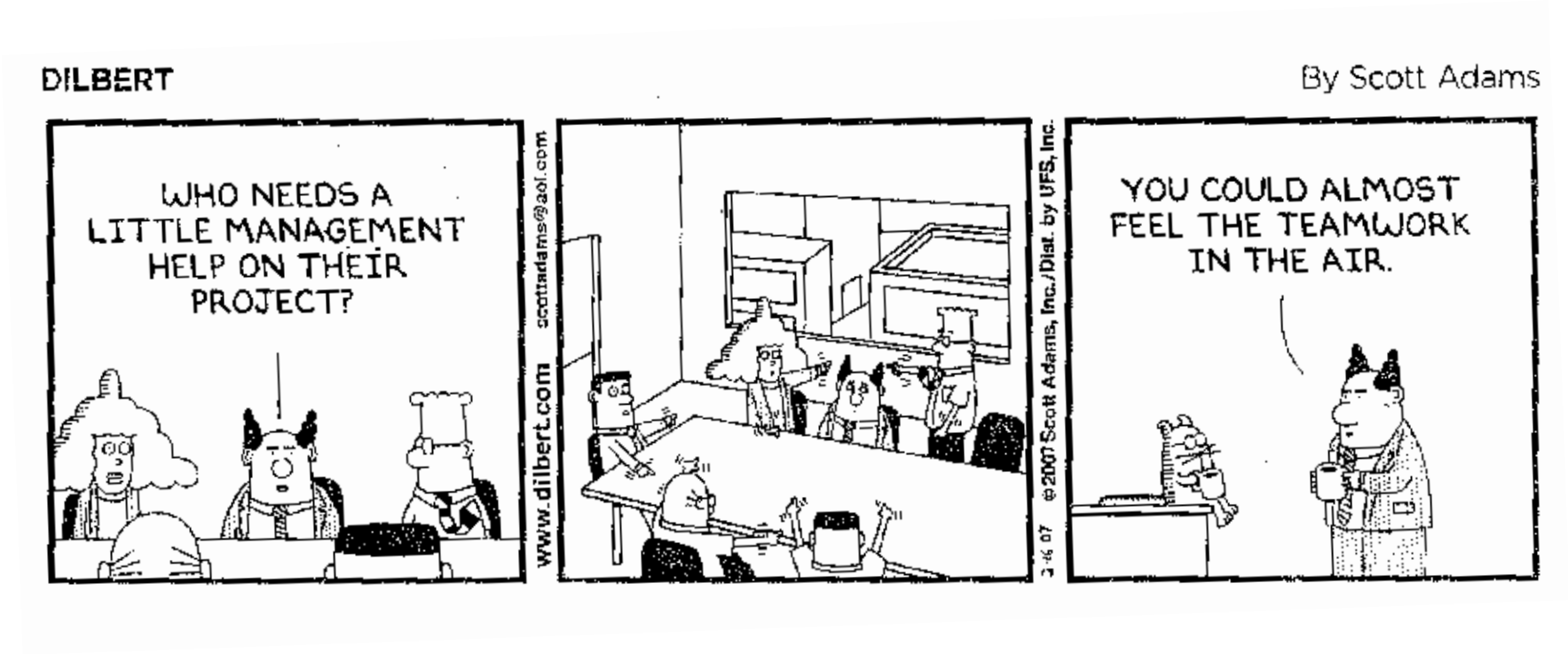
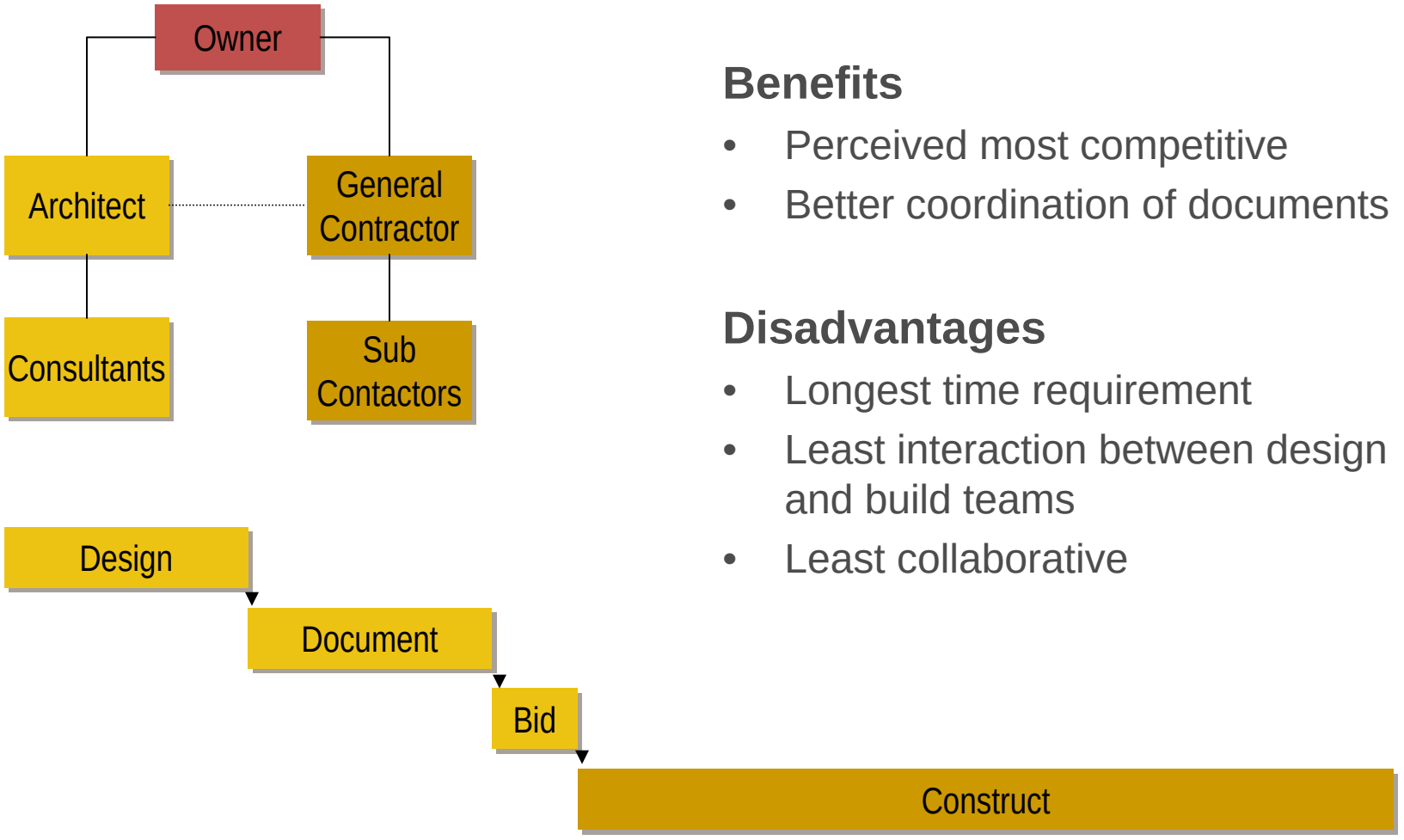
Integrating Project Team Members with a New Project Approach

What the world needs is *teamwork!*



Project Delivery Options

Traditional/Design-Bid-Build



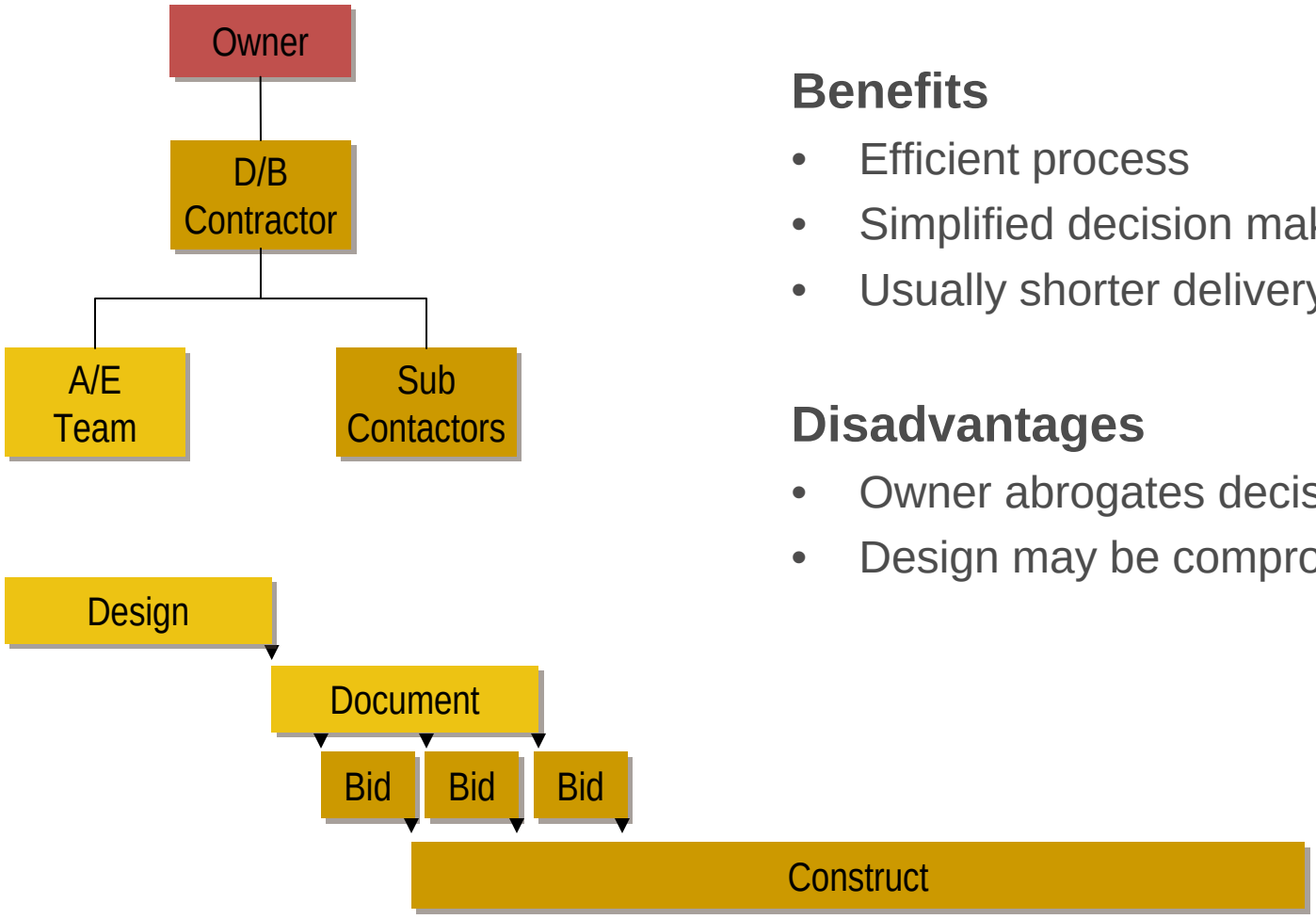
Benefits

- Perceived most competitive
- Better coordination of documents

Disadvantages

- Longest time requirement
- Least interaction between design and build teams
- Least collaborative

Design-Build



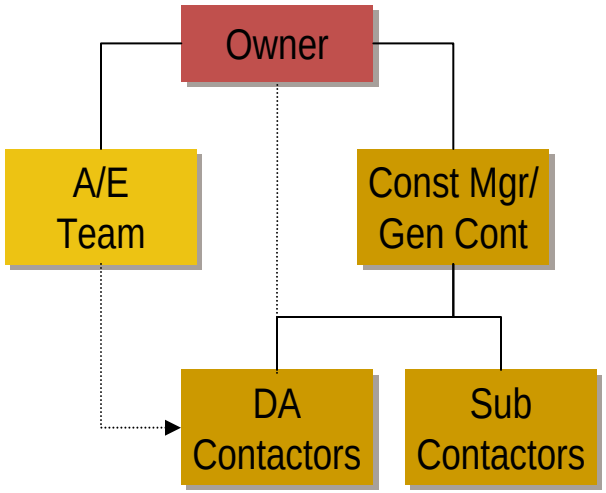
Benefits

- Efficient process
- Simplified decision making
- Usually shorter delivery time

Disadvantages

- Owner abrogates decision making
- Design may be compromised

Design-Assist

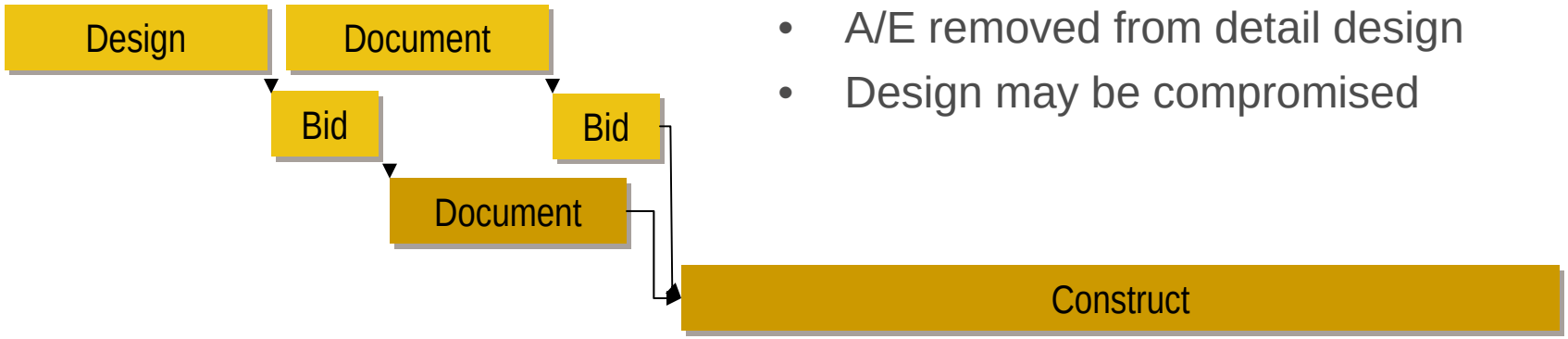


Benefits

- Makes (sub)contractors responsible for documentation and coordination
- Simplified decision making
- Usually shorter delivery time

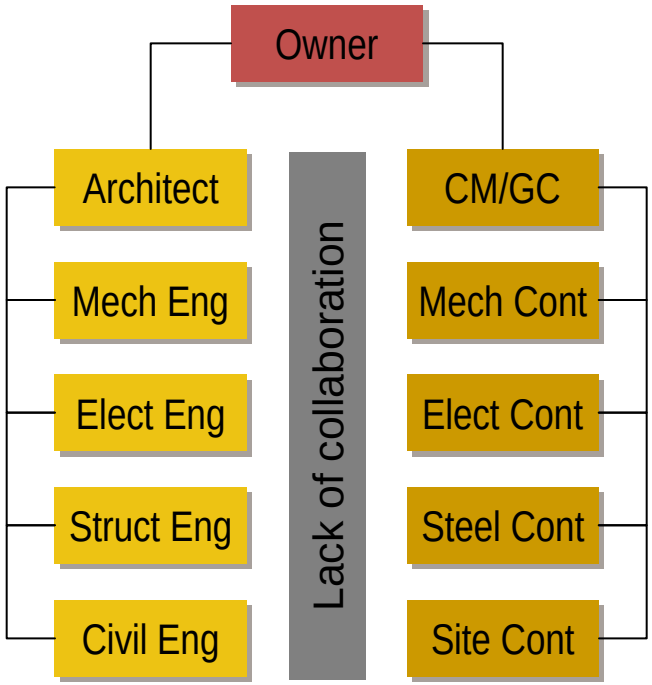
Disadvantages

- A/E removed from detail design
- Design may be compromised

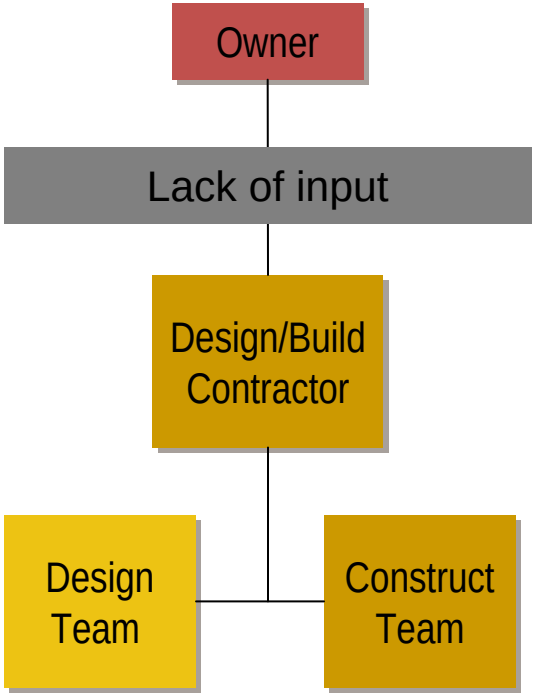


Shortcoming in All Approaches

- Compromise between collaborative, efficient team and protecting the owner's interests



OR



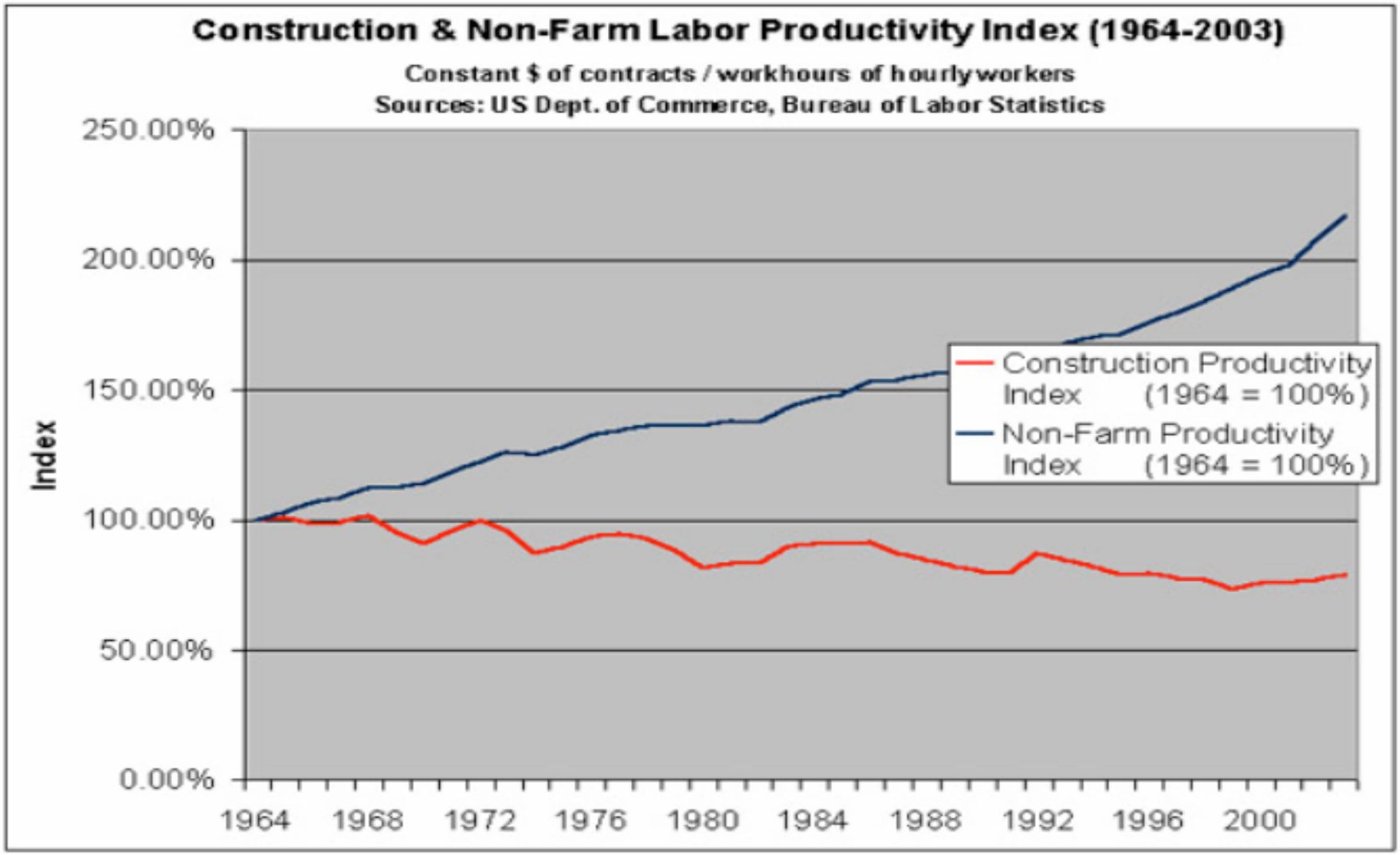
Efficiency Lost to Wasted Time

Manufacturing

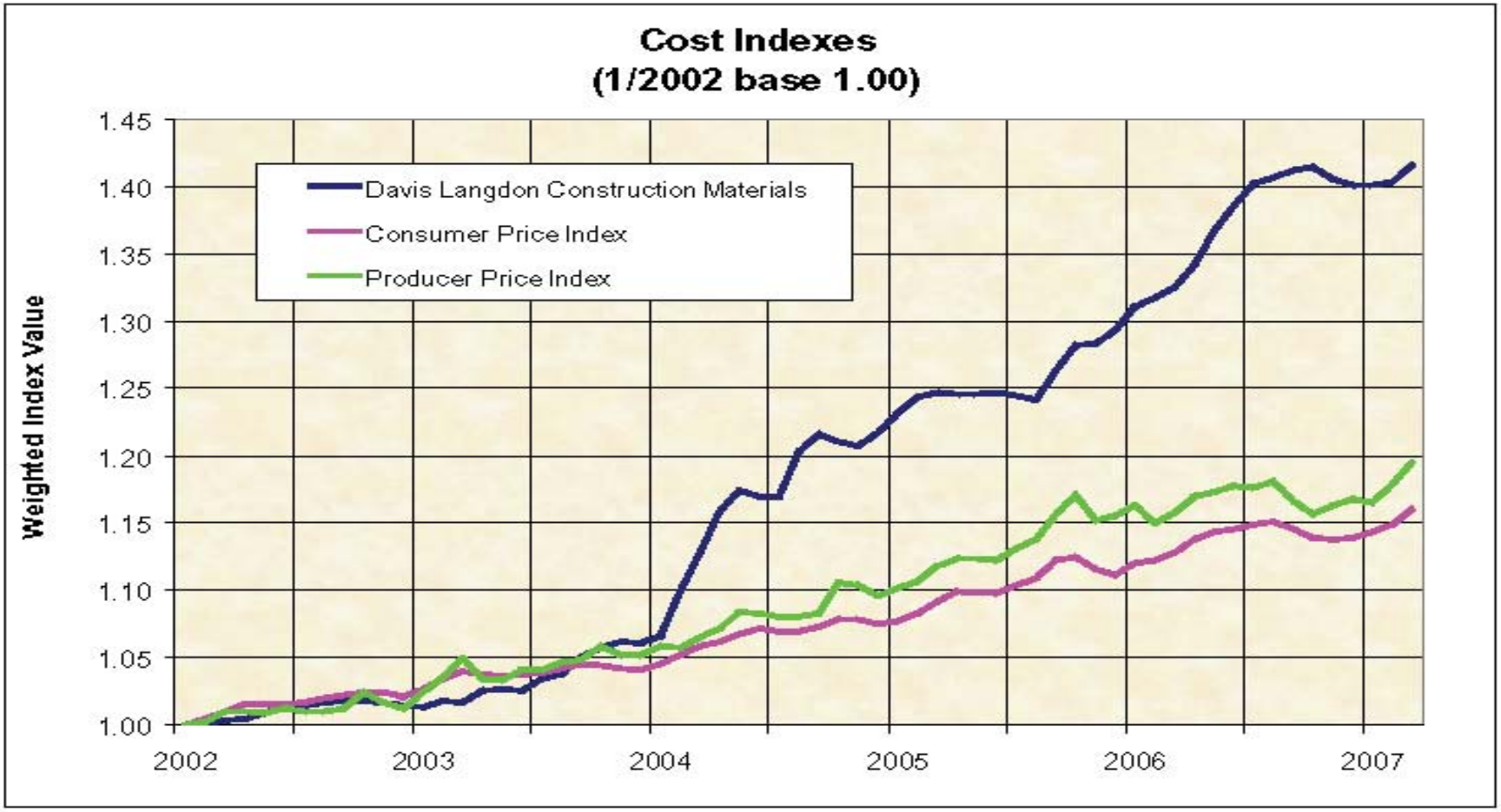
Construction

Source: Construction Industry Institute 2004

Construction Productivity Declining

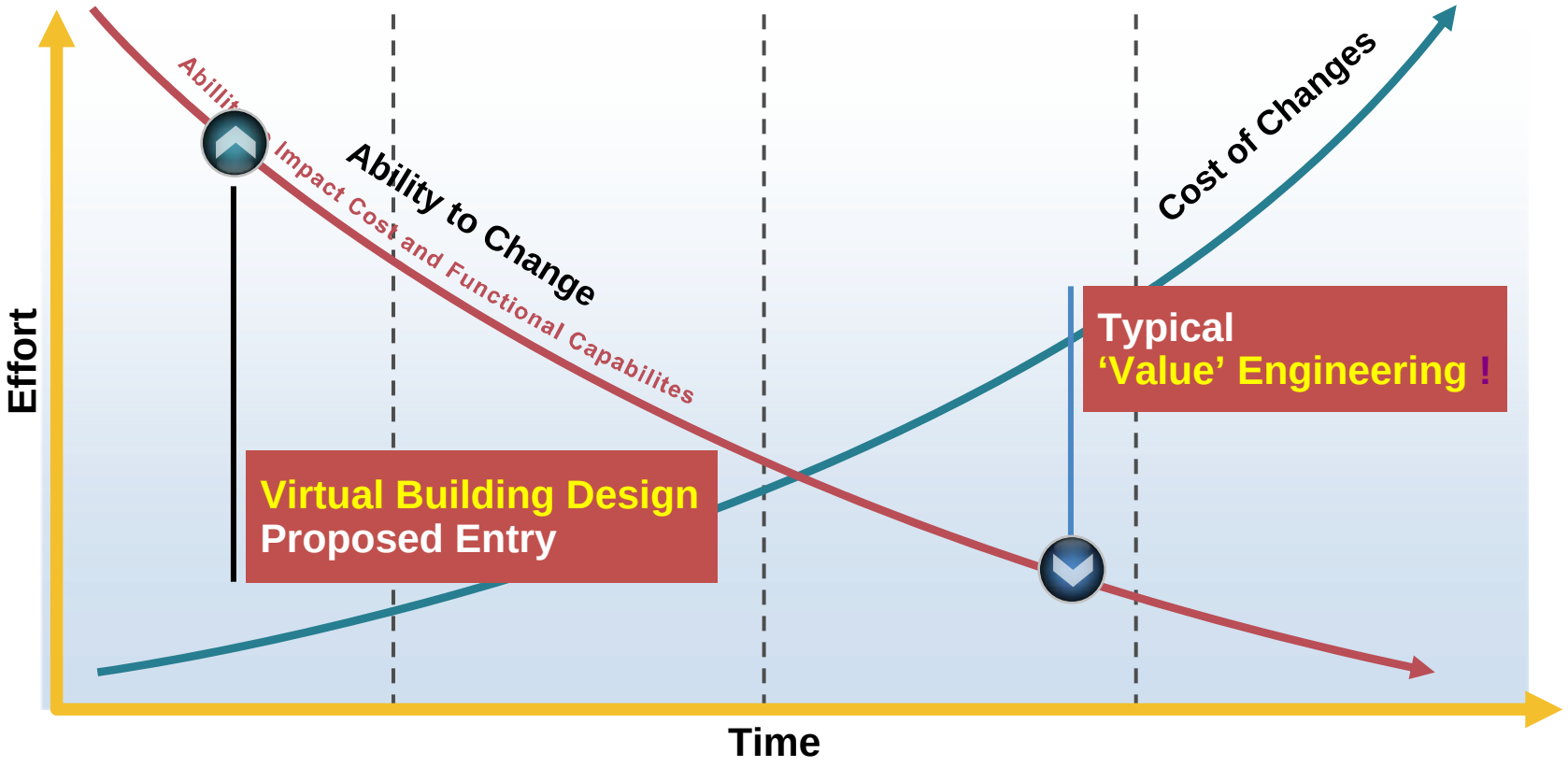


Hospital Construction Cost Escalation



Source: Davis Langdon OSHPD Report, 2007

Cost vs. Influence



Lifecycle cost

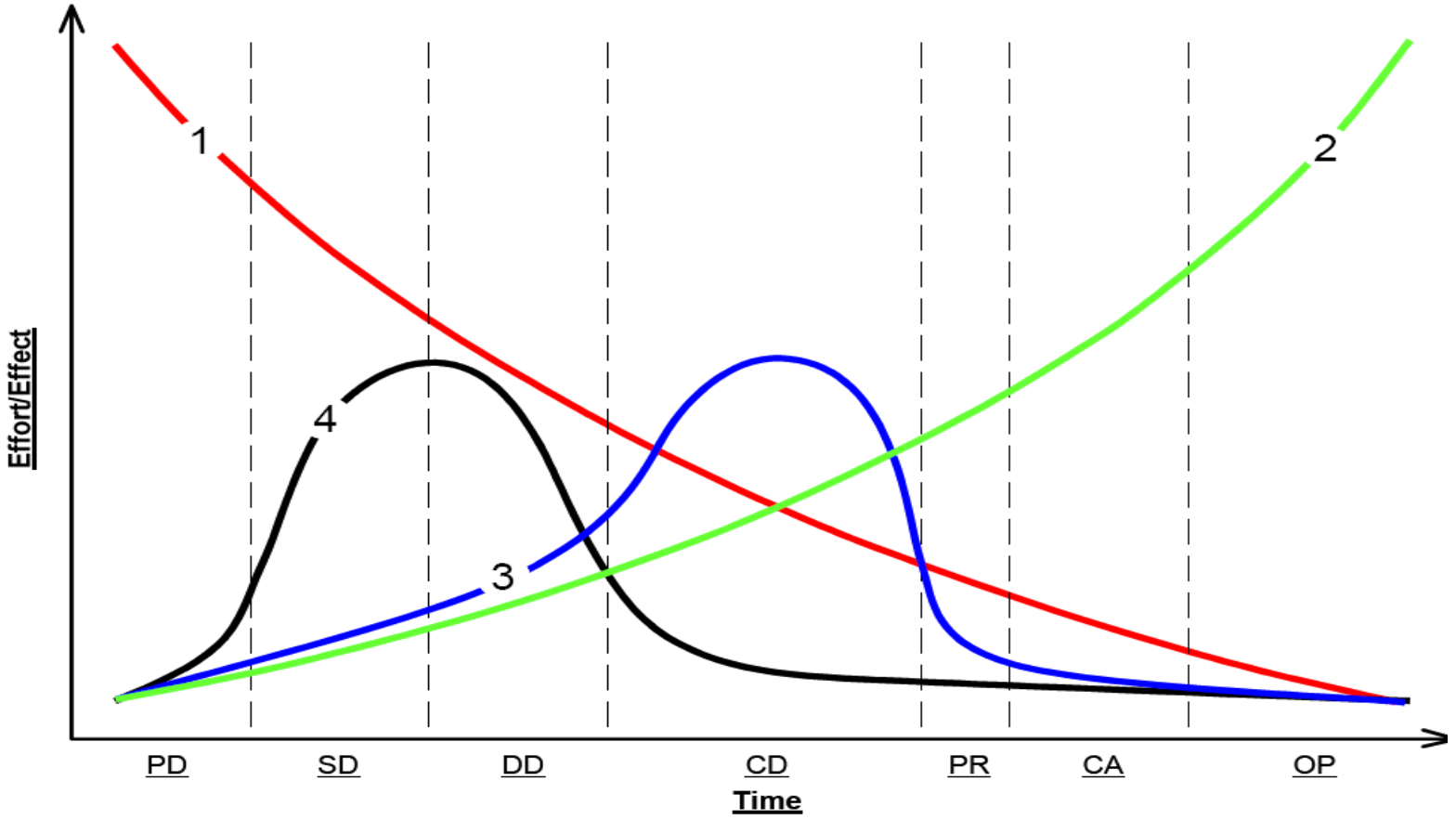
25%

Strategy → Design → Construction

75%

Operation

Need to Move Knowledge Forward



1 Ability to impact cost and functional capabilities
2 Cost of design changes
3 Traditional design process
4 Preferred design process

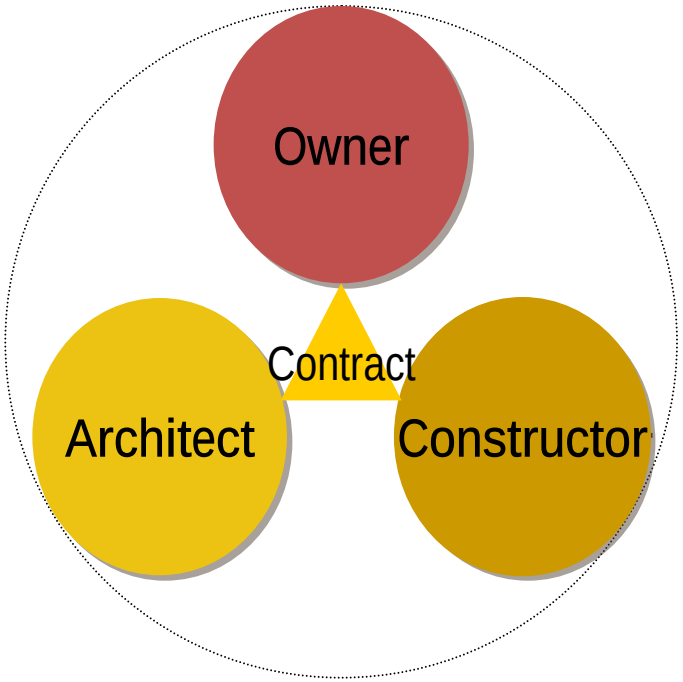
PD: Pre-design
SD: Schematic design
DD: Design development
CD: Construction documentation
PR: Procurement
CA: Construction Administration
OP: Operation

Integrated Project Delivery Approach

Attributes of Integrated Delivery

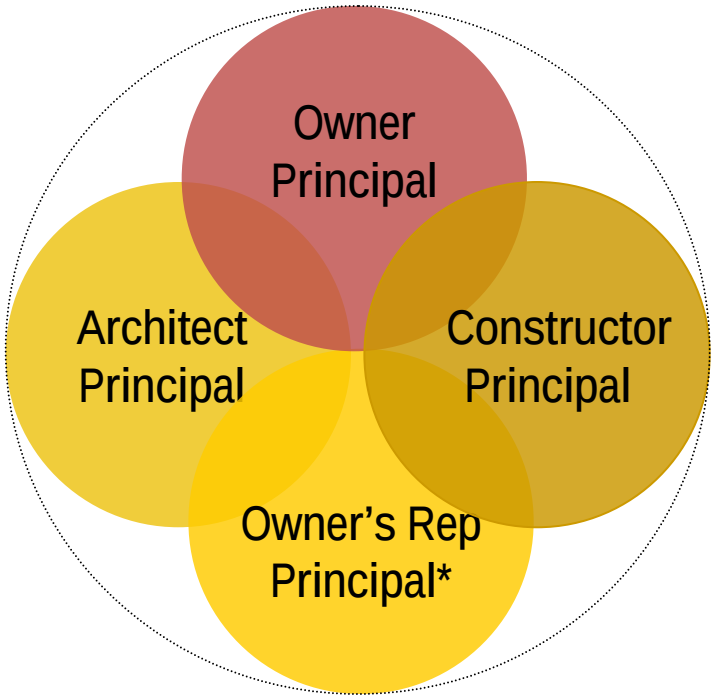
- Structure of Contract
- Governance/Management of Project
- Early Integration of Knowledge
- Focusing the Process
- Introducing Lean Principles
- Aligning Incentives Through Risk/Reward

Single Contract Between Parties



- Single contract binds Owner, Architect and CM/GC
- Consultants and subcontractors jointly selected and “joined”
- No separate General Conditions
- Establishes joint project governance

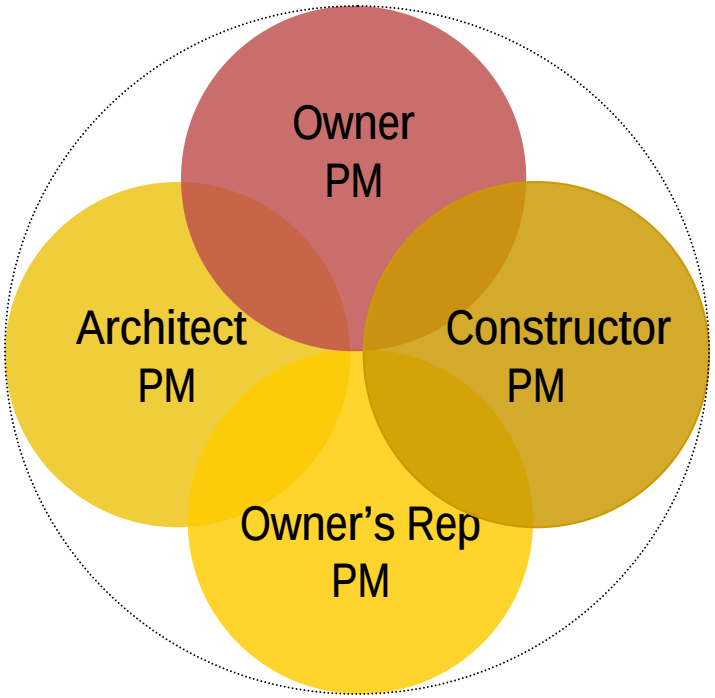
Integrated Project Executive



*Optional

- Includes senior leadership of each organization
- Empowered to make key decisions
- Ultimately responsible for project
- Approves schedule, budget and additional members of team

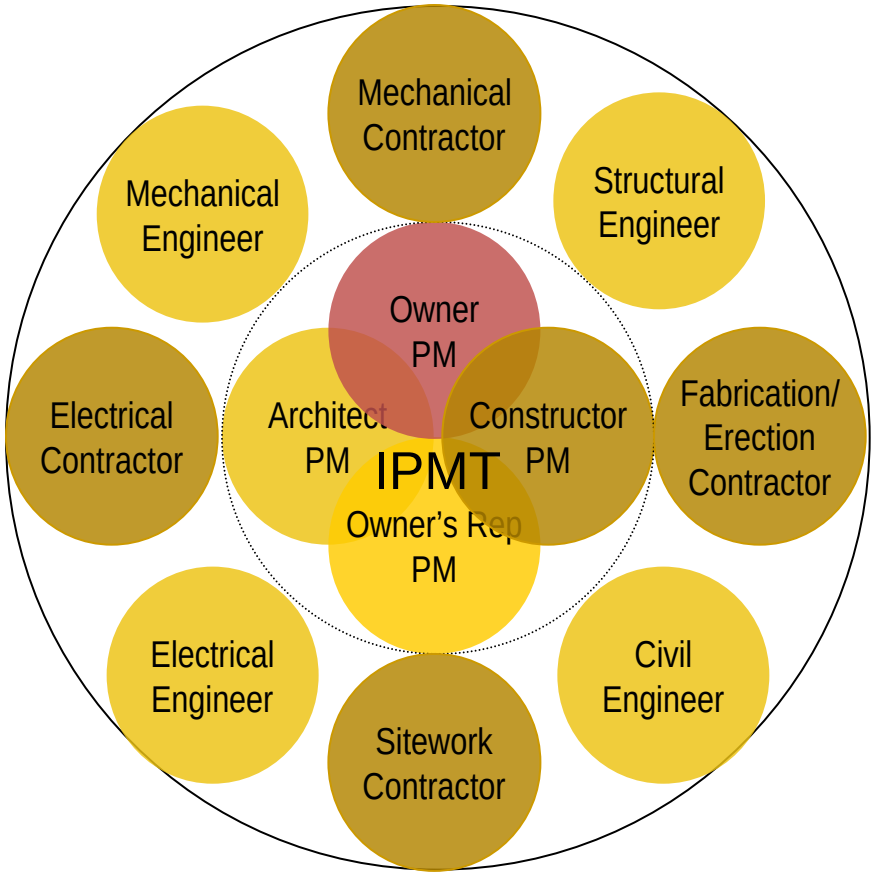
Integrated Project Management Team



IPMT

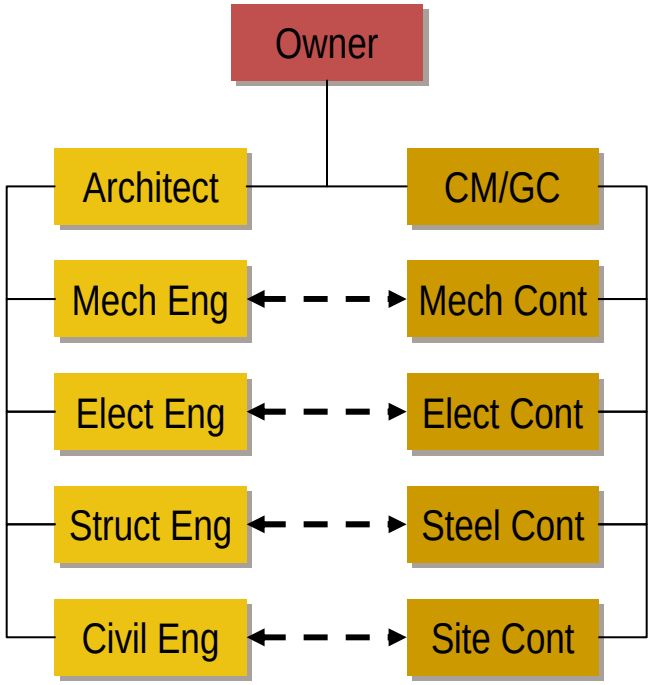
- Includes project managers from each organization
- Responsible for managing the project and its participants
- Prepares schedule, budget and key decisions for Executive action

Integrated Project Delivery Team



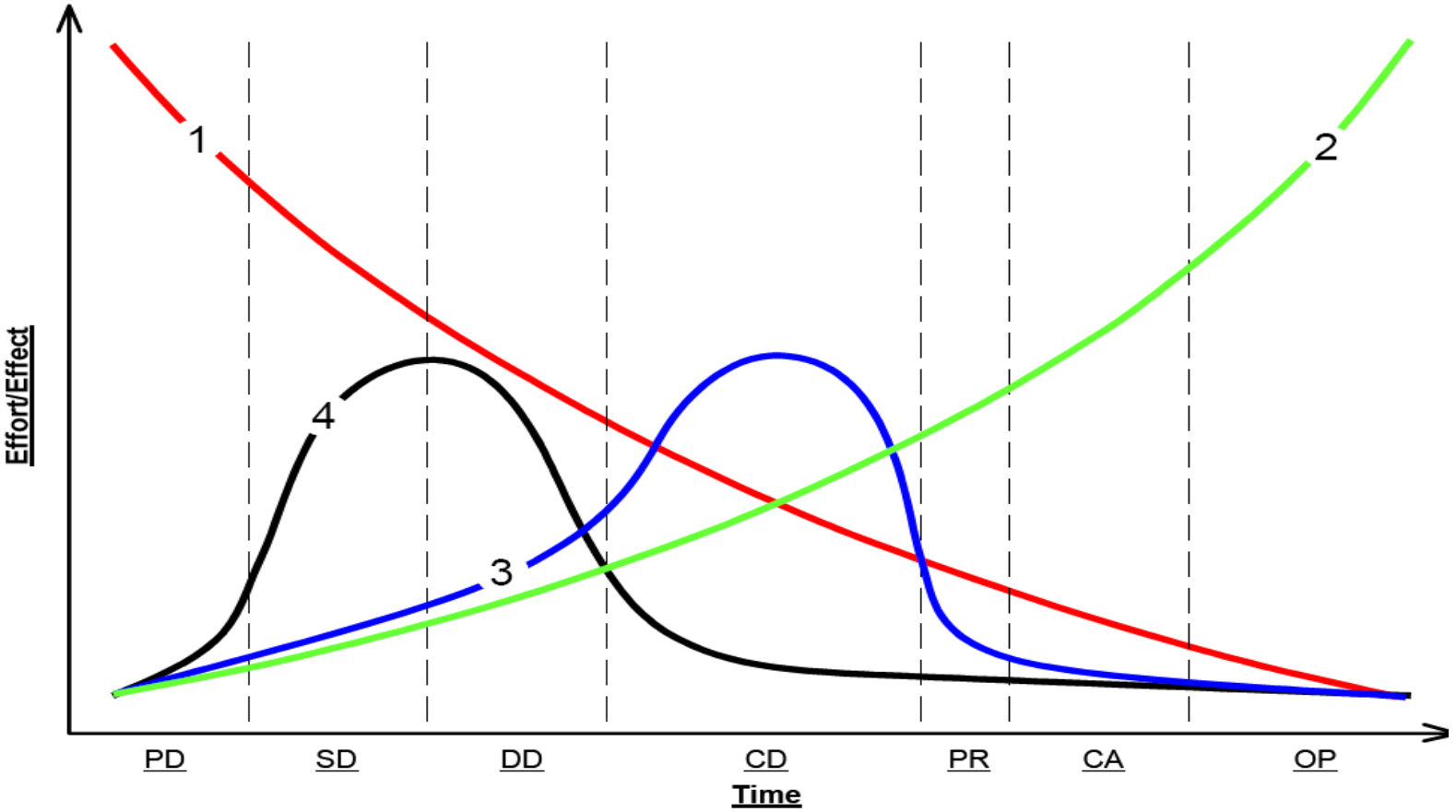
- Includes Integrated Project Management Team and key consultants and contractors
- Responsible for producing project
- Utilizes "pull" planning for tasks
- Creates special focus teams to address areas of responsibility

Integrated Collaborative Team



- Creates true team collaboration
- Requires designers and constructors to work together to recommend best solutions
- Expedites coordination and clarification
- Zero RFI’s

Moves Knowledge Forward



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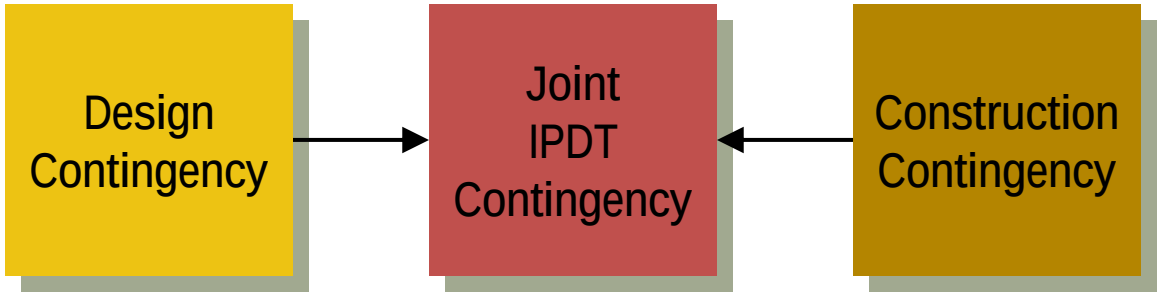
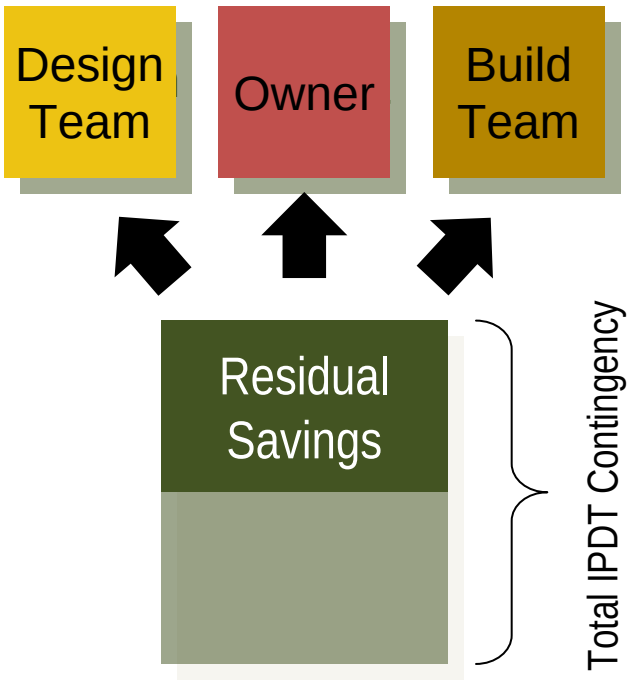
Combined Contingencies



- Combined design and construction contingencies induce sharing of responsibilities
- Owner may retain separate contingency for changes in scope

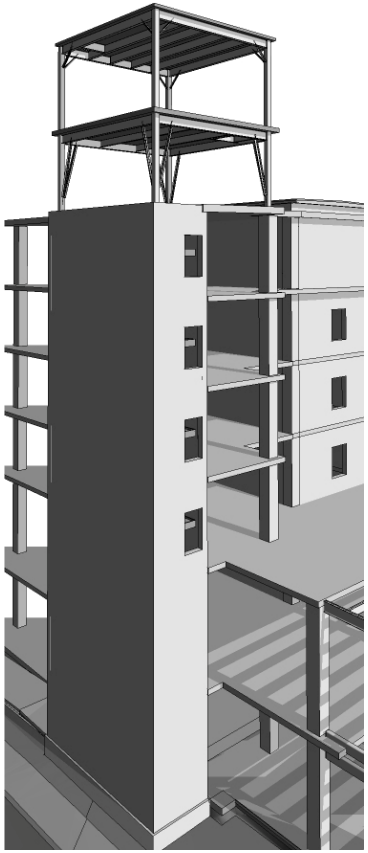
Team Members Share Success



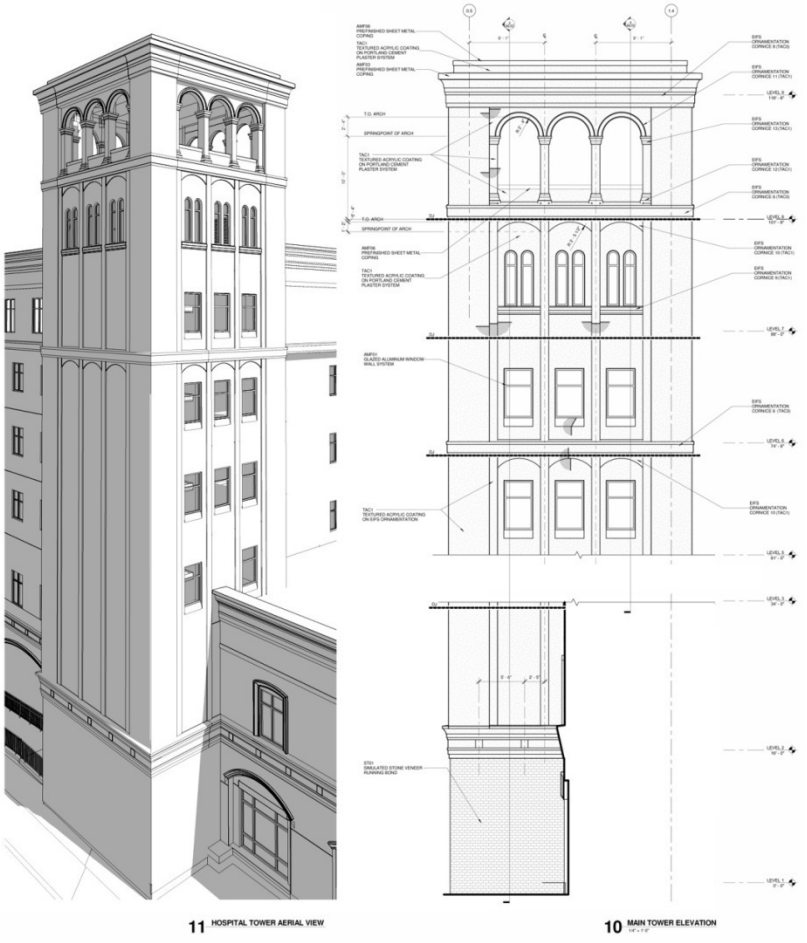
- Owner, design team and construction team share in savings
- May be capped for design and construction teams
- May include savings from cost of work

Integrated Building System Design

Building Information Model

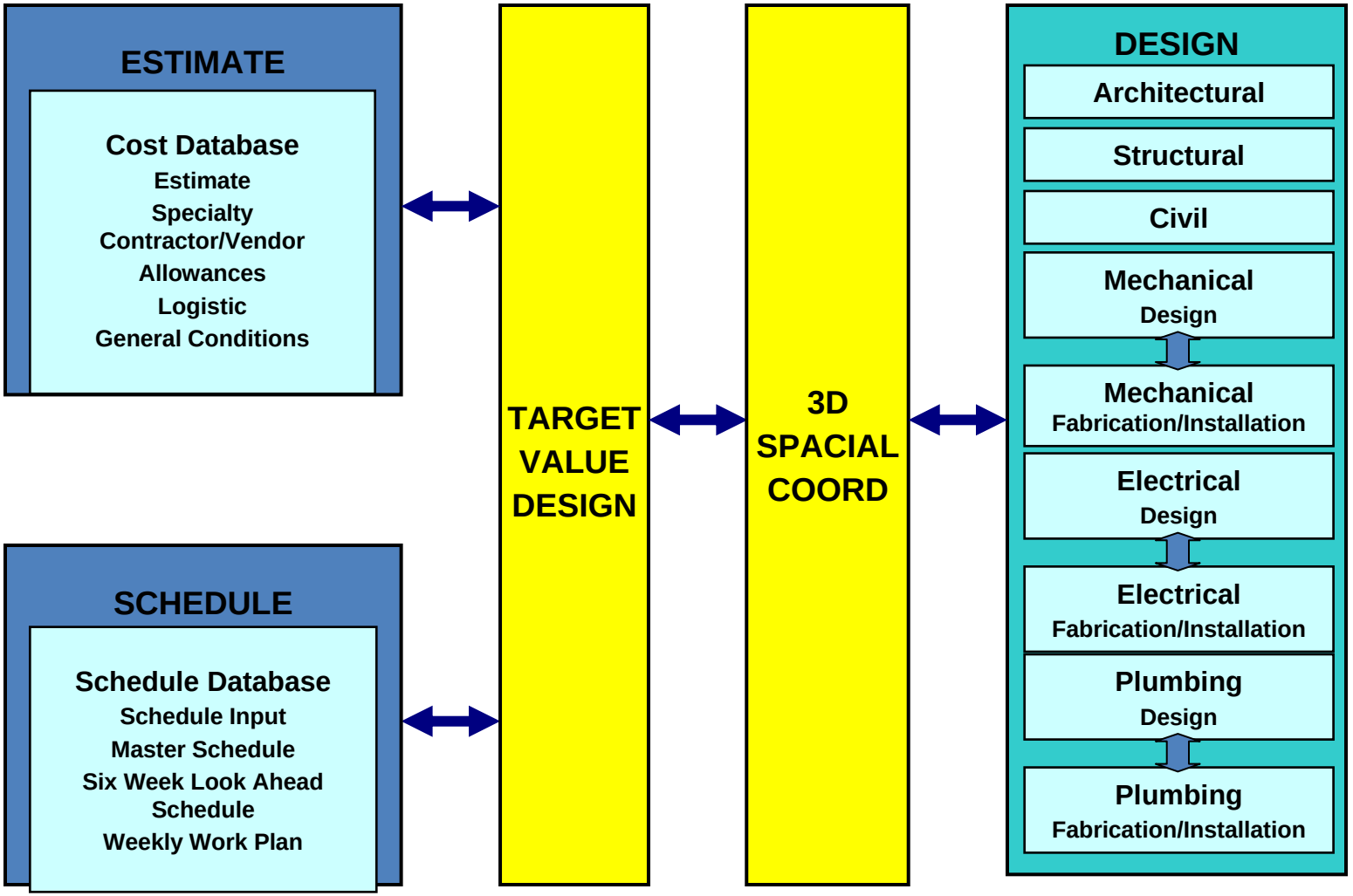


Structural Model



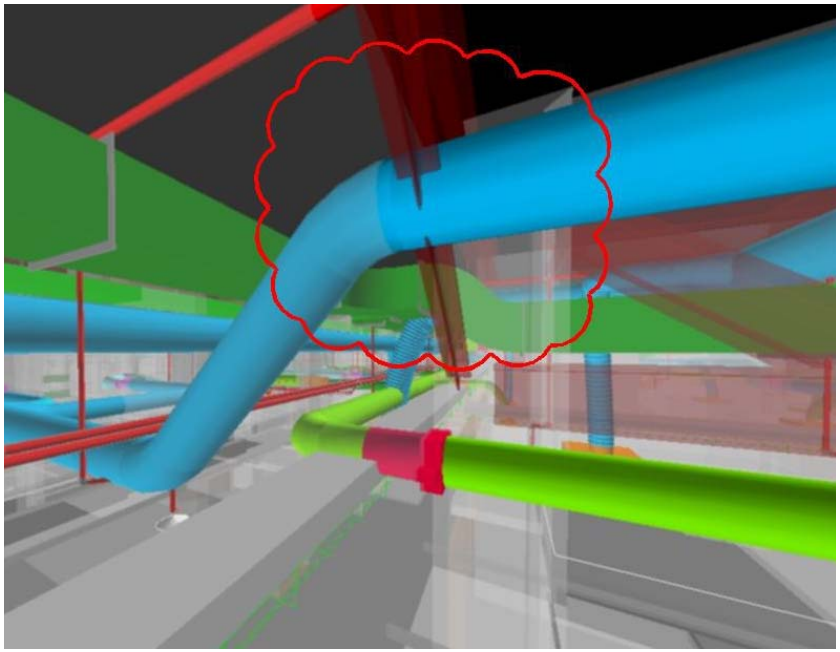
Architectural Model and Details

BIM Lifecycle Model



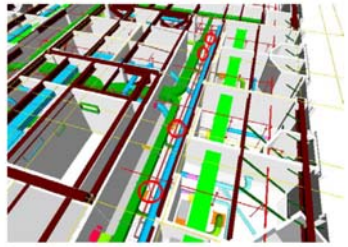
Mechanical

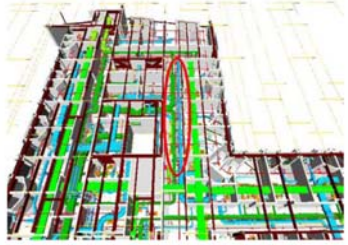
Mechanical

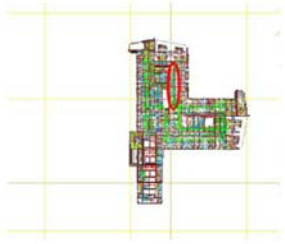


Turner Construction Company
AECMS - Virtual Design and Construction
Project: Mills Peninsula Hospital, Burlingame, CA
Clash Report # Preliminary 001 January 10, 2007

Clash#:	0007 Mills Peninsula Hospital	
Status:	E	
Location:	AREA-Level Gridline: GRID	
Clash between:	Mechanical Piping	Fire Protection
First reported:	2007-01-10	
Responsible:		
Action:		

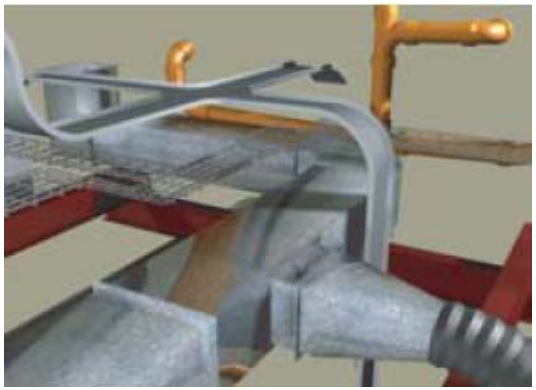






Mechanical

Ductwork



Shop Drawing

Fabrication

Piping

Shop Drawing

Summary