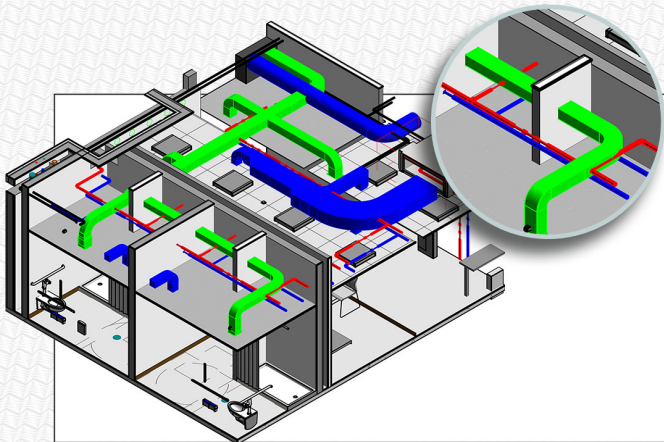
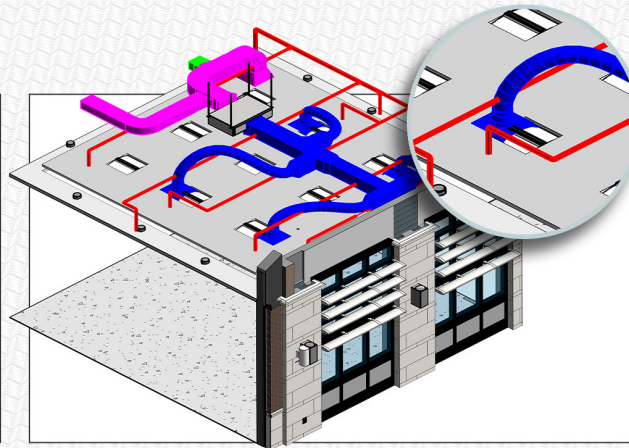


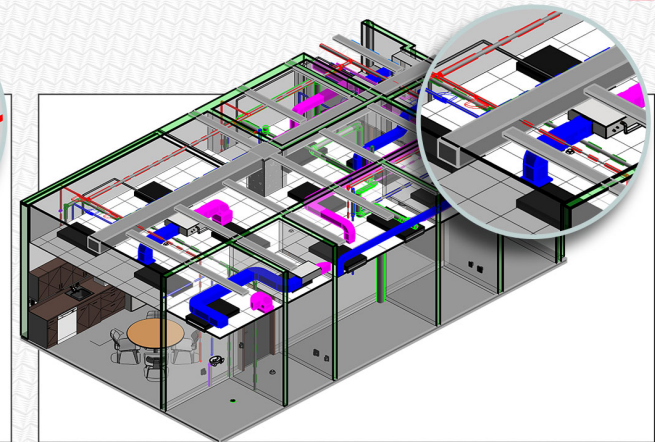
# Top 10 Causes of Clashes Found During 3D Design Coordination



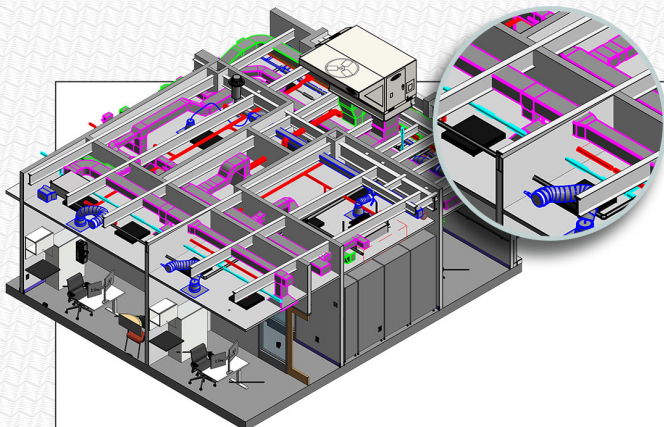
Mechanical to Plumbing



Electrical to Mechanical (HVAC)



Plumbing to Structural



Structural to Mechanical (HVAC)

## TOP 10 CAUSES OF CLASHES

1. Designers working in **isolation** from each other
2. Inadequate **time** from design to construction
3. Professional **error** by designers
4. **Inconsistency** between design & actual fabrication
5. **Complexity** of buildings or their sub-systems
6. Use of **2D design** instead of 3D BIM models
7. Design **uncertainty** / Use of placeholder objects
8. Wrong or low **level of detail** (LOD)
9. 3D **model objects** exceeding allowable clearance
10. Designers working with different **file formats**

Reference: An article submitted by Anderson O. Akponeware and Zulfikar A. Adamu