MIL-STD-31000A

Putting The Pieces Together

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MIL-STD-31000A

• The Military Standard defining Technical Data Packages
• Previously known as MIL-DTL-31000C
• Defines both Drawing Based and 3D TDPs
• Used to provide requirements for placing TDPs under contract
Transforming the DoD

From This

To This
MIL-STD-31000A defines a TDP as:

“A technical description of an item adequate for supporting an acquisition, production, engineering, and logistics support (e.g. Engineering Data for Provisioning, Training, and Technical Manuals). The description defines the required design configuration or performance requirements, and procedures required to ensure adequacy of item performance. It consists of applicable technical data such as models, drawings, associated lists, specifications, standards, performance requirements, QAP, software documentation and packaging details.”
TDP In The Hierarchy Of Data

Technical Data Includes Many Types of Data

The TDP is a subset of Product Design Data which is on the bottom tier of data
The New Levels

• The old MIL-DTL-31000 used numeric levels (1, 2, and 3) to describe ascending levels of detail, where a level 3 would fully define a product

• MIL-STD-31000 ties this concept to the lifecycle
  • Conceptual Level
  • Developmental Level
  • Production Level
MIL-STD-31000A supports two basic types of TDPs:

- **2-Dimensional (2D)**
  - Traditional drawings and document based

- **3-Dimensional (3D)**
  - There are two subsets of 3D TDPs
    - Model Only
    - Models With Associated 2D drawings
What is a 3D TDP?

• A set of technical data based upon a 3D Solid Model (aka an Annotated Model) that provides the product definition of an item
• It replaces a traditional drawing based TDP
• Can contain many types of related data

Provides a foundation for reuse downstream
3D Foundation

Annotated Model

Build

Details

Sustain

3D PDF

Integrate
Option Selection Worksheets

• Understanding that each contract/program has different needs MIL-STD-31000A has incorporated the Option Selection Worksheets

• These Worksheets allows the user to select which TDP elements are needed for their effort

• The worksheets should be included as part of the SOW or CDRL

• Appendix A provides detailed explanations of each block contained with in the worksheet
## DIDs and MIL-STD-31000

The following Data Item Descriptions are used in conjunction with 31000A

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Appendix B – Model Schema

• This appendix provides a baseline modeling organization schema to insure the model can be easily understood and reused

• If a contractor desires to use their own schema, they simply provide a document mapping it to this appendix

• Remember, like all appendices in MIL Standards it is reference only unless called out by the contract
Why a Schema?

Enabling Reuse Through Organization

From This

To This

From This

To This

From This

To This
Levels Of Annotated Models

The Model Organization Schema also defines three basic levels of annotated models

• Conceptual/Minimal Annotation
  • Only contains general information
  • Examples are: Material, Finish, Envelope Dims

• Developmental/Partial Annotation
  • Only contains non standard or critical information
  • Adds to minimal definition
  • Examples are key and critical dimensions, interface notes

• Production/Full Annotation
  • Contains all information needed to clearly define a product
  • Adds to Partial
  • Examples are complete dimensions and notes
Appendix C – Model Validation

• The quality of a model determines how easily it can be reused
• This appendix gives guidelines for defining that quality
• Every program should have a model quality guideline
• Guidance is under development to validate the conversion of a Drawing to a 3D Annotated Model
• Again note that to be used this must be called out in the contract
Why Validate?

Because...

... If you don’t
Worksheet

• Similar to the main standard Appendix C has a worksheet to define what checks are needed
• Each program should review the checks and decide which are applicable (along with their associated tolerance)
• There are recommended values and checks if the program has no preference
Questions?
Thank you for your time and consideration.