NJPS BIM Solutions

Lifecycle Consulting For Modern Construction

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ABOUT US

At **NJPS**, we redefine construction through innovative BIM solutions delivering smarter, more efficient, and sustainable projects from start to finish.

Founded in 2020.

INNOVATIVE BIM STRATEGIES

We use advanced Building Information Modeling to streamline planning, design, and execution across the lifecycle of any project.

FULL-SERVICE CONSULTING

From infrastructure to energy, NJPS offers tailored solutions for construction management, helping clients maximize efficiency and outcomes.

DRIVEN BY EXCELLENCE

Rooted in sustainability, diversity, and technical leadership, NJPS partners with clients to build a better, smarter future.

BUILDING SMARTER TOGETHER.

TRUSTED BY 60+ COMPANIES ACROSS THE U.S.

WHAT IS BUILDING INFORMATION MODELING (BIM)?

BIM is a 3D model-based process that provides insight and tools to plan, design, construct, and manage buildings efficiently

INTEGRATED PROJECT INFORMATION

BIM creates a shared digital environment where all project data — designs, materials, schedules, and costs — are integrated, accessible, and up-to-date for every team member.

LIFECYCLE MANAGEMENT

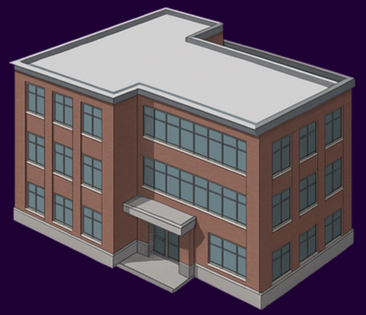
BIM supports the entire lifecycle of a facility, from early design through construction, operations, maintenance, and even demolition, providing long-term value beyond construction.

COLLABORATIVE WORKFLOW

BIM fosters real-time collaboration between architects, engineers, contractors, and owners by enabling model-based coordination and faster decision-making.

WHY BIM MATTERS

BEFORE



BIM Advantages	Benefits to the Client
Better collaboration and communication	Fewer errors, faster decision-making
Model-based cost estimation	More accurate and predictable project budgets
Preconstruction project visualization	Early detection of design issues
Improved coordination and clash detection	Reduced change orders and site conflicts
Reduced cost and mitigated risk	Higher ROI and minimized construction risk
Improved scheduling and sequencing	On-time project delivery
Increased productivity and prefabrication	Faster construction and higher efficiency
Safer construction sites	Improved worker safety and fewer incidents
Better builds	Higher quality completed projects
Stronger facility management and handover	Easier maintenance and long-term operations
Scalability	BIM can be adapted to projects of any size

PROJECT OVERVIEW

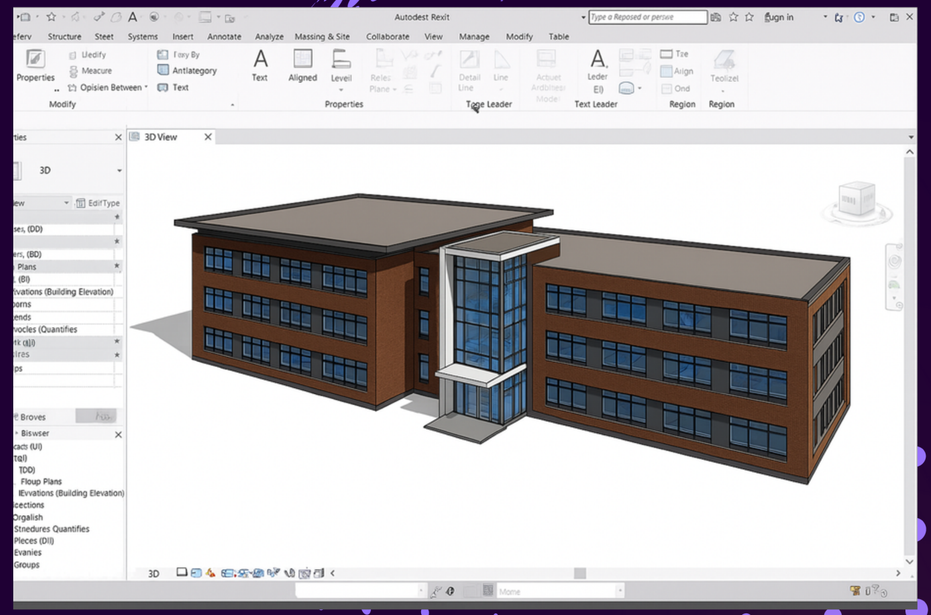
UNIVERSITY INNOVATION CENTER

PROJECT DESCRIPTION:

- **Location:**
  - Downtown Innovation District, El Paso, Texas
- **Size:**
  - 120,000 square feet | 4 stories | 25 classrooms, 10 labs, library, café, and collaborative workspaces
- **Key Features:**
  - Modern sustainable design (LEED Silver target)
  - Central glass atrium for natural daylighting
  - Flexible classroom spaces for future technologies
  - Integrated smart building systems (HVAC, lighting, security)

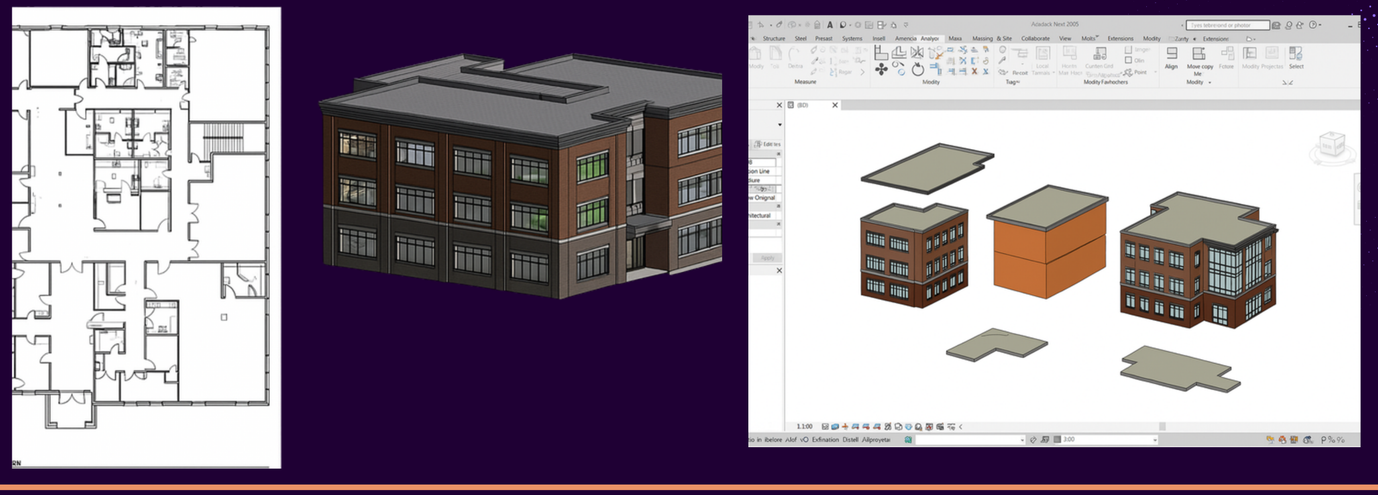
VISION AND CHALLENGES:

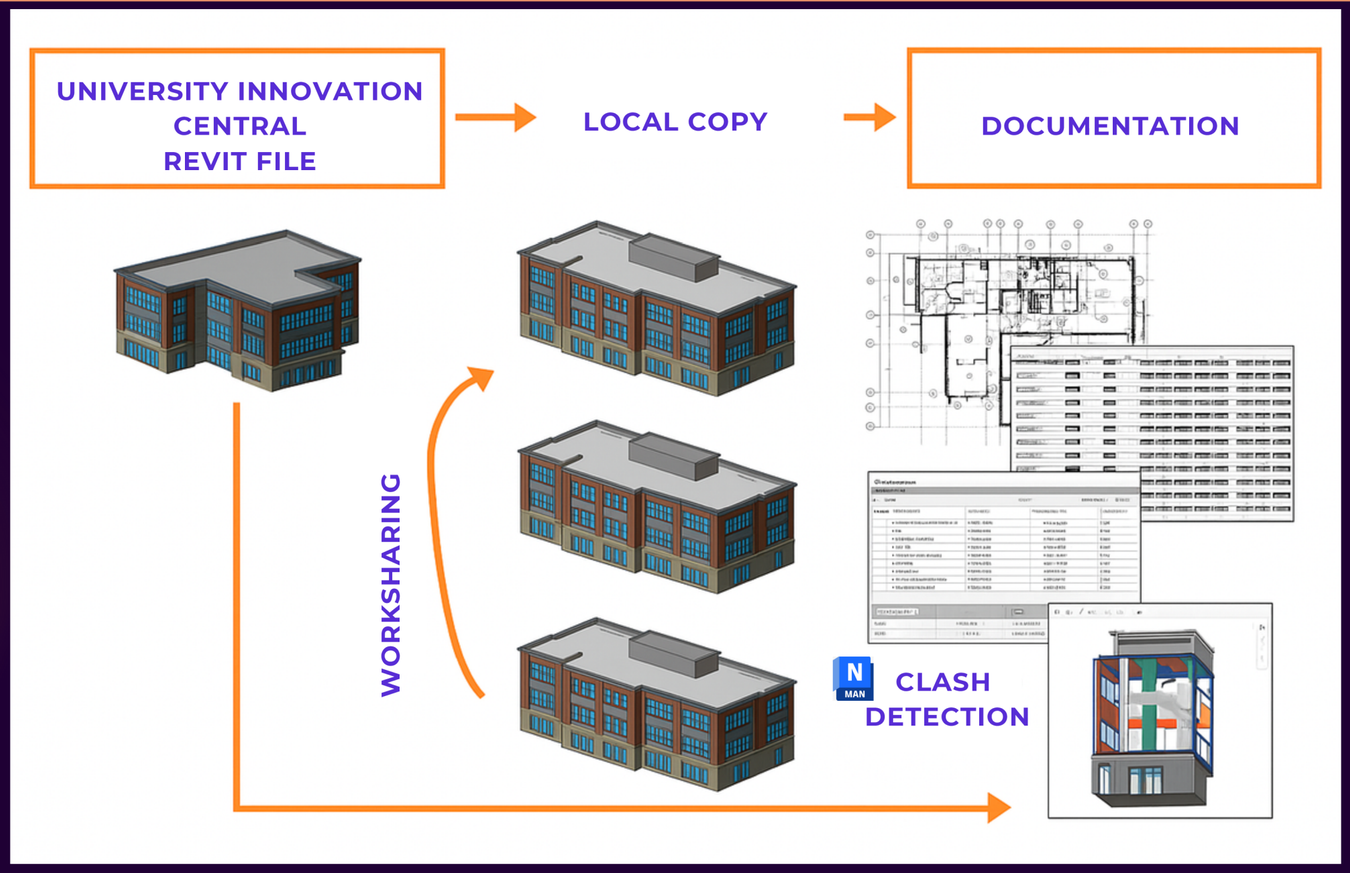
- **Vision:**
  - Deliver a highly efficient, smart, and adaptable university building using cutting-edge BIM solutions to streamline design, construction, and lifecycle management.
- **Challenges:**
  - Complex coordination between architectural, structural, and MEP systems.
  - Tight 20-month construction timeline.
  - Strict sustainability and energy-efficiency goals.
  - Need for minimal disruptions to the active campus during construction.



3D MODELING & VISUALIZATION

- Develop a fully coordinated model integrating architectural, structural, and MEP systems.
- Visualize the building's design in 3D to support early decision-making.
- Identify and resolve potential design conflicts before construction.
- Improve communication between stakeholders through visual clarity.
- Provide a foundation for 4D scheduling, quantity takeoff, and clash detection.
- Support sustainability studies through spatial and lighting analysis.
- Enhance client engagement with walkthroughs and model reviews.





4D SCHEDULE VIA NAVISWORK

4D BIM scheduling links construction activities with 3D model elements, allowing visualization of project progress over time.

Using Navisworks, we can develop a time-based simulation for the Downtown Innovation District project, improving coordination and risk management.

CONSTRUCTION SEQUENCING

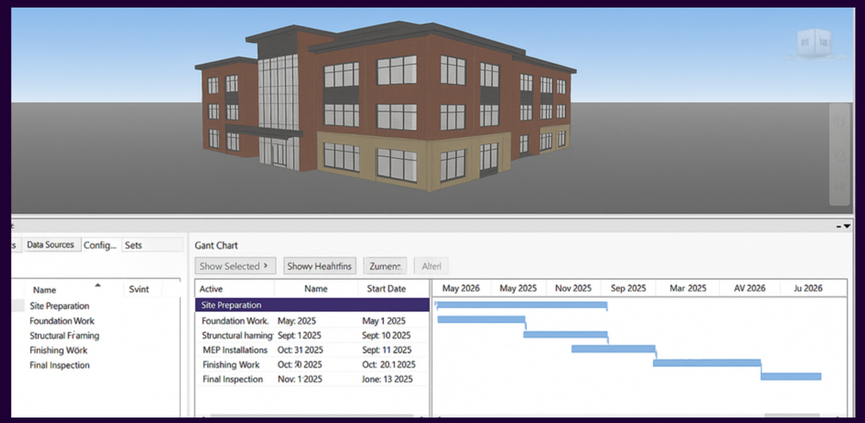
Linked activities with 3D elements to create a logical construction flow.

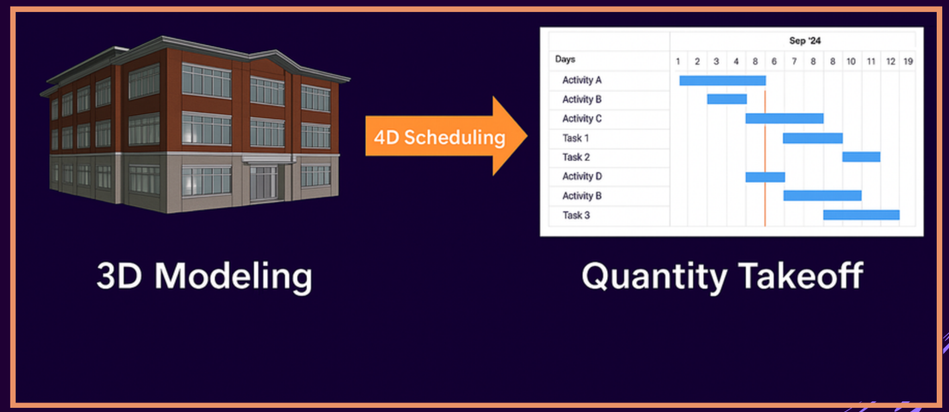
RESOURCE OPTIMIZATION

Identified critical resource allocation and adjusted schedules for efficiency.

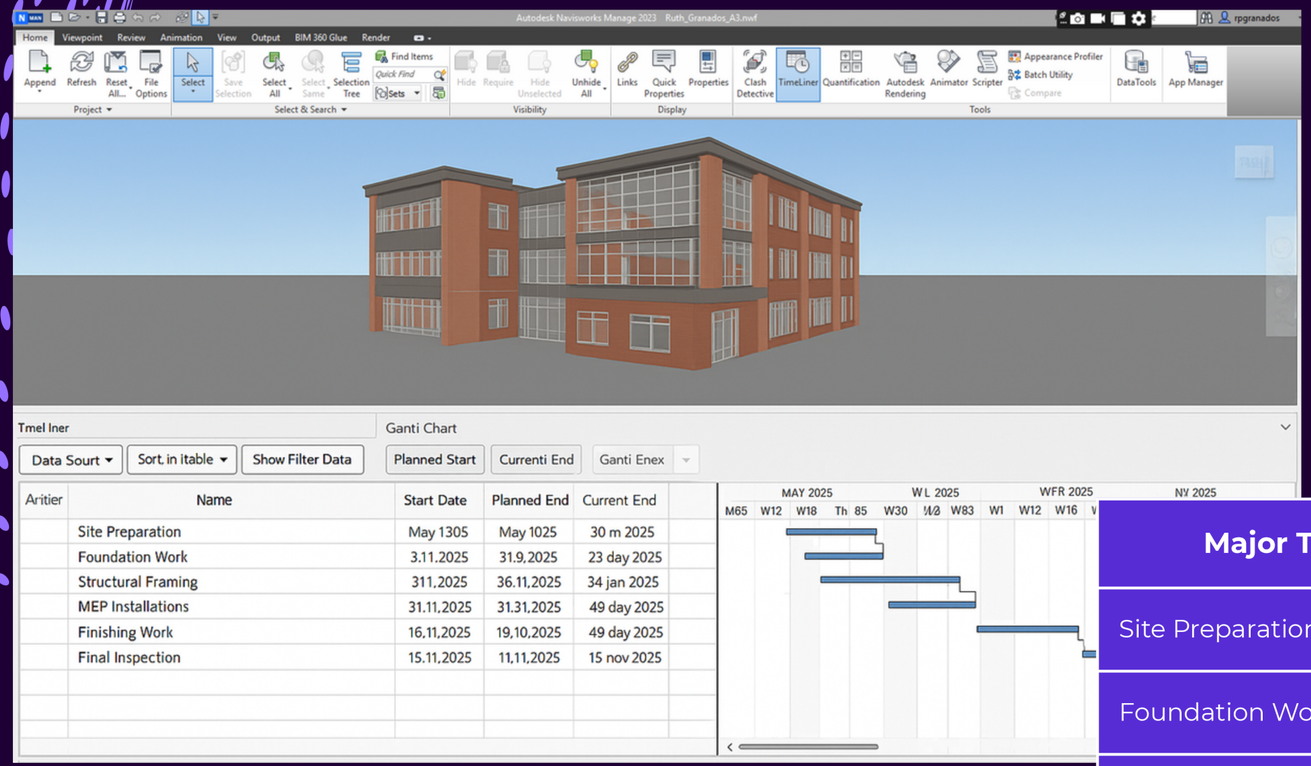
RISK MITIGATION

Used visual simulation to detect potential delays and adjusted task overlaps.





CONSTRUCTION SCHEDULE OVERVIEW



Major Task	Start Date	End Date	Duration
Site Preparation	May 1, 2025	May 15, 2025	15 days
Foundation Work	May 16, 2025	June 10, 2025	25 days
Structural Framing	June 11, 2025	July 30, 2025	50 days
MEP Installations	August 1, 2025	September 15, 2025	45 days
Finishing Work	September 16, 2025	October 31, 2025	45 days
Final Inspection	November 1, 2025	November 15, 2025	15 days

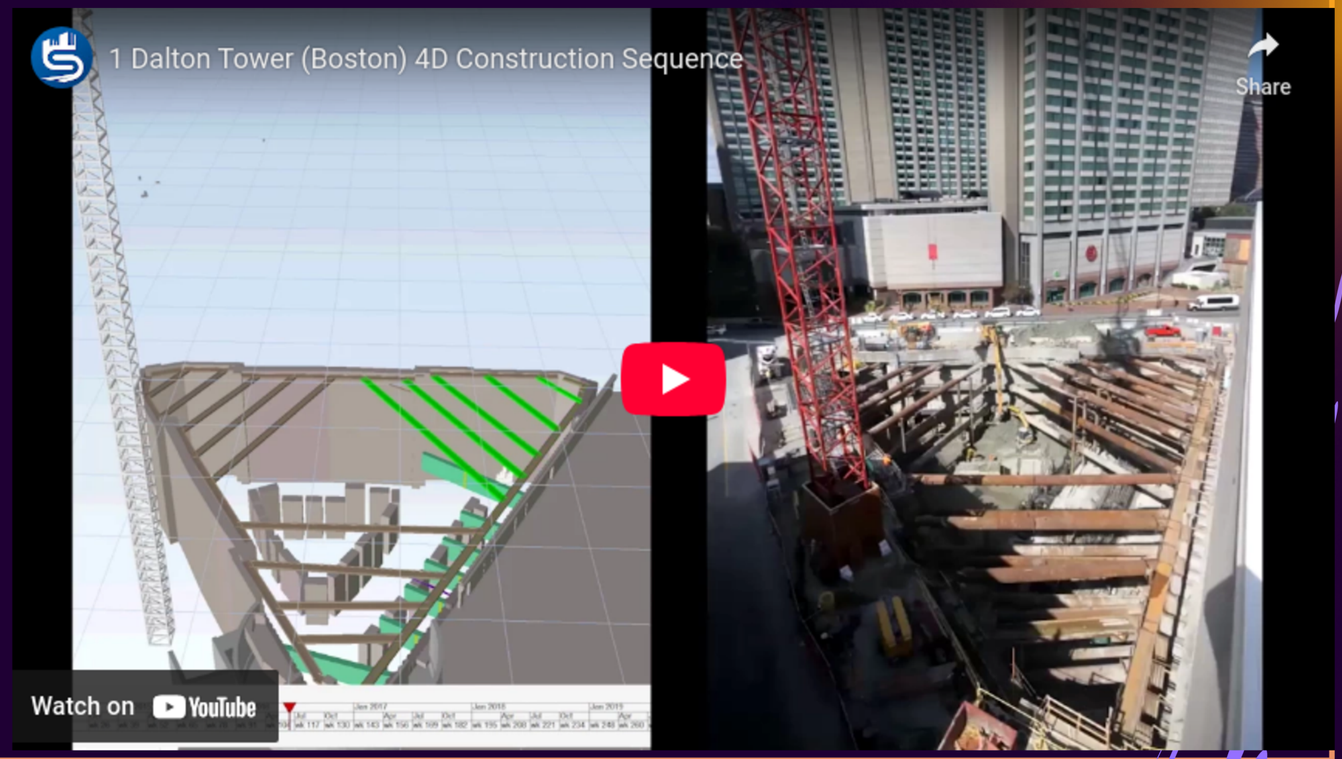
4D BIM SIMULATION – ONE DALTON TOWER, BOSTON

PROJECT OVERVIEW

Name: One Dalton Tower
Location: Boston, Massachusetts, USA
Type: 61-Story Residential & Hotel Tower
Developer: Carpenter & Company, Inc.
Construction Manager: Suffolk Construction

4D SIMULATION HIGHLIGHTS & BENEFITS

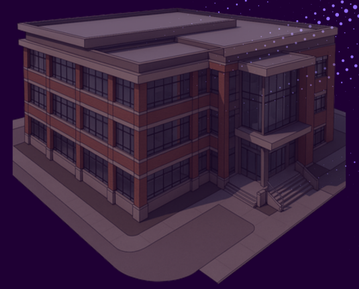
- Visualized full construction sequence.
- Improved trade coordination and planning.
- Early identification of schedule risks.



https://www.youtube.com/watch?v=O-_NRTy2ALA#:~:text=,Courtesy%20Suffolk%20Construction

COST ESTIMATION

Using BIM-driven quantity takeoff and cost estimation to improve project budgeting, procurement, and risk management.



01

Quantity Extraction

Extracted quantities directly from the coordinated BIM model (Architecture, Structure, MEP). Major Components:

- Foundations (Concrete – 500 Cubic Yards)
- Steel Framing (350 Tons)
- Drywall (10,000 Square Feet)
- HVAC Ductwork (2,500 Linear Feet)

02

Cost Estimation Reports

Developed model-based cost reports to support procurement and financial planning.Major Components:

- Architecture Systems (Walls, Finishes, Doors, Windows) → ~$2.1M
- Structural Systems (Steel, Concrete Foundations, Roof Decks) → ~$1.4M
- MEP Systems (HVAC, Electrical, Plumbing Installations) → ~$1.2M

03

Dynamic Updates

Updated quantity and cost estimates in real time as design changes occurred during construction. Impact:

- Adjusted cost impacts for added smart systems (e.g., Smart HVAC Controls)
- Incorporated changes in space layouts (affecting partitioning and finishes)

04

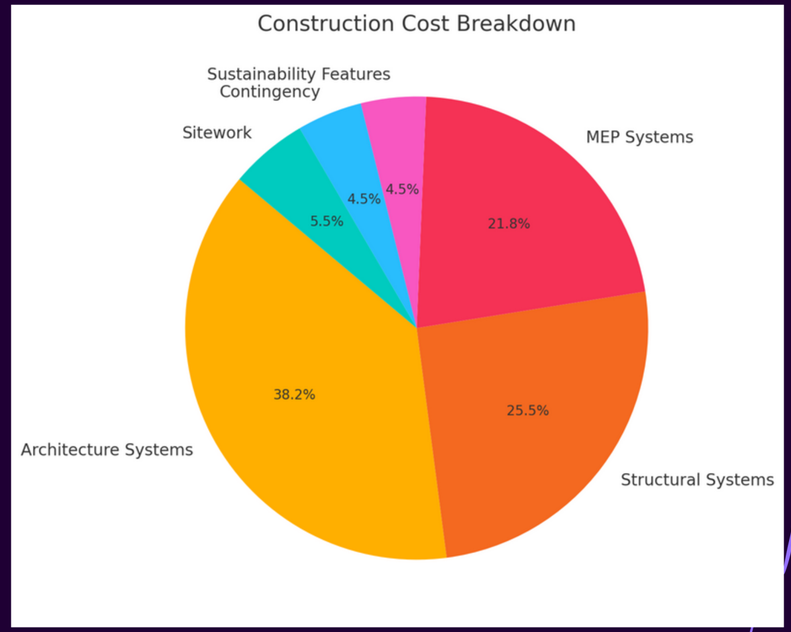
Budget Control and Procurement

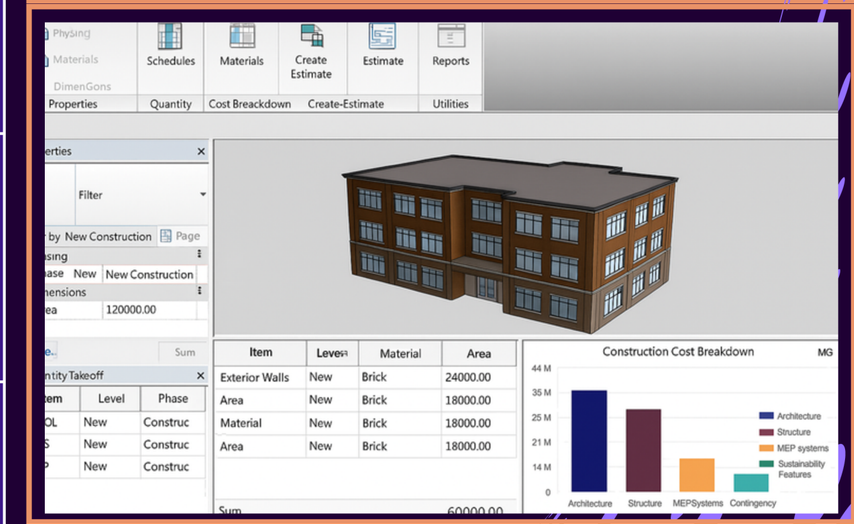
Maintained project budget accuracy and streamlined procurement through early model-based planning.

- Tracked cumulative construction cost projection (~$5.5M Total)
- Integrated procurement schedules with updated quantity takeoffs

QUANTITY TAKEOFF

Building System	Major Components	Quantity	Unit Cost ($/Unit)	Subtotal
Architecture	Exterior walls, windows, interior walls, finishes	60,000 sq ft (wall surface, floor finishes)	$35/sq ft	$2,100,000
Structure	Foundations (concrete), steel framing, roof deck	350 tons (steel) + 500 cu yd (concrete)	$4,000/ton (steel), $150/cu yd (concrete)	$1,400,000
MEP Systems	HVAC, electrical, plumbing systems	Full building (120,000 sq ft)	$10/sq ft	$1,200,000
Sustainability Features	Smart controls, daylighting systems	Lump sum	—	$250,000
Contingency (5%)	Allowance for design development and unknowns	—	—	$250,000
Sitework	Parking, sidewalks, landscaping	30,000 sq ft	$10/sq ft	$300,000





GRAND TOTAL

Item	Value
Subtotal (Hard Construction Cost)	$5,250,000
Contingency (5%)	$250,000
Total Estimated Construction Cost	$5,500,000

CLASH DETECTION

Clash Detection is the identification of conflicts among different building systems (structural, MEP, architectural) in the 3D model before construction begins.

Detecting clashes early can save up to 10–15% of total project cost by avoiding on-site errors.

Goal

- Reduce rework
- Save time and cost
- Improve coordination between teams

Process

- Importing combined Revit models
- Setting tolerance values (e.g., 0.01 m or 1 cm)
- Checking Structural vs MEP, Architectural vs MEP, etc.
- Categorizing clashes: Hard, Clearance and Workflow clashes

Benefits

- Avoid costly change orders
- Improve construction sequencing
- Increase productivity on-site
- Improve overall BIM quality
- Enhance communication among teams

Real Time Project in Iraq

A secondary school with a capacity of 24 classrooms within the school buildings project

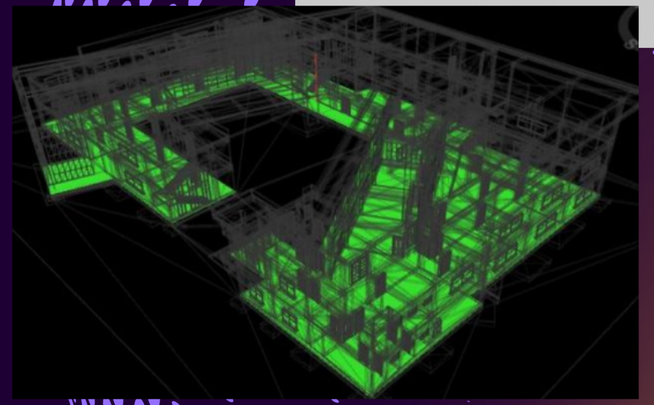


Fig: Hard Clashes Test Result- 886 clashes

SUSTAINABILITY ANALYSIS

Sustainability analysis evaluates the environmental performance of a building in its early design stage using BIM data.

01 Goal

- Reduce energy consumption
- Improve indoor environmental quality
- Achieve LEED or green building certifications

02 Tools

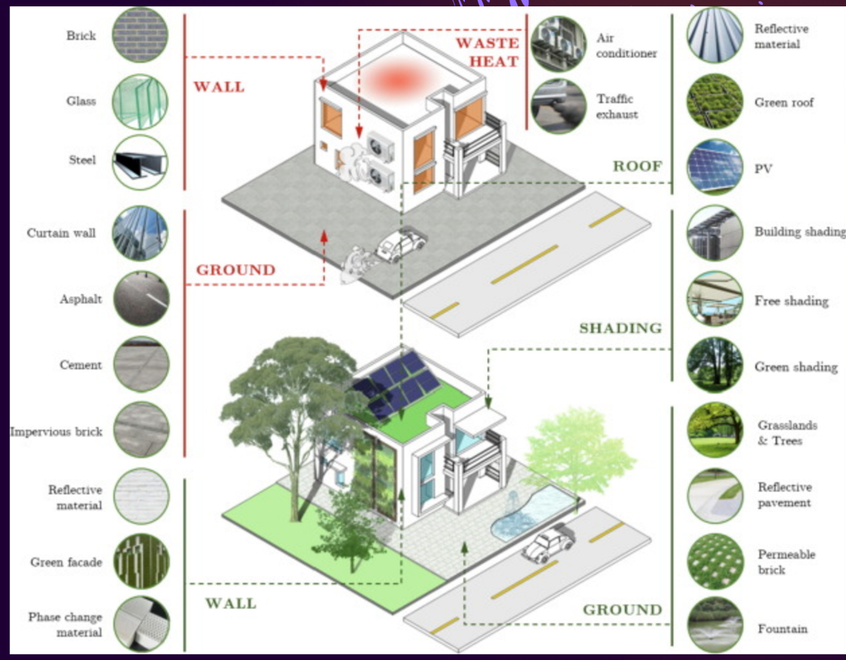
- Autodesk Insight
- Green Building Studio

03 Metrics

- Solar gain and shading analysis
- Daylighting and natural ventilation
- Building Orientation and Energy Use Intensity (EUI)

04 Benefits

- Lower operational costs & data-driven improvements
- Healthier indoor environments
- Better project branding and marketing (green buildings attract clients)
- Early-stage analysis = better decision-making
- Integrated into the 3D/4D BIM workflow



Green BIM: Green Building

UC Irvine- Student Housing

RETURN ON INVESTMENT (ROI) THROUGH BIM

💰 TOTAL ESTIMATED CONSTRUCTION COST:

- $5,500,000

(Based on BIM-driven quantity takeoff and cost estimation)

🌱 PROJECTED ENERGY & OPERATIONAL SAVINGS:

- 20% reduction in energy & operational costs
- Annual savings estimate: ~$110,000–$150,000/year

(Based on building size, MEP optimization, and smart systems)

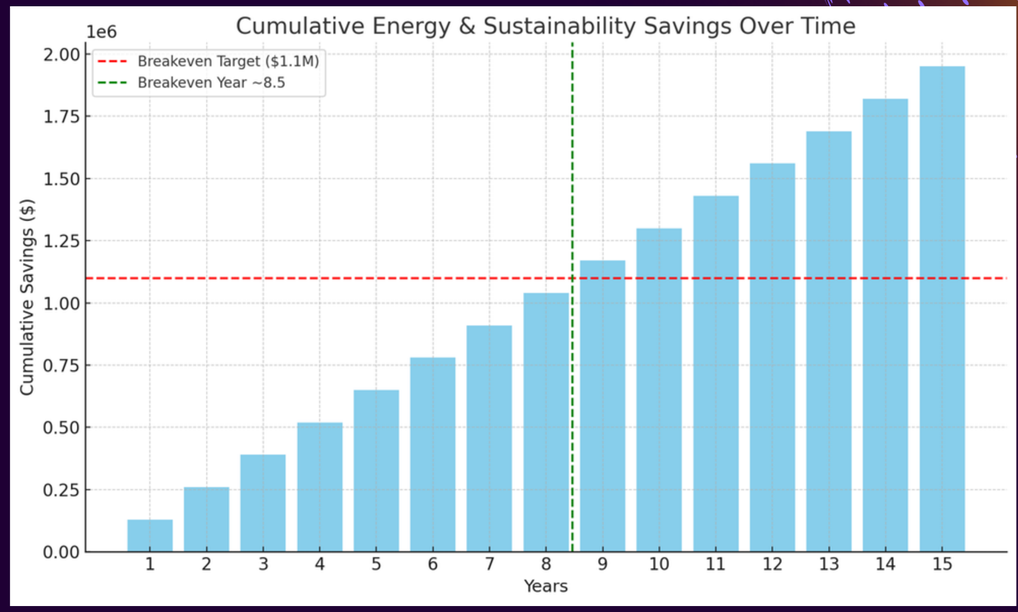
⏱️ PAYBACK PERIOD:

- ROI breakeven in approx. 7–8 years

(Considering $130,000 avg. annual savings)

📈 LONG-TERM BENEFITS:

- Lower lifecycle cost
- Improved asset performance
- Sustainability certifications readiness (LEED, BREEAM)
- Efficient space usage and daylighting systems



Cumulative Energy & Sustainability Savings Over Time

CONCLUSION

At **NJPS Solutions,**
we don't just create models —
we create smarter, faster, greener futures.

- **WE INTEGRATED 3D, 4D, AND SUSTAINABILITY-FOCUSED SOLUTIONS**
- **OPTIMIZED CONSTRUCTION THROUGH PROACTIVE CLASH DETECTION**
- **DRIVING VALUE FROM DESIGN TO DELIVERY**

Partner with us, and let's build excellence together

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THANK YOU
ANY QUESTIONS?

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