



**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



**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**

#### **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

**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**

### **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

**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

### 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



**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**

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.**



**Scan to Download Our Brochure**