



Profile: Concrete and Concrete Products



Office of General Industry Enforcement

Industry Group 327 - Concrete and Concrete Products

Industry Description

Establishments primarily engaged in manufacturing concrete building block and brick from a combination of cement and aggregate, including architecture block concrete, concrete and cinder blocks, concrete brick, concrete paving block, and plinth blocks. Contractors engaged in concrete construction work are classified in Division C, Construction. Establishments primarily engaged in mixing and delivering ready-mixed concrete are classified in Industry 3273.

Process Description

Concrete masonry units are made by combining aggregates (natural or manufactured), cement and water in the proper proportions. These materials are stored in silos and/or bins and then measured by weight to obtain the desired consistency. Once measured, they are mixed and fed into the block machine, where the green material is formed into the desired shape. After being formed, these fragile units are moved to storage racks. The racks are transported by forklift to curing kilns. The block remains inside the kilns for 24 hours at a temperature of approximately 175 degrees F with a very high humidity, produced by the introduction of live steam within the closed kilns.

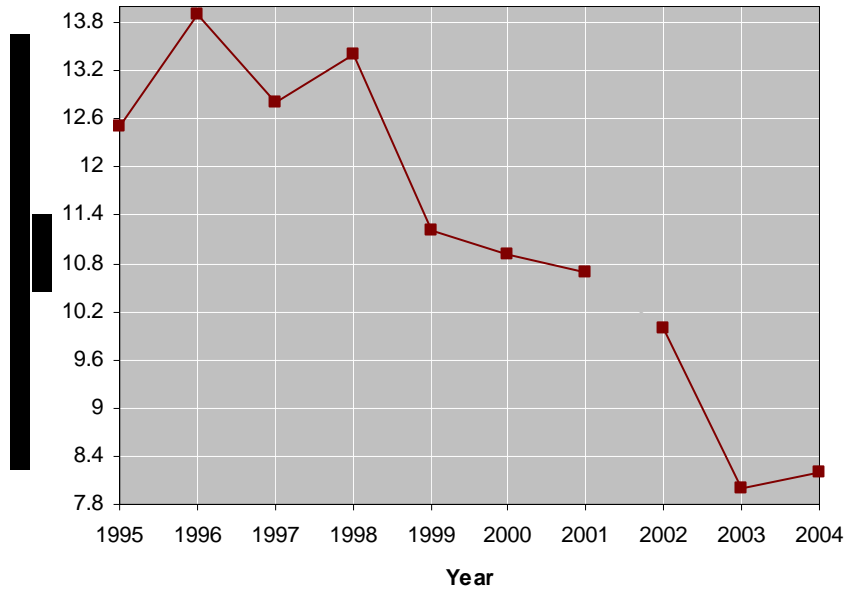
After the curing cycle, the masonry units are removed and placed on equipment to separate them from the racks. Once removed, they travel by conveyor to the cubing machine where they are stacked into cubes. These cubes then travel by roller conveyor into the strapping station, where metal bands are applied to form a secure unit that can be handled by forklift truck. The forklift moves the finished products to the open yard for storage. From the storage yard, they are loaded on delivery trucks and transported to the construction site. At the jobsite, the packages of masonry units are unloaded with a boom that is a part of the delivery truck. Masonry units are divided into two classes: (1) lightweight blocks (manufactured lightweight aggregate, cement, water) (2) normal weight blocks. The standard masonry unit is the 8 inch regular block (8" x 8" x 16"). Approximately 120 different types of units are currently in use.

Source: SIC Manual for 1987 and North Carolina Department of Labor Industrial Data Report, 8-1-76

BLS Profile

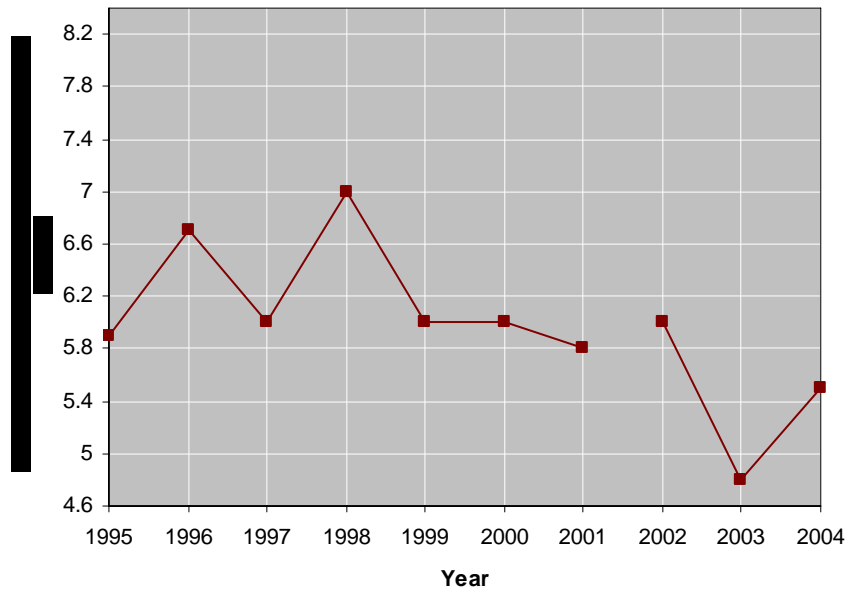
Total Recordable Case Rate (Industry Group - 327)

Year	Annual
1995	12.5
1996	13.9
1997	12.8
1998	13.4
1999	11.2
2000	10.9
2001	10.7
2002	10.0*
2003	8.0**
2004	8.2



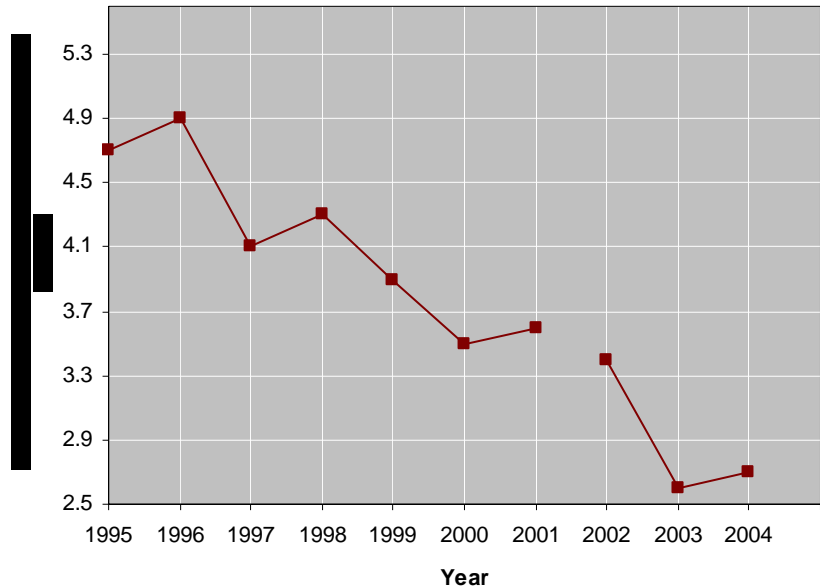
Lost Workday Case Rate (Industry Group - 327)

Year	Annual
1995	5.9
1996	6.7
1997	6.0
1998	7.0
1999	6.0
2000	6.0
2001	5.8
2002	6.0
2003	4.8*
2004	5.5**



Cases with Days Away Rate (Industry Group - 327)

Year	Annual
1995	4.7
1996	4.9
1997	4.1
1998	4.3
1999	3.9
2000	3.5
2001	3.6
2002	3.4*
2003	2.6**
2004	2.7



* Effective January 1, 2002, the Occupational Safety and Health Administration (OSHA) revised its requirements for reporting occupational injuries and illnesses. Due to the revised recordkeeping rule, the estimates from the 2002 survey are not comparable with those from previous years, thus resulting in the discontinuous graph lines.

** Beginning with the 2003 reference year, the BLS Survey of Occupational Injuries and Illnesses began using the 2000 North American Industry Classification System (NAICS). Prior to 2003, the survey used the Standard Industrial Classification (SIC) system. The substantial differences between these systems result in breaks in series for industry data.

Total Fatalities for NAICS Group 3273 (2004): 37

Source: Bureau of Labor Statistics

National Summary by Region

NAICS 3273

Regions	Establishments with 10 or more employees		Establishments with 9 or fewer employees	
	Establishments	Employees	Establishments	Employees
1	210	6877	310	755
2	309	9634	484	1173
3	340	12039	422	1357
4	945	32996	1315	3505
5	696	22690	1000	2901
6	809	31288	1247	3342
7	331	12721	510	1684
8	206	7964	377	1089
9	N/A	N/A	N/A	N/A
10	33	925	82	219

NA = Data not available

Establishment and employment counts come from Dunn & Bradstreet, March 2006.

Average Case and Demographic Characteristics

Average cases per year, 1995 – 2000		9,024
Demographics of worker	Sex	95.42% men
	Age	25.9% ages 25-34 32.2% ages 35-44 20.6% ages 45-54
	Length of service with employer	13.4% less than 3 months 20.6% 3-11 months 32.5% 1-5 years 22.2% More than 5 years
	Race/ethnic origin	57.1% white non-Hispanic 14.9% Hispanic – any race
Characteristics of injury/illness	Days away from work	45.1% 1-5 days 29.5% 6-30 days 25.4% 31 or more days
	Nature of injury/illness	40.3% sprains/strains 22.4% “all other” natures 18.0% cuts/lacerations/punctures
	Part of body affected	33.7% trunk total 24.1% lower extremities total 23.4% upper extremities total 17.8% trunk back
	Source of injury/illness	21.3% parts and materials 16.9% vehicle 14.8% worker motion 14.2% floors walkways 9.5% machinery 9.3% “all other sources”
	Event or exposure	34.3% total contact with objects 20.7% overexertion total 14.3% struck by object 10.9% caught in object 10.6% overexertion in lifting

Source: OSHA Office of Statistical Analysis compilation of BLS data

Note: The percentages on this table do not sum to 100%. Only the most frequently coded characteristics are listed. The “All Other” category should not be interpreted as being all inclusive of the categories not listed above.

Inspection Summary
FY 2005
Federal OSHA Inspection Data
Industry Group 327

Federal Data Only	I	II	III	IV	V	VI	VII	VIII	IX	X	Total
Total Inspections	24	40	68	40	102	54	28	59	2	5	422
Records	0	3	0	0	0	0	0	0	0	0	3
Safety	13	17	30	21	32	13	17	31	2	3	179
Health	11	23	38	19	70	14	11	28	0	2	243
Inspections By Type											
<u>Unprogrammed</u>	19	17	19	26	24	9	8	13	0	5	140
Accidents	0	2	1	2	1	2	2	1	0	1	12
Complaints	11	6	10	15	18	5	4	5	0	3	77
Referrals	6	7	5	4	1	0	0	3	0	0	26
Monitoring	0	0	0	0	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	0	0	0	0	0
Follow-Up	1	1	3	1	1	2	1	3	0	0	13
Unprog. Related	1	1	0	4	3	0	1	1	0	1	12
Other	0	0	0	0	0	0	0	0	0	0	0
<u>Programmed</u>	5	23	49	14	78	45	20	46	2	0	282
Planned	5	21	48	14	76	45	20	45	2	0	276
Prog. Related	0	2	1	0	2	0	0	1	0	0	6
Other	0	0	0	0	0	0	0	0	0	0	0

Source: IMIS Database

Top 10 Violations Cited

<u>Standard</u>	<u># Cited</u>	<u>#Insp</u>	<u>Description</u>
1910.134	301	114	Respiratory Protection
1910.147	207	103	The Control of Hazardous Energy, Lockout/Tagout
1910.1200	200	113	Hazard Communication
1910.146	164	74	Permit-Required Confined Spaces
1910.23	107	78	Guarding Floor & Wall Openings & Holes
1910.95	96	48	Occupational Noise Exposure
1910.305	90	50	Electrical, Wiring Methods, Components & Equip.
1910.212	76	60	Machines, General Requirements
1910.178	71	44	Powered Industrial Trucks
1910.219	70	39	Mechanical Power-Transmission Apparatus

Source: IMIS Database – FY 2005 (Federal only)

Average Number of Employees per Establishment: 15.9

Percent Small Establishments: 59.7%

Some Potential Hazards and Their Sources

Hazard	Source
Amputations	Equipment such as conveyors, and metalworking machinery
Permit-required confined space hazards such as engulfment, asphyxiation	Silos, forms, mixers, hoppers
Crushing	Work on concrete forms, loading products
Falls	Working on concrete forms, loading products
Electrocution	Equipment such as conveyors, machinery
Vehicle – Vehicle Accidents	Mechanical Handling Equipment – forklifts, etc.

2003 BLS Industry Data
INDUSTRY GROUP - 327 – CONCRETE, GYPSUM, AND PLASTER
PRODUCTS

<u>All Reported Cases</u>	<u>6030</u>	
<u>Nature of Illness or Injury</u>	<u>Number</u>	<u>% Total</u>
Sprains, Strains	2620	43.4
Fractures	620	10.3
Cuts, Punctures	420	7.0
Bruises	460	7.6
Heat Burns	100	1.7
Chemical Burns	40	0.7
Amputations	80	1.3
Carpal Tunnel	N/A	N/A
Tendonitis	N/A	N/A
Mult Trauma Total	230	3.8
Mult Trauma With Fracture	70	1.2
Mult Trauma With Sprain	100	1.7
Back Pain Total	280	4.6
Back Pain Hurt Back Only	150	2.5
All Other	1180	19.6
<u>Part of Body Affected</u>	<u>Number</u>	<u>% Total</u>
Head Total	350	5.8
Eyes	230	3.8
Neck	120	2.0
Trunk Total	2200	36.5
Trunk Back	1390	23.1
Trunk Shoulder	430	7.1
Upper Extremities Total	1190	19.7
Upper Extremities Finger	370	6.1
Upper Extremities Hand	240	4.0
Upper Extremities Wrist	190	3.2
Lower Extremities Total	1400	23.2
Lower Extremities Knee	470	7.8
Lower Extremities Foot Toe	150	2.5
Body Systems	70	1.2
Multiple Body Parts	570	9.5
All Other Body Parts	140	2.3
<u>Source of Injury or Illness</u>	<u>Number</u>	<u>% Total</u>
Chem And Chem Products	100	1.7
Containers	400	6.6
Furniture And Fixtures	50	0.8
Machinery	490	8.1
Parts And Materials	790	13.1
Worker Motion	1150	19.1
Floors Walkways	1060	17.6
Handtools	230	3.8
Vehicle	890	14.8
Health Care Patient	N/A	N/A
All Other Sources	860	14.3

<u>Sex</u>	<u>Number</u>	<u>% Total</u>
Men	5780	95.9
Women	260	4.3
Sex Not Reported	N/A	N/A

<u>Age</u>	<u>Number</u>	<u>% Total</u>
Under 14	N/A	N/A
14 to 15	N/A	N/A
16 to 19	130	2.2
20 to 24	290	4.8
25 to 34	1560	25.9
35 to 44	1930	32.0
45 to 54	1350	22.4
55 to 64	640	10.6
65 And Over	100	1.7
Not Reported	N/A	N/A

<u>Race</u>	<u>Number</u>	<u>% Total</u>
White	3490	57.9
Black	490	8.1
Asian	N/A	N/A
American Indian or Native Alaskan	N/A	N/A
Hispanic or Latino and Others	N/A	N/A
Multirace	N/A	N/A
Race Not Reported	980	16.3

<u>Length of Service</u>	<u>Number</u>	<u>% Total</u>
Less Than 3 Months	700	11.6
3 to 11 Months	1310	21.7
1 to 5 years	2290	38.0
More Than 5 Years	1730	28.7
Service Not Reported	N/A	N/A

<u>Days away from work</u>	<u>Number</u>	<u>% Total</u>
1 Day	700	11.6
2 Days	610	10.1
3 to 5 Days	930	15.4
6 to 10 Days	730	12.1
11 to 20 Days	720	11.9
21 to 30 Days	360	6.0
31 Days Or More	2000	33.2
Median Days Away	11	N/A

<u>Event/Exposure Leading to Injury</u>	<u>Number</u>	<u>% Total</u>
Total Contact With Objects	1660	27.5
Struck By Object	740	12.3
Struck Against Object	360	6.0
Caught In Object	450	7.5
Fall to Lower Level	590	9.8
Fall On Same Level	550	9.1
Slips Or Trips	390	6.5
Overexertion Total	970	16.1
Overexertion In Lifting	500	8.3
Repetitive Motion	80	1.3

Exposure to Harmful Substance	190	3.2
Transportation Accidents	490	8.1
Fires And Explosions	N/A	N/A
Total Assaults - Violent Acts	N/A	N/A
Assaults By Person	N/A	N/A
All Other Assaults	N/A	N/A
All Other Events	1070	17.7

Photo Credits:

1. Beau Ellis, Takoma Park, MD.