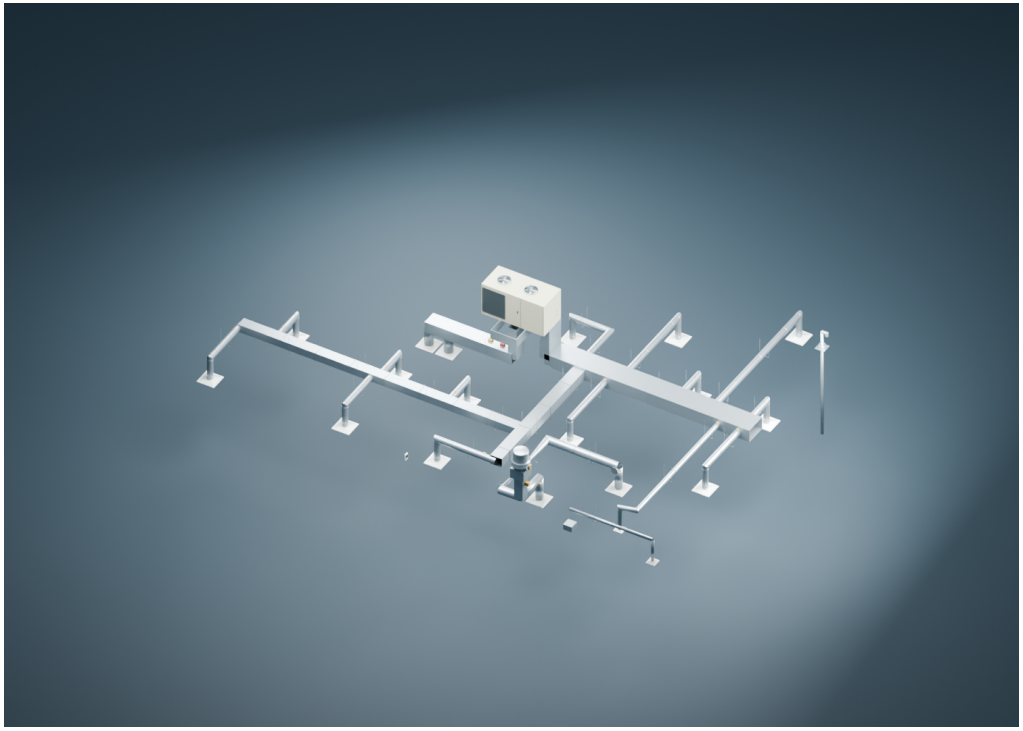
Mechanical assembly takeoff

Anonymous model 02. Full recorded quantity schedule and open scope.

Quantity export: November 2, 2026. Source drawing revision 04, September 16, 2026.



220.5823 LF new horizontal duct in 20 runs.

9.6167 LF existing exhaust route, separate from new duct.

19 terminal faces: 18 new and 1 existing / confirm.

1 existing split AC system to remove.

48 scope lines and **10 open questions**.

Unpriced review example

Vertical lengths, offsets, final fabrication fittings, supports, procurement waste and supplier pricing remain open. Existing equipment is identified separately. This schedule is not a released fabrication or final priced bid package.

01 Measured horizontal duct runs

M101, physical PDF page 24. Printed source scale: 1/4 in = 1 ft. Clear-inside sizes. Horizontal centerlines only; no verticals or procurement waste.

Run	System	Clear size	Horizontal LF	Scope
H-D01	Supply	28 x 14 in	**23.0767**	New horizontal
H-D02	Supply	16 x 12 in	**17.5600**	New horizontal
H-D03	Supply	14 x 10 in	**33.0267**	New horizontal
H-B01	Supply	8 in	**6.0267**	New horizontal
H-B02	Supply	8 in	**3.9867**	New horizontal
H-B03	Supply	8 in	**5.5533**	New horizontal
H-B04	Supply	8 in	**3.9667**	New horizontal
H-B05	Supply	8 in	**3.9667**	New horizontal
H-B06	Supply	8 in	**6.8700**	New horizontal
H-B07	Supply	8 in	**8.0633**	New horizontal
H-B08	Supply	8 in	**10.3433**	New horizontal
H-B09	Supply	8 in	**11.3567**	New horizontal
H-B10	Supply	8 in	**7.6300**	New horizontal
H-B11	Supply	8 in	**4.4267**	New horizontal
H-B12	Supply	8 in	**4.4267**	New horizontal
H-B13	Supply	8 in	**17.8200**	New horizontal

Run	System	Clear size	Horizontal LF	Scope
H-B14	Supply	6 in	**18.8737**	New horizontal
H-R01	Return	18 x 12 in	**10.1317**	New horizontal
H-E01	Exhaust	10 in	**19.8300**	New horizontal
H-E02	Exhaust	10 in	**3.6467**	New horizontal
H-E03	Existing Exhaust	4 in	**9.6167**	Existing / confirm extent

New supply: 186.9739 LF. New return: 10.1317 LF. New exhaust: 23.4767 LF. New subtotal: 220.5823 LF. Existing / confirm: 9.6167 LF.

B21 measured schedule retains four-decimal precision. Three-decimal line rounding can differ slightly when summed. Source route geometry has not changed in the later annotation revision.

02 Full recorded scope - 48 lines

47 HVAC entries plus the split-system removal. LS means a lump-sum scope package; it is not one fitting or a measured unit count. An assembly count does not establish a vertical length.

Item	Description	Quantity / unit	Drawing	Status, basis and scope note
H-D01	Supply duct 28x14 in	**23.0767 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-D02	Supply duct 16x12 in	**17.56 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-D03	Supply duct 14x10 in	**33.0267 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B01	Supply duct 8 in round	**6.0267 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B02	Supply duct 8 in round	**3.9867 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B03	Supply duct 8 in round	**5.5533 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B04	Supply duct 8 in round	**3.9667 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.

Item	Description	Quantity / unit	Drawing	Status, basis and scope note
H-B05	Supply duct 8 in round	**3.9667 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B06	Supply duct 8 in round	**6.87 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B07	Supply duct 8 in round	**8.0633 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B08	Supply duct 8 in round	**10.3433 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B09	Supply duct 8 in round	**11.3567 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B10	Supply duct 8 in round	**7.63 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B11	Supply duct 8 in round	**4.4267 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B12	Supply duct 8 in round	**4.4267 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.

Item	Description	Quantity / unit	Drawing	Status, basis and scope note
H-B13	Supply duct 8 in round	**17.82 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-B14	Supply duct 6 in round	**18.8737 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-R01	Return duct 18x12 in	**10.1317 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-E01	Exhaust duct 10 in round	**19.83 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-E02	Exhaust duct 10 in round	**3.6467 LF**	M101	**New horizontal** Scaled horizontal centerline Horizontal centerline only. Vertical rises, offsets and fabrication fittings require elevations and coordinated shop drawings.
H-E03	Existing_Exhaust duct 4 in round	**9.6167 LF**	M101	**Existing / confirm extent** Scaled horizontal centerline Existing toilet exhaust route. Retained in the latest duct schedule; confirm any replacement extent. Excluded from new-duct total.
H-EQ01	Existing Carrier 48TMF008-A-501 rooftop unit, 7.5 ton: retain/service/rebalance	**1 EA**	M401 / M102	**Existing to remain** Schedule 2630 SA / 1510 OA / 1120 RA CFM. MCA 40.1, MOCP 45, 208V/3ph VIF. No new RTU purchase in base scope.
H-EQ02	New Greenheck G-120-VG exhaust fan or approved equal	**1 EA**	M401	**New; final variant pending** Schedule 1500 CFM at 0.5 in w.g.; 115/1/60; MCA 8.2; MOCP 15; 65 lb. Includes compatible curb, backdraft damper, screen, isolation and speed control; disconnect by EC. Exact catalog variant requires supplier confirmation.

Item	Description	Quantity / unit	Drawing	Status, basis and scope note
H-T01	S-1 Titus TMS-AA 24x24 supply diffusers	**13 EA**	M101 / M401	**New** Plan count
H-T02	S-2 Titus TMS-AA 12x12 supply diffuser	**1 EA**	M101 / M401	**New; exact model pending** Plan count Scheduled 12 x 12 in S-2 face retained. Exact material, frame and catalog model require clarification (H09).
H-T03	R-1 Titus 50F 24x24 return grilles	**2 EA**	M101 / M401	**New** Plan count
H-T04	E-1 Titus 50F 24x24 exhaust grilles	**2 EA**	M101 / M401	**New** Plan count
H-T05	E-2 Titus 50F 12x12 exhaust grille / existing toilet fan interface	**1 EA**	M101 / M401	**Existing / confirm** Plan count
H-A01	Manual balancing dampers at supply air devices	**14 EA**	M101 / M301 / M401	**New** Count / specified scope Verify damper access in finished ceiling; volume dampers also required in exhaust branches.
H-A02	Exhaust branch balancing dampers	**2 EA**	M101 / M301 / M401	**New** Count / specified scope E-1 branch VD symbols.
H-A03	Motorized damper MD-1 interlocked to EF-1	**1 EA**	M101 / M301 / M401	**New** Count / specified scope M101 keynote 10; coordinate power and controls.
H-A04	Duct smoke detector System Sensor DH100ACDCLP or equal	**1 EA**	M101 / M301 / M401	**New** Count / specified scope Furnished/installed MC, wired EC for RTU shutdown.
H-A05	Relocate/reuse thermostat and humidistat	**1 SET**	M101 / M301 / M401	**Retain / relocate; condition pending** Count / specified scope Provide new 7-day programmable thermostat if unsuitable; replacement is contingent.

Item	Description	Quantity / unit	Drawing	Status, basis and scope note
H-A06	Reuse return/space remote temperature sensor	**1 EA**	M101 / M301 / M401	**Retain / relocate; condition pending** Count / specified scope Replace if damaged; VIF before bid.
H-A07	6x6 in door transfer grille	**1 EA**	M101 / M301 / M401	**New** Count / specified scope M101 keynote 6.
H-A08	12x12 in exhaust riser to roof fan	**1 ASSEMBLY**	M101 / M301 / M401	**New** Count / specified scope Vertical length and elevation not given; do not treat as 0 LF.
H-A09	4 in rigid dryer exhaust riser with gooseneck and backdraft damper	**1 ASSEMBLY**	M101 / M301 / M401	**New** Count / specified scope 35 ft maximum equivalent length per drawing; actual vertical length, elbows and route require field measurement.
H-A10	Existing toilet exhaust fan: protect and retain	**1 EA**	M101 / M301 / M401	**Retain / relocate; condition pending** Count / specified scope 75 CFM on M401 vs 40 CFM at E-2 on M101.
H-A11	RTU/EF/MD interlock and timeclock sequence	**1 SET**	M101 / M301 / M401	**New** Count / specified scope Coordinate MC/EC/GC responsibility; occupied-operation requirements per M401.
H-A12	Certified testing, adjusting and balancing, written report	**1 LS**	M101 / M301 / M401	**New** Count / specified scope Balance all outlets and existing RTU; close out discrepancies with engineer.
H-A13	RTU inspection, cleaning, MERV-13 filters and condensate flush	**1 LS**	M101 / M301 / M401	**New** Count / specified scope Existing drain replacement if required not quantified.
H-A14	R-8 external insulation to concealed supply/return duct	**653.684 SF**	M101 / M301 / M401	**Provisional horizontal surface** Clear-inside duct perimeter x horizontal LF R-8 insulation horizontal surface only; final outside dimensions, thickness, verticals and fitting allowances require shop drawings.

Item	Description	Quantity / unit	Drawing	Status, basis and scope note
H-A15	Acoustic lining of mains	**25.132 LF**	M101 / M301 / M401	**Provisional; drawing conflict H04** M30115ft supply + traced10.132ft return main Carry M30115ft supply plus allreturn10.132ft. M101instead10fteach; resolve lining extent/thickness before shop drawing.
H-A16	Fire/smoke dampers and firestopping at rated crossings	**1 LS**	M101 / M301 / M401	**Conditional** Conditional rated-wall crossing scope Fire/smoke damper count depends on actual rated barrier crossings; do not treat thisLS allowance as one damper. One LS is a scope package; damper count remains unmeasured.
H-A17	Flexible diffuser connectors	**1 LS**	M101 / M301 / M401	**Conditional** Conditional concealed connectors Use rigid visible ducts. Concealed flex per final connection detail only, maximum5ft each; no supported installedLF given. One LS is a scope package, not a measured connector length.
D-H01	Remove existing split AC system, indoor/outdoor units, line set and controls	**1 SYSTEM**	M101 note 11 / M102 note 9	**Demolish** Plan note Refrigerant recovery, roof patches and disconnect coordination included in scope.
HV-FIT	HVAC elbows, taps, transitions, caps and supports	**1 LS**	M101 / E101	**Coordinate** Accessory scope Fittings/supports included in full duct scope; shape/offset/shop pattern not finally defined by schematic plan. One LS records the scope package, not one fitting or a final fabrication count.
HV-DROP	HVAC vertical rises and diffuser drops	**Unmeasured LF**	M101 / M102 / M301	**Pending** Unmeasured routing Vertical lengths remain unmeasured. Field elevations, route and offsets are required; not zero LF.

03 Terminal device schedule

M101 / M401, physical PDF pages 24 / 27. These individual counts expand the same Takeoff rows and must not be added twice.

Device	Tag	Nominal face	Clear neck	CFM	Scope / open question
EA01	E-1	24 x 24 in	Not specified	**875**	New / H02
EA02	E-1	24 x 24 in	Not specified	**585**	New / H02
EA03	E-2	12 x 12 in	Not specified	**40**	Existing / confirm / H02
RA01	R-1	24 x 24 in	Not specified	**560**	New
RA02	R-1	24 x 24 in	Not specified	**560**	New
SA01	S-1	24 x 24 in	8 in neck	**280**	New / H05
SA02	S-1	24 x 24 in	8 in neck	**280**	New / H05
SA03	S-1	24 x 24 in	8 in neck	**280**	New / H05
SA04	S-1	24 x 24 in	8 in neck	**280**	New / H05
SA05	S-1	24 x 24 in	8 in neck	**175**	New
SA06	S-1	24 x 24 in	8 in neck	**175**	New
SA07	S-1	24 x 24 in	8 in neck	**175**	New
SA08	S-1	24 x 24 in	8 in neck	**175**	New
SA09	S-1	24 x 24 in	8 in neck	**175**	New
SA10	S-1	24 x 24 in	8 in neck	**150**	New
SA11	S-1	24 x 24 in	8 in neck	**150**	New

Device	Tag	Nominal face	Clear neck	CFM	Scope / open question
SA12	S-1	24 x 24 in	8 in neck	**150**	New
SA13	S-1	24 x 24 in	8 in neck	**135**	New
SA14	S-2	12 x 12 in	6 in neck	**50**	New / H09

Airflow question H02

The two new exhaust outlets total 1,460 CFM against a 1,500 CFM new fan schedule. The separate 40 CFM existing toilet outlet does not resolve that difference. Supply devices total 2,630 CFM; the source air-balance total row instead shows 2,400 CFM (H03).

04 Equipment masters

One each of the four records below. Retained equipment is not a new purchase. These records expand the same scope rows.

Equipment	Scheduled model / description	Duty	Scope	Electrical reference	Open
EF1	Greenheck G-120-VG - exact variant pending	1,500 CFM / 0.5 in wg	New / detail reference	115 V / 1 phase / MCA 8.2 A / MOCP 15 A - scheduled	H01, H02, H06, R01
EF2-EXISTING	Existing toilet exhaust - manufacturer unidentified	Not specified	Existing / retain	Final selection / existing condition to confirm	H02
MD1	Motorized exhaust damper - manufacturer not selected	Not specified	New / detail reference	Final selection / existing condition to confirm	H08
RTU1	Existing Carrier 48TMF008-A-501	2,630 CFM	Existing / retain	208 V / 3 phase / MCA 40.1 A / MOCP 45 A - verify nameplate	H03, H04, H06, H07

Separate removal scope

D-H01: one existing split air-conditioning system, including indoor and outdoor units, refrigerant piping and controls. M101 keynote 11 / M102 keynote 9, physical PDF pages 24 / 25. Refrigerant recovery, disconnect coordination and roof patch interfaces remain part of scope review.

Final product selections

The new roof exhaust fan exact catalog variant, compatible accessories, existing RTU nameplate and S-2 terminal material/frame/model require confirmation. Catalog appearance geometry and rendered accessory meshes are not independent purchase counts.

05 Open questions

These ten questions remain unresolved. Quantities are not silently resized to settle drawing conflicts.

Question	Issue	Drawing	Action
H01	EF-1(N) on floor plan/schedule versus EF-2(N) on roof plan	M101 / M102 / M401	Confirm single new fan tag and location before ordering.
H02	Floor exhaust grilles 875 + 585 = 1,460 CFM versus fan 1,500 CFM; toilet E-2 shows 40 versus 75 CFM balance	M101 / M401	Engineer to issue corrected outlet and exhaust balancing values.
H03	Air-balance total supply row 2,400 CFM conflicts with 2,630 CFM RTU, ventilation table and 14 supply devices	M401 / M101	Use 2,630 as documented sum for review; request corrected schedule, no redesign implied.
H04	M101: 10 ft main acoustic lining versus M301: all return + first 15 ft supply	M101 / M301	Confirm lining extent, thickness and final clear-inside duct dimensions.
H05	M101: 8 in retail branches at 280 CFM versus M401 neck-size table 10 in for 201-400 CFM	M101 / M401	Engineer/shop drawings to reconcile; do not silently resize measured branches.
H06	No duct centerline elevations or roof/deck height supplied in reviewed plans	M101 / M102	Measure roof and ceiling heights, vertical rises, offsets and all crossing clearances.
H07	New duct base scope versus note offering existing-duct reuse after approval	M101	Base quote new ducts; quote approved reuse as separate alternate.
H08	Fan timeclock, lighting, RTU interlocks and occupied schedule note overlap	M401 / E101	Agree final control matrix and trade responsibility.
R01	Roof openings require landlord/owner roofing coordination; roof elevation and condition absent	M000 / M102	Field verify intake/exhaust 10 ft separations, curb supports and flashings; structural engineer review as required.
H09	Scheduled S-2 12 x 12 in face and TMS-AA designation need an exact product selection.	M401 / product submittal pending	Confirm material, frame, module and exact model with engineer and supplier. Keep the scheduled face and count pending clarification.

06 Source and review basis

Client mechanical drawing set (identity withheld). Revision 04, September 16, 2026. No document ID was assigned in the supplied source manifest. Original client drawings are private.

Sheet	Source title	Physical PDF page
M000	Mechanical specifications	23
M101	Mechanical floor plan	24
M102	Mechanical roof plan	25
M301	Mechanical details	26
M401	Mechanical schedules	27

Source PDF SHA-256: 376b0c255165e00039c785d8008a16410c03d73ceaf9f8932fbe8e34a5941f00

Review performed

Recorded run lengths reconcile to calibrated route coordinates and the later measured duct schedule. Original mechanical floor plan and equipment schedule pages were inspected. Three supply mains - 28 x 14, 16 x 12 and 14 x 10 in - were separately compared with original PDF outline geometry. That check establishes drawing centerline agreement, not field conditions or cut lengths.

Measurement limits

1. Horizontal centerlines are measured at the printed 1/4 in = 1 ft source scale. Verticals, offsets, fabrication fitting quantities and field routing are not settled.

2. Insulation area uses clear-inside duct perimeter and horizontal length. Final outside dimensions, fitting surfaces, verticals and procurement waste remain open.

3. LS means a lump-sum scope package, not a measured item count. Assembly counts do not establish a vertical length.

4. Existing equipment and retained duct are identified separately and are not new purchases. Detailed equipment and terminal schedules expand the scope rows; do not add their counts twice.

5. No procurement waste factor has been applied. No supplier quotes, labor rates or project bid prices are published.

6. Source-route review and quantity arithmetic have been checked. Complete independent remeasurement of every route and resolution of the open questions are still required for bid release.