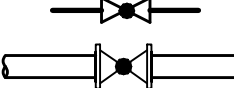
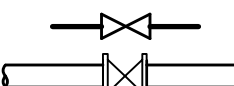
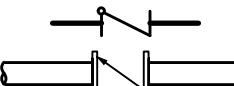
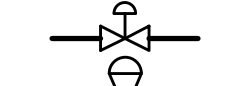
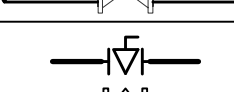
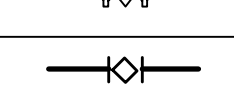
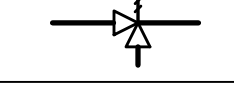
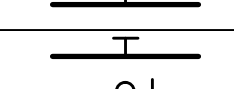
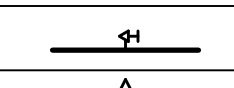
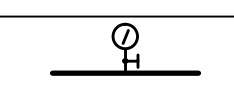
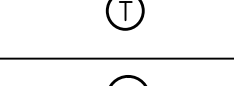
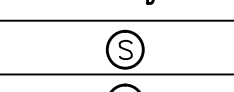

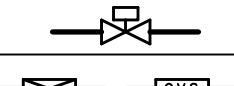








MECHANICAL SYMBOL LIST



PIPING	
	HOT WATER SUPPLY
	HOT WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	GLYCOL WATER SUPPLY
	GLYCOL WATER RETURN
	PRE-HEAT HOT WATER SUPPLY
	PRE-HEAT HOT WATER RETURN
	LOW PRESSURE STEAM
	LOW PRESSURE CONDENSATE RETURN
	PUMPED CONDENSATE
	STEAM TRAP
	DRAIN LINE
	COLD WATER MAKE UP LINE
	AIR LINE
	VENT LINE
	PIPE ANCHOR
	ARROW INDICATES DIRECTION OF FLOW
	PIPE PITCHED DOWN
	PIPE GUIDE
	UNION
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	RISER SUPPORT W/SPRING
	DOUBLE LINE PIPE SYMBOL ARROW INDICATES DIRECTION OF FLOW
	UNION
	CAPPED PIPE
	"Y" TYPE STRAINER WITH CAPPED BLOWDOWN VALVE
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	TEE DOWN CONNECTION
	TEE UP CONNECTION

VALVES AND GAUGES

	GLOBE VALVE
	SHUT-OFF VALVE (REFER TO SPECIFICATIONS FOR TYPE)
	CHECK VALVE
	AUTOMATIC TWO-WAY CONTROL VALVE
	LUBRICATED PLUG OR BALL VALVE PER SPEC.
	CIRCUIT SETTER
	RELIEF VALVE PER SPECIFICATIONS
	THERMOMETER
	PLUG FOR PRESSURE GAUGE AND THERMOMETER CONNECTION
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PRESSURE GAUGE, GAUGE COCK AND TEMPERATURE INDICATOR
	CARBON DIOXIDE SENSOR, WALL MOUNTED (DEMAND CONTROLLED VENTILATION) - "D" INDICATES DUCT MOUNTED SENSOR
	SPEED SWITCH
	CEILING MOUNTED OCCUPANCY SENSOR
	WALL MOUNTED HUMIDITY SENSOR
	FLOW METER STATION (REFER TO SPECIFICATIONS FOR TYPE)
	ELECTRIC CONTROL VALVE
	CONTROL VALVE STATION

PIPING	
	VENTURI FLOW METER
Fs	FIRESTAT
Fz	FREEZE/STAT
----	EXISTING PIPE TO REMAIN
+/+/-/-	EXISTING PIPE TO BE REMOVED
ABBREVIATIONS	
AC	AIR CONDITIONER
ACC	AIR COOLED CONDENSER
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
AFM/AFMS	AIR FLOW MEASURING STATION
ALTD	ACOUSTICALLY LINED TRANSFER DUCT
AS	AIR SEPARATOR
ATC	AUTOMATIC TEMPERATURE CONTROLS
AV	AUTOMATIC AIR VENT
COD	CORD OPERATED DAMPER
CONT.	CONTINUOUS
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET OF AIR PER MINUTE
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
DPS	DIFFERENTIAL PRESSURE SENSOR
DPCV	DIFFERENTIAL PRESSURE CONTROL VALVE
DHWH	DOMESTIC HOT WATER HEATER
DR	DRAIN
EAD	EXHAUST AIR DISCHARGE
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER AND ACCESS DOOR
FF	FINISHED FLOOR
FOD	FLAT OVAL DUCT
FMS	FLOW MEASURING STATION
FSD	FIRE SMOKE DAMPER
FTR	FINNED TUBE RADIATION
GC	GENERAL CONSTRUCTION CONTRACTOR
GMP	GLYCOL MAKE-UP PUMP PACKAGE
GPM	GALLONS PER MINUTE
GWS	GLYCOL WATER SUPPLY
GWR	GLYCOL WATER RETURN
HRC	HEAT RECOVERY COIL
HC	HEATING COIL
LCP	LABORATORY CONTROL PANEL
LDP	LEAK DETECTION PANEL
LD	LINEAR DIFFUSER
LEF	LABORATORY EXHAUST FAN
LR	LINEAR RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LPR	LOW PRESSURE CONDENSATE RETURN
MBH	THOUSAND BTU'S PER HOUR
MAX	MAXIMUM
MIN	MINIMUM
MV	MANUAL AIR VENT
NIC	NOT IN THIS CONTRACT
NK	NECK (AS RELATED TO DUCT & DIFFUSER)
NTS	NOT TO SCALE
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
OAD	OUTSIDE AIR DAMPER
OAI	OUTSIDE AIR INTAKE
OAS	OUTSIDE AIR STATION
PH-HWS	PRE-HEAT HOT WATER SUPPLY
PH-HWR	PRE-HEAT HOT WATER RETURN
RF	RETURN FAN

ABBREVIATIONS (CONT'D)

P.G.	PROPYLENE GLYCOL
R.H.C.	REHEAT COIL
S.A.	SOUND ATTENUATOR
SAC	STAND ALONE CONTROLLER (DDC CONTROL PANEL – "CIP")
S.A.D.	SPILL AIR DAMPER
SF	SPILL AIR FAN (AS RELATED TO EQUIPMENT TAGS)
S.F. / SF	SQUARE FEET (AS RELATED TO SIZES/AREAS)
SOV	SHUT OFF VALVE
S.P.	STATIC PRESSURE
SPS	STATIC PRESSURE SENSOR
T.O. / TO	TRANSFER OPENING (ACOUSTICALLY LINED)
TD	TRANSFER DUCT
TYP.	TYPICAL
U.H.	UNIT HEATER
VAV	VARIABLE AIR VOLUME
V.F.M.	VENTURI FLOW METER
VFD	VARIABLE FREQUENCY DRIVE
W.M.S.	WIRE MESH SCREEN
	CONNECT NEW TO EXISTING
	CUT EXISTING DUCT/PIPING AND PATCH AIRTIGHT
	POINT OF DISCONNECTION

DUCTWORK

	DUCT SECTION UNDER POSITIVE PRESSURE
	DUCT SECTION UNDER NEGATIVE PRESSURE
	SLOPING RISE IN DUCT IN DIRECTION OF ARROW
	SLOPING DROP IN DUCT IN DIRECTION OF ARROW
	DUCT SIZE – FIRST SIZE INDICATES PLAN SIZE (XXXX) – INDICATES SUPPLY VOLUMETRIC FLOW RATE (CFM) [XXXX] – INDICATES EXHAUST/RETURN VOLUMETRIC FLOW RATE (CFM)
	ACCESS DOOR IN DUCT
	DUCT FLEXIBLE CONNECTION
	VOLUME DAMPER
	SPIN-IN FITTING WITH VOLUME DAMPER
	MOTORIZED DAMPER WITH ACCESS DOOR IN DUCT
	ELBOW WITH TURNING VANES
	LOUVER DOOR
	UNDERCUT DOOR
	FUSIBLE LINK FIRE DAMPER WITH ACCESS DOOR IN DUCT
(XXX)	(XXX) – INDICATES VOLUMETRIC FLOW RATE INTO SPACE (CFM)
[XXX]	[XXX] – INDICATES VOLUMETRIC FLOW RATE OUT OF SPACE (CFM)
	COMBINATION SMOKE AND FIRE DAMPER WITH ACCESS DOOR IN DUCT AND SMOKE DETECTOR INSTALLED WITHIN 5'-0"
	AIR FLOW MEASURING STATION WITH ACCESS DOOR IN DUCT.
	SUPPLY AIR OUTLET, 4 WAY
	RETURN AIR REGISTER
	LINEAR SUPPLY (REFER TO PLANS FOR ACTIVE LENGTHS)
	LINEAR RETURN
	SOUND LINING IN DUCTWORK. SIZE INDICATED IS CLEAR INSIDE DUCT DIMENSIONS
	FIRE-WRAPPING FOR DUCTWORK. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
	ACOUSTICALLY LINED TRANSFER DUCT
	SUPPLY AIR OUTLET – 3, 2 & 1 WAY THROW
	LAMINAR FLOW LAB DIFFUSER 1 OR 2 WAY THROW AS INDICATED
	STATIC PRESSURE SENSOR
	EXISTING DUCT/PIPING/EQUIPMENT TO REMAIN
	EXISTING DUCT/PIPING/EQUIPMENT TO BE REMOVED
	DUCT SMOKE DETECTOR
	VARIABLE AIR VOLUME BOX (XXX) – INDICATES SUPPLY VOLUMETRIC FLOW RATE (CFM) [XXX] – INDICATES EXHAUST VOLUMETRIC FLOW RATE (CFM) A,E<#> – INDICATES BOX SIZE, REFER TO SCHEDULES FOR ADDITIONAL INFORMATION <#> – USED FOR BOX IDENTIFICATION ONLY
	VARIABLE AIR VOLUME BOX WITH REHEAT COIL (XXX) – INDICATES SUPPLY VOLUMETRIC FLOW RATE (CFM) B,L<#> – INDICATES BOX SIZE, REFER TO SCHEDULES FOR ADDITIONAL INFORMATION <#> – USED FOR BOX IDENTIFICATION ONLY
	RECTANGULAR TO ROUND DUCTWORK TRANSITION
	ELBOW EXHAUST DUCT SILENCER (PROVIDED AT EACH FUME HOOD) SA-<#> – IDENTIFIES EACH SILENCER. REFER TO SCHEDULES FOR ADDITIONAL INFORMATION.
	DUCT SILENCER SA-<#> – IDENTIFIES EACH SILENCER. REFER TO SCHEDULES FOR ADDITIONAL INFORMATION.

GENERAL NOTES:

1. ALL CONNECTIONS TO DIFFUSERS AND EXHAUST GRILLES SHALL BE VAV MINIMUM 36" LONG FLEXIBLE DUCTWORK, MAXIMUM LENGTH SHALL BE 60".
2. COORDINATE ALL SYSTEM SHUTDOWNS AND CONSTRUCTION SEQUENCING REQUIREMENTS WITH OWNER AND CONSTRUCTION MANAGER. ALL SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH CONSTRUCTION MANAGER.
3. LOCATIONS OF NEW UTILITIES, INCLUDING PIPE RISERS, ARE GENERALLY SCHEMATIC. CONTRACTOR SHALL COORDINATE ALL NEW UTILITIES, SERVICES, ETC. WITH SITE, CIVIL, STRUCTURAL AND ARCHITECTURAL DRAWINGS AND PROVIDE ALL OFFSETS AS REQUIRED.
4. PROVIDE MINIMUM 3 DUCT DIAMETER STRAIGHT RUN INTO CV/VAV BOX INTAKE.
5. PROVIDE VOLUME DAMPER AT EACH LOW PRESSURE SUPPLY, EXHAUST, OUTSIDE AND RETURN AIR BRANCH DUCT.
6. PROVIDE THERMOSTAT FOR EACH SUPPLY AIR VAV BOX.
7. PROVIDE MINIMUM 1" ACOUSTICAL LINING THROUGHOUT DUCTWORK DOWNSTREAM OF ALL VAV BOXES SERVING CLASSROOM SPACES. PROVIDE MINIMUM 1" ACOUSTICAL LINING DOWNSTREAM OF ALL VAV BOXES SERVING STUDY HIGH RISE AIR RETURNED TO ITS ASSOCIATED AHU (OFFICES, CONFERENCE ROOMS, CORRIDORS ETC.) FOR A DISTANCE OF 15'-0" FOR LABORATORY SPACES WHICH ARE 100 PERCENT EXHAUSTED SHALL NOT HAVE ACOUSTICAL LINING. PROVIDE MINIMUM 1" ACOUSTICAL LINING DOWNSTREAM OF ALL VAV BOXES FOR A DISTANCE OF 15'-0" FOR NON-LABORATORY SPACES (OFFICES, CONFERENCE SPACES, CORRIDORS, ETC.) WHICH ARE SERVED BY 100 PERCENT OUTSIDE AIR UNITS (NON-LABORATORY SPACES WHICH ARE 100 PERCENT EXHAUSTED).
8. PATCH AIRTIGHT ALL EXISTING OPENINGS (WALLS, FLOORS, ROOFS, ETC.) CREATED BY THE REMOVAL OF EXISTING EQUIPMENT, PIPE, DUCT, ETC.
9. PROVIDE 20 SF SUPPLY AIR CROSS-CONNECTION DUCTWORK BETWEEN EXISTING 20 SF RETURN AIR DUCTWORK AND EXISTING 20" SUPPLY AIR SHAFT. PROVIDE 20 SF RETURN AIR CROSS-CONNECTION DUCTWORK BETWEEN EXISTING AC-2 RETURN SHAFT AND EXISTING RF-1 RETURN PLENUM. COORDINATE INSTALLATION WITH CONSTRUCTION MANAGER.
10. PROTECTION OF NEW AND EXISTING EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE PROVIDED THROUGHOUT THE CONSTRUCTION PROCESS INCLUDING TEMPORARY OPENINGS TO OUTDOORS DURING CONSTRUCTION OF BUILDINGS.
11. LABORATORY EXHAUST DUCTS WILL BE STAINLESS STEEL EXCEPT AS NOTED ON PLANS. PROVIDE TRANSITION FLANGE AT LOCATIONS WHERE STAINLESS STEEL DUCTS MEET GALVANIZED DUCTS. REFER TO PLANS FOR ADDITIONAL INFORMATION.
12. COORDINATE CONSTRUCTION SEQUENCING WITH OWNER AND CONSTRUCTION MANAGER.
13. PRIOR TO CONSTRUCTION PROVIDE A BALANCING REPORT OF ALL THE FOLLOWING PIECES OF EXISTING EQUIPMENT (REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION):
 - SUPPLY OUTLETS
 - EXHAUST OUTLETS
 - SUPPLY BOXES
 - EXHAUST BOXES
 - SUPPLY FANS
 - EXHAUST FANS
 - RETURN FANS
14. PRIOR TO CONSTRUCTION PROVIDE DUCT TRAVERSE READINGS AT EACH BRANCH TAKEOFF FROM RISERS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
15. REBALANCE EXISTING EQUIPMENT AFTER PARTIAL DEMOLITION OF EXISTING SYSTEMS TO VALUES REPORTED IN THE BALANCING REPORT DEVELOPED PRIOR TO CONSTRUCTION. PROVIDE NEW BELTS, PULLEYS, AND/OR SEAWAYS AS REQUIRED TO BALANCE EQUIPMENT.

BUILDING DEPARTMENT NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE NEW JERSEY EDITION. WORK SHALL BE EXECUTED IN FULL COMPLIANCE WITH THE APPLICABLE PROVISIONS OF ALL LOCAL LAWS, BY LAWS, STATUTES, ORDINANCES, CODES, RULES, REGULATIONS AND LAWFUL ORDERS OF PUBLIC AUTHORITIES BEARING ON THE PERFORMANCE AND EXECUTION OF THE WORK.

DRAWING LIST

H0.01G	MECHANICAL – SYMBOL LISTS, NOTES, AND ABBREVIATIONS G–WING
H0.02G	MECHANICAL – 3RD AND 4TH FLOOR AIR BALANCE DIAGRAMS G–WING
H1.01G	MECHANICAL – FIRST FLOOR DEMO PLAN G–WING
H1.02G	MECHANICAL – SECOND FLOOR DEMO PLAN G–WING
H1.03G	MECHANICAL – THIRD FLOOR DEMO PLAN G–WING
H1.04G	MECHANICAL – FOURTH FLOOR DEMO PLAN G–WING
H1.05G	MECHANICAL – PENTHOUSE DEMO PLAN G–WING
H1.06G	MECHANICAL – ROOF DEMO PLAN G–WING
H2.01G	MECHANICAL – FIRST FLOOR DUCTWORK PLAN G–WING
H2.02G	MECHANICAL – SECOND FLOOR DUCTWORK PLAN G–WING
H2.03G	MECHANICAL – THIRD FLOOR DUCTWORK PLAN G–WING
H2.04G	MECHANICAL – FOURTH FLOOR DUCTWORK PLAN G–WING
H2.05G	MECHANICAL – PENTHOUSE PLAN G–WING
H2.06G	MECHANICAL – ROOF PLAN G–WING
H3.01G	MECHANICAL – FIRST AND SECOND FLOOR PIPING PLANS G–WING
H3.02G	MECHANICAL – THIRD AND FOURTH FLOOR PIPING PLANS G–WING
H4.01G	MECHANICAL – AIR RISER DIAGRAM G–WING
H4.02G	MECHANICAL – PIPING RISER DIAGRAM G–WING
H5.01G	MECHANICAL – FIRST FLOOR MER PART PLAN AND SECTIONS G–WING
H5.02G	MECHANICAL – PENTHOUSE MER PART PLAN SHEET No. 1 G–WING
H5.03G	MECHANICAL – PENTHOUSE MER PART PLAN SHEET No. 2 G–WING
H5.04G	MECHANICAL – PENTHOUSE MER SECTIONS G–WING
H5.05G	MECHANICAL – PENTHOUSE MER PIPING PLAN G–WING
H6.01G	MECHANICAL – SCHEDULES SHEET No. 1
H6.02G	MECHANICAL – SCHEDULES SHEET No. 2
H6.03G	MECHANICAL – SCHEDULES SHEET No. 3
H6.04G	MECHANICAL – SCHEDULES SHEET No. 4
H7.01	MECHANICAL – DETAILS SHEET No. 1
H7.02	MECHANICAL – DETAILS SHEET No. 2
H7.03	MECHANICAL – DETAILS SHEET No. 3
H7.04	MECHANICAL – DETAILS SHEET No. 4
H7.05	MECHANICAL – DETAILS SHEET No. 5
H7.06	MECHANICAL – DETAILS SHEET No. 6
H8.01G	MECHANICAL – CONTROLS SHEET No. 1 G–WING
H8.02G	MECHANICAL – CONTROLS SHEET No. 2 G–WING



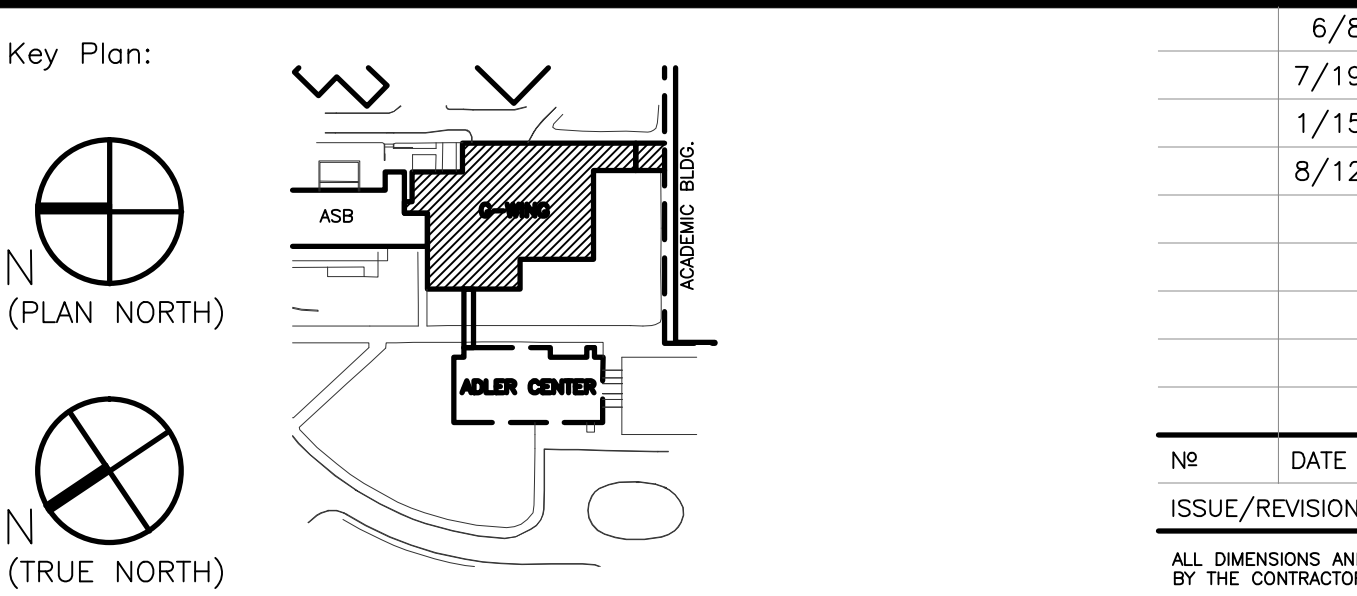
- OWNER:
Ramapo College of New Jersey
505 Ramapo Valley Road
Mahwah, New Jersey 07430-1630
- ARCHITECT:
Mitchell/Giurgola Architects
630 Ninth Avenue, Suite
New York, New York 10
212 663 4000
- CONSTRUCTION MANAGERS:
Cambridge Construction Management
335 East Main Street
Somerville, NJ 08876
908-253-9500
- MEP ENGINEER:
Joseph R. Loring & Assoc
21 Pennsylvania Plaza
New York, NY 10001
212 563 7400

- | | |
|---|---|
| <p>• OWNER:
 Rampco College of New Jersey
 505 Rampco Valley Road
 Mahwah, New Jersey 07430-1630</p> | <p>• ARCHITECT:
 Mitchell/Giurgola Architects
 630 Ninth Avenue, Suite 100
 New York, New York 10019
 212 663 4000</p> |
| <p>• CONSTRUCTION MANAGERS:
 Cambridge Construction Management
 335 East Main Street
 Somerville, NJ 08876
 208-953-9500</p> | <p>• MEP ENGINEER:
 Joseph R. Loring & Associates
 211 Pennsylvania Plaza
 New York, NY 10001
 212 563 7400</p> |
| | <p>• STRUCTURAL ENGINEER:
 Ysrael A Seinfeld PC
 228 East 40th Street 2nd Fl
 New York, NY 10017
 212 687 2233</p> |

- LANDSCAPE ARCHITECT:
Dirtworks, PC
200 Park Avenue South
New York, NY 10003
212 529 2263
- SITE CIVIL ENGINEER:
Langon Engineering
619 River Drive Center 1
Elmwood Park, NJ 07407-1338
201 794 6900
- AV CONSULTANT
Cerami & Associates
404 Fifth Avenue
New York, NY 10018
212 370 1776

- LANDSCAPE ARCHITECT:
Dirtworks, PC
200 Park Avenue South
New York, NY 10003
212 529 2263
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201 794 6900
- AV CONSULTANT
Cerami & Associates
404 Fifth Avenue
New York, NY 10018
212 370 1776

Key Plan:	6/8
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	6/8/12	DCA FILING
	7/19/12	ISSUED FOR BID
	1/15/13	ISSUED FOR CONSTRUCTION
	8/12/16	AS-BUILT CONSTRUCTION DOCUMENTS

№	DATE	COMMENTS
ISSUE/REVISION		

ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK.

Project:

Drawing Title:

Project: G-WING RENOVATION & ADLER CENTER	Drawing Title: MECHANICAL SYMBOL LISTS, NOTES, AND ABREVIATIONS
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Submission: PROJECT №: 102700 DATE: 6/8/12

CONSTRUCTION DOCUMENTS	RCNJ PROJ. №: 08-240C	SCALE: NTS
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Drawing Title:

Drawing Title:
MECHANICAL
SYMBOL LISTS, NOTES,
AND ABBREVIATIONS
G-WING

PROJECT Nº:	102700	DATE:	6/8/12
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RCNJ PROJ. №: 08-240C	SCALE:	NTS
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H.O.G