

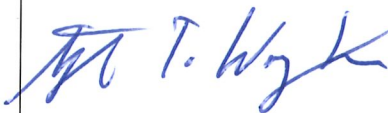
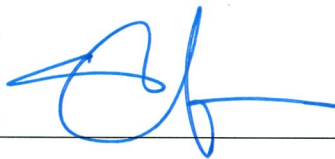


Standard Operating Procedure
HEPA Filter Removal and Installation

SOP #: 5.039 Rev. 1

Page #: 1 of 4

Approval

<i>Approving Authority</i>	<i>Name</i>	<i>Signature</i>	<i>Date</i>
Quality Assurance Manager	Steve Washington		20 SEP 2019
Engineering	Steve Rusconi		20 SEP 2019
E.V.P. Process & Controls	Mike Delgado		20 SEP 2019
E.V.P. Service & Safety	Mike Fisher		09 OCT 2019
President	Steve Hansen		17 OCT 2019

Revision History

<i>Revision #</i>	<i>Description of Change</i>	<i>Effective Date</i>	<i>DCR#</i>
0	Original Document	5/10/00	99081
1	2-person install team, gel track	18 OCT 2019	19005



Standard Operating Procedure
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SOP #: 5.039 Rev. 1

Page #: 2 of 4

- 1 Purpose
 - 1.1 To establish a standard procedure for the installation/replacement of High-Efficiency Particulate Air (HEPA) filters in new cleanrooms
- 2 Scope
 - 2.1 This procedure applies to newly built as well as existing clean rooms.
- 3 Responsibilities
 - 3.1 The project manager and cleanroom owner shall supervise the following procedures.
 - 3.2 The jobsite foreman, project manager and cleanroom owner shall act as the quality control and safety inspectors.
 - 3.3 The jobsite foreman shall insure that all workers be informed of this procedure before starting work.
 - 3.4 The cleanroom owner shall instruct all workers of the site safety rules, regulations, cleanroom entry and emergency exit procedures.
- 4 Procedures
 - 4.1 Owners shall remove all equipment that can be removed from the area.
 - 4.2 Owners shall cover and protect all sensitive equipment and inform the foreman about the location of this equipment.
 - 4.3 All workers shall be instructed in safety, cleanroom, HEPA filter removal and installation procedures.
 - 4.4 As required per project specifications, coordinate with Owner, General Contractor, other trades and sub-contractors, etc., to plan and establish timing schedule and sequencing for securing utilities in the space including power and air flow.
 - 4.4.1 Communicate the timing schedule and sequencing plan to all affected parties.
 - 4.5 As required per project specifications, upon securing of power and air flow, verify utilities are properly secured following accepted 'Lock-



Standard Operating Procedure

SOP #: 5.039 Rev. 1

HEPA Filter Removal and Installation

Page #: 3 of 4

Out/Tag-Out' procedures prior to proceeding with HEPA filter removal, replacement, installation.

- 4.6 Cover all the walls and equipment with plastic sheet (visqueen). Floors shall be covered only when HEPA filters are installed with Gel Track; otherwise floor covering is not needed.

Note: Use clean room tape to secure plastic sheet to the walls and equipment.

- 4.7 Remove the eggcrate (if separate from HEPA filter) from ceiling and move the eggcrate to clean area.
- 4.8 Clean the eggcrate as needed and store it until reinstallation.
- 4.9 Remove and bag the old HEPA filters. Do not damage the surrounding HEPA filters, lights, and sprinkler heads during removal. Do not damage the equipment while moving about.
- 4.10 If it is a GEL track system, prevent the GEL from coming out of the track and falling on the floor. Carefully remove all the contaminated GEL. Clean Room owner is responsible for the contaminated GEL and old HEPA filters disposal.
- 4.11 Clean the track area with 70/30% IPA/DI water solution mix and cleanroom wipes. Owner is responsible for disposal of the wipes.
- 4.12 If it is a GEL track system, fill the track with new GEL to suggested level as per manufacturer instructions. Be careful not to spill any GEL outside the track.
- 4.13 Install new HEPA filters as per manufacturer's installation instructions.
 - 4.13.1 Use minimum of two personnel/technicians to install HEPA units.
 - 4.13.2 Use care not to damage new filters while carrying and installing. Make sure not to damage new or existing HEPA filters.
 - 4.13.3 Visually examine HEPA filter for damage.
 - 4.13.4 Be sure to not touch the GEL track or the face of the HEPA filter.



Standard Operating Procedure

SOP #: 5.039 Rev. 1

HEPA Filter Removal and Installation

Page #: 4 of 4

- 4.13.5 Verify HEPA Unit ID tagging matches the project plans/drawings and record onto applicable start-up sheets, 'as-built' drawing or additional documents, as required.
- 4.13.6 Verify HEPA Unit Serial Numbers matches the project plans/drawings and record onto applicable start-up sheets, 'as-built' drawing or additional documents, as required.
- 4.14 Use IPA/DI water mix and clean room wipes to clean the ceiling track area. Owner is responsible for the disposal of the wipes.
- 4.15 Foreman and cleanroom owner shall inspect the area before and after cleanup.
- 4.16 Remove plastic sheet cover.
- 4.17 Final cleanup of the area.
- 4.18 Final cleanup of the area by the owner.
- 4.19 'In-place' (in-situ) filter integrity test by the owner.
- 4.20 Recertification of the cleanroom by the owner.
- 4.21 Repeat any of the above steps as needed to complete recertification.
- 5 Review and Approval
 - 5.1.1 N/A