



**Helping Architecture Firms Scale with On-Demand,
US-Trained Remote Architects (Level I, II & III)**

The Ultimate HVAC Duct Shop Drawing Checklist

Quality Control System for Clash-Free, Code-Compliant Ductwork

This checklist should be completed BEFORE fabrication begins. Catching errors at this stage saves an average of \$50,000+ in rework costs per project.

General Information & Documentation

- Project name, address, and job number clearly labeled on all sheets
- Sheet index with complete drawing list and revision dates
- Drawing scale indicated on all views and details
- North arrow orientation on all plans
- Legend with all symbols, abbreviations, and line types used
- List of applicable codes and standards (SMACNA, ASHRAE, IMC, local codes)
- Revision cloud and description table for all changes
- Professional engineer stamp and signature (where required)

Coordination & Clash Detection

- 3D BIM coordination completed with architectural, structural, electrical, and plumbing
- All hard clashes resolved and documented
- Soft clashes (clearance issues) identified and resolved
- Minimum clearances maintained: 24" for maintenance access
- Ceiling height clearances verified in all spaces
- Door swing clearances confirmed (no interference with equipment)
- Equipment access and removal paths clearly shown
- Coordination with fire protection (sprinklers, standpipes) verified
- Conflicts with structural beams, columns, and joists resolved
- Light fixture, cable tray, and conduit coordination completed

Coordination & Clash Detection

- All duct sizes match mechanical load calculations
- Duct sizing conforms to ASHRAE standards for velocity and pressure drop)
- Main trunk, branch, and takeoff sizes clearly dimensioned
- Duct aspect ratios within acceptable limits (max 4:1 for rectangular)
- Fittings and transitions properly sized and detailed
- Minimum radius requirements for elbows specified
- Flexible duct lengths limited per code (typically 5-6 feet max)
- Return air pathways and sizing verified
- Outside air intake and exhaust locations comply with code separation requirements



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Equipment Details

- Air Handling Unit (AHU) locations, dimensions, and model numbers
- Equipment weights specified for structural coordination
- Electrical requirements noted (voltage, phase, HP)
- Equipment access doors and panels clearly shown
- Vibration isolation specified with spring/pad types
- Condensate drain connections and routing shown
- Control panel locations and wiring paths indicated
- Fan coil units, VAV boxes, and terminal units detailed with model numbers
- Roof-mounted equipment curbs and supports detailed
- Equipment tie-down and seismic restraint details (where required)

Dampers & Controls

- Fire dampers located at all rated wall/floor penetrations
- Smoke dampers shown where required by code
- Combination fire/smoke dampers properly specified
- Volume control dampers (VCD) located on all branches
- Balancing dampers shown at strategic locations
- Motorized dampers with actuator specifications
- Damper access doors provided for maintenance
- Control zones clearly delineated
- Thermostat and sensor locations marked
- DDC control sequence referenced or included

Duct Accessories & Components

- Flexible connections at equipment specified (typically 6-12 inches)
- Access doors sized and located per SMACNA (min. every 20 feet in horizontal ducts)
- Turning vanes specified in square elbows
- Splitter dampers in duct branches
- Duct mounted smoke detectors with spacing per NFPA 72
- Sound attenuators/silencers specified where required
- Grilles, registers, and diffusers scheduled with model numbers and sizes
- Linear diffusers detailed with slot sizes and throw patterns
- Return air grilles sized and located
- Louvers (intake/exhaust) with bird screens and backdraft dampers



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Insulation & Vapor Barriers

- Insulation type specified (fiberglass, foam, etc.)
- Insulation thickness noted for all duct sections
- External vs. internal insulation clearly indicated
- Vapor barrier requirements specified
- FSK (Foil-Scrim-Kraft) or ASJ (All-Service Jacket) facing noted
- Acoustic liner specified where required
- Insulation at equipment connections detailed
- Fire-rated insulation specified where code-required

Hangers, Supports & Seismic

- Hanger spacing conforms to SMACNA standards (max 10-12 feet)
- Hanger rod sizes specified based on duct weight
- Trapeze hanger details for large ducts
- Riser clamps and guides for vertical ducts
- Seismic bracing shown where required (typically 4 points per piece of equipment)
- Lateral and longitudinal bracing at required intervals
- Spring hangers specified for vibration isolation
- Attachment to structure verified (concrete, steel deck, etc.)
- Clearance from structural elements maintained

Penetrations & Fire Stopping

- All wall and floor penetrations clearly marked
- Fire-rated penetrations identified with hourly rating
- Fire-stopping material and UL system numbers specified
- Sleeve sizes adequate for duct + clearance + insulation
- Core drilling locations and sizes dimensioned
- Roof penetrations with pitch pans or curbs detailed
- Exterior wall penetrations with weather sealing
- Sleeves for future expansion identified



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Fabrication & Installation Notes

- Duct construction class specified (Class 0, 1, 2, or 3 per SMACNA)
- Duct gauge/thickness schedule provided
- Seam and joint types specified (Pittsburgh, snap-lock, welded)
- Reinforcement requirements for large ducts detailed
- Duct connection methods specified (flanges, slips, drives)
- Sealant class specified for duct sealing (Class A, B, or C)
- Pressure class requirements noted
- Welding specifications (if applicable)
- Paint/coating requirements for specialty applications
- Installation tolerances specified

Testing & Commissioning

- Duct leakage testing requirements specified (SMACNA or local code)
- Test pressure and acceptable leakage rate noted
- Air balancing requirements referenced
- Commissioning agent contact information (if applicable)
- TAB (Testing, Adjusting, Balancing) firm scope defined
- Functional performance testing requirements outlined
- Acceptance criteria for system performance
- O&M manual submittal requirements

Code Compliance

- Minimum ventilation rates per ASHRAE 62.1 verified
- Energy code compliance (ASHRAE 90.1 or IECC) documented
- Fire and life safety code requirements met (IBC, NFPA)
- Local amendments to national codes addressed
- Exhaust system requirements for kitchens, labs, etc., per IMC
- Makeup air requirements calculated and shown
- Kitchen hood fire suppression coordination completed
- Emergency ventilation systems (if required) detailed

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When ceiling space is tight, schedules are tighter, and rework budgets have evaporated, your duct drawings are either saving your project or silently sinking it.

Get the clarity your fabricator and site team actually need.

Trusted by 200+ MEP Firms to cut down clashes, eliminate field improvisation, and keep fabrication moving without stoppages.



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