



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.

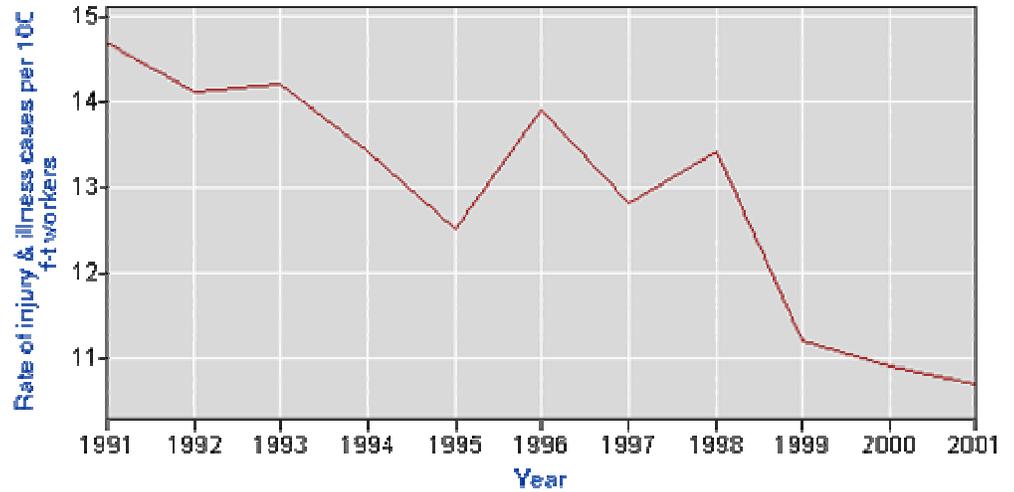
After the curing cycle, the masonry units are removed and placed on equipment to separate them from the racks. Once removed, they travel by conveyor to the cubing machine where they are stacked into cubes. These cubes then travel by roller conveyor into the strapping station, where metal bands are applied 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)

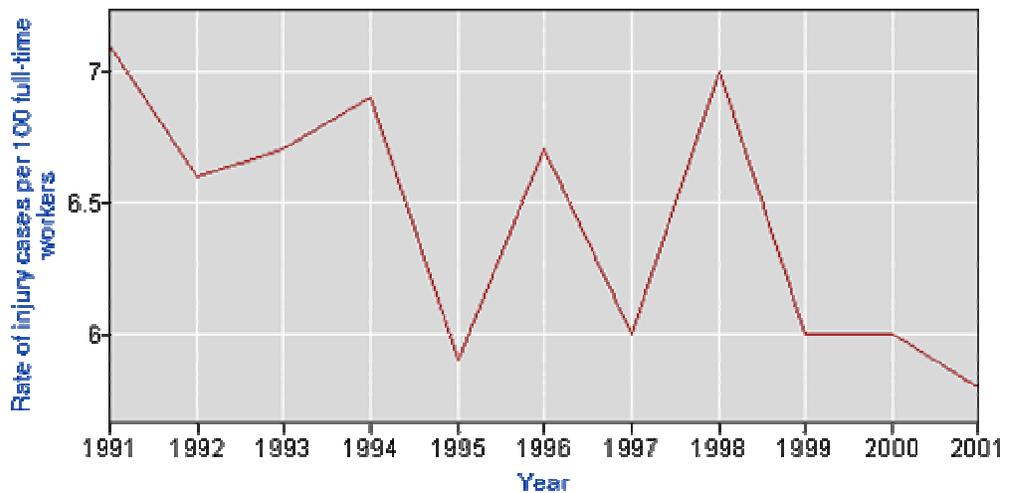
Year	Annual
1991	14.7(F)
1992	14.1
1993	14.2
1994	13.4
1995	12.5
1996	13.9
1997	12.8
1998	13.4
1999	11.2
2000	10.9
2001	10.7

F: Includes fatalities



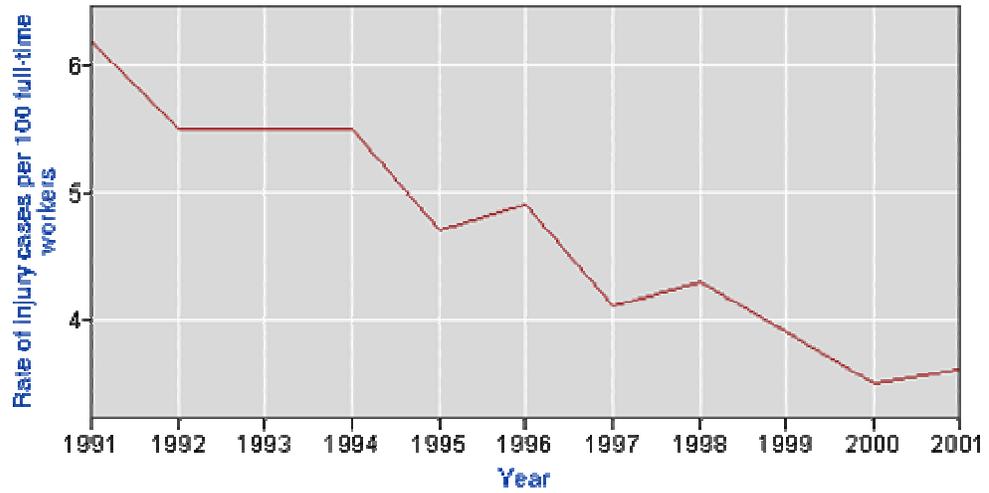
Lost Workday Case Rate (Industry Group – 327)

Year	Annual
1991	7.1
1992	6.6
1993	6.7
1994	6.9
1995	5.9
1996	6.7
1997	6.0
1998	7.0
1999	6.0
2000	6.0
2001	5.8



Cases with Days Away Rate (Industry Group – 327)

Year	Annual
1991	6.2
1992	5.5
1993	5.5
1994	5.5
1995	4.7
1996	4.9
1997	4.1
1998	4.3
1999	3.9
2000	3.5
2001	3.6



Fatality Rate for Industry Group – 327 (2001): 20.6
National Average – All Industries (2001): 4.3

Source: Bureau of Labor Statistics
Fatality rates are number of fatalities per 100,000.

National Summary by Region

NAICS 3273

Regions	Establishments with 10 or more employees		Establishments with 9 or fewer employees		Number of FY 2002 Inspections	
	Establishments	Employees	Establishments	Employees	Total	Programmed
1	212	4710	177	685	16	3
2	341	6763	247	960	27	5
3	507	NA	NA	NA	34	18
4	1282	33479	NA	NA	19	4
5	753	16650	576	2482	51	19
6	862	20700	637	2629	23	8
7	338	8886	371	1666	9	4
8	215	4859	221	863	4	0
9	NA	NA	NA	NA	3	3
10	41	649	45	179	2	1

Equivalent SICs 3271, 3272 and 3273

Regions	Establishments with 10 or more employees		Establishments with 9 or fewer employees		Number of FY 2002 Inspections	
	Establishments	Employees	Establishments	Employees	Total	Programmed
1	205	4642	168	657	17	4
2	329	6416	230	914	26	5
3	285	6121	243	1077	38	19
4	1073	28126	639	2765	22	6
5	737	15315	531	2287	57	23
6	817	18508	597	2474	22	8
7	314	6839	357	1597	11	5
8	200	3844	210	821	10	2
9	NA	NA	NA	NA	4	4
10	39	574	42	170	2	1

NA = Data not available

Establishment and employment counts come from Dunn & Bradstreet, June 2003.

Inspection data from IMIS database

Inspection and establishment counts include only Federal Area Office inspections and establishments in Federal OSHA states,

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 2003
Federal OSHA Inspection Data
Industry Group 327**

Federal Data Only	I	II	III	IV	V	VI	VII	VIII	IX	X	Total
Total Inspections	17	26	38	22	57	22	11	10	4	2	209
Safety	13	15	21	11	19	13	7	5	3	1	108
Health	4	11	17	11	38	9	4	5	1	1	101
Inspections by Type											
Unprogrammed	13	21	19	16	34	14	6	8	0	1	132
Accidents	1	1	1	7	2	2	1	0	0	0	15
Complaints	6	9	14	5	27	8	4	5	0	1	79
Referrals	3	9	3	2	1	1	1	0	0	0	20
Monitoring	1	1	0	0	0	0	0	0	0	0	2
Variance	0	0	0	0	0	0	0	0	0	0	0
Follow-Up	2	1	0	0	2	1	0	2	0	0	8
Unprog. Related	0	0	1	2	2	2	0	1	0	0	8
Other	0	0	0	0	0	0	0	0	0	0	0
Programmed	4	5	19	6	23	8	5	2	4	1	77
Planned	4	5	19	4	22	7	5	2	4	0	72
Prog. Related	0	0	0	0	1	0	0	0	0	1	2
Other	0	0	0	2	0	1	0	0	0	0	3

Source: IMIS Database

Top 10 Violations Cited

Std.	# Cited	#Insp	Description
1910.146	116	43	Permit-Required Confined Spaces
1910.134	114	43	Respiratory Protection
1910.147	113	49	The Control of Hazardous Energy, Lockout/Tagout
1910.1200	86	51	Hazard Communication
1910.305	74	37	Electrical, Wiring Methods, Components & Equipment
1910.23	66	41	Guarding Floor & Wall Openings & Holes
1910.178	65	38	Powered Industrial Trucks
1910.212	47	39	Machines, General Requirements
1910.95	46	22	Occupational Noise Exposure
1910.132	44	33	Personal Protective Equipment, General Requirements

Source: IMIS Database – FY 2003 (Federal only)

Private Establishments: 1,372
Average Number of Employees per Establishment: 27
Percent small establishments: 54.2 %

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.

2001 BLS Industry Data for INDUSTRY GROUP – 327 – CONCRETE, GYPSUM, AND PLASTER PRODUCTS

All Reported Cases	9467	
Nature of Illness or Injury	Number	% Total
Sprains, Strains	4431	46.80
Fractures	741	7.83
Cuts, Punctures	825	8.71
Bruises	880	9.30
Heat Burns	60	0.63
Chemical Burns	117	1.24
Amputations	65	0.69
Carpal Tunnel	0	0.00
Tendonitis	0	0.00
Mult Trauma Total	478	5.05
Mult Trauma with Fracture	88	.093
Mult Trauma with Sprain	197	2.08
Back Pain Total	415	4.38
Back Pain Hurt Back Only	172	1.82
All Other	1407	14.86
Part of Body Affected	Number	% Total
Head Total	699	7.38
Eyes	464	4.90
Neck	96	1.01
Trunk Total	3366	35.56
Trunk Back	2236	23.62
Trunk Shoulder	602	6.36
Upper Extremities Total	2027	21.41
Upper Extremities Finger	849	8.97
Upper Extremities Hand	394	4.16
Upper Extremities Wrist	245	2.59
Lower Extremities Total	2406	25.41
Lower Extremities Knee	706	7.46
Lower Extremities Foot Toe	544	5.75
Body Systems	86	0.91
Multiple Body Parts	753	7.95
All Other Body Parts	0	0.00
Source of Injury or Illness	Number	% Total
Chem and Chem Products	203	2.14
Containers	643	6.79
Furniture and Fixtures	67	0.71
Machinery	1080	11.41
Parts and Materials	1793	18.94
Worker Motion	1374	14.51
Floors Walkways	1533	16.19
Handtools	537	5.67

Vehicle	1233	13.02
Health Care Patient	0	0.00
All Other Sources	1005	10.62

Sex	Number	% Total
Men	9251	97.72
Women	197	2.08
Sex Not Reported	20	0.21

Age	Number	% Total
Under 14	0	0.00
14 to 15	0	0.00
16 to 19	160	1.69
20 to 24	746	7.88
25 to 34	2813	29.71
35 to 44	2666	28.16
45 to 54	2064	21.80
55 to 64	878	9.27
65 and Over	52	0.55
Not Reported	89	0.94

Race	Number	% Total
White Non Hispanic	6060	64.01
Black Non Hispanic	668	7.06
Hispanic	1234	13.03
Asian or Pacific Islander	47	0.50
American Indian	0	0.00
Race Not Reported	1450	15.32

Length of Service	Number	% Total
Less Than 3 Months	1510	15.95
3 to 11 Months	1829	19.32
1 to 5 years	3188	33.67
More Than 5 Years	2586	27.32
Service Not Reported	355	3.75

Days away from work	Number	% Total
1 Day	1252	13.22
2 Days	1040	10.99
3 to 5 Days	2077	21.94
6 to 10 Days	1150	12.15
11 to 20 Days	1108	11.70
21 to 30 Days	448	4.73
31 Days or More	2391	25.26
Median Days Away	7	N/A

Event/Exposure Leading to Injury	Number	% Total
Total Contact with Objects	3053	32.25
Struck by Object	1366	14.43
Struck Against Object	622	6.57
Caught in Object	783	8.27

Fall to Lower Level	880	9.30
Fall on Same Level	751	7.93
Slips or Trips	477	5.04
Overexertion Total	2099	22.17
Overexertion in Lifting	1065	11.25
Repetitive Motion	104	1.10
Exposure to Harmful Substance	346	3.65
Transportation Accidents	653	6.90
Fires and Explosions	0	0.00

Event/Exposure Leading to Injury	Number	% Total
Total Assaults - Violent Acts	41	0.43
Assaults by Person	0	0.00
All Other Assaults	0	0.00
All Other Events	1055	11.14

Photo Credits:

1. Beau Ellis, Takoma Park, MD.