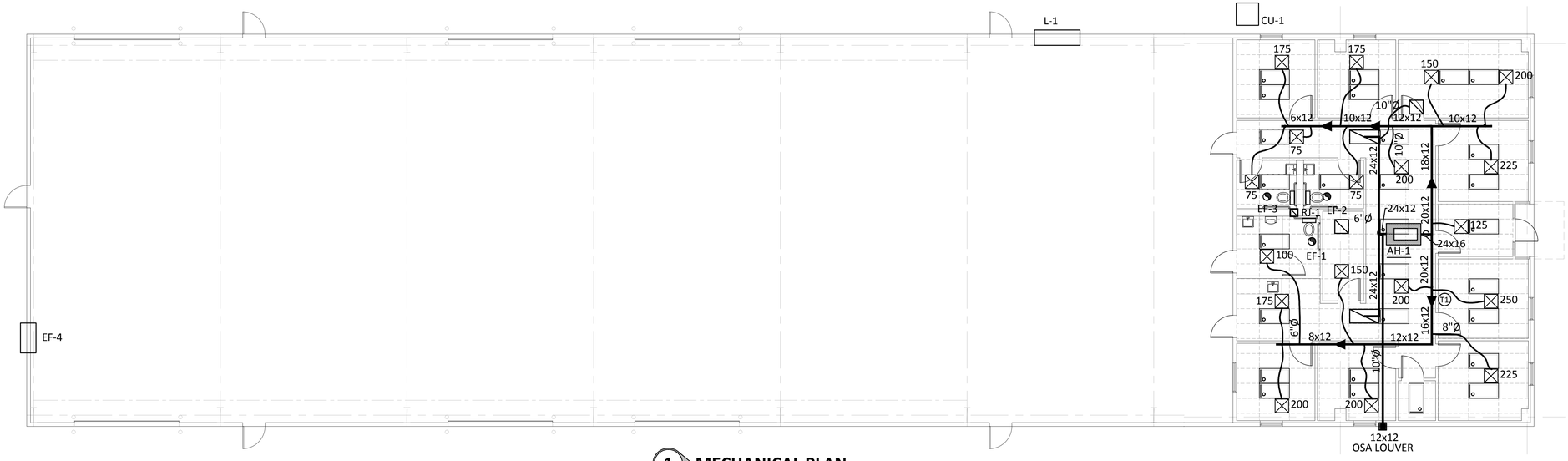
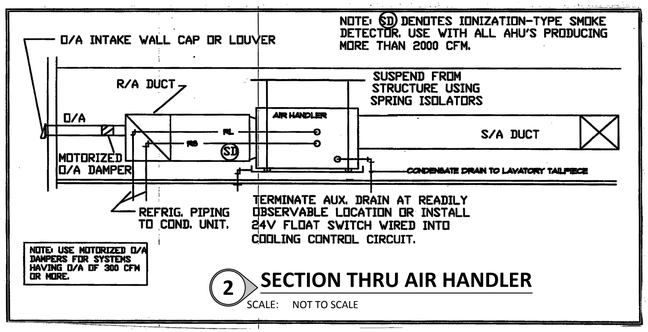


1 MECHANICAL PLAN

SCALE: 1/8" = 1'-0"



2 SECTION THRU AIR HANDLER

SCALE: NOT TO SCALE

Job Name: Express Energy Services

Fan Schedule

Mark	Type	CFM	Volts	PH	Serves	MFR	Notes
EF-1	Ceiling	100	110	1	Restroom	Broan	1,3
EF-2,3	Ceiling	50	110	1	Restroom	Broan	1,3
EF-4	Wall	10,000	480	3	Warehouse	Cook	5,
L-1	Wall	10,000			Warehouse	Cook	4,

1. Provide with Roof Vent Cap and Duct
2. Provide with Roof Curb
3. Provide Back Draft Damper
4. Wall mounted 108" x 42" adjustable louver with pull chain operator
5. Provide with motor line starter

Job Name: Express Energy Services

Split System Unit Schedule

Mark	MFR	Model No.	Tonnage	Volts	PH	Outside Air CFM	Total CFM	Cooling Capacity	Heater KW	NOTES
AH-1	Carrier	40RUAA8A2A6	7 1/2	480	3	348	3,000	90,000	15	1,2,3,4,5,6,7
CU-1	Carrier	38AUZ08A6	7 1/2	480	3			90,000		8,

1. Support air handler unit from building structure with all thread rod, unistruct and spring isolators
2. Provide outside air duct with roof/wall intake hood
3. Primary condensate to plumber provided trap at restroom lavatory
4. Provide secondary drain pan, secondary drain line to terminate over restroom lavatory just below ceiling
5. Refrigerant piping support from building structure and insulate suction line
6. Provide with programmable t-stat
7. Provide with smoke detector
8. Condenser unit is located on North side of building at ground level

Job Name: _____

GRILL SCHEDULE

CFM	Neck Size
0- 150	6"
151- 250	8"
251- 350	10"
351- 500	12"
Notes:	

GENERAL REQUIREMENTS FOR 2009 IECC

1. Plant equipment and system capacity no greater than needed to meet load conditions.
   Exception: Standby equipment automatically off when primary system is operating
   Exception: Multiple units controlled to sequence operation as a function of load
2. Minimum one control device per system
3. Minimum one humidity control device per installed humidification/dehumidification system
4. Load calculations per ASHRE/ACCA Stand 183
5. Automatic controls: Setback to 55 F (heating) and 85 F (cool); 7-day programmable, 2 hour override, 10 hour back up
   Exception: Continuously operating systems
   Exception: 2 KW demand or less
6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
7. R-5 supply and return air duct insulation in unconditioned spaces
   R-8 supply and return air duct insulation outside the building
   R-8 insulation between ducts an the building exterior when ducts are part of a building assembly
   Exception: Ducts located within equipment
   Exception: Ducts with interior and exterior temperature difference not exceeding 15 degrees F
8. Mechanical fasteners and sealant used to connect ducts and air distribution equipment
9. Ducts sealed- longitudinal seams on rigid ducts; transverse seams on all ducts: UL181A and UL181Btapes and mastic
10. Hot water pipe insulation 1.5 in. for pipes <=1.5 in. and 2 in. for pipes > 1.5 in.
    Chilled water/refrigerant/brine pipe insulation: 1.5 in. for pipes<=1.5 in. and 1.5 in for pipes> 1.5 in.
    Exception: Piping within HVAC equipment
    Exception: Fluid temperatures between 55 and105 F
    Exception: Fluid not heater or cooled with renewable energy
    Exception: Runouts<4 ft. in length
11. Operations and maintenance manuals provided to building owner
12. Thermostatic controls have a 5 degree F deadband
    Exception: Thermostats requiring manual change over between heating and cooling
    Exception: Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction
13. Balancing devices provided in accordance with MIC (2006) 603.17
14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft2 in spaces >500ft2) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, 3) a design outdoor air flow greater than 3000 CFM
    Exception: Systems with heat recovery.
    Exception: Multiple-zone systems without DDC of individual zones communicating with a central panel.
    Exception: Systems with a design outdoor airflow less than 1200 CFM
    Exception: Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 CFM.
15. Motorized, automatic shutoff dampers required on all exhaust and outdoor air supply openings
    Exception: Gravity dampers acceptable in buildings <3 stories
    Exception: Gravity dampers acceptable in systems with outside or exhaust air flow rates less than 300 cfm where dampers are interlocke with fan.
16. Automatic controls for freeze protection systems present
17. Exhaust air heat recovery included for system 5,000 CFM or greater with more than 70% outside air fraction or specifically exempted
    Exception: Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery system
    Exception: Systems serving spaces that are heated and cooled to less than 60 F
    Exception: Where more than 60 present of the outdoor heating energy is provided from site-recovered or solar energy
    Exception: Heating systems in climates with less than 3600 HDD
    Exception: Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64 F.
    Exception: Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
    Exception: Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements: a) at least 75 percent of exhaust flow rate, b) heated to no more than 2 degree F below room setpoint temperature, c) cooled to no lower that 3 degree F above room setpoint temperature, d) no humidification added, e) no simultaneous heating and cooling
18. Condensate shall be discharged to an approved plumbing fixture or disposal site.

The proposed mechanical design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2009 IECC requirements and to comply with the mandatory requirements.

MECHANICAL NOTES

1. All ductwork insulation will have an R-6 value
2. Provide balancing collars at all branch flex duct to supply air grills for air balancing on completion of installation
3. All office/storage areas with common hall return will have doors under cut for return air path
4. Perform air balance on completion of installation with written report to owner, air balance shall be performed per NEBB standards, O & M manuals will be provide to owner/owner agent with air balance reports
5. All work to comply with 2009 IECC
6. See equipment schedule for specific equipment notes

OUTSIDE AIR CALCULATIONS

AH #	SQUARE FOOTAG	X	CFM REQUIREMENTS	TOATAL CFM
1	1856		0.08	148
4 Restroom fixtures			50.00	200
Total CFM				348

STATE OF TEXAS
H.M. McLEOD JR.
37448
REGISTERED
PROFESSIONAL ENGINEER

THIS SEAL WAS AUTHORIZED
THIS DATE: 01/05/12

H.M. McLEOD, P.E.
4727 MERWIN ST. SUITE B
HOUSTON, TEXAS 77027
OFFICE: (713) 961-2699
FAX: (713) 961-5691
CELL: (713) 806-1646
Firm Registration:
H.M. McLeod, P.E.-#F-3679

R Light Service Co.
Commercial - Industrial HVAC
3407 Lang Road, Suite F Houston, Texas 77092
713.686.9644

REVISION | DATE
REVISION | DATE

SEAL

EXPRESS ENERGY SERVICES
EL CAMPO, TEXAS

DRAWING TITLE

INITIAL DATE: | DRAWN BY:
SCALED: AS SHOWN | CHK'D BY:
DWG. NO.
PROJECT NO. 12-1931-RL-222

SHEET NO. M1