

cross sections

Magazine for the Structural Engineers Association of New York

2016 VOLUME 21 NO. 3

SEAoNY AROUND TOWN *Meet the
Young Member's Group*

PROFESSIONAL MISCONDUCT
What Engineers Need to Know

**FLOODPROOFING AND
THE STRUCTURAL ENGINEER**



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- 3 President's Message
- 3 Editor's Message

SEAONY AROUND TOWN:

- 4 Young Member's Group Kick-Off Event

FEATURES

- 6 FLOODPROOFING
AND THE STRUCTURAL ENGINEER IN NYC
By Eytan Solomon
- 8 PROFESSIONAL MISCONDUCT
What Licensed Engineers Should Know
By Kriton A. Pantelidis

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President's Message

As we enter the winter season, there are two strong currents of activities keeping SEAoNY members busy. First, there are about three dozen members toiling away with New York City existing building code research under the direction of the Codes and Standards Committee. They have been meeting about every three weeks throughout the fall in different groups to develop SEAoNY's recommendations. Many have been working between meetings engaging in individual research into old codes and design guidelines to share and discuss with each other. With a focus on layout, archaic materials, triggers, and organization the work is slow and steady but moving forward. The plan is for an interim gathering of work product later this winter that sets the stage for future plans.

In addition, our Education and Outreach Committee has been extremely busy as they develop from within a brand new Younger Member Group for SEAoNY. Their first two activities, the Pub Trivia Night and YMG Holiday Party, were very well attended and highly successful. All while the Committee also organized our popular annual Structure Quest event. More is definitely being planned. Throughout NCSEA, younger member groups have typically formed as part of a given Structural Engineering Association's drive to attract newer engineers entering the profession. However, at SEAoNY, our YMG was started by the many enthusiastic members of the already very successful Education Committee. Acknowledging this home-grown energy, the SEAoNY Board is fully backing them.

It is with great pride that I call attention to these strong efforts that are continuing into 2017. They embody the spirit of the engineering community represented by SEAoNY and are essential for our growth. Finally, I want to remind everyone about our upcoming All-Day Seminar on February 7, focusing on the many challenges of Building in New York. Registration is now open!

Doug



Editor's Message

Dear Friends and Readers,

Welcome to the latest edition of SEAoNY Cross Sections, and my first as Editor-In-Chief. I am honored to take on the role after so many fantastic engineers before me. In the next year, we hope to increase the frequency of publication and continue to keep you informed of recent SEAoNY activities. We also hope to provide engaging and interesting articles on a wide variety of topics. As always, we look forward to your comments on any ways you think we can make this magazine as useful as possible.

In this issue, we introduce the SEAoNY Young Member's group. This dedicated group of young engineers has taken upon themselves to reach out to the fresh faces in our industry. We thank them and wish them the best of luck! We will also hear an update on post-Sandy floodproofing in New York as well as a primer on professional misconduct in the engineering profession.

Finally, we at the Publications committee could use your help. If you have an idea for an article or are interested in writing yourself, let us know! I can be reached at publications@seaony.org or stop by our next meeting on January 19 at Severud Associates.

Adam J. Kirk, PE

UPCOMING EVENTS

18 Jan 2017
6:15 PM

Center for Architecture
536 LaGuardia Place

FORENSIC CONSULTING: THE INTERSECTION OF MYTHBUSTERS, CSI, AND STRUCTURAL ENGINEERING

07 Feb 2017

New York Academy
of Sciences
250 Greenwich Street

**SEAoNY ALL DAY SEMINAR: BUILDING IN NEW YORK:
CONSTRUCTION ADMINISTRATION, MEANS AND METHODS**

Visit www.seaony.org/programs for additional information on these and other events!

YOUNG MEMBERS KICK-OFF EVENT

By Sam Brummell,
Severud Associates

"The event attracted over 50 participants including young professionals from 16 firms, as well as several students from local universities..."



The Education and University Outreach Committee pitched themselves at the annual meeting as the right team to kick off a new Young Members Group. Throughout the summer, the committee asked themselves, "We are really good at attracting students, but what happens to those students when they graduate and enter the work force?" The committee took it upon themselves to help bridge the gap between students and established professionals by piloting Young Member events. Their goals included continuing to host all of their already successful events, such as Structure Quest, Shadow a Structural Engineer and student workshops, but to supplement them with events geared towards graduate level students and young professionals.

On Sept 29th SEAoNY's Education and University Outreach Committee kicked off their first Young Member event, a structure's themed trivia night at O'Lunney's Times Square. The event attracted over 50 participants including young professionals from 16 firms, as well as several students from local universities. Attendance surpassed what the committee would have ever expected. The survey also proved, engineers didn't just have a good time, they had a great time!

All 22 survey responses rated the event as "excellent" or "very good", and all also agreed they were extremely or very likely to attend an event in the future. The event also unanimously exceeded participants expectations, with feedback like "Great Kick off event – can't wait to attend more of these in the future!"

Since the trivia event, the new Young Members Group has sent several surveys, with over 40 responses. The committee has found that young members want to be more active, and that the new Young



The winning trivia team shows off the spoils of their victory





The next event hosted by the Education and University Outreach Committee and new Young Members Group will be the “SEaONY Holiday Happy Hour” on Thursday Dec 8th from 6-9pm at Brendan’s Bar and Grill.

Members Group has either encouraged them to join or renewed their interest in SEaONY. They are looking for events gear towards their age group, such as informal networking opportunities like happy hours to meet new people.

However, they are also interested in networking more formally with the greater SEaONY community, team building events and lecturer/ workshops geared towards career development and young member specific topics.

If you have ideas, questions or comments for the Education and University Outreach Committee OR the Young Members Group, please email the cochair at seaonyeducation@gmail.com Please also see seaony.org to check for our next committee meeting date.

These events would not be possible without the commitment and dedication of the committee members, and we are always looking for others to join our team!



TRIVIA

HAPPY HOUR

LECTURES

WORKSHOPS

NETWORKING

“Floodproofing and the Structural - Engineer in

NYC”

By Eytan Solomon,
Silman

Since October 28, 2012, when hurricane/superstorm Sandy's winds and waters pushed in on the metropolitan area, New York City has undergone a revolution in its relationship to flooding and floodproofing. Structural engineers have been at the center of that revolution, and continue to shape its course.

It is estimated that Sandy caused at least 233 deaths across eight countries, \$19 billion in damages in New York City alone, and \$32 billion in New York State. Estimates encompassing all states have run to over \$70 billion, second in U.S. history only to Katrina. A huge amount of the impact in the city was due to flooded infrastructure and building systems.

Within the week after the storm, scores of SEAoNY-member engineers joined DOB inspectors in rapid assessments of buildings in NYC's coastline communities, especially Staten Island, Queens, and Brooklyn. In the weeks that followed, the assessments continued and included detailed evaluations, and over time the building industry has developed lessons learned for not only the emergency response itself, but for design standards and code enforcement. An extensive, fascinating guide can be found online at the NYC Department of City Planning's website: <http://www1.nyc.gov/site/planning/plans/retrofitting-buildings/retrofitting-buildings.page> (or, go to www.nyc.gov/planning and search for 'retrofitting').

Many building owners have since sought improved protection for their structures in the flood zone, and engineers have been called on to dig deep into their “tool boxes” to assist on creative solutions on both new and existing structures. Below are just a few examples from the author's own firm since Sandy:

-At a complex of historic 19th century buildings, mechanical systems needed to be relocated from basements to rooftops. However, strict Landmarks sightlines restricted the new unit locations and visual appearance of the supporting dunnage steel. The solution was a series of intricate steel details for kinked, skewed, and sloped beams to carry the mechanical unit loads back to the building structure while limiting visibility from the street.

-For a public agency managing multi-family residential buildings, measures have often entailed locating a new mechanical plant on a raised platform outside of the existing buildings. At the existing buildings, temporary flood gates are often relied upon to avoid major re-programming of entrances and exits.

-At a detached single-family private residence, the client desired to raise the structure by 16 feet to put the first floor above the flood line. The building was temporarily shored and braced, and lifted in place so that a new foundation and steel moments could be installed underneath, with breakaway masonry walls at the ground floor. The structure was then placed upon and reconnected to new moment frame support below.



But what else?



In 2013 when I wrote on this topic in more nascent form (Cross Sections 2013 Volume 18 No. 3), I talked about how engineers must take the initiative to become part of the public discourse about disaster preparedness and disaster response. “Get on committees, speak at lectures, write op-ed articles, do your own research to educate yourself – use your engineering reasoning...”

Here are some suggestions:

Committees:

- SEAoNY Codes and Standards
- SEAoNY Publications
- AIANY Design for Risk and Reconstruction
- AIANY Historic Buildings Committee
- ASCE SEI Flood Resistant Design and Construction

Reading:

- NYC Planning’s “Retrofitting Buildings for Flood Risk”
(free online – www.nyc.gov/planning)
 - NYC Building Code Appendix G – Flood-Resistant Construction
(free online – www.nyc.gov/dob)
 - ASCE “Flood Risk Management: Call for a National Strategy”
(free online – www.ascelibrary.org)
 - ATC 45 Field manual: safety evaluation of buildings after wind-storms and floods
(\$27 for hardcopy manual – www.atccouncil.org)
- 
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“Professional Misconduct -

By Kriton A. Pantelidis, Welby, Brady & Greenblatt, LLP.

What Licensed Engineers Should Know”

Engineers, as licensed professionals pursuant to the New York State Education Law (hereinafter “Educ. Law”), must comply with a rigorous code of professional ethics. These rules and the definition of professional misconduct are set forth in the Educ. Law and by the rules promulgated by the New York State Board of Regents (hereinafter “Board of Regents”).

While the vast majority of engineers take their responsibilities extremely seriously, and many complaints brought are simply frivolous, all engineers should understand the process involved in responding to an investigation by the New York State Education Department (hereinafter “Educ. Dep’t.”).

Preliminary Investigation

Complaints made to the Educ. Dep't. are investigated by a professional conduct officer. In the instance the complaint involves a question of professional expertise, the officer may, but is not required to, consult with a panel of three members of the State Board for Engineering, Land Surveying and Geology (hereinafter the "Board of Engineering"). The investigation may be as simple as requesting certain documents or may involve a more in-depth process involving all the project documents and in-person meetings.

After his review, the professional conduct officer has two options: 1) He may terminate the proceeding because substantial evidence is lacking or 2) he may determine – after consulting with a professional member of the Board of Engineering – that substantial evidence exists in support of the complaint. If the matter moves forward, it will involve either expedited procedures or adversary proceedings. Both processes are discussed below.

Expedited Procedures

Minor or technical violations may be resolved by what are known as expedited procedures. Some examples that qualify for expedited procedures include: "isolated instances of violations concerning professional advertising or record keeping, and other isolated violations which do not directly affect or impair the public health, welfare or safety." The professional conduct officer, with the advice of a member of the Board of Engineering, has the discretion to determine whether a violation is minor or technical. If it is determined that a violation exists, but is minor, the professional conduct officer (after consulting with a member of the Board of Engineering) may issue an administrative warning or prepare and serve formal charges. If the latter option is chosen, a violations panel will schedule a meeting with the engineer. Thereafter, the panel may issue a censure and reprimand and/or may impose a fine not to exceed five hundred dollars for each instance of minor or technical misconduct.

Adversary Proceedings

In the instance a complaint is not terminated for lack of substantial evidence or resolved by way expedited procedures, disciplinary proceedings will continue and the engineer will be subject to adversary proceedings.

The Hearing

The initial step once adversary proceedings are initiated is a hearing, similar to a trial, before a panel of at least three individuals, two of which must be members of the Board of Engineering. At the hearing, the design professional (or his counsel) can (among other things): produce witnesses and evidence in his defense; cross-examine adverse witnesses; and examine adverse evidence. Importantly, the hearing panel is not bound by the rules of evidence and a guilty verdict requires only a preponderance (i.e., 51%) of the evidence.

After the completion of the hearing, the panel issues a written report with findings of fact, a ruling on each charge (a guilty verdict requires at least two votes), and a recommended penalty in the instance of a guilty verdict.

Review of the Regents Committee

The report of the hearing is reviewed by a three person "Regents Review Committee" appointed by the Board of Regents. This committee acts similar to an intermediate appellate court and will schedule a meeting to discuss the findings of the hearing. Thereafter, the Review Committee will prepare their own report and forward it to the Board of Regents.

Decision of the Board of Regents

Once the Board of Regents receives the report of the Regents Review Committee, it evaluates all the prior evidence, proceedings, and rulings and issues a final order.

The penalties which can be imposed include but are not limited to: censure and reprimand; suspension, revocation, or annulment of the engineer's license; and a fine not to exceed ten thousand dollars per guilty charge.

Conclusion

While many complaints are meritless, the disciplinary process detailed above can be involved and serious. If a complaint is filed with the Educ. Dep't., all engineers should engage legal counsel in order to understand the full scope of the ramifications and to chart out an appropriate course in responding to the Educ. Dep't. Ideally, counsel should be retained prior to any substantive communications with the Educ. Dep't.



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EXAMPLE 6 - Horizontal and Vertical Enlargement:

Figure 14: Existing 1968 Code four-story building with roof to be removed

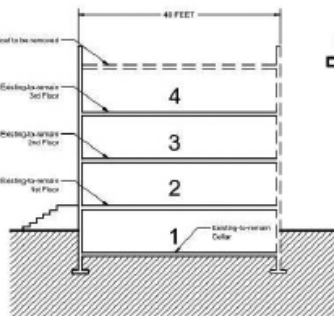
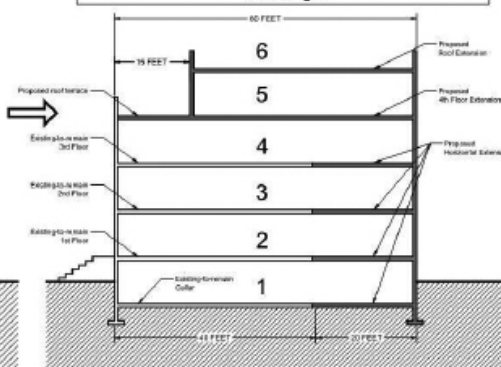


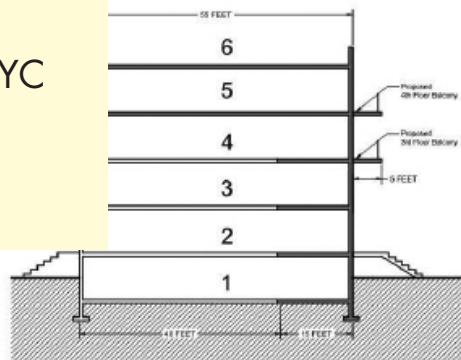
Figure 15: Proposed partial-story addition and 20 foot extension. Floor surface area increase by 116% - is considered an Alt 1 required to meet NB requirements.

Assume building width of 20'
Existing-to-remain FSA = $4 \times (40' \times 20') = 3200 \text{ sq ft}$
Proposed FSA = $5 \times (50' \times 20') + (45' \times 20') = 6900 \text{ sq ft}$
Increase in FSA = $(6900 \text{ sq ft} - 3200 \text{ sq ft}) / 3200 \text{ sq ft} = 116\%$

Must comply with 2014 Code requirements for New Buildings.



The full bulletin can be downloaded from the NYC DOB website.



In May 2016, NYC DOB published Buildings Bulletin 2016-012 which “clarifies how floor surface area is calculated with respect to section AC 28-101.4.5”. Engineers and architects may be familiar with this issue as the “110% rule” per the 2014 NYC Building Code, which dictates when the size of a renovation/ addition must comply with new code versus when it is permitted to comply with a prior code. The bulletin contains narrative explanations as well as seven illustrative examples: above is a snapshot of one of these examples. The full bulletin can be downloaded from the NYC DOB website.

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