

Competition Skills

Takeoff Basics

Welcome!



WebLEM Overview and Art of Estimating



- MCAA Executive Director of WebLEM and NCPWB
- 46 years in the MEP construction industry
- 17 years with Trimble
- 17 years with GEM Inc (multi-trade contractor)
- WebLEM committee since 1999
 - Chair and Co-Chair positions

Agenda

- What is Estimating?
- MCAA WebLEM Overview
- Art of Estimating
- Trimble Video
- Tips & Tricks

Estimating! What is it?

Assembling a price for your customer based on a defined scope of work

- Your dream, I'm just in it!

Type of Estimating

- WAG
- Square Footage
- Fixture Count
- Exactimating

Estimating Software.....

- Uses pdf drawings to “take-off” or list all the material
- Highlights the material (items) during the take-off process
- Compiles a list of all items taken-off
- Material pricing
- Labor hours
- Subcontractors
- Equipment
- Apply General Expenses and Profit

So What's First?

Go/No-Go Decision

- Do you need the work?
- Craft availability?
- Have you worked for this owner or general contractor?
- Is the project in your jurisdiction?

Start Setting Up The Estimate

- Load the drawings and review
- Look to see if subcontractors are needed
- Look at equipment schedule
- Bid form breakdown
 - Lump Sum or Price Breakdown?
 - Breakdowns for Project Management
- Start the take-off process



What is MCAA WebLEM?

Web-based labor estimating manual for a vast variety of activities related to the mechanical construction industry, specific to the piping and plumbing trades.

It is ***not*** an estimating system, rather a database of labor units proven to be the most accurate and complete collection in the world for our industry.

Definition of a Labor Unit

Installation-Hours Required to Install a Unit of Material (i.e., Foot of Pipe), an Individual Item (i.e., Fitting or Valve), a Specialty Item or a Piece of Equipment

For the most part, the unit of measure is ***EACH***

Elements of a Labor Unit

- 10.53 Total MCAA Hours
- Receiving, unloading, stockpiling, distributing
- Joining method
 - Type of connection – Buttweld
 - Qty of joints – 2
 - Type of material – Carbon Steel
 - Wall thickness – Standard Weight
- “Normal” pressure testing – 1.5 X OP
- Installation or Erection
- Note: In this example, the joint and installation make up the bulk of the labor



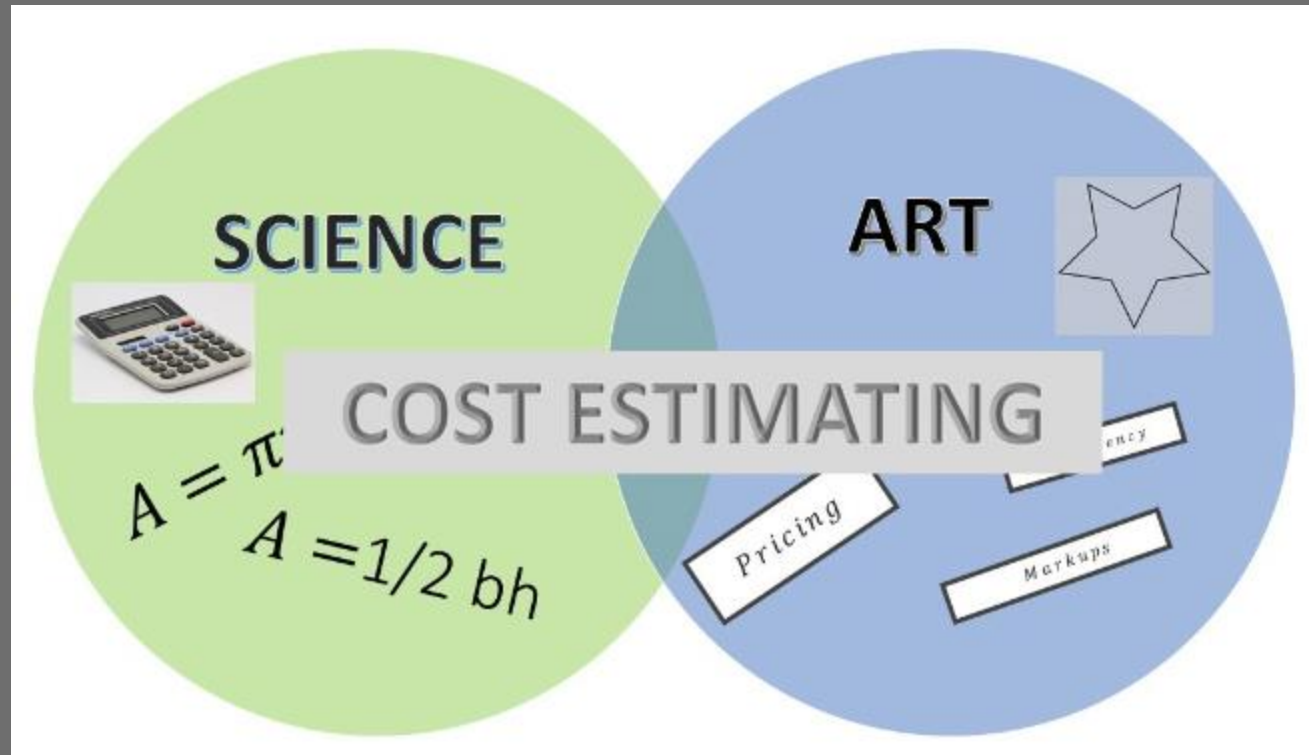
Basic Assumptions

The basic assumptions represent the average working conditions assumed to exist at the work site. Therefore, the user of the WebLEM must understand what constitutes “Average Working Conditions” and must be able to anticipate changes to these conditions when preparing an actual estimate.

WebLEM+Plus

Let's check it out!

Art of Estimating



Labor Factoring

Performance Factors

- Factor applied to the labor hours based on your companies' historical data for similar type system installations

Correction Factors

- Factor applied usually at the time of take-off to correct for “abnormal” situations

Correction Factor Examples

Weather – Excessive heat or cold

Working heights

- 20' High Ceiling
- Crawl Space
- Multi-story building

Toilet facility location

Inadequate lighting or ventilation

Shop pre-fabrication

Repetitive installations

Overtime impacts

Congestion or stack of the trades

Working in finished areas

Good Luck and Remember:

Everything in the estimate needs labored – can't wish it into place

Understand the basic assumptions of the labor units

Apply performance and correction factors

If drawing quality is poor, mitigate risk by submitting RFI's

Lowest bid doesn't always get you to the table

Make sure you know the T&C's of the contract

Trimble Estimation MEP

[TRIMBLE VIDEO LINK](#)

Tips & Tricks



- The Waldinger Corporation
- Project Manager
- 11 Years Experience
- Previous Mentor For Nebraska Student Chapter
- Former Student Chapter President

Tips & Tricks

Road map to success:

- RFP
 - Understand The RFP. This is the blueprint to your final product.

MCAA

*mcaa*greatfutures

II. PROPOSAL REQUIREMENTS AND KEY BIDDING INFORMATION

All contractor bidders responding to this RFP will be required to submit their proposal per the following information and will be segregated in three distinctly different segments.

Proposal Cover Page - include the following:

- Name of the project
- Chapter name
- University/college name, including department
- University address
- Student Chapter President or Team Captain Name, E-mail, and Phone Number
- Faculty Advisor Name, E-mail, and Phone Number
- Date of Proposal Submission

Segment 1 – Pre-qualification Data (20 pages maximum)

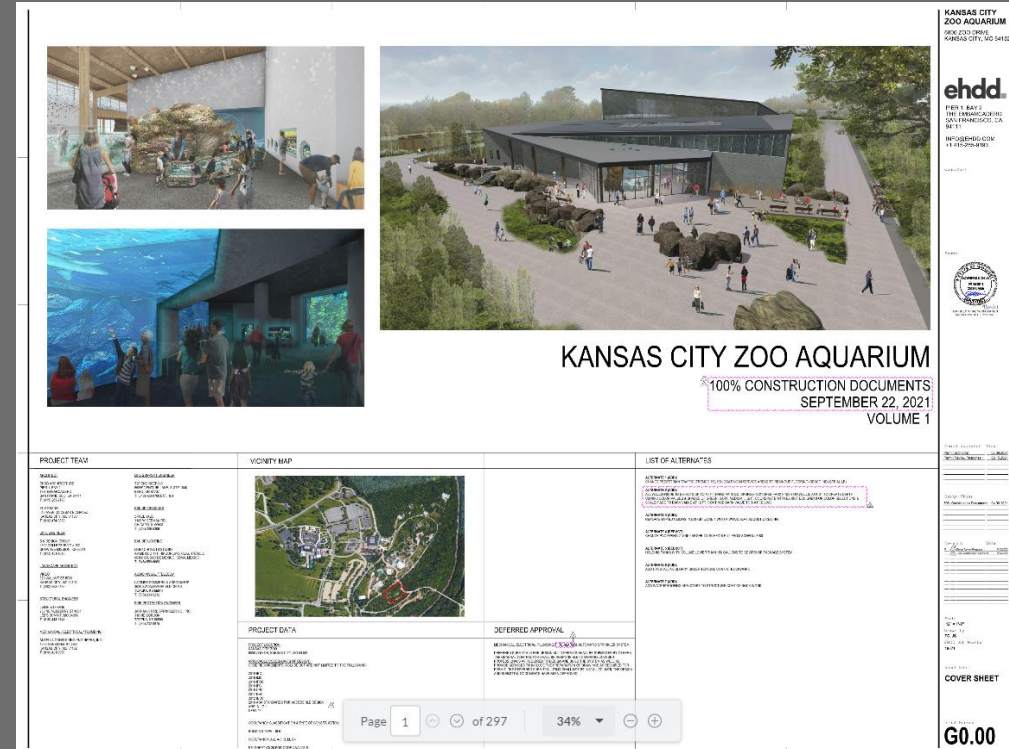
This portion of the proposal booklet is limited to 20 pages, per page 4. This Pre-qualification Data should include basic general information concerning the bidder's firm and personnel covering the following topics:

- Table of contents – Include all segments with accurate page numbers
- Proposal team members and company resumes
- Corporate organization chart
- An Executive Summary/introduction covering both segments I, II, & III
- Corporate background/firm philosophy
- Relevant project experience of the bidding firm
- Letters of recommendation or references
- Company balance sheet to show bidder's financial information
- Surety company's bond letter with cost of the surety and bonding capacity
- Current company backlog
- Company safety statistics (past 3 years)
 - Including EMR/TRIR
- Corporate quality control program

Tips & Tricks

Road map to success:

- Specifications & Contract Documents




The image shows a detailed cover sheet for the Kansas City Zoo Aquarium construction documents. It features three architectural renderings: an interior view of a large, modern building with a high ceiling and large windows; an exterior view of the building's facade, which is a long, low structure with a dark roof and large glass panels; and an interior view of a large, curved wall with a large, curved window looking out onto a landscape. The text on the cover sheet includes the project name, date, volume, and a list of project team members. The project name is "KANSAS CITY ZOO AQUARIUM" and the date is "SEPTEMBER 22, 2021". The volume is "VOLUME 1". The project team includes the architect, engineer, and contractor. The cover sheet also includes a table of contents and a list of alternates. The price is listed as "G0.00".

KANSAS CITY ZOO AQUARIUM
100% CONSTRUCTION DOCUMENTS
SEPTEMBER 22, 2021
VOLUME 1

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KANSAS CITY ZOO AQUARIUM
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SEPTEMBER 22, 2021
VOLUME 1

PROJECT TEAM	VICINITY MAP	LIST OF ALTERNATES
ARCHITECT ehdd. 1000 PINE STREET SAN FRANCISCO, CA 94109 PH: 415.774.4444 WWW.EHDD.COM		ALTERNATE 1 CONSTRUCTION OF THE AQUARIUM BUILDING WITH A GLASS FACADE AND A ROOF GARDEN. ALTERNATE 2 CONSTRUCTION OF THE AQUARIUM BUILDING WITH A GLASS FACADE AND A ROOF GARDEN. ALTERNATE 3 CONSTRUCTION OF THE AQUARIUM BUILDING WITH A GLASS FACADE AND A ROOF GARDEN. ALTERNATE 4 CONSTRUCTION OF THE AQUARIUM BUILDING WITH A GLASS FACADE AND A ROOF GARDEN. ALTERNATE 5 CONSTRUCTION OF THE AQUARIUM BUILDING WITH A GLASS FACADE AND A ROOF GARDEN.
ENGINEER [Details]	PROJECT DATA [Details]	DEFERRED APPROVAL [Details]

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Tips & Tricks

Road map to success:

- Estimate, Proposal & Bid Form.

HVAC Pricing Breakout			
Preconstruction	Y		S
BIM Coordination	Y		
General Requirements	Y		S
Waterside Equipment	Y		S
Airside Equipment	Y		S
CHW piping Inc. Cooling Tower Piping	Y		S
HHW Piping	Y		S
Sheet Metal	Y		S
Insulation	Y		S
Controls (non-LSS)	Y		S
TAB	Y		S
Misc	Y		S
Taxes Excluded	Y		S

Trimble Future Estimator Scholarship

Trimble Future Estimator Scholarship



DANIEL DESOTO

Questions?

