

Elements of Container Terminal Planning and Design: *Design and Construction for the Terminal Manager*

Session VI

AAPA Marine Terminal Management Training Program

Long Beach, California

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Ports America



Theme

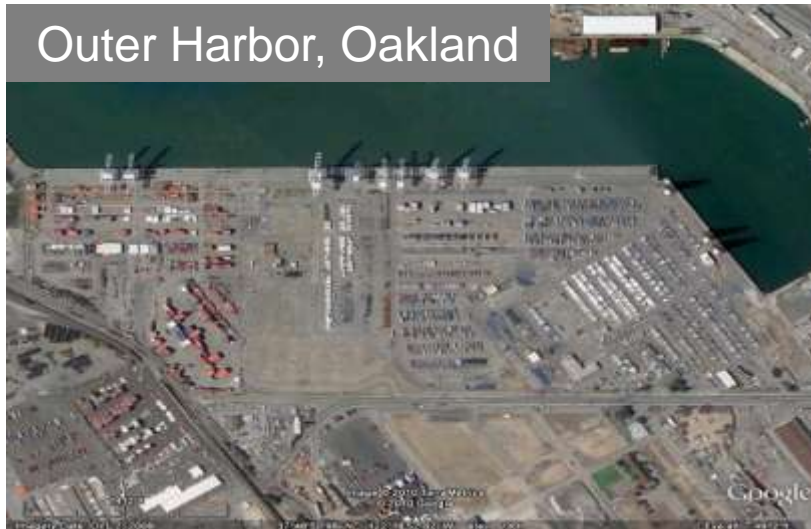
- Public-Private Partnerships (PPPs):
 - Are becoming more common as port authorities encounter more financial limitations
 - Result in the terminal operating company getting involved with port facility development
 - Resulting in the terminal manager getting involved with oversight of design and construction
 - This might become YOUR problem
- ***What will your job entail?***

Ports America's current PPPs

- Oakland: 50 years
Densification & Automation
- Newark: 30 years
50 Acre Expansion
- Baltimore: 50 years
4th Berth



Port Newark, Newark Bay



Outer Harbor, Oakland



Seagirt, Baltimore

Overview

- Two Approaches
- Design-Bid-Build
- Design-Build
- Design Contracting
- Construction Contracting
- Manager's Role in Design
- Manager's Role in Contracting
- Manager's Role in Construction

Two Approaches to Building Things

Design-Bid-Build

- Owner defines project
- Owner hires designer
- Designer prepares construction docs
- Owner gets permit
- Owner hires contractor
- Contractor builds
- Owner oversees

Design-Build

- Owner defines project
- Owner makes Basis of Design
- Owner hires contractor / engineer combined
- Engineer designs
- Contractor gets permits
- Contractor builds
- Owner oversees

Design-Bid-Build Development

The Designer and the Contractor are separate
The Owner Coordinates Design with Construction
The Contractor builds to the Designer's Specs
A Traditional Approach

Design-Bid-Build: Project Definition

- Owner defines the project:
 - Location, existing conditions, pre-existing information
 - Description of what is to be built, including sketches
 - Description of the institutional setting
 - Definition of the owner's project team and project management structure
 - Description of the designer's scope of work
 - Definition of the terms and conditions of the designer's services

Design-Bid Build: Designer Selection

- Owner hires the designer
 - Identify qualified designers
 - Issue requests for proposals with the project definition to at least three designers
 - Score the proposals
 - Select a design professional
 - Prepare a service agreement
 - Develop an AFE
 - Prepare a purchase order
 - Execute the agreement
 - Issue a Notice to Proceed (NTP)

DBB – Request for Proposals

- Project Description
 - Background
 - Project Elements
 - Requested Services
- Scope of Work
 - Design Guidelines
 - Service Details
- Proposal Administration
 - Points of Contact
 - Contracting and Cost Basis
 - Timeline
 - Proposal Contents
 - Selection Criteria

DBB – RFP – Example Timeline

Project Step	Week
Issuance of RFP	0 End
Proposals Due	2 Start
Proposals Scored	2 Mid
Designer Selected and Approved	2 End
Notice to proceed and contract execution	3 Start
Preliminary Design Complete	5 End
Complete Design Complete	7 End
Permit Submitted	8 Start
Permit Comments Received (estimate)	10 End
Final Design Complete	12 End

Design-Bid Build

DBB – RFP – Proposal Scoring Matrix

Criterion Description	Maximum Points	Criterion Weight	Maximum Score
Responsiveness of the Proposal	10	3	30
Specific Project-Related Experience	10	6	60
Management Team Qualifications	10	5	50
Perceived Team Responsiveness	10	7	70
Technical Robustness	10	10	100
Work Plan and Schedule Robustness	10	8	80
Contract Acceptance	10	7	70
Overall Cost for Value Offered	10	6	60
<i>Maximum for Project</i>			520

Design-Bid Build

Design-Bid-Build: Design Works

- Designer creates construction documents
 - Conceptual design – General outline
 - Preliminary design – Field tests, rough sizing
 - Intermediate design – Components sized
 - Complete design – Details worked out, design complete
 - Final design – Agency comments resolved, permit issued
 - Bid packages
- Plans
- Specifications
- Estimates

Design-Bid-Build Permits

- Owner gets permits (sometimes contractor)
 - Environmental
 - Demolition
 - Grading
 - Construction
 - SWPPP (“swippy”)
 - Stormwater pollution prevention plan
 - Hazmat disposal plan, if required
- Health and Safety Plan

Design-Bid-Build: Contractor Selection

- Owner hires contractor
 - Bid Package
 - Request for Bids
 - Requests for Information
 - Addenda
 - Site walk
 - Contractor surveys
 - Bid processing
 - Contractor scoring
 - Contractor selection & negotiation
 - Contract execution

DBB – Contractor Bid Package

- Complete or Final design package
 - If Complete, do Addendum for Final
 - Includes Plans and Specifications, not estimates
- Proposed Contract Terms & Conditions
- Bid Form
- Instructions to Bidder
- Communications Protocol
- Submission Requirements
- Performance Bond Form(s)
- Lien Release Form(s)

Design-Bid-Build: Construction

- Contractor builds
 - Clear and grub
 - Demolition
 - Grading
 - Utilities
 - Paving
 - Electrical / telecomm infrastructure
 - Lights & fire hydrants
 - Buildings
 - Instrumentation

Design-Bid-Build: Oversight

- Owner Oversees Construction
 - Single Point of Contact (!!!): the “Owner’s Representative” or “Resident Engineer”
 - Port authority engineering staff & wharfinger
 - Construction manager
 - As-built documentation
 - Requests for Information
 - Contractor submittals
 - Applications for payment
 - Change Orders
 - Substantial Completion

Design-Build Development

The Designer and the Contractor are unified

The Contractor oversees Design

The Contractor delivers to the “Basis of Design”

Where the Contractor’s Expertise is Valuable

Design-Build: Project Definition

- Owner defines the project:
 - Location, existing conditions, pre-existing information
 - Description of what is to be built, including sketches
 - Description of the institutional setting
 - Definition of the owner's project team and project management structure
 - Preparation of a **Basis of Design** Document
 - Description of the contractor's scope of work
 - Definition of the terms and conditions of the contractor's services

DB: Basis of Design

- The Basis of Design describes what the contractor is to build and the criteria against which the contractor's designer will create the design
- Layout of finished works
- Known constraints on development
- Performance requirements (loads, durability, design life, etc.)
- Governing codes and specifications
- Pre-existing engineering or other technical information

Design-Build: Contractor Selection

- Owner hires the contractor
 - Identify qualified contractors
 - Issue Requests for Bids with the Basis of Design to at least three contractors
 - Bids to include conceptual design
 - Score the Bids, Interview finalists
 - Select a contracting team
 - Prepare a service agreement
 - Develop an AFE, prepare a purchase order
 - Execute the agreement
 - Issue a Notice to Proceed (NTP)

DB – Request for Bids

- Project Description
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 - Project Elements
 - Requested Services
- Scope of Work
 - Design Guidelines
 - Basis of Design
- Proposal Administration
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DB – Contractor Bid Package

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Design Contracting (DBB Approach)

- If possible, have a “Design Standard” that establishes the deliverables expected at each stage of design
- If possible, develop your own Standard Design Agreement – avoid using the Designer’s “Standard Contract”, as it is not friendly to the Owner
- The Law surrounding design is rather specialized – engage the help of a knowledgeable lawyer to craft effective agreements
- Designers are NOT expected to be perfect, and you **should not expect them to be**

Design Contracting (DBB Approach)

- As Owner, you have the right to tell the Designer what to design
- If you tell the Designer how to design something:
 - You increase the possibility of failure
 - You shift the liability for failure to the Owner
 - You undermine your rights as Owner under the law
- Engage the Designer in “value engineering” to balance construction and operating costs, but the Designer has the final word with regard to durability of the design

Construction Contracting

- If possible, develop a Standard Construction Agreement that covers both Design-Bid-Build and Design-Bid situations
- Do NOT use:
 - Contractor- generated agreements
 - Contractor's association agreements
 - AIA agreements
 - ASCE agreements
 - These all tend to be overly friendly to contractors
- Resist the temptation to make an unbalanced agreement – it will come back to bite you

Construction Contracting

- Consider as a basis the “FIDIC” standards
 - Federation Internationale des Ingenieurs Conseils
 - Based in Switzerland
 - Standards for European and International contracting
 - Available in multiple languages
- “Red Book” for Construction (DBB)
 - PA’s original basis for construction contracting, with added terms for design-build
- “Yellow Book” for Plant and DB
 - PA’s standard for Crane procurement

Construction Contract – Outline

- General Provisions
 - Definitions
 - Interpretation
 - Priority of Documents
 - Law
 - Communications
 - Statutory Obligations
- The Owner
 - Provision of the Site
 - Permits and Licenses
 - Owner's Instructions
 - Approvals
- Owner's Representative
 - Authorized Person
 - Owner's Representative
- The Contractor
 - General Obligations
 - Contractor's Representative
 - Subcontracting
 - Performance Security
 - As-Build Documents
- Design by Contractor
 - Contractor's Responsibility
 - Responsibility for Design

Construction Contract - Outline

- Owner's Liabilities
- Time for Completion
 - Execution of the Works
 - Program
 - Extension of Time
 - Late Completion
- Taking Over
 - Completion
 - Taking-Over Notice
- Remedying Defects
 - Remedying Defects
 - Uncovering and Testing
- Change Orders & Claims
 - Right to Vary
 - Valuations of Change Orders
 - Early Warning
 - Right to Claim
 - CO & Claim Procedure
- Contract Price & Payment
 - Payment for the Works
 - Application for Payment
 - Interim Payments
 - Retention
 - Final Payment
 - Delayed Payment

Construction Contract - Outline

- **Default**
 - Default by the Contractor
 - Default by the Owner
 - Insolvency
 - Payment upon Termination
- **Warranty**
 - Materials Warranty
 - Works Warranty
- **Risk & Responsibility**
 - Contractor's Care of the Works
- **Insurance**
 - Extent of Cover
 - Arrangements
 - Failure to Insure
- **Resolution of Disputes**
 - Mediation
 - Litigation

Construction Contracting – Key Points

- Require documentation for Change Orders, and require PRIOR approval
- Establish a clear chain of communications, and DO NOT DEVIATE FROM IT
- Be clear about “Taking Over” and “Completion”
- Rigidly control subcontracting rights
- Demand a Performance Security
- Demand Lien Releases as a condition of payment
- Pay close attention to your lease
- Be clear about Permits – they are a major pitfall

Manager's Role in Design

- As manager, you will “own” the resulting finished works, for good or for bad
- The Conceptual Design phase is the time for you to get your needs addressed
 - Do not be shy about pressing the Designer for clarity
 - Get deeply involved in the details at this stage
 - Demand clarity on safety issues
 - Demand clarity on standards used elsewhere
- Review the Design as it progresses through its stages, and do not allow unconscious deviation from the Conceptual Design

Manager's Role in Contracting

- Read the Contract
- If there is any part you do not understand, get an explanation from counsel – do not assume that unclear parts are clear to others
- Understand and proactively manage the communications protocol
- Instill a solid wariness of the contractor in all of your staff
- Understand Applications for Payment and Change Orders – that's where the money lives

Manager's Role in Construction

- Proactively manage the communications protocol
- Control access between your staff and the contractor
- NEVER permit staff to agree to changes without your permission
- NEVER commit to any change orally
- NEVER assume a change is being done for free
- Consult your designer on all changes
- Putting things in writing is a pain, but it's nothing compared to dealing with a legal dispute