


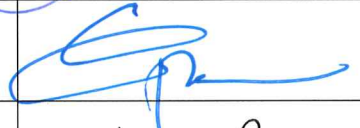

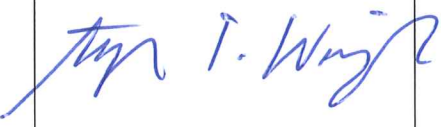


**Standard Operating Procedure**  
**Ductwork Cleaning – Level 1**

**SOP #: 5.025 Rev. 7**

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**Approval**

<i>Approving Authority</i>	<i>Name</i>	<i>Signature</i>	<i>Date</i>
President	Joseph Parisi		1/20/17
Operations Manager	Steve Hansen		01 19 17
V.P. Engineering	Steve Rusconi	Steve Rusconi	01 19 17
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Quality Assurance Manager	Steve Washington		01 19 17

**Revision History**

<i>Revision #</i>	<i>Description of Change</i>	<i>Effective Date</i>	<i>DCR#</i>
5	Data modifications	07/07/00	-
6	Data modifications	07/24/03	03011
7	Add Revision History, Revise Header	01/20/17	17001



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- 1 Purpose
  - 1.1 To establish a standard procedure for cleaning ductwork serving critical clean manufacturing spaces (classified 1 to 100).
- 2 Scope
  - 2.1 This cleaning procedure applies to prefabricated round duct and fittings as well as custom rectangular fittings and joints.
- 3 Responsibility
  - 3.1 Quality assurance shall audit the following procedures periodically.
  - 3.2 Project Manager shall oversee the following procedures.
  - 3.3 Sheet metal superintendent shall perform duct cleaning examination.
  - 3.4 Sheet metal foreman shall perform the following procedures.
- 4 Procedures
  - 4.1 Ensure that both supply and return air ductwork associated with these critical areas are clearly identified to the sheet metal fabrication shop.

Note: The following procedures may be performed either at the fabrication shop or at the job site. If performed extensively at the job site, temporary dust screens must be employed to reduce airborne silt from entering the ductwork.
  - 4.2 Examine each section of duct for fabrication quality.

#### Excess Grime Removal

- 4.3 This step is required if debris, dirt, grease, oil, etc., is visible within 4 feet.
  - 4.3.1 Remove heavy greases and dark marks on the ductwork sections with a heavy duty cleaner and citrus degreaser (i.e. Big Orange-E).
  - 4.3.2 Spray 100% isopropyl alcohol (IPA) and wipe with a clean dry rag on the same ductwork sections.
  - 4.3.3 Repeat steps 4.3.1 and 4.3.2 until the heavy greases and dark markers have been removed.



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#### ***Required Wash Stage***

- 4.4 Mix IPA solution with water to achieve approximately a 50% alcohol concentration in a container.
- 4.5 Pour the diluted IPA mixture into a dedicated spray bottle with proper label.
  - 4.5.1 When washing large ductwork, mix IPA solution with water to achieve approximately a 50% alcohol concentration in a dedicated bucket.
- 4.6 Spray the IPA mixture directly on to the entire inside surfaces of the ductwork.
  - 4.6.1 When washing large ductwork, submerge a dry, clean mop into the diluted IPA mixture bucket.
- 4.7 Wipe the entire inside surfaces with a clean room grade wiper (rag) to degrease and remove gross solids.
  - 4.7.1 When wiping large ductwork, use a mop.
- 4.8 Repeat steps 4.6 through 4.7 or 4.6.1 through 4.7.1 until all grease and gross solids have been removed.

#### ***Rinse Stage***

- 4.9 Pour distilled water onto a clean room grade wiper (rag).
  - 4.9.1 When rinsing large ductwork, submerge a clean room grade mop into a dedicated distilled water bucket.
- 4.10 Rinse the entire inside surfaces of the ductwork with the wiper.
  - 4.10.1 When rinsing large ductwork, use a clean room grade mop.
- 4.11 Repeat steps 4.9 through 4.10 or 4.9.1 through 4.10.1 until no dirt is found on the wiper or mop.

#### ***Final Wash Stage***

- 4.12 Spray the diluted IPA mixture (i.e. 50% alcohol concentration) directly on to the ductwork.





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- 4.12.1 When washing large ductwork, submerge a clean room grade mop into a dedicated clean diluted IPA mixture bucket.
- 4.13 Wipe the entire inside surfaces of the ductwork with a clean room grade wiper. Constantly fold over the wiper so that the duct is seeing new and clean material.
  - 4.13.1 When wiping large ductwork, use clean room grade mop.
- 4.14 After cleaning, wipe the entire inside surfaces of the ductwork with a clean dry white wiper to examine periodically the effectiveness.
  - 4.14.1 When wiping large ductwork, use a clean room grade mop.
- 4.15 Repeat steps 4.12 through 4.14 or 4.12.1 through 4.14.1 until no dirt is found on the wiper or mop.
- 4.16 Wait until the ductwork is totally dry before examining the ductwork cleaning quality and sealing off the duct sections.
- 4.17 Sheet metal superintendent shall examine the cleaning quality. To define the wiper is clean, the following test is to be performed and passed.
  - 4.17.1 Wipe a portion of inside surface of the ductwork with a clean dry white wiper and visually examine wiper for contaminants.
- 4.18 Once the cleaning examination is passed, sheet metal superintendent shall record the results on the Duct Cleaning Log, FN 5.025.2. Sheet metal foreman shall perform the following steps once the cleaning examination is passed. If the cleaning examination is not passed, sheet metal foreman shall perform final wash as described in steps 4.12 through 4.17.
- 4.19 Seal off duct sections after cleaning with protective coverings to prevent damage or soiling by construction activity.
  - 4.19.1 Wrap duct openings with adhesive polyethylene sheet material 0.002 inches ('2 mil') thick or thicker.
  - 4.19.2 The protective wrap should be removed only during installation. There should not be open ductwork either on the ground or after being hung.
- 4.20 If the protective wrap has been prematurely removed and the duct fitting on the job site is unprotected, examination must be performed prior to



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installation of additional fittings or joints. If necessary, repeat steps 4.4 to 4.19.

#### 5 Review and Approval

- 5.1 The concentration of IPA mixture solution shall not be less than 50% during the cleaning process.
- 5.2 Under normal conditions mops shall be changed every other day. However, with excessive duct cleaning change mop twice daily.
- 5.3 Sheet metal superintendent shall submit the duct cleaning log, FN 5.025.2 to project manager for review.
- 5.4 Project manager shall review the duct cleaning log, FN 5.025.2 and submit to customer for record as required.