

# TPF-5(372) TECHNICAL SOLUTION SUMMARY FOR THE DESIGN-TO-CONSTRUCTION DATA EXCHANGE STANDARD FOR HIGHWAY BRIDGES

## Grocery Store Analogy

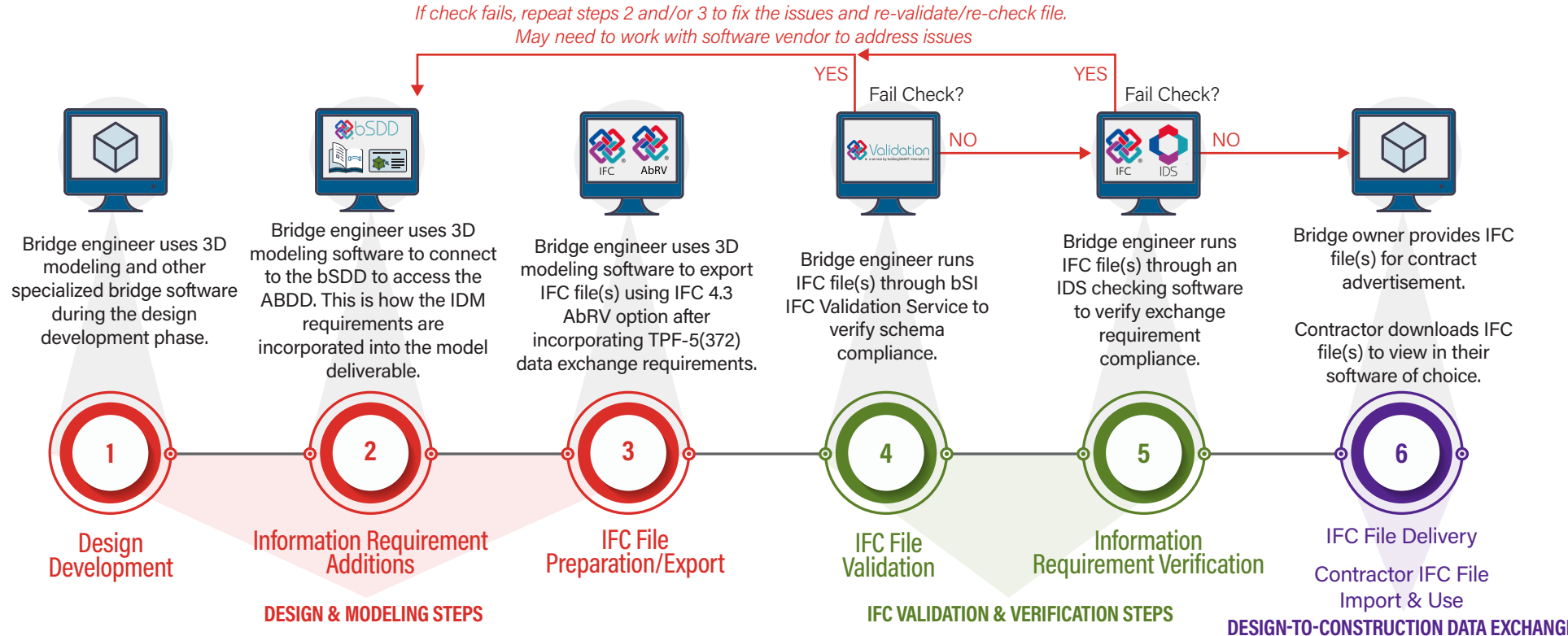
- Industry Foundation Classes (IFC)**  
**Short Description:** The foundation for all model-based data that represent the built-environment, including objects, assemblies, relationships, and materials.  
**Analogy:** A grocery store that has all the ingredients to make various kinds of recipes.
- Model View Definition (MVD)**  
**Short Description:** A subset of the entire IFC schema, for example the AbRV.  
**Analogy:** Aisles in a grocery store that have specific types of items (e.g., baking, frozen, dairy) needed for similar types of recipes.
- Alignment-based Reference View (AbRV)**  
**Short Description:** A specific type of base MVD that provides the IFC subset for linear infrastructure entities.  
**Analogy:** The baking aisle in the grocery store, provides items needed for baking a cake.
- Information Delivery Manual (IDM)**  
**Short Description:** Manual with the information requirements for one exchange, such as the design-to-construction exchange to support bidding, construction, and initiation of fabrication.  
**Analogy:** Cookbook recipe for baking a chocolate cake.

**buildingSMART Data Dictionary Service**  
**Short Description:** Online service that hosts catalog of standard information classifications and their properties, allowed values, units, and translations that can be referenced when identifying the meaning of data in an exchange.  
**Analogy:** An index of ingredients that can be found at the grocery store, where they may be grouped in a variety of ways, such as according to ingredient types (e.g., flours, sweeteners, etc.), recipe types (bread, cake, etc.), or even ethnic origin (German, Italian, etc.).

**Information Delivery Specification (IDS)**  
**Short Description:** A computer interpretable file (i.e., XML file) that checks if an IFC file complies with the model-based requirements for a specific data exchange or use. An IDS is a more detailed specification of data exchange requirements for the MVD being used, based on a specific use case.  
**Analogy:** A tool that automatically checks chocolate cake ingredients and brand information, measurements, etc. It flags any items not in compliance with the recipe and your shopping list.

**bSI Validation Service**  
**Short Description:** A free online self-service used by a user to check a given IFC file against IFC schema, syntax, and other normative rules of the standard.  
**Analogy:** A quality management process that checks the quality of the resulting dish meeting the criteria in terms of correct use of ingredients, measurements, cooking methods, and temperature.

**bSI Software Certification Program**  
**Short Description:** A paid program administered by bSI to certify software against specific IFC versions and base MVD (e.g., IFC 4.3 AbRV) Software vendors pay to become certified by bSI.  
**Analogy:** A process by which an independent authority, such as the Gluten Free Certification Organization, determines whether a product meets the quality and integrity to label it "gluten free certified".



**TYPICAL DESIGN PROCESS USING THE TECHNICAL SOLUTIONS FROM TPF-5(372)**  
 (for Design-Bid-Build Delivery Method)

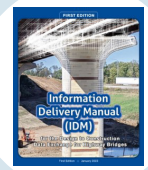


**Who adopts the open data standards?**  
 AASHTO adopts open data standards and associated products that are created by AASHTO Technical Committees, or through national efforts such as Transportation Pooled Funds, with State DOT input

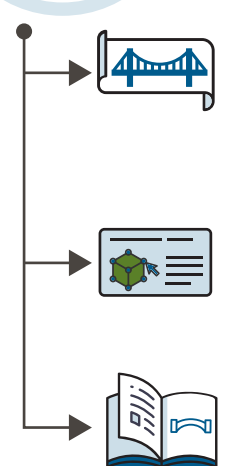


**Who provides the mechanisms to enable open data standard workflows?**  
 Software vendors incorporate open data standards into their products, and develop applications to:

- Model bridges, connect to bSDD, export/import IFC files
- Validate IFC files using IDS



**Information Delivery Manual (IDM)**  
 for the Design to Construction Data Exchange for Highway Bridges  
 The authoritative standard, published by AASHTO, defining the exchange information requirements in tables in a manual.



**Unit Test Suite**  
 A set of bridge drawings and tables with properties to be used by software vendors as instructions to certify their software can produce AASHTO compliant IFC bridge models.

**Information Delivery Specification (IDS)**  
 for the Design-to-Construction Data Exchange for Highway Bridge  
 A machine-readable specification of information requirements which defines the data needed for the design-to-construction exchange for highway bridges, which can be used to aid in the quality control of delivered IFC files.

**AASHTO Bridge Data Dictionary (ABDD)**  
 Knowledge based repository for understanding requirements from the IDM in terms of categories of objects, terms and descriptions, semantic object relationships, property type and unit of measure and metadata.

