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Industry Panel Purdue Disaster Conference

Best Practices: Demolition, Restoration & Reconstruction

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The following document has been updated to be more user friendly by including a Cover Sheet and Table of Contents (TOC) suitable to print for educational and training purposes. The 20 page “core document” has not been altered since it was peer reviewed, published and uploaded to Purdue University’s E-Pubs as part of the conference proceedings. The new 22 page format allows the reader/user to effectively navigate the document zeroing in on points of interest after reviewing the TOC. For more information on this document’s development, publication and distribution, contact the primary author Pete Consigli at; pcpathfinder@yahoo.com.

Catastrophic Response and Disaster Recovery: An Industry Panel on Best Practices

"Mitigation & Demolition, Restoration & Remediation, Reconstruction & Recovery"

TABLE OF CONTENTS

- Page 2:** Abstract of Industry Panel (Drafted & Submitted by Consigli)
- Pages 3-5:** Demolition Industry Q & A of Proceedings (Stahr & Myrick)
- Page 4 -5:** Working with Local Demolition Contractors (Jerry Myrick)
- Pages 5-18:** Restoration Industry Q & A of proceedings (Zlotnik & Amarante)
- Page 10:** Industry Certifications (Cliff Zlotnik)
- Pages 10-12:** Industry Standard of Care (Cliff Zlotnik; "The Z-man" opines)
- Page 14:** Requirements for Large Scale Disaster Clean-up (Rusty Amarante)
- Page 15:** Safety, Logistics & Local Resources on Large Projects (Rusty Amarante)
- Pages 16 - 17:** Challenges Working with FEMA & Government Agencies (CZ & RA)
- Page 17:** Working with Insurance Carriers & 3rd Party Networks (CZ & RA)
- Pages 18 – 19:** Volunteer Recovery Assistance Sector Q & A of Proceedings (Pilié)
- Page 20:** Disclaimer & Protocols
- Page 21:** Acknowledgments & Reviewers
- Page 22:** Resources & Links

Note: IAQ Radio covered the conference and broadcast a live "Recap" show on May 23, 2014 from the Purdue campus. Podcast radio jocks, Cliff "Z-man" Zlotnik and Joe "Radio Joe" Hughes interviewed Purdue Professors Robert Cox, Bryan Hubbard, Randy Rapp and Mark Shaurette along with RIA Industry Adviser Pete Consigli.

Download and listen to the interview by visiting the IAQ Radio home page (link below) or click on the link for "Episode 328": [Episode 328](#)

<http://www.iaqradio.com/>

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Abstract:

Natural disasters and man-made failures or defects cause damage to buildings and its contents disrupting people's lives, businesses and the communities they live in. On a worldwide scale billions of dollars are spent to mitigate, restore and recover from a one-time residential incident, a single site large loss or for an area wide catastrophe.

This 2 part panel presentation will offer a perspective on the best practices from 3 different industry sectors from initial response to full recovery.

Representatives from the Restoration, Demolition and Volunteer Assistance industries will provide valuable insights to best practices and offer solutions on how industry can collaborate with academia, government, the social sector and community based organizations to better serve the victims affected by a disaster.

The ongoing goal of response and recovery should be for the stakeholders to share the lessons learned from previous disasters to help recover and build more resilient communities. Working together to develop emergency response plans and establishing a resource base before a disaster happens can better prepare for the recovery process.

The recovery process is not only about the restoration of people's dwellings and personal belonging, but also about restoring ones "peace on mind" so they can resume their life after the event!

Dealing with an insurance company or government agency can often be a cumbersome and frightening ordeal for first time disaster victims. The industry panel will share their experience on how to best handle financial considerations as well as the physical and emotional aspects of the loss recovery process.

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Demolition Industry Sector Q & A: Provided by Tom Stahr

Q. *What are the day-to-day skills and experience of a demolition contractor?*

A. Transportation, support and maintenance of all necessary equipment, safe demolition for both intact and structurally compromised structures, large scale movement and transport of debris and knowledge of the handling and transport of special and hazardous waste.

Q. *What types of training are common for the average demolition contractor?*

A. Hazard Communication, Lead in Construction, Asbestos Awareness, First Aid/CPR and HAZWOPER.

Q. *What types of equipment do demolition contractors typically own, and what does the equipment do (e.g. move large amounts of debris, break concrete, cut steel, etc.)?*

A. All necessary equipment specific to the safe and efficient removal of all types of structures and large amounts of debris including backhoes, loaders, skid-steers, debris trucks, tankers, cranes and high reach excavators, etc.

Q. *What are the typical medical baselines/testing and PPE requirements for a demolition company?*

A. Blood lead/ZPP, Respirator Use (medically tested – spirometry), All PPE including respirators, hard hats, protective footwear, safety glasses, gloves and fall protection, etc.

Q. *Compared to the number of demolition contractors in the industry, how many demolition contractors typically participate in the clean-up after a large scale disaster?*

A. A very small percentage of the demolition industry participates for public sector customers after large scale disasters.

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Q. *What are the barriers to participation raised by those companies who would otherwise participate?*

A. Unlimited liability enforced hiring practices, labor and equipment rates, limits on reimbursement (mechanics, etc.) and timely payment.

Q. *What would be some of the benefits of lowering the barriers for a more full cooperation of the demolition industry?*

A: Increase in recovery speed and efficiency, decrease in health and safety issues both during and after a loss and overall savings.

Q. *What are some of the potential consequences of maintaining the status quo?*

A. Lengthy recovery times, long-term health issues of former disaster site workers and dramatically inflated overall costs.

Jerry Myrick: Working with Local Demolition Contractors

Not all disasters are national or require a national response. The vast majority of incidents requiring emergency response personnel occur in local communities and the first responders will most likely rely on their community's resources for assistance. One of those resources would be a local demolition contractor.

Many demolition contractors have working relationships with the local fire department, emergency management office or city managers through a formal Memorandum of Agreement, or just a verbal commitment to help when called.

The local demolition contractor, with his knowledge of the area and the available resources can provide valuable information and skilled support at a fire scene or the cleanup after a hurricane, tornado or flood.

Local demolition contractors can supplement the important work of firefighters, police and emergency medical services with experienced crews and specialized equipment and the expertise to assist in recovery efforts.

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Working with local demolition contractors will make disaster sites safer and speed up the clean-up efforts.

Restoration Industry Sector Q & A: Provided by Cliff Zlotnik & Rusty Amarante

Q. *What should be considered a minimum level of training to qualify a competent restoration contractor?*

A. (Zlotnik): Situational experience is likely of greater importance than a certificate or card that implies competency. Having done at least one previous project of the same type peril of similar severity. The greater amount of situational experience the better. IICRC certification in the category or equivalent would be the minimum level of competency. Preferably the contractor would have an advanced designation from RIA.

A. (Amarante): Before considering working in disaster recovery areas, restoration contractors must be well trained and thoroughly experienced in the restoration industry service lines they plan to provide, such as: emergency services, restoration, reconstruction, and/or contents processing.

They must also be resourceful, highly organized, possess strong leadership skills, and be able to travel their own team of qualified production and administrative personnel.

Their entire team must be able to cope with being away from home weeks or months, work long hours seven days per week while maintaining a heightened and continuous sense of urgency. They must be proficient at handling a large number of projects, and be appropriately sensitive and responsive to impacted individuals and their families.

Q. *What type of service is typically offered by a restoration contractor, how do they operate, what type of equipment do they typically own and what does the equipment do?*

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A. (Zlotnik): Some restoration contractors perform all tasks using their own staff, others rely totally on subcontractors, the majority uses a combination of their own staff and sub trades to complete projects.

Restoration firms are like physicians in that they decide to be a general practitioner and handle a wide range of losses or choose to specialize.

Restorer preference or job requirements will determine whether personal property will be restored on-site or will it need to be packed moved, restored, stored and returned.

Water damage is the largest loss category. The emergency response and equipment rental components of water damage projects make water restoration work the service offered by the largest segment of the cleaning, restoration and reconstruction industry.

Firms providing water damage restoration services have equipment to extract water. Extraction of bulk water is the fastest and most efficient way to remove it.

Firms also will have monitoring and sensing equipment (from meters to infrared cameras) to locate water laden areas and monitor the drying of materials.

They will have structural drying equipment, air-movers, and dehumidifiers.

It's also common for them to have an area which is used for the climate controlled drying of personal property.

Tractor trailer mounted drying equipment, generators and climate control is used on large projects.

General practitioner restorers will provide emergency services such as board-up, temporary roof repair, structural repairs, painting & decorating.

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Specialized equipment such as soda blasting and dry ice blasting are utilized to specialized equipment is utilized for smoke odor removal (thermal foggers, ULV foggers, ozone machines, hydroxyl generators).

Foggers convert solutions into mists or smoke which penetrate inaccessible areas.

Ozone machines create a gas which oxidizes odors and hydroxyl generators use UV light to break down malodors.

HEPA filtered air scrubbers are used to capture airborne contaminants and return air to a level of cleanliness equal to or better than pre-loss conditions.

Specialized equipment is utilized to clean carpets, upholstery and draperies.

Most carpets and upholstery can be aqueous cleaned. Sensitive fabrics need to be dry cleaned. Dry cleaning doesn't mean without liquid, dry means a non-aqueous liquid.

Restoration technicians need access to the items and surfaces that they are working on: ladders, scaffolding, and scissor lifts.

A subset of the restoration industry practice only contents restoration and have dedicated facilities to which personal property is brought for cleaning, specialty treatment and climate controlled storage.

A. (Amarante): Service needs change over time. Restoration contractors providing emergency services of shoring, board-ups, temporary roof covers, decontamination, water extraction, structural drying, and content stabilization are in high demand in the hours and days following a catastrophe. Within some number of days to weeks, the greater need shifts to interior demolition and personal property evaluation, recovery, and disposal.

Reconstruction is the final phase and may not be needed for a month or longer after the disaster.

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Restoration contractors that can meet all client needs are in the greatest demand. Those that choose to specialize in one or more areas may be relegated to subcontracting to secure work.

Emergency services tend to be self-performed because training and equipment operation are highly specialized. Demolition and personal property evaluation and processing require trained experienced supervision by the restoration contractor.

General labor, construction trades, and specialists for books, documents, electronics and art may be self-performed or subcontracted locally.

In addition to the operational equipment already mentioned, logistical equipment and operating facilities may also be required. Freight companies sometimes suspend services to disaster impacted areas for safety considerations.

Restoration contractors may have to take it upon themselves to transport recovery materials and supplies to work areas. Disasters disrupt area power, cell phone, and internet services. Temporary fixed-facility office and warehouse facilities are not always available. Restoration contractors with mobile office facilities complete with generator and satellite internet capability can overcome local area shortages and establish necessary operational headquarters.

Q. *What are the typical medical baselines/testing and PPE requirements for a restoration worker/ company?*

A. (Zlotnik): OSHA mandates that employers have a written safety program. Medium size and larger restoration firms often have a designated safety officer who is responsible for safety compliance.

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Testing and PPE requirements need to be appropriate for the types of work the company performs. Some restoration firms perform exterior work such as roofing while others only clean personal property that is dropped off to them.

Fire cleanup should be considered HAZMAT work due to the presence of hazardous particulate. Division of labor: men doing more physical tasks, structure cleaning, painting, etc.

Restorers often use a staffing agency to employ temporary to permanent employees. The staffing agency will often perform drug testing, medical background check.

Specialized 3rd party providers offer: safety training, PPE selection and sale (comfort), respirator fit testing, isokinetic strength testing (trunk, knees, shoulder joint), etc.

OSHA 10 hour highly recommended. OSHA Hazwoper as needed.

A. (Amarante): Medical baselines are a requirement for hazardous material workers and not typical for general restoration work. OSHA charges employers with knowing work hazards and protecting workers.

Best practices for restoration contractors working disaster recovery zones are to have trained dedicated safety personnel overseeing all job sites. Restoration contractors learn of work hazards by site inspection, testing of site materials and by interior air sampling, as applicable. They then develop site-specific safety plans from their written safety program to assure that specific risks are properly managed.

Generally, the greatest risk is to restoration workers providing emergency services and demolition. They often are required to wear protective coveralls, multiple gloves, and respirators. They may also be required to be vaccinated for tetanus and hepatitis A and B before entering a work site.

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Q. *Explain the different types of certification in the industry and how are they different?*

A. (Zlotnik): By far with over 60,000 registrants globally the Institute of Inspection, Cleaning and Restoration Certification (IICRC) is the largest training and certification organization within the restoration industry. The IICRC is a nonprofit group. IICRC courses are taught by approved instructors who teach coursework for IICRC approved schools. IICRC technical advisory committees develop exams which are administered by instructors at the conclusion of courses.

Exams are sent to IICRC HQ for grading. A variety of courses are available. Master designation is attained by adding the required number of prerequisite courses together. Continuing education work is required.

Advanced level certification, majority of which use a blend of industry experts and subject matter experts, require prerequisites of other courses and mandatory field time and require a written capstone project and/or approved research paper are conducted by Restoration Industry Association (RIA). Exams are sent to HQ for grading. Continuing education is required.

3rd party accredited advanced level courses in mold remediation consulting and indoor environmental consulting are available through the American Council for Accredited Certification (ACAC) whose courses are accredited by the Council of Engineering and Scientific Specialty Boards. Students must take exam at a testing center. Continuing education is required

Q. *Explain how the industry establishes the standard of care that is customary and normal for a restoration project.*

A. (Zlotnik): Disaster repair is a relatively young industry, the formal beginnings of which can be traced back to the late 1960s and early 1970s.

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In 1992 the Red Cross published a guideline document titled "Repairing Your Flooded Home". The project utilized a small and diverse group of subject matter experts such as contractors, a psychologist, and city planner to create the document.

The history of industry standards can be traced back to IICRC's S-500 Standard and Reference Guide for Professional Water Damage Restoration which was first published in 1995. The first water damage standard was a prescriptive "best practice standard" which was combined with a reference guide. The precedent of combined standard and reference guide has continued through multiple rewrites.

BSR- IICRC S520 Mold Remediation Standard and Reference Guide for Professional Mold Remediation, is also a prescriptive "best practice standard" which was combined with a reference guide.

Other options exist for mold remediation guidance: NYC Guidelines on Assessment and Remediation of Fungi in Indoor Environments, EPA's, A Brief Guide to Mold, Moisture, and Your Home Mold Cleanup Guidelines and their document for guidance to remediating mold in schools and commercial buildings.

ANSI IESO/ RIA Standard 6001 "Evaluation of Heating, Ventilation and Air Conditioning (HVAC) Interior Surfaces to Determine the Presence of Fire-Related Particulate as a Result of a Fire in a Structure" Published in March 2012

Industry should have "good practice standards documents" (generally accepted methods), offering the contractor options for the best way to handle the situation.

Every restoration project is unique and the person best equipped and prepared to make decisions onsite is a skilled and experienced restoration contractor.

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Unfortunately on water damage and mold remediation projects contractors are being forced by insurance carriers and/or IEPs (indoor environmental professionals) to follow prescriptive industry standards.

These documents in my opinion have been inordinately influenced by consultants who have historically dominated the process of writing industry standards.

Based on the definitions below, it is my belief that IICRC's prescriptive water damage restoration and mold remediation standards are theoretical and overly prescriptive. These standards have historically driven up costs for property owners and insurers by prescribing contractors use costly labor intensive mold remediation procedures and drying equipment sizing formulas that may not be appropriate for every project.

Trained and experienced restorers must have the freedom and flexibility to “call the shots” and determine the most appropriate restoration method for each situation. I have coined the term “Standards Truthing” to describe this process.

***“Ground Truthing”:** The process of sending technicians to gather field data that either complements or disputes information obtained remotely. Without ground truthing remote data is hypothetical at best.

***Source:** <http://www.missiongroundtruth.com/groundtruth.html>

****“Standards Truthing”:** The process of sending trained and experienced restorers to the jobsite to determine the most appropriate restoration method for the situation.

****Footnote:** A term derived from the root definition of “Ground Truthing”.

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Q. *Compared to the number of restoration contractors in the industry, what percentage of companies typically participate in the clean-up after a large scale disaster? Define the various levels of participation by different contractor types?*

A. (Zlotnik): Not all catastrophic losses are covered such as flood damage. Availability of insurance proceeds to pay for remediation work is the driving factor for contractor participation. Globally, reducing business interruption is important even when insurance proceeds aren't available.

There are approximately 16,000 water damage restoration contractors.

[http://www.heraldtribune.com/assets/pdf/advtips/IQ_FireWaterDamage.pdf]

Contractors who aren't well capitalized and not market leaders in their own service area should avoid the temptation to working hundreds or thousands of miles away storm chasing. The further away from home contractors must operate the more difficult it is. Business and contracting licensing is required.

A. (Amarante): I don't think anyone has a definitive answer but it is probably less than 10%. Restoration contractor participation should be a function of a company's business model, size, services, line of credit, travel required, and bonding limits. Unfortunately some companies lacking sufficient resources and totally dependent on the local market for their livelihood succumb to temptation and pursue disaster related recovery work in the belief they will make more money than they are making at home. Too often the results are that local markets are cannibalized and financial strength is compromised.

All restoration service lines are in demand following a disaster. Full service contractors may opt to offer one or more of their service lines. Niche contractors offer emergency services, recovery of contents, books and documents, electronics, or reconstruction.

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Q. *What additional training, equipment and experience should a restoration contractor have before offering large scale disaster clean-up?*

A. (Amarante): From a safety perspective consideration should be given to OSHA Construction 10Hr. for crew leaders, OSHA Construction 30Hr. for supervisors and managers, EPA Lead RRP, Asbestos Awareness, and OSHA HAZWOPER for certain sites.

Emergency service equipment consists of water extraction equipment, dehumidifiers, air movers, air filtration devices, and highly specialized moisture detection instruments. Demand is high and the equipment cannot be procured in local markets. Running out of equipment during an emergency services phase can be disastrous for an unprepared contractor.

Contractors utilizing local subcontractors need a proven vetting process and strict rules against hiring un-vetted subs.

Restoration contractors learn disaster recovery work on the job (OJT). Contractors new to this work should have strong leadership, constant communication, and a keen sensitivity to the risks of this work.

Lastly, contractors doing disaster recovery work must have a strong line of credit to cash flow disaster recovery work. They must contend with the combination of a large number of simultaneous projects, billing delays from limited staff, and accounts receivable that goes uncollected for 6 months or longer.

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Q. *Discuss the top 3 typical challenges that you have encountered working on large scale disasters and how you overcame them.*

A. (Amarante): While every large scale area disaster is different, some common challenges are safety, logistics, and availability of local resources.

Safety: Contractors rarely know area risks until they are there. BELFOR deploys a group of safety professionals in the first wave of responders.

They are charged with surveying the area, attending to media information and generally learning all the damage elements present.

Logistics: Again, contractors cannot always depend on freight companies and vendors to deliver materials and supplies to a damaged zone. At BELFOR we utilize 53' tractor-trailer rigs to haul and deliver everything we need.

Local Resources: Damaged buildings, interrupted infrastructure, and displaced local citizens means warehouse and office space are difficult to find, lodging facilities are not operational, internet service is unavailable, fuel is hard to get, and local labor and construction trades personnel are in short supply. BELFOR utilizes mobile office facilities equipped with power generators and satellite internet capability. We also repair area hotels and provide temporary electrical generator power in exchange for hotel rooms. Additionally, we set fuel tanks at our hotels or at client facilities. We also transport, house, and feed out-of-area general laborers and construction trade personnel through temporary employment agencies.

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Q. *Discuss the unique challenges of working a restoration project when a government agency is involved.*

A. (Zlotnik): Government agencies are involved with every restoration project: OSHA, NIOSH, EPA and FIFRA. Government bureaucrats may suffer from myopia (nearsightedness) and be focused on a narrow component of the restoration process rather than looking at the situation holistically.

A. (Amarante): *What are the challenges, if any, of working on a restoration project with FEMA involved?*

There are two types of FEMA encounters that contractors may experience providing restoration work in the aftermath of an area-wide disaster.

FEMA is empowered to confiscate contractors' equipment, materials, and/or supplies to serve a local community following an area-wide disaster. They provide the contractor with an un-priced US Government purchase order for the commandeered goods and the contractor is left in the lurch. The loss of critical resources means contractors' clients, employees, and subcontractors will have to wait for arrival of replacement goods. Also, it has been my experience that contractors receive little guidance regarding invoicing and collecting from FEMA. Countless hours can be spent solving that problem and many months may pass before payment is received.

Contractors may also encounter FEMA following client application for government reimbursement for restoration services. Contractors should make every effort to learn if and when a client may make application to FEMA for reimbursement of their work. The issue is that FEMA has very specific unique billing requirements. Daily FEMA-directed documentation is required to comply with FEMA invoicing format. Their requirements may add substantial administrative costs to a project.

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Unfortunately, many clients file FEMA applications AFTER project completion. This can create a substantial challenge to the restoration contractor, as he will be required to re-format his billing without all the documentation FEMA requires.

Q. *What advice would you offer to a disaster victim to better work with their insurance carrier and their vendor networks?*

A. (Zlotnik): As large amounts of money may be a stake, it is important that policyholders select a contractor who will advocate for their interests. Once the loss occurs it's a little late.

The importance of preplanning and selecting a restoration contractor that the property owner feels comfortable with and has an emergency response agreement (ERA) before the loss occurs cannot be overstated.

This type of preplanning and negotiating the terms and conditions of the mitigation and restoration process allows the contractor to commit resources and prioritize emergency response to those clients with an ERA in place.

A. (Amarante): Know the basics of your insurance policy including coverage limits and ALE. Photo document damage, have patience, be readily available, document all communication, cooperate with their processes, be prepared to provide comparative estimates and other professional opinions.

Q. *Any final thoughts on how industry can work more closely with other stakeholders like academia, and the social sectors to better serve the victims and communities who have suffered a life changing catastrophic event?*

A. (Zlotnik): Based on the belief that "necessity is the mother of invention"; I opine that researchers and academics who gain field experience will do better work.

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Therefore, all stakeholders will be better served when academia and/or the research community has the opportunity to gain first-hand experience with the challenges of the restoration and recovery process by "walking a mile in a contractor's moccasins".

A. (Amarante): Education is arguably an obvious answer but then the challenge becomes gaining people's interest. People are simply less inclined to be interested in disaster recovery until they are faced with their own disaster.

Education should take the form of safety tips in the days and hours leading up to know disaster, like a hurricane, self-help pointers immediately following a disaster, helpful hints working insurance claims personnel, and what to expect from your restoration contractor.

The material would be developed and distributed through a cooperative effort between insurance carriers, state offices of emergency management, FEMA and perhaps others.

Distribution would be repetitive and begin in the days leading up to an impending disaster and continue for days following an incident. All current available media sources would be utilized.

Volunteer Recovery Assistance Sector Q & A: Provided by Monique Pilié

Q. *What are some of the safety constraints when doing demo or "muck and gut" for a volunteer organization?*

A: Dealing with volunteers that are inexperienced on a worksite, presence of asbestos and lead, working on a house that may not be structurally sound.

Q. *What precautions do we take with volunteers when doing demo?*

A: Each day starts with an orientation that describes the work being done that day and a safety training pointing out the potential hazards on the work site. We make sure each person on site has proper PPE.

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Q. *What type of training do volunteers get when working with you?*

A: Every day starts off with a safety training that goes over proper wearing of PPE, site awareness, potential hazards and tool training.

Q. *What is the criteria for assisting a homeowner for "muck and gut" and repair/rebuild?*

A: For homeowners to get assistance with "muck and gut" they just need to ask for our help and damage to their home has to be caused by a natural disaster.

For repair/rebuild help we do a thorough financial vetting process to make sure we are helping the neediest of the needy.

Monique's Final Comments:

When a natural disaster happens, communities get overwhelmed with what needs to happen for recovery to take place.

Government is not able to meet all the needs of the community. Industry is not able to meet all the needs of the community and neither are non-profit organizations. However, if all of these entities can work together then headway can be made to move the community and individuals along the path of recovery.

All Hands Volunteers and similar disaster relief organizations see their role as being there to help the "neediest of the needy" and those that often fall through the cracks. We do not see ourselves as being in competition with the industry sector but more supplementing the work that industry does to help meet the needs of the entire community.

All Hands Volunteers believe that the more groups, businesses and organizations we can partner with then the more efficient and effective the recovery process will be for all affected stakeholders.

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Catastrophic Response and Disaster Recovery: An Industry Panel on Best Practices

"Mitigation & Demolition, Restoration & Remediation, Reconstruction & Recovery"

Disclaimer

The information in this document is designed to offer insights into the practical day-to-day operations of those engaged in the profession of demolition, restoration and recovery assistance following a man-made or natural disaster.

The views and opinions expressed in this document are solely those of the acknowledged respondents based on their personal experience.

They do not represent the position of the nonprofit organizations or commercial entities they are affiliated with referenced in this document.

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Recording and Review Protocols:

The information in this document has been recorded by the panel moderator to accurately reflect the spirit and intent of the panel interaction. Each panelist has had an opportunity to review, comment and sign-off on the contents of this document before its submittal to conference organizers for publication.

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Chairman NDA Disaster Response Committee

Jerry Myrick, Emergency Resource Management, Inc.

Past Chairman NDA Health and Safety Committee

Restoration Industry Sector Panelists:

Cliff Zlotnik, CR, WLS, CMH (IAQ Radio, Co-host) Past President RIA

Rusty Amarante, CR (Belfor, Director of Operations) Past President RIA

Volunteer Recovery Assistance Sector:

Monique Pilié (All Hands Volunteers) Director of US Recovery & Repair

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Disaster Response and Recovery Industry Resources

- 1) **National Demolition Association (NDA) :**
<http://www.demolitionassociation.com/>
<https://www.youtube.com/watch?v=QEx0sxKUVgc&feature=youtu.be>

- 2) **Restoration Industry Association (RIA):**
<http://restorationindustry.org/>
<http://www.riaconvention.org/>

- 3) **Institute of Inspection, Cleaning and Restoration Certification (IICRC):**
<http://www.iicrc.org/>

- 4) **All Hands Volunteers (AHV):**
<http://hands.org/>

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