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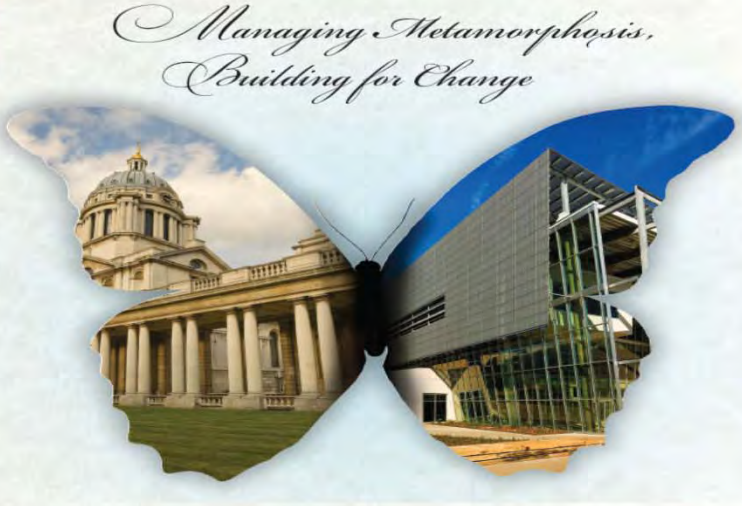

Session: 100301
Date: Friday, October 3, 2014
Time: 8:30 am – 9:30 am

CONTINUING EDUCATION AIA

ASSOCIATION OF Texas College & University Facilities PROFESSIONALS

Bull vs. Bear Market Budgeting

Presented by:

- Marc Kimball, AIA, Project Manager , University of Texas System-Office of Facilities, Planning and Construction
- Mike Vaughn, President, Vaughn Construction

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Learning Objectives

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1. Learn capabilities, strengths, and weaknesses of the labor and material market in different regions of Texas and how they affect a project's design, quality, schedule, and cost.
2. Learn how to perform a project risk analysis to determine which building materials and labor pools are most susceptible to price volatility and how to address escalation.

Learning Objectives

6

3. Learn the process of altering design approaches and bid strategies to save construction costs by mitigating labor and material risks.
4. Gain an understanding of alternate bid strategies and how to make a project more attractive to maximize limited resources

Agenda

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1. Understanding Current Market Conditions
2. Performing a Project Specific Risk Analysis
3. Factors to Evaluate in Your Design
4. Bid Package Strategy
5. Conclusion

Understanding Current Market Conditions

Popular Cost Indexes

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- CPI – Consumer Price Index
- CCI – Construction Cost Index
- BCI – Building Cost Index

. . . And Why They Do Not Work

CPI – Consumer Price Index

10

- "Average Change Over Time for a Basket of Consumer Goods & Services"
- Baseline = 7,000 Families
  - Food & Beverage
  - Housing
  - Apparel
  - Transportation
  - Medical Care
  - Recreation
  - Education & Communication
  - Other Goods & Services

CCI – Construction Cost Index

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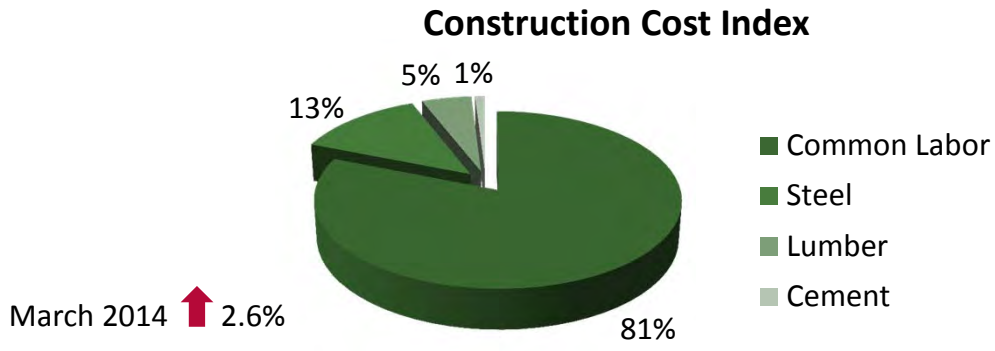
200 Hours of Common Labor

X 20-City Average Wage & Benefits for Common Labor



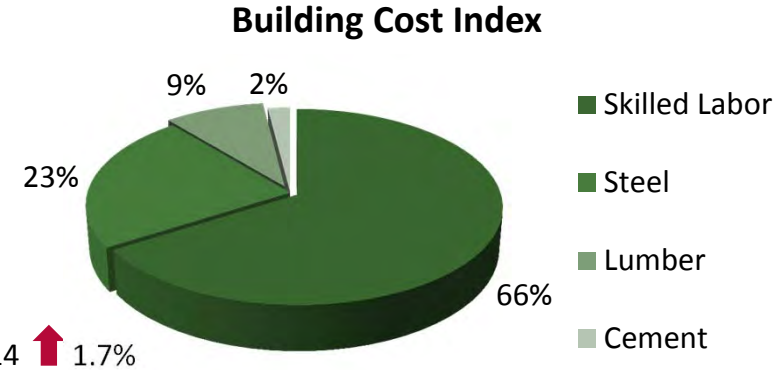
March 2014 ⬆ 2.6%

BCI – Building Cost Index

12

68.38 Hours of Skilled Labor

X 20-City Average Wages & Benefits

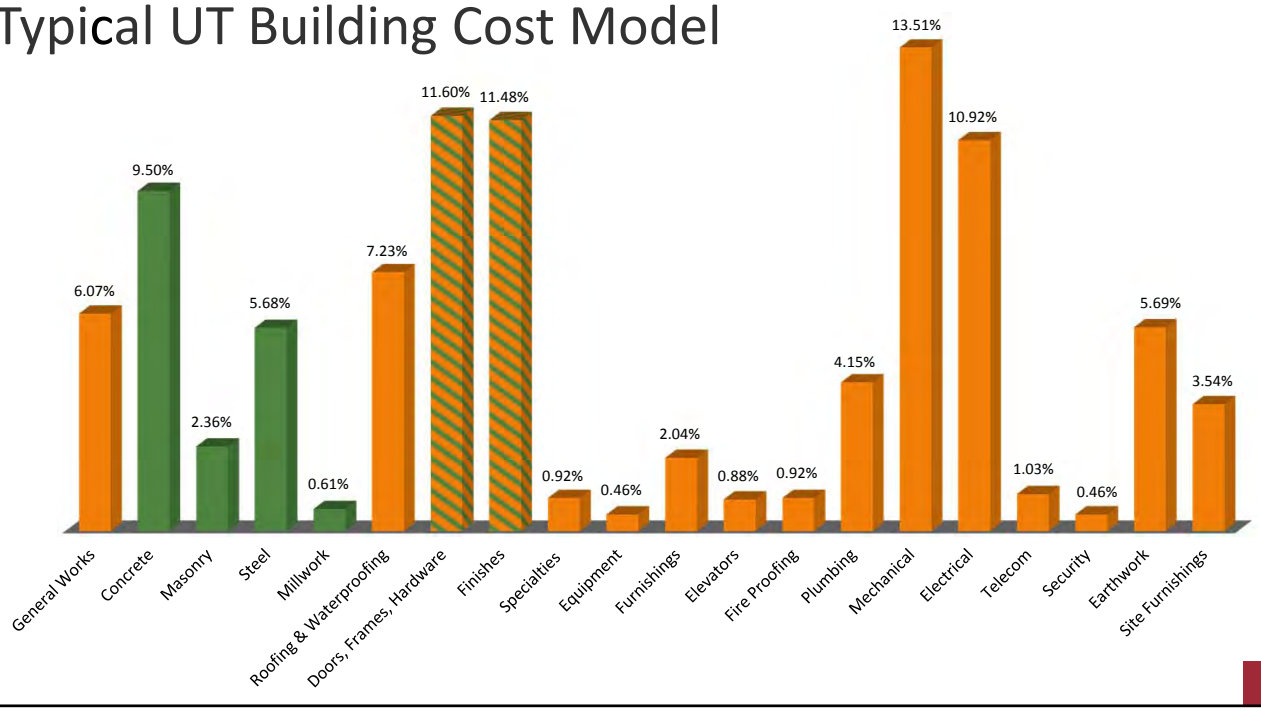


March 2014 ⬆ 1.7%

Only 3 Trades

- Brick Layers
- Carpenters
- Structural Iron Workers

Typical UT Building Cost Model



Bull Market Conditions

14

SUPPLY
- Number of Workers
- Worker Productivity
- Raw Material Production

DEMAND
- Technical Expertise
- Oil & Gas
- Industrial Construction
- Commercial Construction

Worker Shortage

15

Worker Shortage: Why?

16

- Aging Workforce
- Departures During Recession (2 million)
- No Comprehensive Immigration Policy
- ⬆ Oil & Gas Jobs
- ⬆ Industrial Construction
- Less Movement of Workers
- Fewer Vocational Training Programs

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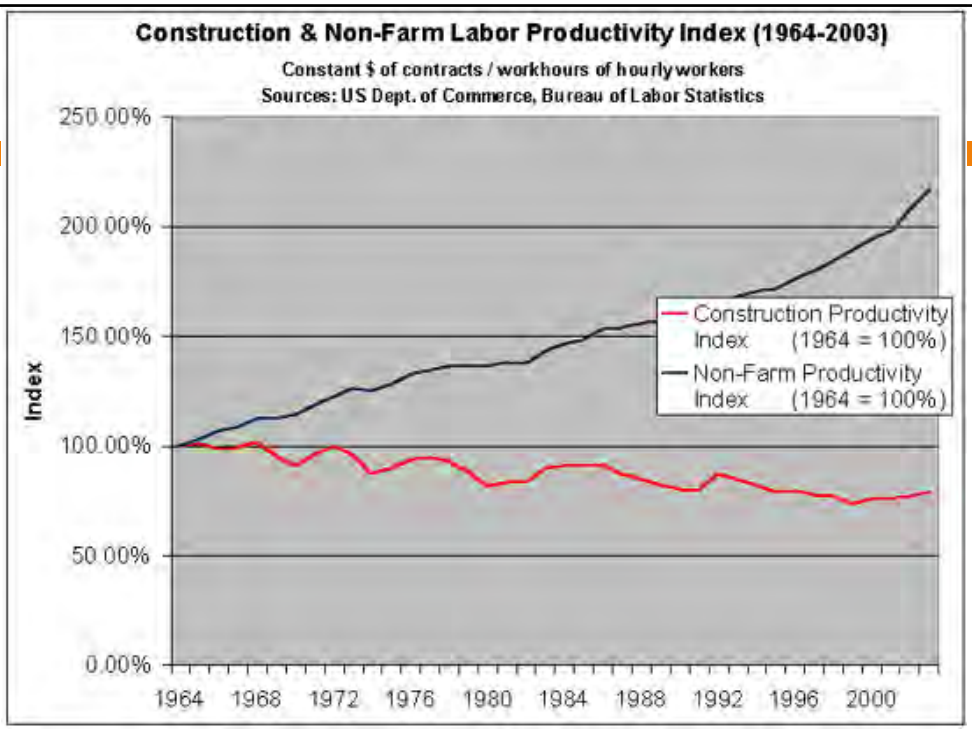
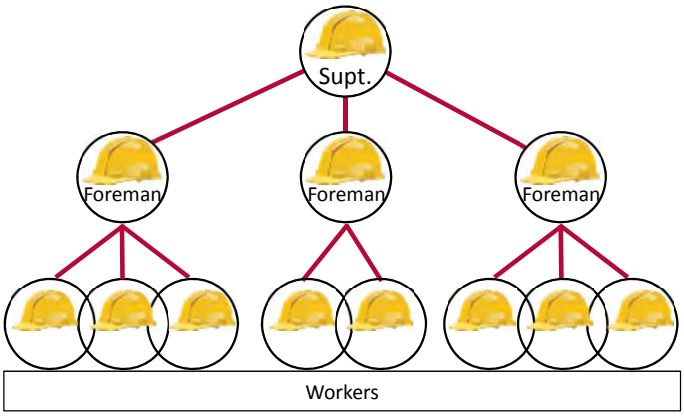


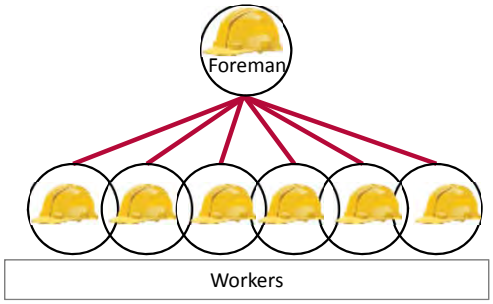
Reduced Productivity

18

2009



2014 - 2015



- Less oversight + less qualified staff
- Lower quality + more rework
- Productivity factors 1.15 or 1.20

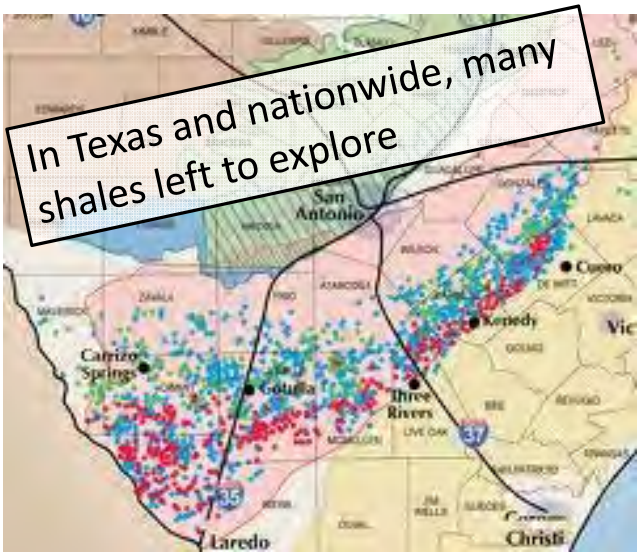
Our Industry is More Technical

19

- Virtual Construction
- Technology in the Field

Oil/Gas Drawing Our Labor

20



- Electricians
- Concrete Truck Drivers
- Unskilled Labor

Material Costs are Climbing

21

Q2/Q3 2014

- 12% increase in concrete materials
- 4% to 7% increase in major mechanical equipment
- 6% increase in aluminum materials
- 9% to 15% increase in glazing materials
- 20% increase in sheet metal/cold form products
- 10% increase in structural steel materials

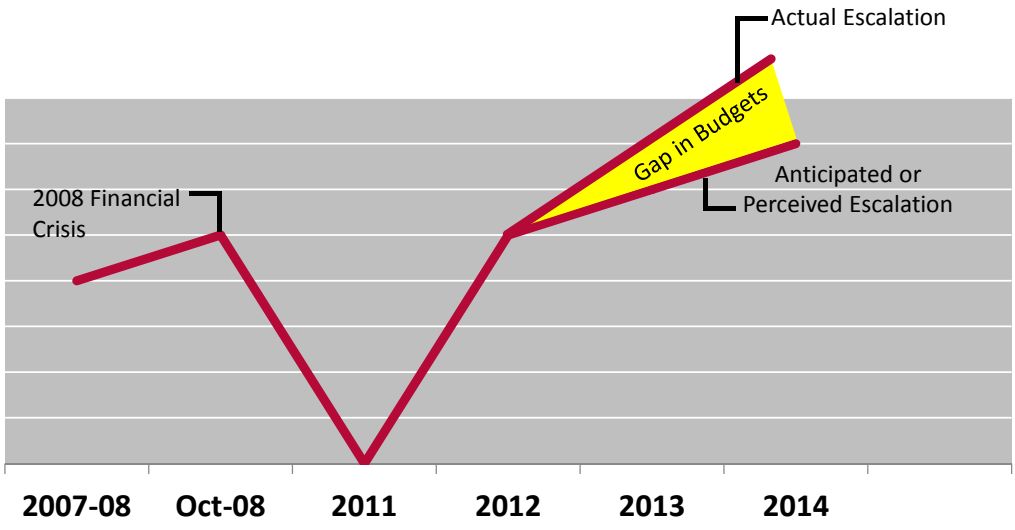
What's the Impact to Your Projects?

22

- ⬆ Cost
- ⬇ Productivity
- ⬇ Schedule
- ⬇ Quality
- ⬆ Re-work, Punch List & Warranty Issues

Escalation Gap = Budget Nightmares

23



Early Project Risk Analysis

Regardless of Delivery Method . . .

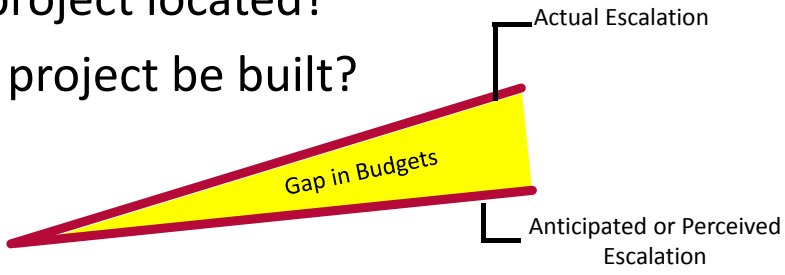
25

- Validate Your Budget
- Utilize a Market Research & Analysis Model
  - Material
  - Labor
- Efficient Design = Participation
- Integrate Desired Standards and Quality into Design
- Precon Marketing

Validate Your Budget

26

- Who created it?
- What is the basis of the scope?
- Where is the project located?
- When will the project be built?



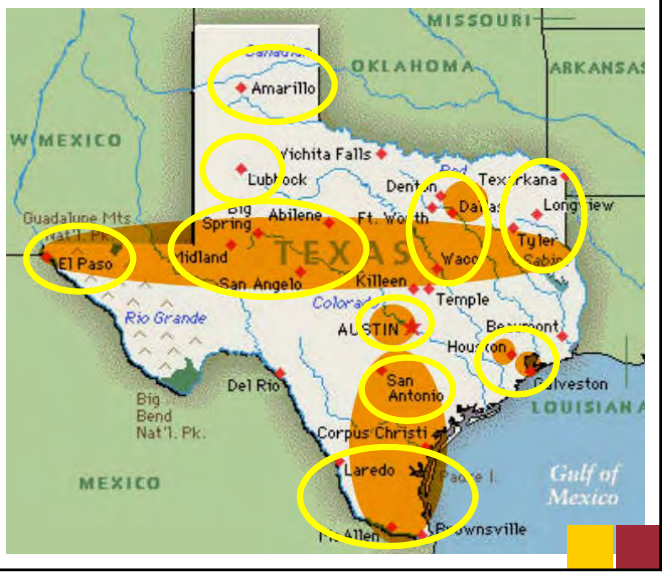
Understand Your Bidding Markets

27

OFPC Regions

Subcontractor Markets

- Know Your Market and Your Bidding Region
- Labor Availability
- Access to Region
- Different Cultures



Investigate Labor Availability

28

- Talk to the Trades in the Market
  - Pole 3 or 4 with schedule data
  - Don't leave out the "small" subs
- Talk to Self-Perform Contractors
- Talk to CMs
- Talk to Other Institutions
- Read Trusted News Sources

Materials: How Easy to Obtain?

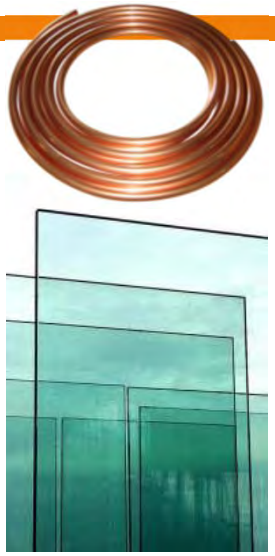
29

- Analyze at the System and Component Levels
- Where Is It Being Manufactured?
  - Transportation/logistical challenges?
  - Premiums to cost and schedule?
- How Long Will It Take to Procure?
  - How busy is the market (regionally and globally)?
  - What are the budget and schedule impacts?
- What are Potential Outside Influences?

Analyze Raw Material Volatility

30

- Track Costs of Commodity-based Materials
  - Copper, glass, gypsum, etc.
  - Futures prices
- Web Sites
  - enr.construction.com/economics
  - constructioncitizen.com
- Talk to Subcontractors and Suppliers



Analyze Raw Materials

31

- 3 Manufacturers = 90% of Glass in the US
- 23 Float Lines
  - 7 – auto industry, 16 – construction
  - 4M SF of glass/mo. per float line
- 2 Float Lines Closed From 12/13 to 4/14
  - Do the math – industry is down 40M SF of glass
- 1 Float Line Permanently Closed in December
  - 100M SF glass/year

Analyze Raw Materials

32

- What's the Impact?
  - Cost
    - Nov 2013: Glass prices increased 9%
    - May 2014: Glass prices increasing 9-15%
  - Schedule
    - Current glass procurement is 3-4 weeks
    - Durations will increase to 8-10 weeks mid-2014 to 2015
- Resource: Glazing Trade Contractors

Analyze Components

33

- Ben Taub General Hospital Reactivation
  - $34 million
  - 190,000 SF
- Replacement and Distribution of the MEP Systems Necessary for a Fully Functioning Building

Analyze Components

34

- 14 kVa Transformers
  - Not a stock item
  - 16-week production
  - 5-week delivery from Mexico
- Centerpoint Energy
  - 8-week installation lead time

Market Research/Risk Analysis Model

35

- Materials
  - Obtainability
  - Cost volatility
  - Competition
- Labor
  - Availability
  - Project attractiveness

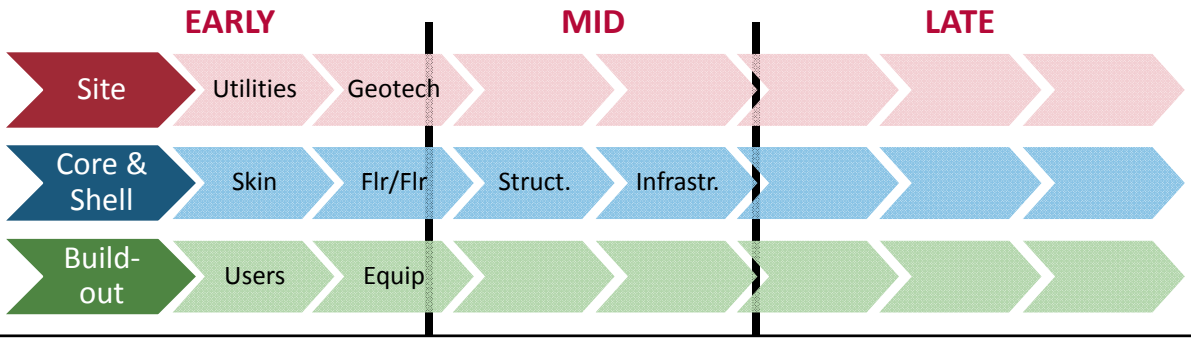
36

Evaluate Your Design

Evaluate Your Design

37

- Educated Design Decisions Based on Research/Budget
- In Sequence Project is Built
- Prioritize the Decision Timeframes



Evaluate Your Design

38

- Project: Texas A&M Kyle Field Redevelopment, $450M
- Product: Masonry
- Issue: Not Enough Masons
- Solution: Precast Face Brick

Evaluate Your Design

39

- Project: $33M, 88,000 SF, UT South Texas Medical Academic Building
- System: Concrete vs Steel Structure?

Evaluate Your Design

40

Concrete

- No formwork subs in deep south Texas
- Past quality issues with local batch plant
- Local labor pool not as experienced
- Limited drivers due to Eagle Ford Shale work

Steel

- 3 major fabricators within 20 miles
- Turnkey services
- Better productivity, quality control
- Similar price
- Early procurement mitigate schedule impact

Ensure You Have Competition

41

Product vs. Product

Manufacturer vs. Manufacturer

Supply House vs. Supply House

Alternate Bid Strategies

Elevator vs. elevator
BAS vs. BAS
Package chillers
Lighting packages

Make Projects Attractive to Bid

42

- Highly Efficient
- Repetitive Sequence
- Access and Logistics
- Limit Types of Materials

Evaluate Current Sub Market

43

- What Other Projects are Bidding?
- Are Subs Busy, or Are They Interested in Bidding Your Work?
- Can They Perform and Meet Your Schedule?
- Assess Your Document Production Schedule
- Are Drawings Complete and Coordinated?

Make Projects Attractive to Bid

44

- Perception
- Standardize/Simplify On-site Procedures
- Prefab More Components Off-Site
  - Encourages participation
  - Requires less labor at the site
  - Benefits safety
  - Increases quality

45

Bid Package Strategy

Strategies to Reduce Costs

46

- Bulk Purchasing
- Group Purchasing
- Speed to Market
- Market Conditions & Competition
- Early Release Bid Packages
- Design-Assist

Consider Bulk Buy

47

- Zayed Building For Personalized Cancer Care
- $4M Worth of Rebar
  - Advance notice of cost increase
  - Purchase 1 year before on-site
  - Stored in El Paso
  - Saved $200,000

Consider Bulk Buy

48

University Hospital - San Antonio, $600M, 1.2M SF

Material	Component Cost	Storage Cost	Net Savings
Rebar	$7 million	$0	$250,000
Copper Wire	$3.7 million	$112,800	$200,000
Electrical Gear, Generators	$4.62 million	$0	$185,800
Fire Sprinkler Pipe	$1.3 million	$20,000	$80,000
Data Cabling	$2.2 million	$0	$262,800
IT/Security/AV	$1.9 million	$0	$210,000
Boilers, Chiller, Pumps	$5.27 million	$197,000	$315,400
Copper Pipe	$2.3 million	$237,000	$230,000

Evaluate Your Speed to Market

49

- Capture Sub Availability and Maintain Schedule with Early Release Packages
  - Enhance scheduling opportunities with subcontractor input
  - Reduce initial risk
  - Assist in managing a tight schedule

Evaluate Your Speed to Market

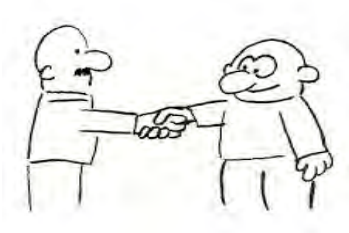
50

- Project: South Texas Medical Academic Building
- Early Release Package – Steel
  - Help manage tight schedule
  - Base the bid on DD GMP documents
    - Steel members sized, with no misc. steel designated
  - Lock in tonnage amounts and rates for structural steel, misc. steel, joists, and metal deck
  - Allow steel production to start shop drawings early
  - Steel erection coincides with completion of first floor slabs

Market Conditions and Competition

51

- Assess Your Local Market
- Understand the Area in Which You Work
- Conduct Sub Outreach Efforts in New Areas
  - 30-hour OSHA training
  - HUB outreach & assistance
  - Bid training assistance
  - Meet & greets (AGC, ABC, Chamber of Commerce, etc.)



Market Conditions and Competition

52

- Purchasing Agreements Can Also Assist
  - Pre-determined contract pricing
  - Vendors identified in alliance are vetted for inclusion in specifications
  - Products bid against similar competitors
  - National level product pricing offered to installers
  - Material cost rebates offered to institutions

Reduce Your Labor Risk

53

- Consider Alternative Designs/Additive Alternates
- Evaluate Subcontractor Performance Ability During Bid Process
  - Current workload
  - Previous performance
- Have a Back-Up Plan
  - More subs (smaller bid packages)
  - Labor recruiter

Examine Options for Design-Assist

54

- Accurate Budgeting
- Lock In Prices & Manpower
- Streamline Design
- Verify Existing Conditions
- Finish Drawings
- BIM for Coordination
- Pre-Fab

Potential D/A Subs
MEP
Fire Protection
Elevators
Curtain Wall
Water Proofing
Roofing
Low Voltage
Medical Equipment

Use All Available Resources

55

- Campus Provided IT/AV, EHS/Safety, Security Installations
- Shared IDIQ Contracts
  - Allows for advance/prep work to be performed
- Early FFE Packages
  - Coordinated with design as documents progress
  - Minimizes documentation coordination with furnishings
  - Done prior to completion of CDs

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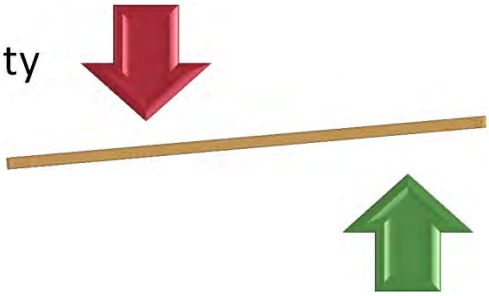
Summary

Recap: How Did We Get Here

57

- Building Costs Indexes Don't Show Whole Picture
- Decreases in Supply
  - Labor availability and productivity
  - Raw material production
- Increases in Demand
  - Industry more technical
  - Increase in oil & gas
  - Increase in commercial & industrial construction



Recap: What Can We Do About It?

58

- Perform Project-Specific Risk Analysis
  - Labor & materials
- Evaluate Your Design Based on Risk Analysis
  - Competition from suppliers
  - Attractiveness to subs

Recap: What Can We Do About It?

59

- Explore Alternative Strategies to Reduce Costs
  - Bulk purchasing
  - Group purchasing
  - Speed to market
  - Market conditions & competition
  - Early release packages
  - Design-assist
  - Shared campus resources

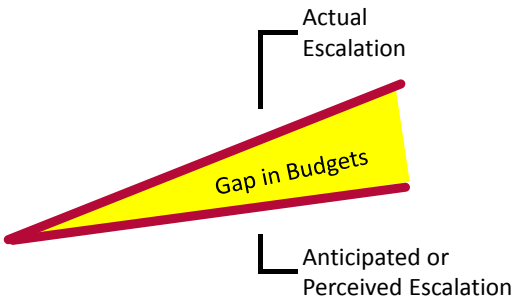
60

Conclusion

How to Budget in a Bull Market?

61

AVOID THIS



DO THIS

- ✓ Investigate the Market
- ✓ Analyze Your Risk
- ✓ Evaluate Your Design
- ✓ Consider Alternative Bid Strategies

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Discussion

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Seminar Evaluation

We hope you enjoyed this session…

Please take a moment to complete the evaluation form.

Thank you!

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