Lives in the Balance:

Immigrants and Workers at Elevated Heights at Greatest Risk in Construction

A study by the New York State Trial Lawyers Association of U.S. Occupational Safety and Health Administration construction site inspections in New York

June 2005

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Summary

A comprehensive review by the New York State Trial Lawyers Association (NYSTLA) of United States Occupational Safety and Health Administration (OSHA) construction site inspections in New York State has found that OSHA safety standards are routinely violated. Among the most frequently violated standards are those that protect construction workers who work at elevated heights. The findings of this review underscore the urgency for New York to retain Sec. 240 of the Labor Law, the "scaffold law," which specifically protects such workers.

The review shows:

- **Most OSHA inspections found safety violations**. Sixty-two percent of the 2,547 OSHA construction-site inspections conducted during 2003[1] in New York State resulted in one or more citations for violation of OSHA safety standards. The most frequent violators were special trades contractors such as masonry and roofing contractors, where more than 80% of inspections resulted in citations for safety violations, and residential building general contractors, where nearly three-quarters of inspections found violations. In addition, more than one-half of masonry contractor inspections and nearly 40% of roofing contractor inspections found at least three violations. More than one-third of roofing contractor inspections found at least five violations.

  OSHA categorized virtually all these violations as "serious."

- **Violations of the two main safety standards that protect workers at elevated heights – the fall protection standard and the scaffolding standard – were very widespread.** Construction work is dangerous, especially for workers perched on a scaffold, ladder or roof. Nationally, the U.S. Bureau of Labor Statistics has found that one-third of construction fatalities are from falls from an elevation and one-fifth are from being struck by a falling object -- hazards which can be ameliorated with proper scaffolds, guardrails, toe boards, harnesses and other safety equipment.

  Over 30% of OSHA violations in New York's construction industry were of either the scaffolding or fall protection standards, demonstrating that construction workers at elevated heights are being exposed to needless accidents and injuries. Indeed, violations of the scaffolding and fall protections standards were frequently found in construction industry sub-sectors where workers are most

[1] Also includes inspections conducted during 2002 of "residential building general contractors-more than single family" (Standard Industrial Classification 1522) and inspections conducted during 2002 and 2001 of "residential building general contractors-single family" (Standard Industrial Classification 1521).

likely to work at elevated heights. For instance, 42% of inspections of roofing-siding-sheet metal contractors found violations of the fall protection standard and 64% of inspections of masonry-stone setting contractors found violations of the scaffolding standard. Moreover, OSHA frequently assigned these violations a gravity score of "10," the highest rating on OSHA's 1-10 gravity scale. For example, 52% of scaffolding standard violations and 63% of fall protection violations by apartment building general contractors were 10's. In short, the most dangerous types of worksites were frequently plagued by widespread violations of the most serious kind: the type of violations that often have tragic consequences.

There were also numerous violations of six additional safety standards that protect workers at elevated heights, including standards for ladders and for training in scaffolding and fall protection safety.

- **Inspections in New York City, especially in Brooklyn, the Bronx and Manhattan, were significantly more likely to find violations of safety standards than were inspections elsewhere. And when inspectors found violations in New York City, they usually found substantially more of them than inspectors found elsewhere.** Over 80% of inspections in Brooklyn, Manhattan and the Bronx uncovered safety violations, compared to 62% in the state as a whole and 50% Upstate. Statewide, there was an average of 3.35 violations in inspections where violations were found; Upstate (north of Westchester and New Jersey), there were 2.84 violations per inspection where violations were found. But in the Bronx, Brooklyn and Manhattan there were 4.49 violations per inspection where violations were found.

  The especially high violation rates occurring in Brooklyn, the Bronx and Manhattan outside of Midtown and Downtown appear to be attributable in large part to widespread safety corner cutting by the smaller construction firms which are especially active in these areas. These firms employ large numbers of lower-paid immigrant workers and day laborers. Since they may speak little English and fear employer reprisals, immigrant and day-hire workers are in no position to press for safer worksites and, thus, the large numbers of violations.

- **Inspections of general contractors of multi-family residential buildings that found violations found more violations than did inspections elsewhere in the construction industry.** Inspections of "residential building contractors –more than single family" that found violations found 4.86 violations on average, compared to 3.13 violations on average for the entire construction industry. In Manhattan, inspections of "residential building general contractors-more than single family" found 7.41 violations on average, the most in the state, and in Brooklyn, they found 6.00 violations on average, the second most in the state.

- **Violation rates were especially high in the construction of "affordable" housing in New York City.** Many of the contractors active in lower income communities in New York City employ predominantly immigrant and day labor.

Widespread use of immigrants and day labor in construction and rehabilitation of government-subsidized housing affordable by moderate and middle income families appears to have been a significant factor in the disproportionately large numbers of construction safety violations in low and moderate-income communities, which is where most of this housing has been built in recent years.

- **Violations were significantly less likely to occur among the state's larger general contactors and smaller ones.** Less than 15% of inspections of large general contractors like Turner Construction and Bovis Lend Lease found violations, compared to 47% of inspections of building general contractors as a whole. One reason for the substantially lower violation rates among the largest general contractors is that they are more likely than small contractors to employ site safety professionals to monitor construction sites and to correct safety deficiencies. In addition, large general contractors and their subcontractors are less likely to employ immigrant and day labor and are more likely to be unionized.

NYSTLA also reviewed the 337 OSHA "accident inspections" conducted between 1994 and 2004 that were included in the agency's web site listing of all agency inspections. According to OSHA officials interviewed for this study, in "accident inspections" a worker either was killed or at least three workers were hospitalized overnight. This review found:

- **The vast majority of accident inspections found violations. Violations of the scaffolding and fall protection standards, in particular, were widespread.** Violations of OSHA standards really *do* lead to accidents**;** OSHA safety standard violations were found in 77% of the 337 accident inspections. In several construction trades the percentages were even higher. For instance, violations were found in more than 90% of masonry contractor and wrecking-demolition accident inspections and in more than 80% of roofing-siding-sheet metal and painting contractor accident inspections. **In short, when workers were severely hurt or killed, inspectors usually found OSHA safety standards were not met.**

  Nationally, falls from an elevation are the major cause of construction fatalities and injuries. In New York, this was reflected in widespread violations of OSHA scaffolding and fall protection standards in accident inspections. For instance, violations of the fall protection and scaffolding standards were found in nearly 60% of the 38 roofing-siding-sheet metal contractor accident inspections.

  Violations found during accident inspections tended to have high gravity scores. For instance, in roofing-siding-sheet metal contracting, 89% of the scaffolding violations and all of the fall protection violations had gravity scores of "10," the most severe.

- **There were significantly more accidents in two special trades where workers spend much of their time on scaffolds and working at elevated heights –**

roofing-siding-sheet metal work and masonry work – than in any of other 15 special trades in the Standard Industrial Classification (SIC) system. Together, these two trades accounted for over one-fifth of all OSHA construction accident inspections in New York State and nearly one-fourth of the violations issued in accident inspections. Their large share of the most serious construction accidents documents the enormous dangers inherent in working at elevations**.** ("SIC" stands for Standard Industrial Classification, a system of assigning every employer a four-digit number corresponding to a list of industries.)

- **More than one-half of construction accident inspections (54%) in New York State since 1994 were in New York City.** Manhattan accounted for 24%, Brooklyn for 13% and Queens for 10% of the 337 accident inspections – the largest share of any counties.

- **Immigrant workers have disproportionately been the victims of construction accidents.** In 2001, OSHA compliance officers began to record whether or not a worker killed or injured in construction accident inspection primarily spoke a language at the work site other than English; language spoken by the affected worker(s) was determined for 99 accident inspections. Statewide, 48% of these accidents involved a worker who spoke a foreign language on the job and in New York City 67% of these accidents involved a worker who spoke a foreign language on the job.

- **In the vast majority of accidents involving foreign language speaker, OSHA issued citations for violations of safety standards**. These findings buttress the conclusion that large numbers of immigrants are being employed at construction sites where safety is being compromised. Indeed, foreign-language speakers were the victims in 11 of the 13 accidents that occurred in Queens, the New York City borough with the largest share of immigrant residents.

According to a study released in 2003 by the New York City Construction Industry Partnership (CIP), *Construction Safety: A Tale of Two Cities*, in recent years there has been a steady expansion in New York's "underground" construction industry. This expansion has produced scofflaws that routinely flout the OSHA safety standards documented in this study. And as the CIP notes, in the "underground" construction industry builders and contractors do not always obtain the necessary construction permits, often avoid inspection by local buildings departments, and "jeopardize[s] the safety of the public and their workforces because of poor construction practices." The "underground" industry predominantly employs recent immigrants and day laborers.

Attorneys who represent immigrants and day laborers injured at construction sites anecdotally corroborate these findings. Their clients are primarily employed at small and medium-size construction, conversion, renovation and repair projects, mostly in New York City outside of Midtown and lower Manhattan, and in Westchester and Long Island. Worksites where these workers are employed often fail to comply with critical safety requirements such as tie-offs for workers on scaffolds and barricades around open

stairwells. As one attorney noted, "Basic safety equipment like harnesses is almost always missing" and another attorney observed, "Scaffolding often is substandard and not properly secured."

The evisceration of New York State Labor Law Sec. 240, proposed in legislation pending in Albany, would embolden this "underground" industry to cut even more safety corners and encourage the legitimate construction industry to pay less attention to worker safety. Clearly, the role of Labor Law 240 in pressing all contractors and builders to run safer worksites has never been more crucial.

In addition, the changes proposed in Labor Law Sec. 240 would have a devastating personal impact on many immigrant workers and day laborers injured in accidents caused by the failure to provide required height-related safety equipment at the job site. Since employers of many such workers often do not name them on a workers compensation policy, repealing or weakening Labor Law Sec. 240 would eliminate their only effective means to receive reimbursement for medical expenses and lost wages.

There is no evidence that enactment of the proposed Labor Law 240 legislation would have the sponsors' intended effect of reducing or mitigating the recent increases in contractor liability insurance premiums that have been reported. What is clear, however, is that the best way to reduce premiums is to reduce the number of OSHA violations and make construction sites safer. This is the approach recommended in construction industry trade publications, such as *Roofing Siding Insulation*, which recently reported, "Probably the most critical issue in the roofing industry today is skyrocketing insurance rates. At the very core of the problem is the issue of safety."[2]

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Part I of this study gives the results of NYSTLA's analysis of construction site inspections by Standard Industrial Classification (SIC). Part II further analyzes SIC results by geographic region. Part III analyzes construction accident inspections by SIC and geographic region. Conclusions and recommendations are in Part IV.

[2] Russo, Mike, "Indy Racer Supports Contractor Education," *Roofing Siding Insulation*, March 1, 2004.

I. Findings by Standard Industrial Classification

The percentage of OSHA inspections conducted during 2003[3] in New York that found violations was calculated for 25 of the 26 construction-industry Standard Industrial Classifications (SICs) in SIC Division C (construction).[4] The number of violations found per inspection and the number of violations per inspection that found violations was also calculated. "Construction" includes new work, as well as additions, alterations, renovations and repairs. Division C encompasses Major Group 15 ("building general contractors," with five SICs),[5] Major Group 16 ("heavy construction other than building contractors," with four SICs) and Major Group 17 ("special trades contractors," with 17 SICs). Major Group 15 accounted for 37% of the reviewed inspections, Major Group 16 for 3% of the reviewed inspections, and Major Group 17 for 60% of the reviewed inspections. All planned, program-related, unprogram-related, referral, and complaint inspections[6] were reviewed.

A. Overall findings

OSHA issues safety standards in every industry it monitors. These standards establish essential safety requirements for equipment and workers. Construction industry standards are found primarily in 29 CFR, Part 1926 (safety and health standards for construction). Subpart L covers scaffolds, Subpart M covers fall protection and Subpart X covers stairways and ladders.

At least one violation of an OSHA construction industry standard was found in 47% of "general building contractor inspections," in 48% of "heavy construction other than buildings" inspections, and in 73% of "special trades contractor" inspections, for a total of 62% of the 2,547 non-accident inspections reviewed. OSHA classified virtually all these violations as "serious." A "serious" violation is one that poses a substantial probability of death or serious physical harm to workers.

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[3] For SIC 1521 (residential building general contractors-single family homes), three years of inspections (2001, 2002 and 2003) were reviewed, and for SIC 1522 (residential building general contractors, other than single family, two years (2002 and 2003) were reviewed.

[4] Inspections SIC 1611, Major Group 16, "Highway and Street Construction," were not reviewed because nearly all of the inspected entities were municipal agencies, primarily town and village highway departments. This study focuses on the private sector.

[5] According to OSHA, building general contractors are primarily engaged in the construction of dwellings, office buildings, stores, farm buildings, and other building construction projects.

[6] *Planned inspections* are conducted as part of OSHA's regular, scheduled inspection program. *Program-related inspections* are of randomly chosen worksites in industries that are considered to be particularly hazardous. *Referral inspections* are generated by a referral from another government agency. *Complaint inspections* are conducted typically after an employee or labor union files a formal complaint with OSHA; generally, an on-complaint inspection will be conducted when a complainant alleges a serious hazard that could result in death or serious injury.

1. Violations of OSHA safety standards occurred most frequently in special trades where workers make extensive use of scaffolds and ladders and typically work at elevated heights. These trades specifically included concrete work, painting-paper hanging, masonry-stone setting, and roofing-siding-sheet metal. There was a 73% violation rate for all special trades and a 62% rate for the entire construction industry, but among the special trades in the following table, violation rates ranged from 76% to 86%. In addition, substantial percentages of the inspections in these special trades found multiple violations.

Fig 1. Percentage of inspections that found initial violation(s).

SIC	At least one violation	At least three violations	At least five violations
1771, concrete work	86%	46%	34%
1721, painting and paper hanging	86%	41%	25%
1751, carpentry	86%	40%	22%
1741, masonry-stone setting-other stone work	84%	53%	29%
1761, roofing-siding-sheet metal	76%	38%	20%

(See Appendix B for SIC breakouts of numbers of violations and percentages and Appendix C for breakouts of numbers of inspections with at least three and five violations for nine major SICs.)

2. Violations rates were also above average among residential building general contractors. In SIC 1521 (single family home general contractors), 72% of inspections found violations, and in SIC 1522 (more than single family residential general contractors), 70% of inspections found violations. In comparison, there was a 47% violation rate for all building general contractors and a 62% violations rate in all SICs.

3. OSHA's scaffolding standard ("general requirements for all types of scaffolding") [7] **and fall protection standard ("fall protection scope/applications/ definition"**[8]**) were the most frequently violated standards.** 20% of all OSHA safety standard violations were of the scaffolding standard and 11% were of the fall protection standard. (See Appendix B for breakouts.). Scaffolding standard violations were found in 16% of all inspections reviewed and violations of the fall protection standard violations were found in 19% of all inspections reviewed.

These are the two major standards that protect construction workers at elevated heights from being injured or killed in a fall. They specify exactly when and how scaffolds are to be constructed and used and how workers must be protected from falls, such as through the use of guardrails, safety nets, and fall arrest systems. When a contractor fails to provide a tie-off harness to a worker on a suspended scaffold or neglects to erect a guardrail around an open stairwell, one of these standards is violated.

[7] CFR 1926.451

[8] CFR 1926.501

When contractors flout these safety rules, they ignore the most important standards protecting construction workers at elevated heights.

Violations of six additional OSHA standards that protect workers at elevated heights were less prevalent but also frequent. These standards include "fall protection systems criteria and practice," "ladders," "fall protection training requirements," "ladder and stairway training program," "ladder and stairway general requirements" "and "scaffolding training requirements." (See Appendix A for definitions of all eight standards that protect workers at elevated heights.)

According to the U.S. Bureau of Labor Statistics, falls are the leading cause of construction deaths in the nation, accounting for 31% of construction work-related fatalities in 2002. In its construction "eTool,"[9] OSHA warns the industry of the dangers of falls and the necessity of taking appropriate safety measures: "Almost all sites have unprotected sides and edges, wall openings, or floor holes at some point during construction. If these sides and openings are not protected at your site, injuries from falls or falling objects may result, ranging from sprains and concussions to death."

The number of occupational fatalities due to falls has been steadily rising, highlighting the urgent need to improve fall prevention efforts. From 1992 to 2002, the number of occupational fall fatalities in the U.S. increased by 20%, from 600 to 719, with falls from a ladder rising from 78 to 126, falls from a roof from 108 to 143, and falls from a scaffold rising from 66 to 88.[10] As noted in *Workers Compensation Monitor*, "Falls are the leading cause of fatalities in the construction industry" and "the trend is on the increase."[11]

4. OSHA commonly gave scaffolding and fall protection violations the agency's highest possible "gravity" score. OSHA assigns each violation a gravity score of 1 to 5 or a 10 (6-9 are skipped). A score of 10 is the highest, meaning the violation has high "severity" with a "greater" probability that an injury will result. (See table at right.) NYSTLA tabulated OSHA "gravity" scores for violations in three SICs: roofing-siding-sheet metal contractors, residential building

Severity	Probability	Gravity
High	Greater	10
Medium	Greater	5
Low	Greater	4
High	Less	3
Medium	Less	2
Low	Less	1

[9] Available at www.osha.gov.

[10] Comparing the 1992-1994 period with the 2000-2002 period: the annual average of 50 roofer occupational fatalities in 1992-1994 increased to an annual average of 77 in 2000-2002; the annual average of 75 scaffold fall occupational fatalities in 1992 to 1994 increased to an annual average of 88 in 2000 -2002; the annual average of 119 fatal roof falls in 1992-1994 increased to an annual average of 151 in 2000-2002; the annual average of 119 fatal occupational falls from a ladder in 1992-1994 increased to an annual average of 151 in 2000-2002. Source: U.S. Bureau of Labor Statistics, *Fatal occupational injuries to all workers by selected characteristics, 1992-2002*.

[11] *Workers Compensation Monitor,* "Guardrails, railings necessary to prevent fall hazards," April 2, 2003.

contractors other than single family, and single-family residential building contractor. The results for three particular SICs, shown in the following table, underscore the enormous danger many workers who work at elevated heights and in residential construction face because of the widespread failure by contractors to comply with safety standards. These are not minor, technical violations that present little risk of injury; rather, these are the worst possible violations that expose workers to immediate danger of serious harm.

Fig. 2. Percentage of scaffolding and fall protection violations assigned a gravity score of 10. Planned, program-related and un-programmed inspections.

SIC	% of scaffolding (CFR 1926.451) violations that received a gravity score of 10	% of fall protection (CFR 1926.501) violations that received a gravity score of 10
1761. Roofing-siding-sheet metal, 2003	33%	48%
1522. Residential building general contractor-other than single family, 2003	52%	63%
1521. Residential building general contractor - single family, 2001-2003	37%	43%

5. Violations occurred less frequently among larger building general contractors than among smaller ones. The principal reason why larger contractors have fewer violations is that they are more likely than smaller contractors to implement effective risk management programs and employ site safety coordinators who rigorously monitor worksites and ensure that violations are corrected.[12] Thus, while NYSTLA found violations in 47% of inspections of building general contractors and in 32% of inspections of non-residential building general contractors, in inspections conducted between 2000 to 2004, violations were found in only eight (10%) of the 78 inspections of Turner Construction Company sites, five (12%) of the 40 inspections of Bovis Lend Lease's sites, two (12%) of 16 Skanska[13] inspections, and seven (25%) of 28 Tishman Construction[14] inspections; *Crain's New York Business* reports these are among the New York City area's largest construction companies.[15]

The Upstate experience was similar. Among major general contractors, only four (11%) of 35 Welliver/McGuire sites had violations, U.W. Marx had only one violation in

[12] It should be noted that general building contractors do not include sub-contractors or special trades contractors. General building contractors employ mostly laborers, in addition to supervisory and administrative personnel. However, it has generally been observed by construction professionals and academic experts in this subject that sub-contractors who work on projects overseen by large general contractors also have relatively low levels of violations.

[13] Includes Slattery/Skanska, Koch Skanska, Sardoni Skanska, Gottlieb Skanska, Spectrum Skanska, Barney Skanska.

[14] Includes Tishman Speyer.

[15] "New York Area's Largest Construction Companies," *Crain's New York Business*, November 1-7, 2004, p. 20.

22 inspections (4%), and inspectors found no violations at all in 22 inspections of Sano-Rubin job sites.[16] Clearly, big general contractors follow safety rules better than small ones.

B. Special trades contractor (SIC Major Group 17) findings

In 2003, there were 1,529 planned, program-related, un-program, referral and complaint inspections in SIC Major Group 17, which encompasses construction "special trades."[17] Violations of OSHA safety standards were found in 73% of these inspections. Nineteen percent of the inspections found violations of the fall protection standard and 16% found violations of the scaffolding standard.

Scaffolding and fall protection violations were especially frequent in the six special trades SICs listed below. Since workers in these special trades spend much of their time on scaffolds, around open stairwells, and on roofs, they are highly vulnerable to falling and being injured or killed. Yet at least 30% of the inspections in these SICs found violations of either the scaffolding or fall protection standards (See Appendixes B and C for percentages for all SICs.)

- *Masonry, stone setting and other stone work contractors (SIC 1741).*[18] Violations of safety standards were found in 84% of the 263 masonry-stone setting contractor inspections. Three or more violations were found in 53% of inspections and five or more violations were found in 29% of inspections.

  Two-thirds of inspections found at least one violation of the scaffolding standard and 18% found at least one violation of the fall protection standard. Two or more scaffolding standard violations were found in 38% of violations. Masonry-stone setting inspections that found a violation were likely to find substantially more violations than were inspections in the 16 other special trades in Major Group 17.

  NYSTLA determined that those protections most vital to prevent a fall were most likely to be ignored. Among masonry-stone setting contractors, the most frequently violated subsection of the fall protection standard requires scaffold

[16] Four years (2000 to 2004) of inspections of individual contractors conducted were reviewed.

[17] There are 17 SICs in Major Group 17: plumbing, heating, air-conditioning (1711); painting and paper hanging (1721); electrical (1731); masonry, stone setting and other stone work (1741), plastering, drywall, acoustical and insulation work (1742), terrazzo, tile, marble and mosaic work (1743), carpentry (1751); floor laying and other floor work not otherwise classified (1752); roofing, siding, sheet metal work (1761); concrete work (1771); water well drilling (1781); structural steel erection (1791); glass and glazing work (1793); excavation (1794); wrecking and demolition (1795); installation or erection of building equipment (1796); and special trades contractors not otherwise classified (1799).

[18] Also included are bricklaying and cement block laying, chimney construction, exterior marble work, and tuck-pointing contractors.

workers to be protected by a "personal fall arrest system" or "guardrail system."[19] The most frequently violated subsection of the scaffolding standard requires that when scaffold platforms are more than two feet above or below a point of access, "portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type towers (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or other similar surface" must be used.[20] The second most frequently violated subsection requires that platforms on all working levels of a scaffold "be fully planked or decked between the front uprights and the guardrail supports." [21]

- *Roofing-siding-sheet metal contractors (SIC 1761)*. Since workers who install roofs and siding are highly vulnerable to injuries from falls,[22]it is crucial for their safety that OSHA standards, especially standards for work at elevated heights, be strictly observed. Yet 76% of the 173 inspections of roofing-siding-sheet metal contractors found violations of OSHA safety standards**.** Three or more safety standards violations were found in 38% of inspections and five or more violations were found in 20% of inspections**.** Some 41% of inspections found violations of the fall protection standard and 13% found violations of the scaffolding standard.

  In roofing-siding-sheet metal work, the most frequently violated sub-section of the fall protection standard, CFR 1926.501(b)(13) requires that in residential construction there must be a guardrail, safety net or "personal fall protection system." The second-most frequently violated fall protection sub-section, CFR 1926.501b (1), requires similar protections for workers on low-slope roofs.

  The most frequently violated scaffolding standard subsection, CFR 1926.451(g)(1), requires workers on scaffolds to be protected by "personal fall arrest systems" or guardrails. The second most frequently violated scaffolding standard, 1926.451(b)(1), requires that platforms be as fully planked or decked as possible.

  Among additional scaffolding subsections that were frequently violated were: failure to ensure access to scaffold platforms, inadequate clearance between scaffolds and power lines, and failure to brace scaffold legs or ensure poles are plumb and braced to prevent swaying. Many roofing contractors violated multiple subsections of the scaffolding standard**. Once more, those safeguards most needed to prevent a fall were least often provided.**

[19] CFR 1926.501 (g)(1)(vii)

[20] CFR 1926.501 (e)(1)

[21] CFR 1926.501(b)(1)

[22] In 1999, falls accounted for a much larger share of construction fatalities in roofing than in the construction industry generally. There were 4.2 fall fatalities per 100,000 workers in all of construction, but six times this many, 26.9 fatalities per 100,000 workers, in roofing.

- *Carpentry work (SIC 1751).* At least one violation was found in 86% of the 121 inspections. Three or more violations were found in 40% of inspections and five or more violations were found in 22% of inspections. Forty percent of inspections found at least one violation of the general fall protection standard, and 17% of inspections found at least one violation of the scaffolding standard.

- *Concrete work (SIC 1771).* At least one violation was found in 86% of 74 inspections found, three or more violations were found in 44% of inspections, and five or more violations were found in 32% of inspections. Twenty-eight percent of inspections found at least one violation of the general fall protection standard, and 31% found at least one violation of the general scaffolding standard.

- *Plastering and dry wall (SIC 1742*). At least one violation was found in 84% of the 66 inspections conducted. More specifically, 17% of inspections found at least a violation of the general fall protection standard and 30% of inspections found at least one violation of the general scaffolding standard.

- *Painting and paper hanging (SIC 1721).* Violations were found in 86% of 50 inspections. Twelve percent of inspections found at least one a violation of the general fall protection standard, and 32% of inspections found at least one violation of the general scaffolding standard.

C. Building general contractor (SIC Major Group 15) findings

Building general contractors[23] employ laborers, carpenters, supervisors and other workers not employed by a special trade contractor. Violations were found in 47% of the 944 inspections in SIC Major Group 15.

- *General contractors-non-residential buildings other than industrial (1542).* Projects in this SIC range from small retail stores to large commercial and institutional projects such as office towers and hospitals. There were more inspections in this SIC than any other SIC in the construction industry. Some 32% of the 519 inspections in this sub-sector found at least one violation of an OSHA safety standard, 12% of inspections found at least three violations and 6% found at least five violations.

  In addition, 6% of the inspections found at least one violation of the general scaffolding standard, and 11% found at least one violation of the general fall protection standard.

[23] Major Group 15 includes five SICs: general contractors-single family homes (1521); general contractors-residential buildings other than single family (1522); operative builders (1531); general contractors-industrial and warehouse buildings (1541); general contractors-non residential buildings other than industrial (1542).

- *General contractors-residential buildings other than single-family (1522).* Projects in SIC 1522 range from two-family townhouses to apartment towers with hundreds of units. Seventy percent (172) of 246 inspections found safety violations, with 19% of inspections finding at least three violations and 11% finding at least five. Eighty inspections (33%) found violations of the general fall protection standard and 43 (17%) found violations of the general scaffolding standard.

- *General contractors, single-family homes (1521).* Seventy-two percent of the 85 inspections found at least one violation; 33% of inspections found at least one violation of general fall protection standard, and 20% found at least one violation of the general scaffolding standard. Sixteen percent of the 230 violations were of the fall protection standard and 18% were of the scaffolding standard.

- *General contractors, industrial buildings and warehouses (1541).* Fifty-one percent of the inspections in this class found at least one violation, 18% found at least one violation of the general fall protection standard and 9% found at least one violation of the general scaffolding standard.

II. Geographic Analysis of Inspection Results

NYSTLA broke out the numbers of inspections and violations for Upstate, Westchester, Long Island, Bronx, Manhattan, Brooklyn, Queens and Staten Island. For each SIC class and for each geographic area the percentage of inspections that found at least one violation was calculated. In addition, the number of violations found in each inspection that found violations was determined. Appendix D provides full results.

In Brooklyn, Manhattan, the Bronx and Queens, an additional analysis of inspections and violations was conducted by zip code for four four SICs: 1522 (general contractors-residential buildings more than single family), 1741 (masonry contractors), 1751 (electrical contractors), 1761 (roofing-siding-sheet metal contractors) and 1542 (general contractors-non residential buildings other than industrial).

A. Overall findings

New York City construction inspections were substantially more likely to find safety standard violations than were inspections elsewhere in the state. To be sure, violations were widespread outside of New York City: 50% of Upstate inspections, 73% of Long Island inspections, and 72% of Westchester inspections found at least one violation. However, in New York City, 78% of inspections found violations.

The highest violation percentages were in Brooklyn, where 87% of inspections found violations; in Manhattan, where 82% of inspections found violations; and in the Bronx, where 80% of inspections found violations. In addition, when a New York City

inspection found violations, it usually found more violations than inspections conducted elsewhere. In Brooklyn, for example, inspections that found violations had 4.72 violations on average. In contrast, Upstate inspections that found violations found 2.86 violations on average, on Long Island, 3.11, and in Westchester, 2.95.

In the Bronx, the vast majority of violations were concentrated in the lowest income zip code areas, chiefly in the southern one-third of the borough. Few inspections in this zone failed to reveal violations. In Manhattan, violations by residential general contractors disproportionately occurred in the lowest income zip codes, primarily Harlem and Northern Manhattan; violations in the special trades were found throughout the borough, although relatively infrequently in Midtown and lower Manhattan. In Queens, violations were distributed throughout the borough, but were especially prevalent in a number of zip code areas that have recently experienced particularly high rates of immigrant population growth and development such as Jackson Heights and Flushing. In Brooklyn, violations occurred primarily in neighborhoods that have experienced extensive residential new construction and conversions in recent years, especially the Williamsburg and the Park Slope areas.

As discussed in Part IV, the especially high violation rates that occurred in New York City as a whole can be tied in large part to the extensive use of immigrant workers and day labor and concomitant safety corner-cutting by the mostly small contractors who employ them.

B. Building general contractor (SIC Major Group 15) geographic analysis

Statewide, 47% of building general contractor inspections found violations. In New York City, 67% of general building contractor inspections found violations.

Highlights of the findings for the five SICs in Major Group 15 were:

- Inspections of "general contractors-residential buildings-more than single family" (SIC 1522) were substantially more likely to find violations in Brooklyn and Manhattan than elsewhere. Within these two counties and in the Bronx, violations were disproportionately likely to occur in the lowest income zip code areas.

- Inspections of "general contractors-non-residential buildings" (SIC 1542) in the Bronx, Brooklyn and Manhattan were more likely to find violations than were inspections elsewhere.

1. General contractors-residential buildings other than single family (SIC 1522)

This SIC encompasses projects ranging from garden style apartments to skyscraper apartment buildings. Given the predominance of multi-family housing in New York City and the City's recent residential construction boom, it was not unexpected that the vast majority of inspections of residential general contractors-other than single family in New York State were conducted in New York City. In 2003, New

York City issued more than 21,000 housing construction permits, the most in any year since 1973.[24]

Residential general contractors-other than single family were more likely violate OSHA safety standards in New York City than they were elsewhere in the state. Some 87% of inspections in Brooklyn, 79% in Manhattan, and 75% in Queens found violations compared to 70% stateside and 56% Upstate[25]. In addition, each inspection in Brooklyn and Manhattan that found violations yielded significantly greater numbers of violations than did such inspections elsewhere. While inspections outside of Brooklyn and Manhattan yielded fewer than four violations on average, in Brooklyn each inspection yielded 6.00 violations, and in Manhattan, each inspection yielded 7.41 violations. These were highest numbers of any construction industry SIC.[26]

Fig 3. SIC 1522. General contractors, residential buildings other than single-family. Numbers of inspections and initial OSHA violations, 2003 and 2002.

	Number of all inspect-tions	Number of Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	57	32	56%	126[27]	2.21	3.93[28]
Long Island	5	4	80%	15	3.00	3.75
Westchester	38	26	68%	76	2.00	2.92
Bronx	37	23	62%	77	2.08	3.35
Brooklyn	31	27	87%	162	5.10	6.00
Manhattan	58	46	79%	341	5.87	7.41
Queens	16	12	75%	37	2.31	3.08
Staten Island	4	3	75%	11	2.75	3.66
ALL AREAS	**246**	**173**	**70%**	**845**	**3.43**	**4.88[29]**

Analysis of New York City violations by zip code area found that Bronx violations were heavily concentrated in the lowest-income sections of the borough, specifically, the areas lying south of Fordham Road, the Bronx Zoo, and Tremont Ave and west of White Plains Road. Seventeen (77%) of 22 Bronx zip code areas where

[24] Source: Barth, Richard, "Embracing Growth, Preserving Neighborhoods," *Gotham Gazette,* February 9, 2004.

[25] The 80% rate on Long Island should be discounted because it was based on only four inspections.

[26] Except for the 13 inspections in of SIC 1531 (operative builders).

[27] A single inspection in Schenectady resulted in 32 initial violations citations, the most citations from any inspection reviewed for this study.

[28] 3.03 if the 32 citations in the single Schenectady inspection cited in the previous footnote are counted as one.

[29] 4.70 if the 32 citations in the single Schenectady inspection cited in the previous footnote are counted as one.

inspections found violations were within this zone, specifically comprising the communities of Melrose, Morrisania, Tremont, and Mott Haven**;** in addition**,** 63 (86%) of the 73 violations found in the Bronx were in this area.

In Manhattan, 19 (41%) of the 46 inspections that found violations were in the borough's lowest-income communities, specifically, the communities north of 96th Street on the East Side, and north of 125th Street on the West Side, predominantly Harlem, East Harlem, and Washington Heights. Despite the construction of several thousand residential units in lower Manhattan during 2002 and 2003, few violations were found there.

Brooklyn violations were concentrated in three major geographic areas. The largest concentration was in Williamsburg, an area experiencing significant new housing construction geared toward an expanding observant Jewish community. In addition, Williamsburg's new status as a center for artists and young professionals has been reflected in an influx of younger residents and consequent housing expansion through new construction as well as conversion of manufacturing into residential space.[30] The second major concentration in Brooklyn was Park Slope, where an upsurge in residential construction, especially in peripheral areas, is being spurred by recent zoning changes. Fort Greene was a third area of concentration. Violations also occurred in the lower-income communities of Bedford-Stuyvesant and Bushwick, where substantial amounts of government-assisted "affordable housing" has been erected in recent years, and in Sheepshead Bay.

The U.S. Census Bureau reports that from 1990 to 2000, the population of Queens increased by 277,781, the largest numerical growth of any county in the State. This growth was overwhelming from foreign immigration. The New York City Department of City Planning reports that from 1995 to 1999 Queens averaged 1,360 new housing permits a year, but from 2000 to 2003, the average rose to 3,460, an increase of more than 150%. It was therefore not unexpected that one of the largest concentrations of violations was in Flushing, a community experiencing a surge in residential as well as commercial construction and renovation targeted to a fast expanding population of recent immigrants. Additional areas of violation concentration included Corona and Woodside, two more areas that have experienced large increases in immigrant populations in recent years.[31] There also were numerous violations in Bayside.

[30] In the Greenpoint-Williamsburg Strategic Plan, the New York City Department of City Planning reports that "residential use has spread from the traditional core of Williamsburg and Greenpoint onto virtually every block of adjoining areas," chiefly through conversion of loft buildings to residential use.

[31] From 1990 to 2000, the population of Flushing (Queens Community Board 10) increased by 10.2%, of Jackson Heights-North Corona (Community Board 3) by 31.1%, and of Elmhurst-South Corona (Community Board 4) by 21.9%.

2. General contractors, non-residential buildings other than industrial (SIC 1542)

SIC 1542, "general contractors, non-residential buildings other than industrial," covers commercial (office and retail) buildings, religious buildings, and institutional buildings like schools and hospitals. More inspections were conducted in this SIC than in any other.

Fig 4. SIC 1542. General contactors, non-residential buildings other than industrial. Number of OSHA inspections and initial violations, 2003.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	343	92	27%	229	0.66	2.49
Long Island	55	17	31%	27	0.49	1.58
Bronx	18	12	67%	48	2.66	4.00
Brooklyn	11	7	64%	33	3.00	4.71
Westchester	32	13	41%	34	1.06	2.61
Manhattan	20	12	60%	34	1.70	2.83
Queens	29	8	28%	19	0.65	2.37
Staten Island	11	8	73%	17	1.54	2.12
ALL AREAS	**519**	**169**	**32%**	**441**	**0.85**	2.61

Violations were significantly more likely to be found during inspections in the Bronx, Brooklyn and Manhattan than Upstate, Long Island and Queens. In addition, inspections that found violations found substantially more violations in the Bronx and Brooklyn than did inspections elsewhere – 4.71 violations per inspection in Brooklyn and 4.00 violations per inspection in the Bronx, compared to 2.61 violations per inspection for the entire state. In the Bronx, most of the violations occurred in the third of the borough with the lowest household incomes.

3. General contractors–single-family homes (SIC 1521)

To review enough inspections to draw valid conclusions about this SIC, inspections for three years were reviewed as opposed to two years for multi-family residential general contactors and one year for all other SIC classes. Still, inspections were scant everywhere but Upstate and Long Island. In the latter two areas, well over one-half of the inspections found OSHA violations. The vast majority of contractors who violated OSHA standards violated subsections of the scaffolding or fall protection standards.

Fig 5. SIC 1521. General contractors-single family homes. 2001, 2002 and 2003. Number of OSHA inspections and initial violations.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	60	38	63%	106	1.76	2.79
Long Island	2	2	100%	7	3.50	3.50
Westchester	13	11	73%	71	5.46	6.45

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Bronx	2	2	100%	8	4.00	4.00
Brooklyn	1	1	100%	6	6.00	6.00
Manhattan	2	2	100%	11	5.50	5.50
Queens	4	4	100%	15	3.75	3.75
Staten Island	1	1	100%	6	6.00	6.00
ALL AREAS	**85**	**61**	**72%**	**230**	**2.70**	**3.78**

C. Special trades contractor (SIC Major Group 17) geographic analysis

Inspectors were substantially more likely to find violations in Brooklyn (93% violations rate), Manhattan (89% violations rate) and the Bronx (88% violations rate) than elsewhere (73% violations rate stateside, 61% rate Upstate). In nearly all of the special trades contractor SICs, inspections that found violations found substantially greater numbers of them in New York City, particularly in the Bronx (3.83 violations per inspection), Manhattan (4.16 violations per inspection) and Brooklyn (4.08 violations per inspection), than they did statewide (3.17 violations per inspection) and Upstate (2.83 violations per inspection).

The following inspection data is for SICs that had at least 100 inspections in 2003. They are presented in descending order of numbers of inspections. Results for all SICs are in Appendix D.

1. Masonry, stone setting, and other stone work contractors (SIC 1741)

SIC 1741 work ranges from bricklaying and chimney construction and maintenance to foundation building and tuck-pointing.

Fig. 6. SIC 1741, masonry, stone setting and other stonework.
Number of inspections and initial OSHA violations found, 2003.

	All inspect-tions	Inspections with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	91	62	68%	228	2.50	3.68
Long Island	48	47	98%	191	3.98	4.06
Westchester	21	19	90%	63	3.00	3.50
Bronx	27	24	89%	81	3.00	4.50
Brooklyn	20	20	100%	114	5.70	5.70
Manhattan	31	28	90%	143	4.61	5.10
Queens	21	19	90%	63	3.00	3.31
Staten Island	4	4	100%	14	3.50	3.50
ALL AREAS	**263**	**223**	**85%**	**897**	**3.41**	**4.02**

While violation rates for masonry-stone setting-other stonework contactors were high throughout the state, they were especially high in Brooklyn, Long Island, Westchester, and the Bronx. In addition, when inspectors found violations, they found many more in Brooklyn (5.70 violations per inspection), Manhattan (5.10 violations per inspection) and the Bronx (4.50 violations per inspection) than elsewhere (e.g. 3.31 violations per inspection in Queens, 3.73 violations per inspection Upstate).

In the Bronx, violations were concentrated in the lowest income communities; 14 (58%) of the 24 inspections of masonry-stone setting and other stonework with violations were located south of Fordham Road, the Bronx Zoo, and Tremont Ave and west of White Plains Road, the borough's lowest-income communities. In Manhattan, 12 (43%) of the 28 inspections with violations were in Harlem or Washington Heights. In Brooklyn, the greatest concentrations of inspections with violations were in the Park Slope vicinity (11215 and 11217), with a smaller concentration in Fort Greene 11205 and the rest scattered across the borough. In Queens, the largest concentration of violations was in Bayside and there were violations in Flushing, Corona, Ridgewood, and College Point.

2. Plumbing, heating, air conditioning contractors (SIC 1711)

SIC 1711 includes plumbing and heating equipment installation, steam-fitting, sprinkler system installation, boiler erection and installation, air conditioning equipment installation, sewer and gas hookups, and ventilation work.

Fig. 7. SIC 1711, plumbing, heating, air conditioning.
Numbers of OSHA inspections violations found, 2003.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	137	79	57%	185	1.35	2.34
Manhattan	11	9	82%	25	2.27	2.77
Westchester	12	6	50%	18	1.50	3.00
Bronx	22	20	91%	83	3.77	4.15
Long Island	5	4	75%	9	1.80	2.25
Brooklyn	6	5	83%	18	3.00	3.60
Queens	3	3	75%	8	3.33	2.66
Staten Island	9	5	62%	22	2.44	4.40
ALL AREAS	**205**	**131**	**64%**	**368**	**1.79**	**2.81**

In the Bronx, there was a considerably greater chance that an inspection would yield a violation than would an inspection Upstate. In addition, substantially greater numbers of violations were found during the typical Bronx inspection compared to Upstate – the 18 Bronx inspections where violations were found yielded 77 violations, compared to 64 Upstate inspections that yielded 124 violations. There were relatively few inspections in this SIC outside of the Bronx and Upstate.

3. Roofing, siding and sheet metal contractors (SIC 1761)

In addition to installation of roofing, siding, and sheet metal work, SIC 1761 includes roofing repair, roof spraying or coating, gutter and downspout installation, skylight installation, and tinsmithing and coppersmithing.

Fig 8. SIC 1761, roofing, siding and sheet metal work.
Numbers of OSHA inspections and initial violations, 2003.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	99	74	75%	242	2.44	3.27
Long Island	21	17	81%	29	1.38	1.70
Westchester	16	12	75%	42	2.62	3.50
Bronx	8	6	75%	25	3.57	4.16
Brooklyn	2	2	100%	8	4.00	4.00
Manhattan	2	2	100%	10	5.00	5.00
Queens	22	18	82%	22	1.00	1.22
Staten Island	3	2	67%	6	2.00	3.00
ALL AREAS	**173**	**131**	**76%**	**384**	**2.22**	**2.93**

Fig. 8 shows that wherever OSHA inspected roofing-siding-sheet metal contractors, violations were likely to be found.

4. Electrical contractors (SIC 1731)

In addition to general electrical work at construction sites, SIC 1731 covers installation of communications equipment, telephone and telephone equipment, fire and burglar alarms and electrical repair at construction sites.

Fig 9. SIC 1731, electrical contractors.
Number of OSHA inspections and initial violations found, 2003.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	97	49	50%	104	1.07	2.12
Long Island	5	4	80%	9	1.80	2.25
Westchester	18	13	72%	17	0.94	1.30
Bronx	18	17	94%	69	3.83	4.06
Brooklyn	6	6	100%	13	2.16	2.16
Manhattan	13	10	77%	23	1.77	2.30
Queens	4	0	0%	Na	Na	Na
Staten Island	3	0	0%	Na	Na	Na
ALL AREAS	**164**	**99**	**60%**	**235**	**1.43**	**2.37**

Inspections in the Bronx and Brooklyn were most likely to find violations; Bronx inspections that found violations found the most, 4.06 violations per inspection, substantially above the statewide average of 2.37.

5. Structural steel erection (SIC 1791*)*

These establishments are primarily engaged in the erection of structural steel, placement of concrete reinforcement and structural ironwork, installation of curtain wall and pre-cast concrete, and erection of metal storage tanks.

Fig. 10. SIC 1791, structural steel erection.
Numbers of OSHA inspections and violations found, 2003.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	71	39	55%	92	1.29	2.46
Long Island	7	5	71%	8	1.14	1.60
Westchester	10	9	90%	19	1.90	2.11
Bronx	9	4	44%	25	2.78	6.25
Brooklyn	11	8	73%	45	4.09	5.62
Manhattan	12	11	83%	54	4.50	4.90
Queens	7	4	57%	12	1.71	3.00
Staten Island	3	1	33%	1	0.33	1.00
ALL AREAS	**140**	**81**	**58%**	**256**	**1.82**	**3.16**

Violations occurred frequently in every region, but they were most likely to be found during inspections in Westchester, Manhattan and Brooklyn. Inspections that found violations found substantially more violations in the Bronx, Brooklyn and Manhattan than elsewhere in the state -- 6.25 violations per inspection that found violations in the Bronx, 5.62 in Brooklyn, and 4.90 in Manhattan was far above the number of violations per inspection that found violations elsewhere.

6. Carpentry contractors (SIC 1751)

SIC 1751 coves the full gamut of carpentry work done at the worksite, including cabinet work, framing, store fixture installation, and pre-fabricated window and door installation.

Fig. 11. SIC 1751, carpentry
Numbers of OSHA inspections and initial violations, 2003.

	All inspect-tions	Inspect-tions with violations	% of inspect-tions that found violations	Number of violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	54	42	78%	115	2.13	2.73
Long Island	19	18	95%	54	2.84	3.00
Westchester	10	9	90%	20	2.00	2.22
Bronx	17	16	94%	79	4.65	4.93
Brooklyn	2	2	100%	6	3.00	3.00
Manhattan	6	6	100%	27	4.50	4.50
Queens	10	8	80%	23	2.30	2.87
Staten Island	3	3	100%	11	3.66	3.66
ALL AREAS	**121**	**104**	**86%**	**335**	**2.77**	**3.23**

Inspections in all areas of the state were likely to find violations. Bronx inspections with violations had substantially more violations than did such inspections statewide.

III. Accident Inspection Analysis

According to OSHA officials,[32] all of the "accident inspections" listed on OSHA's Internet site[33] resulted in a fatality and/or at least three workers hospitalized overnight. NYSTLA reviewed the 337 such Internet-listed construction accident inspections in New York that occurred from 1994 to August 2004.[34] NYSTLA broke out these accident inspections by upstate, Westchester, Long Island, Bronx, Manhattan, Brooklyn, Queens and Staten Island, by SIC, and by the numbers of violations found per accident, including, specifically, the numbers of violations of OSHA scaffolding and fall protection standards. (Appendix E gives accident inspection results by geographic area, Appendix F gives results by SIC.) Since October 2001, OSHA compliance officers investigating accidents have reported whether or not the victim primarily spoke a language other than English at the job site.

A. Overall findings

OSHA investigators found safety standard violations in 77% of accident inspections, compared to 62% of non-accident inspections. There were a total of 1,248 violations and 3.7 violations per accident inspection, well in excess of the 2.1 violations found in each non-accident construction inspection. Each accident inspection that found violations found an average of 4.8 violations, compared to 3.3 violations in non-accident inspections that found violations. It is possible that the number of construction accident inspections involving recent immigrants and day laborers is understated in OSHA records, although OSHA officials assert that any underreporting is minimal.[35]

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[32] Telephone conversations with Laura Kenny, Labor Liaison, Region 2; Richard Mendelsohn, Director of the Manhattan Area Office; Diana Cortez, Director of the Tarrytown Area Office.

[33] Integrated Management Information System

[34] Accident inspections were reviewed for all 26 construction-industry SICs except SIC 1611 (highway and street construction). SIC 1611 was not reviewed because virtually all of the entities that were inspected were municipal governments, primarily local highway departments, and the NYSTLA review focused on the activities of private sector employers.

[35] It is possible that OSHA records understated the number of construction accident inspections involving recent immigrants and day laborers. However, OSHA officials assert that any underreporting is minimal. Richard Mendelsohn, Area Director, Manhattan Office, told NYSTLA that OSHA has arrangements with hospitals and medical examiners under which accidents reported as occurring at a construction site are reported directly to the agency.

B. Findings by Standard Industrial Classification

1. Three SICs where workers commonly work at elevated heights had among the highest violations rates. Accidents occurred most frequently in SICs with high violation rates.

Among the nine SICs with at least 15 accident inspections from 1994 to 2002, safety standard violations occurred most frequently in the following:

- wrecking-demolition (SIC 1795), violations were found in 90.9% of inspections;
- masonry-stone setting (SIC 1741), violations were found in 90.0% accident inspections;
- non-residential building general contractors (SIC 1542), violations were found in 81.8% of accident inspections;
- roofing-siding-sheet metal (SIC 1761), violations were found in 81.6% of inspections.

In wrecking-demolition, masonry-stone setting, and roofing-siding-sheet metal, workers spend much or most of their workday at elevated heights such as on scaffolds and sloped roofs.

Not surprisingly, these same four SICs where violations were most common also had the greatest numbers of accidents where a worker was killed or at least three workers were hospitalized overnight:

- wrecking-demolition companies (SIC 1795) had 22 accidents, 6.6% of all accident inspections, and there were 116 violations, or 9.3% of accident inspection violations;
- masonry-stone setting work contractors (SIC 1741) had 30 accidents, 8.9% of accident inspections, and there were 171 violations, or 13.8% of accident inspection violations;
- non-residential building general contractors (SIC 1542) had 33 accidents, 9.8% of accident inspections, and there were 111 violations, or 8.9% of accident inspection violations;
- roofing-siding-sheet metal work contractors (SIC1761) had 38 accidents, 11.3% of all accident inspections and there were 150 violations, or 12.0% of accident inspection violations.

Together, these four SICs accounted for 36.6% of accident inspections and 43.9% of accident inspection violations from 1994-2004.

2. Scaffolding and fall protection standard violations were especially frequent in accidents involving roofing-siding-sheet metal contractors and masonry-stone setting contractors.

OSHA's scaffolding standard was violated in 15% of construction accident inspections from 1994 to 2004 and the fall protection standard was violated in 29% of accident inspections violations. These substantial percentages illustrate the seriousness of height-related hazards construction workers face. Accidents among roofing-siding-sheet metal contractors and masonry-stone setting contractors were especially likely to involve violations of the fall protection and scaffolding standards:

- There were violations of the basic fall protection standard in 47% of roofing-siding-sheet metal accidents and violations of the main scaffolding standard in 21% of roofing-siding-sheet metal accidents. Fifty-eight percent of accident inspections in roofing-siding-sheet metal that found violations found violations of the main fall protection standard, and 26% found violations of the main scaffolding standard.

- There were violations of the fall protection standard in 17% of masonry-stone setting accidents and violations of the main scaffolding standard in 57% of masonry-stone setting accidents. Eighteen percent of accident inspections in masonry-stone setting that found violations found violations of the fall protection standard, and 62% found violations of the main scaffolding standard.

The violations found during accident inspections overwhelmingly ranked a gravity score of "10," the most severe. For example, 41 (85%) of the 48 violations of the main scaffolding standard in masonry-stone setting (SIC 1741) accident inspections conducted since 1994 were given a "10." Additional SICs are shown in Fig. 12.

Fig. 12. Percentage of accident inspection violations with a gravity score of 10

SIC	Scaffolding standard, CFR 1926.451	Fall protection standard, CFR 1926.501
Masonry-stone setting, 1741	85%	67%
Roofing-siding-sheet metal, 1761	89%	100%
Residential building construction general contractors, more than single unit, 1522	100%	100%
Residential building construction general contractors, single unit, 1521	Na	75%

Workers in wrecking-demolition, masonry-stone setting, and roofing-siding-sheet metal are likely to spend much or most of their working time on scaffolds or at elevated heights. It is clear that for them, violations of OSHA safety standards elevate the level of risk in what is already high-risk work and lead to fatalities and serious injuries.

C. Geographic and immigration status analysis of accident inspections

1. From 1994 to 2004, most construction accident inspections were in New York City.

Of the 337 OSHA accidents from 1994 to 2004 in which a worker was killed or at least three workers were hospitalized overnight:

- 54% occurred in New York City, 32% Upstate, 10% on Long Island and 5% in Westchester. (See Appendix E)

- More than one-half of New York City accidents (55%) occurred in boroughs other than Manhattan.

Brooklyn had 13% of all accidents, the largest share of any county. Brooklyn accidents occurred throughout the borough, with concentrations in Bedford-Stuyvesant/Crown Heights, Flatbush/East Flatbush and in Greenpoint/Williamsburg; the latter is an area that has experienced substantial volumes of new construction, renovations, and conversions in recent years.

2. The victims in nearly one-half of the listed accidents that occurred from 2001 to 2004 statewide were immigrants. 67% of the victims in New York City accidents were immigrants, a high percentage that is reflective of the New York City's surging immigrant populations.

Since October 2001, OSHA compliance officers conducting accident inspections have recorded whether or not the injured/killed worker spoke a language on the job other than English. From October 2001 through August 2004, OSHA conducted 99 accident inspections in New York State, according to construction accident abstracts OSHA provided NYSTLA in response to a Freedom of Information Act request.

- In 48% of these accidents, the workers who were killed or injured were foreign-language speakers.

- In New York City, 67% of the victims were foreign-language speakers.

- 70% (33) of the 47 accidents in the state where immigrants were killed or injured were in New York City.

- The largest number of accidents occurred in masonry work (immigrants killed or injured in 10 of 11 accidents), followed by roofing-siding-sheet metal work (5 of 10 accidents), and non-residential building general contractors (5 of 11 accidents).

- Violations of OSHA scaffolding and fall protection standards were found in 17 accidents involving immigrant workers. A worker was killed in the majority of these. Virtually all of these accidents involved worker falls.

As these percentages indicate, even though most New York City construction workers speak English on the job, a disproportionate share of the workers who were injured or killed in accidents OSHA investigated did not speak English. These findings reflect the concentration of the state's immigrant construction workers in New York City and illustrate how construction work presents especially serious safety risks for immigrant workers.

From 1994 to 2004, after Brooklyn, the largest share of construction accidents in the state -- one-out-of-ten -- occurred in Queens. Since 2001, when OSHA began to record the language spoken by accident victims, nearly all of the workers killed or injured in construction accidents in Queens were foreign language speakers. This heavy concentration of accidents among immigrant language speakers in Queens was reflective of the major demographic changes that have been occurring in borough. Since the 1980s, hundreds of thousands of immigrants from Latin America, Korea, China, the Indian subcontinent, and elsewhere have settled in the borough.[36]

These demographic changes were also reflected in the intra-borough geographic distribution of construction accidents from 1994 to 2004. Major concentrations of accidents occurred in communities experiencing the largest influxes of immigrants, particularly Flushing, and also Forest Hills, Elmhurst, Ridgewood, Corona, and Astoria. These are also among communities that have seen a surge of new residential and commercial construction, renovation and building conversions, much of it to serve these growing, ethnically diverse immigrant populations.

IV. Construction Accidents and Immigrants in New York

One likely explanation for the disproportionate share of OSHA construction violations and accidents in New York City, especially in lower-income communities, is the extensive employment of undocumented immigrants and day laborers by the contractors most active in these areas.

A. There are tens of thousands of immigrant and day-hire construction workers in New York.

Statistics on the numbers of recent immigrants and day laborers working at in New York State construction sites are scarce, but it is widely assumed that there are tens of thousands. The New York City Housing and Vacancy Survey estimated that in 1999,

[36] According to the U.S. Census Bureau, between 1990 and 2000, persons of Asian origin increased from 12.2% to 17.6% of the population of Queens and Hispanics increased their share of the borough's population from 19.5% to 25%. In 2000, Queens had a population of approximately 2.25 million.

24.6% of New York City construction workers were Latino.[37] The New York State Labor Department has estimated that there are 110,000 construction workers in New York City;[38] applying this percentage to the entire construction workforce would mean that there are at least 25,000 Latino construction workers in New York City alone.

Asian immigrants are also widely employed as construction workers in the state. The New York City Housing and Vacancy Survey estimated that 7.7% of the city's construction workforce in 1999 was "Asian or other." And as New York City Council Member John Liu (Queens) has anecdotally observed, there are large number day laborers in his county, "It is not uncommon to see many contractors begin their day… by heading to certain street corners in Flushing that teem with Asian day laborers eager to work."[39] It has also been reported that there are large numbers of immigrants from Eastern Europe in the New York construction industry, especially downstate.

Many recent immigrants are employed as construction day laborers. In 2003, a group of graduate students at the Community Development Research Center of the Milano Graduate School of Management and Urban Policy at New School University estimated the number of day laborers in the New York area by randomly surveying 290 day laborers at 29 worksites. The students came up with an estimate of 8,333 day laborers,[40] although they noted that this might be an underestimate because the entire number of day labor worksites in the region was unknown. The students observed that virtually all day laborers are recent immigrants who worked predominantly for small business owners in construction and landscaping. According to their report, *Day Labor in New York,*[41] 82% of the laborers interviewed stated that they have a background in construction.

An investigative article in *City Limits Magazine* in May 2003 reported that employment of undocumented workers and day laborers is especially common in the construction of "affordable" housing in New York City. In recent years, New York City

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[37] The New York City Housing and Vacancy Survey is available at http://www.census.gov/hhes/www/housing/nychvs/whatsnew.html

[38] New York State Department of Labor, *Current Employment by Industry (CES),* September 2004.

[39] Chen, David, and Kilgannon, Corey, "Chinese Builder's Death Reveals Anonymous Web of Risky Labor*," New York Times*, June 9, 2004.

[40] Defined as someone who gathers at a street corner, empty lot or parking lot of a home improvement store (e.g. Home Depot), or an official hiring site, to sell their labor for the day, hour or for a particular job.

[41] *Day Labor in New York: Findings from the New York Day Labor Survey,* by Dr. Edwin Melendez, professor and director, Community Development Research Center, Milano Graduate School of Management and Urban Policy, New School University, and Dr. Abel Valenzuela Jr., associate professor and director, Center for the Study of Urban Poverty, Institute for Social Science Research, University of California-Los Angeles, April 2003.

and New York State government programs have financed and subsidized the construction or rehabilitation of thousands of housing units in New York City intended to be affordable to low and moderate-income families. These projects are located primarily in lower-income communities in the Bronx, Brooklyn, and Northern Manhattan. *City Limits* concluded that recent immigrants and day laborers constitute much of **"**the underground workforce that builds New York City's `affordable housing…Their cheap, sometimes off-the-books labor is what puts the 'affordable' in affordable housing."[42]

B. Safety lapses abound in the "underground" construction industry

A report issued in 2003 by the New York City Construction Industry Partnership (CIP),[43] a coalition comprising members of the Building Trades Employers' Association and the Building and Construction Trades Council, calls the construction companies that predominantly employ immigrants and day laborers the "underground" construction industry. The CIP describes "the underground" construction industry as one "in which contractors do not file the legally required building permits, where projects go undetected and thus escape inspection, that jeopardizes the safety of the public and their workforces because of poor construction practices and the lack of any skill or safety training, and that fails to comply with any city or federal rules and regulations to build in New York City." The "underground" industry, the CIP warns, is "growing in all five boroughs" of New York City.

A report on day labor issued by the U.S. General Accounting Office in 2002 discussed the prevalence of unsafe working conditions for day laborers, including those in construction.[44] The GAO noted that the "majority of the nonprofit and local government agencies working with day laborers we interviewed said that few, if any, day laborers receive personal protective equipment or safety training." The GAO added, "Other researchers corroborated our findings, with one reporting that 75 percent of day laborers in the study did not receive personal protective equipment when performing hazardous tasks."

The poor safety practices in the "underground" construction industry contrast with practices in the legitimate construction industry. The CIP reports that in the legitimate industry, "contractors file for the appropriate building permits, have their projects inspected… spend some $40 million per year on training…and comply with the various city and federal rules and regulations required to build in New York City."

In addition to the statistical evidence of safety lapses revealed by NYSTLA's analysis of OSHA accident inspection results, there are ample anecdotal reports that safe

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[42] Annia Ciezaldo, Priya Khatkhate, "Invisible men: meet the muscle behind New York's new wave of affordable housing. With low pay, no benefits and no respect, construction workers are paying for our homes," *City Limits*, May 2003.

[43] Construction Industry Partnership, *Construction Safety: A Tale of Two Cities*, November 2003.

[44] *Worker Protection: Labor's Efforts to Enforce Protections for Day Laborers Could Benefit from Better Data and Guidance*, U.S. General Accounting Office, GAO-02-925, September 2002.

construction practices are much less likely to be followed at construction sites where large numbers of immigrants and day laborers work than at sites where most workers are U.S. citizens or permanent residents.

Attorneys who represent immigrant and day-hire construction workers in New York have described the sorts of unsafe conditions their clients face daily:

- "Smaller contractors' scaffolding is often substandard, sometimes they make their own scaffolds, often the scaffold is not properly secured."

- An immigrant worker died because "there was no railing at all on the scaffold" and another worker fell and suffered fractures and required surgeries because the contractor "left the scaffold out in the truck – it would have taken a while to erect it so he ordered the worker to stand on a narrow ledge above an entranceway to do the work."

- A Chinese immigrant client was "laying a floor with no safety netting, no lifelines, standing on beams with nothing underneath" and fell after another worker knocked a board into him. The attorney's client "landed on his head and suffered major brain injuries" that left him mentally impaired. Another client of the same attorney, a Polish immigrant worker, fell off a ladder and suffered multiple spinal fractures and is now crippled. "There was no supervisor on the job – the supervisor left the job site a few hours before the accident," according to the attorney.

- Another attorney observed that many of his immigrant construction worker clients have been injured repeatedly: "One guy broke his wrist, punctured a lung, and had to have foot surgery – all because of separate accidents. It's not a long work life."

The unsafe conditions so prevalent in the "underground" industry exist because there are plenty of builders and contractors willing to cut safety corners to reduce the cost of construction, especially in New York City, where generally it costs more to build than elsewhere in the state. The dramatic rise in immigration from Latin America, Asia and Eastern Europe especially to New York City and the adjacent suburbs in recent years provided a large labor pool that will work for lower wages, with few or no benefits and minimal safety training. Since these workers often speak no English and their immigration status may be undocumented, and commonly are hired by the day, they are very unlikely to complain to their employer or the government about worksite safety lapses. In testimony given at a New York City Council hearing on day laborers, the National Employment Law Project, which advocates and litigates on behalf of immigtrant worker and day laborers, stated, "Desperate for work and fearing retaliation, day laborers often risk life and limb without ever reporting work hazards." [45]

[45] *Statement of the National Employment Law Project on Employment and Labor Protections for Day Laborers in New York City*, New York City Council Hearing on Day Laborers, January 13, 2003.

The New York Committee on Occupational Safety and Health (NYCOSH) has noted that immigrant and undocumented workers, "are less likely than other workers to know their rights as workers, such as their right to complain to OSHA …They are more likely than other workers to be casually employed as `day labor." Employers of casual labor have even less incentive than other employers to protect their employees from injury, since casual employers are only hired or rehired each day they work."

Thus, as the *Day Labor In New York* survey found, day laborers are "routinely abused" at the work place, with abuses ranging from non-payment or underpayment of wages to assignment to what the report calls "dirty and/or dangerous jobs" that might "expose them … to occupational hazards."[46] At the City Council hearing on day labor, the National Employment Law Project, noted, "Day laborers are ofen assigned to the dangerous tasks shunned by workers with more options. As a result, day laborers face a higher incidence of workplace fatalities and injuries."[47]

Consequently, throughout the U.S., immigrant workers and undocumented construction workers have significantly higher injury and fatality rates than non-immigrants. The high injury and fatality rates are largely due to employment discrimination, which forces many immigrant and undocumented workers to accept the most dangerous available jobs.

And it is likely that injury rate for immigrant and day-hire construction workers is very substantially underreported to the U.S. Bureau of Labor Statistics, which records occupational injury rates. Fatalities and the most severe injuries tend to be reported as construction-related. However, attorneys[48] who represent undocumented construction workers report that most on the job injuries to their clients frequently go unreported to any official body. They explain that typically when an undocumented worker is injured, the employer takes him to a hospital emergency room and tells him to tell the doctors he fell down stairs at home or to make up another cause of his injuries unrelated to construction. The worker usually complies because he wants want to continue working for the employer once he recovers or because the employer promised to pay his medical bills in return for lying.[49] The true cause of the injuries is never reported and thousands of construction accidents may be going unreported.

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[46] *Day Labor in New York*, pps. 9, 10.

[47] New York Committee on Occupational Safety and Health, *Immigrants find danger at work*, Safety Report, November 2004.

[48] For this report, NYSTLA interviewed a dozen attorneys who represent immigrant and day hire construction workers who were injured on the job.

[49] As another attorney explained, "The employers all do the same thing: They don't call the ambulance. Instead, they take the worker to the hospital and tell him they will take care of all of his medical bills if he says he tripped on a sidewalk. But then when the worker needs an operation and sends the employer a bill for $15,000, he suddenly does not know the fellow."

C. Smaller contractors = greater danger

Worker safety training has been proven to reduce accidents. But according to the Construction Industry Partnership report, smaller "underground" construction companies "invest virtually nothing in the safety training of their project management and/or trade labor force".[50] The CIP also found many of these smaller constuction companies engage in safety-compromising tactics like low worker job qualifications, night and weekend work to avoid inspections, and violation of permit requirements.

Immigrant workers and day laborers typically work for a small contractor. This was noted in a report by the U.S. General Accounting Office, the investigative arm of Congress, issued in 2002 in response to the nationwide surge in Latino construction fatalities. The GAO urged the Labor Department to crack down on small construction sites, which the report said were the most dangerous and were the most likely to hire immigrants, including day laborers and undocumented workers.

In addition, the Fiscal Policy Institute, a New York public policy group, has determined that ethnic/racial minorities are likely to work for smaller construction companies. By contrasting the New York City Housing Vacancy Survey data on percentages of racial minorities in construction with ethnic/racial employment data from the U.S. Equal Employment Opportunity Commission for construction firms with at least one hundred employees, the Fiscal Policy Institute concluded that "the workforce in the largest construction firms is… substantially less diverse along racial lines than the overall construction workforce." [51] The EEOC reported that 77.1% of the workers in firms of at least one hundred employees were non-Hispanic white as compared to 44.4% of all construction workers in New York City.

Attorneys who represent immigrant and day-hire construction workers interviewed for this study confirm that such workers almost always work for small contractors and that most such contractors often have serious safety deficiencies at their worksites. Attorney Brad Popick notes, "The smaller the contractor, the less likely they are to pay attention to safety" and, he adds, "smaller contractors' scaffolding is often substandard and is not properly secured -- sometimes they make their own scaffolds."

D. Immigrant and day-hire construction accidents – the human toll

The extraordinary dangers faced by immigrant and day labor employed in New York State's construction industry have been chronicled in numerous newspaper articles, including an investigative series in *Newsday* in 2001, "Death on the Job," that concluded, "Injury and death have become accepted risks to the men gathered on these streets."As reported in above, immigrants are suffering a disproportionate share of the state's

[50] *Op cit*, p. 4.

[51] Fiscal Policy Institute, *The New York City Construction Labor Market, Trends and Issues*, June 2003.

construction accidents, especially in New York City.[52] *Newsday* subsequently reported that, since 1999, 14 immigrant construction workers were killed in construction accidents in New York City.[53] In every case, safe construction procedures were not followed and/or necessary safety equipment had not been provided. These fatal accidents included:

- A Chinese immigrant worker, Jian Quo Shen, died in June, 2004 when an un-buttressed concrete foundation collapsed on him at an Elmhurst, Queens new home construction site. The *New York Times* reported that the developer, Yong Fa Cai, and his company, USA Heng Tai Inc., "were accused of failing to provide protection for their workers" and, according to City inspectors, "the area where the workers were injured was eight feet deep, the wall that fell was 25 feet long and 'no sheeting, shoring or bracing' had been erected to prevent the collapse."

- Angel Segovia, an Ecuadorian immigrant paid $90 a day with no benefits, was killed in May 2004 when a balcony roof that was being illegally built in Bay Ridge, Brooklyn, suddenly collapsed. Segovia and two co-workers were pouring concrete when the collapse threw them three stories down, along with tons of wet concrete and bricks. *The New York Times* reported that their work "required heavy lifting while balancing on flimsy platforms three stories high, exposed to the elements but not to the knowledge that the work flouted safety rules and construction blueprints".[54]

- In November 2003, Manual Falcon, an 18-year old day laborer also from Ecuador, died after falling from the roof of a Queens house he was working on. According to Oscar Paredes, executive director of the Latin American Workers Project, who met with the family, Falcon was given no protective belt or cord.[55]

- In May 2002, a Mexican-American day laborer was killed and six workers were injured after scaffolding collapsed in an Upper East Side brownstone undergoing renovation. The scaffolding had been overloaded with concrete blocks. A year

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[52] The rise in immigrant construction deaths is reflected in Census of Fatal Occupational Injury (CFOI) data reported by the New York State Department of Labor for New York State excluding New York City. From 1992 too 1994, an average of seven Latino construction workers were killed each year on Long Island, Westchester and Upstate, but from 1998-2000 the average had increased to over 11 a year, with 16 Latino construction fatalities outside of New York City in 2000, alone. In contrast, the number of occupational fatalities among whites outside of New York City declined from an average of 125 per year to 105 a year.

[53] Bryan Virasami, Graham Rayman, "Paying With Their Lives," *Newsday*, June 15, 2004.

[54] As reported by: Brick, Michael and Wisloski, Jess, "Laborer's Death Prompts Homicide Investigation," *New York Times,* May 22, 2004.

[55] Ron Howell, "Teen Laborer Dies After Falling from Roof," *Newsday*, November 21, 2003.

later, the contractor was sentenced to three years probation and community service.

- Five undocumented Latino immigrants earning only $7 an hour were killed when defective scaffolding at 215 Park Avenue South collapsed in October 2001. Fourteen others were injured.

- In 1999, a worker from Mexico drowned in concrete when a floor collapsed in a Williamsburg, Brooklyn building under construction. Twelve others were injured. Three workers had been previously injured at the same site when a floor that had been overloaded with cinder blocks collapsed.

As *Newsday's* list indicates, in New York City, Latinos accounted for the largest share of immigrant construction accident victims. This is reflective of the dramatic increase in Latino construction fatalities nationally. The U.S. Bureau of Labor Statistics reports that Latino construction fatalities skyrocketed from 104 in 1992 to 277 in 2000, a 166% increase.[56] OSHA reports that in 2001, construction-related accidents accounted for 31.5% of Latino worksite fatalities, up from 20.3% in 1992. NYSTLA's finding that one-half of construction accident victims in New York State and more than two-thirds of the victims in New York City spoke a language other than English (usually Spanish) on the job is consonant with these indicators.

V. Conclusions and Recommendations

The expansion of New York State's "underground" construction industry, with thousands of immigrants and day laborers working at dangerous job sites, makes it more important than ever to achieve wider compliance with OSHA safety standards. OSHA must redouble its enforcement efforts, particularly at construction sites in lower-income communities and among contractors who predominantly hire immigrants and day laborers, and hire more compliance officers who speak the same languages as immigrant workers. Contractors must improve their risk management efforts, including through worker training in Spanish, Cantonese and other languages commonly spoken at work sites. Retention of site safety professionals to carefully monitor working conditions and require that safety lapses be promptly fixed would certainly make a difference. These actions are especially necessary for smaller contractors, considering the findings of this report that smaller general contractors have substantially worse OSHA violation records than large ones.[57]

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[56] U.S. Bureau of Labor Statistics, *Hispanic or Latino Workers – Private Sector Construction Industry, Fatal occupational injuries to workers of Hispanic or Latino origin in the private sector construction industry by selected characteristics, 1992-2000*.

[57] As noted in *Roofing Siding Insulation*, "Smaller operations and those with a history of on-the-job injuries are especially vulnerable to staggering [insurance] price spikes or outright non-renewal." James Guyette, "The Insurance Crisis," *Roofing-siding-Insulation*, February 1, 2003.

Better risk management – that is, safer construction practices – are also central to reducing contractors' commercial liability insurance rates. As reported in the March 1, 2004 issue of *Roofing Siding Insulation* with regard to the roofing industry, "Probably the most critical issue in the roofing industry today is skyrocketing insurance rates. At the very core of the problem the issue of safety."[58]

Eviscerating Sec. 240 of the New York's Labor Law, as proposed in legislation pending in Albany, would remove an important incentive to comply with OSHA safety standards. Sec. 240 of the Labor Law holds owners and general contractors ultimately accountable of for providing a safe worksite; Sec. 240 repeal or weakening would send entirely the wrong message to owners and general contractors that they are free to hire substandard contractors who cut safety corners. Repeal would move the onus for ensuring safe construction sites from owners and general contractors to workers, who are in no position to ensure the provision of proper safety equipment required by OSHA safety standards. OSHA violations would increase above the already unacceptable levels documented in this study.

On a very human level, Labor Law Sec. 240 is vitally important for immigrant and day-hire construction workers who are injured on the job. Frequently, such workers receive no workers compensation benefits because they were not named on a workers compensation policy or the worker feared retaliation for applying for benefits.[59] For them, a Labor Law Sec. 240 action against the owner or general contractor is the only effective means to have their medical bills paid and to receive an income while they are out of work.[60] Even if workers compensation coverage is available, payments for the more seriously injured workers may be inadequate. Attorney Wade Morris, who represents many Chinese immigrant construction workers, says, "If you remove this protection [Labor Law 240] from these people you are kicking them out into the cold."

In recent years, the construction industry, especially small contractors and homebuilders, have reported sharp increases in their liability insurance premiums. Some contractors and homebuilders say they can no longer afford coverage. At the root of this problem is the widespread violation of OSHA safety standards documented in this study. A construction industry were 80% of inspections in certain key trades find violations, and where over a third of the violations receive the most severe gravity score, is not a safe industry. The most effective way to address the issue of insurance affordability is by reducing the numbers of construction accidents through more effective OSHA enforcement and the retention of Labor Law Section 240.

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[58] "Indy racing supports contractor education, *Roofing-Siding-Insulation*, March 1, 2004.

[59] Lawyers report that it can take up to two years to receive compensation from the uninsured employers fund -- much too long for many, if not most, immigrant workers, who live pay day to pay day.

[60] An injured worker might instead elect to apply to the Uninsured Employers Fund. However, attorneys report than it often takes up to two years for the Fund to review and process a claim.

Appendix A

Eight OSHA standards that protect workers at elevated heights.

- *General requirements for all types of scaffolding***.** 29 CFR 1926.451. This standard has eight subsections governing: (a) scaffold capacity; (b) scaffold platform construction; (c) criteria for supported scaffolds (e.g. guys, braces, and poles and frames); (d) criteria for suspension scaffolds (e.g. outrigger beams, cornice hooks, parapet clamps, counterweights and tiebacks), (e) access requirements (e.g. "hook-on ladders shall be position so as not to tip the scaffold,"); (f) scaffold use (e.g. specifications for clearance between scaffolds and power lines, scaffolds must be inspected before each work shift); (g) fall protection requirements (e.g. requirements for personal fall arrest systems and guardrails; and (h) falling object protection (e.g. toe board requirements and criteria).

- *Fall protection scope/applications/definitions.* 29 CFR 1926.501. Prohibits unprotected sides and edges with guardrails, safety nets, or personal fall arrest system. Protects workers in hoist areas, workers near wall openings and holes including skylights, workers near excavation edges, workers toiling near dangerous equipment, workers on the face of formwork or reinforcing steel, workers on roofs, engaged in pre-cast concrete erection. Requires the use of guardrails, fences, barricades and/or personal fall arrest systems in these areas and sets criteria for such equipment.

- *Fall protection systems criteria and practices.* CFR 1926.502. Contains provisions governing guardrail systems, such as required height of guardrails above the working surface; requirements for mid-rails and mesh and screens; requirements for safety nets; requirements for lifelines and lanyards; requirements for personal fall arrest systems; provisions governing warning line systems; control line requirements; requirements for covers for holes in floors, roofs, and other walking/working surfaces; requirements for protection against falling objects such as toe boards, and requirements for fall protection plans.

- *Ladders*. 29 CFR 1926.1053. Sets standards for ladders; e.g. they must be able to support four times the maximum intended load, a metal spreader or locking device must be provided. Also governs ladder use, e.g. ladders shall not be used on slippery surfaces unless provided with slip-resistant feet.

- *Ladder and stairway general requirements*. 29 CFR 1926.1051. Says when a stairway or ladder must be provided, e.g. where there is a break in elevation of 19 inches or more.

- *Fall protection training requirements*. 29 CFR 1926.503. Contractor must certify training on a certification record.

- *Ladder and stairway training program*. 29 CFR 1926.1060. Requires training of employees by a competent person.

- *Scaffolding training requirements*. 29 CFR 1926.454. Employers must have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. Mandatory topics for such training are listed. Retraining is required in specified circumstances.

Appendix B

Results of OSHA Inspections by SIC

Standard Industrial Classification (SIC)	Number of inspect-tions	Number of inspections that found viols	Number of violations found in inspections	Number of violations per inspection/num-ber of violations per inspection with violations	Number of inspections that found CFR 1926.501 (fall protection) violations Number of violations	Number of inspections that found CFR 1926.451 (scaffolding) violations Number of violations
1521, single family home GCs 2001 to 2003	85	61 (72% of inspections)	230	2.70/3.77	28 (33% of inspections) 36 (16% of violations)	17 (20% of inspections) 41 (18% of violations)
1522, residential bldg GCs, other than single-family, 2003 and 2002	246	173 (70% of inspections)	837	3.40/4.86	80 (32% of inspections) 117 (14% of violations)	43 (17% of inspections) 100 (12% of violations)
1531, operative builders, 2003	13	2 (15% of inspections)	11	0.85/ 5.50	0	1 (8% of inspections) 3 (27% of violations)
1541, industrial buildings and warehouses	81	41 (51% of inspections)	150	1.85/3.66	15 (18% of inspections) 18 (12% of violations)	7 (9% of inspections) 25 (17% of violations)
1542, non-residential bldg general contractors, 2003	519	169 (32% of inspections)	441	0.85/2.61	53 (10% of inspections) 64 (15% of violations)	32 (6% of inspections) 95 (22% of violations)
ALL MAJOR GROUP 15 SICs	**946**	**443 (47% of inspections)**	**1,666**	**1.77/3.77**	**176 (19% of inspections) 235 (14% of violations)**	**100 (11% of inspections) 264 (16% of violations)**

1622, Bridge, Tunnel, and Elevated Highway Construction	13	3 (23% of inspections)	4	0.31/1.33	1 (8% of inspections) 1 (25% of violations)	0
1623, Water, Sewer, Pipeline, Communications and Power Line	54	34 (63% of inspections)	97	1.80/2.85	1 (2% of inspections) 1 (1% of violations)	1 (1% of inspections) 3 (3% of violations)
1629, Heavy Construction, Not Elsewhere Classified	21	8 (38% of inspections)	17	.81/2.13	1 (5% of inspections) 1 (6% of violations)	0
ALL MAJOR GROUP 16 SICs	**88**	**42 (48% of inspections)**	**118**	**1.34/2.8**	**3 (3.4% of inspections) 3 (2.5% of violations)**	**1 (1.1% of inspections) 3 (2.5% of inspections)**
1711, plumbing, heating, air conditioning, 2003	205	131 (64% of inspections)	368	1.79/2.81	26 (13% of inspections) 29 (8% of violations)	6 (3% of inspections) 6 (2% of violations)
1721, painting and paper hanging	50	43 (86% of inspections)	168	3.36/3.91	6 (12% of inspections) 7 (4% of violations)	16 (32% of inspections) 44 (26% of violations)
1731, electrical	164	99 (60% of inspections)	235	1.43/2.37	15 (9% of inspections) 18 (8% of violations)	7 (4% of inspections) 11 (5% of violations)
1741, masonry, stone-setting, 2003	263	223 (84% of inspections)	897	3.41/4.02	41 (18% of inspections) 63 (7% of violations)	148 (66% of inspections) 428 (48% of violations)

1742, plastering drywall	66	43 (65% of inspections)	157	2.38/3.65	11 (17% of inspections) 11 (7% of violations)	20 (30% of inspections) 54 (34% of inspections)
1743, terrazzo, tile, marble and mosaic	19	15 (79% of inspections)	32	1.68/2.13	1 1	4 (21% of inspections) 10 (31% of violations)
1751, carpentry	121	104 (86% of inspections)	335	2.77/3.22	48 (40% of inspections) 55 (16% of violations)	20 (17% of inspections) 46 (14% of violations)
1752, floor laying and other floor work	9	7 (78% of inspections)	14	1.55/2.00	1 1	0 0
1761, roofing-siding-sheet metal work, 2003	173	131 (76% of inspections)	384	2.22/2.93	71 (41% of inspections) 73 (19% of violations)	23 (13% of inspections) 49 (13% of violations)
1771, concrete work	74	64 (86% of inspections)	224	3.03/3.50	21 (28% of inspections) 26 (12% of violations)	23 (31% of inspections) 64 (29% of violations)
1781, water well drilling	1	1	4	na	0 0	0 0
1791, structural steel erection, 2003	140	81 (58% of inspections)	256	1.82/3.16	20 (14% of inspections) 23 (9% of violations)	14 (10% of inspections) 24 (9% of violations)
1793, glass and glazing work	19	12 (63% of inspections)	19	1.0/1.58	1 1	3 (16% of inspections) 4 (21% of violations)

1794, excavation	64	36 (56% of inspections)	95	1.48/2.63	1 (na) 1 (na)	0
1795, wrecking and demolition work	44	32 (73% of inspections)	91	2.07/2.84	6 (14% of inspections) 8 (9% of violations)	3 (7% of inspections) 9 (10% of violations)
1796, installation or erection of building equipment	21	16 (76% of inspections)	32	1.52/2.00	4 4	2 5
1799, not otherwise classified*	94	74 (79% of inspections)	214	2.23/2.89	21 (22% of inspections) 23 (11% of violations)	17 (18% of inspections) 39 (18% of violations)
ALL MAJOR GROUP 17 SICs	**1,518**	**1,101 (73%)**	**3,533**	**2.33/3.20**	**294** **(19% of inspections)** **344** **(10% of violations)**	**306** **(20% of inspections)** **793** **(22 % of violations)**
TOTAL, Major Groups 15, 16 and 17 SICs	**2,547**	**1,586 (62%)**	**5,317**	**2.08/3.35**	**473** **(18% of inspections)** **582** **(11% of violations)**	**407** **(16% of inspections)** **1,058** **(20% of violations)**

*Results omit 122 un-programmed inspections. Almost all were environmental inspections of individual Lower Manhattan apartments. In some instances, there were 10 or more inspections in the same building per employer yet each inspected apartment was counted as a separate inspection**.**

APPENDIX C

Construction Inspections With At Least Three and Five Violations, 2003

SIC	Total Inspections	Number of Inspections with at least 3 viols	% of Inspections with at least 3 viols	Number of inspections with at least 5 viols	% of Inspections with at least 5 viols
1522 (2003 and 2002 residential GCs, more than single family	246	47	19%	27	11%
1542 non-residential building GCs	519	64	12%	31	6%
1731 electrical contractors	164	26	16%	14	8%
1741 masonry, stone setting	263	139	53%	75	29%
1751 carpentry contractors	121	48	40%	27	22%
1761 roofing-siding-sheet metal contractors	173	65	38%	34	20%
1771 concrete work	74	34	46%	25	34%
1721 painting and paper hanging contractors	51	21	41%	13	25%
1742 plastering and drywall contractors	66	24	36%	13	20%

Appendix D

Geographic Breakdown of Inspections by SIC

Major Group 15

SIC 1521. Residential building general contractors, single family. 2001, 2002 and 2003.

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	60	38	63%	106	1.76	2.79
Long Island	2	2	100%	7	3.50	3.50
Westchester	13	11	73%	71	5.46	6.45
Bronx	2	2	100%	8	4.00	4.00
Brooklyn	1	1	100%	6	6.00	6.00
Manhattan	2	2	100%	11	5.50	5.50
Queens	4	4	100%	15	3.75	3.75
Staten Island	1	1	100%	6	6.00	6.00
TOTAL	**85**	**61**	**72%**	**230**	**2.70**	**3.78**

SIC 1522. Residential construction general contractors --more than single-family (2003 and 2002)

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	57	32	56%	126	2.21	3.93
Long Island	5	4	80%	15	3.00	3.75
Westchester	38	26	68%	76	2.00	2.92
Bronx	37	22	59%	73	1.97	3.31
Brooklyn	31	27	87%	162	5.10	6.00
Manhattan	58	46	79%	341	5.87	7.41
Queens	16	12	75%	37	2.31	3.08
Staten Island	4	3	75%	11	2.75	3.66
TOTAL	**246**	**172**	**70%**	**837**	**3.40**	**4.86**

SIC 1531. Operative builders

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	9	0	0%	Na	Na	Na
Long Island	0	Na		Na	Na	Na
Westchester	3	1	33%	10	3.33	10.0
Bronx	0	Na	Na	Na	Na	Na
Brooklyn	1	1	100%	1	1.00	1.00
Manhattan	0	Na	Na	Na	Na	Na
Queens	0	Na	Na	Na	Na	Na
Staten Island	0	Na	Na	Na	Na	Na
TOTAL	**13**	**2**	**15%**	**11**	**0.85**	**5.50**

SIC 1541. General contractors, industrial buildings, warehouses

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	30	9	30%	25	0.83	2.78
Long Island	10	9	90%	18	1.80	2,00
Westchester	16	7	44%	17	1.06	2.43
Bronx	11	8	73%	43	3.90	5.37
Brooklyn	5	2	40%	30	6.00	15.00
Manhattan	4	2	50%	5	1.25	2.50
Queens	3	3	100%	11	3.66	3.66
Staten Island	2	1	50%	1	0.05	1.00
TOTAL	**81**	**41**	**51%**	**150**	**1.85**	**3.66**

SIC 1542. General contactors, non-residential buildings other than industrial

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	343	92	27%	229	0.66	2.49
Long Island	55	17	31%	27	0.49	1.58
Westchester	32	13	41%	34	1.06	2.61
Bronx	18	12	67%	48	2.66	4.00
Brooklyn	11	7	64%	33	3.00	4.71
Manhattan	20	12	60%	34	1.70	2.83
Queens	29	8	28%	19	0.65	2.37
Staten Island	11	8	73%	17	1.54	2.12
TOTAL	**519**	**169**	**32%**	**441**	**0.85**	**2.61**

TOTAL SIC Major Group 15. Building general contractors

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	501	171	34%	486	0.97	2.84
Long Island	72	32	44%	67	0.93	2.09
Westchester	102	58	57%	205	2.01	3.53
Bronx	68	44	65%	172	2.53	3.91
Brooklyn	49	38	78%	228	4.65	6.00
Manhattan	84	62	73%	391	4.65	6.31
Queens	52	25	48%	82	1.58	3.28
Staten Island	18	13	72%	35	1.94	2.69
TOTAL	**946**	**443**	**47%**	**1,666**	**1.77**	**3.75**

Major Group 16

SIC 1622. Bridge, Tunnel, and Elevated Highway Construction

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	8	0	0%	0	0	0
Brooklyn	1	0	0%	0	0	0
Manhattan	2	2	100%	3	1.5	1.5
Queens	2	1	50%	1	.5	1
TOTAL	**13**	**3**	**23%**	**4**	**.31**	**1.33**

SIC 1623. Water, Sewer, Pipeline, and Communications and Power Line

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	47	29	62%	82	1.74	2.83
Westchester	1	1	100%	2	2	2
Bronx	3	2	67%	2	.67	1
Manhattan	2	1	50%	5	2.5	5
Staten Island	1	1	100%	6	6	6
TOTAL	**54**	**34**	**63%**	**97**	**1.8**	**2.85**

SIC 1629. Heavy Construction, Not Elsewhere Classified

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	17	6	35%	14	.82	2.33
Queens	3	1	33%	1	.33	1
Staten Island	1	1	100%	2	2	2
TOTAL	**21**	**8**	**38%**	**17**	**.81**	**2.12**

TOTAL SIC Major Group 16.

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	72	32	44%	96	1.33	3.00
Long Island	0	Na	Na	Na	Na	Na
Westchester	1	1	100%	2	2.00	2.00
Bronx	3	2	67%	2	0.66	1.00
Brooklyn	1	0	0%	0	Na	Na
Manhattan	4	3	75%	8	2.00	2.66
Queens	5	2	40%	2	0.40	1.00
Staten Island	2	2	100%	8	2.00	2.00
ALL AREAS	**88**	**42**	**48%**	**118**	**1.34**	**2.81**

Major Group 17

SIC 1711. Plumbing, heating, air conditioning

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	137	79	57%	185	1.35	2.34
Long Island	5	4	75%	9	1.8	2.25
Westchester	12	6	50%	18	1.50	3.00
Bronx	22	20	91%	83	3.77	4.15
Brooklyn	6	5	83%	18	3.00	3.60
Manhattan	11	9	82%	25	2.27	2.77
Queens	3	3	75%	8	3.33	2.66
Staten Island	9	5	62%	22	2.44	4.40
TOTAL	**205**	**131**	**64%**	**368**	**1.79**	**2.81**

SIC 1721. Painting and paper hanging

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	35	30	85%	98	2.80	3.23
Long Island	2	2	100%	7	3.50	3.50
Westchester	3	2	67%	16	5.33	8.00
Bronx	0	na	Na	Na	Na	Na
Brooklyn	5	5	100%	17	3.40	3.40
Manhattan	3	2	67%	16	5.33	8.00
Queens	1	1	100%	9	9.00	9.00
Staten Island	1	1	100%	5	5.00	5.00
TOTAL	**50**	**43**	**86%**	**168**	**3.36**	**3.91**

SIC 1731. Electrical contractors

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	97	49	50%	104	1.07	2.12
Long Island	5	4	80%	9	1.80	2.25
Westchester	18	13	72%	17	0.94	1.30
Bronx	18	17	94%	69	3.83	4.06
Brooklyn	6	6	100%	13	2.16	2.16
Manhattan	13	10	77%	23	1.77	2.30
Queens	4	0	0%	Na	na	Na
Staten Island	3	0	0%	Na	Na	na
TOTAL	**164**	**99**	**60%**	**235**	**1.43**	**2.37**

SIC 1741. Masonry, stone setting and other stone work contractors

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	91	62	68%	228	2.50	3.68
Long Island	48	47	98%	191	3.98	4.06
Westchester	21	19	90%	63	3.00	3.50
Bronx	27	24	89%	81	3.00	4.50
Brooklyn	20	20	100%	114	5.70	5.70
Manhattan	31	28	90%	143	4.61	5.10
Queens	21	19	90%	63	3.00	3.31
Staten Island	4	4	100%	14	3.50	3.50
TOTAL	**263**	**223**	**85%**	**897**	**3.41**	**4.02**

SIC 1742. Plastering and drywall contractors

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	34	21	62%	75	2.20	3.57
Long Island	9	6	67%	36	4.00	6.00
Westchester	12	7	58%	8	6.66	1.14
Bronx	4	4	100%	23	5.75	5.75
Brooklyn	1	1	100%	4	4.00	4.00
Manhattan	2	2	100%	7	3.50	3.50
Queens	1	1	100%	2	2.00	2.00
Staten Island	2	1	50%	2	0.50	2.00
TOTAL	**65**	**43**	**66%**	**157**	**2.41**	**3.65**

SIC 1743, terrazzo, tile, marble and mosaic

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	10	7	70%	18	1.80	2.57
Long Island	1	0	0%	Na	na	Na
Westchester	2	2	100%	5	2.50	2.50
Bronx	0	na	Na	na	Na	Na
Brooklyn	3	3	100%	3	1.00	1.00
Manhattan	2	2	100%	2	1.00	1.00
Queens	1	1	100%	4	4.00	4.00
Staten Island	0	na	Na	na	na	Na
TOTAL	**19**	**15**	**79%**	**32**	**1.68**	**2.13**

SIC 1751. Carpentry

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	54	42	78%	115	2.13	2.73
Long Island	19	18	95%	54	2.84	3.00
Westchester	10	9	90%	20	2.00	2.22
Bronx	17	16	94%	79	4.65	4.93
Brooklyn	2	2	100%	6	3.00	3.00
Manhattan	6	6	100%	27	4.50	4.50
Queens	10	8	80%	23	2.30	2.87
Staten Island	3	3	100%	11	3.66	3.66
TOTAL	**121**	**104**	**86%**	**335**	**2.77**	**3.23**

SIC 1752. Floor laying and other floor work

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	3	2	66%	2	0.66	1.00
Long Island	0	Na	Na	Na	Na	Na
Westchester	1	1	100%	4	4.00	4.00
Bronx	3	3	100^	9	3.00	3.00
Brooklyn	1	1	100%	6	6.00	6.00
Manhattan	0	Na	Na	Na	Na	Na
Queens	1	0	0%	Na	Na	Na
Staten Island	0	Na	Na	Na	Na	Na
TOTAL	**9**	**7**	**78%**	**21**	**2.33**	**3.00**

Fig 4. SIC 1761. Roofing, siding and sheet metal contractors

	Inspect-tions	Inspect-tions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	99	74	75%	242	2.44	3.27
Long Island	21	17	81%	29	1.38	1.70
Westchester	16	12	75%	42	2.62	3.50
Bronx	8	6	75%	25	3.57	4.16
Brooklyn	2	2	100%	8	4.00	4.00
Manhattan	2	2	100%	10	5.00	
Queens	22	18	82%	22	1.00	1.22
Staten Island	3	2	67%	6	2.00	3.00
TOTAL	**173**	**131**	**76%**	**384**	**2.22**	**2.93**

SIC 1771. Concrete work

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	27	19	70%	47	1.74	2.47
Long Island	7	6	86%	32	4.57	5.33
Westchester	10	10	100%	37	3.70	3.70
Bronx	8	7	87%	22	2.75	3.14
Brooklyn	5	5	100%	24	4.80	4.80
Manhattan	7	7	100%	25	3.57	3.57
Queens	8	8	100%	31	3.87	3.87
Staten Island	2	2	100%	6	3.00	3.00
TOTAL	**74**	**64**	**86%**	**224**	**3.02**	**3.50**

SIC 1781. Water, well drilling

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	0	Na	Na	Na	Na	Na
Long Island	0	Na	Na	Na	Na	Na
Westchester	0	Na	Na	Na	Na	Na
Bronx	0	Na	Na	Na	Na	Na
Brooklyn	1	1	100%	4	4.00	4.00
Manhattan	0	Na	Na	Na	Na	Na
Queens	0	Na	Na	Na	Na	Na
Staten Island	0	Na	Na	Na	Na	Na
TOTAL	**1**	**1**	**100%**	**4**	**4.00**	**4.00**

SIC 1791. Structural steel erection

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	71	39	55%	92	1.29	2.46
Long Island	7	5	71%	8	1.14	1.60
Westchester	10	9	90%	19	1.90	2.11
Bronx	9	4	44%	25	2.78	6.25
Brooklyn	11	8	73%	45	4.09	5.62
Manhattan	12	11	83%	54	4.50	4.90
Queens	7	4	57%	12	1.71	3.00
Staten Island	3	1	33%	1	0.33	1.00
TOTAL	**140**	**81**	**58%**	**256**	**1.82**	**3.16**

SIC 1793. Glass and glazing

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	13	8	61%	13	1.00	1.62
Long Island	2	2	100%	2	1.00	1.00
Westchester	2	2	100%	4	2.00	2.00
Bronx	0	Na	Na	Na	Na	Na
Brooklyn	0	Na	Na	Na	Na	Na
Manhattan	1	0	0%	Na	Na	Na
Queens	0	Na	Na	Na	Na	Na
Staten Island	1	0	Na	na	na	Na
TOTAL	**19**	**12**	**63%**	**19**	**1.00**	**1.58**

SIC 1794. Excavation

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	32	16	50%	41	1.28	2.56
Long Island	3	2	67%	4	1.33	2.00
Westchester	7	6	86%	14	2.00	2.33
Bronx	5	5	100%	9	1.80	1.80
Brooklyn	4	4	100%	14	3.50	3.50
Manhattan	5	2	40%	6	1.20	3.00
Queens	4	1	25%	5	1.25	5.00
Staten Island	4	1	25%	2	0.50	2.00
TOTAL	**64**	**36**	**56%**	**95**	**1.48**	**2.64**

SIC 1795. Wrecking, demolition

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	26	18	69%	36	1.38	2.00
Long Island	4	4	100%	12	3.00	3.00
Westchester	3	3	100%	17	14.0	14.0
Bronx	0	0	Na	Na	Na	Na
Brooklyn	6	4	66%	11	1.83	2.75
Manhattan	4	2	50%	9	2.25	4.50
Queens	1	1	100%	6	6.00	6.00
Staten Island	0	0	Na	Na	Na	Na
TOTAL	**44**	**32**	**73%**	**91**	**1.38**	**2.84**

SIC 1796. Installation or erection of building equipment

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violation per inspections	Violations per inspection that found violations
Upstate	9	6	67%	9	1.00	1.50
Long Island	2	2	100%	5	2.50	2.50
Westchester	2	0	0%	Na	Na	Na
Bronx	3	3	100%	6	2.00	2.00
Brooklyn	2	2	100%	4	2.00	2.00
Manhattan	3	3	100%	8	2.66	2.66
Queens	0	0	Na	Na	Na	Na
Staten Island	0	0	Na	Na	Na	Na
TOTAL	**21**	**16**	**76%**	**32**	**1.53**	**2.00**

SIC 1799. Inspections excluded not otherwise classified

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	42	29	65%	42	1.00	1.45
Long Island	10	7	70%	22	2.20	3.14
Westchester	3	2	67%	8	2.66	4.00
Bronx	11	11	100%	25	2.27	2.27
Brooklyn	7	7	100%	19	2.71	2.71
Manhattan	**26	23	85%	74	3.70	4.35
Queens	6	6	100%	16	2.66	2.66
Staten Island	0	Na	na	0	Na	Na
TOTAL	**105**	**85**	**81%**	**206**	**1.96**	**2.42**

*Excludes an inspection in Schenectady that resulted in 32 initial citations that was also reported in SIC 1522**.** **Excludes 122 un-programmed inspections in Manhattan in three buildings because each apartment that was inspected was counted as a separate inspection.

TOTAL, SIC Major Group 17

	Inspect-tions	Inspectiions that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	777	476	61%	1,349	1.74	2.83
Long Island	145	126	87%	424	2.92	3.36
Westchester	132	110	83%	292	2.21	2.65
Bronx	135	119	88%	456	3.38	3.83
Brooklyn	82	76	93%	310	3.78	4.08
Manhattan	122	103	89%	429	3.52	4.16
Queens	90	71	79%	201	2.23	2.83
Staten Island	35	20	57%	72	2.06	3.60
TOTAL	**1,518**	**1,101**	**73%**	**3,533**	**2.31**	**3.17**

*Excludes an inspection in Schenectady that resulted in 32 initial citations that was also reported in SIC 1522**.**

TOTAL, SIC Major Groups 15, 16 and 17

	Inspect-tions	Inspections that found violations	% of inspect-ions that found violations	Violations cited	Violations per inspection	Violations per inspection that found violations
Upstate	1,350	679	50%	1,931	1.43	2.84
Long Island	217	158	73%	491	2.26	3.11
Westchester	235	169	72%	499	2.12	2.95
Bronx	206	165	80%	630	3.06	3.82
Brooklyn	132	114	86%	538	4.07	4.72
Manhattan	205	168	82%	828	4.04	4.93
Queens	147	98	67%	285	1.94	2.91
Staten Island	55	35	64%	115	2.09	3.28
New York City	*745*	*580*	*78%*	*2,396*	*3.12*	*4.13*
TOTAL	2,547	1,586	62%	5,317	2.08	3.35

*Excludes an inspection in Schenectady that resulted in 32 initial citations that was also reported in SIC 1522**.**

Appendix E

Accident Inspections Geographic Breakouts

Number of accident inspections, 1994-2004

	Accident inspections	% of all NYS accident inspections	Accident inspections that found violations	% of all NYS accident inspections that found violations	% of accident inspections that found violations
Upstate	107	31.7%	71	27.4%	66.4%
Long Island	32	9.5%	23	8.9%	71.9%
Westchester	17	5.0%	16	6.2%	94.1%
Bronx	13	3.8%	12	4.6%	92.3%
Brooklyn	44	13.1%	36	13.9%	81.8%
Manhattan	82	24.3%	73	28.1%	89.0%
Queens	35	10.4%	23	8.9%	65.7%
Staten Island	7	1.2%	5	1.9%	71.4%
NYC	*181*	*53.7%*	*149*	*57.5%*	*82.3%*
ALL AREAS	**337**	**100%**	**259**	**100%**	**76.9%**

SIC (key on next page)	**No. of accident inspect-tions**	**No. of accident inspections with violations**	**% of accident inspections with violations**	**Number of violations in all inspections**	**Number of inspections that found CFR 1926.501 (fall protection) violations**	**Number of inspections that found CFR 1926.451 (scaffolding) violations**	**Number of violations of CFR1926.501**	**% of accident inspections that CFR 1926.501 violations**	**Number of violations of CFR 1926.451**	**% of accident inspections that found CFR 1926.451 violations**
1521	9	7	77.8%	25	4	1	5	44.4%	2	11.1%
1522	6	6	100.0%	51	3	2	5	50.0%	8	33.3%
1531	1	1	100.0%	4	0	0		0.0%		0.0%
1541	2	2	100.0%	10	1	0	1	50.0%	0	0.0%
1542	33	27	81.8%	111	8	5	11	24.2%	6	15.2%
1711	19	12	63.2%	61	2	0	2	10.5%	0	0.0%
1721	13	11	84.6%	37	3	1	4	23.1%	1	7.7%
1731	20	10	50.0%	23	2	0	2	10.0%	0	0.0%
1741	30	27	90.0%	171	4	17	5	13.3%	50	56.7%
1742	1	1	100.0%	15	0	1	0	0.0%	3	100.0%
1743	2	2	100.0%	10	2	1	2	100.0%	1	50.0%
1751	14	8	57.1%	43	4	1	4	28.6%	1	7.1%
1752	2	0	0.0%	0	0	0	0	0.0%	0	0.0%
1761	38	31	81.6%	150	18	8	20	47.4%	29	21.1%
1771	8	5	62.5%	33	2	0	5	25.0%	0	0.0%
1791	14	11	78.6%	51	2	0	2	14.3%	0	0.0%
1793	2	2	100.0%	20	1	1	1	50.0%	1	50.0%
1794	17	13	76.5%	58	2	0	3	11.8%	0	0.0%
1795	22	20	90.9%	116	4	1	5	18.2%	4	4.5%
1796	10	8	80.0%	31	4	0	5	40.0%	0	0.0%
1799	41	29	70.7%	128	6	11	10	14.6%	28	26.8%
1622	12	11	91.7%	35	4	1	4	33.3%	1	8.3%
1623	14	10	71.4%	40	0	0	0	0.0%	0	0.0%
1629	7	5	71.4%	25	0	0	0	0.0%	0	0.0%
Total	**337**	**259**	**76.9%**	**1248**	**76**	**51**	**96**	**22.6%**	**135**	**15.1%**

Appendix F, SIC Key

1521, single family home GCs
1522, residential building other than single-family GCs
1532, operative builders
1541, industrial builders and warehouses, GCs
1542, non-residential building GCs
1622, bridge, tunnel and elevated highway construction
1623, water, sewer, pipeline, communications and power line
1629, heavy construction not otherwise classified
1711, plumbing, HVAC contractors
1721, painting, paper hanging contractors
1731, electrical contractors
1741, masonry, stone setting and other stone work contractors
1742, plastering and drywall contractors
1743, terrazzo, tile, marble and mosaic contractors
1751, carpentry contractors
1752, floor laying and other floor work contractors
1761, roofing, siding, sheet metal contractors
1771, concrete work contractors
1781, water, well drilling
1791, structural steel erection
1793, glass and glazing contractors
1794, excavation contractors
1795, wrecking, demolition contractors
1796, installation or erection of building equipment
1799, inspections not otherwise classified

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