

# Construction Management System - Requirements Document

## Document Control

Version	Date	Author	Changes
1.0	January 12, 2026	Paul Kawalya	Initial comprehensive requirements document

# 1. EXECUTIVE SUMMARY

## 1.1 Purpose

This document defines the comprehensive functional and technical requirements for a construction management system that combines the Common Data Environment (CDE) capabilities of Asite with the field-to-finance execution strengths of Procore, delivering a unified platform for construction project lifecycle management.

## 1.2 Core Philosophy

The system shall provide a **Single Source of Truth with Field-to-Finance Execution**, enabling seamless data flow across the entire construction lifecycle:

- **Design → Construction → Handover:** Complete project lifecycle coverage
- **Documents → Tasks → Costs → Compliance:** Integrated data relationships
- **Web + Mobile, Offline-First:** Accessible anywhere, functional without connectivity

## 1.3 Scope

The system encompasses all phases of construction project management, from initial design documentation through project closeout and handover, serving all stakeholders including owners, contractors, subcontractors, consultants, and regulatory authorities.

# 2. SYSTEM-WIDE REQUIREMENTS

## 2.1 Platform Architecture

**REQ-SYS-001:** The system shall provide web-based access through modern browsers (Chrome, Firefox, Safari, Edge) without requiring plugins.

**REQ-SYS-002:** The system shall provide native mobile applications for iOS and Android devices.

**REQ-SYS-003:** The system shall support offline functionality with automatic synchronization when connectivity is restored.

**REQ-SYS-004:** The system shall maintain data consistency across all access points (web, mobile, offline).

**REQ-SYS-005:** The system shall support multi-language interfaces for international deployments.

## 2.2 Performance Requirements

**REQ-SYS-006:** The system shall support concurrent access by unlimited users without performance degradation.

**REQ-SYS-007:** Page load times shall not exceed 3 seconds under normal network conditions.

**REQ-SYS-008:** Mobile app synchronization shall complete within 5 minutes for typical daily field data.

**REQ-SYS-009:** The system shall support projects with up to 1 million documents without performance impact.

**REQ-SYS-010:** Real-time dashboard updates shall reflect changes within 30 seconds.

## 2.3 Data Security & Privacy

**REQ-SYS-011:** All data transmission shall be encrypted using TLS 1.3 or higher.

**REQ-SYS-012:** All data at rest shall be encrypted using AES-256 or equivalent.

**REQ-SYS-013:** The system shall maintain comprehensive audit logs for all data access and modifications.

**REQ-SYS-014:** Audit logs shall be immutable and retained for minimum 7 years.

**REQ-SYS-015:** The system shall support GDPR, CCPA, and other relevant data protection regulations.

# 3. COMMON DATA ENVIRONMENT (CDE) MODULE

## 3.1 Document & Drawing Management

### 3.1.1 Central Repository

**REQ-CDE-001:** The system shall provide a centralized, cloud-based document repository accessible to all authorized project participants.

**REQ-CDE-002:** The system shall support storage of all common file formats including:

- CAD drawings (DWG, DXF, DGN)
- Documents (PDF, DOC, DOCX, XLS, XLSX, PPT)
- Images (JPG, PNG, TIFF, BMP)
- Models (IFC, RVT, NWD, NWC)
- Videos (MP4, AVI, MOV)

**REQ-CDE-003:** Individual file size limits shall be minimum 2GB per file.

**REQ-CDE-004:** Total project storage shall scale to accommodate projects of any size.

### **3.1.2 Folder Structure & Organization**

**REQ-CDE-005:** The system shall support hierarchical folder structures configurable by:

- Project
- Discipline (Architectural, Structural, MEP, Civil, etc.)
- Document type
- Contract package
- Custom taxonomies

**REQ-CDE-006:** The system shall support multiple folder structure templates that can be applied to new projects.

**REQ-CDE-007:** The system shall allow folder structures to be modified during project execution without breaking links.

**REQ-CDE-008:** The system shall support bulk folder creation and copying between projects.

### **3.1.3 Drawing Registers**

**REQ-CDE-009:** The system shall maintain automated drawing registers with metadata including:

- Drawing number
- Drawing title
- Discipline
- Revision number
- Issue date
- Status
- Author/originator
- Scale
- File format

**REQ-CDE-010:** Drawing registers shall be automatically updated when new drawings are uploaded or revised.

**REQ-CDE-011:** The system shall support custom drawing numbering conventions per project or organization.

**REQ-CDE-012:** Drawing registers shall be exportable to Excel, PDF, and other standard formats.

### **3.1.4 Version Control & Comparison**

**REQ-CDE-013:** The system shall automatically version all documents, creating new versions on each update.

**REQ-CDE-014:** The system shall retain all previous versions with full metadata and content.

**REQ-CDE-015:** Users shall be able to view any previous version without overwriting the current version.

**REQ-CDE-016:** The system shall provide side-by-side comparison of document versions.

**REQ-CDE-017:** For drawings, the system shall provide visual markup showing differences between versions.

**REQ-CDE-018:** The system shall prevent accidental overwriting of documents by concurrent users.

**REQ-CDE-019:** The system shall support check-out/check-in functionality for controlled editing.

**REQ-CDE-020:** Version history shall include metadata: who, when, what changed, and why (if provided).

### **3.1.5 Markups & Annotations**

**REQ-CDE-021:** The system shall provide built-in markup tools for PDFs and drawings without requiring external software.

**REQ-CDE-022:** Markup tools shall include:

- Text annotations and comments
- Cloud/callout shapes
- Arrows and lines
- Highlighting
- Stamps (approved, rejected, custom)
- Measurement tools
- Freehand drawing

**REQ-CDE-023:** Markups shall be saved as separate layers that can be toggled on/off.

**REQ-CDE-024:** Multiple users shall be able to add markups to the same document simultaneously.

**REQ-CDE-025:** Each markup shall be attributed to the user who created it with timestamp.

**REQ-CDE-026:** Markups shall be exportable as a flattened PDF or as XML for import to CAD systems.

**REQ-CDE-027:** The system shall support markup sets that can be applied to multiple drawings.

### **3.1.6 File Transmittals**

**REQ-CDE-028:** The system shall support creation of document transmittals for formal document exchange.

**REQ-CDE-029:** Transmittals shall include:

- Transmittal number (auto-generated or manual)
- From/To organizations and individuals
- Subject and description
- Document list with purpose codes
- Required actions
- Response due dates

**REQ-CDE-030:** The system shall support standard transmittal templates per organization or project.

**REQ-CDE-031:** Recipients shall receive notifications of new transmittals via email and in-app.

**REQ-CDE-032:** Recipients shall be able to respond to transmittals directly within the system.

**REQ-CDE-033:** Transmittal status shall be tracked (sent, received, acknowledged, responded).

**REQ-CDE-034:** The system shall maintain a complete transmittal register with search and filter capabilities.

### **3.1.7 Access Control & Permissions**

**REQ-CDE-035:** The system shall support granular permission controls at folder, document, and field levels.

**REQ-CDE-036:** Permission levels shall include minimum:

- No access
- View only
- Download
- Comment/markup
- Upload
- Edit
- Delete
- Manage permissions

**REQ-CDE-037:** Permissions shall be assignable by:

- Individual users
- User roles
- Organizations

- Project teams

**REQ-CDE-038:** The system shall support temporary access grants with automatic expiration.

**REQ-CDE-039:** Permission changes shall be logged in the audit trail.

**REQ-CDE-040:** Users shall only see folders and documents they have permission to access.

### **3.1.8 ISO 19650 Compliance**

**REQ-CDE-041:** The system shall implement the ISO 19650 information management workflow with distinct containers:

- Work in Progress (WIP)
- Shared
- Published
- Archive

**REQ-CDE-042:** Document status transitions shall follow ISO 19650 defined workflows.

**REQ-CDE-043:** The system shall enforce suitability codes according to ISO 19650 standards.

**REQ-CDE-044:** The system shall maintain the Common Data Environment (CDE) as defined in ISO 19650.

**REQ-CDE-045:** The system shall support ISO 19650 Level 2 and Level 3 (BIM Level 2 and 3) requirements.

**REQ-CDE-046:** The system shall generate ISO 19650 compliant naming conventions and metadata.

### **3.1.9 Audit Trail**

**REQ-CDE-047:** The system shall log all document activities including:

- Uploads
- Downloads
- Views
- Edits
- Deletions
- Permission changes
- Status changes
- Transmittal actions

**REQ-CDE-048:** Audit logs shall capture: user, timestamp, action, affected items, and source (IP/device).

**REQ-CDE-049:** Audit trails shall be searchable and filterable by date range, user, action type, and document.

**REQ-CDE-050:** Audit logs shall be exportable for compliance and legal purposes.

**REQ-CDE-051:** The system shall prevent users from modifying or deleting audit log entries.

## **3.2 Document Workflows**

### **3.2.1 Review & Approval Process**

**REQ-CDE-052:** The system shall support configurable multi-step review and approval workflows.

**REQ-CDE-053:** Workflows shall support both sequential (step-by-step) and parallel (simultaneous) approval paths.

**REQ-CDE-054:** Workflow steps shall include:

- Review and comment
- Revise and resubmit
- Approve
- Reject
- Conditional approval
- Information only

**REQ-CDE-055:** Each workflow step shall allow comments and attachments.

**REQ-CDE-056:** The system shall support workflow templates that can be applied to document types or folders.

**REQ-CDE-057:** Workflows shall support conditional routing based on document attributes or previous responses.

**REQ-CDE-058:** Users shall be able to delegate workflow tasks to other users.

**REQ-CDE-059:** The system shall maintain complete workflow history for each document.

### **3.2.2 SLA Tracking**

**REQ-CDE-060:** The system shall support Service Level Agreement (SLA) tracking for workflow steps.

**REQ-CDE-061:** SLA targets shall be configurable by:

- Workflow type
- Document type



- Priority level
- Organization or role

**REQ-CDE-062:** The system shall calculate and display time remaining for each workflow task.

**REQ-CDE-063:** SLA compliance metrics shall be visible on dashboards and reports.

**REQ-CDE-064:** The system shall identify overdue and at-risk workflow tasks.

**REQ-CDE-065:** SLA performance shall be tracked by user, team, and organization.

### **3.2.3 Automated Reminders**

**REQ-CDE-066:** The system shall automatically send reminders for pending workflow tasks.

**REQ-CDE-067:** Reminder frequency shall be configurable (daily, every 2 days, weekly, etc.).

**REQ-CDE-068:** Reminders shall escalate to supervisors or alternate users if tasks remain incomplete.

**REQ-CDE-069:** Users shall receive reminders via email, in-app notifications, and optionally SMS.

**REQ-CDE-070:** The system shall send advance warnings before SLA deadlines are breached.

### **3.2.4 Status Tagging**

**REQ-CDE-071:** The system shall support standard document status tags including:

- Work in Progress (WIP)
- Shared (for review/collaboration)
- Published (approved for use)
- Archived (superseded/obsolete)

**REQ-CDE-072:** The system shall support custom status tags per project or organization.

**REQ-CDE-073:** Status changes shall be controlled by workflow completion or manual override with permissions.

**REQ-CDE-074:** Document lists and searches shall be filterable by status.

**REQ-CDE-075:** Status changes shall trigger notifications to relevant stakeholders.

**REQ-CDE-076:** Only the latest "Published" version shall be visible to field users unless they specifically request historical versions.

## **4. PROJECT EXECUTION & FIELD MANAGEMENT MODULE**

### **4.1 Daily Site Operations**

#### **4.1.1 Daily Logs**

**REQ-FIELD-001:** The system shall provide mobile-optimized daily log entry forms.

**REQ-FIELD-002:** Daily logs shall capture:

- Date and weather conditions
- Manpower by trade and hours worked
- Equipment on site and hours operated
- Work activities and locations
- Visitors and deliveries
- Progress achieved
- Issues and delays
- Safety observations
- Photos and videos

**REQ-FIELD-003:** Daily logs shall support offline entry with automatic sync when online.

**REQ-FIELD-004:** The system shall support multiple daily logs per project (by supervisor, area, or trade).

**REQ-FIELD-005:** Daily logs shall be time-stamped and locked after submission to prevent alteration.

**REQ-FIELD-006:** Historical daily logs shall be searchable and viewable by authorized users.

**REQ-FIELD-007:** The system shall generate summary reports from daily log data across date ranges.

#### **4.1.2 Weather Tracking**

**REQ-FIELD-008:** The system shall allow manual entry of weather conditions including:

- Temperature (high/low)
- Precipitation type and amount
- Wind speed and direction
- General conditions (clear, cloudy, rainy, etc.)

**REQ-FIELD-009:** The system shall optionally integrate with weather data services to auto-populate conditions based on location.

**REQ-FIELD-010:** Weather data shall be associated with daily logs and available for reporting.

**REQ-FIELD-011:** Weather history shall be exportable for claims and delay analysis.

#### **4.1.3 Manpower & Equipment Logs**

**REQ-FIELD-012:** The system shall maintain manpower logs capturing:

- Trade/classification
- Number of workers
- Hours worked (regular, overtime)
- Tasks performed
- Associated cost codes

**REQ-FIELD-013:** The system shall maintain equipment logs capturing:

- Equipment type and ID
- Hours operated
- Operator
- Tasks performed
- Fuel consumption
- Maintenance alerts

**REQ-FIELD-014:** Manpower and equipment data shall integrate with cost tracking modules.

**REQ-FIELD-015:** The system shall support crew composition templates for recurring work teams.

#### **4.1.4 Site Photos & Videos**

**REQ-FIELD-016:** The mobile app shall provide direct camera access for capturing photos and videos.

**REQ-FIELD-017:** Photos and videos shall automatically capture metadata:

- GPS location
- Timestamp
- User who captured
- Device information

**REQ-FIELD-018:** Users shall be able to add descriptions, tags, and location references to photos/videos.

**REQ-FIELD-019:** Photos and videos shall be organized by:

- Date
- Location/area

- Activity type
- User
- Custom tags

**REQ-FIELD-020:** The system shall support photo markup and annotation.

**REQ-FIELD-021:** Photos and videos shall be linkable to inspections, tasks, RFIs, and other records.

**REQ-FIELD-022:** The system shall support time-lapse photo sequences of construction progress.

#### **4.1.5 Offline Functionality**

**REQ-FIELD-023:** The mobile app shall allow all daily logging functions to work fully offline.

**REQ-FIELD-024:** Offline data shall be stored securely on the device with encryption.

**REQ-FIELD-025:** Upon reconnection, the app shall automatically synchronize offline data to the server.

**REQ-FIELD-026:** The system shall detect and resolve conflicts if multiple users edit the same records offline.

**REQ-FIELD-027:** Users shall receive confirmation when offline data has been successfully synchronized.

**REQ-FIELD-028:** The system shall allow selective sync (e.g., sync logs first, then photos) for bandwidth management.

## **4.2 Quality & Safety Management**

### **4.2.1 Inspections & Checklists**

**REQ-QS-001:** The system shall provide customizable inspection templates and checklists.

**REQ-QS-002:** Inspection templates shall support:

- Multiple question types (yes/no, pass/fail, numeric, text, dropdown, multiple choice)
- Conditional questions based on previous answers
- Required vs optional fields
- Photo requirements
- Signature capture
- GPS location capture

**REQ-QS-003:** The system shall support inspection scheduling and assignment.

**REQ-QS-004:** Inspections shall be performable offline on mobile devices.

**REQ-QS-005:** Inspection results shall automatically calculate pass/fail status based on defined criteria.

**REQ-QS-006:** Failed inspections shall automatically generate tasks or NCRs for resolution.

**REQ-QS-007:** The system shall maintain inspection history linked to locations, activities, and contracts.

**REQ-QS-008:** Inspection reports shall be automatically generated and distributable via the system.

#### **4.2.2 Non-Conformance Reports (NCRs), Defects & Snag Lists**

**REQ-QS-009:** The system shall support creation and management of non-conformance reports (NCRs), defects, and snag items.

**REQ-QS-010:** NCR/Defect records shall capture:

- Description and location
- Severity/priority
- Responsible party
- Due date
- Associated costs
- Photos and attachments
- Root cause
- Corrective actions
- Status

**REQ-QS-011:** NCRs/Defects shall support workflow routing for review and approval.

**REQ-QS-012:** The system shall track NCR/Defect status (open, in progress, resolved, verified, closed).

**REQ-QS-013:** NCRs/Defects shall be linkable to inspections, drawings, specifications, and contracts.

**REQ-QS-014:** The system shall generate snag lists by location, trade, or package.

**REQ-QS-015:** Snag lists shall be exportable and suitable for handover documentation.

**REQ-QS-016:** The system shall track NCR/Defect metrics (count, resolution time, repeat occurrences).

#### **4.2.3 Safety Observations & Incidents**

**REQ-QS-017:** The system shall support safety observation reporting including:

- Safe behaviors (positive observations)
- Unsafe conditions
- Unsafe acts
- Near misses
- Hazards

**REQ-QS-018:** Safety observations shall capture:

- Type and category
- Location
- Personnel involved
- Photos
- Immediate actions taken
- Follow-up required

**REQ-QS-019:** The system shall support incident reporting for:

- Injuries (first aid, medical treatment, lost time)
- Property damage
- Environmental incidents
- Security breaches

**REQ-QS-020:** Incident reports shall capture:

- Date, time, and location
- Personnel involved
- Witnesses
- Description of incident
- Injuries sustained
- Treatment provided
- Property damage description
- Photos and diagrams
- Immediate response actions

**REQ-QS-021:** Incident reports shall trigger notifications to safety managers and designated personnel.

**REQ-QS-022:** The system shall support injury classification per OSHA or local regulatory standards.

#### **4.2.4 Root Cause & Corrective Actions**

**REQ-QS-023:** The system shall support root cause analysis workflows for NCRs and incidents.

**REQ-QS-024:** Root cause analysis shall include:

- 5 Whys methodology
- Fishbone/Ishikawa diagrams
- Failure mode categorization
- Contributing factors

**REQ-QS-025:** The system shall support corrective and preventive action (CAPA) tracking.

**REQ-QS-026:** Corrective actions shall include:

- Description of action
- Responsible party
- Due date
- Implementation status
- Verification method
- Effectiveness review

**REQ-QS-027:** The system shall link corrective actions to the originating NCR or incident.

**REQ-QS-028:** The system shall track repeat issues and patterns requiring systemic changes.

## **4.3 RFIs & Submittals**

### **4.3.1 RFI Management**

**REQ-RFI-001:** The system shall provide request for information (RFI) creation, tracking, and management.

**REQ-RFI-002:** RFI records shall capture:

- RFI number (auto-generated or manual)
- Subject and description
- Drawing/specification references
- Cost impact (yes/no/unknown)
- Schedule impact (yes/no/unknown)
- Priority
- Requested by
- Assigned to
- Required response date
- Attachments and photos

**REQ-RFI-003:** RFIs shall support workflow routing for review and response.

**REQ-RFI-004:** The system shall track RFI status (draft, submitted, under review, answered, closed).

**REQ-RFI-005:** RFI responses shall capture:

- Response description
- Attachments and sketches
- Cost implications
- Schedule implications
- Responder and date

**REQ-RFI-006:** RFIs shall be linkable to drawings, specifications, submittals, and change orders.

**REQ-RFI-007:** The system shall maintain an RFI register with search and filter capabilities.

**REQ-RFI-008:** The system shall track RFI metrics (response time, open count, cost/schedule impacts).

**REQ-RFI-009:** RFI responses shall be automatically distributed to relevant stakeholders.

#### **4.3.2 Submittals**

**REQ-SUB-001:** The system shall provide submittal creation, tracking, and management.

**REQ-SUB-002:** Submittal records shall capture:

- Submittal number
- Specification section reference
- Type (shop drawings, product data, samples, etc.)
- Description
- Submitted by
- Required action (review, approval, etc.)
- Required response date
- Status
- Attachments

**REQ-SUB-003:** The system shall maintain a submittal register/log.

**REQ-SUB-004:** Submittals shall support workflow routing for review and approval.

**REQ-SUB-005:** Submittal responses shall include:

- Action taken (approved, approved as noted, revise and resubmit, rejected)
- Comments
- Marked-up documents
- Responder and date

**REQ-SUB-006:** The system shall track submittal status through multiple review cycles if needed.



**REQ-SUB-007:** Submittals shall be linkable to drawings, specifications, contracts, and RFIs.

**REQ-SUB-008:** The system shall track submittal metrics (response time, approval rate, revision cycles).

#### **4.3.3 Linking to Project Information**

**REQ-RFI-010:** RFIs shall be linkable to specific drawings with location markup.

**REQ-RFI-011:** RFIs shall be linkable to specification sections and contract documents.

**REQ-SUB-009:** Submittals shall be linkable to specification sections and related drawings.

**REQ-SUB-010:** When viewing drawings or specifications, users shall see all related RFIs and submittals.

**REQ-RFI-012:** The system shall display RFI/submittal markers on drawing views showing their locations.

#### **4.3.4 Response Time Tracking**

**REQ-RFI-013:** The system shall track time elapsed from RFI submission to response.

**REQ-RFI-014:** The system shall identify overdue RFIs based on required response dates.

**REQ-SUB-011:** The system shall track time elapsed from submittal submission to response.

**REQ-SUB-012:** The system shall identify overdue submittals based on required response dates.

**REQ-RFI-015:** Response time metrics shall be available on dashboards and reports by project, responder, and time period.

## **5. TASK & WORKFLOW ENGINE MODULE**

### **5.1 Task Management**

**REQ-TASK-001:** The system shall provide comprehensive task creation and management capabilities.

**REQ-TASK-002:** Task records shall capture:

- Title and description
- Assigned to (user or role)
- Created by
- Priority (low, normal, high, critical)
- Due date

- Status (not started, in progress, completed, on hold, cancelled)
- % complete
- Actual start and finish dates
- Estimated hours
- Actual hours
- Location/area
- Cost code
- Tags/categories

**REQ-TASK-003:** Tasks shall support file attachments and links to project documents.

**REQ-TASK-004:** Tasks shall be linkable to:

- Documents and drawings
- RFIs
- Submittals
- Inspections
- NCRs/Defects
- Contracts
- Schedule activities
- Cost codes

**REQ-TASK-005:** The system shall support task dependencies (predecessor/successor relationships).

**REQ-TASK-006:** The system shall support parent-child task hierarchies (subtasks).

**REQ-TASK-007:** The system shall support recurring tasks (daily, weekly, monthly, custom).

**REQ-TASK-008:** Tasks shall be viewable in multiple formats:

- List view
- Kanban board
- Calendar view
- Gantt chart
- Map view (location-based)

## **5.2 Role-Based Assignment**

**REQ-TASK-009:** Tasks shall be assignable to:

- Individual users
- Roles (e.g., Project Manager, Site Engineer)
- Teams/groups
- Organizations

**REQ-TASK-010:** When assigned to a role or team, the system shall notify all members.

**REQ-TASK-011:** Team members shall be able to self-assign tasks from their team queue.

**REQ-TASK-012:** The system shall support task reassignment with notification to previous and new assignees.

**REQ-TASK-013:** The system shall track task workload by user and team for capacity planning.

### **5.3 Escalation Rules**

**REQ-TASK-014:** The system shall support configurable escalation rules based on:

- Time overdue
- Priority level
- Task type
- Assigned user or role

**REQ-TASK-015:** Escalations shall automatically reassign tasks or send notifications to:

- Supervisors/managers
- Alternate users
- Project leadership

**REQ-TASK-016:** The system shall log all escalations in the task history.

**REQ-TASK-017:** Users shall be notified before escalation occurs (configurable warning period).

**REQ-TASK-018:** Escalation rules shall be configurable at organization and project levels.

### **5.4 Notifications**

**REQ-TASK-019:** The system shall send notifications for task events including:

- New task assignment
- Task due soon
- Task overdue
- Task status change
- Task comments added
- Task completed
- Task escalation

**REQ-TASK-020:** Notifications shall be delivered via:

- Email
- In-app notifications

- Mobile push notifications
- SMS (configurable)

**REQ-TASK-021:** Users shall be able to configure notification preferences by event type and delivery method.

**REQ-TASK-022:** Notification frequency shall be configurable (immediate, daily digest, etc.).

**REQ-TASK-023:** The system shall support @mentions in task comments to notify specific users.

**REQ-TASK-024:** Unread notifications shall be visible in a notification center accessible from all system views.

## **6. COST, CONTRACTS & COMMERCIALS MODULE**

### **6.1 Cost Management**

#### **6.1.1 Project Budgets**

**REQ-COST-001:** The system shall support creation and management of project budgets.

**REQ-COST-002:** Budgets shall be structured by:

- Cost codes (hierarchical)
- Contract packages
- Project phases
- Work breakdown structure (WBS)
- Custom categories

**REQ-COST-003:** The system shall support multiple budget versions (original, revised, approved).

**REQ-COST-004:** Budget line items shall include:

- Cost code
- Description
- Quantity
- Unit of measure
- Unit cost
- Total budgeted cost
- Contingency
- Notes

**REQ-COST-005:** The system shall support budget imports from Excel and other systems.

**REQ-COST-006:** Budget modifications shall require approval workflow if configured.

**REQ-COST-007:** The system shall maintain complete budget change history.

### **6.1.2 Cost Codes**

**REQ-COST-008:** The system shall support hierarchical cost code structures (CSI, custom, or hybrid).

**REQ-COST-009:** Cost codes shall be applicable across all cost transactions:

- Budgets
- Commitments
- Change orders
- Invoices
- Time and materials
- Actuals

**REQ-COST-010:** The system shall support master cost code libraries that can be applied to multiple projects.

**REQ-COST-011:** Cost codes shall support multiple levels of detail (summary to granular).

**REQ-COST-012:** Users shall be able to map external cost codes to internal codes for reporting.

### **6.1.3 Commitments**

**REQ-COST-013:** The system shall track commitments (contracts and purchase orders) against budget.

**REQ-COST-014:** Commitment records shall capture:

- Commitment number
- Vendor/contractor
- Description
- Cost codes
- Original commitment amount
- Approved change orders
- Pending change orders
- Revised commitment amount
- Invoiced to date
- Retainage held
- Amount remaining

**REQ-COST-015:** The system shall prevent commitment creation if budget is insufficient (with override permission).

**REQ-COST-016:** Commitments shall be linkable to contracts and subcontracts.

**REQ-COST-017:** The system shall track commitment status (draft, approved, in progress, completed, closed).

#### **6.1.4 Variations / Change Orders**

**REQ-COST-018:** The system shall support creation and management of change orders for all contract types.

**REQ-COST-019:** Change order records shall capture:

- Change order number
- Related contract/commitment
- Description
- Reason for change
- Cost codes
- Amount
- Schedule impact
- Status (draft, pending approval, approved, rejected)
- Approval chain
- Backup documentation

**REQ-COST-020:** Change orders shall support multi-level approval workflows.

**REQ-COST-021:** The system shall track change order status through approval process.

**REQ-COST-022:** Approved change orders shall automatically update commitment and budget values.

**REQ-COST-023:** The system shall maintain a change order log/register per project.

**REQ-COST-024:** Change orders shall be analyzable by reason code, cost code, and contractor.

#### **6.1.5 Forecasting**

**REQ-COST-025:** The system shall provide cost forecasting capabilities.

**REQ-COST-026:** Forecasts shall include:

- Committed costs (contracts + approved COs)
- Pending costs (pending COs)
- Estimated cost to complete
- Total forecasted cost at completion
- Variance to budget

**REQ-COST-027:** The system shall support multiple forecast scenarios (optimistic, expected, pessimistic).

**REQ-COST-028:** Forecasts shall be updatable based on actual progress and trends.

**REQ-COST-029:** Forecast assumptions and basis shall be documentable in the system.

**REQ-COST-030:** The system shall track forecast accuracy over time against actuals.

#### **6.1.6 Actual vs Budget Tracking**

**REQ-COST-031:** The system shall provide real-time actual vs budget reporting by:

- Cost code
- Contract
- Phase
- Time period
- Custom groupings

**REQ-COST-032:** Cost reports shall display:

- Original budget
- Revised budget (with approved changes)
- Committed costs
- Actual costs (invoiced and paid)
- Forecasted final cost
- Variance (amount and %)
- Budget remaining

**REQ-COST-033:** The system shall provide earned value management (EVM) metrics:

- Planned value (PV)
- Earned value (EV)
- Actual cost (AC)
- Schedule variance (SV)
- Cost variance (CV)
- Schedule performance index (SPI)
- Cost performance index (CPI)

**REQ-COST-034:** Cost dashboards shall use color coding to highlight budget issues (green, yellow, red thresholds).

**REQ-COST-035:** The system shall provide trend analysis showing cost performance over time.

### **6.2 Contract Management**

### **6.2.1 Main Contracts**

**REQ-CONT-001:** The system shall support management of main/prime contracts with clients/owners.

**REQ-CONT-002:** Contract records shall capture:

- Contract number and title
- Client/owner
- Contract type (lump sum, unit price, cost plus, GMP, etc.)
- Contract value
- Start and end dates
- Retainage percentage
- Payment terms
- Insurance requirements
- Performance bond details
- Contract documents (uploaded files)

**REQ-CONT-003:** The system shall support contract amendments and modifications with version control.

**REQ-CONT-004:** Contract values shall integrate with project budgets and forecasts.

**REQ-CONT-005:** The system shall track contract status (draft, executed, active, completed, closed).

### **6.2.2 Subcontracts**

**REQ-CONT-006:** The system shall support management of subcontracts and purchase orders.

**REQ-CONT-007:** Subcontract records shall include all elements of main contracts plus:

- Scope of work description
- Schedule of values
- Insurance certificates
- Bond information
- Licenses and qualifications
- Safety compliance requirements

**REQ-CONT-008:** Subcontracts shall be linkable to cost commitments.

**REQ-CONT-009:** The system shall support subcontract close-out workflows.

**REQ-CONT-010:** The system shall track subcontractor performance metrics for future selection.

### **6.2.3 Payment Applications**



**REQ-PAY-001:** The system shall support creation and processing of payment applications (progress claims).

**REQ-PAY-002:** Payment applications shall include:

- Application number and period
- Schedule of values with line items
- Work completed this period
- Stored materials
- Total completed to date
- Retainage held
- Amount due this period
- Change orders included
- Supporting documentation

**REQ-PAY-003:** For subcontractor payments, the system shall support review and approval workflow.

**REQ-PAY-004:** For owner payments, the system shall generate standard forms (AIA G702/G703 or equivalent).

**REQ-PAY-005:** The system shall track payment application status (draft, submitted, under review, approved, paid).

**REQ-PAY-006:** Payment history shall be maintained and accessible for all contracts.

**REQ-PAY-007:** The system shall reconcile payments against contract values and commitments.

#### **6.2.4 Retentions (Retainage)**

**REQ-PAY-008:** The system shall automatically calculate retainage based on contract terms.

**REQ-PAY-009:** Retainage rates shall be configurable per contract and may vary by milestone.

**REQ-PAY-010:** The system shall track:

- Retainage withheld to date
- Retainage released
- Retainage remaining

**REQ-PAY-011:** The system shall support partial or full retainage release upon contract completion or milestones.

**REQ-PAY-012:** Retainage release shall require approval workflow.

#### **6.2.5 Certificates**

**REQ-CERT-001:** The system shall support upload and tracking of certificates including:

- Insurance certificates
- Payment and performance bonds
- Professional licenses
- Safety certifications
- Quality certifications (ISO, etc.)

**REQ-CERT-002:** The system shall track certificate expiration dates.

**REQ-CERT-003:** Users shall receive alerts before certificates expire (configurable lead time).

**REQ-CERT-004:** Expired certificates shall be highlighted in contractor records and reports.

**REQ-CERT-005:** The system shall maintain certificate history for compliance audits.

#### **6.2.6 Claims Management**

**REQ-CLAIM-001:** The system shall support creation and tracking of contract claims.

**REQ-CLAIM-002:** Claim records shall capture:

- Claim number and title
- Claimant and respondent
- Contract reference
- Basis of claim (delay, disruption, extra work, etc.)
- Amount claimed
- Time extension requested
- Description and supporting narrative
- Documentation (schedules, correspondence, photos, etc.)
- Status (draft, submitted, under review, negotiating, settled, disputed)
- Resolution and outcome

**REQ-CLAIM-003:** Claims shall support attachment of supporting documents, schedules, and cost breakdowns.

**REQ-CLAIM-004:** The system shall track claim negotiations and responses.

**REQ-CLAIM-005:** Claims shall be linkable to related RFIs, change orders, and correspondence.

**REQ-CLAIM-006:** The system shall maintain a claims register with search and reporting capabilities.

## 7. PLANNING & PROGRESS CONTROL MODULE

### 7.1 Program of Works (Schedule)

**REQ-PLAN-001:** The system shall provide integrated scheduling capabilities with Gantt chart visualization.

**REQ-PLAN-002:** The system shall support import of schedules from MS Project, Primavera P6, and other scheduling tools.

**REQ-PLAN-003:** Schedule activities shall include:

- Activity ID and name
- Duration
- Start and finish dates (planned, actual, forecasted)
- Predecessors and successors
- Calendar and working days
- Resource assignments
- Cost codes
- Location/area
- % complete
- Float/slack
- Critical path indication

**REQ-PLAN-004:** The system shall automatically calculate critical path based on activity relationships.

**REQ-PLAN-005:** The system shall support multiple schedule baselines (original, approved, current).

**REQ-PLAN-006:** Schedule changes shall be tracked with history and comparison to baseline.

**REQ-PLAN-007:** The system shall support resource leveling and workload balancing.

**REQ-PLAN-008:** Schedules shall be exportable in standard formats (MPP, XER, PDF, Excel).

### 7.2 Milestones

**REQ-PLAN-009:** The system shall support creation and tracking of project milestones.

**REQ-PLAN-010:** Milestones shall include:

- Name and description
- Target date
- Actual date

- Status (not started, in progress, achieved, missed)
- Responsible party
- Dependencies

**REQ-PLAN-011:** Milestone achievements shall trigger notifications to stakeholders.

**REQ-PLAN-012:** Milestones shall be displayable on project dashboards and timelines.

**REQ-PLAN-013:** The system shall track milestone performance (on-time, delayed, early completion).

### 7.3 Look-Ahead Planning

**REQ-PLAN-014:** The system shall support short-term look-ahead planning (typically 2-6 weeks).

**REQ-PLAN-015:** Look-ahead plans shall include:

- Activities planned for the period
- Resource requirements
- Material requirements
- Constraints and dependencies
- Prerequisite completions

**REQ-PLAN-016:** Look-ahead plans shall be updateable weekly or per configured period.

**REQ-PLAN-017:** The system shall compare look-ahead plans to actual execution for reliability tracking.

**REQ-PLAN-018:** Look-ahead plans shall integrate with procurement and resource planning.

### 7.4 Progress Tracking

**REQ-PLAN-019:** The system shall support multiple methods of progress tracking:

- % complete (manual entry)
- Units completed vs planned
- Start/finish dates
- Earned value
- Physical measurement

**REQ-PLAN-020:** Progress updates shall be capturable on mobile devices from the field.

**REQ-PLAN-021:** Progress shall be updateable at activity level and roll up to summary levels.

**REQ-PLAN-022:** The system shall calculate schedule performance metrics:

- Planned vs actual progress
- Schedule variance
- Activities ahead/on-time/behind
- Critical activities status

**REQ-PLAN-023:** Progress shall be visualized through:

- Gantt charts with progress bars
- S-curves (planned vs actual)
- Histograms
- Trend charts

## **7.5 Integration with Other Modules**

**REQ-PLAN-024:** Schedule activities shall be linkable to:

- Cost codes and budgets
- Tasks and workflows
- Inspections and quality records
- Submittals and RFIs
- Progress photos

**REQ-PLAN-025:** Cost progress shall be comparable to schedule progress for earned value analysis.

**REQ-PLAN-026:** Delays captured in daily logs shall be linkable to schedule activities for impact analysis.

**REQ-PLAN-027:** Progress updates shall automatically update related tasks and notifications.

# **8. REPORTING & DASHBOARDS MODULE**

## **8.1 Real-Time Dashboards**

**REQ-DASH-001:** The system shall provide role-based dashboards with real-time data.

**REQ-DASH-002:** Dashboard widgets shall include:

- Key performance indicators (KPIs)
- Charts and graphs
- Data tables
- Maps
- Activity feeds
- Alerts and notifications
- Quick action buttons

**REQ-DASH-003:** Users shall be able to customize their dashboards by adding, removing, and arranging widgets.

### **8.1.1 Project Health Dashboard**

**REQ-DASH-004:** Project health dashboards shall display:

- Overall project status (on track, at risk, critical)
- Schedule performance (ahead, on time, behind)
- Cost performance (under budget, on budget, over budget)
- Quality metrics (inspections pass rate, defect trends)
- Safety metrics (incident rate, observations)
- Outstanding items count (RFIs, submittals, tasks)
- Recent activities and updates

**REQ-DASH-005:** Health indicators shall use visual cues (colors, icons) for quick assessment.

**REQ-DASH-006:** Users shall be able to drill down from summary metrics to detailed data.

### **8.1.2 Cost Performance Dashboard**

**REQ-DASH-007:** Cost dashboards shall display:

- Budget vs actual vs forecast
- Commitments and remaining budget
- Cash flow (projected vs actual)
- Change order summary
- Cost variance by code/package
- Top cost drivers
- Payment status

**REQ-DASH-008:** Cost charts shall include:

- Budget consumption curves
- Cost breakdown by category
- Forecast trends
- Variance analysis charts

### **8.1.3 Task Status Dashboard**

**REQ-DASH-009:** Task dashboards shall display:

- Tasks by status (not started, in progress, completed, overdue)
- My tasks and team tasks
- High-priority tasks
- Tasks due soon

- Task completion trends
- Workload by team member

**REQ-DASH-010:** Task visualizations shall include Kanban boards, calendars, and lists.

#### **8.1.4 File Activity Dashboard**

**REQ-DASH-011:** Document activity dashboards shall display:

- Recently uploaded files
- Pending reviews and approvals
- Overdue workflow tasks
- Most accessed documents
- Storage usage
- Document status distribution
- Transmittal activity

#### **8.1.5 Compliance Indicators**

**REQ-DASH-012:** Compliance dashboards shall display:

- ISO 19650 compliance status
- Overdue submittals and RFIs
- Expired certificates
- Incomplete inspections
- Open NCRs and defects
- Safety observation trends
- Audit findings

**REQ-DASH-013:** Compliance indicators shall highlight items requiring immediate attention.

### **8.2 Custom Reports**

#### **8.2.1 Report Builder**

**REQ-REP-001:** The system shall provide a custom report builder with drag-and-drop interface.

**REQ-REP-002:** Report builder shall support:

- Selection of data sources (documents, tasks, costs, etc.)
- Field selection and ordering
- Filtering and sorting
- Grouping and subtotals
- Calculated fields and formulas
- Charts and visualizations
- Headers, footers, and branding

**REQ-REP-003:** Users shall be able to save custom report templates for reuse.

**REQ-REP-004:** Report templates shall be shareable across projects and organizations.

**REQ-REP-005:** The system shall include a library of pre-built report templates for common needs.

### **8.2.2 Export Formats**

**REQ-REP-006:** Reports shall be exportable in formats including:

- PDF
- Excel (XLSX)
- CSV
- Word (DOCX)
- HTML
- PNG/JPG (for charts)

**REQ-REP-007:** Exported reports shall maintain formatting and layout.

**REQ-REP-008:** Large reports shall support pagination and sectioning.

### **8.2.3 Scheduled Reports**

**REQ-REP-009:** The system shall support scheduling of recurring reports.

**REQ-REP-010:** Scheduled reports shall be configurable for:

- Frequency (daily, weekly, monthly, quarterly)
- Specific dates/times
- Recipients (email distribution list)
- Format preferences
- Filter criteria

**REQ-REP-011:** Scheduled reports shall be automatically generated and distributed at specified times.

**REQ-REP-012:** Users shall receive confirmation when scheduled reports are sent.

**REQ-REP-013:** Failed report generation shall trigger alerts to administrators.

### **8.2.4 Government & Client Templates**

**REQ-REP-014:** The system shall support upload and use of custom report templates provided by clients or regulatory agencies.



**REQ-REP-015:** Template mappings shall allow system data to populate specific fields in external templates.

**REQ-REP-016:** The system shall include templates for common forms including:

- AIA forms (G702, G703, etc.)
- OSHA forms
- Project status reports
- Progress reports
- Handover documentation

**REQ-REP-017:** Template-based reports shall be validatable before submission to ensure completeness.

## **9. USER & ACCESS MANAGEMENT MODULE**

### **9.1 Multi-Project Support**

**REQ-USER-001:** The system shall support unlimited projects per organization.

**REQ-USER-002:** Users shall have access to multiple projects based on their roles and permissions.

**REQ-USER-003:** Users shall be able to switch between projects without logging out.

**REQ-USER-004:** The system shall provide a project selector accessible from all screens.

**REQ-USER-005:** Users shall be able to set a default project that loads upon login.

**REQ-USER-006:** Project-specific settings and preferences shall be maintained separately for each project.

### **9.2 Role-Based Permissions**

**REQ-USER-007:** The system shall support flexible, role-based access control (RBAC).

**REQ-USER-008:** Standard roles shall include:

- System Administrator
- Organization Administrator
- Project Administrator
- Project Manager
- Site Manager/Supervisor
- Engineer
- QA/QC Manager

- Safety Manager
- Document Controller
- Contractor/Subcontractor
- Consultant
- Client/Owner Representative
- Read-Only User

**REQ-USER-009:** Organizations shall be able to create custom roles with specific permission sets.

**REQ-USER-010:** Permissions shall be granular, controlling access to:

- Modules and features
- View, create, edit, delete actions
- Approval authorities
- Report access
- Data fields
- Folders and documents

**REQ-USER-011:** Users shall be assignable to multiple roles per project.

**REQ-USER-012:** Role permissions shall be inheritable and overridable at project level.

**REQ-USER-013:** Permission changes shall take effect immediately without requiring user logout.

### **9.3 Organization-Level Access**

**REQ-USER-014:** The system shall support hierarchical organization structures.

**REQ-USER-015:** Organization structures shall include:

- Parent company
- Divisions/business units
- Project teams
- Subcontractors
- Consultants

**REQ-USER-016:** Users shall inherit base permissions from their organization.

**REQ-USER-017:** Organization administrators shall manage users within their organization.

**REQ-USER-018:** Inter-organization permissions shall control data sharing between companies on shared projects.

**REQ-USER-019:** The system shall support organization-level templates, settings, and standards.

## **9.4 Two-Factor Authentication**

**REQ-USER-020:** The system shall support two-factor authentication (2FA) for enhanced security.

**REQ-USER-021:** 2FA methods shall include:

- Authenticator apps (Google Authenticator, Authy, etc.)
- SMS codes
- Email codes
- Hardware tokens (optional)

**REQ-USER-022:** Organizations shall be able to mandate 2FA for all users.

**REQ-USER-023:** Users shall be able to configure trusted devices to reduce 2FA prompts.

**REQ-USER-024:** The system shall provide backup codes for 2FA recovery.

## **9.5 Audit & Activity Logs**

**REQ-USER-025:** The system shall maintain comprehensive activity logs for all user actions.

**REQ-USER-026:** Activity logs shall capture:

- User login/logout
- Access attempts (successful and failed)
- Data access (view, download)
- Data modifications (create, edit, delete)
- Permission changes
- Configuration changes
- Report generation
- Export activities

**REQ-USER-027:** Activity logs shall include:

- User identity
- Timestamp
- Action type
- Affected resources
- Source (IP address, device type)
- Result (success/failure)

**REQ-USER-028:** Activity logs shall be searchable and filterable by user, date range, action type, and resource.

**REQ-USER-029:** Activity logs shall be exportable for compliance and security audits.

**REQ-USER-030:** Activity logs shall be tamper-proof and immutable.

**REQ-USER-031:** Administrators shall receive alerts for suspicious activities (multiple failed logins, unusual access patterns, etc.).

## **10. INTEGRATION & INTEROPERABILITY**

### **10.1 API Access**

**REQ-INT-001:** The system shall provide a comprehensive RESTful API for external integrations.

**REQ-INT-002:** API access shall be secured using API keys and OAuth 2.0 authentication.

**REQ-INT-003:** API documentation shall be comprehensive, including endpoints, parameters, responses, and examples.

**REQ-INT-004:** The API shall support all major system functions including document management, tasks, costs, and reporting.

**REQ-INT-005:** API rate limits shall be configurable per organization and use case.

### **10.2 Common Integration Points**

**REQ-INT-006:** The system shall support integration with:

- Accounting systems (QuickBooks, Sage, SAP, etc.)
- ERP systems
- BIM/CAD software (Autodesk Construction Cloud, Revit, Navisworks, etc.)
- Scheduling tools (MS Project, Primavera P6, etc.)
- Document management systems
- Email systems (Outlook, Gmail)
- Single sign-on (SSO) providers

**REQ-INT-007:** Integrations shall support bi-directional data sync where applicable.

**REQ-INT-008:** Integration errors shall be logged and alert appropriate users.

### **10.3 Data Import/Export**

**REQ-INT-009:** The system shall support bulk data import via:

- Excel spreadsheets
- CSV files
- XML
- JSON

**REQ-INT-010:** Import templates shall be provided for common data types.

**REQ-INT-011:** Import processes shall validate data and report errors before committing.

**REQ-INT-012:** The system shall support bulk export of all data types in common formats.

**REQ-INT-013:** Exports shall include all metadata and relationships.

## **11. NON-FUNCTIONAL REQUIREMENTS**

### **11.1 Scalability**

**REQ-NFR-001:** The system shall scale horizontally to support organizational growth.

**REQ-NFR-002:** Performance shall not degrade as data volume increases up to defined limits per module.

**REQ-NFR-003:** The system shall support 10,000+ concurrent users across all projects.

### **11.2 Reliability & Availability**

**REQ-NFR-004:** The system shall maintain 99.9% uptime during business hours (excluding scheduled maintenance).

**REQ-NFR-005:** Scheduled maintenance windows shall be announced 7 days in advance.

**REQ-NFR-006:** The system shall provide automated backups at minimum daily frequency.

**REQ-NFR-007:** Disaster recovery capabilities shall enable restoration within 4 hours of a failure.

### **11.3 Usability**

**REQ-NFR-008:** The user interface shall be intuitive and require minimal training for basic operations.

**REQ-NFR-009:** The system shall provide context-sensitive help and tooltips.

**REQ-NFR-010:** The mobile app interface shall be optimized for touch interaction and small screens.

**REQ-NFR-011:** The system shall be accessible to users with disabilities (WCAG 2.1 Level AA compliance).

## **11.4 Browser & Device Support**

**REQ-NFR-012:** The web application shall support latest versions of Chrome, Firefox, Safari, and Edge browsers.

**REQ-NFR-013:** The mobile app shall support iOS 14+ and Android 10+ devices.

**REQ-NFR-014:** The mobile app shall function on phones and tablets.

## **11.5 Data Retention**

**REQ-NFR-015:** Project data shall be retained for minimum 7 years after project completion (configurable per region).

**REQ-NFR-016:** Deleted data shall be retained in archive for recovery period (minimum 90 days) before permanent deletion.

**REQ-NFR-017:** Organizations shall be able to export complete project archives for long-term offline storage.

# **12. TRAINING & SUPPORT**

## **12.1 Documentation**

**REQ-SUP-001:** Comprehensive user documentation shall be provided covering all modules and features.

**REQ-SUP-002:** Documentation shall include:

- Getting started guides
- Module-specific user guides
- Administrator guides
- API documentation
- Video tutorials
- FAQs

**REQ-SUP-003:** Documentation shall be accessible within the application.

**REQ-SUP-004:** Documentation shall be maintained and updated with each system release.

## **12.2 Training Programs**

**REQ-SUP-005:** Training programs shall be available for:

- End users
- Administrators
- API developers
- Super users/champions

**REQ-SUP-006:** Training delivery methods shall include:

- Live webinars
- Recorded video courses
- In-person training (where applicable)
- Self-paced learning modules

**REQ-SUP-007:** Training materials shall be customizable for organization-specific configurations.

## **12.3 Technical Support**

**REQ-SUP-008:** Technical support shall be available via:

- Email
- Phone
- Live chat
- Support ticket system

**REQ-SUP-009:** Support response times shall be defined by service level agreement (SLA):

- Critical issues: 1 hour
- High priority: 4 hours
- Medium priority: 24 hours
- Low priority: 48 hours

**REQ-SUP-010:** The system shall include an in-app support widget for submitting tickets.

**REQ-SUP-011:** Support shall maintain a knowledge base of common issues and solutions.

# **13. COMPLIANCE & STANDARDS**

## **13.1 Industry Standards**

**REQ-COMP-001:** The system shall comply with ISO 19650 for information management.

**REQ-COMP-002:** The system shall support BIM Level 2 and Level 3 workflows.

**REQ-COMP-003:** Cost coding shall support CSI MasterFormat and UniFormat standards.

**REQ-COMP-004:** The system shall generate reports compliant with AIA contract document standards.

## **13.2 Regional Regulations**

**REQ-COMP-005:** The system shall comply with data protection regulations applicable in deployment regions including:

- GDPR (European Union)
- CCPA (California, USA)
- PIPEDA (Canada)
- Other regional requirements

**REQ-COMP-006:** The system shall support data residency requirements (data stored in specific geographic regions).

**REQ-COMP-007:** The system shall support localized formats for dates, numbers, currencies, and measurements.

## **13.3 Security Standards**

**REQ-COMP-008:** The system shall maintain SOC 2 Type II certification for security controls.

**REQ-COMP-009:** The system shall comply with ISO 27001 information security standards.

**REQ-COMP-010:** Regular security audits and penetration testing shall be conducted (minimum annually).