

GENERAL NOTES:

- MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
- CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
- ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
- REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
- PRIOR TO INSTALLATION, CONFIRM SPECIFIC LOCATION FOR ALL THERMOSTATS / SENSORS WITH ARCHITECT. MOUNT AT 48" A.F.F. OR IN ACCORDANCE WITH ADA REQUIREMENTS. PROVIDE LOCKING COVERS.
- COORDINATE AND CONFIRM BORDER, FRAME, FINISH, AND LOCATION WITH ARCHITECT PRIOR TO ORDERING.
- ANY PENETRATIONS THROUGH WALL STUDS, FLOOR JOISTS, OR ROOF TO BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODE.
- DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- CONTRACTOR TO CONFIRM ADEQUATE RETURN AIR PATH BACK TO MAIN AIR HANDLING UNIT.

CLIENT:

ADDRESS:

420 RACE STREET
HOLYOKE, MASSACHUSETTS

CONFIDENTIALITY STATEMENT:

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NOTES:

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- THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

CANNABIS CULTIVATION

TITLE:

MAIN FLOOR
MECHANICAL LAYOUT.

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: 3/16"=1'-0"
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DRAWING NO.

M 1 . 0 1

REV.

SCHEDULE No. 1
AIR OUTLETS

TAG	DESCRIPTION	MANUFACTURER	MODEL	MOUNTING
SG	SUPPLY DOUBLE DEFLECTION GRILL	EH PRICE	36in. x 18in.	Duct Mounted

NOTES:

- COORDINATE FINISH, COLOR, BORDER AND EXACT LOCATION WITH OWNER PRIOR TO ORDERING.
- PROVIDE OPPOSED BLADE DAMPER ACCESSIBLE THROUGH DIFFUSER FACE FOR GYP BD. CEILING INSTALLATIONS.
- PROVIDE DUCT TRANSITIONS AS REQUIRED.
- RETURNS R1 ARE PROVIDED WITH PROPER FILTERS.

SCHEDULE No. 2
FAN SCHEDULE

TAG	EF-01 & EF-02	KEF-01
LOCATION	TOILETS	BREAK ROOM
SELECTED FLOW (CFM)	50	100
SELECTED PRESSURE DROP (IN. H2O)	0.25"	0.25"
ELECTRICAL (V / PH / HZ)	120 / 1 / 60	120 / 1 / 60
POWER / Amps	25 W	25 W
MOTOR SPEED (RPS)	MULTI SPEED	MULTI SPEED
FAN TYPE	CEILING FANS	CEILING FANS
MANUFACTURER	PANASONIC	PANASONIC
MODEL	WHISPER FV-0511VKS2	WHISPER FV-0511VKS2

NOTES:

- PROVIDE UL LISTING.
- PROVIDE ENERGY STAR COMPLIANCE.
- INTERLOCK WITH WALL SWITCH.
- PROVIDE MOTOR WITH THERMAL OVERLOADS.

SCHEDULE No. 5
ELECTRIC - INDOOR & OUTDOOR UNIT

INDOOR TAG	IDU-02 TO 07 AND 09 TO 12	IDU-08
SERVING	OPERATIONAL AREAS	OPERATIONAL AREAS
MANUFACTURER	MRCOOL	MRCOOL
INDOOR MODEL	DIY-12-HP-WMAH-115C25	DIY-24-HP-WMAH-230C25
INDOOR POWER SUPPLY	INDOOR POWERED FROM ODU	INDOOR POWERED FROM ODU
COOLING CAPACITY (BTU/H)	12,000	23,000
HEATING CAPACITY (BTU/H)	12,000	25,000
INDOOR DIMENSIONS (W x D x H) (inch)	31.57x7.44x11.69	42.52x8.9x13.19
OUTDOOR MODEL	DIY-12-HP-C-115C25	DIY-24-HP-C-230C25
OUTDOOR TAG	ODU-02,03,04,05,06,07,09,10,11,12,13	ODU-08
POWER SUPPLY	115 / 1 / 60	208/230 / 1 / 60
MCA (A)	3	3
MOCP (A)	15	15

NOTES:

- PROVIDE CONDENSATE PUMP, IF REQUIRED.
- PROVIDE DISCONNECT SWITCH.
- PROVIDE 2" MERV 8 THROWAWAY FILTER.
- PROVIDE VIBRATION ISOLATION.
- PROVIDE FREEZE THERMOSTAT.

SCHEDULE No. 3
HEAT PUMP INDOOR UNIT

TAG	AHU-01 TO 12
SERVING	FLOWERS AND VEG
MANUFACTURER	MRCOOL
INDOOR MODEL	MDUI18060
POWER SUPPLY	208-230/1/60
MCA (A)	4
MOP (A)	15
SEER	15
EER	15
COOLING CAPACITY (BTU/H)	54,000
HEATING CAPACITY (BTU/H)	54,000
DIMENSION (DXWXH) (INCH)	24.8x21.3x57

SCHEDULE No. 4
HEAT PUMP OUTDOOR UNIT

TAG	ODU-A01 TO A12
SERVING	FLOWERS AND VEG.
MANUFACTURER	MRCOOL
OUTDOOR MODEL	MDUO18060
POWER SUPPLY	208-230/1/60
MCA (A)	35
MOP (A)	45
SEER	UP TO 17
EER	10.5
COOLING CAPACITY (BTU/H)	54,000
HEATING CAPACITY (BTU/H)	54,000
DIMENSION (DXWXH) (INCH)	38.375x14.5x53.75

SCHEDULE No. 6
DEHUMIDIFIER UNITS SCHEDULE

TAG	DEH-350	DEH-225	DEH-350
SERVING	FLOWER ROOMS	VEG. ROOM	DRYING ROOM
MANUFACTURER	QUEST	QUEST	QUEST
MODEL NUMBER	QUEST 350	QUEST 225	QUEST 110
POWER SUPPLY	208-230/1/60	220/1/60	115/1/60
RATED CURRENT (A)	7.9	6.9	7.4
MAXIMUM BREAKER (A)	20.0	-	-
AIR FLOW (CFM)	900	526	-
TOTAL LOAD (BTU/Hr)	20,300	-	-
PINTS REMOVAL (PINTS/DAY)	350	225	110

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

CANNABIS CULTIVATION

TITLE:
MECHANICAL EQUIPMENT
SCHEDULES.

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: NTS
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DRAWING NO.

M 2 . 0 1

REV.

Air System Sizing Summary for AHU-01, 02				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-01, 02	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	7168 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Central Cooling Coil Sizing Data				
Total coil load	7.2 Tons	Load occurs at:	Jul 1700	
Entering DB / WB	81.3 / 75.8 °F	OA DB / WB	86.1 / 75.8 °F	
Leaving DB / WB	79.9 / 68.2 °F	Entering DB / WB	79.9 / 68.2 °F	
Coil CFM @ 1700	4723 CFM	Leaving DB / WB	86.1 / 75.8 °F	
Coil COP	6.00	Coil CFM	6.00	
Sum of peak zone CFM	4723 CFM	System Factor	6.00	
Sensible heat ratio	0.9	Heating Fan	0.00	
CFM/Ton	656.3	Design supply temp.	55.0 °F	
BTU/hr-°F	126.3	Zone Total Chilled	1.4 E+1 °C	
Water flow @ 10.0 °F rise	N/A	Max zone temperature deviation	0.0 °F	
Central Heating Coil Sizing Data				
Max coil load	3.3 MBH	Load occurs at:	Dec Htg	
Coil CFM at Des Htg	4723 CFM	BTU/hr-°F	126.3	
Max coil CFM	4723 CFM	Ent. DB / Log DB	70.0 / 70.0 °F	
Water flow @ 20.0 °F drop	N/A			
Supply Fan Sizing Data				
Actual max CFM	4723 CFM	Fan motor BHP	0.00 BHP	
Standard CFM	4681 CFM	Fan motor kW	0.00 kW	
Actual max CFM@P	6.00 CFM@P	Fan static	0.00 in wg	
Outdoor Ventilation Air Data				
Design airflow CFM	0 CFM	CFM/person	0.00 CFM/person	
CFM@P	0.00 CFM@P			
Hourly Analysis Program 5.10				
Page 2 of 12				

Air System Sizing Summary for AHU-07, 08				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-07, 08	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	6768 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Central Cooling Coil Sizing Data				
Total coil load	6.5 Tons	Load occurs at:	Jul 1700	
Entering DB / WB	81.3 / 75.8 °F	OA DB / WB	86.1 / 75.8 °F	
Leaving DB / WB	79.9 / 68.2 °F	Entering DB / WB	79.9 / 68.2 °F	
Coil CFM @ 1700	4260 CFM	Leaving DB / WB	86.1 / 75.8 °F	
Coil COP	6.00	Coil CFM	6.00	
Sum of peak zone CFM	4260 CFM	System Factor	6.00	
Sensible heat ratio	0.9	Heating Fan	0.00	
CFM/Ton	667.4	Design supply temp.	55.0 °F	
BTU/hr-°F	116.4	Zone Total Chilled	1.4 E+1 °C	
Water flow @ 10.0 °F rise	N/A	Max zone temperature deviation	0.0 °F	
Central Heating Coil Sizing Data				
Max coil load	3.3 MBH	Load occurs at:	Dec Htg	
Coil CFM at Des Htg	4260 CFM	BTU/hr-°F	116.4	
Max coil CFM	4260 CFM	Ent. DB / Log DB	69.8 / 70.0 °F	
Water flow @ 20.0 °F drop	N/A			
Supply Fan Sizing Data				
Actual max CFM	4260 CFM	Fan motor BHP	0.00 BHP	
Standard CFM	4223 CFM	Fan motor kW	0.00 kW	
Actual max CFM@P	6.36 CFM@P	Fan static	0.00 in wg	
Outdoor Ventilation Air Data				
Design airflow CFM	0 CFM	CFM/person	0.00 CFM/person	
CFM@P	0.00 CFM@P			
Hourly Analysis Program 5.10				
Page 1 of 12				

Zone Sizing Summary for AHU-01, 02				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-01, 02	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	7168 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Zone Terminal Sizing Data				
	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM@P	Reheat Coil Load (MBH)
Zone Name	4723	4723	6.00	0.0
Zone 1				
Zone Peak Sensible Loads				
	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
Zone Name				
Zone 1	85.3	Jul 1600	3.1	716.0
Space Loads and Airflows				
	Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load
Zone 1	18_FLOWER ROOM 4	1	85.3	Jul 1600
Hourly Analysis Program 5.10				
Page 2 of 12				

Zone Sizing Summary for AHU-07, 08				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-07, 08	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	6768 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Zone Terminal Sizing Data				
	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM@P	Reheat Coil Load (MBH)
Zone Name	4260	4260	6.36	0.0
Zone 1				
Zone Peak Sensible Loads				
	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
Zone Name				
Zone 1	77.5	Jul 1700	3.3	676.0
Space Loads and Airflows				
	Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load
Zone 1	08_FLOWER ROOM 2	1	77.5	Jul 1700
Hourly Analysis Program 5.10				
Page 2 of 12				

Air System Sizing Summary for AHU-03, 04				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-03, 04	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	9608 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Central Cooling Coil Sizing Data				
Total coil load	8.7 Tons	Load occurs at:	Jul 1600	
Entering DB / WB	81.3 / 75.8 °F	OA DB / WB	86.1 / 75.8 °F	
Leaving DB / WB	79.9 / 68.2 °F	Entering DB / WB	79.9 / 68.2 °F	
Coil CFM @ 1600	5717 CFM	Leaving DB / WB	86.1 / 75.8 °F	
Coil COP	6.00	Coil CFM	6.00	
Sum of peak zone CFM	5717 CFM	System Factor	6.00	
Sensible heat ratio	0.9	Heating Fan	0.00	
CFM/Ton	656.2	Design supply temp.	55.0 °F	
BTU/hr-°F	126.3	Zone Total Chilled	1.4 E+1 °C	
Water flow @ 10.0 °F rise	N/A	Max zone temperature deviation	0.0 °F	
Central Heating Coil Sizing Data				
Max coil load	3.5 MBH	Load occurs at:	Dec Htg	
Coil CFM at Des Htg	5717 CFM	BTU/hr-°F	126.3	
Max coil CFM	5717 CFM	Ent. DB / Log DB	70.0 / 70.0 °F	
Water flow @ 20.0 °F drop	N/A			
Supply Fan Sizing Data				
Actual max CFM	5717 CFM	Fan motor BHP	0.00 BHP	
Standard CFM	5687 CFM	Fan motor kW	0.00 kW	
Actual max CFM@P	5.82 CFM@P	Fan static	0.00 in wg	
Outdoor Ventilation Air Data				
Design airflow CFM	0 CFM	CFM/person	0.00 CFM/person	
CFM@P	0.00 CFM@P			
Hourly Analysis Program 5.10				
Page 1 of 12				

Air System Sizing Summary for AHU-09 TO 12				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-09 TO 12	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	13478 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Central Cooling Coil Sizing Data				
Total coil load	14.9 Tons	Load occurs at:	Jul 1600	
Entering DB / WB	81.3 / 75.8 °F	OA DB / WB	86.1 / 75.8 °F	
Leaving DB / WB	79.9 / 68.2 °F	Entering DB / WB	79.9 / 68.2 °F	
Coil CFM @ 1600	9797 CFM	Leaving DB / WB	86.1 / 75.8 °F	
Coil COP	6.00	Coil CFM	6.00	
Sum of peak zone CFM	9797 CFM	System Factor	6.00	
Sensible heat ratio	0.9	Heating Fan	0.00	
CFM/Ton	656.1	Design supply temp.	55.0 °F	
BTU/hr-°F	126.3	Zone Total Chilled	1.4 E+1 °C	
Water flow @ 10.0 °F rise	N/A	Max zone temperature deviation	0.0 °F	
Central Heating Coil Sizing Data				
Max coil load	7.8 MBH	Load occurs at:	Dec Htg	
Coil CFM at Des Htg	9797 CFM	BTU/hr-°F	126.3	
Max coil CFM	9797 CFM	Ent. DB / Log DB	69.8 / 70.0 °F	
Water flow @ 20.0 °F drop	N/A			
Supply Fan Sizing Data				
Actual max CFM	9797 CFM	Fan motor BHP	0.00 BHP	
Standard CFM	9766 CFM	Fan motor kW	0.00 kW	
Actual max CFM@P	7.37 CFM@P	Fan static	0.00 in wg	
Outdoor Ventilation Air Data				
Design airflow CFM	0 CFM	CFM/person	0.00 CFM/person	
CFM@P	0.00 CFM@P			
Hourly Analysis Program 5.10				
Page 1 of 12				

Zone Sizing Summary for AHU-03, 04				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-03, 04	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	9608 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Zone Terminal Sizing Data				
	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM@P	Reheat Coil Load (MBH)
Zone Name	5717	5717	5.82	0.0
Zone 1				
Zone Peak Sensible Loads				
	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
Zone Name				
Zone 1	134.0	Jul 1600	3.1	963.0
Space Loads and Airflows				
	Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load
Zone 1	11_VEST ROOM	1	134.0	Jul 1600
Hourly Analysis Program 5.10				
Page 2 of 12				

Zone Sizing Summary for AHU-09 TO 12				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-09 TO 12	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	13478 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Zone Terminal Sizing Data				
	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM@P	Reheat Coil Load (MBH)
Zone Name	9797	9797	7.37	0.0
Zone 1				
Zone Peak Sensible Loads				
	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
Zone Name				
Zone 1	178.1	Jul 1700	8.4	1347.0
Space Loads and Airflows				
	Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load
Zone 1	08_FLOWER ROOM 3	1	178.1	Jul 1700
Hourly Analysis Program 5.10				
Page 2 of 12				

Air System Sizing Summary for AHU-05, 06				01/09/2023 05:02PM
Project Name: Cannabis Cultivation Designed by: S. M.				
Air System Information				
Air System Name	AHU-05, 06	Number of zones	1	
Equipment Case	P100 R20AF	Floor Area	7388 ft ²	
Air System Type	BZCAV	Location	Springfield, Massachusetts	
Sizing Calculation Information				
Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates	
Sizing Date	Calculated	Sizing Data	Individual peak space loads	
Central Cooling Coil Sizing Data				
Total coil load	6.9 Tons	Load occurs at:	Jun 1600	</

Benefits & Features

- ✓ 3 Connection Types:
 - Patented® Pre-charged No-Vac® Quick Connect® Line Set (15 ft, 25 ft, 35 ft, 50 ft Couplings also available)
 - Sweat Brake Connection
 - Flare Connection
- ✓ Quiet 55-58 db(A) Operation
- ✓ Slim Design
- ✓ Gas Furnace Not Required
- ✓ Condenser Can Be Field Converted to 2-Ton from 3-Ton or 4-Ton from 5-Ton using a Dip Switch Setting (see manual for details)

- ✓ Sizes: 2-3 Ton or 4-6 Ton
- ✓ 10-Year Limited Warranty*
- ✓ Compatible With Any Third Party Air Handler and Universal Including the MRCOOL Universal WiFi Thermostat or WiFi Nest
- ✓ Uses Environmentally-Friendly R-410A Refrigerant
- ✓ Gold Fin Corrosion Protection
- ✓ Rapid Heating & Cooling

The MRCOOL® Universal® Series Condenser, with a DC inverter compressor, offers dynamic heating and cooling performance in a slim design. This condenser is capable of delivering 100% cooling capacity down to -5°F (-20°C) on 2-ton models and 16°F (-9°C) on 4-ton models. It can also offer 100% cooling capacity up to 115°F (46°C) on 2-ton models and 109.4°F (43°C) on 4-ton models.

The Universal® Series Condenser also offers the same versatility and robust construction as with all of the other products in the Universal lineup. It features Gold Fin® Technology to offer superior protection of the coils against corrosion. It's also available with our patented pre-charged No-Vac® Quick Connect® Line Set that can drastically decrease the time and complexity of the installation process.

Pat. <https://www.mrcool.com/mrcool-patents/>



MRCCOOL

Universal Series

Universal Air Handler

- Sizes: 2-3 Ton or 4-5 Ton
- R410A Factory Pre-Charged Air Handler Can Be Field Converted to 2 Ton from 3 Ton or 4 Ton from 5 Ton using a Dip Switch Setting (see manual for details)
- High Efficient Energy Saving DC Fan Motor
- Multi-Position Installation (Upflow, Horizontal)
- Internal Fan Blade Creates Low Noise
- 3 Connection Types:
 - Pre-charged No-Vac® Quick Connect® Line Set (1 1/2", 2 1/2", 3 1/2", 5 1/2"-Couplings also available)
 - Sweat Braze Fitting
 - Flare Fitting
- The Special Fire-Proof Electrical Box Design Offers Anti-Electrical Shock Reserved Installation Space for the Circuit Breaker
- Easy to Clean Metal Filter Protects Against Fire, Corrosion, and Deterioration
- 2 Step Condensation Protection
- 10 Year Limited Warranty*






*Registration is required



[illegible]

FEATURES

Easy DIY* Installation

SmartPhone App

Easy Quick Connect*

Leakage Detection
(patent pending)

DIP+WR Cable

Low Ambient Cooling

DC Inverter

Gold Fin* Condenser

Follow Me* Function

SPECIFICATIONS

*For models with low temp cooling systems.

Model No	Capacity & Indoor Unit	DIP+WR-MW-M15C25 15k BTU-WR-C-110C25	DIP+WR-MW-M20C25 18k BTU-WR-C-120C25	DIP+WR-MW-M26C25 24k BTU-WR-C-135C25	DIP+WR-MW-M36C25 36k BTU-WR-C-180C25
Cooling Capacity	Btu/h	13000	18000	23000	36000
SEER	Btu/h/Wh	13.5	13.5	12.5	13.5
SEER2	Btu/h/Wh	20.2	20.7	20.5	18.0
Heating Capacity	Btu/h	13000	18000	23000	36000
HSPF-2	Btu/h/Wh	9.1	9.1	9.2	8.8
HSPF-5	Btu/h	7	7.2	7.1	6.4
Coverage Area (Heat/Cool)	sq. ft.	450-550	450-550	580-750	780-1050
Indoor Units Noise (dBA)	dBA	37/31/25	41/30/21	44/32/25	50/29/24
Outdoor Units Noise	dBA	65.5	68.5	68	68

Electrical Parts

Power Supply	V ~ Hz/Ph	115V/60Hz, 1Ph	208-230V/60Hz, 1Ph	208-230V/60Hz, 1Ph	208-230V/60Hz, 1Ph
Maximum Circuit Ampacity	A	15	3	3	3
Maximum Power (Brake)	A	15	15	15	28.6

Dimensions & Weight

Indoor Unit	inch	31.57 x 7.41 x 11.69	42.52 x 8.90 x 13.19	47.67 x 8.90 x 13.19	49.57 x 11.10 x 14.25
Weight	kg	10.90 x 2.06 x 3.44	15.80 x 2.46 x 3.69	16.94 x 2.46 x 3.69	17.94 x 3.14 x 4.86
Outdoor Unit	inch	30.74 x 11.61 x 21.85	39.04 x 12.46 x 36.50	37.29 x 14.14 x 31.89	37.29 x 14.14 x 31.89
Weight	kg	76.52 x 30.21 x 55.50	96.64 x 32.42 x 71.00	96.64 x 32.42 x 71.00	96.64 x 32.42 x 71.00

Packing Dimension (Indoor Unit)

Indoor	inch	36.22 x 16.34 x 13.90	45.69 x 19.87 x 16.93	49.69 x 19.87 x 16.93	56.25 x 23.26 x 18.09
Weight	kg	20.54 x 10.55 x 22.56	25.54 x 11.51 x 29.13	42.91 x 18.90 x 24.34	52.25 x 18.90 x 24.34
Outdoor	inch	36.22 x 16.34 x 13.90	45.69 x 19.87 x 16.93	49.69 x 19.87 x 16.93	56.25 x 23.26 x 18.09
Weight	kg	20.54 x 10.55 x 22.56	25.54 x 11.51 x 29.13	42.91 x 18.90 x 24.34	52.25 x 18.90 x 24.34

Net-Work Weight

Indoor	inch	24.03 x 10.74	34.61 x 10.66	35.27 x 19.18	42.87 x 19.18
Weight	kg	10.75 x 5.15	13.73 x 4.4	16.07	21.90 x 5.15
Outdoor	inch	30.74 x 11.61	39.04 x 12.46	37.29 x 14.14	37.29 x 14.14
Weight	kg	28.88 x 6.7	48.53 x 6.7	58.74 x 6.7	66.64 x 6.7

Refrigerant & Piping

Refrigerant R-410A	kg	38.1	56.44	81.15	111.1
Piping Size (mm)	mm	1/4" (10.16) x 3/8" (9.52)	1/2" (12.7) x 3/8" (9.52)	3/4" (19.05) x 3/8" (9.52)	1" (25.4) x 3/8" (9.52)

*If the original owner does not register the unit, the warranty defaults to 10 limited 5 year parts, 7 year compressor warranty.

Warranty registration should be completed in the MyCool Care Program every time in order to qualify for the 7 year full unit replacement for compressor failure and lifetime refrigerant replacement.

QUEST

A DUCTLESS DEHUMIDIFIER

1.877.420.1330

www.QuestDryInc.com



Quest 110 Dual



Quest 150 Dual



Unit:	Quest 110 Dual	Quest 150 Dual
Part Number:	Q110-210	Q150-210
Blower:	165 CFM @ 0.1" WG	430 CFM @ 0.1" WG
Power:	787 Watts @ 80°F and 50% RH	1300 Watts @ 80°F and 60% RH
Supply Voltage:	115 with 1 Phase - 60 Hz	115 with 1 Phase - 60 Hz
Range:	7-6	11-10
Energy Factor:	2.8 L/Watt	2.29 L/Watt
Operating Range:	36°F - 95°F	56°F - 95°F
Minimum Performance @ 80°F and 60% RH:	5.8 Pints/Day	4.8 Pints/Day
Water Removal:	110 Pints/Day	150 Pints/Day
Efficiency:	5.8 Pints/Watt	4.8 Pints/Watt
Air Filter:	MERV-8	MERV-8
Power Cord:	10' - 115 VAC Grounded Plug	10' - 115 VAC Grounded Plug
Drain Connection:	3/4" Threaded NPT or 5/8" Hose Barb	3/4" Threaded NPT or 5/8" Hose Barb
Warranty:	1 year 100% parts and labor 3 year sealed refrigerant system	1 year 100% parts and labor 3 year sealed refrigerant system
Dimensions:	14.5" 11" 14.5"	18" 14.5" 18"
Weight:	26" 25" 27"	36" 35" 37"
	85 lbs 95 lbs 100 lbs	

*Optional Accessories can be found at website or contact



Assembled in Mexico, Wisconsin

Specifications subject to change without notice. 10/27

ORIGINAL AND UNPUBLISHED WORK OF THE DESIGNER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT CONSENT OF THE DESIGNER.

NOTES:

1. ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE.
2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.
3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

One Connected Fan. Endless Possibilities.

The customizable IAQ solution for virtually any space

WhisperGreen Select is the industry's most powerful, yet flexible, smart fan that promotes better indoor air quality and healthier home environments. It's designed to help you create healthy homes. WhisperGreen® Select offers a powerful connected IAQ solution that delivers healthy indoor air quality for healthy living in any space. Now even more versatile, it operates as a standalone unit or as part of a smart home system for wireless communication.

WHISPERGREEN SELECT IS AS EASY AS 1-2-3!

Step 1: Select a Base Fan Model

Select a base model to start building the perfect IAQ solution that satisfies your ventilation design requirements.

Base Fan	Fan Light
FW-V115WV2 50 to 110 CFM pre-installed multi-speed	FW-V115WL2 50 to 110 CFM single speed + LED Light
FW-V119WV2 100 to 110 CFM pre-installed multi-speed	FW-V119WL2 100 to 110 CFM pre-installed multi-speed + LED Light
FW-V115WV2 50 to 110 CFM single speed	FW-V115WL2 50 to 110 CFM single speed + LED Light


Pick-A-Fan™ Airflow Technology

With the Pick-A-Fan™ Airflow Technology™ fan fan, you choose the CFM. Provides the unique ability to select your required airflow from 80-110 and 110-130-150 CFM model(s) with the simple flip of a switch.


Step 2: Select Value Added Features

WhisperGreen Select offers a unique set of three patented modules that allow you to further customize your fan:


- Multi-Speed with Time Delay (FW-V51SW1)** – Allows you to select the proper CFM settings to satisfy ASHRAE 62.2 continuous ventilation requirements. The fan runs continuously at a pre-set lower level, then elevates to a maximum level of operation when the wall switch is turned on, or when the SmartMotion™ motion sensor or condensation sensor module is activated. A high-glycol delay timer returns the fan to the pre-set CFM level after a period of time set by the user.
- SmartMotion™ Motion Sensor (FW-M5W1)** – Automatically activates when someone enters the room. During the 20-minute delay timer, the fan becomes truly automatic, making it ideal for people with disabilities and assisted living environments such as nursing homes and retirement communities. This module also activates an automatic 20-minute delay timer for the fan.
- Condensation Sensor (FW-CSW1)** – Helps control bathroom condensation to prevent mild and mold. Advanced sensor technology detects relative humidity and temperature to anticipate dew point, automatically turning the fan on to control humidity. Built-in Relative Humidity (RH) sensitivity adjustment allows for more precise control of humidity levels and for satisfying CAHVAC requirements. When the condensation sensor is used in conjunction with multi-speed functionality, the fan will kick up to high speed when the condensation sensor detects moisture in the room. This module also activates an automatic 20-minute delay timer for the fan.




Single-gang switch activating fan on the position lock-in between the push and/or turning cycling hole.




Easy-on position bracket between the push or cycling hole.




External brackets to house large, long.



Multi-Speed with Time Delay (FW-V51SW1)




SmartMotion™ Motion Sensor (FW-M5W1)





Condensation (FW-CSW1)

Ingenuously designed installation brackets provides flexible, fast and easy installation for all your new construction or renovation projects.

Step 3: Install Your Ideal Fan With the New Flex-Z-Fast™ Installation System







Superior installed Performance up to 0.375" and Certified Quiet Operation at 0.25" Static Pressure

Although ASHRAE ENERGY STAR®, LEED for Homes, and HVI set the industry standard for performance measurements at 0.1" and 0.25", WhisperGreen Select™ fans provide powerful CFM output at 0.375" that is representative of typical real-world conditions. You have also been certified at 0.25" to provide more realistic, realistic value, so they are quite under pressure and after installation.

REV. NO.	DESCRIPTION	DATE	BY

PROJECT:		
CANNABIS CULTIVATION		
TITLE: MECHANICAL EQUIPMENT DATA SHEETS.		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: NTS
DRAWING NO. M 4 . 0 1		REV.

GENERAL ELECTRICAL NOTES	
#	DESCRIPTION
1	GENERAL CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE SUBMITTING BID.
2	ALL WORK SHALL BE DONE IN ACCORDANCE WITH 2017 NMEC
3	GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CERTIFICATES, ETC. REQUIRED.
4	GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR BOTH ROUGH AND FINAL UNDERWRITERS OR OTHER APPROVED INSPECTION AGENCY CERTIFICATES "ELECTRICAL INSPECTION". THESE CERTIFICATES SHALL BE PRESENTED WITH REQUEST FOR FINAL PAYMENT.
5	IT IS THE INTENT OF THESE PLANS TO PROVIDE A COMPLETE OPERATING ELECTRICAL SYSTEM. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING, EQUIPMENT, MATERIAL, ETC. REQUIRED, EXCEPT WHERE SPECIFICALLY NOTED AS BEING FURNISHED BY OTHERS. SHOULD THERE BE ANY QUESTIONS CONCERNING RESPONSIBILITY, THEY SHALL BE ADDRESSED TO ARCHITECT PRIOR TO BID. NO EXTRA CHARGES WILL BE ALLOWED.
6	ELECTRICAL SERVICE SHALL BE COORDINATED WITH THE EXISTING FIELD CONDITIONS.
7	CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO ALL CONTROLS, OWNER-SUPPLIED EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT AS REQUIRED.
8	REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATION DETAILS. ALL FIXTURE AND DEVICE LOCATIONS SHOWN ON ARCHITECTURAL DRAWINGS SUPERSEDE THOSE SHOWN ON ELECTRICAL PLANS.
9	CIRCUIT NUMBER ON THE DRAWINGS ARE FOR IDENTIFICATION ONLY AND DO NOT INDICATE THE POSITION ON THE PANEL BOARD. CONNECT THE CIRCUITS WITH THE LIGHTEST LOADS AND THE RECEPTACLE CIRCUITS NEAR THE TOP OF THE PANEL, AND THE MORE HEAVILY LOADED CIRCUITS NEAR THE BOTTOM. BALANCE ALL CIRCUITS EVENLY BETWEEN PHASE SO THAT FEEDER WIRES CARRY APPROXIMATELY EQUAL CURRENT. ALL PHASES MUST BE BALANCED WITHIN 10% OR LESS. G.C. SHALL REBALANCE IF NECESSARY.
10	BRANCH CIRCUIT CONDUCTOR INSULATION SHALL BE COLOR CODED AND SHALL BE 600 VOLT. TYPE THHN/THWN.
11	CABLES IN HIGH TEMPERATURE AREAS SHALL HAVE INSULATION TYPE SUITABLE FOR THE TEMPERATURE. CABLES USED IN SPACES FOR ENVIRONMENTAL AIR SHALL CONFORM WITH APPLICABLE NMEC REQUIREMENTS.
12	ALL WIRING USED IN RETURN OR DISCHARGE AIR PLENUMS SHALL BE PLENUM RATED OR INSTALLED PER METHODS APPROVED BY NMEC
13	ALL WIRE AND CABLE CONDUCTORS SHALL BE COPPER WITH INSULATION RATED 600V. CONDUCTORS SIZED #10 AWG AND SMALLER SHALL BE SOLID OD STRANDED, AND CONDUCTORS SIZED LARGER THAN #10 AWG SHALL BE STRANDED WIRE.
14	BRANCH CIRCUITS FOR POWER AND LIGHTING SHALL NOT BE LESS THAN #12 AWG, OR AS NOTED. WIRES ARE TO BE SIZED FOR THE APPROPRIATE VOLTAGE DROPS. SEE WIRE SIZE SCHEDULE ON THIS SHEET.
15	ALL DATA CABLES SHALL BE CAT6, PLENUM RATED. TO BE PROVIDED BY OWNER SELECTED VENDOR. ELECTRICAL WORK SHALL BE TO PROVIDE OUTLET BOXES AND "RING AND STRING" FOR PULLING OF CABLES IN CONCEALED SPACES.
16	CONTROL WIRING SHALL NOT BE LESS THAN #14 AWG UNLESS OTHERWISE NOTED.
17	HOMERUNS SHOWN ARE SCHEMATIC. CONTRACTOR MAY ORIGINATE HOMERUNS FROM DIFFERENT LOCATIONS. ALL WIRE INCLUDING HOMERUNS SHALL BE DELINEATED ON AS-BUILT DRAWINGS.
18	ALL WIRING INSTALLED UNDER THIS CONTRACT SHALL BE TESTED FOR PROPER CONNECTIONS AND SHORT CIRCUITS PRIOR TO THE TURNING OVER OF WORK AS A COMPLETE UNIT.
19	PROVIDE ALL ELECTRICAL SYSTEM GROUNDING IN ACCORDANCE WITH N.E.C. REQUIREMENTS EVEN IF IT IS NOT SHOWN ON THE DRAWINGS. INCLUDE ADDITIONAL GROUNDING CONDUCTORS IN ALL RACEWAYS EVEN THOUGH THE DRAWINGS SHOW ONLY CIRCUIT AND/OR NEUTRALS CONDUCTORS. THE PLUMBING AND PIPING SYSTEM SHALL NOT BE USED AS A GROUND. ALL TRANSFORMER NEUTRALS SHALL BE GROUND TO BUILDING STEEL IN ACCORDANCE WITH NMEC 250-70.
20	ALL CONDUITS PASSING THROUGH PARTITIONS ARE TO BE APPROPRIATELY SLEEVED AND SEALED.
21	FURNISH AND INSTALL ALL CONDUIT WITH PULL WIRES AS REQUIRED. ALL OUTLET BOXES SHALL BE STEEL, EXTRA DEEP WITH GROUNDING PIGTAILS. GROUNDING PUSH-CLIPS ARE NOT ACCEPTABLE.
22	ALL PENETRATIONS SHALL BE INSTALLED AND SEALED PER NATIONAL STATE AND LOCAL CODES
23	DO NOT MAKE ANY CHANGES OR SUBSTITUTIONS WITHOUT SPECIFIC WRITTEN APPROVAL FROM THE ARCHITECT OR ENGINEER.
24	GARANTEE ALL WORK, MATERIAL AND EQUIPMENT FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL AND FINAL ACCEPTANCE.
25	THIS DESIGN IS BASED ON INITIAL DESIGN DATA. GENERAL CONTRACTOR TO SUPPLY AND INSTALL FEEDERS, FUSES AND CIRCUIT BREAKERS TO MATCH THE NAMEPLATE RATING OF ALL EQUIPMENT. THIS SHALL BE INCLUDED IN THE INITIAL BID PROPOSAL AND NO EXTRAS SHALL BE ENTERTAINED.
26	LABEL ALL JUNCTION BOXES, OUTLETS, LIGHT SWITCH, ETC. WITH CIRCUIT NUMBER ON INTERIOR OR COVER PLATE. USE SELF-ADHESIVE "DYMO" LABEL 1/8" HIGH LETTERS.
27	GENERAL CONTRACTOR SHALL PROVIDE SEISMIC RESTRAINTS AND SUPPORTS FOR ALL FLOOR, WALL, AND CEILING MOUNTED ELECTRICAL EQUIPMENT TO RESIST EARTHQUAKE EFFECTS DETERMINED IN ACCORDANCE WITH THE BUILDING CODE.
28	THE G.C. SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND LABOR TO COMPLETE ALL ELECTRICAL WORK IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE INCLUDING THE INSTALLATION OF ALL THE EQUIPMENT MATERIALS AND SYSTEMS AND THE FINAL CONNECTIONS TO THE OWNER'S EQUIPMENT AND FIXTURES AS REQUIRED BY THE OWNER. THE G.C. SHALL ALSO FURNISH TEMPORARY WIRING AND LIGHTING TO PROVIDE A MINIMUM OF 25 FC IN WORK AREAS FOR USE OF ALL THE TRADES DURING CONSTRUCTION AND THE INSTALLATION OF THE OWNERS FIXTURES. THE G.C. IS RESPONSIBLE TO REMOVE ALL TEMPORARY WIRING UPON COMPLETION OF CONSTRUCTION OF ALL TRADES.
29	THIS CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL SUPPLEMENTARY SUPPORT, INCLUDING SUPPORT STEEL AS REQUIRED TO HANG ALL EQUIPMENT AND LIGHTING FROM THE EXISTING STRUCTURE IN ACCORDANCE WITH THE ARCHITECTURAL/STRUCTURAL SUPPORT AND LOADING CRITERIA.
30	IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PROVIDE FULLY DIMENSIONED COORDINATION DRAWINGS FOR ALL OF HIS RESPECTIVE WORK. THESE DRAWINGS MUST BE FULLY COORDINATED WITH ALL EXISTING CONDITIONS. ALL HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, LIGHTING, STRUCTURAL AND ARCHITECTURAL SYSTEMS PRIOR TO PREPARING COMPOSITE MULTI DISCIPLINE COORDINATION DRAWINGS.
31	ALL DISCONNECTING MEANS AND EQUIPMENT INDICATED ON THE DRAWING SHALL BE IDENTIFIED BY NAMEPLATE IN COMPLIANCE WITH NMEC 110-22.
32	ALL WIRING FOR THE EMERGENCY LIGHTING AND EMERGENCY SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF NMEC ARTICLE 700.
33	THE WIRING METHODS AND MATERIALS INDICATED IN THE SPECIFICATIONS AND ON THE DRAWINGS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NMEC ARTICLE 300.

GENERAL ELECTRICAL NOTES	
#	DESCRIPTION
33	THE WIRING METHODS AND MATERIALS INDICATED IN THE SPECIFICATIONS AND ON THE DRAWINGS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NMEC ARTICLE 300.
34	THE ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM AS INDICATED ON THE RISER DIAGRAM AND MATERIALS INDICATED IN THE SPECIFICATIONS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE NMEC ARTICLE 230, SERVICES.
35	ALL OVER CURRENT PROTECTION SHALL BE IN COMPLIANCE WITH NMEC CODE SECTION 240, OVERCURRENT PROTECTION.
36	ALL GROUNDING REQUIREMENTS OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM AND AS INDICATED IN THE SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE NMEC CODE ARTICLE 250, GROUNDING AND BONDING.
37	AND/OR CUTTING OF ROOF, CONTRACTOR SHALL COORDINATE WITH BUILDING ENGINEER.
38	FOR ALL LIGHTING FIXTURES MOUNTED IN HUNG CEILING THE GENERAL CONTRACTOR SHALL PROVIDE AND INSTALL INDIVIDUAL SUPPORT AT EACH CORNER OF RECESSED LIGHTING TRIFLER CONNECTED TO BUILDING STEEL ABOVE ALL CONDUIT AND MC CABLE MOUNTED ABOVE CEILING SHALL BE INDIVIDUALLY SUPPORTED IN THE SAME FASHION AS PER NEC REQUIREMENTS.
39	DO NOT SCALE FROM THESE DRAWINGS.
40	PLANS ARE PREPARED WITH REQUIRED BRANCH CIRCUITS INDICATED BY CIRCUITS NUMBERS, PROVIDE AND INSTALL ALL CONDUITS, CONDUCTORS, BOXES, MISCELLANEOUS FITTINGS, ETC. FOR A COMPLETE AND OPERABLE SYSTEM (HOME RUN SHOWN). BRANCH CIRCUIT INSTALLATION SHALL COMPLY WITH SPECIFICATIONS AND NMEC
41	ELECTRICAL RECEPTACLE, SWITCH AND CONTROL HEIGHTS (NM COMM. BLDG CODE 1136A.1). RECEPTACLE HEIGHTS: ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTABLES SHALL BE LOCATED NO MORE THAN 48 INCHES (1219MM) MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING NOR LESS THAN 15 INCHES (381MM) MEASURED FROM THE BOTTOM OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING TO THE LEVEL OF FINISHED FLOOR OR WORKING PLATFORM. IF THE REACH IS OVEN AN OBSTRUCTION (FOR EXAMPLE, A KITCHEN BASE CABINET) BETWEEN 20 AND 25 INCHES (508 AND 635MM) IN DEPTH, THE MAXIMUM HEIGHT MEASURED AT THE BOX IS REDUCED TO 44 INCHES (1118MM) FOR FORWARD APPROACH, OR 46 INCHES (1168MM) FOR SIDE APPROACH, PROVIDED THE OBSTRUCTION IS NO MORE THAN 24 INCHES (610MM) IN DEPTH. OBSTRUCTION SHALL NOT EXCEED MORE THAN 25 INCHES (635MM) FROM THE WALL BENEATH THE RECEPTACLE.
42	SWITCH AND CONTROL HEIGHTS: (NM COMM. BLDG CODE 1136A.2.) CONTROL OR SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES, ALARMS OR COOLING, HEATING AND VENTILATING EQUIPMENT SHALL BE LOCATED NO MORE THAN 48 INCHES (1219MM) MEASURED FROM THE TOP OF THE OUTLET BOX NOR LESS THAN 15 INCHES (381MM) MEASURED FROM THE BOTTOM OF THE OUTLET BOX TO THE LEVEL OF THE FINISHED FLOOR OR WORKING PLATFORM. IF THE REACH IS OVER A PHYSICAL BARRIER OR AN OBSTRUCTION (FOR EXAMPLE, A KITCHEN BASE CABINET) BETWEEN 20 AND 25 INCHES (508 AND 635MM) IN DEPTH, THE MAXIMUM HEIGHT IS REDUCED TO 44 INCHES (1118MM) FOR FORWARD APPROACH, OR 46 INCHES (1168MM) FOR SIDE APPROACH, PROVIDED THE OBSTRUCTION IS NO MORE THAN 24 INCHES (610MM) IN DEPTH. PHYSICAL BARRIERS OR OBSTRUCTIONS SHALL NOT EXTEND MORE THAN 25 INCHES (635MM) FROM THE WALL BENEATH A CONTROL.

LIGHTING FIXTURE SCHEDULE						
Type	Symbol	Type Location Description	Mfr Catalog #	Lamps	Watts	Voltage
L1		C-1000 R-1000 d (6" r-1000 d)	L-1000 R-1000 LDN8 40/05 LOGAR LD	LED	20W	120/277V
L1E		C-1000 R-1000 d (6" r-1000 d) EM	L-1000 R-1000 LDN6 40/05 LOGAR LD	LED	20W	120/277V
L2		S-1000 d-1 W X 4L	L-1000 ZL1N-L4 6-3000LM-35K-MVOLT	LED	25W	120/277V
EX		S-1000 d-1 W X 4L WITH 90 MIN BATTERY	L-1000 ZL1N-L4 6-3000LM-35K-MVOLT-EM	LED	25W	120/277V
L3		W-1000 d-1 W X 4L HIGH EFFICIENCY	L-1000 ZL1N-L4 6-3000LM-35K-MVOLT-EM	LED	20W	120/277V
L4		2X4R-1000 d d	L-1000 ZTL4-48L-LP83 5	LED	40W	120/277V
L5		2X4R-1000 d d WITH 90 MIN BATTERY	L-1000 ZTL4-48L-LP83 5-EM	LED	40W	120/277V
L6			Luxx 1000 DE 480v	LED	1032W	480V
L7			Luxx 645W LED Pro 120-277v		645W	120/277V
L8		EXIT SIGN WITH COMBO UNIT	L-1000 ZTL4-48L-LP83 5-EM	LED	1.5 W	120

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	SINGLE POLE SWITCH AND BOX, WALL MOUNTED +44" AFF. LOWER CASE LETTER INDICATES CIRCUIT CONTROLLED BY SWITCH-WITH OCCUPANCY SENSOR.
	WALL MOUNTED DIMMER SWITCH, 0-10V DIMMING WITH ON-OFF SWITCH.
	WALL MOUNTED 3 WAY ON, CENTER OFF LOW VOLTAGE SWITCH FOR LCP CONTROLLER LIGHTS.
	RECEPTACLE, DUPLEX 20A, 120V GRD, NEMA 5-20R +18" AFF U.O.N. (WP=WEATHERPROOF, GFCI=GROUND FAULT CIRCUIT INTERRUPTER)
	DEDICATE RECEPTACLE, DUPLEX 20A, 120V GRD, NEMA 5-20R +18" AFF U.O.N. (WP=WEATHERPROOF, GFI=GROUND FAULT CIRCUIT INTERRUPTER)
	USB RECEPTACLE, DUPLEX 20A, 120V GRD, NEMA 5-20R +42" AFF U.O.N.
	RECEPTACLE, SINGLE, 20A, 120V GRD, NEMA 5-20R +18" AFF UON.
	RECEPTACLE, DOUBLE DUPLEX (2) 20A, 120V, GRD - NEMA (2) 5-20R +18" AFF U.O.N.
	RECEPTACLE DUPLEX 20A, 120V GRD NEMA 5-20R FLOOR MOUNTED.
	RECEPTACLE DOUBLE DUPLEX (2) 20A, 120V GRD, NEMA 5-20R UON. FLOOR MOUNTED.
	CONTROL PANELS FOR FLOWER ROOMS, CONTROL SCENARIO TO BE PROGRAMMED BY THE SPECIALIST
	TV OUTLET, WALL MOUNT +60" AFF PROVIDE RING & STRING TO PULL CABLES THRU HOLLOW WALL.
	COMBINATION 4-PLEX RECEPTACLE, NEMA 5-20R DOUBLE DUPLEX (1) DUPLEX AUTO CONTROLLED BY OCCUPANCY SENSOR PER T24, (1) DUPLEX UNCONTROLLED), & TYPE 6 VOICE/DATA OUTLET, FLOOR MOUNTED. PROVIDE MIN. 3/4" TEL/DATA CONDUIT WITH PULL WIRES.
	4-PLEX RECEPTACLE, NEMA 5-20R DOUBLE DUPLEX (1) DUPLEX AUTO CONTROLLED BY OCCUPANCY SENSOR PER T24, (1) DUPLEX UNCONTROLLED), +18" AFF, U.O.N. SEE NOTE 2.
	DUPLEX RECEPTACLE, NEMA 5-20R OCCUPANCY SENSOR CONTROLLED, +18" AFF, SEE NOTE 2.
	GFCI DUPLEX RECEPTACLE ABOVE COUNTER LEVEL, NEMA 5-20R.
	GFCI DUPLEX RECEPTACLE ABOVE COUNTER LEVEL, VACANCY SENSOR CONTROLLED, NEMA 5-20R.
	SPECIAL PURPOSE CONNECTION FOR ELECTRICAL EQUIPMENT. VERIFY CONNECTION TYPE AND WIRING REQUIREMENTS PRIOR TO ROUGH-IN.
	CLASS 1, DIVISION 1 RATED EXPLOSION-PROOF OUTLET. SEE ADDITIONAL NOTES ON SHEET E3.1.
	RECEPTACLE, 120V/240V, 3PH, 4W, GRD, RATING AS INDICATED IN PLANS.
	RECEPTACLE 20A, 480V, 3PH, 4W, GRD, NEMA L22-20R, +18" AFF UON.
	DUPLEX RECEPTACLE 20A, 120V, GND (5-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
	DOUBLE DUPLEX RECEPTACLE 20A, 120V, GND (5-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
	TWIST-LOCK RECEPTACLE 20, 250V, SINGLE PHASE (L6-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
	OCCUPANCY SENSOR LOW VOLTAGE CEILING MOUNTED FOR ROOM CONTROLLER.
	OCCUPANCY SENSOR LOW VOLTAGE WALL MOUNTED FOR ROOM CONTROLLER.
	CEILING MOUNTED DAYLIGHT SENSOR.
	JUNCTION BOX CEILING MOUNTED, SIZE TO CODE, TAPE AND TAG WIRES.
	JUNCTION BOX WALL MOUNTED, SIZE TO CODE, TAPE AND TAG WIRES.
	ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED (277/480V).
	ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED (120/208V).
	SPECIAL PURPOSE ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED.
	TRANSFORMER - DRY TYPE.
	FUSED DISCONNECT SWITCH WITH DUAL ELEMENT FUSES. SWITCH AND FUSES RATING PER NAMEPLATE OF SERVED UNIT.
	NON-FUSED DISCONNECT SWITCH, RATING PER NAMEPLATE OF SERVED UNIT.
	MAGNETIC MOTOR STARTER, NEMA RATING AS REQUIRED PER SERVED UNIT.
	WALL MOUNTED JUNCTION BOX FOR PRE-WIRED FURNITURE POWER SYSTEM CONNECTION. PROVIDE POWER WHIP WITH TERMINATION PLUG TO MATCH FURNITURE SYSTEM CONNECTOR. LOCATE BOX AS LOW AS POSSIBLE. FIELD COORDINATE FINAL LOCATION.
	COMBINATION TELEPHONE AND DATA OUTLET, WALL MOUNTED AS LOW AS POSSIBLE FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM.
	FLOOR MOUNTED FURNITURE FEEDS W/POWER & TELE/DATA PORT CAPACITY FOR ELECTRIFIED DESKS PER CLIENT'S REQUIREMENTS.
	POWER POLES W/POWER & TELE/DATA PORT CAPACITY FOR ELECTRIFIED DESKS PER CLIENT'S REQUIREMENTS.
	Smoke Detector
	Carbon Monoxide Detector
	LEGEND NOTES: 1. MOUNTING HEIGHT INDICATED ARE AFF TO CENTER OF PLATE. IN CASE OF CONFLICT, GENERAL NOTES 41 & 42 SHALL PREVAIL. 2. NOT ALL SYMBOLS AND ABBREVIATIONS ARE NECESSARILY USED IN THIS PROJECT.

WIRE SCHEDULE AND NOTES				
LOAD PER PH (KVA)	WIRE SIZE (AWG)	MAXIMUM LENGTH OF BRANCH CIRCUIT PER UTILIZATION VOLTAGE		
		(120, 1PH, MAX V.D. 3%)	(240, 1PH, MAX V.D. 3%)	(240, 3PH, MAX V.D. 3%)
< 1.92	#12	56 FT	85 FT	98 FT
	#10	94 FT	141 FT	163 FT
	#8	144 FT	217 FT	250 FT
< 1.44	#6	230 FT	345 FT	398 FT
	#12	75 FT	113 FT	130 FT
	#10	125 FT	188 FT	217 FT
< 1.26	#8	192 FT	289 FT	334 FT
	#6	306 FT	460 FT	531 FT
	#12	86 FT	129 FT	149 FT
< 1.08	#10	143 FT	215 FT	248 FT
	#8	220 FT	330 FT	381 FT
	#12	100 FT	150 FT	173 FT
< 0.9	#10	167 FT	250 FT	289 FT
	#8	256 FT	385 FT	445 FT
	#12	120 FT	180 FT	240 FT
< 0.72	#10	200 FT	300 FT	347 FT
	#12	150 FT	225 FT	260 FT
	#10	250 FT	376 FT	434 FT

NOTES	
1	CONTRACTOR SHALL REFER TO THIS TABLE PRIOR TO START OF BRANCH CIRCUIT ROUGH-IN.
2	CONTRACTOR SHALL USE THE APPROPRIATE WIRE SIZE IN CONJUNCTION WITH THE LENGTH OF THE PROPOSED FIELD VERIFIED ROUTING OF BRANCH CIRCUIT WIRING (INCLUDING VERTICAL & LATERAL RUN, ROUTED PARALLEL/PERPENDICULAR TO THE BUILDING STRUCTURE).
3	SEE PANEL SCHEDULE FOR THE CORRESPONDING KVA LOAD PER PHASE OF A PARTICULAR BRANCH CIRCUIT.
4	RESISTANCE VALUES USED ARE FOR UNCOATED COPPER WIRES IN STEEL CONDUIT, 75 DEGREE C., OPERATING AT 60HZ.
5	THE VALUES IN "120V, 1PH" COLUMN IS TO BE USED FOR GENERAL PURPOSE RECEPTACLE LOADS.

ABBREVIATIONS AND TAGS			
ABB.	DESCRIPTION	ABB.	DESCRIPTION
EW H	ELECTRIC WATER HEATER	SD	SMOKE DETECTOR
(E)	EXISTING TO REMAIN	TEL	TELEPHONE
EC	ELECTRICAL CONTRACTOR	TX	TRANSFORMER
FA	FIRE ALARM	TV	TELEVISION
FMT	FLEXIBLE METALLIC TUBING	UAC	UNDER ANOTHER CONTRACT
GC	GENERAL CONTRACTOR	UAS	UNDER ANOTHER SECTION
GFI	GROUND FAULT INTERRUPTER	UON	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND	V.D.	VOLTAGE DROP
LL	LANDLORD	W	WIRE
LV	LOW VOLTAGE	WP	WEATHERPROOF
AC	MECHANICAL UNIT TAG. SEE MECHANICAL DRAWINGS FOR ADDITIONAL DESCRIPTION.	E-4	DETAIL TAG. REFER TO DETAIL 4 ON SHEET NUMBER E-4.

ABBREVIATIONS AND TAGS	
	ONE WAY ONE GANG LIGHT SWITCH - WALL MOUNTED @ 48" A.F.F.L. D: DENOTES SWITCH WITH DIMMER
	TWO WAY ONE GANG LIGHT SWITCH - WALL MOUNTED @ 48" A.F.F.L. D: DENOTES SWITCH WITH DIMMER
	ONE WAY ONE GANG SWITCH FOR TOILET EXHAUST FAN - WALL MOUNTED @ 48" A.F.F.L

CLIENT:			
ADDRESS:			
420 RACE STREET HOLYOKE, MASSACHUSETTS			
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NOTES:			
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PROJECT:			
CANNABIS CULTIVATION			
TITLE: ELEC GENERAL NOTES AND LEGEND			
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: NTS	
DRAWING NO.			REV.
E 0 . 0 0			

ELECTRICAL SPECIFICATIONS											
PART 1		GENERAL	PART 2		PRODUCTS	PART 2		PRODUCTS	PART 3		EXECUTION
1.01		SCOPE OF WORK: Furnish and install all materials and equipment and provide all labor, tools, transportation, superintendence and services required and necessary to complete the work shown on the drawings and/or specified herein. Also include all other work and miscellaneous items, not specifically mentioned, but reasonably inferred for a complete installation including all accessories and appurtenances required for testing the system. It is the intent of the drawings and specifications that all systems be complete, and ready for operation.	2.01	MATERIAL APPROVAL: All materials must be new and bear Underwriter's Laboratories label. Materials that are not covered by UL testing standards shall be tested and approved by an independent testing laboratory or a governmental agency. Material not in accordance with these specifications may be rejected either before or after installation.				DRY TYPE TRANSFORMERS: General: Equipment shall conform to or exceed requirements of NEMA, ANSI Standard C89.2 for Dry Type Transformers for General Applications. Acceptable products are those of General Electric Company's "QL," Line or equivalent Square D, Siemens-ITE, or Eaton. Electrical Ratings: 1. Secondary windings voltage: 480Y/277V Volts, 3-Phase, WYE Grounded. Primary windings voltages: 208Y/120V Volts, 3-Phase . Frequency: 60 Hz. KVA rating: As shown on drawings. Taps: Six (6) 2.5% full capacity taps; 2 above and 4 below, rated voltage. Impedance: For transformers larger than 75 KVA, 4.5% minimum, 5.75% maximum. Winding temperature rise shall be 150 degrees Centigrade in accordance with UL Specification Article 506. 3. Transformer shall be capable of operating at 100% of nameplate rating continuously while in an ambient temperature not exceeding 40 degrees Centigrade. 4. Transformer shall meet the daily overload requirements of ANSI Standard C57.96. Vibration Isolation, Factory-Installed: Provide neoprene rubber pads to isolate core and coil assembly from transformer enclosure. Installation: 1. Anchor transformer securely with minimum 1/2" diameter bolts. Strength of bolts used to secure the transformer shall be sufficient to resist shear and uplift produced by force equal to 1/2 of the equipment mass applied horizontally at center of gravity. 2. Provide 1" thick high resiliency pads to isolate transformer from floor or platform. Korlund "Elasto Rib" or equivalent. 3. Use flexible conduits at least 24" long for electrical connections. 4. Provide grounding of each transformer secondary including all conduits, wires, and conductors in accordance with NEC 250-26 and any local additional regulations.	3.06	INSTALLATION OF WIRES: A. Pull no wire into any portion of the conduit system until all construction work which might damage the wire has been completed. B. Install all wire continuous from outlet to outlet or terminal to terminal. Splices in cables when required shall be made in handholes, pull boxes or junction boxes. Make branch circuit splices in outlet boxes with 8" of correctly color-coded tools left in the box. C. Splices in wires and cables shall be made utilizing materials and methods described herein before. D. Make all ground, neutral and line connections to receptacle and wiring device terminals as recommended by manufacture. Provide ground jumper from outlet box to ground terminal of devices when the device is not approved for grounding through the mounting screws. E. Provide Brady wire markers where number of conductors in a box exceeds four. F. Megger and record insulation resistance of all 600 Volt insulated conductors size #4/0 and larger using 500 Volt megger for one minute. Make tests with circuits isolated from source and load.	
1.02		REGULATORY REQUIREMENTS: Code compliance is mandatory. Nothing in these Drawings and Specifications work not conforming to these codes. Where work is shown to exceed minimum code requirements, comply with drawings and specifications. All work and materials shall comply with the latest rules, codes and regulations, including, but not limited to the following: 1. Occupational Safety and Health Act Standards (OSHA). 2. NFPA #70: National Electric Code (NEC). 3. NFPA #101: Life Safety Code. 4. State Fire Marshal. 5. Local Utilities Companies.	2.02	CONDUITS AND OTHER RACEWAYS: A. Rigid Steel: Hot-dipped galvanized. B. Intermediate Metal Conduit (IMC): Hot-dipped galvanized. C. Electrical Metallic Tubing (EMT): Electro-galvanized. D. Wireway: Code gauge steel, with knockouts and hinged cover, corrosion resistant gray baked enamel finish. E. Provide fittings and accessories approved for the purpose equal in all respects to the conduit or raceway. EMT connectors and couplings shall be steel setscrew type indoors and steel compression type in wet locations and outdoors.	2.12				IDENTIFICATION: A. Provide nameplates for switchgears, panelboards, and all similar devices. Nameplates shall be screwed (no adhesives) engraved bakelite or photo-etched metallic nameplate identification showing panel designation, voltage and phase in minimum 1/4" high letters. B. Provide dymo labels on all lighting switches and convenience and special purpose receptacles to show panel and circuit number to which the device is connected. C. Each panelboard shall contain a metal-framed circuit directory inside cover, with plastic protector. D. Panelboard Schedule: After completion of work, provide typewritten updated panelboard schedules for all panelboards.		
1.03		LICENSE, FEES AND PERMITS: Electrical contractor shall pay for all licenses, permits and inspection fees required by the authority having jurisdiction and shall arrange for all required inspections.		WIRES AND CABLES: A. For power and lighting system 600V or less: 1. Conductor: minimum size #12 AWG. a. #12 and #10 AWG solid copper. b. #8 AWG and larger shall be stranded copper. 2. Insulation type: a. #12 to #1 AWG: THWN for wet or underground and THHN for dry locations. b. #1/0 through #4/0 AWG: XHHW (55 mils). c. #250 MCM and larger: XHHW (65 mils). d. Grounding wire: TW. B. For signal and communications circuit: 1. Special cables shall be as specified on drawings. 2. Conductors for general use shall be stranded copper conductor, #16 AWG minimum, with THWN insulation for underground or wet locations and THHN insulation for dry locations. C. Acceptable Products: General Electric, Anaconda, Okonite, Paronite or Triangle products conforming or exceeding applicable IPCEA standards.							
1.04		SAFETY AND INDEMNITY: The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of work. This requirement will apply continuously and not be limited to normal working hours. No act, service, drawing review or construction review by the Owner, the Engineers or their Consultants, is intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.	2.03	OUTLET BOXES, JUNCTION AND PULL BOXES: A. Outlet boxes: 4" square x 1-1/2" deep (or larger) galvanized sheet steel KO-type with plaster ring and cover for general interior use and cast metal type FS or FD with matching screw covers for exterior and exposed interior locations (gasketed in damp or wet locations). B. Junction boxes shall be same as outlet boxes up to 42 cu. in. and codegauge steel in larger sizes with surface or flush-type screw-mounted trim covers, both boxes and covers inhibitor-primed and painted inside out. C. Pull boxes shall be same as junction boxes unless indicated otherwise on the drawings, with covers. D. Telephone outlet boxes shall be the type and size required by the serving telephone company but not smaller than 4-11/16" square x 2-1/8" deep with single-gang ring and Sierra #S-754N split plate bushing.							
1.05		DRAWINGS AND SPECIFICATIONS: All drawings and all Divisions of these specifications shall be considered as a whole and work of this Division shown anywhere therein shall be furnished under this Division. Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduits and wiring is not assured. Exact requirements shall be governed by conditions of the job. Consult all other drawings in preparation of the bid. Extra lengths of wiring or addition of pull or junction boxes, etc., necessitate by such conditions shall be included in the bid.									
1.06		CONDITIONS AT SITE: The electrical contractor shall have examined the site and familiarized themselves with all discernible existing conditions. No extra payment will be allowed for work required because of these conditions, whether specifically mentioned or not.	2.04	WIRING DEVICES AND PLATES: Wiring devices and plates shall be by Pass and Seymour or approved equal. 1. Standard design: a. Switch and receptacles devices shall be plastic bodies, color per architect. b. Wall plates shall be metal type 430, stainless steel, color per architect. c. Isolated ground receptacles shall be white with orange triangle as required per NEC, manufactured by "Leviton" # 5362-IGW or approved equal.	3.01						
1.07		WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS: Only quality workmanship will be accepted. Haphazard or poor installation will be cause for rejection of work.									
1.08		SHOP DRAWINGS AND MATERIALS LISTS: Submit to Owner in a single package six (6) copies of complete shop drawings and materials list, as noted below, for review within fifteen (15) days after award of contract. Submittals required as follows: 1. Wiring devices: switches, receptacles, device plates. 2. Enclosures for utility company metering. 3. Main fused disconnect switch. 4. Panelboards. 5. Disconnect switches. 6. Lighting fixtures, lamps and lighting control equipment.	2.05	CONDUIT HANGERS: For individual conduit runs not directly fastened to the structure, use rod hangers manufactured by Caddy, UniStrut or Powerstrut. For multiple conduit runs, use UniStrut or Powerstrut trapeze type conduit support designed for maximum deflection not greater than 1/8".	3.02						
1.09		SUBSTITUTIONS: One or more makes of materials or methods may have been specified to establish the standard of quality, workmanship, finish and design required, but other materials or methods equal in quality, workmanship, finish, design, and guaranteed performance will be accepted. However, all changes and substitutions shall be requested in letter form and shall be accompanied with a statement of the amount of money to be returned to the contract if the substitution is permitted. No work involving materials submitted for substitution shall proceed until written acceptance is received from the Owner. The Owner is the sole judge of acceptability of preferred substitutions. If a substitution item is permitted, and any re-design effort is thereby necessitated, the required redesign shall be at the Contractor's expense.	2.06	WIRE CONNECTORS: For wire sizes #8 AWG and smaller: Insulated pressure type (with live spring) rated 105 degrees C, 600V, for building wiring and 1000V in signs or fixtures. Scotchlok or Ideal. For wire size #6 AWG and larger: T & B or equivalent compression type with 3M #33+ or Plymouth "Slipknot Grey" tape insulation.							
1.10		COORDINATION: Coordinate work with other trades to avoid conflict and to provide correct rough-in and connection for equipment furnished under other trades that require electrical connections. Inform Contractors of other trades of the required access to and clearances around electrical equipment to maintain service ability and code compliance. Verify equipment dimensions and requirements with provisions specified under this Section. Check actual job conditions before fabricating work. Report necessary changes in time to prevent needless work. Changes or additions, subject to additional compensation, which are made without written authorization and an agreed price, shall be at the Contractor's risk and expense.		PANELBOARDS: A. Construction: Cabinets shall be of code gauge, galvanized steel, surface or flush mounted as indicated. Doors shall be of cold-rolled steel with concealed hinges and flush catch and lock. All panels shall be keyed alike. Panels located adjacent to each other shall have identically sized enclosure and trims. Minimum panel width shall be 20". Finish exposed part with one coat of primer and one coat of light grey enamel suitable for overpainting in field if desired. Bus Bars: Provide ground block with full complement of terminals in addition to insulated neutral bus. Future breaker spaces shall have complete provision including busses and connecting hardware. B. Manufacturers: Panelboards shall be General Electric Type "AQ" or type "AE" or equivalent products of Eaton Cutler-Hammer, Square-D or Siemens-ITE. C. Circuit Breakers: Shall be quick-make, quick-break, molded case type: 1. 120/240 Volt Panels: Shall be General Electric Type "QL" line, bolt-on type, with minimum symmetrical interrupting capacity as shown. 2. Provide multi-pole units with common trip element. 3. Circuit breakers used on "ON-OFF" control of fluorescent lighting (panelboard switching) shall be Underwriters' Laboratories listed and marked "SWD" to indicate their suitability. E. Identification: Provide screwed-on (no adhesives) bakelite or photo-etched metallic nameplate identification on outside of each panel showing panel designation, voltage and phase in minimum 1/8" high letters. Each panel shall contain a metal-framed circuit directory inside cover, with plastic protector. Complete shop drawings are required. See Article 1.08.							
1.11		CUTTING AND PATCHING: All cutting and patching required for work of this Division is included herein. Coordination with General Contractor and other trades is imperative. Contractor shall bear the responsibility for and the added expense of adjusting for improper holes, supports, etc.	2.08	INDIVIDUALLY MOUNTED MOTOR CONTROLLERS: A. For Polyphase Motors: Combination motor circuit protector and magnetic starter, with 3-leg overload protection. Provide two interlock contacts of the interchangeable open-close type. Provide hand-off-automatic selector switch, motor running pilot light and reset button in cover. Circuits 300V and over shall be provided with 120V control transformers. B. Starters for fractional horsepower 120V motors shall be manual type unless shown otherwise, equipped with built-in overload protection. C. Acceptable manufacturers: General Electric, Siemens, Square D, Eaton, and Allen Bradley.	3.03						
1.12		ACCEPTANCE DEMONSTRATION: Upon completion of the work, at a time to be designated by the Owner, the Contractor shall demonstrate for the Owner the operation of the electrical installation including any and all special items installed by him or installed under his supervision. Properly set automatic time switches to perform switching operations in accordance with schedules provided by the Owner's representative, and demonstrate (using the manufacturer's operating instructions) how to override and/or test time switches programming.									
1.13		RECORD DRAWINGS, EQUIPMENT DATA: Maintain one set of clean working drawings at the job site and enter daily such "as-built" information as feeder and service routes, pull box locations and changes in layout or arrangement which occur during construction. Deliver completed drawings to the Owner. Deliver to the Owner's representative three copies of data sheets or other current manufacturers' publications for each item of electrical equipment furnished for the project including at least these data: 1. Technical description and replaceable parts list. 2. Physical description and installation instructions. 3. Main fused disconnect switch. 4. Manufacturer's Warranty.	2.09	LIGHTING: A. Furnish and install all fixtures complete, including lamps and ballast ready for service. B. Supports: Proper supports and mounting accessories, such as hangers, stems, yokes, plaster frames, etc. shall be provided as required by the type of ceiling installed. Where swivel canopies or ball aligners are specified, they shall cover fixture to hang plump regardless of ceiling slope. C. Fixture Designation: Fixture types are designated on drawings. Where only one fixture designation is shown, it applies to all fixtures in that room or area. For exact fixture count and location refer to reflected ceiling plan.	3.04						
1.14		CLEAN-UP: Rid the premises of scrap materials, trash and debris both during construction and at completion of the project. Leave the building and surrounding area in a clean and orderly condition.									
1.15		GUARANTEE: Guarantee the installation free from defects of workmanship and materials for a period of one year after Date of Certification of final payment and promptly remedy any defects developing during this period, without charge.	2.10								
1.16		TEMPORARY SERVICES: Provide adequate and safe temporary electrical power and lighting throughout the construction and finishing of the premises. In addition to special or unusual requirements, provide at least these items: 1. Three 20-amp circuits for construction power tools. Provide GFI temporary circuits with coverplates to meet OSHA requirements. 2. Three or more light strings suspended approximately one foot below the height of finish ceiling with lamps spaced not more than twelve feet on centers. Strings shall be run the length of the store space parallel to the demising walls, with one string within eight feet of each wall and one (or more) intermediate string(s) arranged to limit the spacing between rows to sixteen feet or less. 3. Flood lighting and task lighting for painting and other finish work. When permanent electrical service is operable, disconnect and remove from the premises the materials and equipment used for temporary power and lighting, and restore modifications and repair damage caused by the installation, use or removal of temporary service provisions.	2.11	MISCELLANEOUS MATERIALS: A: Heavy duty type, 600V, horsepower rated for motors, fused or non-fused as required. Mount in enclosure with NEMA rating as required for the specific application General Electric, Square D or Eaton.	3.05						
	</										

CLIENT:

ADDRESS:

420 RACE STREET
HOLYOKE, MASSACHUSETTS

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

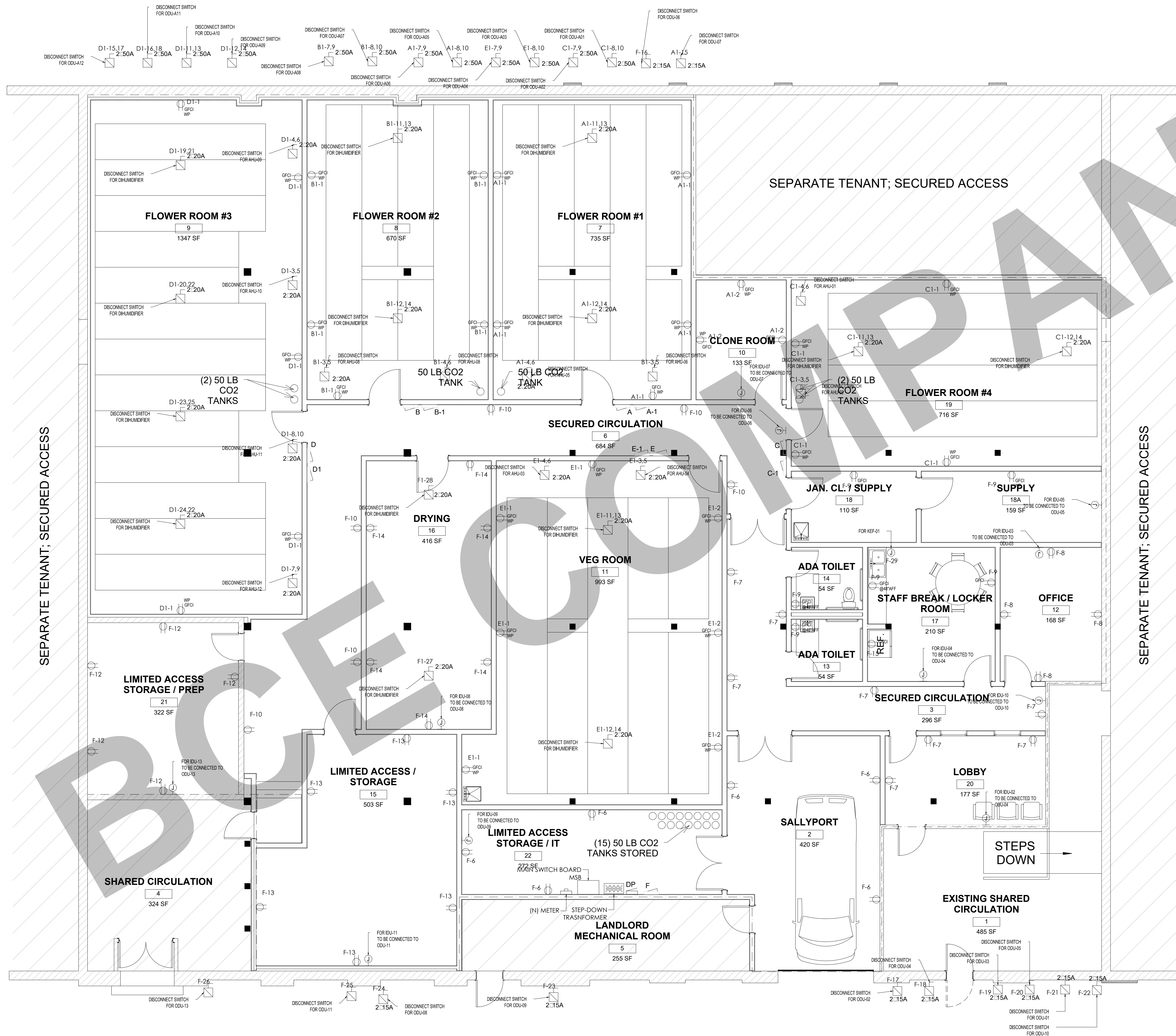
CANNABIS CULTIVATION

TITLE:
ELECTRICAL SPECIFICATIONS

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36:
		NTS

DRAWING NO.	REV.
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E 0 . 0 1



CLIENT:

ADDRESS:

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

CANNABIS CULTIVATION

TITLE:
**MAIN FLOOR
POWER LAYOUT**

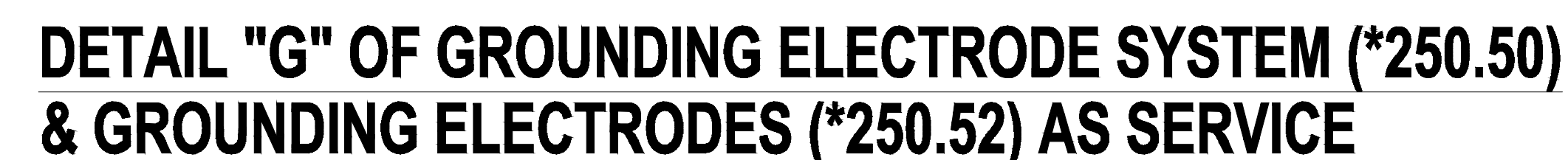
PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
NTS

DRAWING NO.

E 2 . 0 1

REV.

ALL STEEL REBARS MEASURING 1/2" OR MORE IN DIAMETER AND 20' OR LONGER IN LENGTH THAT IS ENCASED IN NOT LESS THAN 2 INCHES OF CONCRETE SHALL BE BONDED TO THE BUILDING'S GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 250 (ELECTRICAL SUB CODE) SECTION 250.52(A)(3). THE "UFER" GROUND CAN BE 20 L.F. OF #2 OR #4 COPPER WIRING LAID INSIDE THE FOOTING AND THE SAME WIRE IS LONG ENOUGH TO REACH TO THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE. UFER GROUND CAN BE (1) L-SHAPED PIECE OF #4 STEEL REBAR CONNECTED TO THE OTHER STEEL REBAR IN THE FOOTING AND STICKING OUT IN SUFFICIENT LENGTH FOR CONNECTION AT THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE



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[illegible]

PROJECT:

CANNABIS CULTIVATION

TITLE:
EARTHING DETAIL

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: NTS
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DRAWING NO.

E 3 . 0 2

REV.

Location: ELEC			CONNECTED LOAD			DEMAND TOTAL
* LOAD SUMMARY	CL	DF	A	B	C	
L Lighting		1.25				
R Convenience Recept						
H Heating (Space)		1.25				
C Cooling		1.00				
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous	343.53	1.00	141.66	119.24	82.63	343.53
M Motor		1.00				
Total	343.53		141.66	119.24	82.63	343.53
Total Demand Load (KVA)	343.53					
Total Demand Current (A)	413.20					
Min. Feeder Ampacity (A)	516.50					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	PANEL A	N	4x 2 AWG - #6G	100A-3P	16.51	28.90		12.38		100A-3P	4x 2 AWG - #6G	PANEL B	N 2
3		N			16.51	22.70		6.19		100A-3P	4x 2 AWG - #6G		N 4
5		N			8.26		16.51	8.26					N 6
7		N			16.51	39.22		22.70					N 8
9	PANEL C	N	4x 2 AWG - #6G	100A-3P	8.26	33.02		24.77		100A-3P	4x 2 AWG - #6G	PANEL D	N 10
11		N			8.26		23.74	15.48					N 12
13		N			8.00	73.55		65.55					N 14
15	PANEL E	N	4x 2 AWG - #6G	100A-3P	8.00	63.51		55.51		400A-3P	4x 500-kcmil - #110G	DP	N 16
17		N			4.00		42.38	38.38					N 18
19													N 20
21	SPACE											SPACE	N 22
23													N 24
(KVA)													

Location: ELEC			CONNECTED LOAD			DEMAND TOTAL
* LOAD SUMMARY	CL	DF	A	B	C	
L Lighting	26.83	1.25	12.38	6.19	8.26	33.54
R Convenience Recept						
H Heating (Space)		1.25				
C Cooling		1.00				
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous		1.00				
M Motor		1.00				
Total	26.83		12.38	6.19	8.26	33.54
Total Demand Load (KVA)	33.54					
Total Demand Current (A)	40.34					
Min. Feeder Ampacity (A)	50.43					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	Lighting Flower Room #2	L	2X 10 AWG - #10G	30A-1P	4.13	8.26		4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #2	L 2
3	Lighting Flower Room #2	L	2X 10 AWG - #10G	30A-1P	2.06		6.19	4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #2	L 4
5	Lighting Flower Room #2	L	2X 10 AWG - #10G	30A-1P	4.13			8.26	4.13	30A-1P	2X 10 AWG - #10G	Lighting Flower Room #2	L 6
7	Lighting Flower Room #2	L	2X 10 AWG - #10G	30A-1P	4.13	4.13						SPACE	8
9	SPACE											SPACE	10
11	SPACE											SPACE	12
(KVA)													
Total Connected Load 12.38 6.19 8.26													

Location: ELEC			CONNECTED LOAD			DEMAND TOTAL
* LOAD SUMMARY	CL	DF	A	B	C	
L Lighting	33.02	1.00	16.51	8.26	8.26	33.02
R Convenience Recept						
H Heating (Space)		1.25				
C Cooling		1.00				
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous		1.00				
M Motor		1.00				
Total	33.02		16.51	8.26	8.26	33.02
Total Demand Load (KVA)	33.02					
Total Demand Current (A)	39.72					
Min. Feeder Ampacity (A)	49.65					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	Lighting Flower Room #4	L	2X 10 AWG - #10G	30A-1P	4.13	8.26		4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #4	L 2
3	Lighting Flower Room #4	L	2X 10 AWG - #10G	30A-1P	4.13		8.26	4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #4	L 4
5	Lighting Flower Room #4	L	2X 10 AWG - #10G	30A-1P	4.13			8.26	4.13	30A-1P	2X 10 AWG - #10G	Lighting Flower Room #4	L 6
7	Lighting Flower Room #4	L	2X 10 AWG - #10G	30A-1P	4.13	8.26		4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #4	L 8
9	SPACE											SPACE	10
11	SPACE											SPACE	12
(KVA)													
Total Connected Load 16.51 8.26 8.26													

PANEL MSB	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	480/277V, 3ø, 4W
BUS SIZE	600
SYSTEM TYPE	NORMAL
FEEDER PROT	600A-3P C/B Bus Plug
CONDUCTOR SIZE	500-kcmil - #110G CU
CONDUCTOR/PHASE	2
MAINS	500A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.116
FAULT CURRENT	
KAIC RATING	42
ENCLOSURE	TYPE 3R

Location: ELEC			CONNECTED LOAD			DEMAND TOTAL
* LOAD SUMMARY	CL	DF	A	B	C	
L Lighting	41.28	1.25	16.51	16.51	8.26	51.60
R Convenience Recept						
H Heating (Space)		1.25				
C Cooling		1.00				
A hVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous		1.00				
M Motor		1.00				
Total	41.28		16.51	16.51	8.26	51.60
Total Demand Load (KVA)	51.60					
Total Demand Current (A)	62.07					
Min. Feeder Ampacity (A)	77.58					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	Lighting Flower Room #1	L	2X 10 AWG - #10G	30A-1P	4.13	8.26		4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #1	L 2
3	Lighting Flower Room #1	L	2X 10 AWG - #10G	30A-1P	4.13		8.26	4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #1	L 4
5	Lighting Flower Room #1	L	2X 10 AWG - #10G	30A-1P	4.13			8.26	4.13	30A-1P	2X 10 AWG - #10G	Lighting Flower Room #1	L 6
7	Lighting Flower Room #1	L	2X 10 AWG - #10G	30A-1P	4.13	8.26		4.13	30A-1P	2X 10 AWG - #10G		Lighting Flower Room #1	L 8
9	Lighting Flower Room #1	L	2X 10 AWG - #10G	30A-1P	4.13		8.26	4.13	30A-1P	2X 10 AWG - #10G		Lighting Clone Room	L 10
11	SPACE											SPACE	12
(KVA)													
Total Connected Load 16.51 16.51 8.26													

Location: ELEC			CONNECTED LOAD			DEM AND TOTAL
* LOAD SUMMARY	CL	DF	A	B	C	
L Lighting	62.95	1.00	22.70	24.77	15.48	62.95
R Convenience Recept						
H Heating (Space)		1.25				
C Cooling		1.00				
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous		1.00				
M Motor		1.00				
Total	62.95		22.70	24.77	15.48	62.95
Total Demand Load (KVA)	62.95					
Total Demand Current (A)	75.72					
Min. Feeder Ampacity (A)	94.65					

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA
1	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13	8.26			4.13
3	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13		8.26		4.13
5	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13			7.22	3.10
7	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13	7.22			3.10
9	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13		8.26		4.13
11	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13			8.26	4.13
13	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13	7.22			3.10
15	Lighting Flower Room #3	L	2X 10 AWG - #10G		30A-1P	4.13		8.26		4.13
17	SPACE									
19	SPACE									
21	SPACE									
23	SPACE									
(KVA)										
Total Connected Load							22.70	24.77	15.48	

Location: ELEC						
* LOAD SUMMARY	CL	DF	CONNECTED LOAD			DEMAND TOTAL
L Lighting		1.25	A	B	C	
R Convenience Recept						
H Heating (Space)		1.25				
C Cooling		1.00				
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous	159.44	1.00	65.55	55.51	38.38	159.44
M Motor		1.00				
Total	159.44		65.55	55.51	38.38	159.44
Total Demand Load (KVA)	159.44					
Total Demand Current (A)	442.56					
Min. Feeder Ampacity (A)	553.20					

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	PANEL A1	N	4x 2 AWG - #6G		100A-3P	11.68	22.54			10.87		4x 2 AWG - #6G		PANEL B1	N 2
3		9.72					19.08	9.36	N 4						
5		2.08					4.15	2.08	N 6						
7	PANEL C1	N	4x 2 AWG - #6G		100A-3P	10.60	23.54			12.94	150A-3P	4x 1/0 AWG - #4G		PANEL D1	N 8
9		8.26					19.69	11.44	N 10						
11		8.26					27.13	18.88	N 12						
13	PANEL E1	N	4x 2 AWG - #6G		100A-3P	11.02	19.47			8.44	100A-3P	4x 2 AWG - #6G		PANEL F	N 14
16		9.36					16.74	7.38	N 16						
17		1.69					7.10	5.40	N 18						
19	SPACE													SPACE	20
21										22					
23										24					
			(KVA)												
Total Connected Load							65.55	55.51	38.38						

Location: ELEC						
* LOAD SUMMARY	CL	DF	CONNECTED LOAD			DEMAND TOTAL
L Lighting		1.00	A	B	C	
R Convenience Recept	1.35		1.35			1.35
H Heating (Space)		1.25				
C Cooling	18.72	1.00	8.40	9.36	0.96	18.72
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous	2.23	1.00	1.12		1.12	2.23
M Motor		1.00				
Total	22.30		10.87	9.36	2.08	22.30
Total Demand Load (KVA)	22.30					
Total Demand Current (A)	61.90					
Min. Feeder Ampacity (A)	77.38					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	Receptacles Flower ROOM#2	R	2X 12 AWG - #12G	20A-1P	1.35	1.35						SPACE	2
3	AHU-08	C	3X 14 AWG - #14G	15A-2P	0.48		0.96	0.48	15A-2P	3X 14 AWG - #14G		AHU-07	C 4
5		C			0.48		0.96	0.48					C 6
7	ODU-A08	C	3X 8 AWG - #8G	50A-2P	4.20	8.40		4.20	50A-2P	3X 8 AWG - #8G		ODU-A07	C 8
9		C			4.20	8.40		4.20					C 10
11	DIHUMIDIFIER DEH-350	N	3X 14 AWG - #14G	15A-2P	0.56		1.12	0.56	15A-2P	3X 14 AWG - #14G		DIHUMIDIFIER DEH-350	N 12
13		N			0.56	1.12		0.56					N 14
15	SPACE											SPACE	16
17	SPACE											SPACE	18
				(KVA)									
				Total Connected Load				10.87	9.36	2.08			

PANEL DP	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	208/120V, 3ø, 4W
BUS SIZE	600A
SYSTEM TYPE	NORMAL
FEEDER PROT.	600A-3P C/B Bus Plug
CONDUCTOR SIZE	500-kcmil - #4GG CU
CONDUCTOR/PHASE	2
MAINS	600A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	20
FEEDER V. DROP (%)	0.129
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 3R

Location: ELEC						
* LOAD SUMMARY	CL	DF	A	B	C	DEMAND TOTAL
L Lighting		1.00				
R Convenience Recept	2.16		2.16			2.16
H Heating (Space)		1.25				
C Cooling	19.08	1.00	8.40	9.72	0.96	19.08
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous	2.23	1.00	1.12		1.12	2.23
M Motor		1.00				
Total	23.47		11.68	9.72	2.08	23.47
Total Demand Load (KVA)	23.47					
Total Demand Current (A)	65.15					
Min. Feeder Ampacity (A)	81.44					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	Receptacles Flower ROOM#1	R	2X 12 AWG - #12G	20A-1P	1.35	2.16		0.81	20A-1P	2X 12 AWG - #12G		Receptacles Veg Room	R 2
3	AHU-06	C	3X 14 AWG - #14G	15A-2P	0.48		0.96	0.48	15A-2P	3X 14 AWG - #14G		AHU-05	C 4
5		C			0.48		0.96	0.48					C 6
7	ODU-A06	C	3X 8 AWG - #8G	50A-2P	4.20	8.40		4.20	50A-2P	3X 8 AWG - #8G		ODU-A05	C 8
9		C			4.20	8.40		4.20					C 10
11	DIHUMIDIFIER DEH-350	N	3X 14 AWG - #14G	15A-2P	0.56		1.12	0.56	15A-2P	3X 14 AWG - #14G		DIHUMIDIFIER DEH-350	N 12
13		N			0.56	1.12		0.56					N 14
16	ODU-07	C	2X 14 AWG - #14G	15A-1P	0.36		0.36					SPACE	16
17	SPACE											SPACE	18
				(KVA)									
				Total Connected Load				11.68	9.72	2.08			

Location: ELEC						
* LOAD SUMMARY	CL	DF	A	B	C	DEMAND TOTAL
L Lighting		1.00				
R Convenience Recept	1.08		1.08			1.08
H Heating (Space)		1.25				
C Cooling	18.72	1.00	8.40	9.36	0.96	18.72
A HVAC		1.00				
P Process		1.00				
O Other Continuous		1.25				
K Kitchen		0.65				
N Noncontinuous	2.23	1.00	1.12		1.12	2.23
M Motor		1.00				
Total	22.03		10.60	9.36	2.08	22.03
Total Demand Load (KVA)	22.03					
Total Demand Current (A)	61.15					
Min. Feeder Ampacity (A)	76.44					

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1	Receptacles Flower ROOM#4	R	2X 12 AWG - #12G	20A-1P	1.08	1.08						SPACE	N 2
3	AHU-02	C	3X 14 AWG - #14G	15A-2P	0.48		0.96	0.48	15A-2P	3X 14 AWG - #14G		AHU-01	C 4
5		C			0.48		0.96	0.48					C 6
7	ODU-A02	C	3X 8 AWG - #8G	50A-2P	4.20	8.40		4.20	50A-2P	3X 8 AWG - #8G		ODU-A01	C 8
9		C			4.20	8.40		4.20					C 10
11	DIHUMIDIFIER DEH-350	N	3X 14 AWG - #14G	15A-2P	0.56		1.12	0.56	15A-2P	3X 14 AWG - #14G		DIHUMIDIFIER DEH-350	N 12
13		N			0.56	1.12		0.56					N 14
15	SPACE											SPACE	16
17	SPACE											SPACE	18
				(KVA)									
				Total Connected Load				10.60	9.36	2.08			

PANEL C1	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	208/120V, 3ø, 4W
BUS SIZE	100
SYSTEM TYPE	NORMAL
FEEDER PROT	100A-3P C/B Bus Plug
CONDUCTOR SIZE	2 AWG - #6G CU
CONDUCTOR/PHASE	1
MAINS	100A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	65
FEEDER V. DROP (%)	1.052
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 3R

CLIENT:

ADDRESS:

420 RACE STREET
HOLYOKE, MASSACHUSETTS

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

CANNABIS CULTIVATION

TITLE:
PANEL BOARDS
SCHEDULE

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
NTS

DRAWING NO. REV.

E 4 . 0 2

Location: ELEC				CONNECTED LOAD			DEMAND
* LOAD SUMMARY	CL	DF		A	B	C	
L Lighting		1.00					
R Convenience Recept	1.35			1.35			1.35
H Heating (Space)		1.25					
C Cooling	37.44	1.00		9.36	10.32	17.76	37.44
A HVAC		1.00					
P Process		1.00					
O Other Continuous		1.25					
K Kitchen		0.65					
N Noncontinuous	4.46	1.00		2.23	1.12	1.12	4.46
M Motor		1.00					
Total	43.25			12.94	11.44	18.88	43.25
Total Demand Load (KVA)				43.25			
Total Demand Current (A)				120.06			
Min. Feeder Ampacity (A)				150.08			

DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1 Receptacles Flower ROOM#3	R	2X 12 AWG - #12G		20A-1P	1.35	1.35							SPACE	2
3 AHU-10	C	3X 14 AWG - #14G		15A-2P	0.48		0.96	0.48		15A-2P	3X 14 AWG - #14G		AHU-09	4
5	C				0.48			0.96	0.48					6
7 AHU-12	C	3X 14 AWG - #14G		15A-2P	0.48	0.96			0.48	15A-2P	3X 14 AWG - #14G		AHU-11	8
9	C				0.48		0.96		0.48					10
11 ODU-A10	C	3X 8 AWG - #8G		50A-2P	4.20			8.40	4.20	50A-2P	3X 8 AWG - #8G		ODU-A09	12
13	C				4.20	8.40			4.20					14
15 ODU-A12	C	3X 8 AWG - #8G		50A-2P	4.20				4.20	50A-2P	3X 8 AWG - #8G		ODU-A11	16
17	C				4.20			8.40	4.20					18
19 DIHUMIDIFIER DEH-350	N	3X 14 AWG - #14G		15A-2P	0.56	1.12			0.56	15A-2P	3X 14 AWG - #14G		DIHUMIDIFIER DEH-350	20
21	N				0.56		1.12		0.56					22
23 DIHUMIDIFIER DEH-350	N	3X 14 AWG - #14G		15A-2P	0.56				1.12	0.56	15A-2P	3X 14 AWG - #14G	DIHUMIDIFIER DEH-350	24
25	N				0.56	1.12			0.56					26
27 SPACE													SPACE	28
29 SPACE													SPACE	30
(KVA)														
Total Connected Load					12.94	11.44	18.88							

PANEL D1	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	208/120V, 3ø, 4W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-3P C/B Bus Plug
CONDUCTOR SIZE	1/0 AWG - #4G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	115
FEEDER V. DROP (%)	1.755
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 3R

Location: ELEC				CONNECTED LOAD			DEMAND
* LOAD SUMMARY	CL	DF		A	B	C	
L Lighting		1.00					
R Convenience Recept	1.89			1.89			1.89
H Heating (Space)		1.25					
C Cooling	18.72	1.00		8.40	9.36	0.96	18.72
A HVAC		1.00					
P Process		1.00					
O Other Continuous		1.25					
K Kitchen		0.65					
N Noncontinuous	1.46	1.00		0.73		0.73	1.46
M Motor		1.00					
Total	22.07			11.02	9.36	1.69	22.07
Total Demand Load (KVA)				22.07			
Total Demand Current (A)				61.27			
Min. Feeder Ampacity (A)				76.59			

DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1 Receptacles Veg Room	R	2X 12 AWG - #12G		20A-1P	1.08	1.89			0.81	20A-1P	2X 12 AWG - #12G		Receptacles Veg Room	2
3 AHU-04	C	3X 14 AWG - #14G		15A-2P	0.48		0.96		0.48	15A-2P	3X 14 AWG - #14G		AHU-03	4
5	C				0.48			0.96	0.48					6
7 ODU-A04	C	3X 8 AWG - #8G		50A-2P	4.20	8.40			4.20	50A-2P	3X 8 AWG - #8G		ODU-A03	8
9	C				4.20		8.40		4.20					10
11 DIHUMIDIFIER DEH-350	N	3X 14 AWG - #14G		15A-2P	0.37			0.73	0.37	15A-2P	3X 14 AWG - #14G		DIHUMIDIFIER DEH-350	12
13	N				0.37	0.73			0.37					14
15 SPACE													SPACE	16
17 SPACE													SPACE	18
(KVA)														
Total Connected Load					11.02	9.36	1.69							

PANEL E1	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	208/120V, 3ø, 4W
BUS SIZE	100
SYSTEM TYPE	NORMAL
FEEDER PROT	100A-3P C/B Bus Plug
CONDUCTOR SIZE	2 AWG - #6G CU
CONDUCTOR/PHASE	1
MAINS	100A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	70
FEEDER V. DROP (%)	1.133
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 3R

Location: ELEC				CONNECTED LOAD			DEMAND
* LOAD SUMMARY	CL	DF		A	B	C	
L Lighting	2.37	1.25		0.79	0.68	0.89	2.96
R Convenience Recept	12.42			6.21	3.24	2.97	11.21
H Heating (Space)		1.25					
C Cooling	3.96	1.00		1.44	1.08	1.44	3.96
A HVAC		1.00					
P Process		1.00					
O Other Continuous		1.25					
K Kitchen	0.75	1.00			0.75		0.75
N Noncontinuous	1.73	1.00			1.63	0.10	1.73
M Motor		1.00					
Total	21.23			8.44	7.38	5.40	20.61
Total Demand Load (KVA)				20.61			
Total Demand Current (A)				57.21			
Min. Feeder Ampacity (A)				71.52			

PANEL F	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	208/120V, 3ø, 4W
BUS SIZE	100
SYSTEM TYPE	NORMAL
FEEDER PROT	100A-3P C/B Bus Plug
CONDUCTOR SIZE	2 AWG - #6G CU
CONDUCTOR/PHASE	1
MAINS	100A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.809
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 3R

DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*
1 Lighting Stire+Shared Circulation	L	2X 14 AWG - #14G		15A-1P	0.44	0.79			0.35	15A-1P	2X 14 AWG - #14G		Lighting Mechanical Room+Storage+Sally Port	2
3 Lighting Coridor	L	2X 14 AWG - #14G		15A-1P	0.53		0.68		0.15	15A-1P	2X 14 AWG - #14G		Lighting Lobby+Circulation	4
5 Lighting Dryer Room	L	2X 14 AWG - #14G		15A-1P	0.42			2.04	1.62	20A-1P	2X 12 AWG - #12G		Receptacles IT+SALLY PORT	6
7 Receptacles Lobby+Corridor	R	2X 12 AWG - #12G		20A-1P	1.89	2.97			1.08	20A-1P	2X 12 AWG - #12G		Receptacles Office	8
9 Receptacles Staff Room+ADA Toilets+Janitor	R	2X 12 AWG - #12G		20A-1P	1.62	3.24			1.62	20A-1P	2X 12 AWG - #12G		Receptacles Circulation	10
11 EXT Light	L	2X 14 AWG - #14G		15A-1P	0.47			1.62	1.35	20A-1P	2X 12 AWG - #12G		Receptacles Storage Room	12
13 Receptacles Storage	R	2X 12 AWG - #12G		20A-1P	1.62	3.24			1.62	20A-1P	2X 10 AWG - #10G		Receptacles Drying	14
15 Fridge	K	2X 12 AWG - #12G		20A-1P	0.75		1.11		0.36	15A-1P	2X 14 AWG - #14G		ODU-06	16
17 ODU-02	C	2X 14 AWG - #14G		15A-1P	0.36			0.72	0.36	15A-1P	2X 14 AWG - #14G		ODU-04	18
19 ODU-03	C	2X 14 AWG - #14G		15A-1P	0.36	0.72			0.36	15A-1P	2X 14 AWG - #14G		ODU-05	20
21 ODU-01	C	2X 14 AWG - #14G		15A-1P	0.36		0.72		0.36	15A-1P	2X 14 AWG - #14G		ODU-10	22
23 ODU-09	C	2X 14 AWG - #14G		15A-1P	0.36			0.72	0.36	15A-1P	2X 14 AWG - #14G		ODU-08	24
25 ODU-11	C	2X 14 AWG - #14G		15A-1P	0.36	0.72			0.36	15A-1P	2X 14 AWG - #14G		ODU-13	26
27 DIHUMIDIFIER-DEH-110	N	2X 12 AWG - #12G		20A-1P	0.61		1.63		0.61	20A-1P	2X 12 AWG - #12G		DIHUMIDIFIER-DEH-110	28
29 KEF-01	N	2X 14 AWG - #14G		15A-1P	0.10			0.10					SPACE	30
31 SPACE													SPACE	32
33 SPACE													SPACE	34
35 SPACE													SPACE	36
(KVA)														
Total Connected Load					8.44	7.38	5.40							

CLIENT:

ADDRESS:

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HOLYOKE, MASSACHUSETTS

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

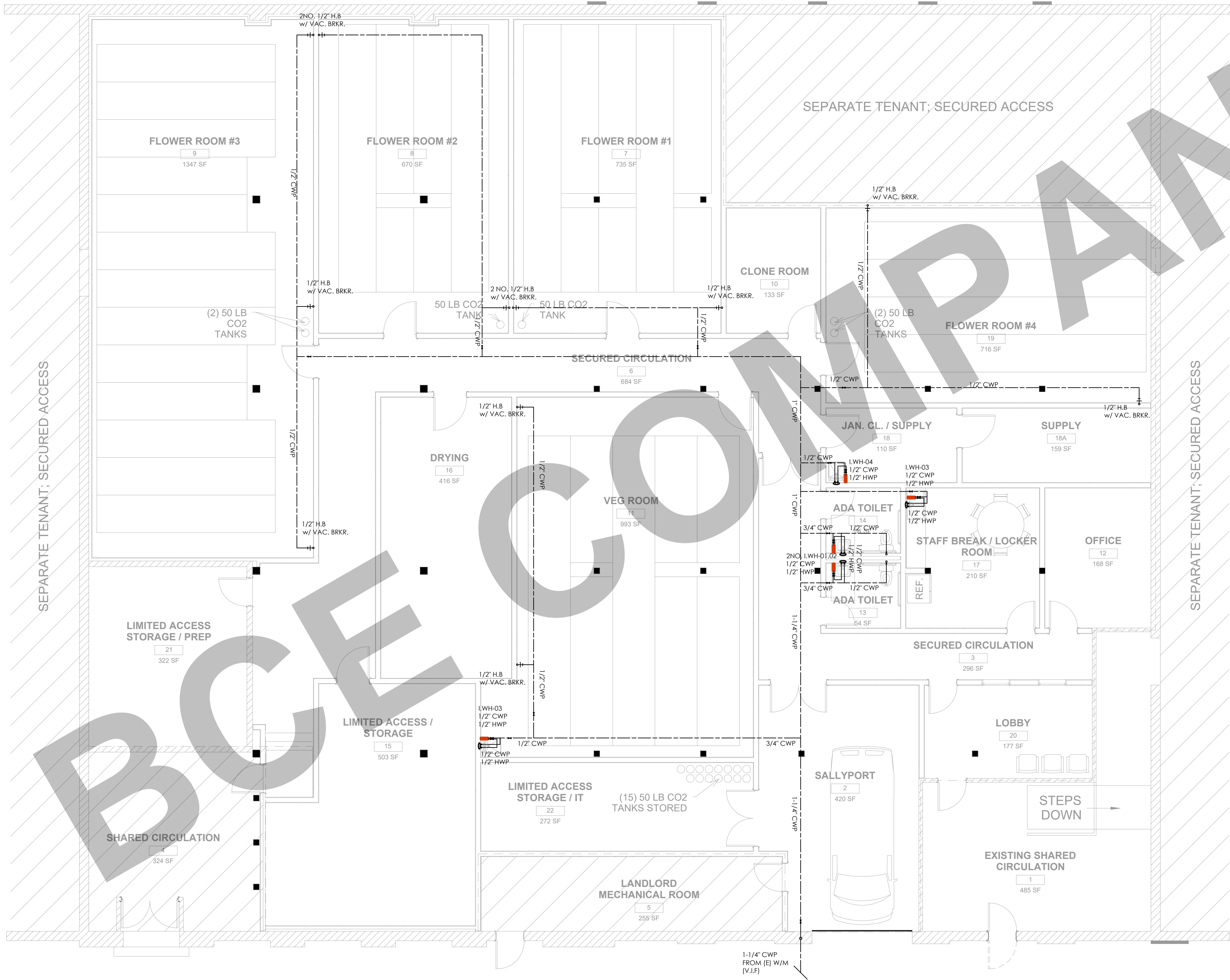
CANNABIS CULTIVATION

TITLE:
PANEL BOARDS
SCHEDULE

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: NTS
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DRAWING NO. REV.

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GENERAL NOTES:

1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
5. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
6. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
7. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
8. CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"x24" CEILING ACCESS PANEL COORDINATE FINAL LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR HOT WATER RETURN SYSTEM AS REQUIRED.
9. ALL SANITARY DRAINAGE PIPING 3" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT. PIPING 4" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT.
10. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT 1/8" PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
11. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
12. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.
13. EACH VENT PIPE OR STACK SHALL EXTEND THROUGH ITS FLASHING AND SHALL TERMINATE VERTICALLY NOT LESS THAN 6 INCHES (152 MM) ABOVE THE ROOF NOR LESS THAN 1 FOOT (305 MM) FROM A VERTICAL SURFACE.
14. EACH VENT SHALL TERMINATE NOT LESS THAN 10 FEET (3048 MM) FROM, OR NOT LESS THAN 3 FEET (914 MM) ABOVE, AN OPENABLE WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT, OR NOT LESS THAN 3 FEET (914 MM) IN EVERY DIRECTION FROM A LOT LINE, ALLEY AND STREET EXCEPTED.

SCHEDULE No. 1

GAS WATER HEATER SCHEDULE

TAG	I.EWH-01,02,03,04
LOCATION	GARAGE
MANUFACTURER	CHRONOMITE
MODEL	SR-20L/120
TYPE	ELECTRIC
MIN. / MAX. GPM	0.35 / 2.0
POWER SUPPLY	120/1/60
POWER (kW)	1.8
AMPS	15.0
WATER CONNECTION (in.)	1/2"

FROM 2015 IPC - TABLE 610.3:

WATER SUPPLY FIXTURE UNITS LOADS:

FIXTURE	W.S.F.U	QTY.	TOTAL W.S.F.U
HANDWASH	1.5	3	4.5
HOSE BIBB	2.5	1	2.5
EXTRA HOSE BIBB	1.0	10	10.0
WATER CLOSET	2.5	2	5.0
LAVATORY	1.0	2	2.0
KITCHEN SINK	2.0	1	2.0
TOTAL BUILDING WSFU =			26.0

AS PER 2015 IPC:

- LONGEST RUN IS APPROX. 150 FT.
- W/M PRESSURE RANGE 30-45 PSI,
- MIN. MAIN PIPE SIZE: 1-1/4"Ø
- MIN. WATER METER SIZE: 1" Ø

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REV. NO	DESCRIPTION	DATE	BY

PROJECT:

CANNABIS CULTIVATION

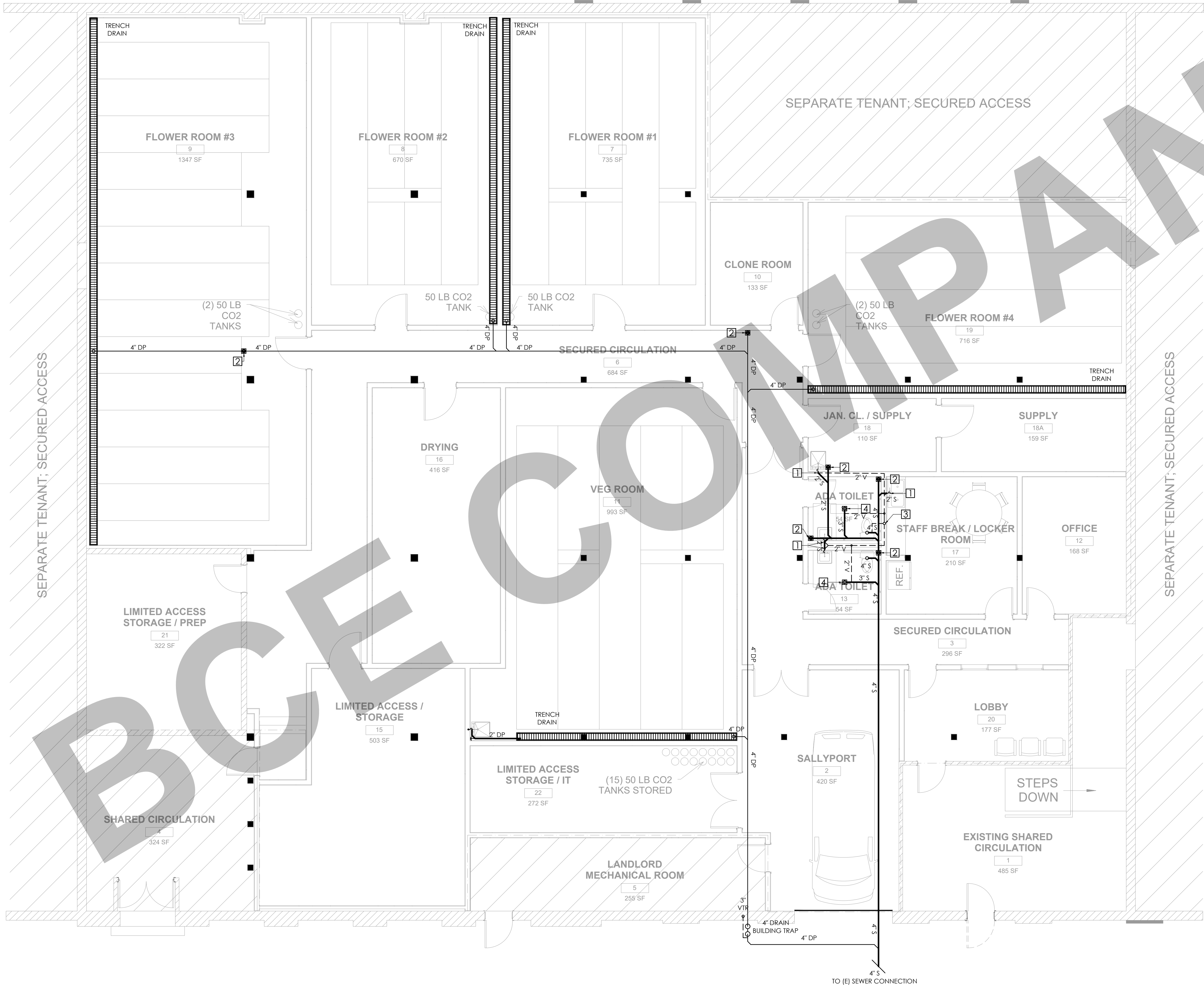
TITLE:
MAIN FLOOR
WATER SUPPLY LAYOUT.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
3/16"=1'-0"

DRAWING NO.

P 1 . 0 1

REV.



GENERAL NOTES:

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SANITARY SHEET NOTES:

- 1 — WASTE DROP AND 2" VENT RISE.
- 2 — 4" FLOOR CLEAN-OUT.
- 3 — 3" VENT STACK TO ABOVE.
- 4 — 3" FLOOR DRAIN.

FROM 2015 IPC - TABLE 702.1:
DRAINAGE FIXTURE UNIT VALUES (DFU)

FIXTURE	D.F.U	QTY.	TOTAL D.F.U
HAND SINK	2.0	3	6.0
KITCHEN SINK	2.0	1	2.0
WATER CLOSET	3.0	1	6.0
LAVATORY	1.0	2	2.0
TRENCH DRAIN	2.0	5	10.0
FLOOR DRAIN	2.0	2	4.0
TOTAL BUILDING DFU =			30.0

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REV. NO	DESCRIPTION	DATE	BY

PROJECT:

CANNABIS CULTIVATION

TITLE:
MAIN FLOOR
SANITARY & DRAIN LAYOUT.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:

NTS

DRAWING NO.

REV.

P 2 . 0 1