



**Testimony before the Housing & Buildings Committee of the New York City Council on Int. 575, 576,
577, 578, 585, 592, 593 and 603**

By Angela Sung, Senior Vice President, Management Services and Government Affairs

Real Estate Board of New York

June 21, 2011

Good afternoon Chairman Dilan and members of the Housing and Buildings Committee. The Real Estate Board of New York, representing over 12,000 owners, developers, managers and brokers of real property in New York City, thanks you for the opportunity to testify about Introductions 575, 576, 577, 578, 585, 592, 593 and 603. We also appreciate that the City Council and Administration have been proactive in seeking our comments and in collaborating with us. Given the highly technical nature of these bills, consultation with a variety of engineers and ongoing conversations are critical to ensuring the legislation achieves its desired goal.

We support the City's effort to create cleaner building codes in order to improve the health and well-being of our residents. Therefore, we have limited our comments to issues in the construction times and safety. Our concerns include:

Intro. 577

1. *Cost of different proportions:* The proposed bill limits the amount of Portland cement per cubic yard of concrete in order to reduce the carbon emissions resulting from the manufacturing of cement. Concrete gains its strength from strategically proportioning a combination of materials including water, sand, air, coarse aggregate, supplementary cementitious material, and cement, and the proportions vary with field conditions, strength desired, weather and other factors. To strictly limit the amount of cement allowed in concrete may create higher demand for other cementitious materials such as slag and fly ash. These materials currently have limited local availability and are often trucked in from nearby states, which may mitigate any lessened carbon emissions from the reduction in cement. Also, with increased demand for limited product, the cost of other cementitious materials may increase, resulting in higher construction costs.
2. *Pour-cycle:* Concrete with less cement takes longer to cure, therefore, this bill would delay the standard 2-day pour cycle used at most project sites. Project developers and managers spend a great deal of time and energy planning the construction logistics, in which a day of delay on a construction site can cost hundreds of thousands of dollars a day between staff and materials. Delaying the construction cycle due to slow-setting concrete could cost millions over the course of construction.
 - A survey of REBNY members asked about the use of accelerants (or chemical additives) in concrete to make it set faster. The results found that during warmer weather, accelerants can be safely used to speed up the concrete setting time, requiring increased costs for the

product, but these costs are not large enough to be prohibitive. However, while in colder weather, accelerants can also be used, it is unknown what the effects on durability would be with the increased amount needed with less cement. It also may have deleterious effects on the rebar.

Intro. 603

1. *Availability of recycled aggregate:* This bill intends to encourage the recycling of aggregate by requiring concrete of 4,000 psi or less to use 10% recycled materials. If availability is an issue, this requirement could cause costly delays, therefore, the bill should stipulate that the recycled aggregate is required only "if commercially and locally available."
 - There are additional recycled materials that could be included such as recycled Concrete Masonry Units (CMU).
2. *Origin and strength of recycled aggregate:* The origin and original strength of recycled material impacts the strength of new concrete. Recycled aggregate that had an original strength much lower than its re-use will affect the final product.
3. *Conveyance of water:* The bill makes an exception for concrete mixes intended to be used in "structures designed for the containment, storage and conveyance of water, sewage or other liquids." This last stipulation of "other liquids" is vague and leaves the bill open to interpretation. The regulation should clarify what you mean by "other liquids" in order to lessen confusion.

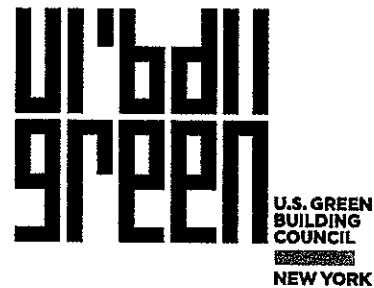
Intro. 578

1. *Availability of recycled asphalt:* This bill requires 20% recycled asphalt for asphalt pavement, increasing to 30% by 2018, which may create problems if there is insufficient availability of recycled material and possible delays during construction. The bill should stipulate that the recycled asphalt is required only "if commercially and locally available."

Intro. 585

1. *On-site vs. Off-site:* This bill limits the amount of Volatile Organic Compounds (VOC) in interior finishes, trim, decorative materials and adhesive and sealants. These restrictions should be limited to materials that are applied on site. Many of the materials used in construction are pre-fabricated, making it difficult or impossible to monitor and track the VOC content of every material used.
2. *Touch-ups:* Existing finishes that contain VOCs above the recommended amount should be exempted from the bill. In order to maintain the current look of a building such as interior finishes, trim and decorative material, the same color and brand of product must be used, unless a total remodeling is occurring where all finishes will be changed.

Thank you again for the opportunity to comment on these bills. We look forward to continuing our conversation with the Administration and the City Council to create legislation that encourages both sustainability and development in New York City.



**Testimony of Russell Unger
Executive Director, Urban Green Council
Chair, NYC Green Codes Task Force**

Before the New York City Council Committee on Housing & Building

June 21, 2011

Good morning Chairperson Dilan and members of the Committee, my name is Russell Unger and I am the Executive Director of Urban Green Council, the U.S. Green Building Council of New York, and was Chair of the NYC Green Codes Task Force.

Let me begin by thanking the City Council and Mayor's Office for their extraordinary leadership in greening the construction codes. Since the release of the report of the Task Force in February last year, nearly ¼ of the Task Force's 111 recommendations have been implemented, including 15 code changes by the City Council. Many more were incorporated into new PlaNYC.

I'm here to testify in support for all the bills introduced today, which are all derived from proposals by the Task Force. Together these bills will improve indoor air quality, reduce greenhouse gas emissions, and reinforce the city's position as a leader on environmental issues. And ALMOST all the bills will effectively have zero cost.

I would like to draw particular attention to two bills, Int. 585 and Int 577.

Right now, every New Yorker is exposed to unnecessary chemicals from carpets and paints. Int 585, which sets limits on chemical fumes from these products, will improve indoor air quality for everyone in the city. It follows standards widely used by the industry and in the LEED green building rating system. At no cost, there is no reason why everyone in New York shouldn't have better air for themselves and their families.

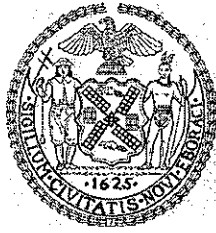
Int 577 will limit the amount of cement that can be used in concrete mixes. Why? Making cement, essentially using heat to drive water out of crushed limestone, produces voluminous carbon emissions, and anything we can do to lower cement use is helpful. We know that concrete can be plenty strong with less cement than is often used – these lower-cement concrete mixes have used and tested by many owners, most notably the Port Authority of New York and New Jersey.

One of the impacts of reducing cement content is that it can increase the time required for concrete to cure. In most circumstances this will not be an issue and be addressed by using a quick-curing cement or adding other components to the cement. However, I would like to note a couple potential issues and have some suggestions for addressing them.

First, certain applications for concrete, such as highways and bridge decks, need to be cured within a very short period of time. So, we recommend a higher permissible cement content for concrete work that needs to be open to public within 24 hours of pouring – we think 650 pounds of cement per cubic yard of concrete is sufficient.

Second, in cold weather, the top of surface of concrete takes longer to set and this could cause cost increases if concrete finishers are waiting around. It may be prudent to increase the permissible cement content during cold temperatures and so we recommend the City Council further explore this issue with our technical industry experts and representatives from the real estate industry.

Thank you for your consideration and the Council's leadership on green codes. I am available to answer any questions you may have.



Laurie Kerr, AIA
Senior Policy Advisor, Office of Long Term Planning and Sustainability
New York City

At the New York City Council
Committee on Housing and Buildings
Respecting Proposed Intros. 575, 576, 577, 578, 585, 592, 593, and 603

June 21, 2011

Good morning, Chair Dilan and members of the committee. I am Laurie Kerr, Senior Policy Advisor in the Mayor's Office of Long Term Planning and Sustainability and a registered architect in the State of New York. Thank you for the opportunity to testify today on eight introductory bills that address a variety of sustainability issues related to design and construction: indoor air quality, the allocation of space for recycling, and the diverse impacts of cement and asphalt, which are used in large quantities in the city.

In PlaNYC, the City set forth an initiative to "strengthen energy and building codes to support energy efficiency strategies and other environmental goals". Because New York City's buildings have a major impact on the city's environment, the "greening of the city's codes" will help the City achieve many of PlaNYC's ten goals, including cleaner air, the reduction of waste sent to landfills, and a 30% reduction in citywide greenhouse gas emissions by 2030 – a goal that was codified in Local Law 22 of 2008.

In order to “green the city’s codes”, Speaker Quinn and Mayor Bloomberg asked Urban Green, the local chapter of the US Green Building Council, to assemble and manage a Green Codes Task Force charged with generating proposals on how to change New York City’s codes and rules to increase the sustainability of the building sector. Out of that effort came 111 proposals, 23 of which have already been incorporated into New York’s laws, rules, or practice. The eight introductory bills under consideration today originated as Green Codes Task Force proposals.

The Office of Long Term Planning and Sustainability is pleased to testify in general support of today’s introductory bills, although our support is tempered by certain caveats or suggestions for refinements that would help make the bills more workable or that would address inconsistencies with federal or state requirements. These intro’s could help achieve PlaNYC’s goals in measureable ways. For example, because each ton of cement used in concrete generates roughly a ton of CO₂ emissions, Intro’s 577 and 593 have been estimated to reduce our annual greenhouse gas emissions by 0.5%, a slightly greater impact than upgrading all our taxis and black cars to hybrids, which the City is also pursuing. Similarly, by requiring higher recycled content in asphalt, Intro 578 would reduce the amount of waste sent to landfills by an estimated 85,000 tons annually. This is equal to the total residential and commercial solid waste collected in the city over three days.

The comments that we are presenting today represent our initial thoughts about these introductory bills, including some suggestions for refinements. We are looking forward to hearing the testimony of today’s other witnesses to ensure that we fully understand the technical issues raised by each of them.

Intro's. 592 and 585 and would improve the indoor air quality for many New Yorkers. The first would set minimal requirements on the filtration of air used to ventilate buildings, thus filtering out much of the harmful, small particulate matter, known as PM 2.5 or soot, that is drawn into our buildings from the street. We generally support this requirement for filters to have a "Minimum Efficiency Reporting Value" or MERV of 11, which filter out roughly two thirds of the PM 2.5. But, in the case of existing buildings, we would like to hear from stakeholders whether it might be appropriate to drop down to MERV 10, which still filters out half the PM 2.5, to account for potential complications.

Intro 585 would improve air quality by reducing the air pollutants known as volatile organic compounds or VOC's that are contained in carpets, adhesives, paints, and sealants, and that are emitted into the spaces that we inhabit. We support this important health proposal, with the caveat that a number of technical and legal issues need to be addressed in order to ensure broad applicability and enforceability. These include the need to reference standards that provide a label to enable property owners to comply and for effective enforcement; we would propose Green Label Plus and Green Label for carpets and carpet cushions respectively, and Green Seal for paints, sealants, and adhesives. Additionally, moisture-cured and oil-based polyurethanes need to be explicitly prohibited. And in order to broaden the applicability of these provisions, we think that they should be addressed in the health code as well as the building code; that applications in pre-2007 buildings need to be covered; and that carpets and carpet cushions should also be covered at

the point of sale. We look forward to working with City Council to craft a bill that addresses these and other issues.

Intro 575 would require new larger residential buildings to provide central storage rooms and in some cases secondary storage rooms on each floor for refuse and recyclables. The Department of Sanitation has indicated that a lack of easily accessible storage areas is a major impediment to residential recycling, so we generally support this measure as an effective strategy to increase the city's recycling rates. Currently, the Zoning Resolution's Quality Housing regulations include similar rules regarding the provision of refuse rooms for many new residential buildings, but we agree that the Council bill goes further in requiring this for all residential buildings and in explicitly including recycling; further, the building code is an appropriate location for universal requirements. Going forward, we will need to ensure that these building code provisions do not create duplicative or contradictory requirements in individual buildings, and that the building size triggers, room size requirements, and treatment of floor area are made to be consistent for all buildings.

Intro's 577 and 593 would reduce the amount of cement used in concrete. We generally support these bills because the production of cement is estimated to produce 5% to 8% of global greenhouse gas emissions. In addition, there are widely available waste materials, such as blast furnace slag and flyash, which can substitute for a substantial portion of the cement, and which can actually improve the ultimate performance of the concrete. (History buffs might be interested to learn that

similar non-cementitious materials, known as pozzolans, were used by the Romans to create concrete in structures that have lasted up until this day.)

Intro 577 sets a limit on the amount of cement that can be used in concrete mixes requiring a compressive strength of less than or equal to fourteen thousand pounds per square inch. We support this bill on the condition that the stringency may need to be relaxed in cases where the increased curing times that can result from non-cementitious additives could cause a hardship. These include roadways, or walkways that need to be opened to traffic within 24 hours and perhaps building floor slabs that are poured and cured at temperatures that are below freezing and sidewalks. In addition, we need to ensure that these requirements are drafted in a way that would not conflict with NYS and Federal Department of Transportation specifications.

Intro 593 would raise the limits on the amount of flyash or other pozzolans used in concrete exposed to de-icing chemicals. From initial conversations with industry, we would like to consider going further and removing the requirements of Table 1904.2.3 altogether. There does not appear to be compelling evidence supporting the need for these requirements. Indeed, there is reason to believe that pozzolans could actually improve the longevity of concrete exposed to de-icing chemicals, because the addition of pozzolans makes the concrete less porous.

Intro 603 would set minimal requirements for the use of recycled materials in concrete and base course materials. This measure would reduce the demand for virgin materials mined for aggregate while creating uses for waste materials that are commonly available in New York and are expensive to landfill. In particular, the

base course requirements could help reduce municipal expenses by creating markets for waste asphalt and glass, which are costly for the City to dispose. Consequently, we agree with the intent of this intro. But we are unsure about the technical viability of some aspects of the bill and would like to hear more from industry on this subject. Given the current lack of industry standards for recycled concrete, we are unsure whether the requirement for a percentage of recycled concrete to be used as aggregate is viable at the 10% level or not at all, until pilot projects are done and/ or industry standards are set. Without a commonly used state or federal standard, recycled concrete in aggregate could undermine the quality of the concrete. The use of recycled materials in base courses does not present similar technical concerns, so we support that part of the intro with the caveat that the use of asphalt in base courses directly conflicts with New York State Department of Environmental Conservation regulations, so this issue would need to be addressed. We also think that it might be clearer for the industry and easier to enforce if there were simply one set of requirements, rather than requirements that increase incrementally over time.

Intro 578 would set minimal requirements for the amount of recycled content in asphalt purchased by the City. Every year, when New York's streets are resurfaced, one million tons of asphalt are removed and another million tons are reapplied. Currently, in its own plants, the NYC Department of Transportation creates asphalt with upwards of 40% recycled content, significantly reducing the amount of waste to be disposed. This intro would require 20% recycled content in all asphalt purchased by the City, gradually increasing to 30%. We support this

measure, although there may need to be some flexibility to allow for operational circumstances that cannot be controlled.

Finally, Intro 576 would add to the building code regulations covering the disposal of concrete washout water. Concrete washout water is highly alkaline and it contains concrete residues that can clog the City's sewage system. The rules of the New York City Department of Environmental Protection prohibit the discharge of wastewater with a PH higher than 12 into the sewage system, and only allows stormwater to be discharged into a storm sewer, catch basin, or manhole. However, these rules are not typically enforced on building sites. Therefore we support the inclusion of these provisions in the building code, but would like to see several modifications. The options that would allow concrete washout water to be treated on site and discharged into the sewage system are in conflict with the Department of Environmental Protection rules and should be stricken. In addition, the language in the intro regulating the size of concrete washout containers and other means and methods seem unduly prescriptive and should be simplified.

Thank you for the opportunity to testify on this important legislation. I am happy to answer any questions that you may have at this time.

New York City – 06/21/11

Donna Reuter

- I am President of Oldcastle Precast Building Systems. We are based in Albany, NY but ship the majority of your product into NYC. When installing product in NYC, we hire local labor to assist with that part of the work.
- I am also representing PCI (Precast/Prestressed Concrete Institute). I am the current Chairman of PCI. PCI is a technical institute for our industry based in Chicago. They have about 250 certified member companies in the US about 50 of which at any give time ship product into the greater metropolitan area.
- I have major concerns about the proposed amendment to the local law limiting the amount of cement to 400 pounds per cubic yard of concrete.
- Prestressing requires next day stripping strength of at least 3000 psi in order for the strand to bond and the prestress to work.
- Prestressing is a relatively young industry only dating back to the late 1940's and early 1950's. However we have years of best practices with designers, industry experts and practitioners – including optimizing concrete mix designs.
- Our industry is very competitive which actually forces all of the manufacturers to reduce cement content to the safest minimum .
- What would it mean to us if we were forced by specification to further reduce the cement content of our mixes?
 - I could see us increasing the use of curing fuels (natural gas or oil)
 - I could see us needing more forms and a bigger plant if we were not able to strip product every day due to lack of strength. A bigger plant would mean more electricity and heat.
- The big picture needs a much closer look when talking about emissions and sustainability – the broad brush approach does not work.
 - For example the use of prestress can save a project a couple of weeks per stage – that means fewer on site workers for a shorter period of time having to drive to work.
- PCI is currently undergoing an LCA study to determine the overall sustainability of precast/prestressed concrete from “cradle to grave”
- PCI is also about to roll out a green plants program for the manufacturers to move the industry further along in terms of sustainability.
- We don't think specifying a reduced cement content is the proper approach- it is too broad brush – in fact no two mix designs are ever alike and are dependent on the local sources for cement and aggregates.

- A better approach might be for designers to make sure that the strength requirements are as low as they can safely be and let the concrete producers come up with those strengths based on the availability of local raw materials.
- In summary: our industry appreciates the fact that this amendment to the local law would reduce emissions from cement production. We also appreciate the need to minimize these emissions wherever possible. We just don't think that the implications of this change and what they would mean to the industry and the local economy are fully understood at this point.

Thank you very much for your consideration and time.

NYC TALKING POINTS ON 400 PCY LIMIT ON PORTLAND CEMENT

Sustainability

Sustainability requires consideration of the social and economic as well as the environmental impact of decisions. This proposal fails to consider the social and economic impact it will have. This arbitrary prescriptive limit on cement content will often preclude using established concrete technology to optimize available resources for concrete mix designs used on New York City projects. We rely on concrete to provide the safe buildings and durable infrastructure that enable great cities like New York to develop and flourish. No one benefits by enacting measures that potentially increase the economic and environmental cost of concrete by reducing the constructability and durability of concrete. Most of the sustainable attributes of concrete are related to portland cement. These include strength, durability, long life, safety, disaster resistance, and other aspects (<http://www.cement.org/SD/index.asp>).

Portland Cement Sustainability

While portland cement is responsible for only 1.5% of CO₂ emissions in the US, it is the essential material that makes concrete structures perform in a durable and sustainable manner for decades. Limiting the amount of cement used in concrete can impair the durability and long life of concrete structures. In many cases, the 400 pcy limit would prevent concrete from being used as a construction material, resulting in other less sustainable materials to be used. Portland cement also uses industrial by-products and waste materials, such as fly ash, slag, waste oil, and tires, in its manufacture, preventing them from ending up in landfills. Cement makes waste materials into an essential ingredient in our infrastructure. See <http://www.cement.org/smreport09/>.

Adverse Environmental impact

It seems likely that this proposal is a misguided effort to reduce the environmental footprint of concrete used on New York City projects. Unfortunately, the net effect of failing to consider the effect of the proposal on availability, cost, performance, and service-life of concrete structures may well result in an increase rather than reduction of environmental impact.

Constructability

The limit fails to consider the role of cement in contributing to the placement and strength development characteristics of concrete. These are attributes that enable timely removal of forms and safe loading of structural concrete elements during construction, and enable concrete construction to continue in cold weather. Lower cement contents mean that concrete will need to be heated longer in cold weather construction, resulting in increased emissions, costs, and construction delays. Reduced strength gain will substantially extend construction schedules due to shoring and strength requirements for continued construction on virtually all multi-story structures. The reduced strength gain and extended protection requirements for cold weather construction will add considerable costs due to construction delays, and increase energy consumption due to heating requirements for early protection of the concrete. The increased energy use may erase any CO₂ reductions achieved by limiting cement content.

High Performance Concrete

The proposed rule would actually hamper the use of high performance concrete. High performance / High Strength concrete (typically with 600 to 800 lbs cement/cyd) is desirable to allow the use of smaller members and therefore less total material used - resulting in an economic savings. Limiting the quantity of cement per cubic yard, will result in lower achievable design strengths and therefore larger members will be required. Limiting cement/cyd may result in no savings and is a detriment to the final user. Attached is a simplified example prepared by PCA's Director of Codes and Standards showing the fallacy

of a blanket cement content reduction. In this case, higher strength concrete columns with more portland cement per cubic yard results in smaller columns, more net rentable area, a gross total of 16% less cement consumption, and addressing the point of the legislation, a similar CO₂ footprint reduction for these elements.

Strength Gain

Limiting the use of portland cement will reduce the rate of strength gain. This will possibly result in longer shoring periods, longer construction times, increased deflections and increased shrinkage cracking. Ultimate strength will also be reduced. A 400 lb/yd³ maximum on cement content will place limits on the achievable strength of concrete mixtures in the 4000 psi to 14000 psi range with many sets of locally available materials.

Durability

One should not govern any one component of a mix design. Concrete mix designs should be based on the performance requirements of the project. One would not use the same concrete for a sidewalk as one would use for a major load bearing column in a high-rise building. The 400 lb limit does not allow the required flexibility in cement content to meet the durability and design needs of a variety of structures. ACI 318 durability requirements mandate that concrete exposed to weather and deicing chemicals and/or seawater spray to have a compressive strength of at least 5000 psi; which may be difficult to achieve when limiting the cement content.

Economics and Usage

The extensive construction delays caused by the maximum cement content will damage not only the builder but the building owner as incomplete structures produce large losses in revenue due to loss of use of the building. A store, factory, office building, etc. generates no revenue until it is actually occupied. This has the appearance of a limit that will cost jobs in an economic climate that is already very challenging.

There is a better way

The cement and concrete industry has taken the initiative to improve the sustainability of what is a basic material used in virtually all aspects of our built environment. This includes strides in reducing the environmental impact of cement manufacturing and encouraging adoption of performance-based concrete specifications that enable producer optimization of resources. Rather than implementing this flawed prescriptive-limit approach, we strongly recommend consideration of developing performance specification options that would enable the concrete industry to most effectively provide sustainable concrete solutions.

Structural Design Optimization to reduce CO2 footprint
Steve Szoke, P.E., Director – Codes and Standards
Portland Cement Association
October 2010

Material reduction. In many applications where high strength concrete is optimal for the design of a specific project, the options available in Section 2.2 may not be suitable for the project. However, the use of high performance or high strength concrete may in some instance be more sustainable than options provided in Section 2.2. The use of high strength concrete for many design elements may result in a significant reduction of cross section, or may eliminate the need for multiple elements or may provide significantly longer service life. While somewhat over simplified, to demonstrate the concept, consider high strength concrete columns versus columns made of 4,000 psi concrete:

	4,000 psi Concrete	9,000 psi Concrete
Total Cementitious in lb per cu. yd.	550	865
Supplementary Cementitious in lb. per cu. yd.	110 (flyash)	40 (silica fume)
Portland cement in lb per cu. yd.	440	825
Column dimensions in in.	36 by 36.	24 by 24
Concrete per column (15 ft) in yd.	5.00	2.22
Portland cement per column in lbs.	2200 lbs	1833 lbs
Volume of cement reduction		16%
Volume aggregate reduction		55%

For a forty story building with sixteen columns per floor this results in a reduction of material in the amount of 44 cubic yards per floor or 1760 cubic yards for the entire building.

The material reduction factor would be 1760 cubic yards expressed as a percentage of the total yards of concrete used for the project. Other examples of opportunities to reduce materials include high strength concrete post-tensioned concrete floors and high strength concrete beams or shear walls. For a base building design that requires 15,000 cubic yards of concrete, the material reduction factor would be 16.

GREEN CODE CONSTRUCTION MATERIALS

6/21/11

My name is Cas Bognacki. I am a licensed professional engineer in the State of New York employed by The Port Authority of NY & NJ (PANYNJ). My title is Chief of Materials Engineering. I am responsible for testing and inspecting construction materials, researching and testing new construction materials, supervising the concrete laboratory at the PANYNJ, and testing and inspecting concrete. I have been involved in testing and inspecting concrete for over 25 years. I am a voting member of several technical committees at the American Concrete Institute. I am currently serving as the president of the Concrete Industry Board of NYC and previously held the office of president for the NJ Chapter of the American Concrete Institute. I do not come here as a representative of any segment of the concrete or construction industries. I come as a public employee of The Port Authority of NY & NJ, and to state that the recommendations made herein in Intro No. 577 have been put into practice on Port Authority projects successfully and at no additional cost. I was a member of the Mayoral Green Code Committee along with Ed DePaola. Ed DePaola is the president and CEO of Severud Associates Consulting Engineers P.C. We made several recommendations to make NYC concrete "greener", and to recycle some of our construction materials for a more sustainable construction process. Mr. DePaola could not be here today, but completely supports the recommendations we've made as well as my comments today.

I was involved in recent efforts to revise the NYC DOB Building Code. Major changes were made to the code with regard to concrete. Changing existing practices is never easy. We succeeded in removing the minimum cement factors that existed in the

previous code. The code required a minimum of 660 lbs. of cement for a concrete mix producing a strength of 4,000 psi and 800 lbs. of cement for a 5,000 psi mix. There was significant opposition in the concrete industry to these changes, because it was of economic benefit to certain segments of the concrete industry to keep the status quo. Charges were made that removing the minimum cement factors would jeopardize the safety of concrete structures. The minimum cement factors were removed and no problems have been found in developing, placing, and obtaining the desired concrete strength. In fact, the concrete strengths being specified and placed today have increased in NYC.

Intro No. 577 proposes to restrict cement content in concrete mixes of 14,000 psi or less to no more than 400 lbs. cement per cubic yard of concrete. Adopting the 400 lbs. of cement limit will establish NYC as a model for green concrete in the country and, perhaps, around the world, and we will be able to produce a more durable and sustainable concrete with high strength. Every ton of cement made produces about a ton of carbon dioxide, a green house gas.

Some are saying that in order to produce higher strength concrete, more cement must be added to the concrete mix. As stated previously, 800 lbs of cement was required in the previous code to produce a concrete of 5,000 psi. Today we are achieving concrete strengths of 5,000 psi in NYC with significantly less cement. At the World Trade Center, Tower One, we used a concrete mix with 300 lbs. of cement that produced a strength of over 16,000 psi in production. The mix did contain 580 lbs. of supplementary cementitious materials for a total cementitious factor of 880 lbs. Cementitious material is

the binder material in concrete that gives concrete its strength; it includes the cement and supplementary cementitious material such as fly ash, slag cement, and silica fume. Large quantities of cement in a concrete mix during the summer can prevent the concrete from achieving the desired strength due to the high temperatures that can develop in-place. It can be said with certainty, high cement factors can be detrimental to high strength concrete because of the heat produced during hydration. The proper substitution of fly ash, slag cement, and other pozzolons for cement will enhance the strength and durability of concrete. In order to produce durable and sustainable concrete for our transportation infrastructure, port facilities, and parking structures, it is absolutely necessary to substitute supplemental cementitious material for cement.

During this past cold winter, construction continued on Tower One at the World Trade Center with no shutdown. We placed 14,000, 12,000, 10,000, and 8,000 psi concrete mix designs for shear walls, columns, and beams. They had a maximum cement content of 300 lbs. and at no time was the speed of construction adversely impacted by these concrete mixes. During the past winter, forms were being stripped within 24 hours of a pour. At the WTC Memorial, we used a mix with 350 lbs. of cement for slabs that were 10 in. thick without any delay to the contractor.

We just completed the reconstruction of the second longest runway on the East Coast, the Bay Runway at JFKIA where 250,000 cubic yards of concrete were placed in three months. The concrete mix proportion used had less than 330 lbs of cement. The recommendation to limit the cement content to 400 lbs. is based on hands-on experience

not just laboratory mixes. The Port Authority has many projects where concrete was used with cement contents less than 400 lbs., and the desired results were obtained.

However, I would recommend allowing higher than 400 lbs. of cement in concrete mix proportions for thin slabs, less than 8 in., cast during the winter months and for structures, roadways, and bridge decks that need to be put into service within 24 hours.

Some are of the opinion that adding accelerators to the concrete mix during the winter to increase strength gain due to lower cement factors may increase cracking. This may be true, but adding additional cement to the mix will certainly increase cracking. The two-day cycle is meant to accelerate concrete placement, this usually produces concrete with cracks and other aesthetic issues.

We endorse Eliminating Table 1904.2.3, "Requirements for Concrete Exposed to De-Icing Chemicals". The table provides restrictions on the quantities of supplementary cementitious materials that can be used but have little technical merit. The stated limits on supplementary cementitious materials are routinely exceeded in the industry and produced the desired concrete properties.

Some have said that the supplementary cementitious materials used today may not be available to substitute for cement in the future. To date, this has not been our experience. The claim raised that fly ash may be declared a hazardous material has been an issue for the past 40 years. The basis for this claim is based more on political science than real

science. I do not believe fly ash will ever be deemed a hazardous material. There are currently ample quantities of Type F and C fly ash. Slag cement supplies are certainly adequate today to meet industry needs. However, if this should change and these materials are not available, the limit of 400 lbs. of cement would need to be addressed.

We endorse and support other recommendations made in Intro 593 to make our construction more sustainable, such as:

- Placing 10% recycled concrete and aggregates in concrete mix proportions with a compressive strength of 4,000 psi or less. Larger quantities than 10% can be used, but it is a question of quality control exercised on the recycled materials. Until it is demonstrated that the industry has instituted the proper quality control on the recycled material, the limit should be 10%. This substitution of 10% recycled material will have no affect on concrete properties at this strength level.
- Incorporating recycled asphalt, concrete, and aggregates for a total of 15% into roadway base courses. This has been routine on Port Authority projects for some time with good results.

I thank you for allowing me to share the Port Authority's experiences in producing a greener and more sustainable concrete

For the Record

NYS^{FAH}

NEW YORK STATE ASSOCIATION FOR AFFORDABLE HOUSING
450 7th Avenue • New York, New York 10123
Phone: 646-292-5378 • info@nysafah.org • www.nysafah.org

Testimony to the City Council Committee on Housing and Buildings June 21, 2011

- Re: Int. 576 – In relation to the regulation of concrete washout water**
 - Int. 585 – In relation to limiting volatile organic compounds**
 - Int. 575 - In relation to requiring space to store recyclable material**
 - Int. 577 - In relation to maximum cement content**
 - Int. 578 - In relation to the use of recycled asphalt**
-

Thank you for the opportunity to submit testimony on the package of bills before the Committee today. NYSFAH is the trade association for New York's affordable housing industry statewide. Our 300 members include for-profit and nonprofit developers, lenders, investors, syndicators, attorneys, architects and others active in the financing, construction, and operation of affordable housing. Together, NYSFAH members are responsible for virtually all of the housing built in New York State with federal, state, or local subsidies.

While NYSFAH supports the environmental objectives of Int. 576, Int. 577 and Int. 578, it is critical that cost impact analyses be conducted for all three bills. Given limited public subsidy available for the development and rehabilitation of affordable housing, the City's building code should work to promote environmental objectives in a manner that is not cost-prohibitive to affordable housing. The cost implications of the proposed new concrete washout water requirements in Int. 578 are unclear, as are the costs associated with the proposed recycled asphalt content requirements. Prior to advancing Int. 578, the availability and cost of recycled asphalt pavement mixtures should be determined.

Likewise, the cost associated with Int. 585 should be identified before advancing the bill, particularly as it relates to the expense and availability of carpet meeting proposed volatile organic compound limits. Carpets in hallways or common areas can promote a positive residential quality of life by for example, reducing noise.

The standards proposed in Int. 575 could be clarified relative to the following: can the central refuse storage room be the compactor room, where garbage is usually stored? If so, does the area occupied by the compactor unit count towards the required square footage of the central refuse room? Regarding the secondary storage room, buildings with 12 or more units are already required to have a refuse room on each floor of 25 sq/ft to meet handicapped code; can this room be for both refuse and recycling? If so, is the new required area of 10 sq/ft in addition to the 25 sq/ft?

NYSFAH would welcome the opportunity to discuss any of these issues in greater detail. For questions, please contact Alison Badgett, Executive Director, at (646) 473-1208.



**Testimony before the Housing & Buildings Committee of the New York City
Council on Int. 577, 578 and 585**

**By Sylvester Giustino, Director of Legislative Affairs of the Building Owners and
Managers Association of Greater New York**

June 21, 2011

Good Afternoon, Chairman Dilan and members of the Committee, my name is Sylvester Giustino, Director of Legislative Affairs for the Building Owners and Managers Association of Greater New York, Inc. (BOMA/NY), which represents more than 700 owners, property managers and building professionals who either own or manage 400 million square feet of commercial space. We're responsible for the safety of over 3 million tenants, generate more than \$1.5 billion in tax revenue and oversee annual budgets of more than \$4 billion.

We commend the Bloomberg Administration for taking the lead in proposing a bold program to make existing buildings more energy efficient and environmentally sustainable. BOMA/NY firmly stands behind the concept of greening our City—and we do that every day in the buildings we own and manage.

BOMA/NY has been an active participant on the Industry Advisory Committee of the New York City Green Codes Task Force. We would like to thank the Mayor's Office of Planning and Long-Term Sustainability for allowing us to share our insights and incorporating them in the legislation.

BOMA/NY knows that by making buildings more resourceful, New York is taking the biggest single step to achieving its sustainability goals and remaining competitive as the business capital of the world.

We wish to focus our comments on Int. No. 577, Int. No. 578 and Int. No. 585.

In regard to Int. No. 577, the proposed bill limits the amount of cement per cubic yard of concrete in order to reduce the carbon emissions from the manufacturing of cement. We believe that the proposed bill may create a higher demand for materials that may not be available in today's marketplace. Also, the new materials used to make new concrete would have to be transported from outside of New York City. This would not only

increase the cost of concrete for our members, but may dilute the aims of the legislation which is to limit carbon emissions.

BOMA/NY members also expressed concerns that the use of less cement to make concrete may severely impact the timeline of construction. We believe that this legislation would delay the standard two day pour cycle, used at most construction sites, and lead to higher costs on all projects. Our members have reservations that the use of less cement may not only increase construction costs but could impact the safety and durability of concrete in fluctuating weather conditions.

In relation to proposed Int. No. 578, the bill requires 20% recycled asphalt pavement, increasing to 30% by 2018. This Bill like Int. No. 577, may cause issues where there is insufficient supply to meet the new demands of the marketplace and could lead to increased costs and delays. We believe that the legislation should be amended to state that recycled asphalt be used if it's locally and commercially available.

In closing, Int. No. 585, a bill that would restrict the amount of Volatile Organic Compounds in interior finishes, trims, decorative material, adhesives and sealants deserves to be closely scrutinized. BOMA/NY believes that the legislation should target the manufacturers of these products, not our members who are unable to monitor or track VOCs. Furthermore, as our members carefully maintain the original look and décor of their buildings, many of which are Pre-War, existing finishes that contain VOCs above the recommended amount should be exempted from the bill.

Thank You, Mr. Chairman and members of the Committee for allowing BOMA/NY to testify today. We look forward to working with the Bloomberg Administration, the City Council and our industry partners on improving this legislation and making a greener New York a reality.

#####

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____
 in favor in opposition
Date: 6/21/11

*IN FAVOR
of 603*

(PLEASE PRINT)
Name: JOSEPH J. FERRARA
Address: 120-05 31st Avenue, Flushing NY
I represent: FERRARA Bros. Bldg Materials
Address: See Above Corp

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. all Res. No. _____
 in favor in opposition
Date: 8/21/2011

(PLEASE PRINT)
Name: Russell Under
Address: 40 Fulton St NY NY
I represent: Urban Green Council
Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____
 in favor in opposition
Date: _____

(PLEASE PRINT)
Name: Spencer Giulio
Address: _____
I represent: BOMA NY
Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Laurie Kerr

Address: _____

I represent: Mayor's Office

Address: _____

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THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: _____

(PLEASE PRINT)

Name: John Lee

Address: _____

I represent: DOR

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 575, 576, 577, 578, 579, 580, 581, 582 Res. No. 592, 603

in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Anella Sun

Address: 5th Lexington

I represent: Real Estate Board of NY

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____

in favor in opposition

Date: 6/21/2011

Name: Gardner Kavanagh (PLEASE PRINT)

Address: _____

I represent: Lehigh Cement Co.

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. ⁵⁷⁸577,603 Res. No. _____

in favor in opposition

Date: 6/21/11

Name: William J. Lyons III (PLEASE PRINT)

Address: _____

I represent: Concrete Industry Board

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____

in favor in opposition

Date: _____

Name: Paul Brooks (PLEASE PRINT)

Address: 14 College Hill Dr

I represent: Holcom

Address: Hudson NJ

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THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____

in favor in opposition

Date: 6/21/11

(PLEASE PRINT)

Name: FRANK LORE

Address: 4 BOGTWORKS DR BAYONNE NJ

I represent: LAFARGE N/A

Address: RAVENA, NY

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THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____

in favor in opposition

Date: 6/21/11

(PLEASE PRINT)

Name: Donna Reuter

Address: 56 Biechman Rd Ravena NY

I represent: Obkastle Precast & PCI

Address: 123 CR 101 SELKIRK, NY 12158

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: _____ 7

(PLEASE PRINT)

Name: Felix Lam
RICHARD MARTIN

Address: 100 55th St

I represent: PORTLAND CEMENT ASSOCIATION

Address: _____

Please complete this card and return to the Sergeant-at-Arms

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THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____

in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Cas Bogracki

Address: 28 Sylvia Lane New Rochelle, NY

I represent: Port Authority of NY & NJ

Address: 225 Park Ave South

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 577 Res. No. _____

in favor in opposition

Date: 6/21/2011

(PLEASE PRINT)

Name: SAL. BASILE

Address: _____

I represent: LEHIGH Cement

Address: _____

Please complete this card and return to the Sergeant-at-Arms