



# Border States BIM Services for Mechanical, Engineering and Plumbing (MEP) Coordination and Construction Success

Border States delivers complete, clash-free BIM models for MEP and firefighting systems, ensuring alignment with your building design from the start. Our MEP BIM services streamline the complex process of modeling, design auditing, clash detection and coordination, allowing project teams to make essential design changes before work begins in the field.

Backed by a team of specialized MEP and HVAC engineers, our models follow global standards for workflow consistency, geometry accuracy and project scheduling. Whether you're in early design or full coordination, Border States helps identify system clashes, reduce delays and provide construction-ready blueprints to keep your project moving.



## BIM MEP services from Border States

Border States' BIM MEP services support the complete construction and coordination plan for MEP and firefighting systems. Our services enhance project accuracy and efficiency through design visualization, clash detection, energy simulation and HVAC system planning.

As part of our full BIM portfolio, our MEP modeling services focus on developing coordinated 3D models free of design conflicts.



### Our BIM MEP services:

#### Mechanical system modeling

Detailed 3D modeling of HVAC systems, including indoor/outdoor air handling units and fittings, aligned with your project's level of development.

#### Electrical system modeling

Precise layouts of lighting systems, conduit paths, tray routing and fire alarm components based on your electrical design specifications.

#### Plumbing and firefighting modeling

Integrated BIM models for drainage, plumbing and fire protection systems developed in accordance with design documents and industry standards.

#### Clash detection

Identification and resolution of soft and hard clashes between MEP systems during early design phases, which help to prevent field issues, inefficiencies and delays.

#### MEP coordination

Full coordination support, including clash reports, model updates, reference drawing extraction and collaboration with consultants, contractors and subs.



These services ensure your MEP systems are accurately modeled, fully coordinated and ready for construction.

## BIM clash detection and coordination services

Border States offers expert BIM clash detection services to help contractors identify and resolve design conflicts before construction begins. Through detailed model audits and coordination reviews, our team reduces the risk of human error and costly rework, ensuring MEP systems are seamlessly integrated across MEP and fire protection scopes.

With extensive experience across residential, industrial, hospitality and healthcare projects, our BIM consultants provide both end-to-end and ad-hoc clash detection services tailored to your needs.

### Our BIM coordination and clash detection services:

#### Hard clash detection

Identification and resolution of physical conflicts, such as piping intersecting with ductwork or structural elements.

#### Soft clash detection

Evaluation of clearance, spacing and compliance with building codes and safety standards.

#### 4D workflow clash detection

Detection of time-based conflicts across trades and timelines to support construction sequencing and supply chain planning.

#### Design change recommendations

Proactive model reviews and feasible design adjustments that align with budget, timeline and performance goals.



Our clash detection process ensures your project is optimized for constructability, coordination and success.

## Point cloud to BIM services

Border States provides precise point cloud to BIM services that convert laser scan survey data into intelligent 3D models, helping clients reduce site visits and improve project planning. We serve architects, contractors, surveyors and real estate firms to deliver high-quality as-built models and BIM-ready files tailored for renovation, retrofitting and construction projects.

Our BIM specialists begin by understanding your project's goals and use advanced tools, like Autodesk Revit and AutoCAD, to transform raw point cloud data into accurate, information-rich models — from LOD 100 to LOD 500.

Whether you're modernizing an aging facility or documenting for future expansion, Border States delivers the accuracy and detail you need to move forward with confidence.

## BIM quantity takeoff services

Border States provides precise BIM quantity takeoff services to help contractors, estimators and project teams plan budgets and construction phases with accuracy and confidence. By extracting material quantities directly from BIM models, we enable smarter scheduling, better resource planning and more accurate cost forecasting.

Precise quantity takeoffs are critical to successful scheduling and cost control. Border States supports this process with expert services tailored to contractors, architects and real estate developers in the United States and globally.

Using advanced tools, like Estimator360, Autodesk Revit and Navisworks, our experienced Engineering team analyzes every element of your BIM geometry to deliver detailed, cost-aligned quantity data. This ensures timely procurement, informed planning and smoother project delivery from start to finish.

### Our Scan-to-BIM services:

#### As-built 3D CAD models

Creation of CAD models from laser scans for existing or historic structures, supporting renovation and design modifications.

#### Revit modeling from point cloud data

Conversion of point cloud inputs into detailed 3D Revit models, enabling design optimization and coordination across building systems.

#### Scan to BIM visualization

3D visualization of existing conditions for planning MEP and fire protection layouts during remodeling or retrofit projects.



### Our BIM quantity takeoff services:

- Preconstruction work order preparation.
- Extraction of project-critical data tied to schedule and budget.
- Detailed material takeoffs from 2D plans or BIM models.
- Clean, concise documentation for cost tracking and project coordination.
- Parametric cost-aligned estimation model creation.

 From early planning to final handoff, Border States supports your construction success with accurate, reliable quantity data every step of the way.

## Shop drawing and issued for construction (IFC) extraction services

Border States provides detailed shop drawing and IFC extraction services directly from 3D BIM models, empowering project teams with accurate, construction-ready documentation at every phase. These section-specific drawings serve as essential references for MEP coordination, fabrication and on-site execution, helping teams stay aligned with project timelines.

With years of experience supporting architecture, engineering and construction projects, our Engineers understand the importance of precision and consistency in IFC documentation. Using advanced tools, like Autodesk Revit, BIM 360 and ArchiCAD, we follow a structured process to extract 2D drawings, correct model inconsistencies and align documentation with global standards.

### Our shop drawing services:

#### MEP shop drawing extraction

HVAC, electrical, plumbing, piping and ductwork drawings, ensuring accurate fabrication and streamlined installation.

#### Fabrication drawing extraction

Detailed drawings of prefabricated components, such as structural steel, elevators and precast elements.

#### Floor plan extraction

2D layouts for wall structures, room labeling, floor sections and column placements.

#### Elevation drawing extraction

Structural elevation drawings to guide field installation and inform design changes.

## Revit family creation services

Border States specializes in Revit family creation to support scalable, reusable 3D models across architectural, structural and MEP projects. Our Revit family modeling services help streamline design workflows, improve project coordination and ensure consistency across repeated or standardized construction requirements.

Our BIM specialists work from AutoCAD 2D drawings, hand sketches and technical specifications to build intelligent, parametric Revit families tailored for a wide range of applications. Whether you need off-the-shelf elements or fully customized families, Border States delivers models that enhance design accuracy and speed up planning and documentation.

### Our Revit family modeling services:

#### Electrical family creation

Modeling of cable trays, conduits, lighting fixtures, electrical panels, data devices and equipment.

#### Mechanical family creation

Parametric models for HVAC components, compressors, regulators and shop-fabricated mechanical assemblies.

#### Plumbing family creation

BIM models for tanks, pumps, risers, piping systems and other plumbing components.

#### Custom family creation

Fully tailored Revit family sets built to meet specific construction or product requirements, eliminating the need for future standardization work.

 From design visualization to fabrication support, Border States' Revit family services give your team the building blocks for smarter, more efficient project execution.



## BIM model auditing services

Border States offers third-party BIM model auditing to ensure Revit models are accurate, compliant and aligned with project goals. Our experts review models for cost efficiency, timeline alignment and sustainability, while providing recommendations to improve constructability and reduce risk.

We validate model structure, naming conventions and BIM standard compliance, supporting teams from preconstruction through post-design to ensure models are ready for coordination and construction.



### BIM auditing services include:

- Comprehensive model and documentation review
- Validation of concept plans and as-built models
- Feasibility assessment and design improvement suggestions
- Clash detection with recommendations for resolution
- Compliance checks against local and internal BIM standards
- Facility management and lifecycle risk evaluation

Whether you're preparing for a project handoff or need an objective review midstream, Border States ensures your BIM models meet the highest standards of quality and reliability.

## Dynamo integration for Revit automation

Border States offers custom Dynamo scripting services that integrate seamlessly with Autodesk Revit to automate repetitive design tasks, improve data management and enhance model performance. Our Dynamo experts help streamline complex BIM workflows, enabling architects and engineers to focus more on design and less on manual operations.

Using LOA 400 logic-based scripting, we simplify multistep Revit processes into automated workflows without requiring users to write code. From design visualization to parameter-driven modeling, we make automation accessible and practical through visual scripting tools.

### Our Dynamo scripting services include:

#### Repetitive task automation

Automate time-consuming tasks, such as placing air terminals, mapping room data or upgrading Revit families in bulk.

#### MEP-focused scripts

Build custom routines to support HVAC layouts, fire protection systems and pipe or duct intersection detection.

#### Data-driven design

Generate design options from Excel or other data inputs and adjust parameters across multiple views instantly.

#### Custom script development

Tailored solutions that match your project goals and streamline BIM workflows with graphic, code-free logic nodes.

Whether you're aiming to optimize your Revit models or boost design productivity, Border States provides the tools and expertise to bring automation into your everyday process.

## Your BIM partner from start to finish

At Border States, we're committed to supporting our electrical contractor partners with BIM services that simplify complexity, reduce risk and drive project success. From early design coordination to final model auditing and automation, our end-to-end BIM solutions are built to help you deliver smarter, faster and more confidently on every job.

Whether you're tackling your first BIM-integrated project or scaling your digital construction capabilities, our team is ready to support your goals with proven expertise and trusted tools.



**To explore more ways we can support your Engineering journey, visit our website and learn more about how Border States' can craft an unstoppable future for your business.**

Because success across multiple industries often calls for more than just BIM, we also offer a full suite of engineering services tailored to support your wider project objectives, from design to implementation.

### **Mechanical and HVAC engineering**

We provide efficient mechanical and HVAC systems that improve air quality, comfort, and energy performance across residential, commercial, and industrial spaces.

### **Electrical engineering**

From power and lighting to solar, EV infrastructure, and net zero systems—we design scalable electrical solutions for new construction, renovations, and retrofits.

### **Plumbing engineering**

We deliver smart, code-compliant plumbing system designs that manage water supply, drainage, and waste with efficiency and reliability.

### **Power engineering and digital twin**

Our experts design and optimize electrical systems for peak performance and compliance. Services include advanced power studies and real-time digital twin models to improve operations and support data-driven decisions.

### **Let's build better together.**

Contact us today to get started or learn more about how our BIM services can support your next project.

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