

# ABA Construction Forum Division 4

## Project Delivery

## Design – Build and the

## Standard of Care

Under which Standard? Under whose Care?

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# So why are we here?

## Program Overview

- As design-build achieves a broader footprint both geographically and by project type, not only are more projects going that way, but there are more ways for that way to go. In this mix is the shifting sands upon which the “custom and practice” of the industry is based – the Standard of Care. The profession, in fact all professions, that operate under a Standard of Care recognize that what was standard at one time can be archaic and outmoded in another. This program will look at one example of a project within the context of a changing standard and some of the issues that can create.



## Some Context

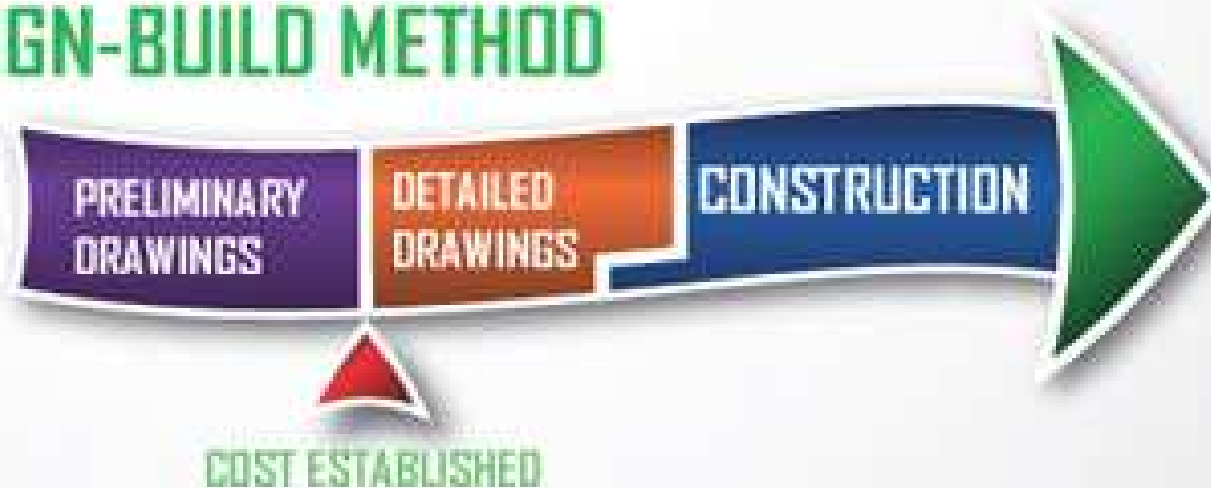
- The agency historically used Design-Bid-Build delivery.
- It's typical procedures, specifications and approvals were applied to the project.
- The designer had worked directly for the agency in the past.

## Contrast and compare...

### TRADITIONAL METHOD



### DESIGN-BUILD METHOD



# So about this project...

- **Government Agency issues an RFP for a project and it calls for a Design-Build execution strategy.** (~30% complete document set)

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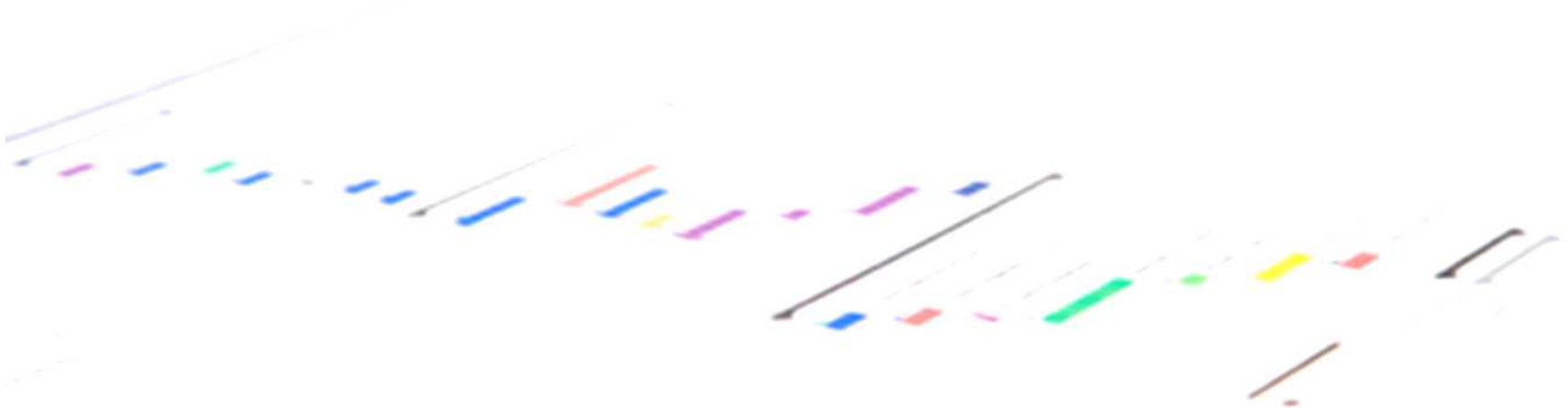
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# So about this project...

- **Government Agency issues an RFP for a project and it calls for a Design-Build execution strategy.** (~30% complete document set)
- **A Contractor who has not worked for that agency before decides to bid the job.**
- **The Contractor retains an engineering firm as a design sub-consultant who has had prior experience with the agency.**
- **The D|B team prepares a bid.**  
There is a stipend (\$100k) provided to bidders to prepare proposals – the design firm is compensated for their work.



# So about this project...



## They win.

**So about this project...**

**They win.**

**(this is where the “madcap hi-jinks” ensue)**

# The Designer's duties:

- **provide technical guidance on interpreting the RFP documents**
- **conceptualizing & quantifying bid quantities used to develop unit prices & estimate.**

# Sequence of events

(So what had happened was...)

**The D|B team**

**prepares its bid...**

- ...the engineer points out a “potential issue” of concern,
- ...the contractor asks for “guidance” with respect to the issue.

**Meanwhile the**

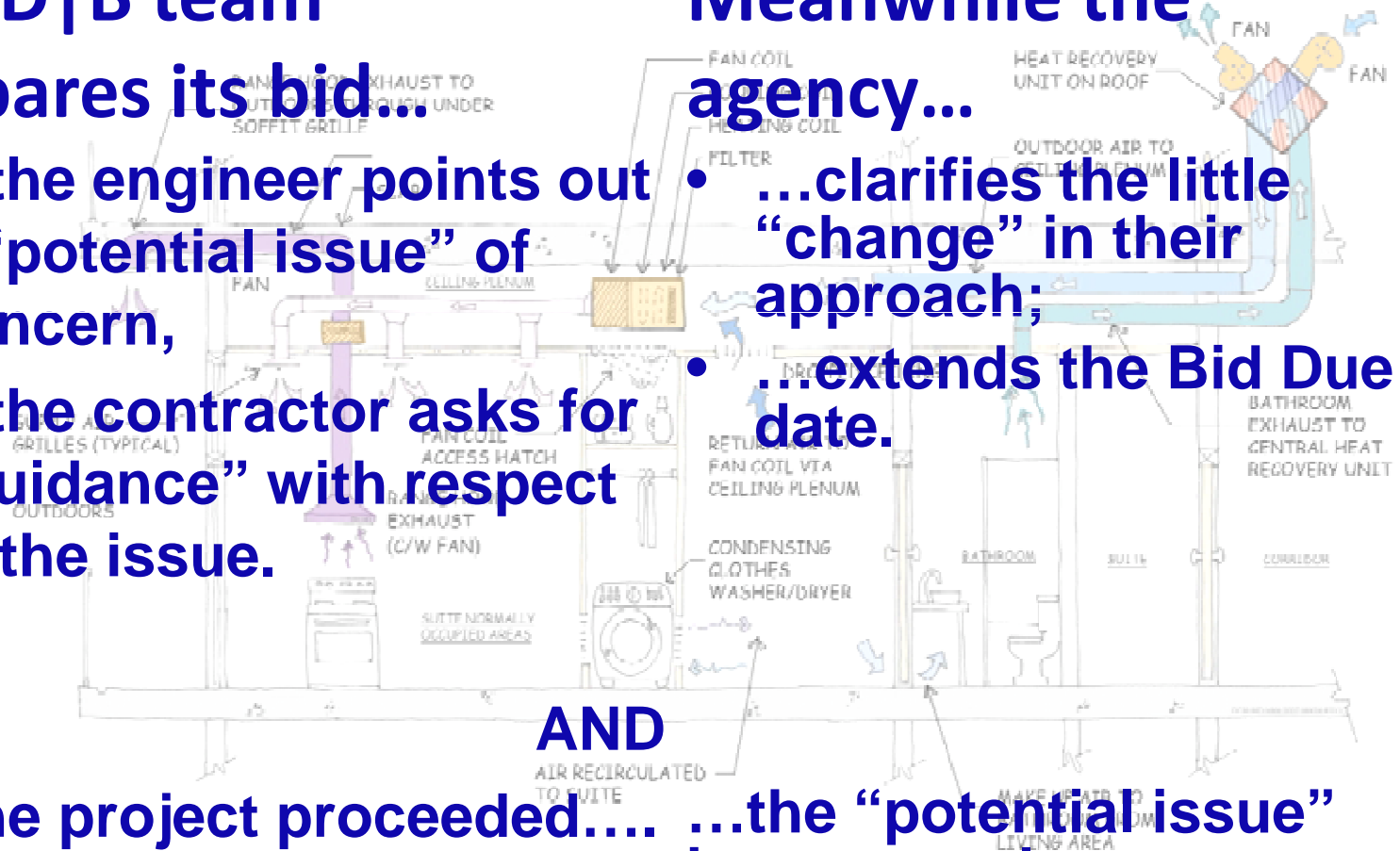
**agency...**

- ...clarifies the little “change” in their approach;
- ...extends the Bid Due date.

**AND**

**As the project proceeded....**

**...the “potential issue” became real.**





**So this translates to**

**\$\$\$**

**&**

**TIME**

**(which equals \$\$\$ too)**

# As the project progressed....

Consider this:

Even in “design | build” there is some portion of the schedule when you have to “design”.

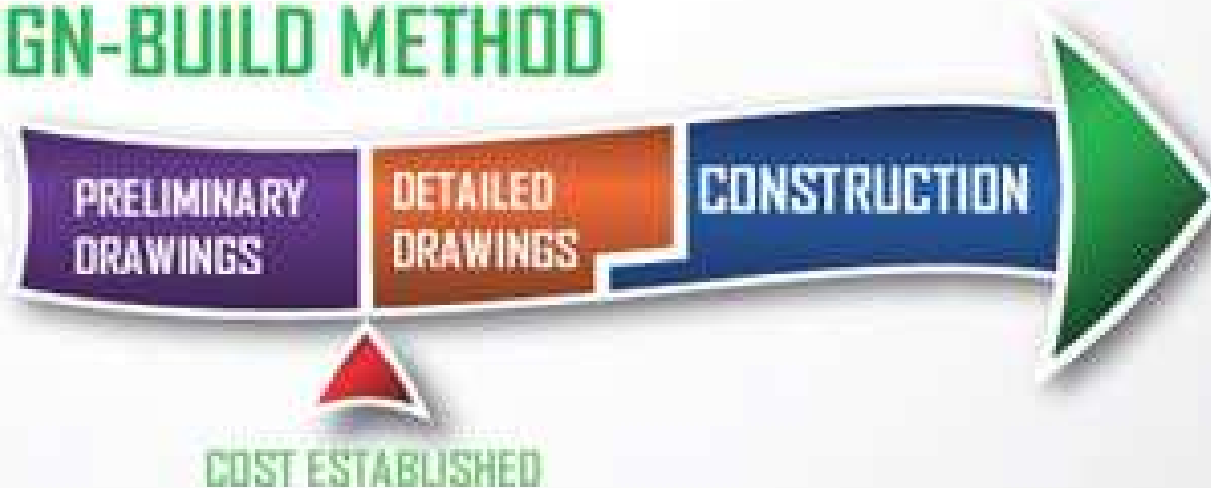


## Quick flashback

### TRADITIONAL METHOD



### DESIGN-BUILD METHOD



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**During construction, it became evident that there were major features of the project that had not been developed in the agency issued RFP documents.**



# As the project progressed....

Consider this:

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During construction, it became evident that there were major features of the project that had not been developed in the agency issued RFP documents.

**BUT the need to address them and any project constraints were.**

(and there were some new approaches)



**So what are the issues here?**

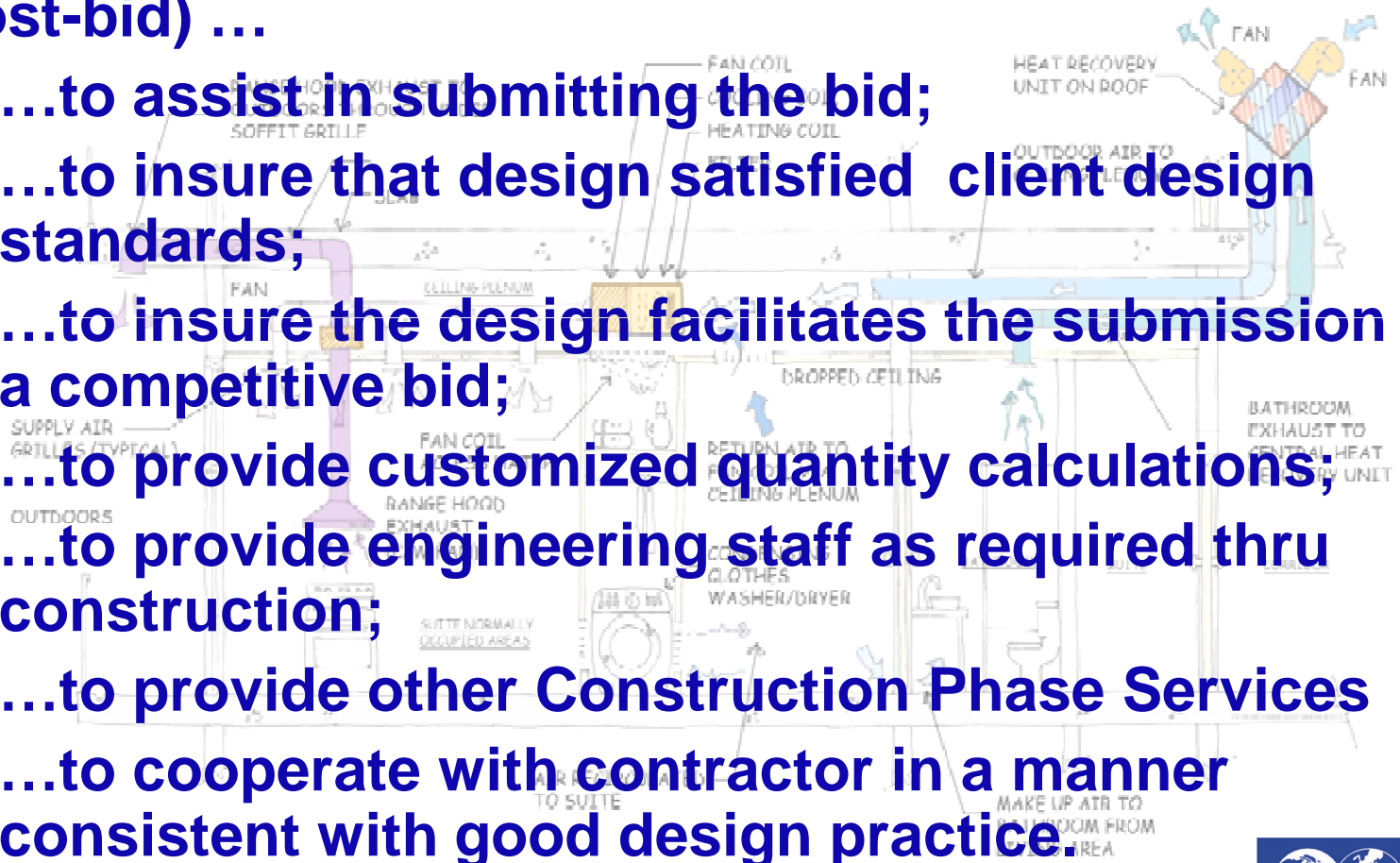
## *The “Standard of Care”*

- ...[to] "exercise the average degree of skill, care, and diligence exercised by members of the same profession (or specialty within that profession), practicing in the same or a similar locality in light of the present state of the profession"
- (Gillette v. Tucker). See Black's Law Dictionary, 6th edition. 1404-5.

# What was the designer hired to do?

Provide professional design services (both Pre & Post-bid) ...

- ...to assist in submitting the bid;
- ...to insure that design satisfied client design standards;
- ...to insure the design facilitates the submission a competitive bid;
- ...to provide customized quantity calculations;
- ...to provide engineering staff as required thru construction;
- ...to provide other Construction Phase Services
- ...to cooperate with contractor in a manner consistent with good design practice.



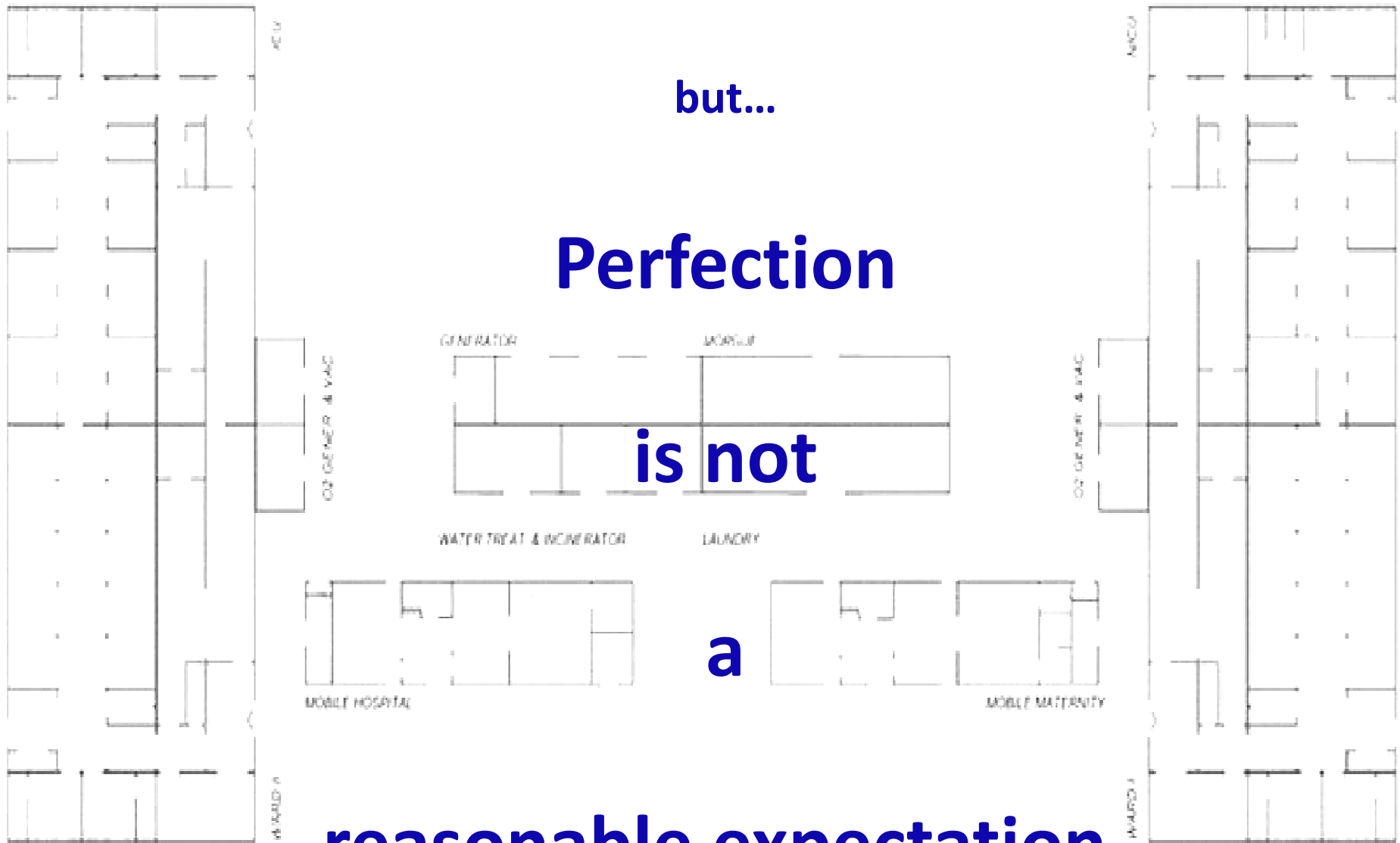
but...

**Perfection**

**is not**

**a**

**reasonable expectation.**



...and as the project progressed  
**remember**

...even in “design | build” there is some portion  
of the schedule when you have to “design”.

The designer “designs” and issues drawings to  
the contractor (his client).

However the delivery pace of these IFC  
documents made it hard to “see” the escalating  
“scope creep” that was developing drawing by  
drawing.

Until the “bid design” didn’t look like the “construction design”

**Key along the trail of the bidding period:**

**The Designer alerted Contractor to the  
potential issue**

**AND**

**the Contractor asked for guidance\input  
from the Designer**

**AND**

**the Bid Due date was extended.**


**The “Standard of Care”  
What (or which)  
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# **The “Standard of Care”**

**What (or which)**  
**is the applicable and/or prevailing standard of care?**

- **For the Proposal documents?**
- **For interpreting those documents?**



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(even if the designer works for the contractor?)**

# The “Standard of Care”

What (or which)

is the applicable and/or prevailing standard of care?

- For the Proposal documents?
- For quantities in the take off?
- For interpreting those documents?
- For pricing the work associated with those quantities?



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(even if the designer works for him?)

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(even if the designer works for him?)

**Is the traditional design “absolution” from “means and methods” appropriate?**

**Is it significant that the designer was compensated for the pre-bid work (along with any work performed after award)?**

**They received fees for service.  
No profit or loss sharing agreement.**

## *The “Standard of Care”*

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- **The contractor said, “These cost overruns accumulated and not till the end of the drawing issues did we see the problem and determine the final installed quantities and related costs.”**

## ***Some Questions***

- **Does Design-Build Delivery create new “means and methods” responsibilities for designers where they would not exist in traditional DBB delivery situations?**

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- Does Design-Build Delivery create new “means and methods” responsibilities for designers where they would not exist in traditional DBB delivery situations?
- Does Design-Build Delivery require new awareness on the part of contractors to the iterative and uncertain world of conceptual design?

# Things to Consider:

How precise should you make your bridging\ bidding documents?

Is it possible that you could unwittingly create an ‘impossibility” defense (*or a massive change order*) if you ask for ...the impossible?

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**If those constraints are wrong, who bears the responsibility to “correct” the eventual problem.**

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design elements or spatial project constraints set forth by the RFP?  
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“correct” the eventual problem.

**If you go into a “project specific” design-build should  
you set up appropriate incentives (and penalties?) to  
properly align the team members’ interests?**

*Develop special clauses concerning design and estimating liability?*

The background of the slide is a blurred image of a document. It features a prominent bar chart with multiple bars in various colors including blue, green, red, yellow, and purple. The chart is set against a grid of horizontal and vertical lines, suggesting a data table or report. The overall image is out of focus, with the text 'And then there's this...' overlaid in the center.

**And then there's this...**

**The designer had worked for the owner before  
(*but in design-bid-build arrangements*).**

The advantage of that prior experience prompted the contractor to select them.

**Is it possible that the designer wasn't really  
that 'enthused' about the arrangement?**

He certainly wouldn't want the owner to be unsatisfied, but...

**Would he be concerned about the financial  
position of the contractor?**

(As concerned as the contractor?)

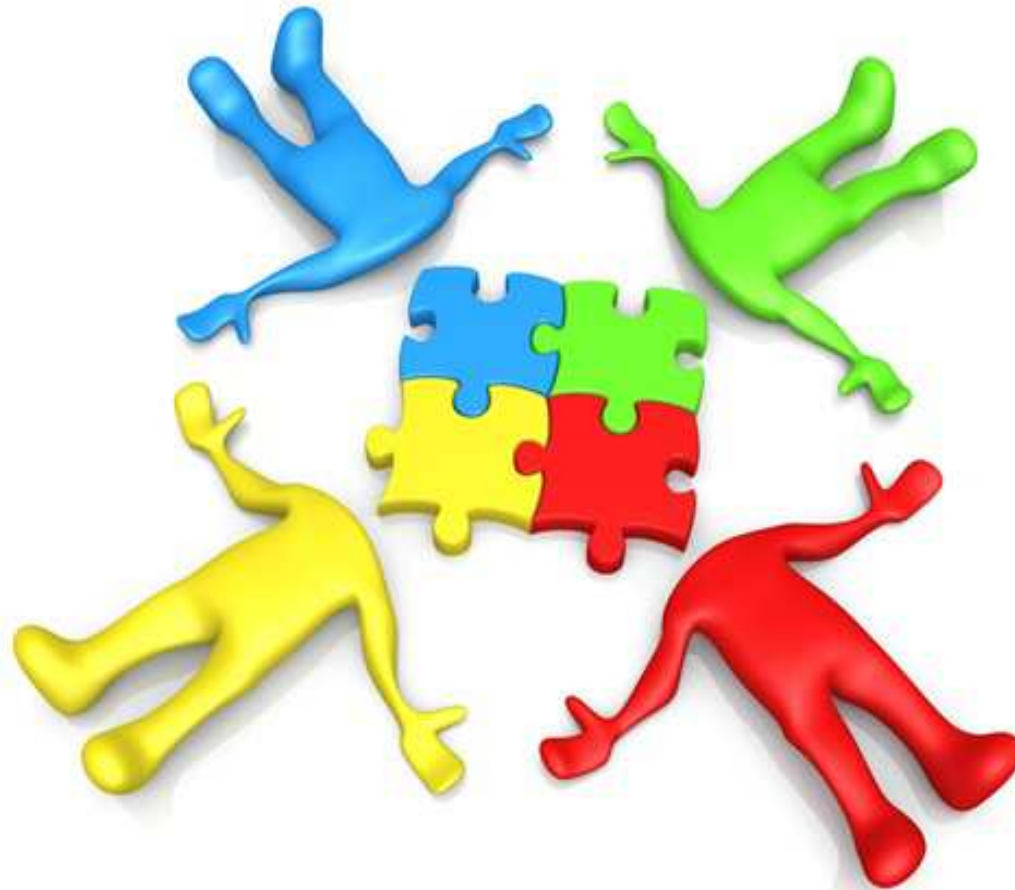
Traditional "client focus" for designers is the owner.

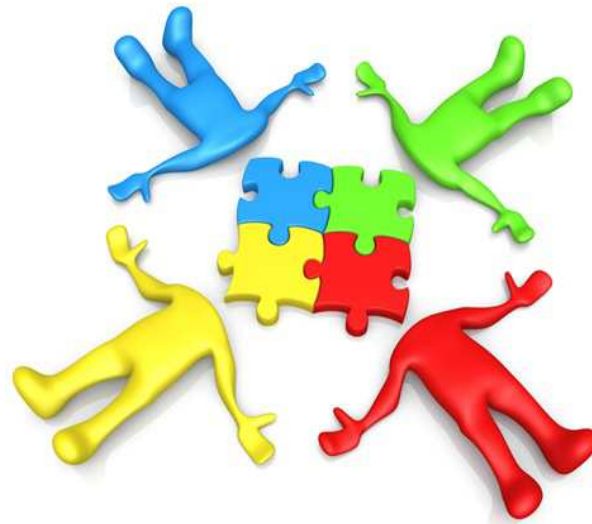
Licensure stresses the public safety and welfare.

In a 'sub-contract' arrangement to a contractor, the paying client has changed, but  
does that change the licensure focus on "public safety and welfare"?



**So what do we learn?**





Those whose paths are not the same  
do not consult one another.

*Confucius*



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**Licensed Professional Engineer:**

**Pennsylvania, New Jersey, New York, Connecticut, California, Michigan, Illinois, Georgia, Kentucky**  
**US Green Building Council LEED Accredited Professional**

Mr. Swann has over 20 years of extensive experience on both domestic and international projects in the areas of management consulting and problem solving, engineering design, project and construction management, forensic engineering and construction claims analysis. Mr. Swann's career includes the analysis, evaluation and design of complex systems across a wide range of industries and buildings types including commercial, institutional and industrial facilities, hospitals laboratories, pharmaceutical manufacturing, microelectronic operations and data centers. Mr. Swann has chaired technical committee within national and international organizations and been a contributing author and editor for a number of technical publications and journals. He is a frequent speaker both nationally and internationally and is a listed member of the speakers' bureau in the Distinguished Lecturer program of ASHRAE. He has recently presented on Green Building issues in Abu Dhabi, Dubai, Delhi, Detroit, Chicago, Seattle, New York City, Indianapolis, Kansas City, Virginia and Delaware. He is a contributing author to the ASHRAE "Green Guide – The Design, Construction and Operation of Sustainable Buildings" and co-author of the ASHRAE Survival Guide to Design|Build Project Execution.

**Professional Affiliations:**

**American Bar Association, American Society of Heating, Refrigeration, and Air Conditioning Engineers,**  
**American Society of Mechanical Engineers, International Code Council, International Society of Pharmaceutical Engineering,**  
**US Green Building Council**

**Other Activities:**

**Philadelphia Energy Authority – Secretary, Board of Directors**  
**The Engineer's Club of Philadelphia – President and Board of Directors**  
**Enterprise Heights Community Development Corp. - Board of Directors**  
**Diversified Community Services – Board of Directors**  
**Painted Bride Art Center – Board of Directors**  
**Paul Robeson House of Philadelphia – Board of Directors**  
**National Society of Black Engineers Greater Philadelphia Chapter – President Emeritus**

# MDCSystems® *Summary of Services*

## Program & Project Development including...

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## Project Modeling including...

- “What if...” Scenario Analyses
- Variability/Sensitivity Analyses
- ‘Out of Bounds’/”Go – No Go” Limits

## Project Planning including...

- Feasibility Studies
- Master Scheduling including...
  - Resource & Constraint Analysis

## Project Monitoring including...

- Schedule Compliance
- Cash Flow & “Burn rate” projections
- Resource Utilization

## Consulting Services including...

- Sustainability/Green Buildings
- Peer Review
- Practice Management

## Forensic Analyses including:

- Building Systems:
  - Architectural incl. Building Envelope
  - HVAC/Mechanical, Electrical & Piping
  - Structural
  - Instrumentation & Controls
- Design Errors & Omissions (Standard of Care)
- Differing Site Conditions

## Forensic Project Management®

- Schedule Analysis
  - Delay, Disruption, Suspension & Acceleration
- Labor Productivity & Inefficiency
- Scope Definition and Change
- Termination - Default or Convenience
- Procurement - Bid/Award Transparency

## Forensic Accounting including...

- Valuation of Damages
  - Overhead & General Conditions
- Business Interruption & Lost Profit

# MDCSystems®

*Providing Expert Project Delivery Solutions Worldwide*

MDC Systems is a project and construction management consultancy with over 40 years of experience serving a wide array of clients and industries both nationally and around the globe.

MDC has worked on projects as diverse as residential property developments to pharmaceutical plants to highway excavation and construction.

MDC concentrates its services in primarily four areas:

program management, project management consulting, forensic engineering and construction claims consulting.

One of the key facets of MDC's professional staff is our expertise in the technology driven issues that are so frequently at the heart of today's complex projects.

MDC's construction claims consulting practice combines all of the skills inherent to our other service offerings and deploys it for our clients when and where projects don't go quite as smoothly as everyone had hoped. MDC is an industry leader in the area of construction schedule development and analysis including delay, acceleration, interruption and extended duration. MDC pioneered the court tested and approved Time Impact Analysis methodology for scientifically analyzing construction schedules and the impact of events upon their execution and completion.

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# Selected Recent Assignments

## *Engineering Consulting and Technical Analyses:*

- Analysis of Moisture Migration and RH Control in a Microelectronics Product R&D Facility (Colorado).
- Analysis and Improvement of Energy Consumption at a “Green” School (Pennsylvania)
- Peer Review & Design Supervision for a Radiant Heating/Cooling Floor System (New Jersey)
- Peer Review of Schematic Engineering Design Effort for Hospital Complex (Qatar)
- Analysis of Formaldehyde Outgassing from Construction Materials (Pennsylvania)
- HVAC System Failures in Pharmaceutical Packaging Facility (New Jersey)
- Analysis of Process Technology Failure at Waste Treatment Plant (New Jersey)
- Analysis of Piping System Joint Failures at a Hospital central Plant (New Jersey)
- Assessment and Analyses of Energy Future Options for Major Municipality

## *Project Management, Execution & Construction Claims :*

- Excess Rock Excavation Claim on a Highway Project - Unforeseen Conditions (New Jersey)
- Electrical Contractor Inefficiency Claim on Multi-Prime Project (New Jersey)
- Electrical Usage Charge Dispute Between Landlord & Tenant (New York)
- Schedule Delays and Change Orders on multiple Airport Projects for Major Equipment Supplier (various)
- Schedule Delays and Associated Cost Overruns for Underwater Pipeline Project (Ireland)
- “Standard of Care” Defense - Design of a Food Processing Facility (Pennsylvania)
- “Standard of Care” Defense – Design and Documentation of a Pharmaceutical Plant using 3D Modeling (Texas)
- “Standard of Care” Plaintiff – Delay and Cost Overruns for a Pharmaceutical Plant using 3D Modeling (Singapore)
- Analysis of Destructive Vibration\Harmonics on Large Industrial Compressors at a Chemical Plant (Louisiana)