



# **North America TC Chapter Facilities & Gases Joint Global Technical Committee**

Liaison Report | July 2022

v1

**STANDARDS**

# Meeting Information

Facilities & Gases meet jointly

- Last meeting
  - Tuesday, July 12, 2022
    - SEMICON West at Moscone Center in San Francisco, CA
- Next meeting
  - Tuesday, November 8, 2022
    - NA Fall Meetings at SEMI HQ in Milpitas, CA
- For more details, visit: <http://www.semi.org/en/standards-events>

# Facilities

## North America TC Chapter

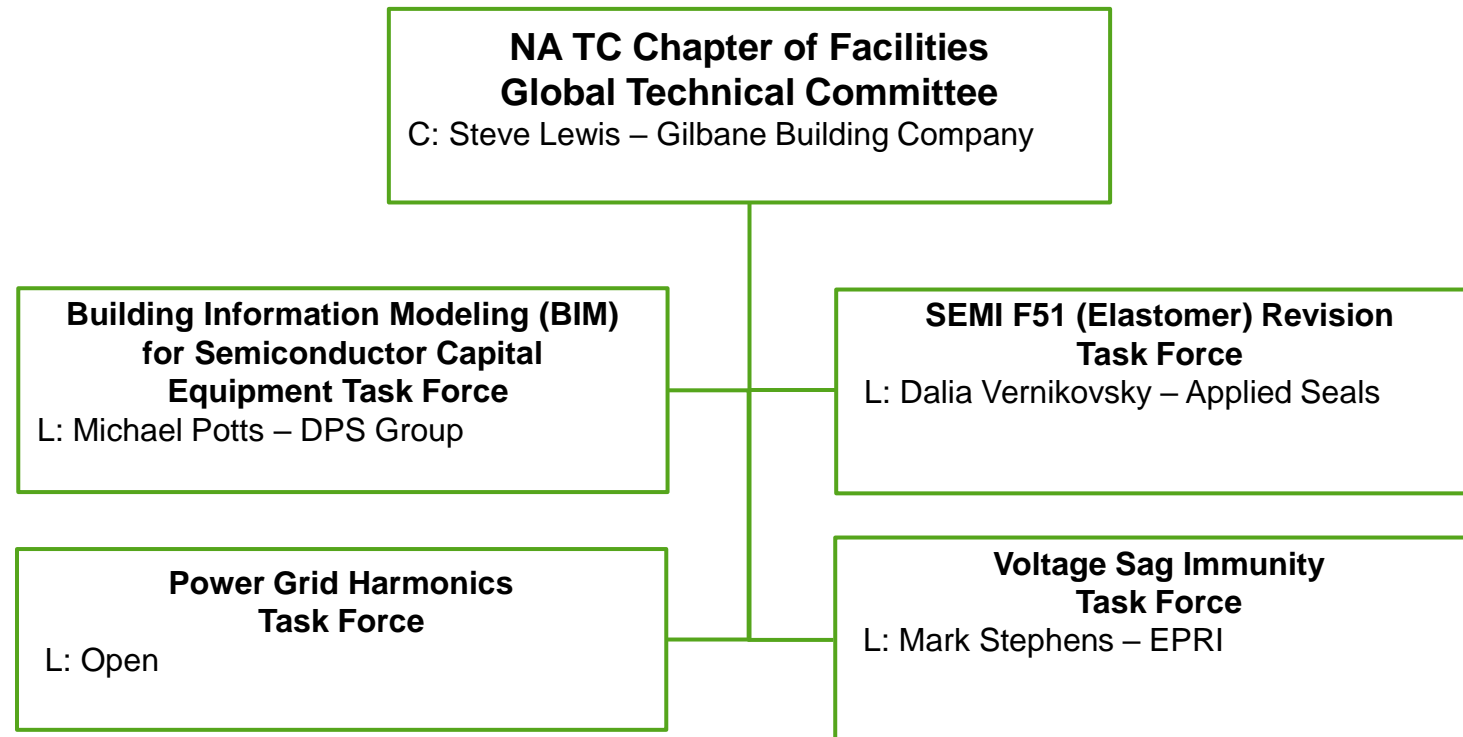
Global Technical Committee

# Facilities Cochair



Steve Lewis  
Gilbane Building Company

# Facilities Organization Chart



# Facilities: Ongoing

- SEMI E51, Guide for Typical Facilities Services and Termination Matrix
  - RA ballot failed TCC review; SNARF abolished Fall 2017; Action needed to either send to Inactive Status or issue new SNARF to reflect change in scope
  - **Searching for volunteers to lead this activity**
- SEMI F47, Specification for Semiconductor Processing Equipment Voltage Sag Immunity
  - Reapproval ballot failed TCC review; Spring 2018 – SNARF expired; SNARF abolished Fall 2019
  - **Voltage Sag Immunity TF to issue minor revision SNARF to keep from moving to Inactive Status**
- SEMI E76, Guide for 300 mm Process Equipment Points of Connection to Facility Services
  - RA ballot failed TCC review; Summer 2021 – Action needed to either send to Inactive Status or Abolish RA SNARF 6773 and reissue new SNARF
  - **Searching for volunteers to lead this activity**
- SEMI E6, Guide for Semiconductor Equipment Installation Documentation
  - RA ballot failed TCC review; Summer 2021 – Action needed to either send to Inactive Status or Abolish RA SNARF 6771 and reissue new SNARF
  - **Searching for volunteers to lead this activity**

# Task Force Highlights

- Building Information Modeling (BIM) for Semiconductor Capital Equipment TF
  - 6628, New Standard: Guide for Facilities Data Package for Semiconductor Manufacturing Equipment Installation and Building Information Modeling
    - SNARF expires January 2023
- Voltage Sag Immunity TF
  - Voltage Sag Immunity TF to issue minor revision SNARF to keep from moving to Inactive Status
  - Ongoing TF Web conferences
- SEMI F51 (Elastomeric Sealing) Revision TF
  - Not currently meeting

# Facilities Five-Year Review

| Designation # | Standard Title                            | Action By | Assigned to     |
|---------------|---|-----------|-----------------|
| SEMI F51-0917 | Guide for Elastometric Sealing Technology | Sept 2022 | F51 Revision TF |



# Gases

## North America TC Chapter

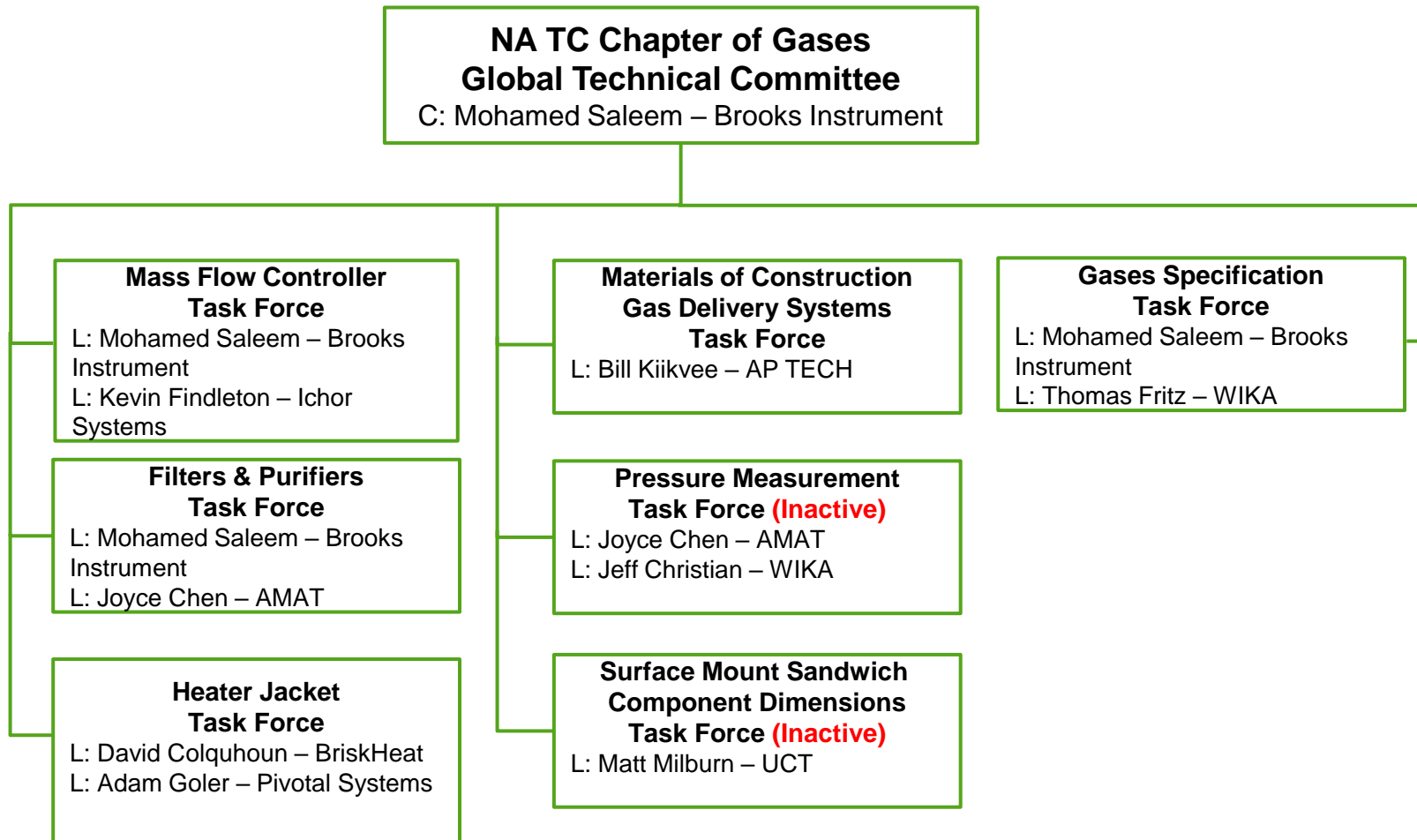
Global Technical Committee

# Gases Cochair



Mohamed Saleem  
Brooks Instrument

# Gases Organization Chart



# Gases SNARF(s) Approved by GCS

(in between TC Chapter Meetings)

| #    | Type                           | SC/TF/WG                   | Details   |
|------|--------------------------------|----------------------------|---|
| 6933 | SNARF/<br>Ballot Authorization | Mass Flow<br>Controller TF | Line-Item Revision to SEMI E77-1104 (Reapproved 0815), Test Method for Calculation of Conversion Factors for a Mass Flow Controller Using Surrogate Gases<br>– <b>Approved by GCS on 05/31/2022</b> |
| 6934 | SNARF/<br>Ballot Authorization | Mass Flow<br>Controller TF | Line-Item Revision to SEMI E80-0299 (Reapproved 0915), Test Method for Determining Attitude Sensitivity of Mass Flow Controllers (Mounting Position)<br>– <b>Approved by GCS on 05/31/2022</b>      |

# Ballot Results [1/2]

| Doc # | Document Title   | TC Chapter Action   |
|-------|--|---|
| 6933  | Line-Item Revisions to SEMI E77-1104 (Reapproved 0815), Test Method for Calculation of Conversion Factors for a Mass Flow Controller Using Surrogate Gases |   |
| L1    | Clarify grammar in § 3 and ¶ 7.2.  | <b>Passed</b> , with technical changes and with or without editorial changes; Ratification Ballot to be issued. |
| L2    | Change “must” or “will” to “shall” or “should” as shown.   | <b>Passed</b> , as balloted.  |
| L3    | Move ¶ 7.6 to § 8 and ¶ 7.7 to § 12.   | <b>Passed</b> , with technical changes and with or without editorial changes; Ratification Ballot to be issued. |

NOTE 1: **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

NOTE 2: **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

# Ballot Results [2/2]

| Doc # | Document Title  | TC Chapter Action   |
|-------|---|---|
| 6934  | Line-Item Revisions to SEMI E80-0299 (Reapproved 0915), Test Method for Determining Attitude Sensitivity of Mass Flow Controllers (Mounting Position) |   |
| L1    | Clarify grammar in § 3.2 and ¶ 7.2.   | <b>Passed</b> , with technical changes and with or without editorial changes; Ratification Ballot to be issued. |
| L2    | Change “must” or “will” to “shall” or “should” as shown.  | <b>Passed</b> , as balloted.  |
| L3    | Move ¶ 7.6 to § 13.   | <b>Passed</b> , with editorial changes.   |

NOTE 1: **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

NOTE 2: **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

# Authorized Ballot(s)

| Doc # | Type               | SC/TF/CFG  | Document Title/Details  |
|-------|--------------------|--|---|
| R6933 | Cycle 6 or 7-2022  | Mass Flow Controller TF                              | Line-Item Revision to SEMI E77-1104 (Reapproved 0815), Test Method for Calculation of Conversion Factors for a Mass Flow Controller Using Surrogate Gases   |
| R6934 | Cycle 6, or 7-2022 | Mass Flow Controller TF                              | Line-Item Revision to SEMI E80-0299 (Reapproved 0915), Test Method for Determining Attitude Sensitivity of Mass Flow Controllers (Mounting Position)        |
| 6394  | Cycle 7-2022       | Materials of Construction of Gas Delivery Systems TF | Line-Item Revision to SEMI F74-1103 (Reapproved 0710), Test Method for the Performance and Evaluation of Metal Seal Designs for Use in Gas Delivery Systems |
| 6510  | Cycle 7-2022       | Materials of Construction of Gas Delivery Systems TF | Line-Item Revision to SEMI F32-0211, Test Method for Determining of Flow Coefficient for High Purity Shutoff Valves   |

# SNARF(s) Granted One-Year Extension

| Doc # | TF  | Document Title/Details  | Expiration Date |
|-------|---|---|-----------------|
| 6612  | Materials of Construction of Gas Delivery Systems<br>TF | New Subordinate Standard: Test Method for the Determination of Conductance of Fluid Handling Components at Subatmospheric and Vacuum Pressure, to SEMI F32-0211, Test Method for Determination of Flow Coefficient for High Purity Shutoff Valves | West 2023       |



# Abolished SNARF(s)

| Doc # | TF   | Title/Details   |
|-------|--|---|
| 6813  | Filters & Purifiers TF                               | SEMI F28-1103 (Reapproved 0815), Test Method for Measuring Particle Generation from Process Panels  |
| 6814  | Filters & Purifiers TF                               | SEMI F43-0308 (Reapproved 0613), Test Method for Determination of Particle Contribution by Point-Of-Use Gas Purifiers and Gas Filters                       |
| 6815  | Filters & Purifiers TF                               | SEMI F59-0302 (Reapproved 0613), Test Method for Determination of Filter or Gas System Flow Pressure Drop Curves  |
| 6816  | Filters & Purifiers TF                               | SEMI F67-1101, (Reapproved 0713), Test Method for Determining Inert Gas Purifier Capacity   |
| 6817  | Filters & Purifiers TF                               | SEMI F68-1101 (Reapproved 0713), Test Method for Determining Purifier Efficiency  |
| 6876  | Materials of Construction of Gas Delivery Systems TF | Reapproval of SEMI F60-1214, Test Method for ESCA Evaluation of Surface Composition of Wetted Surfaces of Passivated 316L Stainless Steel Components        |
| 6877  | Materials of Construction of Gas Delivery Systems TF | Reapproval of SEMI F73-1214, Test Method for Scanning Electron Microscopy (SEM) Evaluation of Wetted Surface Condition of Stainless Steel Components        |
| 6879  | Materials of Construction of Gas Delivery Systems TF | Reapproval of SEMI F77-0915, Test Method for Electrochemical Critical Pitting Temperature Testing of Stainless Steel Surfaces Used in Corrosive Gas Systems |

# Task Force Highlights [1/2]

- Materials of Construction of Gas Delivery Systems TF
  - Open SNARFs: SEMI F74 (6394), SEMI F32 (6510), New Subordinate Standard to SEMI F32 (6612)
    - Granted One-Year SNARF Extension for Doc 6612
  - SNARFs Abolished from RA Ballots in Cycle 9-2021 and new SNARFs to be reissued (SEMI F60, F73, F77)
  - Five-Year Reviews to be addressed: SEMI F19, F20, F81, F78, F69
- Filters & Purifiers TF
  - SNARFs Abolished from RA Ballots in Cycle 5-2021 and new SNARFs to be reissued (SEMI F28, F43, F59, F67, F68)
  - Five-Year Reviews to be addressed: SEMI C14, F36, F21, F113, F30, F29

# Task Force Highlights [2/2]

- Mass Flow Controller TF
  - Reviewed Cycle 5-2022 ballots. See Ballot Results slide 16/17 for more details.
    - Ratification Ballots to be issued for technical changes.
- Gases Specification TF
  - Five-Year Reviews to be addressed: SEMI C54, C70, C58, C56, C60, C59, C57, C3, F24
- Heater Jacket TF
  - 6916: Replacement of SEMI F109-0212, Guide for Heater Systems Requirements, as a New Standard: Guide for Material Selection for Heater Systems
    - Requesting feedback on draft document; please reach out to Laura for more details.

# Gases 5-Year Review [1/6]

| Designation #                        | Standard Title   | Action By | Assigned to               |
|--------------------------------------|--|-----------|---------------------------|
| SEMI E49.6-1103<br>(Reapproved 1211) | Guide for Subsystem Assembly and Testing Procedures<br>– Stainless Steel Systems                                   | Past due  | (Create new TF?)          |
| SEMI E49.8-1103<br>(Reapproved 1211) | Guide for High Purity and Ultrahigh Purity Gas<br>Distribution Systems in Semiconductor Manufacturing<br>Equipment | Past due  | (Create new TF?)          |
| SEMI C14-95<br>(Reapproved 0913)     | Test Method for Particle Shedding Performance of 25<br>cm Gas Filter Cartridges                                    | Past due  | Filters & Purifiers<br>TF |
| SEMI F36-0299<br>(Reapproved 0913)   | Guide for Dimensions and Connections of Gas<br>Distribution Components   | Past due  | Filters & Purifiers<br>TF |

# Gases 5-Year Review [2/6]

| Designation # | Standard Title   | Action By | Assigned to             |
|---------------|--|-----------|-------------------------|
| SEMI F19-0815 | Specification for the Surface Condition of the Wetted Surfaces of Stainless Steel Components                         | Past due  | Materials TF            |
| SEMI F21-1016 | Classification of Airborne Molecular Contaminant Levels in Clean Environments  | Past due  | Filters & Purifiers TF  |
| SEMI F62-1016 | Test Method for Determining Mass Flow Controller Performance Characteristics for Ambient and Gas Temperature Effects | Past due  | Mass Flow Controller TF |
| SEMI C54-1116 | Specification for Oxygen   | Past due  | Gases Specification TF  |
| SEMI C70-1116 | Specification for Tungsten Hexafluoride  | Past due  | Gases Specification TF  |

# Gases 5-Year Review [3/6]

| Designation #  | Standard Title  | Action By | Assigned to              |
|----------------|---|-----------|--------------------------|
| SEMI C58-1116  | Specification for Hydrogen  | Past due  | Gases Specification TF   |
| SEMI C56-1116  | Specification for Dichlorosilane                                  | Past due  | Gases Specification TF   |
| SEMI F113-1116 | Test Method for Pressure Transducers Used in Gas Delivery Systems | Past due  | Pressure Measurements TF |
| SEMI C60-0317  | Specification for Nitrous Oxide                                   | Past due  | Gases Specification TF   |
| SEMI C59-0317  | Specification for Nitrogen  | Past due  | Gases Specification TF   |
| SEMI C57-0317  | Specification for Argon   | Past due  | Gases Specification TF   |

# Gases 5-Year Review [4/6]

| Designation #                      | Standard Title  | Action By | Assigned to             |
|------------------------------------|---|-----------|-------------------------|
| SEMI C3-0317                       | Specification for Gases   | Past due  | Gases Specification TF  |
| SEMI E56-0317                      | Test Method for Determining Accuracy, Linearity, Repeatability, Short-Term Reproducibility, Hysteresis, and Deadband of Thermal Mass Flow Controllers | Past due  | Mass Flow Controller TF |
| SEMI E29-1110<br>(Reapproved 0417) | Terminology for the Calibration of Mass Flow Controllers and Mass Flow Meters   | Past due  | Mass Flow Controller TF |
| SEMI F30-0517                      | Test Method for Verification of Purifier Performance Testing for Trace Gas Impurities and Particles at an Installation Site                           | Past due  | Filters & Purifiers TF  |

# Gases 5-Year Review [5/6]

| Designation #                       | Standard Title  | Action By      | Assigned to             |
|-------------------------------------|---|----------------|-------------------------|
| SEMI F29-0997<br>(Reapproved 0517)  | Test Method for Purge Efficacy of Gas Source System Panels  | Past due       | Filters & Purifiers TF  |
| SEMI E66-0611<br>(Reapproved 0517)  | Test Method for Determining Particle Contribution by Mass Flow Controllers  | Past due       | Mass Flow Controller TF |
| SEMI E16-0517                       | Guide for Determining and Describing Mass Flow Controller Leak Rates  | Past due       | Mass Flow Controller TF |
| SEMI F20-0706E<br>(Reapproved 0917) | Specification for 316L Stainless Steel Bar, Forgings, Extruded Shapes, Plate, and Tubing for Components Used in General Purpose, High Purity and Ultra-High Purity Semiconductor Manufacturing Applications | September 2022 | Materials TF            |
| SEMI F81-0611<br>(Reapproved 0917)  | Specification for Visual Inspection and Acceptance of Gas Tungsten Arc (GTA) Welds in Fluid Distribution Systems in Semiconductor Manufacturing Applications  | September 2022 | Materials TF            |



# Gases 5-Year Review [6/6]

| Designation #                            | Standard Title  | Action By      | Assigned to             |
|--|---|----------------|-------------------------|
| SEMI F78-0611<br>(Reapproved 0917)       | Practice for Gas Tungsten Arc (GTA) Welding of Fluid Distribution Systems in Semiconductor Manufacturing Applications | September 2022 | Materials TF            |
| SEMI F69-1213E<br>("E" approved 10/2017) | Test Method for Transport and Shock Testing of Gas Delivery Systems   | October 2022   | Materials TF            |
| SEMI E27-1017                            | Guide for Mass Flow Controller and Mass Flow Meter Linearity  | October 2022   | Mass Flow Controller TF |
| SEMI E18-1017                            | Guide for Temperature Specifications of the Mass Flow Controller  | October 2022   | Mass Flow Controller TF |
| SEMI F24-1217                            | Specification for Particle Concentration of Grade 10/0.2 Inert Specialty Gases  | December 2022  | Gases Specification TF  |



# THANK YOU

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**STANDARDS**