

**North Carolina Department of Labor
Occupational Safety and Health Division**

Raleigh, North Carolina

Field Information System

Operational Procedure Notice 151

Subject: Struck-By Special Emphasis Program

A. **Purpose and Scope.**

This Operational Procedure Notice (OPN) establishes and implements the North Carolina Department of Labor (NCDOL) Occupational Safety and Health (OSH) Division's Special Emphasis Program (SEP) for safety and health inspections where employees may be exposed to struck-by hazards. This SEP is intended to reduce occupational injuries and fatalities associated with struck-by events by focusing on employers' control measures, worksite organization, equipment operation practices, and material handling procedures. The specific goals for this SEP can be found under the current OSH Division's five-year Strategic Management Plan (SMP). This instruction applies statewide to establishments under OSH Division jurisdiction.

This OPN also provides guidance to compliance safety and health officers (CSHOs) for conducting inspections under this SEP. This document supplements procedures beyond the standard inspection protocol set forth in the NC Field Operations Manual (FOM).

B. **Struck-By Definition.**

Struck-by events are defined as work-related incidents where an employee is "*struck by a falling object, flying object or particle, or moving object (object that strikes the body causing injury or death such as falling objects and/or projectiles).*"

This definition is found under event coding and descriptions as listed in the Occupational Fatality Inspection Review (OFIR) and are based on the IMIS manual. Struck-by events are those that fall under this definition of *Struck-by* and not under any other categories listed in the OFIR (i.e. *Other*, which includes events such as explosions and homicides). This definition is used by the Planning, Statistics and Information Management (PSIM) Bureau when coding fatalities. It is also used by the OSH Complaint Desk when coding serious injuries and fatalities, which then populate the "Serious/Fatal Unprogrammed Activity (UPA) Report." The data from this report is used in targeting for this SEP.

Examples of commonly identified struck-by hazards are listed in Appendix B. Additionally, the [Occupational Injury and Illness Classification \(OIICS\) Manual](#), published by the U.S. Bureau of Labor Statistics provides detailed definitions for each type of event resulting in injury or illness. Whenever there is any question whether an event meets the definition of a struck-by event, OSH Division staff should refer to the current OIICS Manual. Struck-by events fall under multiple OIICS event

codes, but the two most frequently occurring events typically classified under the OFIR definition as struck-by events include those with codes beginning with 25 - *Pedestrian Incidents Involving Motorized Land Vehicles* and 64 - *Struck by Propelled, Falling, or Suspended Object* (coding consistent with OIICS Version 3.03).

C. **Background.**

This SEP was established based on the analysis of accidents, employer-reported incidents, complaints, and referrals received by the OSH Division that involved struck-by hazards. Review of inspection data from recent years revealed a significant number of serious injuries and fatalities resulting from employees being struck by vehicles, powered industrial trucks, heavy equipment, falling materials, improperly secured loads, and tools or objects ejected from machinery. These incidents occurred across multiple industries, with the highest concentrations in construction, warehousing, manufacturing, transportation and logistics, and large retail/home improvement operations.

Struck-by hazards are consistently among the most frequently cited serious violations in North Carolina, particularly in construction, where struck-by events remain one of the leading causes of fatalities. In general industry, powered industrial truck operations and material storage practices continue to contribute to a high number of struck-by injuries. These trends demonstrate the need for a focused enforcement initiative to reduce struck-by exposures and ensure employers implement effective control measures.

In response to this information, the Struck-By SEP was added in federal fiscal year (FFY) 2026 to the OSH Division's five-year SMP for FFY 2024-2028. Formal SEP activity will include programmed inspections based on North American Industry Classification System (NAICS) codes with elevated struck-by injury rates, as well as unprogrammed inspections triggered by accidents, complaints, and referrals. The targeting schedule identifies those industries with the highest number of reported struck-by events in North Carolina. Assignments for programmed planned inspections will be randomly pulled from those NAICS codes.

North Carolina workplaces continue to evolve, with increased reliance on mobile equipment, high-volume material handling, and complex logistics operations. Construction activity across the state has also expanded, increasing worker exposure to heavy equipment, cranes, and elevated work. These operational changes heighten the potential for struck-by incidents and reinforce the need for proactive enforcement. The operation of vehicles, equipment, and material handling systems can be extremely dangerous when proper controls are not implemented.

D. **Internal Training.**

Due to the technical and variable nature of struck-by hazards, CSHOs who conduct inspections under this SEP will receive adequate training and/or experience related to mobile equipment operation, material handling practices, struck-by hazard recognition, and applicable standards.

1. OSH Division staff or other approved providers will provide training in support of this SEP.

2. New CSHOs will receive foundational training on struck-by hazards during OSH 105 – *Safety Standards* and other required courses.
3. Refresher training opportunities covering one or more topics under this SEP will be offered at least every two to three years.
4. Previous training material can be reviewed via the OSH One Stop Shop.

E. **Inspection Activities/Targeting.**

Struck-By SEP inspections will be generated through accidents, complaints, referrals, and NAICS-specific programmed criteria. Inspections may occur in any industry; however, emphasis will be placed on industries with elevated struck-by injury rates, including construction, warehousing, manufacturing, transportation/logistics, and large retail/home improvement operations. Assignments will have priority based upon the schedule in FOM Chapter II – *Compliance Programming*, paragraph E – *Inspection Priorities*.

1. **Unprogrammed Inspections.**

- a. Reports of imminent danger, fatality/catastrophe reports, employer-reported referrals, formal and non-formal complaints, and safety and health referrals from other federal, state, county, and city agencies, media reports, physicians, medical clinics, and the public will be investigated by the respective field office.
- b. CSHOs will follow the guidance for making referrals and expanding the scope under FOM Chapter IX – *Complaints, Referrals, and Accidents*. Struck-by hazards identified during any unprogrammed inspection shall be evaluated in accordance with this SEP.
- c. In case of denial of entry, the field office will maintain documentation of the event leading up to the denial.

2. **Programmed Inspections.**

- a. The OSH Division will utilize historical data to identify NAICS codes with elevated numbers of struck-by injuries, fatalities, and serious incidents in North Carolina. The PSIM Bureau will randomly select establishments within those NAICS codes for inspection and create assignment lists for each OSH Compliance district. The targeting methodology will include the following:
 - i. Data from OSHA Express (OE) will be compiled for four full federal fiscal years (refer to Appendix A – *NC Struck-By Data by Industry* for dates used for current targeting).
 - ii. The “Serious/Fatal Unprogrammed Activity (UPA) Report” will be used to identify NAICS codes for all events classified as “Struck By.”
 - iii. PSIM will provide data regarding the average number of NC employers and employees in each of these NAICS codes from the same four federal fiscal years.

- iv. The data from OE and PSIM will be used to calculate the rate of struck-by events per 10,000 full-time NC employees, or 20,000,000 hours, for each NAICS code. The rate formula used is:

Struck-By Rate =

$$\left(\frac{\text{Average Annual Number of Struck-By UPA Incidents}}{\text{Average Annual Total Hours Worked}} \right) \times 20,000,000$$

- v. NAICS codes with three or more struck-by events over the four federal fiscal years ($n \geq 3$ total, or ≥ 0.75 average annual count per year) and an annual event rate greater than or equal to 1.50 per 10,000 full-time NC employees will be included in the current targeting schedule.
 - vi. The compiled data, sorted by NAICS code, is shown in Appendix A - *NC Struck-By Data by Industry*. The NAICS codes matching the targeting criteria in paragraph D.2.a.v. above are shown in bold in Table 1. Table 2 lists the NAICS codes with at least one struck-by event that did NOT meet the targeting criteria.
 - vii. From the list of establishments in the targeted NAICS codes, PSIM will randomly select 25 assignments for each OSH Compliance district.
- b. PSIM will review the generated assignment lists to eliminate sites that have received a comprehensive safety or health inspection within the last three years, inactive sites, duplicate sites, and public sector establishments. Public sector programmed inspections are covered under the targeting procedures outlined in the current OPN 128 - *Public Sector Surveys and Inspections*.
 - c. PSIM will pull additional assignments as needed by the OSH Compliance district at the request of the OSH Compliance bureau chief or supervisor.
 - d. OSH Compliance supervisors will use their professional judgment and may delete establishments based on local knowledge that the facility is not likely to have struck-by hazards or is out of business. For establishments that are out of business, CSHOs will proceed with the programmed inspection where it has been determined that a new business is using the same equipment or operations of the previous business.
 - e. All assignments will be inspected or deleted from the targeting schedule per paragraph D.2.d. prior to requesting another list from PSIM. Justification for deletion of an inspection assignment will be documented on the OSH Division Targeting System.

- f. Appendix A - *NC Struck-By Data by Industry* will be updated annually as new federal fiscal year employment and injury data becomes available.

F. **Compliance Inspection Procedures.**

1. General.

- a. If a complaint, referral, or accident inspection is conducted in an establishment covered by this OPN, CSHOs will follow guidance listed below and in FOM Chapter IX - *Complaints, Referrals, and Accidents*.
- b. If a fatality or catastrophe investigation is conducted in an establishment covered by this OPN, CSHOs will follow guidance listed below and in FOM Chapter VIII - *Fatality and Catastrophe Investigations*.

2. Pre-Inspection Preparation.

- a. CSHOs assigned to conduct programmed planned inspections under this SEP must review the site listing on the OSH Division Targeting System to determine if a deferral has been issued for the employer due to involvement in consultative assistance, SHARP, the Carolina Star Program, or through an OSH Partnership. If the site has a deferral, the CSHO will refer to FOM Chapter III - *Inspection Procedures*, paragraph D.3.h. - *Exemptions from Compliance Programmed Planned Inspections*, for guidance.
- b. CSHOs assigned to conduct a site inspection under this SEP will familiarize themselves with the following documents, as appropriate:
 - i. NC Field Operations Manual
 - ii. 29 CFR 1910.29 - Fall Protection Systems and Falling Object Protection - Criteria and Practices
 - iii. 29 CFR 1910.178 - Powered Industrial Trucks
 - iv. 29 CFR 1910.176 - Handling, Storage, and Use of Materials
 - v. 29 CFR 1910.212 - Machine Guarding (ejection hazards)
 - vi. 29 CFR 1910.179 - Overhead and Gantry Cranes
 - vii. 29 CFR 1910.184 - Slings
 - viii. 29 CFR 1926 Subpart H - Materials Handling, Storage, Use, and Disposal
 - ix. 29 CFR 1926.451 - Scaffolds (falling object protection)
 - x. 29 CFR 1926.502 - Fall Protection (protection from falling objects)
 - xi. 29 CFR 1926 Subpart O - Motor Vehicles, Mechanized Equipment

- xii. 29 CFR 1926 Subpart CC – Cranes and Derricks
- xiii. Industry Data Reports (IDRs) for industries covered under this OPN
- xiv. Applicable ANSI/ASME standards related to mobile equipment, rigging, and material handling

3. Inspection Process.

- a. Unprogrammed assignments (e.g., complaints, employer-reported referrals) will be handled in accordance with FOM Chapter IX – *Complaints, Referrals, and Accidents*. CSHOs should specifically review paragraph A.9. – *Scope of Inspections* regarding the inspection scope (partial) and the circumstances when it may be expanded to struck-by hazards not included in the original complaint or referral.
- b. For programmed planned inspections, CSHOs will indicate during the opening conference that an SEP programmed inspection is being conducted for struck-by hazards. The inspection will be partial in scope and involve evaluating onsite operations for struck-by exposures related to mobile equipment, material handling, falling objects, and vehicle-pedestrian interactions, as well as addressing any serious hazards in plain view.
- c. During the walkaround, CSHOs will focus on operations and conditions where struck-by hazards are most likely to occur, including but not limited to those listed in Appendix B – *Examples of Struck-By Hazards*.
- d. CSHOs will review employer programs, training records, and procedures relevant to struck-by hazard prevention, including:
 - i. Powered industrial truck training and evaluations
 - ii. Crane operator qualifications and rigging practices
 - iii. Traffic control plans
 - iv. Material handling procedures
 - v. Use of spotters and communication protocols
 - vi. Housekeeping and worksite organization
- e. CSHOs will document all observed hazards using photographs, measurements, interviews, and other evidence as appropriate. Documentation must clearly identify:
 - i. The source of the struck-by hazard
 - ii. Employee exposure
 - iii. Employer knowledge
 - iv. Feasible means of abatement

- f. If additional serious hazards unrelated to struck-by exposures are observed in plain view, CSHOs will address them in accordance with FOM Chapter III – *Inspection Procedures*.

G. **Citation Guidance.**

1. CSHOs will issue citations for violations of applicable standards when struck-by hazards are identified. Common standards applicable to struck-by hazards include but are not limited to those listed in section E.2. – *Pre-Inspection Preparation*.
2. When no specific standard applies, but a recognized struck-by hazard exists, citations may be issued under the North Carolina General Duty Clause, NCGS 95-129(1), when the four required elements are met.
3. CSHOs will consult the FOM, applicable compliance directives, and internal guidance documents to ensure consistency in citation issuance.

H. **Recording and Tracking.**

1. Strategic Plan Coding.

For all inspections conducted under this SEP, the CSHO will select “Struck-by” in the “Strategic Plan Activity Description” pull-down menu in the Emphasis/Initiatives section of the OE OSHA-1/Inspection Report.

I. **Outreach and Compliance Assistance.**

1. The OSH Division will conduct outreach to employers, employees, and industry groups in the targeted NAICS codes to raise awareness of struck-by hazards and effective control measures.
2. Outreach activities are listed in the SMP and may include:
 - a. Hazard alerts and educational materials
 - b. Toolbox talks and webinars
 - c. Presentations at statewide safety conferences
 - d. On-site surveys by the Consultative Services Bureau
 - e. Coordination with industry associations and labor groups
3. District supervisors may conduct additional outreach based on local trends or emerging hazards.
4. Outreach materials will be made available through the NCDOL website and the OSH One Stop Shop.

J. **Program Evaluation.**

1. The PSIM bureau, in coordination with OSH Division leadership, will evaluate the effectiveness of this SEP annually during the annual revision of the SMP as outlined in APN 19 – *Strategic Management Plan Committee Activity*.

2. Evaluation criteria will include:
 - a. Number of inspections conducted under the SEP
 - b. Number and type of violations issued
 - c. Percentage of inspections resulting in serious, willful, or repeat (SWR) violations
 - d. Trends in struck-by injuries and fatalities in targeted industries
 - e. Employer abatement actions and hazard reductions
 - f. Feedback from the SEP Team, district supervisors and CSHOs
 - g. Outreach and compliance assistance data
3. PSIM will prepare an annual summary report for OSH Division leadership. Findings will be used to determine whether the SEP should be continued, modified, expanded, or concluded.
4. Appendix A - *NC Struck-By Data by Industry* will be updated annually as new federal fiscal year employment and injury data becomes available.

K. **Effective Date.**

This OPN is effective on the date of signature and will remain in effect until revised or canceled. All OSH Division personnel shall comply with the procedures outlined in this document beginning on the effective date.

Signed on Original
Scott Mabry
OSH Director/SEP Team Leader

Signed on Original
Luke Farley
Commissioner of Labor

8/19/26
Date of Signature

Appendix A: NC Struck-By Data by Industry

- A. Refer to paragraph D.2.a. for the targeting process.
- B. Current event data: October 1, 2021 - September 30, 2025.
- C. NAICS codes with zero struck-by events were removed.
- D. In certain instances, employer and employee data are unavailable from the Bureau of Labor Statistics (BLS). Without the data, the struck-by injury rate could not be calculated. NAICS codes with no data for the # of NC employers and employees are marked "*ND" and were not included in this targeting schedule.

Table 1 - Targeted Industries

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
113310	Logging	5	1.25	446	2,327	5.37
237110	Water and Sewer Line and Related Structures Construction	10	2.5	540	7,775	3.22
237310	Highway, Street, and Bridge Construction	13	3.25	399	14,193	2.29
237990	Other Heavy and Civil Engineering Construction	5	1.25	358	2,913	4.29
238120	Structural Steel and Precast Concrete Contractors	4	1	212	2,535	3.94
238130	Framing Contractors	4	1	428	1,387	7.21
321113	Sawmills	8	2	118	3,433	5.83
327320	Ready-Mix Concrete Manufacturing	3	0.75	191	3,569	2.10
332312	Fabricated Structural Metal Manufacturing	4	1	141	3,767	2.65

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
336120	Heavy Duty Truck Manufacturing	3	0.75	6	4,545	1.65
337122	Nonupholstered Wood Household Furniture Manufacturing	3	0.75	105	2,273	3.30
423930	Recyclable Material Merchant Wholesalers	4	1	256	2,584	3.87
493120	Refrigerated Warehousing and Storage	3	0.75	30	1,040	7.21
561730	Landscaping Services	25	6.25	4,798	33,180	1.88
562910	Remediation Services	5	1.25	265	1,898	6.59
922120	Police Protection	7	1.75	73	1,387	12.62

Table 2 - Untargeted Industries

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
111219	Other Vegetable (except Potato) and Melon Farming	1	0.25	94	840	2.98
111421	Nursery and Tree Production	1	0.25	215	2,264	1.10
111910	Tobacco Farming	2	0.50	215	1,007	4.97
111998	All Other Miscellaneous Crop Farming	1	0.25	400	1,566	1.60
112210	Hog and Pig Farming	1	0.25	326	3,494	0.72
112320	Broilers and Other Meat Type Chicken Production	1	0.25	47	816	3.06
115114	Postharvest Crop Activities (except Cotton Ginning)	1	0.25	30	843	2.97
115115	Farm Labor Contractors and Crew Leaders	1	0.25	72	837	2.99
115310	Support Activities for Forestry	2	0.50	153	891	5.61
221111	Hydroelectric Power Generation	2	0.50	18	105	47.62
221122	Electric Power Distribution	1	0.25	359	8,833	0.28

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
236115	New Single-Family Housing Construction (except For-Sale Builders)	4	1	5,878	21,239	0.47
236116	New Multifamily Housing Construction (except For-Sale Builders)	2	0.50	121	1,031	4.85
236210	Industrial Building Construction	2	0.50	208	4,552	1.10
236220	Commercial and Institutional Building Construction	5	1.25	1,722	18,093	0.69
237120	Oil and Gas Pipeline and Related Structures Construction	2	0.50	84	2,082	2.40
237130	Power and Communication Line and Related Structures Construction	4	1	589	11,797	0.85
237210	Land Subdivision	1	0.25	188	748	3.34
238110	Poured Concrete Foundation & Structure Contractors	2	0.50	*ND	*ND	N/A
238140	Masonry Contractors	1	0.25	*ND	*ND	N/A
238160	Roofing Contractors	1	0.25	*ND	*ND	N/A

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
238210	Electrical Contractors and Other Wiring Installation Contractors	6	1.5	3,980	34,784	0.43
238220	Plumbing, Heating, and Air-Conditioning Contractors	4	1	4,614	46,893	0.21
238290	Other Building Equipment Contractors	1	0.25	*ND	*ND	N/A
238310	Drywall and Insulation Contractors	2	0.50	*ND	*ND	N/A
238350	Finish Carpentry Contractors	1	0.25	*ND	*ND	N/A
238910	Site Preparation Contractors	8	2	1,764	17,659	1.13
238990	All Other Specialty Trade Contractors	4	1	1,325	8,208	1.22
311111	Dog and Cat Food Manufacturing	1	0.25	16	390	6.41
311119	Other Animal Food Manufacturing	2	0.50	41	1,014	4.93
311511	Fluid Milk Manufacturing	1	0.25	9	403	6.20
311520	Ice Cream and Frozen Dessert Manufacturing	1	0.25	7	289	8.65
311611	Animal (except Poultry) Slaughtering	1	0.25	98	8,266	0.30

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
311615	Poultry Processing	3	0.75	44	23,125	0.32
311812	Commercial Bakeries	1	0.25	124	3,755	0.67
311830	Tortilla Manufacturing	1	0.25	*ND	*ND	N/A
311911	Roasted Nuts and Peanut Butter Manufacturing	1	0.25	9	602	4.15
312230	Tobacco Manufacturing	1	0.25	34	3,556	0.70
313110	Fiber, Yarn, and Thread Mills	1	0.25	67	7,061	0.35
313210	Broadwoven Fabric Mills	1	0.25	49	3,784	0.66
313230	Nonwoven Fabric Mills	1	0.25	45	3,607	0.69
321912	Cut Stock, Resawing Lumber, and Planing	2	0.50	32	510	9.80
321999	All Other Miscellaneous Wood Product Manufacturing	1	0.25	75	1,517	1.65
322130	Paperboard Mills	1	0.25	11	1,088	2.30
322211	Corrugated and Solid Fiber Box Manufacturing	1	0.25	59	3,689	0.68
323111	Commercial Printing (except Screen and Books)	1	0.25	616	8,426	0.30

NAICS	NAICS Title	NC Total Struck-By Events (FFY 2022-FFY 2025)	Annual Average # of Struck-Bys (FFY 2022-FFY 2025)	Annual Average # of Employers (FFY 2022-FFY 2025)	Annual Average # of Employees (FFY 2022-FFY 2025)	Struck-By Rate per 10,000 Full-Time Employees
325199	All Other Basic Organic Chemical Manufacturing	2	0.50	27	1,501	3.33
325412	Pharmaceutical Preparation Manufacturing	1	0.25	108	19,168	0.13
325611	Soap and Other Detergent Manufacturing	1	0.25	30	1,544	1.62
326199	All Other Plastics Product Manufacturing	3	0.75	166	11,899	0.63
327332	Concrete Pipe Manufacturing	1	0.25	19	435	5.75
327390	Other Concrete Product Manufacturing	1	0.25	60	1,437	1.74
331221	Rolled Steel Shape Manufacturing	1	0.25	7	178	14.04
331315	Aluminum Sheet, Plate, and Foil Manufacturing	1	0.25	*ND	*ND	N/A
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	1	0.25	6	342	7.31
331521	Aluminum Die-Casting Foundries	1	0.25	*ND	*ND	N/A

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332311	Prefabricated Metal Building and Component Manufacturing	1	0.25	68	1,693	1.48
332313	Plate Work Manufacturing	1	0.25	58	1,974	1.27
332710	Machine Shops	1	0.25	559	6,444	0.39
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	1	0.25	90	1,431	1.75
332912	Fluid Power Valve and Hose Fitting Manufacturing	1	0.25	15	829	3.02
332996	Fabricated Pipe and Pipe Fitting Manufacturing	1	0.25	24	796	3.14
333120	Construction Machinery Manufacturing	2	0.50	39	6,391	0.78
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	1	0.25	47	3,432	0.73

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333618	Other Engine Equipment Manufacturing	1	0.25	*ND	*ND	N/A
335220	Major Household Appliance Manufacturing	1	0.25	9	2,557	0.98
336211	Motor Vehicle Body Manufacturing	2	0.50	40	4,113	1.22
336360	Motor Vehicle Seating and Interior Trim Manufacturing	1	0.25	13	272	9.19
336399	All Other Motor Vehicle Parts Manufacturing	1	0.25	*ND	*ND	N/A
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	1	0.25	15	2,785	0.90
337122	Nonupholstered Wood Household Furniture Manufacturing	2	0.50	105	2,273	2.20
339112	Surgical and Medical Instrument Manufacturing	1	0.25	49	3,000	0.83
423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers	3	0.75	423	5,333	1.41

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423320	Brick, Stone, and Related Construction Material Merchant Wholesalers	1	0.25	234	1,904	1.31
423390	Other Construction Material Merchant Wholesalers	1	0.25	253	2,214	1.13
423420	Office Equipment Merchant Wholesalers	1	0.25	196	2,157	1.16
423510	Metal Service Centers and Other Metal Merchant Wholesalers	1	0.25	423	3,306	0.76
423710	Hardware Merchant Wholesalers	1	0.25	368	3,867	0.65
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	1	0.25	458	4,341	0.58
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	2	0.50	166	3,618	1.38
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	1	0.25	427	2,429	1.03
424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers	1	0.25	248	1,891	1.32

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424410	General Line Grocery Merchant Wholesalers	2	0.50	250	8,763	0.57
424810	Beer and Ale Merchant Wholesalers	1	0.25	93	3,639	0.69
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	1	0.25	397	3,034	0.82
441110	New Car Dealers	2	0.50	720	36,510	0.14
441210	Recreational Vehicle Dealers	1	0.25	97	1,415	1.77
441310	Automotive Parts and Accessories Stores	2	0.50	*ND	*ND	N/A
441320	Tire Dealers	1	0.25	*ND	*ND	N/A
444110	Home Centers	2	0.50	345	30,236	0.17
444190	Other Building Material Dealers	5	1.25	*ND	*ND	N/A
445110	Supermarkets and Other Grocery Retailers (except Convenience Retailers)	6	1.5	1,920	94,967	0.16
445120	Convenience Stores	1	0.25	*ND	*ND	N/A
448140	Family Clothing Stores	1	0.25	*ND	*ND	N/A
448210	Shoe Stores	1	0.25	*ND	*ND	N/A
452111	Department Stores, except Discount Department Stores	2	0.50	*ND	*ND	N/A
457210	Fuel Dealers	1	0.25	366	3,102	0.81

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481111	Scheduled Passenger Air Transportation	2	0.50	44	17,040	0.29
484110	General Freight Trucking, Local	3	0.75	1,856	9,529	0.79
484121	General Freight Trucking, Long-Distance, Truckload	5	1.25	2,649	17,372	0.72
484122	General Freight Trucking, Long-Distance, Less Than Truckload	5	1.25	327	9,526	1.31
484220	Specialized Freight (except Used Goods) Trucking, Local	3	0.75	894	6,493	1.16
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance	2	0.50	231	2,825	1.77
488119	Other Airport Operations	2	0.50	74	3,588	1.39
488190	Other Support Activities for Air Transportation	1	0.25	193	4,838	0.52
488410	Motor Vehicle Towing	1	0.25	398	2,519	0.99
488510	Freight Transportation Arrangement	1	0.25	677	6,078	0.41
488991	Packing and Crating	1	0.25	54	1,360	1.84

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488999	All Other Support Activities for Transportation	1	0.25	32	166	15.06
492110	Couriers and Express Delivery Services	1	0.25	537	29,553	0.08
493110	General Warehousing and Storage	3	0.75	489	52,667	0.14
493130	Farm Product Warehousing and Storage	1	0.25	28	146	17.12
517111	Wired Telecommunications Carriers	2	0.50	575	18,593	0.27
522110	Commercial Banking	1	0.25	2,487	82,068	0.03
531311	Residential Property Managers	2	0.50	3,004	16,885	0.30
531312	Nonresidential Property Managers	1	0.25	488	5,254	0.48
532120	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing	1	0.25	236	2,791	0.90
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	2	0.50	228	1,611	3.10
541310	Architectural Services	1	0.25	908	4,980	0.50
541380	Testing Laboratories and Services	1	0.25	402	4,740	0.53

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561320	Temporary Help Services	2	0.50	3,100	104,054	0.05
561612	Security Guards and Patrol Services	3	0.75	398	17,349	0.43
561990	All Other Support Services	4	1	1,898	16,505	0.61
562111	Solid Waste Collection	2	0.50	442	6,872	0.73
562119	Other Waste Collection	1	0.25	72	398	6.28
562211	Hazardous Waste Treatment and Disposal	2	0.50	52	919	5.44
562212	Solid Waste Landfill	1	0.25	36	258	9.69
562219	Other Nonhazardous Waste Treatment and Disposal	1	0.25	38	691	3.62
611110	Elementary and Secondary Schools	3	0.75	3,422	224,041	0.03
611210	Junior Colleges	1	0.25	186	30,933	0.08
611310	Colleges, Universities, and Professional Schools	3	0.75	412	102,920	0.07
622110	General Medical and Surgical Hospitals	3	0.75	632	229,943	0.03
624229	Other Community Housing Services	1	0.25	110	1,081	2.31

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711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	2	0.50	140	3,591	1.39
712120	Historical Sites	2	0.50	*ND	*ND	N/A
713910	Golf Courses and Country Clubs	2	0.50	414	16,854	0.30
721211	RV (Recreational Vehicle) Parks and Campgrounds	1	0.25	158	956	2.62
811111	General Automotive Repair	1	0.25	3,111	14,849	0.17
811192	Car Washes	1	0.25	694	6,129	0.41
811198	All Other Automotive Repair and Maintenance	1	0.25	148	594	4.21
812990	All Other Personal Services	1	0.25	907	2,812	0.89
921110	Executive Offices	1	0.25	21	669	3.74
921140	Executive and Legislative Offices, Combined	8	2	640	141,632	0.14
921190	Other General Government Support	4	1	82	11,644	0.86
922150	Parole Offices and Probation Offices	1	0.25	*ND	*ND	N/A
922160	Fire Protection	2	0.50	7	112	44.64

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922190	Other Justice, Public Order, and Safety Activities	1	0.25	11	267	9.36
924110	Administration of Air and Water Resource and Solid Waste Management Programs	1	0.25	25	1,859	1.34
925120	Administration of Urban Planning and Community and Rural Development	1	0.25	3	46	54.35
926120	Regulation and Administration of Transportation Programs	2	0.50	124	11,969	0.42
926140	Regulation of Agricultural Marketing and Commodities	1	0.25	239	3,893	0.64

Appendix B - Examples of Struck-By Hazards

This appendix provides a non-exhaustive list of examples of struck-by hazards commonly identified during inspections in North Carolina.

A. Mobile Equipment Hazards.

1. Forklifts striking pedestrians
2. Backing equipment without alarms or spotters
3. Yard trucks and trailers moving in congested areas
4. Excavators swinging into work zones
5. Employees working in the path of moving equipment

B. Falling Object Hazards.

1. Materials falling from elevated storage racks
2. Tools or debris falling from scaffolds or platforms
3. Loads falling during crane or hoist operations
4. Unsecured materials stored at height
5. Materials falling during loading/unloading

C. Flying Object Hazards.

1. Ejected machine parts due to inadequate guarding
2. Pneumatic tools ejecting fasteners
3. Grinding wheels shattering

D. Rolling or Shifting Material Hazards.

1. Pipes, logs, or materials rolling off stacks
2. Palletized loads shifting during transport
3. Unsecured loads on flatbeds

Appendix C - Applicable Consensus Standards

This appendix lists consensus standards relevant to struck-by hazard prevention. These standards may be used to demonstrate industry recognition of hazards and feasible means of abatement when evaluating potential violations under the North Carolina General Duty Clause (GDC), NCGS 95-129(1).

The consensus standards listed in this appendix **are not incorporated by reference** into OSHA standards and are not independently enforceable. They may be used to support hazard recognition and feasible abatement methods but shall not be cited as OSHA requirements.

A. **ANSI/ASME Standards.**

1. ANSI B56.1 - Safety Standard for Low Lift and High Lift Trucks

NOTE: ANSI B56.1 may be used for GDC recognition.

2. ANSI/ASSP A10.42 - Rigging Qualifications and Responsibilities
3. ASME B30 Series - Cranes, Derricks, Hoists, Jacks, and Slings
4. ANSI Z535 - Safety Signs and Colors
5. ANSI A92 - Aerial Work Platforms

B. **Other Consensus Standards.**

1. SAE J386 - Operator Restraint Systems
2. SAE J994 - Back-Up Alarms for Construction Equipment
3. ISO 3691 - Industrial Trucks Safety Requirements