



The Newsletter of the Northern Delaware Section of the DelMarVa Chapter of the American Society of Safety Engineers (ASSE), Park Ridge, IL. Vol. 5, NO. 3, May 2015

Elevator Shafts as Confined Space

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When it comes to confined spaces, we usually think of tanks, wells and sumps. Although these are common, they do not represent the universe of all confined spaces. Please consider elevator shaft-ways below and above the car. These are frequently overlooked and sometimes difficult to properly assess. The definition of a confined space is a space that:

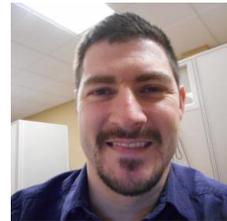
- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work;
- (2) Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces with limited means of entry); and,
- (3) Is not designed for continuous employee occupancy.

Each of these conditions must be met before classifying the space as confined space. Also, some confined spaces may be defined as permit required confined spaces, which have one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere; or,
- (2) Contains a material that has the potential for engulfing an entrant; or,

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Chair's Message:



Marcus Suhr, CSP, CHCM

I find myself at the start of OSHA's two weeks of stand down for fall protection presenting that very topic in Jacksonville, Florida to military personnel. Based on my observations at many construction sites there appears to be a lot of confusion about fall protection equipment and how to use it properly.

If you wear fall protection or watch over those who do, please take the time to ensure users are utilizing it according to directions and that they are inspecting it prior to use.

Fall protection equipment used incorrectly can give the user a false sense of safety and lead to serious injury or death. Please participate in the safety stand-down in whatever way you are able (See Calendar of Events Page 4). Sharing your knowledge and observations could help everyone make it to the next stand-down in one piece.

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Suspension Trauma: A Cascade of Lethal Consequence

Dr. Norman Wood April 12, 2015

For over 2000 years, man has known that being suspended in a vertical position causes death, the crucifixion victims are testimony to that fact. Anyone

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- (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or floor which slopes downward and tapers to a smaller cross-section; or,
- (4) Contains any other recognized serious safety or health hazard.

We would agree that an elevator pit located below the car meets all three of the confined space requirements. It also meets two of the permit required characteristics i.e. "contains or has the potential to contain a hazardous atmosphere" and "contains any other recognized serious safety or health hazard".

Areas below grade such as elevator pits could accumulate heavier than air toxic gasses, which should be monitored closely. Because below grade pits may also accumulate heavier than air toxic gasses over time so initial plus ongoing monitoring are necessary.

Also keep in mind that hazards assessed initially may change with the introduction of the planned work. An example of this is welding, as work progresses heavier than air smoke fume and gasses could accumulate. The elevator pit already meeting the definition of a confined space becomes a permit required confined space because of the presence of potentially toxic contaminants. Welding also may reduce ambient oxygen and increase carbon dioxide. It now should be understandable that to evaluate these spaces as permit required is paramount.

Other factors like the length of time of the welding, the amount of gasses or fume generated, the depth of the shaft, and the amount of forced or passive air circulation all influence the hazards. Posting the required signs advising this area is a permit required space would also be required. (OSHA CFR 1910.146 (c) (2))

If there are permitted spaces in the workplace, the employer is required to inform exposed employees by posting danger signs or notices by any other equally effective means, NOTE: A sign reading DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or using similar language that would satisfy the requirements. Be aware not to classify the entire shaft as permit required.

Also, considered the area above the car. It may be affected differently than the area below largely because heavier than air smoke, fume and gasses are not likely to be present. The area above the car may not have a restricted means for entry or exit with the door on the floor above open. Therefore above the car does not meet the definition of a confined space. Therein lies a problem.



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who has ever been in the military and has stood in formation knows that a percentage of very well-conditioned personnel cannot remain conscious while standing at attention for prolonged periods. Tilt-Table Testing in medicine has proven that eighty percent of the adult population can become unconscious in less than one hour while lying motionless on a table. Why? It is simple, gravity and immobility.

The human body is a living hydraulic system of pumps and fluids, and every moment of our existence, we have biological forces that must be present to assist this system against the natural forces that will cause this system to deteriorate and possibly fail. Gravity and immobility are the forces that can cause this vital hydraulic system of life to deteriorate to the point of unconsciousness for an otherwise healthy host.

The heart is a powerful pump and the resultant arteriole circulation of blood is very adequate under most circumstances. Where we get into trouble is the venous return where there is only 1/5th of the arteriole pressure. This return of the biological hydraulic system is easily compromised by direct pressure to the femoral vein and by gravity to the point of stasis. When blood stasis or pooling begins to occur, the total volume of circulating blood will begin to decrease, causing less and less oxygenation to the brain. Eventually if this condition continues, we will have cerebral hypoxia and unconsciousness can occur. We faint.

Fortunately, the veins of our legs have one-way valves that assist the venous return to the heart. However, we must have movement of the leg musculature to facilitate this blood transfer. As we contract the leg musculature while we walk, the pressures created, squeeze the leg veins and force the blood via the one-way valves back to the heart. This is why the lack of movement can cause unconsciousness under certain circumstances if the body is in a vertical attitude.

Our natural defensive mechanism when this occurs is to fall to the ground and become horizontal to where blood flow is normally restored to the brain and we wake up. If we are suspended in a vertical position as in a harness after a fall stop, and we become unconscious, we are in very grave danger of never waking up. This is because the forces that have caused the assault and unconsciousness to begin with, will only become worse the longer we are suspended. Permanent brain damage and death can occur within five to ten minutes of becoming unconscious.

If we are suspended vertically in a rear attached safety harness, within a matter of minutes, this natural process can become unnaturally aggressive and possibly fatal. The pressures exerted by our leg straps against the femoral vein, will create immediate blood pooling and

Suspension – continued on page 3

If we sign the shaft as a permit required confined space not accounting for the area above the car, we create confusion. The area above the car has a set of characteristics different than those below the car. It's important to understand the hazards and classification of each space to accurately address the safeguards needed. Also remember that any classification is done prior to the work being done. The work itself may change this classification. So it is possible to have the location classified differently in one part of the shaft vs. another. Other hazards like fall protection may need to be addressed even though it's not a confined space, while the area below the car may require ventilation, air monitoring and/or ladder access.

Another issue is the weight of the overhead elevator car. A suspended car is recognized as a serious safety hazard from shifting or falling and may require car stop bracing. If work must be done under the car, a thorough safety review for blocking and bracing must be done

Conclusion: Shaft-ways may have two different space classifications depending on location, which may change depending on the work to be performed. Any posted signage must be based on an accurate hazard assessment. Additional resources may have to be deployed to conduct a thorough assessment of the hazards and employ appropriate safety precautions necessary.



Space above an elevator car



Space pit below the elevator car

can cause this process to accelerate into a cascade of lethal consequence. Knowing what to do in this circumstance can save your life. If you are wearing a descending harness, get to the ground or next level as soon as possible. If you are wearing traditional FAS, use the suspension relief strap immediately. Loosen the leg straps, do not take them off and move your legs like your life depends on it, because it may.

Survival times while suspended in a rear attached safety harness are extremely variable. Some people tolerate the forces placed on the body better than others. The point is, nobody will ever know how their body will respond until you are actually suspended. Have a rescue plan and know how to prolong survival until help arrives. Most people cannot stay conscious for more than 15 to 30 minutes while suspended without some form of suspension relief. Keep this time frame in mind and design your rescue plans around it.

Editor's Note: On April 9, 2015 Dr. Norman Wood presented "Suspension Trauma: A Cascade of Lethal Consequences" to the N. Delaware Section of ASSE. Dr. Wood's insights made this topic compelling for all who attended. We were all pleased with lessons learned and surely plan to add consideration of suspension trauma in our respective fall protection programs.



L to R, Mike Anderson, Marie Wright, Dr. Norman Wood, George Pearson at Dr. Wood's Suspension Trauma Presentation

CALENDAR OF EVENTS FOR 2015

STAND TALL, STAND PROUD AND STAND-DOWN FOR SAFETY! May 13th OSHA's Stand-Down for Safety to Prevent Falls in Construction co-sponsored by [Associated Builders and Contractors, Inc](#) (ABC) and the OSHA Wilmington Area office. The event will be held at ABC's training room, 31 Blevins Drive, New Castle, DE, begins at 8AM. Contact to Jean Toman at jtoman@abcdelaware.com or call 302-328-1111 to ask questions and to register. See attached flyer for details.

BLUE ROCKS JOINT SOCIAL WITH AIHA, DELAWARE

June 25, 2015, Social: 5:30 PM Game: 6:05 PM
Fawley Stadium, 801 Shipyard Drive, Wilmington, DE
Picnic with Barbeque. Game tickets, \$15.00 for members, \$27.00 for spouses/friends/significant/others. The Blue Rocks (Kansas City Royals) will be playing the Potomac Nationals (Washington Nationals). If you plan to attend, please let Norm Henry know the number of tickets you will need by sending an email ASAP to arrange_payment_to_norman.henry@state.de.us or SHBP65@comcast.net See flyer attached.

INTRODUCING ERIN PATTERSON, THE NEW OSHA AREA DIRECTOR FOR DELAWARE,

Date: September 15, 2015

Time: 5:30 Networking and business, 6:00 PM Speaker

Location: TekSolv
130 Executive Drive Suite 5
Newark, DE 19702

Contact: Marcus Suhr at
302-824-1695 (c)

Please send us your suggestion for topics you would like Ms. Patterson to address. Contact Marie Wright mwright@worthandcompany.com

ASSE/AIHA 4 HOUR JOINT SEMINAR

Date: October /November

Time: To be Determined

Location: To Be Determined

Topics and Speakers: To Be Determined

More to come on this event.



Trip Report: V & S Hot Dip Galvanizing, New Castle, DE

On the evening of March 19, 2015 the Delaware Sections of ASSE and AIHA visited the V&S Delaware Galvanizing plant in New Castle; this was a joint meeting of our two organizations. Our Host was Andrew Marchioni, Safety Director for V&S Galvanizing. Our meeting began with Andrew introducing the company and describing the galvanizing metals process and using the hot dip method. Applying hot dipped zinc coatings provide corrosion resistance to steel. Due to its fundamental nature zinc coating provides a barrier more substantial than paint; and provides cathodic protection to the underlying steel. Andrew also covered safety precautions we needed to take during the plant tour. We noted that V&S has a high regard for safety and claims an injury rate below the industry average. Andrew has spent 24 years in the Health, Safety, Environmental and Engineering fields and has been with V&S since 2009. He graduated from the University of Delaware in Civil Engineering. He covers nine plants across the Midwest and New England. The main risks Andrew cites are molten metal splatter, molten metal itself and airborne dust containing heavy metals. Andrew assures that employees use the proper PPE and apply the proper work practices that avoid contact or exposure with molten metal. His most gratifying moment working as a safety professional was when he implemented new PPE requirements and on the first day one worker who was wearing the new PPE ran up to him and emphatically stated he was so happy; that he was saved from a burn injury within an hour of wearing the new PPE.

Thank you Andrew.



Andrew Marchioni giving plant tour at V&S Galvanizing..

National Safety Stand-Down

Prevent Falls in Construction: May 4 – 15, 2015

Stand Tall, Stand Proud and Stand-Down for Safety!

Falls are the leading cause of death in the construction industry, as hundreds of workers die each year and thousands suffer debilitating injuries. The purpose of the National Fall Prevention Stand-Down is to raise awareness of preventing fall hazards in construction. This year OSHA's goal is for more than 20,000 Stand-Downs involving more than 3 million workers. Cosponsored by the Associated Builders and Contractors (ABC), Delaware Chapter.

ABC and the Delaware area OSHA office invite you to Stand-Down day Wednesday, May 13, 2015, 8 a.m. — 1 p.m. at ABC Delaware, 31 Blevins Drive, New Castle, DE

This **FREE** event is open to all contractors, members and non-members. By attending this event you will be eligible to download a Certificate of Participation signed by the Secretary of Labor, Thomas Perez.

Stand Down Schedule

- 8 a.m.** Introductions – Ed Capodanno/Marie Wright & Kick-off – Erin Patterson, OSHA Area Director
- 8:15 – 9 a.m.** Inspection: fall protection equipment and hands-on demonstration – Frank Dobson, Dobson Associates
- 9– 9:30 a.m.** General fall protection and issues found in the field audits – TekSolv
- 9:45 – 10:15 a.m.** Planning/evaluating the best fall protection system to use: overall industry/big picture approach – Erin Patterson, OSHA
- 10:15 – 10:45 a.m.** Worker's compensation costs associated with a fall – Brian Phillips, Willis Insurance
- 11 a.m. – 12 noon** Anchor point selection and temporary guardrail systems – Mike Costantino, Sales Solutions and Guardian Fall Protection
- 12 – 1 p.m.** Scaffold erection and associated fall protection demonstration – County Group Scaffolding
- 1 – 2 p.m.** Time to visit vendors

Demonstrations (located in the parking lot):

- TekSolv – Rescue Services employee and demonstration station where you can “feel what it's like to be suspended.”
- Sales Solutions – Mannequin Drop Test and portable guardrails
- Dobson Associates – Aerial Work Platform (boom lift) and the proper fall protection equipment.
- County Group Scaffolding – Scaffold erection and associated fall protection

Vendors and OSHA will have tables with safety and equipment literature available throughout the event.

REGISTER NOW!

Name(s): _____

Company: _____

E-mail address: _____

Phone Number: _____ Number of Attendees _____ Please email registration form to Jean Toman at jtoman@abcdelaware.com or call 302-328-1111.



Delaware Local Section

American Industrial Hygiene Association

Joint Social Event with Delaware ASSE

Take Me Out to the Ballgame

Wilmington Blue Rocks Game

June 25, 2015

Location: Blue Rocks Stadium
801 Shipyard Drive
Wilmington, Delaware

When: June 25, 2015

Time: 5:15 - 6:00pm. Pick up tickets from Janice Connell/Norm Henry in front of the ticket windows

5:35 pm Gates open

6:15 pm 2 hour all you can eat BBQ Buffet starts

6:35 pm Game starts!

Potomac Nationals!

MUG GIVEAWAY NIGHT!

We have reserved 25 tickets for seats in the 3rd base picnic area. A 2 hour, all you can eat buffet will be included. The barbeque style menu offers grilled BBQ ribs, grilled hamburgers, baked herb chicken, mac and cheese, hot dogs, corn on the cob, potato chips, ice cream sandwiches and non-alcoholic beverages.

If you plan to attend, please let Norm Henry know the number of tickets you will need by sending an email by **May 26** to norman.henry@state.de.us or SHBP65@comcast.net. Please indicate if you are a member/attendee of the Delaware Section AIHA or ASSE. EMSL has graciously agreed to sponsor the event and keep the cost down. Tickets are \$15 and include the BBQ buffet, special seating and the game! Spouses/significant others are welcome to attend but will need to pay the full price of \$27.

It will be a great opportunity to socialize and have fun!

Directions to Blue Rocks Stadium:

FROM THE SOUTH:

I-95 North to Exit 6, Maryland Ave. Right onto Maryland Avenue, and through the traffic light onto Martin Luther King Blvd. Make a right at the traffic light on Justison Street. Follow Justison Street to Shipyard Drive.

- **Alternate Route:** I-95 North to Exit 6, Maryland Avenue. Left onto Maryland Avenue, then another left onto Beech Street (2nd light). Turn right just past railroad tracks onto stadium access road.

FROM THE NORTH:

I-95 South to Exit 6 (in Delaware). Go through three lights. Make a left at the fourth light onto Martin Luther King Blvd. Go through three lights. Make a right at the fourth light onto Justison Street. Follow Justison Street to Shipyard Drive.

- **Alternate Route:** I-95 South to Exit 6. Follow Jackson Street to Maryland Avenue. Turn right onto Maryland Avenue, then left onto Beech Street. Turn right just past railroad tracks onto stadium access road.

Alternate routes are suggested on weekend games.

IMPORTANT GPS NOTE: If using a GPS device to locate the stadium, you may need to enter the old address: 801 South Madison Street. Not all GPS devices contain our updated 801 Shipyard Drive address.