

NABIE THE Examiner

NATIONAL ACADEMY OF BUILDING INSPECTION ENGINEERS • PO Box 860, Shelter Island, NY 11964-0860

The National Academy of Building Inspection Engineers is a chartered affinity group of the National Society of Professional Engineers (NSPE)

A Message from the President



Mark G. Soderlund, P.E.

Greetings to all fellow building inspection engineers. June is nearly past and by the time you read this, we will be well into July. As I drive around the Minneapolis and St. Paul area, it is good to see many new residential developments popping up after several years of little activity. A strong construction market is always good for business.

The NSPE annual meeting is also coming fast. For those of you who attended the conference in Atlanta last February, our Keynote Speaker, Tim Austin will be installed as President of NSPE. I recall him stating "NSPE can't be everything for everybody". As a national organization with thousands of members, it is easy to understand why the NSPE leadership needs to be focused. I have thought about his statement often and have come to realize that NABIE can't be everything for everybody either. Even though we are a much smaller organization, there is vast diversity within the practice of building inspection engineering. You have probably seen the recent draft of the NABIE Mission Statement. One of the goals is to advance the practice of building inspection engineering by providing education opportunities and technical resources for our members.

With such diverse practice areas among our members, it can be a challenge to provide conference programs with diversity and depth. The 2016 conference is already in process. We will venture further west to Scottsdale, AZ on February 12-14. Mark your calendars and check our website for the details now! There won't be any worries about snow in Scottsdale. Since our site has a golf course, maybe we should plan a golf outing. In the coming months, we will be working on the program. If you have an idea for a topic or a presenter, please let us know. I hope it will also make it easy for our members in the western states to attend.

Membership growth continues to be our biggest challenge and our highest priority. I will continue to challenge each of you to recruit one new member this year. We all know a few peers that are not NABIE members. Make it a point to mention NABIE to your peers and invite them to join. The Board is also working on an "Elevator Speech" which will be a 1-2 minute summary of NABIE and the practice of building inspection engineering. I hope to see a video example on the NABIE home page by the end of the year. There will also be an enhancement to the "Find An Engineer" area of the website which will make it easier to find members with specific expertise. Each member will soon be able to expand their profile by selecting keywords for specific practice areas. Since these keywords will be searchable, it will be easy to find specific expertise from within our membership. It may also provide new business leads since potential clients will be able to search using the same keywords.

If you haven't been on the website in a while, please take a few minutes and check it out. It has become a dynamic site with frequent new postings of news and articles. We are always looking for additional content so you can submit material directly to our Executive Director for posting. If you have any ideas or concerns, please contact us. We always appreciate hearing from our members. Have a safe and enjoyable summer!

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Flood Maps Can Get Much Sharper With a Little Supercomputing Oomph



This is a calculated flood map for the city of St. Louis. Water depth goes from deep (dark blue) to shallow (white, light blue). Floodwater can come from the Illinois, Upper Mississippi and Missouri rivers, as well as from heavy local precipitation.

Courtesy of Dag Lohmann/Katrisk

By Joe Palca

National Public Radio

A small company in California is hoping to make a big splash by providing detailed flood maps to homeowners and insurance companies. And to do that, the company is using one of the fastest supercomputers in the world.

The company is called Katrisk, based in Berkeley, Calif. Hydrologist and computer modeler Dag Lohmann is one of the company's founders. He says the flood maps the Federal Emergency Management Agency already produces will tell you how prone a particular area is to flooding.

But FEMA's maps don't tell you everything you might want to know about what might happen in a flood, Lohmann says.

"You don't know whether the flood is 2 inches high, 2 feet high, or 2 meters high," he says. When you're making a computer model of that sort of catastrophe, how often a particular region floods is just a start.

"You also have to know 'how severe is the flooding?' " Lohmann says. "You have to know, 'How deep will the water be?' "

In other words, in order to properly price a policy, an insurance company would want to know whether repairs from a flood in that region are more likely to involve replacing a few carpets, or removing tons of mud and debris.

Why Is This Supercomputer So Superfast?

Lohmann wants to make flood hazard maps that would provide that kind of information, detailed enough to make predictions for individual properties.

But to make such detailed maps requires an enormous amount of computing.

"Ten years ago it would have been immensely expensive to run those kinds of computations," says Lohmann.

The Titan supercomputer at the Department of Energy's Oak Ridge National Laboratory changes all that, in part because it's a new kind of supercomputer. Instead of just traditional central processing units, or CPUs, the Oak Ridge computer uses lots of graphical processing units, or GPUs. These are the sort of processors computer gamers like for producing lifelike graphics.

"For flood modeling, they're ideal, these graphics cards," Lohmann says, because they can do calculations in parallel. "You have easily 2,000 to 3,000 — [and] now up to 4,000 — little processors in each graphics card."

Oak Ridge National Laboratory

So what you do is divide a map into a grid. And each processor calculates the flood risk at a particular time for a different square on the grid. Stitch all the individual squares together, and you've got a highly detailed map.

One especially nice thing for startup companies like Lohmann's: Computer time on the Oak Ridge computer is free. As a national lab, Congress instructed Oak Ridge to provide access to its supercomputer to researchers "in United States industry, institutions of higher education, national laboratories and other federal

Guard Your Documents

by Mark G. Soderlund, P.E.

On March 1, CBS aired a story on 60 Minutes "The Storm After the Storm" where Sharyn Aflons investigated allegations that thousands of homeowners were denied their flood insurance claims after Hurricane Sandy because of fraudulent engineer's reports. "Fraudulent engineer's reports" is not a headline that any of us want to see. For those of you who have not seen the story, the condensed version is as follows:

A home owner whose home was damaged beyond repair by Hurricane Sandy was interviewed. Their house had been knocked off the foundation. Their insurance company sent an engineer to inspect the damage. Three weeks later, they received the engineering report that states there is no structural damage to their home. The home owners complained to the insurance company who sent the same engineer back to the home. The home owner asked the engineer how he could write such a report. After reviewing the home owner's copy of the report from the insurance company, the engineer told the home owner that it was not his report. The engineer proceeded to go out to his car and returned with the report he wrote which indicated there was structural damage to the home. The engineer could not stay silent after he found out that changes had been made to at least 175 of his reports.

After the story aired, I thought back to instances where I have been aware of similar fraudulent acts. Thankfully, none of my documents have ever been altered but I have been involved in matters where this has happened. In one instance, several key pages were missing from an engineering report. It was not readily apparent to the reader since there were no page numbers. I had seen numerous reports from this firm over the years and immediately recognized that portions of their report were missing. In another matter, reports from a Professional Engineer were stripped of their cover and signature pages which were replaced by similar pages from another inspection firm that did not employ any professional engineers. In doing so, it appeared that the inspection firm did the investigation instead of the Professional Engineer.

There are many powerful tools on-line that can be used to convert document types and to copy/paste images and text that can be used to alter documents. If your documents were altered, it would likely require the assistance of a lawyer to unravel the ensuing mess. There are a few easy steps which can reduce the likelihood of

report altering.

To start with, take a few minutes to review your document templates. Incorporate headers and/or footers with dates, page numbers, project number, firm name, etc, on every page. The format for the page number should include the total number of pages to make it obvious if any pages are missing. A table of contents can also be beneficial since it indicates all of the sections that should be contained within the report.

Sign and seal your documents as directed by your state licensing board. This can vary from state to state so if you are licensed in several states, it would be prudent to review the current requirements in each state to verify compliance.

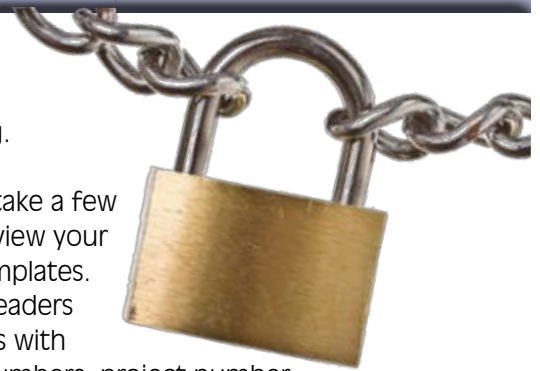
Issue only secure documents that cannot easily be edited or altered. Adobe's PDF is probably the most popular format and has several options for generating files with various options for security including passwords, encryption, and digital IDs.

If you are submitting drawings or specifications that are to be incorporated as one part of a larger document or set of documents, try to obtain a copy of the larger document for your own records. Review your submittals to make sure they are complete and unaltered.

A key part of document security is your back up strategy. Since entire books can be written on this topic, I am not going to do any more than mention it. Imagine if your system crashed and you could not produce your original document as proof to defend yourself.

For those who do expert witness work, you will likely be on the witness stand when an attorney hands you a document and asks you if it is a true and accurate copy of your document. When this happens, take all the time you need to review the document carefully before answering, especially the section that contains your opinions. If there are doubts, you should have your original document available to refer to.

There are many other measures that can be taken, depending on the circumstances. Nothing will be foolproof. But if it does happen, you will be able to demonstrate that appropriate measures were taken to make the job difficult.



Deaths of Irish Students in Berkeley Balcony Collapse Cast Pall on Program

By Adam Nagourney, Mitch Smith and Quentin Hardy

The New York Times

June 16, 2015

BERKELEY, Calif. — They come by the thousands — Irish students on work visas, many flocking to the West Coast to work in summer jobs by day and to enjoy the often raucous life in a college town at night. It was, for many, a rite of passage, one last summer to enjoy travel abroad before beginning a career.

But the work-visa program that allowed for the exchanges has in recent years become not just a source of aspiration, but also a source of embarrassment for Ireland, marked by a series of high-profile episodes involving drunken partying and the wrecking of apartments in places like San Francisco and Santa Barbara.

Early Tuesday, 13 people, most of them young Irish students here on the visa program, were crowded onto a fourth-floor balcony off Unit 405 for what neighbors described as a loud party when the balcony collapsed, sending people tumbling onto the street below.

Six people were killed; five were Irish and the sixth had dual Irish-American citizenship, according to the Irish Embassy. Three of the dead were men, three were women, and all were in their 20s. At least seven others suffered injuries, some serious.

"We thought it was an earthquake, a really big earthquake," said Silvia Biswas, 39, who lives a floor below the balcony that collapsed in the Library Gardens Apartments, just a few blocks off a main street here. She had not been able to sleep because of the revelry, she said. "It was kind of like the building was falling down."

The tragedy reverberated from the streets of this college town — where two young Irish people wandered over to the police barricade to say a prayer and cross themselves — to Ireland.

"It is truly terrible to have such a serious and sad incident take place at the beginning of a summer of adventure and opportunity for so many young people," Enda Kenny, the prime minister, said in an address to



Photo Credit: The Daily Beast

Inspectors on a crane took a closer look Tuesday at the damaged balcony in Berkeley, Calif. The police said 13 people were on the fourth-floor balcony when it gave way. The New York Times

Report Cites Dry-rotting in Collapse of Balcony

By Jennifer Medina

The New York Times

June 23, 2015

LOS ANGELES — The apartment building balcony that collapsed last week in Berkeley, Calif., killing six students, was supported by wooden beams with extensive rotting from water damage, city officials said Tuesday.

The joists beneath the concrete balcony were extensively rotted in the spot where the structure collapsed, sending the victims five stories down, according to a report of the initial findings from the city's Building and Safety Division.

While the inspectors did not explicitly say that the rotted beams caused the collapse, they recommended adding more regulations to the city's building code to protect balconies from moisture. They also called for more frequent inspections from city officials for both new and existing buildings.

The wooden joists were "completely sheared off" the building, the inspectors wrote, and "appeared to be severely dry-rotted."

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■ **Balcony Dry-rot**

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To receive the special NABIE room rate of \$199/night, please make your reservations before January 21, 2016 and identify yourself as a registrant of the "NABIE 2016 Annual Conference."

■ Balcony Collapse

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the Irish Parliament.

Philip Grant, the Irish consul general for the western United States, said: "To have this happen at the start of this season has left us frozen in grief. Ireland is a small country. Very few of us have been left untouched."

He said the first relatives of the dead students were expected to begin arriving here from Ireland shortly.

More than 150,000 Irish students have used the program for J-1 visas to visit the United States in the past 50 years, including 8,000 last summer, officials said. They account for a large part of the students from around the world who avail themselves of a program that allows nonimmigrants to spend a summer here.

A spokeswoman for the Irish Embassy in Washington, Siobhan Miley, said the students often arrive in June and leave in September, with the San Francisco area among the most popular destinations.

In Dublin, students who had participated recalled the program as a high point in their lives. "There was a real sense of freedom about it," said Shane Daly, 23, who spent the summer of 2012 in Chicago, working at odd jobs in bars, after obtaining his legal degree from Trinity College in Dublin. "It was certainly a rite of passage because it was the first time I really had to do everything for myself."

Fiona McGoran can still recall the sense of freedom she felt when she landed in New York in 1994. "There was six



Philip Grant, left, the Irish consul general for the western United States, and Neil Sands, of the Irish Network Bay Area, placed an Irish flag at the site of the balcony collapse in Berkeley, Calif. Credit Jim Wilson/The New York Times

of us in a one-bedroom apartment in the West Village," Ms. McGoran said. "It was the best summer of my life — I dreamed of it for a year afterward."

Ciara Griffin, 24, came to Berkeley in 2011, working in San Francisco but staying here because rent was so much less. "We're all still talking about the good times we had there," she said.

"I am absolutely distraught for those people caught up in that tragedy over there," she said. "This was supposed to be a trip of a lifetime, but suddenly something like this happens and it becomes an absolute nightmare."

The program has been a source of discomfort. James Howard, 24, who went to San Diego in 2011, said it was basically "party central."

"There were 18 of us sharing a two-bedroom apartment, and the hundreds of Irish students around us were in a similar situation," Mr. Howard said.

"It was my first time away on my own for any length of time. I'm glad I did it, but once was enough," he said.

Cahir O'Doherty, the arts and culture editor of The Irish Voice, wrote a column in 2014 expressing distress at "the callous destruction unleashed by these loaded Irish students" of a house rented in the Sunset District of San Francisco.

"If you know the city you'll know Sunset is one of the more desirable locations in which to buy a home," he wrote. "So those J-1 students actually caught a big break by being rented to in the first place. Nice payback, guys."

"They ripped chandeliers from the ceilings, they broke doors and they smashed windows; they even punched holes in the walls," he wrote. "Then they abandoned the place without a heads-up or a word of apology."

The Santa Barbara/Isla Vista Facebook page set up by the Irish students offers a flavor of the work-hard, party-hard lifestyle. Call-outs for car-pooling and accommodations are interspersed with requests for house party sites. Some bars home in on the feel-good, free-spending atmosphere, offering special promotions to the Irish students.

The balcony that collapsed on the four-story building here looks out over Kittredge Street; it fell onto the balcony below. The pale yellow building fills half a block. The double-doors leading to the balcony were closed, and a warning sign pasted on the window could be seen

■ Balcony Collapse

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California: Criminal Inquiry Into Balcony Collapse

By The Associated Press

The New York Times

June 25, 2015

Prosecutors said Thursday that they had opened a criminal investigation into a fatal California balcony collapse. Nancy O'Malley, the Alameda County district attorney, announced the investigation, but declined to discuss any possible target, saying the investigation could end with no charges filed. "We will ultimately have to make a determination whether the facts support criminal charges and whether those facts can be proven beyond reasonable doubt in a court of law," Ms. O'Malley said during a news conference at her Oakland office. Six students were killed last week, including five from Ireland, and seven others were injured when a balcony broke from the side of a Berkeley apartment building. City inspectors said this week that the balcony was supported by wooden beams that had been badly rotted by water damage.



Photo Credit: The Wichita Eagle

■ Balcony Collapse

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from the street.

City building inspectors blocked access to three balconies on the building on Tuesday, pending further investigation. City officials said the owners of the building had been ordered to remove remnants of the collapsed balcony and perform a structural assessment of the remaining balconies within 48 hours.

In a statement, Lindsay Andrews, a spokeswoman for Greystar, the property management company, said the company would work with an "independent structural engineer and local authorities to determine the cause of the accident."

Residents here said that apartments were often crammed with students trying to hold down living costs, and that people typically went out to the balcony to smoke.

The police said they received a noise complaint from the building just past midnight, one of about six that came in from various locations around that time. A few minutes later, the police received a string of reports of gunshots fired in South Berkeley, which took priority over attending to the noise complaints.

Officer Byron White of the Berkeley police said 13 people

were on the balcony when it gave way about 12:40 a.m., sending debris and bodies plunging to the street.

Ms. Biswas said it sounded earlier in the evening as if the celebrators were shooting off fireworks. After the collapse, she said, she looked out the window and saw people sprawled on the street, and dialed 911.

Gerald Robinson, a massage therapist living in Berkeley, said he was on his way home from the movies when a group of people flagged him down for a ride to Highland Hospital, where some of their friends had been taken. One girl was bloodied, and another girl had an injured leg.

The collapse occurred near the University of California campus here. "Every summer as long as I can remember, a large group of people come from Ireland to visit," Officer White said.

Laura Harmon, president of the Union of Students in Ireland, described the event as a "terrible tragedy."

"The scale of it is unprecedented," she said.

Adam Nagourney and Quentin Hardy reported from Berkeley, and Mitch Smith from Chicago. Douglas Dalby contributed reporting from Dublin, and Noah Smith from San Francisco. Kitty Bennett contributed research from New York.



Titan supercomputer at the Oak Ridge National Laboratory.

■ Supercomputing

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agencies.”

The only catch is, you have to make your results public. In theory, that means another company could jump in and do the same thing that Lohmann is doing. In practice, Lohmann says, there would still be technical and scientific hurdles a competitor would have to overcome, even with access to his results.

Lohmann isn't the only entrepreneur to approach Oak Ridge with an idea in need of some supercomputing. For example, a company from Greenville, S.C., called SmartTruck used the Oak Ridge computer to design a

system for reducing drag, and saving fuel on long-haul trucks.

Calculated To Win: Supercomputers Power America's Cup

“People always bring their dreams here,” says Jack Wells, director of science at the computing facility at Oak Ridge. “They bring their dreams for what they wanted to do with their life’s work. And we help give them a big jump forward by giving them access to our Titan supercomputer.”

■ Balcony Dry-rot

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A spokeswoman for Greystar, the property management company for the building, declined to comment on the report. The five-story, 176-unit apartment complex, Library Gardens, opened in 2007 and has attracted many students from the University of California.

Of the six people killed in the collapse, five were Irish citizens in the United States on visas, while the other held dual Irish-American citizenship. All were in their 20s. Several other people sustained serious injuries.

City officials said that the scope of the report was limited and that they were not calling the wood rot the official cause of the collapse.

In a memo, city building officials said they recommended that the City Council pass strict new requirements for waterproofing new balconies and other areas exposed to weather, while also making sure they are well ventilated so they can dry after becoming wet.

“The proposed regulations would institute regular

maintenance inspections for all such spaces for future buildings as well as those units already built,” officials said in a statement released by a city spokesman, Matthai K. Chakko.

Eric Angstadt, the director of the city’s Department of Planning and Development, said he did not know how many buildings would be affected by the proposal, which is scheduled to be considered by the City Council next month.

He said that the city would not conduct any further investigations of the apartment complex.

Under the recommended rules, all buildings with balconies and other areas exposed to weather would be inspected within six months. Additional inspections would be done once every five years.

The architectural plans for the building, including the balcony, were approved by the city’s Building and Safety Division and were in line with the state’s building code requirements at the time it was built, city officials said.



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Help NABIE Help You!

Like many nonprofit organizations, NABIE is searching for how to best serve its members in order for members to feel that their investment of both time and money in the organization is worthwhile. To address that need, the NABIE Board has put together a mission statement that is intended to address what the organization is about, and when there is a question about what action or direction to take, the Board would use the mission statement to provide guidance on that action or direction. The Board is now seeking input from the members on the proposed mission statement below. Please send your comments about the proposed statement to the NABIE Executive Director (alexandrabinder@gmail.com) by August 7, 2015. We want to make sure there is adequate time to consider any and all comments by the members. Thank you in advance for your input.

NABIE was established to serve the public by advancing the art and skill of engineers who offer their services as expert inspectors, investigators and consultants pertaining to the structural, building envelope and mechanical components of buildings of all types.

NABIE's mission is to advance the practice of building inspection engineering by:

- providing educational opportunities and technical resources for our members,
- promoting public appreciation of the building inspection engineering profession and
- supporting our members so they can consistently meet their obligation to provide professional, ethical and quality services to their clients.