

Project

Project	Waverly Regional Youth Center - HVAC & BAS Replacement (SAMPLE)
Location	Waverly, Missouri
Owner	State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction
Bid reference	Project H2314-01, public bid set
Drawings dated	Bid set issued 09/13/2024
Prepared for	Sample estimate - no client
Prepared	2026-10-12

Estimate summary

Trade	Labor hr	Labor	Material	Tax	Overhead	Markup	Total
HVAC / sheet metal	481.9	\$69,879.16	\$178,535.02	\$15,844.98	\$26,425.92	\$29,068.51	\$319,753.59
ESTIMATE TOTAL	481.9	\$69,879.16	\$178,535.02	\$15,844.98	\$26,425.92	\$29,068.51	\$319,753.59

Rates: EXAMPLE RATES - buyer's own rates override. Crew rate \$145.00/hr (from rates file); overhead 10%, markup 10%, sales tax 8.875% on material. Fittings priced per fitting.

Drawings reviewed

Sheet	Title	Use	Stated scale	Scale check
M-101	Lower Level Mechanical Plan	measured	1/8"=1'-0"	Scale validated against printed dimension 2'-6" on companion sheet A-120 (0.4% difference) and transferred to this sheet by one feature measured on both (ratio 1.3342): gymnasium north to south exterior wall lines.
A-120	Floor Plan - Lower Level	scale_reference	3/32"=1'-0"	Scale validated against printed dimension 2'-6" on this sheet (re-measured 2.49 ft vs 2.50 ft, 0.4% difference).
M-601	Mechanical Schedules	counted	-	Not measured by scale (reviewed / counted only).
M-102	Lower Level Mechanical Plan (east)	reviewed	-	Not measured by scale (reviewed / counted only).
MD-101	Lower Level Mechanical Demo Plan	reviewed	-	Not measured by scale (reviewed / counted only).

Scope

- HVAC sheet metal shown as NEW work on sheet M-101 (lower level, west wing): rectangular and round duct, fittings, branch runouts, diffusers, return grilles and the outside air louver.
- HVAC equipment for the whole project from the M-601 schedules, base bid: RTU-1 to RTU-4, AHU-1 to AHU-4, CU-1 to CU-4 and VAV-1 to VAV-33 (set, connect and start-up support).
- This is a one-sheet SAMPLE of the desk's output; a full order covers every plan sheet in the set.

Exclusions

- Insulation by others.
- Existing ductwork drawn in the lighter existing-work line weight (the corridor 40"x12" trunk, the exhaust fan duct and the gymnasium ducts): cleaning and leak testing under general note E is not priced.
- Ductwork on M-102, M-111, M-112 and M-401 (outside this sample).
- Alternate #2 (AHU-5, CU-5 and the gymnasium/kitchen fan replacements).
- Controls and BAS, electrical power and wiring, refrigerant and condensate piping.
- Roof curbs, rooftop structural framing, roofing, cutting and patching, demolition.
- Testing, adjusting and balancing; permits and fees.

Assumptions

- The mechanical drawings are diagrammatic (general note C). Lengths are measured at the validated 1/8" scale and are straight duct between fittings; fittings are counted separately.
- Duct sizes are as printed on M-101. The run north of VAV-1 is labelled 8x14 but drawn 12 in wide; it is priced as labelled. The VAV-1 inlet has no label; it is taken as 10 in round from its drawn width and the scheduled VAV-1 inlet size.
- Ductwork drawn in the heavier new-work line weight is new; lighter duct is existing to remain.
- Branch runouts are priced per runout (tap, balancing damper and up to 8 ft of round/flex), one per diffuser plus the round-neck return grille. Diffuser necks: 5 x 6 in, 3 x 8 in, 12 x 10 in, 1 x 12 in.
- Equipment quantities are the M-601 schedule rows; equipment prices are example allowances until the buyer's vendor quotes replace them.
- Low pressure class (2 in. w.g.) for all duct on this sheet.
- Duct gauges: standard galvanized gauge table, verify against project spec. Weights are bare sheet weight (no seams, hangers or waste); pricing quantities add the waste allowances shown.

Quantities

ID	Trade / system	Description	Size	Qty	Unit	Bare SF	Ga.	Weight lb	Method	Sheet
D-01	HVAC / sheet metal / return	Rect duct 24x8: RTU-3 return main, east-west	24x8	17.0	LF	90.7	24	104.8	Measured (drawing geometry)	M-101
D-02	HVAC / sheet metal / return	Rect duct 24x8: RTU-3 return drop to west-wall grilles	24x8	6.7	LF	35.6	24	41.2	Measured (drawing geometry)	M-101
D-03	HVAC / sheet metal / supply	Rect duct 18x12: RTU-3 supply main, west	18x12	13.2	LF	66.2	24	76.5	Measured (drawing geometry)	M-101
D-04	HVAC / sheet metal / supply	Rect duct 10x12: RTU-3 supply main, east	10x12	12.6	LF	46.2	26	41.8	Measured (drawing geometry)	M-101
D-05	HVAC / sheet metal / supply	Rect duct 8x12: RTU-2 supply, north to Horizons	8x12	26.7	LF	89.0	26	80.6	Measured (drawing geometry)	M-101
D-06	HVAC / sheet metal / supply	Rect duct 8x12: RTU-2 supply, elbow leg into unit	8x12	2.2	LF	7.2	26	6.5	Measured (drawing geometry)	M-101
D-07	HVAC / sheet metal / supply	Rect duct 10x12: RTU-2 supply, south to Title I / corridor	10x12	22.5	LF	82.6	26	74.8	Measured (drawing geometry)	M-101
D-08	HVAC / sheet metal / supply	Rect duct 14x12: RTU-2 supply, east across corridor	14x12	7.3	LF	31.7	24	36.7	Measured (drawing geometry)	M-101
D-09	HVAC / sheet metal / supply	Rect duct 8x14: VAV-1 discharge north (Art / Office)	8x14	22.9	LF	84.1	24	97.2	Measured (drawing geometry)	M-101
D-10	HVAC / sheet metal / supply	Round duct 10"Ø: VAV-1 inlet	10"Ø	3.5	LF	9.2	26	8.3	Measured (drawing geometry)	M-101
D-11	HVAC / sheet metal / supply	Round duct 8"Ø: VAV-2 inlet	8"Ø	4.8	LF	10.1	26	9.2	Measured (drawing geometry)	M-101
D-12	HVAC / sheet metal / supply	Rect duct 8x14: VAV-2 discharge (Computer Lab)	8x14	5.2	LF	19.0	24	22.0	Measured (drawing geometry)	M-101
D-13	HVAC / sheet metal / outside_air	Rect duct 20x18: AHU-4 outside air, top leg	20x18	5.9	LF	37.6	24	43.4	Measured (drawing geometry)	M-101
D-14	HVAC / sheet metal / outside_air	Rect duct 20x18: AHU-4 outside air, south to louver	20x18	30.4	LF	192.6	24	222.6	Measured (drawing geometry)	M-101

ID	Trade / system	Description	Size	Qty	Unit	Bare SF	Ga.	Weight lb	Method	Sheet
D-15	HVAC / sheet metal / supply	Round duct 8"Ø: AHU-4 supply to VAV-4, horizontal	8"Ø	3.7	LF	7.8	26	7.1	Measured (drawing geometry)	M-101
D-16	HVAC / sheet metal / supply	Round duct 8"Ø: AHU-4 supply to VAV-4, vertical	8"Ø	2.6	LF	5.5	26	4.9	Measured (drawing geometry)	M-101
D-17	HVAC / sheet metal / supply	Rect duct 10x12: VAV-4 discharge south	10x12	4.6	LF	16.8	26	15.2	Measured (drawing geometry)	M-101
D-18	HVAC / sheet metal / supply	Rect duct 6x8: VAV-4 discharge to Freezers / Dry Storage	6x8	9.1	LF	21.3	26	19.3	Measured (drawing geometry)	M-101
A-01	HVAC / sheet metal / supply	Square cone diffuser 24x24 (type A), necks 5 x 6"Ø, 3 x 8"Ø, 12 x 10"Ø, 1 x 12"Ø	24x24	21	EA				Counted	M-101
A-02	HVAC / sheet metal / return	Eggcrate return grille 24x12 (type B)	24x12	7	EA				Counted	M-101
R-01	HVAC / sheet metal / supply	Branch runout 6-12 in round with tap and balancing damper: 5 x 6"Ø, 3 x 8"Ø, 12 x 10"Ø, 1 x 12"Ø supply, 1 x 12"Ø return	12"Ø	22	EA				Counted	M-101
F-01	HVAC / sheet metal / return	Elbow 24x8: vaned elbow, RTU-3 return main to west-wall drop	24x8	1	EA				Counted	M-101
F-02	HVAC / sheet metal / outside_air	Elbow 20x18: vaned elbow, AHU-4 outside air	20x18	1	EA				Counted	M-101
F-03	HVAC / sheet metal / supply	Elbow 8x12: elbow into RTU-2 supply	8x12	1	EA				Counted	M-101
F-04	HVAC / sheet metal / supply	Tee 14x12: tee, 14x12 to VAV-1 / VAV-2 branches	14x12	1	EA				Counted	M-101
F-05	HVAC / sheet metal / outside_air	Offset 20x18: offset at outside air louver	20x18	1	EA				Counted	M-101
F-06	HVAC / sheet metal / outside_air	Transition 20x18: transition to 30x30 outside air louver	20x18	1	EA				Counted	M-101
F-07	HVAC / sheet metal / supply	Offset 10x12: offset below VAV-4	10x12	1	EA				Counted	M-101
F-08	HVAC / sheet metal / supply	Transition 10x12: transition 10x12 to 6x8	10x12	1	EA				Counted	M-101
F-09	HVAC / sheet metal / supply	Riser drop 24x24: duct connections up to RTU-2 and RTU-3 (supply and return each; openings drawn 24x24)	24x24	4	EA				Counted	M-101
F-10	HVAC / sheet metal / supply	Takeoff 10"Ø: VAV-3 connection to the existing corridor trunk	10"Ø	1	EA				Counted	M-101
A-03	HVAC / sheet metal / outside_air	Outside air louver 30x30 (keynote 7)	30x30	1	EA				Counted	M-101
E-01	HVAC / sheet metal / equipment	Rooftop unit RTU-1 to RTU-4 (2.5 to 8.5 ton DX, electric heat)		4	EA				Counted	M-601
E-02	HVAC / sheet metal / equipment	Air handling unit AHU-1 to AHU-4 (base bid)		4	EA				Counted	M-601
E-03	HVAC / sheet metal / equipment	Condensing unit CU-1 to CU-4 (base bid)		4	EA				Counted	M-601

ID	Trade / system	Description	Size	Qty	Unit	Bare SF	Ga.	Weight lb	Method	Sheet
E-04	HVAC / sheet metal / equipment	VAV terminal unit with electric reheat, VAV-1 to VAV-33		33	EA				Counted	M-601

Pricing

ID	Description	Gross qty	Unit	Labor hr	Labor	Material	Labor + material
D-01	Rect duct 24x8: RTU-3 return main, east-west	18.7 (+10%)	LF	7.86	\$1,139.81	\$489.99	\$1,629.80
D-02	Rect duct 24x8: RTU-3 return drop to west-wall grilles	7.3 (+10%)	LF	3.09	\$447.83	\$192.52	\$640.35
D-03	Rect duct 18x12: RTU-3 supply main, west	14.6 (+10%)	LF	5.74	\$832.26	\$357.78	\$1,190.04
D-04	Rect duct 10x12: RTU-3 supply main, east	13.8 (+10%)	LF	3.14	\$454.79	\$195.51	\$650.30
D-05	Rect duct 8x12: RTU-2 supply, north to Horizons	29.4 (+10%)	LF	6.04	\$876.52	\$376.81	\$1,253.33
D-06	Rect duct 8x12: RTU-2 supply, elbow leg into unit	2.4 (+10%)	LF	0.49	\$71.23	\$30.62	\$101.85
D-07	Rect duct 10x12: RTU-2 supply, south to Title I / corridor	24.8 (+10%)	LF	5.61	\$813.56	\$349.74	\$1,163.30
D-08	Rect duct 14x12: RTU-2 supply, east across corridor	8.1 (+10%)	LF	2.75	\$398.79	\$171.43	\$570.22
D-09	Rect duct 8x14: VAV-1 discharge north (Art / Office)	25.2 (+10%)	LF	7.29	\$1,057.48	\$454.60	\$1,512.08
D-10	Round duct 10"Ø: VAV-1 inlet	3.9 (+10%)	LF	0.50	\$72.47	\$34.36	\$106.83
D-11	Round duct 8"Ø: VAV-2 inlet	5.3 (+10%)	LF	0.55	\$79.78	\$37.83	\$117.61
D-12	Rect duct 8x14: VAV-2 discharge (Computer Lab)	5.7 (+10%)	LF	1.65	\$239.25	\$102.85	\$342.10
D-13	Rect duct 20x18: AHU-4 outside air, top leg	6.5 (+10%)	LF	3.26	\$472.19	\$202.99	\$675.18
D-14	Rect duct 20x18: AHU-4 outside air, south to louver	33.5 (+10%)	LF	16.70	\$2,421.21	\$1,040.84	\$3,462.05
D-15	Round duct 8"Ø: AHU-4 supply to VAV-4, horizontal	4.1 (+10%)	LF	0.42	\$61.60	\$29.21	\$90.81
D-16	Round duct 8"Ø: AHU-4 supply to VAV-4, vertical	2.9 (+10%)	LF	0.30	\$42.89	\$20.34	\$63.23
D-17	Rect duct 10x12: VAV-4 discharge south	5.0 (+10%)	LF	1.14	\$165.08	\$70.97	\$236.05
D-18	Rect duct 6x8: VAV-4 discharge to Freezers / Dry Storage	10.0 (+10%)	LF	1.45	\$209.67	\$90.13	\$299.80
A-01	Square cone diffuser 24x24 (type A), necks 5 x 6"Ø, 3 x 8"Ø, 12 x 10"Ø, 1 x 12"Ø	21	EA	15.75	\$2,283.75	\$1,995.00	\$4,278.75
A-02	Eggcrate return grille 24x12 (type B)	7	EA	4.20	\$609.00	\$490.00	\$1,099.00
R-01	Branch runout 6-12 in round with tap and balancing damper: 5 x 6"Ø, 3 x 8"Ø, 12 x 10"Ø, 1 x 12"Ø supply, 1 x 12"Ø return	23 (+5%)	EA	27.50	\$3,987.50	\$1,963.50	\$5,951.00
F-01	Elbow 24x8: vaned elbow, RTU-3 return main to west-wall drop	1	EA	1.25	\$181.25	\$110.00	\$291.25
F-02	Elbow 20x18: vaned elbow, AHU-4 outside air	1	EA	1.25	\$181.25	\$110.00	\$291.25
F-03	Elbow 8x12: elbow into RTU-2 supply	1	EA	0.75	\$108.75	\$55.00	\$163.75
F-04	Tee 14x12: tee, 14x12 to VAV-1 / VAV-2 branches	1	EA	1.50	\$217.50	\$140.00	\$357.50
F-05	Offset 20x18: offset at outside air louver	1	EA	1.50	\$217.50	\$125.00	\$342.50

ID	Description	Gross qty	Unit	Labor hr	Labor	Material	Labor + material
F-06	Transition 20x18: transition to 30x30 outside air louver	1	EA	1.00	\$145.00	\$95.00	\$240.00
F-07	Offset 10x12: offset below VAV-4	1	EA	1.00	\$145.00	\$65.00	\$210.00
F-08	Transition 10x12: transition 10x12 to 6x8	1	EA	0.75	\$108.75	\$50.00	\$158.75
F-09	Riser drop 24x24: duct connections up to RTU-2 and RTU-3 (supply and return each; openings drawn 24x24)	4	EA	6.00	\$870.00	\$460.00	\$1,330.00
F-10	Takeoff 10"ø: VAV-3 connection to the existing corridor trunk	1	EA	0.50	\$72.50	\$28.00	\$100.50
A-03	Outside air louver 30x30 (keynote 7)	1	EA	3.00	\$435.00	\$650.00	\$1,085.00
E-01	Rooftop unit RTU-1 to RTU-4 (2.5 to 8.5 ton DX, electric heat)	4	EA	96.00	\$13,920.00	\$66,000.00	\$79,920.00
E-02	Air handling unit AHU-1 to AHU-4 (base bid)	4	EA	80.00	\$11,600.00	\$39,200.00	\$50,800.00
E-03	Condensing unit CU-1 to CU-4 (base bid)	4	EA	40.00	\$5,800.00	\$24,800.00	\$30,600.00
E-04	VAV terminal unit with electric reheat, VAV-1 to VAV-33	33	EA	132.00	\$19,140.00	\$37,950.00	\$57,090.00

Totals by system

Trade / system	Labor hr	Labor	Material	Tax	Overhead	Markup	Total
HVAC / sheet metal / equipment	348.0	\$50,460.00	\$167,950.00	\$14,905.56	\$23,331.56	\$25,664.71	\$282,311.83
HVAC / sheet metal / outside air	26.7	\$3,872.15	\$2,223.83	\$197.36	\$629.33	\$692.27	\$7,614.95
HVAC / sheet metal / return	16.4	\$2,377.89	\$1,282.51	\$113.82	\$377.42	\$415.16	\$4,566.81
HVAC / sheet metal / supply	90.8	\$13,169.12	\$7,078.68	\$628.23	\$2,087.60	\$2,296.36	\$25,260.00
ESTIMATE TOTAL	481.9	\$69,879.16	\$178,535.02	\$15,844.98	\$26,425.92	\$29,068.51	\$319,753.59

Proposal language

We propose to furnish and install the HVAC / sheet metal work for Waverly Regional Youth Center - HVAC & BAS Replacement (SAMPLE) as shown on drawings M-101, A-120, M-601, M-102, MD-101 and described in the scope above, for the lump sum of \$319,753.59.

This price includes labor, material with waste and fittings allowances, sales tax on material, overhead and profit. It is based on the drawings listed; changes to the documents or the schedule may change it.

Exclusions: Insulation by others. Existing ductwork drawn in the lighter existing-work line weight (the corridor 40"x12" trunk, the exhaust fan duct and the gymnasium ducts): cleaning and leak testing under general note E is not priced. Ductwork on M-102, M-111, M-112 and M-401 (outside this sample). Alternate #2 (AHU-5, CU-5 and the gymnasium/kitchen fan replacements). Controls and BAS, electrical power and wiring, refrigerant and condensate piping. Roof curbs, rooftop structural framing, roofing, cutting and patching, demolition. Testing, adjusting and balancing; permits and fees.

This proposal is valid for 30 days.

SAMPLE: priced at example rates for illustration; a real bid uses the buyer's own rates.

Verification summary

- Takeoff verifier result: PASS (exit 0).
- 36 takeoff lines: 18 measured from the drawings, 18 counted, 0 unmeasured allowances (each 2% or less of its trade total).
- 11 lines cross-checked by an independent second method; largest difference 5.2% (limit 10%). Every line over 5% of its trade total is cross-checked.
- 1 measured sheet(s) with scale validated against printed dimensions; 5 sheets reviewed.

Quantities are taken from the drawings listed above at the scales validated there; prices are quantities multiplied by the rates stated in this document. Field conditions, addenda, specification requirements and the buyer's own rates govern. Verify before bidding.