THE AGGREGATE

2nd Quarter 2012

International Concrete Repair Institute Baltimore Washington Chapter, Inc.
www.icribwchapter.org

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Structural Damage Resulting from the Earthquake of 2011

Where were you when the Louisa earthquake rattled things? I am sure that many of us thought a passing truck or some other commonplace occurrence was causing our buildings to shake and shutter. Others probably suspected something more sinister, until television and radio news sources confirmed that an earthquake had struck. We have seen the cracks in the Washington Monument and the toppled spires and gargoyles on the National Cathedral. But, what about the damage to the ordinary buildings that we live and work in? What happened that did not make the news?

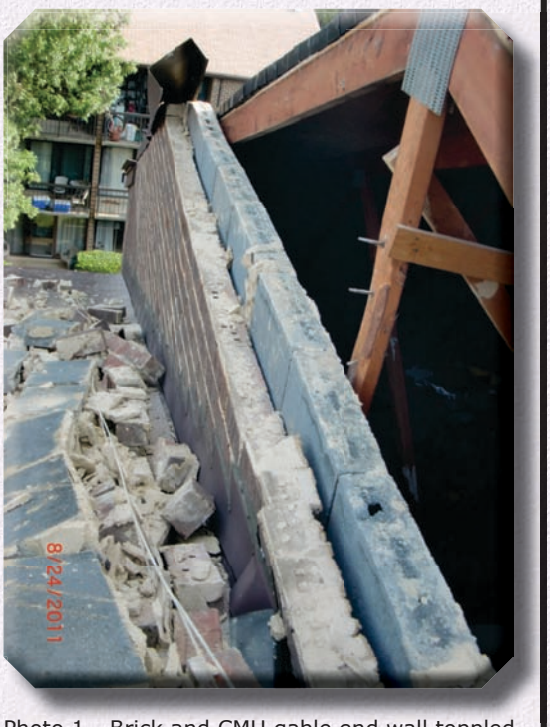

Photo 1 - Brick and CMU gable end wall toppled over due to lack of ties to the structure.

ETC began receiving calls within a few hours of the event and over the next few weeks, we visited about one hundred buildings and parking garages. The vast majority of the damage we saw was cosmetic cracking in drywall and plaster interior finishes. In many cases building owners, managers, and occupants were not sure if the cracks were new and the result of ground motion, or if they predated the quake. In fact, some were new, but many contained dust, grime, spider webs, paint, and other signs of age.

Cracks in buildings are neither uncommon nor necessarily cause for concern. Consequently, we walk by these the same cracks so often they fail to register because we are conditioned to seeing them. When the need arises to know if a crack is new and relatable to some destructive event or suspected defect, evaluation is complicated by the lack of a point of reference. The more we know about what is new and what is not, the easier it is to place cracks in context. For that and other reasons, I suggest that cracks be repaired in a timely fashion.

The earthquake did damage a number of buildings and parking garages to the extent that they required structural repair. In general, we found that well-constructed buildings were unscathed, but some revealed construction defects that had gone undetected for decades.

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The February Program of the ACI-NCC & ICRI-BWC Joint Meeting was hosted at Maggiano's Little Italy in McLean, VA, with 124 total attendees.

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Local & National Events

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ICRI MISSION STATEMENT

The mission of the International Concrete Repair Institute is to be a leading resource for education and information to improve the quality of repair, restoration, and protection of concrete and other structures in accordance with consensus criteria.
ICRI is an organization composed of Engineers, Consultants, Contractors, Manufacturers and other Material Suppliers, Property Managers and Owners all working together for the betterment of the industry and of all involved. Providing an open forum to speak about our work, new technologies and methods, exchange ideas.
Creating and following standards to produce the best results for all involved.

PRESIDENT'S MESSAGE

Dear ICRI-BW Chapter Members,

Spring has officially arrived! Although temperatures in the Baltimore/Washington area this past winter fooled some of us into thinking spring arrived sooner than the calendar indicated, spring arrived on March 20th. The onset of spring each year brings about many familiar and exciting times to all of us such as: celebrating St. Patrick's Day, enjoying the longer daylight hours, playing golf, exercising in the fresh air, the blooming of the cherry blossoms, trolling for rockfish on the Chesapeake Bay, mowing our lawns, attending Opening Day at the ballpark, enjoying March Madness as it progresses, watching our March Madness brackets fall apart, and planning for the upcoming summer season. Spring is also typically a busy time for those involved in our industry as we begin to see an increase in our project workloads and backlogs. It is quite possible that the mild winter we have experienced has allowed some of us to get a head start on our projects scheduled for the upcoming year. Hopefully, the wonderful weather patterns continue throughout the year and allow us all to prosper.

Our Chapter started off the year with our February dinner meeting; our joint meeting with ACI. The turnstiles recorded 124 attendees in all. What a great turnout! The venue was cozy, the food was outstanding, networking was widespread, and the presentation by Fred Goodwin on cracking potential technology was very informative. I thank everyone for supporting our Chapter, and look forward to seeing everyone at our upcoming events throughout the year.

To those of you who were successful with your March Madness picks, my congratulations go out to you. I encourage you to share your bracket prediction "tips" with your fellow ICRI members at our upcoming social hour and dinner meeting scheduled for Thursday, May 10, 2012 at 5:30 PM. The venue will be the Holiday Inn, College Park, Maryland, and the topic for the meeting is "Everything You Ever Wanted to Know About Waterproofing, But Were Afraid to Ask". Topics to be addressed during the presentation are: the history of waterproofing, the types of membranes, blind-sided waterproofing, renovation of plaza decks, expansion joints, drainage, and paver systems. Please invite your industry contacts including contractors, engineers, material suppliers, owners and co-workers to attend this event. I also ask that you invite any potential members to attend as our Chapter is always excited to welcome new members. Getting together with our colleagues is a great way to share ideas, learn about our industry, become better informed and get acquainted with others in our industry.

As is typical for the spring, activities in our Chapter begin to flourish. Many of our key programs are moving forward. These programs include our Student Scholarship Program, the Outstanding Project Awards, our Annual Golf Outing and our Industry Outreach Program. Information regarding these programs including the Committee Chairs and their contact information can be found on our website at www.icribwchapter.org. Additional information pertaining to these programs and how you can participate will also be presented at the May dinner meeting.

The success of our programs is dependent upon participation from our membership. As always, our committees and programs welcome the input and assistance from the members. We encourage everyone to look for opportunities to become involved by volunteering and assisting. You can also help support the Chapter's efforts to make a difference to our students, our community and our members by participating in the Chapter Sponsorship program which helps to support these programs.

The International Concrete Repair Institute was founded on the principle of being a resource for education and information in order to improve the quality of repair work relating to concrete structures. In keeping with that mission, our Chapter constantly looks to expand our knowledge regarding new materials, repair methods and techniques in order to educate our members and those in our industry. We are seeking input from the membership regarding discussion topics, repair methods and seminar topics for implementation. The Aggregate, another tool we use to educate one another, is in continual need of informational articles. Please feel free to share your thoughts, articles, technical papers and potential topics with us for use.

The ICRI 2012 Spring Convention is scheduled for April 18-20, 2012 in Quebec City, QC, Canada. The convention topic is Preservation Engineering, Masonry/Stone/Concrete. Registration information can be found on inside this edition of the Aggregate as well as on our website at www.icribwchapter.org. Hope to see you there. Remember, a passport is needed in order to travel to Canada.

Finally, I would like to welcome our newest Board member for 2012, Sebastian Janik. We wish Sebastian well during his term and look forward to having Sebastian serve for the upcoming year.

If you have any questions, comments or suggestions, please feel free to contact me at pomalley@c-p-rinc.com .

Patrick O'Malley

THE BALTIMORE WASHINGTON CHAPTER OF ICRI

Thursday, May 10, 2012
Holiday Inn College Park
10000 Baltimore Blvd.
College Park, MD
301-345-6700
Exit 25 (Baltimore Blvd. North US 1) off Beltway
Hotel on Left

Advance Reservations by 05-03-12:	$50
After 05-03-12 & Non Members:	$60

4:00	Board Meeting
5:30	Social Hour
6:30	Dinner & Presentation

"Everything You Ever Wanted to Know About Waterproofing, But Were Afraid To Ask"

OUR FEATURED SPEAKER

Steve Gordon
PPSI

Steve Gordon is a 1972 graduate of Northeastern University with a Bachelor of Science. He has specialized in Building Envelope Systems for the past 40 years. Those systems include waterproofing, air barriers, green roofing and watertight expansion joints.

Steve has been an independent rep with PPSI since 1987 and prior to that held the position of National Sales Manger with two waterproofing manufacturing companies.

Some of the critical structures he has worked on include: The Advance Measurement Lab at NIST (which is the most advanced laboratory built in the world) and the National Museum of American Indians built on the Mall. The NOAA Satellite Facility in Suitland MD Designed by Thomas Mayne of Morphosois of Santa Monica, US Capital Visitors Center in Washington DC; Reroofing of US National Archives, CIA Headquarters, FBI, Secret Service, White House, Defense Intelligence Agency; Johns Hopkins Decker Quadrangle, Georgetown University Law School and SW Quadrangle.

OUR FEATURED PRESENTATION

This presentation which will address the following topics:

- History of Waterproofing
- Types of Membranes
- Blind Sided Waterproofing
- Renovation of Plaza Decks
- Expansion Joints
- Drainage
- Paver Systems

REGISTRATION DEADLINE IS **May 3, 2012** NO-SHOWS WILL BE BILLED

Please email (mikeprizzi@metrosealant.com) or print this page and fax to ***Mike Prizzi***, Secretary, at 410-789-7406 no later than May 3, 2012. Checks to ICRI BWC may be turned in at the meeting or mailed with your form to:

Mike Prizzi, Secretary
ICRI BW Chapter
C/O Metro Sealant & Waterproofing Supply
1041 W. Nursery Road
Linthicum, MD 21090

You may also register and pay online at

www.ICRIBWChapter.org

Name: _____

Company: _____

Telephone: _____

Email: _____

Number of Guests: _____ Payment: ☐ Enclosed ☐ Online
(Please include receipt)

Guest Names: _____

_____

Guest's Company: _____

2012 Joint Meeting

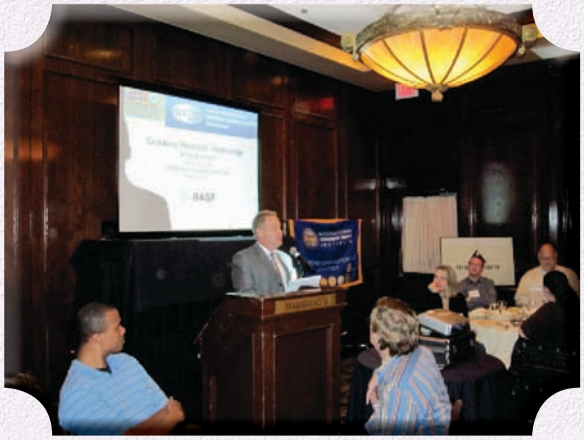
ACI-National Capital Chapter & ICRI-Baltimore Washington Chapter

February 9, 2012

The February Program of the ACI - National Capital Chapter & ICRI-BW Chapter Joint Meeting was hosted at Maggiano's Little Italy in McLean, VA., with 124 total attendees. Fred Goodwin, Research Scientist from BASF, presented a technical program entitled Cracking Potential Technology. Why does concrete crack? Fred's simple answer: the tensile strength of the concrete is exceeded.

Cracking concrete is a multi-faceted problem with a multitude of influencers. Some basic crack inducers include mix designs (too much water), cover, thermal cracking, workmanship, drying shrinkage, settlement cracking, carbonation corrosion, deicing salts, ASR, sulfate attack, freeze thaw…. According to Fred, cracking is the greatest contributor to concrete failure, even exceeding deterioration from corrosion.

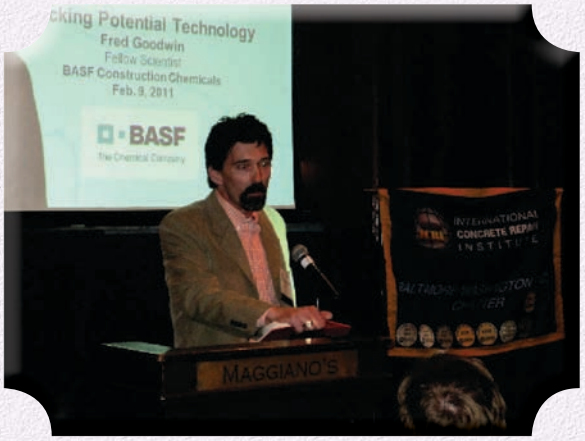
Mr. Goodwin provided a very thorough overview of all the various ASTM and laboratory tests to evaluate the many influencing forces imposed on our concrete materials. Designing the ideal properties of any concrete or repair material is ultimately a series of compromises orchestrated to achieve the ideal balance of properties for the given application.



Pat O'Malley, President ICRI Baltimore Washington Chapter

Fred Goodwin from BASF

A Full House



Tony Thompson from ACI - National Capital Chapter

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Upcoming Chapter Events

May 10, 2012 **ICRI-BWC 2nd Quarter Dinner Meeting**
Holiday Inn
College Park, MD

Sept. 13, 2012 **ICRI-BWC 3rd Quarter Dinner Meeting**
Baltimore, MD

Oct. 4, 2012 **ICRI-BWC Golf Tournament**
Glen Dale, MD

Nov. 1, 2012 **ICRI-BWC 4th Qtr. Awards Banquet**
College Park, MD

Dec. 6, 2012 **ICRI-BWC Fall Technical Seminars**

Upcoming National Events

Nov. 7-9, 2012 **ICRI 2012 FALL CONVENTION**
Theme: Life Cycle Repair—Sustainability
Rancho Las Palmas Resort and Spa
Rancho Mirage, CA

Mar. 20-22, 2013 **ICRI 2013 SPRING CONVENTION**
ICRI celebrates its 25th anniversary!
Tradewinds Islands Resorts
St. Pete Beach, FL

Earthquake

continued from page 1

Earthquake shock is propagated in waves radiating away from the epicenter, which generally translates to greater ground movement in the direction of the wave. One of the properties we inspected for quake damage had rows of three-story buildings parallel to the shock waves and others were perpendicular. Only the buildings in the perpendicular rows sustained visible damage, while the others were essentially unaffected.

Photo 2 – Some of the masonry crashed through the wood framed roof and damaged the roof trusses.

The most severe damage was at masonry gable walls between buildings. Large sections of masonry dislodged from the pitched roof trusses and either crashed through the roof or stood precariously out-of-plumb (by as much as four inches). The masonry wall did not have any ties back to the structure above the adjoining roofline; thus, the concrete masonry unit (CMU) backup wall and brick facing comprised a cantilever sticking up (unsupported) about seven feet. These buildings had weathered many storms over the years, but no event was strong enough to reveal this defect that existed from original construction.
See Photo 1 (on page 1) and Photo 2 (above).

A hundred year old, three-story row house structure, with thick brick walls, had large sections of the front façade rotated out of plumb by nearly three inches. The greatest displacement was where abutting and reinforcing masonry walls had become disconnected from the façade. Those cracks were not new, but they widened significantly after being shaken. The cracks had been filled with spackling over the years, but were never properly repaired. *See Photo 3 (left)*. Consequently, large portions of the façade need to be removed and reconstructed.

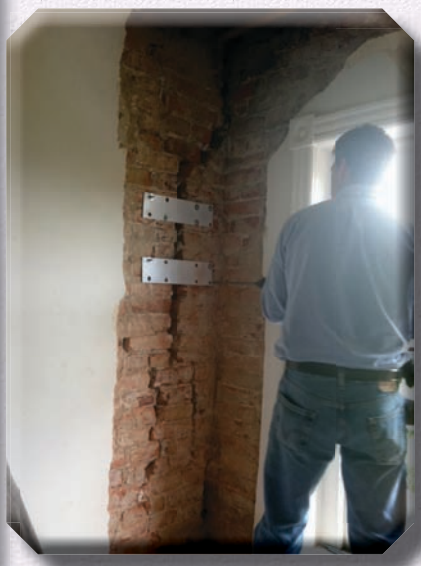

Photo 3 – Temporary supports applied over the cracked masonry to stabilize the structure.

Consider a low-rise condominium complex, which experienced cracking and displacement at the connection between the masonry columns of a porch to the end wall above. Prior to the earthquake, minor staircase cracking was observed. After the earthquake, the cracks were much wider and the masonry columns had pulled away from the end wall. *See Photo 4 (page 7)*

ETC determined that there were no footings below the porch columns, which jeopardized the structural integrity of the building from the day it was built. The minor cracking observed prior to the earthquake should have been a telltale sign that there was something wrong. If this problem had been investigated further and subsequently repaired, major damage could have been averted and the structure could have been salvaged. Unfortunately the cost of repairs was so high; the Owners opted instead to remove the porch.

A multi-level, precast concrete parking garage located at a shopping mall also had structural defects exposed by the earthquake. We found damage to the interior stairwells formed with CMU. The rigid stairwell towers, used to stabilize the structure, cracked in shear, as they could not resist the lateral load induced by the ground motion. *See Photo 5 (page 7).* In other parts of the stairwells, finished drywall exhibited horizontal cracking. From this, we can assume the stairwell walls were designed without adequate detailing and/or reinforcement, which was a preexisting design flaw. The ground motion significantly worsened damage to the other structures mentioned in this article. In the case of the multi-level parking garage, there were no visible signs of defects in the stairwells and the earthquake actually exposed the problem for the first time.

That parking structure also experienced falling concrete from the underside of the floor above. Upon investigation, it was evident the overhead concrete had already been loosened due to corroding steel reinforcement, which results from water infiltrating the slab. The heavy shaking caused the already deteriorated concrete to fall, but was not the sole cause of the damage.

Delaminated concrete is fairly easy to identify and can be confirmed with inexpensive, simple testing methods. Had the damaged concrete at the parking structure been repaired prior to the earthquake, chunks of debris would not have fallen and a potential life safety issue could have been avoided.

see Earthquake - page 7

Earthquake

continued from page 6

Photo 4 – Wide cracks in this masonry porch structure due to a lack of a proper foundation resulted in demolition of the entire porch.

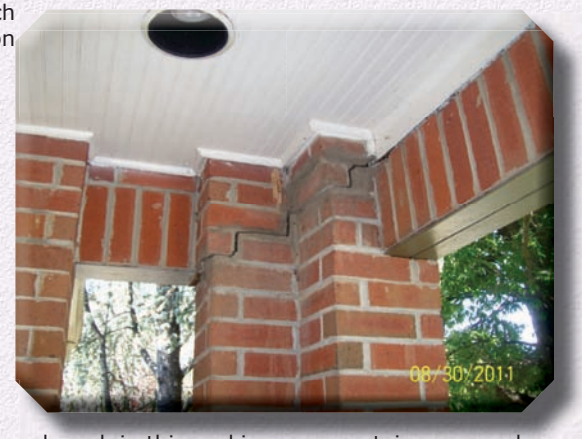

Photo 5 – Stair step shaped crack in this parking garage stairway was due to inadequate structural capacity to resist the shear (lateral) force of the earthquake.

The Federal Emergency Management Agency (FEMA) published a guideline for property owners and managers to utilize to help spot more common earthquake damage. FEMA suggests looking for signs of foundation movement, out-of-plumb exterior walls, bulges in basement walls, cracks in drywall, stucco, and plaster, etc.

Did you spot any of the items on FEMA's list where you work or live before the earthquake? Probably! ETC has been investigating foundation movements and out-of-plumb walls for three decades. The issues listed on FEMA's guidelines are not specific to earthquake damage, which makes it nearly impossible for most people to distinguish between damage from earthquake or unrelated causes. It is up to trained professionals to know the difference.

From the brief examples mentioned in this article, we can conclude that the majority of suspected earthquake damage we observed was not actually caused by the unusual ground movement; rather, it revealed previous defects. Improper initial installation of building components and deterioration that had begun well before the ground motion of the earthquake exacerbated the pre-existing faults. Having said that, is it fair to say that the earthquake did some of us a favor? In a way, it did!

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LEGAL COLUMN

Collection Tools in Maryland – The Construction Trust and Prompt Payment Statutes

By Jennifer A. Mahar, Esquire

Did you know that Maryland has a Construction Trust Statute? The Maryland Construction Trust Statute creates a trust on payments that a contractor or subcontractor receives for work performed or materials supplied by its lower-tiered subcontractors. The intent of the statute is to discourage the misappropriation of funds meant to pay lower-tiered subcontractors. The statute provides:

> *(1) Any moneys paid under a contract by an owner to a contractor, or by the owner or contractor to a subcontractor for work done or materials furnished, or both, for or about a building by any subcontractor, shall be held in trust by the contractor or subcontractor, as trustee, for those subcontractors who did work or furnished materials, or both, for or about the building, for purposes of paying those subcontractors.*
>
> *(2) An officer, director, or managing agent of a contractor or subcontractor who has direction over or control of money held in trust by a contractor or subcontractor under paragraph (1) of this section is a trustee for the purpose of paying the money to the subcontractors who are entitled to it.*

Md. Code Ann. [Real Prop.] § 9-201(b). The statute imposes personal liability on any officer, director, or managing agent of any contractor or subcontractor who knowingly retains or uses these trust funds for purposes other than to pay those subcontractors for whom the funds were received. Md Code [Real Prop.] § 9-202. Managing agent is defined as "an employee of a contractor or subcontractor who is responsible for the direction over or control of money held in trust by the contractor or subcontractor . . ." Md. Code Ann. [Real Prop.] § 9-201(a).

The personal liability aspect of the Maryland Construction Trust Statute makes it an effective tool when seeking to collect payment on a project. It allows an unpaid subcontractor to pierce the corporate veil and pursue personal liability of company officers, directors or managing agents who have direction over or control of the trust funds. In certain instances, a general contractor may also pursue personal liability of its subcontractor's officers, directors or managing agents when it discovers funds it paid to its subcontractor was not used to pay the subcontractor's lower-tiered subcontractors or suppliers.

Did you know that Maryland has a Prompt Payment Statute? The Maryland Prompt Payment Statute establishes time periods within which payments must be made for work performed. The statute provides that for a written contract with an owner where the contract does not provide specific dates for payment, the owner must pay undisputed amounts to the contractor within the earlier of (a) 30 days after the day on which the occupancy permit is granted, or (b) 30 days after the day on which the owner or the owner's agent takes possession. Md. Code Ann. [Real Prop.] § 9-302(b)(1)(i). For a written contract with an owner where the contract identifies specific payment dates, the owner must pay undisputed amounts to the contractor within seven days after the contract specified date. Md. Code Ann. [Real Prop.] § 9-302(b)(1)(ii). In the case of other written contracts, such as contractor-subcontractor contracts and subcontractor-sub-subcontractor contracts, the contractor or subcontractor must pay undisputed amounts within 7 days after its receipt of payment for its subcontractors' work or materials. Md. Code Ann. [Real Prop.] § 9-302(b)(3). Note that the Maryland Prompt Payment Statute does not apply to construction contracts with a public entity, home improvement contracts or contracts for the construction of a single family home. Md. Code Ann. [Real Prop.] §§ 9-302(b)(2), 9-305.

The statute provides that if a court determines that an owner, contractor, or subcontractor acted in bad faith by failing to pay any undisputed amounts owed within time periods specified by the statute, the court may award to the prevailing party reasonable attorney's fees.

Do you have a legal issue you would like addressed in a future newsletter? Send me an email with your question to jmahar@smithpachter.com or contact me at 703-847-6300

SAFETY COLUMN

Preventing Lyme Disease

By David Caple

With the beginning of spring comes the warm weather, more outdoor work, and ticks. When I was young I never really remember hearing about anyone with Lyme disease. Now, off the top of my head, I can think of ten people I know that have had it. When I bring this subject up, many others chime in how they too have noticed it seems like more people have the disease than ever before.

Lyme disease is named after the town of Lyme, Connecticut, where a number of cases were identified in 1975 by Alan Steere. This would explain why I had not heard much about it when I was younger. It wasn't identified as a disease until relatively recently.

Early symptoms may include fever, headache, fatigue, depression, and a circular skin rash called Erythema Migrans (EM) which tends to look like a bullseye. Left untreated, later symptoms may involve the joints, heart, and central nervous system. When treated early with antibiotics the infection and its symptoms are eliminated. Delayed or inadequate treatment can lead to more serious symptoms which are disabling and difficult to treat.

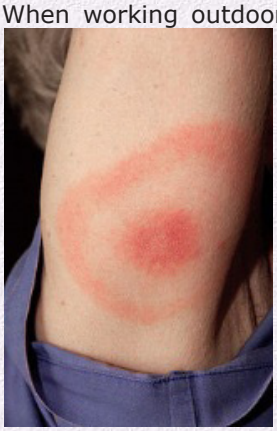
The incubation period from infection to the onset of symptoms is usually one to two weeks, but can be much shorter (days), or much longer (months/years). Symptoms most often present themselves from May through September, although after the mild winter we experienced this year, I found a small nymph (young tick) on me as early as April. The nymphal stage of the tick is responsible for most cases of the disease.

The classic early sign of a local infection is a circular outwardly expanding rash at the site of the tick bite, developing three to thirty days after the bite. The rash is red and may be warm, but is generally painless. The innermost area around the bite remains dark red and becomes thicker and firmer. The outer edge remains red giving an appearance of a bullseye. EM occurs in about 80% of infected patients and can be the easiest symptom to identify. EM can also occur on other parts of the body that bear no relation to the original tick bite.

Since most cases of Lyme disease is contracted from the tick when the tick is in its' younger stage, it is important to understand these ticks are very small. Nothing like the ones most of us are familiar with. The young tick is about the size of a poppy seed. Once spotted, removing these small ticks can be very difficult. It is important to use tweezers and to only grab a hold of the tick as close to the spot they are hooked onto your skin. Squeezing the body could push everything inside the tick back through the feed tube and into your body, causing an infection that could have been avoided by proper handling. If in doubt, have a professional remove the tick. After the tick is removed, mark it on your calendar as a reminder to be sure to keep track of time and any potential symptoms that you are aware of. This step is easily forgotten as you go about your day, but it is important to properly track potential exposure.

If you are ever in doubt about whether you may have developed Lyme disease, see a doctor and be sure to tell your doctor that you were bitten by a tick. Some of the symptoms are similar to those associated with other diseases, so be sure your doctor has all the proper information. Lyme Disease can be difficult to diagnose since it is considered the "great imitator". In the late stage of Lyme disease it may be misdiagnosed as multiple sclerosis, rheumatoid arthritis, fibromyalgia, chronic fatigue syndrome, lupus, Chrohn's disease and several other autoimmune and neurodegenerative diseases. Testing can be done to identify the disease.

When working outdoors protect yourself by wearing a hat, long sleeved shirts, and long pants. Tucking your pants into your sock or boots is helpful, regardless of how silly it may look. Light colored clothing will make it easier to identify the tick before it attaches itself. Check your pets because they can bring these bugs into your house. Have a general routine of checking yourself daily before bathing. Removal of ticks within the first 36 hours can greatly reduce transmission rates. In fact, an infection is unlikely if the tick is removed in less than 24 hours. If you think the tick is a deer tick save the tick and contact your physician. A dose of doxycycline given within 72 hours after a high risk tick exposure can prevent development of the disease.



Now that you know more about Lyme disease then you may have ever thought you needed, try to protect yourself, your family, and your co-workers from this awful, life changing disease.

References: Wikipedia, WebMD, Center for Disease Control
http://en.wikipedia.org/wiki/Lyme_disease

For further assistance or to recommend a topic for discussion in a future publication of The Aggregate contact me at d.p.caple@gmail.com

2012 BUSINESS CARD SERVICE DIRECTORY