APPLICABLE CODES

ALL WORK PERFORMED UNDER THIS CONTRACT SHALL CONFORM TO THE FOLLOWING CODES AND REGULATIONS AS APPLICABLE:

CALIFORNIA CODE OF REGULATIONS TITLE 8 – INDUSTRIAL REGULATIONS.
CALIFORNIA CODE OF REGULATIONS TITLE 19 – PUBLIC SAFETY.
CALIFORNIA CODE OF REGULATIONS TITLE 22 – SOCIAL SECURITY.
CALIFORNIA CODE OF REGULATIONS TITLE 24 – PARTS 2, 3, 4, AND 5.
CALIFORNIA CODE OF REGULATIONS TITLE 24 – ENERGY INSULATION STANDARDS.
2000 UNIFORM BUILDING CODE WITH 2001 CA AMENDMENTS.
2000 UNIFORM PLUMBING CODE WITH 2001 CA AMENDMENTS.
2000 UNIFORM MECHANICAL CODE WITH 2001 CA AMENDMENTS.
1999 NATIONAL ELECTRICI CODE WITH 2001 CA AMENDMENTS.
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS.

UNLESS OTHERWISE STATED, IT IS INTENDED THAT THE ABOVE CODES AND REGULATIONS REFER TO THE LATEST EDITION OR REVISION IN EFFECT ON THE DATE OF THE CONTRACT. NOTHING ON THE DRAWINGS IS TO BE CONSTRUED AS REQUIRING OR PERMITTING WORK THAT IS CONTRARY TO THE ABOVE LISTED CODES AND REGULATIONS, OR OTHER LOCAL, STATE OR FEDERAL CODES OR REGULATIONS WHICH MAY BE APPLICABLE.

DRAWING LIST

ABBREVIATIONS

AFF	ABOVE FLOOR FINISH
AMP	AMPERES
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
ARCH	ARCHITECTURAL
AS	AIR SEPARATOR
BHP	BRAKE HORSEPOWER
BI	BACKWARDS INCLINED
BOD	BOTTOM OF DUCTWORK
BOI	BOTTOM OF INSULATION
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CM	COIL MODULE
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
dB	DECIBELS
DCW	DOMESTIC COLD WATER
DEFL.	DEFLECTION
DI	DIGITAL INPUT
DIA	DIAMETER
DIV	DIVISION
DN	DOWN
DO	DIGITAL OUTPUT
DP	DIFFERENTIAL PRESSURE
DW	DOMESTIC WATER
(E)	EXISTING
EAT	ENTERING AIR TEMPERATURE
EA	EXHAUST AIR
EF	EXHAUST FAN
ELEC.	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ENT	ENTERING
EQUIP	EQUIPMENT
E.S.P.	EXTERNAL STATIC PRESSURE
ES	EMERGENCY SHOWER
EW	EYEWASH
EWT	ENTERING WATER TEMPERATURE
EXH.	EXHAUST
FACP	FIRE ALARM CONTROL PANEL
°F	FAHRENHEIT
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FE	FUME EXHAUST
FLA	FULL LOAD AMP
FLR	FLOOR
FPI	FIN PER INCH
FPM	FEET PER MINUTE
FS	FIRE LINE
FSD	FIRE / SMOKE DAMPER
FT	FEET
FT 2	SQUARE FEET
FT 3	CUBIC FEET
GA	GAUGE
GALV	GALVANIZED
GPM	GALLON PER MINUTE
H	HEIGHT
H	HUMIDIFIER (EQUIP TAG)
HP	HORSEPOWER
HR	HOUR
HHWR	HEATING HOT WATER RETURN LINE
HHWS	HEATING HOT WATER SUPPLY LINE
Hz	HERTZ
ICW	INDUSTRIAL COLD WATER
ICW	INDUSTRIAL HOT WATER
IN.	INCHES
K	THOUSAND
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUND
LCWR	LAB CHILLED WATER RETURN
LCWS	LAB CHILLED WATER SUPPLY
LRA	LOCKED ROTOR AMP
LVG	LEAVING
LW	LAB WASTE
LWT	LEAVING WATER TEMPERATURE
LV	LAB VENT
MAX	MAXIMUM
MBH	BRITISH THERMAL UNIT ×1000 PER HOUR
MCA	MINIMUM CIRCUIT AMP
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFG	MANUFACTURER
MIN.	MINIMUM
MOP	MOTOR OVERLOAD PROTECTIONN
(N)	NEW
N2	NITROGEN
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPENED
NO.	NUMBER
O.C.	ON CENTER
OPER.	OPERATING
O.S.A.	OUTSIDE AIR
OV	OVERFLOW
P	PUMP
PCHR	PRIMARY CHILLED WATER RETURN
PCHS	PRIMARY CHILLED WATER SUPPLY
PH	PHASE
P.D.	PRESSURE DROP
RA	RETURN AIR
REQ'D.	REQUIRED
RH	RELATIVE HUMIDITY
RM	ROOM
RPM	REVOLUTION PER MINUTE
RWL	RAIN WATER LEADER
SA	SUPPLY AIR
SCHR	SECONDARY CHILLED WATER RETURN
SCHS	SECONDARY CHILLED WATER SUPPLY
SEC	SECONDS
SF	SUPPLY FAN
S.P.	STATIC PRESSURE
S.S.	STAINLESS STEEL
ST	SOUNDTRAP
SQ. FT.	SQUARE FEET
TEMP	TEMPERATURE
T.S.P.	TOTAL STATIC PRESSURE
U.L.	UNDERWRITER'S LABORATORIES, INC.
V	VOLT
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W	WASTE
W	WIDTH
WB	WET BULB
W.C.	WATER COLUMN
WT.	WEIGHT

SYMBOLS & LEGEND

UP DN

SUPPLY
EXHAUST
RETURN
} RECTANGULAR DUCT SECTION/UP (OR PENETRATION THROUGH FLOOR/ROOF).

200 / 20x10 (B) — CEILING EXHAUST REGISTER

200 / 20x10 (B) — CEILING RETURN REGISTER

200 / 20x10x3 (A) — CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT AND AIRFLOW PATTERN

200 / 24x10 (B) — SIDEWALL EXHAUST OR RETURN REGISTER

} TOP FIGURE INDICATES CFM. BOTTOM FIGURES INDICATE NECK SIZE AND DIRECTION AND NUMBER OF THROWS ON SUPPLY DIFFUSER. DUCT SIZE IS FULL SIZE OF DIFFUSER/REGISTER CONNECTION. LETTER INSIDE CIRCLE INDICATES DIFFUSER TYPE.

12x8 — RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES. ARROW INDICATES FLOW DIRECTION.

DUCT OR EQUIPMENT TO BE REMOVED

12x8 — EXISTING DUCT TO REMAIN

12x8 — DUCT WITH INTERNAL ACOUSTICAL INSULATION. DIMENSIONS SHOWN ARE NET INSIDE IN INCHES.

12"ø — ROUND DUCT WITH NET INSIDE DIMENSION SHOWN

SQUARE ELBOW W/ TURNING VANES
TURNING VANES IN SUPPLY DUCT ONLY

R, D — R/D =1.5, 90° / 45° RADIUS ELBOW

12x8 — ROUND DUCT TAP ON RECTANGULAR DUCT
TAP ENTRY AREA EQUALS 150% OF BRANCH AREA

12x8 — RECT. DUCT TAP ON RECTANGULAR DUCT
TAP ENTRY AREA EQUALS 150% OF BRANCH AREA

12"ø — ROUND DUCT WITH 45° TAKE-OFF

CONCENTRIC / ECCENTRIC DUCT REDUCER
RECTANGULAR TO RECTANGULAR, ROUND TO ROUND OR DUCT TO FILTER HOUSING TRANSFORMATION. MAX. 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE.

RECTANGULAR TO ROUND DUCT TRANSFORMATION

MANUAL SINGLE BLADE OR MULTIPLE BLADE VOLUME DAMPER

FSD / CD — FIRE/SMOKE DAMPER W/ DUCT ACCESS PANEL

FLEXIBLE CONNECTION IN DUCT

DUCT FLANGE CONNECTION

T — WALL MOUNTED THERMOSTAT AT 48" AFF. OR HIGHER.

H — WALL MOUNTED HUMIDIFIER SENSOR

CHWS — CHILLED WATER SUPPLY LINE

CHWR — CHILLED WATER RETURN LINE

HHWS — HEATING HOT WATER SUPPLY LINE

HHWR — HEATING HOT WATER RETURN LINE

CD — CONDENSATE DRAIN LINE

BUTTERFLY VALVE

GATE VALVE

CHECK VALVE

BALL VALVE

2-WAY CONTROL VALVE

TRIPLE-DUTY VALVE (SHUT-OFF, CHECK & BALANCING)

STRAINER WITH BLOW-OFF VALVE.

CIRCUIT SETTER (BALANCING VALVE)

UNION

3-WAY CONTROL VALVE

PIPE TO BE REMOVED

EXISTING PIPE TO REMAIN

POINT OF CONNECTION

POINT OF REMOVAL

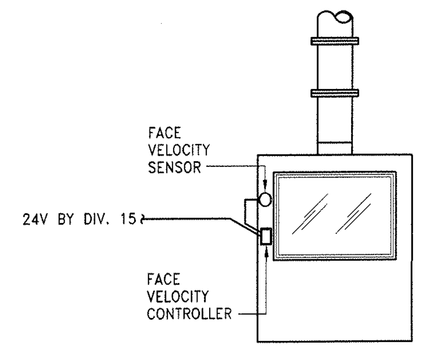
CAV / 1 — EQUIPMENT TAG / EQUIPMENT NUMBER

M — MOTORIZED DAMPER

AF — AIR FLOW MEASUREMENT SENSOR

GENERAL NOTES

1. EXACT LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES ARE DETAILED ON THE ARCHITECTURAL REFLECTIVE CEILING PLAN, AND ARCHITECTURAL ROOM ELEVATIONS.
2. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
3. DUCTWORK SHALL BE INSULATED PER SPECIFICATIONS OR AS NOTED ON DRAWINGS. ALL DUCT SIZES ARE SHEET METAL SIZES. INSULATION SHALL BE PROVIDED FOR SUPPLY AND RETURN DUCTS WHETHER SHOWN OR NOT. ALL DUCT JOINTS AND SEAMS SHALL BE SEALED PER SPECIFICATIONS.
4. MANUAL DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES TO INDIVIDUAL DIFFUSERS, GRILLES AND REGISTERS WHETHER SHOWN OR NOT.
5. ALL FUME EXHAUST HOODS IN LABORATORIES SHALL BE CERTIFIED BY UCSC EH&S.
6. CONTRACTOR SHALL BE COGNIZANT WITH BUILDING STRUCTURE AND CEILING SPACE ALLOWED FOR INSTALLATION OF EQUIPMENTS PRIOR TO BID FOR PRICING ADDITIONAL OFFSETS OF DUCTS AND PIPING THAT ARE NOT SHOWN ON DRAWINGS.
7. CONTRACTOR IS TO MAINTAIN RECORDED "AS-BUILT" INFORMATION ON ALL EXISTING SERVICES UNCOVERED DURING CONSTRUCTION AND ALL NEW SERVICES BEING INSTALLED. "AS-BUILT" INFORMATION SHALL BE CLEARLY MARKED IN COLORED PENCIL ON A REPRODUCIBLE PRINT OF CONTRACT DRAWINGS. RECORDED INFORMATION SHALL INCLUDE ROUTING AND INVERT ELEVATIONS, AT THE COMPLETION OF THE CONTRACT. THE CONTRACTOR SHALL TURN RECORDED "AS-BUILT" DRAWINGS IN HARDCOPY AND CAD FORMAT OVER TO THE UNIVERSITY'S REPRESENTATIVE.
8. ADVISE THE UNIVERSITY'S REPRESENTATIVE IN WRITING IN THE EVENT A CONFLICT WHICH OCCURS BETWEEN REQUIREMENTS OF THE CONTRACT DOCUMENTS AND ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL BEAR ALL COSTS FOR RELOCATION OF EQUIPMENT, PIPES DUCTS, ETC. FROM FAILURE TO PROPERLY COORDINATE INSTALLATIONS AND ADVISE OF CONFLICT IN WRITING PRIOR TO INSTALLATION.
9. INSTALL ALL PIPING AND DUCTWORK TO BEST SUIT FIELD CONDITIONS AND COORDINATE WITH THE INSTALLATION WORK OF OTHER TRADES. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF PIPING OR DUCTWORK.
10. CERTAIN VERTICAL AND HORIZONTAL OFFSETS ARE SHOWN IN DUCTS AND PIPING TO INDICATE THE GENERAL RELATIONSHIP OF THE SYSTEMS WITHIN THE SPACE AVAILABLE FOR INSTALLATION. PROVIDE ADDITIONAL OFFSETS SIMILAR TO THOSE SHOWN AS REQUIRED TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
11. PRIOR TO SUBMISSION OF ANY BID, THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD SURVEY OF THE EXISTING SITE CONDITIONS AND FEATURES. ANY SITE CONDITIONS WHICH MAY CAUSE SIGNIFICANT DEVIATION FROM THE DESIGN DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF UNIVERSITY'S REPRESENTATIVE FOR CLARIFICATION PRIOR TO SUBMISSION OF THE CONTRACTOR'S BID. VERIFY DIMENSIONS OF ALL OWNER-FURNISHED OPERATING EQUIPMENT TO ENSURE PROPER COORDINATION WITH CONSTRUCTION.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE ALL WORK WITH THE UNIVERSITY'S REPRESENTATIVE INCLUDING CONSTRUCTION ACCESS AND STORAGE.
13. ALL UTILITIES REQUIRED FOR THE CONTINUOUS OPERATION OF ALL EXISTING FACILITIES MUST BE MAINTAINED IN SERVICE AT ALL TIMES.
14. ALL REMOVED ITEMS DEEMED TO HAVE VALUE BY THE UNIVERSITY SHALL BE DELIVERED TO A PLACE OF STORAGE AT THE SITE AS DIRECTED. ALL OTHER ITEMS MUST BE DISPOSED OF OFF SITE IN A LEGAL MANNER.
15. WHERE EXISTING CONSTRUCTION IS CUT, DAMAGED, OR REMODELED, PATCH WITH MATERIALS TO MATCH IN KIND, QUALITY, AND PERFORMANCE.
16. ALL NEW LABORATORY PROCESS EXHAUST DUCT SHALL BE CLASS I CONSTRUCTION PER UMC SECTION 504 AND 506.
17. DUCT CONSTRUCTION SHALL COMPLY WITH UMC TABLE 5-B, 5-C, 6-A, AND 6-B.
18. DUCT SUPPORTS SHALL COMPLY WITH UMC TABLE 6-E.



1. THE FACE VELOCITY MONITOR SHALL MEASURE THE FACE VELOCITY DRAWN ACROSS THE FUME HOOD CONTINUOUSLY. PROVIDE A DUAL VENT KIT THAT WILL ALLOW AIR FROM BOTH SIDES OF THE HOOD TO PASS OVER THE SENSOR ASSEMBLY MOUNTED ON THE TOP OF THE HOOD. PROVIDE DISPLAY FILTERING CAPABILITY AND SETPOINT.

1 FUME HOOD CONTROL DIAGRAM
SCALE: NONE

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KEY PLAN:

FIRE MARSHAL:

DSA:

University of California
Physical Planning and Construction
Santa Cruz Campus
Santa Cruz, California

Baskin Alterations - Labs 206, 207 & 208 Final User Build-out
Baskin Engineering Building
1156 High Street
Santa Cruz, CA 95064
UCSC PROJECT & FILE NO: 2700-111

ISSUE DATE

REVISIONS		
NO.	DATE	DESCRIPTION
	10/19/07	ISSUED FOR FINAL REVIEW

PROJECT NO: 0723
CAD DWG FILE:
DRAWN BY: MR
CHECKED BY: DP
SHEET TITLE

SYMBOLS, LEGEND, ABBREVIATIONS, & GENERAL NOTES

M-001

SHEET OF

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