

**America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC)
Roadmap v3 Working Group (WG) Architecture (updated 9/9/22)**

Working Groups

The AMSC has established working groups (WGs) to update the standardization roadmap. Participation in the AMSC is open to additive manufacturing stakeholders that have operations in the United States. Participants may sign up for one or more WGs.

[SIGN UP FOR WORKING GROUPS HERE](#)

| Working Group | Topics for Discussion | |
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| WG1 – Design Co-Chairs: <ul style="list-style-type: none"> TBD TBD Initial Call: TBD Recurring Calls: TBD | Introduction Design guides Design tools Design for specific applications <ul style="list-style-type: none"> Design for as-built assemblies Design for printed electronics Design for medical | Design documentation Design verification and validation Design for anti-counterfeiting |
| WG2 – Precursor Materials Co-Chairs: <ul style="list-style-type: none"> TBD TBD Initial Call: TBD Recurring Calls: TBD | Introduction Storage, handling and transportation Characterization of powders <ul style="list-style-type: none"> Chemical composition Flowability Spreadability Density (apparent vs. trapped) Particle size and particle size distribution Particle morphology Hollow particles and hollow particles with entrapped gas AM process-specific metal powder specifications | Characterization of material extrusion feedstock (filaments & pellets) <ul style="list-style-type: none"> Chemical composition Geometry Melt flow Moisture content Thermal stability Characterization of liquid feedstock <ul style="list-style-type: none"> Chemical composition Viscosity Feedstock sampling |
| WG3 – Process Control <i>(includes NDE for process monitoring)</i> Co-Chairs: <ul style="list-style-type: none"> TBD TBD Initial Call: TBD Recurring Calls: TBD | Introduction Digital format and digital system control Machine calibration and preventative maintenance Machine qualification Parameter control Adverse machine environmental conditions: <ul style="list-style-type: none"> Effect on component quality Precursor material handling: <ul style="list-style-type: none"> Use, re-use Mixing Recycling feedstock | Precursor material flow monitoring Environmental health and safety: <ul style="list-style-type: none"> Protection of machine operators Configuration management: <ul style="list-style-type: none"> cybersecurity In-Process monitoring Anti-counterfeiting |
| WG4 – Post-processing Co-Chairs: <ul style="list-style-type: none"> TBD TBD Initial Call: TBD Recurring Calls: TBD | Introduction Heat treatment (metals, polymers) Hot isostatic pressing (HIP) (metals) Surface finish (surface texture) (metals, polymers) Machining (metals, polymers) Post curing methods (polymers) | |

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| <p>WG5 – Finished Material Properties</p> <p>Co-Chairs:</p> <ul style="list-style-type: none"> • TBD • TBD <p>Initial Call: TBD Recurring Calls: TBD</p> | <p>Introduction Material properties Component testing Bio-compatibility & cleanliness of medical devices Chemistry Design allowables Microstructure</p> | |
| <p>WG6 – Qualification & Certification</p> <p>Co-Chairs:</p> <ul style="list-style-type: none"> • TBD • TBD <p>Initial Call: TBD Recurring Calls: TBD</p> | <p>Introduction Identified guidance documents</p> <ul style="list-style-type: none"> - FDA Guidance - Nadcap program - Aerospace Corp MAIW - CMH-17 and MMPDS Handbooks - AWS D20 - NASA MSFC Standard - ASME Y14.46 - Underwriters Laboratories | <p>User-group/industry perspectives on Q&C</p> <ul style="list-style-type: none"> - Aerospace industry - Defense industry - Medical industry - Electronics industry - Further develop these and other sectors |
| <p>WG7 – Nondestructive Evaluation (of Finished Parts)</p> <p>Co-Chairs:</p> <ul style="list-style-type: none"> • TBD • TBD <p>Initial Call: TBD Recurring Calls: TBD</p> | <p>Introduction (metals) Common defects catalog using a common language for AM fabricated parts Test methods or best practice guides for NDE of AM parts Dimensional metrology of internal features Data fusion</p> | <p>NDE of polymers and other non-metallic materials NDE of counterfeit AM parts NDE acceptance criteria for fracture critical AM parts</p> |
| <p>WG8 – Maintenance and Repair</p> <p>Co-Chairs:</p> <ul style="list-style-type: none"> • TBD • TBD <p>Initial Call: TBD Recurring Calls: TBD</p> | <p>Introduction Maintenance and sustainment of machines Standard repair procedures Standard technical inspection processes Model-based inspection Standards for tracking maintenance operations</p> | <p>Cybersecurity for maintenance Surface preparation for additive repair</p> |
| <p>WG9 – Data (NEW)</p> <p>Co-Chairs:</p> <ul style="list-style-type: none"> • TBD • TBD <p>Initial Call: TBD Recurring Calls: TBD</p> | <p>Introduction Data management and integration Information modeling Interoperability Data visualization and reporting</p> | |