

# THE POWER OF BEING UNDERSTOOD



# CONSTRUCTION AUDITING

IIA Atlanta Government and Not-for-Profit Conference

January 28, 2022

# Presenters

David Luker  
*Director*



- More than 17 years of experience
- Subject matter expert – facilities and construction
- Significant experience leading audits of construction manager-at-risk

Matt Blondell  
*Director*



- More than 10 years of experience
- Subject matter expert – government and construction
- Engagement leader of government construction audit programs of more than \$1 billion.

Stephanie Tantillo  
*Manager*



- More than 10 years of experience
- Leads health care construction contract compliance audit program with contract volume over \$1 billion.
- Certified Construction Auditor

Chris Gums  
*Senior*



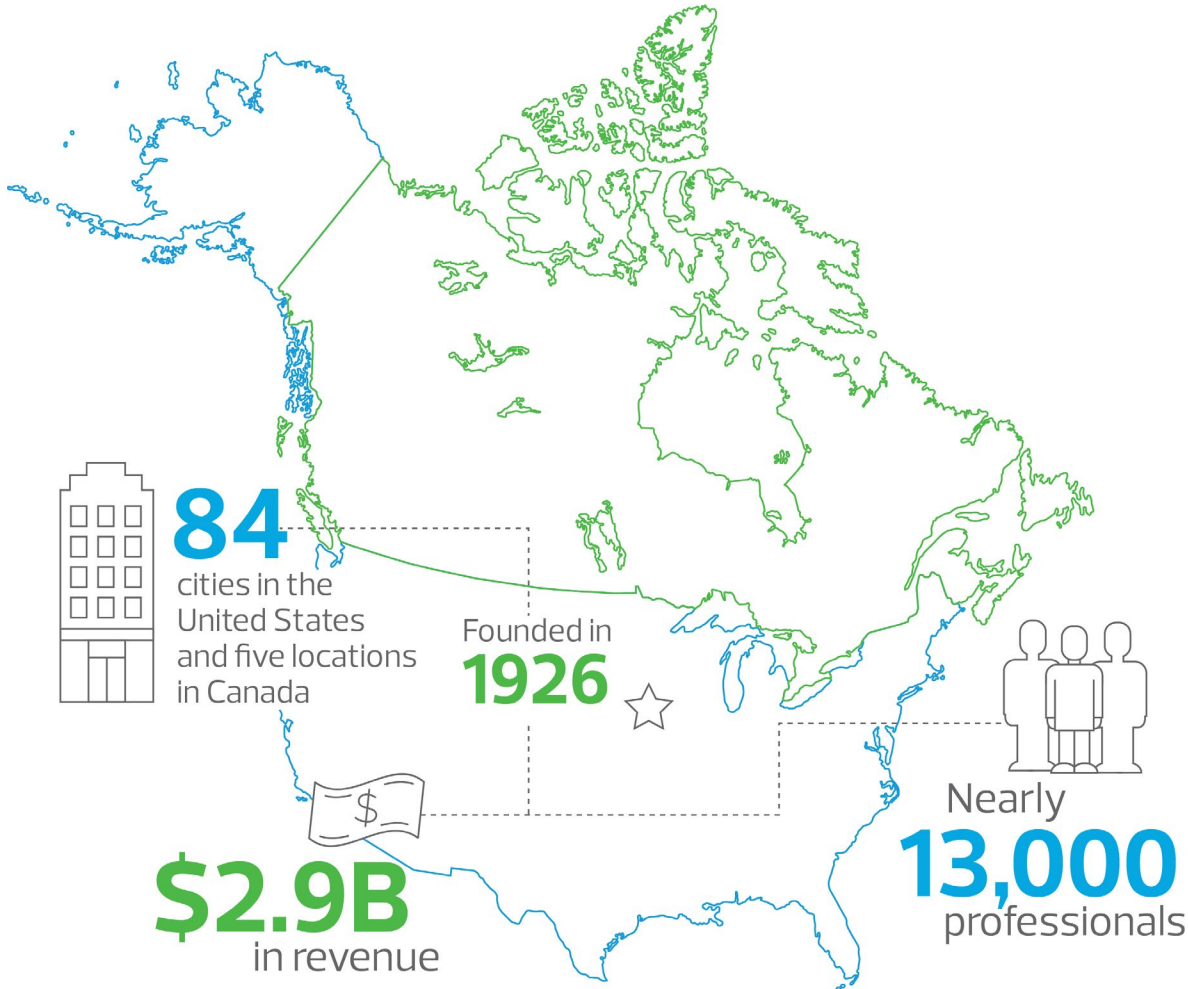
- Over 3 years of experience
- Service focus includes risk advisory services within the construction industry
- Leads testing of construction audit services

Devann Marchand  
*Senior*



- 3 years of experience
- Specializes in construction cost analysis, labor and labor burden analysis, and project closeout
- Leads testing of construction audit services

# RSM US LLP



Audit

Tax

Consulting

Financial consulting  
Management consulting  
**Risk consulting**  
Technology consulting  
Transaction advisory

# RSM US LLP

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**Over 550**  
government clients nationally

**Serves 2,500**  
public sector clients annually

**Over 1000**  
professionals serving the  
government industry

- Internal audit
- IT audit
- Contract compliance
- Forensic investigations
- Governance, risk and compliance
- Enterprise Risk Management
- Service Organization Control
- Regulatory compliance
- IT Strategy
- Disaster recovery
- Anti-fraud consulting

# Agenda

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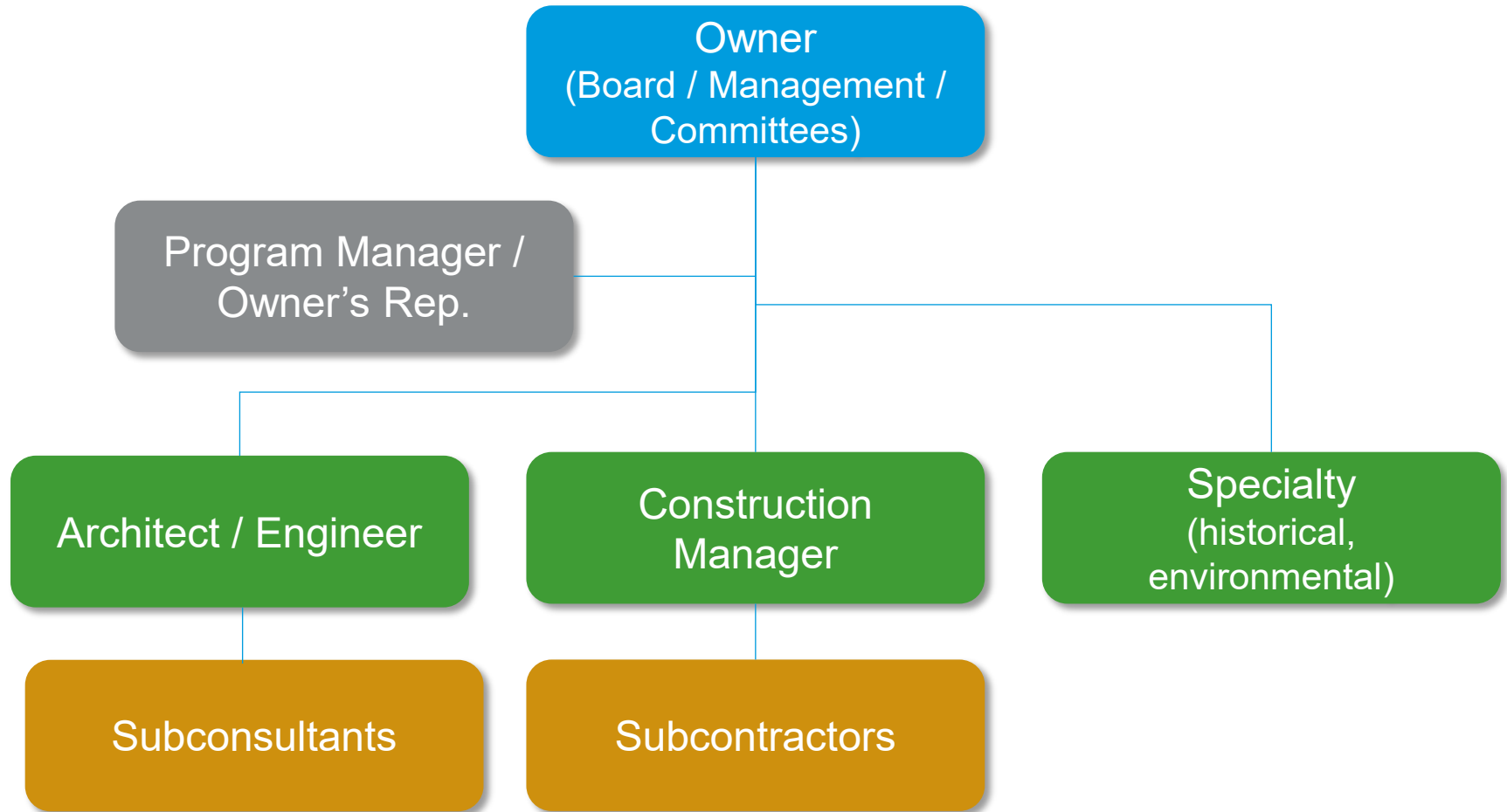
- Planning & Budgeting
- Pre-Construction & Procurement
- Project Management
- Closeout





# PLANNING & BUDGETING

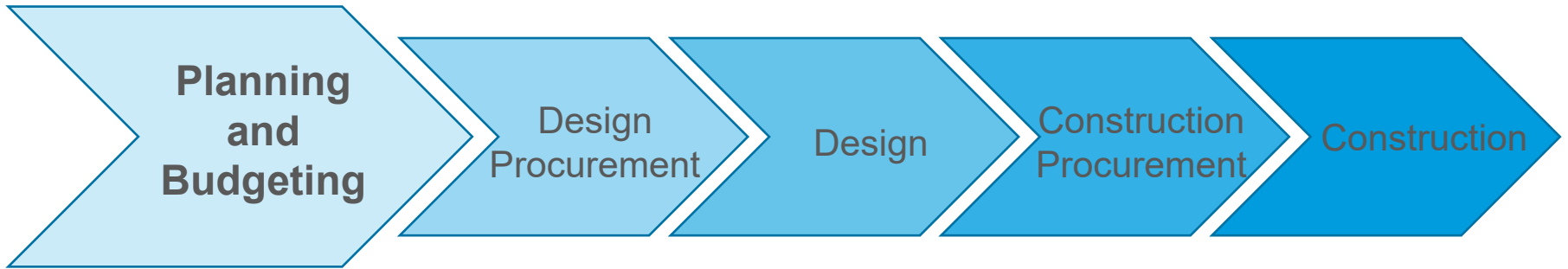
# Project Organization





# Typical Construction Process

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## *Polling Question*

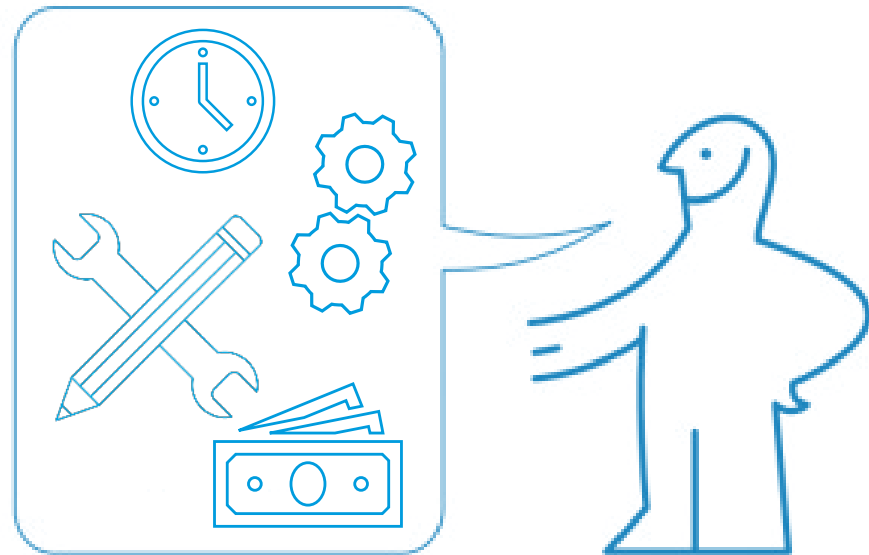
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What is your involvement with your organization's construction process?

- Procurement / contracting
- Project management
- None, just curious about the topic
- I'm here for the CPE

# Project Planning - Factors to Consider

- Cost & Size
- Complexity & Scope
- Timing & Schedule
- Risk & Responsibility
- Owner Resources



# Components of Project Budget

## Hard Costs

- **70-75%** of total project cost
- “Brick and mortar” costs
- Construction
  - Contractor general conditions
  - Construction costs
  - Contractor contingency



## Soft Costs

- **25-30%** of total project cost
- Any costs that are not directly construction-related
- Architects, designers, consultants
- Project management
- Land and real estate costs
- Financing fees, insurance, bonds
- FF&E costs

# Budget Example

Project Element	Project A		Project B	
<b>Hard Costs</b>				
Construction	10,880,432	74%	9,250,000	72%
<b>Total Hard Costs</b>	<b>10,880,432</b>	<b>74%</b>	<b>9,250,000</b>	<b>72%</b>
<b>Soft Costs</b>				
Planning, Architects, Permits	963,135	7%	931,000	7%
FF&E and Interior Design	1,374,202	9%	460,000	4%
Owner Costs (Construction Manager, Consultants, Real Estate, etc.)	1,143,290	8%	1,088,800	8%
Contingency	300,215	2%	1,181,000	9%
<b>Total Soft Costs</b>	<b>3,780,842</b>	<b>26%</b>	<b>3,660,800</b>	<b>28%</b>
<b>Total Project Costs</b>	<b>\$ 14,661,274</b>		<b>\$ 12,910,800</b>	

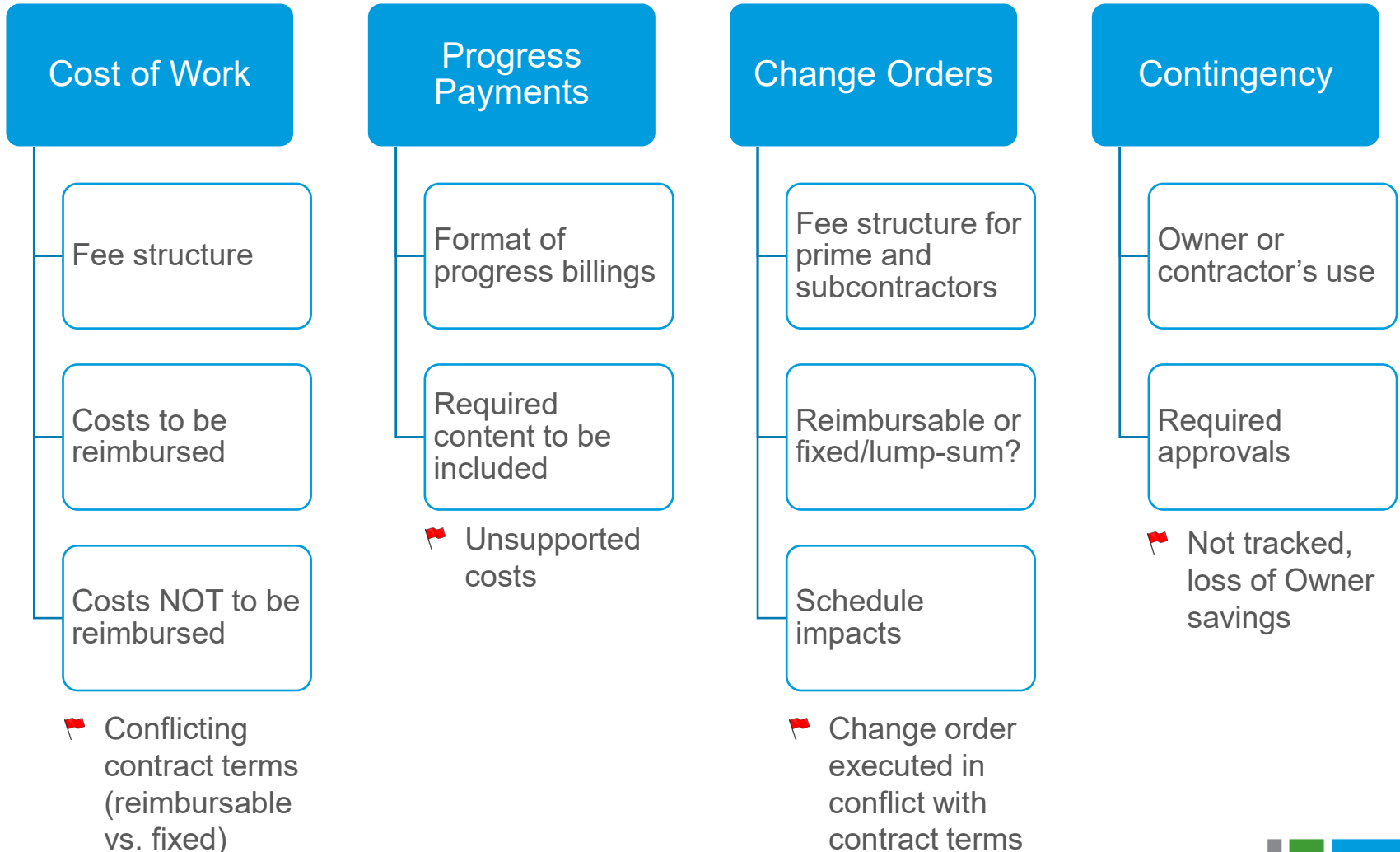


# PROCUREMENT & PRECONSTRUCTION

# Procurement Methods Snapshot

Project Delivery Method	Most Common Type of Solicitation	Vendor Selection Criteria	Key Factors
<b>Design-Bid-Build</b> Lump Sum/ Fixed Price or Unit Price	IFB (Invitation for Bid)	<ul style="list-style-type: none"> <li>Based solely on price</li> <li>Contract awarded to lowest bidder</li> </ul>	<ul style="list-style-type: none"> <li>Known scope, quantities, design</li> <li>Separate designer and builder</li> <li>Longer schedule time</li> </ul>
<b>Construction Manager at Risk (CMAR)</b>	RFP (Request for Proposal)	<ul style="list-style-type: none"> <li>Based on price &amp; qualifications</li> <li>Contract awarded based on best value</li> </ul>	<ul style="list-style-type: none"> <li>Large, complex, multi-phase projects</li> <li>Separate designer and builder</li> <li>Moderate schedule time</li> </ul>
<b>Design-Build</b>	RFP (Request for Proposal) or RFQ (Request for Qualifications)	<ul style="list-style-type: none"> <li>Based heavily or solely on qualifications</li> <li>Contract awarded to most qualified firm</li> </ul>	<ul style="list-style-type: none"> <li>Large, complex, specialized projects</li> <li>Same company for design and build</li> <li>Schedule efficiency</li> </ul>

# Vendor Agreements – Key Contract Provisions





# Vendor Agreements – Key Contract Provisions

## Self-Performance

Prime contractor performs work as a subcontractor

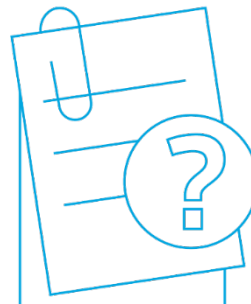
Disclose related parties

- 🚩 Visibility into CM costs
- 🚩 Non-competitive pricing

## Insurance and Bonds

Fixed price, cost reimbursable, % of the work

- 🚩 Related party insurance provider
- 🚩 Visibility into actual cost



## Right to Audit

Recordkeeping requirements

Which components of the work are auditable?

- 🚩 Fixed elements not subject to audit

## *Polling Question*

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What is the common construction procurement method used by your organization?

- Invitation for bid (IFB)
- Request for Proposal (RFP)
- Request for Qualifications (RFQ)
- Not sure

# Review of the Solicitation

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Qualification based solicitation requirements include:

- Vendor experience incorporated into scoring criteria
- Transparency into terms and conditions of planned vendor agreement
- Objective scoring / ranking system (preferred method: numeric, multi-criteria scoring)
- Disclosure of no personal relationships between Owner and bidder (conflict of interest disclosure form)

*Example RFP*

# Evaluation Committee Composition

- Selection committee comprised of experienced personnel and members outside of direct project management team
- Recommended committee composition:
  - Individuals from Procurement department
  - Individuals from Facilities/ Construction department (managing the contract)
  - Finance/Accounting
  - 3<sup>rd</sup> party Engineer/Independent



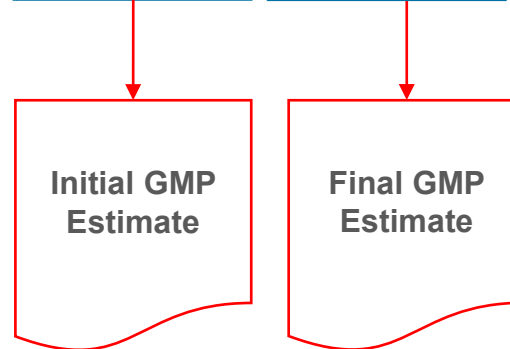
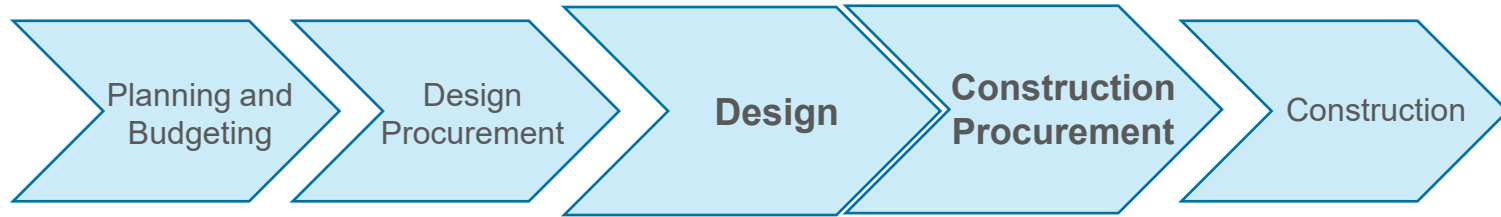
# Scoring and Evaluating - Audit Trail

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- Initial evaluation to determine shortlist
- Evaluation of oral/secondary presentations to determine awardee
- Documents to evidence process:
  - Individual committee member scoring sheets
  - Bid tabulation sheets – cumulative
  - Meeting minutes from evaluation process
  - Announcement of shortlist
  - Announcement of award
- Utilization of technology

*Example scoring sheet*

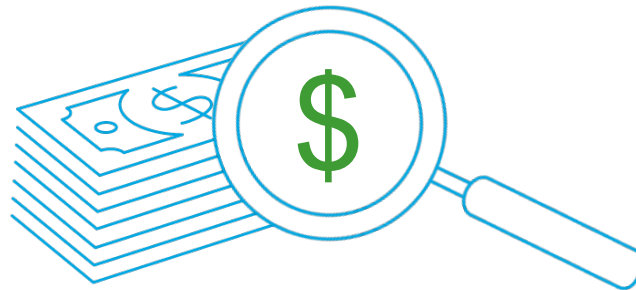
# Design Phases and Construction Documents



# Auditing a GMP Estimate

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- Estimate is detailed by scope and individual line items (CSI or comparable)
- Units (months, square feet, lump sum, etc.) are identified
- Subcontractor/ vendor costs are appropriately captured in the estimate
- Contractor soft costs agree to contract
  - General conditions, including equipment and labor rates and labor burden
  - Insurance, bond
  - Contingency
  - Fee



*Example CSI scope*

# Auditing a GMP Estimate

## GMP Breakdown Example 1

<b>Estimate Summary</b>			
Project Name:	Project ABC		
Project Location:	123 Location		
Estimate Date:	Date XX, 20XX	Size (SqFt):	5,386
Item	Description	Budget	Cost/SF
General Conditions	<i>Scope: Includes the cost of our on-site management and other direct costs not attributed to a specific work item.</i> <i>Clarification: This cost reflects a 21 week construction schedule.</i>	\$ 108,625	\$ 20.17
List out all scopes of work	<i>Scope: Describe the scope of work to be performed</i> <i>Clarification: Provide any qualifications or clarifications to the cost of wok</i>	--	--
<b>Total Direct Costs</b>		<b>\$ 962,621</b>	<b>\$ 178.73</b>
Design Build Manager Fee	<i>Scope: Construction Manager's Fee</i> <i>Clarification:</i>	\$ 44,223	\$ 8.21
General Liability & Builder's Risk Insurance	<i>Scope: We included the cost of General Liability and Builder's Risk Insurance</i> <i>Clarification:</i>	\$ 6,257	\$ 1.16
Performance & Payment Bond	<i>Scope: Performance and payment bond is included</i> <i>Clarification: Bonding rate is calculated on the cost of the entire Design Build contract amount.</i>	\$ 13,861	\$ 2.57
Contingency	<i>Scope: We include a contingency in the budget to allow for changes that may occur during the design process.</i> <i>Clarification:</i>	\$ 49,137	\$ 9.12
Design Build Manager's Fee on Contingency (if used)	<i>Scope: We include a contingency in the budget to allow for changes that may occur during the design process.</i> <i>Clarification:</i>	\$ 2,211	\$ 0.41
<b>Construction Cost Total</b>		<b>\$ 1,078,310</b>	<b>\$ 200.21</b>
Permits & Fees	<i>Scope: Allowance for municipal/ regulatory permits and fees</i> <i>Clarification:</i>	\$ 50,000	\$ 9.28
Design and Preconstruction	<i>Scope: Design and Pre-construction costs previously contracted</i> <i>Clarification:</i>	\$ 109,210	\$ 20.28
<b>Total Project Cost</b>		<b>\$ 1,237,520</b>	<b>\$ 229.77</b>



# Auditing a GMP estimate

## GMP Breakdown Example 2

Item	Description	Takeoff Qty	Labor		Material		Equipment		Other		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Labor Burden	Unit Price	
<b>Engine Generators</b>											
<b>26-32-13.13 Diesel-Engine-Driven Generator Sets</b>											
2200	Generator set, diesel, 3 phase 4 wire, 277/480 V, 75 kW, incl battery, charger, muffler, & day tank	1 ea	1,828	1,828	37,000	37,000	3,500	3,500	640	42,968	42,968
2200	Generator remote alarm annunciator	1 ea	250	250	500	500	400	400	88	1,238	1,238
2200	Generator concrete pad	2 cy	400	800	250	500	100	200	280	890	1,780
2200	ATS Enclosure concrete pad	1 cy	400	400	250	250	100	100	140	890	890
<b>Automatic Transfer Switches</b>											
<b>26-36-23.10 Automatic Transfer Switch Devices</b>											
0700	Automatic transfer switches, enclosed, 3 pole, 480 volt, 400 amp	1 ea	322	322	6,654	6,654	-	-	113	7,089	7,089
<b>Excavation</b>											
<b>31-23-16.13 Excavating, Trench</b>											
0062	Excavating, trench, equipment pads, common earth, 3/4 C.Y. excavator, 1' to 4' deep	50 bcy	2	103	-	-	2	121	36	5	260
<b>Fill</b>											
<b>31-23-23.13 Backfill</b>											
1900	Backfill, trench, equipment pads	50 lcy	0	24	-	-	2	78	8	2	109
2000	Backfill compaction, add	50 ecy	7	335	-	-	4	183	117	13	635
<b>Subcontractor Subtotal</b>		1 ls		\$ 20,242		\$ 94,949		\$ 6,185	\$ 7,085	\$ 128,460	\$ 128,460
Subcontractor Markup		10%									\$ 12,846
<b>Subcontractor Total</b>		1 ls									\$ 141,306
General Contractor Markup on Subcontractor		5%									\$ 7,065
<b>TOTAL</b>		1 ls									\$ 148,372

# Auditing a GMP Estimate - Subcontractors

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- Compare to designer/engineer's estimate
- Unbalanced bids
  - Mathematically unbalanced – bid does not reflect actual costs (inflated for profit) or not is reasonable compared to engineer's estimate
  - Materially unbalanced – reasonable doubt that awarding to the low bidder would result in lowest ultimate cost to the Owner
- Evaluation considerations
  - Bid quantities and units are correct
  - Does not include frontloading or inflated costs (to increase cash flow at beginning of the project)
  - Does not include omission of key project elements or scope
  - Investigate variances to identify risks above

# Auditing a GMP Estimate - Subcontractors

## Subcontractor Bid Evaluation Example

Items with significant differences between Low Bid and Engineer's Estimate

Items with significant differences among the Contractor Bids

Project Name: **Project ABC**  
 Estimate \$: \$144,254,000  
 Estimate Date: Date XX, 20XX  
 Contingency: 7.50%

<b>Subtotal</b>	<b>\$</b>	<b>107,284,060</b>	<b>\$</b>	<b>113,400,402</b>	<b>\$</b>	<b>115,264,944</b>
<b>Contingency 7.5%</b>	<b>\$</b>	<b>8,046,305</b>	<b>\$</b>	<b>8,505,030</b>	<b>\$</b>	<b>8,644,871</b>
<b>Total Bid</b>	<b>\$</b>	<b>115,330,365</b>	<b>\$</b>	<b>121,905,433</b>	<b>\$</b>	<b>123,909,815</b>

Item #	Description	Engineer's Estimate	Contractor 1	Contractor 2	Contractor 3
1	MOBILIZATION	\$ 4,685,005	\$ 5,300,000	\$ 5,700,000	\$ 6,300,000
2	CLEARING AND GRUBBING	\$ 442,300	\$ 1,180,000	\$ 2,437,900	\$ 970,000
3	UNDERCUT EXCAVATION	\$ 1,681,868	\$ 1,603,000	\$ 2,244,200	\$ 1,493,996
4	UNCLASSIFIED EXCAVATION	\$ 452,352	\$ 1,391,256	\$ 684,000	\$ 572,280
5	BORROW EXCAVATION	\$ 9,054,691	\$ 4,099	\$ 4,099	\$ 2,049,500
6	DRAINAGE DITCH EXCAVATION	\$ 66,478		\$ 12,201	\$ 22,659
7	REMOVAL OF EXISTING ASPHALT PAVEMENT	\$ 1,215,622	\$ 769,567	\$ 980,340	\$ 1,053,866
8	PROOF ROLLING	\$ 11,086	\$ 8,517	\$ 11,000	\$ 9,075
9	GEOTEXTILE FOR SOIL STABILIZATION	\$ 18,023	\$ 8,454	\$ 6,968	\$ 6,503
10	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	\$ 398,126	\$ 281,486	\$ 393,040	\$ 323,680



# PROJECT MANAGEMENT

# High Risk Areas

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- Invoices / Pay Applications
  - General Conditions/General Requirements
  - Labor
  - Subcontract Work
- Change Orders and Contingency
  - Entitlement
  - Fee and Insurance Allocations
  - Subcontractor Quotes and Supplier Invoices

## *Polling Question*

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Does your organization receive/ review pay applications in hard copy or electronic format?

- Paper / hard copy
- Electronic
- Some of each
- Not sure

# Auditing a Pay Application

## Approvals

- Contractor (notarized)
- Architect / Engineer
- Owner's Representative
- Internal PM
- Department Director
- Finance / Accounting
- Executive level



# Auditing a Pay Application

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## Supporting Documentation

- Labor reports and timesheets for supervision or labor costs
- Invoices or receipts for general conditions costs (i.e. jobsite trailers, small tools, dumpsters, construction management software, etc.)
- Invoices for owner and rental equipment, or usage reports for equipment with agreed upon usage rates
- Subcontractor payment applications or invoices for work completed by subcontractors
- Lien waivers
- Supporting logs and compliance forms (COs, contingency, M/W/DBE, etc.)



# Auditing a Pay Application

- Mathematical accuracy
- Agrees to values from prior PA
- Sequentially numbered
- Proper date range
- Cover sheet agrees to SOV
- Recalculation of fee
- Line item transfers
- Agree to supporting detail documents



*Example pay application*

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# Auditing a change order

- Entitlement
- Approvals
- Allowability
- Proper support
- Labor rates and hours
- Labor burden
- Materials cost and units
- Independent estimate
- Schedule impact identified
- Recalculate!



*Example change order*

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# Auditing a change order

From: Owner's Representative  
To: Contractor  
Subject: Change Order

Based on a review of the documentation previously provided to us the City Landscape folks found the following:

Change Order: Bump out tree irrigation system. It was determined that the requested additional material costs of \$7,475 and associated sales tax of \$523 would be acceptable. Additional compensation for labor costs for the installation of the ABS system verse GEO Mat was determined not to be warranted. Further it was determined that additional compensation for the installation of 2 additional bubblers per tree would be appropriate at the rate of \$100 per tree for the 19 trees. Including \$197 for bonding at 2% and a 10% profit of \$1,009 the City would be will to issue a CO in the amount of \$11,105 as settlement for this work.

## *Example of **poor** support*

- Email provided as only support
- No breakdown for “materials” or vendor invoices to validate costs
- Fee was overcharged (7% per contract)
- Owner's Rep prepared CO calculation for contractor



CLOSEOUT

# Exercising the Right to Audit

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- CM shall keep all records and supporting documents

## 26. AUDITING RIGHTS

26.1 Construction Manager shall keep all records and supporting documentation which concern or relate to the Work hereunder for a minimum of three (3) years from the date of termination of this Agreement or the date the Project is completed, whichever is later or such longer period of time as

- Owner and/or Auditor shall have access to job records

26.2 The Owner (and/or other persons specifically designated by the Owner from time to time) shall be afforded the access described in Section 26.1 at any time, upon three (3) calendar days advance notice. Even if a dispute exists between the Owner and Construction Manager, the Owner (and

...

# Final Accounting from the CM

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- Determine what we are auditing against
- What is the target? Final compensation amount?
- Do we have the final PA? Final CO?
- Owner and CM in dispute over final amount?



## *Polling Question*

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Does your organization use internal or external audit services to review construction contracts?

- Internal auditors only
- External auditors
- Some of each
- Not sure

# Final Accounting from the CM

- Initial audit notification
- Meeting with Contractor
- 1<sup>st</sup> document request
  - Final job cost detail report
  - Subcontractor files
  - Cancelled checks and lien releases
  - Timesheets, Payroll Register, and Personnel files
  - System memo
  - Additional records
- Set up file share site online
- 2<sup>nd</sup> document request (sample selections and follow up)





# Job Cost Sampling techniques

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- General conditions/ general requirements
- Labor
- Subcontractor costs
- Other (i.e. insurance)



## *Example job cost analysis*

# Key Takeaways

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- **Planning & Budgeting** – *know your hard costs and soft costs*
- **Procurement and Preconstruction** – *understand the contract provisions and evaluate the cost proposal*
- **Project Management** – *know what you are being billed for and require support for costs and changes*
- **Project Closeout** – *enforce the contract language, analyze the contractor's actual costs*

THANK YOU FOR  
YOUR TIME AND  
ATTENTION

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