



**IV PREFACE**

**V ACKNOWLEDGEMENTS**

**01**

**INTRODUCTION TO INTERNATIONAL CONSTRUCTION**

- 01** Introduction to Global Construction  
**10** 54 # N.A. / Global Benchmarks  
**90** General Comments on Global Engineering, Procurement and Construction Issues

**02**

**2023 COST DATA RELATED TO (101) SPECIFIC COUNTRIES**

- 105** Reference Maps  
**108** General Notes  
**109** Afghanistan  
**110** Albania  
**111** Algeria  
**112** Angola  
**113** Argentina  
**117** Armenia  
**118** Australia  
**131** Austria  
**132** Azerbaijan  
**133** Bahrain  
**136** Bangladesh  
**137** Belarus  
**138** Belgium  
**141** Belize  
**142** Benin  
**143** Bolivia  
**145** Bosnia  
**146** Brazil  
**150** Bulgaria  
**151** Burkina Faso  
**152** Canada

166	Chad
167	Chile
169	China
186	Colombia
188	Cyprus
190	Czech Republic
193	Denmark
197	Ecuador
199	Egypt
212	Equatorial Guinea
213	Estonia
214	Finland
216	France
231	Georgia
232	Germany
247	Ghana
248	Greece
250	Guinea
251	Hong Kong
253	Hungary
257	India
262	Indonesia
274	Iraq
275	Ireland
286	Israel
288	Italy
301	Japan
315	Jordan
316	Kazakhstan
317	Kenya
318	Kuwait
322	Kyrgyzstan
323	Laos
324	Latvia
325	Lebanon
327	Liberia
328	Lithuania
329	Madagascar
330	Malaysia
335	Mexico
349	Mongolia
350	Morocco
351	Netherlands (The)
364	New Zealand
367	Nigeria

379	Norway
390	Oman
391	Pakistan
393	Panama
394	Peru
396	Philippines
398	Poland
409	Portugal
413	Qatar
416	Romania
418	Russia
422	Saudi Arabia
436	Serbia
438	Singapore
440	South Africa
452	South Korea
465	Spain
478	Sri Lanka
479	Sweden
492	Switzerland
496	Taiwan
497	Tajikistan
498	Tanzania
499	Thailand
501	Trinidad
502	Turkey
514	UAE
516	Uganda
517	United Kingdom
533	Ukraine
535	Uruguay
536	United States of America
564	Uzbekistan
566	Venezuela
567	Vietnam
569	Miscellaneous / S.E. Asia 2023 Cost Comparison Data
570	International Office Rental Rates
576	Abbreviations and Conversion Values and Factors

## 03

### THE 2023 MISCELLANEOUS GLOBAL CONSTRUCTION REFERENCE DATA

577	General information and where to find global cost data
585	Metric considerations
587	U.S. Government / General Information Sources
589	About the firm

countries are home to future consumers of U.S. products. The other event is the dramatic growth in the world's population. This growth is primarily in third-world countries in Asia, Africa, and South America. North American construction organizations, together with their rivals in Western Europe and Japan, realize that the future growth will be in the less developed nations of the world. These countries will require housing, roads, schools, hospitals, airports, and so forth to support the growth of their populations. The worldwide marketplace for construction-related services, that is, engineering, procurement, management (both project and construction), materials, and capital equipment, is a highly competitive one in which mistakes can prove to be very expensive (see table below for 2023 expenditure forecast by world region). However, for organizations that break into this segment of the market there are substantial growth possibilities, as well as the potential for sizable returns on equity that can be reinvested back into the organization.

Comparing costs related to construction facilities or buildings from one country to another is very difficult. Every country is unique and has its own pre-established engineering and construction processes; each has its own design standards and building regulations; worker productivity differs significantly, as do labor costs, construction materials, import taxes, inflation rates, and weather conditions. These are just a few of the elements that can impact the estimated cost of an overseas construction project. Thus,

compiling a cost estimate for an overseas project is typically a much more difficult task than producing an estimate for a building or facility in North America (or perhaps Western Europe), for which the estimator often has at his disposal substantial estimating / cost information and historical cost data, together with a number of current cost estimating manuals. The globalization of the "process / manufacturing industries" continues to influence North American Fortune 500 and Western European companies and ENR 400 contracting organizations (Major Engineering, Procurement and Construction firms). In 2000, this construction sector spent in the region of \$35 billion on refineries, chemical plants and manufacturing facilities, this expenditure value declined to slightly less than \$15 billion in 2006, a gigantic 60+% drop, this has resulted in corporate engineering groups and contractors in significantly reducing staffing levels in the last 5 – 10 years, engineers / architects and estimators are now required to be more productive and to be multi - skilled. This situation in 2023 has now reversed itself; the energy / shale gas and power sectors are now a market of more than \$50 billion per year. There is now a "dire" shortage of construction professionals and skilled workers especially in the US Gulf Coast and Shale Gas regions; look for this situation to last for the next five years. To see how things have changed in this industry is the fact that China will have a construction market as large as or bigger than the USA in the next five years, the lion's

## Expenditure Forecast

### BY WORLD REGION

REGIONS	2022*	PERCENTAGE	2023*	PERCENTAGE
North America	2.04	26%	2.06	26%
South America	0.66	8%	0.68	8%
Europe	2.15	28%	2.17	28%
Middle East / Africa	0.87	11%	0.89	11%
Asia	1.97	26%	2.00	26%
<b>TOTAL</b>	<b>7.69</b>	<b>100%</b>	<b>7.80</b>	<b>100%</b>

\* In trillions of US dollars • Note: this equates to a growth of 1.1% over 2022 expenditures.

**Table 9**  
**INDUSTRIAL / CHEMICAL TYPE FACILITIES**

TYPE OF PLANT	LOW RANGE M.E. MULTIPLIER	MEDIAN M.E. MULTIPLIER	HIGH RANGE M.E. MULTIPLIER
Chemical - Liquids	3.75	5.00	6.25
Chemical - Liquids / Solids (Hybrid)	3.25	4.50	5.75
Chemical - Solids	2.50	3.75	5.25
Ethanol Facility (corn / sugar cane)	2.75	3.25	3.75
Pharmaceutical	1.75	2.50	4.50
Power	2.00	3.30	4.00
Steel	1.50	2.00	2.50

• *Low Range: Typically is an open structure, has a high level of carbon steel piping, an unsophisticated instrumentation / control system, open shop construction workforce and a normal construction schedule. Solids has a limited amount of piping, the major equipment is usually material handling - conveyors, crushers and grinders.*

• *Median Range: Typically is a combination of enclosed / open structure, has an assortment of carbon steel and stainless steel piping (60% C.S. and the balance S.S. or better), a reasonably sophisticated instrumentation / control system, open shop or a combination of union construction workforce and a normal construction schedule.*

• *High Range: Characteristically the major equipment is housed in an enclosed structure / building, has an assortment of carbon steel and a high content of stainless steel piping (30% C.S. and the balance 70% S.S. or better), has a state of the art instrumentation / control system – TDC 3000 or equal, open shop or a combination of union construction workforce and a fast track construction schedule, is a hazardous process, is based on new technology.*

**Table 10**  
**GENERAL BENCHMARKS**

REF	DESCRIPTION	RANGE	COST OF FACILITY	COST OF ACTIVITY
1	Off sites (OSBL)	5%-50% of Inside Battery Limits (ISBL)		
2	Fringes (vacations, holidays, sick days)	22%-30% of base wage rate		
3	Worker Compensation Insurance	10%-17.5% of base wage rate		
4	Inspections / QA-QC services	1.5% of TIC		
5	Front End Studies / Scoping study / BOD	0.5-2.5% of TIC of facility	\$1 - \$100 + million	
6	Builders all risk insurance (BAR)	0.15%-0.60%	\$1 - \$100 + million	
7	Contractors O/H (Supporting construction / field activities)	4.00%-15.00%		
	<b>COMMENTS:</b> The larger the TIC value of the project, the lower the % typically is.			

## Table 37

**CAPEX & OPEX 50,000 B/D OIL PROCESSING REFINERY USA GULF COAST 2018  
 BASED ON (3) SIMILAR SIZED COMPLETED REFINERIES. OPEN SHOP LABOR (I.E. NON-UNION)**

#	DESCRIPTION / OPERATING UNIT	M.E. / TAGGED ITEMS / BULK MATERIAL % SPLIT	LABOR % SPLIT INCLUDING IN-DIRECTS	LOW \$ COST MILLIONS	HIGH \$ COST MILLIONS
1	Atmospheric / Vacuum Condensate Distillation Unit including Piping, E&I, Isulation, painting & field indirects	62	38	102.6	200.1
2	Isomerisation ditto	65	35	44.3	86.4
3	FCC / Cat Cracker / Catalytic Reformer ditto	62	38	116.2	226.6
4	Alkylation Unit ditto	65	35	2.9	5.7
5	Kerosene Unit ditto	65	35	2.4	4.7
6	Diesel Hydrotreater ditto	62	38	5.5	10.7
7	Amine Unit ditto	65	35	10.7	20.8
8	Saturated Gas Unit ditto	65	35	15.3	29.9
9	Naphtha Hydrotreater ditto	65	35	57.8	112.6
10	Lube Oil Unit ditto	65	35	6.9	13.5
11	Delayed Coker Unit ditto	65	35	4.3	8.4
12	Sour Water Stripper Unit ditto	62	38	10.0	19.5
13	Dewaxing Unit ditto	60	40	3.5	6.9
14	Caustic Unit ditto	60	40	6.1	11.9
15	LPG Unit ditto	65	35	3.3	6.4
16	Sulphur Recovery Unit ditto	60	40	12.2	23.8
17	Claus / Tail Gas Unit ditto	60	40	1.9	3.8
18	Desalter Unit ditto	60	40	1.2	2.3
19	Hydrogen / Pressure Swing Absorption Unit ditto	65	35	3.9	7.5
20	Waste Water Treatment Unit ditto	50	50	9.3	18.1
21	Utilities: Power, Water, Steam ditto	60	40	55.5	108.3
22	Control Building / Admin Facility ditto	50	50	0.8	1.6
23	Communications / Fire Protection / Safety Showers ditto	60	40	0.9	1.8
24	Site Preperation / Civil / Foundations / Structural Steel ditto	50	50	7.3	14.2
<b>25</b>	<b>ISBL / PROCESS UNITS S/T</b>			<b>484.8</b>	<b>945.5</b>
<b>26</b>	<b>OSBL / UTILITIES</b>				
27	Power Generation Facility including Piping, E&I, Isulation, painting & field indirects	65	35	12.8	25.0
28	River Water Intake Structure ditto	60	40	12.2	23.8
29	Steam / Boilers ditto	65	35	6.2	12.1
30	Cooling Water System ditto	60	40	3.0	5.9
31	Pipe Racks ditto	60	40	2.2	4.3
32	OSBL Piping ditto	62	38	5.7	11.1
33	Flares ditto	65	35	1.5	3.0
34	Tank Farm ditto (1,000,000 barrel storage)	70	30	16.7	32.6
35	Pipeline ditto	70	30	1.5	2.9

## Table 50

**MEDICAL DEVICE PRODUCTION FACILITY - NORTH EAST USA**  
**225,323 SF FOOTPRINT LOCATED +/- 20 ACRES**  
**2020 COST BASIS**

#	DESCRIPTION	AREA	UOM	\$/SF	\$ COST
1	Office - Admin / Data Building / Lab Area / Cafeteria	48,245	SF	283.56	13,680,409
2	Initial Mixing /Production Area	39,820	SF	404.94	16,124,630
3	Filling / Bagging Area	25,173	SF	297.84	7,497,586
4	Fabrication Area / Clean Room Suite / Hi-Speed Packaging Area	40,932	SF	497.76	20,374,412
5	Final Inspection Area	27,233	SF	292.74	7,972,247
6	Clean Warehouse / Storage Final Product Area	43,919	SF	226.44	9,945,064
7	General Conditions / Preliminaries / Site Establishment	225,323	SF	28.48	6,416,833
8	Site Clearence / Site Work / Incoming Utilities / Roads & Parking Area	865,000	SF	16.88	14,601,200
9	Site Clearence / Site Work / Incoming Utilities / Roads & Parking Area	29,960	SF	195.54	5,858,378
10	Gate House / Fencing / WWT Plant & Truck Parking	18,660	SF	220.56	4,115,650
<b>11</b>	<b>TOTAL CONSTRUCTION</b>				<b>106,586,408</b>
12	Detailed Design + fee				10,967,980
13	Construction Management + fee				9,768,556
<b>14</b>	<b>\$ COST SPECIFIC TO 225,323 SF</b>	<b>225,323</b>	<b>SF</b>	<b>565.07</b>	<b>127,322,944</b>

SAMPLE

# Czech Republic

## FACTS IN BRIEF

- Official name: Czech Republic
- Currency: Koruna
- Population: 11.30 million (est. 2023)
- Gross domestic product: \$220 billion (2022)
- Population growth: 0.10% per year
- Exports: \$141 billion (2022)
- Capital: Prague 1,300,000
- Imports: \$139 billion (2022)
- Language: Czech
- Weights/measures: Metric
- Area: 78,700 km<sup>2</sup>
- Chief products: Capital equipment, minerals, Chemicals metals
- Type of government: Parliamentary democracy
- Life expectancy: Male-74.2 years, female 79.6 years



## ECONOMIC FORECAST

The ongoing conflict in Ukraine and the possibility of natural gas shut-off is a major concern as we move into 2023. The Czech economy / construction sector is forecast to start moving slightly lower in 2023, now that the worse of the Covid-19 pandemic is over. GDP per Head is forecast to be \$23,000 and the inflation

rate is forecast to be in the 2.8% - 4.9% range.

The Czech Republic has been the benefactor of significant foreign direct investment (FDI) in the last five to seven years, attracting more than \$20 billion (automobiles, manufacturing and capital goods). Automobile production in the Czech Republic increased and is in the 600,000+ range, this is expected to increase by 50% in the next five years. Construction of Japanese and South Korean auto facilities are in the planning stage, some of these facilities are slated for Zlinsky Kraj / Moravia region in the eastern area of the Czech Republic. GDP growth is forecast to be 2.5% - 3.2% in 2023. Covid-19 has been a serious issue for the Czech economy and construction sector in 2021 and 2022.

## ARCHITECTURAL / ENGINEERING RATES

The rates that follow are “all in” hourly job rates for various construction professionals and are appropriate for 2023. They include employees’ salaries, workers’ compensation insurance, social security payments, health insurance premiums, unemployment insurance, vacation and holiday payments, establishment charges, overhead, mark-ups, and profit. The rates shown are for the Prague area and reflect individuals with at least 10 years experience.

SKILL	\$ LOW	\$ HIGH
Architect	48	65
Mechanical engineer	47	65
Electrical engineer	50	67
Estimator	38	60
Designer	30	48
Site manager (does not include temporary living allowance)	45	65

The above rates are applicable for residential / commercial type construction. For work associated with Process / Refinery / Chemical facilities the above rates should be increased by 15% - 30%.

## ENGINEERING PRODUCTIVITY / DESIGN WORK

The following figures show a range of productivity values: (1) Washington, DC (2) Houston Texas,



and (3) Prague, in the Czech Republic. The productivity factors are compared against a U.S. basis of 1.00 – Washington DC, engineering labor working on producing the necessary design deliverables for a midsize petro-chemical / manufacturing facility (say \$10 – \$50 million).

REF. #	LOCATION	PRODUCTIVITY VALUE
1	Washington, DC	1.00
2	Houston, TX	0.95
3	Prague, in the Czech Republic	1.15 – 1.25

### CONSTRUCTION LABOR HOURLY RATES

The following are “selling rates” for skilled and unskilled construction workers; these are the hourly billing rates that a contractor would charge an owner. They include base wage rate, insurance, fringes, burdens, holidays, small tools, and training levies, plus all applicable overhead and profit. The rates have been adjusted for 2023.

SKILL	\$ LOW	\$ HIGH
Carpenter	19.00	33.50
Mason	19.00	33.50
Pipefitter	20.00	35.00
Electrician	20.00	35.00
Unskilled Worker	12.00	20.00

### APPROXIMATE COST OF BUILDINGS/FACILITIES

The following square-meter and square-foot values include all materials, labor, plant, general conditions, overhead, and profit. Excluded are owners’ costs such as furniture, equipment, land purchase, design fees, and major items outside the facility’s footprint. The numbers have been adjusted to reflect 2023 pricing levels.

		\$ LOW	\$ HIGH
Warehouse / Distribution center	m2	473	915
	ft2	44	85
Factory / Industrial building	m2	570	958
	ft2	53	89
Office Building	m2	1,506	1,937
	ft2	140	180
Apartments (medium quality)	m2	1,130	1,775
	ft2	105	165

### UNIT PRICES (LABOR & MATERIAL, INCLUDING O/H & PROFIT)

DESCRIPTION	UNIT	\$ COST
Excavate for foundation n/c 1.5M	M3	15-23
Reinforced concrete foundation (MPa 30) incl. rebar & formwork	M3	320-585
Block wall 9” thick	M2	50-100
PCC wall 3” thick	M2	150-300
Curtain wall / window system	M2	485-850
Single door c/w frame & hardware	No	600-700
FP system	M2	24-37
EPDM Roofing System	M2	22-37

### LOCATION FACTOR

For chemical/process/manufacturing construction projects with a high content of imported engineered equipment and construction materials: **0.94**

For buildings/facilities/civil-type construction projects with high content of locally produced engineered equipment and construction material: **0.91**

If the above project is for a “first of its kind” building / facility (construction effort will initially experience a steep learning curve) add 0.03 – 0.05 points to above location factors. If company has built or has operating facilities already in country, use above values:

### LABOR PRODUCTIVITY RANGE

- **Good:** 1.15
- **Average:** 1.30
- **Bad:** 1.50

### INFLATION

- **2001:** 5.0%
- **2002:** 5.0%
- **2003:** 1.9%
- **2004:** 1.8%
- **2005:** 2.3%
- **2006:** 3.5%
- **2007:** 2.8%
- **2008:** 4.5%
- **2009:** 6.5%
- **2010:** 3.0%

# Poland

## FACTS IN BRIEF

Official name: Republic of Poland
Currency: Zloty
Population: 39.6 million (est. 2023)
Exports: \$127 billion (2019)
Population growth: 0.10% per year
Imports: \$134 billion (2019)
Capital: Warsaw 1,900,000
Weights / measures: Metric
Language: Polish
Chief products: Steel, Iron, Capital Equipment, Agricultural Products Chemicals and Coal
Area: 312,650 km <sup>2</sup>
GDP: \$553 billion (2023)
Highest elevation: Rysy, 2,499 m
GDP per Head: \$15,700 (2022)
Type of government: Republic
Life expectancy: Male 73.7 years, female 80.8 years



## GENERAL BACKGROUND

### LOCATION

Poland is located south of the Baltic Sea in north-central Europe. Poland's Neighbors are Germany to the west, Lithuania and Russia to the east, and Belarus, the Czech Republic, Slovakia, and Ukraine to the south.

### LAND

The vast majority of Poland consists of flat rolling plains, but parts of southern Poland are mountainous. To the southwest, lies the Sudeten mountain range, and to the extreme south is the Carpathian range, which forms Poland's border with Slovakia. Mount Rysy is Poland's highest mountain (2,499 m) and is located in the western Carpathians. The Vistula is Poland's largest river at 1,100 kilometers. It flows from Carpathians north to the Baltic Sea. The northern Baltic coastal region consists of dunes and swamp. Almost 30% of Poland is covered by forest. Poland is slightly smaller than the state of New Mexico.

### CLIMATE

Poland's climate has many variations. The northern coastal region typically has milder weather than the central and southern regions. Poland has cold winters and mild summers. Warsaw averages 25°F / -4°C in January and 66°F / 19°C in July. Annual average rainfall is 22-inches / 560 mm.

### PEOPLE

Over 95% of the inhabitants are Poles, descendants of Slavic tribes that settled on the Vistula over 2000 years ago. Polish, the official state language is similar in many ways to the Czech and Slovak languages. Prior to World War II, Poland was a country with many minorities: Germans, Ukrainians, Czechs, and Jews. Most of these inhabitants were either killed during or relocated after the end of the war. Ninety-five percent of Poland's population is Roman Catholic; the remaining 5% is Protestant or Eastern Orthodox.

## POPULATION

Poland's total population in 2023 was 39,000,000. Approximately 60% of the population lives in urban areas. Poland's population density is 124 people per square kilometer.

## LARGEST CITIES

The largest cities in Poland, with their populations as of 2023, are as follows:

- **Warsaw (capital):** 950,000
- **Lodz:** 900,000
- **Krakow:** 850,000
- **Wroclaw:** 750,000
- **Poznan:** 650,000
- **Gdansk:** 525,000
- **Szczecin:** 500,000

## HISTORY

Slavic tribes settled in what is now known as Poland approximately 2,000 years ago. The Polish empire reached its peak in the 1500s. In 1772, Russia, Prussia, and Austria partitioned Poland. In 1918, Poland was proclaimed an independent republic. At the end of the war in 1945, a communist government was established.

Labor unrest resulted in the formation of Solidarity, an organization of trade unions that confronted the communist regime in the 1980s. A new Constitution came into effect in 1992.

## GOVERNMENT

Poland is divided into 49 provinces. It has a bicameral legislature. The 100-member upper house is known as the Senate. The lower house, called the Sejm, has 460 members. Poland's voters elect members of both houses to four-year terms. The prime minister and a cabinet, who are responsible to the Sejm, hold executive power. The head of state is the president, who is elected for a six-year term by both the upper and lower houses.

## ECONOMY

Poland is currently continuing in making the transition

from a government-controlled to a free market-economy. Poland has significant manufacturing capacity; however, much of the manufacturing equipment and facilities are old and need to be modernized for Poland to compete in the global marketplace. Privatization is expected to continue through the decade. This is expected to have a positive effect on the Polish economy and should stimulate foreign investment. The gross national product in 2023 is forecast to be \$553 billion, with a national product per capita of \$15,700. Poland's main trading partners are Germany, Russia, the United Kingdom, France, and Switzerland. Poland looks set to see slow growth in 2023; it weathered the financial downturn better than most of its neighbors.

## COMMUNICATIONS

- **Highways:** There are approximately 250,000 miles / 400,000 km of highways and roads.
- **Railways:** There are approximately 17,600 miles / 28,000 km of rail track currently being utilized.
- **Telephones:** Approximately 33 million telephones are in use in Poland.

## GENERAL POLITICAL – ECONOMIC / CONSTRUCTION INDUSTRY FORECAST

The year 2023 will be a difficult one for the Polish construction industry. Supply chain problems, sky-high inflation, material shortages, the ongoing war between Russia and Ukraine, the resurgence of Covid in some countries, and the possibility of a global recession are the major challenges in 2023. Inflation is expected to be between 3.3% and 6.6% and unemployment should be 6% to 9% in 2023. There are still a lot of new roads, airports and rail related projects still to be designed and constructed in the next five to ten years. Poland has attracted significant foreign direct investment (FDI) in the last five to seven years, and now Poland is playing a catch up game to develop its basic infrastructure (roads, airports, ports, railways, power grid) to be able to support the huge foreign direct investment. Some of the positive attributes that Poland possesses are:

- One of the youngest populations in the EU, 50%

Poland has its' own national building regulations and codes. Local government agencies review and audit the construction process. American standards such as those of the American Society of Mechanical Engineers, the German DIN and British Standards are known in Poland and are used in some situations. Poland industry is capable of producing the vast majority of its basic construction products. The quality of these products is fair. Delivery time for locally constructed products can be longer than in western European or North America. Complex materials and equipment are usually imported from either Western Europe or from the U.S.

Joining the European Union in May of 2004 was a huge boost for the Polish construction industry; the Polish construction industry is expected to decline by 5% to 10% in 2023 as a result of the virus and the global economic recession. Lower Polish production costs will continue to entice North American and Western European companies to set up business in Poland. The financial state of the Polish industry is slowly but surely improving, this will allow internal investments to improve.

Some of the largest EPC companies in Poland include:

- Budimex S.A.
- Mostostal S.A.
- Kopex S.A.

### CONTRACTING METHODS

Poland's public procurement law (PPL) 29 / January

2004, outlines the requirements of the two procedures open tendering and restricted tendering. Poland is currently making the transition towards a Western-style free market economy. Optimizing government procurement procedures through competitive bidding practices has been a stated goal of the current government. Government procurement procedures can usually be reviewed at one of Poland's embassies or can be obtained directly from the appropriate government agency. In the private sector, the most widely utilized method of contractor selection is competitive lump sum bidding with an increased cost clause to protect the contractor from Poland's high inflation. A bid package consists of drawings, specifications, and a form of contract. Contract award almost always goes to the lowest compliant bidder.

Other procurement options that are available to private sector owners include:

- Design / Build contracts or turnkey contracts management contracts (basically a construction management approach where the owner contracts separately with specialist contractors, each of whom performs a certain element of the work, with a construction manager acting as coordinator)
- Negotiated construction contracts
- Cost reimbursable contracts
- Unit rate contracts (often used for civil engineering-type construction or where the design effort is very preliminary)
- The FIDIC form of contract
- Major Fortune 500 companies doing work in

## Architectural / Engineering Data

### TYPICAL FEES FOR NEW BUILDINGS/FACILITIES IN POLAND

SKILL	UNCOMPLICATED BUILDING/FACILITY	COMPLICATED/ SOPHISTICATED BUILDING/FACILITY
Architectural fee	3.50%	7.00%
Structural Engineering. fee	0.50%	1.00%
Mechanical / Electrical Engineering fee	0.75%	2.00%
Construction Economist	0.50%	0.75%
Other specialist fees	0.25%	0.50%
Total Architectural / Engineering and other consultants fees	5.50%	11.25%

Poland will often use their own standard form of contract, modified to suit local conditions.

### ARCHITECTURAL / ENGINEERING DATA

The previous table shows typical fees for architectural and engineering services on new buildings/facilities in Poland. The fees are based on construction projects valued at \$5 - 50 million and are expressed as a percentage of the final cost of the building or facility (excluding VAT). These fees can vary, depending on location, type and sophistication of building and market conditions.

The hourly rates below are “all in” job rates or selling rates for various construction professionals. They are appropriate for 2023. The rates include employees’ salaries, workers’ compensation insurance, social security payments, health insurance premiums, unemployment insurance, vacation and

SKILL	US \$ LOW	US \$ HIGH
Senior Project Manager (25 years experience)	60	85
Project Manager (10 years experience)	50	70
Chemical Engineer (15 years experience)	40	69
C/S/A Engineer (ditto)	37	66
Mechanical Engineer (15 years experience)	38	67
E&I Engineer (ditto)	40	69
CAD Operator	20	30
Cost Engineer (5 years experience)	34	50
Senior Estimator (10 years experience)	35	54
Quantity Surveyor (10 years experience)	33	52
Planner (5 years experience)	30	48
Purchasing Agent (15 years experience)	32	47
S/C Manager (15 years experience)	34	47
Document Control / Secretary	15	24
Construction Manager (20 years experience)	35	50
Field Engineer	32	43
Safety Engineer	26	37
Construction Inspector	24	37
Architect (10 Years Experience)	48	68

holiday payments, establishment charges, overhead mark-ups, and profit. The rates shown are for the Warsaw area and reflect individuals with a minimum of 10 years experience.

- **Poland: US\$ / Zloty 4.63 – July 25, 2022**

- Polish professional workers typically work 38.5 – 42.5 hours per week and receive 3 – 4 weeks paid vacation, in addition approximately 8 - 12 public holidays are observed, billable hours per year = 1,780 – 1,860 = 1,840 billable hours.

The following hourly rates reflect work in the commercial, industrial and energy construction sector.

### ENGINEERING PRODUCTIVITY DESIGN WORK

The following figures show a range of productivity values: (1) Washington, DC (2) Houston Texas, and (3) Warsaw, Poland. The productivity factors are compared against a U.S. basis of 1.00 – Washington DC, engineering labor working on producing the necessary design deliverables for a midsize petro-chemical / manufacturing facility (say \$10 – \$50 million).

REF. #	LOCATION	PRODUCTIVITY VALUE
1	Washington, DC	1.00
2	Houston, TX	0.95
3	Warsaw, Poland	1.15 – 1.35

### CONSTRUCTION LABOR HOURLY RATES

The table below lists “all in” hourly selling rates for skilled and unskilled construction workers. These are the billing rates that a contractor would charge an owner or end user for work that is either carried out on a time and material basis or included in the “all in” grossed-up labor rates contained in his or her bid. These rates include base wage, insurance, fringes, burdens, holidays, small tools, and training levies, plus all applicable overhead and profit. They have been adjusted to reflect 2023 and are appropriate for the Warsaw area.

- **Poland: US\$ / Zloty 4.63 – July 25, 2022**

- Polish construction workers typically work 38.5 - 42.5 hours per week and receive 2 -3 weeks paid vacation, in addition approximately 10 - 12 public holidays

are observed, billable hours per year = 1,850 - 1,950 = An average of 1,900 billable hours.

### CONSTRUCTION MATERIAL COSTS

On the next page are costs for a sampling of construction materials that would be used on a midsize commercial or industrial construction project. The costs are taken from a number of projects in Warsaw area and have been adjusted to reflect 2023 pricing levels. The values include delivery to the site but exclude taxes, and any overhead or profit add-on to the installing contractor. The values shown are approximate and should be used only to check contractors' or suppliers' quotations.

Generally Polish bulk materials cost 12% - 22% less than USA bulk materials. Some items such as motor controlled valves, instrument devices usually are imported and can cost 10% - 20% more than their US equivalent.

SKILL	\$ LOW	\$ HIGH
Carpenter	21.00	29.00
Mason	21.00	29.00
Pipefitter	23.00	32.00
Electrician	23.00	32.00
Unskilled Worker	16.00	21.50

### APPROXIMATE COST OF BUILDINGS/FACILITIES

The following figures include all material, labor, plant, general conditions, preliminaries, over-head, and profit. Excluded are owner costs such as furniture, equipment, land purchase, design fees, owner in-house engineering,

landscaping, parking areas, and major items outside the facility's footprint. The values reflect a weighted average of projects in and around Warsaw and have been adjusted to reflect 2023 pricing levels. These values are order-of-magnitude numbers and should be used for early or conceptual budgeting purposes or for comparing and checking proposals submitted by engineering organizations or contractors.

- Polish SF / M2 Facility Unit Costs in US \$'s
- Poland: US\$ / Zloty 4.63 – July 25, 2022

### UNIT PRICES

The following (on the next page) are unit prices rates. They include all necessary labor, materials, construction equipment, supervision, overhead costs, general conditions, preliminaries, and profit. The rates are from projects in and around the Warsaw area, and have been adjusted to reflect 2023 pricing levels. These numbers should be used as a check of contractors' proposals, the accuracy of these unit prices is considered to be +/-15%.

### LOCATION FACTORS

The factors shown on the next page are used to quantify cost differences specific construction methods in different locations. Use of the factors involves either (1) estimating the proposed facility on a U.S. basis or (2) knowing the cost of a particular U.S. facility (often a Gulf Coast project is the model). The U.S. estimate is expressed as a base index of 1.00. Location factors typically reflect disparities

## Construction Labor Hourly Rates

### "ALL IN" SELLING RATES FOR SKILLED AND UNSKILLED CONSTRUCTION WORKERS

CATEGORY	LOW	HIGH	AVERAGE
Workers compensation insurance			
Federal /state unemployment			
Vacation / Holidays / Benefits			
FICA (social security / OAP) / Fringes			
BAR / Liability Insurance / General Expenses			
<b>TOTAL (ADJUSTED)</b>	<b>100%</b>	<b>130%</b>	<b>115%</b>

in construction materials and labor rates, productivity differentials, differing utilization of construction equipment and power tools, importation of construction materials and major capital equipment or machinery, design costs, exchange rates, freight costs, taxes, and import duties. Items typically excluded from a location factor are land purchase and inflation. The following location factors are applicable to Poland:

- For chemical/process/manufacturing construction projects with a high content of imported engineered construction equipment and construction materials: **0.94**
- For building/facilities/civil construction projects with high content of locally produced engineered construction equipment and construction materials: **0.92**

For example, if a recently completed process plant in the U.S. cost US\$10,000,000, then the same facility constructed in Poland would cost US\$10,000,000 X 0.94 = US\$ 9,400,000. Similarly, if a designed building or facility with little or no imported equipment or materials is estimated on a U.S. basis to cost US\$7,500,000, then the cost of construction in Poland would be US\$7,500,000 X 0.92 = US\$6,900,000.

If the above project is for a “first of its kind” building / facility (first construction effort will initially experience a steep learning curve as it navigates through governmental / local issues) add 0.03

## Construction Material Costs

### MID-SIZED COMMERCIAL OR INDUSTRIAL CONSTRUCTION PROJECT

#	BULK MATERIAL	QTY	SI UNIT	LOCAL COUNTRY UNIT COST IN US \$	TOTAL IN US \$	USA UNIT COST IN US \$ SI UNIT	TOTAL IN US \$
1	Blocks (Concrete 8" x 16" x 4")	5,000	Each	1.93	9,632	1.96	9,788
2	Bricks (Common ) 1,000	15	1000	385	5,782	510	7,649
3	Bricks (Facing ) 1,000	10	1000	552	5,520	701	7,014
4	Cement in bags	150	Ton(M)	279	41,901	316	47,326
5	Conduit 2" / 50 mm rigid galv steel	1,000	M	24.18	24,177	26.03	26,034
6	Instruments 4 # 2" / 4" CV (8 #), 12 # (F/P/T) Devices	20	Each	6,002	120,044	5,089	101,773
7	Copper pipe 0.50" / 12 mm L	1,000	M	8.41	8,408	7.94	7,941
8	R M Concrete 3500 PSI / 25 MPa	350	M3	114	40,000	174	60,762
9	Sand / Stone 1.5" diameter / Imported fill / Hardcore (Average)	2,500	Ton(M)	26.90	67,249	27.74	69,343
10	Stainless steel 304 pipe 1" / 25 mm	1,000	M	16.01	16,012	19.75	19,748
11	Steel pipe A-53 1" / 25 mm diameter	1,000	M	15.06	15,060	14.39	14,392
12	Steel Reinforcement (not installed)	50	Ton(M)	1034	51,680	1,449	72,430
13	Structural Steel (Fabricated not installed)	50	Ton(M)	1,734	86,718	2,926	146,309
14	Valves (Ball) 4" dia. 150 #	25	Each	957	23,918	855	21,384
<b>TOTAL</b>					<b>516,103</b>		<b>611,895</b>
<b>NOTE:</b> Metric Ton = 2,205 lb • Long Ton = 2,240 lb (L) • Short Ton = 2,000 lb (S) • Metric Tonne = 1,000 kg /2,205 lb							

## Buildings / Facilities Costs

### POLISH SF / M2 FACILITY UNIT COSTS IN US \$'S

#	TYPE OF FACILITY	SF / LOW	SF/ HIGH	M2 / LOW	M2 / HIGH
1	Airport Terminal 2 – 3 Floors 400,000 - 700,000 SF	158	289	1,704	3,113
2	Apartments (Class B/C) 3 – 6 floors not public housing	137	195	1,472	2,098
3	Apartment public housing 3 – 6 floors	95	176	1,023	1,899
4	Food Production / Dairy Facility 70,000 SF	97	167	1,048	1,792
5	Hotel 3-6 floors 100,000 SF-2 - 3 star - suburban location*	184	245	1,984	2,633
6	Manufacturing / Facility / Factory 2 Floors 75,000 SF	81	149	871	1,603
7	Office 3 Floors 45,000 SF suburban location*	183	240	1,972	2,578
8	R & D Facility (College – Basic Research) 2 Floors 65,000 SF	199	248	2,138	2,673
9	W-House Refrigerated 80% / Admin 20% / 80,000 SF	83	168	896	1,812
10	W-House/ Logistics Center 80% / Admin 20% 40,000 SF **	64	105	684	1,129
<p>* 5 - 15 miles from city center ** excludes racking / bar coding / warehouse equipment</p>					

## Unit Prices

### ADJUSTED TO REFLECT 2023 PRICING LEVELS

DESCRIPTION	UNIT OF MEASURE	US\$
Excavation by machine for foundations dug out mechanically or manually	m3	15.00 - 17.50
Reinforced concrete in continuous foundation, including form work and reinforcement	m3	385 - 475
Reinforced concrete walls, including form work and reinforcement	m3	400 - 525
Erected structural steel, including prime paint coat	kg	3.45
Miscellaneous metals, railings, balustrades, etc.	kg	4.65
Paint work on walls, two coats, latex	m2	3.33
Plasterwork, interior, hand troweled, 15 mm thick	m2	8.85
Interior doors, including frame	m2	52.75
Precast concrete wall panels	m2	400 - 575
UPVC pipe, 100 mm dia., laid in trench	m	8.00
P.C.C. floor 3" thick	m2	235 - 290
Curtain wall / window system	m2	700 - 825
Single door c/w frame & hardware	no	700 - 875
FP System	m2	28 - 35
EPDM Roofing System	m2	24 - 37



– 0.05 points to above location factors. If company has built or has operating facilities already in country, use above indicated location factors:

### LABOR PRODUCTIVITY

The following figures show a range of productivity values: (1) good, (2) average, and (3) poor. The productivity factors are measured against a U.S. value of 1.00, based on open shop (i.e. nonunion) labor working on a midsize petrochemical facility on the Texas Gulf Coast.

### PRODUCTIVITY RANGE

- **Good:** 1.15
- **Average:** 1.30
- **Poor:** 1.55

For example, if a task that took 6,000 man-hours to complete in the U.S., then, using the average value of 1.30, it would take 7,800 man-hours to accomplish in Poland.

Factors that can contribute to good productivity include good access to the work area, an experienced workforce, adequate supervision, moderate weather conditions, specifications and drawing details that are not overly complicated, materials and equipment that are stored close by the work areas, and high utilization of construction equipment and power tools. Factors that can contribute to poor productivity include limited education/construction skills of the workforce, overcrowded or tight working conditions, limited use of construction equipment and power tools, extreme weather conditions, inadequate or poor supervision, complex work items, sophisticated specifications, fast-track construction requirements, extensive use of overtime, materials and equipment not stored close to the work area, double or triple handling of materials and equipment, and small or scattered elements of work.

### REGIONAL COST VARIATIONS

The percentages indicated below reflect price differentials between major cities. These percentages can be used to calibrate the square meter and square foot

cost values shown previously.

- **Lodz:** -5%
- **Krakow:** -3%
- **Poznan:** -5%
- **Warsaw:** 0
- **All other cities:** -5% to -10%

### INFLATION

The following are actual / forecasted annual increases in consumer prices.

- **1999:** 10%
- **2000:** 8.5%
- **2001:** 6.5%
- **2002:** 5%
- **2003:** 5.3%
- **2004:** 1.8%
- **2005:** 3.4%
- **2006:** 3.3%
- **2007:** 2.5%
- **2008:** 2.7%
- **2009:** 3.9%
- **2010:** 3.4%
- **2011:** 2.3%
- **2012:** 2.7%
- **2013:** 1.5%
- **2014:** 1.7%
- **2015:** 1.7%
- **2016:** 1.0%
- **2017:** 0.9%
- **2018:** 1.1%
- **2019:** 1.6%
- **2020:** 2.1%
- **2021:** 1.9%
- **2022:** 3.5%
- **2023:** 6.5%

### TARIFFS/IMPORT DUTIES

A new value added tax replaced the “turnover tax” on June 5, 1993. This tax has three basic rates: a zero rate on basic necessities (e.g., food products), a 7% rate levied on electrical energy, fossil fuels, and building materials, and a standard 23% rate, applied to the sale of all other items. The VAT Law provides

for three levels of taxation: the basic rate of 23%, the lower rate of 7% and finally a 0% rate. In addition to the VAT, an excise tax may be applied to the sale of certain luxury goods. This tax is either 10% or 15%. Poland supports the harmonized System (H.S.) of custom duties and tariffs using the EC-combined nomenclature classification system. Tariffs and import duties are imposed on materials and equipment imported into Poland. Different rates are applied to different items. Rates typically range from 5% to 30% of the C.I.F. cost of the item being imported. Tariffs and duties average between 2.1% and 15.8% on construction related items.

### CURRENCY EXCHANGE RATE

The following were the exchange rates for the Polish zloty on July 25, 2022

- **Euro:** 4.71
- **UK pound:** 5.59
- **US dollar:** 4.63
- **Yen (x100):** 3.40

### TRANSPORTATION COSTS

Ocean freight: Typically the cost of ocean freight for goods (Major Equipment / Bulk Materials) originating in North America to Poland is in the 8.5% - 11.5% range of the purchase price of the goods in question. Inland freight: the cost of transporting major equipment / materials from one location to another in Poland can be estimated as between 2.5%

and 5% of the FOB purchase price of the equipment / material being transported, the resulting value gives a budget or estimated cost for in-land freight and insurance costs. Most ocean freight is paid on the establishment of weight or measurement tons. Weight tons can be expressed in short tons of 2,000 pounds, long tons of 2,240 pounds or metric tons of 1,000 kilos (2,204 pounds). Measurement tons are usually expressed as cargo measurement of 20 cubic feet (0.56 meters) or 40 cubic feet (1.12 meters) or cubic meters (35.3 cubic feet.). A shipping container is generally a means of transportation / trailer body that can be detached from the body / chassis of a truck (lorry), railroad car or barge for loading into or onto a truck, ship, a rail car or stacked in a container depot. Shipping containers may be open or (secured) lockable, in addition some can be air conditioned or refrigerated. A shipping container may be 20 feet, 40 feet or 53 feet in length, 96” or 102” in width, and 102” or 114” in height. Items included or sometimes excluded from above percentages that need to be evaluated and priced out and included in the estimated transportation cost are as follows.

- Packaging and loading onto and off truck
- Terminal costs / charge
- Original Bill of Lading (OBL)
- Pallets, skids, special packaging materials / Shrink-wrap
- Cranes / forklift and offloading labor costs
- Any brokers charges

## Construction Equipment / Plant Hire Rental

**EXCLUDES DRIVER, INCLUDES ROUTINE MAINTENANCE, EXCLUDES FUEL, INCLUDES MOB/DE-MOB COSTS**

EQUIPMENT / PLANT HIRE RENTAL	USA COST PER 8 HOUR DAY	COST IN POLAND PER 8 HOUR DAY
Backhoe -F.E. Loader (JCB or similar)	300.90	
Bulldozer 50 kW	642.78	
F.E. Loader 2.5 CY/2 M3	479.93	
Hydraulic Crane 20 Ton lifting capacity	907.97	
Bobcat mini F.E. loader	324.69	
Welding machine diesel 200 A	147.68	
<b>COST PER DAY</b>	<b>2,803.94</b>	<b>DISCOUNT BY 10%-20% FOR POLISH VALUES</b>

## Buildings / Facilities Costs

### SPANISH SF / M2 FACILITY UNIT COSTS IN US \$'S

#	TYPE OF FACILITY	SF / LOW	SF/ HIGH	M2 / LOW	M2 / HIGH
1	Airport Terminal 2 – 3 Floors 400,000 - 700,000 SF	168	305	1,808	3,281
2	Apartments (Class B/C) 3 – 6 floors not public housing	147	208	1,584	2,236
3	Apartment public housing 3 – 6 floors	95	180	1,025	1,937
4	Food Production / Dairy Facility 70,000 SF	94	165	1,006	1,772
5	Hotel 3-6 floors 100,000 SF-2 - 3 star - suburban location*	192	250	2,071	2,685
6	Manufacturing / Facility / Factory 2 Floors 75,000 SF	82	145	882	1,560
7	Office 3 Floors 45,000 SF suburban location*	196	253	2,107	2,724
8	R & D Facility (College – Basic Research) 2 Floors 65,000 SF	199	246	2,144	2,651
9	W-House Refrigerated 80% / Admin 20% / 80,000 SF	89	175	959	1,885
10	W-House/ Logistics Center 80% / Admin 20% 40,000 SF **	62	108	668	1,159

\* 5 - 15 miles from city center  
\*\* excludes racking / bar coding / warehouse equipment

## Unit Prices

INCLUDES ALL NECESSARY LABOR, MATERIALS, CONSTRUCTION EQUIPMENT, SUPERVISION, OVERHEAD COSTS, GENERAL CONDITIONS, PRELIMINARIES, AND PROFIT.

DESCRIPTION	UNIT OF MEASURE	US\$
Excavate by hand n/e 1.5 M deep.	m <sup>3</sup>	30.00-35.00
Excavation by a machine for foundations n/e 1.5 M deep	m <sup>3</sup>	12.50-17.50
Imported stone to underside of concrete slab	m <sup>3</sup>	19.00-26.00
Reinforced concrete in foundations, including all necessary form work and reinforcement (20 MPa)	m <sup>3</sup>	400-625
Solid concrete block walls, 200 mm thick	m <sup>2</sup>	65.00-75.00
Reinforced concrete slab on grade, 150 mm thick	m <sup>2</sup>	37.00-42.00
Erected structural steel, including prime coat	ton	2,350-2,850
Galv. steel trough roof decking	m <sup>2</sup>	29.25
Cable tray, 200 mm wide	m	101.25
Copper cable, 2.5 mm, with PVC cover	m	5.65
Emulsion paint, 2 coats, to interior walls and ceilings	m <sup>2</sup>	4.30-6.80
F.P. System	m <sup>2</sup>	24-37
EPDM Roof	m <sup>2</sup>	22-33

tials, differing utilization of construction equipment and power tools, importation of construction materials and major capital equipment or machinery, design costs, exchange rates, freight costs, taxes, and import duties. Items typically excluded from a location factor are land purchase and inflation. The following location factors are applicable to Spain:

- Chemical/process/manufacturing construction projects with a high content of imported engineered construction equipment and construction materials. **0.96**

- Buildings/facilities/civil-related construction projects with high content of locally produced engineered construction equipment and construction materials. **0.93**

Thus, if a recently completed chemical plant in the US cost US\$20,000,000 to engineer, procure, and construct, then the same facility constructed in Spain would cost US\$20,000,000 × 0.96 = US\$19,200,000. Use of this location factor is based on the fact that the Spanish chemical plant would need to have a large percentage of the engineered equipment (i.e., vessels, towers, heat exchangers, pumps, compressors, and instrumentation) imported from Western Europe, North America, or Japan. Similarly, if a designed building or facility located in Spain with little or no imported equipment or construction materials is

estimated on a U.S. basis to cost US\$10,000,000, then the cost of construction in Spain would be US\$10,000,000 × 0.91 = US\$9,300,000. This value would be the appropriate preliminary budget for designing and construction of the building or facility in Spain.

If the above project is for a “first of its kind” building / facility (first construction effort will initially experience a steep learning curve as it navigates through governmental / local issues) add 0.03 – 0.05 points to above location factors. If company has built or has operating facilities already in country, use above indicated location factors:

### LABOR PRODUCTIVITY

The following figures show a range of productivity values: (1) good (2) average and (3) poor. The productivity factors are computed against a U.S. basis of 1.00, based on open-shop (i.e., non-union) labor working on a midsize petrochemical facility on the Texas Gulf Coast.

### PRODUCTIVITY RANGE

- **Good** 1.10
- **Average** 1.30
- **Poor** 1.70

For example, if a task took 10,000 man-hours to complete in the U.S., then using the average value of 1.30, it would take 13,000 man-hours to

## Construction Equipment / Plant Hire Rental

**EXCLUDES DRIVER, INCLUDES ROUTINE MAINTENANCE, EXCLUDES FUEL, INCLUDES MOB/DE-MOB COSTS**

EQUIPMENT / PLANT HIRE RENTAL	USA COST PER 8 HOUR DAY	COST IN SPAIN PER 8 HOUR DAY
Backhoe -F.E. Loader (JCB or similar)	300.90	
Bulldozer 50 kW	642.78	
F.E. Loader 2.5 CY/2 M3	479.93	
Hydraulic Crane 20 Ton lifting capacity	907.97	
Bobcat mini F.E. loader	324.69	
Welding machine diesel 200 A	147.68	
<b>COST PER DAY</b>	<b>2,803.94</b>	<b>DISCOUNT USA VALUES BY 5% - 15% FOR SPANISH VALUES.</b>

STATE	LOCATION FACTOR
<b>MINNESOTA</b>	
Duluth	.94
Minneapolis	.96
St Cloud	.93
St. Paul	.93
Worthington	.92
<b>MISSISSIPPI</b>	
Biloxi	.88
Canton	.86
Hattiesburg	.85
Jackson	.86
Tupelo	.86
<b>MISSOURI</b>	
Bowling Green	.92
Columbia	.92
Hannibal	.91
Kansas City	.94
Springfield	.91
St. Louis	.95
<b>MONTANA</b>	
Billings	.86
Butte	.86
Missoula	.86
<b>NEBRASKA</b>	
Grand Island	.86
McCook	.86
Omaha	.87
<b>NEVADA</b>	
Elko	.94
Las Vegas	.97
Reno	.95
<b>NEW HAMPSHIRE</b>	
Berlin	.90
Concord	.94
Manchester	.93
Nashua	.90
<b>NEW JERSEY</b>	
Atlantic City	.95
Burlington	.97
Cranbury	.97
Elizabeth	1.04
Ewing	.97
Flemington	.95
Hightstown	.97
Jersey City	1.03
Medford	.96

STATE	LOCATION FACTOR
<b>NEW JERSEY (continued)</b>	
Newark	1.07
New Brunswick	1.05
Pennington	.95
Princeton	1.04
Trenton	1.02
<b>NEW MEXICO</b>	
Albuquerque	.87
Las Cruces	.86
Santa Fe	.88
<b>NEW YORK</b>	
Albany	1.01
Buffalo	1.01
Lake George	.96
New York City	1.20
Rochester	1.05
Saratoga Springs	.98
Schenectady	1.03
Staten Island	1.14
Syracuse	1.02
Utica	1.00
<b>NORTH CAROLINA</b>	
Asheville	.89
Charlotte	.89
Greensboro	.91
Kingston	.89
Raleigh / RTP	.94
Wilmington	.92
<b>NORTH DAKOTA</b>	
Bismarck	.95
Crosby	.94
Fortuna	.94
Fargo	.95
Minot	.95
<b>OHIO</b>	
Akron	.92
Canton	.92
Cincinnati	.93
Cleveland	.94
Columbus	.95
Dayton	.89
Lima	.91
Toledo	.91
Youngstown	.90
Zanesville	.90