## LABORATORY EQUIPMENT SCHEDULE

| TAG | EQUIPMENT | STATUS | FURNISHED BY | MANUFACTURER | MODEL | EMER. POWER | MIN-MAX CFM | S.P. (IN. W.C.) | DUCT CONN | BRANCH SIZES | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | CW W/STOP | HW W/STOP | TW | RO | INDIRECT WASTE | CHEM VENT | CHEM WASTE | |
| 2 | "P-2" HAND WASH SINK | NEW | DIV 22 | SEE SPEC 224000 | SEE SPEC 224000 | | | | | 1/2" | 1/2" | | | | 1-1/2" | 1-1/2" | |
| 11C | -20C UNDER COUNTER FREEZER | NEW | OWNER | VWR SCIENTIFIC | 97014-902 | Y | | | | | | | | | | | 33-5/8"H X 21-2/8"W X DD-3/4"D |
| 13 | "FH-B" FUME HOOD | NEW | DIV 11 | SEE SPEC 115313 | SEE SPEC 115313 | Y | 120 - 600 | 0.07" | 10" | | | | | | | | NOTE 1 |
| 15 | "P-15" COUNTER SINK, S.S. | NEW | DIV 12 | SEE SPEC 123553 | SEE SPEC 123553 | | | | | 1/2" | 1/2" | | 1/2" | | 1-1/2" | 2" | |
| 16 | ULTRAPURE WATER SYSTEM | NEW | OWNER | MILLIPORE | DIRECT-Q-3, 30L RESERVOIR | | | | | | | | 1/2" | 1/2" | | | NOTE 4 |
| 17 | -70C FREEZER | NEW | OWNER | THERMO SCIENTIFIC | FORMA 88400 | Y | | | | | | | | | | | |
| 18 | REFRIGERATOR | NEW | OWNER | ? | ? | Y | | | | | | | | | | | STANDARD RESIDENTIAL TYPE |
| 19 | SINK - CULTURE, EPOXY | NEW | DIV 12 | SEE SPEC 123553 | SEE SPEC 123553 | | | | | 1/2" | 1/2" | | | | 1-1/2" | 1-1/2" | |
| 23 | "BSC-B" BIOSAFETY CABINET | EXIST | OWNER | BAKER | SG403ATS | | 360 - 360 | 0.10" | 10" | | | | | | | | CLASS II, TYPE A/B3 B.S.C. |
| 26 | "LF-B" LAMINAR FLOW CLEAN BENCH | EXIST | OWNER | BAKER | EDGE-GARD EG-5252 | | | | | | | | | | | | |
| 27 | INCUBATOR | EXIST | OWNER | PERCIVAL | I-36LLVL | Y | | | | | | | | | | | |
| 28 | INCUBATOR | EXIST | OWNER | PERCIVAL | I-36LLVL | Y | | | | | | | | | | | |
| 30 | AUTOCLAVE | EXIST | OWNER | MARKET FORGE | STM-EL | | | | | 1/2" | | | | 1" | | | NOTE 3 |
| | COMP AIR TURRET | NEW | DIV 12 | SEE SPEC 123553 | SEE SPEC 123553 | | | | | | | | | | | | 1/2" CA BRANCH PIPE |
| | VAC TURRET | NEW | DIV 12 | SEE SPEC 123553 | SEE SPEC 123553 | | | | | | | | | | | | 1/2" VAC BRANCH PIPE |
| | NAT GAS TURRET | NEW | DIV 12 | SEE SPEC 123553 | SEE SPEC 123553 | | | | | | | | | | | | 1/2" NG BRANCH PIPE |
| ES-1 | EMER SHOWER - EYEWASH | NEW | DIV 22 | SEE SPEC 224000 | SEE SPEC 224000 | | | | | | | 1-1/4" | | | | | 1" TW FROM UNIT TO HEAD |
| FD-1 | FLOOR DRAIN - AT ES-1 | EXIST | EXIST | EXIST | EXIST | | | | | 1/2" | | | | | 1-1/2" | | NOTE 2 |
| FD-2 | FLOOR DRAIN W/FUNNEL - | EXIST | EXIST | EXIST | EXIST | | | | | | | | | | 1-1/2" | | NOTE 2 |

NOTES:
1. NO SERVICES (WATER, GAS, ETC), ELEC ONLY; TWO (2) INTEGRAL 120V GFCI OUTLETS. HOOD SHALL HAVE SINGLE POINT JUNCTION BOX ELECTRICAL CONN. PROVIDE ACID BASE CABINET
2. PROVIDED IN RECENT PROJECT FOR SPACE FITUP BELOW. CONTRACTOR SHALL ADJUST FLOOR DRAIN ELEVATION FOR FLUSH FINISH WITH NEW FLOORING; PROVIDE VENT PIPING.
3. PROVIDE AUTOCLAVE HOOKUP: 1" INDIRECT WASTE, 1/2" CW HOOKUP.
4. PROVIDE ULTRAPURE WATER SYSTEM HOOKUP: 1/2" RO, DRAIN.

## AIR TERMINAL UNIT SCHEDULE - STANDARD AND LAB VALVES

### AIR VALVES - SECTION 230995

| TAG | SERVES | MFR | MODEL | MATERIAL | VALVE (QTY), SIZE | CFM MAX | CFM MIN | NOMINAL OUTLET SIZE | MAX RAD. & DISCH. NC | MAX APD AT MAX. COOLING |
|---|---|---|---|---|---|---|---|---|---|---|
| SAV-B | SUPPLY | TRIATEK | VV-212-A-I-FA-PC | ALUMINUM | (2) 12" | 2,150 | 1,120 | 26.5" x 13.5" | 30 | 0.30" |
| EAV-B1 | GEN EXH | TRIATEK | VV-212-A-I-FA-PC | ALUMINUM | (2) 12" | 1,970 | 460 | 26.5" x 13.5" | 30 | 0.30" |
| EAV-B2 | BIOSAFETY CABINET | TRIATEK | VV-08-A-I-FA-PC | ALUMINUM | (1) 8" | 360 | 360 | 8" | 30 | 0.30" |
| EAV-B3 | FUME HOOD | TRIATEK | VV-010-H-I-FA-PC | HERESITE | (1) 10" | 600 | 120 | 10" | 30 | 0.30" |
| | ***LAB INFILTRATION OFFSET = NEGATIVE 300 CFM*** | | | | | | | | | |

### DUCT HW COILS - SECTION 238216

| DUCT HW COIL TAG | MANUFACTURER | SERVES | CFM | COIL WIDTH (IN.) | COIL HEIGHT (IN.) | FACE VEL (FPM) | MBH | GPM | FLUID | MAX WPD | EWT | LWT | EAT | LAT | ROWS | RUNOUT SIZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HC-B1 | MCQUAY | BIO | 1,600 | 28 | 15 | 549 | 60.5 | 4.0 | 30% PG | 3' | 180 | 150 | 55 | 90 | 2 | 1" |
| HC-B2 | MCQUAY | CULTURE | 550 | 12 | 12 | 550 | 17.8 | 1.2 | 30% PG | 3' | 180 | 150 | 55 | 85 | 2 | 3/4" |
| ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ |
| ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ |
| ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ |
| ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ | ------ |

NOTE: PROVIDE ACOUSTICAL INSULATION (AIR VALVE OPTION) IF REQUIRED TO KEEP NC LEVELS AT 30 OR BELOW.

## REGISTERS - GRILLES - DIFFUSERS (RGD) SCHEDULE

| TAG | PRICE MODEL | TYPE | NECK SIZE | FACE SIZE | CFM RANGE | MAX TOTAL P.D. (IN.W.C.) | MAX NC LEVEL | BORDER TYPE | BLOW | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| S-1 | FRFDA | FLUSH FACE RADIAL FLOW ADJUSTABLE DIFFUSER | 10" DIA | 24"x48" | 400 - 550 | 0.13" | 30 | LAY-IN | 2-WAY, FULL RADIAL, ADJ. | |
| S-2 | FRFDA | FLUSH FACE RADIAL FLOW ADJUSTABLE DIFFUSER | 12" DIA | 24"x48" | 551 - 600 | 0.09" | 28 | LAY-IN | 2-WAY, FULL RADIAL, ADJ. | |
| | | | | | | | | | | |
| R-1 | 530 | STEEL RETURN GRILLE, 3/4" SPACING, 35 DEG VANES | 22"x10" | 22"x10" | 140-550 | 0.03" | 27 | LAY-IN | ---------- | |
| R-2 | 510Z | STEEL RETURN GRILLE, 3/4" SPACING, 0 DEG VANES | 22"x22" | 22"x22" | 851-1900 | 0.05" | 22 | LAY-IN | | |

## ROOM PRESSURE BALANCE

### Inputs

| Exhaust Volume Requirements | | |
|---|---|---|
| Fume Hood Exhaust Minimum: | 120 | CFM |
| Fume Hood Exhaust Maximum: | 600 | CFM |
| Additional Exhaust Minimum: | 360 | CFM -BSC |
| Additional Exhaust Maximum: | 360 | CFM -BSC |

| Design Requirements | | room = 934 SF |
|---|---|---|
| Room Volume: | 8,403 | CUBIC FEET |
| Air Changes Per Hour (ACH): | 8 | |
| Minimum Supply Cooling Volume: | 0 | CFM |
| Maximum Supply Cooling Volume: | 2,150 | CFM |

### Outputs

| | | |
|---|---|---|
| ACH Rate= | 1,120 | CFM |
| Minimum Total Supply = | 1,120 | CFM |
| Maximum Total Supply = | 2,150 | CFM |
| Minimum Total Exhaust = | 1,420 | CFM |
| Maximum Total Exhaust = | 2,450 | CFM |
| General Exh at Min. Supply and Fume Hd Exh. = | 1,300 | CFM |
| General Exh at Max. Supply and Fume Hd Exh. = | 1,850 | CFM |
| Minimum General Exhaust = | 460 | CFM |
| Maximum General Exhaust = | 1,970 | CFM |
| Design Infiltration (Offset): | 300 | CFM |

## RADIANT PANEL SCHEDULE (HOT WATER)

| TAG | TYPE | PANELS IN SERIES | TUBING SIZE | No. OF PASSES | BTUH | MEAN WATER TEMP | FLUID | GPM | MAX PRESS. DROP | PANEL WIDTH | OVERALL PANEL LENGTH | PIPE RUNOUT SIZE | INSULATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RP-1 | 48X24 MODULAR RADIANT | 4 | 5/8" | 6 | 4,960 | 155 | 30% PG | 1.3 | 2 FT. | 24" | 192" | 3/4" | 1" |

A1 | MECHANICAL SCHEDULES
NONE

F7 | DETAIL ~ BIOLOGY LAB C393 CONTROL DIAGRAM
NOT TO SCALE

D8 | DETAIL ~ HW RADIANT CEILING PANEL
NOT TO SCALE

KEYED NOTES:
1. STRAIGHT DUCT AT INLET AND OUTLET, 2'-0" MINIMUM.
2. TRANSITION AS REQUIRED, PROVIDE ACCESS DOOR UPSTREAM SIDE.
3. PROVIDE HANGER WITHIN 1'-0" OF THE VALVE CONNECTION.
4. PROVIDE 1'-2" MINIMUM FREE, UNOBSTRUCTED SPACE AROUND THE VALVE FOR ACCESS.

A6 | DETAIL ~ VAV BOX SCHEMATIC
NOT TO SCALE


HKTA/archi
HKTA architects, inc.
482 Congress Street Suite 502
Portland, Maine
phone: 207. 774.
fax: 207. 774. 0128
email: hkta@maine.com


Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 05/19/14


Allied Engineering
Structural Mechanical Electrical Commissioning
160 Veranda Street
Portland, Maine 04103
T: 207.221.2260
F: 207.221.2266
Web: www.allied-eng.com


STATE OF MAINE
IAN A. MACDONALD
No. 6990
LICENSED
PROFESSIONAL ENGINEER

REVISIONS

| NUMBER | DATE | BY | DESCRIPTION |
|---|---|---|---|
| | | | |

Date: 3/28/2014
Drawn By: REW
Checked By: IAM
Project Mgr: IAM
Project No: 14003
Cad File: 14003M.dwg
Graphic Scale: 0 1"

MECHANICAL DETAILS
SCHEDULES AND CONTROL SCHEMATIC

UNIVERSITY OF SOUTHERN MAINE BIO-SCIENCE
~ 3rd FLOOR LAB FIT-UP
PORTLAND, MAINE

© COPYRIGHT 2014 ALLIED ENGINEERING, INC.

MH-500

N:\Projects\2014\14003 - USM Bio Science\00 Drawing Files\14003M.dwg Mar 27, 2014 - 8:34am