

Construction Cost in the Public Sector

by J. Liam Murray

presented to

**the Public Construction
Council of BC**

**Altus Helyar Cost
Consulting
November 29, 2005**



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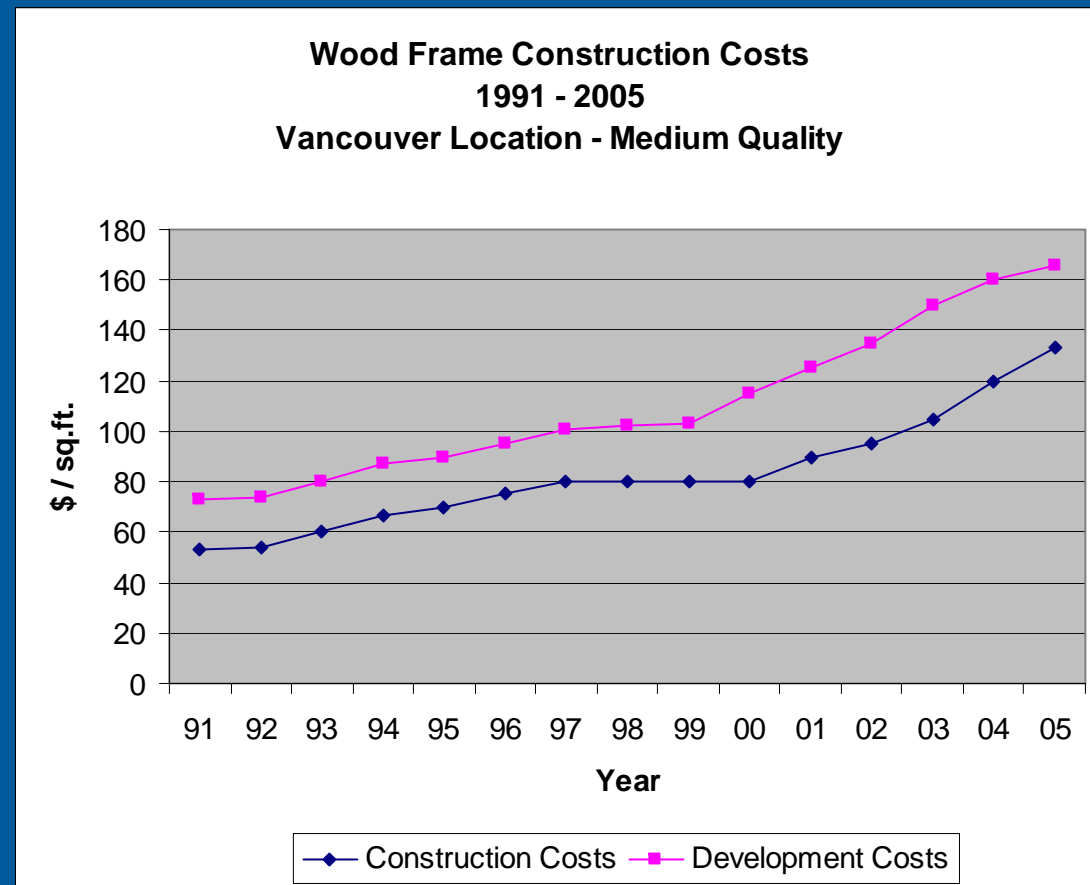
“Construction costs are out of control”

The Vancouver Sun, May 2005

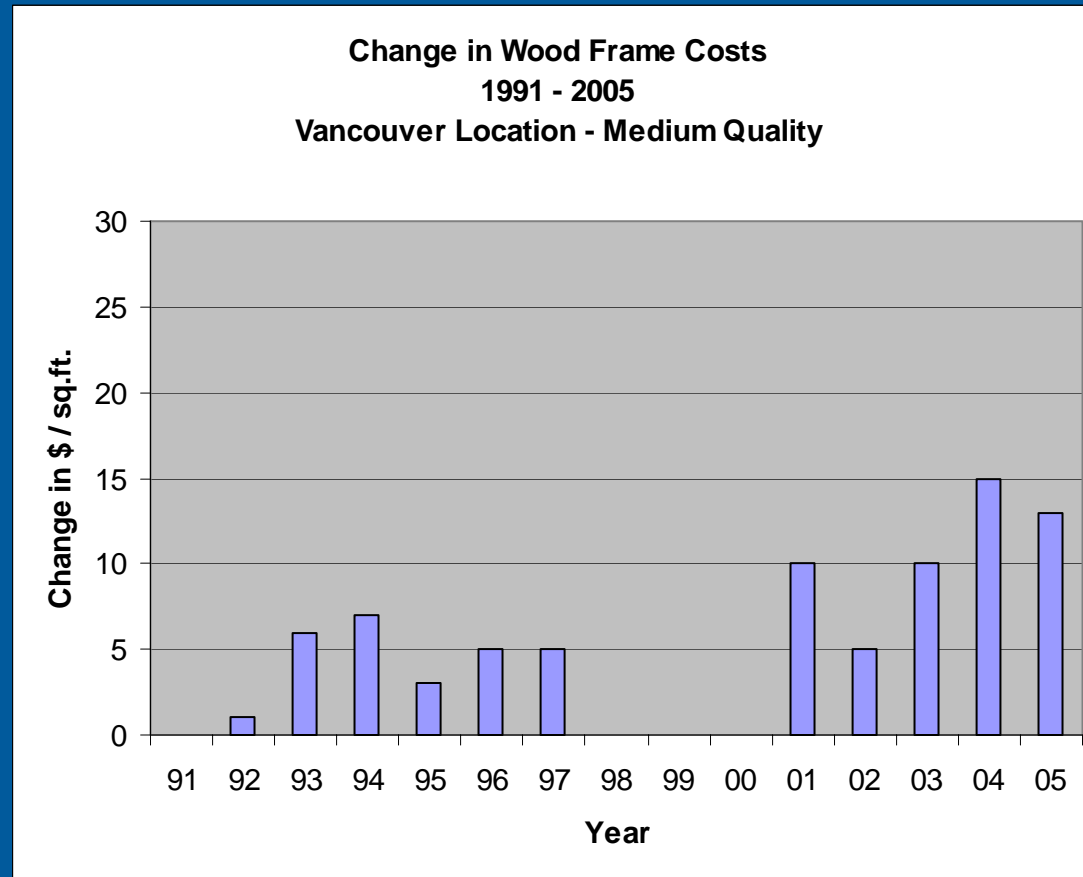
- ▼ The fact is that construction costs have been rising unpredictable since Q4 2002. So many numbers get tossed about, but based on our construction cost reports produced in BC since 1991, we see the graphs as follows:



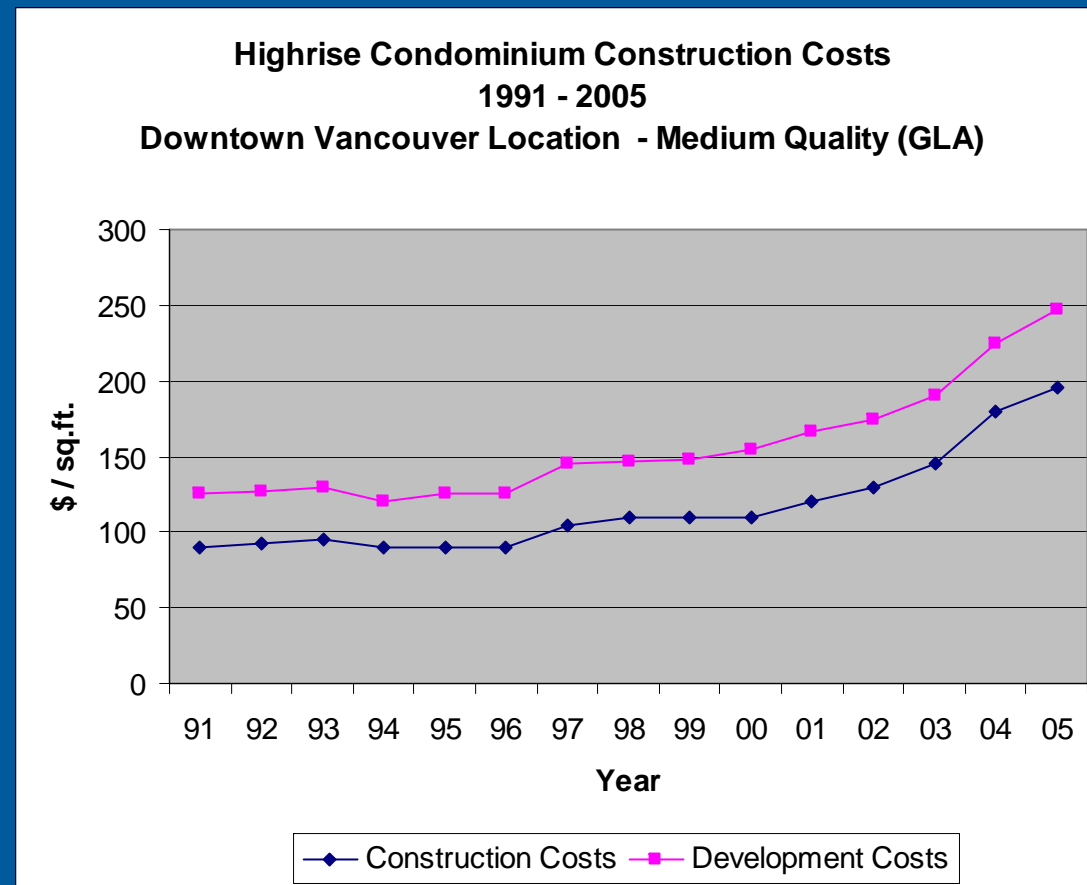
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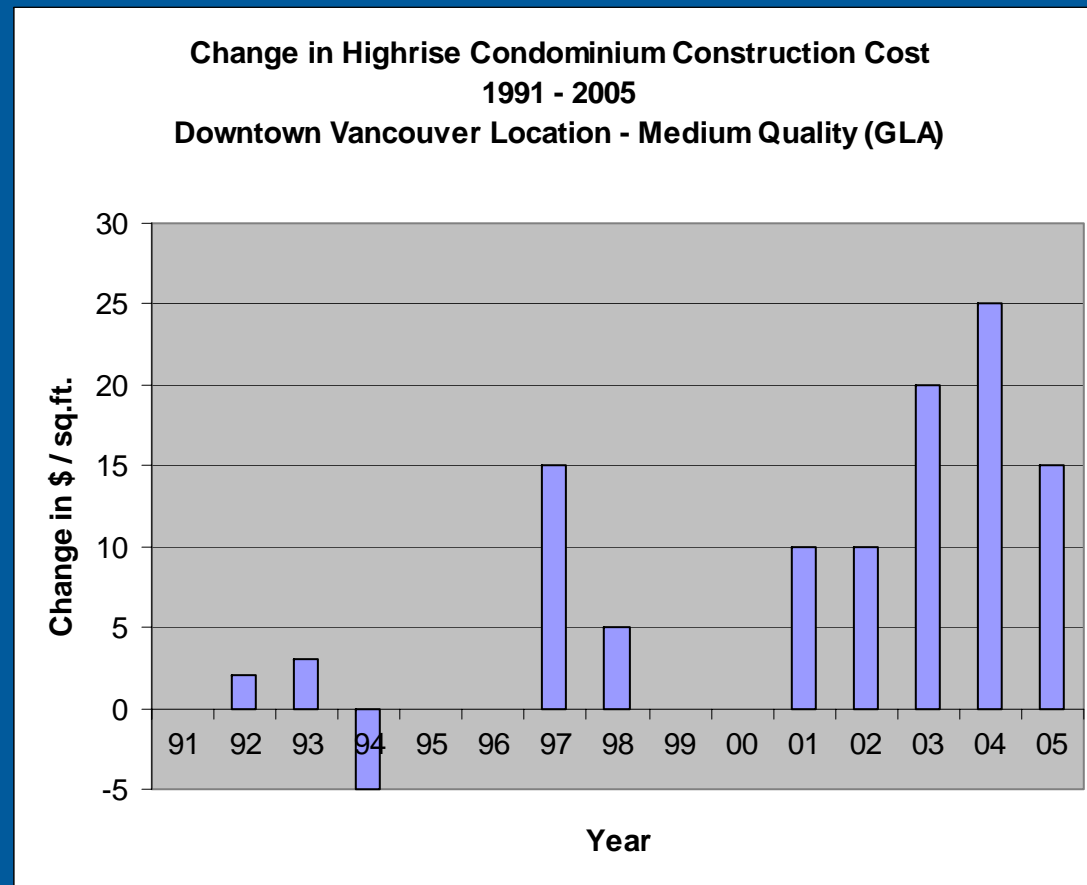
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Construction Cost in the Public Sector



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- **These are of course averages on trends, & do not take into account such things as:**
- Localized differences (UBC – vs. – Surrey)
- Market differences (Coal Harbour – vs. – Metrotown)
- “Rookie” premiums (Established developers pay less)



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- So the focus of my presentation today will be to outline how we, as Cost Control Consultants, are managing to help our clients control costs, maximize budgets, & minimize risks in this environment

CHANGE . . . CHANGE . . . CHANGE

- It must be said that the biggest single change that has occurred in the Public Construction sector in the past three years is the move to implement “private sector strategies” in project planning, delivery & cost management _____

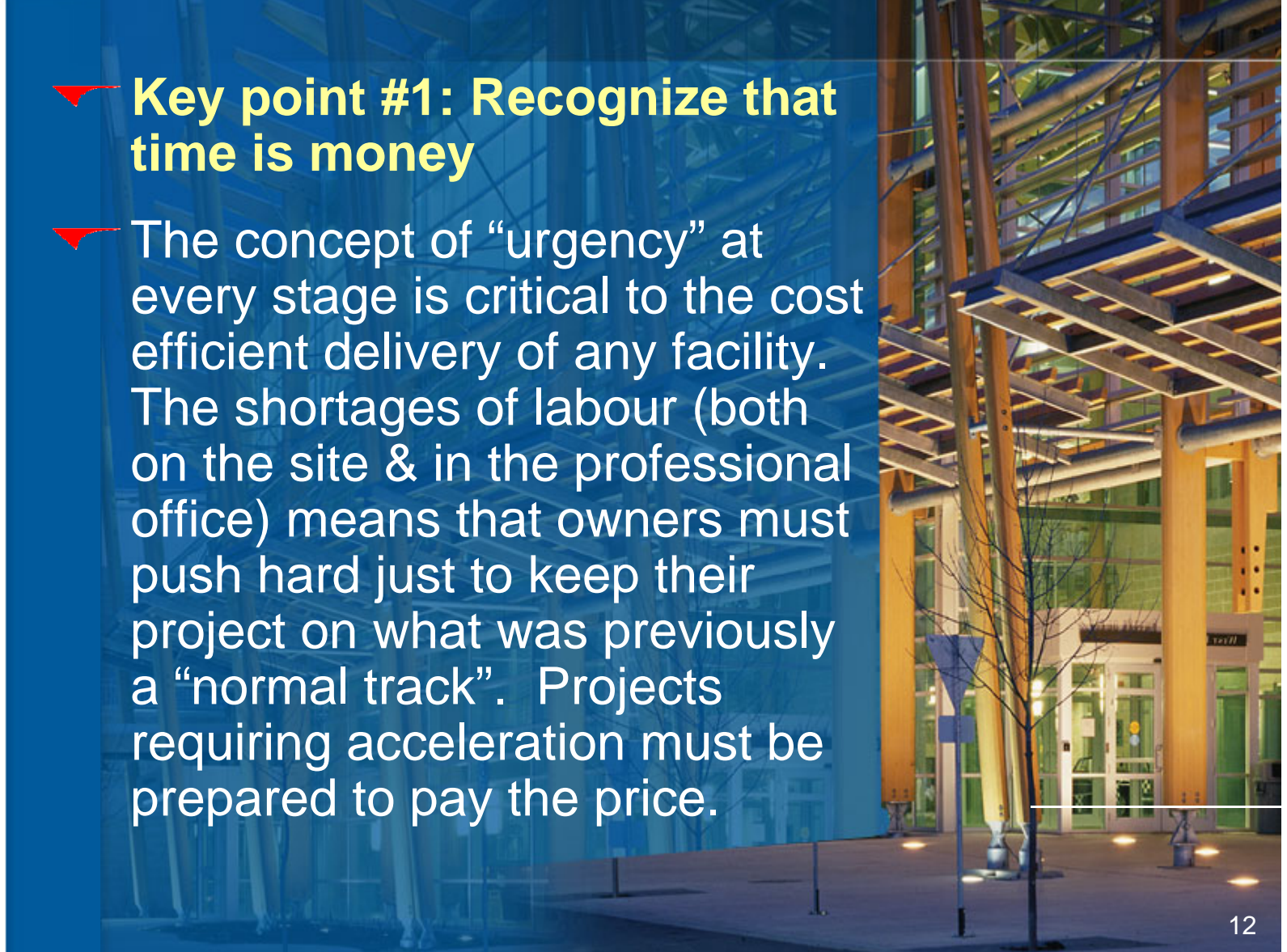
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- **More changes to come**
- We project even more of this to come, as the private sector itself is evolving more effective tools. So let us take the project from inception through to operation, contrast the systems & comment on what is working & why. But to finish, let us deal with two overriding concepts that impacts at every stage:



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- **Key point #1: Recognize that time is money**
- The concept of “urgency” at every stage is critical to the cost efficient delivery of any facility. The shortages of labour (both on the site & in the professional office) means that owners must push hard just to keep their project on what was previously a “normal track”. Projects requiring acceleration must be prepared to pay the price.



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- **Key point #2: Recognize that risk costs money**
- Construction has always been a risky business. The issues facing us today & in the future might be considered unprecedented, but the fact remains that they exist & they add risk. Offsetting risk is expensive. Sophisticated risk management tools are being used to identify & address risk today.

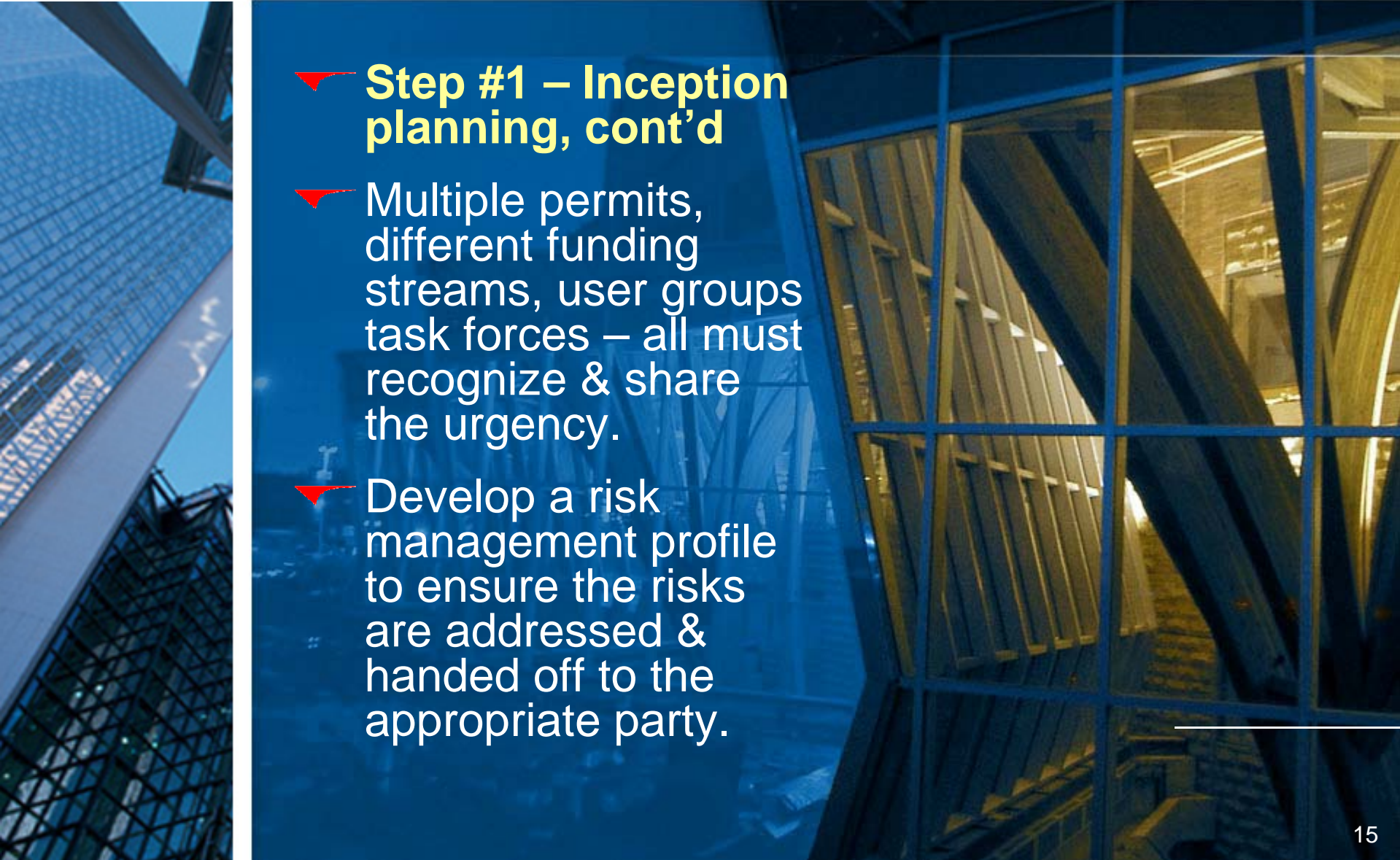


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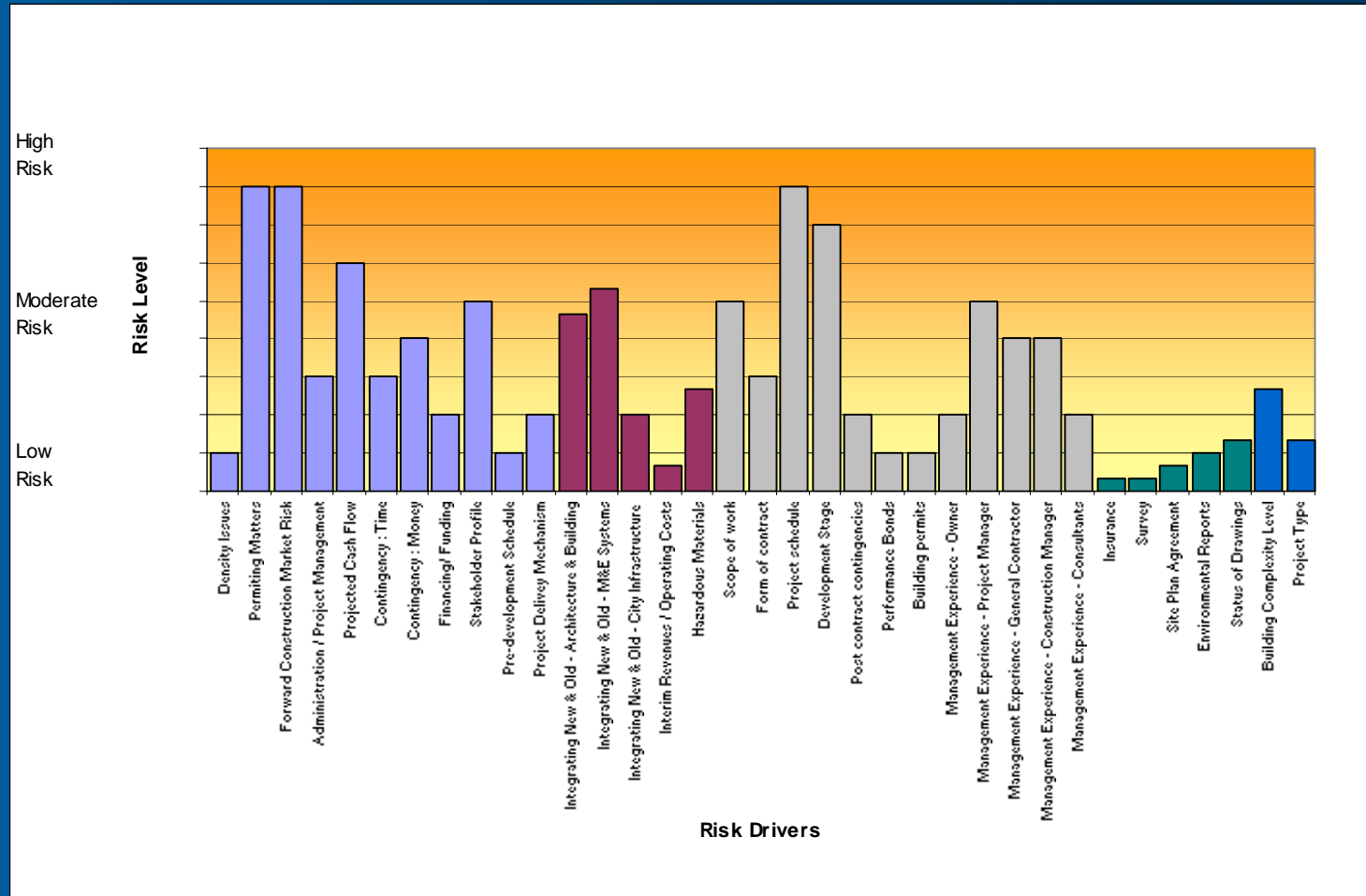
Step #1 – Inception planning

- Establish the parameters of your project early, especially key cost driver issues such as:
 - Area (every sq.ft. cost money)
 - Footprint (impacts efficiency & costs)
 - Schedule (be realistic, but once established drive to it)
- Test reasonableness of the allocated budget early, especially if it is a “funding formula” budget. If so, escalation is your enemy (e.g. CFI).

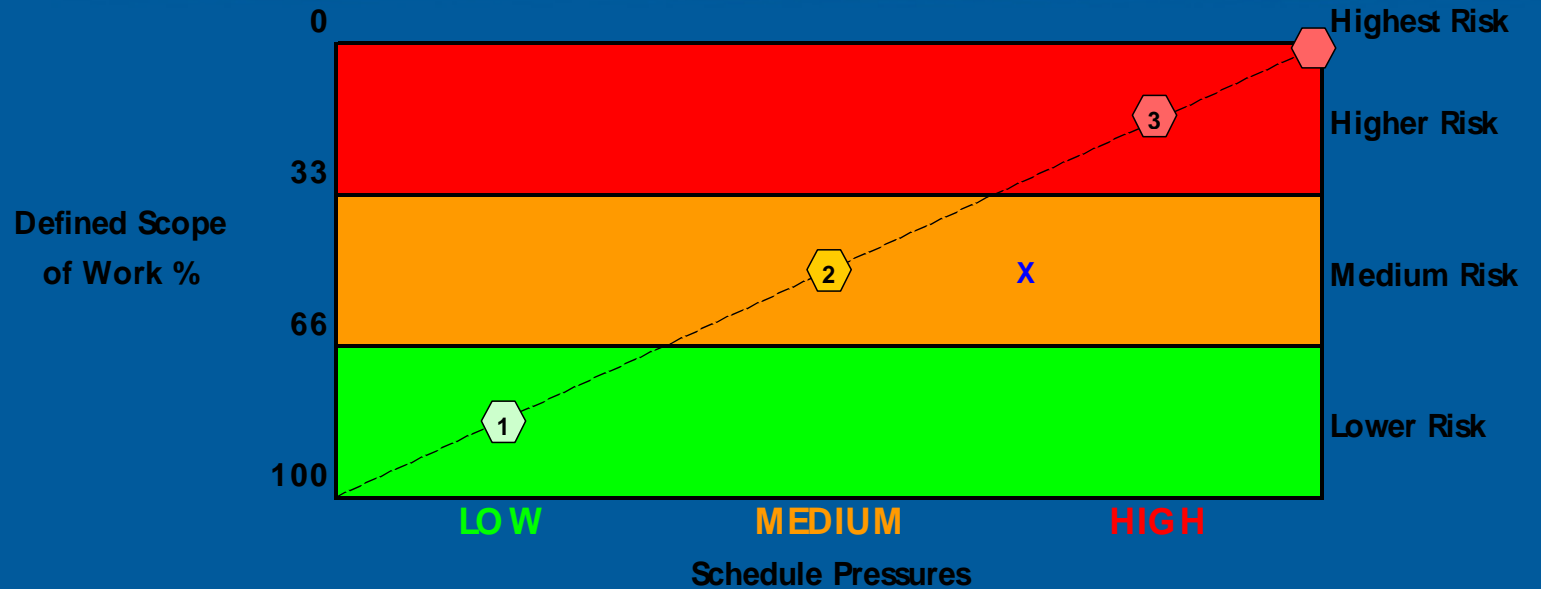
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- ▼ **Step #1 – Inception planning, cont'd**
 - ▼ Multiple permits, different funding streams, user groups task forces – all must recognize & share the urgency.
 - ▼ Develop a risk management profile to ensure the risks are addressed & handed off to the appropriate party.

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1. **Low Risk** - Greenfield Site, 100% developed Functional Program, 75% developed Working Drawings
2. **Medium Risk** - Addition to fully functional acute care facility, 100% developed Functional Program, 25% developed Working Drawings
3. **High Risk** Renovations to fully functional acute care facility, 70% developed Functional Program, Conceptual Design, Temporary Relocations, Tight Schedule Requirements

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➤ **And remember the four possible responses to every risk:**

- Avoid (eliminate)
- Transfer (shift)
- Mitigate (reduce)
- Retain (accept)

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Step #2 Building the team

Experience is worth paying for:

- With the building type
- With the local municipality
- With the trade relationships

You get what you pay for:

- Squeeze the fee & the project will suffer
- Avoid spinning of wheels
- Hire direct & manage direct
- Give them time to do the job

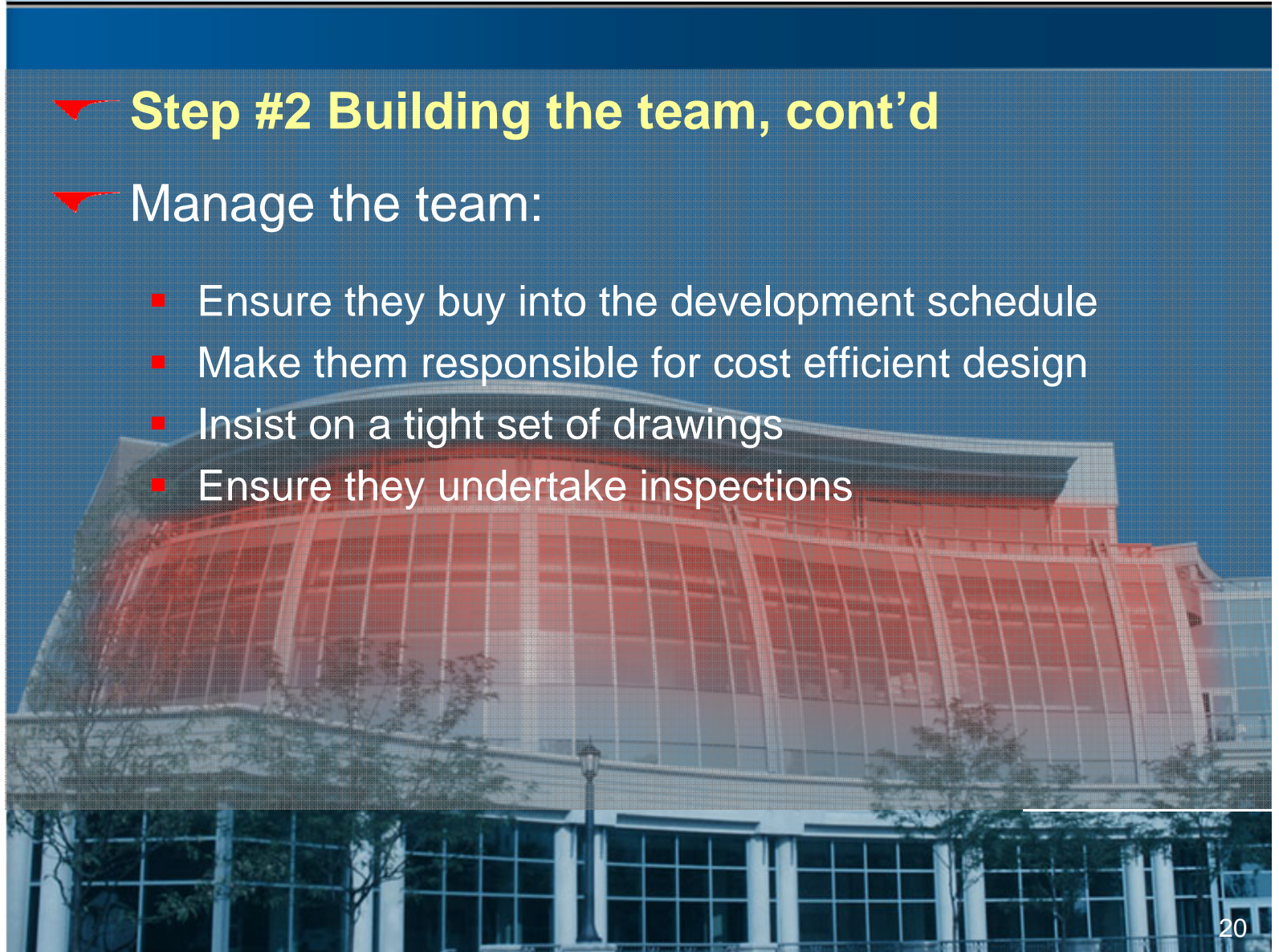


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Step #2 Building the team, cont'd

Manage the team:

- Ensure they buy into the development schedule
- Make them responsible for cost efficient design
- Insist on a tight set of drawings
- Ensure they undertake inspections




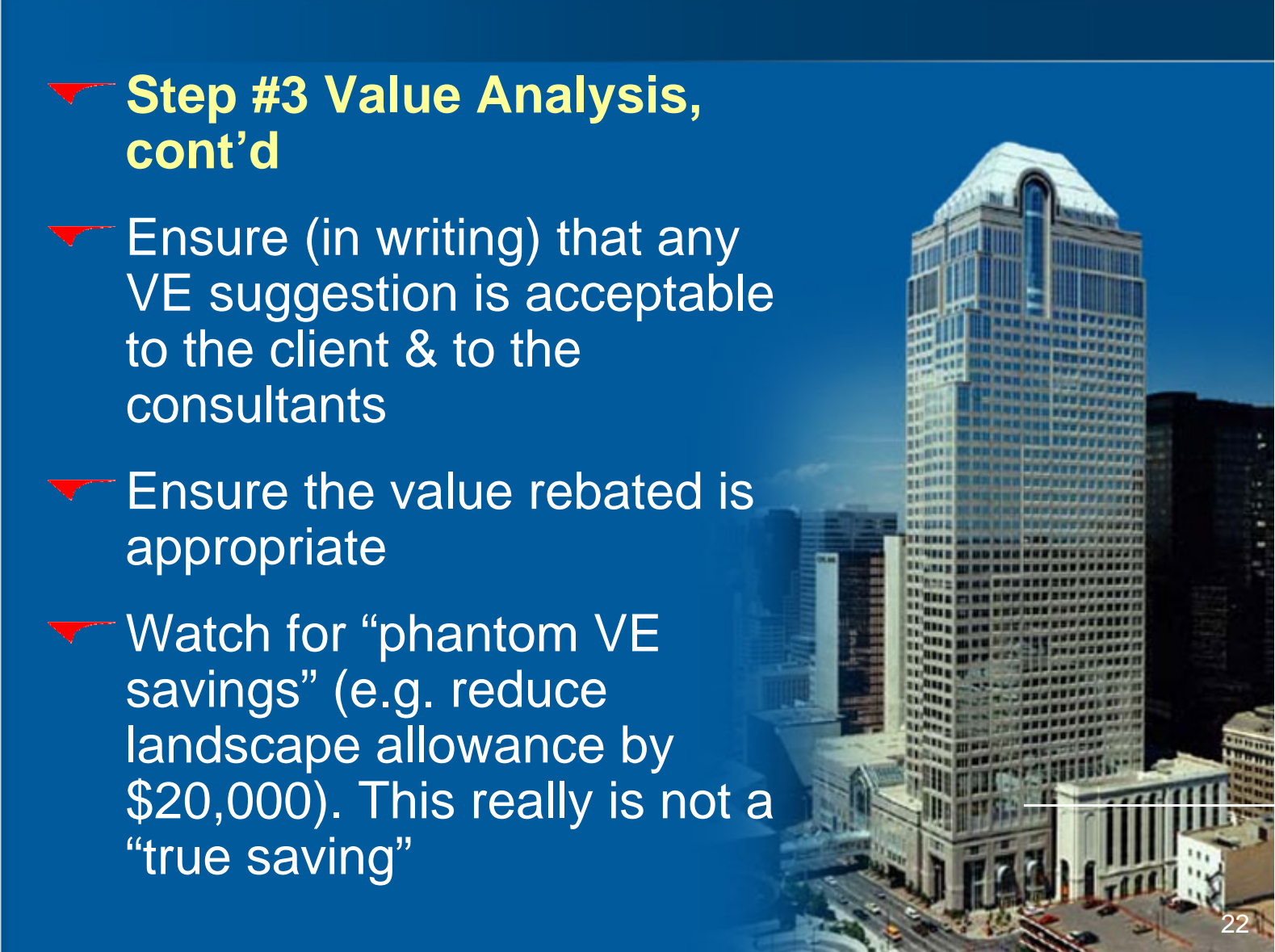
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Step #3 Value Analysis

- Can be exceptionally useful for the team to better
- Can shake out inappropriate costs
- Focus on key drivers; area, skin, systems, & finishes, plus parking & schedule

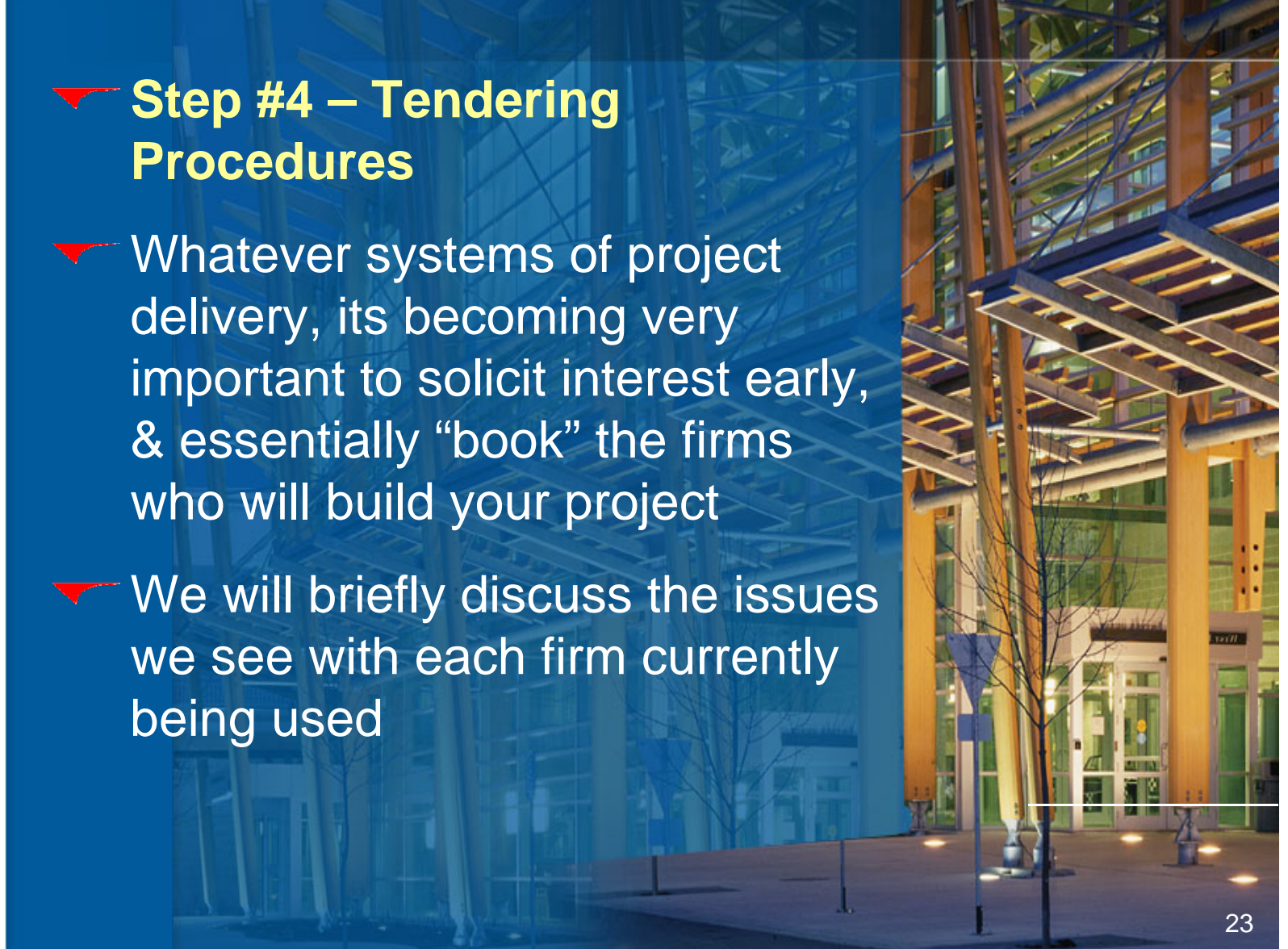
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- **Step #3 Value Analysis, cont'd**
 - Ensure (in writing) that any VE suggestion is acceptable to the client & to the consultants
 - Ensure the value rebated is appropriate
 - Watch for “phantom VE savings” (e.g. reduce landscape allowance by \$20,000). This really is not a “true saving”

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➤ Step #4 – Tendering Procedures

- Whatever systems of project delivery, its becoming very important to solicit interest early, & essentially “book” the firms who will build your project
- We will briefly discuss the issues we see with each firm currently being used



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➤ Step #5 – Form of Contract

➤ Stipulated Sum Contract

- Still used on many projects but falling out of favour
- Do not incorporate onerous “front end” clauses
- Clear & accurate drawings & specs are essential
- Avoid large addendums
- Some larger firms will not bid
- Cost certainty but at a price
- Schedule certainty – to an extent



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Construction Management

- Allows for early start on site
- Provides budget flexibility for tender package overruns
- Reduces contractor risk cost premiums
- Allows early evaluation of trade interest in project
- Less cost certainty & bondability
- Better control of schedule



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- **Construction Management “at risk”**
- Attempts to blend the “best of both options”
- Becoming more accepted
- Risk (cost & schedule) gets reduced as much as possible, then gets taken up by the constructing entity for a lower fee

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➤ **Guaranteed Maximum Price**

- Bit of a “misnomer” as the price is still subject to increases for design changes or scope revisions just like a CCDC, & this is frequently compounded by incomplete drawing / design
- Invariably carries a “contingency” which may or may not be utilized by contractors at their discretion, or potentially for GC overruns
- As it is essentially an “open book” arrangement, there must be an audit clause but ongoing (monthly) audits work best


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Program Value Analysis is a very useful exercise focusing on concepts rather than specific building elements.

#	Division	Contract Options		Inclusions
		CM Services	GC Services	
1	Professional Consultants			Engineering, Surveying, Geotechnical, Legal
2	Head Office Overheads			Project Manager, Estimator
3	Site Supervision			Project Coordination, Superintendent, Safety Officer
4	Site Labour			Site Office Staff, General Labour, Hoist Operator
5	Site Office Costs			Phone, Fax, First Aid, Courier, Toilets, Computers Software & Licenses
6	Site Costs			Security, Safety Plan, Safety Rails, Garbage Bins, Hoarding, Hoisting, Snow Removal, Traffic Control, Photographs.
7	Utilities			Connection & Operation Costs of Hydro, Water, Heat
8	Cleanup Costs			Garbage Costs, Tip Fees, Final Cleanup, Ongoing Cleanup, Dust Screens
9	Business Costs			Mockups, Signage, City Rental, Delivery
10	Staff Costs			Parking, Vehicles, Safety Bonus, Incentives
11	Inspections & Permits			City or other Permit or Inspection Costs
12	Small Tools			Rental, Purchase, Gas
13	Insurance			All Risk, Course of Construction, Liability
14	Bonds			General & Subtrade
15	As-builts			Drawings, Manuals, Certifications
16	Other			Specify
	Total General Requirements:		\$0	\$0

These General Requirement costs cover the full scope of work outlined in the tender documentation to complete the project.
 The CM Services line reflects the proponents costs for undertaking Construction Management.
 The GC Services line identifies the proponents costs for acceptance of role, risk and responsibilities of a General Contractor.

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- ▼ **In all instances it is essential to build & maintain sustainable relationships**
 - ▼ If working with a contractor:
 - Process claims in a timely manner
 - Be open to suggested material changes but have consultant approval
 - Deal with changes immediately - the price goes up the longer the delay
 - Understand reasonable schedule issues

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- ▼ **In all instances it is essential to build & maintain sustainable relationships, cont'd**
- ▼ If working with a construction manager (CM):
 - Have the CM control both budget & schedule together, but keep on top of it
 - Fix materials PO's, & be vigilant in the case of "passed along" increases
 - Contract with subs as soon as possible & properly. No signed quotes
 - Incentives labour, especially for overtime, if the schedule tends to slip

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- **In all instances we recommend a monthly “budget status report” which identifies:**
 - Original budget, current budget & variance
 - Reasons for variance
 - In-house site management
 - Extent of committed costs
 - Actual & percentage cost to date
 - Cost to complete (check this, especially %)
 - Holdback retained & released status

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➤ Schedule Control

- Have a schedule update, & study it. If you have in-house capability get it in readable logic format
- If completion date is slipping, understand why & what the cost of acceleration is. Is it worth the significant extra funds to achieve early completion
- The earlier you know of a delay, the better chance you both have of addressing it
- Timing the start helps minimize schedule problems (do not start to excavate in November)
- Fast track generally means more costs, especially today

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Budget Status				Committed Status				Costs Incurred Status				Holdback Status		
CONSTRUCTION COST SUMMARY	PREVIOUS BUDGET	VARIANCE	CURRENT BUDGET	TRADE CONTRACTOR	CONTRACT AMOUNT	PURCHASE ORDER	COMMITTED AMOUNT	% COST TO DATE	COST TO DATE	PREVIOUS CERTIFIED	CERTIFIED THIS MONTH	COST TO COMPLETE	HOLDBACK RETAINED	HOLDBACK RELEASED
DIV 0 - FEES AND COST PRIOR	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 1 - GENERAL REQUIREMENTS	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 2 - SITE WORK	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 3 - CONCRETE	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 4 - MASONRY	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 5 - METALS	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 6 - CARPENTRY	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 7 - MOISTURE PROTECTION	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 8 - DOORS & WINDOWS	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 9 - FINISHES	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 10 - SPECIALTIES	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 11 - EQUIPMENT	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 12 - FURNISHINGS	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 13 - SPECIAL CONSTRUCTION	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 14 - CONVEYING SYSTEMS	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 15 - MECHANICAL	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
DIV 16 - ELECTRICAL	0	0	0	0	0	0	0	0.00%	0	0	0	0	0	0
TRADE TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONTINGENCY	0	0	0											
CONTRACT TOTALS	0	0	0	0	0	0	0		0	0	0	0	0	0
		0			FROM CASHFLOW		% COMMITTED		0			0	0	NET HOLDBACK
COST PER S.F.			\$0.00											
COST PER UNIT			\$0.00											

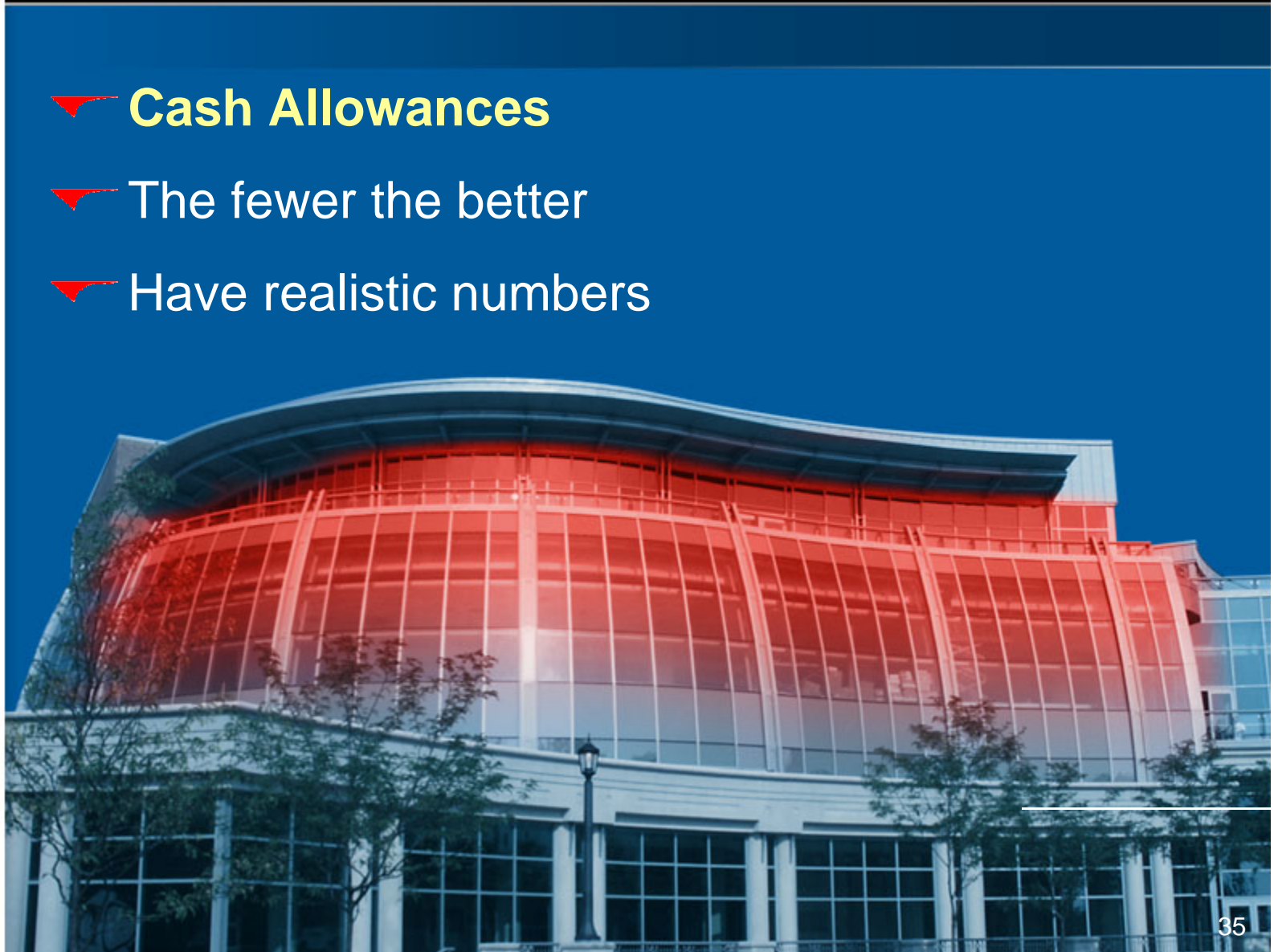
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Security

- ▶ Bonding is becoming an increasingly expensive Risk Management tool, not just because of its cost but because of trade pressures
- ▶ Project insurance needs more administration & monitoring today, & it is also an increased significant cost
- ▶ Be knowledgeable about consultant liability insurance

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- **Cash Allowances**
- The fewer the better
- Have realistic numbers



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- **Contingencies**
- Contingency is really just “profit at risk”
- Develop a logical contingency plan
- Escalation contingency – how much is enough?
- Hold your design team accountable – this will save contingency

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➤ Conclusion

- The Public Construction has changed considerably – be prepared
- Construction is an increasingly risky business. Know your risk tolerance
- Prioritize “Cost Certainty” versus “Cost Minimization”



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- **Conclusion, cont'd**
- Time is the enemy of cost control. Understand your schedule
- An owner should know the project status at any point
- The owner / construction partner relationship is built on trust but solidified by full disclosure



Discussion Period

Thank you

Presented by

J. Liam Murray

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