



NAC Executive Insights

Modular Construction Contract Considerations

Key Points

- Modular construction requires contracts that are built around evidence, digital passports, and gate-based acceptance rather than traditional activity-based oversight and witnessing.
- A structured pilot phase—complete with design freeze, metrics, tooling validation, and evidence requirements—allows owners to test modular readiness before committing to full scale production.
- Fabrication, logistics, installation, and commissioning each carry unique risks that must be governed through SPC (Statistical Process Control), calibration, sensor logs, chain of custody, and AIM (Asset Information Model)-linked evidence.
- Clear allocation of risk, insurance, and responsibilities across suppliers, carriers, and erection contractors is essential given the multi-modal transport and industrialized nature of modular delivery.
- Lifecycle obligations—including warranties, systemic defect remediation, spare parts availability, and takeback requirements—must be contractually defined to ensure long term performance and maintainability.
- Strong governance—through change control, milestone-based payments, KPI-driven performance management, and structured dispute resolution—ensures traceability, accountability, and predictable project outcomes.

Introduction

This Executive Insight is not intended as legal advice but rather it highlights some contractual considerations that owners and constructors should consider when undertaking modular construction. These clauses are merely initial drafts to precipitate risk and commercial considerations and are not intended to be fully developed, project and jurisdiction specific. They should act as conversation and drafting starters. The totality of these clauses do not cover the totality of the modular construction contractual landscape.

Modular-specific contract forms and clause libraries exist, and can support the structure and topics below which are organized by contract purpose. Each thought is labeled and written for direct insertion into contract schedules or appendices after appropriate modification and legal review.

Pilot governance

The pilot-related clauses below are designed to govern a controlled, low-risk trial run of modular fabrication, logistics, and commissioning key steps before the project commits to full scale production. They ensure that both parties learn, measure, and adjust before locking in a final design, schedule, and cost.

The term “pilot clauses” refers to the **contractual framework that governs the early trial phase** of modular delivery, covering:

- Scope
- Design freeze
- Metrics and acceptance
- Evidence and passports
- Change control
- Risk allocation
- Tooling
- Training
- Exit/scale-up decisions

The clauses for the pilot stage are more expansive than in other sections, recognizing the early nature of many of these activities.

PURPOSE AND SCOPE OF THE PILOT

- **Pilot Definition**
 - *“The Pilot Phase is a limited-scope, evidence-driven trial of critical components of the modular design, fabrication, logistics, installation, and commissioning processes intended to validate performance, quality, and readiness for full scale production.”*
- **Pilot Objectives**
 - *“The objectives of the Pilot Phase include: (a) validating design assumptions; (b) confirming fabrication repeatability; (c) testing logistics and transport methods; (d) verifying commissioning processes; and (e) establishing baseline KPIs for scale-up.”*
- **Pilot Boundaries**
 - *“The Pilot Phase shall be limited to the modules, assemblies, and processes identified in the Pilot Scope of Work Document (SOW) and Schedule. No additional scope is implied or authorized.”*

PILOT SCOPE, METRICS & SUCCESS CRITERIA

- **Pilot Scope, Metrics, and Exit**
 - *“The pilot scope, acceptance criteria, success metrics, and measurement methods shall be documented in the Pilot SOW & Schedule. Failure to meet agreed metrics permits the Owner to require remediation at Supplier cost, or to terminate the pilot for convenience with defined transition obligations.”*
- **Pilot Scope**
 - *“The Parties shall define the number of modules, assemblies, tests, and processes included in the Pilot Phase. Only items listed in the Pilot Scope SOW & Schedule are included.”*
- **Pilot Success Metrics**
 - *“Pilot success shall be measured against objective metrics including: first pass yield, SPC stability, NC (Non Conformance) rates, transport damage rates, installation tolerances, commissioning pass rates, and passport completeness.”*
- **Evidence-Based Evaluation**
 - *“Pilot performance shall be evaluated solely on documented evidence recorded in the Module Passport and Common Data Environment (CDE).”*

DESIGN FREEZE & CHANGE CONTROL (PILOT-SPECIFIC)

- **Design Freeze (Pilot)**
 - *“The Parties shall agree on a Design Freeze Date for the pilot. After that date, no changes affecting fit, form, or function shall be implemented without a written Change Order that specifies cost, schedule impact, and required updates to the Module passport.”*
- **Pilot Change Control**
 - *“All changes during the Pilot Phase require a Change Order documenting scope, cost, schedule impacts, and required updates to the Module Passport.”*
- **Design Deviation Recording**
 - *“Any deviation from frozen design documents shall be recorded in the Module Passport and approved by the Owner prior to implementation.”*
- **Design Responsibility and Conformity**
 - *“Supplier warrants that Modules conform to the frozen design documents. Any deviation discovered after the Design Freeze must be recorded in the Module passport and approved in writing by the Owner prior to implementation.”*

PILOT DATA, EVIDENCE & PASSPORT REQUIREMENTS

- **Mandatory Passport Population**
 - *“All Pilot modules must have complete Module Passports containing design, fabrication, QC, SPC, calibration, transport, installation, and commissioning evidence as applicable to the Pilot scope.”*
- **Evidence Integrity**
 - *“All evidence shall be time-stamped, check-sum-verified, and stored in API-ready formats. Missing or corrupted evidence constitutes an incomplete passport.”*
- **Pilot Evidence Review**
 - *“The Owner shall review passport evidence at each Pilot gate and may require remediation prior to progression.”*

PROCUREMENT & SUPPLIER SUSTAINABILITY COMMITMENT

- **Clause**
 - *“Supplier shall provide sustainability documentation (EPDs (Environmental Product Declarations), material declarations) for all major components and shall comply with the Owner’s take-back and reuse requirements as set out in the Sustainability Schedule.”*

FABRICATION PILOT CLAUSES

- **Fabrication Process Validation**
 - *“Supplier shall demonstrate fabrication repeatability through SPC charts, dimensional checks, and Non-Conformance (NC) closure evidence for all Pilot modules.”*
- **Calibration Requirements**
 - *“All jigs, fixtures, and tools used during the Pilot must have current calibration certificates attached to the Module Passport.”*

- **NC & RCA Obligations**
 - *"All Pilot NCs shall be logged, investigated, and closed with documented root cause analysis. Repeated NCs require systemic corrective action."*

LOGISTICS & TRANSPORT PILOT CLAUSES

- **Transport Method Validation**
 - *"The Pilot shall validate the selected transport method(s), including route feasibility, handling procedures, and environmental protection measures."*
- **Sensor Evidence Requirement**
 - *"Carrier shall provide raw sensor logs (shock, tilt, vibration, temperature) for all Pilot shipments. Logs must be attached to the Module Passport."*
- **Transport Damage Responsibility**
 - *"Damage occurring during Pilot transport shall be repaired or replaced at Supplier/Carrier cost unless evidence demonstrates otherwise."*
- **Carrier KPI Clause (Pilot)**
 - *"Pilot transport KPIs include: on time delivery $\geq 98\%$; damage rate $\leq 0.5\%$; sensor data completeness $\geq 99\%$."*

INSTALLATION & COMMISSIONING PILOT CLAUSES

- **Installation Validation**
 - *"Pilot installation shall validate lift plans, rigging procedures, ground bearing assumptions, and interface tolerances."*
- **Commissioning Scripts**
 - *"Supplier shall execute commissioning scripts for Pilot modules and attach results to the Module Passport."*
- **AIM Integration**
 - *"Pilot commissioning shall validate AIM attribute mapping and data handover processes."*

TOOLING, FIXTURES & CO-FUNDING (PILOT-SPECIFIC)

- **Tooling Co-Funding**
 - *"Pilot tooling costs shall be shared as defined in the Tooling Schedule. Ownership, depreciation, and related insurance obligations shall be documented."*
- **Tooling Validation**
 - *"Supplier shall validate tooling performance during the Pilot and document any required modifications."*

TRAINING & COMPETENCY REQUIREMENTS FOR THE PILOT

- **Pilot Training Requirements**
 - *"All personnel participating in the Pilot shall complete required training modules including measurement discipline, SPC basics, NC/RCA procedures, and evidence capture standards."*
- **Assessor Calibration**
 - *"Assessors involved in Pilot evaluations shall undergo calibration to ensure scoring consistency."*

PILOT RISK ALLOCATION

- **Pilot Risk Allocation**
 - *“Risks during the Pilot Phase shall be allocated as defined in the Pilot Risk Schedule, with Supplier responsible for fabrication and evidence integrity, Carrier responsible for transport risks, and Owner responsible for site access and approvals.”*
- **Pilot Insurance**
 - *“Supplier and Carrier shall maintain insurance coverage appropriate to Pilot activities, including factory insurance, transit insurance, and rigging insurance.”*

PILOT EXIT, REMEDIATION & SCALE-UP DECISION

- **Pilot Exit Criteria**
 - *“The Owner may terminate the Pilot Phase for cause if performance metrics are not met, evidence is incomplete, or safety or quality risks are identified.”*
- **Remediation Requirements**
 - *“Supplier shall implement corrective actions for any Pilot deficiencies prior to scale-up. Evidence of remediation shall be attached to the Module Passport.”*
- **Scale-Up Decision**
 - *“Progression from Pilot to full production shall require: (a) achievement of Pilot success metrics; (b) closure of all NCs; (c) validated logistics and commissioning processes; and (d) complete passport evidence for all Pilot modules.”*

NO COMMITMENT TO FULL PRODUCTION

- **Clause:**
 - *“Participation in the Pilot Phase does not obligate the Owner (nor contractor) to proceed into full production. Scale-up is contingent upon successful Pilot performance and Owner approval.”*

Quality control, digital passports, data and APIs

QUALITY CONTROL (QC) CLAUSES

- **QC System Requirements**
 - *“Supplier shall maintain a documented Quality Control System covering fabrication, assembly, inspection, testing, calibration, and evidence capture. QC procedures must be approved by the Owner prior to fabrication.”*
- **Inspection & Test Plans (ITPs)**
 - *“Supplier shall prepare ITPs defining inspection points, hold points, sampling plans, tolerances, and evidence requirements. ITPs must be linked to Module Passport fields.”*
- **Dimensional Verification**
 - *“Supplier shall perform dimensional checks at defined fabrication stages. Results must be recorded in the Module Passport with measurement method, instrument ID, and calibration status.”*
- **SPC Requirements**
 - *“Supplier shall implement Statistical Process Control (SPC) for critical characteristics. SPC charts, trends, and out-of-control actions must be attached to the Module Passport.”*

- **Calibration Requirements**
 - *“All jigs, fixtures, gauges, and measurement tools must have current calibration certificates. Calibration evidence must be attached to the Module Passport for each module.”*
- **Non Conformance (NC) Management**
 - *“All NCs shall be logged, investigated, and closed with documented Root Cause Analysis (RCA) and Corrective Action Plan (CAP). Repeated NCs require systemic corrective action.”*
- **QC Evidence Integrity**
 - *“All QC evidence must be time-stamped, check-sum-verified, and stored in Application Programming Interface (API)-ready formats. Missing or corrupted evidence constitutes an incomplete passport.”*
- **QC Witnessing Rights**
 - *“Owner may witness any QC activity with 48 hours’ notice. Supplier shall provide access to fabrication areas, tools, and evidence records.”*
- **QC Traceability Requirements**
 - *“Supplier shall maintain traceability for materials, components, welds, fasteners, and assemblies. Traceability records must be linked to the Module Passport.”*

DIGITAL PASSPORT CLAUSES

- **Digital Passport Requirement**
 - *“Each Module must be delivered with a complete digital passport containing identity, fabrication records, QC data, SPC summaries, calibration certificates, commissioning evidence, shipment logs, warranty terms, and change history.”*
- **Passport Structure & Field Definitions**
 - *“Passport fields, data types, naming conventions, and evidence formats shall follow the Owner’s Passport Specification. Supplier shall not modify field definitions without approval.”*
- **Passport Completeness Requirement**
 - *“No Module shall be accepted, released for payment, or commissioned unless the Module Passport is complete and verified per the Passport Checklist.”*
- **Evidence Requirements**
 - Passport evidence must include:
 - Time-stamped QC records
 - SPC charts and trends
 - Calibration certificates
 - Transport sensor logs
 - Chain-of-custody records
 - Installation evidence
 - Commissioning scripts and results
 - Warranty start evidence
- **Sensor and Evidence Clause**
 - *“All sensor outputs, test results, and evidence must be time-stamped, check-sum-verified, and attached to the Module passport in API-ready formats. Missing or corrupted evidence permits rejection or conditional acceptance with remediation.”*
- **Passport Change History**
 - *“All changes to passport data must be logged with user ID, timestamp, reason for change, and supporting evidence.”*

- **Passport Integrity & Security**
 - *“Passport data must be check-sum-verified, version controlled, and stored in the CDE. Supplier shall implement access controls, audit logs, and data integrity protections.”*
- **Passport Review Rights**
 - *“Owner may review passport data at any time and may require remediation prior to milestone approvals.”*
- **Passport Integration with AIM**
 - *“Passport data must map to AIM attributes including asset IDs, maintenance intervals, spare parts, and O&M documentation.”*

DATA MANAGEMENT CLAUSES

- **Data Standards**
 - *“All data must comply with the Owner’s Data Standard, including naming conventions, field definitions, units of measure, and metadata requirements.”*
- **Data Formats**
 - *“Evidence shall be provided in structured, machine-readable formats (JSON, CSV, XML, PDF/A, or Owner-approved equivalents). Proprietary formats require prior approval.”*
- **Data Access Rights**
 - *“Owner shall have role-based read/write access to all passport data, QC records, SPC data, and commissioning evidence as specified in the Data Access Schedule.”*
 - *“Supplier shall expose passport data via secure, documented APIs, data formats, field definitions, and update frequencies as defined in the API Specification.”*
- **Data Retention Requirements**
 - *“Supplier shall retain all evidence, QC records, and passport data for the duration of the warranty period plus 10 years.”*
- **Confidentiality of Passport Data**
 - *“Passport data is Confidential Information. Parties shall protect it under the Confidentiality Agreement; permitted disclosures are limited to regulators, insurers, and advisors under NDA (Non-Disclosure Agreement).”*
- **Data Security Requirements**
 - Supplier must implement:
 - Encryption at rest and in transit
 - Access control and authentication
 - Audit logs
 - Backup and recovery procedures
 - Protection against tampering or deletion
- **Data Ownership**
 - *“All passport data, QC records, SPC data, and commissioning evidence are the property of the Owner.”*
- **Data Validation Requirements**
 - *“Supplier shall validate all data prior to submission. Invalid, incomplete, or corrupted data constitutes non-compliance.”*
- **Data Interoperability**
 - *“Supplier shall ensure that all data can be integrated with the Owner’s CDE (Common Data Environment), AIM system, and analytics platforms without manual reformatting or reinputting.”*

API (Application Programming Interface) & INTEGRATION CLAUSES

- **API Access Requirement**
 - *“Supplier shall expose passport data, QC data, SPC data, and commissioning evidence via secure, documented APIs.”*
- **API Specification Compliance**
 - *“APIs must comply with the Owner’s API Specification, including endpoints, authentication, schemas, and update frequencies.”*
- **API Security Requirements**
 - Supplier must implement:
 - Token-based authentication
 - Encryption in transit
 - Rate limiting
 - Audit logging
 - Role-based access control
- **API Update Frequency**
 - *“Passport and QC data must be updated in near real time, with a maximum delay of 15 minutes unless otherwise approved.”*
- **API Change Control**
 - *“Supplier shall not modify API schemas, endpoints, or authentication methods without written approval from the Owner.”*
- **API Availability Requirements**
 - *“APIs must maintain 99.5% uptime, excluding scheduled maintenance approved by the Owner.”*
- **API Evidence Submission**
 - *“All evidence required for acceptance gates must be submitted via API unless otherwise approved.”*
- **API Audit Rights**
 - *“Owner may audit API logs, access patterns, and data flows to verify compliance with security and integrity requirements.”*

Logistics, transport, carrier KPIs and tooling

Modular units move through a surprisingly wide set of transport modes, each with different risk profiles, evidence requirements, and contractual obligations. Before laying out a set of contract clauses for consideration it is important to understand the range of logistics and transport means that may be used, recognizing that some module transport may utilize more than one. The typical use of a particular mode, the key risks associated with it, and some of the differences in contract clauses are described below.

Transport Mode	Key Risks	Contract Clause Adjustments
Road	Shock, tilt, route constraints	Sensor logs, route surveys, permit obligations, weather protection
Rail	Vibration, impact loads, dwell time	Rail impact thresholds, bracing standards, yard chain-of-custody
Marine	Corrosion, sea state motion	Marine insurance, saltwater protection, port handling logs
Air	Lift limits, rigging, weather	Airworthiness certification, helicopter lift plans, high value insurance

Transport Mode	Key Risks	Contract Clause Adjustments
On-Site (SPMT/Crane)	Lift failure, ground prep	Lift plan approval, ground bearing certification, operator qualifications

Logistics & transport clauses should cover all aspects of module transport, including aspects related to packaging materials.

GENERAL LOGISTICS OBLIGATIONS

- **Transport Responsibility**
 - *“Supplier and Carrier shall transport Modules in accordance with the approved Transport Plan, including route surveys, equipment specifications, handling procedures, and evidence requirements.”*
- **Chain of Custody**
 - *“Carrier shall maintain a continuous chain--of--custody record from factory release to site delivery, including time stamps, handoffs, and digital signatures. Chain--of--custody records shall be attached to the Module Passport.”*
- **Transport Plan Approval**
 - *“No Module shall be shipped until the Owner approves the Transport Plan, including route feasibility, lift plans, rigging diagrams, weather constraints, and schedule.”*
- **Compliance with Laws**
 - *“Carrier shall comply with all transport regulations, oversize/overweight rules, escort requirements, and local jurisdictional mandates.”*

MODE-SPECIFIC TRANSPORT CLAUSES

- **Road Transport (Heavy Haul / Oversize / Flatbed)**
 - **Route Survey**
 - *“Carrier shall conduct a route survey identifying bridge limits, turning radii, overhead obstructions, and escort requirements. Survey results shall be approved by Owner.”*
 - **Permit & Escort Obligations**
 - *“Carrier shall obtain all oversize/overweight permits, escorts, and police support. Permit copies shall be attached to the Module Passport.”*
 - **Weather Protection**
 - *“Modules shall be protected from weather using shrink wrap, sealed enclosures, or equivalent. Damage from inadequate protection is Supplier/Carrier responsibility.”*
 - **Loading & Unloading Responsibility**
 - *“Supplier is responsible for proper loading; Carrier is responsible for safe transport; Owner is responsible for site access and unloading area readiness.”*
- **Rail Transport**
 - **Rail Impact Thresholds**
 - *“Rail impact events exceeding agreed G--force thresholds shall trigger mandatory inspection and Owner notification within 24 hours.”*
 - **Rail Yard Handling Logs**
 - *“Rail operators shall provide yard handling logs, including lift events, dwell times, and impact reports.”*

- **Bracing & Securing**
 - *“Supplier shall brace and secure Modules in accordance with rail-approved standards. Improper bracing is Supplier responsibility.”*
- **Marine Transport (Barge, Coastal, Ro-Ro, Container)**
 - **Marine Protection**
 - *“Supplier shall apply marine-grade wrapping, corrosion protection, and moisture barriers suitable for saltwater exposure.”*
 - **Port Handling Logs**
 - *“Port operators shall provide lift logs, crane certifications, and damage reports for all port movements.”*
 - **Weather Routing**
 - *“Carrier shall follow approved weather windows and routing guidance. Deviations require Owner approval.”*
 - **Seaworthiness Certification**
 - *“Carrier shall provide seaworthiness certificates for vessels transporting Modules.”*
- **Air Transport (Cargo Aircraft / Helicopter Heavy Lift)**
 - **Airworthiness Documentation**
 - *“Supplier shall provide weight, center-of-gravity, and rigging documentation required for air transport certification.”*
 - **Helicopter Lift Plan**
 - *“Helicopter lifts require a detailed lift plan including rigging diagrams, weather limits, abort criteria, and landing zone controls.”*
- **On-Site Movement (Cranes, SPMTs, Gantries, Jack-and-Slide-)**
 - **Lift Plan Approval**
 - *“All crane, SPMT, or gantry lifts require an Owner-approved lift plan including rigging, ground bearing calculations, and weather thresholds.”*
 - **Ground Bearing Certification**
 - *“Contractor shall certify that ground conditions meet the required bearing capacity for SPMT or crane operations.”*
 - **Placement Tolerances**
 - *“Modules shall be placed within the tolerances defined in the Module Interface Specification. Misalignment requiring re-lift is Contractor responsibility.”*

SENSOR, EVIDENCE & PASSPORT REQUIREMENTS

- **Mandatory Sensor Evidence**
 - *“Carrier shall provide raw sensor logs (shock, tilt, vibration, temperature, humidity) from factory release to site delivery. Logs must be time-stamped, checksum-verified, and attached to the Module Passport.”*
- **Shipment Evidence and Chain of Custody**
 - *“Carrier must attach chain-of-custody records, route permits, and raw sensor logs (shock, tilt, temperature) to the Module passport. Owner may reject delivery for missing or anomalous logs.”*

- **Evidence-Based- Delivery Acceptance**
 - *“Delivery acceptance requires: (a) complete passport; (b) sensor logs; (c) visual inspection; (d) dimensional checks. Missing evidence permits rejection or conditional acceptance with retention.”*
- **Damage Documentation**
 - *“Any damage observed during transport or delivery shall be photographed, logged, and attached to the passport within 24 hours.”*
- **Transport Damage and Shortfall**
 - *“Supplier/Carrier shall repair or replace damaged Modules at their cost. Owner may withhold payment until remediation evidence is attached to the passport. If replacement is required, Supplier shall expedite fabrication at Supplier cost.”*
- **Evidence Continuity**
 - *“Evidence continuity across all transport modes is mandatory. Breaks in evidence constitute an incomplete passport.”*

INSURANCE & RISK ALLOCATION

- **Factory Insurance**
 - *“Supplier shall maintain property and business interruption insurance covering Modules, tooling, and in-process- work to full replacement value.”*
- **Transit Insurance**
 - *“Carrier shall maintain transit insurance covering full replacement value of Modules from factory gate to site, including crane lifts and port handling.”*
- **Marine Cargo Insurance**
 - *“Marine shipments require all-risk- marine cargo insurance including loading/unloading, seaworthiness, and general average.”*
- **Risk Transfer**
 - *“Risk of loss transfers at the agreed Incoterm¹ or delivery point; however, Supplier remains responsible for defects traceable to fabrication or improper loading.”*

¹ **Incoterm** stands for **International Commercial Term**. They are **standardized trade terms** published by the International Chamber of Commerce (ICC). They are essentially **risk-allocation and cost-allocation rules** for moving goods internationally or domestically.

For modules, Incoterms determine:

- When the **Supplier’s risk ends**
- When the **Owner’s risk begins**
- Who pays for **transport, insurance, port fees, escorts, permits**
- Who is responsible for **damage in transit**
- Who must provide **evidence** (sensor logs, chain-of-custody, lift logs)
- Who handles **customs, export, import, marine insurance**

Because modules are large, expensive, and often move through **multi-modal transport**, the Incoterm chosen has **major commercial and risk implications**.

KPI, PERFORMANCE & LIQUIDATED DAMAGES

- **Carrier KPI**
 - *“Carrier KPIs: on-time delivery $\geq 98\%$; damage rate $\leq 0.5\%$; sensor data completeness $\geq 99\%$. Failure to meet KPIs triggers liquidated damages, corrective action plans, and potential carrier replacement.”*
- **LDs for Transport Delays**
 - *“Liquidated damages apply for delays in shipment, delivery, or site placement beyond the agreed schedule, calculated per calendar day up to the cap defined in Schedule LD.”*
- **LDs for Damage**
 - *“Damage attributable to Carrier or Supplier handling triggers liquidated damages equal to the cost of repair, rework, or replacement plus documented schedule impact.”*

ACCEPTANCE, PAYMENT & GATE CONTROL

- **Delivery Acceptance Gate**
 - *“Delivery acceptance requires passport completeness, sensor evidence, visual inspection, and dimensional checks. Conditional acceptance may be granted with defined remediation and retention.”*
- **Payment Release**
 - *“Payment for transport milestones is contingent upon delivery acceptance and passport evidence.”*
- **Rejection Rights**
 - *“Owner may reject Modules with missing evidence, damage, or nonconformances that prevent installation.”*

CHANGE CONTROL & VARIATIONS

- **Transport Plan Changes**
 - *“Changes to the Transport Plan require a written Change Order documenting cost, schedule impact, and updated passport entries.”*
- **Route or Mode Changes**
 - *“Carrier may not change route or transport mode without Owner approval. Unauthorized changes shift all resulting risk to Carrier.”*

SUSTAINABILITY, TAKE-BACK & ENVIRONMENTAL REQUIREMENTS

- **Take-Back Obligations**
 - *“Supplier shall provide take-back and reuse terms for Modules and packaging materials. End-of-life handling obligations shall be documented in the passport.”*
- **Environmental Compliance**
 - *“Transport operations must comply with environmental regulations including emissions, noise, and waste handling.”*

- **Corrosion & Environmental Protection**
 - *“Modules shall be protected against environmental exposure appropriate to the transport mode, including saltwater, humidity, and UV exposure.”*

DISPUTE RESOLUTION & TERMINATION

- **Transport-Related- Disputes**
 - *“Transport disputes shall follow the escalation → mediation → arbitration pathway defined in the Dispute Resolution Schedule.”*
- **Termination for Transport Failures**
 - *“Owner may terminate Carrier for cause for repeated KPI failures, safety violations, or material breach of transport obligations.”*

TOOLING CO-FUNDING AND OWNERSHIP

- **Clause**
 - *“Tooling costs shall be shared per the Tooling Schedule. Ownership, depreciation, maintenance, and insurance responsibilities are set out in the Tooling Annex. On termination, tooling disposition follows the Tooling Exit Plan.”*

Acceptance, commissioning, payment, milestones and change control

ACCEPTANCE CLAUSES

- **Acceptance Gates (General Requirement)**
 - *“Acceptance of a Module shall occur only upon completion of the applicable Acceptance Gate, including passport completeness, evidence verification, and closure of all nonconformances that prevent installation or commissioning.”*
- **Delivery Acceptance (Post-Transport)**
 - *“Delivery Acceptance requires: (a) complete Module Passport; (b) raw sensor logs (shock, tilt, vibration, temperature); (c) chain-of-custody records; (d) port/yard handling logs (if applicable); (e) visual inspection; and (f) dimensional verification. Missing evidence constitutes grounds for rejection or conditional acceptance.”*
- **Conditional Acceptance**
 - *“The Owner may grant Conditional Acceptance where minor nonconformances exist that do not prevent installation. Conditional Acceptance requires a remediation plan, retention, and documented closure within the agreed timeframe.”*
- **Installation Acceptance**
 - *“Installation Acceptance requires: (a) approved lift plan execution; (b) rigging logs; (c) ground bearing certification; (d) alignment and interface tolerance verification; (e) connection evidence (mechanical, electrical, plumbing); and (f) closure of installation-related NCs.”*
- **Commissioning Acceptance**
 - *“Commissioning Acceptance requires: (a) execution of commissioning scripts; (b) functional test results; (c) verification of safety systems; (d) AIM attribute*

population; (e) digital signatures of commissioning authorities; and (f) closure of all commissioning NCs.”

- **Passport Completeness Requirement**
 - *“No Module shall be accepted at any gate unless all required passport fields for that gate are populated with verified evidence in the CDE. Evidence must be time-stamped, check-sum-verified, and API-ready.”*
- **Rejection Rights**
 - *“The Owner may reject any Module with incomplete evidence, transport damage, fabrication defects, or installation issues that prevent safe commissioning or operation.”*
- **Acceptance Does Not Waive Latent Defects**
 - *“Acceptance at any gate does not waive the Supplier’s responsibility for latent defects, systemic issues, or evidence deficiencies discovered later.”*

COMMISSIONING CLAUSES

- **Commissioning Plan Approval**
 - *“Supplier shall prepare a Commissioning Plan including scripts, test procedures, acceptance criteria, and evidence requirements. The Plan must be approved by the Owner prior to commissioning activities.”*
- **Commissioning Scripts**
 - *“Commissioning scripts shall define step-by-step procedures, expected outcomes, tolerances, and required evidence. Scripts must be executed and results attached to the Module Passport.”*
- **Functional Testing**
 - *“Supplier shall perform functional tests for all systems, including mechanical, electrical, plumbing, controls, and safety systems. Failures require documented NCs and closure evidence.”*
- **AIM Integration**
 - *“Commissioning Acceptance requires full population of AIM attributes, including asset IDs, performance data, maintenance intervals, spare parts lists, and O&M documentation.”*
- **Commissioning Evidence Integrity**
 - *“All commissioning evidence must be times-tamped, check-sum-verified, and attached to the Module Passport. Evidence gaps constitute incomplete commissioning.”*
- **Commissioning Witnessing**
 - *“The Owner reserves the right to witness commissioning activities. Supplier shall provide 10 business days’ notice of commissioning events.”*

PAYMENT CLAUSES

- **Evidence-Based Payment Release**
 - *“Payment for any milestone is contingent upon passport completeness and evidence verification for the corresponding Acceptance Gate.”*
- **Milestone Payment Structure**
 - Payments shall be tied to the following milestones:
 - Design Freeze Sign-Off
 - Fabrication Release

- Shipment Release
 - Delivery Acceptance
 - Installation Acceptance
 - Commissioning Acceptance
 - Warranty Start
- Each milestone requires specific evidence as defined in the Passport Completeness Matrix.
- **Retention**
 - *“The Owner may retain a percentage of payment until all NCs associated with the milestone are closed or a remediation plan is approved.”*
- **Right to Withhold Payment**
 - *“The Owner may withhold payment for incomplete evidence, unresolved NCs, transport damage, or failure to meet KPIs.”*
- **No Payment for Rework**
 - *“Supplier shall bear all costs associated with rework, repair, or replacement arising from defects, damage, or incomplete evidence.”*

MILESTONE CLAUSES

- **Milestone Preconditions**
 - *“No milestone may be claimed until all preconditions defined in the Milestone Schedule are met, including passport completeness, evidence verification, and NC closure.”*
- **Milestone Evidence Requirements**
 - Each milestone requires:
 - Digital signatures
 - Passport evidence
 - NC closure
 - Updated change logs
 - Updated AIM attributes (where applicable)
- **Milestone Progression Rules**
 - *“Milestones must be completed sequentially. No Module may progress to the next milestone without documented completion of the preceding milestone.”*
- **Milestone Audit Rights**
 - *“The Owner may audit any milestone evidence prior to payment release or acceptance.”*

CHANGE CONTROL CLAUSES

- **Change Control Requirement**
 - *“All changes affecting design, fabrication, logistics, installation, commissioning, or warranty must be processed through a formal Change Order.”*
- **Change Order Content Requirements**
 - Each Change Order must include:
 - Scope description
 - Cost impact
 - Schedule impact
 - Risk impact
 - Required passport updates
 - Required AIM updates
 - Evidence requirements
 - Digital signatures

- **Design Freeze Protection**
 - *“After the Design Freeze Date, no changes affecting fit, form, function, or interface shall be implemented without an approved Change Order.”*
- **Evidence-Driven Change Validation**
 - *“All changes must be validated through evidence attached to the Module Passport, including updated drawings, revised specifications, and updated QC/SPC records.”*
- **Change Impact on Milestones**
 - *“Changes that affect milestone criteria shall require revision of the Milestone Schedule and may adjust payment timing.”*
- **Unauthorized Changes**
 - *“Unauthorized changes shift all resulting cost, schedule, and risk to the Supplier.”*

Warranties, spare parts, performance incentives and liquidated damages

WARRANTY CLAUSES

- **Warranty Start**
 - *“Warranty Start shall occur only upon Commissioning Acceptance and completion of all passport fields required for the Warranty Start Gate.”*
- **Warranty Duration**
 - *“Supplier warrants that all Modules, assemblies, components, and systems shall be free from defects in materials, workmanship, and design for the Warranty Period specified in the Warranty Schedule, commencing at Warranty Start” but not less than 24 months from the date of commissioning acceptance recorded in the passport, unless otherwise agreed in writing.”*
- **Evidence-Based Warranty Claims**
 - *“All warranty claims must be supported by Module Passport evidence, including commissioning results, NC history, SPC trends, and maintenance logs. Claims lacking evidence may be rejected.”* Supplier’s remedy is repair or replacement unless systemic defects require broader remediation.”
- **Warranty Coverage**
 - Warranty covers:
 - Defects in materials
 - Defects in workmanship
 - Design errors or omissions
 - Premature failure of components
 - Systemic defects affecting multiple modules
 - Failures caused by improper fabrication, calibration, or assembly
- **Warranty Exclusions**
 - Exclusions apply only to:
 - Owner-caused damage
 - Unauthorized modifications
 - Improper operation outside design parameters
 - Force majeure events
 - *Exclusions must be explicitly documented; ambiguity defaults to Supplier responsibility.*

- **Systemic Defect Clause**
 - *“If a defect is found to be systemic, affecting multiple Modules or assemblies, Supplier shall implement a fleet-wide corrective action plan at Supplier cost, including redesign, rework, replacement, and updated passport evidence.”*
- **Warranty Response Times**
 - *“Supplier shall respond to warranty claims within 5 business days and complete corrective actions within the timeframe defined in Schedule W. Failure to meet response times may trigger LDs.”*
- **Warranty Evidence Requirements**
 - Supplier must provide:
 - Root Cause Analysis (RCA)
 - Corrective Action Plan (CAP)
 - Updated passport entries
 - Updated AIM attributes
 - Replacement part evidence
- **Warranty on Replacement Parts**
 - *“Replacement parts provided under warranty shall carry a new warranty equal to the original Warranty Period or 12 months, whichever is longer.”*

SPARE PARTS CLAUSES

- **Spare Parts Appendix**
 - *“Supplier shall provide a Spare Parts Appendix containing mandatory, recommended, and optional spare parts, including quantities, technical specifications, and compatibility requirements.”*
- **Technical Specifications**
 - Each spare part must include:
 - OEM part number
 - Material and performance specifications
 - Revision number
 - Environmental ratings
 - Compatibility with module revisions
- **Spare Parts Availability**
 - *“Supplier shall maintain minimum stock levels for critical spare parts and guarantee availability within the lead times defined in the Spare Parts Appendix.”*
- **Lead Time Commitments**
 - *“Supplier shall meet the standard and expedited lead times defined in the Spare Parts Appendix. Failure to meet lead times may trigger LDs.”*
- **Pricing & Validity**
 - *“Spare parts pricing shall remain firm for the Price Validity Period. Escalation rules must be defined and approved by the Owner.”*
- **Packaging & Logistics**
 - *“Spare parts shall be packaged to prevent damage, corrosion, or environmental degradation. Sensitive parts require sensor-verified shipment.”*
- **Passport Integration**
 - *“Module-specific spare parts must be linked to the Module Passport and AIM attributes, including maintenance intervals and replacement procedures.”*

- **Obsolescence Management**
 - *“Supplier shall provide 12-month advance notice of part obsolescence and propose equivalent replacements with evidence of compatibility.”*
- **Take-Back & Sustainability**
 - *“Supplier shall provide takeback, recycling, or refurbishment options for end-of-life spare parts, including environmental documentation.”*

PERFORMANCE INCENTIVE CLAUSES

- **Performance Incentive Eligibility**
 - *“Supplier and Carrier are eligible for performance incentives only if all passport evidence is complete and all milestones are achieved without unresolved NCs.”*
- **Performance KPIs**
 - KPIs may include:
 - First-pass yield
 - SPC stability
 - NC closure rate
 - Transport damage rate
 - On-time delivery
 - Installation tolerance compliance
 - Commissioning pass rate
 - Evidence completeness
- **Incentive Calculation**
 - *“Performance incentives shall be calculated based on KPI achievement levels defined in the Performance Incentives Schedule. Incentives are payable only after Commissioning Acceptance.”*
- **Evidence-Based KPI Verification**
 - *“All KPI performance must be supported by passport evidence, SPC charts, transport logs, and commissioning results.”*
- **Disqualification for Noncompliance**
 - *“Failure to meet evidence requirements, safety rules, or change control obligations disqualifies Supplier from performance incentives.”*

LIQUIDATED DAMAGES (LD) CLAUSES

- **LDs for Schedule Delays**
 - *“LDs apply for delays in design, fabrication, shipment, delivery, installation, or commissioning beyond the agreed schedule. LDs shall be calculated per calendar day up to the cap defined in the Liquidated Damages Schedule.”*
- **LDs for Transport Damage**
 - *“Damage attributable to Carrier or Supplier handling triggers LDs equal to the cost of repair, rework, or replacement plus documented schedule impact.”*
- **LDs for Evidence Gaps**
 - *“LDs apply when Modules arrive with missing or corrupted passport evidence, including sensor logs, chain-of-custody, QC records, or commissioning results.”*
- **LDs for Failure to Meet KPIs**
 - *“LDs apply when Supplier or Carrier fails to meet minimum KPI thresholds, including on-time delivery, damage rate, SPC stability, and NC closure.”*

- **LDs for Systemic Defects**
 - *“Systemic defects affecting multiple Modules trigger LDs equal to the cost of fleet-wide corrective actions and associated schedule impacts.”*
- **LDs for Unauthorized Changes**
 - *“Unauthorized changes to design, fabrication, logistics, or commissioning processes shift all resulting cost, schedule, and risk to Supplier and may trigger LDs.”*

Insurance, risk allocation, compliance, take-back and governance

INSURANCE CLAUSES

- **Insurance Requirements (General)**
 - *“Supplier, Carrier, and Erection Contractor shall maintain the insurance policies defined in this Schedule for the full duration of their respective responsibilities, including design, fabrication, transport, installation, commissioning, and warranty.”*
- **Insurance Allocation Rules**
 - *“Supplier shall maintain factory insurance and product liability insurance; Carrier shall maintain transit insurance covering full replacement value; Owner shall insure site risks post-delivery. All policies shall name the Owner as additional insured where required.”*
- **Factory Insurance**
 - *“Supplier shall maintain property and business interruption insurance covering Modules, tooling, materials, and in-process work to full replacement value.”*
- **Transit Insurance**
 - *“Carrier shall maintain all-risk transit insurance covering full replacement value of Modules from factory gate to site, including loading, unloading, port handling, and intermediate storage. Coverage shall include shock, tilt, and environmental exposure.”*
- **Marine Cargo Insurance**
 - *“Marine shipments require all-risk marine cargo insurance including seaworthiness, loading/unloading, general average, and environmental exposure.”*
- **Erection & Rigging Insurance**
 - *“Erection Contractor shall maintain rigging and erection insurance covering crane lifts, SPMT operations, gantry movements, and ground bearing failures.”*
- **Other Insurance Clauses (Professional, Cyber, Employer’s Liability)**
 - *“Supplier shall maintain professional indemnity, cyber liability (for passport/data systems), and employer’s liability insurance at limits set out in the Insurance Schedule.”*
- **Professional Liability Insurance**
 - *“Designer shall maintain professional indemnity insurance covering design errors, omissions, and interface failures.”*
- **Product Liability Insurance**
 - *“Supplier shall maintain product liability insurance covering defects, systemic failures, and warranty obligations.”*
- **Insurance Evidence Requirements**
 - *“All insurance certificates, endorsements, and declarations shall be submitted prior to commencement of work and attached to the Module Passport.”*
- **Insurance Continuity Clause**
 - *“Insurance coverage must remain continuous. Lapses in coverage constitute a material breach.”*

- **Subrogation Waiver**
 - *"All policies shall include a waiver of subrogation in favor of the Owner."*

RISK ALLOCATION CLAUSES

- **Lifecycle Risk Allocation**
 - *"Risk ownership is allocated by lifecycle phase: Supplier (design, fabrication), Carrier (transport), Erection Contractor (installation), Supplier (commissioning), and Supplier (warranty)."*
- **Incoterm-Aligned Risk Transfer**
 - *"Risk of loss transfers at the point defined by the agreed Incoterm; however, Supplier remains responsible for defects traceable to fabrication, loading, or evidence gaps (ensuring passport completeness)."*
- **EvidenceB-based Risk Allocation**
 - *"Risk allocation is contingent upon evidence completeness. Missing or corrupted evidence shifts risk to the responsible party."*
- **Multi-Modal Risk Allocation**
 - *"Each mode owner retains responsibility for risks arising during its custody period. Supplier is responsible for coordination across modes and evidence continuity."*
- **Systemic Risk Clause**
 - *"Systemic defects or failures arising from design, process, or material issues remain Supplier responsibility regardless of Incoterm or transport mode."*
- **Risk Allocation for Unauthorized Changes**
 - *"Unauthorized changes to design, fabrication, logistics, or commissioning processes shift all resulting cost, schedule, and risk to Supplier."*
- **Risk Allocation for Evidence Gaps**
 - *"Breaks in chain-of-custody, missing sensor logs, incomplete QC records, or missing commissioning evidence constitute evidence gaps and shift risk to the responsible party."*
- **Risk Allocation for Environmental Exposure**
 - *"Supplier and Carrier are responsible for protecting Modules from environmental exposure appropriate to the transport mode, including saltwater, humidity, UV, and temperature."*

COMPLIANCE CLAUSES

- **Regulatory Compliance**
 - *"Supplier, Carrier, and Erection Contractor shall comply with all applicable laws, codes, standards, and regulations governing design, fabrication, transport, installation, commissioning, and warranty."*
- **Safety Compliance**
 - *"All parties shall comply with safety regulations, including lift permits, exclusion zones, ground bearing requirements, and site safety protocols."*
- **Environmental Compliance**
 - *"Transport, fabrication, and installation activities must comply with environmental regulations including emissions, noise, waste handling, and hazardous materials management."*
- **Data & Evidence Compliance**
 - *"All evidence must comply with the Owner's data standards, including time-stamping, check-sum-verification, API-ready formats, and CDE storage."*

- **Passport Compliance**
 - *“Passport completeness is mandatory at each Acceptance Gate. Incomplete passports constitute non-compliance.”*
- **Compliance with Design Freeze**
 - *“No changes affecting fit, form, function, or interface shall be implemented after the Design Freeze Date without an approved Change Order.”*
- **Compliance with Commissioning Protocols**
 - *“Commissioning must follow approved scripts, test procedures, and evidence requirements. Deviations require Owner approval.”*
- **Compliance with Transport Regulations**
 - *“Carrier shall comply with oversize/overweight rules, escort requirements, port regulations, and air/rail/marine safety standards.”*

TAKE-BACK & SUSTAINABILITY CLAUSES

- **Take-Back Program**
 - *“Supplier shall provide a takeback program for Modules, components, and spare parts at end-of-life, including refurbishment, recycling, or disposal options and record in the passport.”*
- **Packaging Take-Back**
 - *“Supplier shall remove or recycle packaging materials, including crates, shrink wrap, pallets, and protective coverings.”*
- **Environmental Product Declarations (EPDs)**
 - *“Supplier shall provide EPDs for major components and materials, including embodied carbon and lifecycle impact data.”*
- **Hazardous Substance Declarations**
 - *“Supplier shall provide declarations identifying hazardous substances and disposal requirements.”*
- **Circularity Requirements**
 - *“Supplier shall design Modules and components to support reuse, refurbishment, and recycling where feasible.”*
- **Sustainability Evidence**
 - *“All sustainability evidence shall be attached to the Module Passport and AIM attributes.”*

GOVERNANCE CLAUSES

- **Gate Control Governance**
 - *“Progression through Design Release, Fabrication Release, Shipment Release, Delivery Acceptance, Installation Acceptance, Commissioning Acceptance, and Warranty Start requires documented completion of each gate’s evidence requirements.”*
- **Audit Rights**
 - *“Owner may audit any evidence, process, or record at any time, including QC logs, SPC charts, transport logs, commissioning results, and AIM attributes.”*
- **Governance Reporting**
 - *“Supplier shall provide weekly governance reports including NC status, SPC trends, evidence completeness, transport performance, and commissioning progress.”*

- **Training & Competency Requirements**
 - *“All personnel must complete training in measurement discipline, SPC basics, NC/RCA procedures, evidence capture, and passport population.”*
- **Escalation Pathway**
 - *“Disputes or issues shall follow the escalation → governance review → mediation → arbitration pathway defined in the Governance Schedule.”*
- **Decision Rights**
 - *“Owner retains final decision rights on design changes, acceptance, commissioning results, evidence completeness, and milestone approval.”*
- **Governance of Systemic Issues**
 - *“Systemic defects, repeated NCs, or SPC instability shall trigger a governance review and mandatory corrective action plan.”*
- **Governance of Change Control**
 - *“All changes must follow the Change Control Procedure, including scope, cost, schedule, risk, passport updates, and AIM updates.”*

Legal, confidentiality, dispute resolution and termination

LEGAL CLAUSES

- **Governing Law**
 - *“This Contract shall be governed by and construed in accordance with the laws of the jurisdiction specified in the Contract Agreement, without regard to conflict-of-law principles.”*
- **Contract Hierarchy**
 - *“In the event of conflict between Contract documents, the following hierarchy applies: (1) Contract Agreement; (2) Schedules; (3) Clause Bank; (4) Technical Specifications; (5) Drawings; (6) Supplier Proposals. The more stringent requirement prevails.”*
- **Entire Agreement**
 - *“This Contract constitutes the entire agreement between the Parties and supersedes all prior proposals, negotiations, and communications.”*
- **Amendments**
 - *“No amendment is valid unless executed in writing and signed by authorized representatives of both Parties.”*
- **Assignment**
 - *“Neither Party may assign or transfer its rights or obligations without prior written consent of the other Party, except to affiliates with equivalent financial and technical capability.”*
- **Subcontracting**
 - *“Supplier may not subcontract any portion of the Work without Owner approval. Supplier remains fully responsible for subcontractor performance, evidence, and compliance.”*
- **Notices**
 - *“All notices shall be in writing and delivered by email, courier, or registered mail to the addresses specified in the Contract Agreement.”*
- **Survival of Obligations**
 - *“Confidentiality, warranties, indemnities, IP rights, evidence obligations, and dispute resolution provisions survive termination or expiration of the Contract.”*

- **Severability**
 - *“If any provision is held invalid, the remaining provisions remain in full force and effect.”*
- **No Waiver**
 - *“Failure to enforce any provision does not constitute a waiver of future enforcement.”*

CONFIDENTIALITY & DATA PROTECTION CLAUSES

- **Confidential Information**
 - *“Confidential Information includes all technical, commercial, operational, design, fabrication, logistics, commissioning, and evidence data disclosed under this Contract.”*
- **Confidentiality**
 - *“Parties shall protect Confidential Information, including passport data, under the Confidentiality Agreement. Permitted disclosures are limited to regulators, insurers, and advisors under NDA.”*
- **Confidentiality Obligations**
 - *“Each Party shall protect Confidential Information using the same degree of care used to protect its own confidential information, but not less than reasonable care.”*
- **Use Restrictions**
 - *“Confidential Information shall be used solely for performing obligations under this Contract and for no other purpose.”*
- **Disclosure Restrictions**
 - *“Confidential Information may not be disclosed to third parties except to approved subcontractors bound by equivalent confidentiality obligations.”*
- **Data Protection & Evidence Security**
 - *“Supplier shall implement security controls to protect all evidence, including encryption, access control, audit logs, and secure storage in the CDE.”*
- **Intellectual Property Rights**
 - *“All IP created specifically for the Project shall be owned by the Owner unless otherwise agreed. Supplier retains ownership of preexisting IP but grants the Owner a perpetual, royalty-free license to use it for operation, maintenance, and lifecycle management.”*
- **Publicity Restrictions**
 - *“Supplier shall not use the Owner’s name, logo, or project details in marketing or public communications without prior written consent.”*
- **Return or Destruction of Confidential Information**
 - *“Upon termination or completion, Supplier shall return or destroy all Confidential Information and certify destruction upon request.”*

DISPUTE RESOLUTION CLAUSES

- **Evidence-Based Dispute Resolution**
 - *“All disputes shall be resolved based on documented evidence contained in the Module Passport, CDE, and governance records.”*
- **Escalation Procedure**
 - Disputes follow a structured escalation path:
 - Project-level negotiation
 - Governance Committee review
 - Executive-level negotiation
 - Mediation
 - Arbitration

- **Governance Committee Review**
 - *“The Governance Committee shall review disputes involving evidence gaps, systemic defects, milestone failures, or change control issues.”*
- **Mediation**
 - *“If unresolved after governance review, disputes shall proceed to non-binding mediation administered by a mutually agreed mediator.”*
- **Arbitration**
 - *“If mediation fails, disputes shall be resolved by binding arbitration under the rules specified in the Contract Agreement. Arbitration decisions are final and enforceable.”*
- **Continued Performance**
 - *“During dispute resolution, Supplier shall continue performing all obligations not directly affected by the dispute.”*
- **Costs**
 - *“Each Party bears its own costs for negotiation and mediation. Arbitration costs are allocated as determined by the arbitrator.”*

TERMINATION CLAUSES

- **Termination for Cause**
 - Owner may terminate for cause if Supplier:
 - Fails to meet milestone requirements
 - Fails to provide complete passport evidence
 - Repeatedly fails KPIs
 - Commits safety violations
 - Performs unauthorized changes
 - Fails to maintain insurance
 - Fails to correct systemic defects
 - Fails to comply with laws or regulations
- **Termination for Convenience**
 - *“Owner may terminate the Contract for convenience with written notice. Supplier shall be compensated for completed Work and verified costs but not for lost profits.”*
- **Termination for Evidence Gaps**
 - *“Owner may terminate if Supplier fails to provide required evidence, including QC records, SPC charts, transport logs, commissioning results, or AIM attributes.”*
- **Termination for Systemic Defects**
 - *“Owner may terminate if systemic defects are not corrected within the timeframe defined in the Corrective Action Plan.”*
- **Termination for Insolvency**
 - *“Either Party may terminate if the other Party becomes insolvent, enters bankruptcy, or ceases operations.”*
- **Post-Termination Obligations**
 - “Supplier must:
 - Deliver all passport data
 - Deliver all AIM attributes
 - Deliver all design files
 - Return Owner property
 - Provide transition support
 - Complete safety-critical work

- Post termination obligations (including passport handover) are set out in the Termination Schedule.”
- **Survival of Key Provisions**
 - The following survive termination:
 - Confidentiality
 - Warranties
 - IP rights
 - Evidence obligations
 - Indemnities
 - Dispute resolution
- **Data Retention and Handover on Termination**
 - *“On termination, Supplier shall deliver the complete Module passports, AIM links, and evidence to the Owner’s CDE in the agreed API format within the handover period.”*

Conclusion

Modular construction offers extraordinary potential for improving predictability, quality, and speed — but only when supported by a contractual framework that reflects the realities of industrialized delivery. Traditional construction contracts were never designed to manage digitally traceable fabrication, multimodal logistics, evidence-based acceptance, or the lifecycle obligations that accompany manufactured building systems. The clauses and considerations presented in this Executive Insight highlight the shift required: from activity-based oversight to evidence-driven governance, from fragmented responsibilities to clear risk allocation, and from reactive problem solving to structured, data-supported decisionmaking.

A successful modular program depends on more than technical capability. It requires:

- Clarity of scope and design intent, reinforced through disciplined change control
- Repeatable, measurable fabrication processes, supported by SPC, calibration, and NC/RCA rigor
- Transparent logistics and transport, with sensor-verified evidence and chain-of-custody continuity
- Gate-based acceptance and commissioning, grounded in complete digital passports
- Lifecycle accountability, including warranties, spare parts, take-back, and AIM integration
- Governance structures that ensure issues are surfaced early, decisions are documented, and systemic risks are addressed proactively

The contractual clause bank provided herein is not a prescriptive template, but a framework for informed negotiation and disciplined execution. Each project, jurisdiction, and delivery model will require tailoring. What remains constant is the need for contracts that reflect how modular fabrication actually works — digitally, industrially, and with a level of traceability that traditional construction rarely achieves.

As owners and constructors continue to adopt modular delivery at scale, the organizations that succeed will be those that treat contracts not as administrative burdens but as operational tools: instruments that align incentives, clarify responsibilities, and ensure that every module arrives, installs, and performs exactly as intended. This Executive Insight aims to support that shift by providing a structured starting point for building modular-ready contracts that are as modern and reliable as the systems they govern.

Important: These initial draft clauses are composition starters, not legal advice. be sure to have your legal and commercial teams tailor language for risk allocation, insurance, payment mechanics, and local law.

For Further Reading – Other Executive Insights

- Craft Training for Modular Construction
- Digital Passports Training for Modular Construction
- Golden Thread
- Spare Parts in Modular Construction
- Modular Construction Transportation Risk
- Economic & Schedule Trade-Offs in Modular vs. Stick-Built Execution
- Modularization vs. Stick-Built Readiness Strategy

Glossary

Acronym / Term	Full Name / Description
Acceptance Gate	A formal checkpoint requiring passport completeness, evidence verification, and NC closure before progression.
AIM	Asset Information Model; structured digital dataset handed over at commissioning for operations and maintenance.
API	Application Programming Interface; structured, machine-readable interface for accessing passport and evidence data.
CAP	Corrective Action Plan; documented remediation steps following a defect or nonconformance.
CDE	Common Data Environment; the Owner-designated digital repository for all evidence, passports, and documentation.
Chain of Custody	Continuous, timestamped record of Module custody from factory release to site delivery.
Commissioning Acceptance	Acceptance gate confirming functional performance, safety verification, and AIM population.
Commissioning Scripts	Approved procedures defining commissioning steps, expected outcomes, tolerances, and required evidence.
Conditional Acceptance	Acceptance granted with minor NCs, requiring remediation and retention.
Design Freeze	The point at which design is locked; changes require a formal Change Order.
Digital Passport / Module Passport	The complete, evidence-based digital record of design, fabrication, QC, SPC, transport, installation, commissioning, and warranty.
EPD	Environmental Product Declaration; standardized environmental impact documentation for materials and components.
Evidence Continuity	Requirement that evidence be complete, unbroken, and traceable across all lifecycle phases.
Evidence Integrity	Requirement that evidence be time-stamped, check-sum-verified, and stored in approved formats.
Fabrication Release	Acceptance gate confirming fabrication completeness, QC, SPC, calibration, and NC closure.
Functional Testing	Commissioning tests verifying system performance against defined criteria.
Incoterm	International Commercial Term; standardized rules defining transport risk, cost, and responsibility allocation.
KPI	Key Performance Indicator; measurable performance metric used for transport, fabrication, commissioning, and supplier evaluation.
LD	Liquidated Damages; pre-agreed financial remedies for delays, damage, evidence gaps, or KPI failures.
Lift Plan	Approved plan defining rigging, equipment, weather limits, and ground bearing requirements for module lifts.
Milestone	A contractually defined point tied to evidence, acceptance, and payment.
MTBF	Mean Time Between Failures; reliability metric used for spare parts and lifecycle planning.

Acronym / Term	Full Name / Description
NC	Nonconformance; deviation from specification requiring investigation, closure, and evidence.
NDA	Non-Disclosure Agreement; confidentiality instrument governing sensitive information.
OEM	Original Equipment Manufacturer; the producer of a component or spare part.
Passport Completeness	Condition in which all required evidence fields for a given gate are populated and verified.
Pilot Phase	Evidence-driven trial of modular design, fabrication, logistics, and commissioning prior to full production.
QC	Quality Control; inspection and verification activities during fabrication.
RCA	Root Cause Analysis; structured investigation into the cause of a defect or failure.
Risk Transfer	The point at which responsibility for loss or damage shifts between parties, typically defined by Incoterm.
Sensor Evidence	Shock, tilt, vibration, temperature, humidity, or other sensor data required for transport verification.
SPC	Statistical Process Control; fabrication quality monitoring method using control charts and trend analysis.
Spare Parts Appendix	Document listing mandatory, recommended, and optional spare parts with specifications and quantities.
SPMT	Self-Propelled Modular Transporter; specialized equipment for on-site module movement.
Systemic Defect	A defect affecting multiple Modules due to design, process, or material issues.
Take-Back Program	Supplier obligation to reclaim, recycle, or dispose of modules, components, or packaging at end-of-life.
Transport Plan	Approved plan defining route, permits, handling, weather constraints, and evidence requirements.
Warranty Start	The date on which commissioning acceptance is achieved and all warranty-related passport fields are complete.

About the Author

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