# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| A | | | **GENERAL REQUIREMENTS** | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **GENERAL REQUIREMENTS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | estimating/management services | 1.00 | ls | | | | | | - | | 2,650.00 | | - | | - | - | 2,650.00 | - | 2,650.00 | 3,126.87 | 3,126.87 |
| | | | subcontractor mobilization | 1.00 | ls | | | | | | - | | 15,000.00 | | - | | - | - | 15,000.00 | - | 15,000.00 | 17,699.28 | 17,699.28 |
| | | | shop drawings and submittals | 1.00 | ls | | | | | | - | | | 1,500.00 | - | | - | - | - | 1,605.00 | 1,605.00 | 1,893.82 | 1,893.82 |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **EQUIPMENT RENTAL** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | small tools @ $2.00 p/mh (auto-calc. do not adjust) | 16,757.00 | ls | | | | | | - | 2.00 | | | - | | - | 35,859.98 | - | - | 35,859.98 | 2.53 | 42,395.21 |
| | | | crane rental | 16.00 | hr | | | | | | - | | 1,275.00 | | - | | - | - | 20,400.00 | - | 20,400.00 | 1,504.44 | 24,071.04 |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **DIRECT JOB EXPENSE** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | job expense @ $2.50 p/man-hour (auto-calc. do not adjust) | 17,073.25 | mh | | | | | | - | 2.50 | | | - | | - | 45,670.94 | - | - | 45,670.94 | 3.16 | 53,951.47 |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| B | | | **HVAC ESTIMATE** | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **PACKAGE ROOF-TOP UNITS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | rtu-1a 2400 cfm @ 1.79 hp | 1.00 | ea | 6,000.00 | 22.000 | MH/U | | | 385.00 | | | | 6,420.00 | 22.000 | 411.95 | - | - | - | 6,831.95 | 8,061.37 | 8,061.37 |
| | | | rtu-2a 2400 cfm @ 1.79 hp | 1.00 | ea | 6,000.00 | 22.000 | MH/U | | | 385.00 | | | | 6,420.00 | 22.000 | 411.95 | - | - | - | 6,831.95 | 8,061.37 | 8,061.37 |
| | | | rtu-3a 2200 cfm @ 2.03 hp | 1.00 | ea | 5,500.00 | 22.000 | MH/U | | | 385.00 | | | | 5,885.00 | 22.000 | 411.95 | - | - | - | 6,296.95 | 7,430.10 | 7,430.10 |
| | | | rtu-4a 2550 cfm @ 2.70 hp | 1.00 | ea | 6,375.00 | 22.000 | MH/U | | | 385.00 | | | | 6,821.25 | 22.000 | 411.95 | - | - | - | 7,233.20 | 8,534.83 | 8,534.83 |
| | | | rtu-1b 2040 cfm @ 1.70 hp | 1.00 | ea | 5,100.00 | 22.000 | MH/U | | | 385.00 | | | | 5,457.00 | 22.000 | 411.95 | - | - | - | 5,868.95 | 6,925.08 | 6,925.08 |
| | | | rtu-2b 8810 cfm @ 7.30 hp | 1.00 | ea | 22,000.00 | 28.000 | MH/U | | | 490.00 | | | | 23,540.00 | 28.000 | 524.30 | - | - | - | 24,064.30 | 28,394.72 | 28,394.72 |
| | | | rtu-3b 2700 cfm @ 1.35 hp | 1.00 | ea | 6,750.00 | 22.000 | MH/U | | | 385.00 | | | | 7,222.50 | 22.000 | 411.95 | - | - | - | 7,634.45 | 9,008.28 | 9,008.28 |
| | | | rtu-1c 2400 cfm @ 1.79 hp | 1.00 | ea | 6,000.00 | 22.000 | MH/U | | | 385.00 | | | | 6,420.00 | 22.000 | 411.95 | - | - | - | 6,831.95 | 8,061.37 | 8,061.37 |
| | | | rtu-2c 2400 cfm @ 1.79 hp | 1.00 | ea | 6,000.00 | 22.000 | MH/U | | | 385.00 | | | | 6,420.00 | 22.000 | 411.95 | - | - | - | 6,831.95 | 8,061.37 | 8,061.37 |
| | | | rtu-3c 2200 cfm @ 2.03 hp | 1.00 | ea | 5,500.00 | 22.000 | MH/U | | | 385.00 | | | | 5,885.00 | 22.000 | 411.95 | - | - | - | 6,296.95 | 7,430.10 | 7,430.10 |
| | | | rtu-4c 2550 cfm @ 2.70 hp | 1.00 | ea | 6,375.00 | 22.000 | MH/U | | | 385.00 | | | | 6,821.25 | 22.000 | 411.95 | - | - | - | 7,233.20 | 8,534.83 | 8,534.83 |
| | | | mau-1b 1400 cfm @ .49 hp | 1.00 | ea | 2,800.00 | 22.000 | MH/U | | | 385.00 | | | | 2,996.00 | 22.000 | 411.95 | - | - | - | 3,407.95 | 4,021.22 | 4,021.22 |
| | | | **NOTE: PGK.RTU** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *rtu w/14" curbs, elec.conv.outlet, smoke detectors, 5 year warranty* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *economizer w/cntrls, disconnect switch and filters* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 3-filter sets | 12.00 | ea | 2,000.00 | 25.000 | | | | 437.50 | | | | 25,680.00 | 300.000 | 5,617.50 | - | - | - | 31,297.50 | 3,077.46 | 36,929.52 |
| | | | filter gauges | 12.00 | ea | 300.00 | 2.057 | | | | 36.00 | | | | 3,852.00 | 24.684 | 462.24 | - | - | - | 4,314.24 | 424.22 | 5,090.64 |
| | | | red oil for gauges | 1.00 | qt | 26.00 | | | | | - | | | | 27.82 | | - | - | - | - | 27.82 | 32.83 | 32.83 |
| | | | **CENTRIFUGAL ROOF EXHAUST FANS SMOKE** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | sef-1a 2635 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-2a 2635 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-3a 2415 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-4a 2785 cfm @ 3/4 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-1c 2635 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-1a 2635 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-2c 2635 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-3c 2415 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-4c 2785 cfm @ 3/4 hp | 1.00 | ea | 500.00 | 10.000 | | | | 175.00 | | | | 535.00 | 10.000 | 187.25 | - | - | - | 722.25 | 852.22 | 852.22 |
| | | | sef-1b 2310 cfm @ 1.0 hp | 1.00 | ea | 800.00 | 10.000 | | | | 175.00 | | | | 856.00 | 10.000 | 187.25 | - | - | - | 1,043.25 | 1,230.98 | 1,230.98 |
| | | | sef-2b 9570 cfm @ 3.0 hp | 1.00 | ea | 2,500.00 | 15.000 | | | | 262.50 | | | | 2,675.00 | 15.000 | 280.88 | - | - | - | 2,955.88 | 3,487.80 | 3,487.80 |
| | | | sef-3b 2090 cfm @ 3/4 hp | 1.00 | ea | 450.00 | 10.000 | | | | 175.00 | | | | 481.50 | 10.000 | 187.25 | - | - | - | 668.75 | 789.09 | 789.09 |
| | | | **CENTRIFUGAL ROOF EXHAUST FANS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | ef-1a 600 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-2a 225 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-1b 590 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-3b 650 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-4b 560 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-5b 355 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-6b 225 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | ef-7a 1029 cfm @ .16 hp | 1.00 | ea | 450.00 | 10.000 | | | | 175.00 | | | | 481.50 | 10.000 | 187.25 | - | - | - | 668.75 | 789.09 | 789.09 |
| | | | ef-8b 500 cfm @ .16 hp | 1.00 | ea | 400.00 | 10.000 | | | | 175.00 | | | | 428.00 | 10.000 | 187.25 | - | - | - | 615.25 | 725.97 | 725.97 |
| | | | ef-1c 600 cfm @ .16 hp | 1.00 | ea | 400.00 | 10.000 | | | | 175.00 | | | | 428.00 | 10.000 | 187.25 | - | - | - | 615.25 | 725.97 | 725.97 |
| | | | ef-2c 225 cfm @ .16 hp | 1.00 | ea | 375.00 | 10.000 | | | | 175.00 | | | | 401.25 | 10.000 | 187.25 | - | - | - | 588.50 | 694.40 | 694.40 |
| | | | **SUPPLY FAN NOTE:** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *fans w/curbs, disconnect switch, bird screen* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *fans w/backdraft dampers* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **SUPPLY FAN** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | sf-1b 560 cfm @ 1.6 hp | 1.00 | ea | 400.00 | 10.000 | | | | 175.00 | | | | 428.00 | 10.000 | 187.25 | - | - | - | 615.25 | 725.97 | 725.97 |
| | | | motor starters | 14.00 | ea | 345.00 | 4.000 | | | | 70.00 | | | | 5,168.10 | 56.000 | 1,048.60 | - | - | - | 6,216.70 | 523.96 | 7,335.44 |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **INTAKE & RELIEF HOODS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |

# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1h-1b intake @ 14x14 | 1.00 | ea | 455.00 | 4.500 | | | | 78.75 | | | | 486.85 | 4.500 | 84.26 | - | - | - | 571.11 | 673.88 | 673.88 |
| | | | 1h-3b intake @ 14x14 | 1.00 | ea | 455.00 | 4.500 | | | | 78.75 | | | | 486.85 | 4.500 | 84.26 | - | - | - | 571.11 | 673.88 | 673.88 |
| | | | rh-1b relief vent 14x14 | 1.00 | ea | 455.00 | 4.500 | | | | 78.75 | | | | 486.85 | 4.500 | 84.26 | - | - | - | 571.11 | 673.88 | 673.88 |
| | | | **NOTE: INTAKE UNITS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *units provided w/ w/curbs, bird screen, motorized dampers* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **TERMINAL BOX UNITS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | tb2b-1 865 cfm @ 1/2 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-2 380 cfm @ 1/6 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-3 200 cfm @ 1/6 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-4 165 cfm @ 1/13 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-5 230 cfm @ 1/13 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-6 175 cfm @ 1/13 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-7 305 cfm @ 1/13 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-8 840 cfm @ 1/2 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-9 1010 cfm @ 1/2 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-10 850 cfm @ 1/2 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-11 1320 cfm @ 3/4 hp | 1.00 | ea | 1,000.00 | 9.000 | | | | 157.50 | | | | 1,070.00 | 9.000 | 168.52 | - | - | - | 1,238.52 | 1,461.39 | 1,461.39 |
| | | | tb2b-12 150 cfm @ 1/13 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-13 940 cfm @ 1/2 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | tb2b-14 1575 cfm @ 21/2 hp | 1.00 | ea | 800.00 | 9.000 | | | | 157.50 | | | | 856.00 | 9.000 | 168.52 | - | - | - | 1,024.52 | 1,208.88 | 1,208.88 |
| | | | **NOTE: TERMINAL BOX UNIT** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *units provided w/vol. damper, 1" thk af., attenuator, hw heat coil* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *factory disconnect, cntrl transformer, airflow switch, room sensor* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *and remote reset* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **AIR DISTRIBUTION** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | "a" perforated supply 24x24 | 16.00 | lf | 68.00 | 1.250 | | | | 21.88 | | | | 1,164.16 | 20.000 | 374.59 | - | - | - | 1,538.75 | 113.48 | 1,815.68 |
| | | | "b" perforated supply 24x24 | 18.00 | lf | 72.00 | 1.250 | | | | 21.88 | | | | 1,386.72 | 22.500 | 421.41 | - | - | - | 1,808.13 | 118.53 | 2,133.54 |
| | | | "c" perforated supply 24x24 | 10.00 | lf | 78.00 | 1.250 | | | | 21.88 | | | | 834.60 | 12.500 | 234.12 | - | - | - | 1,068.72 | 126.10 | 1,261.00 |
| | | | "d" perforated supply 24x24 | 29.00 | lf | 85.00 | 1.250 | | | | 21.88 | | | | 2,637.55 | 36.250 | 678.94 | - | - | - | 3,316.49 | 134.94 | 3,913.26 |
| | | | "e" perforated return/exhaust 24x24 | 67.00 | lf | 75.00 | 1.250 | | | | 21.88 | | | | 5,376.75 | 83.750 | 1,568.58 | - | - | - | 6,945.33 | 122.32 | 8,195.44 |
| | | | "f" security supply 12x12 | 14.00 | lf | 175.00 | 2.000 | | | | 35.00 | | | | 2,621.50 | 28.000 | 524.30 | - | - | - | 3,145.80 | 265.14 | 3,711.96 |
| | | | "g" security supply 27x27 | 20.00 | lf | 225.00 | 2.500 | | | | 43.75 | | | | 4,815.00 | 50.000 | 936.25 | - | - | - | 5,751.25 | 339.31 | 6,786.20 |
| | | | "h" return w/exhaust 12x12 | 20.00 | lf | 22.00 | 1.250 | | | | 21.88 | | | | 470.80 | 25.000 | 468.23 | - | - | - | 939.03 | 55.40 | 1,108.00 |
| | | | *"i" not in schedule* | | nic | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | "j" security return/exhaust 12x12 | 10.00 | lf | 200.00 | 2.000 | | | | 35.00 | | | | 2,140.00 | 20.000 | 374.50 | - | - | - | 2,514.50 | 296.70 | 2,967.00 |
| | | | "k" perforated supply 12x12 | 1.00 | lf | 85.00 | 1.250 | | | | 21.88 | | | | 90.95 | 1.250 | 23.41 | - | - | - | 114.36 | 134.94 | 134.94 |
| | | | "l" sidewall supply 14x08 | 7.00 | lf | 25.00 | 1.250 | | | | 21.88 | | | | 187.25 | 8.750 | 163.88 | - | - | - | 351.13 | 59.19 | 414.33 |
| | | | "m" sidewall supply 14x08 | 7.00 | lf | 25.00 | 1.250 | | | | 21.88 | | | | 187.25 | 8.750 | 163.88 | - | - | - | 351.13 | 59.19 | 414.33 |
| | | | "n" sidewall supply 30x14 | 3.00 | lf | 85.00 | 1.250 | | | | 21.88 | | | | 272.85 | 3.750 | 70.23 | - | - | - | 343.08 | 134.94 | 404.82 |
| | | | *"o" not in schedule* | | nic | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | "p" sidewall supply 50x20 | 1.00 | lf | 155.00 | 2.250 | | | | 39.38 | | | | 165.85 | 2.250 | 42.14 | - | - | - | 207.99 | 245.42 | 245.42 |
| | | | *"q" not in schedule* | | nic | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | "r" security sidewall supply 14x08 | 32.00 | lf | 175.00 | 1.250 | | | | 21.88 | | | | 5,992.00 | 40.000 | 749.17 | - | - | - | 6,741.17 | 248.57 | 7,954.24 |
| | | | "s" security sidewall return 14x08 | 32.00 | lf | 175.00 | 1.250 | | | | 21.88 | | | | 5,992.00 | 40.000 | 749.17 | - | - | - | 6,741.17 | 248.57 | 7,954.24 |
| | | | "t" perforated return/exhaust 12x12 | 8.00 | lf | 85.00 | 1.250 | | | | 21.88 | | | | 727.60 | 10.000 | 187.29 | - | - | - | 914.89 | 134.94 | 1,079.52 |
| | | | **DUCTWORK** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | galv. supply ductwork | 8,140.00 | lb | 0.90 | 0.170 | | | | 2.98 | | | | 7,838.82 | 1383.800 | 25,955.20 | - | - | - | 33,794.02 | 4.90 | 39,886.00 |
| | | | galv. return ductwork | 4,940.00 | lb | 0.90 | 0.170 | | | | 2.98 | | | | 4,757.22 | 839.800 | 15,751.68 | - | - | - | 20,508.90 | 4.90 | 24,206.00 |
| | | | galv. exhaust ductwork | 2,500.00 | lb | 0.65 | 0.150 | | | | 2.63 | | | | 1,738.75 | 375.000 | 7,035.25 | - | - | - | 8,774.00 | 4.14 | 10,350.00 |
| | | | duct line @ 1" thk | 4,340.00 | sf | 1.25 | 0.175 | | | | 3.06 | | | | 5,804.75 | 759.500 | 14,210.03 | - | - | - | 20,014.78 | 5.44 | 23,609.60 |
| | | | **DUCTWORK INSULATION** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | supply duct insulation | 8,800.00 | sqft' | 1.40 | | | | | - | | | | 13,182.40 | | - | - | - | - | 13,182.40 | 1.77 | 15,576.00 |
| | | | round supply duct insulation | 5,640.00 | sqft' | 0.85 | | | | | - | | | | 5,129.58 | | - | - | - | - | 5,129.58 | 1.07 | 6,034.80 |
| | | | **ROUND DUCTWORK** | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| | | | 12" round ductwork | 240.00 | lf | 4.00 | 0.286 | | | | 5.01 | | | | 1,027.20 | 68.640 | 1,286.57 | - | - | - | 2,313.77 | 11.38 | 2,731.20 |
| | | | 10" round ductwork | 260.00 | lf | 3.45 | 0.229 | | | | 4.01 | | | | 959.79 | 59.540 | 1,115.58 | - | - | - | 2,075.37 | 9.42 | 2,449.20 |
| | | | 08" round ductwork | 310.00 | lf | 2.85 | 0.229 | | | | 4.01 | | | | 945.35 | 70.990 | 1,330.12 | - | - | - | 2,275.47 | 8.66 | 2,684.60 |
| | | | 06" round ductwork | 480.00 | lf | 2.00 | 0.171 | | | | 2.99 | | | | 1,027.20 | 82.080 | 1,535.66 | - | - | - | 2,562.86 | 6.30 | 3,024.00 |
| | | | **SPIRAL DUCTWORK** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 14" spiral ductwork | 10.00 | lf | 6.00 | 0.400 | | | | 7.00 | | | | 64.20 | 4.000 | 74.90 | - | - | - | 139.10 | 16.41 | 164.10 |
| | | | 12" spiral ductwork | 20.00 | lf | 5.00 | 0.280 | | | | 4.90 | | | | 107.00 | 5.600 | 104.86 | - | - | - | 211.86 | 12.50 | 250.00 |
| | | | 10" spiral ductwork | 90.00 | lf | 4.10 | 0.230 | | | | 4.03 | | | | 394.83 | 20.700 | 388.09 | - | - | - | 782.92 | 10.26 | 923.40 |
| | | | 08" spiral ductwork | 60.00 | lf | 3.25 | 0.180 | | | | 3.15 | | | | 208.65 | 10.800 | 202.23 | - | - | - | 410.88 | 8.08 | 484.80 |
| | | | 06" spiral ductwork | 40.00 | lf | 2.75 | 0.180 | | | | 3.15 | | | | 117.70 | 7.200 | 134.82 | - | - | - | 252.52 | 7.45 | 298.00 |
| | | | **ROUND DUCT FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 12" round duct ftgs | 45.00 | ea | 18.50 | 0.857 | | | | 15.00 | | | | 890.78 | 38.565 | 722.25 | - | - | - | 1,613.03 | 42.30 | 1,903.50 |
| | | | 10" round duct ftgs | 409.00 | ea | 16.00 | 0.857 | | | | 15.00 | | | | 7,002.08 | 350.513 | 6,564.45 | - | - | - | 13,566.53 | 39.14 | 16,008.26 |

# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 08" round duct ftgs | 40.00 | ea | 9.00 | 0.857 | | | | 15.00 | | | | 385.20 | 34.280 | 642.00 | - | - | - | 1,027.20 | 30.30 | 1,212.00 |
| | | | 06" round duct ftgs | 56.00 | ea | 7.00 | 0.686 | | | | 12.01 | | | | 419.44 | 38.416 | 719.64 | - | - | - | 1,139.08 | 24.00 | 1,344.00 |
| | | | **SPIRAL DUCT FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 10" spiral duct ftgs | 4.00 | ea | 22.50 | 0.943 | | | | 16.50 | | | | 96.30 | 3.772 | 70.62 | - | - | - | 166.92 | 49.24 | 196.96 |
| | | | 08" spiral duct ftgs | 1.00 | ea | 12.00 | 0.857 | | | | 15.00 | | | | 12.84 | 0.857 | 16.05 | - | - | - | 28.89 | 34.09 | 34.09 |
| | | | 06" spiral duct ftgs | 2.00 | ea | 9.50 | 0.857 | | | | 15.00 | | | | 20.33 | 1.714 | 32.10 | - | - | - | 52.43 | 30.93 | 61.86 |
| | | | **SPIRAL DUCT TAP-IN FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 14" spiral duct tap-in ftgs | 1.00 | ea | 76.00 | 6.400 | | | | 112.00 | | | | 81.32 | 6.400 | 119.84 | - | - | - | 201.16 | 237.36 | 237.36 |
| | | | 12" spiral duct tap-in ftgs | 1.00 | ea | 58.00 | 4.300 | | | | 75.25 | | | | 62.06 | 4.300 | 80.52 | - | - | - | 142.58 | 168.24 | 168.24 |
| | | | 10" spiral duct tap-in ftgs | 5.00 | ea | 28.00 | 2.300 | | | | 40.25 | | | | 149.80 | 11.500 | 215.34 | - | - | - | 365.14 | 86.17 | 430.85 |
| | | | 08" spiral duct tap-in ftgs | 1.00 | ea | 16.00 | 1.150 | | | | 20.13 | | | | 17.12 | 1.150 | 21.54 | - | - | - | 38.66 | 45.62 | 45.62 |
| | | | 06" spiral duct tap-in ftgs | 3.00 | ea | 14.00 | 1.150 | | | | 20.13 | | | | 44.94 | 3.450 | 64.62 | - | - | - | 109.56 | 43.09 | 129.27 |
| | | | **BALANCING DAMPERS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 20x12 balancing damper | 4.00 | ea | 86.00 | 1.400 | | | | 24.50 | | | | 368.08 | 5.600 | 104.86 | - | - | - | 472.94 | 139.51 | 558.04 |
| | | | 48x14 balancing damper | 1.00 | ea | 455.00 | 4.200 | | | | 73.50 | | | | 486.85 | 4.200 | 78.64 | - | - | - | 565.49 | 667.25 | 667.25 |
| | | | 14x14 balancing damper | 2.00 | ea | 65.00 | 1.200 | | | | 21.00 | | | | 139.10 | 2.400 | 44.94 | - | - | - | 184.04 | 108.58 | 217.16 |
| | | | 14x12 balancing damper | 2.00 | ea | 65.00 | 1.200 | | | | 21.00 | | | | 139.10 | 2.400 | 44.94 | - | - | - | 184.04 | 108.58 | 217.16 |
| | | | 12x12 balancing damper | 3.00 | ea | 65.00 | 1.200 | | | | 21.00 | | | | 208.65 | 3.600 | 67.41 | - | - | - | 276.06 | 108.58 | 325.74 |
| | | | 12x06 balancing damper | 4.00 | ea | 65.00 | 1.200 | | | | 21.00 | | | | 278.20 | 4.800 | 89.88 | - | - | - | 368.08 | 108.58 | 434.32 |
| | | | 08x12 balancing damper | 1.00 | ea | 65.00 | 1.200 | | | | 21.00 | | | | 69.55 | 1.200 | 22.47 | - | - | - | 92.02 | 108.58 | 108.58 |
| | | | 08x08 balancing damper | 4.00 | ea | 48.00 | 1.200 | | | | 21.00 | | | | 205.44 | 4.800 | 89.88 | - | - | - | 295.32 | 87.12 | 348.48 |
| | | | 06x08 balancing damper | 19.00 | ea | 48.00 | 1.200 | | | | 21.00 | | | | 975.84 | 22.800 | 426.93 | - | - | - | 1,402.77 | 87.12 | 1,655.28 |
| | | | 06x12 balancing damper | 32.00 | ea | 48.00 | 1.200 | | | | 21.00 | | | | 1,643.52 | 38.400 | 719.04 | - | - | - | 2,362.56 | 87.12 | 2,787.84 |
| | | | 06x06 balancing damper | 33.00 | ea | 48.00 | 1.200 | | | | 21.00 | | | | 1,694.88 | 39.600 | 741.51 | - | - | - | 2,436.39 | 87.12 | 2,874.96 |
| | | | **ROUND BALANCING DAMPER** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 12 round balancing damper | 20.00 | ea | 33.00 | 1.600 | | | | 28.00 | | | | 706.20 | 32.000 | 599.20 | - | - | - | 1,305.40 | 77.02 | 1,540.40 |
| | | | 10 round balancing damper | 34.00 | ea | 23.00 | 1.600 | | | | 28.00 | | | | 836.74 | 54.400 | 1,018.64 | - | - | - | 1,855.38 | 64.39 | 2,189.26 |
| | | | 08 round balancing damper | 20.00 | ea | 20.00 | 1.000 | | | | 17.50 | | | | 428.00 | 20.000 | 374.50 | - | - | - | 802.50 | 47.35 | 947.00 |
| | | | 06 round balancing damper | 24.00 | ea | 16.00 | 1.000 | | | | 17.50 | | | | 410.88 | 24.000 | 449.40 | - | - | - | 860.28 | 42.30 | 1,015.20 |
| | | | 10 round fire damper | 1.00 | ea | 90.00 | 2.200 | | | | 38.50 | | | | 96.30 | 2.200 | 41.20 | - | - | - | 137.50 | 162.24 | 162.24 |
| | | | **MOTOR OP. SMOKE DAMPER** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *equip. furn.by cntrl sub* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 22x16 sq. x round (avg.size) | 26.00 | ea | 30.00 | 1.400 | | | | 24.50 | | | | 834.60 | 36.400 | 681.59 | - | - | - | 1,516.19 | 68.81 | 1,789.06 |
| | | | 18x12 sq. x round (avg.size) | 66.00 | ea | 30.00 | 1.200 | | | | 21.00 | | | | 2,118.60 | 79.200 | 1,483.02 | - | - | - | 3,601.62 | 64.39 | 4,249.74 |
| | | | 12x10 sq. x round (avg.size) | 30.00 | ea | 15.00 | 1.200 | | | | 21.00 | | | | 481.50 | 36.000 | 674.10 | - | - | - | 1,155.60 | 45.45 | 1,363.50 |
| | | | 10x06 sq. x round (avg.size) | 160.00 | ea | 15.00 | 1.200 | | | | 21.00 | | | | 2,568.00 | 192.000 | 3,595.20 | - | - | - | 6,163.20 | 45.45 | 7,272.00 |
| | | | **FLEX DUCT CONNECTION** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 60x30 flex duct connection | 1.00 | ea | 158.00 | 2.850 | | | | 49.88 | | | | 169.06 | 2.850 | 53.37 | - | - | - | 222.43 | 262.46 | 262.46 |
| | | | 56x18 flex duct connection | 1.00 | ea | 158.00 | 2.850 | | | | 49.88 | | | | 169.06 | 2.850 | 53.37 | - | - | - | 222.43 | 262.46 | 262.46 |
| | | | 40x14 flex duct connection | 1.00 | ea | 110.00 | 2.850 | | | | 49.88 | | | | 117.70 | 2.850 | 53.37 | - | - | - | 171.07 | 201.85 | 201.85 |
| | | | 36x18 flex duct connection | 1.00 | ea | 100.00 | 2.850 | | | | 49.88 | | | | 107.00 | 2.850 | 53.37 | - | - | - | 160.37 | 189.23 | 189.23 |
| | | | 36x24 flex duct connection | 4.00 | ea | 96.00 | 2.250 | | | | 39.38 | | | | 410.88 | 9.000 | 168.55 | - | - | - | 579.43 | 170.92 | 683.68 |
| | | | 30x18 flex duct connection | 5.00 | ea | 86.00 | 2.250 | | | | 39.38 | | | | 460.10 | 11.250 | 210.68 | - | - | - | 670.78 | 158.30 | 791.50 |
| | | | 24x12 flex duct connection | 5.00 | ea | 68.00 | 2.250 | | | | 39.38 | | | | 363.80 | 11.250 | 210.68 | - | - | - | 574.48 | 135.57 | 677.85 |
| | | | 18x16 flex duct connection | 1.00 | ea | 65.00 | 2.250 | | | | 39.38 | | | | 69.55 | 2.250 | 42.14 | - | - | - | 111.69 | 131.79 | 131.79 |
| | | | 18x12 flex duct connection | 5.00 | ea | 62.50 | 2.150 | | | | 37.63 | | | | 334.38 | 10.750 | 201.32 | - | - | - | 535.70 | 126.42 | 632.10 |
| | | | 16x14 flex duct connection | 1.00 | ea | 60.00 | 2.150 | | | | 37.63 | | | | 64.20 | 2.150 | 40.26 | - | - | - | 104.46 | 123.26 | 123.26 |
| | | | 16x12 flex duct connection | 1.00 | ea | 58.00 | 1.850 | | | | 32.38 | | | | 62.06 | 1.850 | 34.65 | - | - | - | 96.71 | 114.11 | 114.11 |
| | | | 14x14 flex duct connection | 3.00 | ea | 55.00 | 1.850 | | | | 32.38 | | | | 176.55 | 5.550 | 103.94 | - | - | - | 280.49 | 110.32 | 330.96 |
| | | | 14x12 flex duct connection | 1.00 | ea | 52.00 | 1.850 | | | | 32.38 | | | | 55.64 | 1.850 | 34.65 | - | - | - | 90.29 | 106.54 | 106.54 |
| | | | 10x10 flex duct connection | 1.00 | ea | 50.00 | 1.450 | | | | 25.38 | | | | 53.50 | 1.450 | 27.16 | - | - | - | 80.66 | 95.17 | 95.17 |
| | | | 08x10 flex duct connection | 1.00 | ea | 48.00 | 1.450 | | | | 25.38 | | | | 51.36 | 1.450 | 27.16 | - | - | - | 78.52 | 92.65 | 92.65 |
| | | | 06x10 flex duct connection | 4.00 | ea | 46.00 | 1.450 | | | | 25.38 | | | | 196.88 | 5.800 | 108.63 | - | - | - | 305.51 | 90.12 | 360.48 |
| | | | **ROUND FLEX CONNECTION** | | ea | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 14 round flex connection | 1.00 | ea | 55.00 | 1.450 | | | | 25.38 | | | | 58.85 | 1.450 | 27.16 | - | - | - | 86.01 | 101.49 | 101.49 |
| | | | 12 round flex connection | 1.00 | ea | 55.00 | 1.450 | | | | 25.38 | | | | 58.85 | 1.450 | 27.16 | - | - | - | 86.01 | 101.49 | 101.49 |
| | | | 10 round flex connection | 5.00 | ea | 45.00 | 1.350 | | | | 23.63 | | | | 240.75 | 6.750 | 126.42 | - | - | - | 367.17 | 86.65 | 433.25 |
| | | | 08 round flex connection | 2.00 | ea | 35.00 | 1.250 | | | | 21.88 | | | | 74.90 | 2.500 | 46.82 | - | - | - | 121.72 | 71.81 | 143.62 |
| | | | 06 round flex connection | 4.00 | ea | 35.00 | 1.250 | | | | 21.88 | | | | 149.80 | 5.000 | 93.65 | - | - | - | 243.45 | 71.81 | 287.24 |
| | | | **DUCT ACCESS DOORS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | duct access doors | 42.00 | ea | 34.00 | 2.000 | | | | 35.00 | | | | 1,527.96 | 84.000 | 1,572.90 | - | - | - | 3,100.86 | 87.12 | 3,659.04 |
| | | | **VIBRATION ISOLATORS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | vibration isolators | 166.00 | ea | 25.00 | 0.600 | | | | 10.50 | | | | 4,440.50 | 99.600 | 1,865.01 | - | - | - | 6,305.51 | 44.82 | 7,440.12 |
| | | | **DUCT THERMOMETERS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | duct thermometers | 12.00 | ea | 125.00 | 1.000 | | | | 17.50 | | | | 1,605.00 | 12.000 | 224.70 | - | - | - | 1,829.70 | 179.91 | 2,158.92 |
| | | | **SECURITY BARS (TOOL RESISTENT)** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1"- 2 ribbed bars | 300.00 | lf | 5.00 | | | | | - | | | | 1,605.00 | | - | - | - | - | 1,605.00 | 6.31 | 1,893.00 |
| | | | 21/2" x 3/8" flat bar | 160.00 | lf | 7.50 | | | | | - | | | | 1,284.00 | | - | - | - | - | 1,284.00 | 9.47 | 1,515.20 |

# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 56x18 | 2.00 | ea | | 25.000 | | | | 437.50 | | | | - | 50.000 | 936.25 | - | - | - | 936.25 | 552.37 | 1,104.74 |
| | | | 36x12 | 2.00 | ea | | 25.000 | | | | 437.50 | | | | - | 50.000 | 936.25 | - | - | - | 936.25 | 552.37 | 1,104.74 |
| | | | 28x18 | 1.00 | ea | | 18.000 | | | | 315.00 | | | | - | 18.000 | 337.05 | - | - | - | 337.05 | 397.70 | 397.70 |
| | | | 28x20 | 2.00 | ea | | 18.000 | | | | 315.00 | | | | - | 36.000 | 674.10 | - | - | - | 674.10 | 397.70 | 795.40 |
| | | | 22x18 | 12.00 | ea | | 18.000 | | | | 315.00 | | | | - | 216.000 | 4,044.60 | - | - | - | 4,044.60 | 397.70 | 4,772.40 |
| | | | 18x18 | 2.00 | ea | | 18.000 | | | | 315.00 | | | | - | 36.000 | 674.10 | - | - | - | 674.10 | 397.70 | 795.40 |
| | | | 19x19 | 1.00 | ea | | 18.000 | | | | 315.00 | | | | - | 18.000 | 337.05 | - | - | - | 337.05 | 397.70 | 397.70 |
| | | | 12x12 | 2.00 | ea | | 16.000 | | | | 280.00 | | | | - | 32.000 | 599.20 | - | - | - | 599.20 | 353.51 | 707.02 |
| | | | **WALL SLEEVES @ 10 GA.** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 30x22 wall sleeve | 2.00 | ea | 60.00 | 2.300 | | | | 40.25 | | | | 128.40 | 4.600 | 86.14 | - | - | - | 214.54 | 126.57 | 253.14 |
| | | | 30x20 wall sleeve | 1.00 | ea | 60.00 | 2.300 | | | | 40.25 | | | | 64.20 | 2.300 | 43.07 | - | - | - | 107.27 | 126.57 | 126.57 |
| | | | 18x18 wall sleeve | 2.00 | ea | 40.00 | 2.300 | | | | 40.25 | | | | 85.60 | 4.600 | 86.14 | - | - | - | 171.74 | 101.32 | 202.64 |
| | | | 12x12 wall sleeve | 1.00 | ea | 30.00 | 2.000 | | | | 35.00 | | | | 32.10 | 2.000 | 37.45 | - | - | - | 69.55 | 82.07 | 82.07 |
| | | | 2x2x1/2 angle iron braces for slvs & collars | 200.00 | lf | 2.00 | 4.500 | | | | 78.75 | | | | 428.00 | 900.000 | 16,852.50 | - | - | - | 17,280.50 | 101.95 | 20,390.00 |
| | | | **DUCT PACKING** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | packing at wall penetrations | 96.00 | ea | 25.00 | 1.500 | | | | 26.25 | | | | 2,568.00 | 144.000 | 2,696.40 | - | - | - | 5,264.40 | 64.71 | 6,212.16 |
| | | | **MISC. METALS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | expanded metal | 128.00 | sf | 300.00 | 42.000 | | | | 735.00 | | | | 41,088.00 | 5376.000 | 100,665.60 | - | - | - | 141,753.60 | 1,306.74 | 167,262.72 |
| | | | **DRYER VENTS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 6' round pipe | 125.00 | lf | 3.95 | 0.086 | | | | 1.51 | | | | 528.31 | 10.750 | 201.96 | - | - | - | 730.27 | 6.89 | 861.25 |
| | | | 6" round pipe 90 | 4.00 | ea | 10.00 | 0.600 | | | | 10.50 | | | | 42.80 | 2.400 | 44.94 | - | - | - | 87.74 | 25.88 | 103.52 |
| | | | wall cap | 1.00 | ea | 20.00 | 1.200 | | | | 21.00 | | | | 21.40 | 1.200 | 22.47 | - | - | - | 43.87 | 51.76 | 51.76 |
| | | | roof cap | 2.00 | ea | 26.00 | 1.300 | | | | 22.75 | | | | 55.64 | 2.600 | 48.68 | - | - | - | 104.32 | 61.55 | 123.10 |
| | | | **DISHWASHER EXHAUST** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 9x9 stainless duct | 15.00 | ea | 4.15 | 0.450 | | | | 7.88 | | | | 66.61 | 6.750 | 126.47 | - | - | - | 193.08 | 15.19 | 227.85 |
| | | | *duct collar @ hood f.b.o.* | | *nic* | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | connection to roof fan | 1.00 | ea | 75.00 | 2.850 | | | | 49.88 | | | | 80.25 | 2.850 | 53.37 | - | - | - | 133.62 | 157.67 | 157.67 |
| | | | **KITCHEN HOOD DUCT** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 14x14 stainless duct | 14.00 | lf | 4.15 | 0.450 | | | | 7.88 | | | | 62.17 | 6.300 | 118.04 | - | - | - | 180.21 | 15.19 | 212.66 |
| | | | 14x10x18 fittings @ hood | 1.00 | ea | 200.00 | 4.200 | | | | 73.50 | | | | 214.00 | 4.200 | 78.64 | - | - | - | 292.64 | 345.30 | 345.30 |
| | | | *duct collar @ hood f.b.o.* | | *nic* | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **TAPES AND SEALANTS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | tape & sealant | 1.00 | lsum | 2,500.00 | | | | | - | | | | 2,675.00 | | - | - | - | - | 2,675.00 | 3,156.37 | 3,156.37 |
| | | | **NOTE: HOODS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *hood provided by kitchen subcontractor* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **BOILER STACK** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 6'x6'x6" housekeeping pad w/wwf | 36.00 | sf | 4.00 | 0.500 | | | | 8.75 | | | | 154.08 | 18.000 | 337.05 | - | - | - | 491.13 | 16.10 | 579.60 |
| | | | 6" metal bestos stack | 20.00 | lf | 8.00 | 0.514 | | | | 9.00 | | | | 171.20 | 10.280 | 192.60 | - | - | - | 363.80 | 21.46 | 429.20 |
| | | | 6" cleanout asembly | 1.00 | ea | 55.00 | 1.100 | | | | 19.25 | | | | 58.85 | 1.100 | 20.60 | - | - | - | 79.45 | 93.75 | 93.75 |
| | | | 6" 45% ell | 1.00 | ea | 20.50 | 1.000 | | | | 17.50 | | | | 21.94 | 1.000 | 18.73 | - | - | - | 40.67 | 47.99 | 47.99 |
| | | | 6" expansion joint mtl | 1.00 | ea | 15.00 | 1.250 | | | | 21.88 | | | | 16.05 | 1.250 | 23.41 | - | - | - | 39.46 | 46.56 | 46.56 |
| | | | cone flashing | 1.00 | ea | 345.00 | 1.250 | | | | 21.88 | | | | 369.15 | 1.250 | 23.41 | - | - | - | 392.56 | 463.20 | 463.20 |
| | | | storm collar | 1.00 | ea | 65.00 | 1.000 | | | | 17.50 | | | | 69.55 | 1.000 | 18.73 | - | - | - | 88.28 | 104.17 | 104.17 |
| | | | bands | 1.00 | ea | 42.50 | 1.000 | | | | 17.50 | | | | 45.48 | 1.000 | 18.73 | - | - | - | 64.21 | 75.76 | 75.76 |
| | | | exit cone | 1.00 | ea | 156.00 | 1.200 | | | | 21.00 | | | | 166.92 | 1.200 | 22.47 | - | - | - | 189.39 | 223.47 | 223.47 |
| | | | anchoring point hardware | 2.00 | ea | 75.00 | 2.057 | | | | 36.00 | | | | 160.50 | 4.114 | 77.04 | - | - | - | 237.54 | 140.14 | 280.28 |
| | | | roof curb | 1.00 | ea | 195.00 | 3.714 | | | | 65.00 | | | | 208.65 | 3.714 | 69.55 | - | - | - | 278.20 | 328.26 | 328.26 |
| | | | sealant | 1.00 | ls | 50.00 | 4.286 | | | | 75.01 | | | | 53.50 | 4.286 | 80.26 | - | - | - | 133.76 | 157.83 | 157.83 |
| | | | misc. hardware and fastners | 1.00 | ls | 100.00 | 2.286 | | | | 40.01 | | | | 107.00 | 2.286 | 42.81 | - | - | - | 149.81 | 176.77 | 176.77 |
| | | | barometric damper | 1.00 | ea | 155.00 | 2.571 | | | | 44.99 | | | | 165.85 | 2.571 | 48.14 | - | - | - | 213.99 | 252.50 | 252.50 |
| | | | guy wire for stack | 1.00 | ls | 30.00 | 2.571 | | | | 44.99 | | | | 32.10 | 2.571 | 48.14 | - | - | - | 80.24 | 94.68 | 94.68 |
| | | | temperature indicator | 1.00 | ea | 96.00 | 3.143 | | | | 55.00 | | | | 102.72 | 3.143 | 58.85 | - | - | - | 161.57 | 190.64 | 190.64 |
| | | | **STACK COPPER PIPE AND FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | type "l" copper pipe | 20.00 | lf | 1.60 | 0.115 | | | | 2.01 | | | | 34.24 | 2.300 | 43.01 | - | - | - | 77.25 | 4.56 | 91.20 |
| | | | 1" copper 90 | 8.00 | ea | 2.00 | 0.130 | | | | 2.28 | | | | 17.12 | 1.040 | 19.52 | - | - | - | 36.64 | 5.40 | 43.20 |
| | | | 1" copper adpt. | 1.00 | ea | 1.70 | 0.175 | | | | 3.06 | | | | 1.82 | 0.175 | 3.27 | - | - | - | 5.09 | 6.01 | 6.01 |
| | | | roll solder | 1.00 | roll | 10.00 | | | | | - | | | | 10.70 | | - | - | - | - | 10.70 | 12.63 | 12.63 |
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| **C** | **WATER HEATING SYSTEM** | | | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | **HOT WATER BOILER** | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 300 mbh boiler w/control panel (b-1) | 1.00 | ls | 9,800.00 | 40.000 | | | | 700.00 | | | | 10,486.00 | 40.000 | 749.00 | - | - | - | 11,235.00 | 13,256.76 | 13,256.76 |
| | | | 6'x6'x6" housekeeping pad w/wwf | 36.00 | sf | 4.00 | 0.500 | | | | 8.75 | | | | 154.08 | 18.000 | 337.05 | - | - | - | 491.13 | 16.10 | 579.60 |
| | | | hot water pumps w/high efficiency motors & disconnect | 2.00 | ea | 700.00 | 9.000 | | | | 157.50 | | | | 1,498.00 | 18.000 | 337.05 | - | - | - | 1,835.05 | 1,082.64 | 2,165.28 |
| | | | pmp# hwp-2 variable frequency drives | 1.00 | ea | 900.00 | 7.000 | | | | 122.50 | | | | 963.00 | 7.000 | 131.07 | - | - | - | 1,094.07 | 1,290.95 | 1,290.95 |
| | | | as-1 air separator w/strainer | 1.00 | ea | 550.00 | 5.000 | | | | 87.50 | | | | 588.50 | 5.000 | 93.62 | - | - | - | 682.12 | 804.87 | 804.87 |
| | | | compression tank 30 gal (asme label) | 1.00 | | 600.00 | 6.500 | | | | 113.75 | | | | 642.00 | 6.500 | 121.71 | - | - | - | 763.71 | 901.14 | 901.14 |
| | | | **NOTE: COMPRESSION TANK** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *provide w/fittings, sight glass, and prv.backflow preventor* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |

# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **WATER TREATMENT SYSTEM** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | water treatment system complete | 1.00 | ea | 7,200.00 | 28.000 | | | | 490.00 | | | | 7,704.00 | 28.000 | 524.30 | - | - | - | 8,228.30 | 9,709.00 | 9,709.00 |
| | | | **NOTE: WATER TREATMENT SYSTEM** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | *provide w/feeder equip. and cntrls. w/chemicals and service, shot feed* | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **BOILER STACK** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 6'x6'x6" housekeeping pad w/wwf | 36.00 | sf | 4.00 | 0.500 | | | | 8.75 | | | | 154.08 | 18.000 | 337.05 | - | - | - | 491.13 | 16.10 | 579.60 |
| | | | 6" metal bestos stack | 20.00 | lf | 14.00 | 0.550 | | | | 9.63 | | | | 299.60 | 11.000 | 206.08 | - | - | - | 505.68 | 29.83 | 596.60 |
| | | | 6" cleanout asembly | 1.00 | ea | 65.00 | 1.500 | | | | 26.25 | | | | 69.55 | 1.500 | 28.09 | - | - | - | 97.64 | 115.21 | 115.21 |
| | | | 6" 45% ell | 1.00 | ea | 22.00 | 1.250 | | | | 21.88 | | | | 23.54 | 1.250 | 23.41 | - | - | - | 46.95 | 55.40 | 55.40 |
| | | | 6" expansion joint mtl | 1.00 | ea | 40.00 | 15.000 | | | | 262.50 | | | | 42.80 | 15.000 | 280.88 | - | - | - | 323.68 | 381.93 | 381.93 |
| | | | cone flashing | 1.00 | ea | 325.00 | 18.000 | | | | 315.00 | | | | 347.75 | 18.000 | 337.05 | - | - | - | 684.80 | 808.03 | 808.03 |
| | | | storm collar | 1.00 | ea | 55.00 | 3.700 | | | | 64.75 | | | | 58.85 | 3.700 | 69.28 | - | - | - | 128.13 | 151.19 | 151.19 |
| | | | bands | 1.00 | ea | 40.00 | 2.000 | | | | 35.00 | | | | 42.80 | 2.000 | 37.45 | - | - | - | 80.25 | 94.69 | 94.69 |
| | | | exit cone | 1.00 | ea | 140.00 | 8.800 | | | | 154.00 | | | | 149.80 | 8.800 | 164.78 | - | - | - | 314.58 | 371.19 | 371.19 |
| | | | anchoring point hardware | 2.00 | ea | 76.00 | 2.600 | | | | 45.50 | | | | 162.64 | 5.200 | 97.37 | - | - | - | 260.01 | 153.40 | 306.80 |
| | | | roof curb | 1.00 | ea | 220.00 | 4.200 | | | | 73.50 | | | | 235.40 | 4.200 | 78.64 | - | - | - | 314.04 | 370.55 | 370.55 |
| | | | sealant | 1.00 | ls | 55.00 | 2.000 | | | | 35.00 | | | | 58.85 | 2.000 | 37.45 | - | - | - | 96.30 | 113.63 | 113.63 |
| | | | misc. hardware and fastners | 1.00 | ls | 100.00 | 2.860 | | | | 50.05 | | | | 107.00 | 2.860 | 53.55 | - | - | - | 160.55 | 189.44 | 189.44 |
| | | | barometric damper | 1.00 | ea | 155.00 | 3.700 | | | | 64.75 | | | | 165.85 | 3.700 | 69.28 | - | - | - | 235.13 | 277.44 | 277.44 |
| | | | guy wire for stack | 1.00 | ls | 25.00 | 1.500 | | | | 26.25 | | | | 26.75 | 1.500 | 28.09 | - | - | - | 54.84 | 64.71 | 64.71 |
| | | | temperature indicator | 1.00 | ea | 45.00 | 2.100 | | | | 36.75 | | | | 48.15 | 2.100 | 39.32 | - | - | - | 87.47 | 103.21 | 103.21 |
| | | | **STACK COPPER PIPE AND FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | type "l" copper pipe | 20.00 | lf | 1.50 | 1.750 | | | | 30.63 | | | | 32.10 | 35.000 | 655.48 | - | - | - | 687.58 | 40.57 | 811.40 |
| | | | 1" copper 90 | 8.00 | ea | 2.00 | 2.250 | | | | 39.38 | | | | 17.12 | 18.000 | 337.09 | - | - | - | 354.21 | 52.24 | 417.92 |
| | | | 1" copper adpt. | 1.00 | ea | 1.70 | 3.000 | | | | 52.50 | | | | 1.82 | 3.000 | 56.18 | - | - | - | 58.00 | 68.44 | 68.44 |
| | | | roll solder | 2.00 | roll | 10.00 | 1.000 | | | | 17.50 | | | | 21.40 | 2.000 | 37.45 | - | - | - | 58.85 | 34.72 | 69.44 |
| | | | **ELECTRIC UNIT HEATERS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | euh-1 5kw 1/125 hp | 1.00 | ea | 300.00 | 4.450 | | | | 77.88 | | | | 321.00 | 4.450 | 83.33 | - | - | - | 404.33 | 477.09 | 477.09 |
| | | | euh-2 5kw 1/125 hp | 1.00 | ea | 300.00 | 4.450 | | | | 77.88 | | | | 321.00 | 4.450 | 83.33 | - | - | - | 404.33 | 477.09 | 477.09 |
| | | | **NOTE: ELECTRIC UNIT HEATERS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | w/mounting brackets, t'stat & control transformer, disconnect switch | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **HOT WATER UNIT HEATER** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | uh-1 15 mbh 1/20 hp | 1.00 | ea | 375.00 | 4.200 | | | | 73.50 | | | | 401.25 | 4.200 | 78.64 | - | - | - | 479.89 | 566.25 | 566.25 |
| | | | uh-2 15 mbh 1/20 hp | 1.00 | ea | 375.00 | 4.200 | | | | 73.50 | | | | 401.25 | 4.200 | 78.64 | - | - | - | 479.89 | 566.25 | 566.25 |
| | | | **NOTE: HOT WTR UNIT HEATER** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **PROVIDE W/ WALL T-STAT, 3-SPEED FAN SWITCH** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| **D** | | | **HEATING HOT WATER PIPING** | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **COPPER PIPE** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0" type "l" copper pipe | 160.00 | lf | 5.50 | 0.400 | | | | 7.00 | | | | 941.60 | 64.000 | 1,198.40 | - | - | - | 2,140.00 | 15.78 | 2,524.80 |
| | | | 1-1/2" type "l" copper pipe | 200.00 | lf | 3.60 | 0.230 | | | | 4.03 | | | | 770.40 | 46.000 | 862.42 | - | - | - | 1,632.82 | 9.63 | 1,926.00 |
| | | | 1.0" type "l" copper pipe | 120.00 | lf | 2.20 | 0.180 | | | | 3.15 | | | | 282.48 | 21.600 | 404.46 | - | - | - | 686.94 | 6.75 | 810.00 |
| | | | 3/4" type "l" copper pipe | 480.00 | lf | 1.45 | 0.115 | | | | 2.01 | | | | 744.72 | 55.200 | 1,032.34 | - | - | - | 1,777.06 | 4.37 | 2,097.60 |
| | | | 1/2" type "l" copper pipe | 20.00 | lf | 1.00 | 0.100 | | | | 1.75 | | | | 21.40 | 2.000 | 37.45 | - | - | - | 58.85 | 3.47 | 69.40 |
| | | | **COPPER 90 FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0" type "l" copper 90 ftgs | 16.00 | ea | 10.00 | 0.680 | | | | 11.90 | | | | 171.20 | 10.880 | 203.73 | - | - | - | 374.93 | 27.65 | 442.40 |
| | | | 1-1/2" type "l" copper 90 ftgs | 2.00 | ea | 5.00 | 0.250 | | | | 4.38 | | | | 10.70 | 0.500 | 9.37 | - | - | - | 20.07 | 11.84 | 23.68 |
| | | | 1.0" type "l" copper 90 ftgs | 20.00 | ea | 2.00 | 0.280 | | | | 4.90 | | | | 42.80 | 5.600 | 104.86 | - | - | - | 147.66 | 8.71 | 174.20 |
| | | | 3/4" type "l" copper 90 ftgs | 136.00 | ea | 1.00 | 0.171 | | | | 2.99 | | | | 145.52 | 23.256 | 435.10 | - | - | - | 580.62 | 5.04 | 685.44 |
| | | | **COPPER TEE FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0x2.0" copper tee ftgs | 3.00 | ea | 19.00 | 0.500 | | | | 8.75 | | | | 60.99 | 1.500 | 28.09 | - | - | - | 89.08 | 35.04 | 105.12 |
| | | | 1.0x1.0" copper tee ftgs | 2.00 | ea | 18.00 | 0.500 | | | | 8.75 | | | | 38.52 | 1.000 | 18.73 | - | - | - | 57.25 | 33.78 | 67.56 |
| | | | 3/4"x3/4" copper tee ftgs | 21.00 | ea | 18.00 | 0.400 | | | | 7.00 | | | | 404.46 | 8.400 | 157.29 | - | - | - | 561.75 | 31.56 | 662.76 |
| | | | 2.0x3/4" copper tee ftgs | 6.00 | ea | 18.00 | 0.500 | | | | 8.75 | | | | 115.56 | 3.000 | 56.18 | - | - | - | 171.74 | 33.77 | 202.62 |
| | | | 1-1/2.x3/4" copper tee ftgs | 16.00 | ea | 14.50 | 0.400 | | | | 7.00 | | | | 248.24 | 6.400 | 119.84 | - | - | - | 368.08 | 27.14 | 434.24 |
| | | | 1-1/2"x1.0 copper tee ftgs | 2.00 | ea | 19.00 | 0.520 | | | | 9.10 | | | | 40.66 | 1.040 | 19.47 | - | - | - | 60.13 | 35.48 | 70.96 |
| | | | 2.0x1-1/2x3/4" copper tee ftgs | 6.00 | ea | 12.00 | 0.350 | | | | 6.13 | | | | 77.04 | 2.100 | 39.35 | - | - | - | 116.39 | 22.89 | 137.34 |
| | | | 1x3/4x3/4" copper tee ftgs | 2.00 | ea | 6.00 | 0.220 | | | | 3.85 | | | | 12.84 | 0.440 | 8.24 | - | - | - | 21.08 | 12.44 | 24.88 |
| | | | **COPPER REDUCER FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0x1.0" copper reducer ftgs | 5.00 | ea | 1.76 | 0.150 | | | | 2.63 | | | | 9.42 | 0.750 | 14.07 | - | - | - | 23.49 | 5.54 | 27.70 |
| | | | 3/4"x 1/2" copper reducer ftgs | 36.00 | ea | 1.30 | 0.150 | | | | 2.63 | | | | 50.08 | 5.400 | 101.31 | - | - | - | 151.39 | 4.96 | 178.56 |
| | | | **COPPER UNION FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1.0" copper union ftgs | 10.00 | ea | 10.00 | 0.400 | | | | 7.00 | | | | 107.00 | 4.000 | 74.90 | - | - | - | 181.90 | 21.46 | 214.60 |
| | | | 3/4" copper union ftgs | 52.00 | ea | 4.50 | 0.260 | | | | 4.55 | | | | 250.38 | 13.520 | 253.16 | - | - | - | 503.54 | 11.43 | 594.36 |
| | | | **PUMP REDUCERS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2" x pump reducer | 4.00 | ea | 12.00 | 0.900 | | | | 15.75 | | | | 51.36 | 3.600 | 67.41 | - | - | - | 118.77 | 35.04 | 140.16 |
| | | | roll solder | 5.00 | roll | 10.00 | 1.000 | | | | 17.50 | | | | 53.50 | 5.000 | 93.62 | - | - | - | 147.12 | 34.72 | 173.60 |
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |

# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | | | **VALVES, METERS AND APPURTANCES** | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **BALL VALVES** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0" ball valve | 4.00 | ea | 42.00 | 1.250 | | | | 21.88 | | | | 179.76 | 5.000 | 93.65 | - | - | - | 273.41 | 80.65 | 322.60 |
| | | | 1.0" ball valve | 6.00 | ea | 18.00 | 0.950 | | | | 16.63 | | | | 115.56 | 5.700 | 106.76 | - | - | - | 222.32 | 43.72 | 262.32 |
| | | | 3/4" ball valve | 33.00 | ea | 15.00 | 0.550 | | | | 9.63 | | | | 529.65 | 18.150 | 340.04 | - | - | - | 869.69 | 31.10 | 1,026.30 |
| | | | 1/2" ball valve | 5.00 | ea | 13.00 | 0.550 | | | | 9.63 | | | | 69.55 | 2.750 | 51.52 | - | - | - | 121.07 | 28.57 | 142.85 |
| | | | **VALVES** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0" tripple duty valve | 2.00 | ea | 345.00 | 3.000 | | | | 52.50 | | | | 738.30 | 6.000 | 112.35 | - | - | - | 850.65 | 501.86 | 1,003.72 |
| | | | 1.0" balancing valve | 2.00 | ea | 30.00 | 0.900 | | | | 15.75 | | | | 64.20 | 1.800 | 33.70 | - | - | - | 97.90 | 57.76 | 115.52 |
| | | | 3/4" balancing valve | 12.00 | ea | 24.00 | 0.900 | | | | 15.75 | | | | 308.16 | 10.800 | 202.23 | - | - | - | 510.39 | 50.19 | 602.28 |
| | | | **STRAINERS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0" y-strainer | 2.00 | ea | 53.00 | 1.300 | | | | 22.75 | | | | 113.42 | 2.600 | 48.68 | - | - | - | 162.10 | 95.64 | 191.28 |
| | | | **PLUGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1.0" petes plug | 6.00 | ea | 10.50 | 0.900 | | | | 15.75 | | | | 67.41 | 5.400 | 101.12 | - | - | - | 168.53 | 33.14 | 198.84 |
| | | | 3/4" petes plug | 36.00 | ea | 7.50 | 0.900 | | | | 15.75 | | | | 288.90 | 32.400 | 606.69 | - | - | - | 895.59 | 29.35 | 1,056.60 |
| | | | **DRAINS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1.0" drain w/cap and chain | 2.00 | ea | 22.00 | 0.850 | | | | 14.88 | | | | 47.08 | 1.700 | 31.84 | - | - | - | 78.92 | 46.56 | 93.12 |
| | | | 3/4" drain w/cap and chain | 17.00 | ea | 15.00 | 0.850 | | | | 14.88 | | | | 272.85 | 14.450 | 270.67 | - | - | - | 543.52 | 37.73 | 641.41 |
| | | | **APPURTANCES** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1.0" circuit setter | 2.00 | ea | 45.00 | 1.500 | | | | 26.25 | | | | 96.30 | 3.000 | 56.18 | - | - | - | 152.48 | 89.96 | 179.92 |
| | | | 3/4" circuit setter | 14.00 | ea | 30.00 | 1.500 | | | | 26.25 | | | | 449.40 | 21.000 | 393.22 | - | - | - | 842.62 | 71.02 | 994.28 |
| | | | rr.d. meter | 1.00 | ea | 435.00 | 4.350 | | | | 76.13 | | | | 465.45 | 4.350 | 81.46 | - | - | - | 546.91 | 645.33 | 645.33 |
| | | | 1.0" air vent (ball valve) | 2.00 | ea | 25.00 | 0.950 | | | | 16.63 | | | | 53.50 | 1.900 | 35.59 | - | - | - | 89.09 | 52.56 | 105.12 |
| | | | 3/4" air vent (ball valve) | 20.00 | ea | 22.00 | 0.900 | | | | 15.75 | | | | 470.80 | 18.000 | 337.05 | - | - | - | 807.85 | 47.66 | 953.20 |
| | | | 1" in-line sight glass | 1.00 | ea | 44.00 | 1.500 | | | | 26.25 | | | | 47.08 | 1.500 | 28.09 | - | - | - | 75.17 | 88.70 | 88.70 |
| | | | 3/4" agua-s'tat | 2.00 | ea | 45.00 | 1.450 | | | | 25.38 | | | | 96.30 | 2.900 | 54.31 | - | - | - | 150.61 | 88.86 | 177.72 |
| | | | pressure gages | 5.00 | ea | 60.00 | 1.150 | | | | 20.13 | | | | 321.00 | 5.750 | 107.70 | - | - | - | 428.70 | 101.17 | 505.85 |
| | | | thermometers | 4.00 | ea | 86.00 | 1.150 | | | | 20.13 | | | | 368.08 | 4.600 | 86.16 | - | - | - | 454.24 | 134.00 | 536.00 |
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| F | | | **HVAC CONDENSATE PIPING** | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **COPPER PIPE** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1-1/2" type "l" copper pipe | 420.00 | lf | 3.60 | 0.286 | | | | 5.01 | | | | 1,617.84 | 120.120 | 2,251.49 | - | - | - | 3,869.33 | 10.87 | 4,565.40 |
| | | | **COPPER FITTINGS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 1-1/2" copper cap coupling | 21.00 | ea | 2.50 | 0.343 | | | | 6.00 | | | | 56.18 | 7.203 | 134.82 | - | - | - | 191.00 | 10.73 | 225.33 |
| | | | 1-1/2" copper 90 fftgs | 24.00 | ea | 5.00 | 0.343 | | | | 6.00 | | | | 128.40 | 8.232 | 154.08 | - | - | - | 282.48 | 13.89 | 333.36 |
| | | | 1-1/2" copper tee ftgs | 26.00 | ea | 12.00 | 0.500 | | | | 8.75 | | | | 333.84 | 13.000 | 243.42 | - | - | - | 577.26 | 26.20 | 681.20 |
| | | | 1-1/2" copper union ftgs | 23.00 | ea | 14.00 | 0.400 | | | | 7.00 | | | | 344.54 | 9.200 | 172.27 | - | - | - | 516.81 | 26.51 | 609.73 |
| | | | 1-1/2" copper plug ftgs | 22.00 | ea | 2.50 | 0.343 | | | | 6.00 | | | | 58.85 | 7.546 | 141.24 | - | - | - | 200.09 | 10.73 | 236.06 |
| | | | 1-1/2" copper adapter ftgs | 11.00 | ea | 4.50 | 0.343 | | | | 6.00 | | | | 52.97 | 3.773 | 70.62 | - | - | - | 123.59 | 13.26 | 145.86 |
| | | | **SOLDER** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | solder | 1.00 | roll | 10.00 | 1.000 | | | | 17.50 | | | | 10.70 | 1.000 | 18.73 | - | - | - | 29.43 | 34.73 | 34.73 |
| | | | mis.tips | 1.00 | ls | 5.00 | | | | | - | | | | 5.35 | | - | - | - | - | 5.35 | 6.31 | 6.31 |
| | | | **HANGERS, SUPPORTS & SADDLES** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | pt. wood blocks | 65.00 | ea | 2.50 | 0.250 | | | | 4.38 | | | | 173.88 | 16.250 | 304.63 | - | - | - | 478.51 | 8.69 | 564.85 |
| | | | 5" clevis hangers w/nut&rod | 58.00 | ea | 12.50 | 1.150 | | | | 20.13 | | | | 775.75 | 66.700 | 1,249.27 | - | - | - | 2,025.02 | 41.20 | 2,389.60 |
| | | | 4" clevis hangers w/nut&rod | 94.00 | ea | 10.50 | 1.150 | | | | 20.13 | | | | 1,056.09 | 108.100 | 2,024.68 | - | - | - | 3,080.77 | 38.67 | 3,634.98 |
| | | | 5" x 12" longs saddles @ 16 ga. | 58.00 | ea | 12.00 | 0.900 | | | | 15.75 | | | | 744.72 | 52.200 | 977.44 | - | - | - | 1,722.16 | 35.04 | 2,032.32 |
| | | | 4" x 12" longs saddles @ 16 ga. | 94.00 | ea | 12.00 | 0.900 | | | | 15.75 | | | | 1,206.96 | 84.600 | 1,584.14 | - | - | - | 2,791.10 | 35.04 | 3,293.76 |
| | | | spring insulators @ hangers | 154.00 | ea | 24.50 | 0.750 | | | | 13.13 | | | | 4,037.11 | 115.500 | 2,163.56 | - | - | - | 6,200.67 | 47.51 | 7,316.54 |
| | | | **SAFE CAULKING** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | caulk at pipe openings | 20.00 | ea | 42.00 | 1.300 | | | | 22.75 | | | | 898.80 | 26.000 | 486.85 | - | - | - | 1,385.65 | 81.75 | 1,635.00 |
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| G | | | **INSULATION** | **1.00** | **LSUM** | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | **INSULATION DUCTWORK** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | supply duct insulation | 8,800.00 | sf | 1.25 | 0.135 | | | | 2.36 | | | | 11,770.00 | 1188.000 | 22,221.76 | - | - | - | 33,991.76 | 4.56 | 40,128.00 |
| | | | round supply duct insulation | 5,640.00 | sf | 1.25 | 0.135 | | | | 2.36 | | | | 7,543.50 | 761.400 | 14,242.13 | - | - | - | 21,785.63 | 4.56 | 25,718.40 |
| | | | **INSULATION PIPE** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2"x1-1/2" thick pipe insulation | 160.00 | lf | 8.00 | 0.230 | | | | 4.03 | | | | 1,369.60 | 36.800 | 689.94 | - | - | - | 2,059.54 | 15.19 | 2,430.40 |
| | | | 1-1/2"x1-1/2" thick pipe insulation | 200.00 | lf | 7.00 | 0.200 | | | | 3.50 | | | | 1,498.00 | 40.000 | 749.00 | - | - | - | 2,247.00 | 13.26 | 2,652.00 |
| | | | 1"x1-1/2" thick pipe insulation | 120.00 | lf | 4.00 | 0.100 | | | | 1.75 | | | | 513.60 | 12.000 | 224.70 | - | - | - | 738.30 | 7.26 | 871.20 |
| | | | 3/4"x1-1/2" thick pipe insulation | 480.00 | lf | 3.00 | 0.086 | | | | 1.51 | | | | 1,540.80 | 41.280 | 775.54 | - | - | - | 2,316.34 | 5.69 | 2,731.20 |
| | | | 1/2"x1-1/2" thick pipe insulation | 20.00 | lf | 3.00 | 0.086 | | | | 1.51 | | | | 64.20 | 1.720 | 32.31 | - | - | - | 96.51 | 5.69 | 113.80 |
| | | | kitchen / dishwasher duct | 150.00 | sf | 5.00 | 0.320 | | | | 5.60 | | | | 802.50 | 48.000 | 898.80 | - | - | - | 1,701.30 | 13.38 | 2,007.00 |
| | | | **INSULATION FITTINGS (Labor w/Pipe)** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | 2.0" fitt insulation | 32.00 | ea | 16.00 | | | | | - | | | | 547.84 | | - | - | - | - | 547.84 | 20.20 | 646.40 |
| | | | 1-1/2" fitt insulation | 22.00 | ea | 14.00 | | | | | - | | | | 329.56 | | - | - | - | - | 329.56 | 17.68 | 388.96 |
| | | | 1.0" fitt insulation | 30.00 | ea | 12.00 | | | | | - | | | | 385.20 | | - | - | - | - | 385.20 | 15.15 | 454.50 |
| | | | 3/4" fitt insulation | 193.00 | ea | 6.00 | | | | | - | | | | 1,239.06 | | - | - | - | - | 1,239.06 | 7.58 | 1,462.94 |

# STUDENT ACTIVITY CENTER

Asheville, North Carolina

HVAC Estimate

| WBS | Major | Minor | ITEM DESCRIPTIONS | QNTY | UNIT MSR | UNIT $ MATERIAL | PRODUCTIVITY | UNIT/ TIME | CREW . | ADJ. $ HOURLY | UNIT $ LABOR | UNIT $ EQUIP | UNIT $ SUB-CON | UNIT $ OTHER | TOTAL MATERIAL | TOTAL.. MANHOURS | TOTAL LABOR | TOTAL EQUIPMENT | TOTAL SUB-CON | TOTAL OTHER | TOTAL COST* | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **INSULATION HOT WTR SYSTEM** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | hot water pumps | 2.00 | ea | 250.00 | 4.250 | | | | 74.38 | | | | 535.00 | 8.500 | 159.17 | - | - | - | 694.17 | 409.54 | 819.08 |
| | | | expansion tank insulation | 1.00 | ea | 250.00 | 4.250 | | | | 74.38 | | | | 267.50 | 4.250 | 79.59 | - | - | - | 347.09 | 409.55 | 409.55 |
| | | | air separator unit insulation | 1.00 | ea | 250.00 | 4.250 | | | | 74.38 | | | | 267.50 | 4.250 | 79.59 | - | - | - | 347.09 | 409.55 | 409.55 |
| | | | **ENGINEERING AS-BUILTS** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | cad drawing (1/4" scale | 1.00 | ls | | | | | | - | | 25,000.00 | | - | | - | - | 25,000.00 | - | 25,000.00 | 29,498.80 | 29,498.80 |
| | | | **ID TAGS AND LABLES** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | tags and labels | 1.00 | ls | 750.00 | 20.000 | | | | 350.00 | | | | 802.50 | 20.000 | 374.50 | - | - | - | 1,177.00 | 1,388.80 | 1,388.80 |
| | | | **DDC TEMPERATURE CONTROL SYSTEM** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | ddc temp. cntrl sys. | 1.00 | ls | | | | | | - | | 120,000.00 | | - | | - | - | 120,000.00 | - | 120,000.00 | 141,594.24 | 141,594.24 |
| | | | **TESTING AND BALANCING** | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | test and balance (aabc certified subcontractor) | 1.00 | ls | | | | | | - | | 11,500.00 | | - | | - | - | 11,500.00 | - | 11,500.00 | 13,569.45 | 13,569.45 |
| | | | | | | | | | | | - | | | | - | | - | - | - | - | - | - | - |
| | | | | | | | | | | | - | | | | - | | | - | - | - | - | - | - |
| | | | | | | | | | | | - | | | | | | | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | 995,086.89 | | |
| **OF ESTIMATE** | | | | | | | | | | | | | | | | | | | | | | | **$ 1,174,342.58** |

| NO. | EXCLUSIONS & QUALIFICATIONS |
|---|---|
| 1 | See attached Exclusions and Qualifications |

END