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BIM – EXPERIENCIA INTERNACIONAL.

Universidad de los Andes

SOCIEDAD CHILENA DEL DERECHO DE LA CONSTRUCCIÓN

USES FOR BIM

Explore Alternatives

Design Efficiency

Consistent Bases

3D Modeling

Conflict Resolution

Shop Drawings

Fabrication

Trade Coordination

Constructability

Construction Rehearsal

4D Simulations

Take-offs/Estimating

Functional Simulations

Data Repurposing

Energy Optimization

Facility Management

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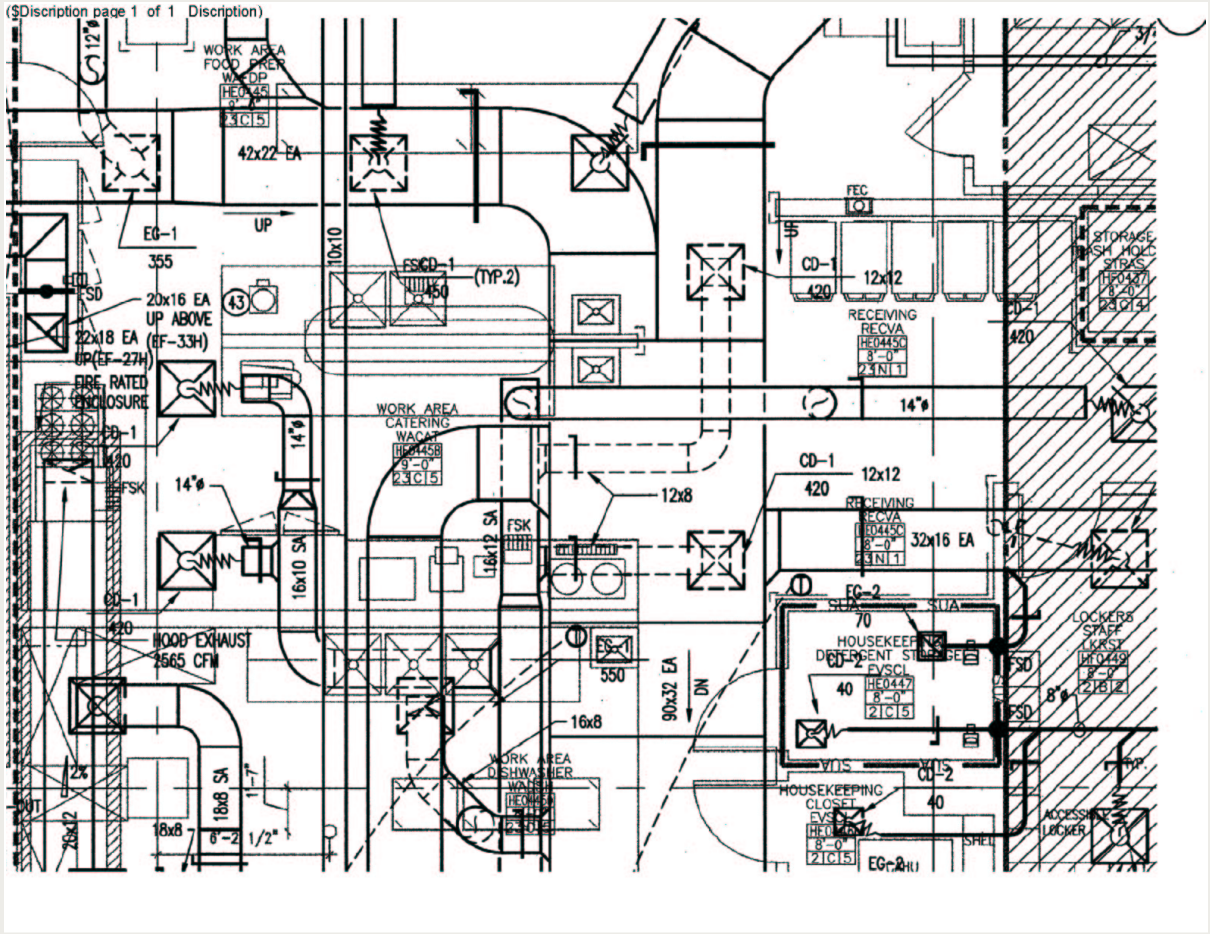
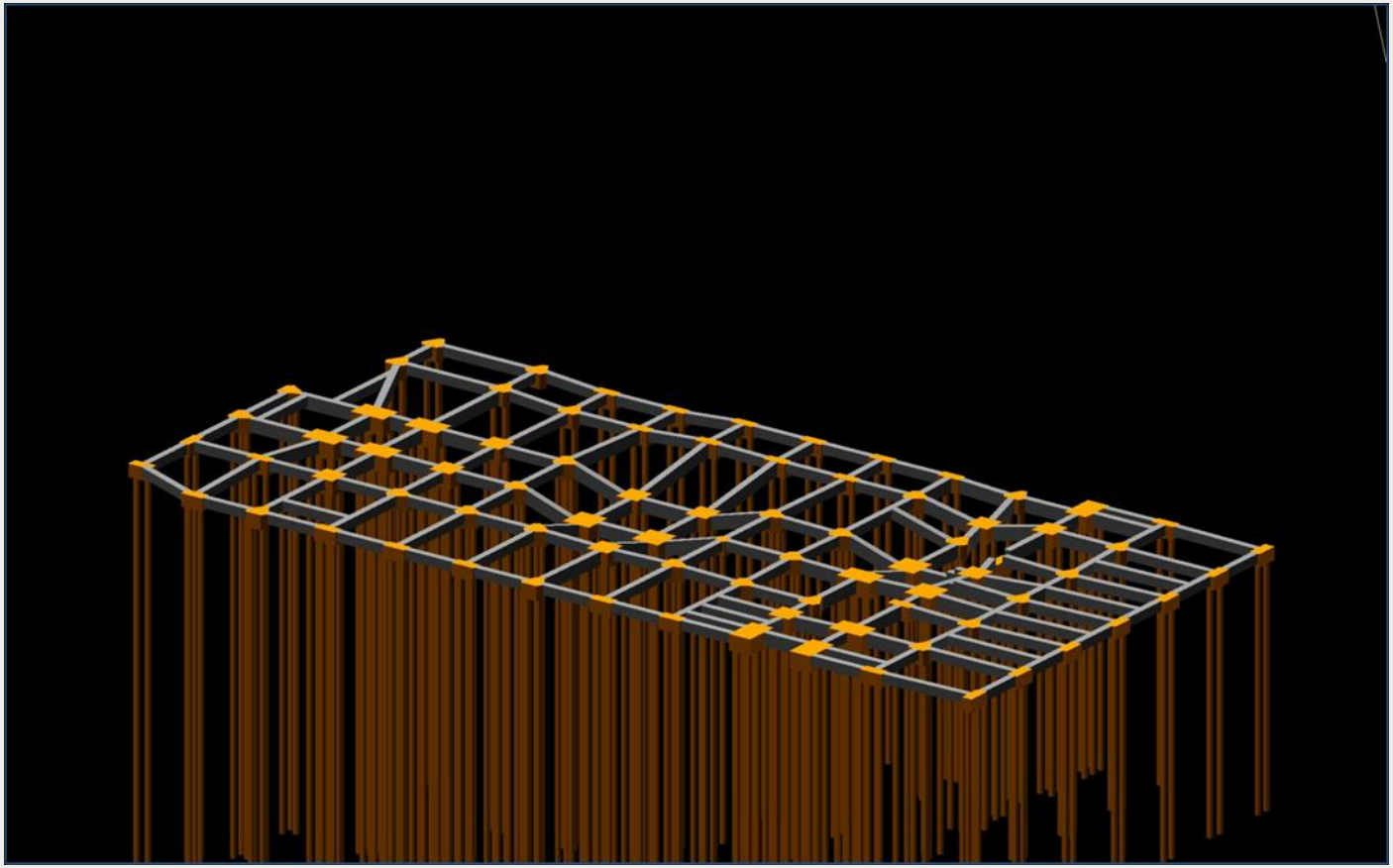
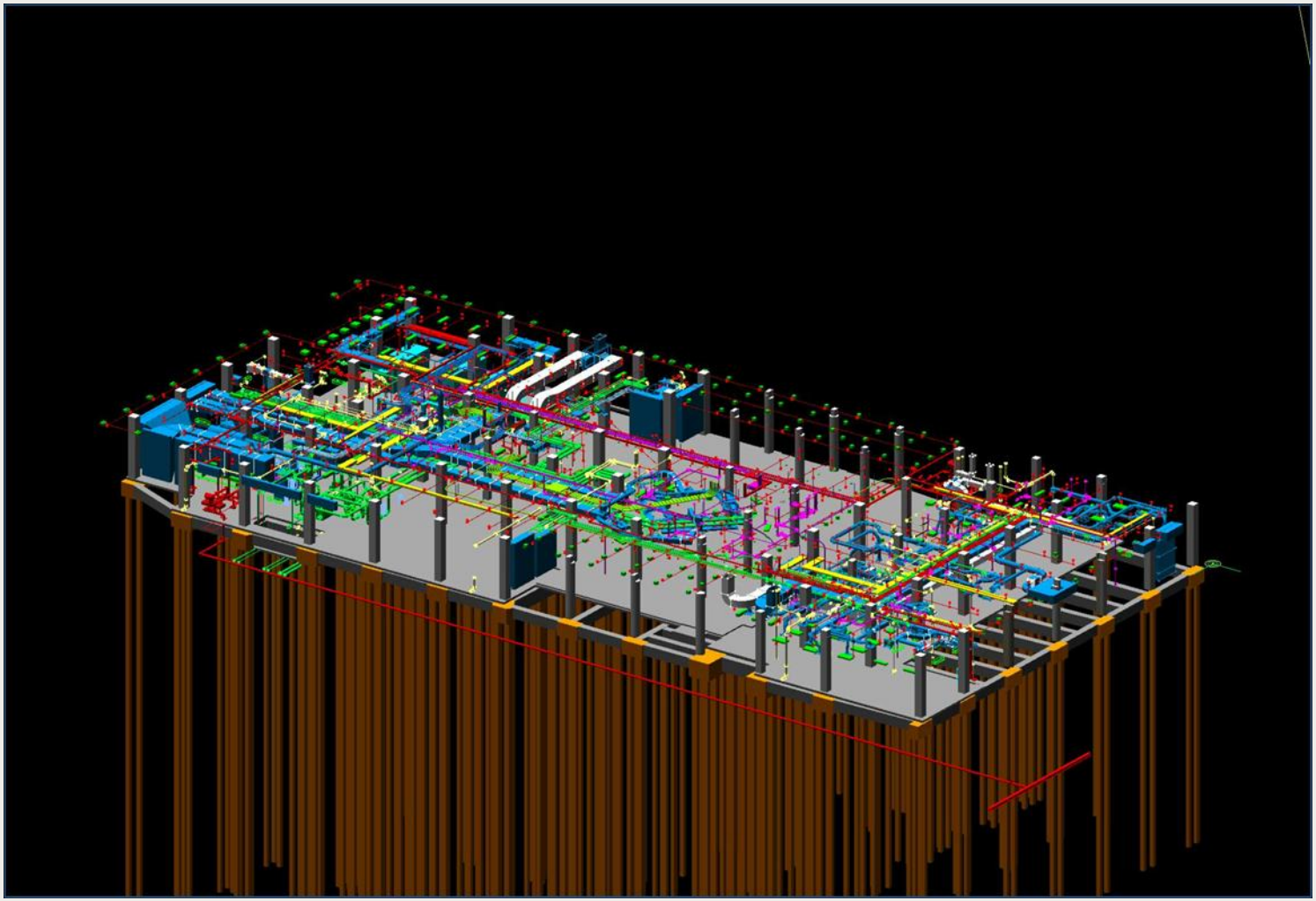
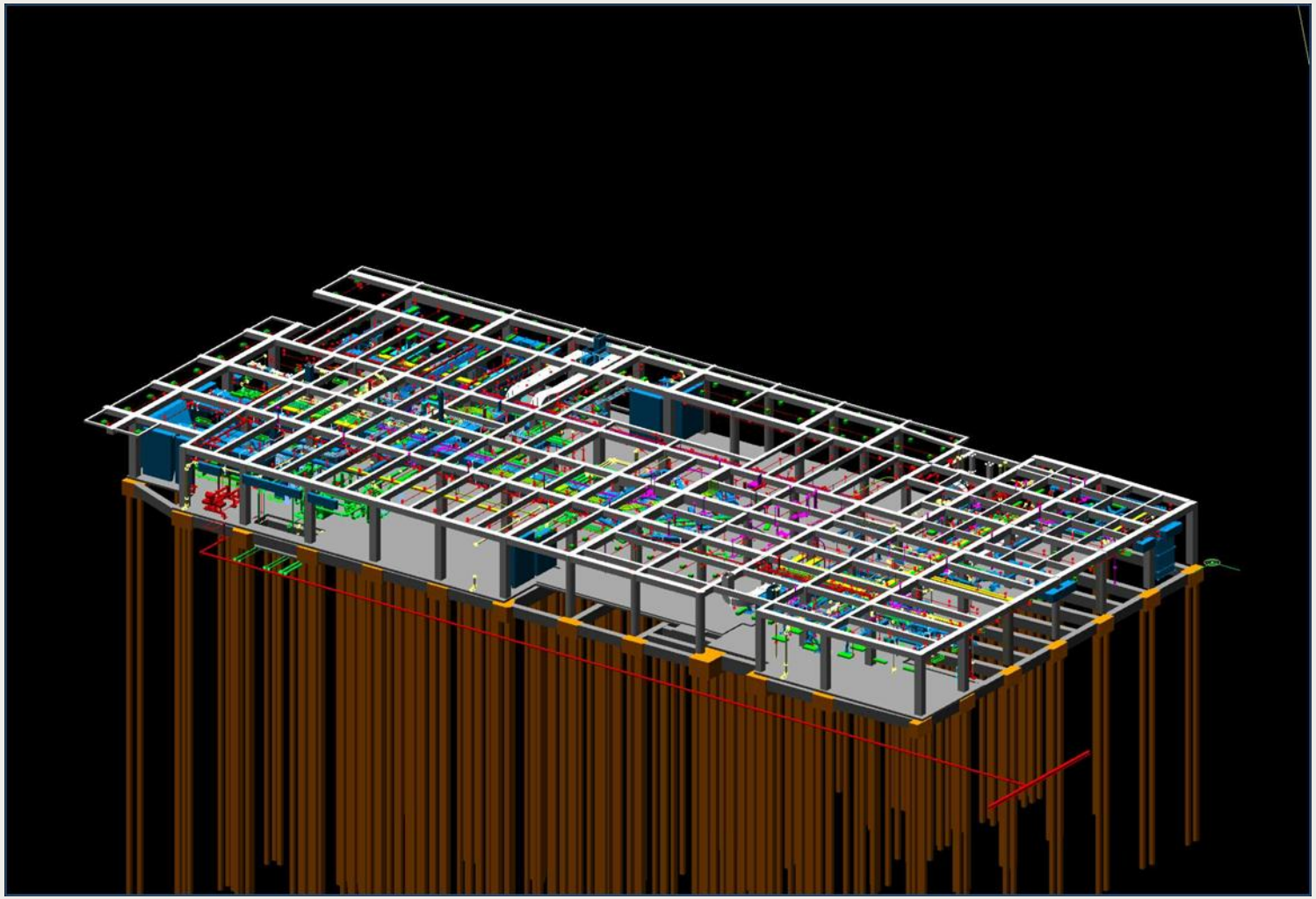
TRADITIONAL 2D DRAWINGS



Engineer's Mechanical 2D drawing No pipe or duct elevations given







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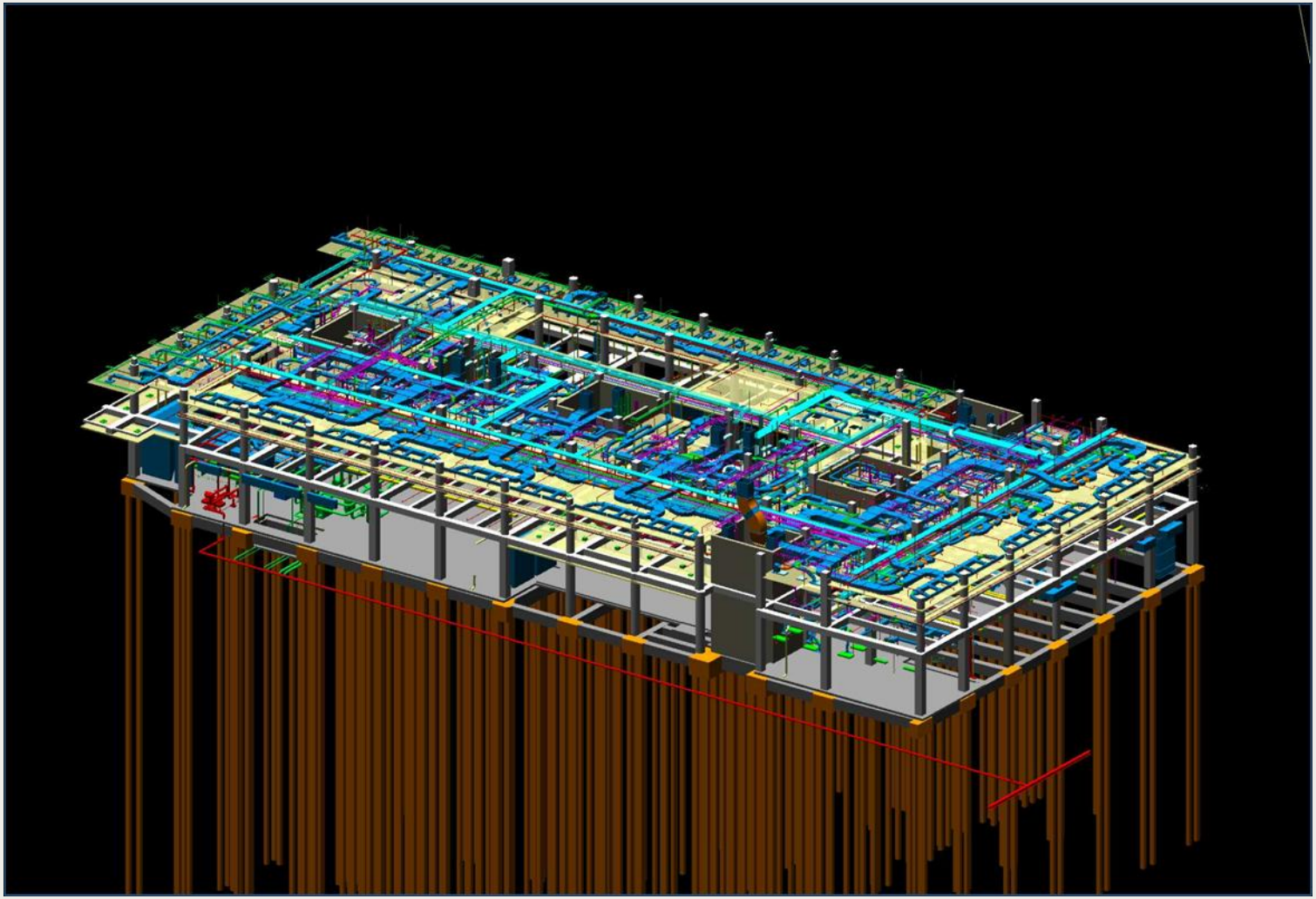

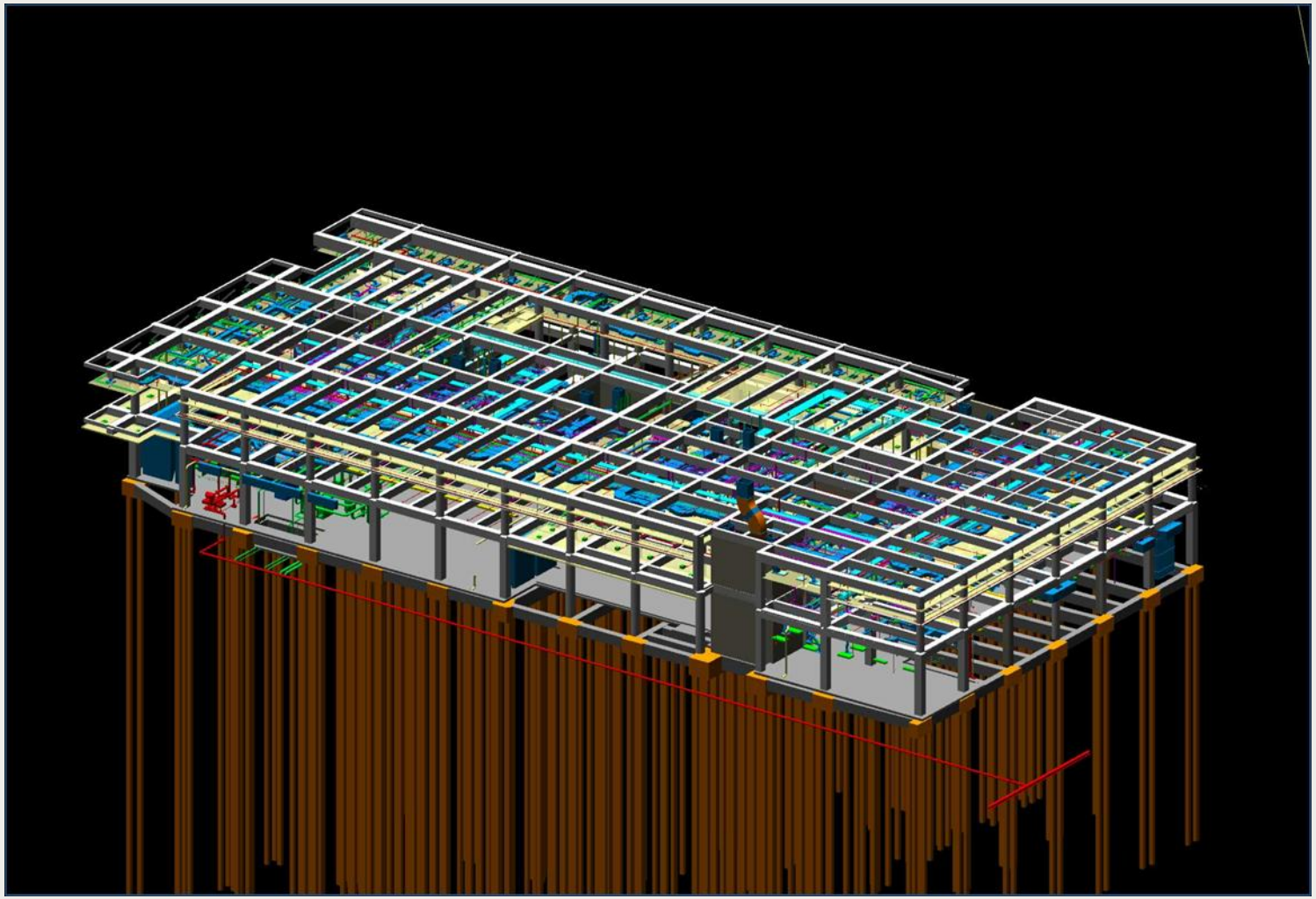

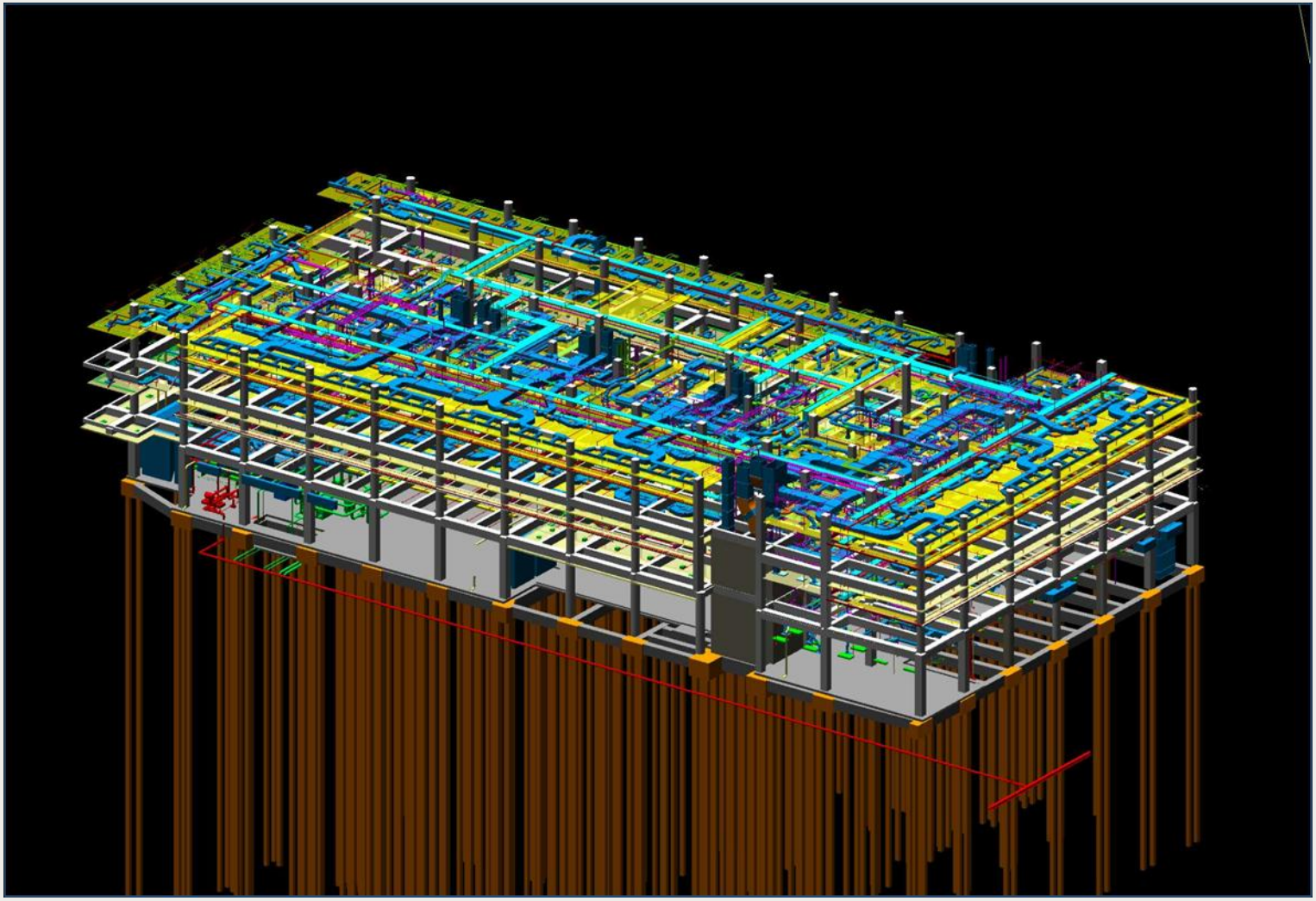

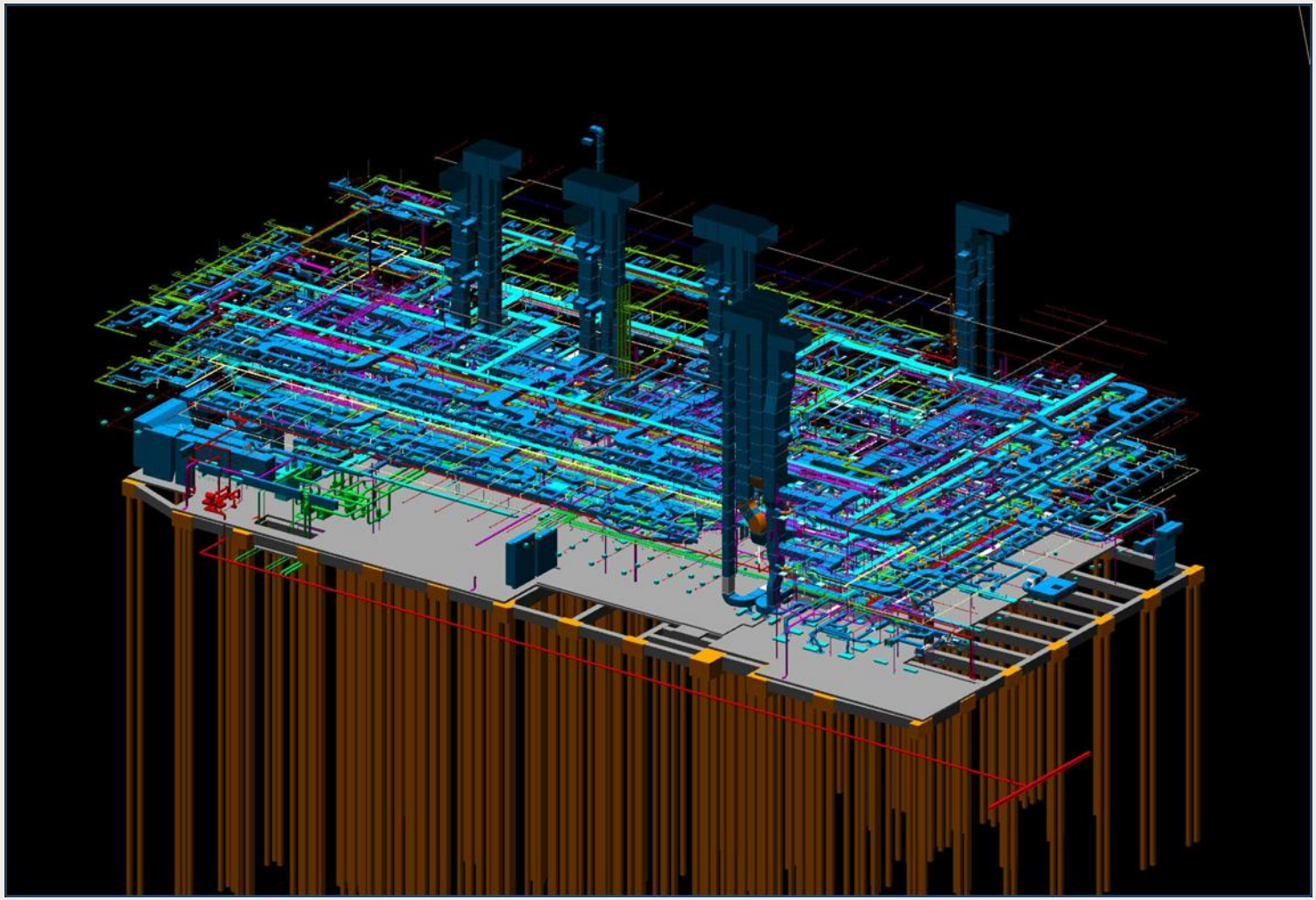

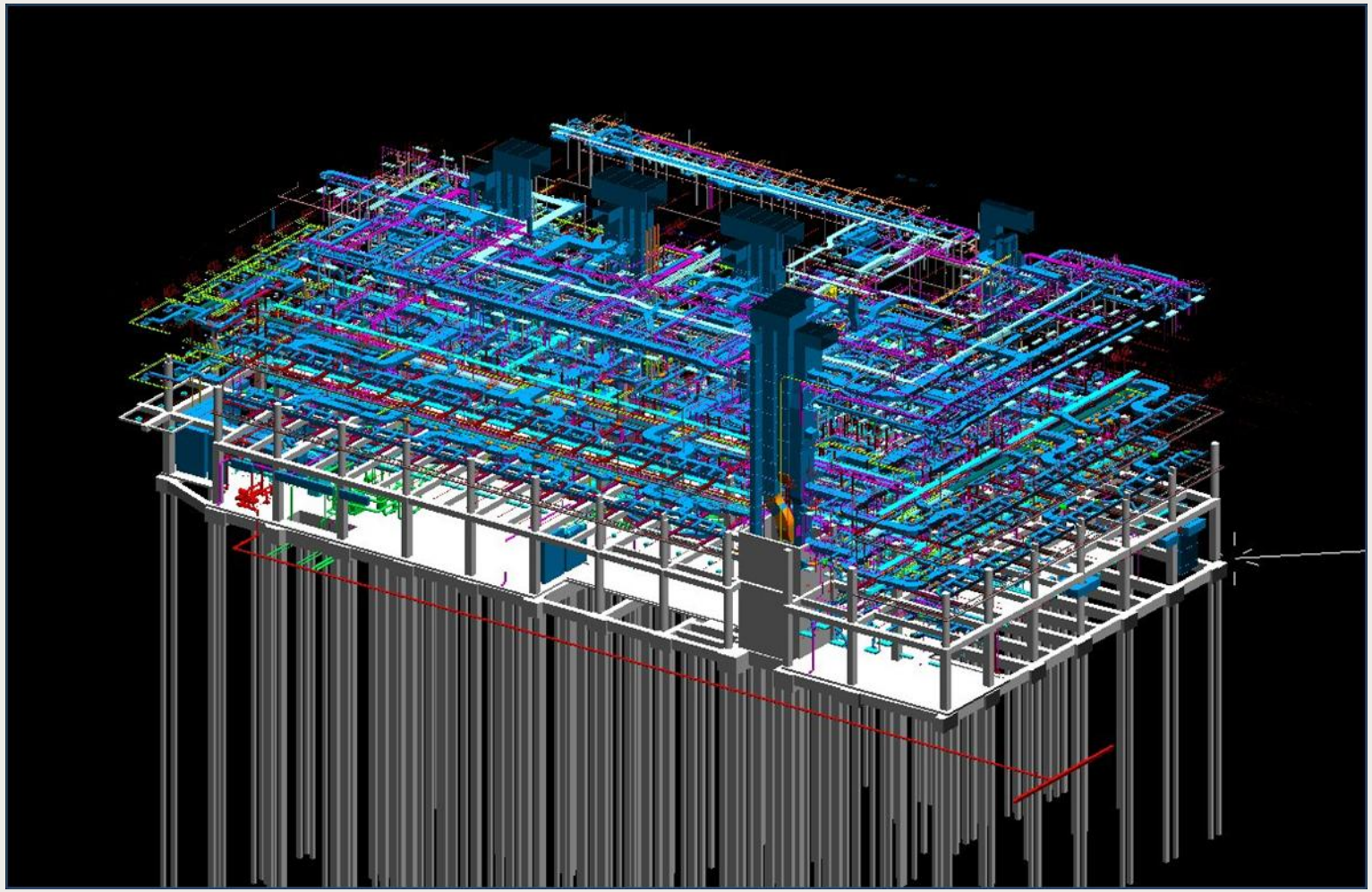

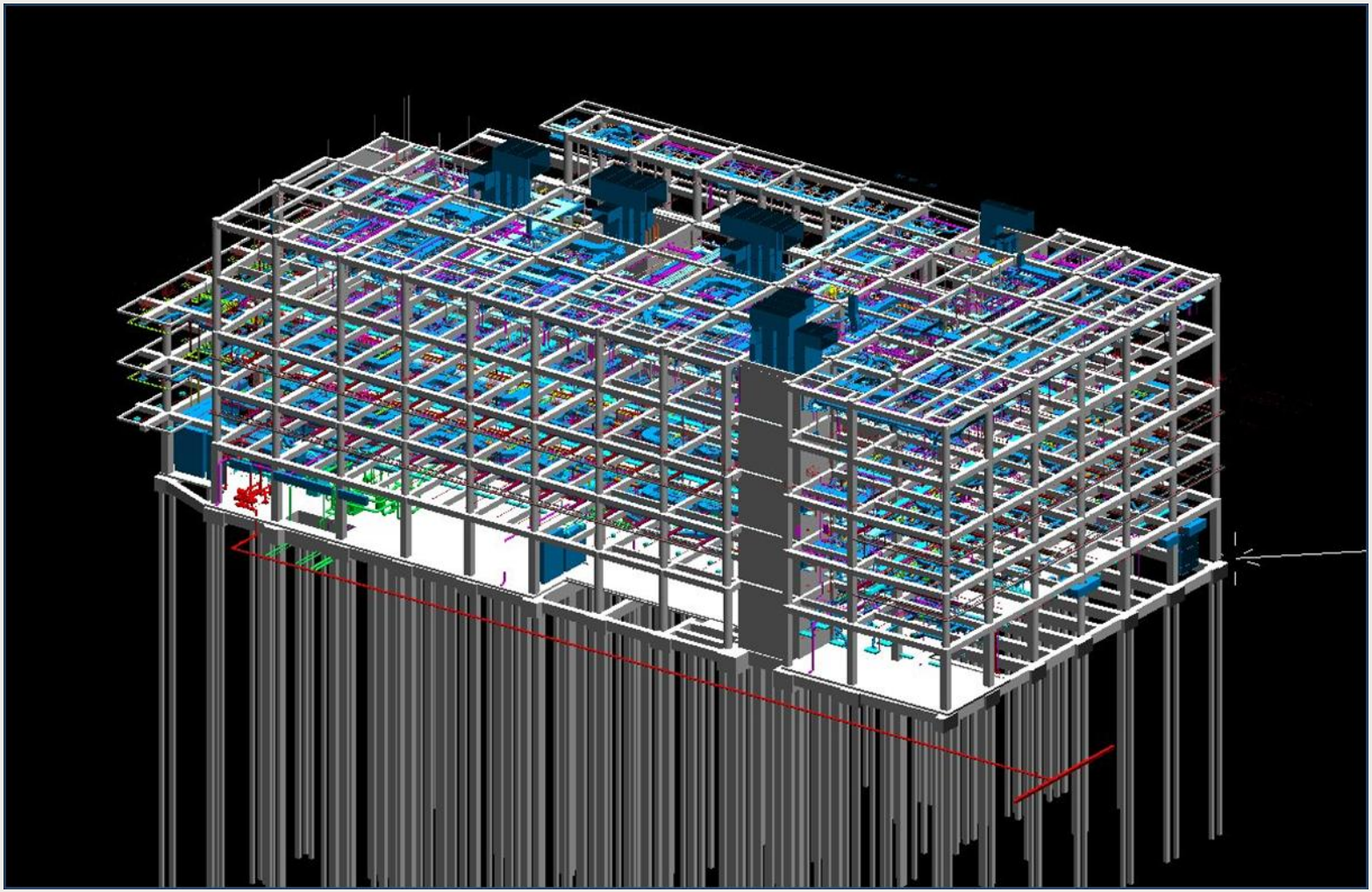

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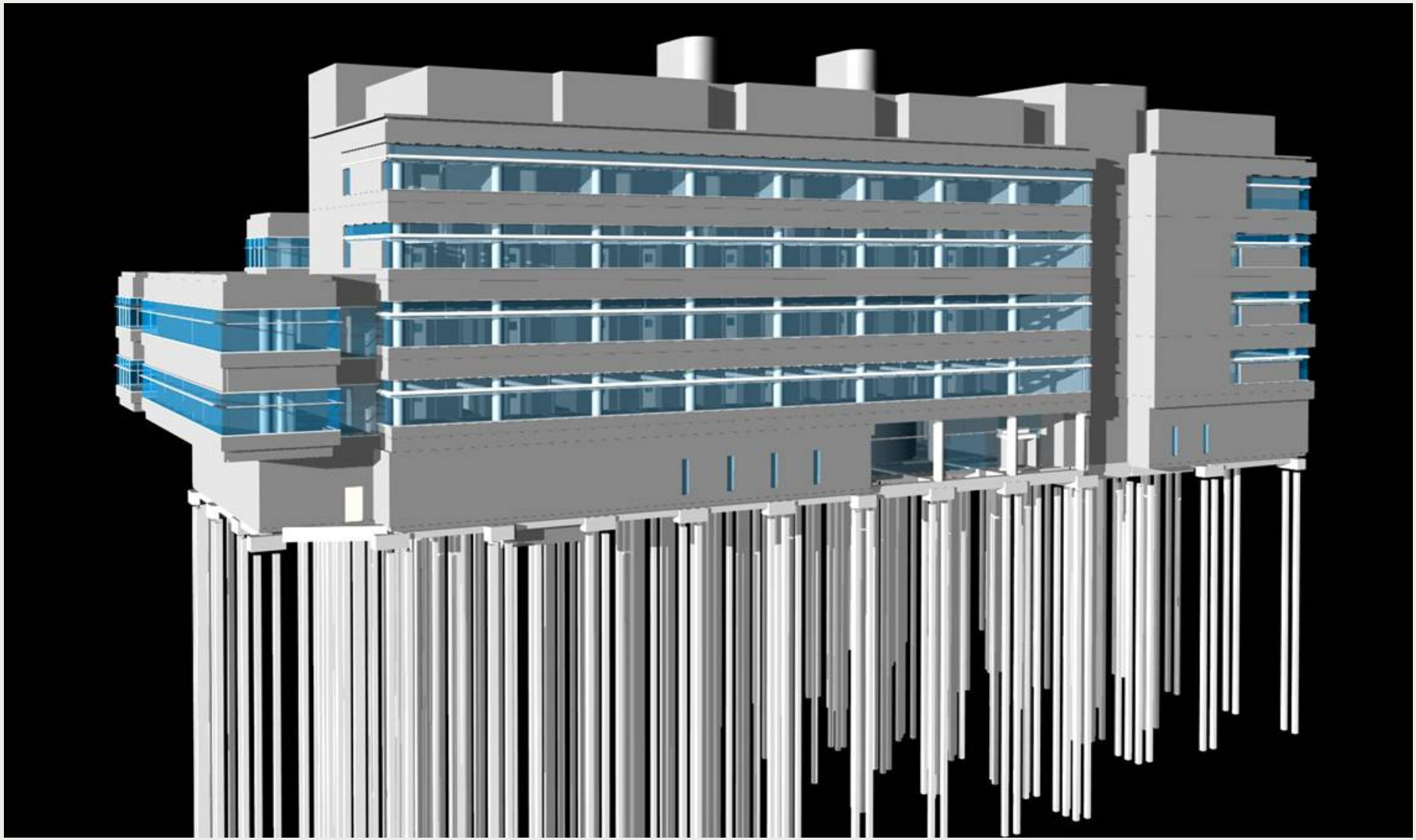


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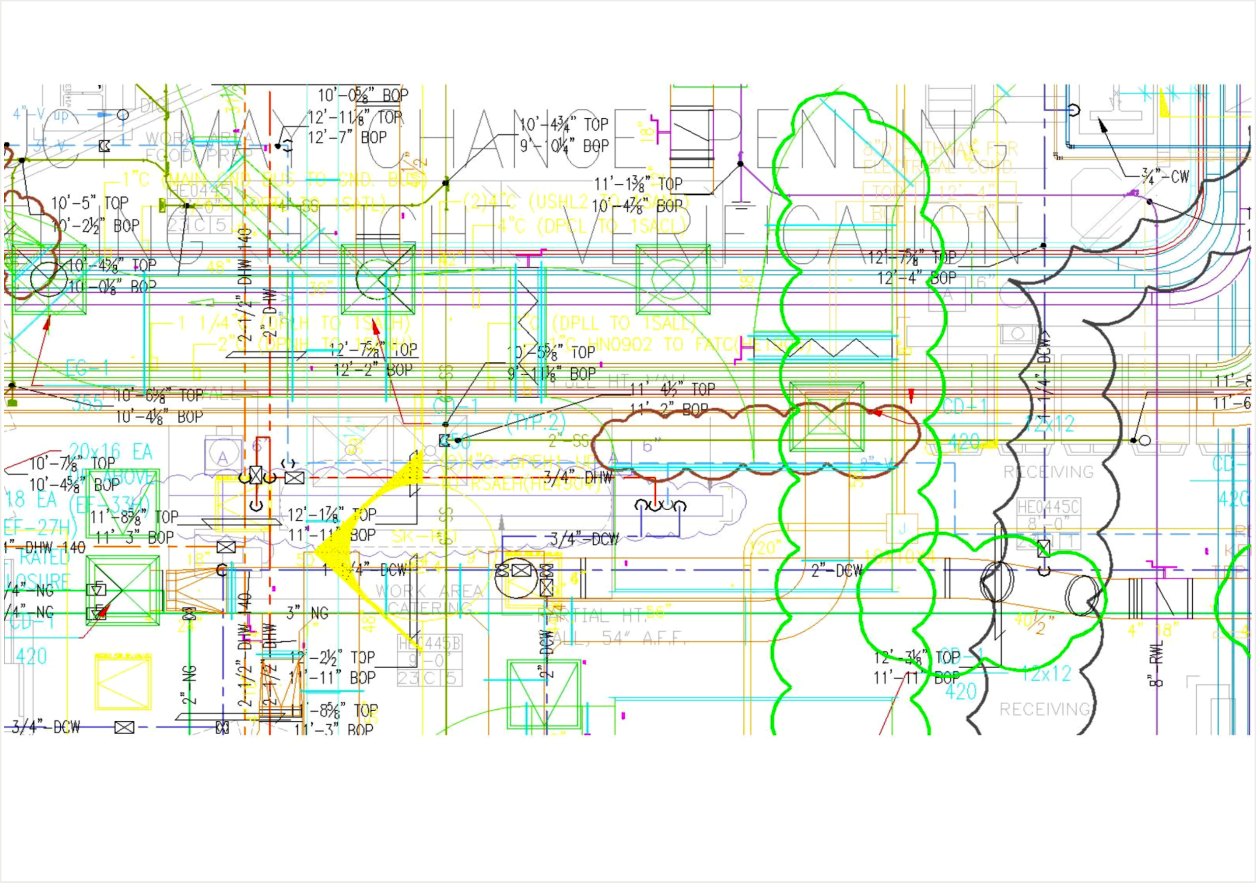
TRADITIONAL 2D COORDINATION



Traditional Trades Interference Checking Over Light tables. Elevation set by Trades

TRADITIONAL COORDINATION BY TRADES

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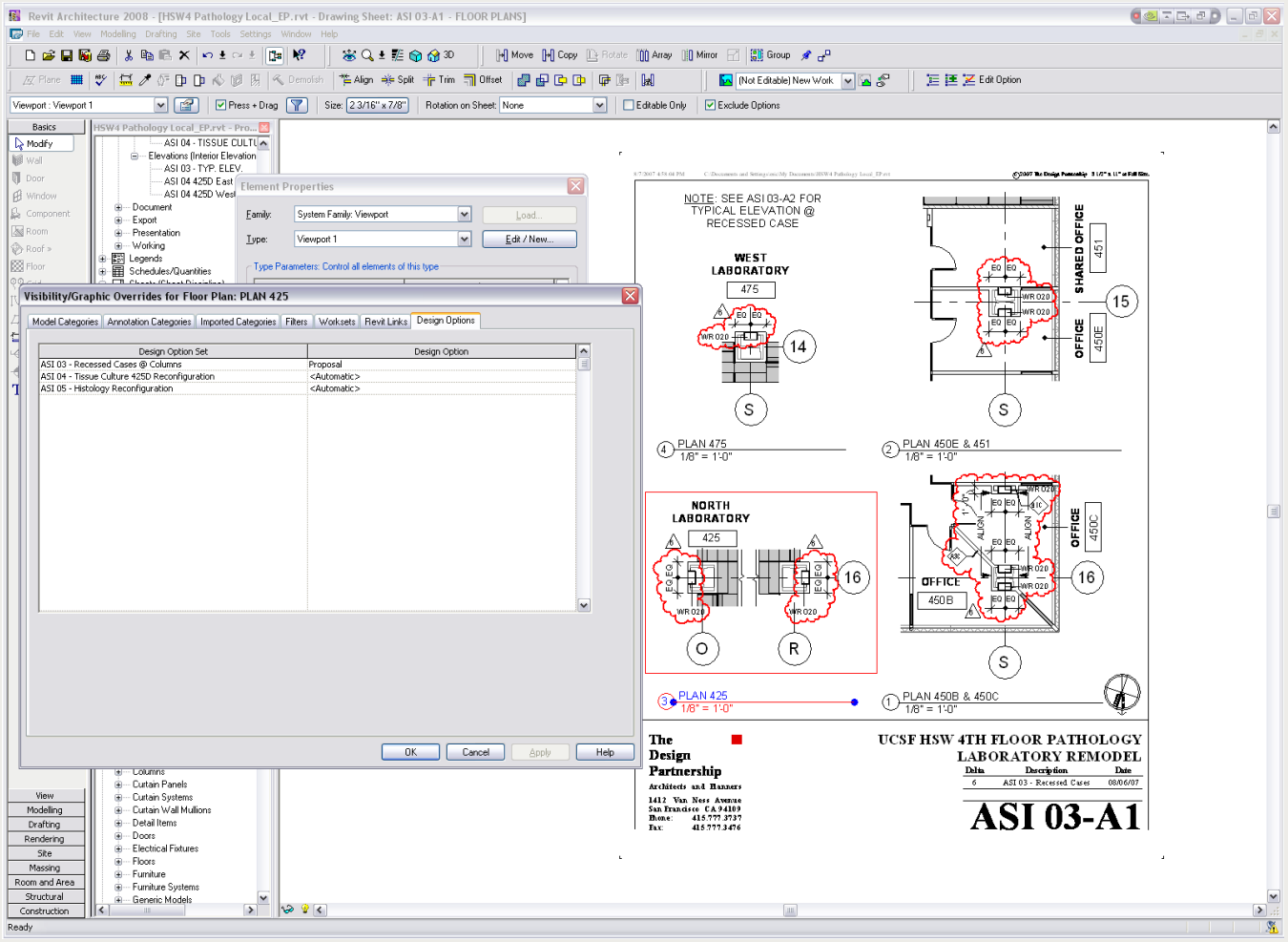
DOCUMENT COORDINATION

Change Management



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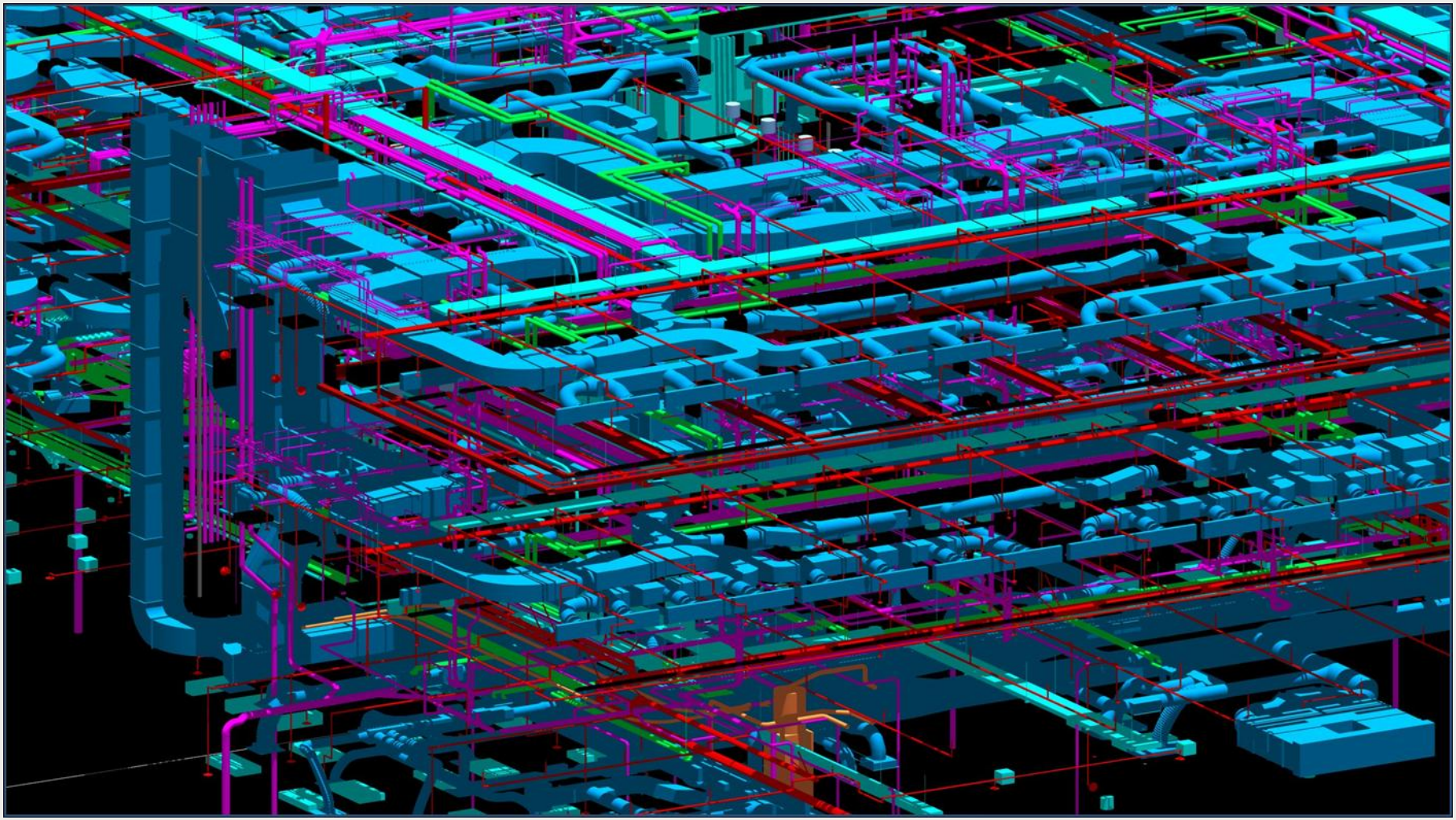

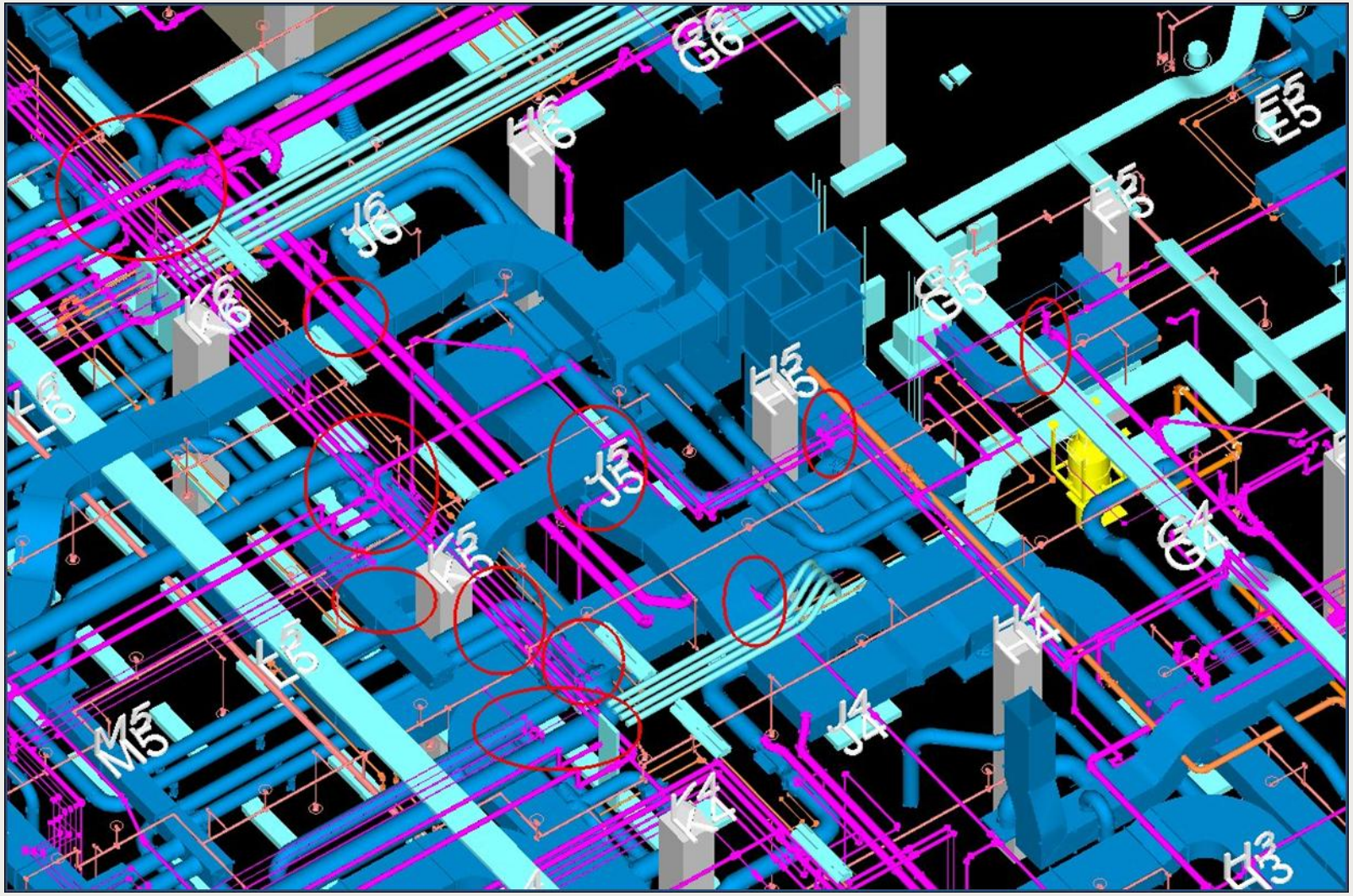
G6
H6
E5
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K6
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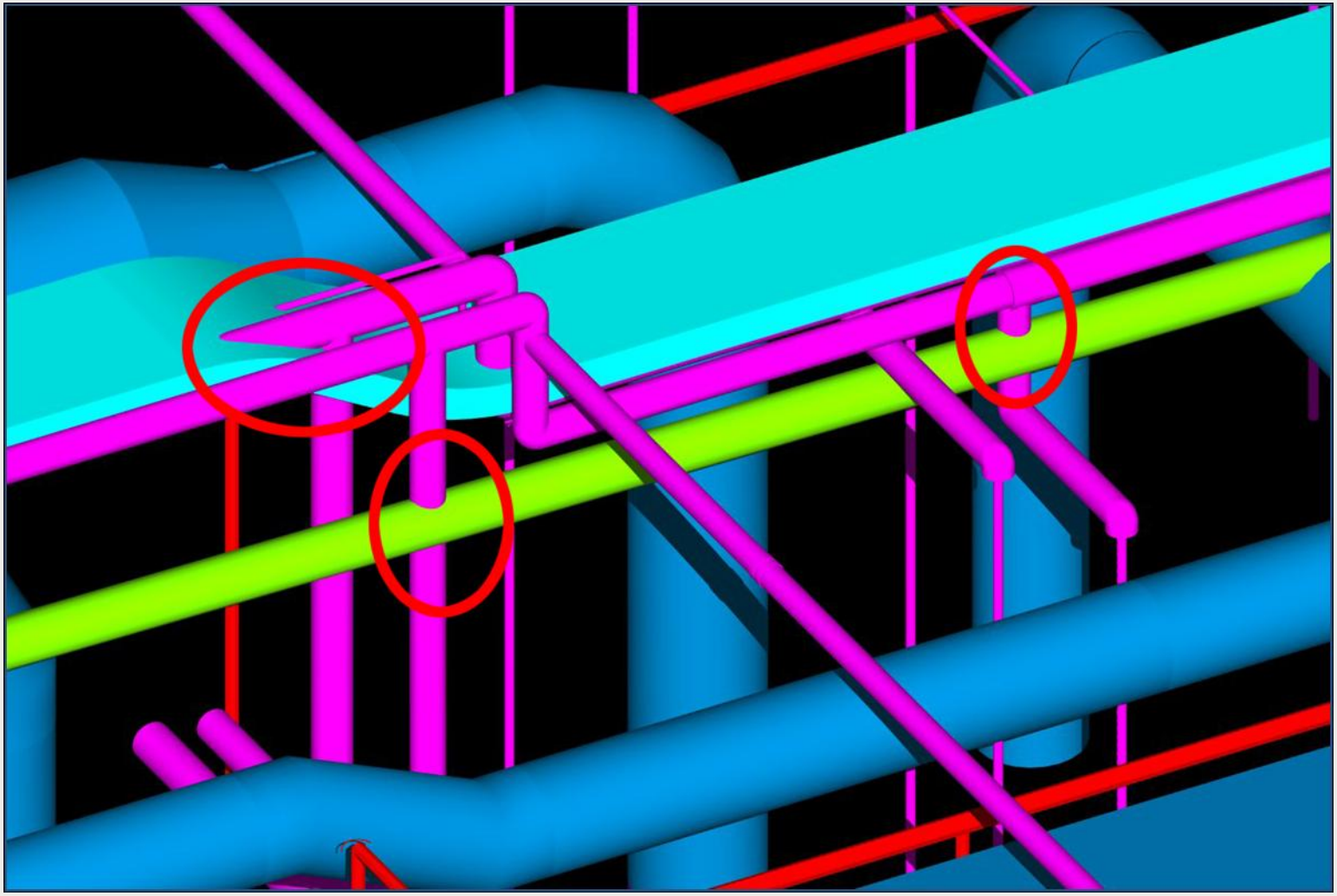
K4
H3



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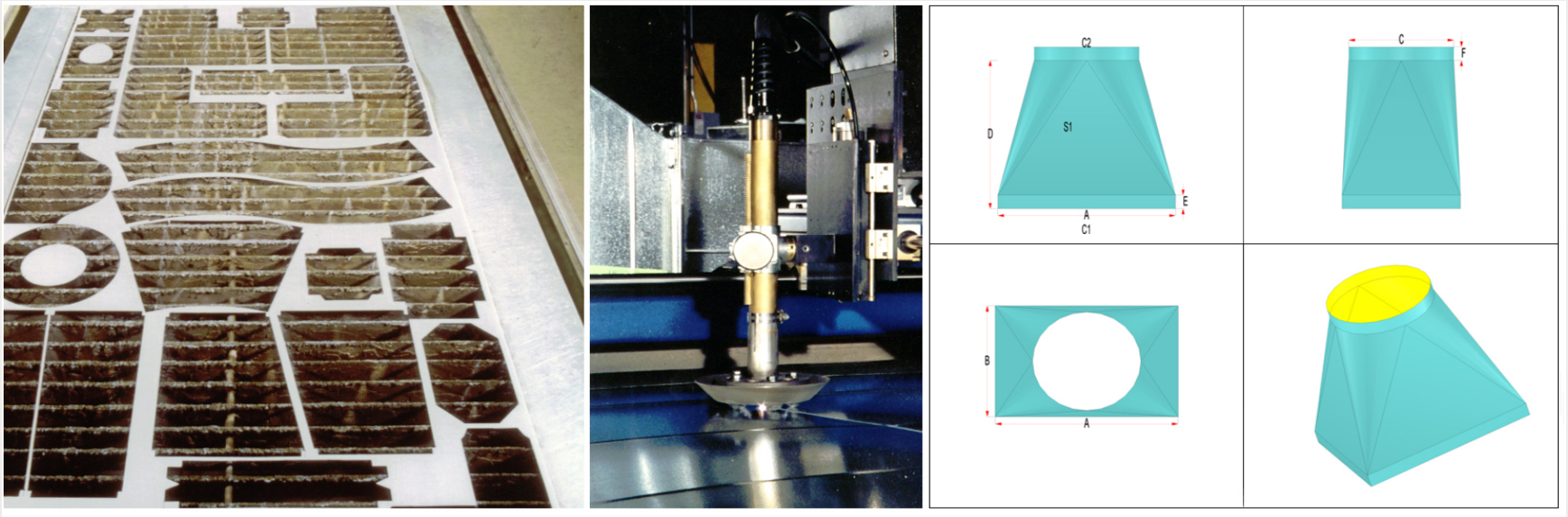

HVAC Duct Fabrication process directly from the 3D Building Information model

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AUTOMATED DUCT FABRICATION PROCESS DIRECT FROM 3D BIM

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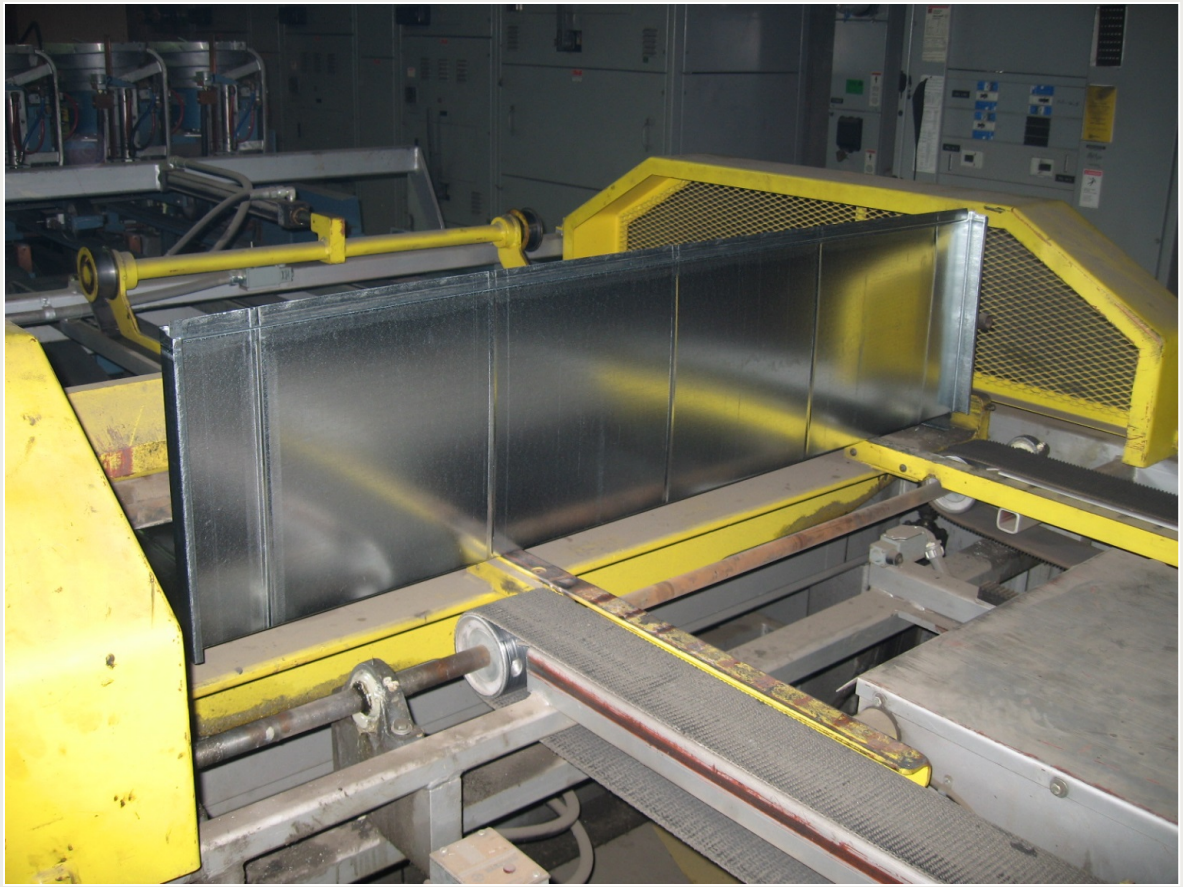
AUTOMATED DUCT FABRICATION PROCESS DIRECT FROM 3D BIM



Mech. contractor's Project Manager checking the plumbing and Duct installation with the BIM data on his computer.

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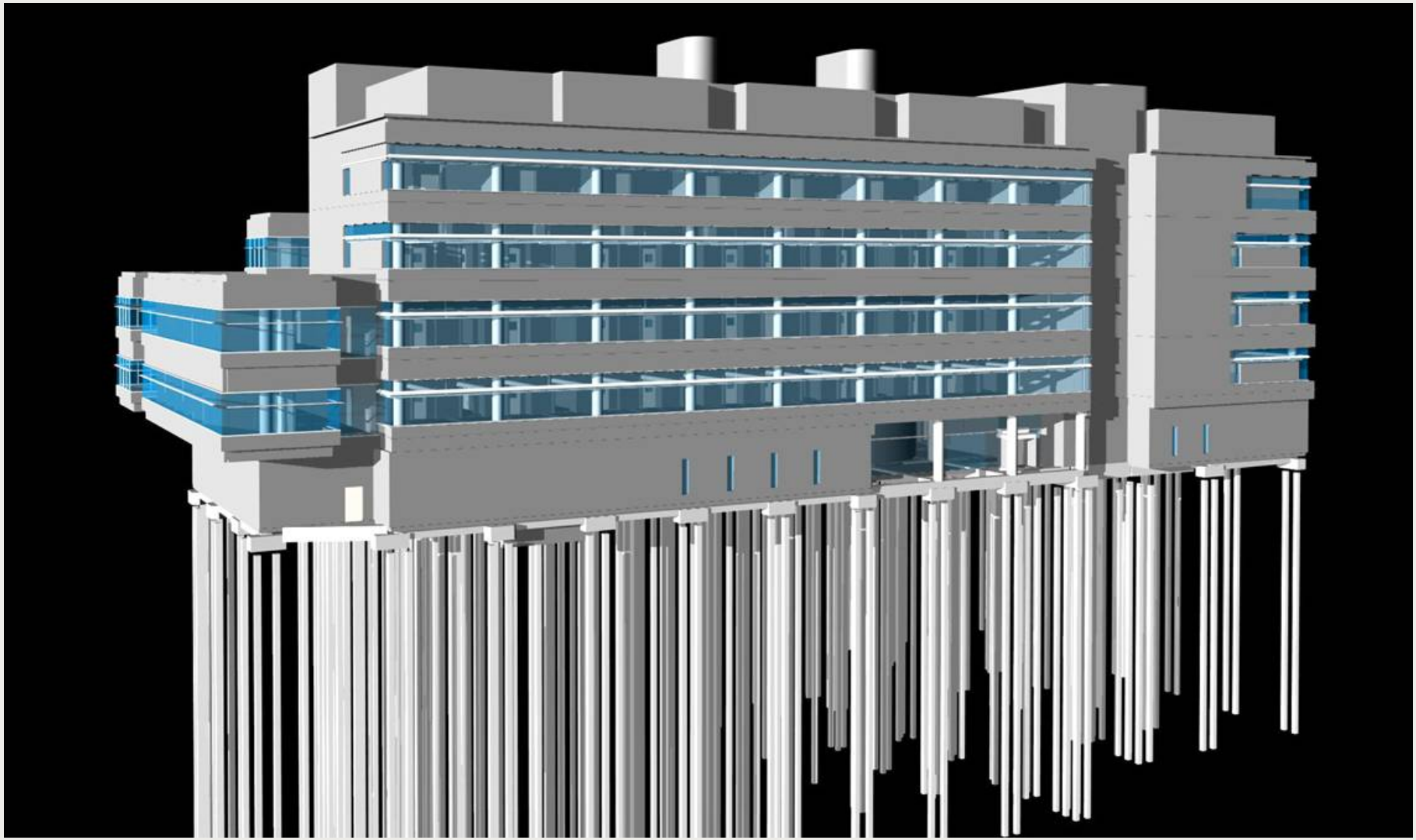

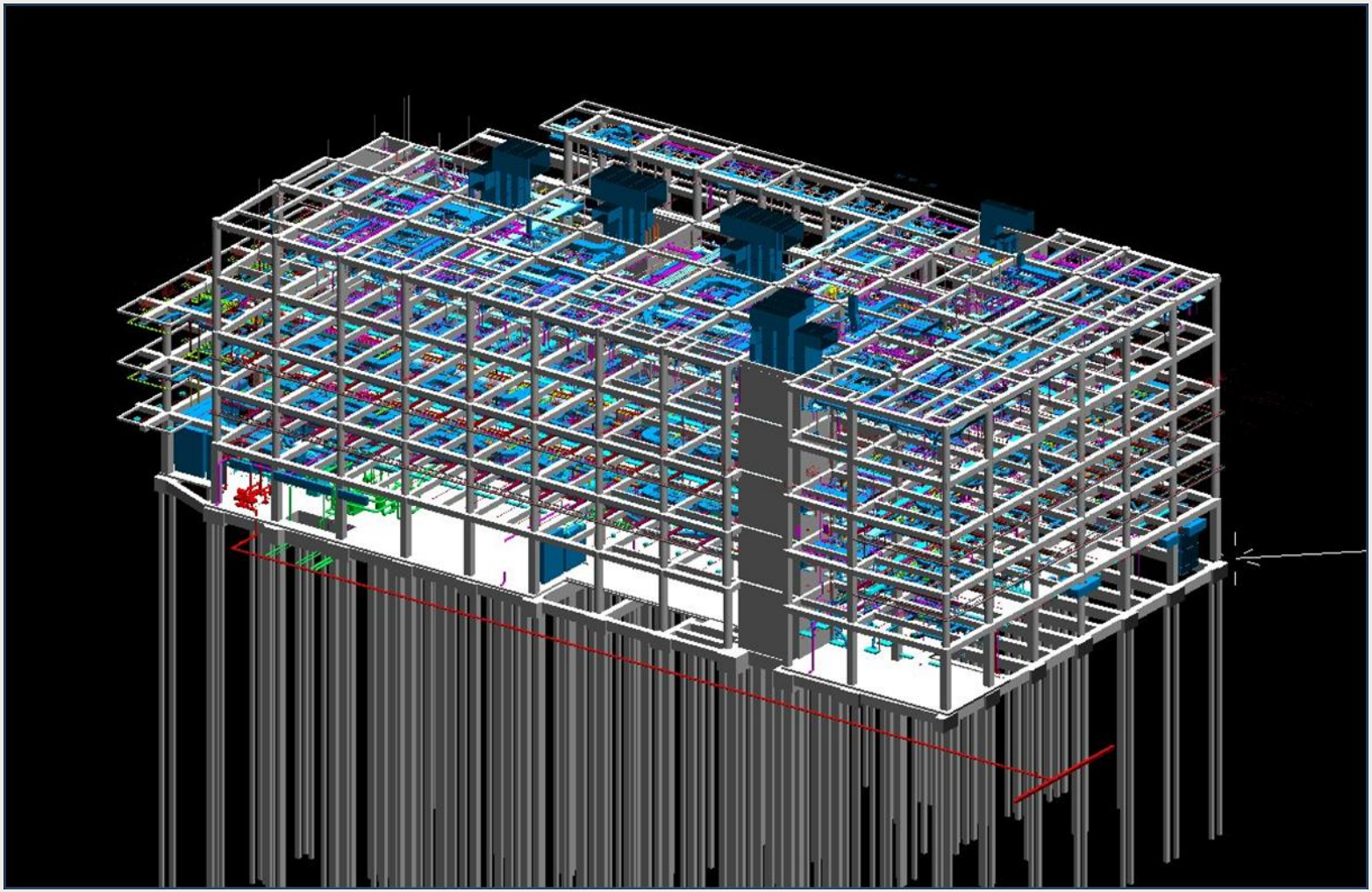


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BIM VR VIDEO

Types of BIM

Lonely

Social

Limited

Expanded

Types of BIM

Limited Lonely

Limited Social

Expanded Lonely

Expanded Social

Types of BIM

Expanded
Social

Integrated
Project
Delivery

"IPD"

Expanded Social

"IPD"

BIM is the main platform for an integrated design, construction and operations process.

The model components are linked to specifications, submittals and operation and maintenance manuals.

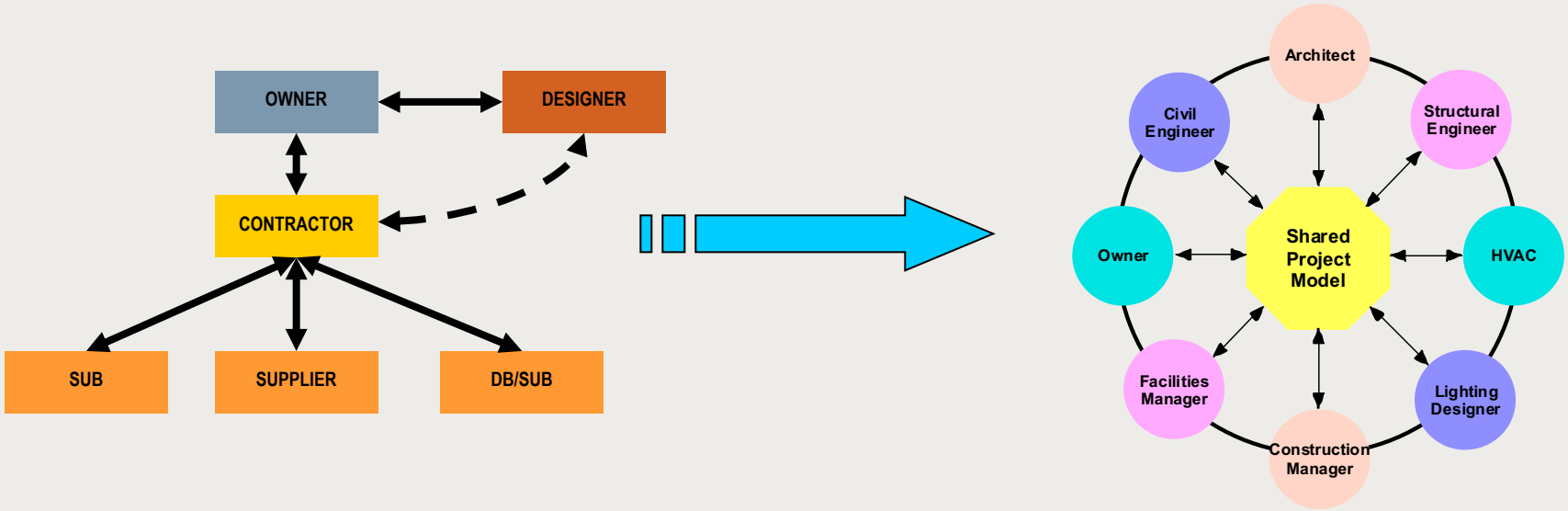
The model present contractors with a significantly improved set of data for cost estimating, scheduling and labor productivity analysis.

The model provides owners and users with a means to see an accurate virtual representation of the building, interior spaces, and infrastructure.

All team members participate in the development of an information rich model.

The model is a virtual as-built that will be the central set of "documents" for facilities operations.

FROM HIERARCHY TO COLLABORATION



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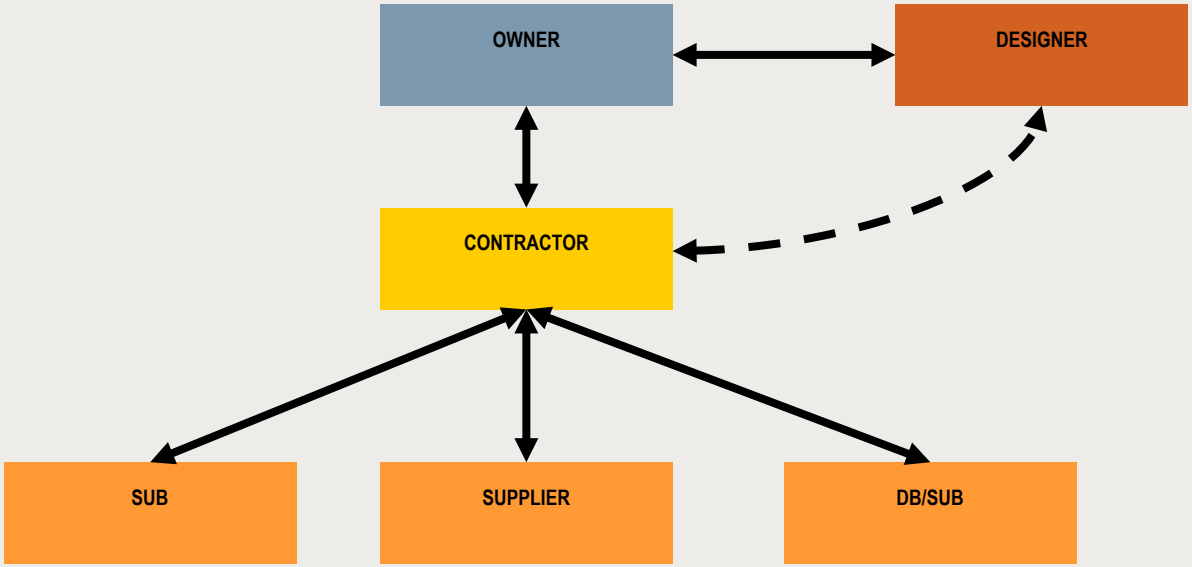
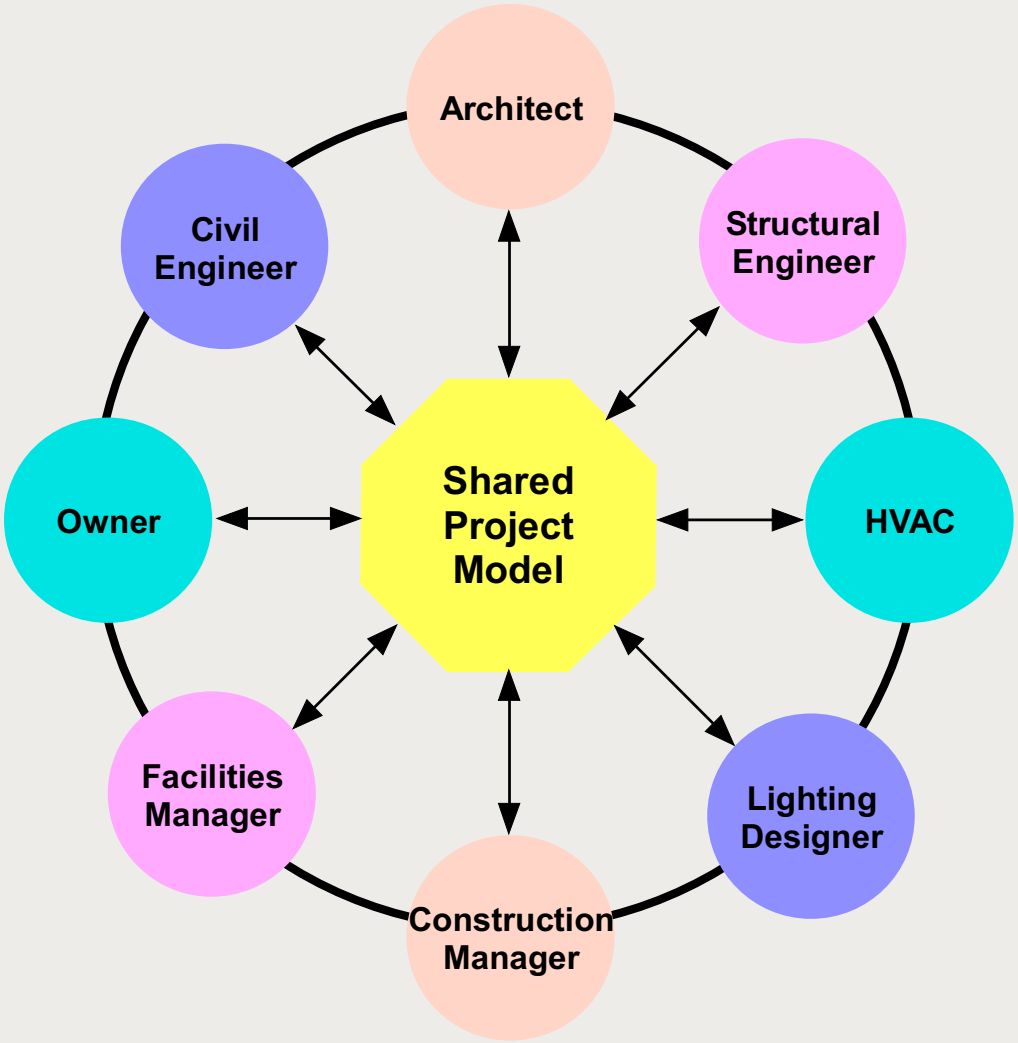
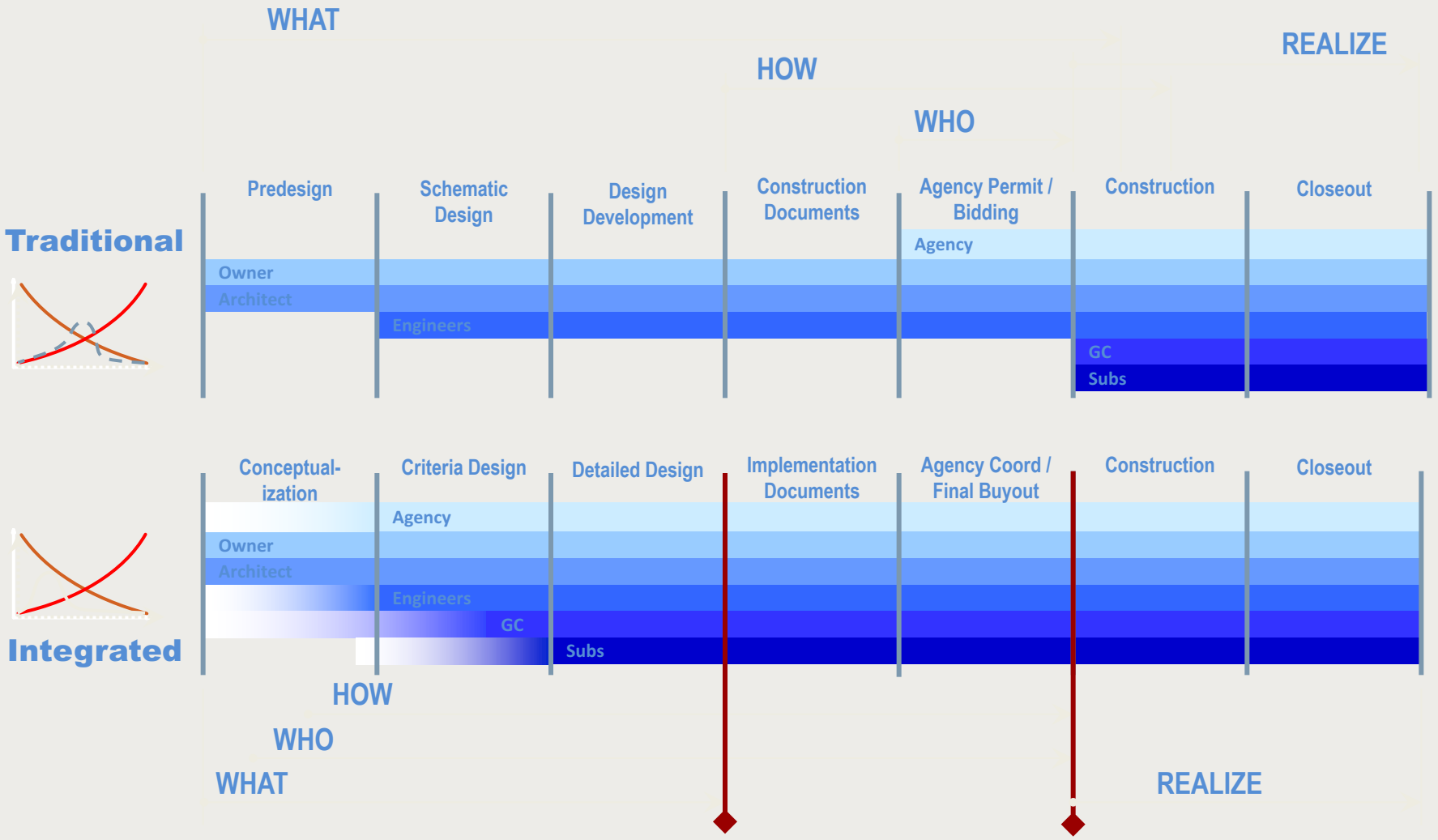


SHARED PROJECT MODEL



DELIVERY PROCESS



LEGAL AND RISK ISSUES

Contractual Provisions

Data Translation: Errors/Features/Interoperability

Data Misuse: Currency/Adequacy/Tolerances

Design Delegation: Licensing/Responsible Charge

Standard of Care and Warranties

Decennial Liability

Insurance

Intellectual Property

Lower Tier Accessibility

BIM lessons learned:

Commit to the process early and obtain the earnest commitment of all BIM model users.

Establish BIM protocols early.

Spend time coordinating between designers and detailers.

Make sure that participants with BIM responsibilities have the capabilities to fulfil those responsibilities.

Implement a “Big Room.”

Establish a uniform and transferable coordinate system and have the lead architect define the zero coordinate point.

Take advantage of clash detection.

Work from a dedicated server and back it up nightly.

BIM lessons learned:

Do not make it more complicated than it needs to be, and be realistic with the goals to be achieved.

Keep in mind that BIM is a tool to facilitate the construction process; it should not be the project's master and its implementation should be reasonable and flexible.

GRACIAS