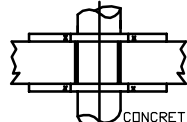
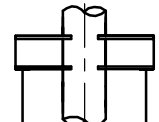
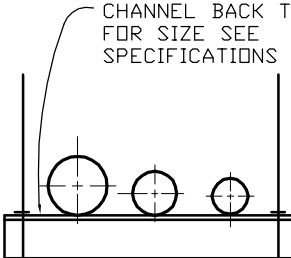
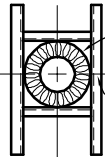
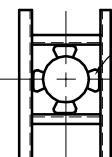
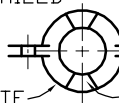


DUCTWORK SYMBOLS & STANDARDS	
WHERE DUCTWORK IS SHOWN SINGLE LINE, FOLLOWING SHALL APPLY FOR ACTUAL DUCT CONSTR.	
SINGLE LINE	ACTUAL CONSTRUCTION
	DOUBLE THICKNESS TURNING VANES ROUND ELBOW W/ TURNING BLADES IF W > 18" R = 3W/4
	ADJUSTABLE TAP DAMPER
	OFFSET IN VERTICAL PLANE SHALL BE MADE WITH SMOOTH FITTINGS. ARROW IN DIRECTION OF AIRFLOW.
	OFFSET IN HORIZONTAL PLANE SHALL BE MADE WITH SMOOTH FITTINGS.
	PLENUM OVER DIFFUSER CONICAL FITTINGS REGULATION OF VOLUME DAMPER SHALL BE ACCESSIBLE THROUGH THE FACE OF DIFFUSER
	ACCESS DOOR IN DUCT FLD MOUNTING TYPE DEPENDS ON AIR VELOCITIES AND DUCT SIZE - SEE SPECIFICATIONS. RATING EQUAL TO PARTITION UNLESS NOTED OTHERWISE. (2HR MIN.)
	COIL WITH FLANGED CONNECTION ALL AROUND NOTE: INSTALL ELECTRIC DUCT HEATERS 2"-0" MIN FROM ANY FANS, ELBOWS, OR "T" FITTINGS.
	VOLUME DAMPER
	AUTOMATIC LOUVER DAMPER (MOTORIZED DAMPER)
	BDD - BACKDRAFT DAMPER
	① THERMOSTAT
	TRANSITION
	SUPPLY
	RETURN OR EXHAUST
GRILLE, REGISTER AND DIFFUSER SYMBOLS:	
	SQUARE CEILING SUPPLY DIFFUSER OR REGISTER
	CEILING RETURN OR EXHAUST GRILLE OR REGISTER
	SIDEWALL SUPPLY REGISTER
	SIDEWALL RETURN OR EXHAUST GRILLE OR REGISTER
	ROUND CEILING SUPPLY DIFFUSER OR REGISTER
	ROUND CEILING RETURN OR EXHAUST GRILLE OR REGISTER
	CONTINUOUS FIN TUBE RADIATION

PIPE HANGER & SUPPORT SCHEDULE									
FIG NO.	LESS THAN 1/4" MOVEMENT EXCEPT AS NOTED			MORE THAN 1/4" MOVEMENT EXCEPT AS NOTED					
	NON. INSUL.	CH.W. LINES	HOT LINES	NON. INSUL.	CH.W. LINES	HOT LINES			
OVERHEAD SUPPORTS < HORIZONTAL PIPING >									
1									
2		*							
3			*						
4				*					
5					*				
6						*			
7				*					
8					*				
9						*			
10	*								
11		*							
12			*						
WALL SUPPORTS (HORIZONTAL PIPING)									
13	*								
14		*							
15			*						
16				*					
17					*				
18						*			
19	*	*	*	*	*	*			
FLOOR SUPPORTS < HORIZONTAL PIPING >									
20				*					
21					*				
22						*			
23	*								
24		*							
25			*						
FLOOR SUPPORTS < VERTICAL PIPING >									
26	*	*	*						
27	*	*	*						
28				*	*	*			
OVERHEAD SUPPORTS < VERTICAL & HORIZ. PIPING >									
29				*	*	*			
30				*	*	*			
31				*	*	*			
WALL SUPPORTS < VERTICAL PIPING >									
32	*	*	*						
33				*	*	*			
ANCHORS < VERTICAL & HORIZONTAL PIPING >									
34	APPLIES TO ALL PIPES TO STOP MOVEMENT								
35									
GANG HANGERS < VERTICAL PIPING >									
36	*	*	*						
GANG HANGERS < HORIZONTAL PIPING >									
37	*	*	*	TO BE INDIVIDUALLY SUPPORTED					
GUIDES < VERTICAL & HORIZONTAL PIPING >									
38					*				
39						*			
40				*					
41					*				
42						*			
 #34 SINGLE BOLT RISER CLAMP  #35 STRUCT. STEEL FRAME TO SUIT  #36 MULTI-J HOOK PLATE GANG HANGER									
ANCHORS									
 #37 MULTI TWO ROD RIGID HANGER GANG HANGER  #38 OPEN BAY-NO SLEEVE IN FLOOR. STEEL FRAME  #39 SADDLES  #40 DO NOT USE TO GUIDE PIPE AT EXPANSION  #41 DO NOT USE TO GUIDE PIPE AT EXPANSION  #42 CONCRETE SLAB WITH BLEEVE									
G U I D E S									

MECHANICAL DRAWING LIST		DATE	11/30/09	02/11/10	04/12/10	05/07/10	06/02/10	07/12/10	08/16/10	12/17/10	1/24/2011	2/25/2011
SHEET NO.	DESCRIPTION	ISSUED FOR	DESIGN DEVELOPMENT	60% CONSTRUCTION DOCUMENTS	90% CONSTRUCTION DOCUMENTS	BID PACKAGE 1	SITE WORK AND FNDN PERMIT	BID PACKAGE 1 CONFORMANCE	BUILDING PERMIT	100% REVIEW	BID PACKAGE 2A	BID PACKAGE 2A - ADDENDUM 2
M001	MECHANICAL LEGEND		●	●	●		●	●	●	●	●	
M002	MECHANICAL SYMBOLS & ABBREVIATIONS		●	●	●	●	●	●	●	●	●	
M108	ENLARGED UNDERGROUND MECHANICAL PLAN - AREA A		●	●	●	●	●	●	●	●		
M109	ENLARGED UNDERGROUND MECHANICAL PLAN - AREA B		●	●	●	●	●	●	●	●		
M110	ENLARGED FIRST FLOOR MECHANICAL PLAN - AREA A		●	●	●			●	●	●	●	
M111	ENLARGED FIRST FLOOR MECHANICAL PLAN - AREA B		●	●	●			●	●	●	●	
M112	ENLARGED SECOND FLOOR MECHANICAL PLAN - AREA A		●	●	●			●	●	●	●	
M113	ENLARGED SECOND FLOOR MECHANICAL PLAN - AREA B		●	●	●			●	●	●	●	
M114	ENLARGED THIRD FLOOR MECHANICAL PLAN - AREA A		●	●	●			●	●	●	●	
M115	ENLARGED THIRD FLOOR MECHANICAL PLAN - AREA B		●	●	●			●	●	●	●	
M116	ENLARGED ROOF LEVEL MECHANICAL PLAN - AREA A			●				●	●	●		
MP110	ENLARGED FIRST FLOOR MECHANICAL PIPING PLAN - AREA A			●				●	●	●		
MP111	ENLARGED FIRST FLOOR MECHANICAL PIPING PLAN - AREA B			●				●	●	●		
MP112	ENLARGED SECOND FLOOR MECHANICAL PIPING PLAN - AREA A			●				●	●	●		
MP113	ENLARGED SECOND FLOOR MECHANICAL PIPING PLAN - AREA B			●				●	●	●		
MP114	ENLARGED THIRD FLOOR MECHANICAL PIPING PLAN - AREA A			●				●	●	●		
MP115	ENLARGED THIRD FLOOR MECHANICAL PIPING PLAN - AREA B			●				●	●	●		
M201	DIESEL GENERATOR MECHANICAL PLAN & DETAILS		●	●				●	●	●		
M202	MECHANICAL SECTIONS & ELEVATIONS			●				●	●	●		
M301	HEATING HOT WATER FLOW DIAGRAM		●	●	●			●	●	●	●	
M302	CHILLED WATER FLOW DIAGRAM		●	●	●			●	●	●	●	
M303	TUG TUNNEL RAMP SNOW MELT PLAN, FLOW DIAGRAM & DETAILS		●	●							●	
M303A	LANDSIDE SNOW MELT SYSTEM SCHEMATIC INTERIOR PIPE ROUTING DIAGRAM										●	●
M401	MECHANICAL EQUIPMENT SCHEDULES I		●	●	●			●	●	●	●	
M402	MECHANICAL EQUIPMENT SCHEDULES II		●	●	●			●	●	●	●	
M403	MECHANICAL EQUIPMENT SCHEDULES III		●	●	●			●	●	●	●	
M501	MECHANICAL DETAILS I		●	●	●	●	●	●	●	●	●	
M502	MECHANICAL DETAILS II		●	●	●			●	●	●	●	
M503	MECHANICAL DETAILS III		●	●	●			●	●	●	●	
M504	MECHANICAL DETAILS IV							●	●	●		
M505	MECHANICAL DETAILS V										●	
M506	RAMP SNOW MELT SYSTEM DETAILS											●

GENERAL NOTES:

- ALL WORK SHALL CONFORM TO THE FOLLOWING CODES AND STANDARDS AT A MINIMUM:
 - 2007 MINNESOTA STATE BUILDING CODE
 - 2007 MINNESOTA STATE MECHANICAL AND FUEL GAS CODES
 - 2007 COMMERCIAL ENERGY CODE
 - MINNESOTA SUSTAINABLE BUILDING GUIDELINES (REQUIRED SECTIONS ONLY)
 - ASHRAE STANDARD 90.1-2007
 - ASHRAE STANDARD 62.1-2007
 - ASHRAE STANDARD 55-2004
- ACCESS PANELS ARE REQUIRED FOR ALL AIR TERMINAL DEVICES, VALVES, AND DAMPERS LOCATED ABOVE CEILINGS. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL PANEL SIZES AND LOCATIONS WITH GENERAL CONTRACTOR AND ARCHITECT. ACCESS PANELS TO BE CONSTRUCTED PER ARCHITECTURAL SPECIFICATIONS AND DETAILS.
- FINAL LOCATION OF ALL DIFFUSERS & SENSORS INSTALLED IN FINISHED SPACES SHALL BE REVIEWED AND APPROVED BY ARCHITECT.

REYNOLDS, SMITH AND HILLS, INC.

4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
218-722-1227 Fax: 218-722-1052
www.rsandh.com

DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT
DULUTH, MN

NEW PASSENGER TERMINAL

CONSULTANTS

Interior Architects:
SJA ARCHITECTS
11 E Superior Street Se 340, Duluth MN 55802
TEL: (218) 724-8578 / FAX: (218) 724-8717

Structural Engineers:
MBJ CONSULTING ENG.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-9306

M/E/P/F Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

Baggage Handling Systems Consultants:
BNP ASSOCIATES INC.
101 East Ridge Office Park, Suite 103, Danbury CT 06810
TEL: (203) 792-3000 / FAX: (203) 792-4900

Landscaping Consultants:
APPOLD DESIGN
2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

ENGINEER CERTIFICATION
I hereby certify that the engineeringh plans, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: Douglas C. Moss

Signature:

Date: 08/16/10
Reg. No.: 21067

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	6.11.10
	CONFORMANCE SET	7.12.10
3	PERMIT REVISIONS	7.23.10
	BUILDING PERMIT	8.16.10
	100% REVIEW	12.17.10
	BID PACKAGE 2A	1.24.11
	BP2A ADDENDUM 2	2.25.11

DATE ISSUED: 02-25-11
REVIEWED BY: MXB
DRAWN BY: JEH
DESIGNED BY: MXB

AEP PROJECT NUMBER
213-1882-091
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SHEET TITLE
MECHANICAL LEGEND

SHEET NUMBER
M001

BID PACKAGE 2A
ADDENDUM 2