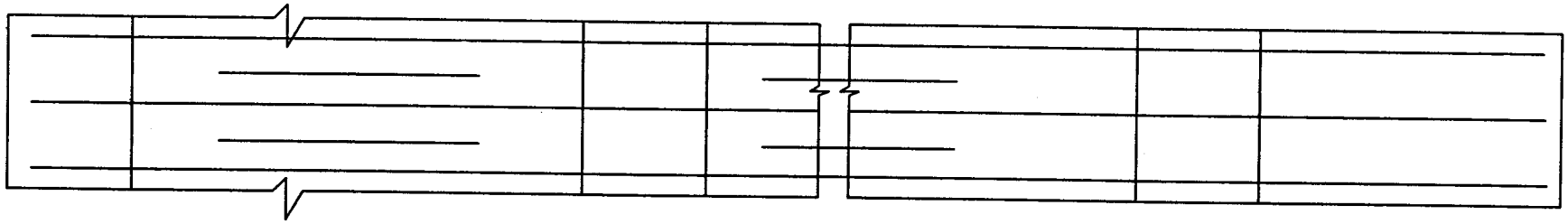
TYPICAL SLAB DRAWING



TYPCAL LONG SECTION OF SLAB AT MID STRIP X-X



PLAN OF TOP MAIN REINFORCEMENT



PLAN OF BOTTOM MAIN REINFORCEMENT

SHEET NO: 10

CONSTRUCTION OF NGOPA HSS (SCIENCE & COMMERCE STREAM)

Scale: Not to Scale

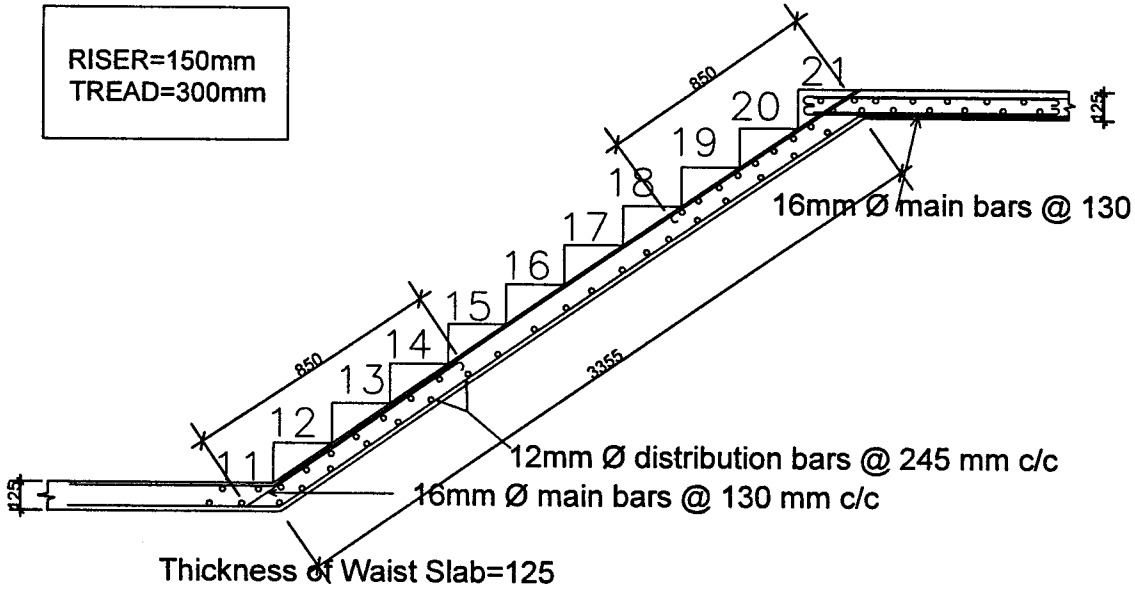
All dimensions in mm

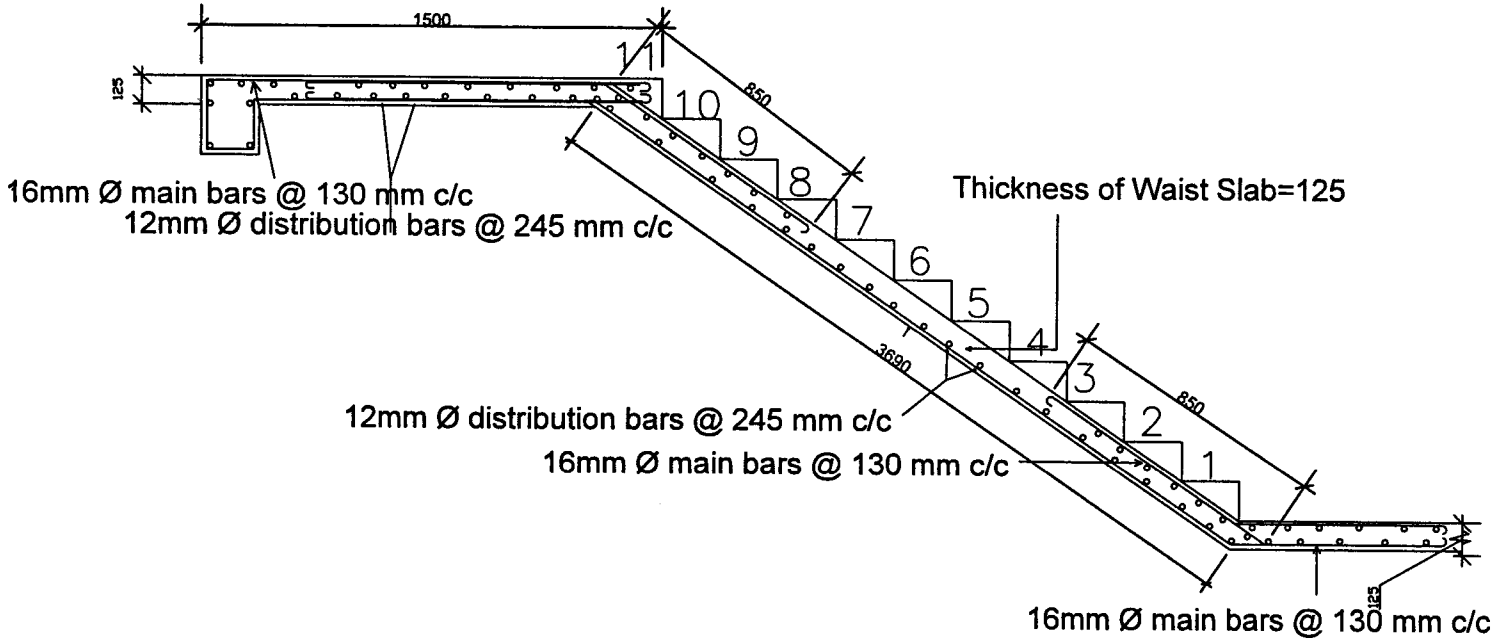
Prepared by:

State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

RISER=150mm
TREAD=300mm

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 satisfied the strength specified above.
6.At the point where two diffrent 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 RABUNG
HSS-ARTS STREAM

STRUCTURAL DETAILS FOR STAIRCASE

DESIGNED BY:

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

SCALE :

N T S

ALL DIMENSIONS ARE IN MM

BILL OF QUANTITIES FOR THE CONSTRUCTION OF RABUNG HSS (ARTS STREAM)

Sl.no	Description of Items	Unit	Qty	Rate		Amount
				in figure	in words	
1/2.06	Earthwork in excavation over areas (exeeding 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) Oridinary and Hard Soil	*cum*	383.640			
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) Oridinary Soil	*cum*	88.020			
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*	58.680			
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 20mm nominal size)	*cum*	5.058			
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*	21.711			

(Er. DE[illegible]IA)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

6/5.02	Reinforced cement concrete work in walls including attached pillasters, columns, pillers, posts, piers, abutments, return walls, retaining walls, struts, buttresses, string or lacing courses, fillets 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*	15.96			
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*	92.01			
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*	22173.833			
9/5.10	Centering and shuttering including strutting, propping, etc. and removal of form works in -						
	c)	Columns, pillars, piers, abutments, posts and struts.					
		C1 350x350	*sqm*	168.000			
		C2 250x250	*sqm*	63.260			
		Total	*sqm*	231.260			
	d)	Lintels, beams, plinth beams, girders, bressumers and cantilevers, etc.					
		250x350	*sqm*	241.800			

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

	e)	Suspended floors, roofs, landings, shelves and their support, balconies and chajjaj,etc.	*sqm*	475.67			
	f)	Staircases *(except spiral staircase)* excluding landings.	*sqm*	20.39			
10/6.06	Half brick masonry with first class brick in superstructure above plinth level upto floor V level.						
	a)	in cement moratar 1:3 (1 cement : 3 coarse sand)	*sqm*	465.980			
11/9.06	Providing Ist class local wood dressed in frames of chaukat for doors, windows, clerestory windows fixed in position.		*cum*	0.763			
12/9.10	Providing and fixing 1st class teak wood *panelled* shutters for doors etc. including M.S. butt hinges with necessary screws, etc. complete.						
	a)	40 mm thick.	*sqm*	24.40			
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 cleat angle, aluminium snap beading for glazing /panelling, CP brass /stainless steel screws all complete including fixing of glasses but excluding cost of glasses.						
	(b)	Anodised					
	(i)	2 - track sliding windows/ventilators.	*sqm*	60.12			
14/11.02	Supplying of glass panes at site						
	a)	4mm thick plate sheet glass.	*sqm*	60.12			

(Er. DE[illegible]A)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

15/20.08	12mm cement plaster 1 : 4 *(1 cement : 4 fine sand).*		*sqm*	1884.4913			
16/10.09	Supplying and fixing M.S. decorative railing consisting of top and bottom rails of 40mmx40mm square or circular section at distance of 788mm apart, 30mmx30mm square or circular section decorative intermediate balusters welded to top and bottom rails at 280mm apart. The base of balusters at 560mm apart welded with base plate of 60mmx3mm thick and fixed with cement grouting firmly to concrete section including steel priming ans steel painting complete etc.		*sqm*	16.10			
17/12.11	Providing and laying 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 (1cement : 4 course sand) including pointing the joints with white cement and matching pigments etc. complete. as per designed colour.						
	b)	Matt/Antiscratch	*sqm*	86.81			
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*	71.7002			
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*	71.700			
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*	1884.491			

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

21/20.50	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface :	*sqm*	1884.491			
22/7.01	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 (1cement : 6 fine sand)	*cum*	3.47			
23/14.11	Providing and fixing bright finished M.S two lever mortise door lock with necessary screws, etc. complete.					
	a) Union type	*Nos*	7			
24/14.07	Providing and fixing M.S. Tower bolts (socket bolts) bright finished with necessary screws etc. complete.					
	(a) 300 mm	*Nos*	7			
	c) 200 mm	*Nos*	7			
25/14.10	Providing and fixing M.S. handles with necessary screws, etc. complete					
	(a) 150mm	*Nos*	32.00			
26/18.01	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 nescessary connections for inlet, outlet and overflow pipes but without the cost for base support.					
	a) Sintex or quivalent	*lit*	4000.00			
27/17.33	Providing and fixing on wall face SWRPVC soil, waste and vent pipes including jointing with rubber lubricant/cement solvent complete.					
	a) 110mm dia.	*m*	45.00			
28/17.34	Providing and fixing SWRPVC plain bend of required degree (87.50°) including jointing with rubber lubricant/cement solvent complete.					
	a) 110 mm dia.	*Nos*	15			

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

29/17.35	Providing and fixing SWRPVC plain bend of required degree (45°) including jointing with rubber lubricant/cement solvent complete.						
	a) 110 mm dia.	*Nos*	20				
30/17.37	Providing and fixing single equal SWRPVC plain junction of required degree (T-junction) .						
	a) 110x110x110 mm	*Nos*	15				
31/17.42	Providing and fixing ventilation cowl including jointing with rubber lubricant/cement solvent complete.						
	a) 110 mm dia.	*Nos*	6				
32/17.04	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*	6				
33/17.11	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*	3				
34/17.14	Providing and fixing vitreous Division Plate 69 x 30 cm size for Urinals.						
	(i) White	*Nos*	3				
35/18.02	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	*rm*	30.00				

(Er. DENNIS LALHLIMPUIA)
State Project Engineer
Civil Works

36/18.07	Providing and fixing brass bib cock of approved quality.						
	b) 20mm nominal bore	*Nos*	12				
37/18.09	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	*Nos*	20				
38/17.16	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.						
	a) Vitreous China Wash basin size 630x450 mm with single 15 mm C.P. brass pillar taps						
	i) white	*Nos*	3				
39/10.18	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.	*sqm*	88.70				
40/17.24	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*	3				
41/10.04	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*	6.00				

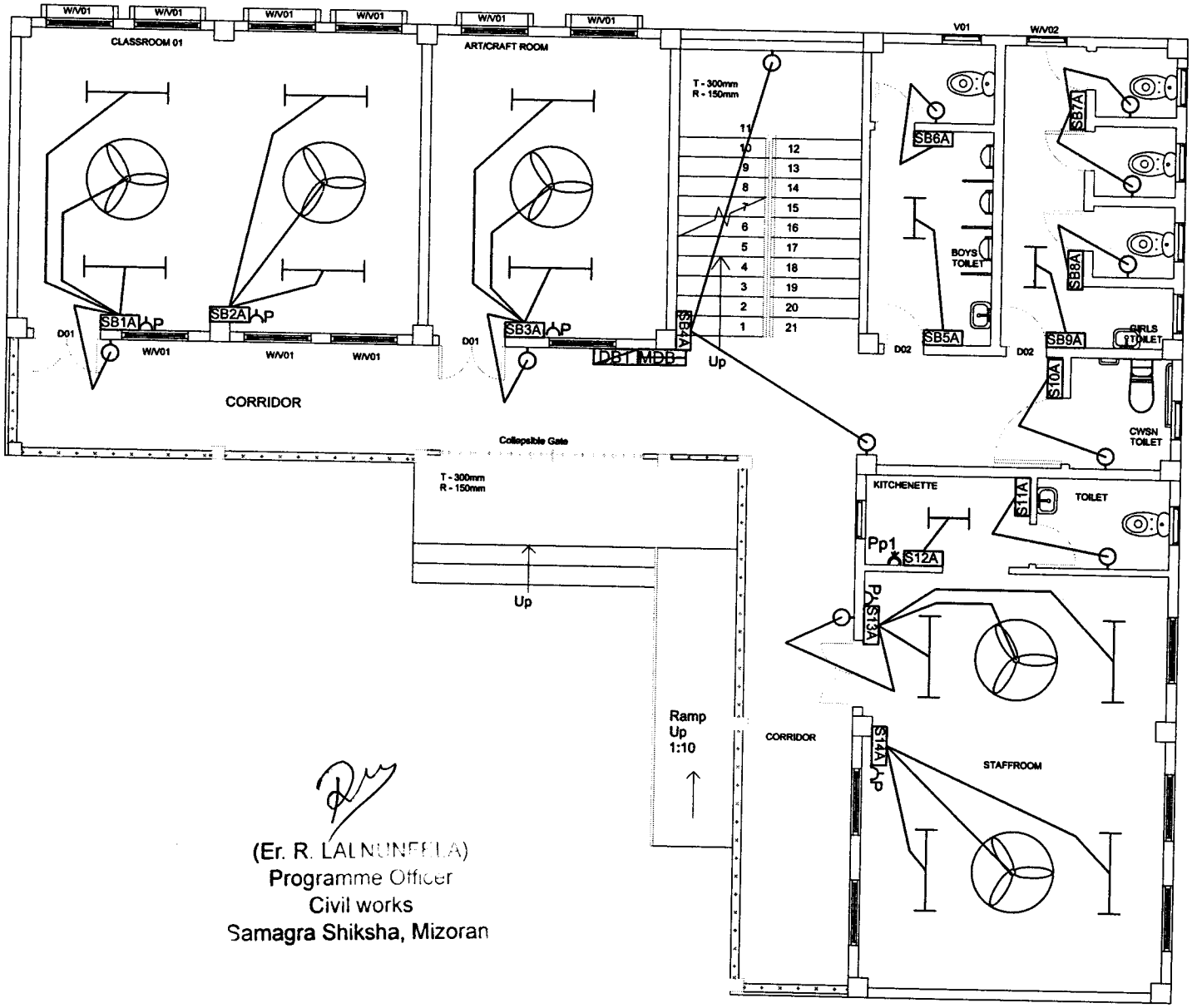
(Er. DENNIS LALHLIMPUIA)
State Project Engineer
Civil Works
Samagra Shiksha, Mizoram

	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) Oridinary Soil	m^3	6.000			
2/5.03	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)	m^3	1.1145			
3/5.10	Centering and shuttering including strutting, propping, etc. and removal of form works in -					
	(e) Suspended floors, roofs, landings,	m^2	4.515			
4/20.08	12mm cement plaster 1 : 4 (1 cement : 4 fine sand).	m^2	8.365			
5/5.18	Steel reinforcement for RCC work including straightening, cutting, bending, placing in position and binding all complete					
	(b) Thermo-Mechanically Treated Bars	kg	64.914			
6/6.09	7.5 cm thick brick masonry with first class brick in superstructure above plinth level upto floor two level including curing, etc. complete .					
	(b) in cement mortar 1:4 (1 cement : 4 fine sand)	m^2	5.8			
7/6.08	Honey-comb of half brick masonry with first class brick					

(Er. DENNIS LALHLIMPUIA)
State Project Engineer
Civil Works

		in foundation up to one storey above and below ground level including curing, etc. complete					
	b)	in cement mortar 1:4 (1 cement : 4 fine sand)	m^2	3.6			
						Total	
						Add 32.82 % C.I for Champhai District	
						Total inclusive of Cost Indices	
						Add 1% for Labour Cess	
						Add 6% for GST	
						Grand Total:	

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



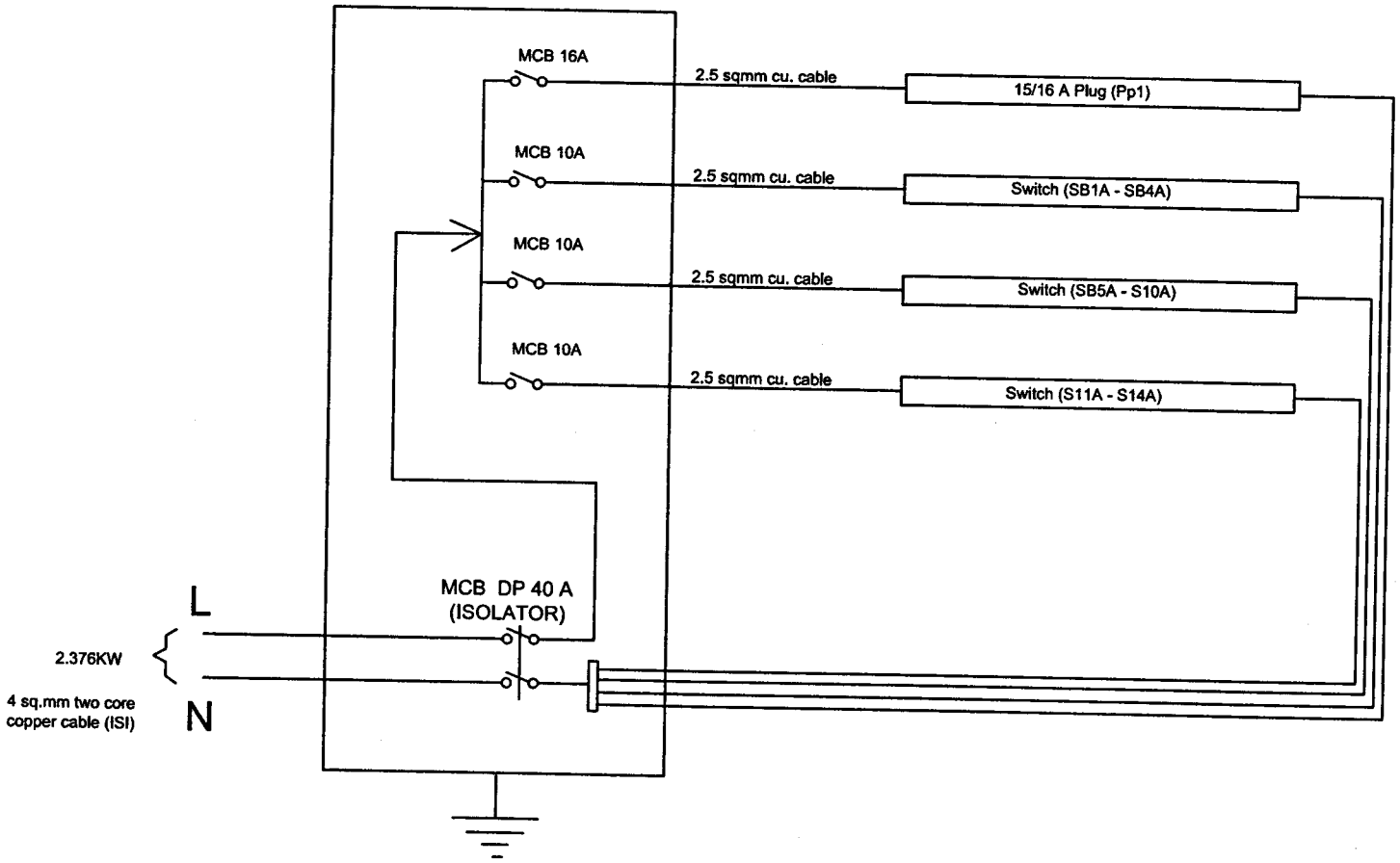
LEGENDS

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)	SB
5amp S/S comb Plug	P
16amp S/S comb Plug	Pp
Circuit Distribution board	DB
Main Distribution Board	MDB

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

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

6-way MCB DB SP & N D/D

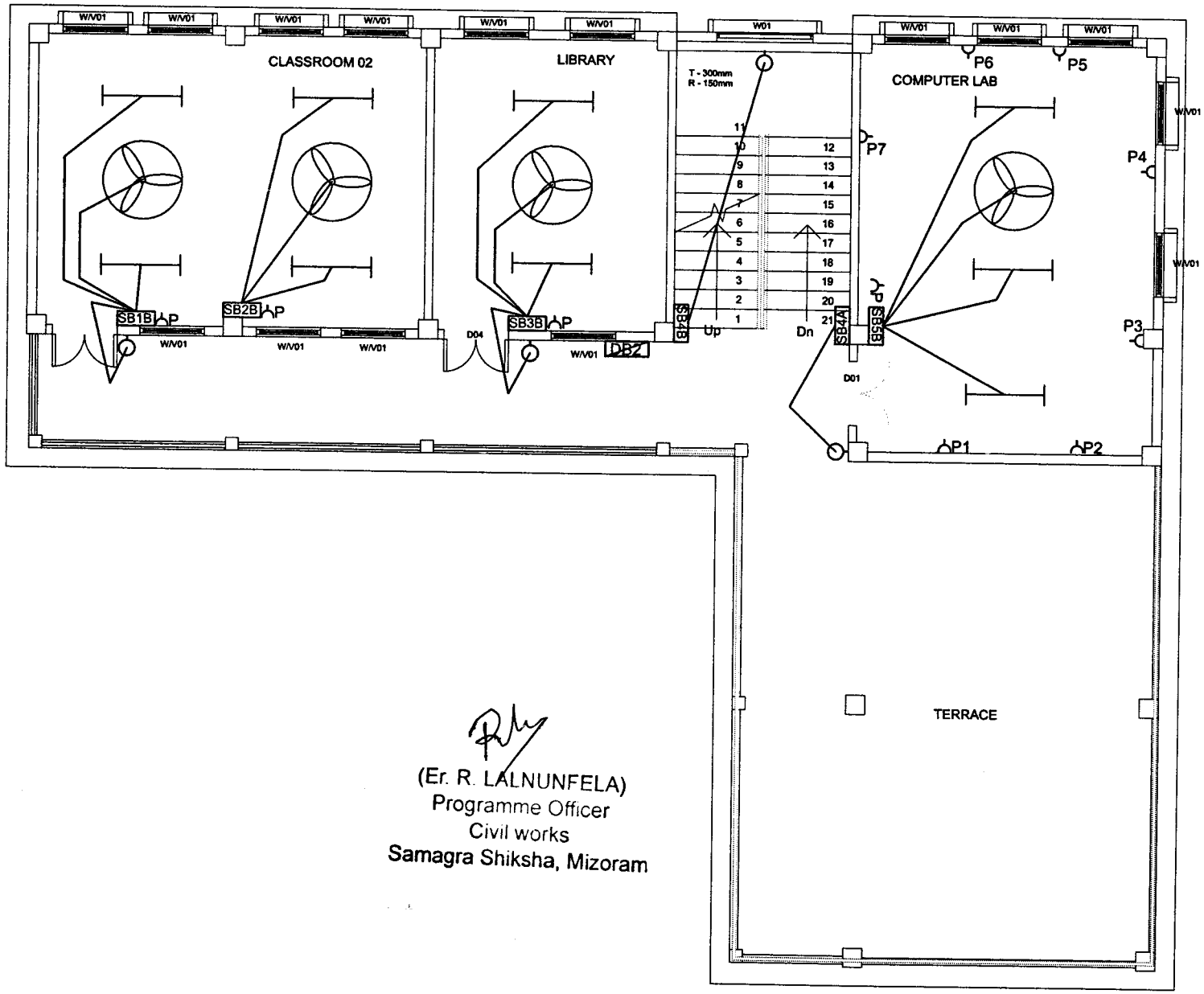


CIRCUIT DISTRIBUTION(1)

PROJECT	
RABUNG HSS (ARTS STREAM) AT KHAWZAWL DISTRICT	
NOTES	
STATE PROJECT OFFICE SAMAGRA SHIKSHA, MIZORAM	
DRAWING : SINGLE LINE DIAGRAM	
DATE : 05/06/2024	SHEET NO : 02
SCALE : NOT TO SCALE	
DRAWN BY	
COUNTERSIGNED BY	

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

(Er. DEN[illegible])
State Pro[illegible]
Civil W[illegible]
Samagra Shiksha, Mizo[illegible]



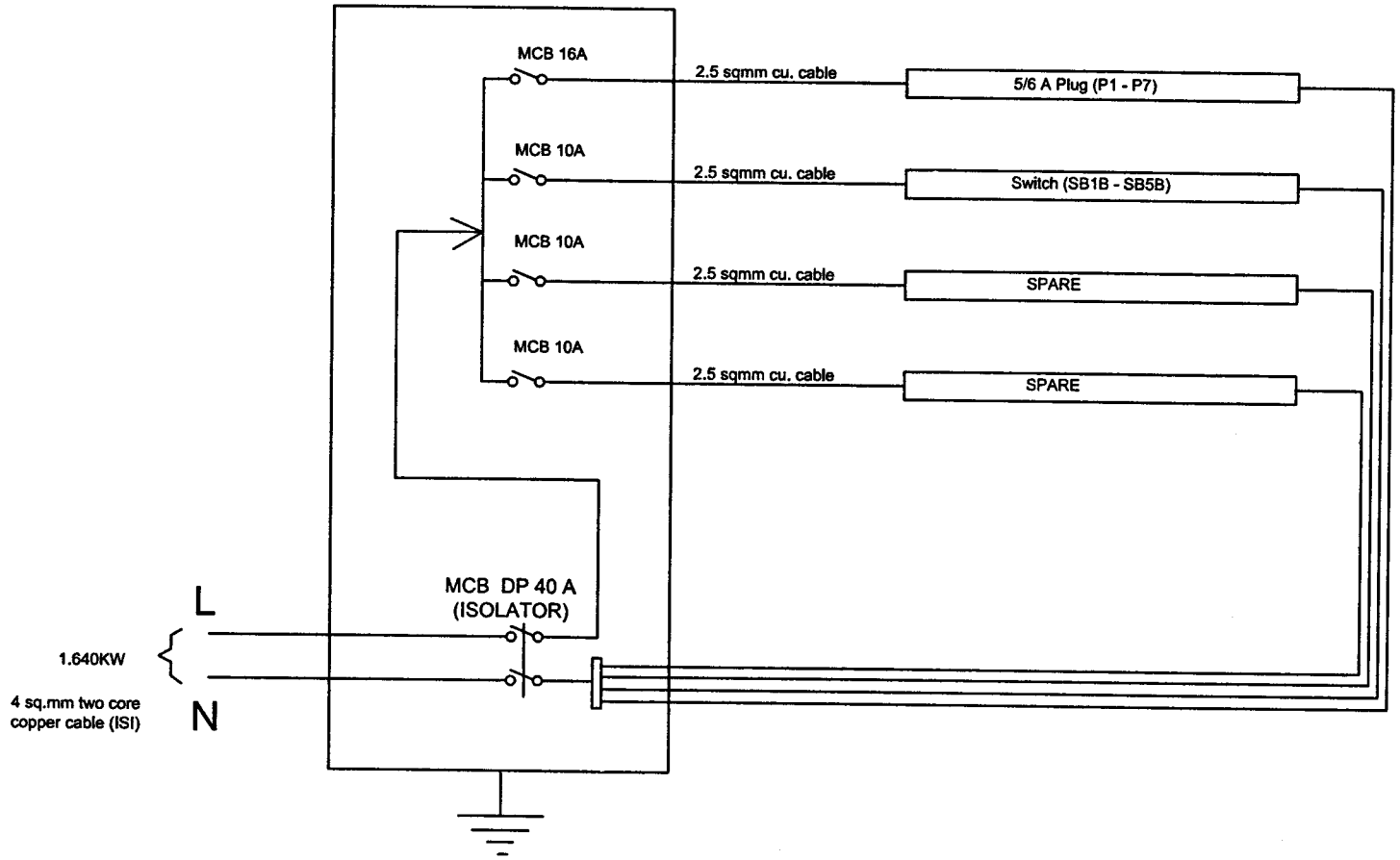
LEGENDS

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)	SB
5amp S/S comb Plug	P
16amp S/S comb Plug	Pp
Circuit Distribution board	DB
Main Distribution Board	MDB

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

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

6-way MCB DB SP & N D/D



CIRCUIT DISTRIBUTION(2)

PROJECT

RABUNG HSS (ARTS STREAM)
AT KHAWZAWL DISTRICT

NOTES

STATE PROJECT OFFICE
SAMAGRA SHIKSHA, MIZORAM

DRAWING : SINGLE LINE DIAGRAM

DATE : 05/06/2024

SCALE : NOT TO SCALE

SHEET NO : 04

DRAWN BY

COUNTERSIGNED BY

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

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

BILL OF QUANTITIES

NAME OF WORK : ELECTRIFICATION OF RABUNG HSS ; KHAWZAWL DISTRICT

SOR	DESCRIPTION OF MATERIAL	UNIT	QUANTITY	RATE		AMOUNT
				in figure	in words	
C:02:00	**SURFACE PVC CASING &CAPPING COPPER WIRING (GRADE-II)**					
C:02:01	**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:02:01 (C) Medium Point (Modular)	Each	22			
	C:02:01 (D) Long Point (Modular)	Each	15			
	FAN POINT					
	C:02:01 (C) Medium Point (Modular)	Each	9			
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 perIS:694 (1990) and Flame retardant low smoke & Halogen (FR-LSH)1100 voltage graded copperflexible wire stranded copper running inside PVC casing & capping (Gr-II) 20x12mm fixed, surface onthe wall/ceiling /floor as per convenience including junction box having required numbers of ways fromDB to the light plug/socket 5/6A point etc. as required :-					
	C:02:02(E) Light plug Point Very Long Point (modular)	Each	7			

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

C:02:03	**POWER PLUG/SOCKET POINT 15/16 AMPERES (MODULAR TYPE)**Wiring in looping system with PVC wire sheathed standard copper conductor/wires as perIS:694 1990) and Flame retardant low smoke & Halogen (FR-LSH)1100 voltage graded copper fexible 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 :-					
	C:02:03(E) Power plug Point 15/16 A Very LongPoint (modular)	Each	1			
C:02:06	**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:-					
	C:02:06(A) 2X2.5 Sqmm copper conductor/cable + 1x2.5 Sqmm earth wire	rm	310			
	C:02:06(B) 2X4 Sqmm copper conductor/cable + 1x4 Sqmm earth wire	rm	50			
I:02:00	**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					
	One Module Switch Board (Modular)					
	I:02:01 1 S	No	6			
	I:02:03 1 S two ways	No	3			
	Two modules Switch Board (Modular)					
	I:02:13 2 S	No	2			
	Six modules Switch Board (Modular)					
	I:02:86 2 S + 1 R + 1SOC	No	3			

(Er. DENNIS LALHLIMPUIA)
State Project Engineer

	Eight modules Switch Board (Modular)					
	I:02:158 3 S + 1SOC +1R+ 1BKP	No	6			
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	Each	8			
	N:01:26 40 Amps' DP, MCB Isolator	Each	2			
O:00:00	**DISTRIBUTION BOARDS**					
O:03:00	**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	2			
J:00:00	**LIGHTING FIXTURES(SURFACE/RECESS)**					
J:01:00	**LIGHTING FIXTURES CEILING/WALL MOUNTED:-**					
	J:01:03 Supplying, fitting and fixing Batten Holder including connection etc, as required	Each	15			
	(1661) CFL Curvy 15W(SP) B22,E27 Base Havells/Equivalent	No	15			
	J:01:30 Installation, testing & commissioning of pre-wired flourescent 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.	Each	22			
	(1375) LED Batten fitting 1x12W Linea'2 with LED tube (Phillips/equivalent)	No	3			
	(1377) LED Batten fitting 1x26W Linea'4 with LED tube (Phillips/equivalent)	No	19			
	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	Each	9			
	(1845)Ceilling fan 1200mm Sweeps ISI marked 3 blades (Usha/Crompton/Equivalent)	No	9			
	EARTHING AND LOOP EARTHING					

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

Q:01:00	Q:01:07 Earthing with Copper Earth plate 600mmx600mmx6mm thick including accessories and providing masonery enclosure with cover plate having locking arrangment 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 .50mbelow 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 cassing & capping alongwith others wires as required.	Metre	363			
R:01:00	**LIGHTNING CONDUCTOR**					
	R:01:08Providing 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:01:10Providing 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:01:67Providing and laying of copper tape 32mmx6mm thick from earth electrode directly in ground as required.	Metre	20			
	Single phase service connection 16sqmm twin core Aluminium cable Lump sum					
	Total					
	Add 18% GST					
	Add 1% Labour Cess					
	GRAND TOTAL	Rs				

Rupees in words

(Er. R. LALNUNFELA)
Prog...
Samagra ..., Mizoram

(Er. DENNIS LALHLIMPUIA)
State Project Engineer
Civil Works
... Shiksha, Mizoram