

CHAPTER 15B

DUCTWORK

15B-01 GENERAL

This chapter covers ductwork for air conditioning, heating, ventilating, and exhaust systems. The QA Rep must closely coordinate this chapter with chapter 15C, 15E, 15F, and 15G. It is important that the QA Rep have a thorough knowledge of the job plans, specifications, and potential obstructions in the area in which the ductwork is to be installed, including locations of fire rated walls that the duct must penetrate.

15B-02 SHOP DRAWINGS

a. It is the QAR\*s responsibility to determine that all ductwork is approved well in advance of its actual need on the job.

b. Check all ductwork delivered to the site for conformance with approved shop drawings.

15B-03 DUCTWORK

a. Fabrication (See SMACNA Duct Manual appropriate to material and service requirements)

(1) Inspect for type, thickness and shape of sheet material, and fiber glass boards used for ductwork.

(2) Check workmanship and observe lock seams and breaks in ductwork for cracks of sheet metal ducts. Check fiber glass ducts for broken, or damaged edges, joints, and seams.

(3) Inspect all joint connections for correct type and adequately sealed to prevent movement and air loss.

(4) Make sure that the joints are neatly finished and that the duct is smooth on the inside. Any laps should be made in the directions of the flow of air. Internal insulation will be securely fastened and coated as specified.

(5) Provide adequate bracing and reinforcement of the larger ducts.

(6) Compare the radius of curved duct with the specification requirements.

(7) Slope ratio of transitions should be ) Provide turning vanes and extractors to eliminate abrupt turns of air which cause appreciable turbulence.

(9) Check the need for and construction of splitter dampers. Make sure the operating mechanism is accessible; and if exposed in a finished room, the mechanism is to be chromium plated.

(10) Make sure that fire and/or smoke dampers are provided in ducts as required in accord with NEPA, and SMACNA fire damper guide. Check for fire-safety switch on return air ducts of circulation system.

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(11) Check duct for the required test holes and covers.

(12) Check the fabrication of flexible connections.

(13) Make sure that equipment serviced by the ductwork is fully accessible for maintenance, repairs, oiling, cleaning, and for filter changing.

b. Erection

(1) Examine all fabricated ducts, rejecting any which are not smooth or any which are damaged.

(2) Examine duct hangers for specified material, thickness, and spacing.

(3) Check specification requirements for the need for stiffeners for wide ducts. Also check for need of trapeze hangers under wide ducts.

(4) Provide approved flexible connections between ducts and for fan units.

(5) Check rigidity and tightness of such field installed items as dampers and defectors.

(6) Provide access doors at all fire dampers, automatic dampers, coils, filters, heaters, thermostats, or at any item that requires servicing. Doors are to be airtight, securely fastened and accessible, and able to be fully opened. Refer to SMACNA and Specifications for size of access doors required.

(7) Inspect goose necks and rain hoods for method of fastening, flashing and bracing. Goose necks are to be turned away from the prevailing wind. Check specifications for screens on open end of goose necks.

(8) Provide proper size sleeves where insulated duct passes through wall openings.

(9) When obstructions cannot be avoided, the duct area should never be decreased more than 10 percent, and then a streamlined collar should be used. Larger obstructions require an increase in the duct size in order to maintain as nearly uniform velocity as possible.

(10) Before insulating metal duct, test duct for air tightness.

(11) All ducts, plenums and casings must be thoroughly cleaned of debris and blown free of small particles and dust before supply outlets are installed.

(12) Inspect duct break away collar at fire dampers for meeting SMACNA requirements.

c. Diffusers, Registers, and Grilles

(1) Insure that the contractor furnishes a schedule showing all air inlets and outlets.

(2) Inspect diffusers and registers for accessible volume control operator.

(3) Examine specification and installation for integral anti-smudge rings for diffusers.

(4) Check for loose or bent vanes.

(5) Inspect each item for fit, and see that gaskets are provided when required.

(6) Inspect for the proper operation of registers, dampers, and grille directional-controls.

d. Insulation

Insulation for metal ductwork is covered in Chapter 15C entitled, Mechanical Insulation. Chapter 15C covers pipe insulation, equipment insulation, and ductwork insulation.

e. Balancing and Testing

Balancing and Testing of air supplies is covered in Chapter 15F entitled, Ventilating, Air Supply and Distribution Systems.