

THIS DRAWING IS A COPYRIGHT. DO NOT SCALE FROM THE DRAWING. THE CONTRACTOR AND HIS SUB-CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING MANUFACTURE.

United Nation Development Programme
UNDP Lebanon
Social and Local Development Programme
P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491

Supporting Haat Communities

Lebanese Host Communities Support Programme

Drawing Title

ELECTRICAL

MASS FLOOR AC LAYOUT BLOCK-A- oject
WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER
PLOT # 442

Approved By:

<.B

Date: July-2016

Scale: 1/100

Sheet Size: A1

Checked By: Drawn By:

V.B H.R

Date: July-2016

Date: July-2016

Client Code.

Drawing No. L1003D-M-A-102
Approvals



Checked By: Approved By: Client Code. Scale: 1/100 Drawing No. L1003D-M-A-101 Sheet Size: A1 V.B H.R <.B Date: July-2016

Date: July-2016 Date: July-2016

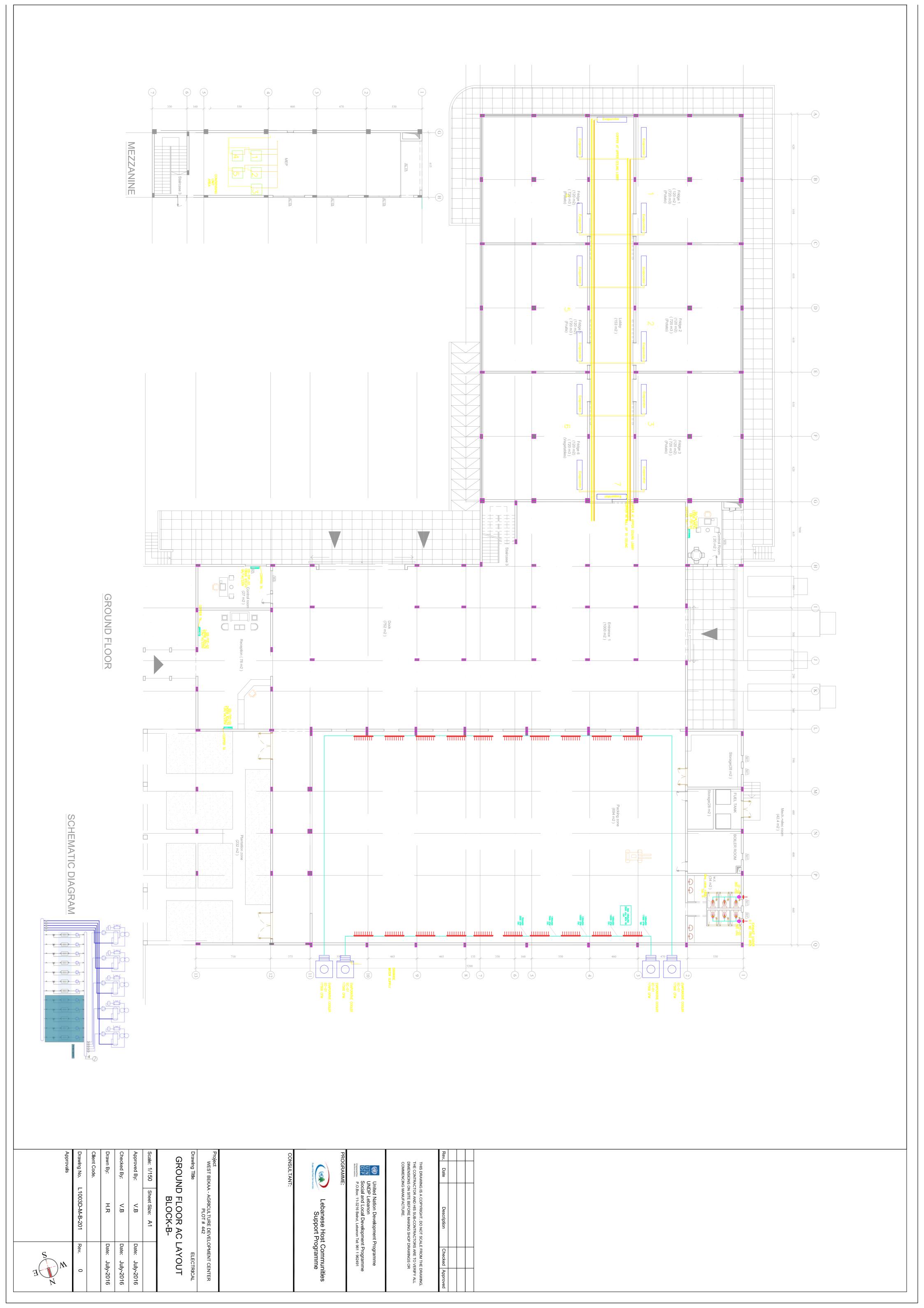
GROUND FLOOR AC LAYOUT BLOCK-A-

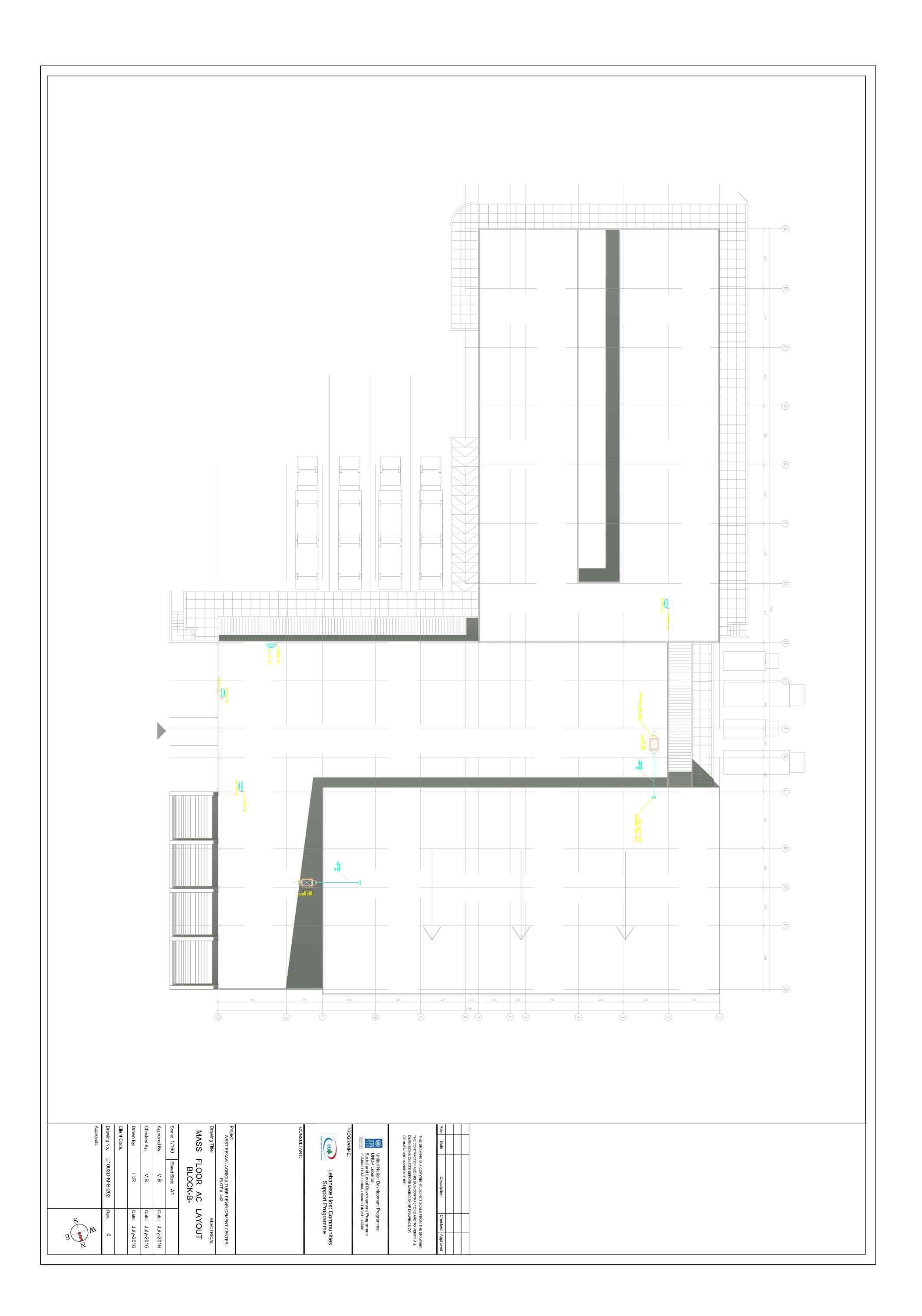
oject
WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER
PLOT # 442 ELECTRICAL

Lebanese Host Communities Support Programme

Supporting Haat Communities

United Nation Development Programme UNDP Lebanon Social and Local Development Programme P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491





	_			``.	0,
	L1003D-M-GE-003	H.R	V.B	V.B	Sheet Size: A1
S_	Rev.	Date:	Date:	Date:	
M	0	July-2016	July-2016	July-2016	

GROUND FLOOR PLAN BLOCK-A-	Drawing Title ELECTRICAL	Project WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER PLOT # 442	

Approved By: Scale: NTS Client Code.
Drawing No.
Approvals awn By:

HOT WATER STORAGE TANK HEATER SCHEDULE

HEATER No. HWST 1

SERVICE DHW AND HW QUANTITY

STORAGE (LIT EACH)

ENTERING WATER
TEMP (°C)

LEAVING WATER
TEMP (°C)

TYPE OF HEATING
MEDIA REMARKS VERTICAL WITH LCP INTERNAL GLASS LINING AND 1.1 KW ELECTRIC HEATER 2 75 4.5°C 60°C ELECTRIC 200
4.5°C
60 °C
ELECTRIC
VERTICAL WITH LCP,
INTERNAL GLASS LINING
AND 4 KW ELECTRIC HEATER HWST 2

PUMP TYPE

* MAX. WATER PRESSURE (mWG)

WATER FLOW PER PUMP (LPS)

NUMBER OF PUMPS

FLUID TEMPERATURE (C)

PUMP CONSTRUCTION

VERTICAL MULTI-STAGE

END SUCTION

50

2.08

IMPELLER MATERIAL

STAINLESS STEEL

AIR COOLED

2950

STAINLESS STEEL

DIRECT

MOTOR COOLING METHOD

PUMP BODY MATERIAL

COUPLING

SCHEDULE OF BOOSTER & TRANSFER PUMP SETS

UNIT NO.

SERVING

COLD WATER

CWP-1,2

BASEMENT

WATER

22

2

FLUID TYPE

SPLIT UNIT

Power supply

Rated Load current

Amps Amps

10

5.9

208-230/1/60

Nominal Capacity cooling heating

Indoor Outdoor Btu/h Btu/h

EB-TYP-01 12000 12000

EB-TYP-02 18000 18000

EB-TYP-03 24000 25000

HEAD TO BE VERIFIED UPON FINAL SELECTION OF EQUIPMENT

THIS DRAWING IS A COPYRIGHT. DO NOT SCALE FROM THE DRAWING. THE CONTRACTOR AND HIS SUB-CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING MANUFACTURE.

United Nation Development Programme UNDP Lebanon Social and Local Development Programme P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491

Lebanese Host Communities Support Programme

REMARKS

VARIABLE SPEED

QUANTITY

MODE OF OPERATION

BASE TYPE

PESSPIRE JANK NOSUME

ACCESSORIES

CONTROL PANEL

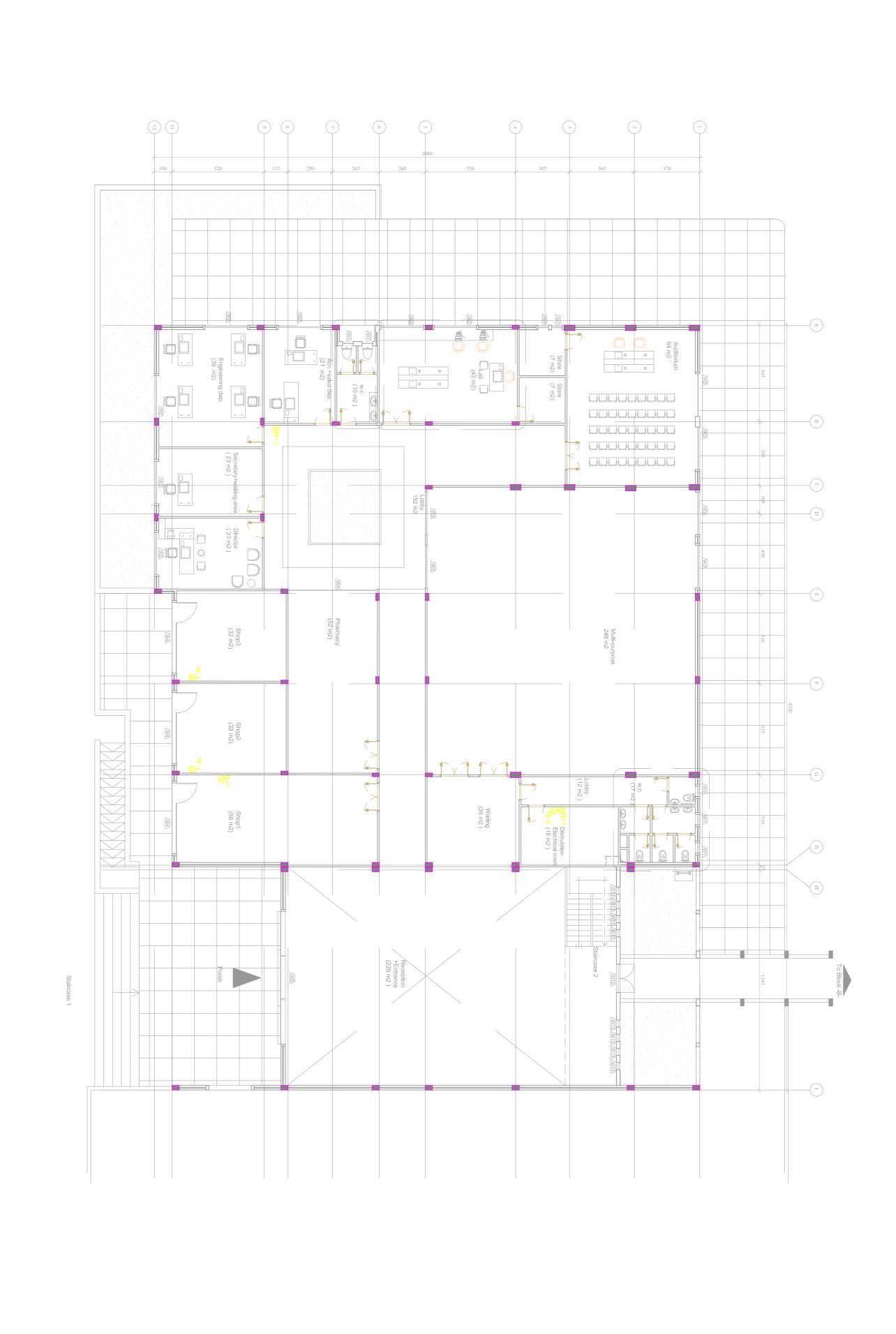
1X750 LITERS

CONCRETE

1 BACK-UP

MAX. MOTOR RPM

Starting Current		Amps	18	27	40
Air flow		CFM	315	450	630
Sound level		db(A)	40	43	51
Compressor		Туре		Rotary	
Refrigerant		Туре		R-22	
Piping connection	Liquid	Inch	1/4	1/4	3/8
	Suction	Inch	1/2	1/2	5/8
Dimension(W*H*D)	ndoor	MM	800*290*196	860*292*205	1080*330*220
+	Outdoor	3	700*540*255	770*520*280	910*690*370
Weight (Net)	Indoor	lbs	22	26	33
	Outdoor	lbs	66	88	132
			SCHEDITE OF STRMERSBIE DIMPS		_



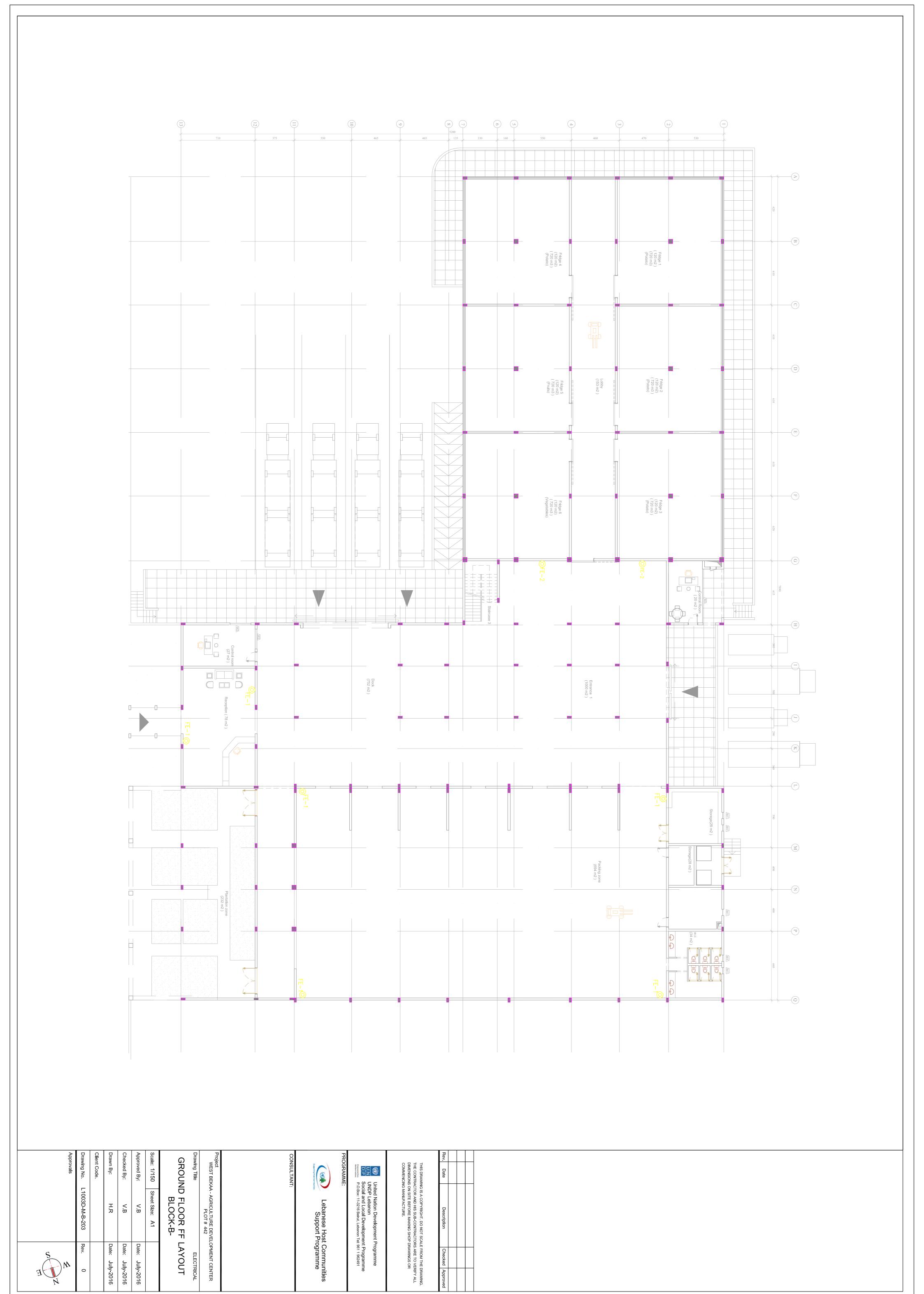
	FEO! # 442		
Drawing Title		E	ELECTRICAL
GROUN	GROUND FLOOR FF LAYOUT BLOCK-A-	LAY	TUO
Scale: 1/100	Sheet Size: A1		
Approved By:	V.B	Date:	July-2016
Checked By:	V.B	Date:	July-2016
Drawn By:	H.R	Date:	July-2016
Client Code.			
Drawing No.	L1003D-M-A-103	Rev.	0
Approvals		S	MILE

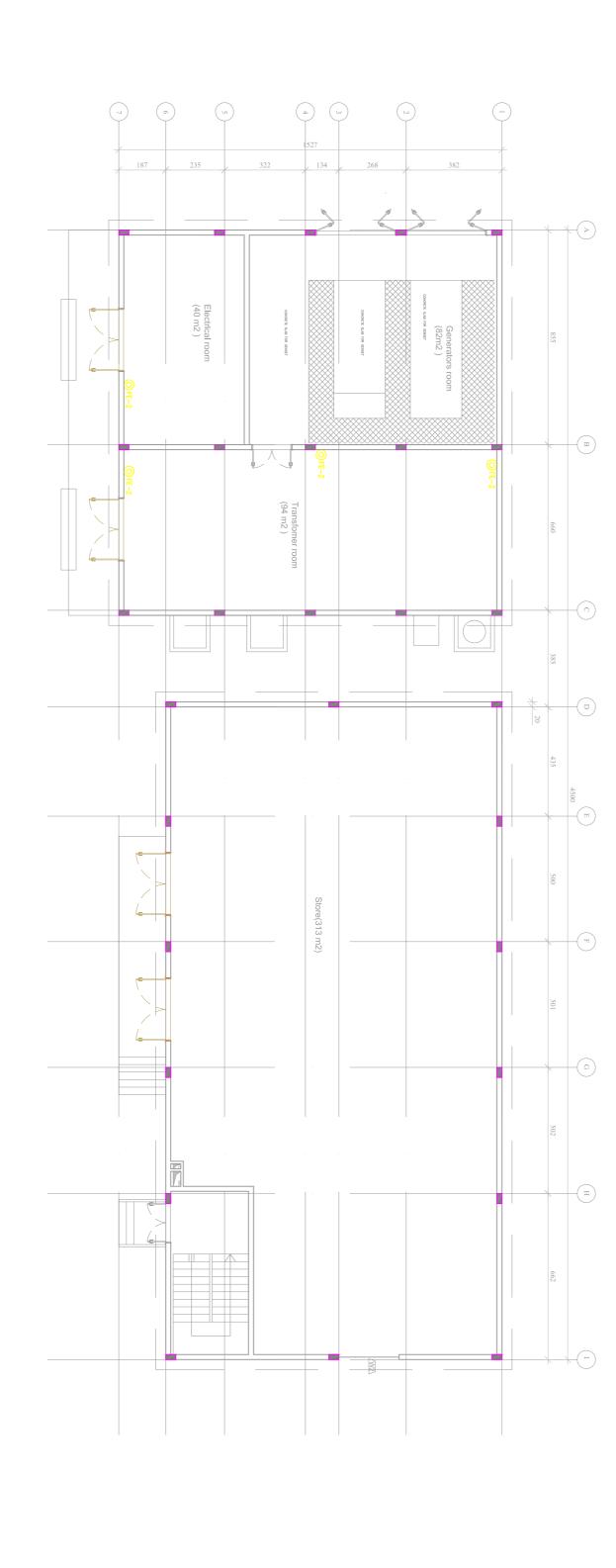
ICULTURE DEVELOPMENT CENTER PLOT # 442

Lebanese Host Communities Support Programme

Supporting Haat Communities

United Nation Development Programme UNDP Lebanon Social and Local Development Programme P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491





THIS DRAWING IS A COPYRIGHT. DO NOT SCALE FROM THE DRAWING. THE CONTRACTOR AND HIS SUB-CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING MANUFACTURE.

United Nation Development Programme UNDP Lebanon Social and Local Development Programme P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491

Supporting Haat Communities

Lebanese Host Communities Support Programme

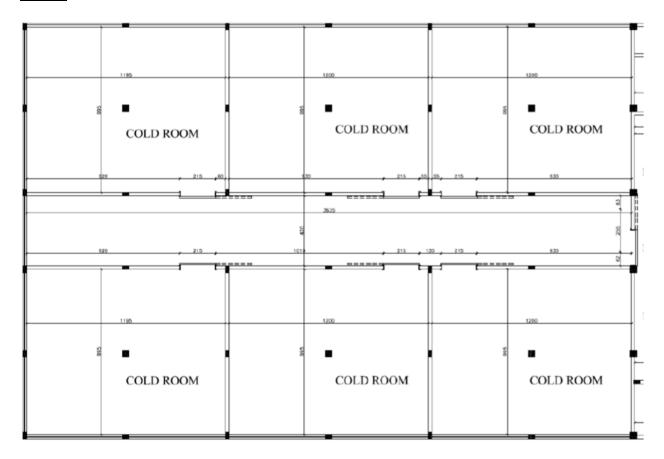
Checked By: Drawn By: Approved By: Scale: 1/100 Client Code. Drawing No. L1003D-M-C-301 Sheet Size: A1 V.B H.R < .B Date: July-2016
Date: July-2016 Date: July-2016

Drawing Title oject
WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER
PLOT # 442 ELECTRICAL

GROUND FLOOR FF LAYOUT BLOCK-C-

Cold storage procurement specs

The cold storage rooms are already isolated with double layer of 5 cm each of polystyrene layers. The dimensions of the six rooms and the access strip are as the following sketch with a <u>ceiling height of six</u> meters.

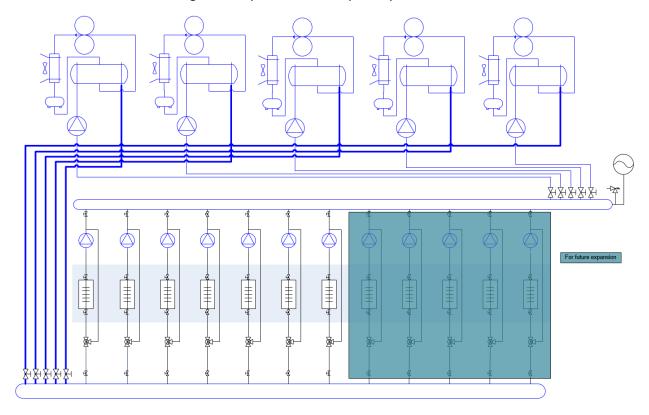


Technical Specifications

A. General system philosophy

The cold store is formed of 6 Cold rooms with 720 m³ each and a 600 m³ SAS (Service Access Strip/Corridor). Cooling should be supplied through one central refrigeration system based on a primary and a secondary refrigeration system. The first one is to be composed of multiple totally independent compressors, evaporators and condensers using R404a (Primary refrigerant). The secondary refrigeration system is also subdivided into two circulation circuits, primary and secondary. The primary circulation circuit is to handle the refrigeration of the coolant (Secondary refrigerant) and deliver it to a common pipe

where the secondary circuit delivers the refrigerated coolant to each room separately. Each compressor is to have its own R404a Refrigeration cycle and its own primary coolant circulation circuit.



B. Performance and capacity

The Refrigeration system should be able to bring down room temperatures into the range -2°C/10°C and bring humidity up to 95 %. The SAS should have a temperature of 5°C. The delivered capacity to the cold rooms and SAS should not be less than 60 and 45 watts/m³ respectively. A diversity factor down to 0.8 of the total calculated capacity is acceptable.

C. Compressors

The refrigeration system should include five compressors with 25% of the total capacity each. The compressors should be totally independent one from each other. Each Refrigeration circuit is to have its own oil separator, liquid receiver and suction accumulator as main components all mounted on a common chassis. Protection wise, a filter dryer, sight glass, High and low pressure switches, oil pressure differential, discharge temperature sensor, motor PTC for overload protection and all necessary controls generating from good engineering practice.

D. Evaporator

A gas to liquid heat exchanger is to be used as evaporator, plate heat exchanger or shell and tube. The leaving coolant temperature is to be at minimum -8°C. The evaporator should be protected against freezing (anti-freeze thermostat to be used) and any other possibility of flow obstruction. A monitoring of the supply and return temperatures and isolation valves should be available. The evaporator should be properly insulated.

E. Condenser

An air to air heat exchanger is to be used as condenser. A maximum of 10°C condenser split is allowable. The minimum fin spacing is to be 2.5 mm. Condenser's fans should have a thermal overload protection.

F. Cooler

The air cooler is to have two fans at least and electrical defrost. Cooler's fans should have a thermal overload protection. The minimum allowable air flow rate is 55,000 m³/h for cold rooms and 20,000 m³/h for SAS. The cooler should have isolation valves on both its inlet and outlet.

Location	Cold Room
Capacity	44 kw
Room Temperature	0°C
Fluid temperature in/out	-8°C/-4°C
Minimum Fin Spacing	7 mm
Minimum air Throw	50 m

Location	Service access strip / corridor
Capacity	30 kw
Room Temperature	5°C
DTM (Room temperature difference)	6 K
Fluid temperature in/out	-4°C/-0°C
Minimum Fin Spacing	6 mm
Minimum air Throw	50 m

G. Primary circulation Circuit

Each Circuit is to have its own independent circulation pump and controls. The circuit is to include check valves, regulating valves, isolation valves, strainers and air release valves. An expansion tank is to be mounted on the common pipe joining all the circuits. The whole circuit is to be insulated properly. The pump should have thermal overload protection.

H. Secondary circulation circuit

Each circuit is to have its own end suction pump, this circuit is to be controlled simultaneously with the cooler in an independent room temperature and humidity control. The circuit is to include check valves, regulating valves, isolation valves, strainers and air release valves. The whole circuit is to be insulated properly. The pump should have thermal overload protection.

The secondary end suction pumps should be manufactured either in EU or USA.

I. Doors

There are 7 doors (2.15mx2.2m) to be supplied. These doors are to be composed off:

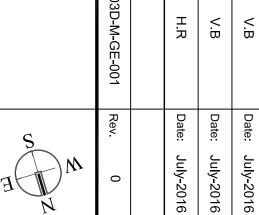
- Door leaf: Injected polyurethane foam (42kg/m3), with nontoxic painted steel sheet cladding.
- Ergonomic handle with key-lock and safety release button from inside.

Summary Table

A-Load		
Rooms	6	
Capacity/room	44	kw
Capacity/SAS	30	kw
total	294	kw
diversity Factor	0.8	
Total needed capacity	235	kw
Refrigerant	R404a	
B-Temperature		
Rooms	0	С
Access strip / Corridor	5	С
C-Compressors		
Quantity	5	
Swallowing Capacity	126	m3/h
Oil separator		
Suction accumulator		
High and low pressure Protection		
Overload Protection		
Discharge temperature Protection		
Oil pressure Protection		
D-Evaporator		
Air to liquid Heat exchanger		
Secondary coolant temperature	-8	С
Antifreeze Protection		
Isolation valves		
E-Condenser		
Condenser swing	10	С
Fin spacing as a minimum	2.5	mm

F-Cooler		
F1. Cold room		
Room Temperature	0	С
Fin spacing as a minimum	7	mm
Capacity	44	kW
Airflow rate	55000	m3/hr
Fan Overload Protection		
Humidity control		
Air Throw	50	m
F2. Access strip / Corridor		
Room Temperature	5	С
Fin spacing as a minimum	6	mm
Capacity	41	kW
Airflow rate	20000	m3/hr
G-Primary Circuit		
Circulating pump		
Check valve		
isolation valves		
Pump Overload protection		
Insulated Pipe works		
Temperature monitoring		
H-Secondary circuit		
Independent pump		
check valve		
Isolation valves		
Pump Overload protection		
Insulated Pipe works		
Temperature monitoring		
J. Doors		
Doors (2.15mx2.2m)	7	
Door leaf: Injected polyurethane		
foam (42kg/m3), with nontoxic		
painted steel sheet cladding.		
Ergonomic handle with key-lock and		
safety release button from inside.		

K-General	
nontoxic secondary refrigerant	
anti-corrosion	
anti-microbial	
Electrical supply phase relay	
Independent room control	



Scale: NTS	Sheet Size: A1		
Approved By:	V.B	Date:	Date: July-2016
Checked By:	V.B	Date:	Date: July-2016
Drawn By:	H.R	Date:	Date: July-2016
Client Code.			

TYPICAL DETAILS 1

WEST BEKAA - AGF ICULTURE DEVELOPMENT CENTER PLOT# 442

Lebanese Host Communities Support Programme

United Nation Development Programme
UNDP Lebanon
Social and Local Development Programme
P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491

Description		
Checked		
Checked Approved		

Ĕ 8- WATER PIPES RUNNING IN PARKING ARE MADE OF SEAMLESS GALVANIZED STEEL MEDIUM DUTY TO BS1387.
9- DRAINAGE AND VENT PIPES ARE MADE OF UPVC PIPES.
10-ALL DOMESTIC COLD&HOT PIPES,AND HEATING PIPES SHALL BE INSULATED. 5- PLUMBING FIXTURE SERVICES SHALL BE
IN ACCORDANCE WITH THE TABLE SHOWN
UNLESS OTHERWISE NOTED.

6- ALL DIMENSIONS ARE IN MM
UNLESS OTHERWISE NOTED.

7- COLD WATER,HOT WATER AND HEATING WATER PIPES
RUNNING IN VILLAS ARE MADE OF POLYPROPELENE
WITH REINFORCED ALUMINIUM RING.

TOR SHALL EXECUTE

SS ARE TO BE READ WITH
VALL, STRUCTURAL, ELECTRICAL,
DRAWINGS FOR COORDINATION
I OF REQUIRED SPACES
CITERMINATION OF ANY CONTRADICTION
DIFFERENT TRADES. SHALL NOT BE USED DRAWINGS ARE SCHEMATIC

 JVER	OUVER	iπ	STER				S		MBOLS_	
APPROVED SHO	3- THE CONTRACT	FOR SCALING.		AMONG THE DEFE	VERIFICATION O	AND OTHER DR	ARCHITECTURAL	1- ALL DRAWINGS		

	SUPPLY GRILLE
UNLESS OTH	SUPPLY REGISTER
	RETURN GRILLE
APPROVED S	RESH AIR LOUVER
3- THE CONTRAC	XHAUST AIR LOUVER

SUPPLY GRILLE	s G	
SUPPLY REGISTER	S Z	
RETURN GRILLE	R G	
FRESH AIR LOUVER	FAL	
EXHAUST AIR LOUVER	ΕΑL	
EXHAUST GRILLE	E G	
EXHAUST REGISTER	m Z	
DOOR GRILL	D G	
DOOR LOUVER	DL	

	DIATOR	
_	DIATOR TYPE —	
RADIATO	_ —8	S RAL
RADIATOR HEIGHT cm		RADIATOR
T cm	NOW	NOW
	BER O	BER 0
	- NUMBER OF COLUMNS	- NUMBER OF SECTIONS
	N N N N	SNO

20 CW 20 20 20 20	ANITARY HW 20 20 20	CW	VENT 50 32 32 32
CW	– MH	SOIL OR WASTE	VENT
20	20	50	32
20	20	50	32
20	20	50	32
20	20	50	32
20	20	50	32
20	-	50	32
20	20	50	32
ı	_	75	ı

ABBREVIATION

DESIGNATION

GENERAL NOTES

AAV AV AV BO FEO BE FEO

FLOWER BED DRAIN	BALCONY DRAIN	ROOF DRAIN	FLOOR DRAIN	FLOOR CLEANOUT	CLEANOUT ON PIPE	ROOF VENT CAP OR COWL (PLAN)	AUTOMATIC AIR VENT	IRRIGATION NOZZLE	VALVE IN RISER	SUNDRIES	DESIGNATION	
	FD	SS	Z	KS	ВТ	HS	BI	LAV	EWC(FT)	FIXTURE	SCHED	
	1	20	20	20	20	20	20	20	20	СМ	SCHEDULE OF SANITARY FIXT	
	-	20	ı	20	20	20	20	20	ı	НМ	ANITARY	
									_	SO!	FIXT	

DESIGNATION

SYMBOL

DESIGNATION V A L V E S CHECK VALVE FLOAT VALVE GATE VALVE GLOBE VALVE DOUBLE REGULATING VALVE MOTOR OPERATED THREE-WAY VALVE VALVE BOX I N S T R U M E N T S THERMOMETER E Q U I P M E N T PUMP						Z	SYMBOL
	PUMP M M	THERMOSTAT	MOTOR OPERATED THREE-WAY VALVE VALVE BOX	GLOBE VALVE DOUBLE REGULATING VALVE	FLOAT VALVE GATE VALVE	V A L V E S	DESIGNATION

C	TEMP	Pa	C	C 6	N I S		± r	η ζ	O Z	B F S		E T	ס	יד	_
DEGREE CELCIUS	TEMPERATURE	PASCAL	UP	UNDERGROUND	NOT TO SCALE	LOW LEVEL	HIGH LEVEL	FROM	DOWN	BELOW FLOOR SLAB	MISCELLANEOUS	EXPANSION TANK	PUMP	FAN	AIR-CONDITIONING SYMBOLS

CLEANOUT
COLD WATER
FIRE FIGHTING WATER
FLOOR CLEANOUT
FIRE EXTINGUISHER
FLUSH TANK
IRRIGATION NOZZLE
DOMESTIC HOT WATER
DOMESTIC HOT WATER RETURN
IN WALL

ABBREVIATION	DESIGNATION	—
	PLUMBING SYMBOLS	\neg
*	WASTE	
WS	WASTE STACK	
EWH	ELECTRIC WATER HEATER	
HWST	HOT WATER STORAGE TANK	
WHA	WATER HAMMER ARRESTOR	
	PLUMBING FIXTURES	
WT	WATER TAP	
EWC	EUROPEAN WATER CLOSET	
B	BIDET	
KS	KITCHEN SINK	
LAV	LAVATORY	
MS	MOP SINK	
σ	SINK	
вт	ВАТНТИВ	
HS	SHOWER	
DF	DRINKING FOUNTAIN	
Z	IRRIGATION NOZZLE	
L P S	LITERS PER SECOND	
ℤ	REVOLUTION PER MINUTE	
P	FILL LINE	

UNDER COUNTER
INVERT LEVEL
MANHOLE

RAIN WATER
SOIL OR SINK
SOIL STACK
STACK VENT
VENT STACK
VENT

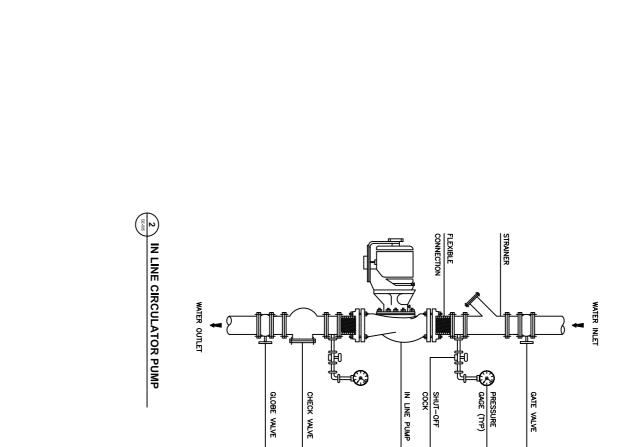
ABBREVIATION

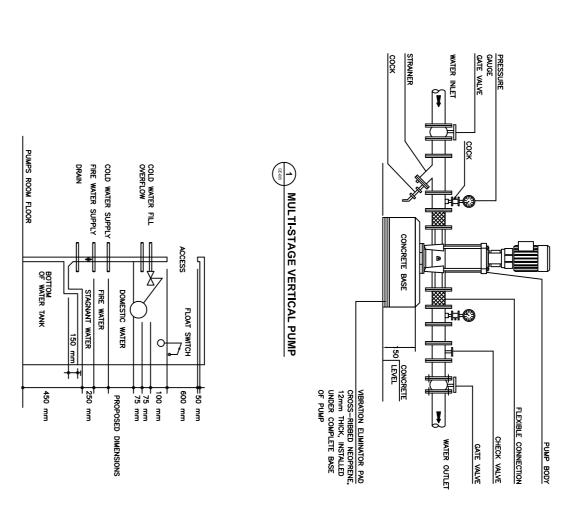
DESIGNATION

PLUMBING SYMBOLS

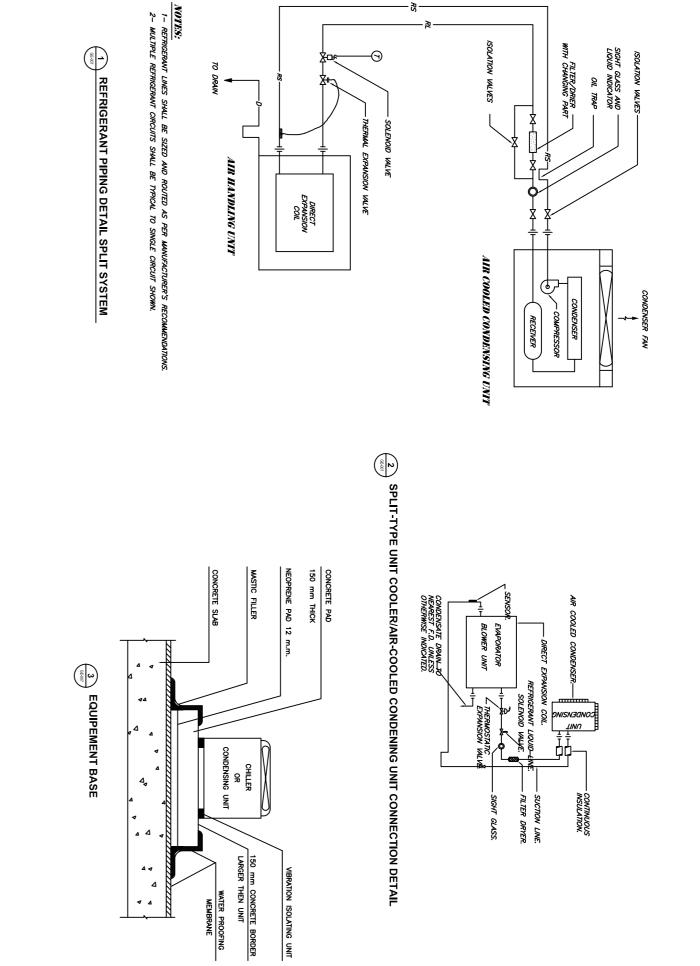
DESIGNATION
DUCTWORK
1ST FIGURE INDICATES DUCT WIDTH AND SECOND FIGURE INDICATES DUCT DEPTH.
ELBOW UP
RETURN OR EXHAUST DUCT— IN SECTION
SUPPLY DUCT-IN SECTION
SQUARE OR RECTANGULAR CEILING DIFFUSER 4—WAY BLOW
RETURN OR EXHAUST GRILLE
DOOR GRILLE OR LOUVER

DESIGNATION	SYMBOL	DESIGNATION
/ES		PIPING
VALVE		ELBOW UP
ALVE		ELBOW DOWN
ILVE	\ \ 	TEE UP
VALVE	•	TEE DOWN
REGULATING VALVE	6 -	BRANCH OUT OF BOTTOM
OPERATED THREE-WAY VALVE	-	BRANCH OUT OF TOP
вох	+	POINT OF CONNECTION IN PIPES
M E Z T S		RAIN WATER
STAT		VENT
METER		COLD WATER
M E Z		SOIL OR WASTE
		DOMESTIC HOT WATER SUPPLY
		DOMESTIC HOT WATER RETURN
		POTABLE WATER
	TS —	TANK SUPPLY

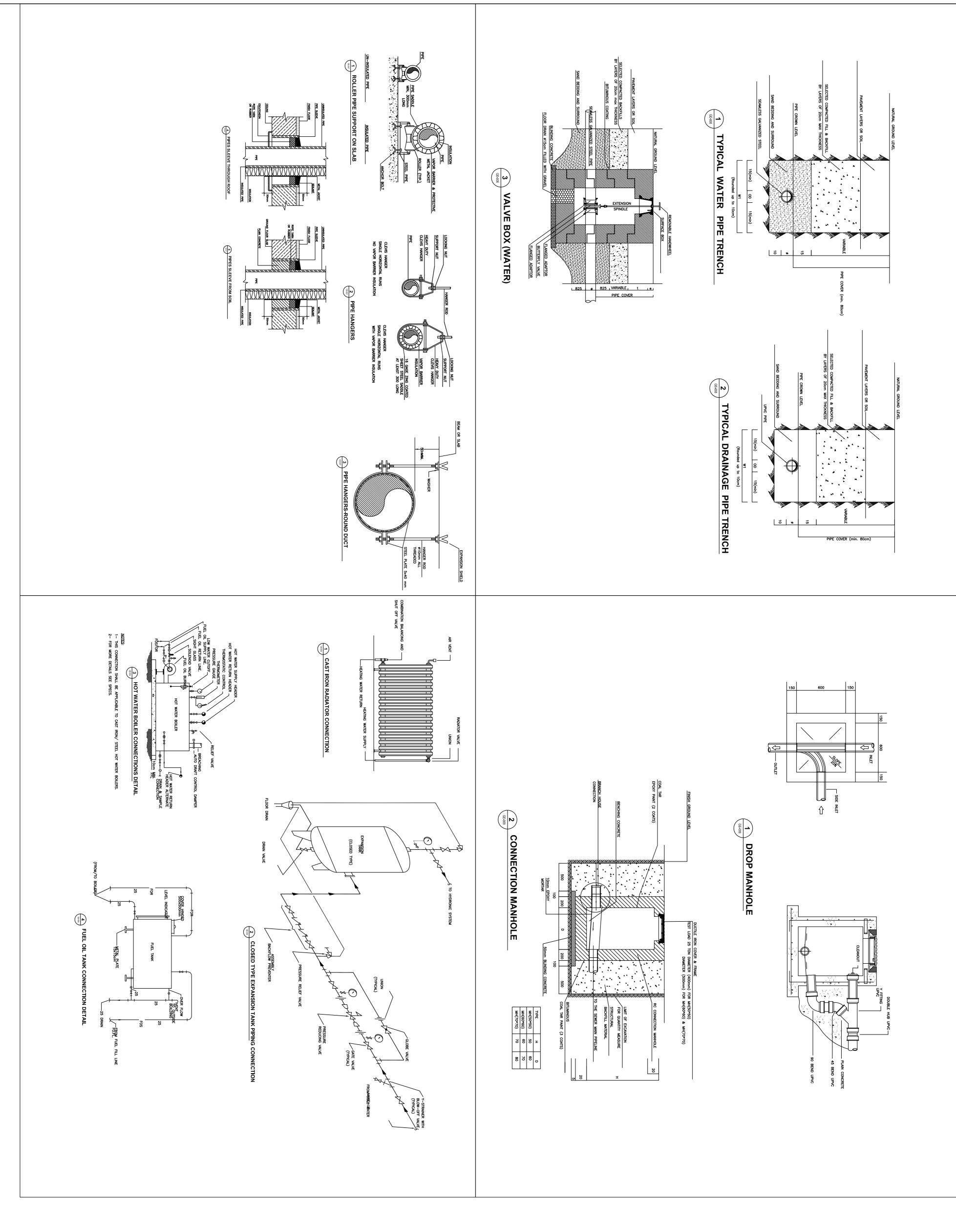


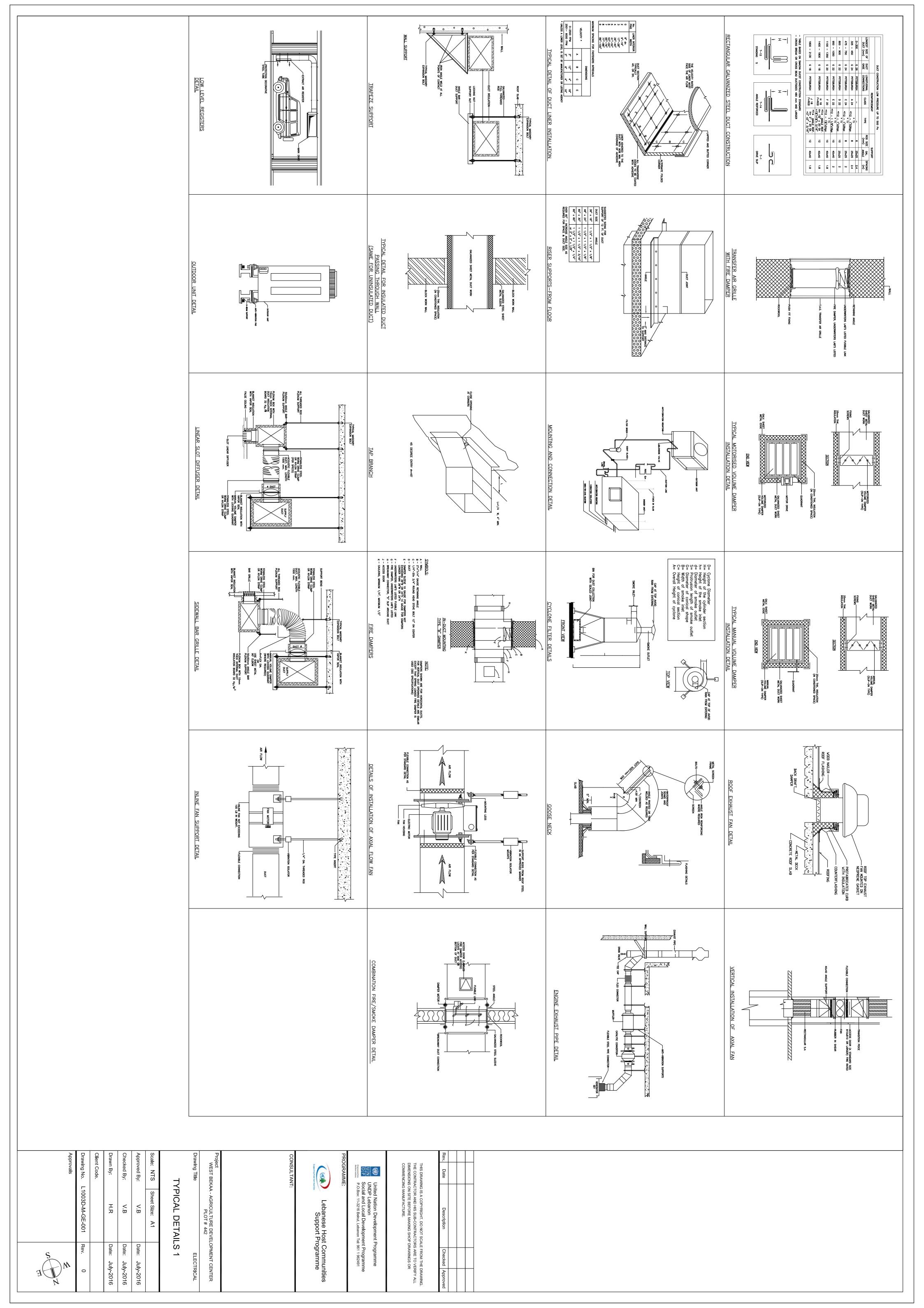


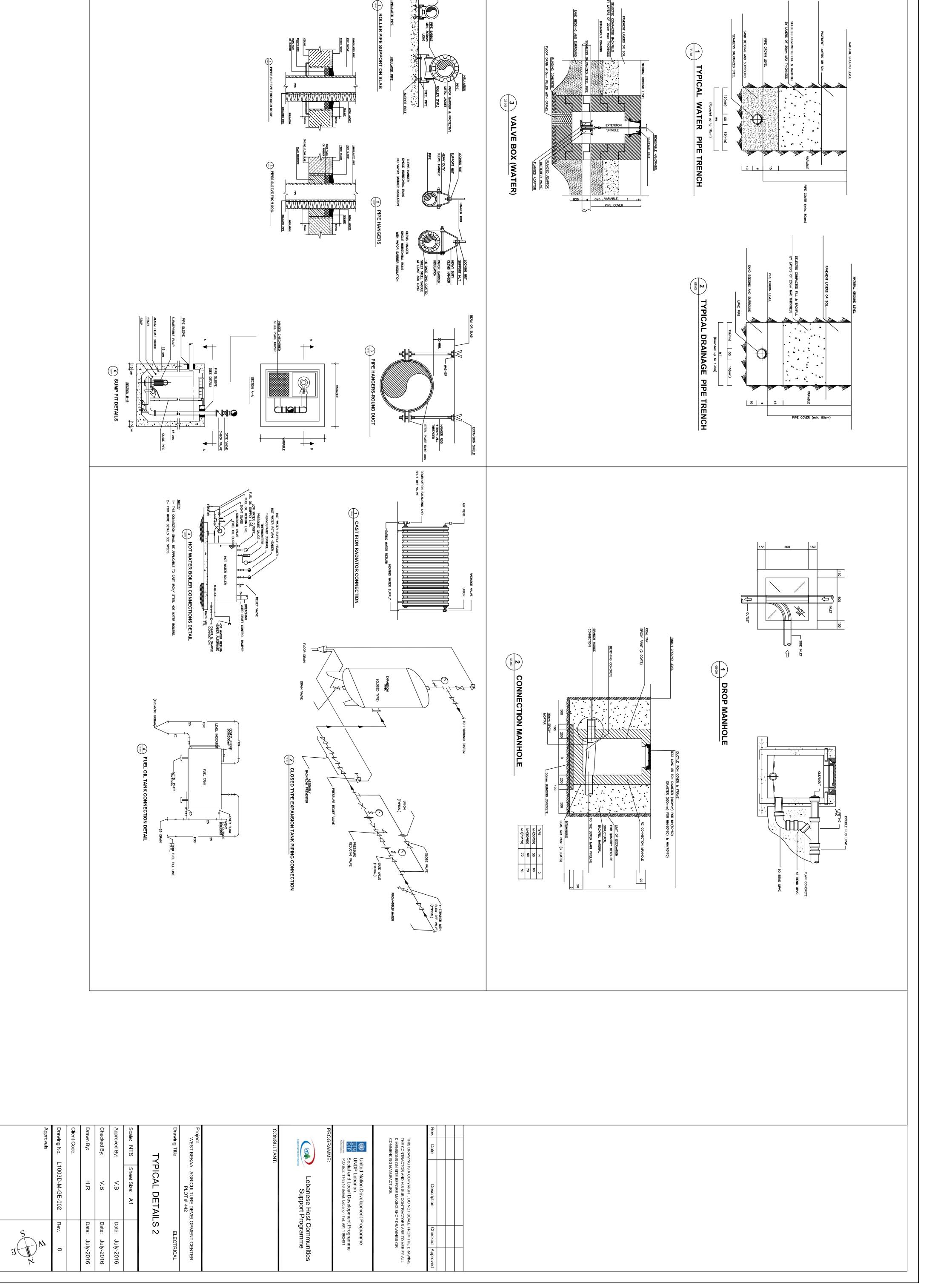
3 TYPICAL WATER TANK DETAILS

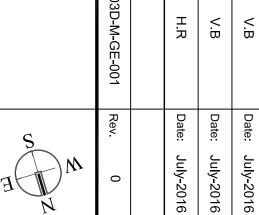


COST BORN ROCKCON CONNECTION THE ROCK OF THE PARTY OF TH	DROP MANHOLE CONNECTION MANHOLE
The Dealer Local Programme The Common Control of the Programme of Control of the Control of Control of the Control of the Control of the Control of Control o	









Scale: NTS	Sheet Size: A1		
Approved By:	V.B	Date:	Date: July-2016
Checked By:	V.B	Date:	Date: July-2016
Drawn By:	H.R	Date:	Date: July-2016
Client Code.			

TYPICAL DETAILS 1

WEST BEKAA - AGF ICULTURE DEVELOPMENT CENTER PLOT# 442

Lebanese Host Communities Support Programme

United Nation Development Programme
UNDP Lebanon
Social and Local Development Programme
P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491

Description		
Checked		
Checked Approved		

Ĕ 8- WATER PIPES RUNNING IN PARKING ARE MADE OF SEAMLESS GALVANIZED STEEL MEDIUM DUTY TO BS1387.
9- DRAINAGE AND VENT PIPES ARE MADE OF UPVC PIPES.
10-ALL DOMESTIC COLD&HOT PIPES,AND HEATING PIPES SHALL BE INSULATED. 5- PLUMBING FIXTURE SERVICES SHALL BE
IN ACCORDANCE WITH THE TABLE SHOWN
UNLESS OTHERWISE NOTED.

6- ALL DIMENSIONS ARE IN MM
UNLESS OTHERWISE NOTED.

7- COLD WATER,HOT WATER AND HEATING WATER PIPES
RUNNING IN VILLAS ARE MADE OF POLYPROPELENE
WITH REINFORCED ALUMINIUM RING.

TOR SHALL EXECUTE

SS ARE TO BE READ WITH
VALL, STRUCTURAL, ELECTRICAL,
DRAWINGS FOR COORDINATION
I OF REQUIRED SPACES
CITERMINATION OF ANY CONTRADICTION
DIFFERENT TRADES. SHALL NOT BE USED DRAWINGS ARE SCHEMATIC

 JVER	OUVER	iπ	STER				S		MBOLS_	
APPROVED SHO	3- THE CONTRACT	FOR SCALING.		AMONG THE DEFE	VERIFICATION O	AND OTHER DR	ARCHITECTURAL	1- ALL DRAWINGS		

	SUPPLY GRILLE
UNLESS OTH	SUPPLY REGISTER
	RETURN GRILLE
APPROVED S	RESH AIR LOUVER
3- THE CONTRAC	XHAUST AIR LOUVER

SUPPLY GRILLE	s G	
SUPPLY REGISTER	S Z	
RETURN GRILLE	R G	
FRESH AIR LOUVER	FAL	
EXHAUST AIR LOUVER	ΕΑL	
EXHAUST GRILLE	E G	
EXHAUST REGISTER	m Z	
DOOR GRILL	D G	
DOOR LOUVER	DL	

	DIATOR	
_	DIATOR TYPE —	
RADIATO	_ —8	S RAL
RADIATOR HEIGHT cm		RADIATOR
T cm	NOW	NOW
	BER O	BER 0
	- NUMBER OF COLUMNS	- NUMBER OF SECTIONS
	N N N N	SNO

20 CW 20 20 20 20	ANITARY HW 20 20 20	CW	VENT 50 32 32 32
CW	– MH	SOIL OR WASTE	VENT
20	20	50	32
20	20	50	32
20	20	50	32
20	20	50	32
20	20	50	32
20	-	50	32
20	20	50	32
ı	_	75	ı

ABBREVIATION

DESIGNATION

GENERAL NOTES

AAV AV AV BO FEO BE FEO

FLOWER BED DRAIN	BALCONY DRAIN	ROOF DRAIN	FLOOR DRAIN	FLOOR CLEANOUT	CLEANOUT ON PIPE	ROOF VENT CAP OR COWL (PLAN)	AUTOMATIC AIR VENT	IRRIGATION NOZZLE	VALVE IN RISER	SUNDRIES	DESIGNATION	
	FD	SS	Z	KS	ВТ	HS	BI	LAV	EWC(FT)	FIXTURE	SCHED	
	1	20	20	20	20	20	20	20	20	СМ	SCHEDULE OF SANITARY FIXT	
	-	20	ı	20	20	20	20	20	ı	НМ	ANITARY	
									_	SO!	FIXT	

DESIGNATION

SYMBOL

DESIGNATION V A L V E S CHECK VALVE FLOAT VALVE GATE VALVE GLOBE VALVE DOUBLE REGULATING VALVE MOTOR OPERATED THREE-WAY VALVE VALVE BOX I N S T R U M E N T S THERMOMETER E Q U I P M E N T PUMP						Z	SYMBOL
	PUMP M M	THERMOSTAT	MOTOR OPERATED THREE-WAY VALVE VALVE BOX	GLOBE VALVE DOUBLE REGULATING VALVE	FLOAT VALVE GATE VALVE	V A L V E S	DESIGNATION

c	TEMP	Pa	C	C 6	N I S		± r	η ζ	O Z	B F S		E T	ס	יד	_
DEGREE CELCIUS	TEMPERATURE	PASCAL	UP	UNDERGROUND	NOT TO SCALE	LOW LEVEL	HIGH LEVEL	FROM	DOWN	BELOW FLOOR SLAB	MISCELLANEOUS	EXPANSION TANK	PUMP	FAN	AIR-CONDITIONING SYMBOLS

CLEANOUT
COLD WATER
FIRE FIGHTING WATER
FLOOR CLEANOUT
FIRE EXTINGUISHER
FLUSH TANK
IRRIGATION NOZZLE
DOMESTIC HOT WATER
DOMESTIC HOT WATER RETURN
IN WALL

ABBREVIATION	DESIGNATION	—
	PLUMBING SYMBOLS	\neg
*	WASTE	
WS	WASTE STACK	
EWH	ELECTRIC WATER HEATER	
HWST	HOT WATER STORAGE TANK	
WHA	WATER HAMMER ARRESTOR	
	PLUMBING FIXTURES	
WT	WATER TAP	
EWC	EUROPEAN WATER CLOSET	
B	BIDET	
KS	KITCHEN SINK	
LAV	LAVATORY	
MS	MOP SINK	
σ	SINK	
вт	ВАТНТИВ	
HS	SHOWER	
DF	DRINKING FOUNTAIN	
Z	IRRIGATION NOZZLE	
L P S	LITERS PER SECOND	
ℤ	REVOLUTION PER MINUTE	
P	FILL LINE	

UNDER COUNTER
INVERT LEVEL
MANHOLE

RAIN WATER
SOIL OR SINK
SOIL STACK
STACK VENT
VENT STACK
VENT

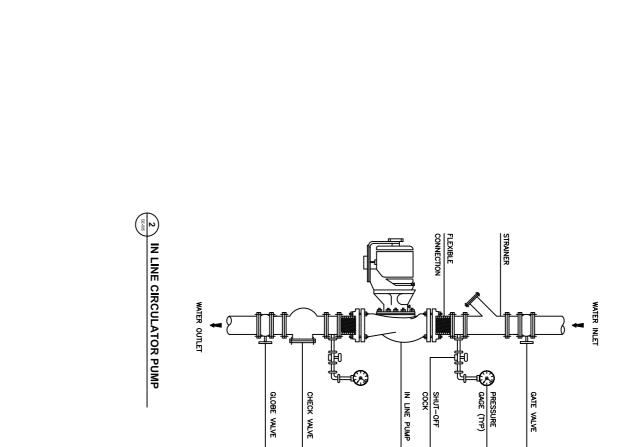
ABBREVIATION

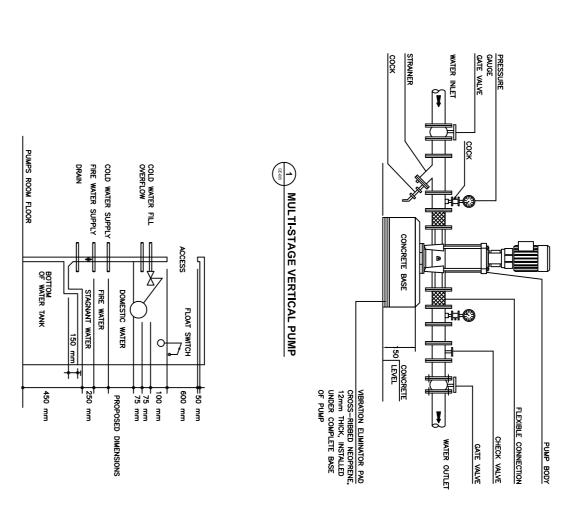
DESIGNATION

PLUMBING SYMBOLS

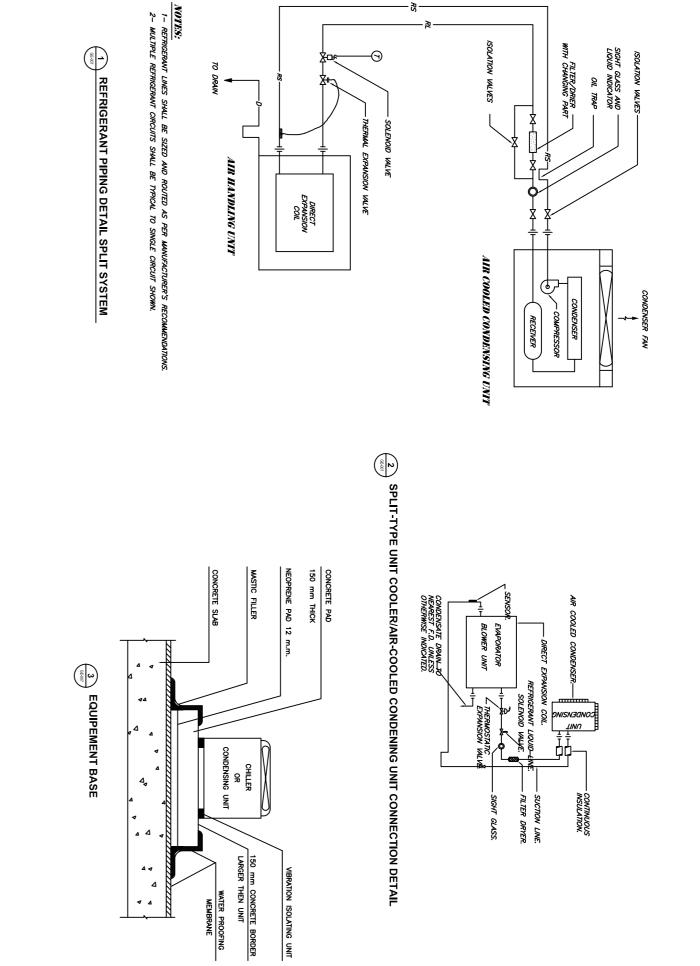
SYMBOL	DESIGNATION
	DUCTWORK
600 × 300	1ST FIGURE INDICATES DUCT WIDTH AND SECOND FIGURE INDICATES DUCT DEPTH.
	ELBOW UP
	RETURN OR EXHAUST DUCT- IN SECTION
	SUPPLY DUCT—IN SECTION
<u> </u>	SQUARE OR RECTANGULAR CEILING DIFFUSER 4—WAY BLOW
	RETURN OR EXHAUST GRILLE OR REGISTER IN CEILING
#	DOOR GRILLE OR LOUVER

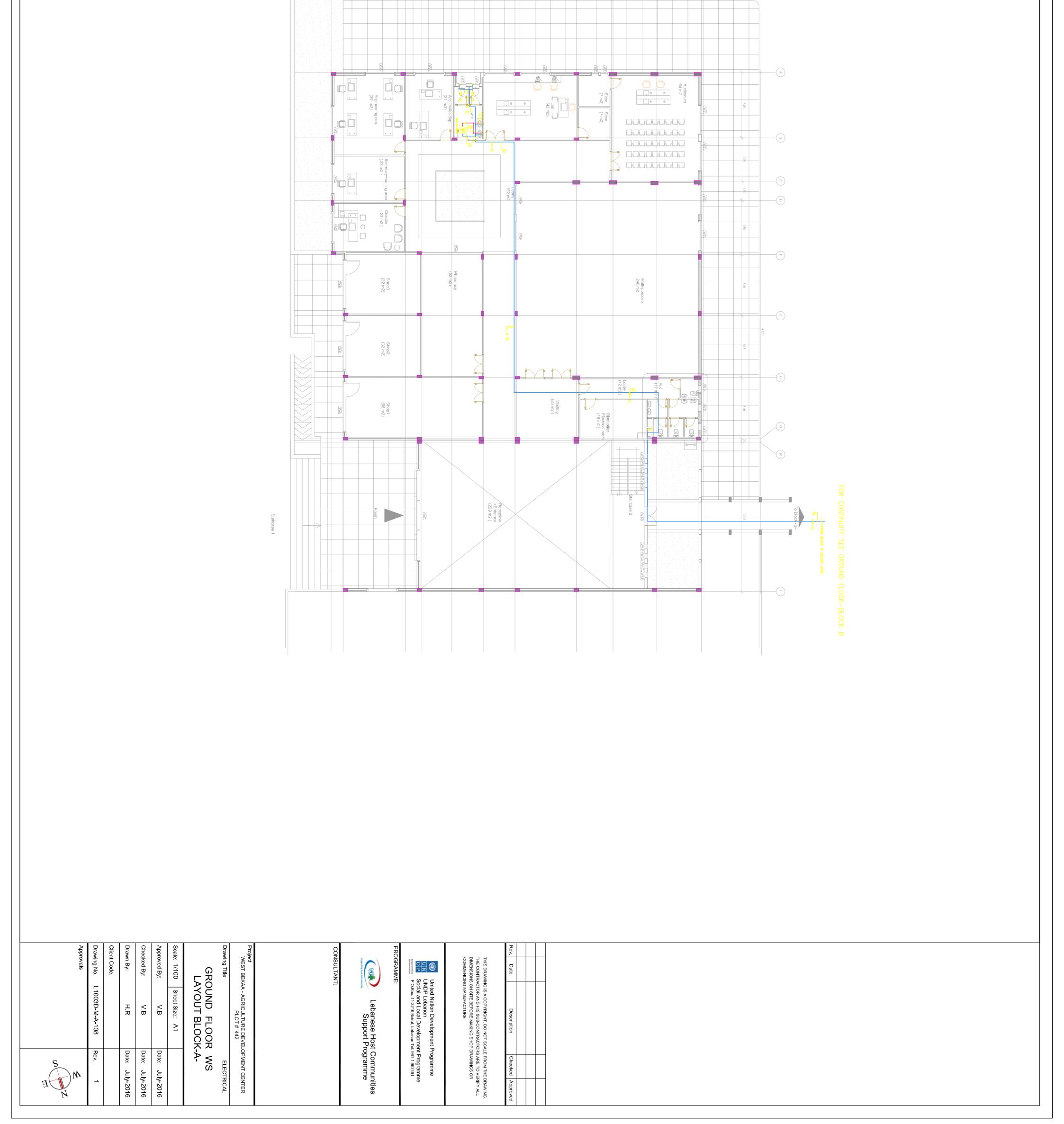
DESIGNATION	SYMBOL	DESIGNATION
/ES		PIPING
VALVE		ELBOW UP
ALVE		ELBOW DOWN
ILVE	\ \ 	TEE UP
VALVE	•	TEE DOWN
REGULATING VALVE	6 -	BRANCH OUT OF BOTTOM
OPERATED THREE-WAY VALVE	-	BRANCH OUT OF TOP
вох	+	POINT OF CONNECTION IN PIPES
M E Z T S		RAIN WATER
STAT		VENT
METER		COLD WATER
M E Z		SOIL OR WASTE
		DOMESTIC HOT WATER SUPPLY
		DOMESTIC HOT WATER RETURN
		POTABLE WATER
	TS —	TANK SUPPLY

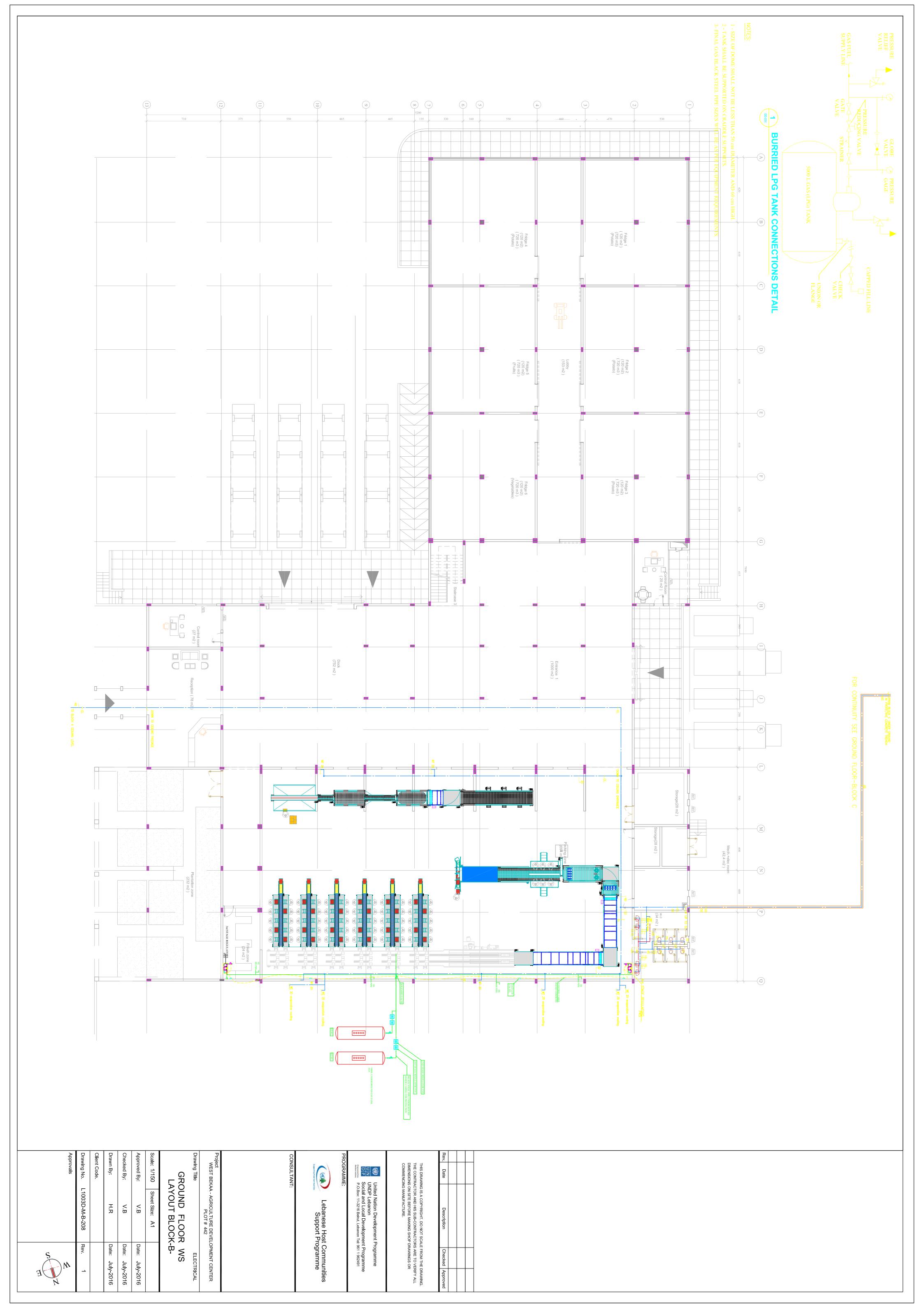


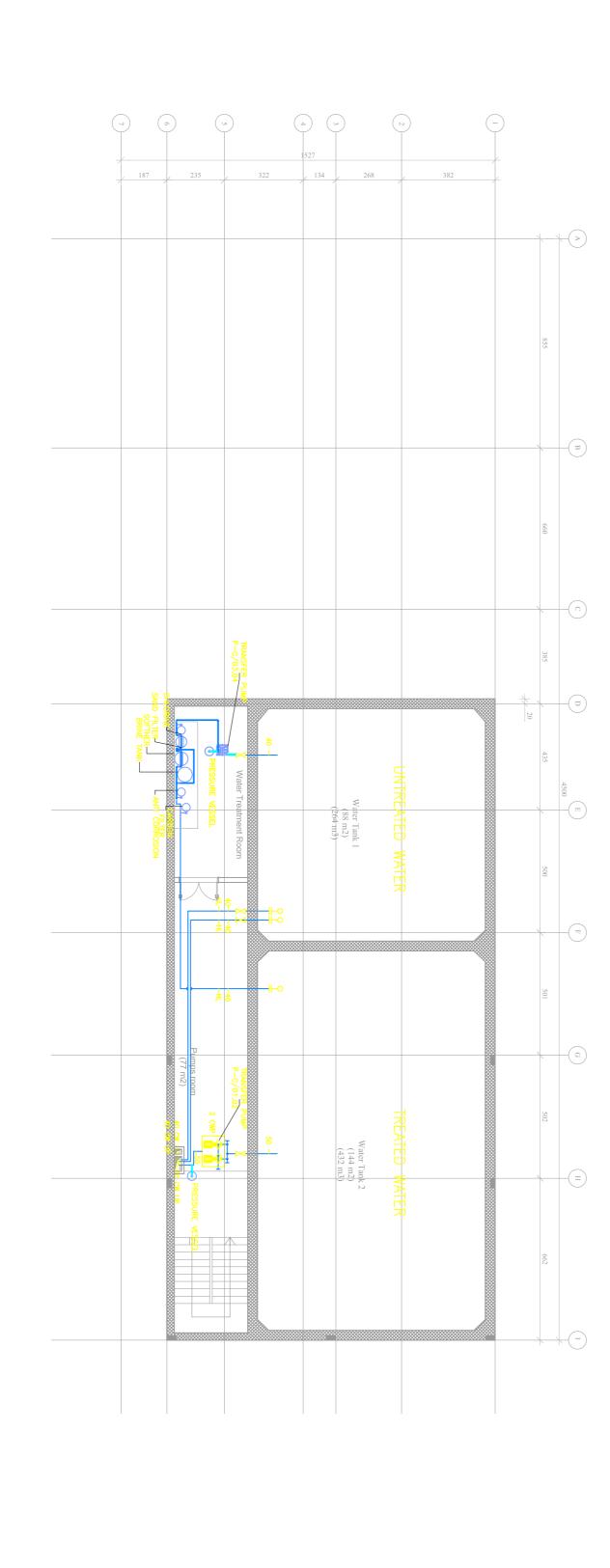


3 TYPICAL WATER TANK DETAILS









Approved By:
Checked By:
Drawn By: Scale: 1/100 Client Code. Sheet Size: A1 H.R <.B Date: July-2016

Date: July-2016

Date: July-2016

Drawing No. L1003D-M-C-306
Approvals

BASEMENT FLOOR WS LAYOUT BLOCK-C-

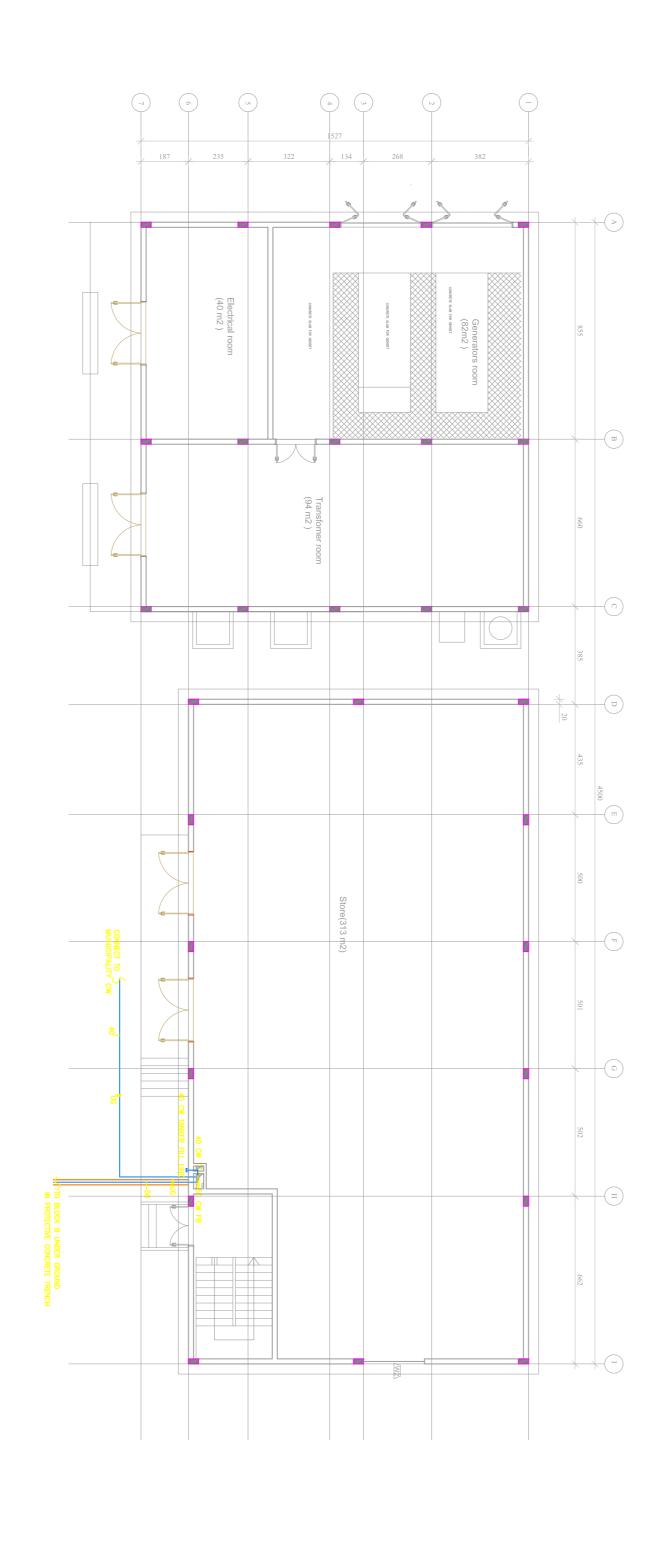
ELECTRICAL

Project
WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER
PLOT # 442

Lebanese Host Communities Support Programme

Supporting Hoat Communities

United Nation Development Programme
UNDP Lebanon
Social and Local Development Programme
P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491



Approved By:
Checked By:
Drawn By: Scale: 1/100 Client Code. Drawing No. L1003D-M-C-305
Approvals Sheet Size: A1 H.R <.B Date: July-2016

Date: July-2016

Date: July-2016

GROUND FLOOR LAYOUT BLOCK-C-WS.

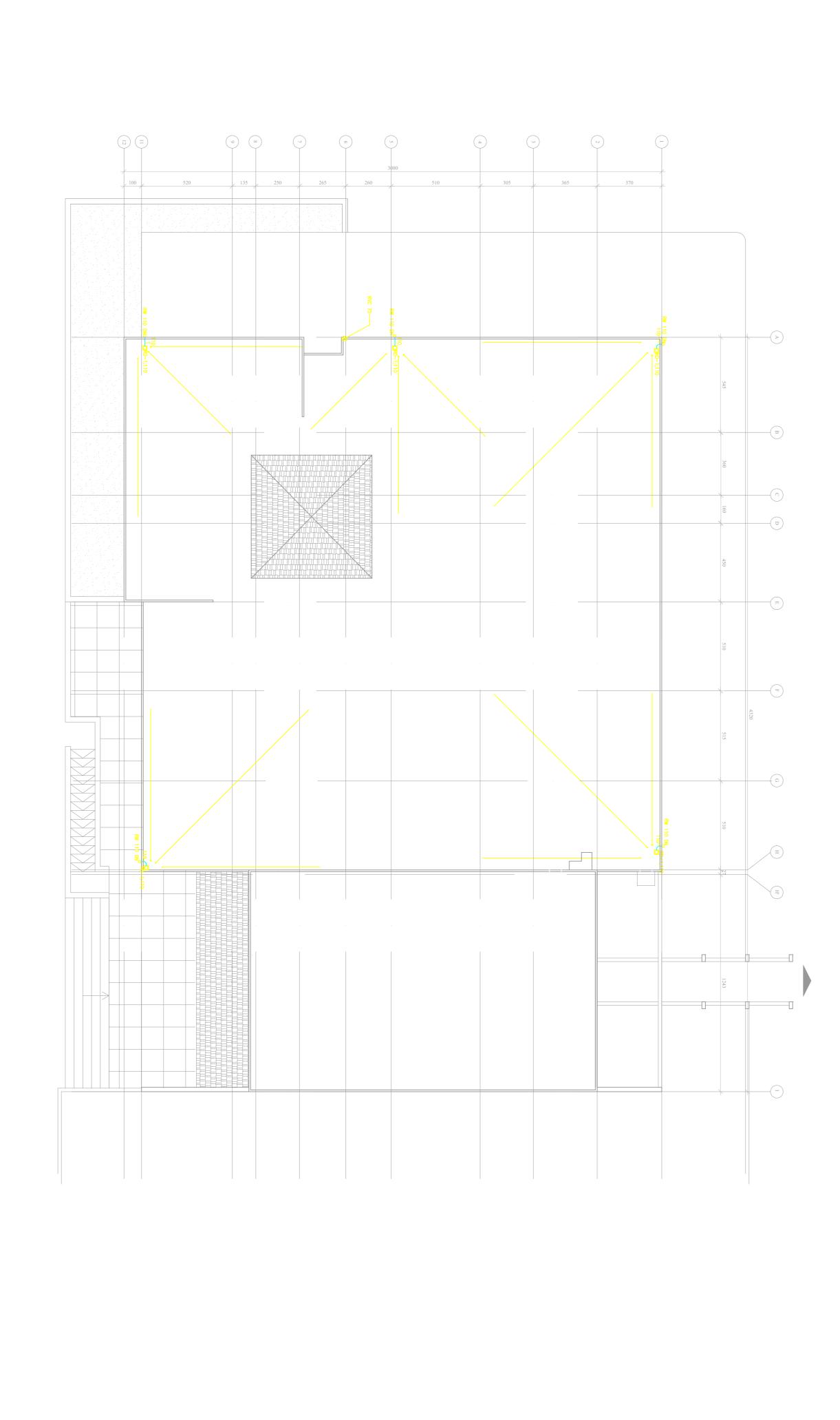
ELECTRICAL

roject
WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER
PLOT # 442

Lebanese Host Communities Support Programme

Supporting Hoat Communities

United Nation Development Programme
UNDP Lebanon
Social and Local Development Programme
P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491



THIS DRAWING IS A COPYRIGHT. DO NOT SCALE FROM THE DRAWING. THE CONTRACTOR AND HIS SUB-CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING MANUFACTURE.

United Nation Development Programme UNDP Lebanon Social and Local Development Programme P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491

Supporting Haat Communities

Lebanese Host Communities Support Programme

Approved By:
Checked By:
Drawn By:

V.B H.R

Date: July-2016

Date: July-2016

Date: July-2016

Client Code.

Drawing No. L1003D-M-A-107

Scale: 1/100

Sheet Size: A1

<u><</u>B

oject
WEST BEKAA - AGRICULTURE DEVELOPMENT CENTER
PLOT # 442

ELECTRICAL

GROUND FLOOR WW LAYOUT BLOCK-A-

