

# ENR

EVENTS &  
CONFERENCES

## Risk & Compliance Summit

Essential Strategies for Loss Prevention

1

SEPTEMBER 20, 2013



NEW YORK, NY



EARLY BIRD: \$325

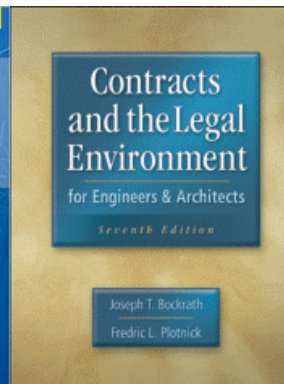
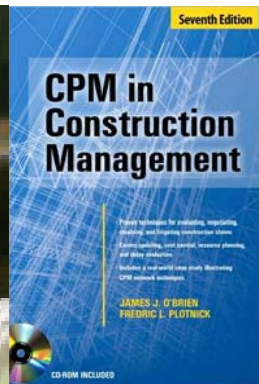


# Working in Unexplored Territory

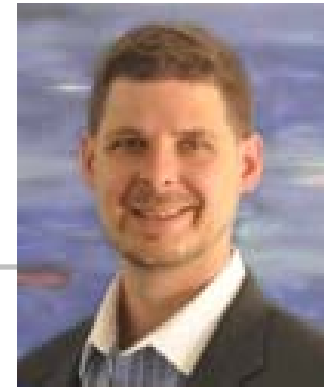
*Technology, Project Delivery & Sustainable Design:  
Liability and Emerging Standards of Practice*

# Introducing Fredric L. Plotnick, PhD., Esq., P.E.

- Moderator
- Co-Author *CPM in Construction Management*
- Co-Author *Contracts and the Legal Environment for Engineers & Architects*
- Author ENR.com Blog *The Next Generation*
- Founder *Construction CPM Conference*



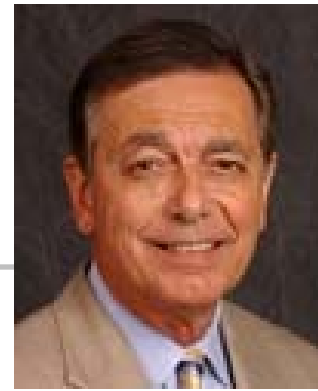
# Introducing Jason Burns



- **Representing the At Risk Constructor**
- **Hunter Roberts Construction Group, *Vice President, Technology***
- core network infrastructure
- project site infrastructure
- software and security management
- senior financial analyst



# Introducing Ron Dellaria, RA, CSI



- **Representing the Design Professional**
- **Astorino, *Chief Compliance Officer***
- responsible for all legal aspects of the A/E and Construction businesses, and
- implementation and supervision of the Building Information Modeling process

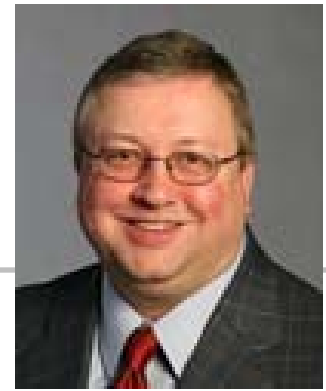
## ASTORINO

Architecture Engineering Interior Design Design/Build

**Integrated Project Delivery:** Design/Build, BIM, Design Research



# Introducing Glen R. Mangold, CPCU



- **Representing the Insurance Industry**
- **Markel Corporation, *Managing Director, Architects-Engineers Program***
- overseeing Architects & Engineers professional liability underwriting
- published regarding risk management for design firms in numerous publications



## Risk Issue #1

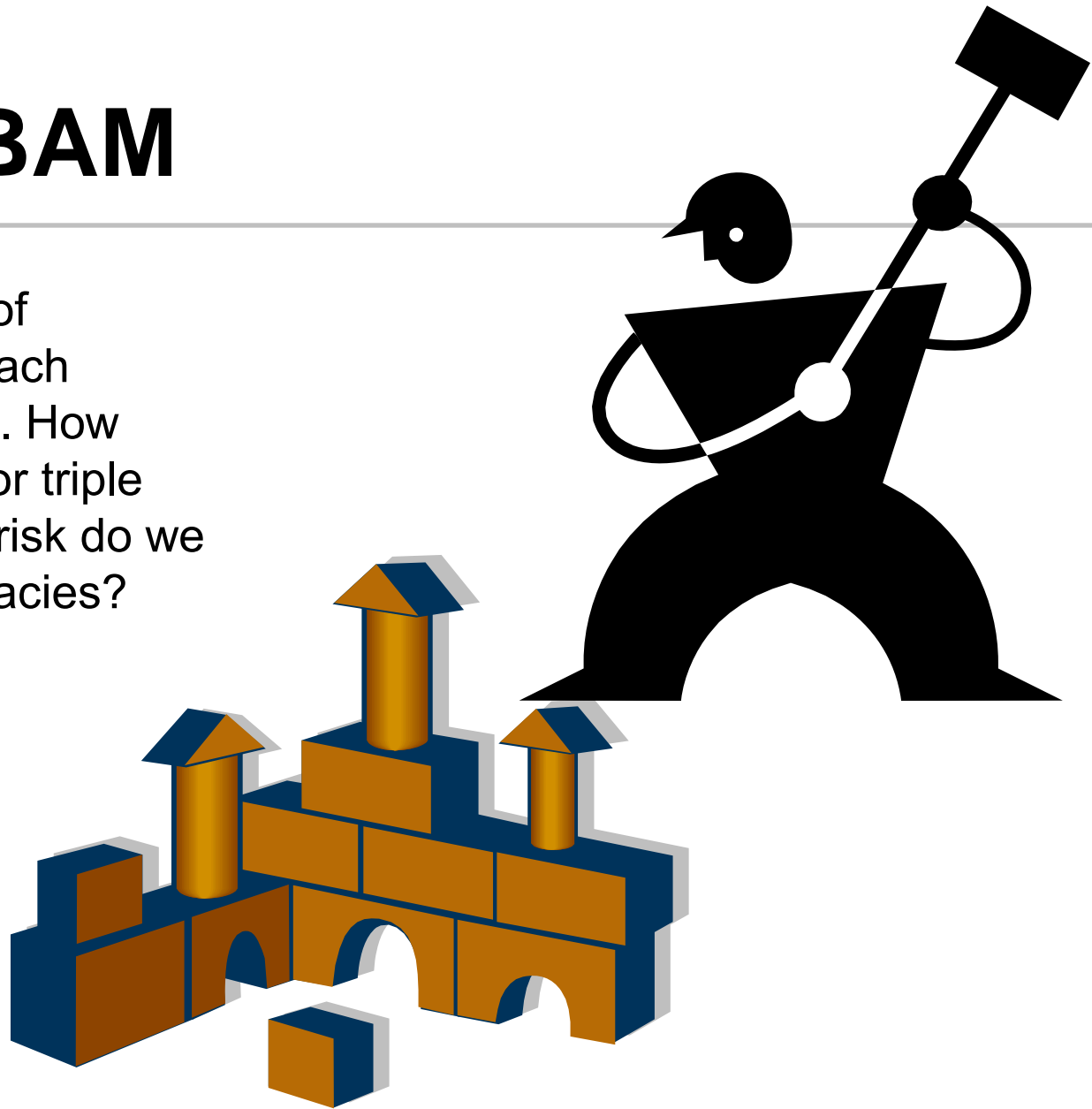
# Data Gone Wild

- We collect a lot of information on our jobsite about our employees. What risks do we take in collecting, sharing, and storing this information?



# BIM goes BAM

- We record a lot of information on each building element. How much is double or triple checked? What risk do we have for inaccuracies?



# Sustain me, oh Lord

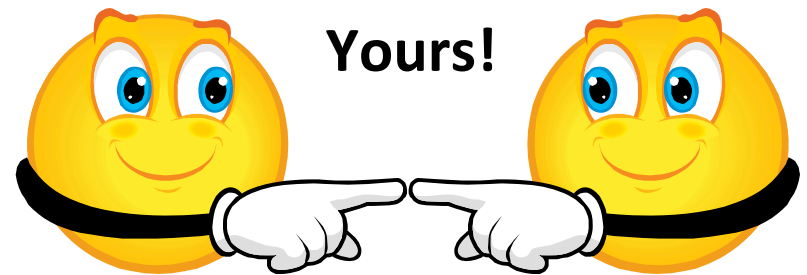
- The promise of sustainable construction requires both new elements of design and of installation. These may well lead to new risks to the installer, the owner, and the public, and ultimately to the insurer.



# Collaborative Responsibility

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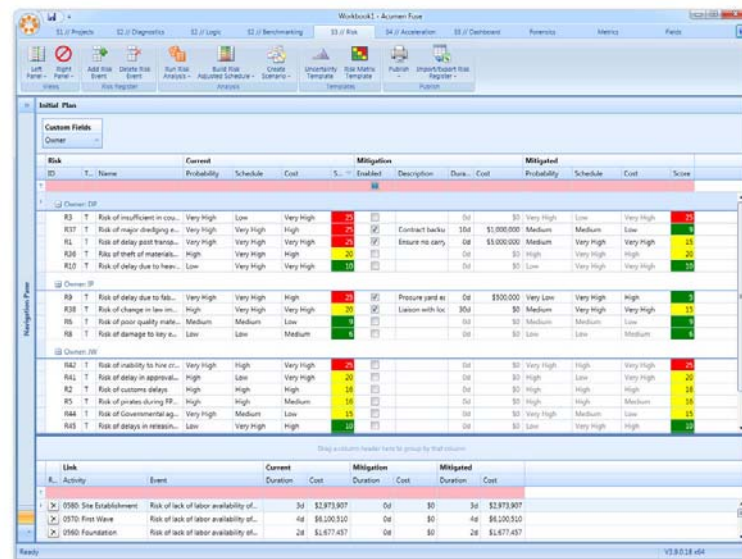
- How does the Spearin Doctrine relate in a world where owners collaborate with design professionals and tiers of contractors and fabricators on Design-Build and P3 projects?



## Risk Issue #5

# Risk of the Risk Register

- Several of the most commonly used Project Management software products include a Risk Register. What additional risks do project participants incur by use of these software products?



Risk ID	Name	Current Probability	Schedule	Cost	Mitigation	Mitigated
R3	T Risk of insufficient in-cash...	Very High	Low	Very High	25	25
R37	T Risk of major dredging in-cash...	Very High	High	High	25	25
R1	T Risk of delay post transp...	Very High	Very High	Very High	25	25
R26	T Risk of delay post transp...	High	Very High	High	25	25
R10	T Risk of delay due to transp...	Low	Very High	Very High	25	25
R3	T Risk of delay due to transp...	Very High	Very High	High	25	25
R38	T Risk of change in law in-cash...	High	Very High	Very High	25	25
R5	T Risk of poor quality mat...	Medium	Medium	Low	25	25
R8	T Risk of damage to key in-cash...	Low	Low	Medium	25	25
R42	T Risk of inability to hire in-cash...	Very High	High	Very High	25	25
R41	T Risk of delay in approval...	High	Low	Very High	25	25
R2	T Risk of customs delays...	High	High	High	25	25
R5	T Risk of penalties during RP...	High	High	Medium	25	25
R44	T Risk of Governmental ap...	Very High	Medium	Low	25	25
R43	T Risk of delays in reparation...	Low	Very High	High	25	25
R...	...	...	...	...	...	...

Two Types:

- Analytic - Monte Carlo
- Collaborative

## Risk Issue #5

# Risk of the Risk Register

AcumenSuiteSampleWorkbook\_Primavera - Deltek Acumen

S1 // Projects S2 // Diagnostics S2 // Logic S2 // Benchmarking S3 // Risk S4 // Acceleration S5 // Dashboard Forensics Metrics Fields

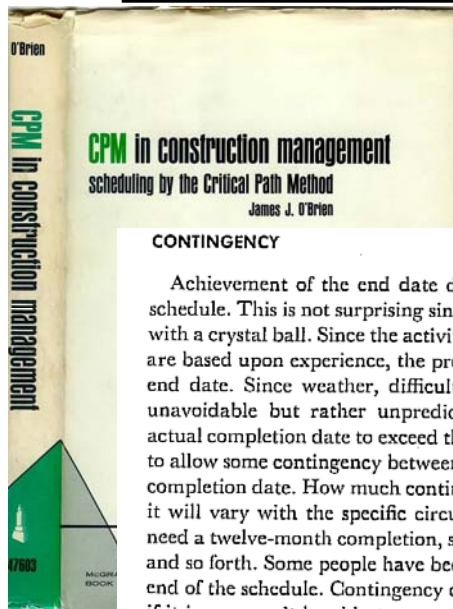
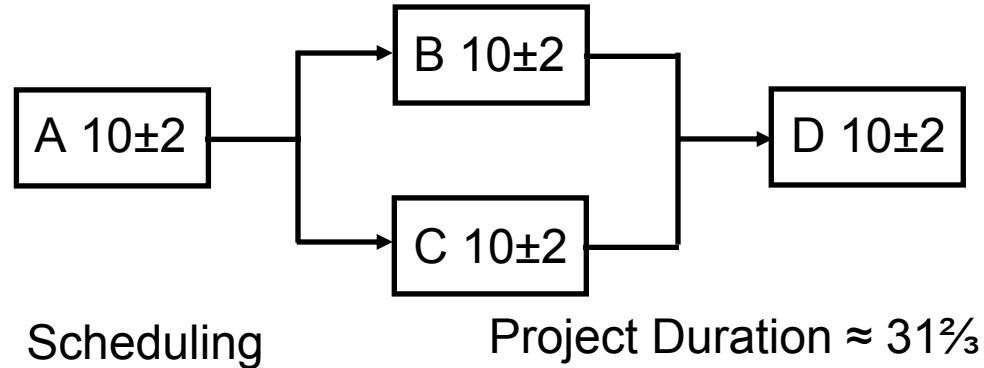
Left Panel Right Panel Views Activities View Mode Lock / Unlock Unlock All Children Gantt Chart Color Scheme Risk Adviser™ Run Risk Analysis Build Scenario Analysis Uncertainty Template Risk Matrix Template Create Cost Estimate Risk Models Publish Publish

Projects	Id	Description	Remaining...	Duration Uncertainty	Type	%	CLT	Corr...	Start	Rem...	Finish	Total Float	Min D...	Mos...	Max D...
Current Schedule CostRiskSheet	Current Schedule	Current Schedule	706						1/1/2010	100w	2/4/2014	-366			
	Current Schedule	Current Schedule	706						1/1/2010	100w	2/4/2014	-366			
	Current Schedule.0010	Concept	0						1/1/2010	0w	3/1/2012	-366			
	Current Schedule.0020	Early Design	0						6/14/2010	0w	9/28/2010	0			
	Current Schedule.0030	FEED	69						11/12/2010	9w	5/8/2012	-91			
	0240	FEED handover	25			100 %			4/5/2012	4w	5/8/2012	481	19	25	2
	0250	FEED study	15			100 %			4/11/2012	2w	5/1/2012	-91	11	15	1
	0260	EPC design	30			100 %			11/19/2010	5w	4/10/2012	-91	22	30	3
	0270	Review	0			100 %			11/12/2010	0w	12/31/2010	0			
	0280	Platform FEED	0			100 %			11/21/2010	0w	12/4/2010	0			
	Current Schedule.0040	Detailed Design	68						11/9/2010	9w	5/7/2012	-366			
	Current Schedule.0050	Procurement	217						2/1/2010	31w	10/4/2012	-310			
	Current Schedule.0060	Manufacturing	106						10/10/2012	15w	1/24/2013	-49			
	Current Schedule...	Domestic	106						10/10/2012	15w	1/24/2013	0			
	Current Schedule...	Offshore	63						10/17/2012	8w	12/19/2012	-49			
	Current Schedule.0070	Construction	315						1/24/2013	44w	12/5/2013	0			
	0530	Electrical	40			100 %			7/15/2013	7w	9/4/2013	0	30	40	4
	0540	Mechanical	50			100 %			10/1/2013	9w	12/5/2013	47	38	50	5
	0550	Civils	40			100 %			8/9/2013	7w	10/1/2013	47	30	40	4
	0560	Foundation	20			100 %			7/15/2013	3w	8/9/2013	47	15	20	2
	0570	First Wave	40			100 %			5/23/2013	7w	7/15/2013	0	30	40	4
	0580	Site Establishment	30			100 %			4/15/2013	5w	5/23/2013	0	22	30	3

Ready V4.3.0.0 x86

# Risk and Monte Carlo Simulation

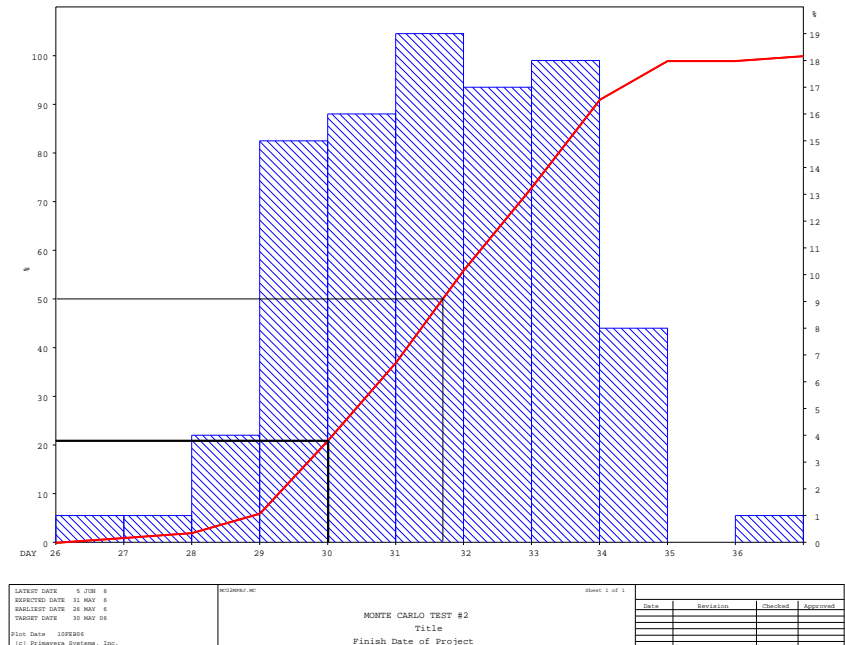
$$\begin{array}{r}
 A \ 10 \pm 2 \\
 B \ 10 \pm 2 \\
 C \ 10 \pm 2 \\
 D \ 10 \pm 2 \\
 \hline
 \approx 40 \\
 \text{Estimating}
 \end{array}$$



## CONTINGENCY

Achievement of the end date desired is unfortunately not an acceptable schedule. This is not surprising since we know that CPM has not furnished us with a crystal ball. Since the activities and times estimates used in the network are based upon experience, the project rarely finishes ahead of the computed end date. Since weather, difficult site conditions, labor disputes, etc., are unavoidable but rather unpredictable, there is a definite tendency for the actual completion date to exceed the first CPM end date. It is then reasonable to allow some contingency between the CPM end date and the actual desired completion date. How much contingency? There is no definite answer to this; it will vary with the specific circumstances of the project. However, if you need a twelve-month completion, set your CPM goal at about eleven months, and so forth. Some people have been reluctant to set a flat contingency at the end of the schedule. Contingency can be buried in the activity estimates, but if it is you won't be able to separate true estimates from contingency.

Excerpt from page 142 of CPM in Construction Management



Risk Issue #5

# Risk of the Risk Register

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Insert from Oracle

# Better Specifications

- CPM is a Shop Drawing
- Purpose = Further Assurances
- Owner does not want CPM to **show** timely completion
- Owner wants CPM to **assure** timely completion

Contractor shall provide a CPM:

- that indicates **an 80% likelihood** of completion on or before June 30, 2009
- prepared in the RDM format to separately show **physical planning restraints** from **resource scheduling restraints**
- coded to indicate sub, craft, location ...

Updates to the CPM shall include additional reports that incorporate:

- trend analysis starting at 30% for any classification of work or subcontractor
- dynamic re-leveling with up to 25% additional resources if the likelihood of timely project completion falls below 80%
- a cost analysis if resources are to be increased involuntarily beyond 25%



# Questions?

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