

Workshop T2

Tuesday, October 10, 1:30-3:00 p.m. and 3:30-5:00 p.m.

PROTECTING THE PUBLIC

“Safeguarding Third Parties: Public Protection in Construction Safety”

Presented by



Ron G. Prichard, P.E., Ph.D.
President
Arcanum Professional Services, Inc.

The number of people exposed to construction hazards is significantly higher when the project is in the midst of ongoing operations. The growing trend toward renovation, retrofitting, and restoration of major facilities compels increased attention to the protection of third parties, such as the owner's employees, vendors, and other visitors on construction sites. This session will focus on safety considerations in the safeguarding of third parties on populated construction sites.

- Describes the unique safety challenges when the construction project is being conducted in the midst of ongoing operations.
- Examines the new standard on Public Protection, ANSI A10.34, and its impact on “hot-site” safety controls.
- Shares lessons learned through the examination of several large projects.



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Ron G. Prichard, P.E., Ph.D
President
Arcanum Professional Services, Inc.

Dr. Prichard is the speaker for Workshop T2, "Protecting the Public," on Tuesday. He has over 30 years of involvement with the construction industry at various levels, starting out as a laborer for a home builder, and rising to be a construction manager and owners representative. The focus of the last 15 years has been risk management, safety, and loss control.

Dr. Prichard received a Bachelor's of Science (United States Military Academy) in Civil Engineering, and Master's of Science degree (U of Missouri-Rolla) in Civil Engineering, his Doctorate of Philosophy in Engineering (Kennedy-Western), and is a Professional Engineer (Civil). He successfully built projects in both the public sector (while serving as an officer on Active Duty and in the Army Reserve with the U.S. Army Corps of Engineers) and in the private sector (as a Construction Project Manager with a General Contractor operating in New Jersey and Delaware, and as a Construction Administrator with PSI Energy). Additionally, he served as a consultant and educator in scheduling, program management, and contract dispute resolution. Dr. Prichard is also a licensed Professional Engineer (Civil).

In addition to his construction management experience, Dr. Prichard has extensive field experience in construction safety. He managed the national Construction and Engineering Services Group of CIGNA Property & Casualty Companies, administered the construction safety for a \$1 billion owner construction program and has assisted dozens of owners and contractors with safety performance improvement. Dr. Prichard currently assists owners with owner controlled insurance programs, construction safety program structure, construction pre-qualification process, safety program effectiveness, and other loss control services. Dr. Prichard has had extensive involvement with all segments of the electric utility industry. He has participated in 18 OCIPs since 1995, including 9 for one owner. Dr. Prichard also supports contractors with resolution of property, casualty, and surety issues. He is the coauthor of the Associated General Contractors of America fundamentals publication: *Risk Management, Insurance, and Bonding for The Construction Industry*, and is the Construction Safety Advisor writing for the International Risk Management Institute Web site: www.irmi.com.

Dr. Prichard frequently speaks throughout the United States on numerous construction and construction safety topics and has authored dozens of papers. He is the Safety Advisor to The Construction User Roundtable (CURT). In this role, Dr. Prichard chairs the annual Construction Industry Safety Excellence (CISE) Awards program. As the CURT representative to ANSI A10, Construction and Safety Standards, Dr. Prichard is active in development of U.S. standards and their incorporation and relationship to international safety standards. In addition, he is an active subcommittee member on two key standards workgroups: A10.38, Key Elements of A Safety & Health Program, and A10.33, Construction Safety Programs for Multi-Employer Worksites. He has also served as a Strategic Planning Facilitator and Advisor for AGC of America, CURT, and various owners, contractors, and others.

Dr. Prichard is a professional member of the American Society of Civil Engineers, the American Society of Safety Engineers, and the Society of American Military Engineers. He retired in 1999 from the U.S. Army Reserve as a Major, U.S. Army Corps of Engineers.

Notes

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SAFEGUARDING THIRD PARTIES: PUBLIC PROTECTION IN CONSTRUCTION SAFETY

Ron G. Prichard, P.E., Ph.D
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Why construction projects face greater risks

- Exposure of third parties and why it is an issue
- General liability insurance and its role

“R” type construction: renovation, remodeling, restoration, recycling, renewal

- Defining the complexity associated with this type of project
- The additional challenges—balancing competing demands
- The looming beast—liability for harm to nonconstruction parties

Emerging project issues

- Safeguarding multiple constituencies
- Public relations with the area
- Community involvement
- Expectations of NGOs

Coordination responsibilities on complex projects

- Portfolio management
- Building while operating
- Wayfinding and logistics
- Site security and access

The focus is on the owner and construction manager/general contractor

- Expanding the definition of project
- Defining requirements
- Resourcing
- Staff training
- Contracting and implementing requirements
- Monitoring performance
- Coordination
- Maintaining communication
- Tours and visitors
- Special events

Safeguarding multiple constituencies

- Defining expectations
- The ANSI A10.34 Standard, Public Protection
- Defining exposures
- Assigning responsibility

As the construction is finished

- Staging reoccupation
- Migration planning
- Move management
- Site wayfinding
- Program logistics
- User orientations

Lessons from success stories

- Pentagon
- University of Cincinnati
- General Motors World Headquarters
- Vehicle Engineering Center, GM
Warren Tech Center Campus
- St Louis Airport Third Runway

Summary and conclusions

Safeguarding Third Parties: Public Protection in Construction

Presented By:

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Outline



- **Underlying Fundamentals & Key Issues**
- **Project Challenges**
- **Implementation Methods**
- **Recommendations**

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Why Exposure is Growing



- **Aging facilities being upgraded**
 - Inadequate work environment for changed use
 - Improvement of functionality
 - Attract and retain workforce
- **Re-utilization of existing infrastructure**
 - Need to upgrade current inventory
 - Need to rationalize physical plant
 - Overcome imbedded “legacy” issues
- **Lack of alternatives or alternatives are not cost-effective**
- **Downtime is not an option**

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The Challenge of Emergent Issues



- **There is more to it than just construction**
 - The actual construction project is the easiest part to manage
- **Portfolio project management requirements are demanding**
- **The complexity of the linkages**
- **Community concerns and involvement**
- **Public Relations and Non-Governmental Organizations (NGOs)**
- **Someone must deal, continuously, with issues of foreseeability**
 - Premises Liability issues loom large for the duration

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A Different Type of Project



- **This type of project must be approached with a broader perspective than a typical construction project**
- **Adding the public into the project substantially increases the degree of complexity**
- **Although contractors play an important role, and responsibilities can be delegated, the focus is on the owner**
- **Construction durations must be extended to accommodate “temporary” measures and transitions**
- **Phased work sequencing, coordinated with other entities**

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A “HOT” Site



- **Multiple, simultaneous projects**
 - Differing durations, starts, finishes, types, sites
 - Steady stream of construction mobilization and demobilization
 - Frequent moves
 - Extensive use of temporary facilities
- **Extensive public exposures**
 - General disruption to existing operations
 - Unsettles current use patterns
 - Multiple constituencies involved, each with differing levels of interest
 - Operations, continuing during course of construction, cannot be interrupted
 - Constant media scrutiny and coverage
- **Disruptions will generate turmoil**
 - It must be anticipated and dealt with, intelligently
 - It is a “real” problem, which can impact the project outcome

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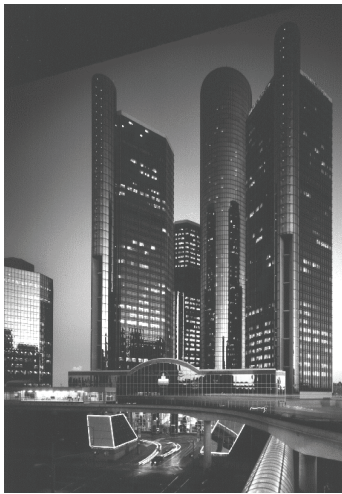
Examples of Project Types



- **Pentagon**
- **Airports**
 - Newark – Continental Terminal
 - Milwaukee
 - Oakland
- **Hospitals**
 - Wishard / Riley Childrens / Methodist
- **Universities**
 - University of Cincinnati
 - University of Chicago
- **Corporate Campuses**
 - GM Warren Technology Center
 - GM World Headquarters - Renaissance Center
- **Highways**
 - Indiana 267
 - I-70
 - St. Louis Airport Runway

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Renaissance Center Detroit, MI



- GM World Headquarters relocation
- Renovate 2.2msf of offices, 220ksf of retail
 - Original structures opened in 1976
 - 4 towers, 39 floors each, 15,000 sf per floor
 - 21 restaurants, 50 retail companies, 5 financial firms, USPS, multi-plex theater, conference center, and a light-rail train
 - 73-story Hotel, > 1,300 guest rooms
 - Multiple parking decks
 - Relocate and upgrade facility systems
 - Modify connections with street systems
- Move 140 firms, and over 8,000 employees
- Over 6,000 daily visitors
- Relocate 9,000 GM employees, consolidating from multiple Southeast Michigan facilities
- Began construction in 1996, first moves in 1997
- Utilization of an Owner Controlled Insurance Program for the construction portion
- Project expanded during the course of renovation

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ANSI A10.34 Public Protection



- Public Hazard Control Plan
 - Pre-work hazard analysis
 - Fugitive releases
 - Traffic hazards
 - Maintaining access
 - Waste and debris
 - Security
 - Disaster and emergency response
 - Enforcing authority
 - ID and abate issues
 - Correction of deviations
- Community relations
- Coordination with jurisdictional authorities

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Logistical Challenges



- Maintain safe accessibility for employees, vendors and the public
- Minimize disruption of existing traffic patterns
- Permit the execution of all required operations
- Coordinate material deliveries, and workforce arrivals with existing operations
- Managing relocations, demolitions and new construction, in the midst of active operations
- Parking, and lay-down areas
- Interconnections with and impact upon existing utilities
- Maintaining facility security
- Visitors and Special Events

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Planning Considerations



- The scheduling of actual construction work activity, due to its associated impacts
 - Noise, dust, vibration, trash & debris, deliveries, traffic
 - Physical space requirements and limitations
- Maintenance of critical life safety systems for the duration
- Sequencing impact upon construction and operations
- Coordinate work with critical existing facility operations
- Checking “adjacencies”-
 - What is around and how can it be affected or impacted?
 - What are the consequences of “upsets” or “spill-overs”?
- Impact upon existing security arrangements
- Minimization of relocations
- Identification and use of “swing-space”
- Additional controls required
- Duties of care stemming from Premises Liability

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Migration Management



- Phasing of construction
- Staging the relocation of personnel
- Facilities and support logistics
- Coordination of moves
 - Relocation of existing tenants
 - Construction
 - New tenants
 - Technology
 - Phones, computers, other support equipment
- Pre-move “looks”
- Transitions

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Project Challenges



- Maintain control
 - Participation means involvement, not control
 - Be accommodating where possible
 - Do not give veto power
 - Avoid “the death of a thousand cuts”
 - Recognize differences in levels of public, and balance demands
 - “Regulars” versus “New”
 - Neighbors versus Engaged versus Community
 - Process for adjustment during project
- Segregation, Boundaries and Flows: Perimeter Protection & Traffic Control
 - How will the separation between construction and the public be effected?
 - How are the boundaries defined to separate and how will they be preserved?
 - What are the “project flows” – the things which cross over those boundaries?
 - Who and what are coming onto the site?
 - What is leaving the site, and how can it affect the surroundings?
- Integrated Public Communication Strategy
 - “Push”: to satisfy the curious about what is happening “behind the curtain”
 - “Pull”: Coordinated media monitoring and response responsibility
- Emergency responses and coordination with Emergency Services
- Maintaining awareness and consequence consideration in planning

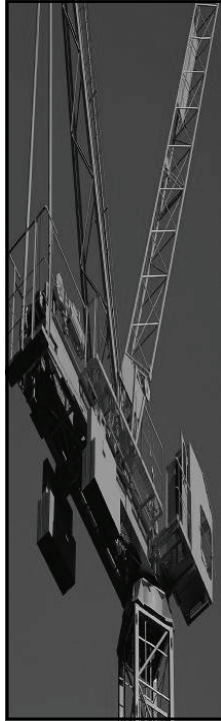
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Making It Happen



- Selection of Qualified collaborators
- Site-Specific Safety Plans
- Designated Safety Representatives
- Work Permit System
- Performance Monitoring
- Audits and Sites Reviews
- Modeling Expectations – Lead By Example
- Enforcement
 - Site requirements
 - Contract requirements
- Recognition of Achievements
- Changing “In-stride, and Under Fire”
 - Incorporating lessons as they are learned

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Site Wayfinding

- Utilization of professional “people movers”
- Coordination with stakeholders, including fire marshal
- Quarterly updates of signage, maps and information packets
- Barriers, security fencing, signage and lighting
- Web site kept updated
- Information Kiosks
- “Push-packs”
- Newsletter
- Pre-relocation Briefings

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Do Not Underestimate



- **How much detail in planning is needed**
- **How much on-going effort will be required**
 - For the entire duration of the project
- **How long it will take – things just don’t happen**
- **How much it will cost**
 - It must be provisioned for, as the costs are real
- **How intense, thorough, and extensive the communication process must be**
- **How important it is to start early and stay at it**
 - The tendency will be to let it go, thinking things will work out during construction
- **How much information is enough to share**

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The Role of Contractors



- **Identification of hazards and implementation of control measures**
- **Orientation of craft workers to expectations and responsibilities**
- **Flow down of obligations to subcontractors**
- **On-going coordination**
- **Awareness, alertness and respectful interaction**
- **Housekeeping**
- **Aggressive oversight and management**

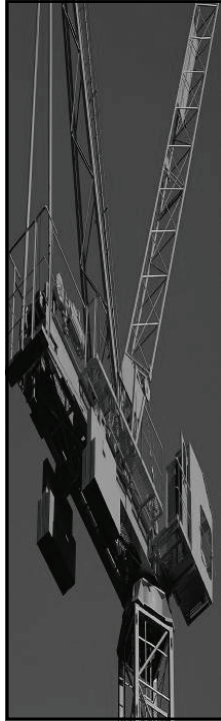
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Owner Challenges



- Resourcing
- “Success Bundle” assembly
- Role and responsibility definition
- Manual and guidelines
- Site security and access
- Contract administration and performance monitoring
- Dealing with the neighbors

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Keys to Success

- Systematic Preparation
- Active Involvement
- Adequate Resourcing
- Utilization of Partners
- Sensitivity and awareness
- “Gaming What-Ifs” and Contingency Plans
- Over Communication

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Conclusions



- **Issues not addressed upfront will not disappear**
 - A lack of planning early creates emergencies later
- **Someone must be assigned the role of “The Keeper of the Big Picture”**
 - It is easy for everyone to fall prey to “unintentional blindness”
- **Success is a group accomplishment**
 - The group includes all those constituencies within the public affected by the project

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Questions/Discussion



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Notes

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Public Hazard Protection Plan

Appendix A, ANSI A10.34

A. Project Information

1. Name of project
2. Location of project
3. Project constructor
4. Contractor(s)
5. Scope of work (covered by this plan)
6. Plan prepared by
7. Project constructor review

- iii. Gas
- iv. Electric
- v. Fuel
- vi. Sanitation
- vii. Trash
- viii. HazMat
- ix. Steam
- x. Compressed Air
- xi. Others

B. Policy Information

1. It is the policy of the parties named above to limit or to minimize any damage or injury to the public during the construction operations.

C. Monitoring and Inspections

1. Describe the monitoring and inspection procedures.

D. Notifications

1. Person responsible for incident investigations
2. Person on project (contractor contact) responsible for public notices, complaints, communications, and community relations
3. Name and contact information for utilities and vendors
 - i. Water
 - ii. Sewer

E. Hazards (That may affect Public)

1. Noise
2. Vibration
3. Fumes
4. Dust
5. Mists/Sprays
6. Traffic flow, signage and barricades
7. Bridges or covers
8. Pedestrian bridges
9. Pedestrian walkways, closures and signage
10. Access for emergency vehicles
11. Cleanup of roadways and walkways

12. Pedestrian slips, trips and falls
13. Public ingress and egress
14. Separation and barriers for public
15. Emergency evacuation routes
16. Lighting/arcs/glare that are a hazard
17. Areas properly lit for public safety
18. Radiation
19. Machinery, vessels, crafts and vehicle movement
20. Overhead loads in occupied areas
21. Ambient noise overcomes warning devices
22. Falling objects
23. Wind-borne or water-borne objects
24. Overhead hazards from falling objects
25. Security measures
 - i. List of persons authorized after hours access
26. Pollution controls
 - i. Water
 - ii. Air
 - iii. Ground
 - iv. Sewer
 - v. Storm Sewer
27. Hazmat storage and removal
28. On-site sanitation (sewerage) methods
29. Utilities marked and noted on drawings
30. Public injuries and damage response plans
31. Vibrations and subsidence
32. Blasting and flyrock—signals and signage
33. Emergency action plans
 - i. Flood
 - ii. Hurricane
 - iii. Tornado
 - iv. Fire
 - v. Medical emergency
 - vi. Chemical leak
 - vii. Chemical spill
 - viii. Electrical outage
 - ix. Collapse
 - x. Fatality
 - xi. Multiple injury accident
 - xii. Catastrophe
 - xiii. Serious inclement weather
 - xiv. Crime against property on jobsite
 - xv. Crime against persons on jobsite
34. Public protest, pickets and blockages
35. Public contempt or violence
 - i. Threats
 - ii. Bomb or arson threats
 - iii. Threats of violence to construction site employees
 - iv. Suicide attempt or threat
 - v. Others

Site Planning Considerations

Site Organization & Planning Considerations—(taking in mind the transformation of the site as work progresses on the schedule)

Utilities (Site & Existing or Adjacent)

- Water
- Sewer
- Electricity
- Gas
- Phone
- Waste disposal/Trash disposal
- Material recycling

Temporary Services

- Toilets
- Drinking water
- Electricity
- Phone

Vehicular Traffic

- Wayfinding and directional signage
- Workman arrival/Departure
- Material deliveries
- Suppliers (e.g., postal, office supplies, lunchwagon, etc.)
- Equipment within site
- Road network access and controls
- Parking areas
- Visitors
- Inspectors
- Internal traffic network, flow patterns and signage
- On-site transportation and equipment movement
- Emergency vehicle

Pedestrian Traffic

- Into and out of site
- Within site
- Lunch/Break areas
- Emergency shelters and evacuation designation areas
- Access to facilities
- Travel distances
- Adjacent to site/Public Protection
- Visitors
- Wayfinding methods

Vertical Transportation

- Personnel
- Material & equipment

Railroads/Navigable Waters

Adjacent Structures, Property and Environment (Hazards)

- Protection of
- Protection from

Security

- Site access and badging
- Securing site from public
- Coverage (hours and numbers)
- Lighting
- Facility, as it nears completion

Housekeeping

Trash/waste disposal inside and outside of facility
Cleaning services

Medical Activities

Emergency responders
Preferred provider
Coordination for return to work

Police and Fire Department Coordination

Fire or rescue response
Hazmat response
Threat and other police response

Material storage and staging

Locations (inside and outside of facility, changing over time or for duration)
Provisions for access, security and fire prevention
Special security measures for highly pilferable or owner provided material
Special provisions (fire prevention and environmental) for fuel storage

Trailer Layout

Office
Storage
Tools
Access: workers, suppliers, visitors

Lighting and fencing**Signs, signals, and barricades****Crane placement**

Reach and boom radius obstructions
Proximity to powerlines
Access and base conditions

Fire Protection

Hot work permitting
Facility
Material storage areas
Response
Transition to facility systems

Public Relations**Project Nuisance Items**

Fugitive dust
Subsidence
Flooding
Storm water runoff
Traffic
Light
Noise
Vibration/blasting

Environmental Concerns

Fugitive elements
Spills
HazMat on site
Hazardous waste disposal

Transportation Network**Proximity to Needed Services**

How will they be provided?
Who is responsible?