



Reducing Risks in Construction Programs *(or How to Keep Our Jobs)*

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There are three areas we focus on to reduce the risk involved on a campus project:

1. Understanding the global marketplace.
2. Using a phase-based risk identification model.
3. Choosing the right design-construction approach.

1. Knowing the global marketplace



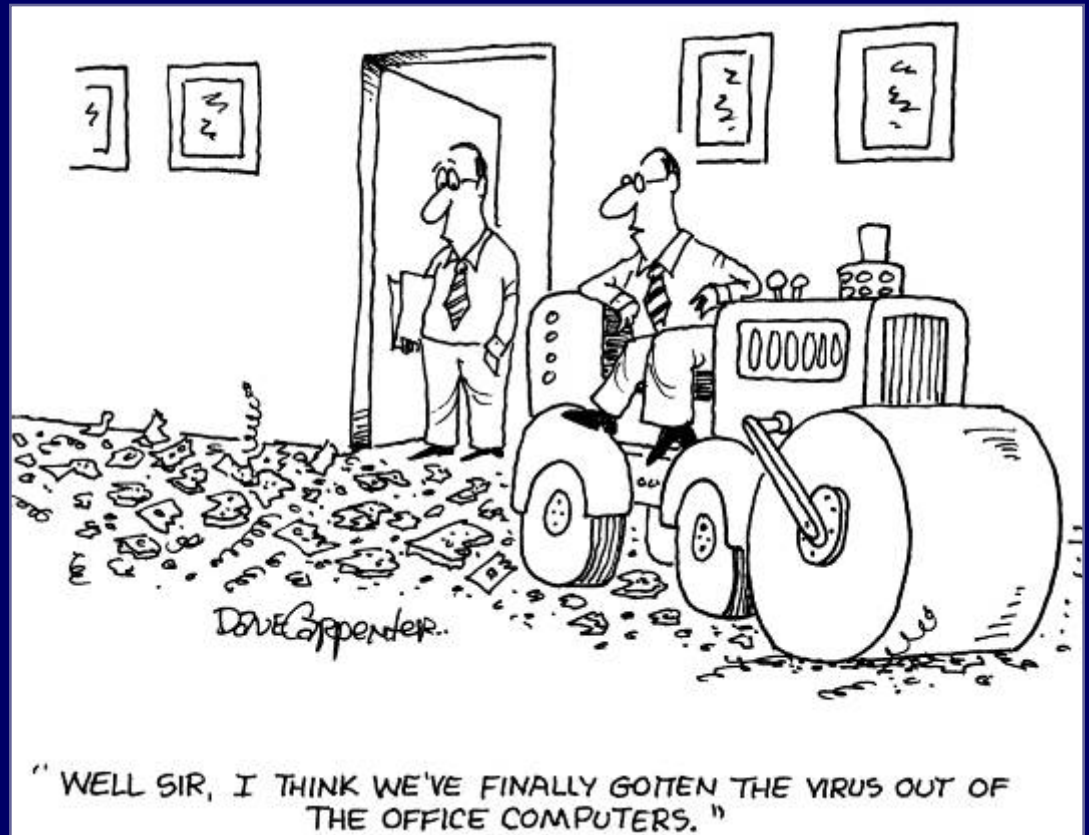
2. Phase-based risk identification model

- Identify all risks involved with each phase
 - Feasibility/Programming
 - Design
 - Construction
 - Post-construction



3. Choosing the best design-construction approach methods

- Traditional Design-Bid-Build
- CM at Risk
- Design-Build
- Bridging Design-Build



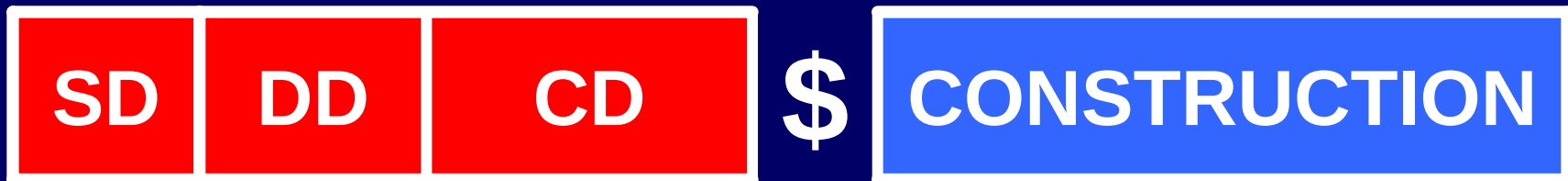
Comparing each
project delivery
method based
on risk



**“WHY DID I BECOME AN ARCHITECT?”
WELL IN TRUTH JUST THREW A DART AT
THE FIRST PAGE IN THE DICTIONARY BUT
BECOMING AN AARDVARK WAS TOO DIFFICULT.**

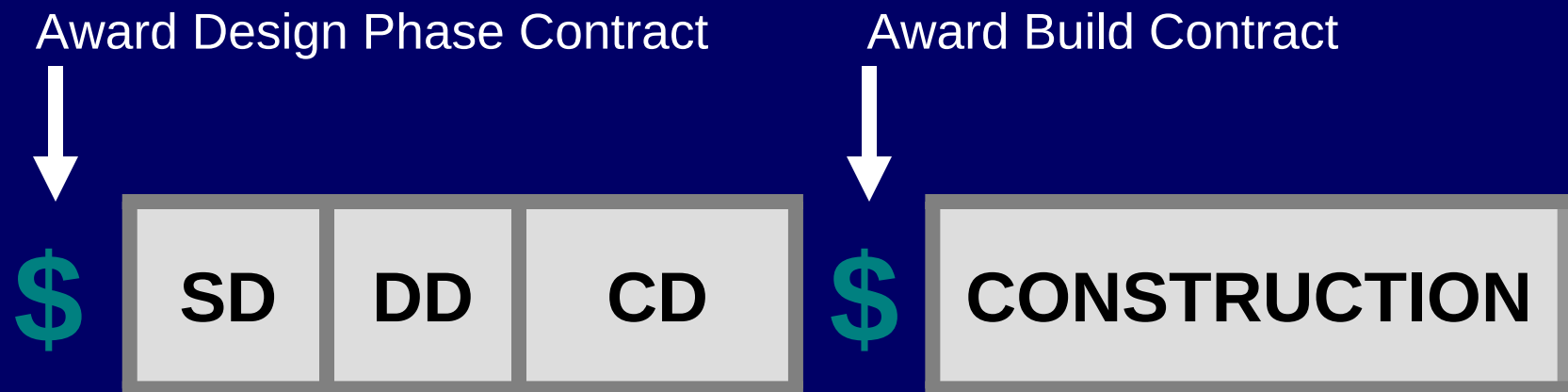
Traditional Design-Bid-Build

- Highest risk on scope vs. budget



CM @ Risk

- Moderate risk on scope vs. budget



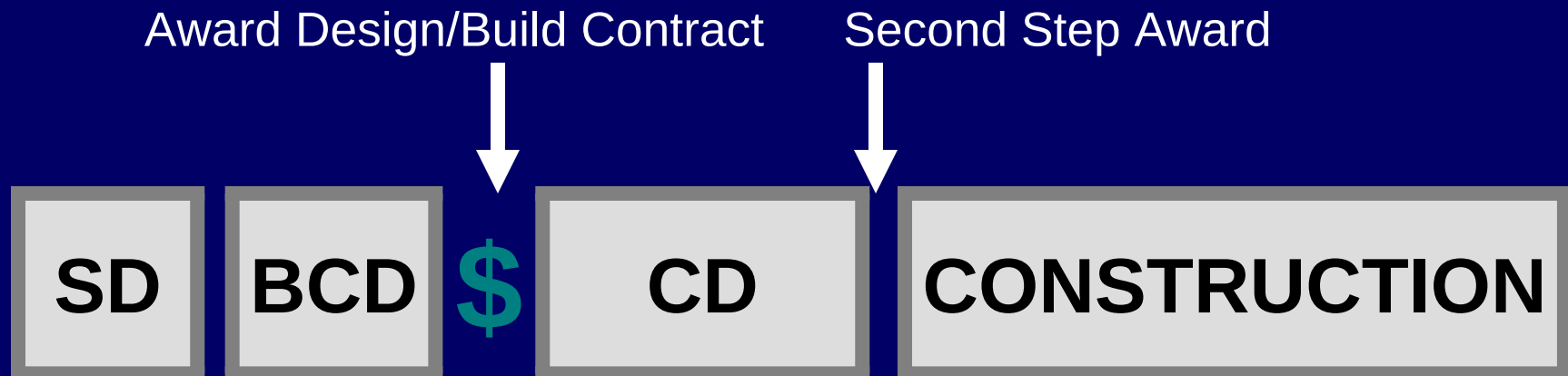
Design-Build

- Lowest risk on meeting budget
- Highest risk on meeting scope



Bridging Design-Build

- Moderate risk on meeting budget
- Moderate risk on meeting scope



The implementation of Poly Canyon Village using a risk reduction process: Bridging Design-Build Approach



Poly Canyon Village - Student Housing

Project Scope

- Development of 43 acres adjacent to the campus core
- 2,700 beds in apartments w/ 4-6 SRO bedrooms, 2 bathrooms, kitchen living room and dining area.
- Relocation of the Beef Unit, Animal Nutrition Center, Meat Processing Center and Tournament of Roses Float Building



Poly Canyon Village - Student Housing

Project Scope

- Retail – Jamba Juice, Einstein's Bros. Bagels, Peete's Coffee, convenience store, postal services and copy center
- Recreational – leisure pool, workout room, rec room w/ pool tables
- Parking – 2-1,000 car parking structures



Poly Canyon Village - Student Housing

Project Budget

- Global and National Influences
- Realistic Target



Poly Canyon Village - Student Housing

Project Schedule

- Only two small delivery windows
 - September 1, 2008
 - September 1, 2009
- Labor – having enough workers 500-800 per day
- Meeting students' expectations



Poly Canyon Village - Student Housing

Feasibility and Concept Study Phase

- Identify the risk issues
 - Having an inexperienced management team
 - Building the wrong product
 - Out of control design
 - Insufficient funds to properly finish the project

Poly Canyon Village -Student Housing

Feasibility and Programming

- How the risks were minimized or eliminated
 - What will make this project a success -
Developing a campus lifestyle not a project
 - Being honest with what you do best - Use a diverse team of campus and external business professionals
 - Design for their culture not yours
 - Choosing the right design and construction process for the project-type - Bridging Design Build

Poly Canyon Village - Student Housing

Design Phase

- Identify the risk issues
 - Poor quality design and engineering drawings
 - Drawings behind schedule
- How the risks were minimized or eliminated
 - Experienced program management
 - Choosing the right design and construction process for the project-type - Bridging Design Build

Poly Canyon Village - Student Housing

Construction Phase

■ Identify the risk issues

- Uncontrollable contractor- initiated change orders or claims
- Uncontrollable university initiated change orders
- Poor construction quality, not built in compliance with the contract documents
- Late completion of construction

Poly Canyon Village - Student Housing

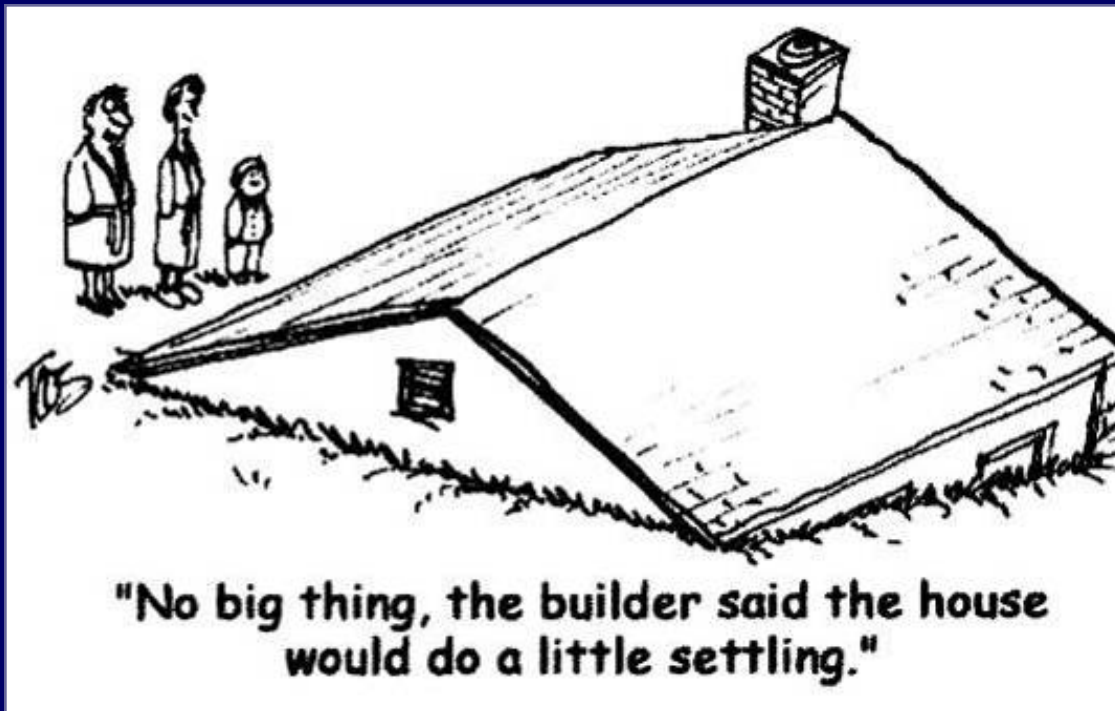
Construction Phase

- How the risks were minimized or eliminated
 - Bridging Design-Build selection process
 - Experienced program management
 - Proactive inspection process
 - Project completion oversight - ProCom Team

Poly Canyon Village - Student Housing

Post-Construction Phase

- Identify the risk issues
 - Design or construction flaws
 - Excessive operating and/or maintenance issues/costs



Poly Canyon Village - Student Housing

Post-Construction Phase

- How the risks were minimized or eliminated
 - Include the operations team in the process during the feasibility and concept design phase
 - Commissioning (LEED)
 - Proactive inspection
 - IOR then a follow-up inspector
 - Weekly State Fire Marshal inspection meetings
 - ADA compliance consultant

Poly Canyon Village - Student Housing

Lessons Learned . . .

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- We should have watched the contractor more carefully

Poly Canyon Village - Student Housing



- Not enough storage space

Poly Canyon Village - Student Housing



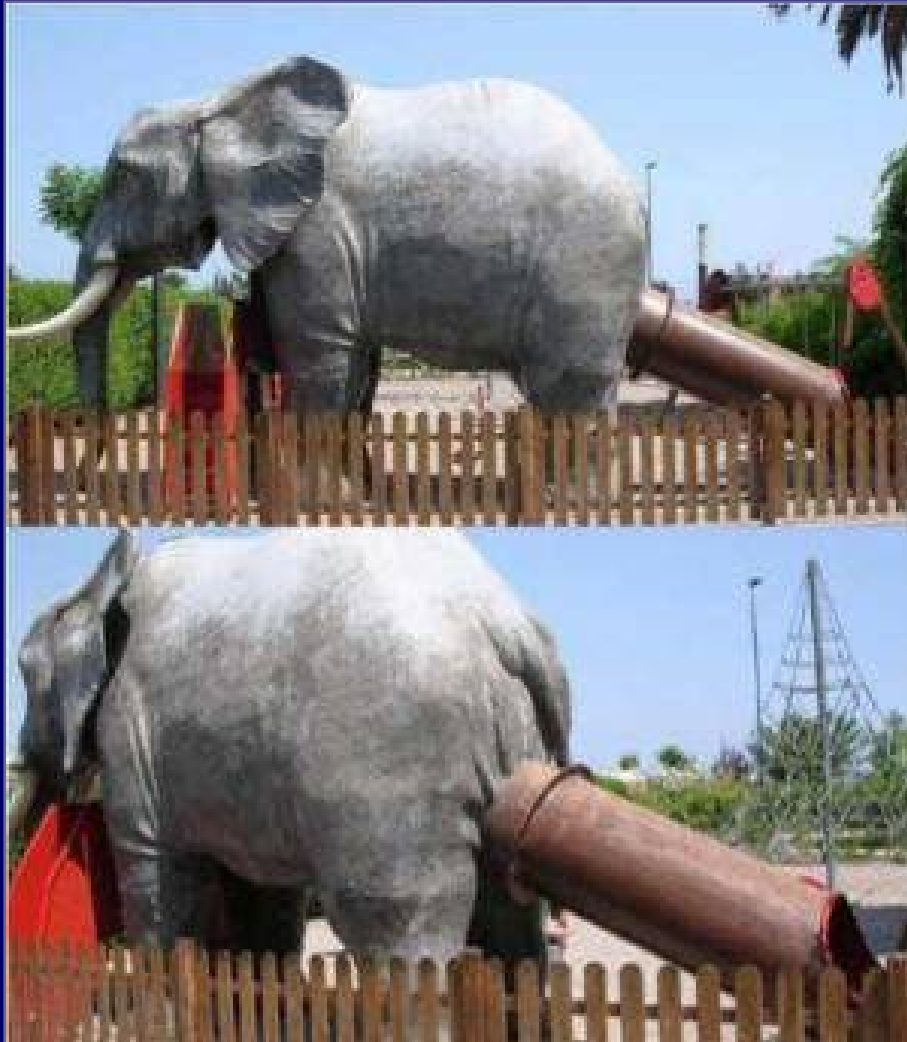
- Some of the exits were not to code

Poly Canyon Village - Student Housing

- The students do not like our shuttle service



Poly Canyon Village - Student Housing



- Some students do not appreciate our recreation amenities

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