

	<b>MAINTENANCE PROCEDURE 2.13</b>	12/7/2018
	<b>Ductwork</b>	Revision 12

**A. PURPOSE**

- a. This document contains procedures for the complete removal of existing ductwork from condominium attics and the installation of new flexible air ducts and related components. *This procedure is not for use in replacing ducts in first floor units of two-story buildings.*
- b. This procedure addresses ductwork used for heating. If the new ductwork is to be used for heating and air-conditioning, its size and insulation value may need to be increased. The scope, methods, material and inspection requirements are also documented.
- c. For added clarity - *The requirements changed in this Revision of the procedure are in italic font.*

**B. MANAGER OR MANAGER REPRESENTATIVE (MGR REP) INSTRUCTIONS:**

- a. ***This Maintenance Procedure and the Maintenance Procedures listed below should be referred and attached to any Invitation to Bid and Contract for specified work.***
  - i) *Maintenance Procedure 1.1, “General Provisions”\**
- b. ***Items to specify in the Invitation to Bid and Contract by the Manger or Mgr Rep are:***
  - i) *Applicable items to be specified in the Invitation to Bid and Contract from the above referenced Maintenance Procedures\**

**C. CONTRACTOR INSTRUCTIONS:**

- a. The Contractor’s acceptance of this procedure and signature is required prior to start of work (see page 4 of 4).
- b. Copies of this specification and related technical specifications shall be kept at the job site at all times.
- c. ***Items to be approved by Mgr Rep are:***
  - i) *Paragraph 4.2, corrective work, if applicable*
  - ii) *Paragraph 5.1, ducts size and configuration, if applicable*
  - iii) *Paragraphs 5.4 and 5.5, variations/alternate methods, if applicable*
- d. ***Items to provide to the Manager or Mgr Rep are:***
  - i) *Paragraph 1.2, report louver problems, if applicable*
  - ii) *Paragraph 3.1, provide digital photographs*
  - iii) *Paragraph 4.1, results of inspection for safety violations*
  - iv) *Paragraph 4.3, report attic conditions: damage, etc., if applicable*
  - v) *Paragraph 6.0, certification*

**D. PROCEDURES**

**1.0 GENERAL**

- 1.1 The Contractor shall adhere to the requirements of the current version of Maintenance Procedure 1.1, “General Provisions”. That procedure covers general matters, license and insurance, code compliance and permits, safety, material storage and disposal, job sites, supervision, performance of work, employees, vehicles and parking, inspection and certification, and warranty and guarantee.

- 1.2 Access to the attics of Phase 5-11 condominiums and Phase 13 condominiums, *after 2019*, is through louvers at both ends of buildings. The louvers shall be carefully removed, protected from damage and firmly re-attached using the same screws that were removed. *All louvers should have a lanyard to prevent the louver from falling. Report any problems with louvers to the Mgr Rep.*
- 1.3 Access to the attics of Phases 12 and *Phase 13 condominiums (2019 and earlier)* is through a hatch in the interior of the residence. Insure the personal property of residents within their residence is protected from dust, debris and damage.

## 2.0 SUPERVISION

Installation of the new ductwork and related components shall be performed under the supervision of a journeyman HVAC technician.

## 3.0 REMOVALS

- 3.1 *Prior to starting removal, the Contractor shall take digital photographs of existing duct conditions and provide them to the Mgr Rep.*
- 3.2 Remove all existing flexible ducts, distribution junctions, connection sleeves and collars. Junctions, sleeves and collars may be re-installed if they are cleaned and in good condition (Section 5.3).
- 3.3 Remove all insulation from plenums. **Note: Plenums in Phase 6 are insulated with asbestos materials.**
- 3.4 Remove all loose HVAC components that may have been left by others.
- 3.5 Dispose of all materials at an offsite location in a manner prescribed by law.

## 4.0 INSPECTION AND REPAIR OF VENTS AND ATTIC SPACES

- 4.1 Inspect all flue vents and exhaust-fan vents in attic spaces for safety code violations. Report the results to the Mgr Rep.
- 4.2 *Obtain approval of the Mgr Rep to re-connect loose vents and/or replace damaged and/or missing vents. Appropriate change orders will be issued.*
- 4.3 Report to the Mgr Rep conditions in the attic: obvious damages to the building structure, *damaged firewalls, debris from other contractors, disconnected exhaust fan ducts, damaged or displaced insulation*, utility lines and/or unusual conditions observed.

## 5.0 MATERIALS AND INSTALLATION

- 5.1 Install new ductwork in the same size and with the same configuration as the existing ductwork. If the existing ductwork was removed by others, *submit* the size and configuration of the new ductwork *to the Mgr Rep for approval* prior to installation.
- 5.2 The new flexible air ducts shall meet the following standards:
  - 5.2.1 Class I open-ended flexible air duct
  - 5.2.2 Inner core – Smooth, 2-ply air-tight polyester encapsulating support helix
  - 5.2.3 Support – Galvanized or coated, spring-steel wire helix encapsulated within an inner core
  - 5.2.4 Insulation – R 6.0, formaldehyde-free fiberglass
  - 5.2.5 Vapor barrier – Metalized, scrim-reinforced polyester (MRP)
  - 5.2.6 Compliance – UL 181, NFPA 90A and 90B, HUD/FHA 515.2.1 and California and Huntington Beach building codes
  - 5.2.7 Certification – ADC, ETL, GREENGUARD and HARDI

- 5.2.8 Warranty – 10 years
- 5.2.9 Manufacturer’s Model – QuietFlex “Rip Stop” Silver Jacket or equal
- 5.3 Distribution junctions, connection sleeves and collars shall be galvanized steel metal. Removed junctions, sleeves and collars (Section 3.1) may be re-installed if they are approved material, cleaned and in good condition.
- 5.4 Installation of the new ductwork shall conform to the Air Diffusion Council’s (ADC) **Flexible Duct Performance and Installation Standards (Green Book)** and the duct manufacturer’s installation instructions. These documents specify the proper routing and supporting methods to be employed. Variations shall be approved by the Mgr Rep prior to installation. Specific attention shall be directed to the following:
  - 5.4.1 Run ducts above wires, cables, pipes, etc. Do not use ducts to support other ducts or wires, cables, pipes, etc.
  - 5.4.2 Provide required clearances between ducts and furnace or water heater vent flues.
  - 5.4.3 Protect ducts from damage by sharp objects such as truss gusset plates, vent lines, support straps and nails.
  - 5.4.4 Extend ducts to their full length in order to reduce frictional losses. Excess duct material in a run should be less than 5 percent. Cut off all excess material.
  - 5.4.5 Run ducts out of plenums and junctions boots at least 12-inches before making a bend in order to reduce pressure losses.
  - 5.4.6 Insure there is no exposed fiberglass inside plenums, distribution junctions or connection sleeves.
  - 5.4.7 Remove all loose and/or uninstalled HVAC components after installation of the new ductwork has been completed.
- 5.5 Connections, joints and splices shall be made in accordance with any one of, or a combination of, the three standardized installations set forth in the Air Diffusion Council’s (ADC) **Flexible Duct Performance and Installation Standards (Green Book)** and the duct manufacturer’s installation instructions. Alternative methods shall be approved by the Mgr Rep prior to installation. After sealing, all connections, joints and splices shall be insulated with a double wrap of fiberglass duct-wrap insulation providing an insulation value of R-6.0.
- 5.6 Insulate plenums with R-6.0 Reflectix Duct Insulation installed in accordance with Reflectix’s installation instructions **N20 Revised 1211**. The required 3/4-inch air gap between and plenum and the insulation may be created by any one of, or a combination of, the three spacer configurations described in Reflectix’s installation instructions **N20 Revised 1211**.

## 6.0 INSPECTION AND CERTIFICATION

The Contractor shall *provide certification to the Mgr Rep* that the specified materials were used and installed in compliance with the Air Diffusion Council’s (ADC) **Flexible Duct Performance and Installation Standards (Green Book)**, the duct manufacturer’s installation instructions, Reflectix’s installation instructions **N20 Revised 1211** and the requirements of this procedure.

I have read, understand and agree to adhere to the requirements of this procedure and to keep a copy on hand at the job site at all times:

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Signature

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Printed Name

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Company Name

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Date