

Projected Demand for Craft Labor
Midwest United States
2007 – 2011

prepared for
Building and Construction Trades Department
AFL-CIO

by
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Introduction

The availability of an adequate supply of skilled craft labor is crucial to the timely cost effective completion of a major construction project. It is increasingly apparent that there will be an upturn in the Midwest in the number of traditional industrial projects built from the low levels of recent years. Power generation facilities and refineries will be especially strong. The normal concerns as to construction worker availability will be accentuated by the aging labor force and the resulting increasing retirements.

Assuring an adequate supply of skilled craft workers will require the proactive involvement of all industry stakeholders. Their ability to evaluate the situation and plan to meet the anticipated situation is dependent upon reviewing accurate labor supply and demand information. This does not currently exist.

The Building and Construction Trades Department (BCTD) has recognized the anticipated increase in demand for craft labor and is working to assure an ample labor supply for these projects. Among the steps being taken to plan for the future is to identify known craft needs in the coming years. The purpose of this study is to identify construction worker needs by craft, in as much geographic detail as possible through 2011.

Major union contractors working in the Midwest were requested to provide their best estimates of the craft labor that will be required on their projects through 2011. Data were collected by craft, by area and by quarter. They have been compiled in as much geographic detail as is consistent with maintaining the confidentiality of the companies that have

provided project information. As not all contractors who were requested to provide data cooperated, those that have are recognized. They are:

- Alberici
- Babcock and Wilcox
- Bechtel Construction
- Black and Veatch
- Intermech
- Stone and Webster
- Tarlton
- Washington Group International

As a result, the data in this study represent a significant portion of scheduled work, but are not all inclusive. The figures are representative of the trend, timing and magnitude of anticipated labor demand. No specific project, owner or contractor is identified in the findings of this report.

When discussing labor availability in construction, some characteristics of the industry should be remembered. First, actual shortage of bodies is highly unlikely. A shortage of labor in construction means a shortage of adequately trained, skilled, productive persons. In addition, shortages can occur when there are an adequate number of persons, but there is mismatch between skills available and skills required. There is also the possibility that there is a geographic imbalance in available craft workers.

This study has been performed by the Construction Labor Research Council. Its success, however, is attributed to the cooperation of those contractors who supported the study through their data contributions, and to the BCTD that has sponsored this analysis. Their commitment and contributions are appreciated.

Summary Findings

The demand for construction craft workers for industrial construction projects in the Midwest will be growing significantly during the 2007 to 2011 period. The increases will be widespread, by area and by craft. The timing of peak demand will vary, but highest demand will be sustained for most crafts and areas from summer 2008 through summer 2009.

This study has found that:

- o Overall craft labor demand for industrial construction projects will double from recent levels to the second quarter of 2008.
- o Demand for boilermakers and insulators will increase more than other trades.
- o Demand in Indiana and Michigan will increase more than other areas.
- o The largest increase in employment will be for pipefitters and boilermakers.
- o The largest increase in employment will be in Illinois.
- o Including persons to replace retiring workers, need for new entrants is likely to almost match the needs for industry growth, therefore, almost doubling the number persons required to be added to the area's labor force.

The absolute increases in demand are conservative because the projections cover a sample of new projects. They are, however, inclusive of the largest owners and the largest projects scheduled or currently underway. As they are based on already known projects, they exclude projects not yet announced, especially in the later years. Furthermore, they reflect contractors estimates of needs, not indirect formulas. This, again, makes them conservative.

The crucial factor is that the rates of increase are believed to reflect the growth rate that will be experienced. Since skilled labor supply is already low in some areas, the data quantify and verify the concerns of many in the industry in the Midwest as to the adequacy of future supply. The data support other efforts to assure the cost effective timely completion of major industrial construction projects in the Midwest.

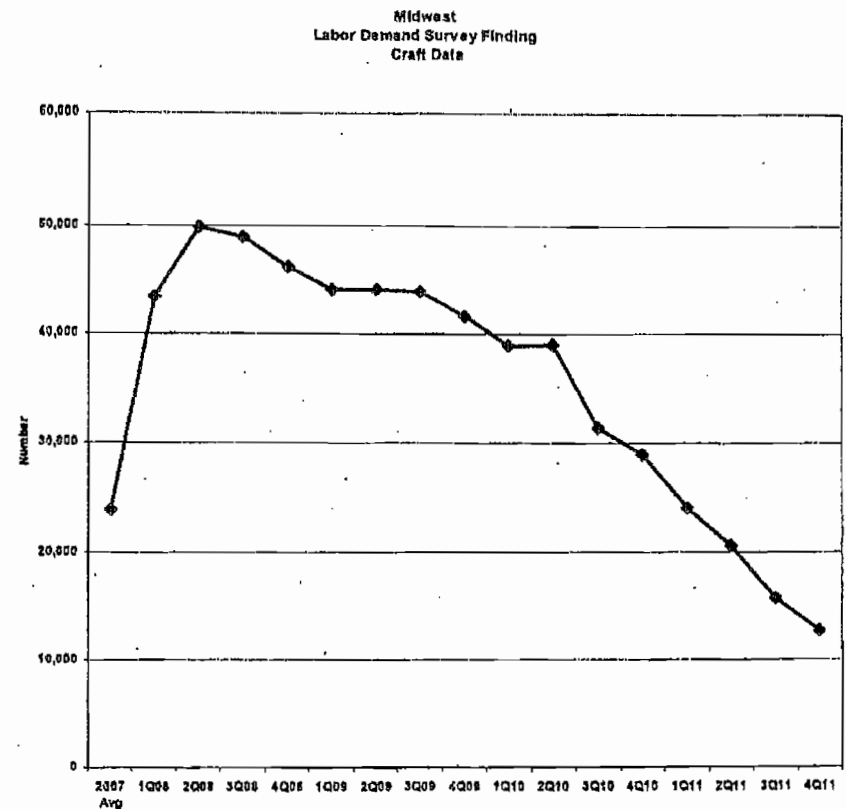
Results

This study documents the strong upturn in the demand for construction workers which is currently underway in the Midwest through 2011. The findings are a sample of upcoming projects that are being built by selected contractors in the region. Some of the projects are currently underway and some are scheduled to begin in the coming years. Other projects not yet identified are excluded.

From a base average employment during 2007 by the sampled contractors of about 24,000, employment will expand to 50,000 in the second quarter of 2008. It will remain close to this level throughout the remainder of the study period. This is a doubling of employment in the next year. Some of the states within the region are already experiencing close to full employment for some trades.

The greater problem is the tremendous disequilibrium between supply and demand for specific crafts in specific areas that are masked by the aggregate figures. By the period summer 2008 to summer 2009 demand for some crafts will more than double. Similarly, some states will see a more than doubling of craft labor needs throughout the period. Peaks in some areas will be reached within two years.

As the timing of peak demand for specific crafts occurs at different times during the duration of a project, so does the period of peak demand in various areas in the region. Peak demand for most crafts will occur between the second quarter of 2008 and third quarter of 2009. Peaks for specific areas occur throughout the survey period. While a peak is identified, levels close to peak remain for a number of quarters around the maximum demand.



Demand for all crafts, but two (cement masons and operating engineers) will at least double between their 2007 average employment and their peak. The peak will be reached for most crafts from the second to fourth quarter of 2008. Comparisons with 2007 reflect the change in craft mix through the life of a project.

The survey's contractors are primarily involved in industrial construction so that these figures reflect the mix of crafts on industrial projects. Over one-third of all workers in the 2007 base period were laborers and pipefitters. From base to peak the boilermakers will add the most additional workers, closely followed by the pipefitters. Largest percentage increase in demand will be for insulators with boilermakers second.

The quarter of peak total employment, second quarter 2008, is also the peak for a majority of individual trades. Only the cement masons peak earlier and only two crafts peak later than 2008. These are the boilermakers and painters, peaking during the third quarter of 2009. The pattern, generally, is for craft demand to remain close to its peak for a number of quarters before gradually easing. By 2010 and 2011 some of this decline is likely attributed to some additional projects which have not yet been identified.

Peak craft demand in individual states is spread throughout the survey period. First peak will be experienced in Wisconsin in the third quarter 2007. Latest peak will be in Michigan during the second quarter 2010. No state will experience its peak in second quarter 2008 when regional employment is at its highest.

Illinois is the largest construction market in the Midwest. It has the highest base period employment, peak period employment

and will require the largest increase in craft workers. The peak employment period in Illinois will be third quarter 2009.

Largest increase in demand will be seen in Michigan followed by Indiana. This is primarily the result of the relatively low level of activity during 2007. The increase in number of workers employed in Indiana is second behind Illinois.

The findings of this study are believed to accurately reflect the magnitude of the increased craft demand which will occur in the Midwest in the coming years. The absolute increases are an understatement of demand as it is recognized that projects to be built by some contractors have been excluded. There is also additional known construction activity in other industry sectors.

It is important to recognize that increases in craft employment are not the same as measuring craft demand. Not only will employment be increasing, but older workers will be retiring and will need to be replaced. Demand for younger workers to replace older workers may be equal to demand related to increased construction activity.

The contractors providing data for this study are recognized as a select, progressive, sophisticated group that have been willing to share their internal data for the good of the industry. It is unclear whether others do not perform labor demand planning or chose to ignore participating in a broad based effort to work toward a positive future for union construction. Only those providing data will receive the detailed findings of the study.

Need for new entrants into the construction labor force arises from two reasons – growth and replacement. The figures in this study only account for workers needed to meet the growth

In construction volume. Replacement needs are the persons required to offset exits from the construction labor force primary through retirements, but also because of deaths and transfers to other industries. These needs are known to be significant, even matching the numbers required to meet growth needs for some crafts and areas.

All data in this report is in summary form. Data providers were assured the confidentiality of their information. It has not and will not be revealed to any individual or organization. No information has been included in this report of findings that will permit the identification of any company as the source of any information. As a result of this policy, the geographic scope of the findings has been more restricted than initially anticipated. (Regional total estimates include states for which individual data are not shown.)

BCTD Craft Labor Demand Study

Major Industrial Projects - Midwest
2007 - 2011

<u>Craft</u>	Base Employ <u>2007 Average</u>	<u>Peak</u>		Increase to Peak	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	3,125	8,419	3Q09	5,294	169
Carpenters	2,504	5,017	2Q08	2,513	100
Cement Masons	482	871	4Q07	389	81
Electricians	2,387	5,127	3Q08	2,740	115
Insulators	489	1,908	4Q08	1,419	290
Ironworkers	2,516	4,917	2Q08	2,401	95
Laborers	4,138	8,644	2Q08	4,506	109
Millwrights	994	2,386	2Q08	1,392	140
Operating Engineers	1,648	2,878	2Q08	1,230	75
Painters	762	1,953	3Q09	1,161	153
Pipefitters	4,283	9,436	3Q08	5,153	120
Teamsters	330	649	2Q08	319	97
Total	23,815	49,870	2Q08	26,055	109

<u>State</u>	Base Employ <u>2007 Average</u>	<u>Peak</u>		Increase to Peak	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Illinois	4,471	10,389	3Q09	5,818	132
Indiana	1,623	6,841	1Q09	5,218	322
Michigan	725	4,885	2Q10	4,160	574
Missouri	4,302	7,568	4Q08	3,266	76
Ohio	3,436	7,277	3Q09	3,841	112
Wisconsin	2,822	3,871	3Q07	1,049	37

Methodology

The data in this study is a compilation of the craft labor demand expected by selected contractors building major industrial projects in the Midwest United States from 2007 through 2012. Data were collected by area, by craft and by quarter. Average employment throughout 2007 is used as a benchmark for future needs. The following areas are within the scope of the study:

Illinois
Indiana
Iowa
Kansas
Michigan
Missouri
North Dakota
Ohio
South Dakota
West Virginia
Wisconsin

As not all contractors provided data, not all projects in the region are included. Because of the mix of contractors providing data, inputs were most comprehensive for electric utilities and refinery construction. Through consultation with knowledgeable persons involved in the region and review of industry data bases, other major projects were identified and data collected.

As a sample, the findings do not represent the total number of workers in the area. The findings are believed to accurately reflect the strong upturn in demand for craft labor that will be

experienced. Cooperating contractors and others will be performing more projects requiring more labor in the coming years.

Owners and other industry data sources could have been included in the data solicitation. From past experience, data submitted by owners was usually provided by contractors, so that it sometimes resulted in double counting of demand. Owners were, however, requested to ask their contractors to cooperate by providing data to this study.

The raw data submitted by contractors is presented in a format to make the outputs more meaningful. First, it was apparent that not all projects currently underway were being captured. As a result, comparisons have been made to average 2007 activity rather than first quarter 2007 actual to more meaningfully measure growth. In addition, it appears that not all respondents could provide comprehensive data as far out as 2012, so 2012 has been deleted from the findings as inappropriately indicating a decline in demand. It is likely that this has also artificially reduced the 2011 demand data.

Strict confidentiality standards were applied to the study outputs. No data appears that permits identification of a specific project or contractor. At least three projects built by different contractors are included in the state data.

BCTD Labor Demand Survey Finding Craft Data

Craft	2007	2008				2009			
	Average	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Bricklayers	0	0	186	186	186	298	298	298	298
Boilermakers	3,125	5,333	7,486	6,912	6,823	7,031	7,638	8,419	8,256
Carpenters	2,504	4,827	5,017	4,651	4,354	4,232	3,985	3,621	3,340
Cement Masons	482	815	487	405	353	216	280	256	186
Electricians	2,387	4,375	4,945	5,127	4,757	4,304	4,276	4,216	3,996
Insulators	489	982	1,473	1,813	1,908	1,477	1,385	1,179	994
Ironworkers	2,517	4,542	4,917	4,327	3,889	4,115	4,032	4,145	4,231
Laborers	4,139	8,228	8,644	8,087	7,071	5,824	5,592	5,218	4,538
Millwrights	994	2,112	2,386	2,280	2,199	2,045	1,763	1,967	1,730
Operating Engs.	1,648	2,683	2,878	2,729	2,562	2,532	2,567	2,702	2,553
Painters	762	982	1,489	1,743	1,904	1,915	1,927	1,953	1,881
Pipefitters	4,283	7,542	8,790	9,436	9,068	9,169	9,359	8,995	8,709
Roofers	0	0	0	0	0	0	0	0	0
Sheet Metal Wkrs.	93	354	523	664	583	445	481	450	422
Teamsters	330	<u>613</u>	<u>649</u>	<u>603</u>	<u>496</u>	<u>457</u>	<u>467</u>	<u>499</u>	<u>498</u>
Total	23,752	43,388	49,870	48,963	46,153	44,060	44,050	43,918	41,632

Craft	2010				2011			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Bricklayers	0	0	0	0	0	0	0	0
Boilermakers	7,489	7,704	6,616	5,020	4,260	3,685	2,750	2,295
Carpenters	3,013	2,800	1,889	1,593	1,122	811	565	405
Cement Masons	134	189	161	103	73	69	49	29
Electricians	3,943	4,075	3,597	4,010	3,360	2,980	2,345	1,770
Insulators	1,024	933	695	744	605	580	520	345
Ironworkers	3,744	3,412	2,512	2,290	1,925	1,545	1,090	900
Laborers	3,943	3,949	2,866	2,516	1,918	1,603	1,163	923
Millwrights	1,704	1,772	1,410	1,347	1,015	860	705	575
Operating Engs.	2,473	2,491	2,175	2,040	1,699	1,334	1,044	954
Painters	1,910	1,855	1,324	1,335	1,125	1,050	805	610
Pipefitters	8,616	8,774	6,970	6,934	5,935	5,110	3,720	3,050
Roofers	0	0	0	0	0	0	0	0
Sheet Metal Wkrs.	529	584	666	609	565	590	660	605
Teamsters	<u>453</u>	<u>489</u>	<u>454</u>	<u>454</u>	<u>400</u>	<u>365</u>	<u>271</u>	<u>243</u>
Total	38,975	39,027	31,335	28,995	24,002	20,582	15,687	12,704

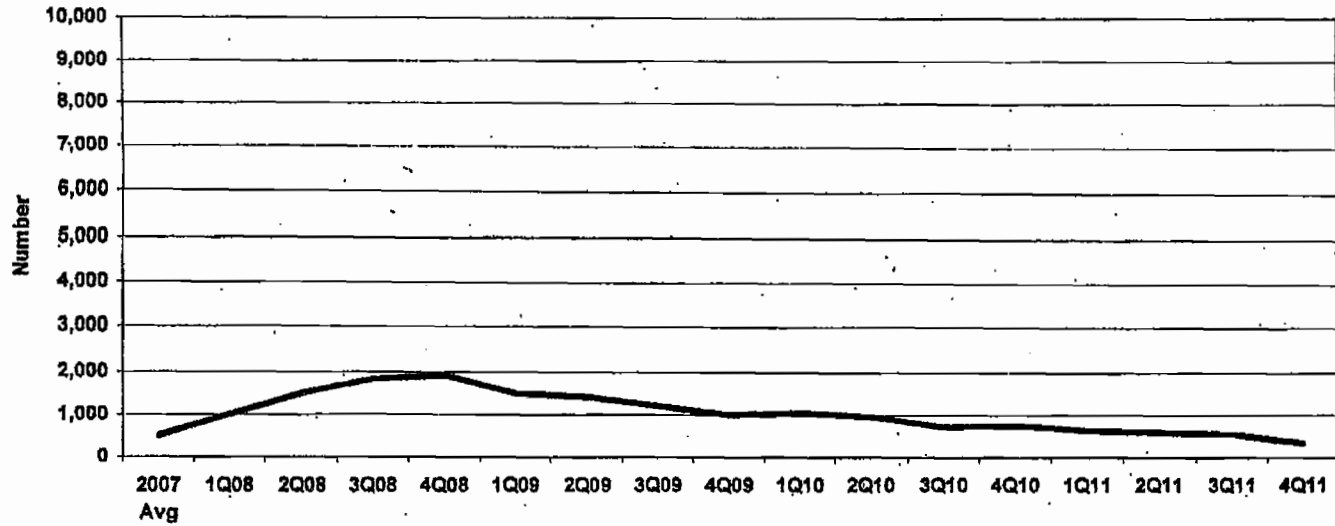
BCTD Labor Demand Survey Finding Area Data

	2008				2009				2010				2011				
	2007 Average	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Illinois	4,471	7,438	9,101	9,382	8,698	9,765	10,042	10,389	9,334	9,340	10,340	9,918	8,698	8,435	7,655	4,420	3,436
Indiana	1,624	5,348	6,069	6,410	6,626	6,841	6,618	5,030	5,005	4,653	4,683	1,156	953	740	540	345	226
Michigan	725	270	1,500	1,680	1,860	2,385	2,995	3,875	4,280	4,525	4,885	4,610	4,650	3,305	3,065	2,275	1,045
Missouri	4,302	5,293	6,145	6,900	7,568	7,257	6,813	6,393	5,020	3,967	3,132	2,976	2,158	1,345	1,990	2,445	2,895
Ohio	3,436	5,089	6,069	5,833	6,174	6,437	6,294	7,277	7,027	6,319	4,724	3,094	2,343	1,492	657	657	657
Wisconsin	2,823	2,930	2,679	3,075	3,006	3,020	2,785	2,790	2,865	2,223	2,173	2,293	2,090	1,900	590	0	0

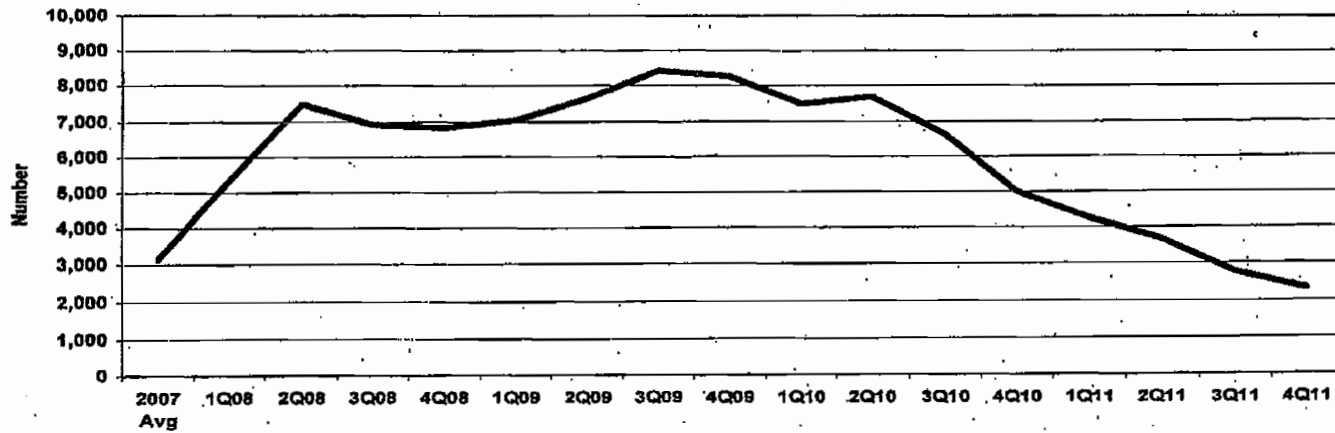
Appendix A

Craft Labor Demand

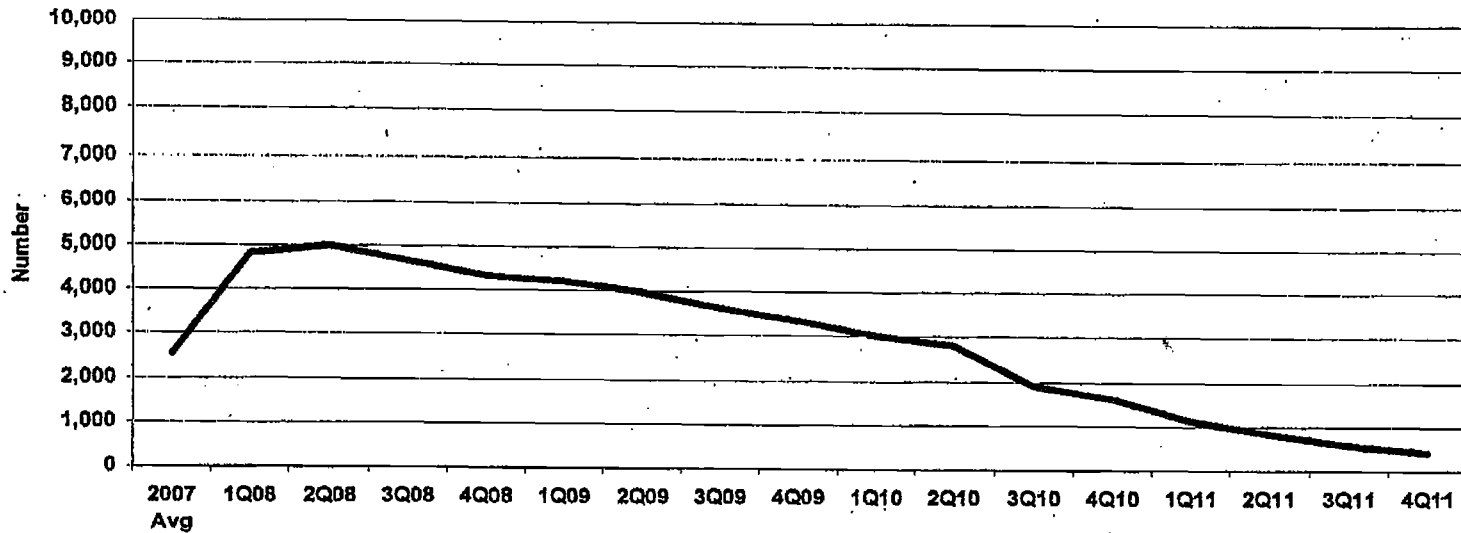
Projected Construction Worker Demand
Major Industrial Projects
Insulators



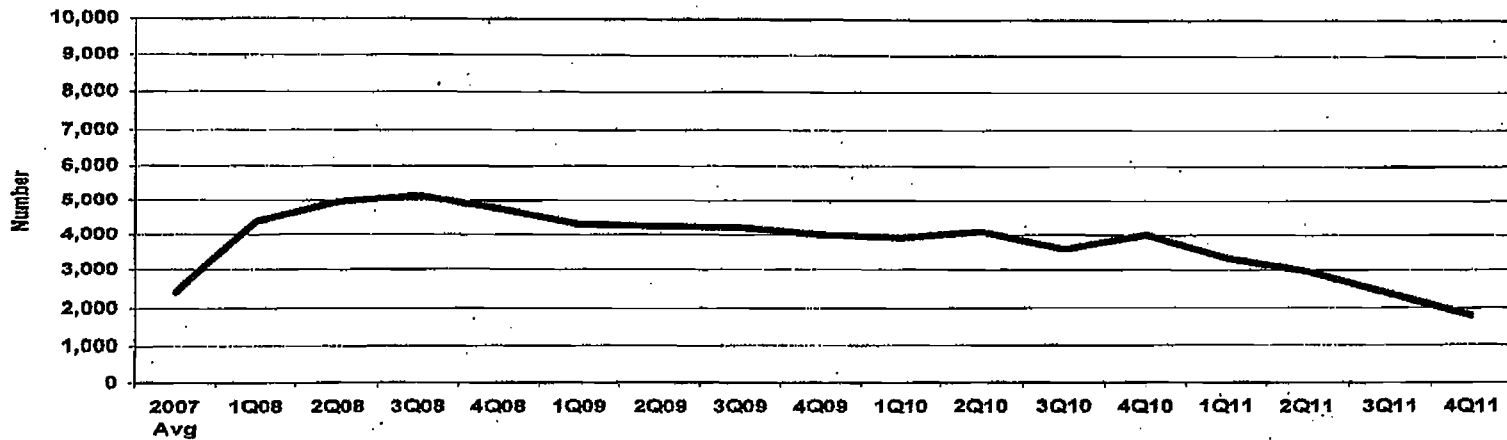
Projected Construction Worker Demand
Major Industrial Projects
Boilermakers



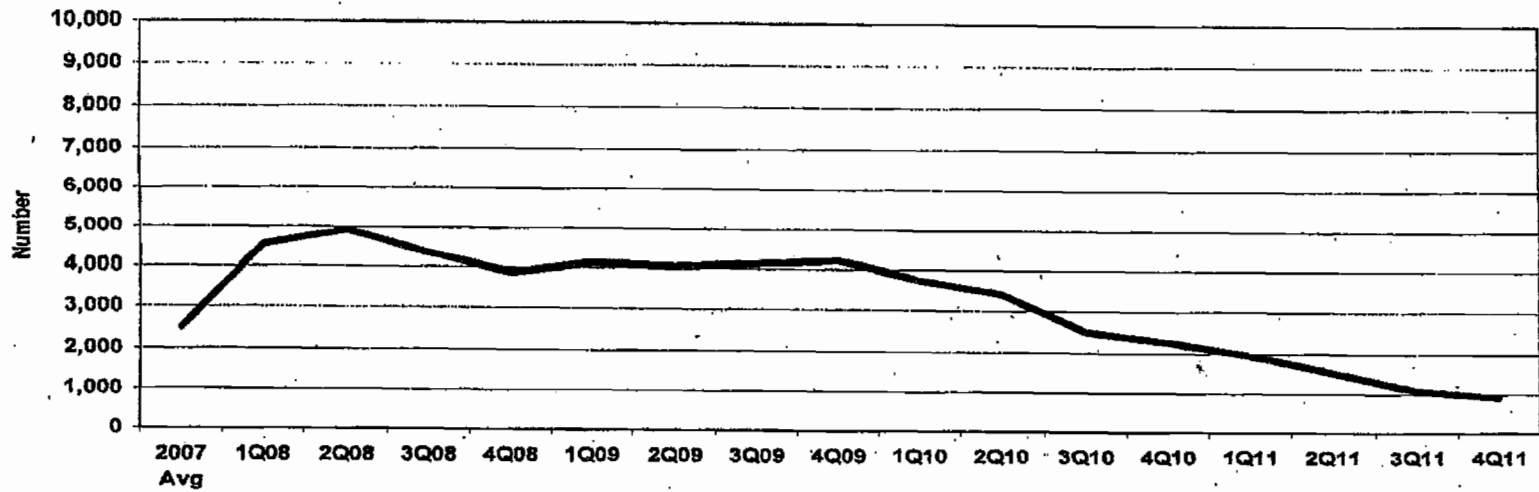
Projected Construction Worker Demand
Major Industrial Projects
Carpenters



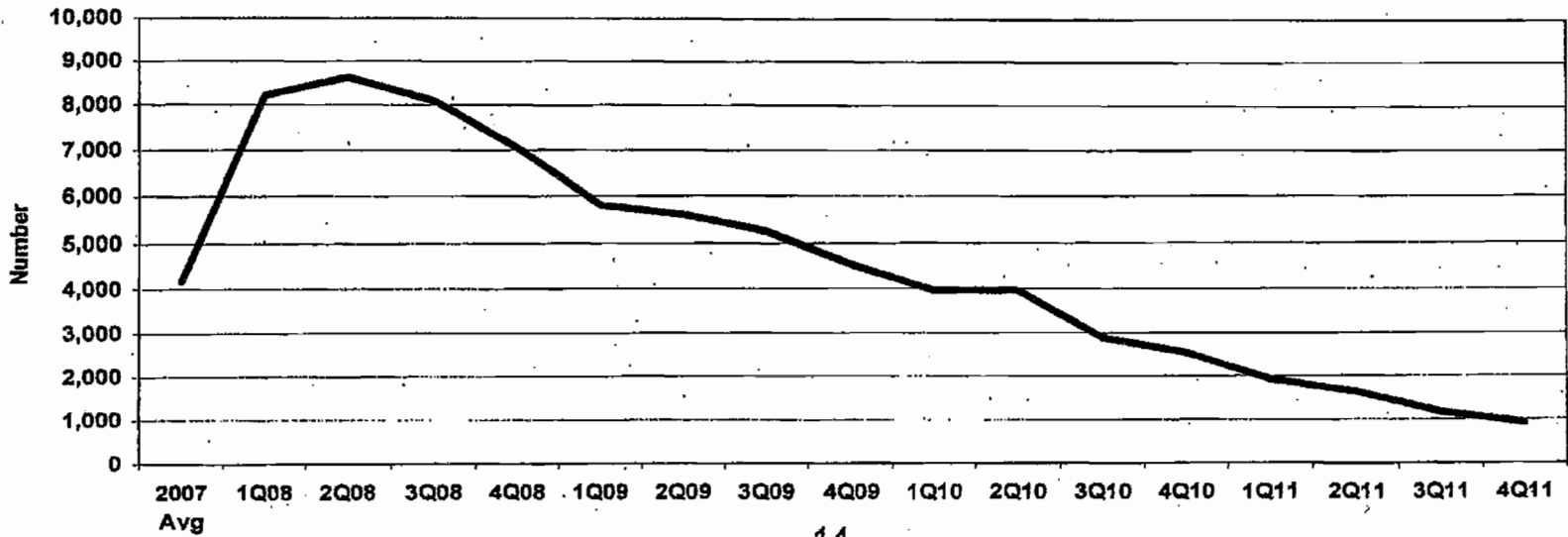
Projected Construction Worker Demand
Major Industrial Projects
Electricians



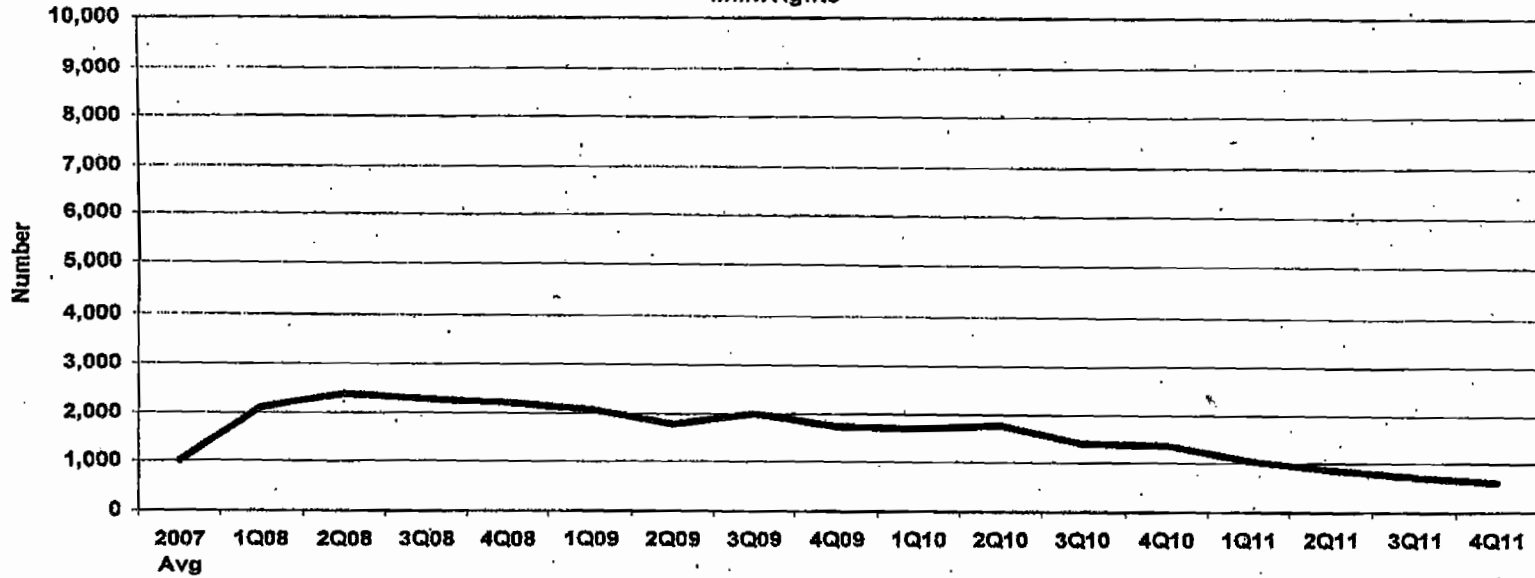
Projected Construction Workers Demand
Major Industrial Projects
Ironworkers



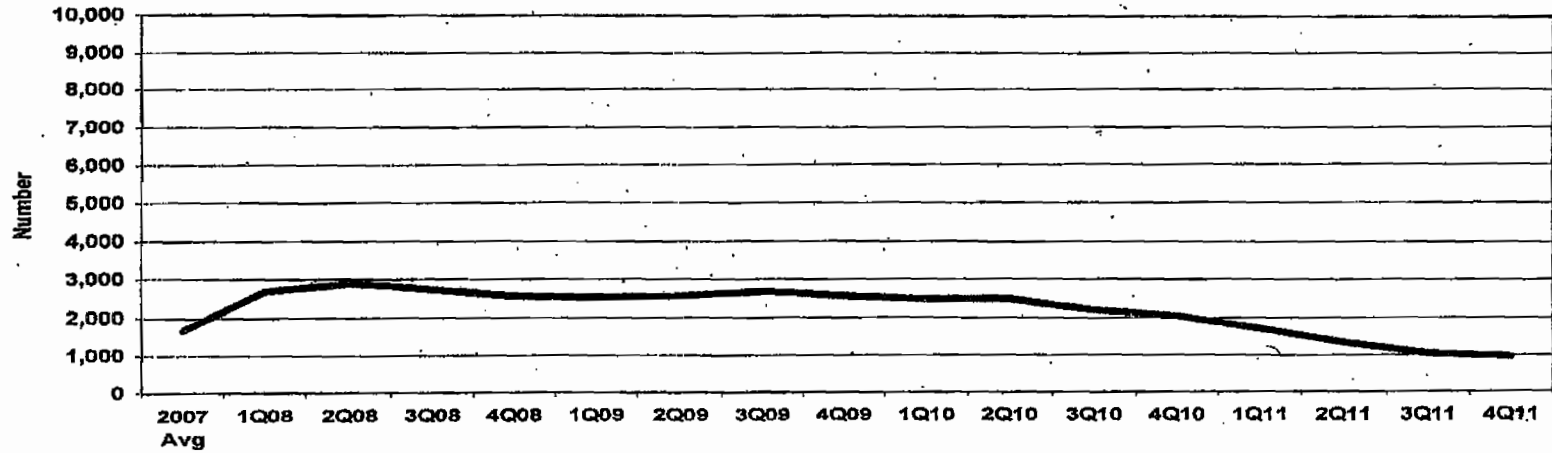
Projected Construction Workers Demand
Major Industrial Projects
Laborers



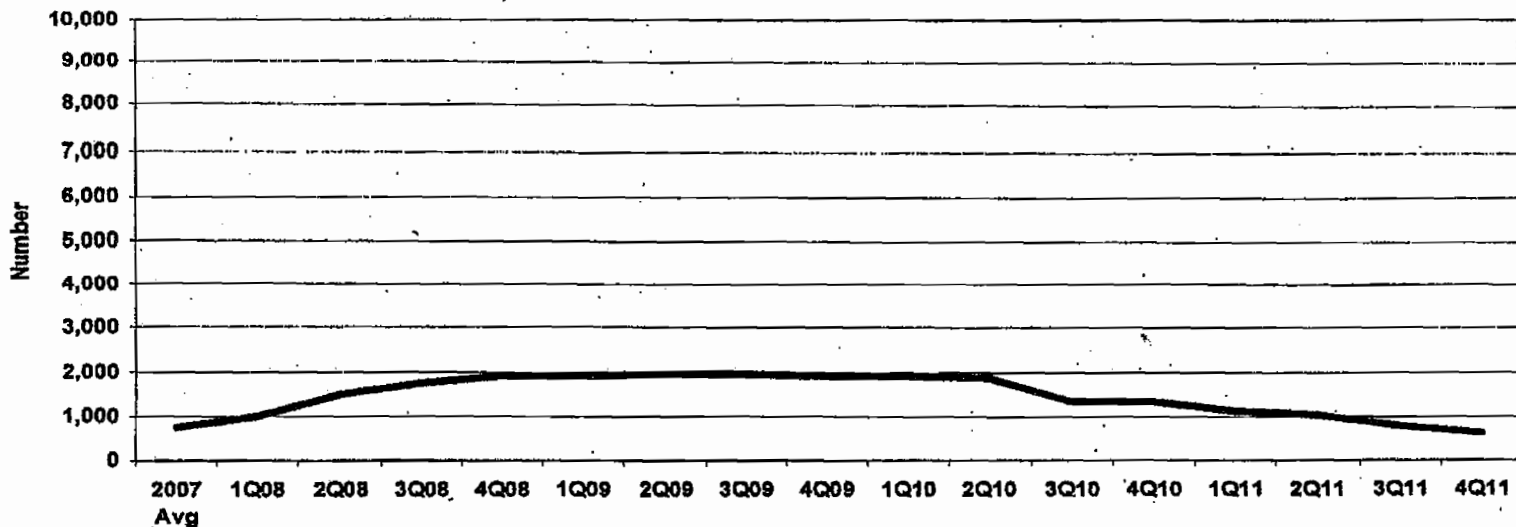
Projected Construction Workers Demand
Major Industrial Projects
Millwrights



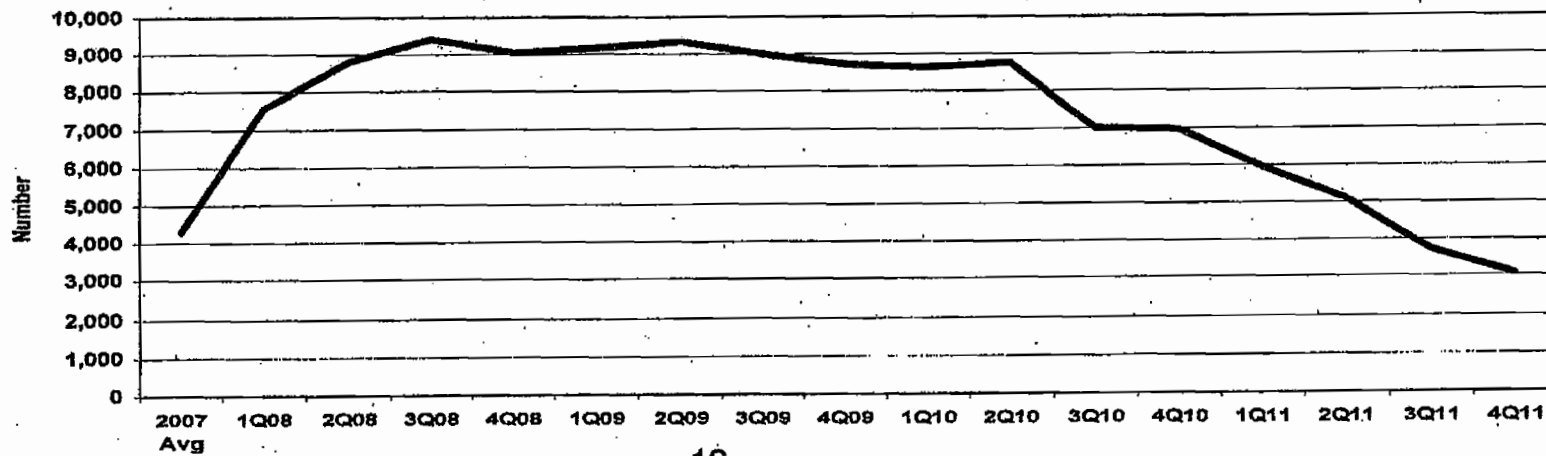
Projected Construction Workers Demand
Major Industrial Projects
Operating Engineers



**Projected Construction Workers Demand
Major Industrial Projects
Painters**



**Projected Construction Workers Demand
Major Industrial Projects
Pipefitters**



Appendix B

Area Labor Data

BCTD Craft Labor Demand Study

Major Industrial Projects - Midwest
Illinois

<u>Craft</u>	<u>Base Employ 2007 Average</u>	<u>Peak</u>		<u>Increase to Peak</u>	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	749	2,649	3Q10	1,900	254
Carpenters	348	879	1Q09	531	153
Electricians	501	1,120	4Q10	619	124
Insulators	95	285	1Q09	190	200
Ironworkers	470	1,275	3Q09	805	171
Laborers	594	1,110	3Q09	516	87
Millwrights	208	565	2Q10	357	172
Operating Engineers	300	615	2Q10	315	105
Painters	185	505	2Q11	320	173
Pipefitters	930	2,274	2Q10	1,344	145
Teamsters	64	147	3Q10	83	130
Total	4,471	10,389	3Q09	5,818	132

Indiana

<u>Craft</u>	<u>Base Employ 2007 Average</u>	<u>Peak</u>		<u>Increase to Peak</u>	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	168	1,015	3Q08	847	504
Carpenters	201	859	1Q09	658	327
Electricians	130	575	1Q09	445	342
Insulators	60	365	4Q08	308	508
Ironworkers	222	620	1Q08	398	179
Laborers	348	1,005	1Q08	657	189
Millwrights	55	365	4Q08	310	564
Operating Engineers	100	340	4Q08	240	240
Painters	34	525	1Q09	491	
Pipefitters	296	1,800	1Q09	1,504	508
Total	1,623	6,841	1Q09	5,218	322

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Michigan

<u>Craft</u>	Base Employ <u>2007 Average</u>	<u>Peak</u>		Increase to Peak	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	144	1,065	2Q10	921	640
Carpenters	29	460	4Q09	431	
Electricians	112	470	4Q10	358	320
Insulators	25	170	4Q10	145	580
Ironworkers	35	570	1Q10	535	
Laborers	56	555	4Q09	499	891
Millwrights	32	285	3Q10	253	791
Operating Engineers	42	275	4Q10	233	555
Painters	52	360	4Q10	308	592
Pipefitters	184	1,125	4Q10	941	511
Total	725	4,885	2Q10	4,160	574

Missouri

<u>Craft</u>	Base Employ <u>2007 Average</u>	<u>Peak</u>		Increase to Peak	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	494	1,374	1Q09	880	178
Carpenters	445	607	3Q08	162	36
Cement Masons	64	153	3Q08	89	139
Electricians	436	809	3Q09	373	86
Insulators	101	225	2Q09	124	123
Ironworkers	647	857	4Q08	210	32
Laborers	681	964	4Q08	283	42
Millwrights	184	443	4Q08	289	141
Operating Engineers	334	540	3Q08	206	62
Painters	168	389	3Q09	221	132
Pipefitters	662	1,219	4Q08	557	84
Teamsters	67	134	4Q08	67	100
Total	4,302	7,568	4Q08	3,266	76

Ohio

<u>Craft</u>	Base Employ <u>2007 Average</u>	<u>Peak</u>		Increase to Peak	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	542	1,242	3Q09	700	129
Carpenters	283	639	1Q08	356	126
Electricians	347	814	4Q08	467	135
Insulators	98	195	4Q09	97	99
Ironworkers	320	655	3Q08	335	105
Laborers	436	708	1Q08	272	62
Millwrights	142	338	4Q09	196	138
Operating Engineers	204	388	4Q09	184	90
Painters	161	428	4Q09	267	166
Pipefitters	866	1,804	3Q09	938	108
Teamsters	30	92	3Q09	62	207
Total	3,436	7,277	3Q09	3,841	112

Wisconsin

<u>Craft</u>	Base Employ <u>2007 Average</u>	<u>Peak</u>		Increase to Peak	
		<u>Number</u>	<u>Period</u>	<u>Number</u>	<u>Percent</u>
Boilermakers	592	775	3Q07	183	31
Carpenters	140	332	4Q09	192	137
Electricians	373	568	4Q07	195	52
Insulators	45	135	3Q09	90	200
Ironworkers	228	300	3Q07	72	32
Laborers	231	467	1Q09	236	102
Millwrights	165	230	3Q07	65	39
Operating Engineers	121	173	1Q08	52	43
Painters	119	200	4Q09	81	68
Pipefitters	725	1,038	3Q07	313	43
Total	2,822	3,871	3Q07	1,049	37