VARIABLE AIR VOLUME BOX SCHEDULE - COOLING ONLY

TAG	MANUFACTURER	MODEL	COOLING MINIMUM	COOLING MAXIMUM	MAX PD IN WC	INLET SIZE	DISCHARGE SIZE	DISCHARGE SOUND POWER: MIN. SP+1.5 INCH						NOTES
								125	250	500	1000	2000	4000	
A	METAL-AIRE	506TH	110	400	0.12	6	12x8	65	66	61	57	52	49	1,2
B	METAL-AIRE	508TH	200	700	0.07	8	12x10	66	67	61	59	55	50	1,2
C	METAL-AIRE	510TH	300	1,100	0.12	10	14x12.5	69	70	63	61	55	52	1,2
D	METAL-AIRE	512TH	400	1,600	0.12	12	16x15	68	70	68	61	57	54	1,2
E	METAL-AIRE	514TH	600	2,100	0.12	14	20x17.5	71	72	67	65	62	58	1,2
F	METAL-AIRE	516TH	750	2,800	0.34	16	24x18	73	74	73	66	61	56	1,2
G	METAL-AIRE	520TH	1,200	4,400	0.34	20	30x20	79	82	81	76	73	68	1,2

NOTES: 1) COORDINATE DDC CONTROLLER WITH TEMPERATURE CONTROL CONTRACTOR
2) 277V/1Ø

ALTERNATES
1). TRANE
2). TITUS

VARIABLE AIR VOLUME BOX SCHEDULE - REHEAT

TAG	MANUFACTURER	MODEL	COOLING MINIMUM	COOLING MAXIMUM	MAX PD IN WC	INLET SIZE	DISCHARGE SIZE	ONE ROW HEATING COIL	DISCHARGE SOUND POWER: MIN. SP+1.5 INCH						NOTES
									125	250	500	1000	2000	4000	
1	METAL-AIRE	506TH	110	400	0.12	6	12x8	2 GPM	65	66	61	57	52	49	1,2,3,5
2	METAL-AIRE	508TH	200	700	0.07	8	12x10	2 GPM	66	67	61	59	55	50	1,2,3,5
3	METAL-AIRE	510TH	300	1,100	0.12	10	14x12.5	2 GPM	69	70	63	61	55	52	1,2,3,5
4	METAL-AIRE	512TH	400	1,600	0.12	12	16x15	3 GPM	68	70	68	61	57	54	1,2,3,5
5	METAL-AIRE	514TH	600	2,100	0.12	14	20x17.5	3 GPM	71	72	67	65	62	58	1,2,4,5
6	METAL-AIRE	516TH	750	2,800	0.34	16	24x18	4 GPM	73	74	73	66	61	56	1,2,4,5
7	METAL-AIRE	520TH	1,200	4,400	0.34	20	30x20	4 GPM	79	82	81	76	73	68	1,2,4,5

NOTES: 1) COORDINATE DDC CONTROLLER WITH TEMPERATURE CONTROL CONTRACTOR
2) 277V/1Ø
3) 3/4" HEATING WATER BRANCH SIZE
4) 1" HEATING WATER BRANCH SIZE
5) PROVIDE LINE SIZE SHUT-OFF VALVE.

ALTERNATES
1). TRANE
2). TITUS

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE APPLICABLE INTERNATIONAL BUILDING, UNIFORM MECHANICAL, AND UNIFORM PLUMBING CODES, AND FEDERAL, STATE, AND LOCAL REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE NEW, AND ALL WORK SHALL BE GUARANTEED AGAINST ANY DEFECTS IN EQUIPMENT, MATERIAL, OR WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.

2. THE SCOPE OF WORK INCLUDES ALL LABOR, MATERIAL, EQUIPMENT, SUPERVISION, AND ANY OTHER INCIDENTAL ITEMS OR SERVICES NECESSARY FOR THE COMPLETE INSTALLATION AND PROPER OPERATION OF ALL MECHANICAL AND PLUMBING SYSTEMS.

3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION AND PAYMENT OF ALL FEES, PERMITS, AND INSPECTIONS REQUIRED.

4. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND ROUTING OF PIPING AND DUCTWORK AND SHALL NOT BE SCALED. CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND COORDINATE EXACT ARRANGEMENT AND ROUTING WITH ALL OTHER TRADES AND THE OWNER. CONTRACTOR SHALL MAKE REASONABLE ADJUSTMENTS, OFFSETS, TRANSITIONS, AND MODIFICATIONS FOR THE PROPER INSTALLATION AND OPERATION OF MATERIALS AND EQUIPMENT, AND TO PREVENT CONFLICT WITH OTHER TRADES. CONTRACTOR SHALL BE RESPONSIBLE FOR WORKING CONDITIONS AND SHALL MAINTAIN SAFE WORKING CONDITIONS AND USE SAFE METHODS.

5. CONTRACTOR SHALL EXAMINE, VERIFY, AND CONFIRM ALL EXISTING FIELD CONDITIONS PRIOR TO SUBMITTING THE BID. WHERE DISCREPANCIES EXIST, THEY SHALL BE NOTED AND ACCOUNTED FOR IN THE BID PRICE.

6. PRIOR TO THE PURCHASE, FABRICATION, OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT, THE CONTRACTOR SHALL SUBMIT COPIES OF SHOP DRAWINGS AS REQUIRED IN SPECIFICATIONS, AND CATALOG DATA FOR ALL EQUIPMENT, MATERIAL, AND DEVICES REQUIRED PER CONTRACT REQUIREMENTS FOR REVIEW BY THE ENGINEER. CONTRACTOR SHALL CHECK AND VERIFY ALL SIZES, DIMENSIONS, VOLTAGES, AND CONDITIONS. SHOP DRAWINGS SHALL BE COORDINATED WITH ALL ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND OTHER BUILDING ELEMENTS. ANY DEVIATIONS OR PROBLEM SHALL BE TRANSMITTED TO THE ARCHITECT FOR ENGINEERS RESOLUTION. PROVIDE PROPER CLEARANCE AND ACCESS FOR INSPECTION AND MAINTENANCE.

7. SEAL ALL WALL AND ROOF PENETRATIONS WEATHER TIGHT. PROVIDE ACCESS PANELS IN CEILING AND WALLS FOR ACCESS TO VALVES, EQUIPMENT AND DUCT CLEAN OUTS.

8. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN AS-BUILT DRAWINGS AS THE WORK PROGRESSES. UPON THE COMPLETION OF CONSTRUCTION, THE MECHANICAL CONTRACTOR SHALL SUBMIT THREE SETS OF AS-BUILT DOCUMENTS ACCURATELY SHOWING THE MATERIALS AND EQUIPMENT AS INSTALLED. SUBMIT THREE SETS OF OPERATION AND MAINTENANCE MANUALS KEYED TO EQUIPMENT LABELING FOR ALL EQUIPMENT.

9. ALL EQUIPMENT AND SYSTEMS SHALL BE ADJUSTED, BALANCED, AND TESTED TO PROVIDE PROPER OPERATION. EXPLAIN TO THE OWNER'S REPRESENTATIVE ALL PROCEDURES NECESSARY TO OPERATE AND MAINTAIN ALL EQUIPMENT AND SYSTEMS.

MECHANICAL NOTES

1. ALL DUCTWORK SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE SMACNA DUCT STANDARDS MANUAL AND THE UNIFORM MECHANICAL CODE. ALL DUCTWORK SHALL BE GALVANIZED METAL EXCEPT WHERE OTHERWISE INDICATED. SPIRAL LOCK FORMED ROUND DUCT MAY BE USED AT CONTRACTOR'S OPTION. ALL ELBOWS SHALL BE FULL INSIDE RADIUS THROAT OR SQUARE ELBOWS WITH DOUBLE THICKNESS TURNING VANES. ALL DUCTWORK SHALL HAVE DUCT MATE OR EQUAL JOINTS, OR APPLY DUCT SEALANT TO ALL JOINTS TO MAKE DUCT AIR TIGHT. DUCT SEAMS TRANSVERSE AND LONGITUDINAL SHALL BE SEALED AIRTIGHT WITH A NON-HARDENING DUCT SEALANT.

2. PROVIDE OPPOSE BLADE DAMPER WITH LOCKING AND INDICATING QUADRANTS AT EACH SUPPLY AIR BRANCH FROM A MAIN DUCT AND WHEREVER NECESSARY TO FACILITATE AIR BALANCING OF THE DUCT SYSTEM. DUCT SHALL BE SUSPENDED FROM GALVANIZED HANGER STRAPS OR TRAPEZE HANGERS TO STRUCTURAL MEMBERS IN ACCORDANCE WITH SMACNA STANDARDS AND THE UNIFORM MECHANICAL CODE. MAKE SHIFT DEVICES SHALL NOT BE USED.

3. SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, AND ROOFS WEATHER TIGHT. DUCTWORK EXPOSED TO WEATHER SHALL HAVE JOINTS AND SEAMS SEALED WEATHER TIGHT.

4. ALL UNLINED SUPPLY AND RETURN DUCTWORK LOCATED WITHIN THE BUILDING SHALL BE INSULATED WITH 2" THICK R-6 DUCT WRAP WITH FOIL KRAFT VAPOR BARRIER, AND SHALL BE SECURELY WIRED AND INSTALLED PER MANUFACTURERS INSTRUCTIONS. ALL EXTERIOR DUCTWORK SHALL BE LINED WITH 2" THICK 1 1/2# DENSITY DUCT LINER.

5. ALL SUPPLY AND RETURN PLENUMS AND LOCATIONS INDICATED FOR ACOUSTICAL CONTROL SHALL HAVE 1" THICK 1 1/2# DENSITY DUCT LINER. APPLY LINER WITH FIRE RESISTIVE ADHESIVE AND PLATED MECHANICAL FASTENERS.

6. FLEXIBLE DUCT WORK SHALL BE U.L. LISTED AND LIMITED TO THE LAST 5' OF RUN OUT TO THE DIFFUSER. JOINTS SHALL BE BAND CLAMPED WITH A SHEET METAL COLLAR CONNECTION TO CEILING DIFFUSER AND TAPE SEALED TO MAINTAIN THE VAPOR BARRIER. FLEXIBLE DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK SIZE UNLESS NOTED OTHERWISE.

7. BALANCE ALL DUCTS, DIFFUSERS, AND REGISTERS TO OBTAIN THE AIR QUANTITIES INDICATED ON THE DRAWINGS. SUBMIT THREE COPIES OF THE FINAL BALANCE REPORT WITH TABULATED RESULTS.

8. PROVIDE FLEXIBLE DUCT CONNECTORS AND VIBRATION ISOLATION ON ALL EQUIPMENT WITH MOVING PARTS. PROVIDE SEISMIC BRACING FOR EACH PIECE OF EQUIPMENT PER SMACNA DESIGN STANDARDS.

9. PROVIDE DUCT MOUNTED SMOKE DETECTORS TO SHUT DOWN ALL AIR HANDLING EQUIPMENT WHEN SMOKE IS SENSED. DUCT MOUNT SMOKE DETECTORS MAY BE OMITTED, WHERE ALLOWED BY CODE, AND IN AREAS SERVED BY A TOTAL COVERAGE SMOKE DETECTION SYSTEM.

10. COORDINATE ALL DIFFUSER AND GRILL LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN AND ELECTRICAL LIGHTING LAYOUT. COORDINATE THE LOCATION OF ALL ROOF OPENINGS AND THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT WITH THE STRUCTURAL AND ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION. PROVIDE THE EQUIPMENT WEIGHTS, AND PLATFORM AND CURB SIZES. ALL ROOF MOUNTED EQUIPMENT SHALL BE LABELED AS TO THE SPACE THAT IT SERVES.

11. PROVIDE A COMPLETE HVAC CONTROL SYSTEM AS REQUIRED INCLUDING THERMOSTATS FOR EACH ZONE, VALVES, CONDUIT, WIRING, AND ACCESSORIES FOR A COMPLETE AND OPERABLE SYSTEM.

12. REFRIGERATION PIPING TO BE TYPE L, ACR COPPER WITH BRAZED JOINTS AND 1/2" ARMAFLEX INSULATION. LINE SETS TO BE SIZED AND INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS.

13. PROVIDE COPPER CONDENSATE DRAIN PIPING, WITH DEEP P-TRAPS AT EACH COOLING COIL. PROVIDE SUPPORTS AND HANGERS TO MAINTAIN PROPER SLOPE TO AN APPROVED TERMINATION POINT. PROVIDE A SECONDARY DRAIN PAN OR UTILIZE THE FACTORY SECONDARY DRAIN CONNECTION. TERMINATE THE SECONDARY DRAIN AT THE NEAREST RETURN AIR REGISTER OR OTHER CONSPICUOUS LOCATION.

14. PROVIDE COMBINATION FIRE/SMOKE DAMPERS WITH LOCAL SMOKE DETECTION IN CONFORMANCE WITH NFPA STANDARD 90A AND IN ACCORDANCE WITH THEIR LISTING, AT ALL PENETRATION OF RATED WALLS AND CEILINGS, AND WHERE INDICATED ON THE DRAWINGS. PROVIDE ACCESS DOORS WITH INDICATING SIGN.

15. HYDRONIC PIPING SHALL BE BLACK SCHEDULE 40 STEEL WITH 150 POUND BLACK MALLEABLE IRON SCREWED FITTINGS OR TYPE L COPPER WITH WROUGHT FITTINGS. DIELECTRIC UNIONS SHALL BE USED WHERE EVER DISSIMILAR METALS ARE USED. PROVIDE ISOLATION VALVES AT ALL EQUIPMENT AND DEVICES, AND AS REQUIRED FOR MAINTENANCE. INSTALL ALL PIPING IN A NEAT, WORKMAN LIKE MANNER WITH PROPER HANGERS. ROUTE PIPING PARALLEL WITH BUILDING LINES, AND HORIZONTAL OR PLUMB. PIPE SHALL BE CLEAN AND INSTALLED WITHOUT STRAIN OR FORCING. MAKE CHANGES IN DIRECTION WITH FACTORY FABRICATED FITTINGS.

16. KITCHEN EXHAUST DUCT SERVING A TYPE I HOOD SHALL BE 16 GAUGE STEEL WITH CONTINUOUS LIQUID TIGHT WELDED JOINTS. DUCT SHALL SLOPE A MINIMUM OF 1/4" PER FOOT TOWARDS THE HOOD. PROVIDE APPROVED TIGHT FITTING DUCT ACCESS DOORS WHERE REQUIRED BY THE BUILDING DEPARTMENT. DUCT SHALL BE ENCLOSED IN A RATED SHAFT FROM THE CEILING PENETRATION TO THE ROOF. CONSTRUCT ENCLOSURE MORE THAN 3" AND LESS THAN 12" FROM THE DUCT AND PROVIDE RATED ENCLOSURE ACCESS DOORS AT EACH DUCT ACCESS DOOR LOCATION.

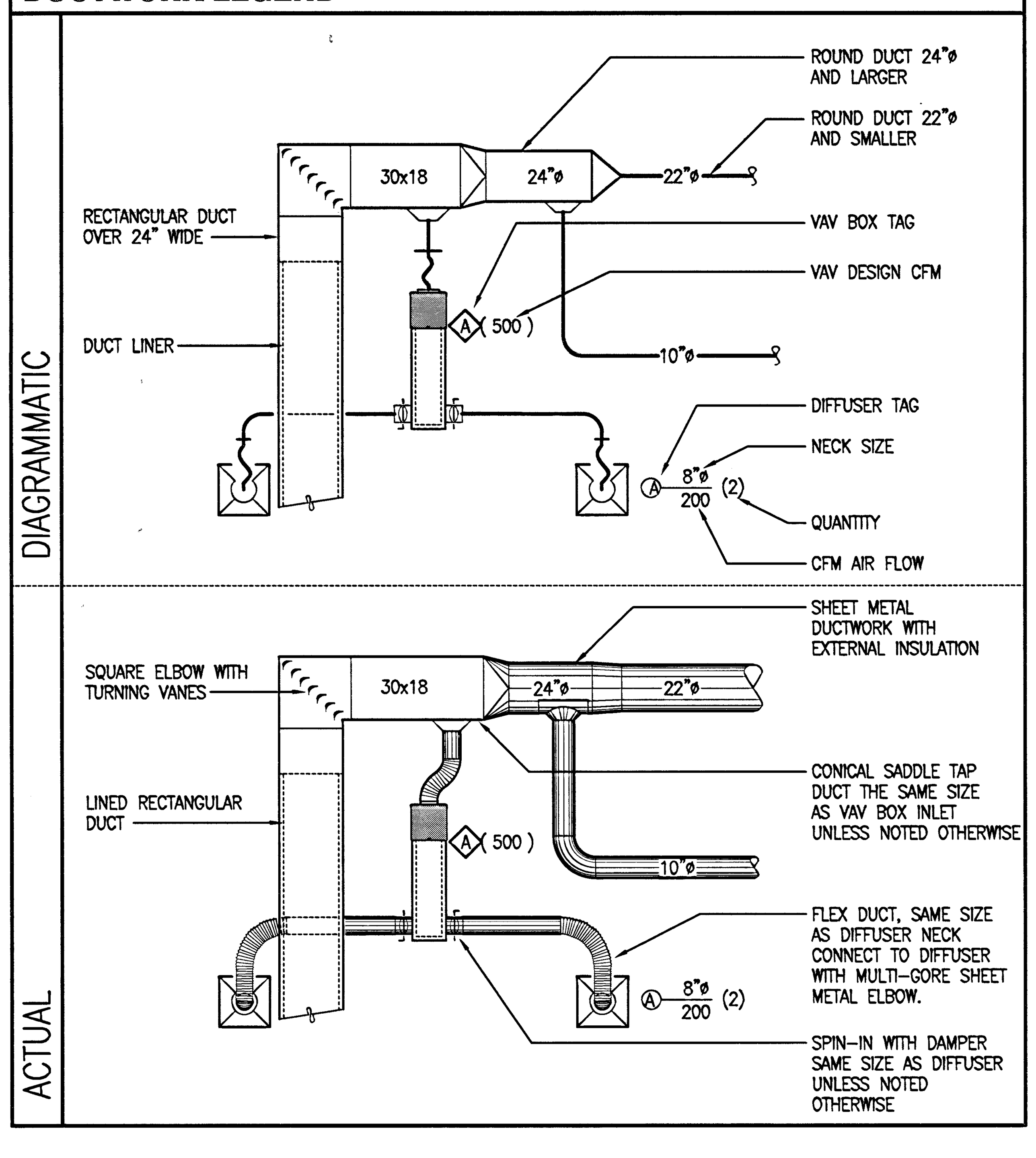
DRAWING INDEX

NUMBER	DRAWING TITLE		PERMIT SET 03.18.05	1 PLANCHECK 04.29.05	2 REVISIONS 05.31.05	3 REVISIONS 07.01.05
M1.00	INDEX, LEGEND AND NOTES	MECHANICAL	•		•	•
M1.01	SCHEDULES	MECHANICAL	•	•	•	
M1.02	INSTALLATION DIAGRAMS	MECHANICAL	•	•	•	•
M1.03	PIPING SCHEMATICS	MECHANICAL	•		•	
M2.01	FLOOR PLAN – AREA A –	MECHANICAL	•		•	•
M2.02	FLOOR PLAN – AREA B –	MECHANICAL	•		•	•
M2.03	FLOOR PLAN – AREA C –	MECHANICAL	•	•	•	•
M2.04	FLOOR PLAN – AREA D –	MECHANICAL	•	•	•	
M2.05	FLOOR PLAN – AREA E –	MECHANICAL	•		•	
M2.06	FLOOR PLAN – AREA F –	MECHANICAL	•	•	•	
M2.07	FLOOR PLAN – AREA G –	MECHANICAL	•	•	•	
M3.00	ROOF PLAN	MECHANICAL	•	•	•	
M4.00	PART PLANS	MECHANICAL	•	•	•	
M4.01	SECTIONS	MECHANICAL	•		•	•
M4.02	PART PLANS / SECTIONS	MECHANICAL	•		•	•

LEGEND

ABBREVIATION	SYMBOL	DESCRIPTION
		SUPPLY, RETURN AND EXHAUST AIR DUCT UP
		SUPPLY, RETURN AND EXHAUST AIR DUCT DOWN
		DUCTWORK UNLINED AND DUCTWORK LINED
		FLEXIBLE DUCT, FLEXIBLE DUCT, RIGID DUCT
	BDD M	BACKDRAFT, MOTOR OPERATED AND MANUAL DAMPER
	FS F	SMOKE/FIRE DAMPER, FIRE DAMPER
		SUPPLY AIR, RETURN AIR/EXHAUST AIR/OUTSIDE AIR FLOW ARROWS
T, H	T H	THERMOSTAT/TEMPERATURE SENSOR AND HUMIDISTAT
AP	AP	ACCESS PANEL
SA,RA,EA,OA,CA		SUPPLY, RETURN, EXHAUST, OUTSIDE AND COMBUSTION AIR
D	D	DRAIN PIPING
	1 1 1	WORK NOTE, REVISION NOTE, DEMOLITION NOTE, POINT OF CONNECTION
E, R, N, RE:	(E), (R), (N), (RE:)	EXISTING, RELOCATED, NEW AND REFERENCE
	B (500) 2 (500)	COOLING ONLY AND REHEAT VAV BOX AT 500 CFM
	A M4.0	SECTION "A" ON SHEET "M4.0"
	2 M3.0	DETAIL "2" ON SHEET "M3.0"
	AH 3	MECHANICAL EQUIPMENT CALL OUT
	WC-1	PLUMBING FIXTURE CALL OUT

DUCTWORK LEGEND



RECORD DRAWINGS 10/05/07

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CITY OF LAS VEGAS
CENTENNIAL HILLS COMMUNITY CENTER
INDEX, LEGEND AND NOTES
MECHANICAL

STAMP

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