

SPECIFICATIONS AND INSTRUCTIONS:

GENERAL:

- 1. Contractor shall make necessary provisions to deliver a complete installation according to CEC requirements.
- 2. Contractor shall liase with the authority having jurisdiction's electrical inspector and acceptable practices and preferences.
- 3. Contractor is responsible for obtaining all electrical permits required and all applicable fees for completing the project.
- 4. No changes are allowed without the prior written consent of the Engineer of Record.
- 5. The contractor is responsible for liasing with power and communication utility companies for hookup and all applicable fees.
- 6. Electrical contractor shall review the mechanical engineering drawings and ensure that all electrical requirements are fulfilled.

UTILITY SERVICES:

- 1. Electrical utility supply for the building is not covered under this design.
- 2. Electrical distribution panel shall be installed by the contractor in accordance with CEC requirements.

POWER DISTRIBUTION:

- 1. The distribution panel feeder cable shall be RW90, XLPE Teck cable.
- 2. Branch circuit cabling shall be NMD90 in wood stud construction or AW90 in Steel stud construction
- 3. Panelboard shall be installed with circuit breakers and a lockable door and shall be installed flush wall mounted in the facility. If a dedicated electrical room is provided for the distribution panel, it can be installed wall mounted.
- 4. All spare locations on the distribution panel shall be blocked off with covers. No breaker locations shall be exposed.
- 5. Power utilization equipment shall be provided with receptacles as close as possible, in order to allow for easy plugging in of the equipment.
- 6. There shall be no more than 11 lighting or power outlets on any particular branch circuit.
- 7. Distribution panel schedule shall be filled in accurately and the schedule shall be affixed inside the panel door for reference.
- 8. Any changes made in the circuit loading, shall be reported to the Engineer of Record and an updated as-built drawing issued prior to occupancy of the facility.
- 9. The minimum size for branch circuit cables shall be #12AWG
- 10. In accordance with the CEC code requirements, proper measures must be taken to ground equipment. Ground resistance measurements shall be provided to the Engineer of Record for verification and approval.
- 11. All metal enclosures shall be bonded to system ground.

LIGHTING:

- 1. All lighting in the facility shall be installed with the bonded ground connection.
- 2. All flourescent lamp lighting shall be high output T5 2 or 3-lamp troffer lighting fixtures recessed in T-bar ceiling: 2'x2' or 2'x4'

- Cooper lighting:  
2AC-228T5-UNV-L5841-EBT1N-U  
2AC-217-UNV-L8841-EB81U  
or equivalent
- 3. Facility/Business advertisement signs shall be fed directly from a branch circuit.
- 4. Contractor shall obtain the fixtures required for installation from the owner and provide the information to the Engineer of record for final As-built drawings.
- 5. All light switches and receptacles in the building shall be of commercial grade type.
- 6. All lighting in the washrooms shall be of motion sensor type.
- 7. All emergency lighting shall be installed as per the engineered drawings.  
Lumacell:  
Type RG12.144QB8W Main lightpacks  
RSQBD/RSQB Remote  
120Vin/12Vout, 30-min Ni-CD Battery packs  
or equivalent
- 8. Emergency lightpacks, remotes and exit signs shall be mounted at exit doorways and elsewhere as outlined in the design drawings for safe egress outside the building.
- 9. Simplex receptacles for emergency lighting shall be mounted at 2.5m above final floor elevation.
- 10. Light switches shall be mounted at 1.2m above final floor elevation

FIRE ALARM SYSTEM:

- 1. All smoke detectors shown on the design drawings shall be ionization type.
- 2. Heat and smoke detectors shall be installed as per the design drawings provided.
- 3. Fire alarm 10-zone control panel shall be installed with 1-phone auto dialer to emergency services.  
Edwards EST control panel  
or equivalent.
- 4. Detectors shall be mounted a minimum of 900mm from an air supply outlet or 600mm from an air exhaust outlet.
- 5. Special seal or seal plates shall be provided at conduit openings where the detector may be subject to pressure differentials from positive or negative air flow.

COMMUNICATION:

- 1. A common communication cabinet shall be installed in the office or utility area of the facility.
- 2. The communication cabinet shall comprise of a 1m x 1m x 0.15m plywood board surface mounted on the wall with an optional steel/plastic cabinet enclosure surface mounted on the plywood to house the incoming telephone junction, Local Area network connection modem, cable TV modem.
- 3. Provide CAT5 LAN cabling in EMT conduits to data ports and telephone outlets, and Low impedance Coaxial cabling to TV outlets
- 4. Contractor to ensure all communication equipment and enclosures are effectively bonded to ground.
- 5. All communication equipment and TV, Internet and Telephone services to be provided by others at additional cost to the owner.

ADDITIONAL INFORMATION:

- 1. Before commencing any construction, contractor shall clear any doubts or design errors with the Engineer of record.
- 2. The client reserves the right to procure any material or specialized services from others.
- 3. The distribution panel layout is based on proposed equipment ratings. The contractor shall provide actual equipment ratings if they differ from proposed ratings, to the Engineer of record and re-balance the panel to ensure a balanced load on the panel. The contractor shall re-arrange the branch circuits and submit a final report to the Engineer of Record for review and approval.
- 4. After completion of all electrical work, submit to the Engineer of record all documentation for testing of the system and paperwork for completion of as-built drawings.
- 5. Contractor shall provide 1 year warranty on all installations and workmanship in the facility.
- 6. All locations of equipment are approximate and not drawn to scale. Contractor shall exercise good judgement and standard commercial construction practice to mount devices in accordance with Canadian Electrical Code requirements.
- 7. In the event of conflict with other device installations, precedence shall be given to mechanical components and the electrical components shall be re-positioned accordingly.
- 8. Before making any changes, the Engineer of Record must be consulted for Approval.
- 9. Final construction inspection to be completed by Engineer of Record and inspector with the Authority having Jurisdiction.

DRAWING LEGEND	
E1	Electrical Notes
E2	Lighting System
E3	Distribution System
E4	Panel Schedules and Single Line Diagram
E5	Fire Alarm

ELECTRICAL DRAWINGS LEGEND:

LEGEND	
Item	Description
	Flourescent 2 light, 4 foot fixtures
	Incandescent Light fixture
	120V, 15A Power receptacles 120V, 15A GFCI receptacles
	Motion sensor switch
	Exit Lighting, Emergency Lighting, Lighting Combo Pack
	120V, single pole, double pole and 3-way switch
	Quad, 120V, 15A Power receptacle
	Direct feed 120V, 15A Microwave receptacle on Branch circuit.
	240V, 40A Range/Oven receptacle
	240V, 20A dryer receptacle
	120V, 20A Dishwasher terminal
	Telephone receptacle direct to junction box (JB)
	Cable TV Receptacle
	Junction box
	Local Area Network Receptacle
	Utility service meter
	Mounted audio speaker
	Circuit Panels, 100A, 200A, 120V, 42 circuits
	Thermostat
	Smoke detector, Heat detector, High dB horn strobe, Pull station
	Fire Alarm Control Panel
	Emergency Pull Station
	Hand dryer, 1500W, 120V motion sensor controlled (direct circuit)
	Ventilation fan
	Ceiling recessed pot light
	Hanging fixture

General Notes

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2. All dimensions are in feet and inches unless noted otherwise.

3. For specifications and general instructions, see drawing E1

4. Engineer of Record to inspect all work after Installation and prior to final architectural finishing to ensure conformity to Alberta Buidling Code requirements. No architectural completion work to commence prior to Engineer's sign off on mechanical work and inspection by the authority having Jurisdiction.

5. Contractor shall make all necessary provisions to deliver a complete installation in accordance with standard commercial practice and all applicable standards and codes.

ISSUED FOR CONSTRUCTION

PERMIT / SEAL INFORMATION:

PERMIT TO PRACTISE LICENSE NO: P12183

B	Building Permit	Sep/15
A	Owner Review	Sep/15
No.	Revision/Issue	Date

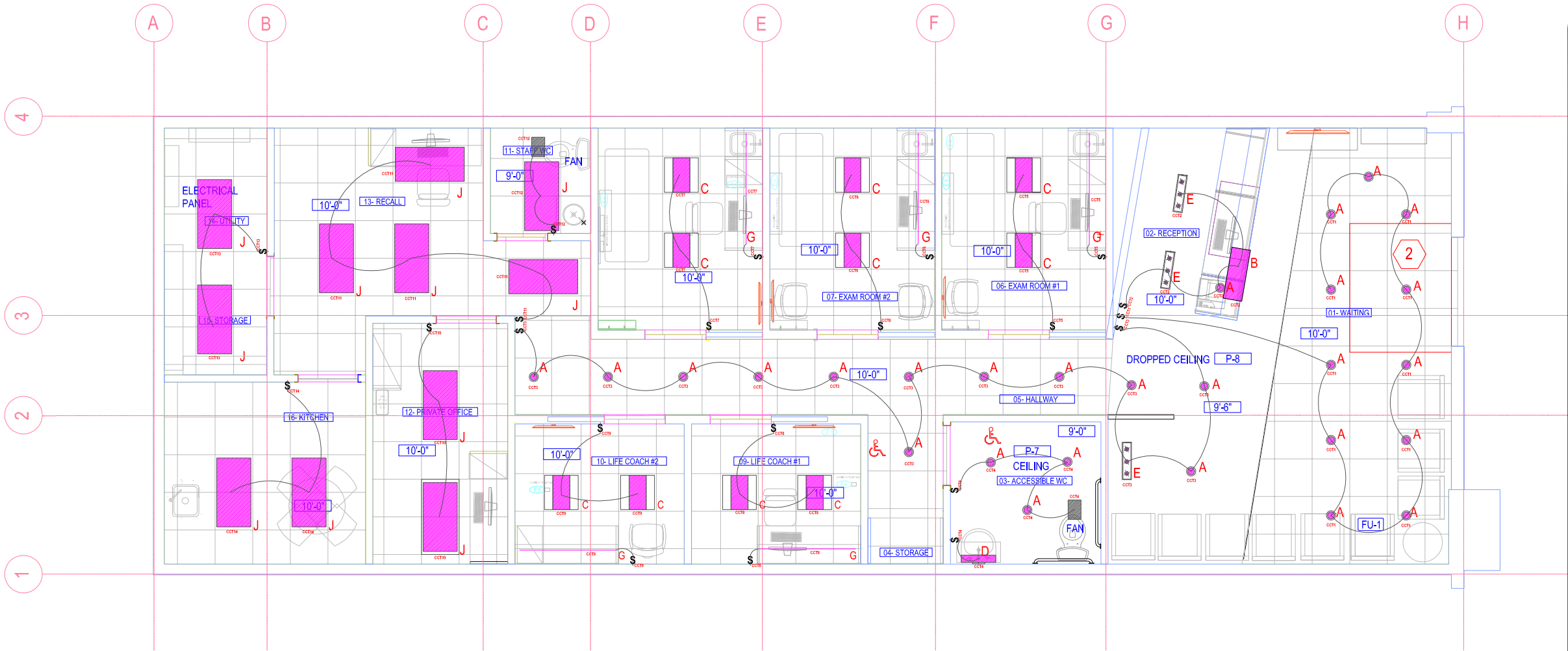
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**BURHANI**  
ENGINEERING AND  
CONSTRUCTION LTD  
566 Saddleback Road  
Edmonton AB, T6J 4Z3  
Tel: 1-780-430-1776

Project Name and Address

**Pure Health Care Clinic**  
4210 Gateway Boulevard  
Edmonton, Alberta

Project	Electrical Notes	Sheet
Date	Sept 28th, 2015	<b>E1</b>
Scale	1:30	



DESIGN NOTES:  
1. 10'-0" CEILING HEIGHTS  
2. PROVIDE BLOCKING IN CEILING FOR  
FUTURE VESTIBULE

## E2 Lighting System

Scale: 1/4" = 1' - 0"

LIGHTING FIXTURE TYPES	
A	NW300LM Pot light with magnetic transformer, comes with all accessories for standard installation; Contrast lighting or equivalent
B	Incandescent light fixture, 120V, 50W maximum; Moooi manufacturing or equivalent
C	T Bar Ceiling Fluorescent fixture, 2'x2', 2xPLL 55W lamps, 9040-2PL55-120, Value lighting or equivalent
D	Korus wall sconce, 60W, 120V, 10" x 13.75", polished nickel, white satin finish acrylic.
E	NWMA3LED multi-aim recessed lighting, 120V, 60W maximum; contrast lighting or equivalent.

LIGHTING FIXTURE TYPES	
F	Cycle 4800, high performance LED strips, 120V with aircraft mounting accessories, 60' for aircraft cable
G	LED Ribbon light, Loox LED 2015, Item no. 833.73.400, 30W, w/ Loox LED 2015 aluminum profile and constant voltage 12Vdc driver
H	Loox LED driver tool, constant voltage 12V driver
I	Moooi random light: 35'x35'x35', 60W maximum
J	T Bar Ceiling 4' x 2' - Recessed Troffer Fixture, 2x32-34W, T12 or T8, 120V; Pioneer Lighting or equivalent

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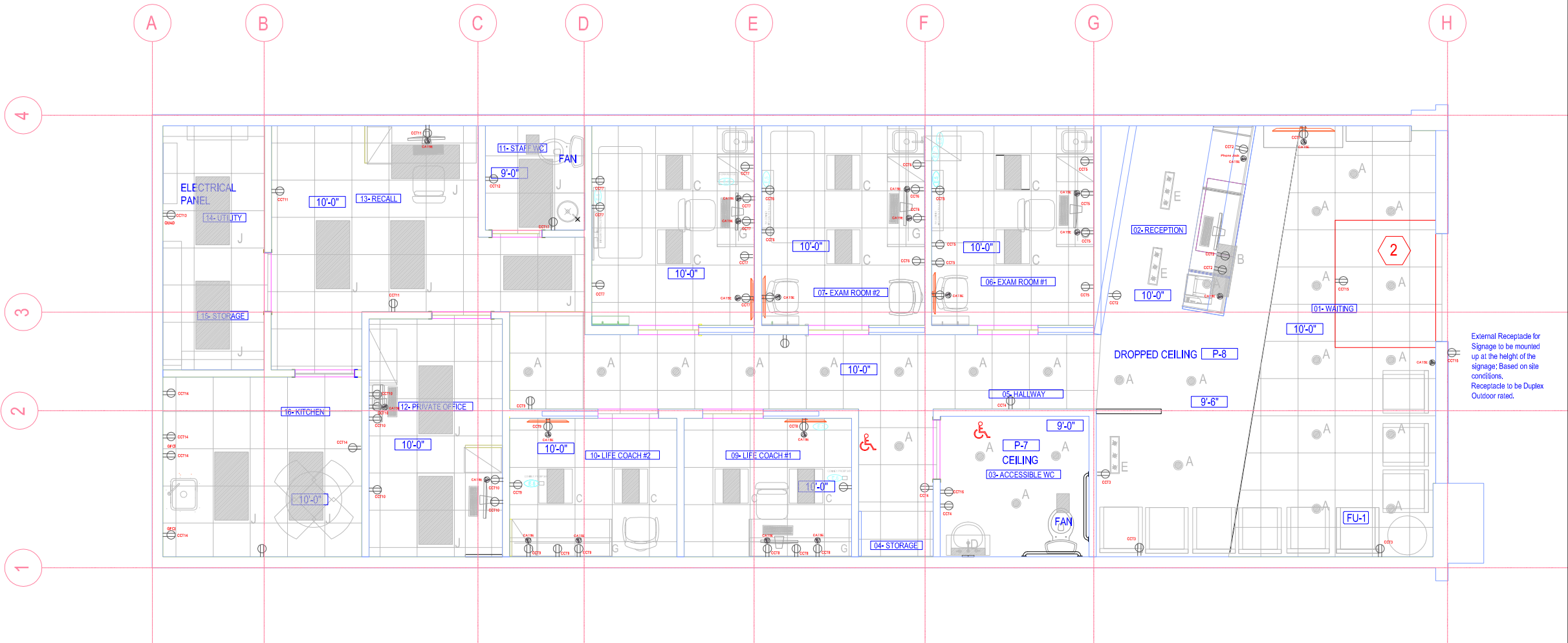
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Project	Lighting	Sheet	E2
Date	Sept 28th, 2015		
Scale	1:30		



DISTRIBUTION SYSTEM NOTES	
1.	For additional information on the Equipment systems, refer to Architectural drawings
2.	All receptacles to be duplex receptacles, commercial grade unless otherwise specified

E3

## Power Distribution System

Scale: 1/4" = 1' - 0"

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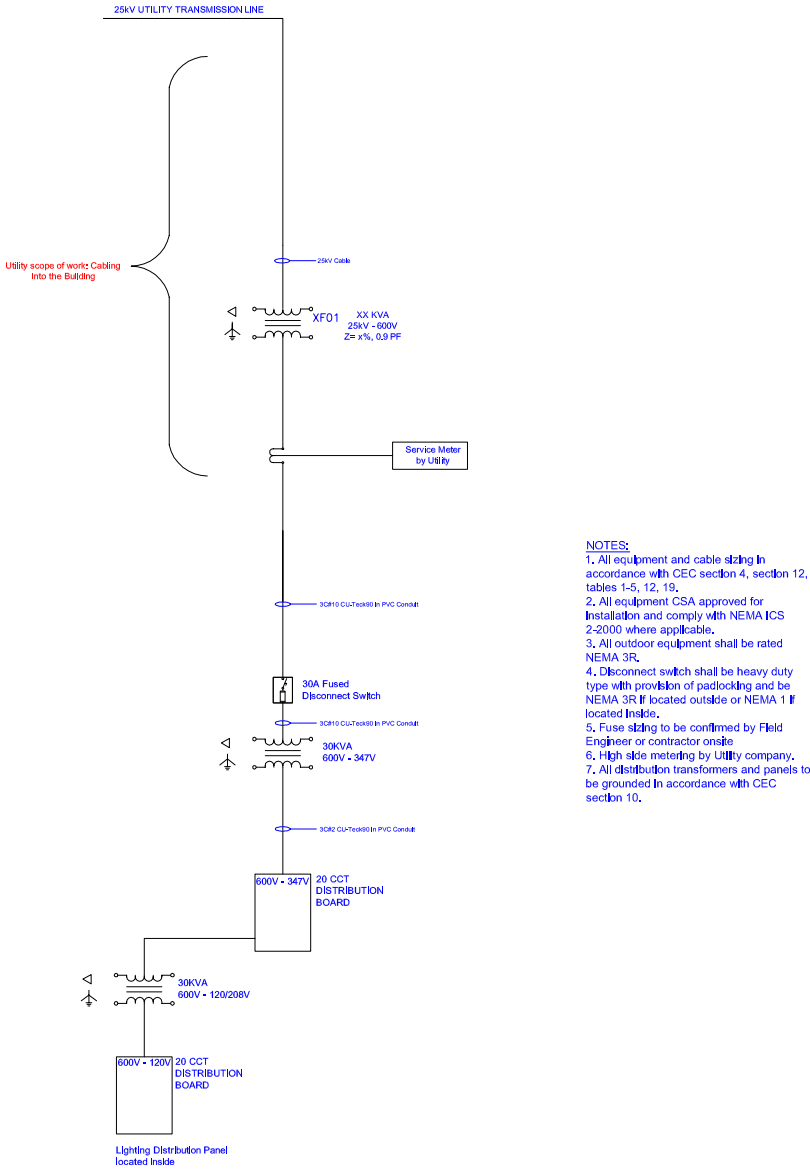
Project	Sheet
<b>Power Distribution</b>	<b>E3</b>
Date	
Sept 13th, 2015	
Scale	
1:30	

PURE HEALTH CARE CLINIC - PANEL SCHEDULE - 42 Circuit <sup>120/208</sup> V															
LOCATION - WASHROOM															
VOLT-AMPS (VA)			CIRCUIT DESCRIPTION	CONDUCTOR SIZING	POLES	CIRCUIT BREAKER SIZE		CIRCUIT NUMBER	CIRCUIT BREAKER SIZE	POLES	CONDUCTOR SIZING	CIRCUIT DESCRIPTION	VOLT-AMPS (VA)		
A	B	C													A
1000			Lighting & Receptacles - Waiting Area	2C # 12	1P	15A	CCT1	CCT2	15A	1P	2C # 12	Lighting & Receptacles - Reception	1000		
	1000		Lighting & Receptacles - Hallway	2C # 12	1P	15A	CCT3	CCT4	15A	1P	2C # 12	Lighting & Receptacles - Washroom1		1000	
		2000	Lighting & Receptacles - Exam room1	2C # 12	1P	20A	CCT5	CCT6	20A	1P	2C # 12	Lighting & Receptacles - Exam room2			2000
2000			Lighting & Receptacles - Exam room3	2C # 12	1P	20A	CCT7	CCT8	20A	1P	2C # 12	Lighting & Receptacles - Life Coach1	2000		
	2000		Lighting & Receptacles - Life Coach2	2C # 12	1P	20A	CCT9	CCT10	20A	1P	2C # 12	Lighting & Receptacles - Private Office		2000	
		1500	Lighting & Receptacles - Recall	2C # 12	1P	20A	CCT11	CCT12	15A	1P	2C # 12	Lighting & Receptacles - Washroom2			1000
1000			Lighting & Receptacles - Storage/Utility	2C # 12	1P	15A	CCT13	CCT14	15A	1P	2C # 12	Lighting & Receptacles - Kitchen	1000		
	2000		Vestibule Baseboard Heater	2C # 12	1P	20A	CCT15	CCT16						1500	
		1000	Washroom Hand dryer	2C # 12	2P	30A	CCT17	CCT18	30A	2P	2C # 12	Washroom Hand dryer			1500
1000							CCT19	CCT20	15A	1P	2C # 12	Emergency Lighting	1000		
	1000		Emergency Lighting	2C # 12	1P	15A	CCT21	CCT22	15A	1P		Spare		0	
		0	Spare		1P	15A	CCT23	CCT24	15A	2P		Spare			0
0			Spare		2P	15A	CCT25	CCT26	15A	2P		Spare	0		
	0		Spare		2P	15A	CCT27	CCT28	15A	1P		Spare		0	
		0	Spare		1P	15A	CCT29	CCT30	15A	1P		Spare			0
0			Spare		1P	15A	CCT31	CCT32	15A	1P		Spare	0		
	0		Spare		1P	15A	CCT33	CCT34	20A	1P		Spare		0	
		0	Spare		1P	15A	CCT35	CCT36	15A	1P		Spare			0
0			Spare		1P	15A	CCT37	CCT38	15A	3P		Spare	0		
	0		Spare		1P	15A	CCT39	CCT40	15A	3P		Spare		0	
		0	Spare		1P	15A	CCT39	CCT42	15A	3P		Spare			0

E4 Panel Schedule  
Scale: 1/4" = 1' - 0"

ELECTRICAL EQUIPMENT SCHEDULE			
DESIGNATION	MANUFACTURER/MODEL	ACCESSORIES	NOTES
Emergency and Exit Light combo pack	TCPI 20785 LED Emergency Exit sign - Red with TCPI 20734 Lead Acid Battery 6V, 4.5AH.		Surface mount off ceiling or on wall using manufacturer provided hardware; Typical
T- Thermostat	Honeywell 5-1-1 Programmable Thermostat RTH2410 or equivalent.		Surface mount at location as provided on design drawing
Hand dryer	Nova Hand dryer with universal power induction motor; Automatic or Hands free, Model 0212 or 0112, 120VAC, 15A, 1500W Brushed chrome finish		Surface mount off ceiling using manufacturer provided hardware; Typical
Flourescent Light fixtures	As per owner		
Incandenscent fixtures	As per owner		

E4 Procurement Schedule  
Scale: 1/4" = 1' - 0"



E4 Electrical Single Line Diagram  
Scale: 1/4" = 1' - 0"

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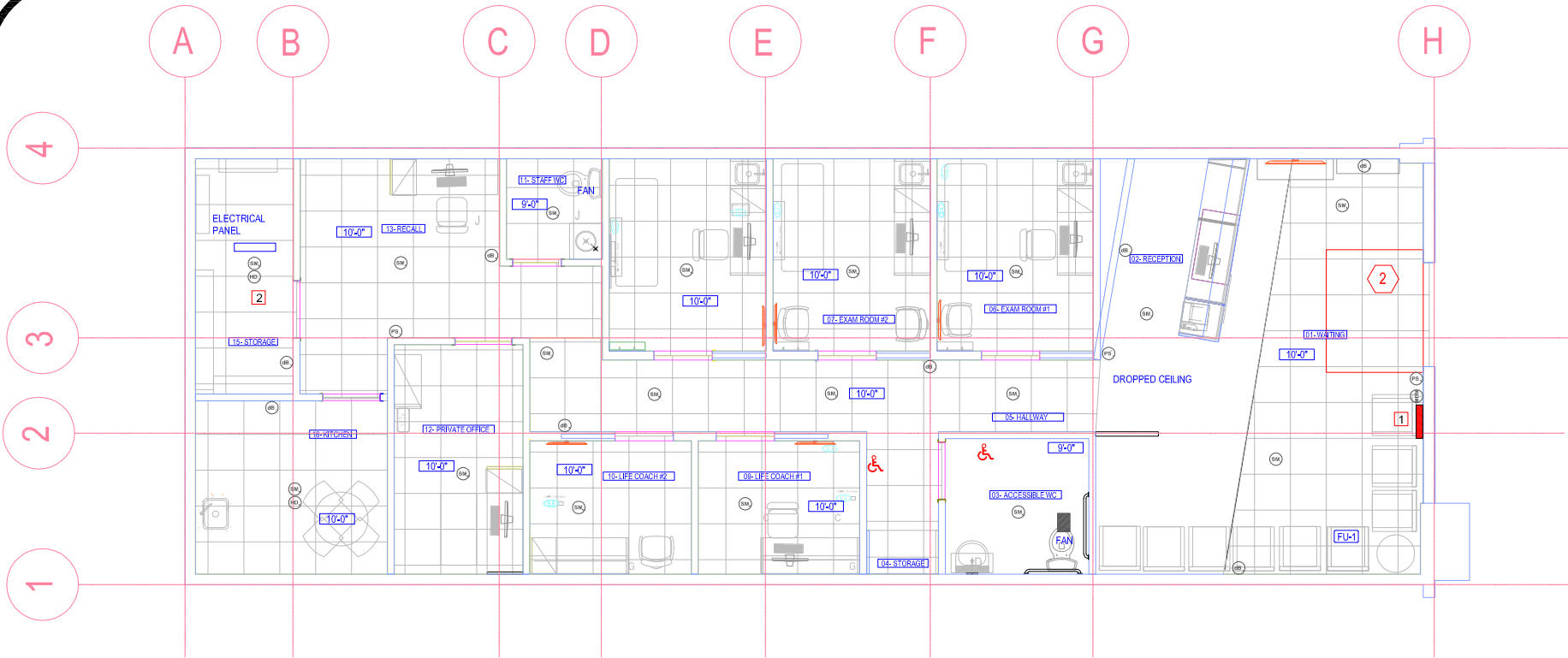
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Project <b>Panel Schedule</b>	Sheet <b>E4</b>
Date Sept 13th, 2015	
Scale 1:30	





FIRE ALARM NOTES	
1	Fire Alarm shown at the front of the building for easier access. Owner to finalize location and inform Engineer of Record of updated location. Location must have a phone Line connection for modem dialler in fire alarm panel.
2	Smoke and Heat detector located in Electrical Utility closet.

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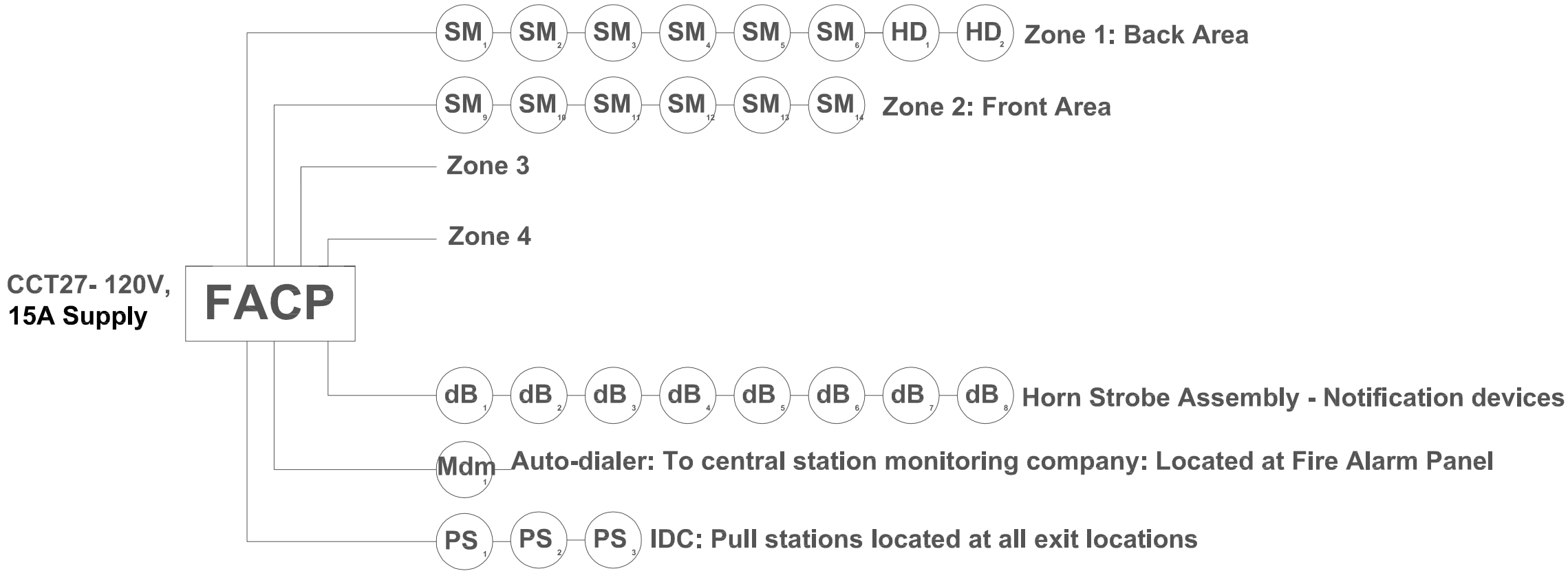
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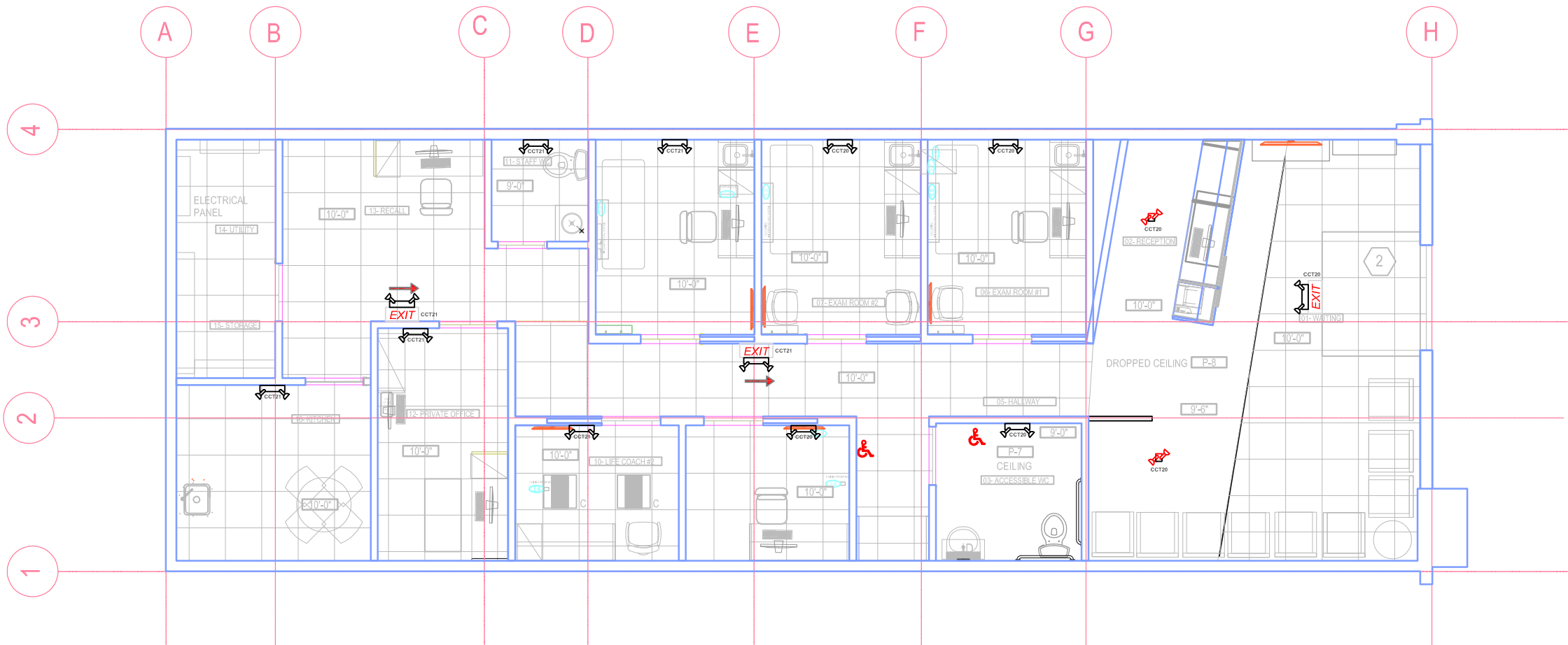
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Project	Fire Alarm	Sheet	E5
Date	Sept 26th, 2015		
Scale	1:30		

**E5 Fire Alarm System**  
Scale: 1/4" = 1' - 0"



**E5 Fire Alarm Riser Diagram**  
Scale: NTS



DISTRIBUTION SYSTEM NOTES	
1.	For additional information on the Equipment systems, refer to Architectural drawings
2.	All emergency lighting and combo packs to be Lumacell brand or equivalent

## E6 Emergency Lighting

Scale: 1/4" = 1' - 0"

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Project Name and Address

**Pure Health Care Clinic**  
4210 Gateway Boulevard  
Edmonton, Alberta

Project  
**Emerg. Lighting**

Date  
Sept 26th, 2015

Scale  
1:30

Sheet

**E6**