



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS & HIGHWAYS
OFFICE OF THE REGIONAL DIRECTOR
REGIONAL OFFICE NO. XI
GOV. CHAVEZ ST., DAVAO CITY

CY : 2025 PROJECT
DETAILED ENGINEERING DESIGN PLAN FOR

**CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO, TORIL, DAVAO CITY**

LOCATION : CAMP ALANO, TORIL, DAVAO CITY

SUBMITTED:

JUDY ANN T. BERNARDINO

CHIEF, PLANNING AND DESIGN DIVISION

RECOMMENDED:

JOSELITO B. CABALLERO

ASSISTANT REGIONAL DIRECTOR

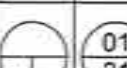
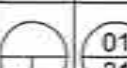
APPROVED:

JUBY B. CORDON

REGIONAL DIRECTOR

SUMMARY OF QUANTITIES

PART B - OTHER GENERAL REQUIREMENTS							
Pay Item (Number)	Suffix (Subscript)	Description	Thickness/Size	Class	Others	Unit Of Measure	TOTAL QTY
B.3 (1)		Permits and Clearances				Lump Sum	1
B.5 (1)		Project Billboard / Signboard				Each	2
B.7 (1)		Occupational Safety and Health				Lump Sum	1
B.9 (1)		Mobilization/Demobilization				Lump Sum	1
PART C - EARTHWORK							
Pay Item (Number)	Suffix (Subscript)	Description	Thickness/Size	Class	Others	Unit Of Measure	TOTAL QTY
C.80 (1)		Clearing and Grubbing				Square Meter	328
C.81 (1)		Removal of Structures and Obstruction				Lump Sum	1
C.82 (1)	a	Structure Excavation			Common Soil	Cubic Meter	162.01
C.84 (1)	a	Embankment from Roadway/Structure Excavation			Common Soil	Cubic Meter	100.77
C.84 (2)	a	Embankment from Borrow			Common Soil	Cubic Meter	140
C.84 (7)		Gravel Fill				Cubic Meter	35.98
PART D - REINFORCED CONCRETE							
D.90 (1)	c	Structural Concrete	3000 psi	Class A	28 days	Cubic Meter	45.23
D.92 (1)	a1	Reinforcing Steel (Deformed)			Grade 40	Kilogram	2404.55
D.92 (2)	a2	Reinforcing Steel (Deformed)			Grade 60	Kilogram	391.65
D.93 (2)		Formwork and Falsework				Square Meter	104.45
PART E - FINISHING AND OTHER CIVIL WORKS							
E.100 (1)		Soil Poisoning				Liter	17
E.101 (5)	b	Catch Basin		Class B		Each	17
E.101 (9)		Storm Drainage and Downspout				Lump Sum	1
E.102 (10)		Pipes with Fittings Connection				Lump Sum	1
E.102 (4)		Purifying Poles				Lump Sum	1
E.102 (18)		Stainless Steel Grate Bar	40 mm dia.			Linear Meter	3
E.102 (24)		Cold Water Lines				Lump Sum	1
E.103 (1)	a1	Ceiling	4.5 mm	Metal Frame	Fiber Cement Board	Square Meter	808
E.103 (1)	a	Ceiling		Metal Frame	Prepainted Metal Panel	Square Meter	89.38
E.103 (2)	a1	Wall	4.5 mm	Metal Frame	Fiber Cement Board	Square Meter	103.68
E.103 (11)	a2	Exterior Board	25 mm		Lumber	Meter	212
E.103 (17)		Carpentry and Joinery Works				Lump Sum	1
E.104 (2)		Finishing Hardware				Lump Sum	1
E.107 (1)	b	Aluminum Framed Glass Door			Sliding Type	Square Meter	22
E.108 (1)	c	Aluminum Glass Windows			Awning Type	Square Meter	15
E.108 (1)	d	Aluminum Glass Windows			Fixed Type	Square Meter	9
E.109 (1)		Frames			Joints, Sills, Head, Transoms and Mullions	Set	5
E.110 (2)	a	Doors			Flush	Square Meter	14.7
E.113 (1)	a	Fabricated Metal Roofing Accessory	Gauge 26 (0.551 mm)		Ridge/Roof Roll	Linear Meter	11
E.113 (2)	b	Fabricated Metal Roofing Accessory	Gauge 26 (0.551 mm)		Flashing	Linear Meter	145
E.113 (2)	c	Fabricated Metal Roofing Accessory	Gauge 24 (0.701 mm)		Gutters	Linear Meter	160
E.114 (1)	a2	Pre-painted Metal Sheets	above 0.427 mm	Corrugated	Long Span	Square Meter	407
E.117 (1)	b	Gutter Drain with Strainer	75 mm dia.			Set	27
E.118 (1)		Glazed Tiles and Trims				Square Meter	7.4
E.118 (2)		Unglazed Tiles				Square Meter	3.3
E.118 (4)		Synthetic Granite Tiles				Square Meter	7.5
E.121 (1)	a	Cement Floor Finish			Paint	Square Meter	540
E.122 (1)		Cement Plaster Finish				Square Meter	426
E.122 (1)	a	Painting Works			Masonry/Concrete	Square Meter	1486
E.122 (1)	b	Painting Works			Wood	Square Meter	272
E.122 (1)	c	Painting Works			Steel	Square Meter	82
E.128 (1)		Reflective Insulation				Square Meter	94
E.143 (1)		PVC Doors and Frames				Square Meter	2.1
E.144 (1)		Folding Doors/Partition				Lump Sum	1
E.146 (2)	a1	CRB Non-Load Bearing (Including Reinforcing Steel)	100 mm			Square Meter	240
E.146 (2)	a2	CRB Non-Load Bearing (Including Reinforcing Steel)	150 mm			Square Meter	94
E.147 (1)		Metal Structures				Lump Sum	1
E.147 (4)	a	Metal Structure Accessories			Bolts and Rods	Each	88
E.147 (4)	b	Metal Structure Accessories			Turnbuckle	Each	24
E.147 (5)	b	Metal Structure Accessories			Seignets	Kilogram	13.9
E.147 (5)	c	Metal Structure Accessories			Cross Bracing	Kilogram	261.71
E.147 (5)	d	Metal Structure Accessories			Steel Plates	Kilogram	529.39
E.147 (7)		Structural Steel				Lump Sum	1
E.147 (8)	a	Structural Steel			Trusses	Kilogram	3349.83
E.147 (9)	b	Structural Steel			Purlins	Kilogram	943.98
E.151 (6)		Stainless Steel Rolling				Meter	229
PART F - ELECTRICAL							
F.100 (10)		Conduits, Boxes & Fittings (Conduit Works/Conduit Rough-in)				Lump Sum	1
F.101 (10)		Wires and Wiring Devices				Lump Sum	1
F.102 (1)		Panelboard with Main & Branch Breakers				Lump Sum	1
F.103 (1)		Lighting Fixtures				Lump Sum	1
PART G - MECHANICAL							
G.120 (2)	b	Oscillating Fan			Wall Fan	Set	4
G.120 (4)	b	Propeller Fan			Ceiling Fan	Set	2
G.120 (13)	a	Air Conditioning System		Package/Split Type		Lump Sum	1
G.122 (6)	a1	Fire Extinguisher	4.54 kg		ABC with bracket	Set	5

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHARLES COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF MULTI-PURPOSE BUILDING (ADMINISTRATIVE BUILDING), CAMP ALANO, TORIL, DAVAO CITY	SUMMARY OF QUANTITIES	 FERDINAND M. RAÑOSA ARCHITECT II	 ALVIN A. GUNGAT ENGINEER II, SECTION 1	 JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION	 JOSEPH B. CABALLERO ASSISTANT REGIONAL DIRECTOR	 JUBY B. CORDON REGIONAL DIRECTOR		



P E R S P E C T I V E



1 SITE DEVELOPMENT PLAN
A-1 SCALE 1/8"=1'-0"



2 VICINITY MAP
A-1 SCALE 1/8"=1'-0"

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P-5	STORM DRAINAGE LAYOUT
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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE BUILDING OFFICIAL

DAVAO CITY

LAND USE & ZONING

LINE AND GRADE

ARCHITECTURAL

STRUCTURAL

SANITARY

ELECTRICAL

MECHANICAL



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PROJECT NAME AND LOCATION
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS
PERSPECTIVE
SITE DEVELOPMENT PLAN
VICINITY MAP

PREPARED
FERDINAND M. RAÑOSA
ARCHITECT II
DATE

REVIEWED
ALVIN A. GONZALES
ENGINEER II, SECOND DIVISION
DATE

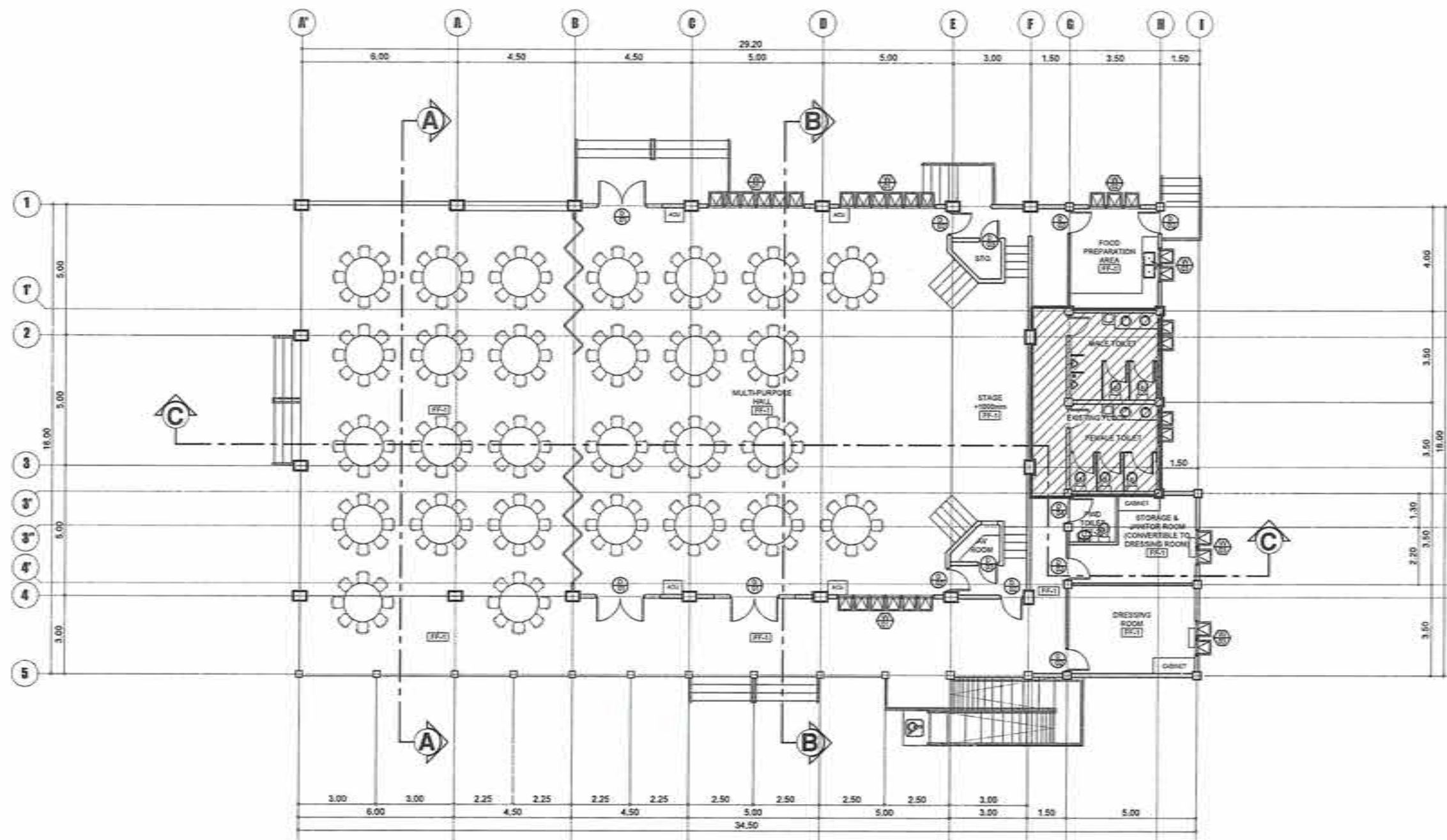
SUBMITTED
JUDY ANN T. BERNARDINO
CHIEF ENGINEERING AND DESIGN DIVISION
DATE

RECOMMENDED
JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

APPROVED
JUDY B. CORDON
REGIONAL DIRECTOR
DATE

SET NO. SHEET NO.
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1 FLOOR PLAN
A-2 1042 1:100

MARK	SPECIFICATION
FF-1	PLAIN CEMENT FINISH
FF-2	600mm x 600mm NON-SLIP CERAMIC FLOOR TILES WITH COLOR TO BE APPROVED BY OWNER AND THE ARCHITECT.



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(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS
FLOOR PLAN

PREPARED
FERDINAND M. RAROSA
ARCHITECT II
DATE

REVIEWED
ALGIN A. GINGAYAN
ENGINEER II, SECTION CHIEF
DATE

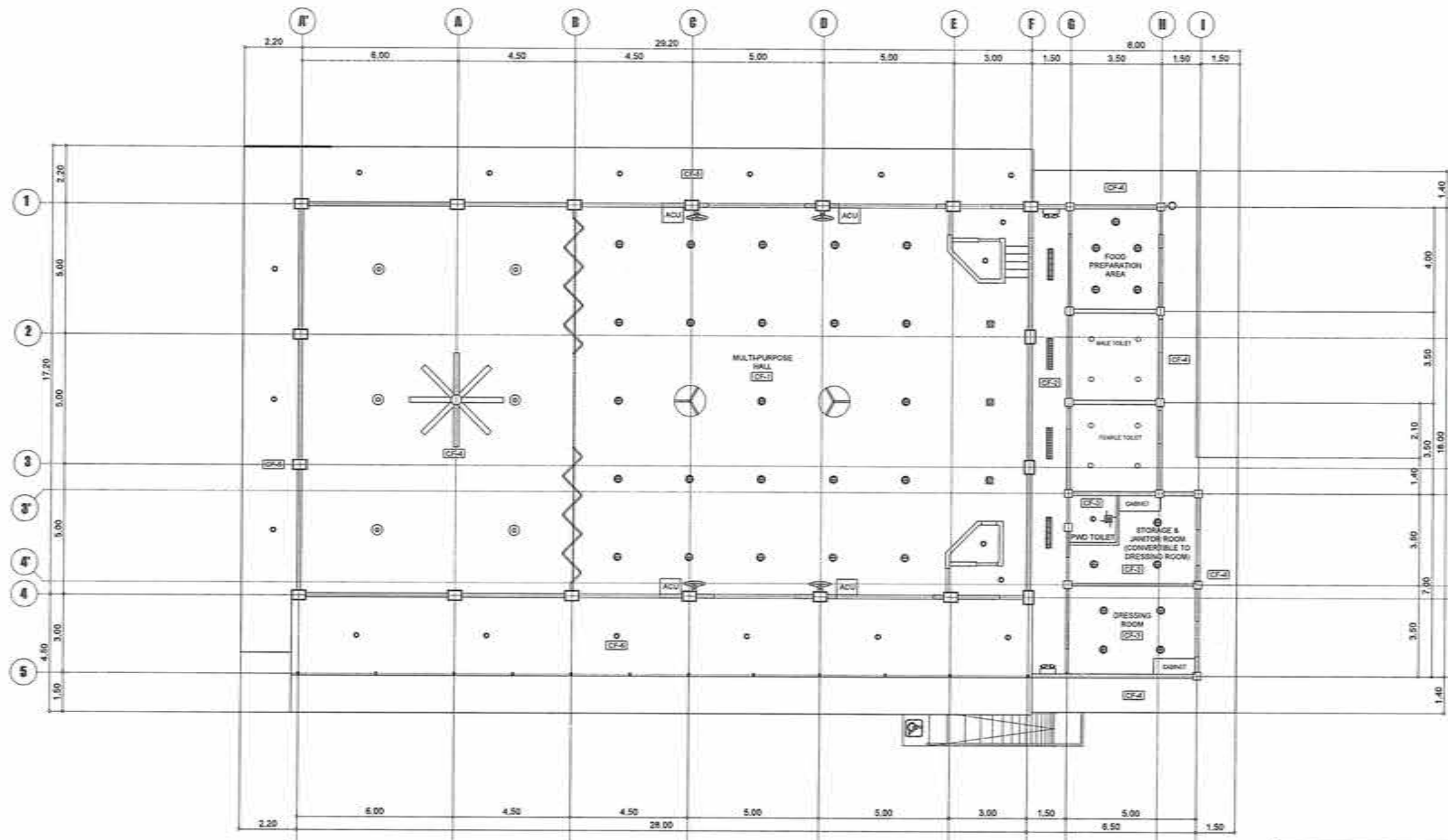
SUBMITTED
JUDY ANN T. BERNARDO
CHIEF, TRAINING AND DESIGN DIVISION
DATE

RECOMMENDED
JOSE LITO B. CABALLERO
ASSTANT REGIONAL DIRECTOR
DATE

APPROVED
JUBY B. CORDON
REGIONAL DIRECTOR
DATE

SET NO. SHEET NO.
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1 REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

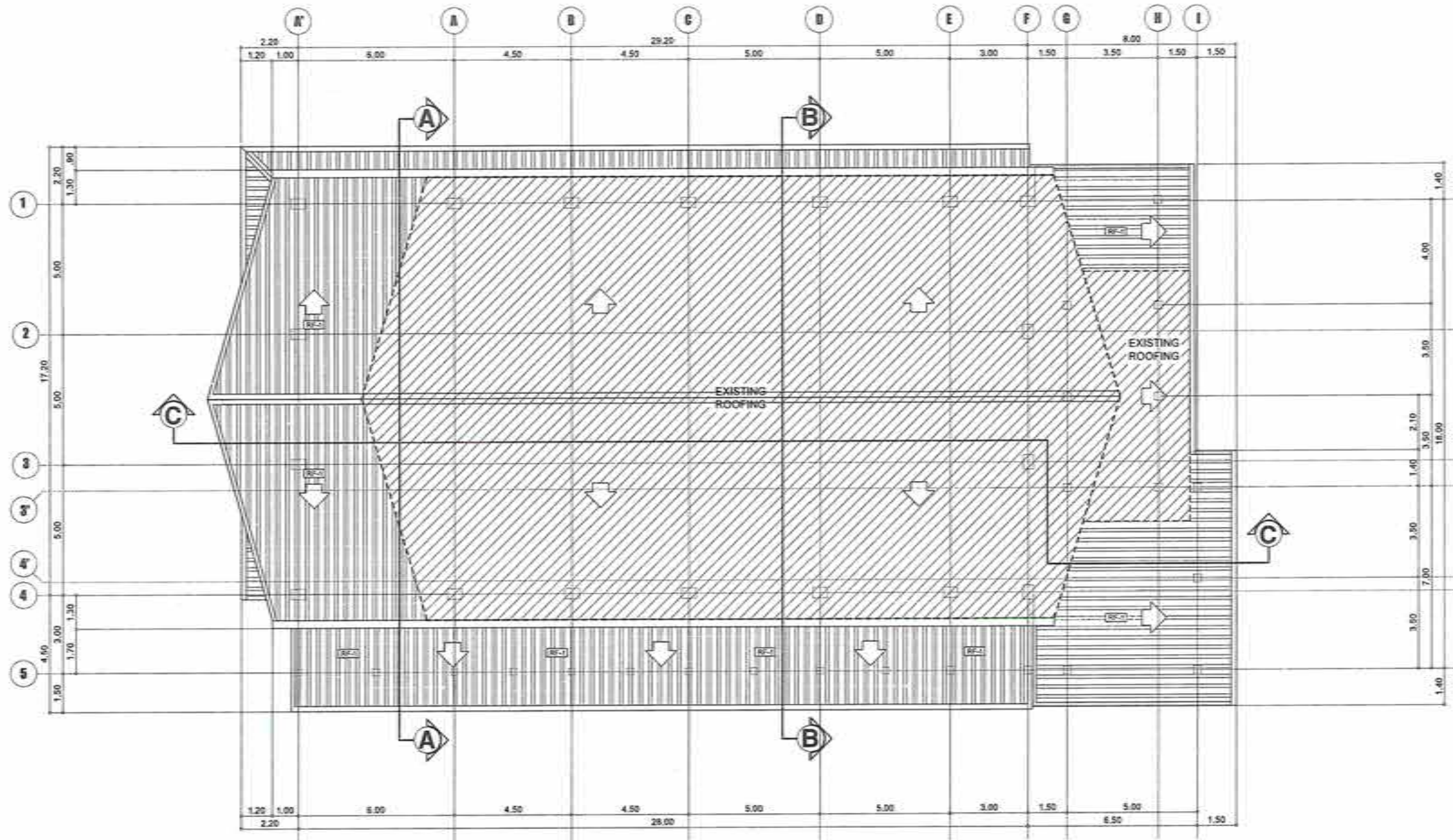
MARK	SPECIFICATION
⊗	LED DOWN LIGHT 25WATTS
○	LED DOWN LIGHT 15WATTS
⊗	SELF BALLAST MERCURY LAMPS 150W DOME REFLECTOR (EXISTING)
○	LED DOWN LIGHT 15WATTS (EXISTING)
⊗	LED LAMP HIGHBAY 100WATTS
⊗	LED WALL LAMP 11WATTS
⊗	CEILING FAN 180WATTS
⊗	HVLS (HIGH VOLUME LOW SPEED) FAN 850WATTS
⊗	FLUORESCENT LED LAMP 1-36 WATTS RECESSED MOUNTING (NEW)
⊗	FLUORESCENT LED LAMP 1-36 WATTS RECESSED MOUNTING (EXISTING)
⊗	ELECTRIC WALL FAN 100WATTS
⊗	EMERGENCY LAMP 2 x 1WATT
⊗	EXHAUST FAN (203x203)mm 20Watts CEILING MOUNTING

MARK	SPECIFICATION
CF-1	CEILING HEIGHT: 4.50m 3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 600mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).
CF-2	CEILING HEIGHT: 2.70m 3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).
CF-3	CEILING HEIGHT: 2.40m 3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).
CF-4	CEILING HEIGHT: OFFSET 50MM FROM BOTTOM OF MAIN TRUSS. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).
CF-5	CEILING EAVES HEIGHT: 3.45m 3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).

MARK	SPECIFICATION
CF-6	CEILING EAVES HEIGHT: 3.20m 3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. B. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	PREPARED	REVIEWED	SUBMITTED	RECOMMENDED	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF MULTI-PURPOSE BUILDING (ADMINISTRATIVE BUILDING), CAMP ALANO, TORIL, DAVAO CITY	REFLECTED CEILING PLAN	FERNANDO M. RAÑOSA ARCHITECT II	ALVIN A. GINGALAN ENGINEER II, SECTION ENGINEER	JUDY A. BERNARDO CHIEF PLANNING AND DESIGN DIVISION	JOSEITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUBY B. CORDON REGIONAL DIRECTOR	A 39	04 31

MARK	SPECIFICATION
RF-1	.40mm THK. PRE-PAINTED CORRUGATED G.I. ROOFING SHEETS (LONG SPAN).



1 UPPER ROOF PLAN
A-2 1:100



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CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS:

UPPER ROOF PLAN

PREPARED:

SERONAND M. RANOSA
ARCHITECT E

REVIEWED:

ALGIN A. GINGGAT
ENGINEER R. SECTION

DESIGNED:

JUDYANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION

RECOMMENDED:

JOSEITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:

JUBY B. CORDON
REGIONAL DIRECTOR

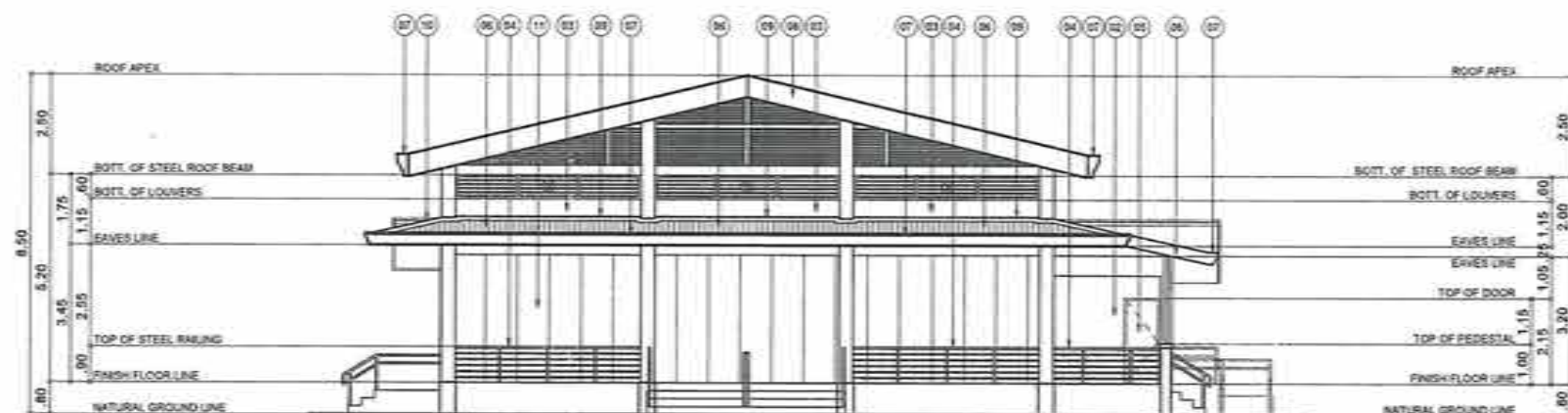
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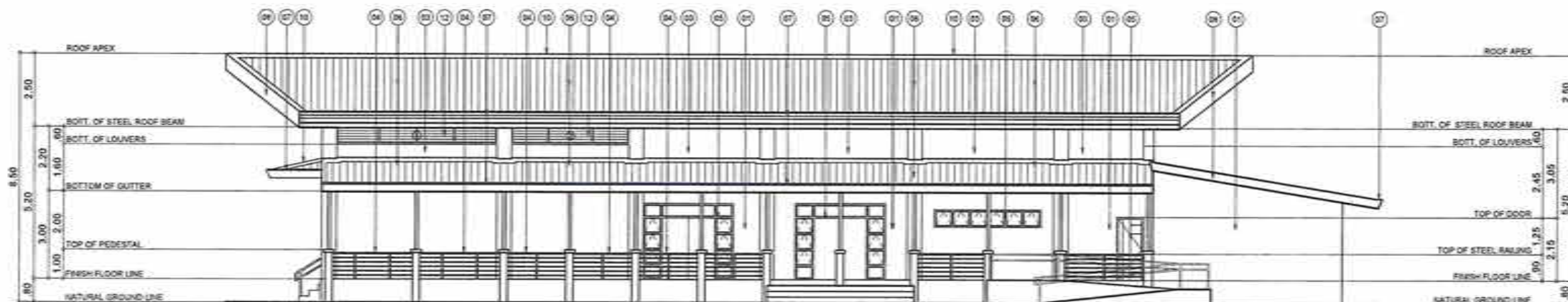
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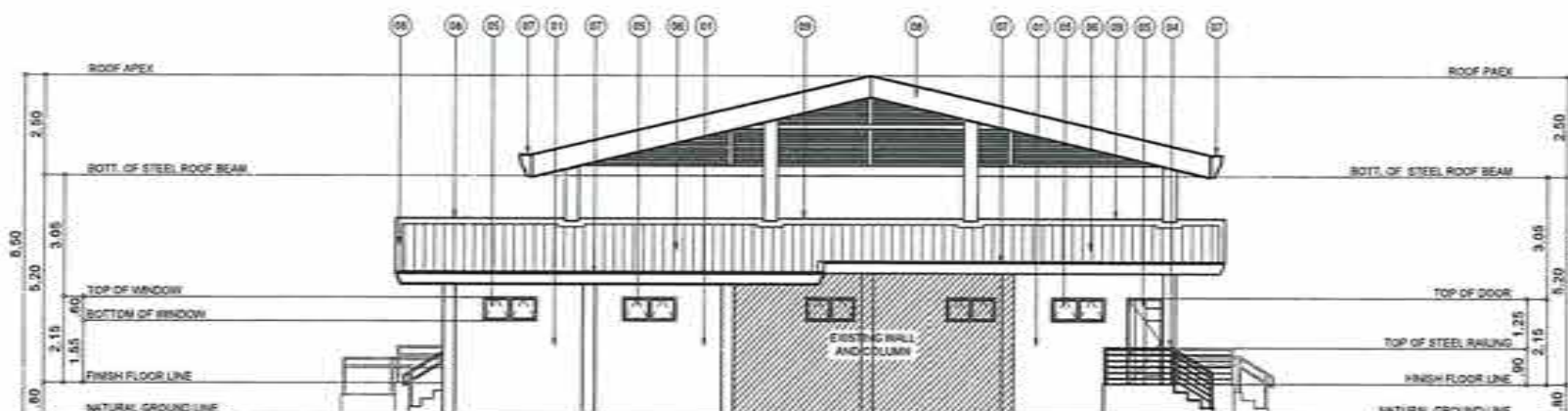
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1 FRONT ELEVATION
A-E SCALE 1:100 M



2 RIGHT SIDE ELEVATION
A-E SCALE 1:100 M



3 REAR ELEVATION
A-E SCALE 1:100 M

MARK	SPECIFICATION
01	6" CHB WALL PLAIN CEMENT PLASTERED WITH ACRYTEX PAINT FINISH, COLOR TO BE APPROVED BY THE OWNER
02	4" CHB WALL PLAIN CEMENT PLASTERED WITH ACRYTEX PAINT FINISH, COLOR TO BE APPROVED BY THE OWNER
03	4.5mm THK. FIBER CEMENT BOARD DOUBLE WALL PARTITION ON GA. 22 x 50mm x 100mm LIGHT STEEL FRAMES SPACED AT 600mm HORIZONTAL ON CENTER AND 1200mm VERTICAL ON CENTER WITH ACRYTEX PAINT FINISH
04	2" Ø STAINLESS STEEL PIPE HAND RAIL AND 2" Ø G.I. BALUSTER w/ 1" Ø G.I. VERTICAL RAIL
05	SEE DOORS AND WINDOWS SCHEDULE
06	40mm THK. PRE-PAINTED CORRUGATED G.I. ROOFING SHEETS (LONG SPAN)
07	40mm THK. PRE-PAINTED G.I. GUTTER
08	40mm THK. PRE-PAINTED END FLASHING
09	40mm THK. PRE-PAINTED WALL FLASHING
10	40mm THK. PRE-PAINTED RIDGE ROLL
11	ACCORDION DOOR



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CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS

FRONT ELEVATION
RIGHT SIDE ELEVATION
REAR ELEVATION

PREPARED

FERDINAND M. RAÑOSA
ARCHITECT

REVIEWED

ALVIN A. GINGARA
ENGINEER IN CHARGE

SUBMITTED

JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION

RECOMMENDED

JOSELITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED

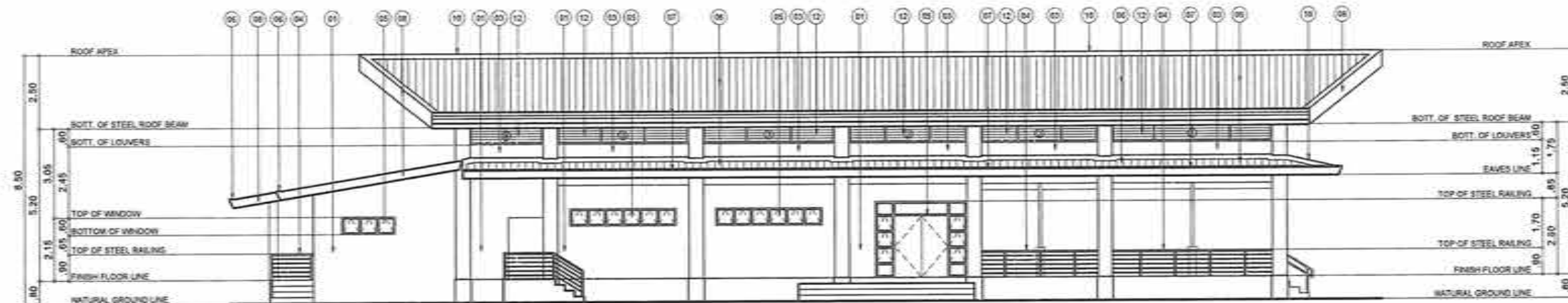
JUDY B. CORDON
REGIONAL DIRECTOR

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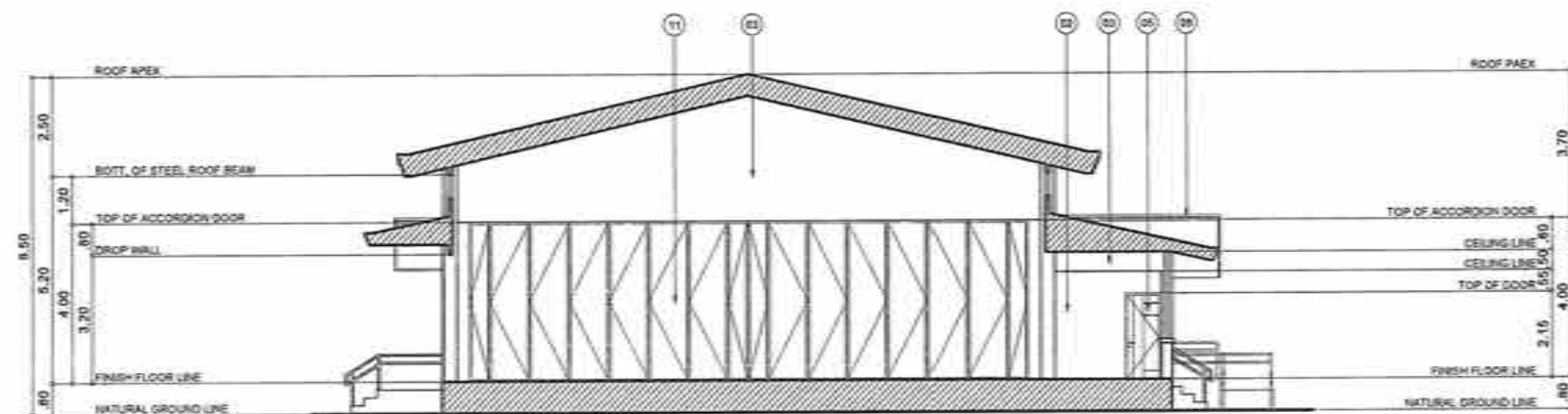
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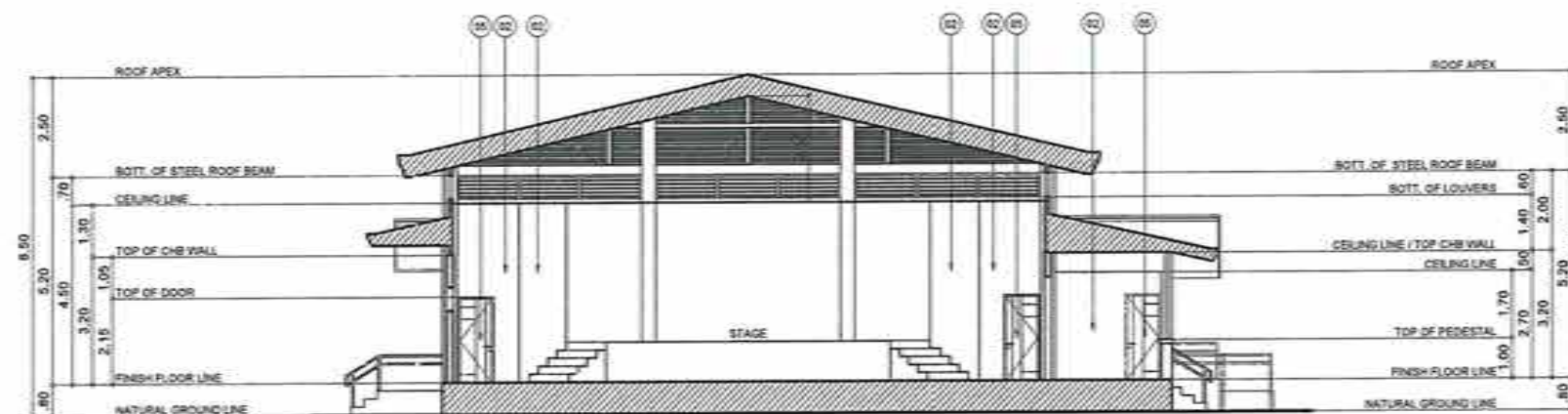
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1 LEFT SIDE ELEVATION
A-7 SCALE 1 : 100



2 CROSS SECTION A - A
A-7 SCALE 1 : 100



3 CROSS SECTION B - B
A-7 SCALE 1 : 100

MARK	SPECIFICATION
01	6" CHB WALL PLAIN CEMENT PLASTERED WITH ACRYTEX PAINT FINISH COLOR TO BE APPROVED BY THE OWNER
02	4" CHB WALL PLAIN CEMENT PLASTERED WITH ACRYTEX PAINT FINISH COLOR TO BE APPROVED BY THE OWNER
03	4.5mm THK. FIBER CEMENT BOARD DOUBLE WALL PARTITION ON GA. 22 x 50mm x 100mm LIGHT STEEL FRAMES SPACED AT 600mm HORIZONTAL ON CENTER AND 1200mm VERTICAL ON CENTER WITH ACRYTEX PAINT FINISH.
04	2" Ø STAINLESS STEEL PIPE HAND RAIL AND 2" Ø G.I. BALLUSTER w/ 1" Ø G.I. VERTICAL RAIL
05	SEE DOORS AND WINDOWS SCHEDULE
06	40mm THK. PRE-PAINTED CORRUGATED G.I. ROOFING SHEETS (LONG SPAN)
07	40mm THK. PRE-PAINTED G.I. GUTTER
08	40mm THK. PRE-PAINTED END FLASHING
09	40mm THK. PRE-PAINTED WALL FLASHING
10	40mm THK. PRE-PAINTED RIDGE ROLL
11	ACCORDION DOOR



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
DOJ. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS
LEFT SIDE ELEVATION
CROSS SECTION A - A
CROSS SECTION B - B

PREPARED
FERDINAND M. RAÑOSA
ARCHITECT

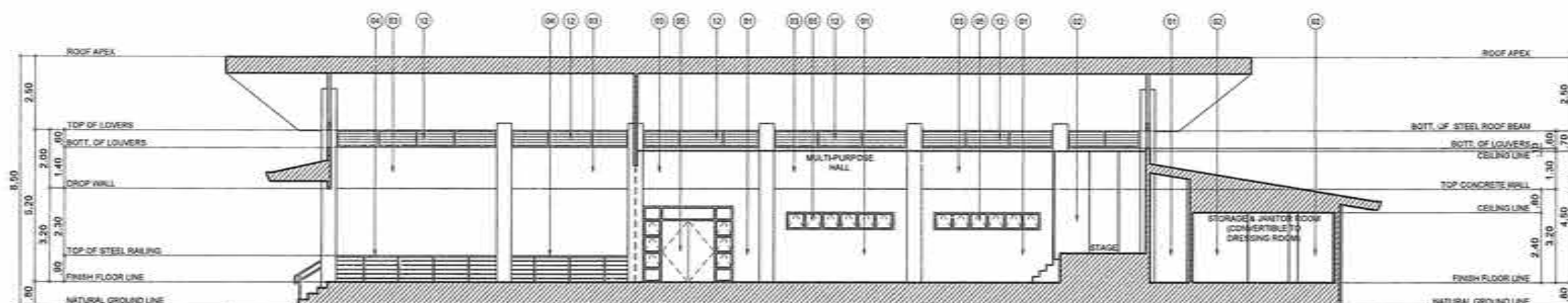
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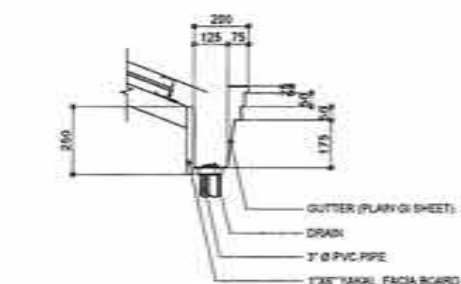
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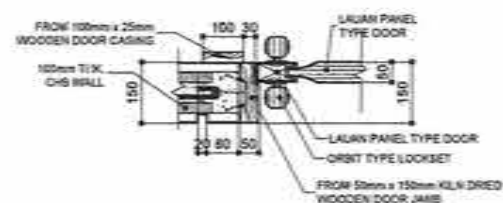
1 LONGITUDINAL SECTION
A-B SCALE 1 : 100 M

MARK	DRAWING	QTY.	LOCATION	SPECIFICATION	MARK	DRAWING	QTY.	LOCATION	SPECIFICATION	MARK	DRAWING	QTY.	LOCATION	SPECIFICATION
D 01		3 UNITS	-MULTI-PURPOSE HALL	12mm THK. TINTED FRAMELESS TEMPERED GLASS DOOR W/ EPCO PATCH FITTINGS (PF20 TOP PATCH PIVOT & PF10 BOT. PATCH CONNECTED TO 86 SERIES FLOOR CHECK W/ PL10 BOTTOM PATCH LOCK AND WITH 6mm THK. TINTED FRAMELESS TEMPERED FIXED AND AWNING GLASS WINDOW.	D 04		1 UNIT	-PWD TOILET	SHOP MADE LAUAN PANEL DOOR ON 50mm x 100mm KILN DRIED YACAL DOOR JAMS w/ BOTTOM LOUVERS	W 03		3 UNITS	-FOOD PREPARATION AREA -STORAGE AND JANITOR ROOM (CONVERTED TO DRESSING ROOM) -DRESSING ROOM	6mm THK. TINTED GLASS AWNING WINDOW ON ANALOK ALUMINUM FRAME
D 02		6 UNITS	-MULTI PURPOSE HALL -FOOD PREPARATION AREA -STORAGE AND JANITOR ROOM (CONVERTED TO DRESSING ROOM) -DRESSING ROOM	SHOP MADE LAUAN PANEL DOOR ON 50mm x 100mm KILN DRIED YACAL DOOR JAMB.	W 01		3 UNITS	-MULTI-PURPOSE HALL	6mm THK. TINTED GLASS AWNING WINDOW ON ANALOK ALUMINUM FRAME					
D 03		2 UNITS	-STORAGE ROOM -AV ROOM	PVC DOOR WITH FIXED LOUVERS ON PVC DOOR JAMB.	W 02		1 UNIT	-FOOD PREPARATION AREA	6mm THK. TINTED GLASS AWNING WINDOW ON ANALOK ALUMINUM FRAME					

2 DOORS AND WINDOWS SCHEDULE

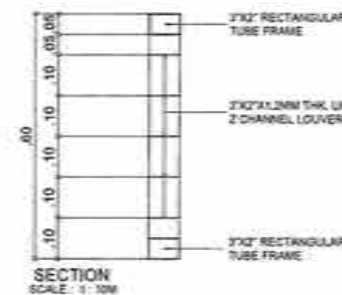


3 TYPICAL GUTTER DETAIL
A-E SCALE 1:10 W



4 TYPICAL PANEL DOOR DETAIL
1/2" = 1'-0" W

[illegible]



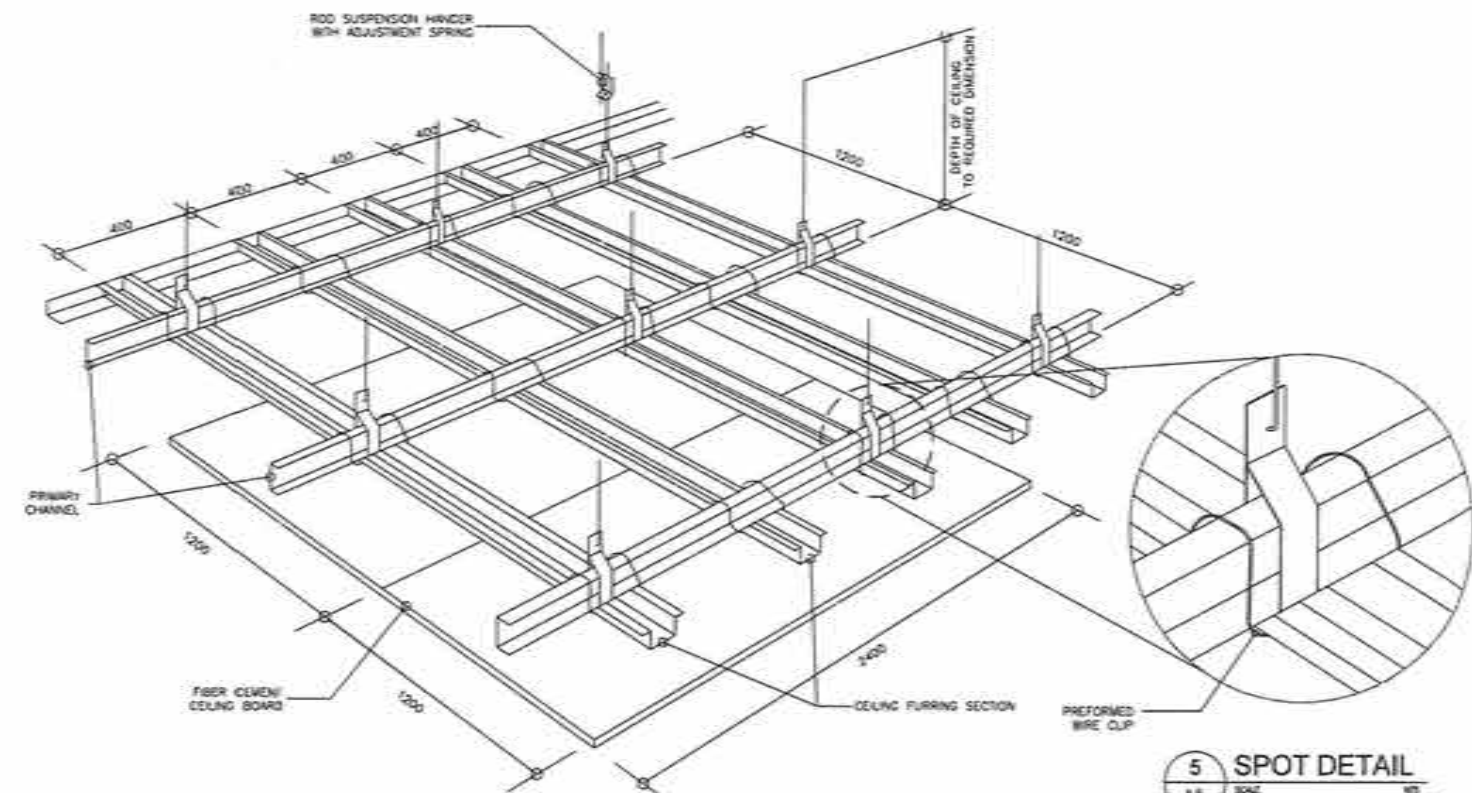
NOTE: USE - 3"x2" RECTANGULAR TUBE FRAME w/ 3"x2"x1.28mm THK. LIGHT Z-CHANNEL LOUVERS.

LOUVER 1 ELEVATION
SCALE: 1:30 M

LOUVER 2 ELEVATION
SCALE: 1:30 M

LOUVER 3 ELEVATION
SCALE: 1:30 M

3 LOUVERS DETAIL
A-E SCALE TO FINISH



4 PERSPECTIVE (CEILING)

5 SPOT DETAIL
A-B SCALE 1/8"

GENERAL STRUCTURAL NOTES

GENERAL NOTES

1. STANDARD AND REFERENCES

- NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP) 2015, 2ND PRINTING
- SOFTWARE DESIGN USING STAAD PRO CONNECT EDITION
- LMCON V3.63

2. STRUCTURAL DESIGN CRITERIA

• DEAD LOAD

1) SELF-WEIGHT	
STEEL UNIT WEIGHT	77.00 kN/m ³

2) FLOOR LOAD

CEILING	0.10 kPa
FURNING, SAGRODS, CLIP, TURNBUCKLE	0.30 kPa
ROOF	0.20 kPa

• LIVE LOAD

ROOF	2.00 kPa
------	----------

• ROOF LIVE LOAD

METHOD 1	0.75 kPa
----------	----------

• WIND LOAD

WIND VELOCITY	210 km/h
BUILDING CATEGORY	I
EXPOSURE CATEGORY	B
QUEST FACTOR, Q (FOR RIGID BUILDINGS)	0.85
MAIN WIND FORCE RESISTING SYSTEM, K _s	0.85

• SEISMIC LOAD

IN THE ABSENCE OF A SEISMIC HAZARD ASSESSMENT, THE FOLLOWING DATA WAS USED IN THE DESIGN THIS DATA HOWEVER WAS DEVELOPED IN REFERENCE WITH THE INFORMATION PROVIDED IN THE GEOTECHNICAL REPORT AND THE STANDARD PARAMETERS GIVEN IN THE NATIONAL STRUCTURAL CODE OF THE PHILIPPINES. MOREOVER, 1_h AND 1_v USED IN THE ANALYSIS ARE THE MOST CONSERVATIVE VALUES PROVIDED BY THE CODE THAT WITHIN 20KM RADIUS OF THE BUILDING THERE IS A FAULTLINE.

DESIGN BASE SHEAR, V	KN
IMPORTANCE FACTOR, I	1.5
SEISMIC ZONE FACTOR	0.40
SEISMIC RESPONSE MODIFICATION FACTOR IN X & Z, R	8.0
NEAR SOURCE FACTOR, N _s	1.5
NEAR SOURCE FACTOR, N _v	2.0
SOIL PROFILE TYPE	4.0 (S _h)
CI (FOR STEEL)	0.053
SEISMIC COEFFICIENT, C _s	0.050
SEISMIC COEFFICIENT, C _v	1.250
LOAD COMBINATION	
1.4 (D+T)	NSCP E _h 203-1
1.2 (D+T) + 1.6 (L+H) + 0.5 (L _r or R)	NSCP E _h 203-2
1.2D + 1.5 (L _r or R) + (T _L or 2.5S _h)	NSCP E _h 203-3
1.2D + 1.5S _h + T _L + 0.5 (L _r or R)	NSCP E _h 203-4
1.2D + 1.5E + T _L	NSCP E _h 203-5
0.9D + 1.5W + 1.5H	NSCP E _h 203-6
0.9D + 1.5E + 1.5H	NSCP E _h 203-7
1.2 + 0.5C _s (D) + p _{sh} + T _L	NSCP 2015
0.9 + 0.5C _s (D) + p _{sh}	NSCP 2015
1.2 + 0.5C _s (D) + E _{sh} + 0.30E _h + T _L	NSCP 2015
0.9 + 0.5C _s (D) + E _{sh} + 0.30E _h + T _L	NSCP 2015
0.9 + 0.5C _s (D) + E _h + 0.30E _h	NSCP 2015

3. MATERIALS SPECIFICATION

A. CONCRETE	
COMPRESSIVE STRENGTH @ 28 DAYS	f _c = 28.00 MPa (4,000 psi)
B. REINFORCING STEEL BAR	
1. FOR BARS GREATER THAN 18mm (GRADE 60)	f _y = 434.30 MPa (60,000 psi)
2. FOR 18mm AND SMALLER (GRADE 40)	f _y = 275.58 MPa (40,000 psi)
C. STRUCTURAL STEEL ASTM A36	f _y = 248.00 MPa (36,000 psi)
D. PURLINS (COLD FORMED LIGHT GAUGE SHAPES)	f _y = 248.00 MPa (36,000 psi)
E. MASONRY UNIT (CMU)	
NONE (LOAD BEARING CMU WALLS)	f _m = 3.45 MPa (500 psi)
LOAD BEARING CMU WALLS	f _m = 7.00 MPa (1,000 psi)
F. WELDS-USED E-70W ELECTRODE	
G. STRUCTURAL BOLTS, ASTM A307	
A) F _u 505 MPa (73,000 psi) B) F _u 485 MPa (70,000 psi)	

4. FOUNDATION

ALLOWABLE SOIL BEARING CAPACITY IS EQUAL TO ____ kPa

CONSTRUCTION REQUIREMENTS:

- SOIL TEST SHALL BE CONDUCTED PRIOR TO START OF CONSTRUCTION
- IN CASE THE ACTUAL SOIL BEARING CAPACITY IS FOUND LESS THAN THE ASSUMED, 35.70 kPa, NOTIFY THE DIRECTOR, BUREAU OF DESIGN FOR PROPER REVISION OF FOUNDATION
- NO FOOTING SHALL REST ON FILL
- IN THE INTERPRETATION OF THE DRAWING, INDICATED DIMENSIONS SHALL GOVERN AND DISTANCES AND SIZES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES
- IN REFERENCE TO OTHER DRAWINGS, SEE ARCHITECTURAL DRAWINGS FOR DEPRESSIONS, IN FLOOR SLABS, OPENINGS IN THE WALLS AND SLABS, INTERIOR PARTITIONS, LOCATION OF DRAINS ETC.
- IN CASE OF DISCREPANCIES AS TO THE LAYOUT, DIMENSIONS, AND ELEVATIONS BETWEEN THE STRUCTURAL PLANS, AND ARCHITECTURAL DRAWINGS, THE CONTRACTOR SHALL NOTIFY BOTH THE STRUCTURAL ENGINEER AND THE ARCHITECT
- ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE ACI 318 (S) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND ALL STRUCTURAL STEEL WORK ACCORDING WITH AISC SPECIFICATION (5TH EDITION) IN SO FAR AS THEY DO NOT CONFLICT WITH THE LOCAL BUILDING CODE REQUIREMENT
- ACI REFERS TO AMERICAN CONCRETE INSTITUTE, ALSO TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND ASTM TO AMERICAN SOCIETY FOR TESTING MATERIALS
- CONSTRUCTION NOTES AND TYPICAL DETAILS APPLY TO ALL DRAWINGS UNLESS OTHERWISE SHOWN OR NOTED. MODIFY TYPICAL DETAILS AS DIRECTED TO MEET SPECIAL CONDITIONS
- SHOW DRAWINGS WITH ERECTION AND PLACING DIAGRAMS OF ALL STRUCTURAL STEELS, MISCELLANEOUS IRON, PRE-CAST CONCRETE, ETC. SHALL BE SUBMITTED FOR ENGINEERS APPROVAL BEFORE FABRICATION
- CONTRACTOR SHALL NOTE AND PROVIDE ALL MISCELLANEOUS CURBS, SILLS, STOODS, EQUIPMENTS AND MECHANICAL BASES THAT ARE REQUIRED BY THE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS
- ALL RESULTS OF MATERIAL TESTING FOR CONCRETE, REINFORCING BARS & STRUCTURAL STEEL MUST BE NOTED AND APPROVED BY THE STRUCTURAL DESIGNER

NOTES ON CONCRETE MIXES & PLACING

- ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT THE END OF TWENTY EIGHT (28) DAYS WITH CORRESPONDING MAXIMUM SIZE AGGREGATE AND SLUMPS AS FOLLOWS:
- | LOCATION | 14 DAYS STRENGTH | MAX. SIZE OF AGGREGATE | MAX. SLUMP |
|---------------------------------------|--------------------|------------------------|------------|
| ALL OTHERS, INCLUDING SUSPENDED SLABS | 4,000 PSI (28 MPa) | 20mm | 100mm |
| COLUMNS | 4,000 PSI (28 MPa) | 20mm | 100mm |
| BEAMS, SLABS | 4,000 PSI (28 MPa) | 20mm | 100mm |
| SLAB ON FILL | 3,000 PSI (21 MPa) | 30mm | 100mm |
- MAINTAIN MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:
- | REINFORCING STEEL | MIN. COVER |
|--|------------|
| SUSPENDED SLABS | 25 mm |
| SLAB ON GRADE | 40 mm |
| WALLS ABOVE GRADE | 25 mm |
| BEAM STIRRUPS AND COLUMN TIES | 40 mm |
| WHERE CONCRETE IS EXPOSED TO SOIL BUT POURED AGAINST FORMS | 50 mm |
| WHERE CONCRETE IS DEPOSITED DIRECTLY AGAINST EARTH | 75 mm |
- CONCRETE SHALL BE DEPOSITED IN ITS FINAL POSITION WITHOUT SEGREGATION, RE-HANDLING OR PLACING SHALL BE DONE PREFERABLY WITH BUCKETS, BUCKETS OR WHEELBARROWS, NO CHUTES WILL BE ALLOWED EXCEPT TO TRANSFER CONCRETE FROM HOPPERS TO BUCKETS, WHEELBARROWS OR BUCKETS IN WHICH CASE THEY SHALL NOT EXCEED SIX (6) METERS IN AGGREGATE LENGTH
 - NO DEPOSITING OF CONCRETE SHALL BE ALLOWED WITHOUT THE USE OF VIBRATORS UNLESS AUTHORIZED IN WRITING BY THE DESIGNER AND ONLY FOR UNUSUAL CONDITIONS WHERE VIBRATIONS ARE EXTREMELY DIFFICULT TO ACCOMPLISH
 - ALL ANCHOR BOLTS, DOWELS, AND OTHER INSERTS, SHALL BE PROPERLY POSITIONED AND SECURED IN PLACE PRIOR TO PLACING OF CONCRETE
 - ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF SEVEN CONSECUTIVE DAYS IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP, FOG SPRAYING, CURING COMPOUNDS OR OTHER APPROVED METHODS
 - STRIPPING OF FORMS AND SHORES:
- | FOUNDATION | 24 HRS. |
|---|---------|
| SUSPENDED SLAB EXCEPT WHEN ADDITIONAL LOADS ARE IMPOSED | 8 DAYS |
| WALLS | 21 DAYS |
| BEAMS | 14 DAYS |
| COLUMNS | 21 DAYS |
- THE CONTRACTOR SHALL SUBMIT THE SCHEDULE OF POURING AND THE LOCATION OF THE CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER AT LEAST (4) DAYS PRIOR TO THE POURING FOR APPROVAL
 - THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE FORMS AND SHORING UNTIL THE CONCRETE MEMBERS HAVE ATTAINED THEIR WORKING CONDITION AND STRENGTH

NOTES ON FOOTINGS

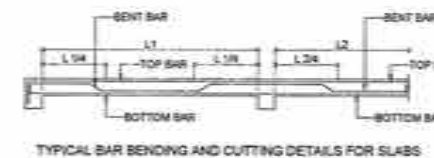
- FOOTINGS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF ____ kPa. CONTRACTOR SHALL REPORT TO THE ENGINEER, IN WRITING, THE ACTUAL SOIL CONDITIONS UNCOVERED AND CONFIRM ACTUAL BEARING CAPACITY OF SOIL, BEFORE DEPOSITING CONCRETE
- FOOTING SHALL REST AT LEAST 150MM BELOW NATURAL GRADE LINE UNLESS OTHERWISE INDICATED IN PLANS. NO FOOTING SHALL REST ON FILL
- MINIMUM CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE 75MM CLEAR FOR CONCRETE DEPOSITED THE GROUND AND 50MM FOR CONCRETE DEPOSITED AGAINST A FORMWORK
- IN CASES WHERE THE SOIL CONDITION IS SUCH THAT THE MINIMUM ALLOWABLE SOIL BEARING PRESSURE OF 35 KPA (2,000 PSF) CAN NOT BE ATTAINED AT PRACTICAL DEPTHS, THE USE OF MICROPILES, BORED PILES, OR DRIVEN PILES MAY BE ADOPTED IN LIEU OF STANDARD ISOLATED FOOTINGS

NOTES ON REINFORCEMENT

- UNLESS OTHERWISE NOTED IN PLANS, THE YIELD STRENGTH OF REINFORCING BARS SHALL BE:
 - FOOTINGS, FOOTING BEAMS AND GIRDERS: $f_y = 275 \text{ MPa (40,000 PSI)}$
 - COLUMNS AND SHEAR WALLS: $f_y = 275 \text{ MPa (40,000 PSI)}$
 - BEAMS AND GIRDERS: $f_y = 275 \text{ MPa (40,000 PSI)}$
 - NON-LOAD BEARING WALL PARTITIONS, BEDDED SLABS, FLOOR AND ROOF SLABS, PARAPETS, CATCH BASIN, SIDE WALK: $f_y = 275 \text{ MPa (40,000 PSI)}$
- ALL REINFORCING BARS SIZE 10MM OR LARGER SHALL BE DEFORMED IN ACCORDANCE WITH ASTM A 108. BARS SMALLER THAN 10MM MAY BE PLAIN
- SPICES SHALL BE SECURELY WELDED TOGETHER, UNLESS OTHERWISE SHOWN ON DRAWINGS, SPICES SHALL BE STAGGERED WHENEVER POSSIBLE

NOTES ON CONCRETE SLABS

- ALL SLAB REINFORCEMENTS SHALL BE 30MM CLEAR MINIMUM FROM BOTTOM AND FROM THE TOP SLAB
- UNLESS OTHERWISE SHOWN, REINFORCEMENT IN CONTIGUOUS ELEVATED SLAB SHALL BE CUT AS FOLLOWS:

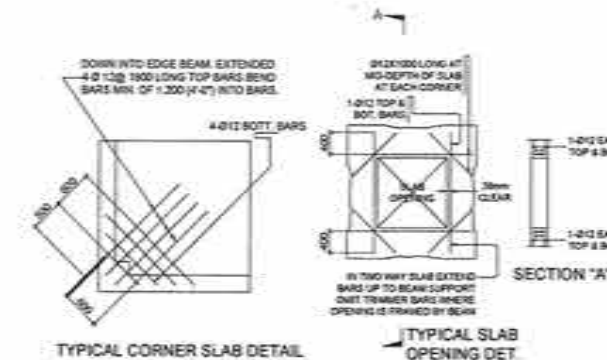


TYPICAL BAR BENDING AND CUTTING DETAILS FOR SLABS

- IF SLABS ARE REINFORCED BOTHWAYS, BARS ALONG THE SHORTER SPAN SHALL BE PLACED BELOW THOSE ALONG THE LONG SPAN AT THE CENTER AND OVER THE LONGER SPAN FOR REINFORCING BARS NEAR THE SUPPORTS, THE SPACING OF THE BARS AT THE COLUMN STRIPS SHALL NOT BE MORE THAN ONE AND A HALF (1.5) SLAB THICKNESS
- TEMPERATURE BARS FOR SLAB SHALL BE GENERALLY PLACED NEAR THE FACE IN TENSION AND SHALL NOT BE LESS THAN 600S X GROSS CROSS-SECTIONAL AREA (A_G) OF THE SLAB (SEE SCHEDULE BELOW)

THICKNESS	MINIMUM TEMPERATURE BARS
100MM	10MM @ 250MM EACH WAY
125MM	10MM @ 225MM EACH WAY
150MM	10MM @ 150MM EACH WAY
175MM	10MM @ 150MM EACH WAY
200MM	10MM @ 140MM EACH WAY

- UNLESS OTHERWISE NOTED IN THE PLANS ALL BEDDED SLABS SHALL BE REINFORCED WITH 10MM @ 250MM O.C. EACH WAY TO CENTER OF SLAB AND CONSTRUCTION JOINTS FOR SAME SHALL NOT BE LESS THAN 3.05 METER APART
- PROVIDE EXTRA REINFORCEMENTS FOR CORNER SLAB (TWO ADJACENT DISCONTINUOUS EDGES) AS SHOWN BELOW
- CONCRETE SLAB REINFORCEMENT SHALL BE PROPERLY SUPPORTED WITH 10MM @ 250MM STEEL CHAIR OR APPROVED EQUIVALENT SPACED AT 1.5 METER ON CENTER BOTHWAYS

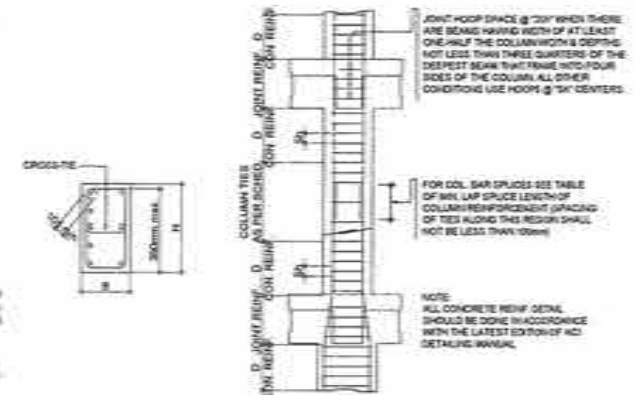


TYPICAL CORNER SLAB DETAIL

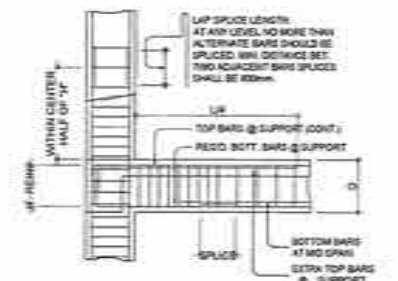
TYPICAL SLAB OPENING DET.

NOTES ON COLUMNS

- PROVIDE EXTRA SETS OF TIES AT 100MM O.C. FOR TIED COLUMN REINFORCEMENT ABOVE AND BELOW BEAM-COLUMN CONNECTIONS FOR A DISTANCE FROM FACE OF CONNECTION EQUAL TO THE GREATER OF THE OVERALL THICKNESS OF COLUMN, 1/4 THE CLEAR HEIGHT OF COLUMN OR 400MM
- COLUMN TIES SHALL BE PROTECTED EVERYWHERE BY A COVERING OF CONCRETE CAST MONOLITHICALLY WITH THE CORE WITH THE MINIMUM THICKNESS OF 40MM AND NOT LESS THAN 40 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE IN MILLIMETERS
- WHERE COLUMN CHANGE IN SIZE, VERTICAL REINFORCEMENTS SHALL BE OFFSET AT A SLOPE OF NOT MORE THAN 1 IN 8 AND EXTRA 100MM TIES AT 100MM SHALL BE PROVIDED THRU OUT THE OFFSET REGION
- UNLESS OTHERWISE INDICATED IN THE PLANS, LAP SPICES FOR VERTICAL COLUMN REINFORCEMENTS SHALL BE MADE WITHIN THE CENTER HALF OF THE COLUMN HEIGHT, AND THE SPICE LENGTH SHALL NOT BE LESS THAN 40 BAR DIAMETERS. WELDING OR APPROVED MECHANICAL DEVICES MAY BE USED PROVIDED THAT NOT MORE THAN ALTERNATE BARS ARE WELDED OR MECHANICALLY SPICED AT ANY LEVEL AND THE VERTICAL DISTANCES BETWEEN THESE WELDS OR SPICES OF ADJACENT BARS IS NOT LESS THAN 500MM



TYPICAL COLUMN ELEVATION SHOWING DOWELS AND TIES SPACING



TYPICAL DETAIL OF COLUMN LAP SPICE AND EXTENSION GIRDER TO COLUMN CONNECTION

NOTES ON BEAMS AND GIRDERS

- UNLESS OTHERWISE NOTED IN PLANS, CARRIER ALL BEAMS AND GIRDER AT LEAST 10MM FOR EVERY 4.5M OF SPAN EXCEPT CANTILEVERS FOR WHICH THE CARRIER SHALL BE AS NOTED IN PLANS OR AS ORDERED BY THE ENGINEER BUT IN NO LESS THAN 25MM FOR EVERY 3.0M OF FREE SPAN
- TYPICAL BAR BENDING AND CUTTING DETAILS FOR BEAMS SHALL BE AS SHOWN IN FIGURE B-1

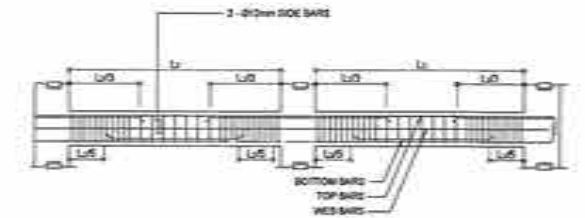


FIGURE B-1



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CORRAL COR. 9, RANSAWAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY

SHEET CONTENTS:
STRUCTURAL NOTES FOR STEEL STRUCTURES 1-5

PREPARED:
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REVIEWED:
ALVIN A. GARCIA
ENGINEER & DESIGNER

SUBMITTED:
JUDY ANN T. BERNARDINO
DEPT. PLANNING AND DESIGN DIVISION

RECOMMENDED:
JOSELO B. CABALLERO
ASST. TO REGIONAL DIRECTOR

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR

SHEET NO. 11
DATE: 01/13/31

GENERAL STRUCTURAL NOTES

TABLE "A" TENSION BARS EMBEDMENT LENGTHS AND LAPPED SPICES IN MILLIMETERS

BAR SIZE (DIAMETER)	1' x 20' (762x6096)		1' x 27' (762x8128)	
	EMBEDMENT	LAPPED	EMBEDMENT	LAPPED
10mm Ø	300	300	300	300
12mm Ø	375	375	375	375
16mm Ø	500	500	500	500
20mm Ø	625	625	625	625
25mm Ø	750	750	750	750
32mm Ø	1000	1000	1000	1000

NOTE: TOP PLAIN BARS, MULTIPLY VALUE BY 2

TABLE "B" COMPRESSION BARS EMBEDMENT LENGTHS AND LAPPED SPICES IN MILLIMETERS

BAR SIZE (DIAMETER)	1' x 20' (762x6096)		1' x 27' (762x8128)	
	EMBEDMENT	LAPPED	EMBEDMENT	LAPPED
10mm Ø	225	300	225	300
12mm Ø	275	375	275	375
16mm Ø	350	450	350	450
20mm Ø	425	525	425	525
25mm Ø	500	600	500	600
32mm Ø	625	750	625	750

NOTE: TOP PLAIN BARS, MULTIPLY VALUE BY 2. IN LAPPED OVERLAP, ONLY ALSO APPLICABLE FOR COLUMNS

REINFORCING CONCRETE LINTEL BEAM IN CONCRETE BLOCK WALLS

TABLE "C" LINTEL IN BLOCK WALL

CLEAR SPAN (FT)	TOTAL SPAN (FT)	MIN. W. (IN)	HEIGHT OF LINTEL (IN)	REINFORCEMENT	
				SECTION	TOP
1.0	1.0	1.0	30	1-201	1-201
1.5	1.5	1.5	30	1-201	1-201
2.0	2.0	2.0	30	1-201	1-201
2.5	2.5	2.5	30	1-201	1-201
3.0	3.0	3.0	30	1-201	1-201
3.5	3.5	3.5	30	1-201	1-201
4.0	4.0	4.0	30	1-201	1-201
4.5	4.5	4.5	30	1-201	1-201
5.0	5.0	5.0	30	1-201	1-201

- IF THE BEAM REINFORCING BARS END IN A WALL THE CLEAR DISTANCE FROM THE BAR TO THE FARTHER FACE OF THE WALL NOT BE LESS THAN 20MM. EMBEDMENT LENGTH SHALL BE AS SHOWN IN TABLE "A" FOR TENSION BARS AND TABLE "B" FOR COMPRESSION BARS UNLESS SPECIFIED IN PLANS. TOP BAR SHALL NOT BE SPICED WITHIN THE COLUMN OR WITHIN A DISTANCE TWICE THE MEMBER DEPTH FROM THE FACE OF THE COLUMN. AT LEAST TWO STIRRUPS SHALL BE PROVIDED AT ALL SPICES.
- IF THERE ARE TWO OR MORE LAYERS OF REINFORCING BARS, USE 20MM BAR SEPARATORS SPACED AT 1.0M ON CENTER. IN NO CASE SHALL THERE BE LESS THAN TWO (2) SEPARATORS BETWEEN TWO LAYERS OF BARS.
- MINIMUM CONCRETE PROTECTION FOR REINFORCING BARS OR STEEL SHAPES SHALL BE AS SHOWN IN FIGURE S-2 UNLESS SPECIFIED ELSEWHERE.

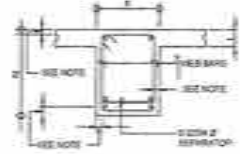


FIG. S-2

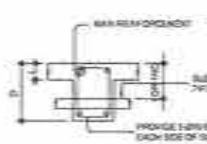


FIG. S-3

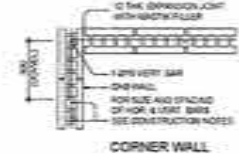
- WHEN A BEAM CROSS A GIRDER, REST BEAM ON TOP OF GIRDER BARS. BEAM REINFORCING BAR SHALL BE SYMMETRICAL ABOUT CENTER LINE WHENEVER POSSIBLE.
- GENERALLY NO SPICES SHALL BE PERMITTED AT POINTS WHERE CRITICAL BENDING STRESSES OCCUR. SPICES WHERE SO PERMITTED SHALL BE INDICATED IN THE TABLE "A" AND "B". WELDED SPICES SHALL DEVELOP IN TENSION AT LEAST 100% OF THE SPECIFIED YIELD STRENGTH OF THE BAR NOT MORE THAN 50% OF THE BAR. IF ANY ONE SECTION IS ALLOWED TO BE SPICED THEREIN.

NOTES ON CONCRETE HOLLOW BLOCKS

- UNLESS OTHERWISE SHOWN IN PLANS ALL CONCRETE HOLLOW BLOCK AND CERAMIC BLOCKS SHALL BE REINFORCED AS SHOWN IN THE SCHEDULE OF CONCRETE HOLLOW BLOCK AND CERAMIC BLOCK REINFORCEMENT.
- PROVIDE 150MM x 300MM STIFFENER COLUMN REINFORCED WITH 4-12MM WITH 8MM TIES AT 150MM ON CENTER WHERE CONCRETE HOLLOW BLOCKS TERMINATES AND AT EVERY 3.0M LENGTH OF CONCRETE HOLLOW BLOCK WALLS UNLESS NOTED IN STRUCTURAL PLANS.

SCHEDULE OF CONCRETE HOLLOW BLOCK AND CERAMIC BLOCK REINFORCEMENT

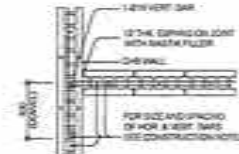
BLOCK THICKNESS	REINFORCEMENT		NOTES
	HORIZONTAL	VERTICAL	
150MM	10MM Ø @ 600MM C	10MM Ø @ 600MM C	A. MINIMUM LAPS AT SPICE=425MM B. PROVIDE RIGHT ANGLE REINFORCEMENT AT CORNERS/ENDS LONG C. WHERE CONCRETE HOLLOW BLOCK OR CERAMIC BLOCK WALL DOVELS JOIN COLUMN REINFORCEMENT CONCRETE BEAMS AND WALL DOVELS WITH THE SAME SIZE AS VERTICAL OR HORIZONTAL REINFORCEMENTS SHALL BE PROVIDED
100MM	10MM Ø @ 600MM C	10MM Ø @ 600MM C	
125MM	10MM Ø @ 600MM C	10MM Ø @ 600MM C	
200MM	10MM Ø @ 600MM C	10MM Ø @ 600MM C	



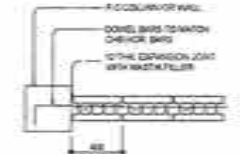
CORNER WALL



OPENING OR END WALL

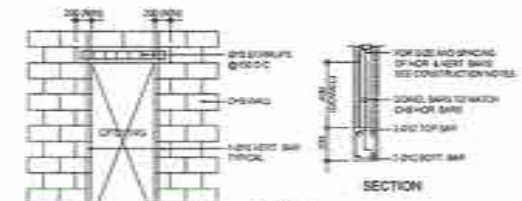


INTERSECTION WALL

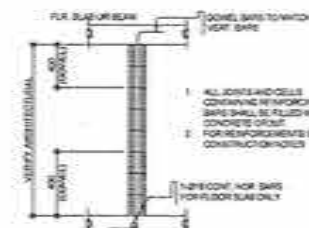


INTERSECTING R.C. COL. OR WALL

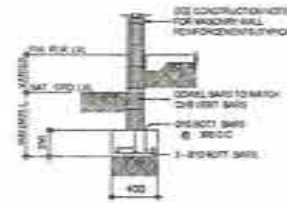
TYPICAL CONNECTION DETAIL OF MASONRY WALL



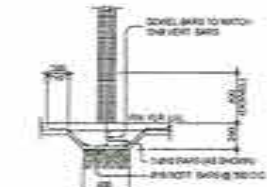
TYPICAL DETAIL OF LINTEL BEAM AT CHB WALL OPENING



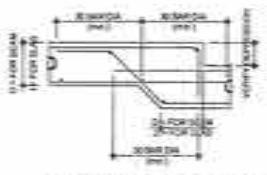
TYPICAL SECTION OF MASONRY PARTITION REINFORCEMENT



TYPICAL CONNECTION DETAIL OF R.C. WALL AT CORNERS



TYPICAL CHB FOOTING DETAILS (WHERE APPLICABLE)



TYPICAL DETAIL FOR BEAM OR SLAB CHANGE SOFFIT

NOTES ON WELDS

- USE E70XX ELECTRODES FOR ALL MEMBERS WELDED.
- WELDS SHALL DEVELOP THE FULL STRENGTH OF MEMBERS JOINED UNLESS OTHERWISE SHOWN OR DETAILED IN THE DRAWINGS.

NOTES ON STRUCTURAL STEEL

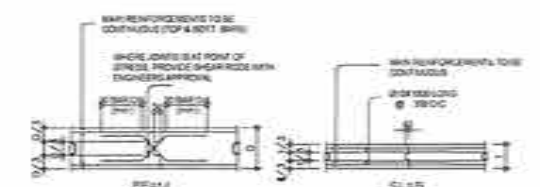
- STRUCTURAL STEEL TO BE USED FOR FABRICATION AND ERECTION OF THIS STRUCTURE SHALL COMPLY WITH ALL THE PERTINENT PROVISION OF AISC SPECIFICATION FOR THE DESIGN.
- ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM A36 STRUCTURAL STEEL UNLESS OTHERWISE INDICATED.
- ALL WELDED CONNECTIONS SHALL DEVELOP THE FULL STRENGTH OF THE MEMBERS CONNECTED.
- UNLESS OTHERWISE SPECIFIED, ALL WELDING RODS SHALL CONFORM AWS E60 ELECTRODES.
- ALL BOLTS USED UNLESS OTHERWISE SPECIFIED SHALL BE ASTM A307 BOLTS.

NOTES ON EMBEDDED PIPES

- ALL EMBEDDED PIPES FOR UTILITIES, ETC. THAT PASS THRU BEAMS SHALL NOT EXCEED 100MM IN DIAMETER OR 1/3 BEAM DEPTH WHICHEVER IS LESS. UNLESS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
- NO PIPES SHALL BE ALLOWED TO PASS THRU BEAMS VERTICALLY.
- NO PIPES SHALL BE EMBEDDED IN COLUMNS.

NOTES ON CONSTRUCTION JOINTS IN CONCRETE

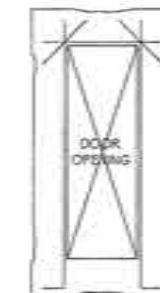
- WHERE A CONSTRUCTION JOINT IS TO BE MADE, THE SURFACE OF CONCRETE SHALL BE CLEANED AND ALL LANTAGE AND STANDING WATER REMOVED. SHEAR KEY SHALL BE PROVIDED AT THE JOINT.



TYPICAL SLAB & BEAM CONSTRUCTION JOINT DETAIL

NOTES ON CONCRETE WALLS

- ALL WALLS SHALL BE REINFORCED ACCORDING TO THE FOLLOWING SCHEDULE OF WALL REINFORCEMENTS UNLESS OTHERWISE INDICATED IN THE PLANS.
- CARRY VERTICAL BARS AT LEAST 600MM ABOVE FLOOR LEVEL TO PROVIDE FOR SPICES WHEN NECESSARY STOP AT 50MM BELOW TOP SLAB OR SOLID BAND WHERE THE WALL ENDS VERTICAL AND HORIZONTAL BARS SHALL BE SPICED BY LAPPING A DISTANCE EQUAL TO 30 DIAMETERS AND WIRE SECURELY WITH 18 G. WIRE PROVIDED THAT SPICES IN ADJACENT BARS ARE STAGGERED AT LEAST 1.50 M.C.
- UNLESS OTHERWISE NOTED IN THE PLANS, ALL OPENINGS IN WALLS 200MM OR THICKER SHALL BE REINFORCED AROUND 3-30MM BARS FOR 200MM, 200MM, 150MM, 150MM, USE 2-150MM FOR 150MM AND 100MM WALLS. USE 2-20MM BARS ALL WALLS SPACING SHALL HAVE A VERTICAL REINFORCEMENT BENT TO A U-FORM LIKE STIRRUPS AND SPACED ACCORDING TO THE SCHEDULE UNLESS OTHERWISE NOTED (SEE FIGURE 1).



TYPICAL EXTERIOR WINDOW & DOOR OPENING

NOTES ON STIRRUPS

- ALL REINFORCEMENT SHALL BE BENT COLD UNLESS OTHERWISE PERMITTED BY THE STRUCTURAL ENGINEER.
- REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FILLED IN IT EXCEPT AS SHOWN IN THE DESIGN DRAWINGS OR PERMITTED BY THE STRUCTURAL ENGINEER.
- YES AND CLOSE STIRRUPS MUST BE BENT AT 135 DEGREES.



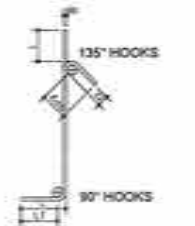
180° END HOOKS



90° END HOOKS

MIN. BAR DEVELOPMENT LENGTH (ALL GRADES)

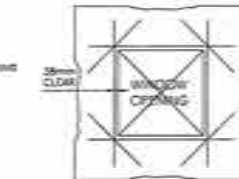
BAR SIZE (DIAMETER)	TENSILE (mm)	90° HOOK		180° HOOK	
		L	L	L	L
10mm Ø	45	75	125	125	125
12mm Ø	55	90	150	150	150
16mm Ø	75	125	200	200	200
20mm Ø	100	160	250	250	250
25mm Ø	125	200	300	300	300
32mm Ø	150	250	375	375	375



135° HOOKS

STIRRUP AND TIE HOOKS (ALL GRADES)

BAR SIZE (DIAMETER)	DIAMETER (mm)	90° HOOK		180° HOOK	
		L	L	L	L
10mm Ø	45	75	125	125	125
12mm Ø	55	90	150	150	150
16mm Ø	75	125	200	200	200
20mm Ø	100	160	250	250	250
25mm Ø	125	200	300	300	300
32mm Ø	150	250	375	375	375



TYPICAL EXTERIOR WINDOW & DOOR OPENING



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. 10
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS ANIGOS, DAVAO CITY

SHEET CONTENTS:
STRUCTURAL NOTES FOR STEEL STRUCTURES 2/5

PREPARED:
DEREN P. SAGORIO
ENGINEER
DATE: 10/10/2023

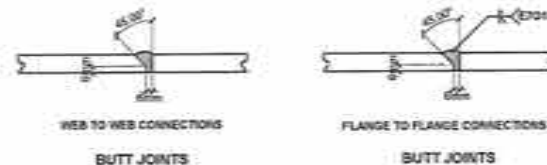
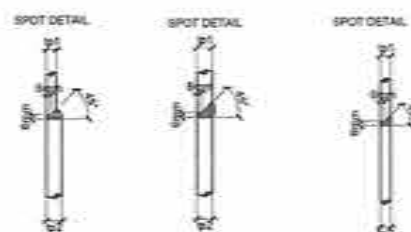
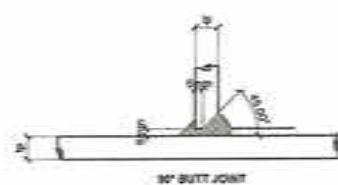
REVIEWED:
ALVIN A. GINGAL
ENGINEER II, SECTION
DATE: 10/10/2023

SUBMITTED:
JUDY M. T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE: 10/10/2023

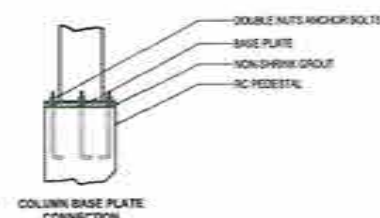
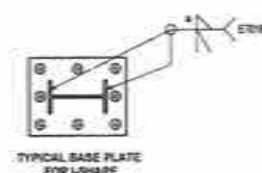
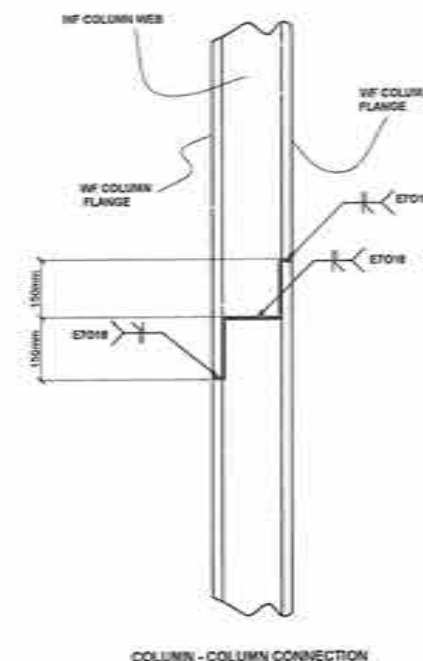
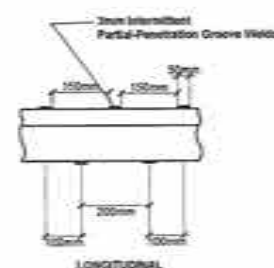
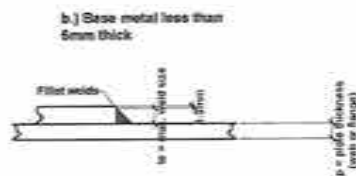
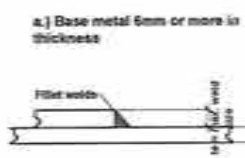
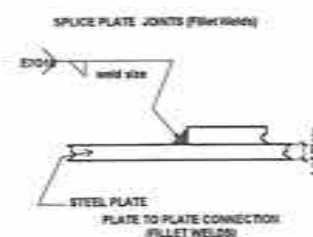
RECOMMENDED:
JOSELO B. CABALLERO
REGIONAL DIRECTOR
DATE: 10/10/2023

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE: 10/10/2023

SHEET NO. 12
DATE: 02/13/2023



TYPICAL FILLET WELDS JOINT DETAILS FOR PLATE CONNECTION
(Maximum detailed size of fillet weld along edges.)



TYPICAL BUTT JOINTS
(Groove Welds)

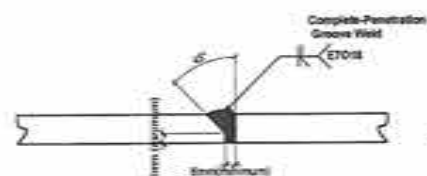
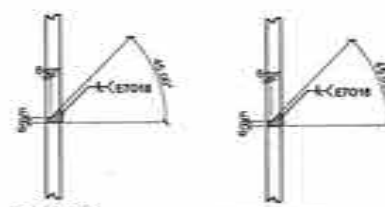


PLATE TO PLATE CONNECTIONS

TYPICAL BUTT JOINTS
(Groove Welds)

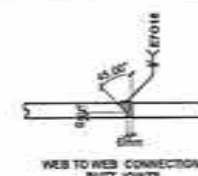


BUTT JOINTS (Groove Welds)

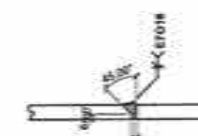


WEB TO WEB CONNECTIONS
BUTT JOINTS

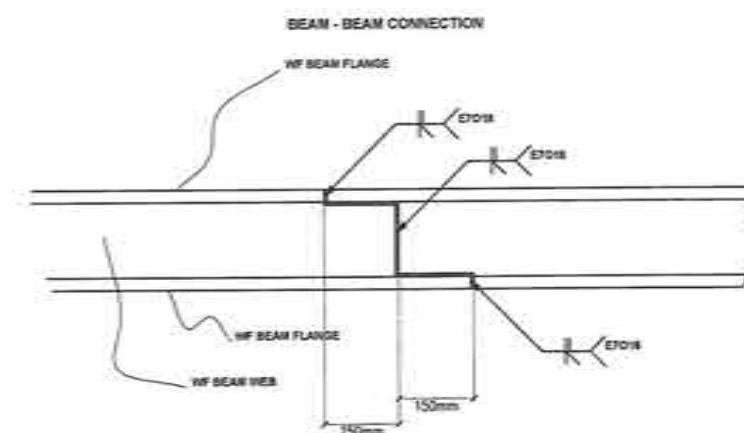
FLANGE TO FLANGE CONNECTIONS
BUTT JOINTS



WEB TO WEB CONNECTIONS
BUTT JOINTS



FLANGE TO FLANGE CONNECTIONS
BUTT JOINTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. 10
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF SHELTERED CENTER FOR
PERSONS WITH DISABILITIES, LOS AMIGOS,
DAVAO CITY

SHEET CONTENTS:
STRUCTURAL NOTES FOR STEEL
STRUCTURES 3/5

PREPARED:
DEREN P. JACOB
ENGINEER
DATE: 10/10/13

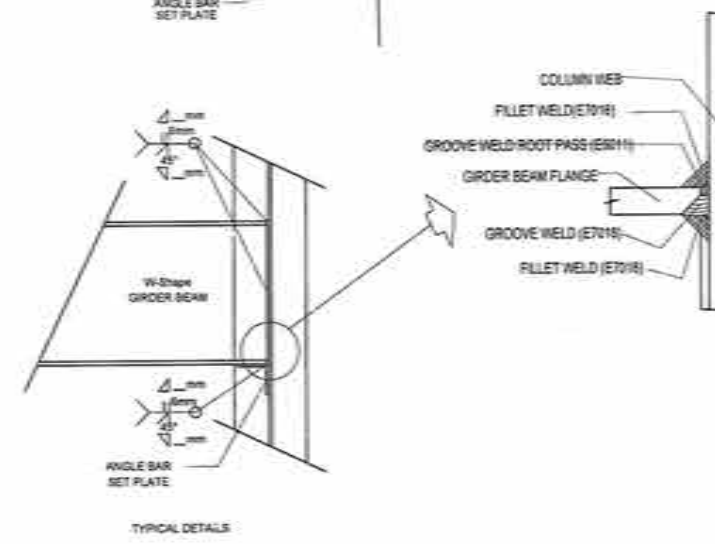
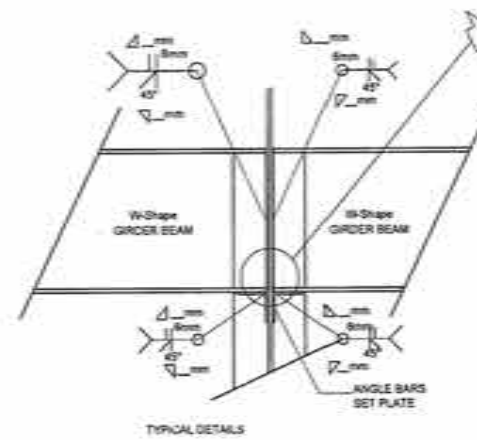
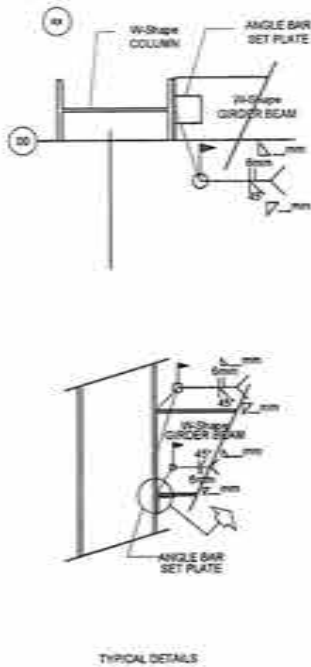
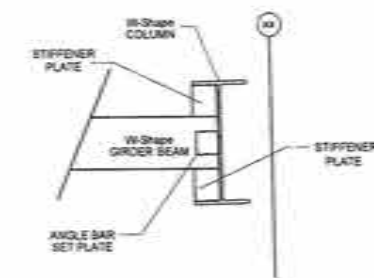
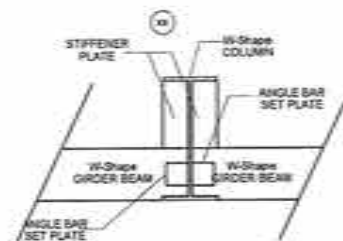
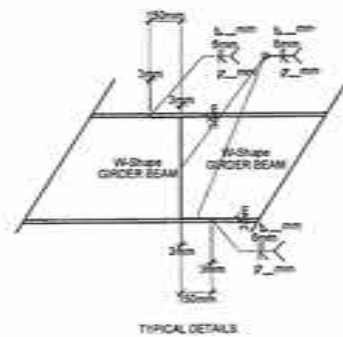
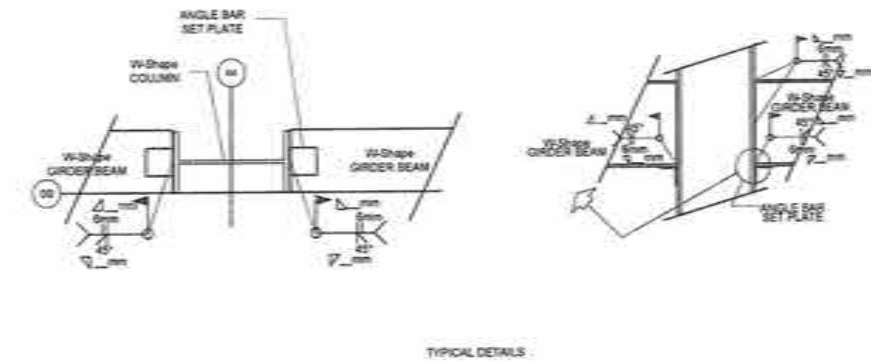
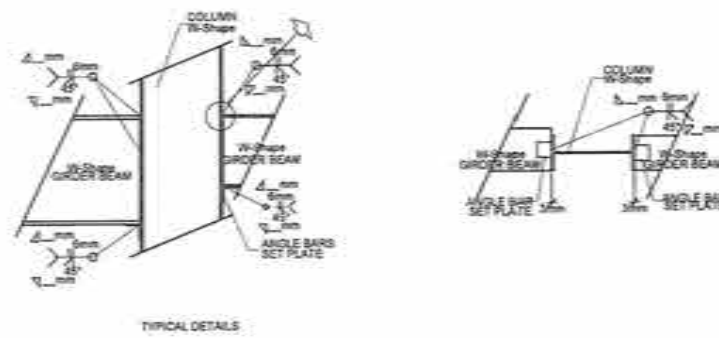
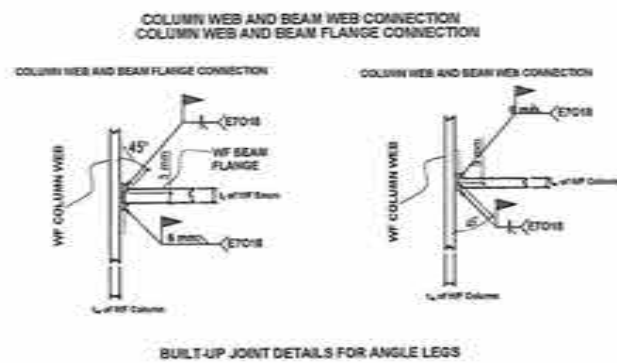
REVIEWED:
ALGIN A. GINGOYAN
ENGINEER IN CHARGE
DATE: 10/10/13

DESIGNED:
JUDY M. T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: 10/10/13

RECOMMENDED:
JOSEATO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: 10/10/13

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE: 10/10/13

SET NO. 13
SHEET NO. 31



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. DRIVE COR. B. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY

SHEET CONTENTS
STRUCTURAL NOTES FOR STEEL STRUCTURES 4/5

PREPARED
DERENT JACOB
DATE: 4

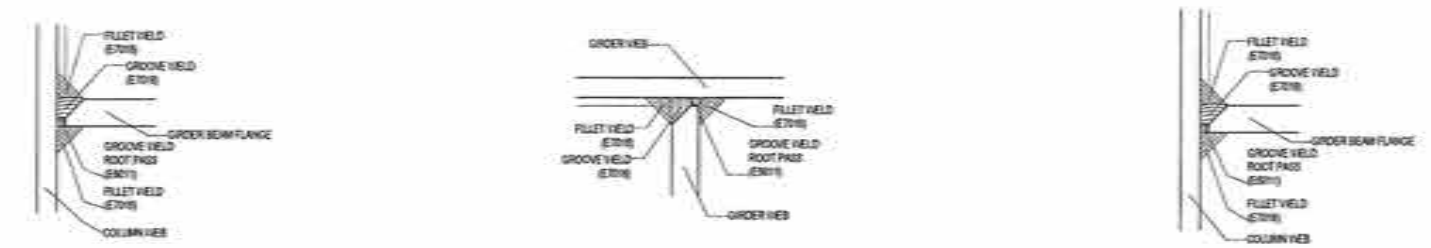
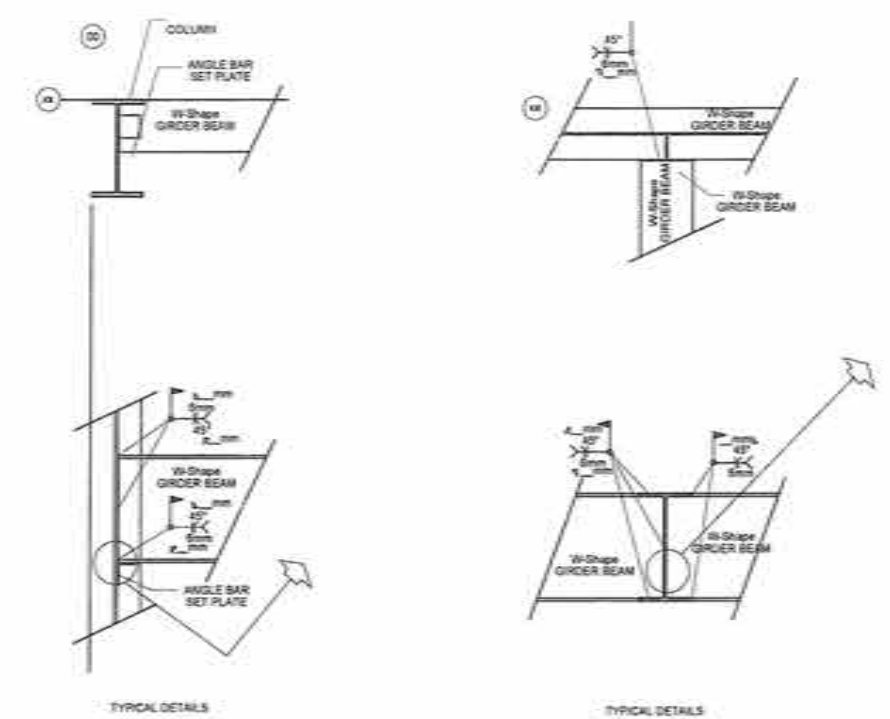
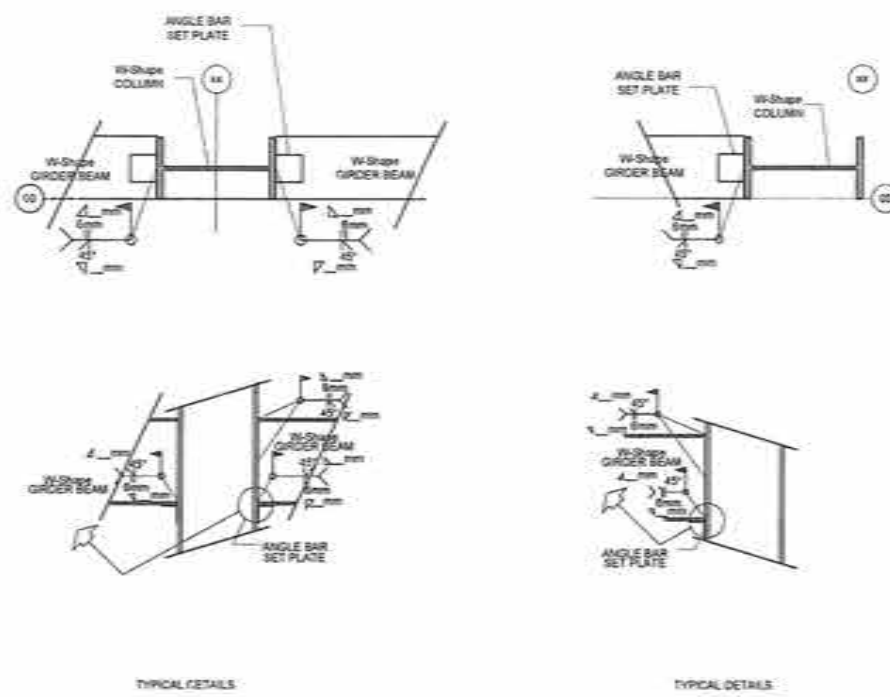
REVIEWED
ALVIN A. GINGOYAN
ENGINEER II, SECTION 1
DATE: 4

SUBMITTED
JUDY ANN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: 4

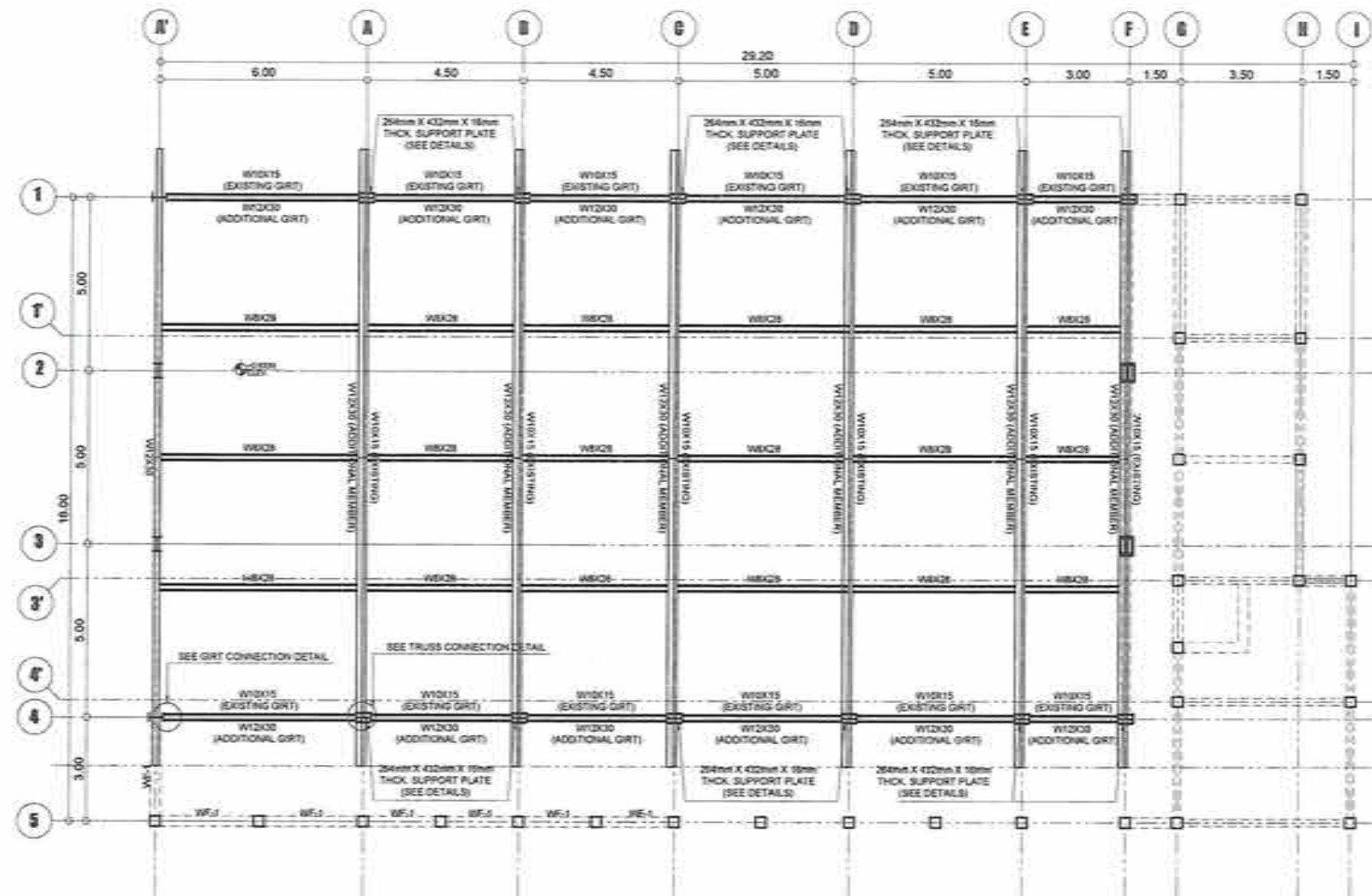
RECOMMENDED
JOSELUJO B. CABALLERO
MANOYAN REGIONAL DIRECTOR
DATE: 4

APPROVED
JUDY B. CORDON
REGIONAL DIRECTOR
DATE: 4

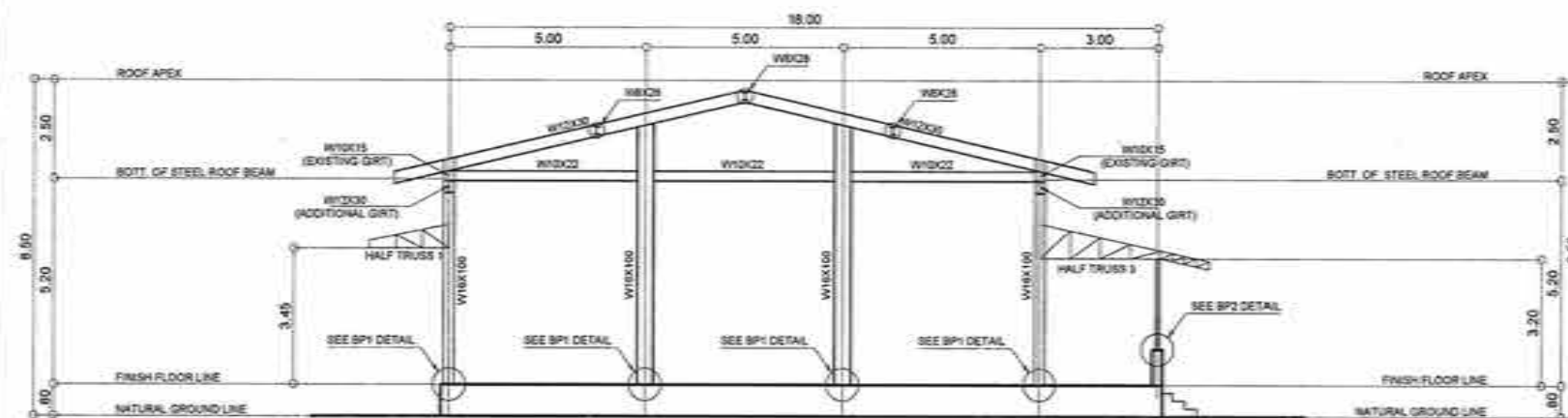
SET NO. 04/13
SHEET NO. 14/31



 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI DOV CHAVEZ COR. B. MACASAYAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY	SHEET CONTENTS: STRUCTURAL NOTES FOR STEEL STRUCTURES 5/5	PREPARED: DEREY J. JACOB ENGINEER DATE: 8/10/13	REVIEWED: ALGIN A. GINGHER ENGINEER IN CHARGE DATE: 8/10/13	SUBMITTED: JUDY ANN Y. BERNARDINO CHIEF, BUILDINGS AND DESIGN DIVISION DATE: 8/10/13	RECOMMENDED: JOSELYN B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: 8/10/13	APPROVED: JUDY B. CORDON REGIONAL DIRECTOR DATE: 8/10/13	SET NO. 15 SHEET NO. 31
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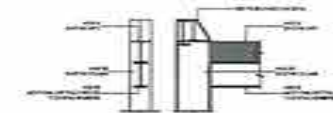
1 STEEL FRAMING PLAN
S-06 SCALE 1:30



2 SECTION THRU A'-A''
S-06 SCALE 1:100



3 TRUSS CONNECTION DETAILS
S-06 SCALE 1:30



4 GIRT CONNECTION DETAILS
S-06 SCALE 1:30



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GGV DRIVE COR. B. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF SHELTERED CENTER FOR
PERSONS WITH DISABILITIES, LOS AMIGOS,
DAVAO CITY

SHEET CONTENTS:
STEEL FRAMING PLAN
SECTION THRU A'-A'
TRUSS CONNECTION DETAIL
GIRT CONNECTION DETAIL

PREPARED:
DEREMP. JACOBE
ENGINEER I
DATE: 4

REVIEWED:
ALGIN A. GINGA
ENGINEER II, SECT. CHIEF
DATE: 10

SUBMITTED:
JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE: 12

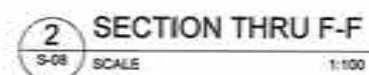
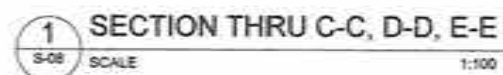
RECOMMENDED:
JOSELYN B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: 12

APPROVED:
JUDY S. CORDON
REGIONAL DIRECTOR
DATE: 12

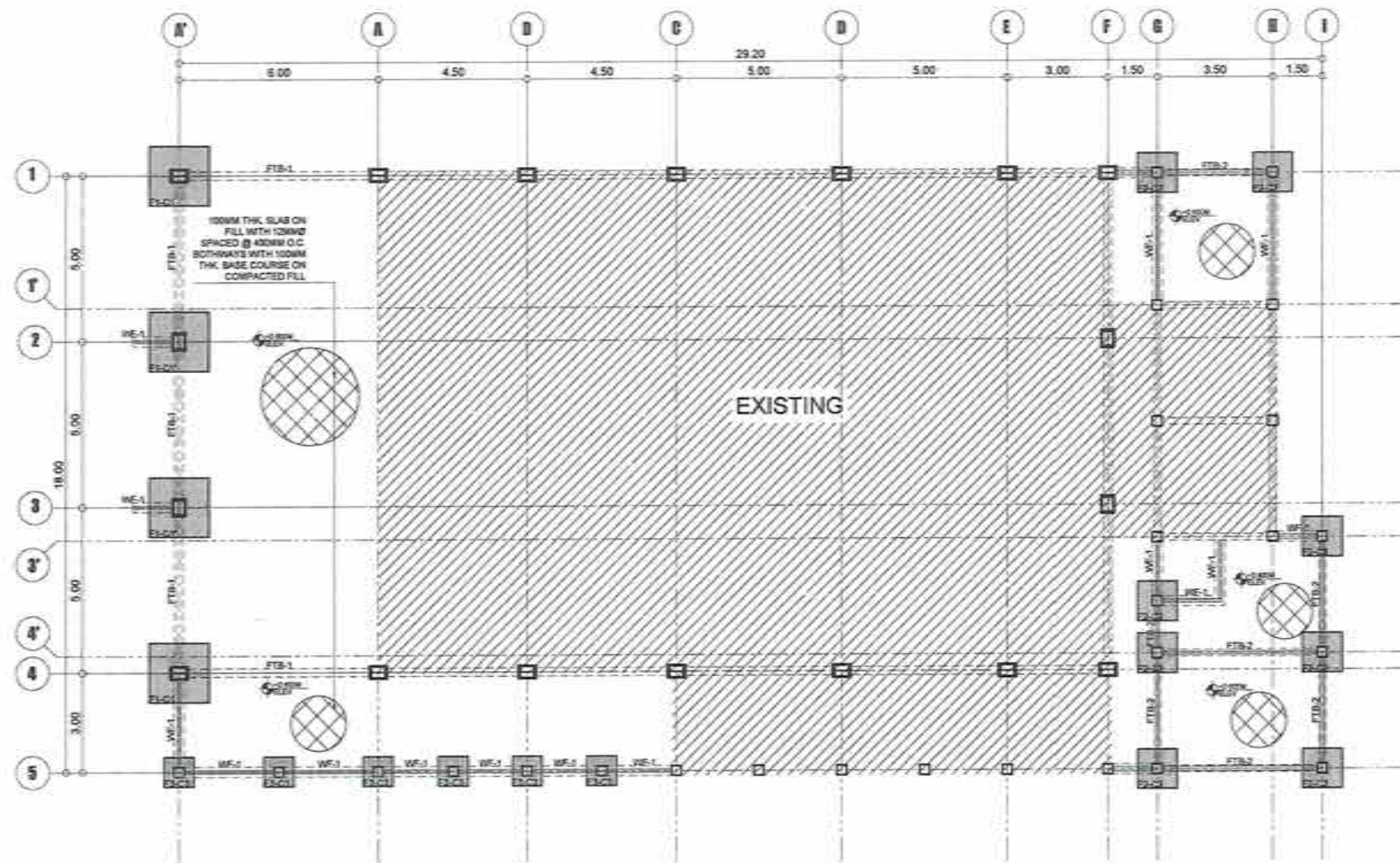
SET NO. 16
SHEET NO. 31
S 06/13



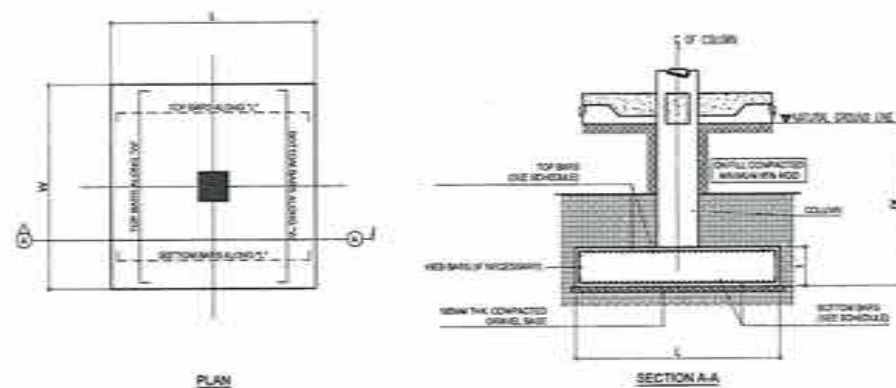
 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. B. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	PREPARED	REVIEWED	SUBMITTED	RECOMMENDED	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY	SECTION THRU A - A SECTION THRU B - B	 DERENS JACOBIE ENGINEER II	 ALGIN A. GIVANGA ENGINEER II, SECTION CHIEF	 JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION	 JOSEFIN S. CABALLERO ASSISTANT REGIONAL DIRECTOR	 JUBY B. GORDON REGIONAL DIRECTOR	S 07/13	17 31



 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. B. BAGGAYAS AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS:	PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY	SECTION THRU C - C, D - D, E - E SECTION THRU F - F	 DORIAN F. JACOBO ENGINEER I	 ALGIN A. GUNGATAN ENGINEER II, SUBDIVISION	 JUDY ANN T. BERNARDINO CHIEF, TRAINING AND DESIGN DIVISION	 JOSE LUIS B. CABALLERO REGIONAL DIRECTOR	 JUBY B. CORDOVA REGIONAL DIRECTOR	S 08/13	18 31



1 FOUNDATION PLAN
S-09 SCALE 1:100

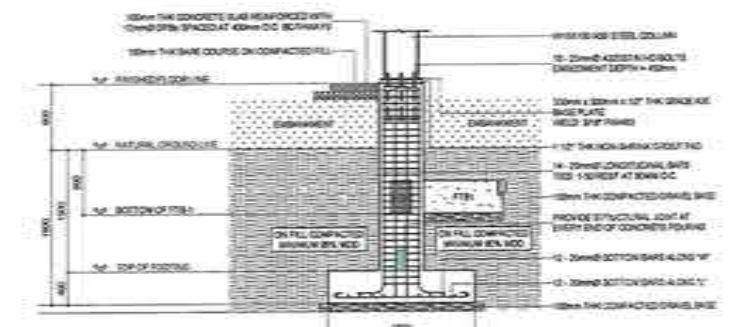


6 TYPICAL FOOTING REINFORCEMENT LAYOUT
S-09 SCALE 1:20

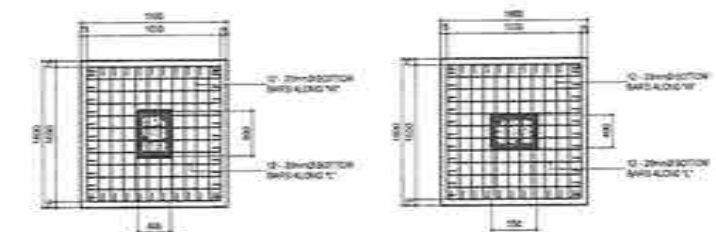
SCHEDULE OF FOOTING TIE BEAMS ($f'_c=28\text{MPa}$, $f_y=420\text{MPa}$ for DRB larger than 16mm ϕ)	
FTB-1	FOOTING
AT SUPPORT AT MIDSPAN	

5 FTB-1 DETAILS
S-09 SCALE 1:20

SCHEDULE OF FOOTING ($f'_c=28\text{MPa}$, $f_y=420\text{MPa}$ for DRB larger than 16mm ϕ)									
FOOTING MARK	FOOTING DIMENSION (mm)			REINFORCEMENT				DEPTH OR	REMARKS
	LENGTH (L)	WIDTH (B)	HIGHEST (H)	ALONG (L)		ALONG (B)			
				TOP	BOTTOM	TOP	BOTTOM		
F1	1800	1800	450	--	12-20mm ϕ	--	12-20mm ϕ	1800mm	ISOLATED FOOTING
F2	1800	1800	300	--	12-20mm ϕ	--	12-20mm ϕ	1800mm	ISOLATED FOOTING
F3	300	300	300	--	8-10mm ϕ	--	8-10mm ϕ	1000mm	ISOLATED FOOTING

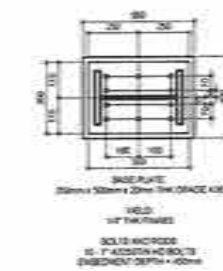


2a F1-C1 ELEVATION DETAILS
S-09 SCALE 1:100

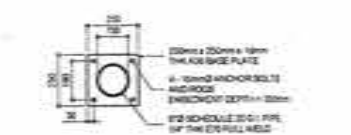


2b F1-C1 DETAILED PLAN
S-09 SCALE 1:50

2 F1 DETAILS
S-09 SCALE AS SHOWN

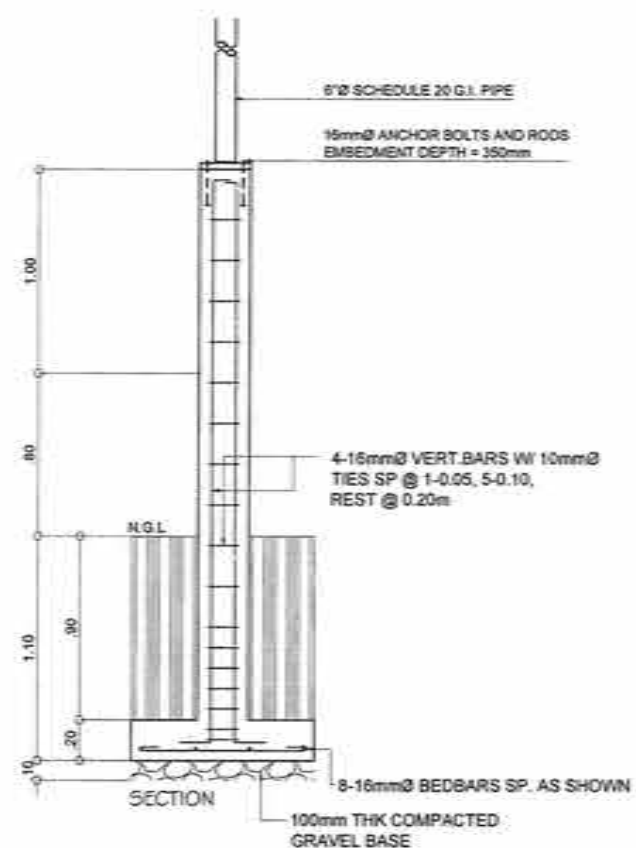


3 BP1 DETAILED PLAN
S-09 SCALE 1:10

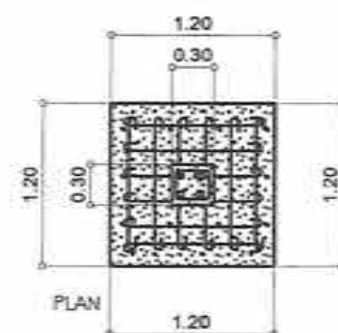
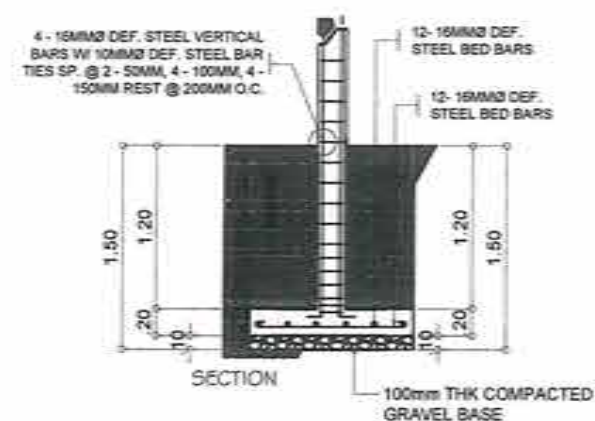


4 BP2 DETAILED PLAN
S-09 SCALE 1:20

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. 10 GOV. CHAVEZ COR. E. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY	FOUNDATION PLAN, SCHEDULE OF FOOTING, F1 DETAILS BP1 DETAILED PLAN, BP2 DETAILED PLAN TYPICAL FOOTING REINFORCEMENT LAYOUT, FTB-1 DETAILS	DEREN B. JACOB ENGINEER II	ALGIN A. GINGA ENGINEER II, SECTION CHIEF	JUDY ANN T. BERNARDINO CHIEF, PROJECT DESIGN DIVISION	JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUDY B. CORDON REGIONAL DIRECTOR	S 09/13	19 31

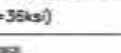


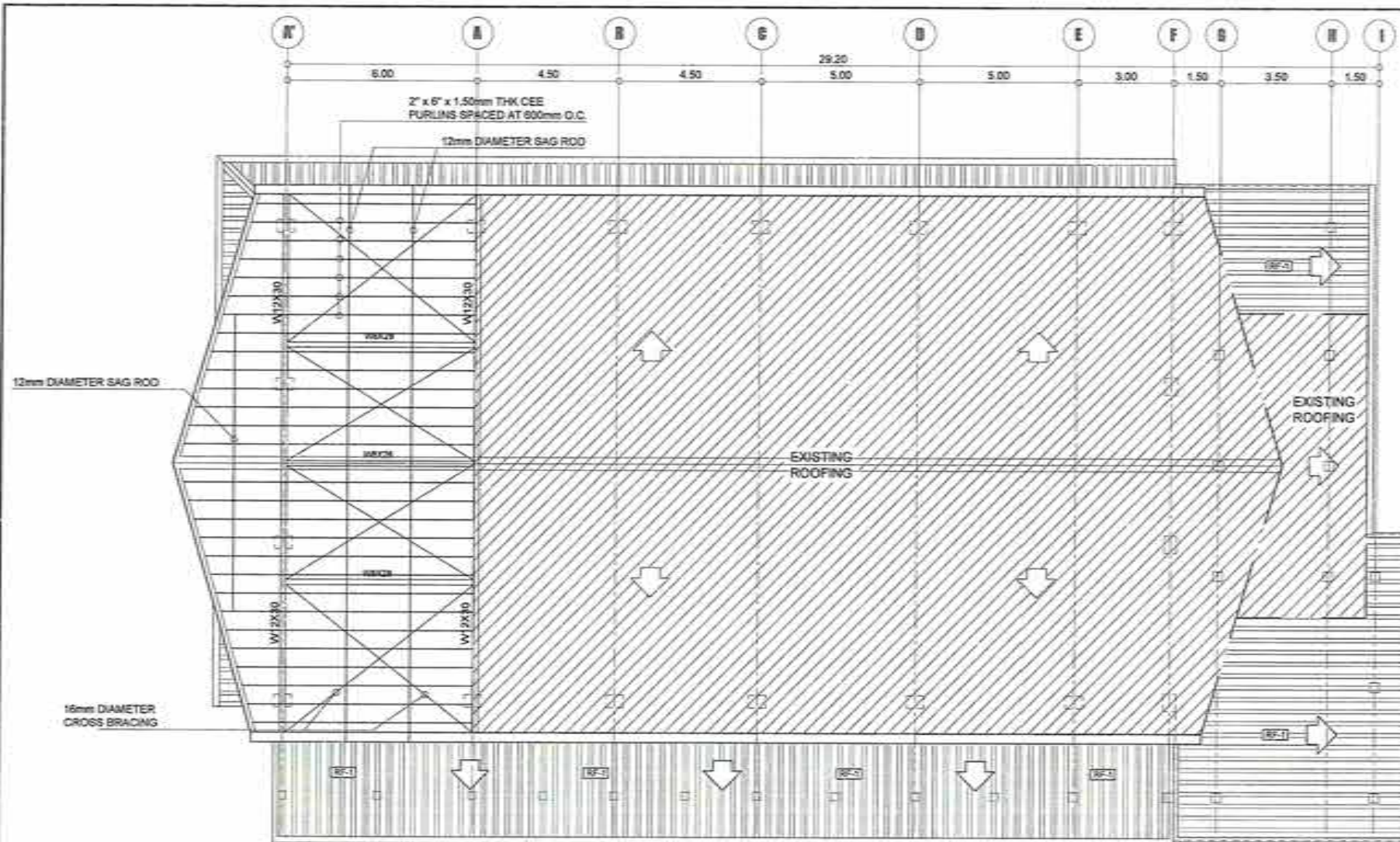
1 F3-C3 DETAILS
S-10 SCALE 1:10



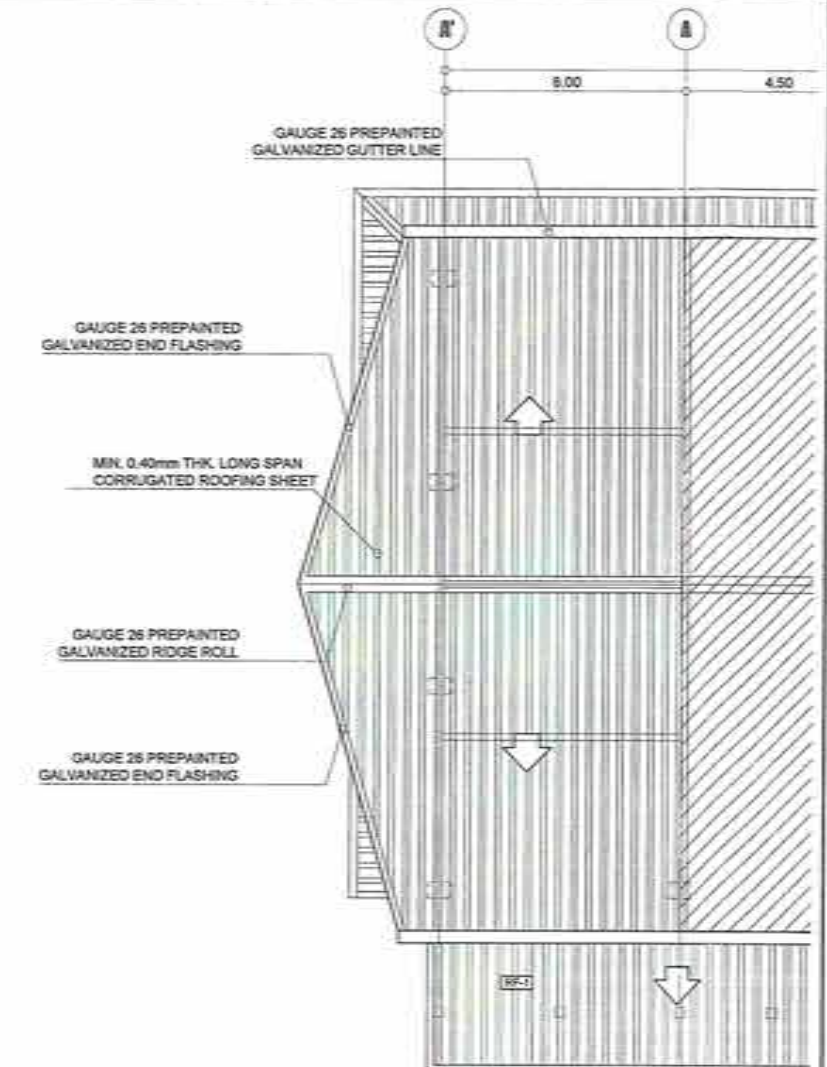
2 F2-C2 DETAILS

SCHEDULE OF COLUMN PEDESTAL AND STEEL COLUMNS																													
(f'c=28MPa, fy=420MPa for DRB larger than 16mmØ)																													
01 <u>CROSS-SECTIONAL SHAP</u> 12 - COLUMN <u>LATERAL TIES</u> TYPING Ø16 + SPACED @ 150mm 1 - SPACED REST AT BASE TO COLUMN <u>LEVEL</u> <u>SECTION OF BRACING TO TOP OF COLUMN/STEEL</u> LEVEL = 1.75m		02 <u>CROSS-SECTIONAL SHAP</u> 16 - COLUMN <u>LATERAL TIES</u> TYPING Ø16 + SPACED @ 150mm 1 - SPACED REST AT BASE TO COLUMN <u>LEVEL</u> <u>SECTION OF BRACING TO TOP OF COLUMN/STEEL</u> LEVEL = 1.75m		REMARKS																									
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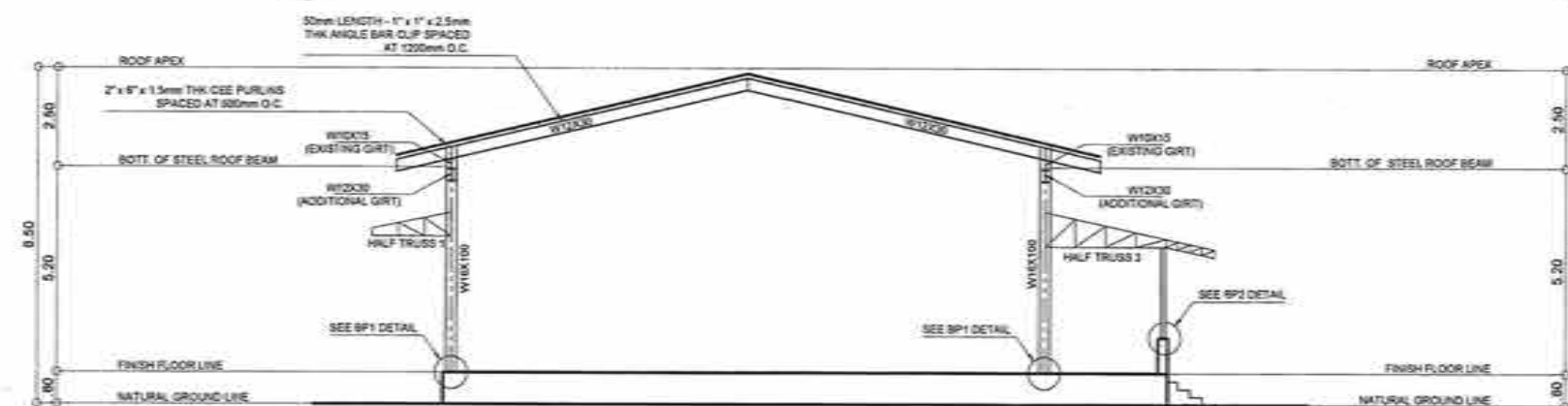
SCHEDULE OF STEEL MEMBERS (A36 STEEL, $F_y=36\text{ksi}$)																																																																													
W10X1	W10X1	W10X12	W10X1	REMARKS																																																																									
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1a UPPER ROOF FRAMING PLAN
S-11 SCALE 1:100



1c UPPER ROOFING PLAN
S-11 SCALE 1:100



1b ELEVATION DETAILS
S-11 SCALE 1:100

1 UPPER ROOF DETAILS
S-11 SCALE AS SHOWN



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. NAKASAYAT AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF SHELTERED CENTER FOR
PERSONS WITH DISABILITIES, LOS AMIGOS,
DAVAO CITY

SHEET CONTENTS
UPPER ROOF DETAILS

PREPARED
DEREN P. JACOBE
ENGINEER II
DATE

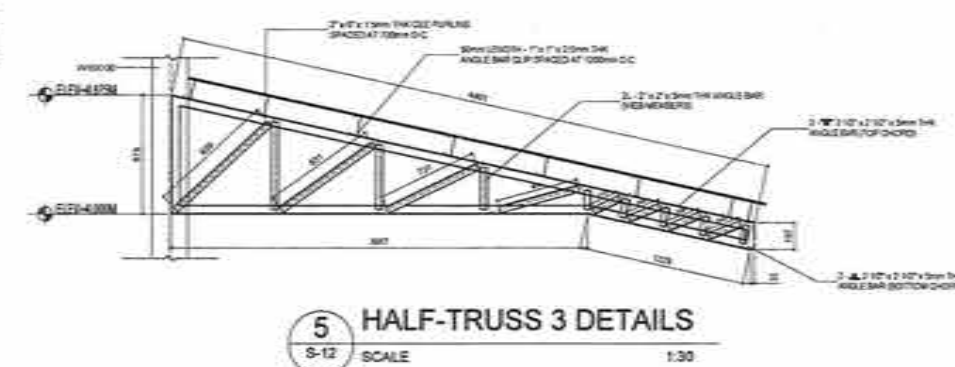
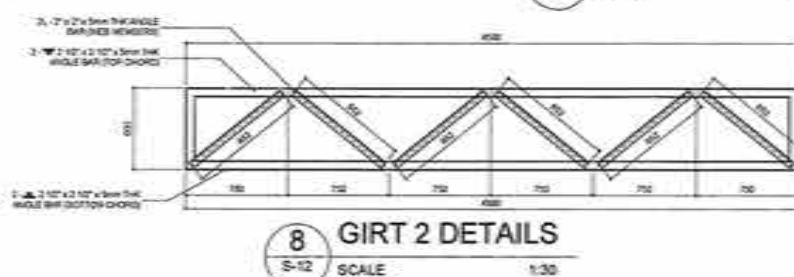
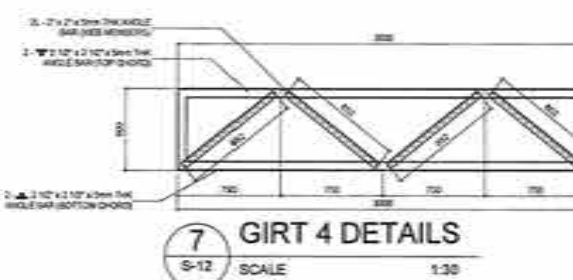
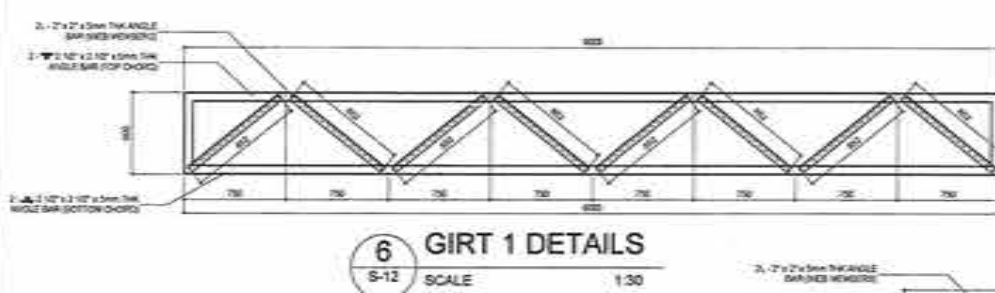
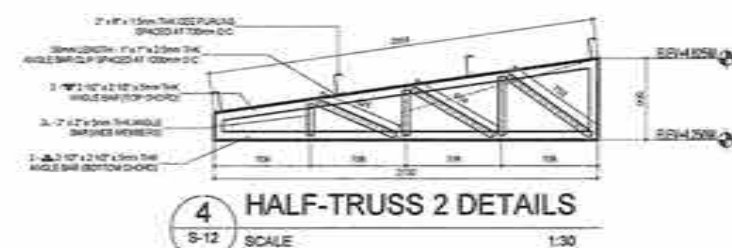
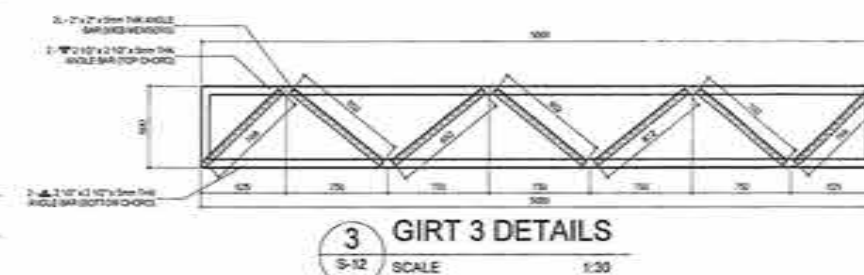
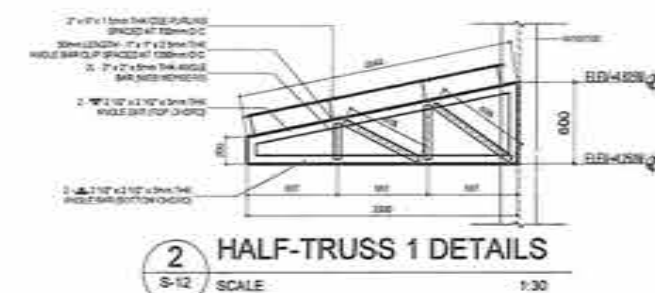
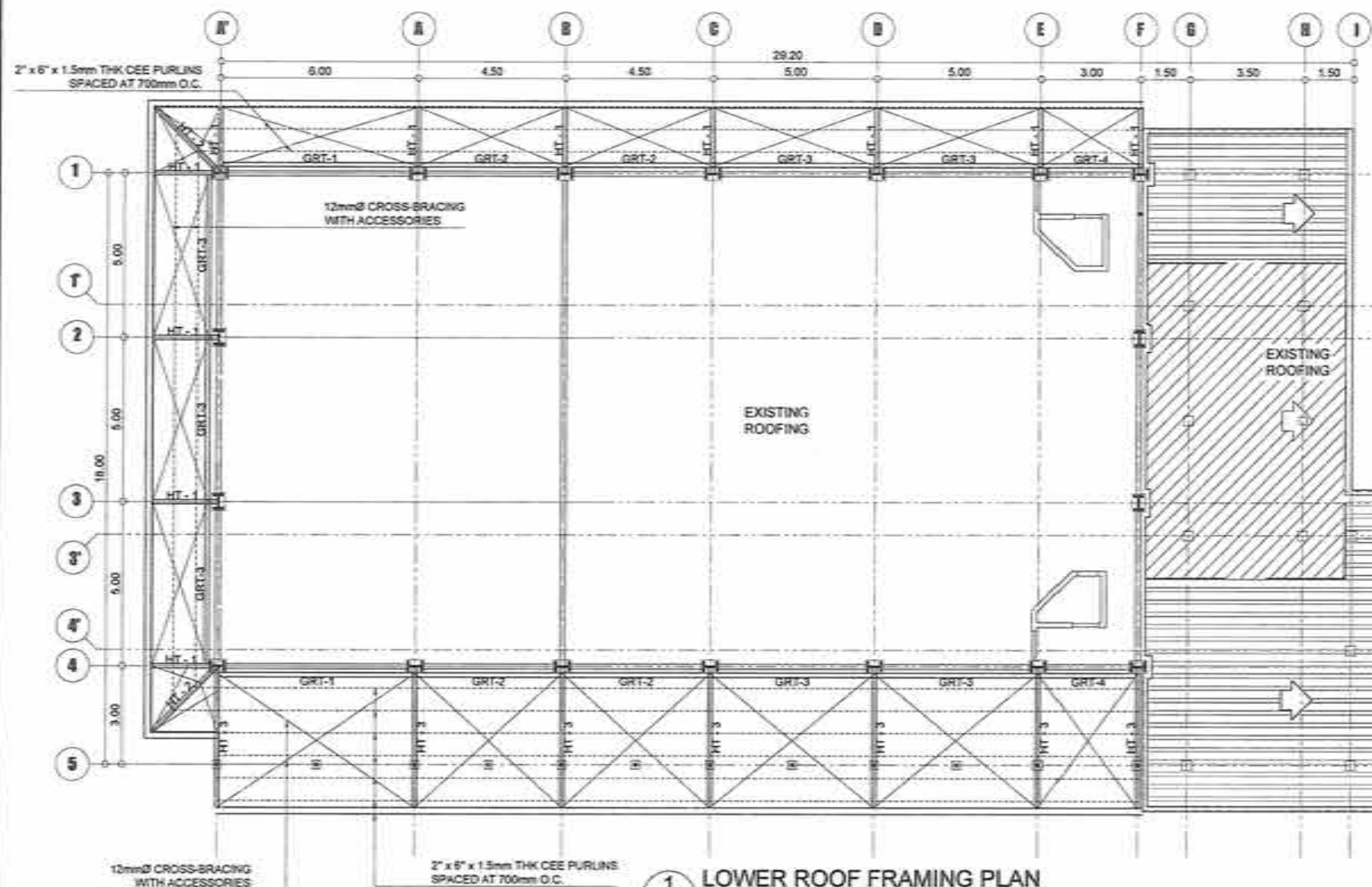
REVIEWED
ALGIN A. GONZALES
ENGINEER II, SECTOR
DATE

SUBMITTED
JUDY M. T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE

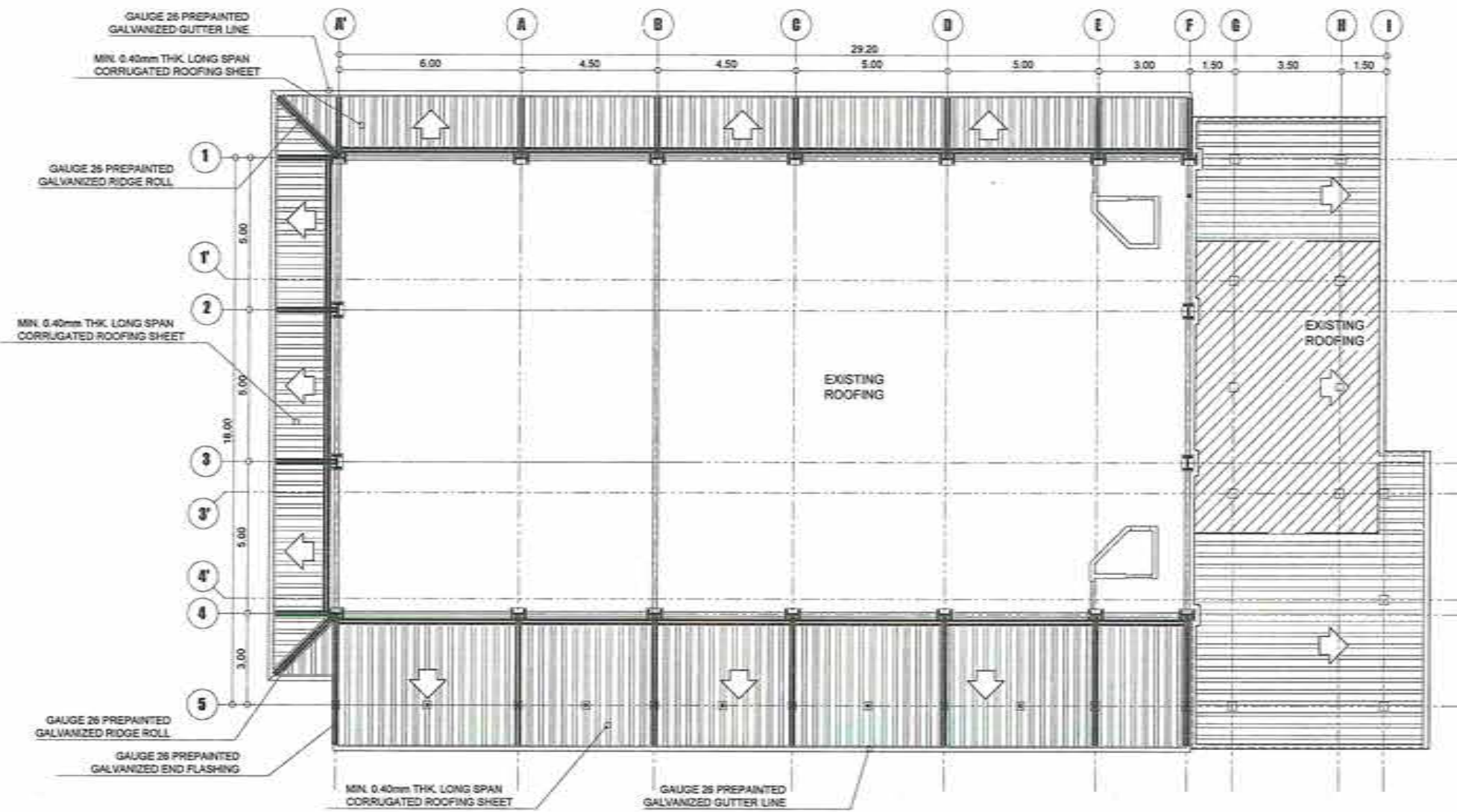
RECOMMENDED
JOSE LITO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

APPROVED
JUDY B. CORDON
REGIONAL DIRECTOR
DATE

SET NO. S 11/13
SHEET NO. 21 31

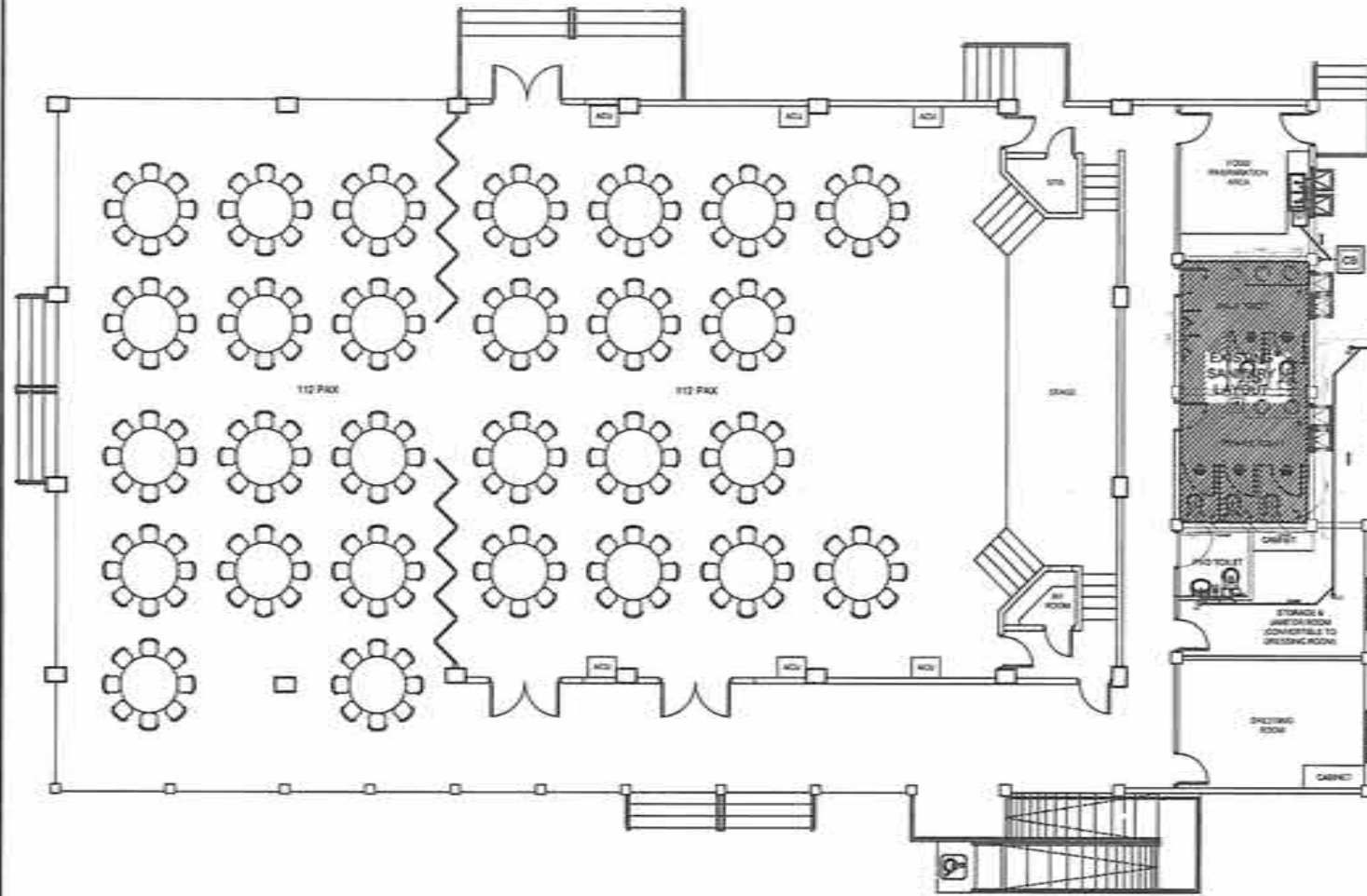


REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CIRVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY	SHEET CONTENTS LOWER ROOF FRAMING PLAN TRUSS DETAILS GIRT DETAILS	PREPARED DEREN P. JACOB ENGINEER I	REVIEWED ALVIN A. GINGHAT ENGINEER II, SECTION CHIEF	APPROVED JUDY B. CORDON CHIEF, PLANNING AND DESIGN DIVISION	RECOMMENDED JOSEPH B. CABALLERO ASSISTANT REGIONAL DIRECTOR	APPROVED JUDY B. CORDON REGIONAL DIRECTOR	SHEET NO. S 22 12/13 31
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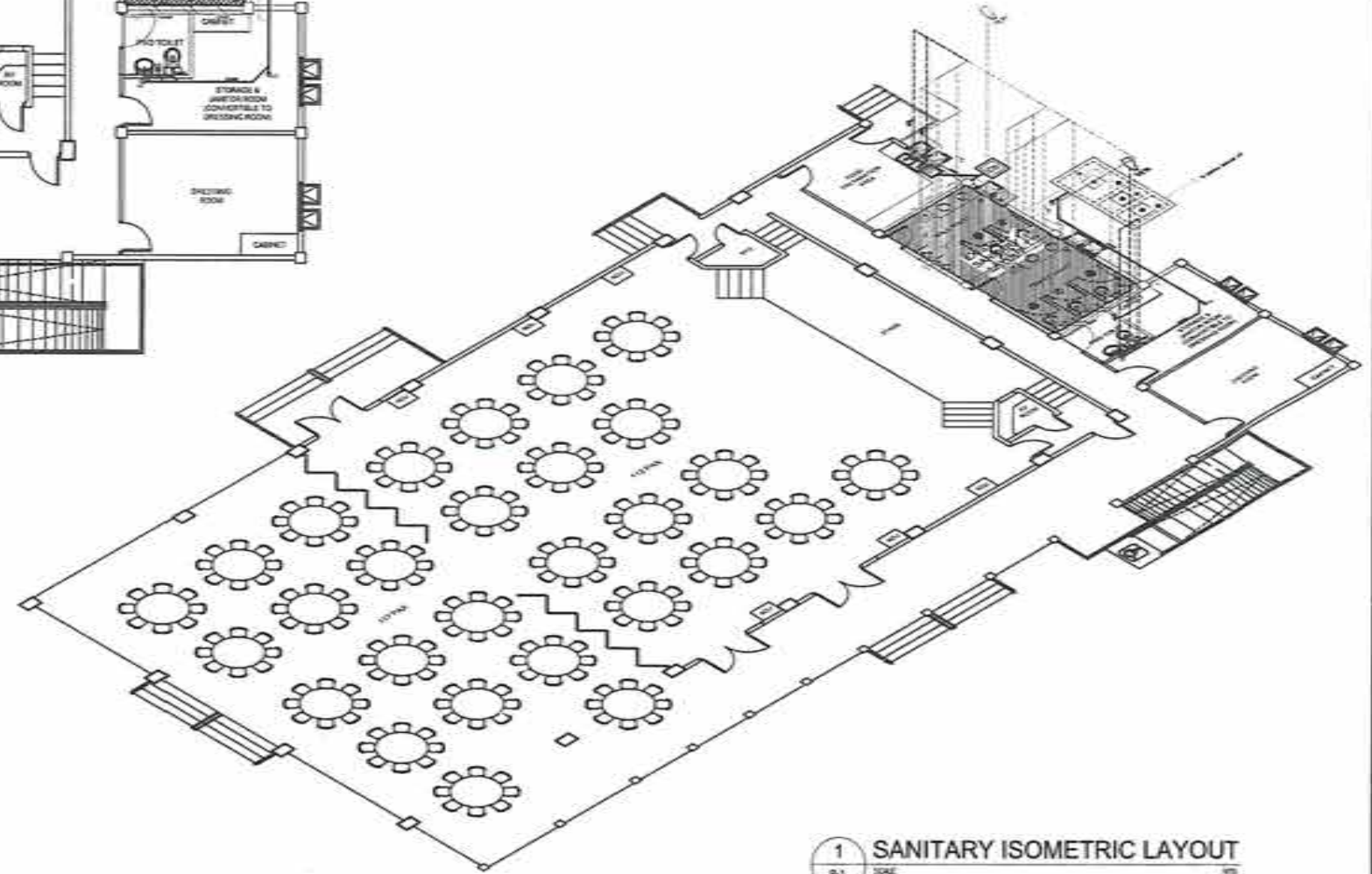


1 LOWER ROOFING PLAN
S-13 SCALE 1:100

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CORRAL COR. A. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF SHELTERED CENTER FOR PERSONS WITH DISABILITIES, LOS AMIGOS, DAVAO CITY	SHEET CONTENTS: UPPER ROOFING PLAN LOWER ROOFING PLAN	PREPARED:  DERICK P. JACOB ENGINEER I DATE: 4	REVIEWED:  ALVIN A. GIRON ENGINEER II, SECTION CHIEF DATE: 10	SUBMITTED:  JUDY ANN L. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: 19	RECOMMENDED:  JOSEITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: 19	APPROVED:  JUDY B. CORDON REGIONAL DIRECTOR DATE: 19	SHEET NO. S 13/13 SHEET NO. 23 31
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1 SANITARY LAYOUT
P-1 SCALE 1:100



1 SANITARY ISOMETRIC LAYOUT
P-1 SCALE 1/8"



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
801 CHAVEZ COR. R. MASSARAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS
SANITARY LAYOUT
SANITARY ISOMETRIC LAYOUT

DESIGNED BY
FERDINAND M. RAÑOSA
ARCHITECT II
DATE: _____

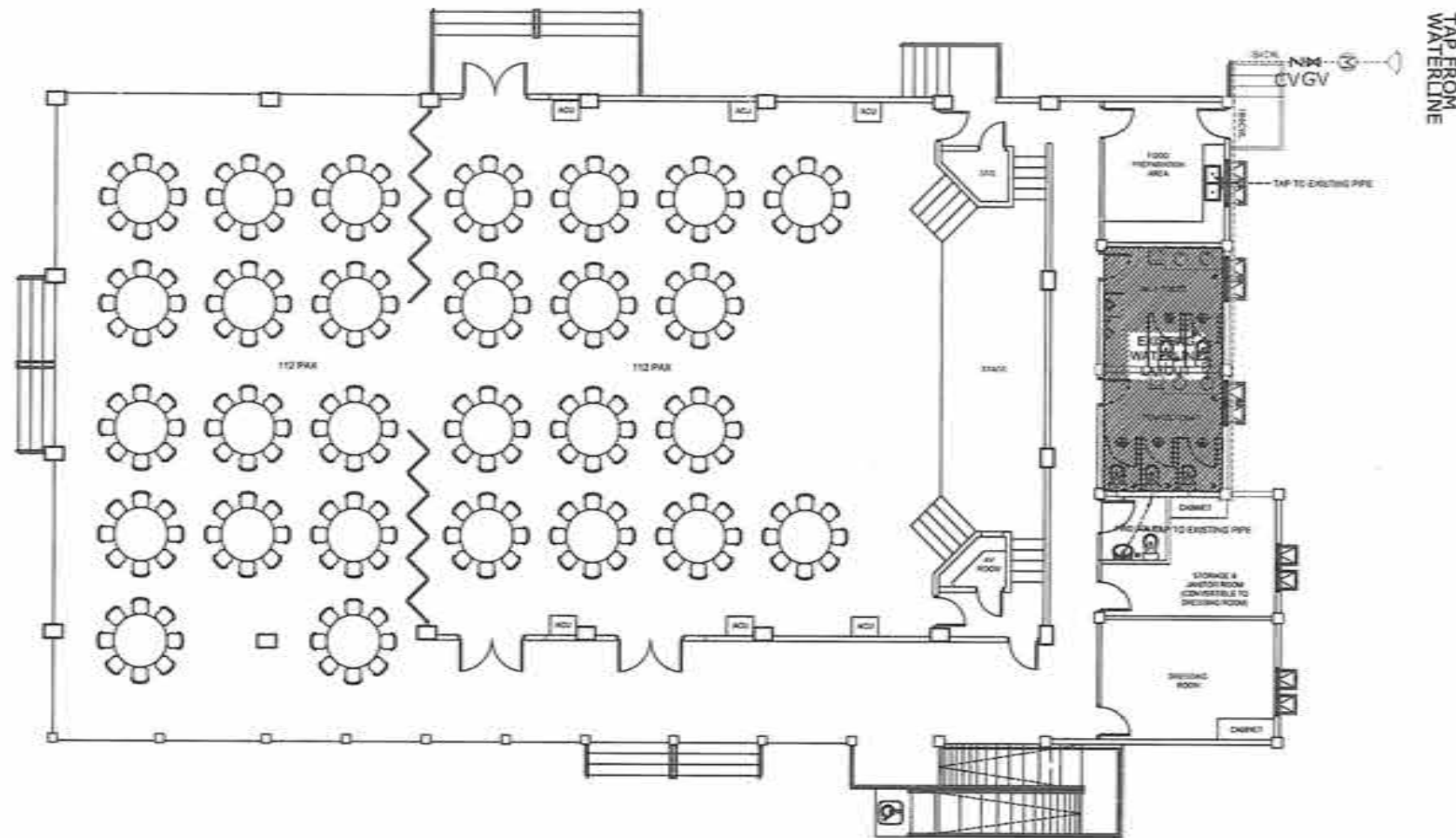
REVIEWED BY
ALGIN A. GINGATAN
ENGINEER II, SEC. 1
DATE: _____

SUBMITTED BY
JUDY ANN BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: _____

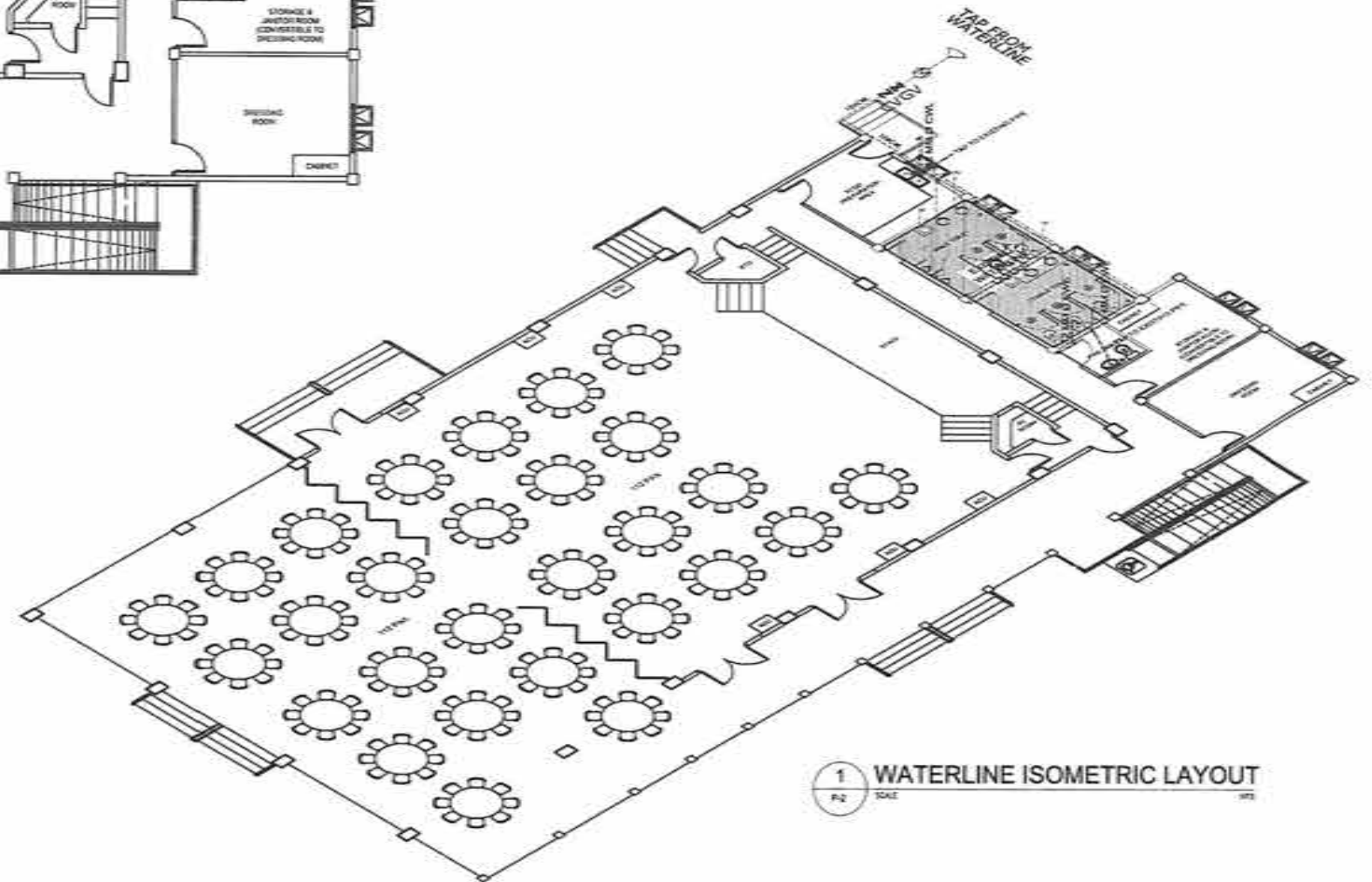
RECOMMENDED BY
JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: _____

APPROVED BY
JUBY B. CORDON
REGIONAL DIRECTOR
DATE: _____

SET NO. SHEET NO.
P 1/5 23/31



1 WATERLINE LAYOUT
P2 SCALE 1:1000



1 WATERLINE ISOMETRIC LAYOUT
P2 SCALE 1:1000



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHARIZ DOR, R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALAMO,
TORIL, DAVAO CITY

SHEET CONTENTS
WATERLINE LAYOUT
WATERLINE ISOMETRIC LAYOUT

PREPARED
FERDINAND M. RAROSA
ARCHITECT

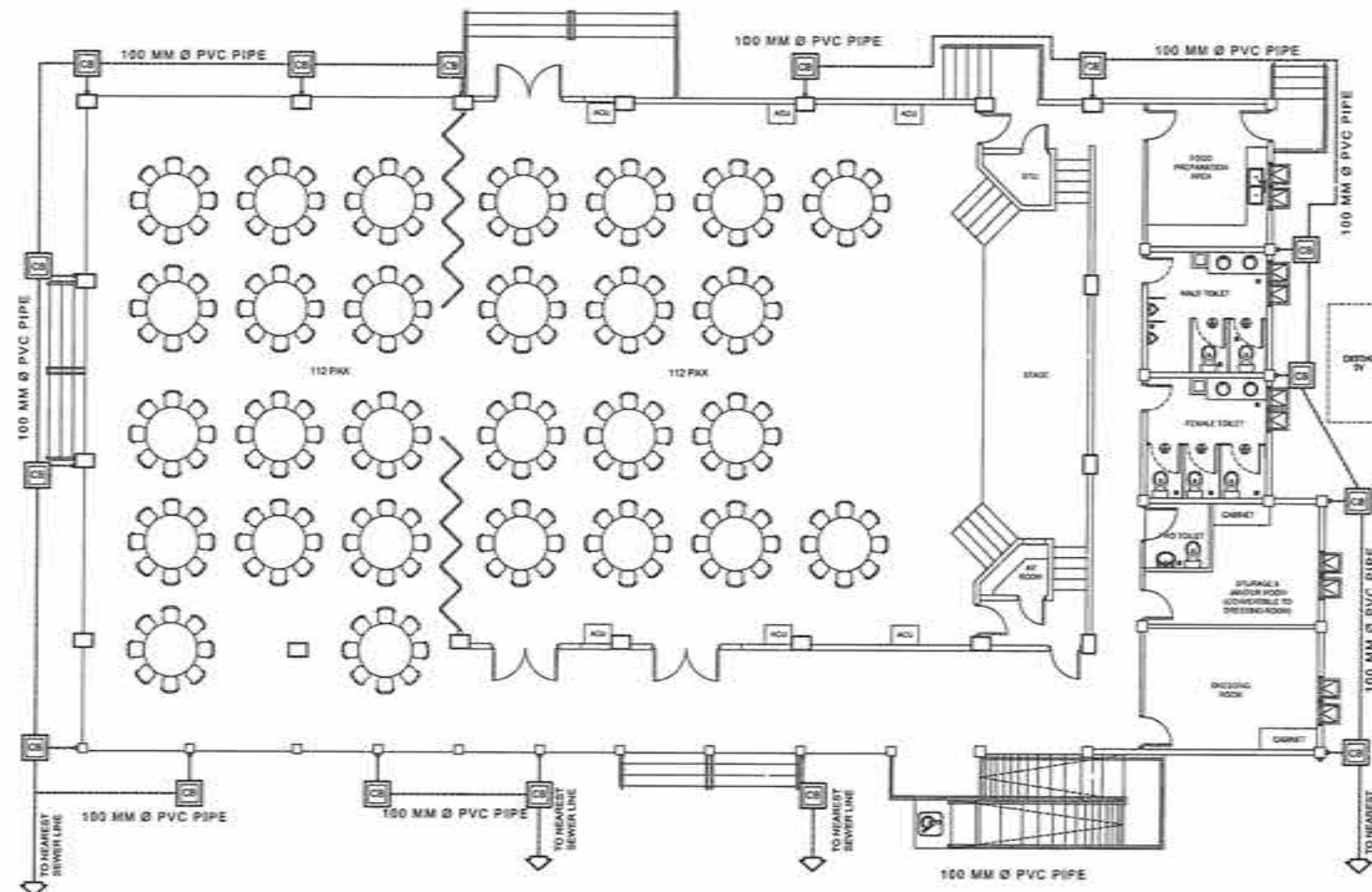
REVIEWED
ALVIN A. GINGA
ENGINEER M. SECOND YEAR

SUBMITTED
JUDY ANN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION

RECOMMENDED
JOSELYN B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

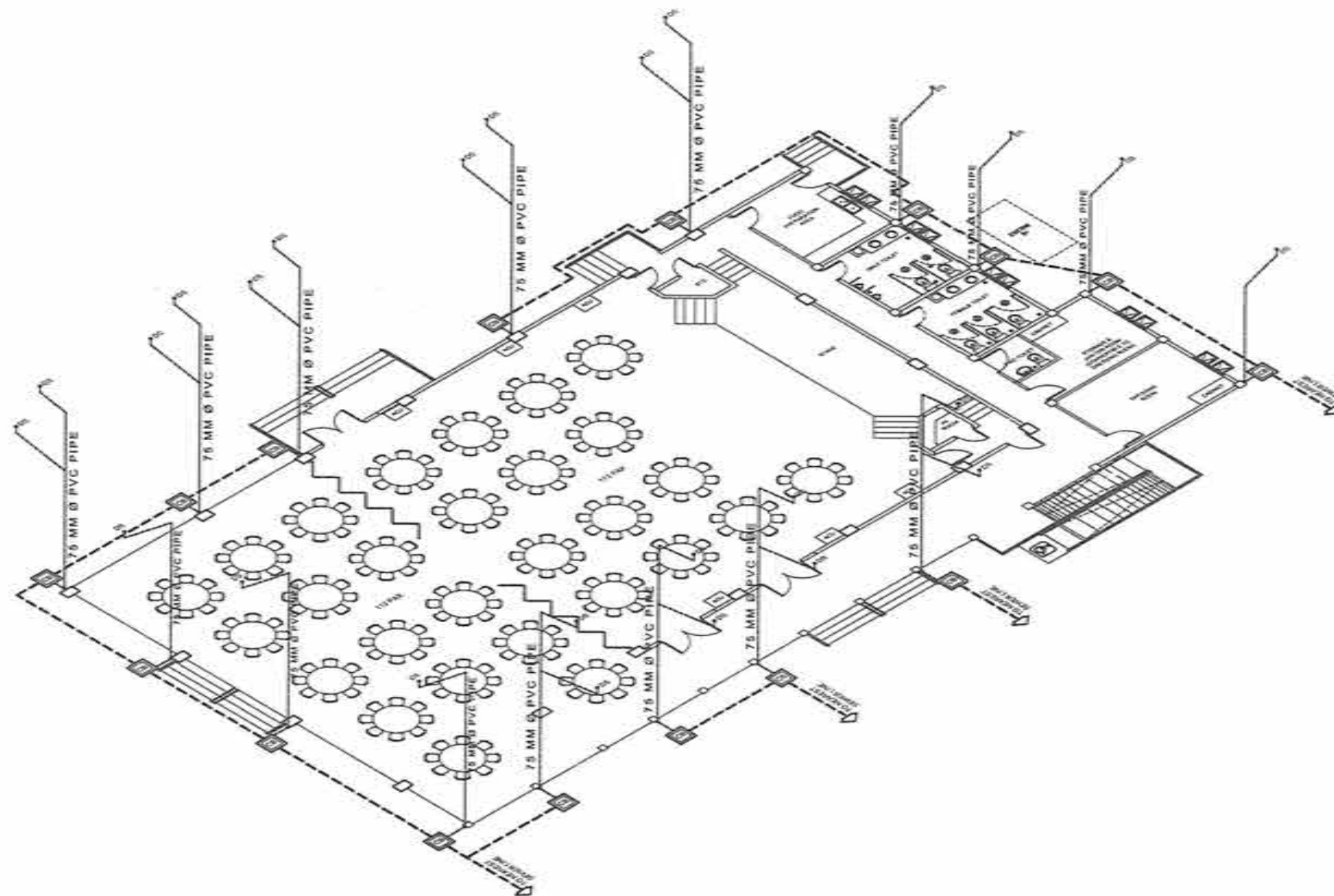
APPROVED
JUDY B. CORDON
REGIONAL DIRECTOR

SET NO.
P
2 | 5
SHEET NO.
24
31

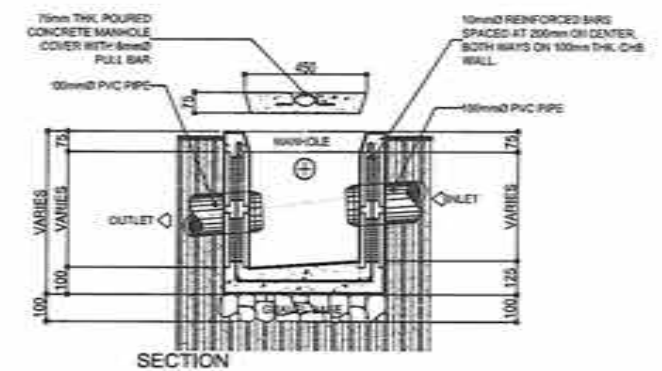
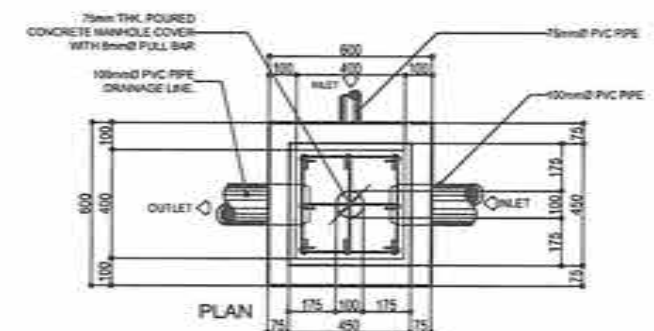


1 STORM DRAINAGE LAYOUT
P-2 SCALE 1:1000

	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. WAGDAPAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION CONSTRUCTION OF MULTI-PURPOSE BUILDING (ADMINISTRATIVE BUILDING), CAMP ALANO, TORIL, DAVAO CITY	SHEET CONTENTS STORM DRAINAGE LAYOUT	PREPARED FERDINAND M. RAÑOSA ARCHITECT II DATE:	REVIEWED ALGIN A. GUNGATAN ENGINEER II, SECTION DATE:	SUBMITTED JUDY ANN V. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDED JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED JUBY B. CORDON REGIONAL DIRECTOR DATE:	SET NO. P 3 5	SHEET NO. 25 31
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1 STORM DRAINAGE ISOMETRIC LAYOUT
P.4 30X2



2 CATCH BASIN DETAIL
P.4 30X2



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS
STORM DRAINAGE ISOMETRIC LAYOUT
CATCH BASIN DETAIL

PREPARED
FERDINAND M. RAÑOSA
ARCHITECT
DATE: 10/10/2023

REVIEWED
ALVIN A. GINGAYAN
ENGINEER II, SECTION
DATE: 10/10/2023

SUPERVISOR
JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE: 10/10/2023

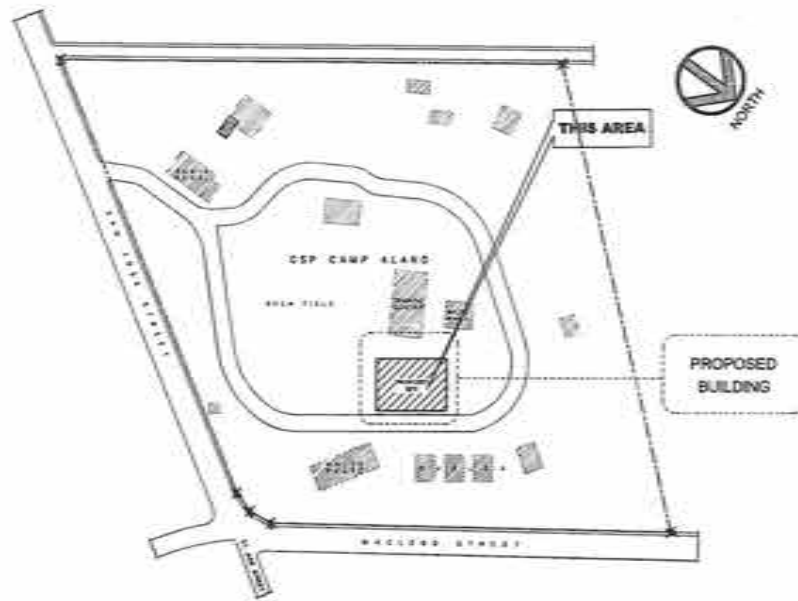
RECOMMENDED
JOSEPH B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: 10/10/2023

APPROVED
JUDY B. CORDON
REGIONAL DIRECTOR
DATE: 10/10/2023

SET NO.
P
4/5
SHEET NO.
26
31



1 VICINITY MAP
P-5 SCALE 1:500



2 SITE DEVELOPMENT PLAN
P-6 SCALE 1:500

GENERAL NOTES:

1. ALL PLUMBING WORKS INCLUDED HEREIN SHALL BE EXECUTED ACCORDING TO THE REQUIREMENTS OF THE PHILIPPINE PLUMBING CODE, THE NATIONAL BUILDING CODE, AND THE RULES AND REGULATIONS OF THE MUNICIPALITY.
2. COORDINATE THE DRAWINGS WITH OTHER RELATED DRAWINGS WITH OTHER RELATED DRAWINGS AND SPECIFICATIONS. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN.
3. PIPES SHALL BE INSTALLED AS PER PLAN. ANY RELOCATION REQUIRED FOR PROPER EXECUTION OF OTHER TRADES SHALL BE WITH THE PRIOR APPROVAL OF THE ARCHITECT AND/OR ENGINEER.
4. PROPOSED SANITARY UTILITIES SHALL CONFORM TO THE ACTUAL LOCATION, DEPTH AND INVERT ELEVATION OF ALL EXISTING PIPES AND STRUCTURES.
5. ALL VENT STACKS PASSING THRU ROOF SHALL BE PROVIDED WITH METAL FLASHING AND ANCHORAGE.
6. ALL SLOPES FOR HORIZONTAL STORM DRAINAGE PIPES SHALL MAINTAIN A MINIMUM OF 2% AND A MINIMUM DEPTH OF 300MM BELOW FINISHED GRADE LINE.
7. ALL HORIZONTAL STORM DRAINAGE PIPES SHALL MAINTAIN MINIMUM SLOPE OF 1%, UNLESS OTHERWISE INDICATED ON PLANS.
8. ALL GALVANIZED IRON (GI) PIPES AND FITTINGS BURED UNDERGROUND SHALL BE RED LEAD COATED, COAL TAR OR ASPHALT COATED WRAPPED WITH BURLAP.
9. ALL GATE VALVES, CHECK VALVES AND DRAIN VALVES SHALL BE PROVIDED AS INDICATED. REQUIRED FITTINGS NOT SHOWN ON PLAN SHALL BE PROVIDED. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
10. THE DRAWINGS SHOW THE GENERAL ARRANGEMENTS OF ALL PIPINGS HOWEVER WHERE LOCAL AND/OR ACTUAL CONDITIONS AT THE JOBSITE NECESSITATE A DEVIATION OF ARRANGEMENT THE CONTRACTOR SHALL PREPARE AND SUBMIT THE NEW ARRANGEMENTS FOR ARCHITECT'S APPROVAL.
11. WORKMANSHIP: THE WORK THROUGHOUT SHALL BE EXECUTED IN THE MOST AND THOROUGH MANNER KNOWN TO TRADE AND TO THE SATISFACTION OF THE ARCHITECT AND/OR ENGINEER.
12. ALL PIPE SIZES (ø) INDICATED ON THE PLANS SHALL BE INSIDE DIAMETER.
13. THE DRAWINGS SHOW THE GENERAL ARRANGEMENTS OF ALL PIPINGS HOWEVER WHERE LOCAL AND/OR ACTUAL CONDITIONS AT THE JOBSITE NECESSITATE A DEVIATION OF ARRANGEMENT THE CONTRACTOR SHALL PREPARE AND SUBMIT THE NEW ARRANGEMENTS FOR ARCHITECT'S APPROVAL.
14. ALL SLEEVES PENETRATING HEATED TO NON-HEATED AREAS SHALL BE PROPERLY INSULATED AND SEALED TO PREVENT HEAT LOSS AND SEEPAGE.
15. SIZE OF SUPPLY TO FIXTURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION.
16. ALL WATER LINES SHALL BE HYDRO-STATIC TESTED AT 100 PSI PRIOR TO TAPPING.
17. WATERPROOF ALL WET AREAS WITH HYDRO THOROSOL OR APPROVED EQUAL AND SHALL BE FLOOD TESTED FOR 24 HOURS (VERIFY ARCHITECTURAL PLANS).
18. ALL FIXTURES SHALL BE IDENTIFIED UNLESS OTHERWISE NOTED.
19. VERIFY ARCHITECTURAL PLANS FOR THE EXACT LOCATION OF SETTING OUT OF FLOOR DRAIN, FLOOR CLEANOUTS AND OTHER PLUMBING APPLIANCES.
20. PROVIDE ADAPTER FITTINGS FOR DISSIMILAR MATERIALS OR PIPES.
21. PROVIDE AIR CHAMBER WITH CAP TO ALL FIXTURES. LENGTH SHALL BE 300MM FOR 1/2", 450MM FOR 3/4" AND 600MM FOR 1". SEE AIR CHAMBER DRAWING (P-15).
22. REFER TO TECHNICAL SPECIFICATIONS FOR DETAILED MATERIALS AND EQUIPMENT SPECIFICATIONS.
23. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT TWO SETS OF ACTUAL AS-BUILT PLAN UPON EXECUTION OF SANITARY / PLUMBING WORKS.
24. SMALL SCALE DRAWINGS DO NOT POSSIBLY INDICATE ALL OFFSETS, FITTINGS AND OTHER PARTS OF THE SYSTEM REQUIRED. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE STRUCTURAL AND FINISHING REQUIREMENTS REFLECTING HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, TRAPS, VALVES AND ACCESSORIES MAYBE REQUIRED TO MEET SUCH CONDITIONS.

SPECIFICATION DIGEST:

1. SANITARY SEWER-SOIL, WASTE & VENT PIPE - POLYVINYL CHLORIDE (PVC) PIPES & FITTINGS, SERIES 1000, CONFORMS W/ ASTM 2729, CROWN OR EMERALD PIPES.
2. STORM DRAINAGE PIPES - POLYVINYL CHLORIDE (PVC) PIPES & FITTINGS, SERIES 1000, CONFORMS W/ ASTM 2729, CROWN OR EMERALD PIPES.
3. DOWNSPOUTS - POLYVINYL CHLORIDE (PVC) PIPES & FITTINGS, SERIES 1000, CONFORMS W/ ASTM 2729, CROWN OR EMERALD PIPES.
4. PERFORATED PIPES - POLYVINYL CHLORIDE (PVC) PIPES & FITTINGS, SERIES 1000, CONFORMS W/ ASTM 2729, CROWN OR EMERALD PIPES.
5. DRAINS - ALL DRAINS SHALL BE CAST IRON (CI) BODY W/ BRONZE TOP. SEE SCHEDULE OF PLUMBING FIXTURES CONNECTION.
6. CLEANOUTS - CAST IRON FLOOR CLEANOUT, THREADED ADJUSTABLE HOUSING, FLANGE FERRULE W/ PLUG & SECURED NICKEL BRONZE AND SATIN BRONZE, VANDAL RESISTANT, SCORATED TOP, UNILEX, JPL, JAMIAN OR METMA CLEANOUTS IN BRAND.
7. VALVES - 82MM & SMALLER CHECK VALVES (150PSI WP) IRON W/ BRONZE TRIM BODY, FEMALE THREADED END CONNECTION, UL APPROVED. 82MM & SMALLER GATE VALVES, EXPOSED (150 PSI WP), RISING STEM, ALL BRONZE BODY FEMALE THREADED END CONN., FEDERAL SPECS. WW-V-58.

LEGEND:

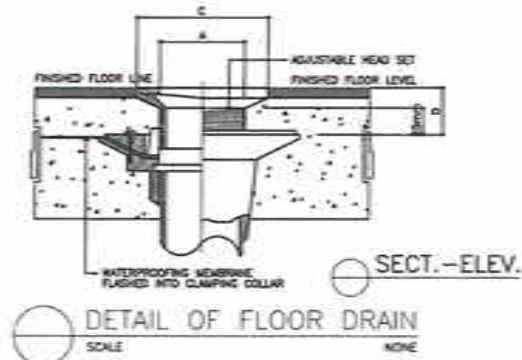
WC	WATER CLOSET	WC	WATER CLOSET
LAV	LABORATORY	FD	FLOOR DRAIN
SS	SOIL STACK	VAC	VENT ABOVE CEILING
VS	VENT STACK	VSTR	VENT STACK THRU-ROOF
AS	AIR SPACE	CS	CLEANOUT
CO	CLEANOUT	MH	MANHOLE
MM	MILLIMETERS	CB	CATCH BASIN
mm	MILLIMETERS	PVC	POLYVINYL CHLORIDE PIPE
CS	CLEANOUT	DS	DOWNSPOUT
RD	ROOF DRAIN	WM	WATER METER
WM	WATER METER	GV	GATE VALVE
CV	CHECK VALVE	AC	AIR CHAMBER
AC	AIR CHAMBER		

COLOR CODES FOR EXPOSED PIPES:

1. COLD WATER PIPES - BLUE
2. STORM DRAINAGE PIPES - GRAY
3. SEWER-SOIL & VENT PIPES - GREEN
4. SEWER VENT PIPES - RED
5. OTHERS - RED

TABLE OF DIMENSIONS (mm):

PIPE SIZE (A) (mm)	APP. WT. (LBS)	DIMENSIONS (mm)	OPEN AREA (SQ. IN.)
		C	D
50	1 7/8	100 x 100	45
75	2 3/4	125 x 125	50
100	4 1/2	150 x 150	50
150	8 3/4	200 x 200	53



SCHE. OF PIPE DIAMETER EQUIV. TO PPRC / HDPE:

CONVERSION FROM MM TO INCH (PIPE SIZES SHALL BE INSIDE DIAM.)			
MM	INCHES	REMARKS	PPRC/HDPE
12mm	1/2"	WATER	20mm
18	3/4"	WATER	25
25	1"	WATER	32
31	1-1/4"	WATER	40
38	1-1/2"	WATER	50
50	2"	WATER, SEWER	63
62	2-1/2"	WATER, SEWER	75
75	3"	WATER, SEWER	90
100	4"	DRAINAGE, WATER, SEWER	110
150	6"	DRAINAGE, WATER, SEWER	-
200	8"	DRAINAGE	-
250	10"	DRAINAGE	-
300	12"	DRAINAGE	-
375	15"	DRAINAGE	-
450	18"	DRAINAGE	-



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. NAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF MULTI-PURPOSE BUILDING (ADMINISTRATIVE BUILDING), CAMP ALANO, TORIL, DAVAO CITY

SHEET CONTENTS
VICINITY MAP
SITE DEVELOPMENT PLAN
GENERAL NOTES
SPECIFICATION DIGEST
LEGEND
DETAIL OF FLOOR DRAIN

PREPARED
FERDINAND M. RAÑOSA
ARCHITECT
DATE

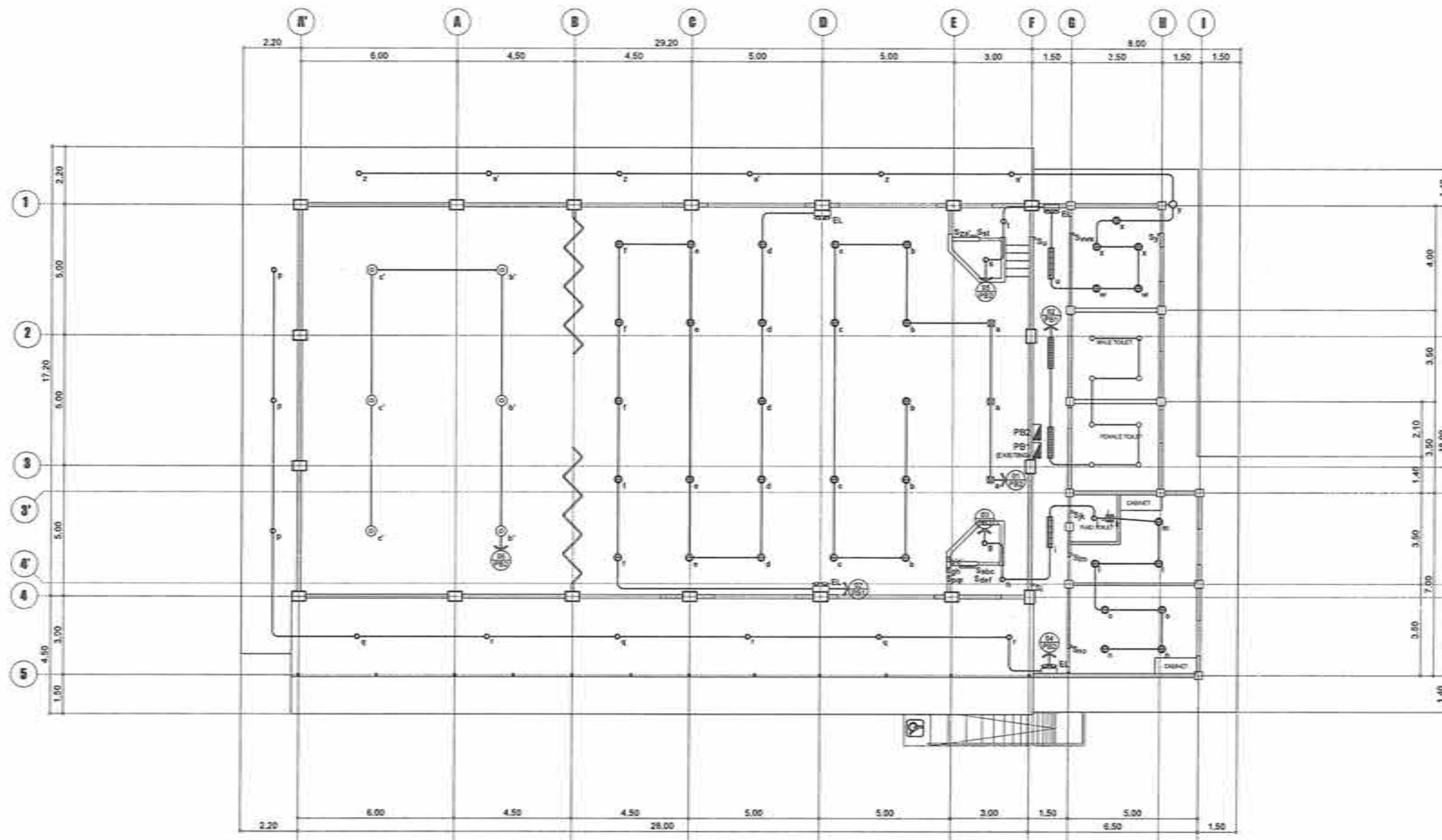
REVIEWED
ALGIN A. GINGALAN
ENGINEER II, SECTOR OFFICE
DATE

SUBMITTED
JUDY ANN T. BERNARDINO
CHIEF, PLUMBING AND DESIGN DIVISION
DATE

RECOMMENDED
JOSEPH B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

APPROVED
JUDY B. CORDON
REGIONAL DIRECTOR
DATE

SHEET NO.
P
5/5
27
31



1 LIGHTING LAYOUT
E-1 SCALE 1:100

MARK	DESCRIPTIONS
	SERVICE ENTRANCE 2P 230VAC 60Hz
	KILOWATT-HOUR METER
	AIR CIRCUIT BREAKER
	PANEL BOARD
	EARTH GROUND
	CIRCUIT HOMERUN
	CIRCUIT LINE
	LED DOWN LIGHT 25WATTS
	LED DOWN LIGHT 15WATTS
	SELF BALLAST MERCURY LAMPS 150W DOME REFLECTOR (EXISTING)
	LED DOWN LIGHT 15WATTS (EXISTING)
	LED LAMP HIGH BAY 100WATTS
	LED WALL LAMP 15WATTS
	LED FLOOD LIGHT 50WATTS
	CEILING FAN 180WATTS
	HVL (HIGH VOLUME LOW SPEED) FAN 450WATTS
	FLUORESCENT LED LAMP 1-36WATTS RECESSED MOUNTING (NEW)
	FLUORESCENT LED LAMP 1-36WATTS RECESSED MOUNTING (EXISTING)
	ELECTRIC WALL FAN 100WATTS
	EMERGENCY LAMP 2 x 1WATT
	EXHAUST FAN (203x253)mm 200blts CEILING MOUNTING
	FLUSH TYPE CONVENIENCE OUTLET 15AMPERES 3PONG DUPLEX
	FLUSH TYPE CONVENIENCE OUTLET 15AMPERES DUPLEX (EXISTING)
	SPECIAL PURPOSE OUTLET (ACU, VM, O, R, ETC.)
	FLUSH TYPE TUMBLER SWITCH SINGLE SAMPERES
	FLUSH TYPE TUMBLER SWITCH DUPLEX SAMPERES
	FLUSH TYPE TUMBLER SWITCH TRIPLEX SAMPERES
	1-50KVA 1φ 13.2/0.24KV 60Hz OISC DISTRIBUTION TRANSFORMER
	FUSE CUT OUT
	LIGHTNING ARRESTER
	FAN COIL UNIT WALL MOUNTED
	AIR COOLING CONDENSING UNIT



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. N. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS:
LIGHTING LAYOUT

PREPARED:
JOHN PHILIP S. ORTIGONES
ENGINEER I
DATE:

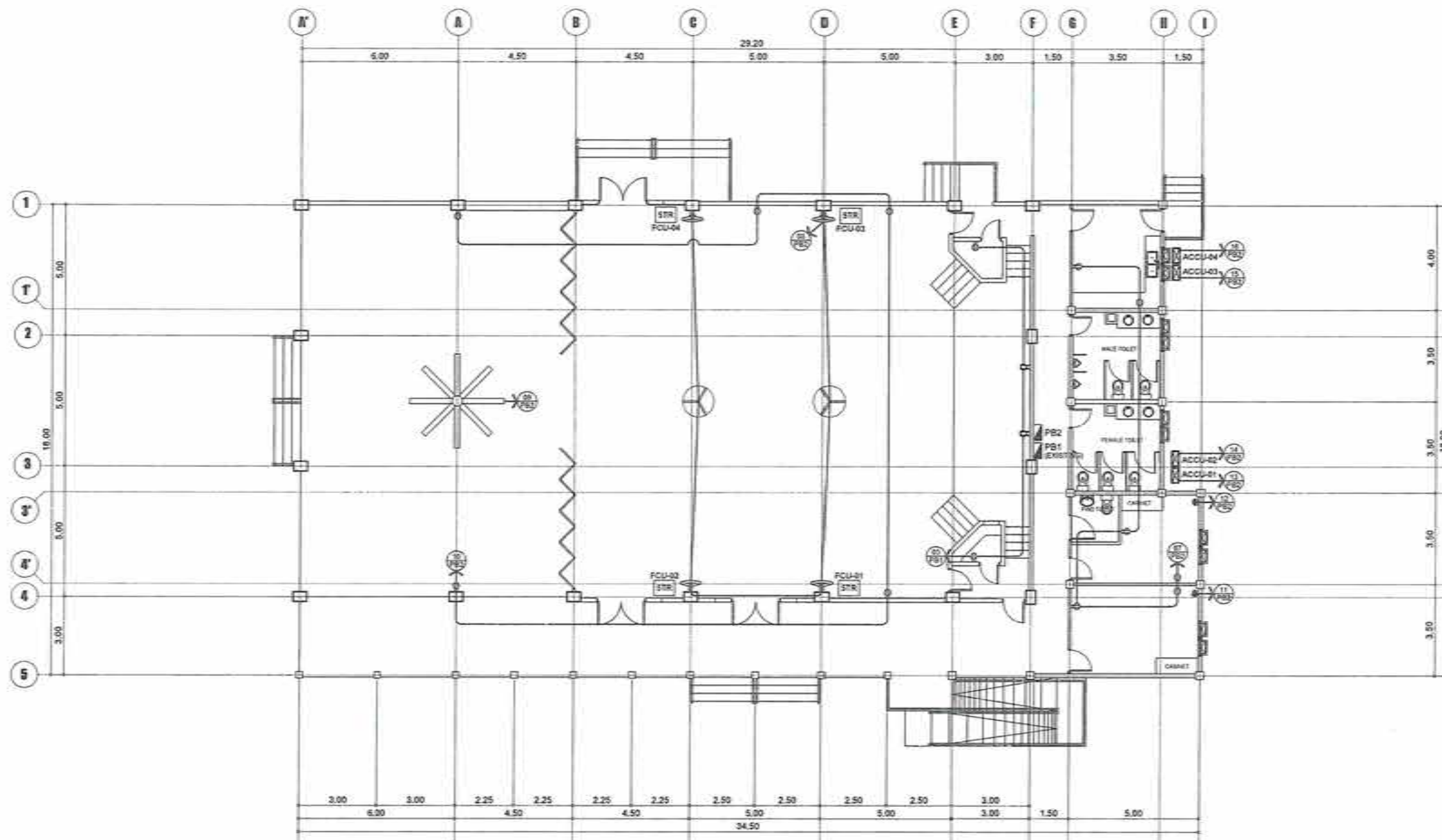
REVIEWED:
ALON A. GINGATAN
ENGINEER II, ELECTRICAL
DATE:

SUBMITTED:
JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDED:
JOSE LITO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. SHEET NO.
E 28
14 31



1 POWER LAYOUT
SCALE 1:100

MARK	DESCRIPTIONS
	SERVICE ENTRANCE 2P 230VAC 60Hz
	KILOWATT-HOUR METER
	AIR CIRCUIT BREAKER
	PANEL BOARD
	EARTH GROUND
	CIRCUIT BREAKER
	CIRCUIT LINE
	LED DOWN LIGHT 25WATTS
	LED DOWN LIGHT 15WATTS
	SELF BALLAST MERCURY LAMPS 150W DOME REFLECTOR (EXISTING)
	LED DOWN LIGHT 15WATTS (EXISTING)
	LED LAMP HIGH BAY 100WATTS
	LED WALL LAMP 11WATTS
	LED FLOOD LIGHT 50WATTS
	CEILING FAN 18WATTS
	H.V.L.S. (HIGH VOLUME LOW SPEED) FAN 850WATTS
	FLUORESCENT LED LAMP 1-36WATTS RECESSED MOUNTING (NEW)
	FLUORESCENT LED LAMP 1-36WATTS RECESSED MOUNTING (EXISTING)
	ELECTRIC WALL FAN 100WATTS
	EMERGENCY LAMP 2 x 1WATT
	EXHAUST FAN (230x280)mm 20Watts CEILING MOUNTING
	FLUSH TYPE CONVENIENCE OUTLET 15AMPERES 3PONG DUPLEX
	FLUSH TYPE CONVENIENCE OUTLET 15AMPERES DUPLEX (EXISTING)
	SPECIAL PURPOSE OUTLET (ACU, WH, D, R, ETC.)
	FLUSH TYPE TUMBLER SWITCH SINGLE AMPERES
	FLUSH TYPE TUMBLER SWITCH DUPLEX AMPERES
	FLUSH TYPE TUMBLER SWITCH TRIPLEX AMPERES
	1-50KVA 1φ 13.2/0.24KV 60Hz DISC DISTRIBUTION TRANSFORMER
	FUSE CUT OUT
	LIGHTNING ARRESTER
	FAN COIL UNIT WALL MOUNTED
	AIR COOLING CONDENSING UNIT



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
604, CHAVEZ COR. R. NAGSATARY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF MULTI-PURPOSE BUILDING
(ADMINISTRATIVE BUILDING), CAMP ALANO,
TORIL, DAVAO CITY

SHEET CONTENTS:
POWER LAYOUT

PREPARED:
JOHN PHILIP S. ORSINES
ENGINEER II, SECTION CHIEF
DATE:

REVIEWED:
ALVIN A. SINGATTA
ENGINEER II, SECTION CHIEF
DATE:

SUBMITTED:
JUDY T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDED:
JOSELYN B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. 24
SHEET NO. 29/31

LOAD SCHEDULE

DESIGNATION: LIGHTING & POWER PANEL FEED FROM: NEW DISTRIBUTION PANEL (PB2) LOCATION: CORRIDOR - GROUND FLOOR				PROTECTION SPEC: Panelboard: 4 Branches, Bolt-On Type, Single Main, Single Phase Main: Air-Circuit Breaker, Bolt-On Type, Single Phase, 240V/100A Branches: Air-Circuit Breakers, Bolt-On Type, Single Phase, 240V/100A Busbar: 100Amps (Maximum Ampacity)							VOLTAGE: 220V PHASE: SINGLE PHASE ENCLOSURE (PF): NEMA-1		
PANEL	CKT	DESCRIPTION	QTY	POWER	VOLT	CURRENT	PROTECTION				CONDUCTORS	CONDUITS	
							AT	AF	POLE	KAIC			
PB1	01	SUB-FEEDER		1 720	230	7.48							
	02	LIGHTING LOADS	10	500	230	2.17	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mmØ uPVC PIPE	
	03	ALL PURPOSED LOADS	04	720	230	3.13	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mmØ uPVC PIPE	
	04	FUTURE LOADS	01	500	230	2.17							

LOAD COMPUTATION

SUB-FEEDER CONDUCTOR & EQUIPMENT RATING (EXISTING)

TOTAL FULL LOAD CURRENT:

$$I = 1.720 + 230 @ 0.8001 = 9.35 \text{ Amperes}$$

USE: 2 - 8.0mm² THW, Cu. WIRE +

1 - 8.0mm² THW, GROUND, Cu. WIRE

INSIDE 1 - 25mm² uPVC PIPE

MAXIMUM CURRENT RATING OF PROTECTION DEVICE (EXISTING)

(REVERSE TIME CIRCUIT BREAKER)

USE: 1 - 45AT 100AF 240V 100AIC ACB

DESIGNATION: LIGHTING & POWER PANEL FEED FROM: MAIN CIRCUIT BREAKER PANEL LOCATION: GROUND FLOOR				PROTECTION SPEC: Panelboard: 18 Branches, Bolt-On Type, Center Main, Single Phase Main: Air-Circuit Breaker, Bolt-On Type, Single Phase, 240V/100A Branches: Air-Circuit Breakers, Bolt-On Type, Single Phase, 240V/100A Busbar: 125Amps (Maximum Ampacity)							VOLTAGE: 220V PHASE: SINGLE PHASE ENCLOSURE (PF): NEMA-1	
PANEL	CKT	DESCRIPTION	QTY	POWER	VOLT	CURRENT	PROTECTION				CONDUCTORS	CONDUITS
							AT	AF	POLE	KAIC		
PB2	01	LIGHTING LOADS	12	750	230	3.26	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	02	LIGHTING LOADS	16	800	230	3.48	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	03	LIGHTING LOADS	12	600	230	2.61	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	04	LIGHTING LOADS	10	500	230	2.17	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	05	LIGHTING LOADS	16	800	230	3.48	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	06	LIGHTING LOADS	05	900	230	3.91	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	07	ALL PURPOSED LOADS	06	1 080	230	4.70	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	08	CEILING/WALL FAN LOADS	06	1 080	230	4.70	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	09	HVLS CEILING FAN LOAD	06	850	230	3.70	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	10	ALL PURPOSED LOADS	05	900	230	3.91	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	11	AIR-CONDITION LOAD 1.5hp	01	2 300	230	10.0	30	100	2	10	2 - 5.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	12	AIR-CONDITION LOAD 1.5hp	01	1 840	230	8.00	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu.(G)	20mm ² uPVC PIPE
	13	AIR-CONDITION LOAD 5.5TR INVERTER	01	7 620	230	34.0	100	225	2	10	2 - 30.0mm ² THW Cu. + 1 - 8.0mm ² THHN Cu.(G)	40mm ² uPVC PIPE
	14	AIR-CONDITION LOAD 5.5TR INVERTER	01	7 620	230	34.0	100	225	2	10	2 - 30.0mm ² THW Cu. + 1 - 8.0mm ² THHN Cu.(G)	40mm ² uPVC PIPE
	15	AIR-CONDITION LOAD 5.5TR INVERTER	01	7 620	230	34.0	100	225	2	10	2 - 30.0mm ² THW Cu. + 1 - 8.0mm ² THHN Cu.(G)	40mm ² uPVC PIPE
	16	AIR-CONDITION LOAD 5.5TR INVERTER	01	7 620	230	34.0	100	225	2	10	2 - 30.0mm ² THW Cu. + 1 - 8.0mm ² THHN Cu.(G)	40mm ² uPVC PIPE
	17	PANEL LOAD (PB1)	01	1 720	230	7.48	40	100	2	10	2 - 8.0mm ² THW Cu. + 1 - 8.0mm ² THW Cu.(G)	25mm ² uPVC PIPE
	18	FUTURE LOADS	01	500	230	2.17						
		MAIN-FEEDER		45 900	230	199.57						

LOAD ANALYSIS

A. LOAD COMPUTATION

GENERAL LIGHTING & CONVENIENCE RECEPTACLE LOADS

TYPE OF OCCUPANCY:

AUDITORIUM ASSEMBLY BUILDING

488.90 m² x 8.0 VA/m² = 3 911 VA

HALL, CORRIDORS, CLOSETS, & STAIRCASE

113.43 m² x 4.0 VA/m² = 454 VA

SUB-TOTAL = 4 365 VA

APPLICATION OF DEMAND FACTOR

FOR NON-DWELLING - RECEPTACLE LOADS

FIRST 10KVA OR LESS @ 100% DF = 4 365 VA

REMAINDER OVER 10KVA @ 50% DF = 0 VA

OTHER LOADS

ONE 1.0hp A.C.U. LOAD @ 100% DF = 1 840 VA

ONE 1.5hp A.C.U. LOAD @ 100% DF = 2 300 VA

FOUR 5.5TR A.C.U. LOAD @ 100% DF = 31 280 VA

FUTURE LOADS = 1 000 VA

TOTAL NET COMPUTED LOAD = 40 795 VA

SERVICE ENTRANCE CONDUCTOR & EQUIPMENT RATING

TOTAL FULL LOAD CURRENT:

$$I = 0.25 (7 620) + 40 795 \div 230 = 185.83 \text{ Amperes}$$

USE: 2 - 125.0mm² THW, Cu. WIRE +

1 - 30.0mm² THW, GROUND, Cu. WIRE

INSIDE 1 - 50mm² RMC PIPE

MAXIMUM CURRENT RATING OF PROTECTION DEVICE

$$I = 1.50 (7 620) + 40 795 \div 230 = 228.33 \text{ Amperes}$$

(REVERSE TIME CIRCUIT BREAKER)

USE: 1 - 250AT 125AF 240V 14 10AIC MOCB

TRANSFORMER RATING

KVA = $E (I) / 1000 @ 100\% DF$

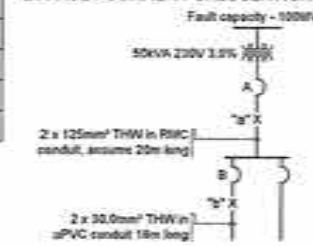
KVA = $230 (185.83) / 1000 @ 100\% DF$

KVA = 42.74

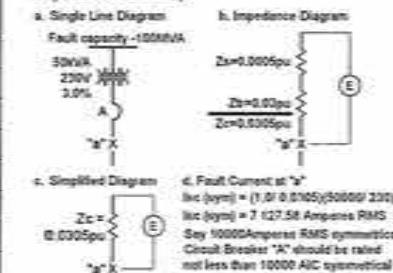
USE: 1 - 50KVA 12.5/0.24KV DISC DISTRIBUTION

TRANSFORMER POLE MOUNTED

B. FAULT CURRENT CALCULATION



PU value of utility source, pu $Z_s = 0.0005 \text{ pu}$
 PU for transformer, pu $Z_t = 0.025 \text{ pu}$
 PU value for feeder line, (For 2-30.0mm² cable in uPVC conduit, 15m, $Z = 0.011542 \text{ pu}$)
 pu $Z_w = 0.01090 \text{ pu}$
 Fault at 'a' (The fault current to be cleared by breaker A comes only from the transformer)



C. VOLTAGE DROP CALCULATION

FEEDER		CONDUCTORS	CURRENT	DISTANCE	PHASE	IMPEDANCE		VOLTAGE DROP	VOLTAGE DROP TOTAL	VOLTAGE DROP (%)	VOLTAGE DROP (%) TOTAL	VOLTAGE DROP END
FROM	TO					R	X					
XMMER	PB2	2 x 125.0mm ²	185.83 A	ASSUME 20.0 m	1φ	0.054	0.052	1.83		0.79		228.17
PB2	C11 - ACU 1.5hp	2 x 5.50mm ²	10.0 A	17.0 m	1φ	1.200	0.052	1.34	3.17	0.58	1.38	229.85
PB2	C12 - ACU 1.0hp	2 x 3.50mm ²	8.0 A	14.0 m	1φ	2.000	0.054	1.47	3.30	0.64	1.43	226.70
PB2	C13 - ACU 5.25hp	2 x 30.0mm ²	34.0 A	18.0 m	1φ	0.190	0.046	0.78	2.81	0.34	1.54	227.36

ILLUMINATION CALCULATION

BUILDING TYPE: ALL PURPOSE BUILDING
 INTERIOR LOCATIONS & TASKS: PANTRY
 FLOOR / DECK: GROUND FLOOR
 ILLUMINATION (E): 500 lux
 CEILING HEIGHT: 2.50 m
 WORKPLANE HEIGHT: 0.85 m
 ROOM PERIMETER LINE: 14.70 m
 ROOM TOTAL AREA: 13.39 m²
 LUMINAIRE TYPE: BEGHILL LED DOWN LIGHT COMPACT 25WATTS

INITIAL OUTLET LUMENS: 2250
 ROOM CAVITY RATIO: 4.53
 COEF. OF UTILIZATION: 0.623
 LIGHT LOSS FACTOR: 0.85
 LAMPS/LUMINAIRE: 1.0
 NUMBER OF LUMINAIRES: 5.62

BUILDING TYPE: ALL PURPOSE BUILDING
 INTERIOR LOCATIONS & TASKS: AUDITORIUM ASSEMBLY
 FLOOR / DECK: GROUND FLOOR
 ILLUMINATION (E): 200 lux
 CEILING HEIGHT: 2.80 m
 WORKPLANE HEIGHT: 0.85 m
 ROOM PERIMETER LINE: 58.37 m
 ROOM TOTAL AREA: 225.71 m²
 LUMINAIRE TYPE: BEGHILL LED DOWN LIGHT COMPACT 25WATTS

INITIAL OUTLET LUMENS: 2250
 ROOM CAVITY RATIO: 1.41
 COEF. OF UTILIZATION: 0.858
 LIGHT LOSS FACTOR: 0.85
 LAMPS/LUMINAIRE: 1.0
 NUMBER OF LUMINAIRES: 23.63

BUILDING TYPE: ALL PURPOSE BUILDING
 INTERIOR LOCATIONS & TASKS: CORRIDORS
 FLOOR / DECK: GROUND FLOOR
 ILLUMINATION (E): 100 lux
 CEILING HEIGHT: 2.70 m
 WORKPLANE HEIGHT: 0.70 m
 ROOM PERIMETER LINE: 35.18 m
 ROOM TOTAL AREA: 20.52 m²
 LUMINAIRE TYPE: FUMACO LED FLUORESCENT LAMP 1 x 36 WATTS

INITIAL OUTLET LUMENS: 3280
 ROOM CAVITY RATIO: 7.90
 COEF. OF UTILIZATION: 0.432
 LIGHT LOSS FACTOR: 0.85
 LAMPS/LUMINAIRE: 1.0
 NUMBER OF LUMINAIRES: 2.56

BUILDING TYPE: ALL PURPOSE BUILDING
 INTERIOR LOCATIONS & TASKS: PWD TOILET
 FLOOR / DECK: GROUND FLOOR
 ILLUMINATION (E): 200 lux
 CEILING HEIGHT: 2.50 m
 WORKPLANE HEIGHT: 0.85 m
 ROOM PERIMETER LINE: 7.20 m
 ROOM TOTAL AREA: 3.23 m²
 LUMINAIRE TYPE: BEGHILL LED DOWN LIGHT COMPACT 15WATTS

INITIAL OUTLET LUMENS: 2250
 ROOM CAVITY RATIO: 9.20
 COEF. OF UTILIZATION: 0.225
 LIGHT LOSS FACTOR: 0.85
 LAMPS/LUMINAIRE: 1.0
 NUMBER OF LUMINAIRES: 1.50



REPUBLIC OF THE PHILIPPINES
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
 REGIONAL OFFICE NO. XI
 GOK CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
 CONSTRUCTION OF MULTI-PURPOSE BUILDING
 (ADMINISTRATIVE BUILDING), CAMP ALANO,
 TORIL, DAVAO CITY

SHEET CONTENTS
 LOAD SCHEDULE
 LOAD ANALYSIS
 ILLUMINATION CALCULATION

PREPARED
 JOHN R. S. ORGENES
 ENGINEER
 DATE: _____

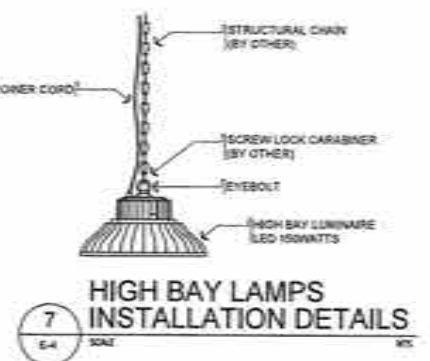
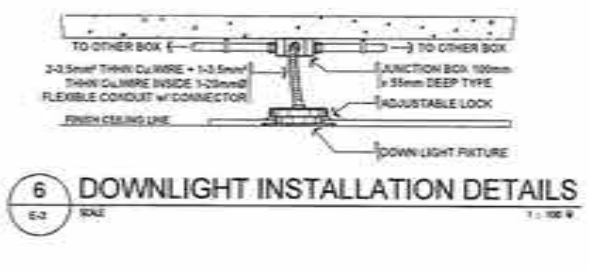
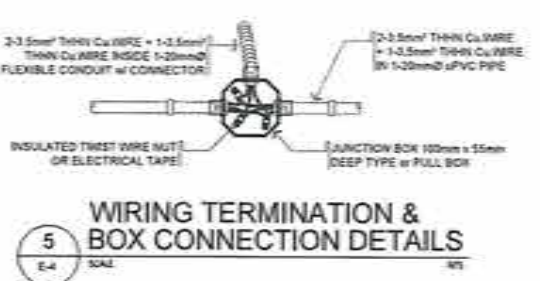
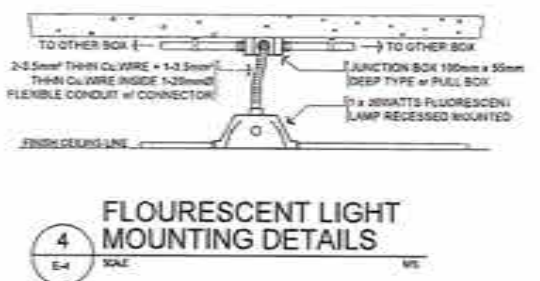
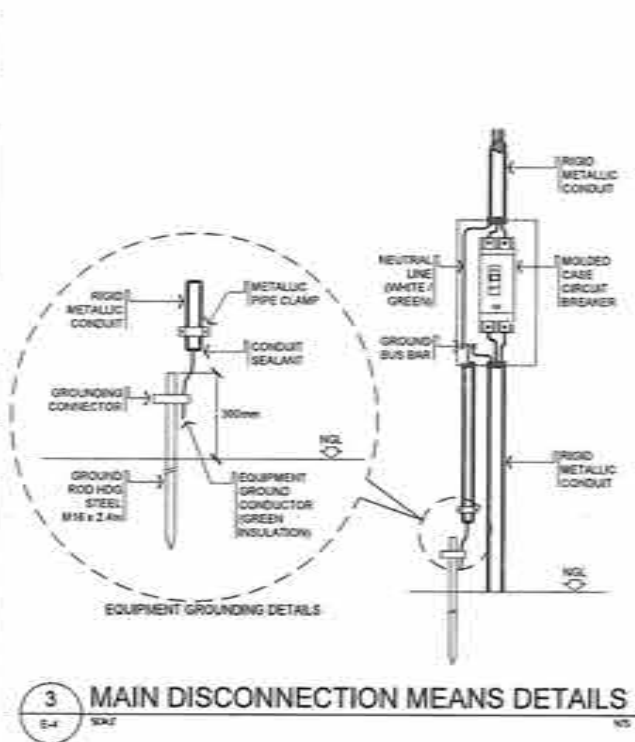
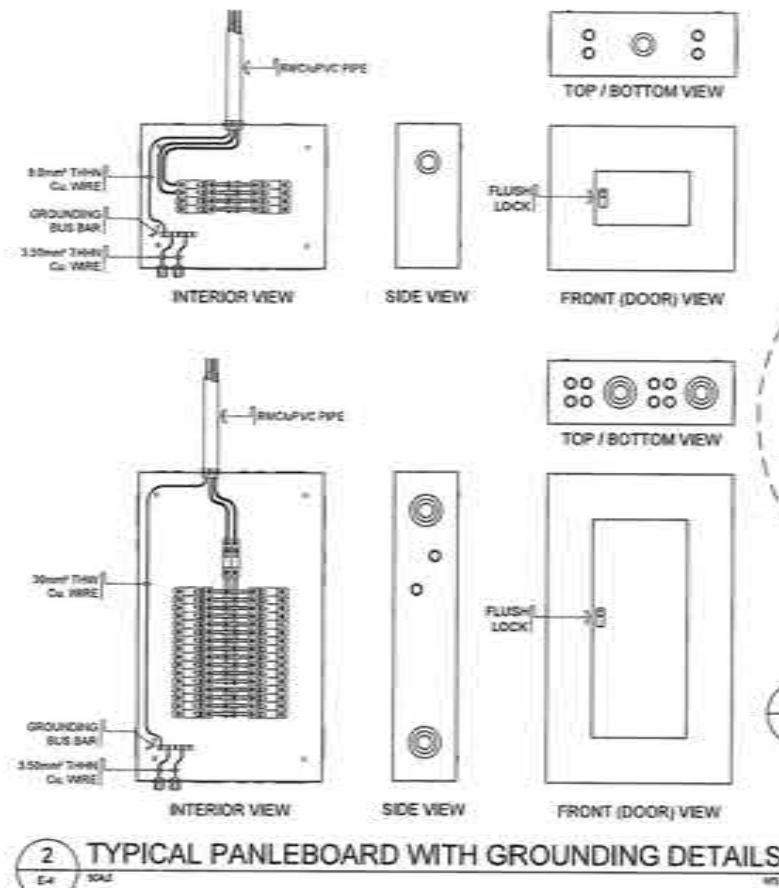
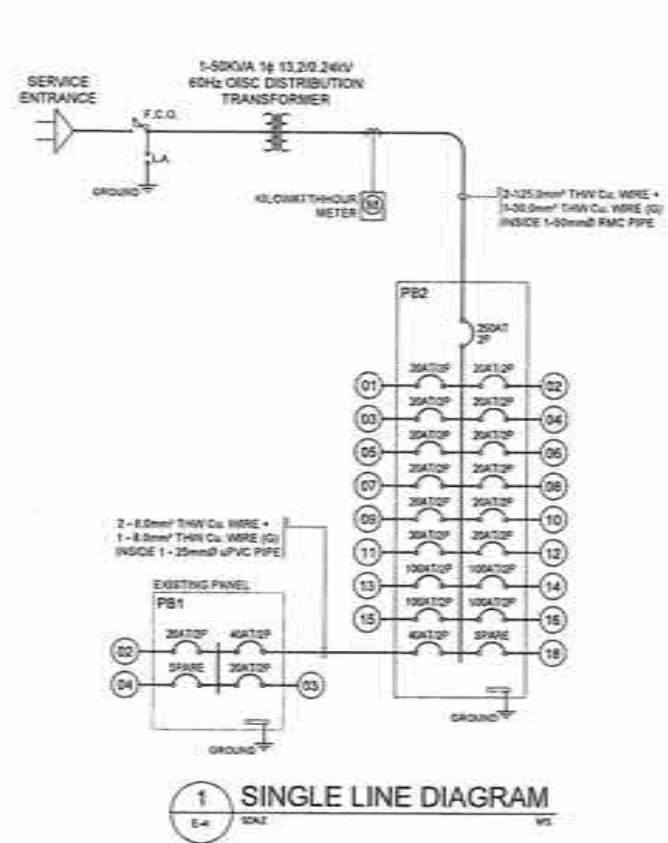
REVIEWED
 ALVIN A. GINGRAN
 ENGINEER II, SECTION CHIEF
 DATE: _____

DESIGNED
 JUDY B. CORDON
 CHIEF, PLANNING AND DESIGN DIVISION
 DATE: _____

RECOMMENDED
 JOSE L. B. CABALLERO
 ASSISTANT REGIONAL DIRECTOR
 DATE: _____

APPROVED
 JUDY B. CORDON
 REGIONAL DIRECTOR
 DATE: _____

SHEET NO.
 30
 SHEET NO.
 31



- ### NOTES & SPECIFICATIONS
- ALL ELECTRICAL INSTALLATIONS MADE HEREIN SHALL CONFORM WITH THE RULES AND REGULATIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE (PEC), THE EXISTING LOCAL ORDINANCES, RULES AND REGULATIONS OF THE LOCAL ENFORCING AUTHORITY AND THE REQUIREMENT OF THE LOCAL UTILITY COMPANY CONCERNED WORKS SHALL NOT BE STARTED UNLESS A VALID PERMIT HAS BEEN SECURED.
 - THE TYPE OF POWER SERVICE TO BE USED SHALL BE FROM 11.2KV SINGLE PHASE POWER SUPPLY AND TRANSFER TO 230VOLTS THRU BANK DISTRIBUTION TYPE TRANSFORMER 3PHASE 230VOLTS 60HERTZ ALTERNATING CURRENT.
 - ALL ELECTRICAL MATERIALS AND DEVICES TO BE USED AND INSTALLED HEREIN SHALL BE BRAND NEW OF APPROVED TYPE APPROPRIATE FOR BOTH LOCATION AND INTENDED USE AND WITH ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE AND BY THE BUREAU OF STANDARDS AND WITH GOOD WORKMANSHIP INSTALLATION.
 - GENERAL PURPOSED RECEPTACLES SHALL RATE 15AMPS 240VOLTS 3 PRONG UNIVERSAL TYPE AND FLOOR MOUNTED OUTLET SHOULD BE METALLIC POP-UP HIGH QUALITY BRAND.
 - CIRCUIT BREAKER MUST BE 10, 20, & 25KVC FROM BRANCHES, SUB-FEEDERS & MAIN. ALL CIRCUIT BREAKERS MUST BE MOLDED CASE, BOLT-ON TYPE, AND INDUSTRIAL TYPE.
 - LIGHT CONTROL SWITCHES SHALL BE RATED 15AMP, 300WATTS AND SHALL NOT CARRY A LOAD GREATER THAN 50AMPS.
 - ONLY HIGH POWER FACTOR BALLAST PREHEAT TYPE SHALL BE USED FOR FLUORESCENT LIGHTING FIXTURES.
 - ALL ELECTRICAL WIRING INSTALLATION SHALL BE DONE IN LOCATION AS FOLLOWS: (a) RIGID METALLIC CONDUIT (RMC) TO BE USED, IN SERVICE ENTRANCE AND FEEDERS, (b) ELECTRICAL METALLIC TUBING (EMT) TO BE USED ABOVE CEILING AND BETWEEN DOUBLE WALL PARTITION MADE OF COMBUSTIBLE MATERIALS (c) UNPLASTICIZED POLYVINYL CHLORINE CONDUIT (UPVC) TO BE USED IF EMBEDDED IN CONCRETE OR UNDERGROUND.
 - ALL WIRES SHALL BE COPPER AND THERMOPLASTIC INSULATED TYPE "THW" UNLESS OTHERWISE INDICATED. THE MINIMUM SIZE OF WIRE AND CONDUIT TO BE USED SHALL BE 3.5mm THW AND 15mm NOMINAL DIAMETER RESPECTIVELY.
 - ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF PEC PART V, LATEST EDITION.
 - ANY DISCREPANCY IN THE LOCATION AND RATINGS OF EQUIPMENTS AND APPARATUS SHALL BE VERIFIED WITH THE OWNER OR ANY OF HIS REPRESENTATIVES AND CHANGES SHALL BE MADE ACCORDINGLY.
 - ALL PIPE SLEEVES SHALL BE PROVIDE WITH PROPER SUPPORT OR ANCHORAGE NECESSARY FOR PERMANENT CONNECTION TO CONCRETE WALLING OR BEAM.
 - WHEREVER REQUIRED AND NECESSARY, PULL BOXES OR JUNCTION BOXES OF PROPER SIZES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATIONS, ALTHOUGH SUCH BOXES ARE NOT SHOWN AND MENTIONED IN THE PLANS OR IN THE SPECIFICATIONS.
 - ALL FEEDERS LOCATED OUTSIDE THE BUILDING SHALL BE ENCASED IN ALL AROUND CONCRETE WATER PROOF ENVELOP, AND SHALL BE BURIED WITH NOT LESS THAN 600MM BELOW THE GROUND SURFACE.
 - STANDARD TYPE OF ACCESSORIES, SPlicing DEVICES, TERMINATIONS, AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATIONS SHALL BE USED.
 - MOUNTING HEIGHT OF PANEL AND DEVICES WERE AS FOLLOWS: (FROM THE FLOOR FINISH TO CENTER OF UNIT)
A. WALL SWITCHES 1400mm
B. WALL CONVENIENCE OUTLETS 300mm
C. KWH METER 1450mm
D. PANEL BOARD 1800mm (FROM THE CEILING FINISH TO CENTER OF UNIT)
E. RECHARGEABLE LIGHT OUTLETS 300mm
 - THE CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE WORK AND FURNISH THE OWNER THROUGH THE ENGINEERING FINAL CERTIFICATE OF ELECTRICAL INSPECTION AND APPROVAL FROM PROPER GOVERNMENT AUTHORITIES FOR COMPLETE WORK.
 - THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATIONS OF SERVICE ENTRANCE FOR CONNECTIONS TO POWER SERVICE POINT.
 - THE CONTRACTOR MUST SUBMIT "AS-BUILT" DRAWING PLANS, SIGNED & SEALED BY A PROFESSIONAL ELECTRICAL ENGINEER & SUPERVISION IN-CHARGE OF INSTALLATION SIGNED BY A PROFESSIONAL / REGISTERED ELECTRICAL ENGINEER OR REGISTERED MASTER ELECTRICIAN.
 - ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE STRICT & IMMEDIATE SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI SOV. DAVAO COR. B. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF MULTI-PURPOSE BUILDING (ADMINISTRATIVE BUILDING), CAMP ALANO, TORIL, DAVAO CITY	SHEET CONTENTS: SINGLE LINE DIAGRAM TYPICAL PANELBOARD WITH GROUNDING DETAILS MAIN DISCONNECTION MEANS DETAILS FLOURESCENT LIGHT MOUNTING DETAILS WIRING TERMINATION & BOX CONNECTION DETAILS DOWNLIGHT INSTALLATION DETAILS HIGH BAY LAMPS INSTALLATION DETAILS VICINITY MAP NOTES & SPECIFICATION	PREPARED: JOHN PHILIP S. ORIGENES ENGINEER DATE: _____	REVIEWED: ALGIN A. GINGRAN ENGINEER II, SECTION CHIEF DATE: _____	SUBMITTED: JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: _____	RECOMMENDED: JOSEPH B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: _____	APPROVED: JUDY B. GORDON REGIONAL DIRECTOR DATE: _____	SHEET NO. 31 E 44
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