

# Association for Advancement of Cost Engineering – Toronto Section

## **Developing Value Based Decision Criteria for Value Management Studies**

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# What is Value Management?

- deliberate effort to reduce costs or improve value without sacrificing quality or performance
- a formal, explicit and visible approach to problem solving
- a structured methodology using a formal 5 phase 'Job Plan'
- a multi-disciplinary team effort that exploits the wide range of project team experience and expertise

# Value Management Principles

- there is always room for improvement
- more creative ideas are generated by groups than individuals
- a methodical approach produces better results
- everyone is basically creative
- project life cycle costs should be as low as possible

# Value Management Program Objectives

- optimize value within a given budget
- provide documented proof of a search for value
- validate solutions to space program & functional requirements
- encourage a 'Design to Cost' approach
- support the Project Management team by:
  - challenging all design criteria
  - providing an objective design evaluation
  - furthering inter-disciplinary co-ordination
  - accelerating the design process
  - indirectly validating the cost estimate
  - minimizing cost and time overruns

# The Value Management Job Plan

Phase 0 Planning/Orientation

**Phase 1 Information/Function Analysis**

**Phase 2 Speculation/Creativity**

**Phase 3 Analysis/Evaluation**

**Phase 4 Development/Study**

**Phase 5 Presentation/Reporting**

Phase 6 Implementation

# The Challenge

- Design option selection decisions that are based solely on cost ignore potential functional and aesthetic impacts.
- Designers and users are often skeptical of the VM process.

***Is it really value management,  
or just 'slash and burn'?***

# Developing Decision Criteria

- Identify and list project stakeholders
- Identify stakeholder success requirements
- Group success requirements and eliminate duplicates
- Restate success requirements as decision criteria
- Develop weighting factors for 'decision criteria'
- Develop scoring strategy for 'decision criteria'
- Prepare evaluation matrix

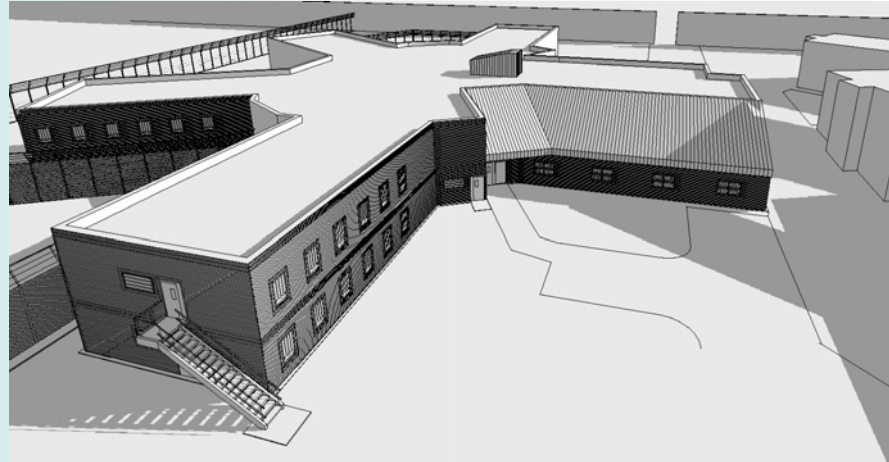
# Stakeholders

- Stakeholders are anyone who will be affected by the design, construction and/or operation of the facility in question
- Stakeholders often include owners, designers, builders, users, neighbours, authorities, etc.



# Case Study:

## Saskatchewan Penitentiary Maximum Security Living Unit



- 3,600 m<sup>2</sup> GFA, approximately \$13,000,000 (2004 \$)
- Houses 24 inmates in each of 4 independent two level pods complete with separate dining, recreation and administrative support facilities

## **Value Management Proposal Evaluation**

<b>Evaluation Criteria</b>
<b>Capital Cost</b>
<b>Operating and Maintenance Cost</b>
<b>Staff Safety and Security</b>
<b>Inmate Safety</b>
<b>Reliability</b>
<b>Logistics/Daily Operations</b>
<b>Aesthetics</b>
<b>Integration/Transition</b>

# **Value Management Proposal Evaluation**

**Code Compliance**      **Meets Requirements**  
 Yes     No

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# Value Management Proposal Evaluation

Meets Requirements

Code Compliance     Yes     No

Evaluation Criteria	Option Score	Weighting Factor	Weighted Rating
Capital Cost			
Operating and Maintenance Cost			
Staff Safety and Security			
Inmate Safety			
Reliability			
Logistics/Daily Operations			
Aesthetics			
Integration/Transition			

TOTAL

# Weighting Factors

- 1 no importance
- 2 not very important
- 3 important
- 4 very important
- 5 extremely important

Each team member rates each decision criteria and all scores are added together to yield weighting factor

# Value Management Proposal Evaluation

**Meets Requirements**

**Code Compliance**     Yes     No

Evaluation Criteria	Option Score	Weighting Factor	Weighted Rating
Capital Cost		X 30	=
Operating and Maintenance Cost		X 25	=
Staff Safety and Security		X 30	=
Inmate Safety		X 25	=
Reliability		X 26	=
Logistics/Daily Operations		X 30	=
Aesthetics		X 21	=
Integration/Transition		X 13	=
<b>TOTAL</b>			

# Scoring Strategy

- 1 very much worse than baseline
- 2 much worse than baseline
- 3 moderately worse than baseline
- 4 slightly worse than baseline
- 5 *equal to baseline***
- 6 slightly better than baseline
- 7 moderately better than baseline
- 8 much better than baseline
- 9 very much better than baseline

## Value Management Proposal Evaluation

**Meets Requirements**

**Code Compliance**     Yes     No

Evaluation Criteria	Option Score (1-10)	Weighting Factor	Weighted Rating
Capital Cost	5	X 30 =	150
Operating and Maintenance Cost	5	X 25 =	125
Staff Safety and Security	5	X 30 =	150
Inmate Safety	5	X 25 =	125
Reliability	5	X 26 =	130
Logistics/Daily Operations	5	X 30 =	150
Aesthetics	5	X 21 =	105
Integration/Transition	5	X 13 =	65
<b>TOTAL</b>			<b>1,000</b>



## VALUE MANAGEMENT PROPOSAL SUMMARY & ACTION PLAN

**Project:** New 96 Bed Maximum Living Unit

**Date:** November 2004

**Location:** Saskatchewan Penitentiary

No.	Description:	Baseline Cost	Capital Savings	Operating Savings	Rating	Comments
	<b>Architectural Items:</b>					
12 A	provide pitched roof in lieu of interstitial space, provide taller mechanical space	-	-		1049	rejected
16 A	provide fibreglass inmate cell furniture	273,600	19,200	*	1443	estimate validation required
18 A	clarify design requirements for exterior windows and consider smaller windows	-	-			CSC direction required
28 A	consider exterior cladding alternatives:					
28.1 A	- stucco	823,830	220,000		916	
28.2 A	- vinyl siding	823,830	270,000			rejected
28.3 A	- shingles	823,830	-			rejected
28.4 A	- concrete block	823,830	200,000	*	1069	
28.5 A	- precast concrete	823,830	144,000		1085	
28.6 A	- paint	823,830	-			rejected
28.7 A	- metal siding	823,830	160,000			rejected
45 A	move boiler room to basement, create crawl space for duct distribution					further study required
55 A	consider hardened concrete floor finish	76,170	18,135		891	
58 A	consider gunport alternatives	108,000	36,000	*	1060	
65 A	consider retaining construction sally-port	10,000	10,000	*	971	
71 A	provide carport for escort vehicles	-	(20,000)	*	1025	
	<b>Total - Architectural Items:</b>		<b>245,200</b>			

Questions?