START with Standards
https://standards.nasa.gov

Adam West

www.nasa.gov
NASA Technical Standards Program

To provide the NASA community with standards, tools, and best practices desired to achieve technical excellence and further mission success
Goals
• Develop a suite of collaborative tools to:
  – Enhance the engineering capabilities across the Agency
  – Support the use of technical standards on NASA Programs in the systems requirement process
  – Augment NASA’s use and support of the adoption of non-Government Voluntary Consensus Standards by making them available from a single source,
  – Provide notifications on changes, updates, and revisions of existing Technical Standards,
  – Provide information on engineering lessons learned, best practices, and experiences

Objectives
• Provide more commonality with industry practices
• Improve interoperability within Centers and Agency
• Provide access for all <nasa.gov> users to full text standards from over 370 sources at https://standards.nasa.gov

Authority
• OMB Circular A-119, “Federal participation in the development and use of Voluntary Consensus Standards
• NPD 7120.4, NASA Engineering and Program/Project Management Policy
• NPR 7120.10, Technical Standards for NASA Programs and Projects
OMB Circular A-119, Federal participation in the development and use of Voluntary Consensus Standards

- Adopt the use of voluntary consensus standards in lieu of Government-unique standards except where inconsistent with law or otherwise impractical

- Agency technical standards can be developed when non-Government standards do not exist or meet NASA unique needs

- Agencies must consult with voluntary consensus standards bodies, both domestic and international, and must participate with such bodies in the development of voluntary consensus standards when consultation and participation is in the public interest and is compatible with their missions, authorities, priorities, and budget resources

NPD 7120.4, NASA Engineering and Program/Project Management Policy

- Provides the statement of policy and responsibilities for all of the management and engineering disciplines under the purview of the Office of the Chief Engineer
NASA Technical Standards Program

NPR 7120.10, Technical Standards for NASA Programs and Projects

Purpose:

- To support the implementation of the standards aspects of the parent NASA Policy Directive (NPD) 7120.4 and to establish responsibilities, requirements, and processes for:
  
  • Developing NASA technical standards, complying with Federal requirements for participating in the development of voluntary consensus standards and designating NASA-endorsed technical standards
  
  • Selecting and using technical standards as program/project requirements, encouraging commonality in use across NASA programs and projects, and mandating (S&MA) use of specific technical standards when warranted
NASA Technical Standards Program Structure

Office of the NASA Chief Engineer
Mike Ryschkewitsch, Chief Engineer
Adam West, Program Executive

- Policy/Oversight/Approval
- Program Sponsorship

Center Approving Authority
- Program Issues

Center Representation
- Program Guidance

NASA Engineering Management Board (EMB)
Mike Ryschkewitsch, Chair

NASA Engineering Standards Panel
Tim Crumbley, Chair

NASA Technical Standards Program Office
Tim Crumbley, Manager

NASA Technical Fellows

Standing & Topic Working Groups
- Prioritization of Needs
- Standards Development
- Materials & Processes
- Structures
- Non-Destructive Evaluation
- Electric Power
- Etc.

Other NASA Headquarters Offices
(OSMA, CIO, OCHMO)*

- Functional Standards
- Program Level Coordination

http://standards.nasa.gov

-NASA Standards
-National and International Standards
-Engineering Tools
-48 Online Parts Universe
-Haystack Gold
-MAPTIS
- Training Modules
- Engineering Fundamentals (eFunds)
- Etc.

* Office of Safety and Mission Assurance, Chief Information Officer, Office of the Chief Health and Medical Officer

October 17, 2012
<table>
<thead>
<tr>
<th>Center Representatives</th>
<th>HQ Representatives</th>
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<tbody>
<tr>
<td>ARC</td>
<td>Don Mendoza</td>
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<tr>
<td>DFRC</td>
<td>Edward Teets</td>
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<td>GRC</td>
<td>David Carek</td>
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<td>GSFC</td>
<td>Jonathan Root/Joe Wonsever</td>
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<td>JPL</td>
<td>David Oberhettinger/Dan Plaskon</td>
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<td>JSC</td>
<td>Hahn Nguyen</td>
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<td>NESC</td>
<td>Mark Terrone/Vicki Regenie</td>
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<td>SSC</td>
<td>Bill St. Cyr/Clifton Arnold</td>
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<td>WSTF</td>
<td>Ben Greene/Regor Saulsberry</td>
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| NESP Chair             | Tim Crumley        |
| NESP Executive Secretary| Ashley Shinkunas   |

| OCE (Program Executive) | Adam West          |
| OSMA                   | Alfredo Colon      |
| OCHMO                  | Dave Liskowsky     |
| OCIO                   | Will Peters        |
START is a one-stop shop for NASA engineers
- Offers Agency users a single point of instantaneous access to ~1.6M Standards/Handbooks/Specifications plus engineering tools, reducing research time, streamlining workflow, and avoiding unnecessary costs
- eAuthorization for the NASA Standards website
- Promotes best industry practices
- Subscriptions to 46 different Standard Development Organizations
- Pay by the document (~370 sources)

~ 109K downloads in FY12

Watch Lists and Alerts
- Provides electronic notification of revisions for registered standards
- Helps you verify that the documents you are using are current

Lessons Learned from Agency’s Lessons Learned Information System (LLIS) are integrated / linked, as they become available, to applicable NASA technical standards, and application notes
- ~460 linked lessons

Feedback process in place for questions, comments, and continuous improvement of the system

https://standards.nasa.gov
###NASA Technical Standards System

**Document Number Search**
- Enter Document Number
- Search

**Keyword Search**
- Enter Keyword(s)
- Search

**NASA Filters**
- Category
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- Application Notes
- Lessons Learned
- Filter By
- Organization
- Date Range

**Advanced Filters**
- All Document Text
- Titles
- Abstracts

**View Document**
- Click on Document Number

**Watch Link**
- Click to watch associated lessons learned

**Associated Lessons Learned**
- Table showing
  - Document Number
  - Title
  - Status
  - Date
  - Description
  - Available Tools
  - Watch List
  - Subscription

**Search Results for Document Number 1:**
   - Title: NASA SOFTWARE SAFETY GUIDEBOOK
   - Status: Active
   - Date: 03/31/2004

2. Document Number: NASA-HDBK-1017
   - Title: TERRRESTIAL ENVIRONMENT (CLIMATIC) CRITERIA HANDBOOK FOR USE IN AEROSPACE VEHICLE DEVELOPMENT
   - Status: Active
   - Date: 08/11/2000

3. Document Number: NASA-HDBK-4001
   - Title: ELECTRICAL GROUNDING ARCHITECTURE FOR UNMANNED SPACECRAFT
   - Status: Active
   - Date: 02/17/1999

   - Title: AVOIDING PROBLEMS CAUSED BY SPACECRAFT ON-ORBIT INTERNAL CHARGING EFFECTS
   - Status: Active
   - Date: 02/17/1999

5. Document Number: NASA-HDBK-5010
   - Title: FRACTURE CONTROL IMPLEMENTATION HANDBOOK FOR PAYLOADS, EXPERIMENTS, AND SIMILAR HARDWARE
   - Status: Active
   - Date: 05/24/2005

   - Title: APPLICATION OF DATA MATRIX IDENTIFICATION SYMBOLS TO AEROSPACE PARTS USING DIRECT PART MARKING METHODS/TECHNIQUES
   - Status: Active
   - Date: 02/21/2006

   - Title: FORCE LIMITED VIBRATION TESTING (SUPERSEADING NASA-HDBK-7004A)
   - Status: Active
   - Date: 01/31/2003

   - Title: DYNAMIC ENVIRONMENTAL CRITERIA
   - Status: Active
   - Date: 03/13/2001

9. Document Number: NASA-SPEC-5004 REV A
   - Title: WELDING OF AEROSPACE GROUND SUPPORT EQUIPMENT AND RELATED NONCONVENTIONAL FACILITIES (SUPERSEIDING NASA-SPEC-5004)
   - Status: Active
   - Date: 08/25/2003

    - Title: SOFTWARE FORMAL INSPECTIONS STANDARD (REVALIDATION MARCH 29, 2001)
    - Status: Active
    - Date: 04/01/1993

    - Title: NASA STRATEGY FOR WINDOWS NT DOMAIN
    - Status: Active
    - Date: 08/01/1997

    - Title: INTRACENTER NETWORKING ARCHITECTURE, STANDARDS AND PRODUCTS
    - Status: Active
    - Date: 05/01/1997

    - Title: INTRANET STRATEGY
    - Status: Active
    - Date: 05/01/1997
NASA Technical Standards Program

NASA Technical Standards Page On the NASA Engineering Network

https://nen.nasa.gov/web/oce/standards
OCE Endorsed Standards

- Developed in an effort to provide greater flexibility and the promotion of commonality of technical standard usage throughout NASA's engineering community
- Based on recommendations from engineering discipline subject matter experts from across the NASA technical community
- Serves as a "pick list" to help ensure that proven engineering practices have not been overlooked in the selection of requirements for design, development, and operations.
- Adoption criteria:
  - Addresses common, high-level functions
  - Leverages best engineering practices representative of the most current proven technology
  - Widely accepted by engineering discipline experts from industry, military, academia, and NASA to ensure proven, consistent, common practices in the engineering discipline area are applied
  - The list does not include program or project-specific or Center documents, laboratory procedures or processes, or procurement specifications.

- Presently the OCE list contains 50 standards
Endorsed Standards

NASA Technical Standards Endorsed Standards Page On the NASA Engineering Network
Engineering Tools


https://nen.nasa.gov/web/tools/home
Engineering Tools

- Parts and Logistics Information (Haystack Gold)
  - An online parts research and logistics management solution that provides comprehensive information on millions of items contained in military supply systems, and related databases
    - Commercial part number to government National Stock Number cross-references
    - Alternate Sources of Supply
    - Pricing history (active and historical)
    - Supplier, Manufacturer and distributor information
    - Technical Parameters/Characteristics
    - Obsolescence information

- 4D Online Parts Universe
  - An electronic components database comprised of millions of components from manufacturers worldwide
  - It allows you to instantly access all aspects of critical component information, including alternate components, part status, manufacturer documentation, datasheets, application notes, timing diagrams, and more

- eFunda (engineering Fundamentals)
  - Includes a variety of design, process, unit, mathematical and formula calculators and related tools

- Engineering Design Methods (ESDU)
  - Industry validated engineering design data, methods and associated software that helps solve design problems and reduce project cost.
We strive to…..

- **Serve the needs** of the NASA engineering community
- **Educate, inform** and **guide** our programs and projects
- **Drive consistency** of standard usage across the Agency
- **Improve our efficiency and value** through our web site services
- **Adopt industry standards** to meet our missions
- **Develop standards** (where needed) to meet our unique mission requirements
- **Tie lessons learned** to our standards
- Use proven technical standards to **help ensure mission success!!**