

2012 INTERNATIONAL ENERGY CONSERVATION CODE COMPLIANCE NOTES

- ALL EQUIPMENT AND SYSTEMS MUST BE SIZED TO BE NO GREATER THAN NEEDED TO MEET CALCULATED LOADS
- EACH HEATING OR COOLING SYSTEM SERVING A SINGLE ZONE MUST HAVE ITS OWN TEMPERATURE CONTROL DEVICE
- DESIGN HEATING AND COOLING LOADS FOR THE BUILDING MUST BE DETERMINED USING PROCEDURES IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR AN APPROVED EQUIVALENT CALCULATION PROCEDURE
- THE SYSTEM OR ZONE CONTROL MUST BE A PROGRAMMABLE THERMOSTAT OR OTHER AUTOMATIC CONTROL MEETING THE FOLLOWING CRITERIA:
 - CAPABLE OF SETTING BACK TEMPERATURE TO 55°F DURING HEATING AND SETTING UP TO 85°F DURING COOLING
 - CAPABLE OF AUTOMATICALLY SETTING BACK OR SHUTTING DOWN SYSTEMS DURING UNOCCUPIED HOURS USING 7 DIFFERENT DAY SCHEDULES
 - HAVE AN ACCESSIBLE 2-HOUR OCCUPANT OVERRIDE
 - HAVE A BATTERY BACK-UP CAPABLE OF MAINTAINING PROGRAMMED SETTINGS FOR AT LEAST 10 HOURS WITHOUT POWER.
- THE SYSTEM MUST SUPPLY OUTSIDE VENTILATION AIR AS REQUIRED BY CHAPTER 4 OF THE INTERNATIONAL MECHANICAL CODE. IF THE VENTILATION SYSTEM IS DESIGNED TO SUPPLY OUTDOOR-AIR QUANTITIES EXCEEDING MINIMUM REQUIRED LEVELS, THE SYSTEM MUST BE CAPABLE OF REDUCING OUTDOOR-AIR FLOW TO THE MINIMUM REQUIRED LEVELS
- AIR DUCTS MUST BE INSULATED TO THE FOLLOWING LEVELS:
 - SUPPLY AND RETURN AIR DUCTS FOR CONDITIONED AIR LOCATED IN UNCONDITIONED SPACES (SPACES NEITHER HEATED NOR COOLED) MUST BE INSULATED WITH A MINIMUM OF R-6. UNCONDITIONED SPACES INCLUDE ATTICS, CRAWL SPACES, UNHEATED BASEMENTS, AND UNHEATED GARAGES
 - SUPPLY AND RETURN AIR DUCTS AND PLENUMS MUST BE INSULATED TO A MINIMUM OF R-8 WHEN LOCATED OUTSIDE THE BUILDING
 - WHEN DUCTS ARE LOCATED WITHIN EXTERIOR COMPONENTS (E.G., FLOORS OR ROOFS), MINIMUM R-8 INSULATION IS REQUIRED ONLY BETWEEN THE DUCT AND THE BUILDING EXTERIOR EXCEPTION(S):
 - DUCT INSULATION IS NOT REQUIRED ON DUCTS LOCATED WITHIN EQUIPMENT
 - DUCT INSULATION IS NOT REQUIRED WHEN THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15°F
- MECHANICAL FASTENERS AND SEALS, MASTICS, OR GASKETS MUST BE USED WHEN CONNECTING DUCTS TO FANS AND OTHER AIR DISTRIBUTION EQUIPMENT, INCLUDING MULTIPLE-ZONE TERMINAL UNITS
- ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK MUST BE SECURELY SEALED USING WELDMENTS; MECHANICAL FASTENERS WITH SEALS, GASKETS, OR MASTICS; MESH AND MASTIC SEALING SYSTEMS; OR TAPES. TAPES AND MASTICS MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED '181A-P' FOR PRESSURE SENSITIVE TAPE, '181A-M' FOR MASTIC OR '181A-H' FOR HEAT-SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED '181B-FX' FOR PRESSURE-SENSITIVE TAPE OR '181B-M' FOR MASTIC. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.
 - CONTINUOUSLY WELDED AND LOCKING-TYPE LONGITUDINAL JOINTS AND SEAMS ON DUCTS OPERATING AT STATIC PRESSURES LESS THAN 2 INCHES W.G. PRESSURE CLASSIFICATION
- ALL PIPES SERVING SPACE-CONDITIONING SYSTEMS MUST BE INSULATED AS FOLLOWS:
 - HOT WATER PIPING FOR HEATING SYSTEMS:
 - 1 1/2 IN. FOR PIPES <= 1/2-IN. NOMINAL DIAMETER,
 - 2 IN. FOR PIPES > 1/2-IN. NOMINAL DIAMETER.
 - CHILLED WATER, REFRIGERANT, AND BRINE PIPING SYSTEMS:
 - 1 1/2 IN. INSULATION FOR PIPES <= 1 1/2-IN. NOMINAL DIAMETER,
 - 1 1/2 IN. INSULATION FOR PIPES > 1 1/2-IN. NOMINAL DIAMETER.
- EXCEPTION(S):
 - PIPE INSULATION IS NOT REQUIRED FOR FACTORY-INSTALLED PIPING WITHIN HVAC EQUIPMENT
 - PIPE INSULATION IS NOT REQUIRED FOR PIPING THAT CONVEYS FLUIDS HAVING A DESIGN OPERATING TEMPERATURE RANGE BETWEEN 55°F AND 105°F
 - PIPE INSULATION IS NOT REQUIRED FOR PIPING THAT CONVEYS FLUIDS THAT HAVE NOT BEEN HEATED OR COOLED THROUGH THE USE OF FOSSIL FUELS OR ELECTRIC POWER
 - PIPING WITHIN ROOM FAN-COIL (WITH AHRI440 RATING) AND UNIT VENTILATORS (WITH AHRI840 RATING)
 - PIPE INSULATION IS NOT REQUIRED FOR RUNOUT PIPING NOT EXCEEDING 4 FT IN LENGTH AND 1 IN. IN DIAMETER BETWEEN THE CONTROL VALVE AND HVAC COIL
- OPERATION AND MAINTENANCE DOCUMENTATION MUST BE PROVIDED TO THE OWNER THAT INCLUDES AT LEAST THE FOLLOWING INFORMATION:
 - EQUIPMENT CAPACITY (INPUT AND OUTPUT) AND REQUIRED MAINTENANCE ACTIONS
 - EQUIPMENT OPERATION AND MAINTENANCE MANUALS
 - HVAC SYSTEM CONTROL, MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE
 - DESCRIPTIONS; DESIRED OR FIELD-DETERMINED SET POINTS MUST BE PERMANENTLY RECORDED ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS
 - COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.
- THERMOSTATS CONTROLLING BOTH HEATING AND COOLING MUST BE CAPABLE OF MAINTAINING A 5°F DEADBAND (A RANGE OF TEMPERATURE WHERE NO HEATING OR COOLING IS PROVIDED).
 - DEADBAND CAPABILITY IS NOT REQUIRED IF THE THERMOSTAT DOES NOT HAVE AUTOMATIC CHANGEOVER CAPABILITY BETWEEN HEATING AND COOLING
 - SPECIAL OCCUPANCY OR SPECIAL APPLICATIONS WHERE WIDE TEMPERATURE RANGES ARE NOT ACCEPTABLE AND ARE APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- BALANCING DEVICES PROVIDED IN ACCORDANCE WITH IMC (2009). ALL AIR & WATER BALANCING & TESTING SHALL BE DONE BY AN INDEPENDENT CONTRACTOR. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR AIR BALANCING COST
- A COPY OF A TEST & BALANCE REPORT, PERFORMED BY A THIRD PARTY, CERTIFIED TEST & BALANCE CONTRACTOR, SHALL BE SUBMITTED TO THE COUNTY PRIOR TO THE FINAL INSPECTION
- DEMAND CONTROL VENTILATION (DCV) REQUIRED FOR HIGH DESIGN OCCUPANCY AREAS (>40 PERSON/1000 FT2 IN SPACES >500 FT2) AND SERVED BY SYSTEMS WITH ANY ONE OF
 - AN AIR-SIDE ECONOMIZER, 2) AUTOMATIC MODULATING CONTROL OF THE OUTDOOR AIR DAMPER, OR 3) A DESIGN OUTDOOR
 - AIRFLOW GREATER THAN 3000 CFM.

GENERAL NOTES

- ALL WORK SHALL BE DONE TO MEET OR EXCEED ALL APPLICABLE CODES THAT REGULATE CONSTRUCTION WITHIN THE CITY OF ELGIN
- CITY OF ELGIN CURRENTLY FOLLOWS 2012 INTERNATIONAL MECHANICAL CODE (IMC)
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY CONSTRUCTION PERMITS FROM THE CITY OF ELGIN PRIOR TO STARTING WORK
- NO WORK SHALL BE DONE WITHOUT PERMIT FROM THE CITY OF ELGIN
- IF THE CONTRACTOR PERFORMS ANY WORK KNOWINGLY, OR HAVING REASONS TO KNOW THE SAME VIOLATES THE CITY OF ELGIN BUILDING CODES, THEN THE CONTRACTOR WILL HAVE TO RE-DO ALL SUCH WORK AT THEIR EXPENSE
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL LAYOUT AND LOCATIONS OF PIPES & DUCTS. CONTRACTOR SHALL COORDINATE ALL WORK IN FIELD WITH OTHER TRADES FOR INTERFERENCES PRIOR TO INSTALLING EQUIPMENT, PIPES & DUCTS
- ALL NEW TRACES SHALL BE MADE OUT OF GALVANIZED STEEL AND SHALL BE FABRICATED AND INSTALLED PER SMACNA & ASHRAE STANDARDS
- ALL DUCTS DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS
- PROVIDE 2 HR RATED FIRE DAMPERS IN ALL DUCTS PENETRATING 2 HR FIRE RATED WALLS, FLOORS, CEILINGS AND SHAFTS
- FLEXIBLE DUCTS SHALL BE PER NFPA 90A. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 6 FEET
- SUPPORT METAL DUCTS EVERY 10'-0" PER IMC 2009
- SUPPORT FLEXIBLE DUCTS PER FLEXIBLE MANUFACTURERS RECOMMENDATIONS
- OUTSIDE AIR INTAKE DUCTS SHALL BE MINIMUM 10'-0" FROM ANY EXHAUST, PLUMBING VENTS OR ANY CONTAMINANTS
- ALL ROTATING EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATORS AND PROVIDED WITH FLEXIBLE DUCT CONNECTIONS
- PROVIDE ACCESS DOORS FOR SERVICE AND MAINTENANCE OF ALL EQUIPMENT LOCATED ABOVE INACCESSIBLE CEILINGS. COORDINATE WITH THE ARCHITECT FOR THE LOCATION OF THE ACCESS DOORS
- ACTUAL LOCATION OF ALL THERMOSTATS SHALL BE COORDINATED IN FIELD
- THIS CONTRACTOR IS RESPONSIBLE FOR ALL TEMPERATURE CONTROLS WIRING. ENTIRE TEMPERATURE CONTROLS WIRING SHALL BE IN CONDUIT
- TEST AND BALANCE ALL AIR SYSTEMS PER AACB OR NEBB REQUIREMENTS. ALL BALANCING SHALL BE DONE BY AN INDEPENDENT CONTRACTOR
- CHECK, ADJUST AND START ALL HVAC EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS
- SEAL DUCTWORK ACCORDING TO SMACNA GUIDELINES AND AS PER PRESSURE CLASS (LOW)
- CALL THE OWNER'S REP FOR VISUAL INSPECTIONS OF DUCTWORK AND PIPING BEFORE APPLYING INSULATION.
- PROVIDE AS-BUILT DRAWINGS AT THE END OF INSTALLATION

⊗ SHEET KEY NOTES

- FURNISH NEW HVAC EQUIPMENT PER SCHEDULE
- HVAC CONTRACTOR SHALL COORDINATE WITH THE OTHER DRAWING AND PROVIDE THE CONCRETE PAD FOR NEW CONDENSING UNITS
- FURNISH AND INSTALL NEW SUPPLY AIR DIFFUSER TO THE NEW LOCATION AS SHOWN. REWORK, MODIFY & EXTEND EXISTING DUCT AS REQUIRED AND CONNECT TO THE NEW SUPPLY AND RETURN DIFFUSER. BALANCE SUPPLY AIR TO CFM SHOWN
- PROVIDE NEW EXHAUST AIR GRILLE. GRILLE TO MATCH EXISTING BUILDING STANDARD. PROVIDE NEW 6" DIA EXHAUST AIR DUCT AND CONNECT TO THE EXHAUST AIR MAIN AS SHOWN. AIR BALANCE GRILLE TO CFM SHOWN
- REPLACE EXISTING ROOF EXHAUST FANS AS SHOWN.
- PROVIDE NEW THERMOSTAT AS SHOWN. REWORK, MODIFY & EXTEND EXISTING CONTROL WIRING AS REQUIRED AND CONNECT TO NEW THERMOSTAT. VERIFY IN FIELD.
- HVAC CONTRACTOR SHALL VERIFY THE EXISTING FIRST FLOOR RETURN FLOOR MOUNT REGISTER AND REUSE THE LOCATION TO AVOID ANY NEW FLOOR CUTTING.
- HVAC CONTRACTOR SHALL SUBMIT THE SHOP DRAWING PRIOR TO ANY MODIFICATION.

DIFFUSER AND REGISTER SCHEDULE										
TAG	SERVICE	TYPE	FACE SIZE (INCHES)	NECK SIZE (INCHES)	O.B.D. SIZE (INCHES)	MATERIAL	FINISH	MANUFACTURER AND MODEL	REMARKS	
S1	SUPPLY	-	X	-	24"x24"	SEE PLAN	Y	STEEL #26	TITUS 300RLS	1,2
S2	SUPPLY	-	-	X	16"x8"	SEE PLAN	Y	STEEL #26	TITUS 300RLS	1,2
S3	SUPPLY	X	-	-	48"x4"	SEE PLAN	Y	STEEL #26	TITUS 300RLS	1,2
R1	RETURN	-	X	-	24"x24"	SEE PLAN	Y	STEEL #26	TITUS 300RL	1,2
R2	RETURN	-	-	X	16"x8"	SEE PLAN	Y	STEEL #26	TITUS 300RL	1,2
R3	RETURN	-	-	X	24"x8"	SEE PLAN	Y	STEEL #26	TITUS 300RL	1,2
R4	RETURN	-	-	X	18"x8"	SEE PLAN	Y	STEEL #26	TITUS 300RL	1,2
E5	EXHAUST	-	-	X	12"x12"	SEE PLAN	Y	STEEL #26	TITUS 300RL	1,2

- PROVIDE VOLUME CONTROL DAMPER IN EACH GRILLE/DIFFUSER.
- COORDINATE GRILLES/DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS

EXHAUST FAN SCHEDULE											
TAG	LOCATION	SERVICE	AIR FLOW (CFM)	ESP (INCHES)	FAN TYPE	FAN DATA	DRIVE	MOTOR DATA	MANUFACTURER AND MODEL	REMARKS	
EF 1	ROOF	BASEMENT BATHROOM	450	0.25	CENTRIFUGAL	1560	BELT	1/6	120/1/60	GREENHECK - GB81	1,2
EF 2	ROOF	FIRST FLOOR BATHROOM	500	0.25	CENTRIFUGAL	1560	BELT	1/6	120/1/60	GREENHECK - GB81	1,2

- FURNISH FAN WITH GRAVITY DAMPER & WALL CAP
- REMOVE EXISTING EXHAUST FAN AND REPLACE WITH NEW EXHAUST.

GAS FIRED FURNACE SCHEDULE												
TAG	LOCATION	SERVICE	HEATING (MBH)	ESP (INCHES)	HP	IN	OUT	MOTOR DATA	ELECTRICAL	MANUFACTURER AND MODEL	REMARKS	
F1 TO F4			2000	0.5"	1/2	100,000	97,000	7.9	15	208/1/60.3	YORK T9M (97% EFF.)	1,2,3,4

- NOTES:
- PROVIDE PROGRAMMABLE THERMOSTAT.
 - PROVIDE CONCENTRIC VENT KIT.
 - PROVIDE FURNACE TRIMMING KIT.
 - PROVIDE NEUTRALIZATION KIT.

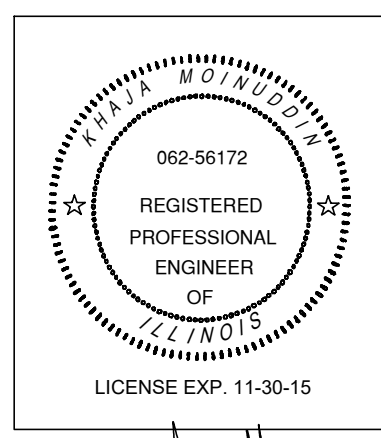
CONDENSING UNIT SCHEDULE												
QTY	TAG	NOMINAL TONS	NO. OF FANS	FAN HP	NO. OF COMP.	LRA	RRA	VOLT/PHASE/Hz	MCA	MOCP	MANUFACTURER AND MODEL	REMARKS
4	CU-1 TO CU-4	5	3	1/4	1	104	19.2	208/1/60	36.3A	65A	YORK CZH06G	14.5 SEER

ELECTRIC HEATER SCHEDULE										
TAG	LOCATION	KW	V	PH	Hz	MANUFACTURER AND MODEL	REMARKS			
EHW-1	SEE PLAN	3	240	1	60	SMARK AMH SERIES	1			
EHW-2	SEE PLAN	3	240	1	60	SMARK AMH SERIES	1			

- FURNISH WITH INTEGRAL THERMOSTAT, DISCONNECT SWITCH

VENTILATION SCHEDULE

S.No	Room Number	Room Name	Area (Sq Ft)	Room Use	Number of People as per Layout	As per Intl Code table 403.3 for Outdoor(Fresh Air) CFM for Area Exhaust CFM/Sft	Ordinance Requirement						Plan Actual				Remarks
							Natural Ventilation		Mechanical Ventilation		Natural Ventilation		Mechanical Ventilation				
							Glass-SqFt	Vent-SqFt	Supply Air-CFM	Exhaust Air-CFM	Outdoor (Fresh Air) CFM	Glass-SqFt	Vent-SqFt	Supply Air-CFM	Exhaust Air-CFM		
1	001	Lobby	420	Office	3	5/0.06	NR	25.2	252	126	15	-	-	400	400	F1	
2	002	Conference	300	Office	12	5/0.06	NR	18	180	90	60	-	-	400	400	F1	
3	003	Office	240	Office	3	5/0.06	NR	14.4	144	72	15	-	-	330	330	F1	
4	004	Office	280	Office	3	5/0.06	NR	16.8	168	84	15	-	-	330	330	F1	
5	005	Storage	500		1	0.06CFM/Sft	NR	NR	NR	NR	5	-	-	300	300	F2	
6	006	RR Bay	80	Corridor	5	5/0.06	NR	4.8	48	50	25	-	-	100	100	F2	
7	007	Existing Men's Room	115	Toilet	-	25/50 Cfm/Sft	NR	4.6	69	230	-	-	-	100	100	F2	
8	008	Existing Women's Room	105	Toilet	-	25/50 Cfm/Sft	NR	4.2	63	210	-	-	-	150	150	F2	
9	009	Mechanical Room	230		2	0.06Cfm/Sft	NR	13.8	138	69	10	-	-	0	0		
10	100	Lobby	825	Office	3	5/0.06	NR	49.5	495	247.5	15	-	-	1200	1200	F3	
11	102	Existing Men's Room	147	Toilet	-	25/50 Cfm/Sft	NR	5.88	88.2	294	-	-	-	200	200	F3	
12	105	Existing Women's Room	100	Toilet	-	25/50 Cfm/Sft	NR	4	60	200	-	-	-	100	100	F3	
13	105	Office	275	Office	3	5/0.06	NR	16.5	165	82.5	15	-	-	350	350	F4	
14	105	Office	275	Office	3	5/0.06	NR	16.5	165	82.5	15	-	-	350	350	F4	
15	105	Office	275	Office	3	5/0.06	NR	16.5	165	82.5	15	-	-	350	350	F4	
16	105	Office	160	Office	3	5/0.06	NR	9.6	96	50	15	-	-	100	100	F4	
17	105	Office	125	Office	3	5/0.06	NR	7.5	75	50	15	-	-	100	100	F4	
18	106	Conference	300	Office	12	5/0.06	NR	18	180	90	60	-	-	400	400	F4	
Total			4,752.00											5,260.00	5,260.00		



ITC

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ARCHITECT/ENGINEER

LUCACCIONI OFFICE REMODEL
721 DUNDÉE AVE., ELGIN, IL

PROJECT NUMBER:
14.009

DRAWN BY:
LP

CHECKED BY:

DATE: REVISION:

DATE: ISSUED AS:

2-26-15 PRELIMINARY DESIGN
9-16-15 PERMIT SUBMITTAL
10-28-15 PERMIT REVISION
10-10-16 PERMIT RE-SUBMITTAL
11-7-16 ISSUE FOR PRICING

SHEET TITLE:
VENTILATION AND EQUIPMENT SCHEDULE

SHEET NUMBER:
M-00