

4BT LEAN Job Order Contracting (JOC) Program Master Program Specifications

System Classification: Comprehensive Public Procurement & Facilities Engineering Framework

Data Integrity Directive: Localized vs. Factored Cost Architecture Compliance

1.0 Executive Narrative & Program Overview

1.1 Program Mandate

A modern, agile, and legally compliant Job Order Contracting (JOC) program involves the adoption, integration, and management of a robust framework.

The ultimate objective is to deliver high-quality infrastructure repairs, asset maintenance, facility alterations, and minor new construction projects at pre-negotiated, highly competitive, and transparent unit prices, with a collaborative, mutually beneficial environment for both owners and design/builders.

Modern JOC Programs do not simply speed procurement timelines but also improve cost and quality outcomes.

This document establishes a master operational template by converting legacy proprietary and factored methods into an open, high-performance, and verifiable **4BT OpenJOC** operational framework.

Owner Process Elements

Ensure leadership and participant education, capability, and support.

Prepare and approve JOC Program Operations Manual/Execution Guide.

Prepare JOC IDIQ Solicitation.

Evaluate and Award JOC Contractors.

Issue/Manage Job Orders.

Regularly Audit JOC Program

1.2 Legislative and Compliance Foundation

The 4BT OpenJOC framework is engineered to satisfy strict competitive bidding statutes governing public funds across municipal, state, and federal jurisdictions:

- **Statutory Compliance:** Meets the requirement for open, transparent competition by subjecting the overarching cost database and contractor coefficients to a rigorous, public invitation for bids (IFB) or request for proposals (RFP).
- **Auditability:** Every line item corresponds directly to physical quantities that public auditors can verify on-site. This removes the "black box" pricing risks associated with lump-sum procurement.
- **Davis-Bacon & Prevailing Wage Adaptability:** The system isolates labor rates (for ALL individual trades), allowing rapid adjustment to match local Department of Labor wage determinations based on project location.

1.3 The Data Integrity Mandate: Localized vs. Factored Costs

The financial integrity, legal compliance, and execution velocity of a JOC program depend entirely on the precision of its underlying Unit Price Book (UPB). Public procurement programs have historically relied on national average cost databases modified by generalized city indexes, location factors, and/or inflationary economic factoring.

The 4BT framework modernizes this ecosystem by combining localized, cloud-based cost databases with standardized, transparent, and collaborative workflows [4BT]. It strictly prohibits the use of macro-factored data, mandating the use of **current, verifiable, objective, and standardized unit cost data** [4BT]. This approach eliminates historical vendor-lock and pricing opacity, providing owners with full control over public funds, data transparency, and project velocity, while reducing risk for both owners and awarded contractors.

Legacy Factored Method: National Cost Average ---> Multiplied by City Index (e.g., 1.12) ---> Distorted Local Line Items.

4BT Objective Method: Local Material Quotes + Local Prevailing Wages + Local Material + Equipment Rates ---> Reliable Local Market 4BT OpenCOST Item.

Evaluation Vector	Legacy Factored / Indexed Data	4BT Objective & Standardized Data [4BT]
Data Origin	National baseline averages blended across multiple urban centers.	True local material supplier quotes, regional rental rates, and localized labor scales.
Localization Method	Multiplied by a flat, top-down percentage modifier applied to entire cities or states.	Bottom-up assembly where individual component costs match local realities.
Commodity Volatility	Misses localized supply chain disruptions and sharp price spikes for specific materials.	Updates specific costs quarterly to reflect actual market shifts.
Audit Compliance	Difficult to verify; calculations rely on proprietary, opaque indexing formulas.	Fully transparent; line items clearly break out labor hours, material quantities, and equipment costs.
Contractor Friction	High; contractors submit inflated coefficients to shield themselves from inaccurate data.	Low; realistic base prices allow contractors to submit stable, competitive coefficients.

2.0 Architectural & Engineering Product Specifications (The 4BT Tech Stack)

Software and data should ensure localized accuracy, strict audit trails, and zero dependence on arbitrary location-factor multipliers. 4BT provides an integrated technology stack built for public sector compliance.

4BT CORE TECHNOLOGY STACK

[Presentation Layer] > 4BT-CCE (Cloud Cost Estimating) Browser Interface & Mobile App.

| [Application Layer] > Workflow Engine, Audit Logger.

| [Data Layer] OpenCOST Engine, CSI/UniFormat Maps.

2.1 4BT-BCE (Cloud Cost Estimating) Platform Architecture

The 4BT Benchmark Construction Estimator 4BT-CCE platform is a cloud-based, multi-tenant Software-as-a-Service (SaaS) application hosted on a secure infrastructure compliant within the Microsoft Azure Government Cloud. Four BT, LLC is CMMC Level 2 compliant.

2.1.1 Security Infrastructure and Role-Based Access Control (RBAC)

The application enforces strict isolation between different organizations while maintaining centralized visibility for administrators. Access controls follow the principle of least privilege, mapping user accounts to distinct, unalterable roles:

[System Admin] -> [Agency JOC Administration Manager] -> [Contractor Profile]

- **System Administrator** Manages the deployment of global cost data updates, approves new organizational environments, and monitors high-level program analytics.
- **Agency JOC Administration Manager (Owner-level):** Possesses full rights to create projects, modify and lock Scopes of Work, initiate Joint Scope Walks, review and reject contractor proposals, and issue and close-out formal Job Orders.
- **Contractor Profile:** Restricted to viewing assigned projects, downloading approved Scopes of Work, and generating line-item proposals using the pre-negotiated coefficient multiplier. Contractors cannot modify database base prices, change or view estimates submitted by competitors.

2.1.2 Immutable Ledger Architecture and Version Control

- **The Change Ledger:** The database records all actions taken within an estimate proposal as a non-destructive event log. The system captures the user identity, IP address, timestamp, exact line-item code, original quantity, and revised quantity for every entry.
- **Bi-Directional Commenting:** Every line item features a nested communication log. If an owner modifies or questions a contractor's quantity, both parties must document the technical justification within that line item's metadata and a revised estimate submitted.
- **Automated Delta Reports:** Software enables automated comparison of two estimates and runs a real-time diff algorithm. This highlights additions, deletions, or structural modifications in a side-by-side view, preventing unauthorized line items from slipping into complex proposals.

2.2 4BT OpenCOST Localized Data Engine Specification

Unlike legacy databases that rely on a single national baseline modified by rough geographic area factors, the 4BT OpenCOST Engine models costs using specific site-based and time-base cost databases (UPBs/Construction Task Catalogs).

[Local Labor Rates] (Prevailing Wages / Fringes) + [Regional Material Costs] (Local Supply Chain Queries) + [Local Equipment Factors] (Rental Rates & Fuel Costs) = 4BT OpenCOST Localized Unit Price

2.2.1 Data Taxonomy and Structural Schema

- **CSI MasterFormat Integration:** Every unit price is categorized according to the 50-division standard (e.g., Division 03 30 00 for Cast-in-Place Concrete). This ensures compatibility with standard public engineering plans and specifications, plus additional 4BT coding to achieve requisite granularity.
- **Unit-Level Granularity:** Every line-item entry is decomposed into its core components within the database schema.
- **Labor Component Calculations:** Standard eight (8) hour day with associated crew calculation based upon current commercial construction means and methods / technical specification.
- **Material Component Calculations:** Derived from verifiable supplier quotes within a specific geographic radius. This includes standard distributor markups but excludes delivery fees, which are captured in separate mobilization line items.
- **Equipment Component Calculations:** Based on regional rental rates and hourly operational costs, which include fuel consumption, routine lubrication, and wear-and-tear allocations.

2.2.2 Dynamic Maintenance and Localization Protocols

- **Geographic Clustering:** OpenCOST avoids market average broad strokes by creating and mapping current individual unit price databases costs to specific locations. This ensures that location-specific urban, suburban, and rural cost differences are accurately reflected
- **Market Re-Indexing:** The data team runs quarterly updates to minimize the risk of unaligned costing.

2.2.3 Cloud Project Management & Collaboration Module

- **Centralized Dashboard:** Provides owners with macro-level visibility into past and active job volumes, contractor performance metrics, and utilization rates.

- **Workflow Management:** Assigned stages such as the following predefined milestones enable sequence and time-based tracking: Project Initiation, Joint Scope Walk scheduling, Proposal Submission, Technical Review, Project Approval Issuance/Rejection, and Closeout.
 - **Document Repository:** Stores and pairs all critical project assets—including field photos, CAD drawings, permits, sign-offs, and material submittals—directly with the digital cost estimate, linked with each specific project. This eliminated need to hunt for current or historical project-related information/documentation.
-

3.0 Technical Analysis: Factored vs. Objective Cost Realities

To understand why standardized cost data is critical for JOC Program compliance, the operational flaws of economic factoring must be examined across three key areas: labor, material, and equipment.

3.1 Labor Asymmetry and Prevailing Wage Distortions

Economic localization factors rely on generic city indexes to adjust labor costs. For example, an index might assume that labor in a given city is exactly 12% higher than the national average across all trades. This approach fails to reflect real-world labor dynamics:

- **Trade-Specific Realities:** In the same county, an abundance of local concrete plants might keep commercial mason rates near the national baseline, while a shortage of industrial electricians drives specialized electrical wages 45% above average. A flat 12% multiplier underpays electricians—causing contractors to refuse those jobs—while overpaying for masonry work.
- **Statutory Compliance Violations:** Public entities are legally bound by strict Department of Labor Prevailing Wage and Davis-Bacon determinations. Factored databases do not match these exact legal wage rates for each trade, exposing Owners to significant compliance, reporting, and legal risks during audits.
- **The 4BT Resolution:** The 4BT OpenCOST engine imports the currently available hourly wages and fringe benefits mandated by local regulatory bodies directly into the labor component of each trade code. This ensures complete transparency and legal compliance for every labor hour billed.

3.2 Material Localization Breakdown and Supply Chain Realities

Economic factoring assumes that all material prices rise and fall at the exact same rate across a given geographic area. This ignores the realities of regional supply chains:

[Factored Method Error]:Heavy Concrete Mix Multiplied by Generic 1.15 Index>Distorted, Artificially Inflated Cost

Drywall Materials > Multiplied by Generic 1.15 Index > Underpriced, Creating Contractor Loss

[4BT Objective Accuracy]

Concrete Mix (Localized Plant Sourcing)> Local Bulk Price

Drywall Materials (Localized Distributor Sourcing)> Local Supply Cost

- **Weight and Logistics Realities:** Heavy, locally sourced materials like ready-mix concrete, gravel, and asphalt are highly dependent on the location of regional batch plants and quarries. Conversely, lighter materials like finish hardware or circuit breakers are distributed through national networks with more uniform pricing. Applying a flat city modifier overprices heavy bulk materials while underpricing specialized architectural and technical components.
- **Market Vulnerabilities:** If a regional strike shuts down a major local brick manufacturer, masonry prices in that area will spike immediately. A national index modified by an annual factor will completely miss this change, leaving contractors unable to source the materials at the mandated price.
- **The 4BT Resolution:** 4BT OpenCOST tracks individual material categories independently by collecting direct quotes from local distributors. This ensures that volatile commodities are priced accurately based on local availability, protecting both agency budgets and contractor stability.

3.3 Equipment Operation and Regional Market Dynamics

Factored databases treat equipment costs as fixed national numbers multiplied by a generic regional modifier. This method overlooks the operational and logistical factors that dictate real-world equipment pricing:

- **Environmental Factors:** Operating an excavator in rocky terrain or frozen northern soil requires significantly more fuel, heavier maintenance, and specialized attachments than operating the same machine in sandy coastal soil.
- **Local Fleet Densities:** In areas with booming commercial construction, heavy equipment rental fleets operate at near-total capacity, driving rental rates up. In quieter rural markets, lower demand changes rental pricing and introduces high

mobilization and delivery fees. Generic economic factoring cannot account for these local market conditions.

- **The 4BT Resolution:** 4BT models equipment rates by checking actual rental costs at regional hubs and combining them with local fuel prices and terrain factors [4BT]. This ensures that heavy equipment line items accurately reflect the costs of working in a specific project environment .

4.0 Programmatic Impact on the Multi-Award Bidding Process

The use of factored data vs. objective cost data directly impacts how contractors bid on a master agreement, altering the risk profile of the entire JOC program .

Factored UPB System > High Contractor Financial Risk > Defensive Inflation of Bid Coefficients

Objective 4BT UPB System ---> Low Contractor Financial Risk ---> Highly Competitive, Lean Bid Coefficients

4.1 The Defensive Coefficient Phenomenon

When contractors realize that a JOC program relies on an inaccurate, factored Unit Price Book, they adapt to protect their profit margins. Knowing that certain trades or materials are significantly underpriced by generic city modifiers, contractors inflate their overall bid coefficients (e.g., bidding 1.35 or 1.45 instead of 1.05) to create a financial buffer.

This defensive bidding undermines the primary goals of a LEAN procurement program:

- **Inflated Costs for Simple Projects:** On projects where the database happens to be accurate, the Member Agency overpays significantly because of the contractor's inflated coefficient.
- **Unbalanced Trade Participation:** General contractors will selectively accept simple, over-priced projects while continually turning down complex, under-priced MEP (Mechanical, Electrical, Plumbing) work. This leaves critical infrastructure needs unaddressed.
- **Increased Change Order Pressure:** Contractors will constantly search for minor scope ambiguities to justify non-pre-priced (NPP) additions, trying to recover the margins lost to inaccurate database line items. This brings back the adversarial negotiations JOC is designed to eliminate.

4.2 The 4BT Lean Procurement Environment

By providing an objective, standardized, and accurately localized database, 4BT changes the contractor's risk calculation [4BT]. Contractors can trust that the baseline numbers for labor, material, and equipment reflect their actual operating costs [4BT].

- **Competitive Coefficients:** Because they do not need to build in a financial buffer against inaccurate data, contractors can submit lean, highly competitive coefficients based strictly on their actual overhead and target profit margins .
 - **Reliable Project Delivery:** Member Agencies receive balanced, honest pricing across all trades, ensuring that everything from basic painting to complex mechanical upgrades can be executed quickly and without contractual friction.
-

5.0 Process & Operational Blueprint (The Workflow Mechanics)

The core of an effective JOC program lies in its operational processes. 4BT structures the procurement workflow to minimize administrative delays and eliminate friction between owners and contractors.

5.1 Indefinite Delivery, Indefinite Quantity (IDIQ) Multi-Award Mechanics

- **Pre-Solicited Capabilities:** Owner conducts a comprehensive, competitive solicitation process to select and award master contracts to pools of general and specialty contractors.
- **Capacity Control:** Master agreements set maximum individual job order limits alongside aggregate annual contract caps, protecting both the agency's risk profile and the contractor's bonding capacity.
- **Rapid Activation:** Eliminates the standard 60-to-90+ day bidding cycle for individual projects. Once the master agreement is in place, an on-call contractor can be assigned a specific project site within hours.

5.2 The Coefficient Bidding System

Contractors competing for an Owner master agreement submit Bid Factors (Coefficients). These multipliers adjust the baseline numbers applied to the 4BT OpenCOST database.

5.2.1 Coefficient Components and Cost Inclusions

The Contractor's bid coefficient must cover all corporate overhead, operational costs, and profit margins. The following elements are examples of items explicitly included in the coefficient and cannot be added as separate line items in a project proposal:

BID COEFFICIENT COST INCLUSIONS

Corporate Overhead & Admin Staff

General Liability Insurance |

Performance & Payment Bonds

Main Office Rent & Utilities |

Executive & PM Travel / Vehicle Costs

Standard Hand Tools (unless otherwise noted in the 4BT database)

Estimating & Software License Fees

Corporate Profit Margins

5.2.2 Multiplier Categories

Master solicitations require contractors to submit distinct multipliers to ensure balanced pricing across different project conditions:

- **Normal Working Hours Coefficient:** Applied to work executed between 7:00 AM and 5:00 PM, Monday through Friday, excluding statutory holidays.
- **Other Than Normal Working Hours Coefficient:** Applied to night shifts, weekend work, and emergency callouts. This factor accounts for shift differentials and overtime premiums, but uses the same material and equipment baselines.
- **Non-Pre-Priced (NPP) Coefficient:** A dedicated multiplier (typically capped between 1.10 and 1.15) applied to specialized tasks not found in the OpenCOST database. This covers the contractor's management and coordination fees for sourcing custom items.

Formulaic Clarity: Total Price of a Job Order is always calculated using a simple, unalterable formula:

5.3 Breakdown of the LEAN Six-Step Project Lifecycle Workflow

1. Project PM

2. Joint Scope
3. Detailed SOW |
4. Assignment
5. Execution
6. Close out

Step 1: Project Assignment & Initial Review

Owner identifies a project and logs it into 4BT system and contacts appropriate awarded JOC contractor.

Step 2: The Joint Scope Walk Protocol

The Owner and the Contractor meet on-site. They conduct a thorough physical walk-through to determine the project's boundaries, access constraints, and required tasks. This collaborative step eliminates assumptions and drastically reduces future change orders.

- **Mandatory Field Log:** The parties must complete a physical site check, taking high-resolution, time-stamped photographs of existing conditions and utility connection points.
- **Constraint Documenting:** They log logistical challenges, such as restricted working hours in occupied schools, cleanroom dust-containment needs, or crane placement limits. This step ensures these factors are accounted for before anyone builds an estimate.

Step 3: Scope of Work (SOW) Finalization

Before the contractor can select any line items, the Owner writes and uploads a detailed Scope of Work. This document defines the exact boundaries, execution rules, and acceptance criteria for the project. Locking the SOW first establishes a firm technical baseline, preventing contractors from expanding the scope or guessing at requirements when they build their estimates.

Step 4: Line-Item Proposal Construction

With the SOW locked, the Contractor builds their proposal in by selecting the exact tasks and quantities needed to complete the work.

- **Quantity Takeoffs:** Contractors must enter verifiable physical measurements (e.g., square feet of drywall, linear feet of pipe) rather than lump sums.
- **Direct Conversions:** Every entry must correspond to an actual, physical component of the project, making the entire proposal clear and easy to audit.

Step 5: System Audit, Discrepancy Resolution, & Verification

The Owner and or assigned owner representative runs an informal or formal compliance audit of the submitted proposal. If an independent owner estimate has been developed it can be automatically compared to the contractor estimate...

- **Code Validation Checks:** The system flags restricted or inappropriate item combinations.
- **Quantity Verification:** The software cross-checks the contractor's quantities against the project's physical dimensions, highlighting any unexplained variances.
- **Price Validation:** The system confirms that the base prices match the current OpenCOST catalog.

The contractor must correct the items and resubmit the proposal for approval.

Step 6: Job Order Issuance, Construction, & Closeout

Once approved, the system generates a firm, fixed-price Job Order. Work proceeds under a strict zero-change-order policy. Change orders are generally permitted only if Owner introduces a fundamental change to the original Scope of Work, or if crews uncover hidden, unforeseeable site conditions (such as buried storage tanks or unexpected hazardous materials). When construction wraps up, teams verify completion against the original SOW metrics, update asset management records within the platform, and officially close out the project.

6.0 Support Framework: Mentoring, Training, & Auditing Specifications

To ensure the long-term integrity of the JOC program the 4BT framework includes a structured system of professional support services and third-party oversight spanning the following:

Review of Owner Capabilities

Review of Contractor Capabilities]

Proposal Bootcamps

Compliance Training

Informal Compliance Reviews

Formal Compliance Reviews

Technical Certification

System Onboarding

6.1 Onboarding & Field Mentoring Playbook

- **The Initial Readiness Audit:** 4BT engineers evaluate an Owners procurement processes and historical spending patterns. This data is used to set appropriate project caps and determine the right size for the contractor pool.
- **Mentoring Programs:** Dedicated JOC specialists train and support project managers
- **24/7 Technical Helpdesk:** Delivers continuous software, database, and workflow support to ensure field operations run without interruption.

6.2 Comprehensive Education & Certification Programs

- **Training:** A structured curriculum for Owner staff that covers proposal evaluation techniques, strategies for identifying common estimating errors, and compliance auditing.
- **Contractor Training:** Specialized workshops that clarify program expectations regarding estimate accuracy, proper line-item selection, and collaborative workflows.

6.3 Third-Party Quality Assurance & Technical Auditing Protocols

- **Independent Cost Verification:** Independent experts cross-audit complex or high-value job orders before final approval. This process confirms that line items match actual project requirements and prevent price inflation.
- **Performance Analytics and Dashboards:** The platform tracks project and contractor performance data including response times, and any owner and contractor notes.

7.0 Program Phased Implementation Plan

Phase 1: Environment Provisioning & Database Setup (Weeks 1-4)

Phase 2: Solicitation Engineering & Multiplier Inquiries (Weeks 5-8)

Phase 3: Onboarding, Workspace Setup, & Training (Weeks 9-12)

Phase 4: Official Launch & Continuous Auditing (Month 4+)

Phase 1: Environment Provisioning & Database Setup (Month 1)

- Deploy dedicated E cloud environments for owners and potential contractors.
- Configure the localized 4BT OpenCOST engines with local labor, material, and equipment rates tailored to specific owner requirements.

Phase 2: Solicitation Engineering & Multiplier Inquiries (Month 2)

- Draft the template for the master IDIQ contract solicitation.
- Publish the 4BT OpenCOST catalog as the official pricing baseline for competitive contractor bidding [4BT].
- Conduct pre-bid conferences to train interested contractors on the coefficient bidding system.

Phase 3: Onboarding, Workspace Setup, & Training (Month 3)

- Review submitted contractor coefficients, run compliance checks, and support Owner during the master contract award process.
- Conduct onboarding training for awarded contractors and Owner project managers.
- Set up individual contractor profiles, assign geographic coverage zones.

Phase 4: Official Launch & Continuous Auditing (Month 4+)

- Open the platform for project initiation, joint scope walks, and automated job order execution.
- Provide ongoing technical support and access to the 24/7 helpdesk for all active users.
- Conduct regular independent cost audits and compile contractor performance data to ensure program compliance.