

**SYMBOLS AND LEGEND**

SYMBOL	ABBR.	DESCRIPTION
		ROUND DUCT (SECTION)
	S.D.	SUPPLY AIR DUCT (SECTION)
	R.D.	RETURN AIR DUCT (SECTION)
	E.D.	EXHAUST AIR DUCT (SECTION)
	F	STACK/FLUE (SECTION)
	CD	CEILING DIFFUSER/REGISTER
	CRG	CEILING RETURN GRILLE
	CER	CEILING EXHAUST REGISTER
	WSR	WALL SUPPLY REGISTER (WITH DAMPER)
	WRG	WALL RETURN GRILLE
		EXISTING DUCT/EQUIPMENT
		NEW DUCT / EQUIPMENT
		CAP (DUCT, PIPE)
		FLEXIBLE CONNECTION
	MD	BALANCE DAMPER OR VOLUME DAMPER
	T'STAT	ROOM THERMOSTAT
	AFF	ABOVE FINISHED FLOOR
	NTS	NOT TO SCALE
	(TYP.)	TYPICAL
	EF.	EXHAUST FAN
	AH	AIR HANDLING UNIT
	AG	AIR GRILLE
	EXH	EXHAUST
	DN	DOWN
	DG	DOOR GRILLE
	OSA	OUTSIDE AIR
	EA	EXHAUST AIR
	SA	SUPPLY AIR
	RA	RETURN AIR
		EXISTING TO BE REMOVED / DEMOLISHED

**ABBREVIATIONS**

ABBRV	DESCRIPTION
AG	AIR GRILLE
AH	AIR HANDLING UNIT
A.A.V	AUTOMATIC AIR VENT
AD	ACCESS DOOR (IN DUCT OR EQUIPMENT)
AFF	ABOVE FINISHED FLOOR
BCE	BELOW CEILING
BF	BOTTOM FLAT
BHP	BRAKE HORSEPOWER
BDD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CD	CEILING DIFFUSER
CDL	CONDENSATE DRAIN LINE
CFM	CUBIC FEET OF AIR PER MINUTE
CDR	CONTRACTING OFFICER'S REPRESENTATIVE
CW	CITY WATER (DOMESTIC)
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
DB	DRY BULB TEMPERATURE
DN	DOWN
DDM	DOMESTIC
DDG	DOOR GRILLE
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EG	EXHAUST GRILLE
EFF	EFFICIENCY
EVAP	EVAPORATE
EWC	ELECTRIC WATER COOLER; EVAPORATIVE WATER COOLER
EWT	ENTERING WATER TEMPERATURE
(E)/EXIST.	EXISTING
EXH	EXHAUST
EF.	EXHAUST FAN
F	FAHRENHEIT; FIRELINE; FEED
FACP	FIRE ALARM CONTROL PANEL
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FLG	FLANGE
FLR	FLOOR
FLT	FILTER
FMD	FLOW METER DEVICE
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPWH	FREEZE PROOF WALL HYDRANT
FS	FLOW SWITCH
FV	FACE VELOCITY
G	GAS
GAGE	GAGE
GAL	GALLON
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GSM	GALVANIZED SHEET METAL
HC	HEATING COIL
HP	HORSE POWER
HDA	HAND-OFF AUTOMATIC SWITCH
HTG	HEATING
HW	HOT WATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
JAN	JANITOR
KW, KWH	KILOWATT, KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MD	MANUAL DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
NC	NORMALLY CLOSED
ND	NEW
NG	NATURAL GAS
NIMC	NOT IN MECHANICAL CONTRACT
NTS	NOT TO SCALE
NO	NORMALLY OPEN; NUMBER
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMP
OC	ON CENTER
OD	OUTSIDE DIAMETER; OVERALL DIAMETER
PCV	PRESSURE CONTROL VALVE
PD	PRESSURE DROP; PIT DRAIN
PERF	PERFORATED
PF	PRE FILTER, PERFORATED FACE
PG	PRESSURE GAUGE
PH	PREHEAT COIL
PDC	POINT OF CONNECTION
PRV	PRESSURE RELIEF VALVE
PRV	PRESSURE REDUCING VALVE
PST	POUNDS PER SQUARE INCH
RA	RETURN AIR
REQD	REQUIRED
RG	RETURN GRILLE

**ABBREVIATIONS**

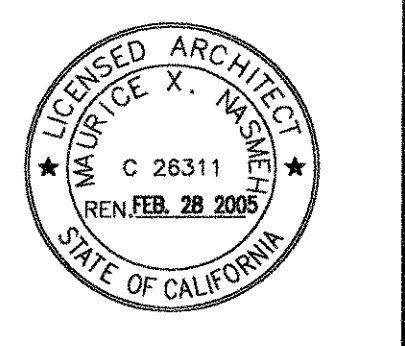
ABBRV	DESCRIPTION
RH	REHEAT COIL; RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RND	ROUND
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SCHED	SCHEDULE
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SST	STAINLESS STEEL
STRUC	STRUCTURAL
SWE	SIDE WALL EXHAUST
SWS	SIDE WALL SUPPLY
SWT	SIDE WALL TRANSFER
TB	THRUST BLOCK
TCV	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE
TERM	TERMINAL
TF	TOP FLAT
TH	TOTAL HEAD
THERM	THERMIST
THRM'T	THERMIST
THRU	THROUGH
TV	TURNING VANE
TW	TEMPERED WATER
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UMC	UNIFORM MECHANICAL CODE
UPC	UNIFORM PLUMBING CODE
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY; VERIFY EXACT LOCATION
VENT	VENTILATE; VENTILATION; VENTILATOR
VER	VERIFY
VERT	VERTICAL
VTR	VENT THRU ROOF
WB	WET BULB TEMPERATURE
WF	WIDE FLANGE
W/O	WITHOUT
WP	WATERPROOF; WEATHERPROOF
WPC	WATERPROOF COATING
WR	WALL REGISTER
WVP	WORKING WATER PRESSURE
VD	VOLUME DAMPER

NOTE: ABBREVIATIONS LISTED ARE FOR GENERAL USE. DISREGARD THOSE WHICH ARE NOT USED IN DRAWING.

- ALL DUCT SIZES ARE INSIDE CLEAR DIMENSIONS.
- THE MECHANICAL CONTRACTOR SHALL VERIFY ALL SECTIONS AND ELEVATIONS PRIOR TO DUCTWORK FABRICATIONS.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL AIR TERMINALS WITH REFLECTED CEILING PLAN AND ALL DUCTWORK LOCATIONS WITH WORK OF OTHER TRADES BEFORE PROCEEDING WITH FABRICATION.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ACCESS TO ALL DAMPERS AND EQUIPMENT.
- THE MECHANICAL CONTRACTOR MAY USE (1) SIZE LARGER ROUND DUCT WHERE ODD SIZE ROUND IS INDICATED AND WHERE SPACE PERMITS.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE APPLICABLE CODES.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR ALL EQUIPMENT PLATFORM AND CURB LOCATIONS.
- INSTALL MANUAL VOLUME DAMPER AT EACH DIFFUSER BRANCH AS INDICATED ON DRAWINGS AND AS FAR FROM THE DIFFUSER AS POSSIBLE.
- THE CONTRACTOR MAY USE EQUIVALENT SIZE RECTANGULAR DUCT WHERE PREFERRED OF WHERE SPACE IS LIMITED AND IN CONCEALED AREAS ONLY.
- THE MECHANICAL CONTRACTOR MAY USE FLEXIBLE DUCT AT LAST 4 FEET OF RUN TO THE AIR TERMINAL IN CONCEALED AREAS ONLY.
- THE T'STATS SHALL BE AUTOMATIC CHANGEOVER TYPE WITH NON OVERLAPPING SET POINTS TO COMPLY WITH TITLE 24 ENERGY STANDARDS.
- EXCEPT AS OTHERWISE NOTED ON DRAWINGS, ALL CONCEALED SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED PER UMC AND T-24.
- ALL DUCTWORK INDICATED "SOUND LINED" SHALL HAVE 1" OF J-M LINACOUSITIC FOR THE LENGTH OF THE CUT AS NOTED ON DRAWINGS.
- ALL EXTERIOR SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED WITH 2" OF J-M LINACOUSITIC FLEXIBLE DUCT LINER.
- ALL INTERIOR SUPPLY AND RETURN PLENUMS SHALL BE INSULATED WITH 1" SOUND LINER AND ALL EXTERIOR SUPPLY AND RETURN PLENUMS SHALL BE LINED WITH 2" THICK SOUND LINER.
- ALL ROOF AND EXTERIOR WALL PENETRATIONS SHALL BE FLASHED AND COUNTER FLASHED AS REQUIRED TO SEAL WEATHTIGHT.
- MECHANICAL CONTRACTOR SHALL PROVIDE BIRD SCREENS AT ALL INTAKE AND EXHAUST OPENINGS.
- ALL VISIBLE INTERIOR PORTIONS OF DUCTWORK AND AIR TERMINALS SHALL BE PAINTED FLAT BLACK BY MECHANICAL CONTRACTOR.
- ALL SUPPLY, RETURN, AND EXHAUST TERMINALS SHALL HAVE INTEGRAL VOLUME CONTROL UNLESS OTHERWISE INDICATED.
- ALL LOW VOLTAGE SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
- ALL LOW VOLTAGE WIRING SHALL BE ENCLOSED IN CONDUIT OR EMT.
- MECHANICAL CONTRACTOR SHALL BALANCE SYSTEM TO WITHIN +/- 5% OF THE AIR QUANTITIES SHOWN.
- ALL EXPOSED DUCTWORK SHALL HAVE ITS JOINTS SEALED INTERNALLY WITH AIR TIGHT MASTIC.
- ALL EXPOSED ROUND DUCTWORK SHALL BE SPIRAL ROUND.
- PROVIDE SMOKE DETECTORS FOR THE AC UNIT SUPPLY AND RETURN DUCTS
- EXPOSED DUCTWORK SHALL BE PRIMERED AND READY FOR PAINTING. SEE ARCHITECTURAL DRAWINGS.
- ALL OVAL DUCTWORK SHALL BE SPIRAL FLAT-OVAL.
- ALL CEILING DIFFUSERS, SUPPLY REGISTER, RETURN REGISTERS AND EXHAUST GRILLES SHALL BE INSTALLED WITH TAMPER PROOF SCREWS.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR FOR ACCESS TO ALL VALVES AND EQUIPMENT.
- THERE SHALL BE DI-ELECTRIC UNIONS OR COUPLINGS BETWEEN DISSIMILAR METAL PIPES.
- THE MECHANICAL CONTRACTOR MAY USE ONE SIZE LARGER PIPE WHEN PIPE SIZE SHOWN IS NOT AVAILABLE. IF CONTRACTOR CHOOSES TO INCREASE PIPE SIZE, THE VALVES AND FITTING SIZES MUST ALSO BE INCREASED.
- BALANCE AC UNIT AND SUPPLY, RETURN AND OUTSIDE AIR TO HAVE ALWAYS POSITIVE PRESSURE IN THE AIR CONDITIONED SPACES OF THE BUILDING IN REGARD TO OUTSIDE.
- PROVIDE CONTINUOUS SPRING ISOLATOR WITH SEISMIC RESTRAINER FOR THE AC UNIT.
- PROVIDE ROOF CURB FOR THE AC UNITS. LEVEL TOP OF THE ROOF CURBS.
- CONDENSATE LINE FROM AC UNIT SHALL BE TYPE "M" COPPER TUBING. IT SHALL BE TRAPPED AND VENTED AT UNIT.
- THE MECHANICAL CONTRACTOR TO REMOVE ALL LEFT OVER DUCTWORK, SCRAPS, ETC. (IF ANY) AND LEAVE PREMISES CLEAN AND FREE OF ANY TRASH OR DEBRIS DUE TO HIS WORK.
- THE MECHANICAL CONTRACTOR IS TO REPORT TO THE OWNER'S ENGINEER ANY OBSERVATIONS OR CONDITIONS WHICH ARE DISCOVERED IN THE BUILDING WHICH WOULD PREVENT CORRECT INSTALLATION OF THE HVAC SYSTEM.
- THE MECHANICAL CONTRACTOR SHALL ARRANGE, OBTAIN AND PAY FOR ALL NECESSARY FEES, PERMITS, INSPECTIONS AND PLAN CHECK REQUIRED BY GOVERNING AUTHORITIES, ETC. CONCERNING HIS WORK.
- CONDENSATE, GAS PIPING, AND CONNECTIONS (IF ANY) TO HEATING AND AIR CONDITIONING UNITS TO BE BY PLUMBING CONTRACTOR.
- EACH EXHAUST FAN SHALL BE EQUIPPED WITH A BACK-DRAFT DAMPER.
- A MAINTENANCE LABEL MUST BE AFFIXED TO MECHANICAL EQUIPMENT. TWO COPIES OF A MAINTENANCE MANUAL FOR THE EQUIPMENT ITEMS SHALL BE PROVIDED TO THE OWNER BY THE CONTRACTOR.
- THE AC UNIT SHOULD BE STOPPED IN CASE OF SMOKE DETECTION IN THE SUPPLY OR RETURN DUCTS BY THE SMOKE DETECTS.
- LAYOUT OF THE EQUIPMENT AND WORK IS GENERALLY DIAGRAMMATIC, UNLESS SPECIFICALLY DIMENSIONED. DRAWINGS AND DETAILS SHALL BE CHECKED FOR INTERFERENCE BEFORE INSTALLING THE WORK. ANY INTERFERENCE NOTED BETWEEN DIFFERENT DRAWINGS, AND BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION FOR A DECISION. THERE SHALL BE NO ADDITIONAL COMPENSATION FOR INTERFERING WORK THAT WAS PERFORMED PRIOR TO CHECKING INTERFERENCE AND FIELD CONDITIONS. THE RIGHT IS RESERVED TO MAKE ANY REASONABLE CHANGE IN LOCATION OF EQUIPMENT WITHOUT INVOLVING ADDITIONAL EXPENSE TO THE OWNER.
- THE CONTRACTOR SHALL COORDINATE THE DUCTWORK WITH BUILDING STRUCTURAL ELEMENTS AND CEILING.
- PER TITLE 24, SECTION 10-103(b), THE BUILDER SHALL PROVIDE TO THE OWNER, MANAGER, AND THE ORIGINAL OCCUPANTS:
  - THE APPROPRIATE CERTIFICATES OF COMPLIANCE
  - A LIST OF THE ENERGY SAVING- CONSERVATION FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES INSTALLED IN THE BUILDING, AND INSTRUCTION ON HOW TO USE THEM EFFICIENTLY.
  - MAINTENANCE INFORMATION FOR ALL FEATURES, MATERIALS, COMPONENTS, AND MANUFACTURED DEVICES THAT REQUIRE ROUTINE MAINTENANCE FOR EFFICIENT OPERATION.
  - A DESCRIPTION OF THE QUANTITIES OF OUTDOOR AND RECALCULATED AIR THAT THE VENTILATION SYSTEM ARE DESIGNED TO PROVIDE TO EACH AREA.
- NO NEW OPENING IN WALLS/CEILINGS UNLESS SPECIFICALLY APPROVE BY STRUCTURAL ENGINEERING SHOWN ON DRAWINGS WITH STRUCTURAL DETAIL.
- ALL HVAC SUPPORTS SHALL BE SMACNA STANDARD DETAIL

*General Mechanical Notes*  
 See Architect's Supplemental Instruction  
 Ho's 1, 2 & 3 for Recess  
 Manual Scope

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 Regional Office  
 Oakland, CA 94612

**SYMBOLS, ABBREVIATIONS, LEGEND AND NOTES**  
**PACIFIC HEIGHTS MIDDLE SCHOOL**  
 SKYLINE COLLEGE SWING SPACE  
 PERMIT PACKAGE #3  
 SKYLINE COLLEGE  
 3300 COLLEGE DRIVE  
 SAN BRUNO, CA 94066

REVISIONS

NO.	ITEM	DATE

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