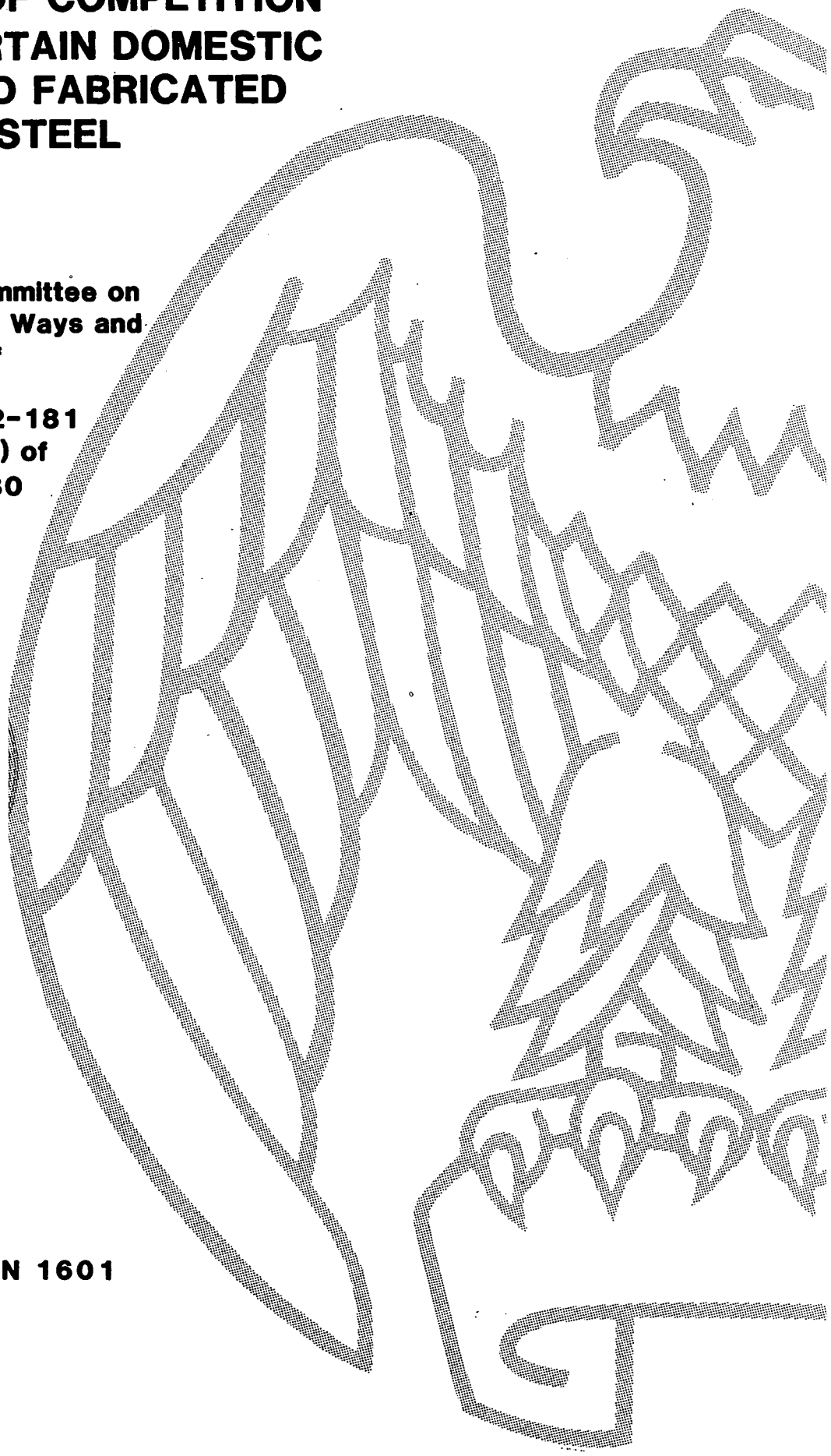
CONDITIONS OF COMPETITION BETWEEN CERTAIN DOMESTIC AND IMPORTED FABRICATED STRUCTURAL STEEL PRODUCTS

Report to the Subcommittee on Trade, Committee on Ways and Means, U.S. House of Representatives on Investigation No. 332-181 Under Section 332(b) of the Tariff Act of 1930



USITC PUBLICATION 1601

NOVEMBER 1984

United States International Trade Commission / Washington, D.C. 20436

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PREFACE

On March 16, 1984, at the request of the Subcommittee on Trade, Committee on Ways and Means (see app. A) and in accordance with section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)), the United States International Trade Commission instituted investigation No. 332-181, concerning the conditions of competition between certain domestic and imported fabricated structural steel products. This study assesses the factors affecting the present competitive position of U.S. fabricators, compares the structural characteristics of the U.S. industry with those of principal foreign competitors, and describes U.S. and foreign Government policies and regulations affecting the fabricated structural steel industry. Notice of the investigation was given by posting copies of the notice of investigation at the Office of the Secretary, U.S. International Trade Commission, and by publication of the notice in the Federal Register (49 F.R. 11893, Mar. 28, 1984) (app. B).

A public hearing in connection with the present investigation was held in the Commission's hearing room on August 28, 1984, and testimony was presented to the Commission by U.S. fabricators and foreign fabricated structural steel producers. The calendar of witnesses who appeared at the hearing appears in appendix C.

In the course of this investigation, the Commission collected data and information from questionnaires sent to selected producers and purchasers of fabricated structural steel. In addition, information was gathered from various public and private sources, from questionnaire responses prepared by overseas posts of the U.S. Department of State, from interviews with industry executives representing producers and purchasers of fabricated structural steel, as well as from public data gathered in other Commission studies.

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EXECUTIVE SUMMARY

The U.S. fabricated structural steel industry consists of firms which process steel plate and structural shapes into component parts which are subsequently erected or assembled into steel building frames, bridges, transmission towers, stationary offshore oil platforms, and other related items.

In the past several years, import competition on the west coast of the United States has intensified, particularly with respect to major highrise, steel-framed buildings and deep-water oil platforms. The increased competition is of concern to the industry and is alleged to have been achieved through substantial underbidding by foreign suppliers. In addition, it comes at a time when the west coast fabricating industry has operated at relatively low levels due to depressed market conditions in most product areas. Although concern has focused on the west coast, the issues confronting producers there are nonetheless of interest to the entire industry, since they affect competition between U.S. and foreign suppliers within the larger U.S. market.

Findings of the study are summarized below:

1. Structure of the domestic industry

   - o Firms which fabricate structural steel are relatively small concerns located throughout the United States; overall, the industry is not highly concentrated, though there is significant variation in concentration among products.

The U.S. industry is made up of some 2,300 firms, of which 405 are located in the Western U.S. region. 1/ The industry is geographically dispersed due to the relatively small marketing areas of most of the fabricators, with no one firm believed to account for more than 2 percent of total industry shipments. However, the concentration level varies with the product manufactured; for example, six firms in the industry are believed to together account for about 90 percent of oil platform shipments.

   - o Employment and wage trends of the U.S. and Western U.S. fabricated structural steel industries show declines in total employment and the number of production and related workers, whereas average annual salaries increased during 1979-83.

The U.S. fabricated structural steel industry experienced a decline in total employment of 26 percent, from 103,938 workers in 1979 to an estimated 76,912 workers in 1983. The number of production and related workers declined at a greater rate (29 percent) than total employment, from an estimated 75,199 workers in 1979 to 52,985 workers in 1983. Industry payroll declined by 6 percent, from $1.7 billion in 1979 to a low of $1.6 billion in 1983, and peaked at nearly $2.0 billion in 1981. This decline is attributed to the

1/ The Western U.S. region is defined as Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

lower employment level, as the average annual worker salary in this industry rose by 29 percent during the period, from $16,353 in 1979 to an estimated $21,041 in 1983.

Total employment in the Western U.S. fabricated structural steel industry fell by 14 percent, from 14,010 workers in 1979 to an estimated 12,000 employees in 1983, and reached a peak level of 14,631 workers in 1981. Annual payroll rose from $255 million in 1979 to $328 million in 1982 before falling to $290 million in 1983. The average annual salary of workers in the Western U.S. industry was 11 to 15 percent higher than the salary of workers in the U.S. industry, rising from $18,170 in 1979 to $24,179 in 1983.

- o The financial experience of U.S. fabricated structural steel producers indicates decreases in net sales and profitability during 1981-83 following increases since 1979. Western U.S. fabricators showed increased sales and profits during 1979-82 and decreases in 1983.

Respondents to the Commission's questionnaire, which accounted for 20 percent of shipments in 1983, reported that total net sales increased by 31 percent, from $1.6 billion in 1979 to $2.1 billion in 1981, and then declined by 38 percent to $1.3 billion in 1983. Net operating profits more than tripled from $33 million in 1979 to a high of $114 million in 1980, and then decreased to a loss of $20 million in 1983. Return on sales reached 6.0 percent in 1980 and declined to -1.6 percent in 1983.

Respondents from the Western U.S. region, which accounted for 32 percent of Western U.S. shipments in 1983, reported that total net sales increased by 68 percent, from an estimated $165 million in 1979 to $277 million in 1982, and then decreased by 24 percent to $210 million in 1983. Net operating profit increased elevenfold, from $2 million in 1979 to a high of $22 million in 1982, and then declined to $5 million in 1983. Return on sales rose to 8.2 percent in 1981 and then decreased to 2.4 percent in 1983.

- o Capital expenditures by U.S. and Western U.S. producers rose during 1979-81, then declined to period lows in 1983.

Capital expenditures on new plant and equipment by U.S. fabricators rose from $259 million in 1979 to $278 million in 1981 and then declined to an estimated $77 million in 1983. Expenditures by Western fabricators rose slightly, from $39 million in 1979 to $42 million in 1981, and then declined to an estimated $12 million in 1983. Expenditures accounted for between 1 and 4 percent of the total value of U.S. shipments during 1979-83, and for between 2 and 5 percent of the total value of Western U.S. shipments.

- o U.S. and Western U.S. producers' capacity utilization rates rose during 1979-81 and reached period lows in 1983.

Capacity utilization in the U.S. industry declined from 67 percent in 1979 to 49 percent in 1983 and peaked at 73 percent in 1982. The overall trend was fairly uniform among the various product categories; oil platform rates showed the sharpest variations. Capacity utilization rates in the

Western United States declined markedly in 1982 and 1983, and were slightly lower than rates for the entire United States.

2. Profile of selected foreign industries

- o The Japanese industry is made up of a large number of firms whose participation in the U.S. market is believed to be limited to a comparatively small number of companies that have exported selected products to the United States.

The Japanese industry is made up of over 10,000 firms, most of which are relatively small companies with 25 or fewer employees. At least two fabricators are major steel producers as well as fabricators. Industry sales in 1981 totaled $9.3 billion. The largest foreign markets for Japanese exports during 1979-83 were Asian and Middle Eastern countries, with the United States accounting for between 1 percent (4,852 tons in 1983) and 7 percent (41,371 tons in 1982) of total Japanese exports during the period. Oil platforms, bridges, and transmission towers were among the products exported to the United States during 1979-83. The industry was designated by the Japanese Government as adversely affected by the recession, and therefore is eligible for Government assistance through December 1984.

- o The Canadian industry consists of a relatively small number of firms, with only the largest companies exporting certain products to the United States.

The Canadian industry, which is more highly concentrated than its U.S. counterpart, consists of between 225 and 270 firms. Industry sales in 1982 totaled $1.0 billion. The United States was the largest market for Canadian exports during 1979-83, accounting for about 81 percent (161,000 tons) of total exports. The primary products exported to the United States during 1979-83 were buildings and bridges. Canadian Government involvement in the industry exists in several Provinces, where Government purchases are subject to measures which give preference to locally produced merchandise.

- o The Korean industry is dominated by a few major diversified fabricating firms which entered the Western U.S. market in late 1982.

Several major diversified firms, involved in shipbuilding, equipment manufacturing, and construction work on a worldwide basis, all of which export to the United States, make up the fabricating industry in the Republic of Korea (Korea). Sales of fabricated products by major Korean firms totaled $272.4 million in 1983, of which $36.5 million was exported to the United States. These firms do not appear to be related to Korean raw steel producers, although they purchase their basic steel needs from Korea's largest producer and from Japan. During 1979-83, Middle Eastern and Asian countries were the largest markets for Korean exports, with the United States emerging as a major export market in 1983, accounting for 11 percent (41,223 tons) of total Korean tonnage exported. The primary fabricated structural steel products exported to the United States were buildings and, to a lesser extent,

towers. Future imports of oil platforms are anticipated in light of contract awards to Korean firms in 1983. No Korean Govermment programs are known to exist in assisting the domestic or export operations of its steel fabricators.

3. The U.S. and Western U.S. markets

- o Consumption of fabricated steel products in the U.S. market increased during 1979–81 and then reached a period low in 1983. Consumption in the Western U.S. market fluctuated during 1979–83.

The markets for fabricated steel are influenced by a number of factors, including interest rates, which affect construction activity; energy demand, which affects offshore oil and gas drilling and investment by utilities; Federal highway spending, which affects the bridge market; and capital spending by firms on new plant and equipment, which indirectly affects all markets for structural steel products. U.S. consumption declined overall during 1979–83, and although consumption rose between 1979 and 1981, market factors were not conducive to growth during 1982 and 1983. U.S. consumption declined in all fabricated steel products, from 6.9 million tons ($8.0 billion) in 1981 to 4.9 million tons ($5.2 billion) in 1983. Western U.S. consumption increased from 822,000 tons ($937 million) in 1979 to 1.1 million tons ($1.2 billion) in 1981, and then declined to 758,000 tons ($817 million) in 1983.

- o U.S. and Western U.S. producers' shipments generally trended downward during 1979–83. Exports accounted for a small share of all shipments throughout the period.

U.S. producers' shipments decreased by 31 percent, from 6.9 million tons ($8.2 billion) in 1981 to 4.8 million tons ($5.2 billion) in 1983, and reflected an overall decline of 24 percent from an estimated 6.3 million tons ($6.7 billion) shipped in 1979. Buildings constituted the largest product category, accounting for 65 percent of total U.S. shipments during 1979–83. Exports accounted for about 2.1 percent of shipments throughout the period.

Western U.S. producers' shipments increased from an estimated 723,000 tons ($856 million) in 1979 to 971,000 tons ($1.1 billion) in 1981, before declining to 679,000 tons ($770 million) in 1983. Buildings made up the largest product category, accounting for 76 percent of total shipments during 1979–83. Exports accounted for close to 2 percent of shipments throughout the period.

- o Imports of fabricated structural steel in the entire United States and the Western United States generally declined during 1979–82 and increased significantly in 1983; import penetration showed an upward trend in the entire United States during 1979–83 but reflected yearly changes in the Western United States during the period.

U.S. imports of fabricated structural steel products declined from 189,406 short tons ($160.0 million) in 1979 to 144,975 tons ($135.1 million) in 1982 before rising to 203,312 tons ($149.4 million) in 1983. Buildings,

towers, oil platforms, and bridges, in order, accounted for the majority of imports in 1983. Import penetration, after declining slightly from 2.8 percent in 1979, rose to 4.1 percent in 1983. Canada and Japan were the principal sources of imports during 1979–83, with Korea becoming a major factor in 1983.

Western U.S. imports declined irregularly from 57,376 tons ($44.3 million) in 1979 to 27,496 tons ($25.1 million) in 1982 and increased to 60,358 tons ($44.9 million) in 1983. As in the case of the United States as a whole, Japan and Canada were the principal sources during 1979–82, whereas Korea became the second leading supplier in 1983. Import penetration declined from 6.9 percent in 1979 to 3.4 percent in 1982 before rising to 7.9 percent in 1983.

4. Conditions of competition between U.S. and foreign fabricated structural steel producers

- o Foreign fabricators are rated as having a competitive advantage over U.S. fabricators in many structural factors of competition.

On the basis of responses to the Commission questionnaire, U.S. fabricators are not judged to hold a clear advantage in any industry structural factor of competition. Production technology is seen as essentially the same in the United States compared with Korean, Canadian, and Japanese fabricating industries and, therefore, is not a significant factor in relative competitive positions. However, major foreign competitors were generally accorded competitive advantages in raw-material and labor costs, capital formation, and government involvement in terms of alleged subsidies and tariff levels on imports. Japan and Korea, in particular, have the edge in lower wage rates, and in lower raw-material costs largely due to higher U.S. steel prices.

- o Measures taken during 1979–83 which may have affected the cost and availability of raw steel products fabricated by the U.S. industry affected the industry's competitiveness in the U.S. market to varying degrees.

During 1979–83, steel mill products, including plate and structural shapes, were subject to a number of measures which affected the terms under which steel was available to U.S. fabricators, including: the trigger price mechanism (TPM); Japanese voluntary export restraints; and the U.S.–EC Arrangement Concerning Trade in Certain Steel Products (the Arrangement). Respondents to the Commission's questionnaire indicate that neither the TPM nor the Arrangement significantly affected their competitiveness in the U.S. market. Opinions were divided with respect to Japanese restraints.

In contrast, Western U.S. producers indicated that the Arrangement and Japanese restraints had an effect, which was sometimes significant on their competitiveness.

- o The competitive position of Western U.S. fabricators was seen by these fabricators as having been affected by discriminatory pricing of raw materials during 1981-84.

Western U.S. fabricators have alleged that Japanese steel exporters sold, or offered to sell, wide-flange beams to Korean firms at prices about 20 percent below those offered to U.S. firms during 1981-84. Japanese firms reportedly began to eliminate the discount practice early in 1983 to establish parity between Korean and U.S. sales prices. An examination of official Japanese trade statistics of exports of wide-flange beams indicates that unit values of exports to the United States exceeded those of exports to Korea during 1981-83; however, the values had converged by the third quarter of 1983. It should be noted that the trade data may not represent a comparable product mix, which could affect unit values.

- o Imported fabricated structural steel is designated as having the overall competitive advantage in the U.S. market in product-related characteristics, and lower purchase price is overwhelmingly cited as the principal reason.

On the basis of responses to the Commission questionnaire, U.S. fabricators and purchasers indicate that domestically produced fabricated structural steel has competitive strengths, especially with respect to Korea and Japan, in marketing-related factors such as transportation, supplier reliability, availability of material, delivery time, and servicing capability, where proximity to end markets is an important factor; however, these favorable characteristics are apparently not sufficient to overcome the price advantage of imports as the principal determinant of overall competitive advantage in the U.S. market. In addition, performance features like design and quality are considered only marginally better, if not equal, for U.S. products relative to foreign merchandise. Canadian fabricated steel is largely considered to be on an equal footing with that of the United States in its principal marketing region of the Northeastern United States.

- o U.S. purchasers of fabricated structural steel indicate that price figures most prominently in their purchasing decisions.

During 1979-83, U.S. purchasers cited price as the foremost factor in electing to import foreign fabricated steel. A review of selected projects indicates that U.S. fabricators have, on average, been underbid by about 15 percent on west coast building projects in which Korean firms were awarded projects. Information on oil platforms suggests Japanese and Korean margins of underbidding ranging from 20 to 30 percent during 1979-84. U.S. purchasers also ranked other factors as having an important influence on their buying decisions, including product quality, the reliability of suppliers, and the availability of material.

- U.S. fabricators allege that foreign industries have an advantage regarding government subsidies, high foreign tariffs, and certain trade restrictions. Domestic preference legislation is seen by U.S. and Western U.S. producers as a significant benefit in competing with foreign fabricated steel in the U.S. bridge market.

About 70 percent of U.S. fabricator responses concerning government involvement indicate that subsidies provided to foreign fabricators are a competitive advantage. In addition, imports of fabricated steel are generally subject to lower tariffs in the United States compared with those of its major foreign competitors, particularly Canada and Korea, whose tariffs on structural products are 13.9 and 30 percent, respectively. U.S. duties range from free in the case of GSP eligible merchandise to 7.1 percent for countries with most-favored-nation status. U.S. fabricators also identified 10 restrictive measures that they feel hinder international trade of structural steel; countries most frequently cited were Mexico, Canada, Brazil, Japan, and Middle Eastern countries.

In the United States, "Buy American" provisions of certain laws require that preference be given to domestically produced goods in purchases involving the expenditure of federal funds. The preference is particularly important with respect to bridge projects, 90 percent of which involve Federal Government participation.

- Tariff classification ambiguities exist with respect to the U.S. importation of fabricated structural steel products from Korea that could result in inconsistent treatment at U.S. ports of entry and could result in merchandise entered under duty-free provisions rather than provisions which carry tariffs.

Classification problems may exist regarding the importation of fabricated structural steel products which are not specifically provided for in the Tariff Schedules of the United States (TSUS). Importers of certain Korean building components, for example, have entered articles such as building braces under TSUS item 653.00 (col. 1 duty of 7.1 percent), which are duty-free from GSP-eligible countries like Korea, whereas Customs officials have indicated that such articles are more properly classified under provisions which carry tariffs of 3.2 to 4.5 percent, but are not eligible for GSP. Korean firms have also entered certain fabricated structures as an "entirety" (i.e., shipment in complete or substantially complete condition) under the duty-free TSUS item 653.00, though Customs officials have indicated that such articles are not considered entireties and should be classified under other tariff provisions. In relation to each of these issues, it is not clear to what extent reclassification has occurred, or is occurring, upon liquidation of imported articles at U.S. ports of entry.

THE PRODUCTS

Description and Uses

Fabricated structural steel consists of steel plates, angles, beams, and related steel products which have been fabricated into articles suitable for erection or assembly into structures such as buildings, bridges, towers, stationary offshore oil platforms, and ship and barge sections. The basic fabrication operations include, but are not limited to, the cutting to length, drilling, punching and welding of steel, and the finishing of such steel into structural components. Pressure vessels, storage tanks, fabricated metal buildings, roof decks, and steel flooring, which are often fabricated by companies in the industry Standard Industrial Classification (SIC) 3441, are considered outside the scope of the investigation.

Buildings

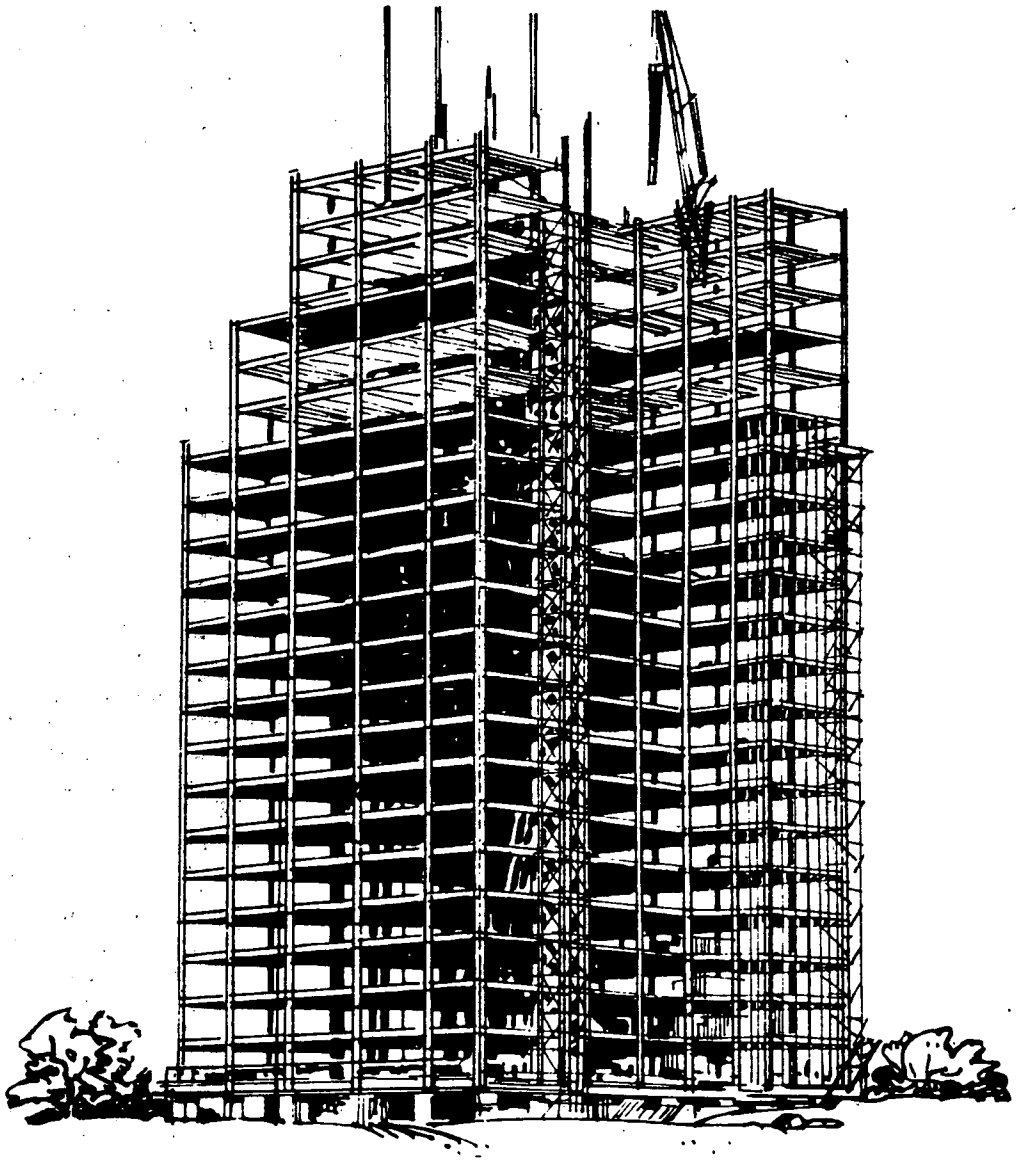
Buildings are diverse structures, virtually all of unique design, which range in size from modest structures requiring several hundred tons of steel to multistory complexes, like the World Trade Center in New York, which required about 110,000 tons of steel. In general, large structures require on the order of 8,000 tons of steel with buildings of 15,000 to 20,000 tons regarded by the industry as major undertakings.

Most multistory complexes are "beam and column" structures which consist of fabricated "H" and "I" shapes (i.e., wide-flanged beams and "I" beams) joined in an interlocking fashion to form a rigid steel frame, on or within which floors are laid and spaces are enclosed (fig. 1). Such structures consist of a number of elements. The base plate is a steel plate laid over a concrete foundation to assist in distributing a building's load. In sizable buildings, steel grillages, which consist of several layers of beams laid horizontally across foundations, may be used in place of base plates to bear the heavier loads. Columns are steel shapes used as vertical supports in a building; beams, which may not be readily distinguished from columns in terms of shape and appearance, are steel shapes used horizontally in structures to provide floor support ("floor beams") or connect beams ("girders"). Trusses consist of a series of welded steel sections which are used in place of conventional beams to span large areas such as lobbies or atriums. Staggered, full-story-height trusses are often used in apartment complexes and hotels in instances where no internal building columns are used.

The primary steel products fabricated for use in buildings are structural shapes, though substantial quantities of steel plate are also used. The steel is processed by shearing or cutting into desired lengths and shapes. Connectors and holes are positioned, and pieces are fit and welded to produce finished components. The finished components are shipped unassembled to construction sites for final erection. In recent years, the greatest tonnages of fabricated structural steel have been used in steel-framed office buildings and industrial structures (such as factories and manufacturing plants), respectively. Other important markets have been for utility buildings and assembly structures (including auditoriums and sports arenas).

Figure 1

Building



Source: Bethlehem Steel Corp.

Reinforced concrete is highly competitive with steel in buildings of all sizes, as is wood in certain structures. The selection of material to be used in a structure typically occurs at an initial planning phase, where a building owner and architect discuss the purpose for the structure and other related issues. General price developments affecting the cost competitiveness of steel and concrete may influence the selection of a material, though it is not the sole criterion. An owner's particular needs, for example, may dictate the use of steel, which is more versatile; moreover, seismic conditions in the area a structure is to be erected may also be a factor in material selection, as steel has structural qualities which are preferable in earthquake-prone areas.

From a position of dominance following World War II, steel frames for structures have lost market share to concrete, which is currently estimated to hold a fairly stable 50-percent share of the market. In general, concrete is the preferred material for apartment complexes and hotels, with steel preferred for industrial and commercial structures. The development of high-strength steel for use in the construction industry has enhanced the competitiveness of steel in recent years, as it has cut down the tonnage of steel required in structures. Although more costly per ton, the high strength steel has an advantage in terms of reduced material requirements, lower labor costs, and lower field direction costs.

Bridges

Bridges are structures designed principally to facilitate railway, automotive, and pedestrian traffic over a chasm, river, or other barrier. The components of a bridge are typically fabricated from steel plate and rolled shapes into major sections for assembly and erection at job sites. Bridges vary in size from relatively small highway overpasses weighing 1,000 tons to structures of up to 10,000 tons spanning waterways.

Bridge design depends in large part on intended use. Simple beam bridges are short-span bridges commonly used on highways, consisting of steel beams supported by bridge supports and topped with paving. Plate-girder bridges, typically 100- to 500-foot-span highway or railroad bridges, are constructed with large steel beams that are fabricated by welding, bolting, or riveting together steel sections. Truss bridges (fig. 2) typically span lengths greater than 500 feet and consist of individual steel sections assembled in the form of triangles. The longer a bridge span and the heavier the weights it must carry, the more likely it is that a truss design will be used. Most railroad bridges are of the truss type because of the loads they carry.

Cantilever bridges are often utilized to span deep rivers, where use of temporary support piers is not feasible. In a typical cantilever design, the trusses project from the piers toward each other and are joined directly or by a suspended span to form a bridge. Suspension bridges (typically used for vehicle traffic) consist of a bridge deck hooked to suspender cables, which are attached to the main cables (a series of slim steel wires spun together), which, in turn, are attached to the tops of the main towers. Arch bridges, which are typically 500- to 700-foot highway span bridges, are designed to carry heavy loads. These bridges are commonly used to span ravines with

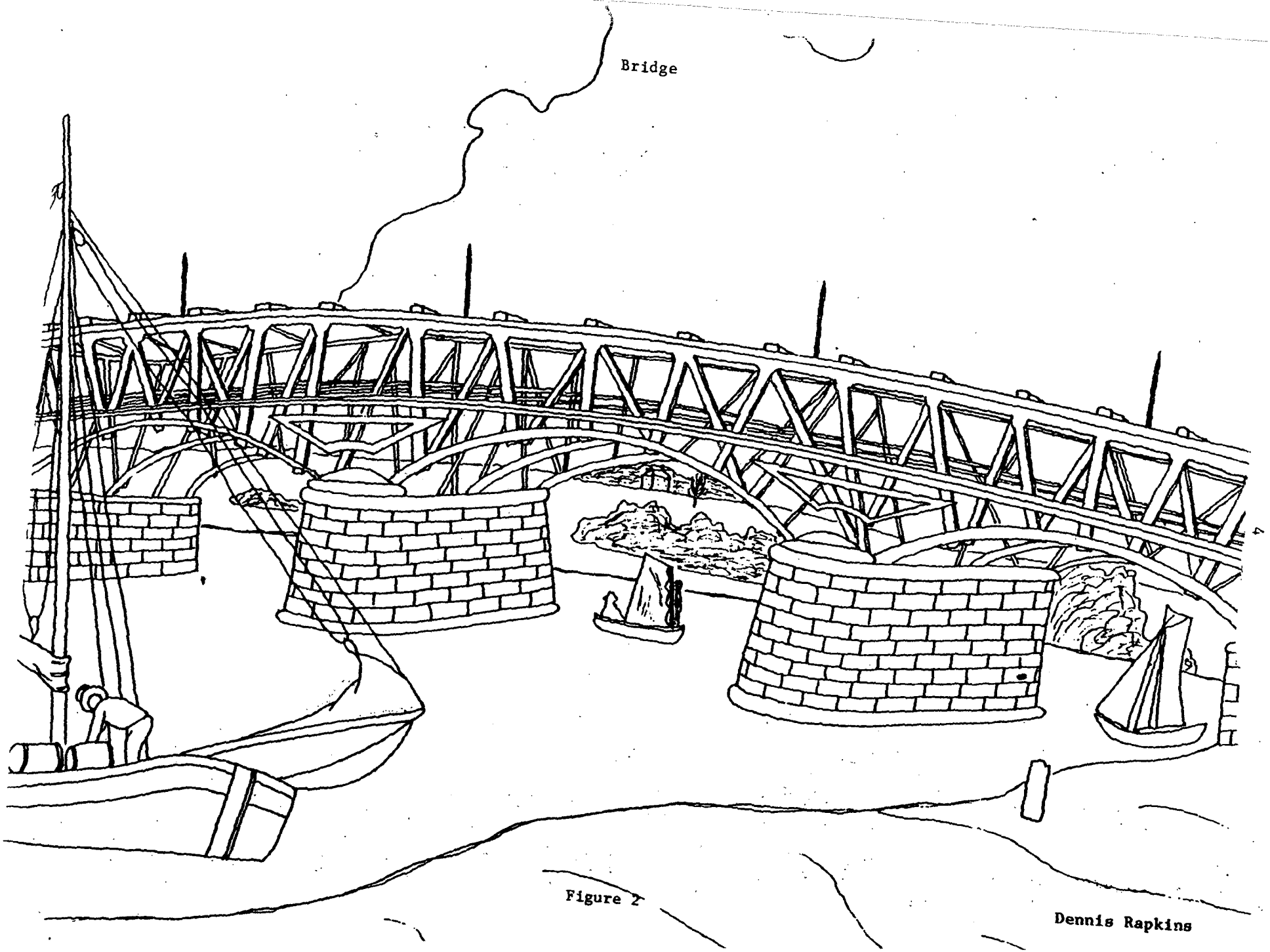


Figure 2

Dennis Rapkins

secure walls. A roadway may be hung from the arches (a through-type bridge) or placed on steel columns extending up from the arches (a deck-type bridge).

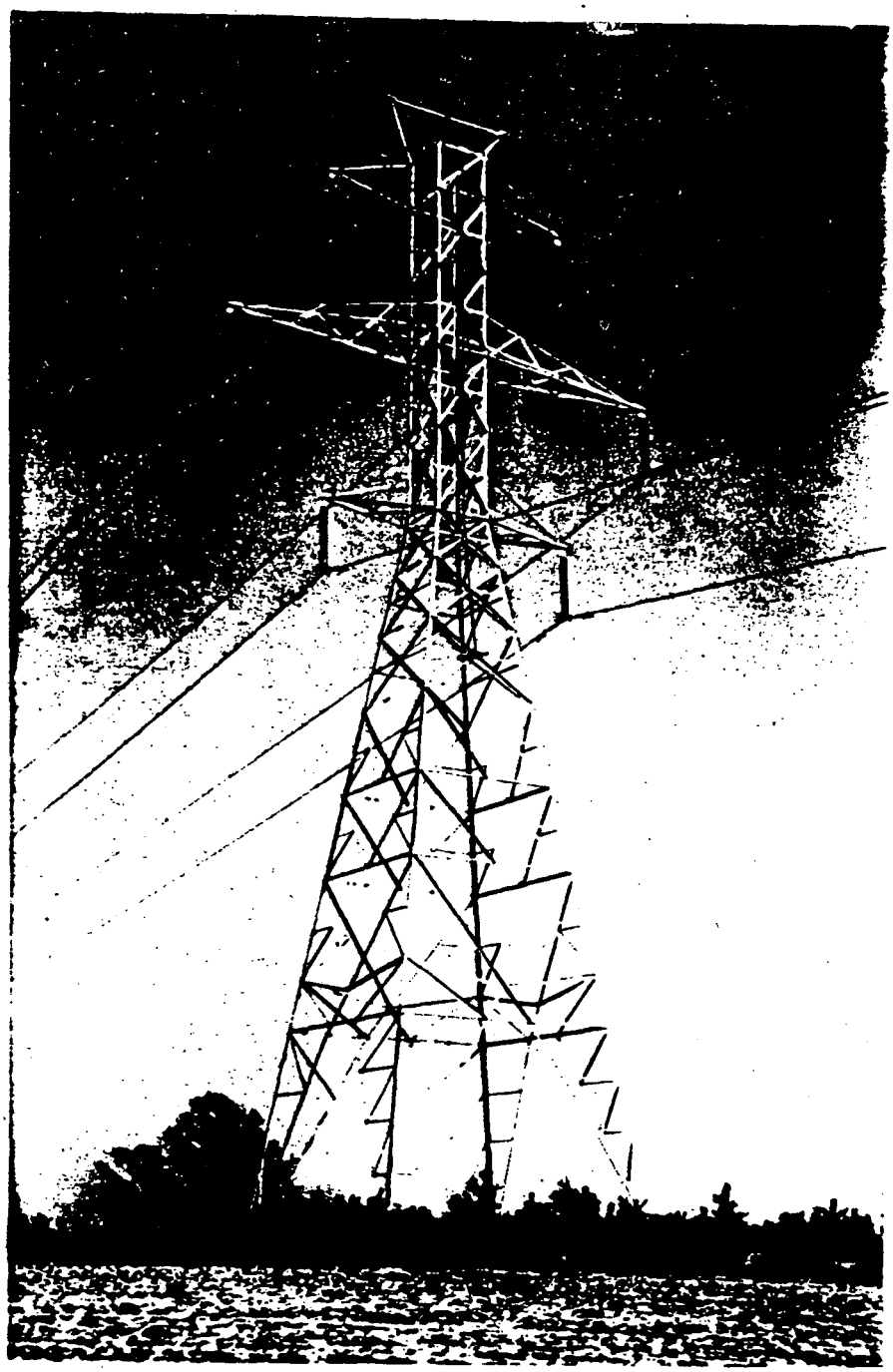
With respect to competitive materials, concrete is highly competitive with steel for use in bridges. Competition became particularly keen in the United States during the 1970's as the result of significant technological breakthroughs made in prestressing concrete. Currently, the market share for concrete is believed to average about 50 percent, though there are notable shifts from year to year. While concrete bridges are highly competitive, steel bridges retain certain advantages in earthquake-prone locations and in the fact that they can be erected more quickly.

Federal procurement guidelines figure prominently in the respective market shares of concrete and steel, since about 90 percent of the U.S. bridge market involves expenditures of Federal funds. In a large percentage of the Federally funded projects, if initial cost estimates for steel and concrete structures are not substantially different, designs must be prepared using both materials, and bids must be solicited for each.

Towers

Steel towers are used throughout the United States for the transmission of electricity and microwaves for telephone, radio, and television. The general construction of these towers is a lattice design (fig. 3). Electrical transmission towers are designed and fabricated to support wires and cables for transmitting high-voltage electric power, generally in potentials of 100 to 765 kilowatts (KV), between generating stations and substations. The principal factor affecting tower design is mechanical strength; towers must withstand weather variances, such as stresses imposed by wind and ice and the pull of the attached wires and cables. Conductors and insulators are suspended from the arms of the tower to support the wires and cables. Three conductors compose a circuit, and towers can support single, double, or multiple circuits.

The standard span of towers in an electrical distribution system is every 500 to 1,000 feet; however, the span may vary due to the terrain. The weight of the towers also varies, ranging from about 5 to 23 tons for in-line towers. Dead-end, river-crossing, and long-span towers are usually heavier (10 to 30 percent) than in-line towers due to the heavier loads being supported. In addition, the number of circuits affects tower weight, as tonnage increases with added circuits. Substations with transformers, which are included in this category, are used to reduce the high voltage of transmission lines. Microwave towers generally are used for telephone and television transmission, with high frequencies of about 3,000 megahertz or more (fig. 4). They are usually of lattice design and at least 150 feet high. These towers are lighter and smaller than those used for electrical transmission. Microwave towers are often located on hills to improve the relay of the waves from station to station. Resonant cavities are placed atop the towers to amplify the microwaves.



American Electric Power Company 345 KV

Figure 3.--Lattice transmission tower.

Source: Saelectric Transmission, Inc. - Steel Transmission Towers in North America, p. 3.

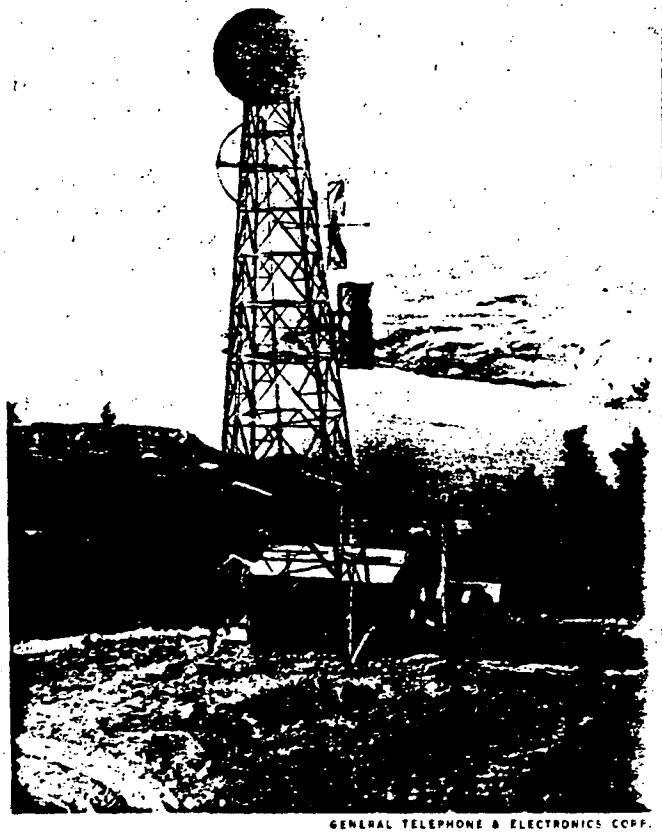


Figure 4.--Microwave tower.

Source: Encyclopedia Americana, 1972, p. 190.

The primary steel products fabricated into towers are angles, with plates and beams also used to some degree; virtually all the steel is carbon grade material. Most of these fabricated steel products are galvanized to improve corrosion resistance. After fabrication, the disassembled towers are shipped in their component form to the job site to be erected by erection contractors.

Towers are secured to the ground by one of three methods. The tower can be placed in a large hole in the ground and connected to a steel base plate or earth grillage. They can also be secured by steel stubs connected to a reinforced concrete base, or by anchor bolts fastened to the tower where it rests on a rock base.

Competitive materials for steel towers generally are wood, concrete, and aluminum, but steel is the most common material used, particularly for applications involving high-voltage transmission. Underground lines currently are too expensive for most transmission uses and are found principally in urban areas, where towers are not practical. A competitive steel material is the tubular tower (poles) made of plates that are bent and welded into tubes. These towers lessen right-of-way costs and are considered more aesthetic than lattice towers. Their cost is often twice that of traditional lattice towers.

The trend in the electrical power distribution system is toward higher transmission voltages, requiring larger and heavier towers. Tubular towers are popular in certain areas of the country due to their perceived aesthetic qualities. For the same reason, underground transmission lines would be more prevalent if costs could be reduced.

Oil platforms

The oil platforms (fig. 5) discussed in this study include stationary offshore structures which are placed over oilfields to support oil-drilling activities. These production platforms, which remain in place for the 20- to 30-year life of the field, range in size from 5,000-ton structures found in the Gulf of Mexico to 40,000-ton structures used in deep-water sites such as the North Sea and the North Slopes of Alaska. Steel jacket platforms are the most common type of platform used for offshore production drilling. The jacket, which is the principal structural component of the platform, consists of a steel latticework base which supports one or more decks on which production equipment, crew quarters, and production facilities are mounted.

The production of steel jacket platforms begins with the rolling and welding of steel plate into tubular members, which are then welded end to end into different size sections of stock. In large-tonnage platforms, the rolled plate can be up to 6 inches thick; however, 2 inch steel is more commonplace. The tubular stock and subassemblies are positioned on the ground in pairs of "bents" (sides of the platform jacket) and welded together. When all of the components are attached to the bents, they are rolled into vertical position by cranes secured with guy wires, and the rest of the framing is welded in place. Eight leg jackets have two sets of bents, an inner pair and an outer pair.

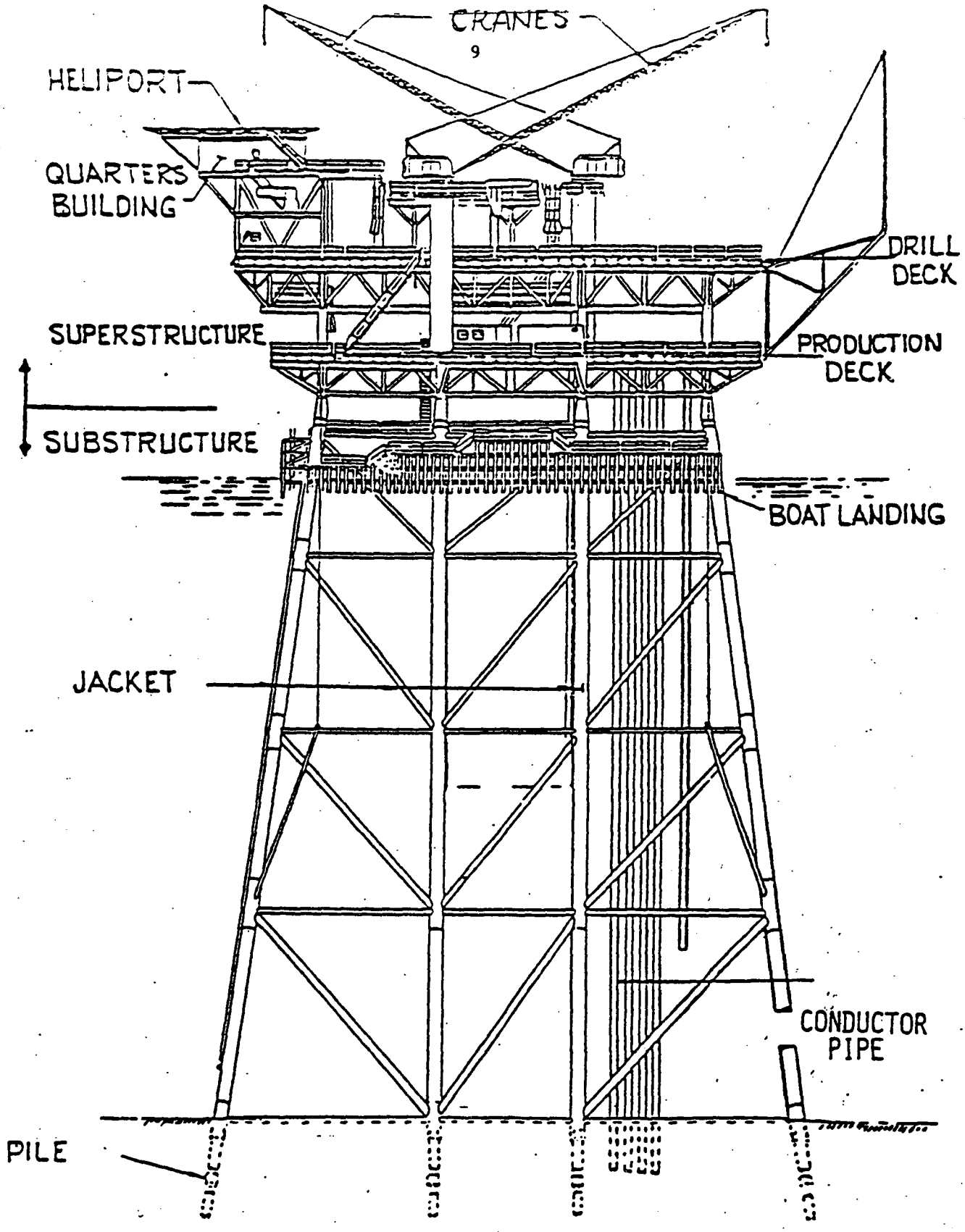


Figure 5. TYPICAL TEMPLATE-TYPE OFFSHORE DRILLING & PRODUCTION PLATFORM

Source: Kaiser Steel Corp.

The completed jackets are typically shipped by launch barge, though large, self-buoyant jackets are sometimes assembled in graving (dry) docks (below sea level areas protected by flood gates) and then floated to the oilfields by flooding the area. Upon arrival at the drilling site, the jacket is upended and lowered to the sea bottom. Piles are driven through the inside of the corner members of the frame into the sea bed to position the jacket base. A derrick barge is then brought alongside the platform and the decks are set. Modules containing the drilling rig, production equipment, crew accomodations, and a helicopter pad are also secured into place. Installation can take from 2 to 18 months, depending on the design of the platform, weather, and the availability of equipment.

Every effort is made to reduce the amount of fabricating and assembling done at the offshore drill site. Sites with deep water, high winds, or large waves require special planning. For example, deep water necessitates a large platform, which is often difficult to transport in one piece. Large platforms can be segmented; however, complicated coupling systems then need to be devised to permit joining of the pieces in open water.

The market for oil platforms experiences relatively little competitive pressures from other materials. Concrete gravity platforms are a relatively new technology currently in use in shallow waters in the North Sea, where wind and wave conditions and the lack of earthquake hazards have made them a practical approach. They account for a relatively small share of the total market.

Ship and barge sections

Ship and barge sections are structural components purchased by shipbuilders for use in the construction of tankers, ferries, barges, and other types of waterborne vessels. The sections, which are fabricated primarily from steel plate, angles, and, to a lesser extent, steel beams, are generally welded into assemblies and joined together by the shipbuilders to form a complete vessel.

Steel has been the principal fabrication material for ship and barge sections for decades. Although research is being conducted to develop higher strength alloys to withstand high pressures and other stresses, most ships and barges continue to be made from carbon steel. High-strength alloys of aluminum are used for special purposes, such as high-speed cutters and air-cushioned ships, due to their lightness. Wood and concrete are limited in their competitiveness with steel, being more labor intensive and less durable for most purposes.

Other

In addition to the above products, structural steel is fabricated for a number of related purposes, including drydocks, dam gates, and for use in tunneling and subway work. The criteria used to determine inclusion is whether end use is structural in nature. Hence, metal doors and frames, pressure vessels and storage tanks, roof decks, stairwells, concrete

reinforcing bars, and bar joists, although closely related, are excluded, as are prefabricated metal buildings.

Production Process

Structural steel is fabricated in several stages. First, material is usually cut to length by either a shear (a guillotine-type machine that cuts plate and flat bar), a saw (used for beams, channels, and light column shapes), or a gas-cutting table (used for thick material). The steel is then routed to the layout crew, where a template (a full-size pattern or guide used to locate areas where holes are to be punched or drilled, or where cuts or bends are to be made in the steel) is utilized to prepare the material for fabrication operations.

Punching is the most frequently used method of making bolt holes in steel. Light pieces of steel are usually punched one hole at a time, although there are multiple-punch machines capable of punching several holes simultaneously. Drilling of structural steel is usually limited to making holes in material too thick for the punching machines, though it may be required to meet specifications in lighter work as well.

Material can become bent or distorted during shipment, handling, or punching. The material is therefore straightened before further fabrication on a bend press (used for straightening beams, channels, angles, and heavy bars) or on a roll straightener (used on long plates). At this stage of fabrication, a press brake is also used to form angular bends in wide sheets and plate. Before final assembly, the component parts of a member must be fitted with bolts, clamps, or small amounts of weld. The assembly is checked for overall dimensions, united with additional fittings, and checked by an inspector. It is also customary to have holes reamed at this stage to permit insertion of fasteners.

The strength of a structure depends on proper fastening techniques (i.e., bolting and welding methods). Permanent shop bolting of structural connections is accomplished with hand or power wrenches. Welding generators, transformers, and automatic welding machines can produce rates of weld deposit best suited to the type and position of the work being welded.

Material is inspected once again prior to final shop welding to check overall dimensions, proper positioning of all connections, and to ensure that all joints fit properly. After the welding is completed, a visual inspection can be followed by the testing of welds. Such tests include magnetic particle inspection, dye penetrant inspection, ultrasonic inspection, and radiography.

Structural members whose ends must carry loads by bearing against one another are usually finished to a smooth, even surface by sawing, milling, planing, or other suitable means. For example, bridge specifications require that sheared edges of plates over a predetermined thickness be edge planed. In this operation, the plate is secured to the bed of a milling machine or a planer. The cutting head moves along the edge of the plate, planing it to a smooth finish.

In addition to the main fabricating shop, many plants also maintain machine shops and blacksmith or forge shops where special machining and forging operations are performed. In forge shops, steel may be heated for bending and shaping or subjected to cold-forming operations, which require special tools and equipment. The machine shop is also responsible for the maintenance and repair of plant equipment.

Steel which needs to be painted is thoroughly cleaned of loose mill scale, rust, and other foreign matter. The cleaning can be done with hand- or power-driven wire brushes, by flame descaling, by pickling (i.e., cleansed with acid), or by sand, shot, or grit blasting. After painting, the shipping mark is placed on each piece, and an inspection is made to ensure that proper identification of each structural component is clearly indicated.

Production Technology

There have been a number of advances in the technology used to fabricate structural steel. Probably the most important development has been the adoption of the beamline, which utilizes motor-powered conveyors to transport beams between work stations. The most common type of beamline is equipped with semiautomatic control. This line has built-in electronic gauging to facilitate layout, which eliminates the necessity of manual layout of cuts and holes and manual positioning of the material. Beamline technology has expanded to include computer-aided design and computer-aided manufacturing (CAD/CAM). In addition to the advantages offered by the other beamlines, the CAD/CAM system can eliminate the manual drafting of details altogether.

The use of semiautomatic and mechanized welding has increased both the duty cycle (minutes per 8-hour period which the welder actually spends welding) and the filler metal deposition rate (the rate at which the filler metal is deposited on the joint). Specifically, it has been estimated that utilization of semiautomatic welding results in a 50-percent average increase in the welder duty cycle over conventional manual stick welding. With mechanized welding, the operator's task is to judge whether the machine is giving a good weld; thus, manual skill is no longer of preeminent importance.

Improved methods for cutting both plate and structural shapes have been adopted by the industry. For example, computer by numerical control (CNC) allows computer-controlled shape cutting and eliminates time-consuming template making and layout. Another development, the optical trace control system, allows a photocell tracer to scan the outline of a template appearing on specially treated paper prepared by the template maker, thus allowing faster and more accurate cutting. A final innovation, the cold-cutting saw, leaves a square, burr-free edge on the cut material compared with that of conventional friction or abrasive methods.

CUSTOMS TREATMENT

U.S. Tariff Treatment

Rates of duty

Imports of fabricated structural steel products included in this report are classified primarily under items 609.84, 609.86, 652.94, 652.95, 652.96, 652.97, and 653.00 of the Tariff Schedules of the United States. Table 1 provides the staged rates of duty granted under the Tokyo round of the Multilateral Trade Negotiations (MTN). The current rates of duty (1984), and detailed tariff descriptions are shown in appendix D. The rates of duty in column 1 are most-favored-nation (MFN) rates and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the Tariff Schedules of the United States (TSUS), for which rates of duty in column 2 apply. 1/ However, such rates do not apply to products of developing countries which are granted preferential tariff treatment under the Generalized System of Preferences (GSP), the Caribbean Basin Initiative (CBI), or under the least-developed developing countries (LDDC) rate of duty column.

The GSP is a program of nonreciprocal tariff preferences granted by the United States to developing countries to aid their economic development by encouraging greater diversification and expansion of their production and exports. The GSP applies to merchandise imported on or after January 1, 1976, and will remain in effect until July 4, 1993 under the Trade and Tariff Act of 1984, which was signed into law by the President on October 30, 1984. It provides duty-free treatment to eligible articles imported directly from designated beneficiary developing countries.

The CBI is a program of nonreciprocal tariff preferences granted by the United States to developing countries in the Caribbean Basin area to aid their economic development by encouraging greater diversification and expansion of their production and exports. The CBI, implemented by Presidential Proclamation No. 5133 of November 30, 1983, applies to merchandise entered or withdrawn from warehouse for consumption on or after January 1, 1984, and is scheduled to remain in effect until September 30, 1995. It provides duty-free entry to eligible articles imported directly from designated developing countries in the Caribbean Basin area. All of the articles subject to this investigation could be eligible for such duty-free entry.

Classification

Classification of imports of fabricated structural steel products by the U.S. Customs Service rests on a number of criteria. TSUS items 609.84 and 609.86 cover carbon and alloy steel angles, shapes, and sections which have been drilled, punched, or otherwise advanced. Included in this category for classification purposes are fabricated shapes to which nothing has been added

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1/ The only Communist countries currently eligible for MFN treatment are the People's Republic of China, Hungary, Romania, and Yugoslavia.

Table 1.—Fabricated structural steel: U.S. rates of duty, by TSUS items

(Percent ad valorem)

TSUS item No. 1/	Description	Pre-MTN col. 1 rate of duty 2/	Staged col. 1 rate of duty effective with respect to articles entered on or after Jan. 1—								Col. 2 rate of duty
			1980	1981	1982	1983	1984	1985	1986	1987	
	Angles, shapes, and sections:										
	Hot rolled or cold formed:										
	Drilled, punched, or otherwise advanced:										
609.84	Other than alloy iron or steel.	6.5%	6.5%	6.5%	6.2%	5.8%	5.5%	5.1%	4.8%	4.4%	20%.
609.86	Alloy iron or steel.	8.5% 3/	8.5% 3/	8.5% 3/	8.0% 3/	7.4% 3/	6.9% 3/	6.4% 3/	5.8% 3/	5.3% 3/	28%. 3/
	Hangars and other buildings, bridges, bridge sections, towers, and other structures of base metal:										
	Of iron or steel:										
	Columns, pillars, posts, beams, girders, and similar structural units:										
	Not in part of alloy iron or steel:										
652.94	Other than cast-iron articles.	3.5%	3.4%	3.3%	3.2%	3.2%	3.1%	3%	2.9%	2.8%	20%.
	In part of alloy iron or steel:										
652.95	In part of stainless steel.	6.0%	5.8%	5.6%	5.3%	5.1%	4.9%	4.7%	4.4%	4.2%	30%.
652.96	Other	5.5%	5.3%	5.1%	4.9%	4.7%	4.5%	4.3%	4.1%	3.9%	28%.
652.97	Offshore oil and natural gas-drilling and production platforms and parts thereof.	9.5%	9.0%	8.6%	8.1%	7.6%	7.1%	6.7%	6.2%	5.7%	45%.
653.00A	Other	9.5%	9.0%	8.6%	8.1%	7.6%	7.1%	6.7%	6.2%	5.7%	45%.

1/ The designation "A" indicates that all beneficiary developing countries are eligible for the Generalized System of Preferences.
2/ Rate effective prior to Jan. 1, 1980.
3/ Plus additional duties (see subpt. B, headnote 4, in app. D).

in the form of connectors or other items. TSUS items 652.94–652.96 include carbon, alloy, or stainless steel columns, pillars, posts, beams, girders, and other structural units; in order to be classified under one of these items, the material must have two or more pieces joined together and must be load or weight bearing. TSUS item 652.97 covers iron or steel offshore oil and natural-gas-drilling and production platforms and parts thereof. TSUS item 653.00 is a residual category in which all articles not classified under TSUS items 652.90–652.97 are found. Included in this item are all fabricated structures of steel (excluding oil platforms) which enter the United States as entireties (i.e., arrive in single shipments in complete, or substantially complete, condition). If the entered merchandise is not treated as an entirety, then individual components are classified according to their condition at the time of importation (e.g., bolts would be classified under fastener provisions rather than as part of a structure). Merchandise such as doors, windows, and panels can be classified under item 653.00 if they arrive in one piece and if metal constitutes the chief value of the product. Other fabricated structural steel merchandise classifiable under the "other" provision (e.g., stairwells and walkways) is also classified under TSUS item 653.00.

The tariff classification of a structure by Customs typically involves a determination as to whether it is an entirety at the time of importation. If the entered merchandise is not an entirety, the Customs import specialist will usually obtain and study any relevant blueprints, examine selected portions of the shipment, and then classify the imported components. The merchandise can be released if the tariff classifications on the entry documents are essentially correct; however, further checking can continue after release and corrections provided to the broker in time for the filing of the entry/entry summary (depending on the documents filed to obtain immediate release).

With respect to the subject products, steel building frames are commonly transported in a knockdown condition and arrive on several ships, with different parts of the shipment classified under different TSUS numbers (such as 609.84, 652.94, and 653.00), depending on the actual content of the shipment. Transmission towers usually arrive disassembled in three separate bundles. These shipments are typically aggregated and classified under TSUS items 609.84, 609.86, 652.94, and 652.96. Bridges commonly arrive in sections and are generally classified under items 652.94 or 653.00. Oil platforms are classified under item 652.97, which includes both whole production platforms and parts thereof. Ship and barge sections are generally of nonalloy iron or steel and classified under TSUS items 652.94 or 653.00, as always, depending on the contents of the shipment.

Classification problems may exist with respect to the importation of fabricated structural steel products which are not specifically provided for in the Tariff Schedules. Importers of certain Korean building components, for example, have entered articles such as building braces and related merchandise under TSUS item 653.00, which carries a column 1 tariff of 7.1 percent ad valorem, but is duty free for GSP eligible countries like Korea. 1/ U.S.

1/ Imports from Korea under TSUS item 653.00 increased by 519 percent in 1983 compared with those in 1982 (from 430 to 2,663 tons) and by over one hundredfold in January–June 1984 (from 99 to 10,506 tons) compared with those in January–June 1983.

Customs officials, however, have indicated that such articles may be more properly classified under provisions for "columns, pillars, posts, beams, girders, and similar structural units"—that is, TSUS items 652.94 and 652.96, which carry tariffs of 3.2 and 4.5 percent, respectively. It is believed that the tariff provision subheading "similar structural units" may be subject to various interpretations, which could lead importers to enter merchandise under the residual classification, TSUS item 653.00.

A second classification problem may exist with respect to ambiguities as to where complete sections (e.g., several stories of a multistory building) should be classified. Korean firms have also entered such merchandise under the duty-free TSUS item 653.00, arguing that articles which enter the United States as an entirety (i.e., complete or substantially complete) meet the classification criteria for the residual category of TSUS item 653.00. Customs officials indicate that such items are not considered "entireties," and, therefore, should be classified under tariff provisions other than TSUS item 653.00.

In relation to each of these classification issues, it is not clear to what extent reclassification has occurred, or is occurring, upon liquidation of imported articles at U.S. ports of entry.

Review of statutory investigations

The Commission has conducted four previous investigations in connection with electrical transmission towers and parts. Three of these investigations were conducted under section 301(c)(2) of the Trade Expansion Act of 1962 in response to workers' petitions for determination of eligibility to apply for adjustment assistance. In November 1969, the U.S. Tariff Commission (now the U.S. International Trade Commission) determined in investigations Nos. TEA-W-9 and TEA-W-10 that as a result in major part of concessions granted under trade agreements, articles like or directly competitive with transmission towers and parts were being imported into the United States in such increased quantities as to cause unemployment or underemployment of a significant number or proportion of the workers of certain plants of the U.S. industry. In March 1970, the Commission made a similar affirmative determination in investigation No. TEA-W-12 with respect to certain plant workers engaged in the fabrication of transmission towers and parts.

On April 21, 1967, the U.S. Department of the Treasury announced that it determined that exports from Italy of galvanized fabricated structural steel units for the erection of electrical transmission towers benefited from bounties or grants within the meaning of section 303 of the Tariff Act of 1930. 1/ Accordingly, effective May 22, 1967, imports into the United States of such merchandise from Italy were subject to countervailing duties. 2/

1/ Treasury's countervailing duty investigation resulted from a petition submitted in June 1966 by the Ad Hoc Committee of Galvanized Transmission Tower Fabricators. This committee consisted of nine firms that produced transmission towers in the United States.

2/ The net amount of such bounties or grants was determined to be 13.67 lire per kilogram, which was equivalent at that time to about $20 per short ton.

In January 1980, the provisions of title I of the Trade Agreements Act of 1979 became effective and the authority for administering the countervailing duty statute was transferred from Treasury to the U.S. Department of Commerce (Commerce). On March 27, 1980, the U.S. International Trade Commission received a request from counsel for the major Italian exporter of these towers, accounting for a significant proportion of exports to the United States of the merchandise covered by the countervailing duty order, for an investigation under section 104(b) of the Trade Agreements Act of 1979 with respect to fabricated structural steel units for the erection of electrical transmission towers from Italy. In accordance with section 104(b)(3) of the act, the Commission notified the Department of Commerce of its receipt of a request for an investigation, and Commerce, on April 3, 1980, suspended liquidation on all shipments of such merchandise entered, or withdrawn from warehouse, for consumption on or after that date.

The statutory deadline for completion of this investigation by the Commission was March 27, 1983, 3 years from the date of receipt of the request for the investigation. However, on December 10, 1981, the Commission determined in investigation No. 104-TAA-4 that the domestic industry producing galvanized fabricated structural steel units for transmission towers would not be materially injured, or threatened with material injury, nor would the establishment of an industry in the United States be materially retarded, by reason of such imports from Italy if the countervailing duty order on such merchandise were revoked.

Workers in the fabricated structural steel industry have filed a number of petitions with the U.S. Department of Labor under the Trade Adjustment Assistance program for workers. The petitions alleged that the workers were being injured by increased imports. Since 1975 there have been 9 certifications, 1 partial certification, and 34 denials of petitions requesting eligibility to apply for worker adjust assistance.

Tariff Treatment in Selected Foreign Countries

Although the United States and Canada have established their own classification systems, most countries of the world (including the European Community and the Republic of Korea (Korea)) use the Customs Cooperation Council Nomenclature (CCCN) as the basis for their tariff classifications. In the CCCN, most fabricated structural steel products 1/ are classified under 73.21, which includes iron or steel structures and parts of structures, and iron or steel plates, shapes, angles, and sections used in steel structures. The Canadian tariff nomenclature classifies fabricated structural steel in group 38010-1. Japan, which uses the Customs Cooperation Council Nomenclature, classifies these products under 73.21.091. Table 2 shows the tariff items, present rates of duty, and rates of duty negotiated under the MTN for major sources of U.S. imports of fabricated structural steel products.

1/ The exception is oil platforms, which may be classified under other provisions.

Table 2.--Fabricated structural steel: Selected foreign rates of duty, current and negotiated

(Percent ad valorem)

Source	Description and tariff item	Duty as of Jan. 1, 1984 1/	Negotiated rate of duty 2/
Canada	Iron or steel angles, beams, channels, columns, girders, joists, pilings, tees, zees, and other shapes or sections, punched, drilled or further manufactured than hot-rolled, n.o.p. (38010-1). Structures and parts of structures, (for example, hangars and other buildings, bridges and bridge-sections, lock-gates, towers, lattice masts, roofs, roofing frameworks, door and window frames, shutters, balustrades, pillars, and columns), of iron or steel; plates, strip, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron or steel:	13.9%	10.2%.
European Community.	(73.21)	4.6%	4.1%.
Japan 3/	(73.21.091)	5.2%	4.9%.
Korea	(73.21)	30%	20%.

1/ Duty rate applicable to imports from the United States.

2/ Final rates negotiated under the Multilateral Trade Negotiations (MTN) in Geneva.

3/ Oil platforms are believed to be classified under item 89.03.000, which is duty free.

WORLD TRADE

World trade in fabricated structural steel products, as measured by exports, ranged from $5.6 billion to $7.5 billion during 1979-82 (table 3). Fluctuations among countries during the period are viewed as a function not only of changing demand, but in part due to shifts in the exchange rate used to convert trade denominated in foreign currencies into dollars.

Table 3.—Structures and parts of structures, of iron and steel: 1/ World exports, by specified markets, 1979–82

(In thousands of dollars)

Source	1979	1980	1981	1982
Japan	601,276	986,367	1,002,980	1,062,002
West Germany	854,088	934,053	804,234	920,778
Italy	705,371	811,139	964,518	883,964
France	752,573	832,982	922,580	816,771
United Kingdom	505,103	614,812	494,912	549,086
United States	441,606	603,810	809,190	537,481
Netherlands	242,755	337,158	335,378	421,337
Korea	99,790	131,110	304,725	2/
All other 3/	1,410,775	1,469,460	1,846,972	1,844,960
Total 4/	5,613,337	6,720,891	7,485,489	7,036,379

1/ Subgroup 691.1 of the Standard International Trade Classification (SITC) includes structures and parts of structures (e.g., hangars and other buildings, bridges and bridge sections, lockgates, towers, lattice masts, roofs, roofing frameworks, door and window frames, shutters, balustrades, and pillars and columns), of iron or steel; and plates, strip, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron and steel. The category thus includes products not in the scope of the investigation.

2/ Not available.

3/ All other reporting countries providing data to the United Nations data system.

4/ Reporting countries.

Source: Compiled from official statistics of the United Nations.

Japan was the principal source of exports, accounting for 15 percent of the 1982 reported total of $7.0 billion (table 3), followed by West Germany, Italy, and France. Exports from Japan nearly doubled during 1979–82, from $601.3 million in 1979 to $1.1 billion in 1982. Exports from West Germany, Italy, and France exhibited slower growth rates in terms of dollar value during the period. The United States was one of the top eight exporting countries during 1979–82, accounting for 8 percent of exports ($537.5 million) in 1982.

As shown in table 4, Saudi Arabia was the world's largest importing country during 1979–82, accounting for 30 percent of the reported import total of $4.4 billion in 1982, followed by West Germany and Norway. The United States, one of the eight largest import markets, accounted for 4 percent of reported 1982 imports ($162.9 million).

Table 4.—Structures and parts of structures, of iron and steel: 1/ World imports, by specified sources, 1979–82

(In thousands of dollars)

Market	1979	1980	1981	1982
Saudi Arabia	895,170	1,087,088	1,197,587	1,327,421
West Germany	300,379	376,433	302,208	278,184
Norway	68,323	133,054	87,144	226,146
Indonesia	48,190	140,139	232,223	223,047
France	166,496	205,659	188,778	192,734
United States	126,562	174,528	190,936	162,867
Algeria	304,751	269,289	462,122	2/
Libya	357,821	357,596	406,998	2/
All other 3/	2,059,339	2,101,404	2,189,473	1,991,127
Total 4/	4,327,031	4,845,190	5,257,469	4,401,526

1/ Subgroup 691.1 of the Standard International Trade Classification (SITC) includes structures and parts of structures (e.g., hangars and other buildings, bridges and bridge sections, lockgates, towers, lattice masts, roofs, roofing frameworks, door and window frames, shutters, balustrades, and pillars and columns), of iron or steel; and plates, strip, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron and steel. The category thus includes products not in the scope of the investigation.

2/ Not available.

3/ All other reporting countries providing data to the United Nations data system.

4/ Reporting countries.

Source: Compiled from official statistics of the United Nations.

THE U.S. INDUSTRY AND MAJOR FOREIGN COMPETITORS

The U.S. Industry

The U.S. and Western U.S. industries, which are structured similarly, are geographically dispersed due to the relatively small marketing areas of most of the fabricating establishments, with Texas and California having the largest number of establishments. There were an estimated 2,300 fabricators of structural steel in the United States in 1983, an estimated 405 of which were in the Western U.S. region, with more than one-half employing fewer than 20 workers. Most of the smaller firms are privately held. Approximately 10 firms each employ more than 500 workers and are considered large by industry standards; two of these firms are located in the Western U.S. region. No one firm in the fabricated structural steel industry is believed to account for more than 2 percent of industry shipments, although the concentration level varies with the product manufactured. For example, six firms in the industry are believed to together account for about 90 percent of oil platform shipments.

Although the number of establishments in the U.S. and Western U.S. industries grew during 1979-83, there were nonetheless a number of closures in the industry in recent years. Appendix E lists known plant closures, by States, and the reasons for closure, as reported by U.S. fabricators. Most indicated that economic conditions were responsible for the closures, with domestic competition and import competition secondary causes of the 177 plant closings listed nationwide, of which 36 closings were in the Western U.S. region.

A technological profile of the U.S. industry 1/ reveals that nearly one-half of the U.S. producers utilize computer-aided bidding, although a slightly higher percentage of Western U.S. fabricators have adopted the same technology. Use of optical trace control was not common either in the United States as a whole or in the Western U.S. region. Most U.S. and Western U.S. producers utilize cold-cutting saws, semiautomatic beamlines, semiautomatic welding, and mechanized weldings. Lack of capital was not reported to be a major factor in decisions not to acquire new technology, with many fabricators indicating that the return on investment did not justify purchase of such items as computer-aided design, platecutting by numerically controlled computers, or computer numerical control or direct numerical control beamlines. Future investment plans by fabricators include the purchase of computer-aided design and computer numerical control beamlines.

Employment, hours worked, and wages

Total employment in the fabricated structural steel industry declined by 26 percent during 1979-83, from 103,938 employees in 1979 to 76,912 employees in 1983; Western U.S industry employment declined by 18 percent from the peak of 14,631 workers in 1981 to 12,000 persons in 1983 (table 5). The number of production and related workers for the U.S. industry also declined at a higher rate (30 percent) during the period, from an estimated 75,199 workers in 1979 to 52,985 workers in 1983. These workers accounted for an average of 71 percent of total employment during 1979-83. Much of the employment decline occurred in the larger companies, which are generally most affected by import competition and economic slumps. 2/ Estimated payroll for the U.S. industry was $1.6 billion in 1983; Western U.S. payroll was estimated at $290.1 million in 1983.

Average annual salaries of all employees of the fabricated structural steel industry rose by 29 percent during the period, from $16,353 in 1979 to an estimated $21,041 in 1983, compared with a 33-percent increase in annual salaries for Western U.S. employees, from $18,170 in 1979 to $24,179 in 1983. Annual salaries in the Western U.S. region were 11 percent to 15 percent higher than those for all U.S. fabricated structural steel employees during 1979-83 (table 5). Man-hours worked by production and related workers of the U.S. industry declined during 1979-83, from an estimated 160 million hours in 1979 to 111 million hours in 1983.

1/ See app. F.

2/ "The Impact of Technology on Labor in Five Industries," U.S. Department of Labor, Bureau of Labor Statistics, December 1982.

Table 5.—Fabricated structural steel: Number of establishments, average number of all employees, average number of production and related workers, man-hours worked by production and related workers, total annual payroll, and average annual salary 1/ for the U.S. and Western U.S. industries, 1979-83 2/

Item	1979	1980	1981	1982	1983 3/
U.S. industry:					
Number of establishments	2,079	2,139	2,197	2,241	2,262
Average number of all employees	103,938	102,849	101,851	88,590	76,912
Average number of production and related workers	3/ 75,199	3/ 74,350	3/ 72,834	3/ 61,907	52,985
Man-hours worked by production and related workers—1,000 hours	3/159,933	3/158,901	3/ 156,040	3/127,801	111,035
Total annual payroll million dollars	1,700	1,862	1,991	1,832	1,618
Average annual salary	$16,353	$18,103	$19,548	$20,676	$21,041
Western U.S. industry:					
Number of establishments	347	367	376	393	405
Average number of all employees	14,010	14,329	14,631	13,976	12,000
Average number of production and related workers	4/	4/	4/	4/	4/
Man-hours worked by production and related workers—1,000 hours	4/	4/	4/	4/	4/
Total annual payroll million dollars	255	292	318	328	290
Average annual salary	$18,170	$20,397	$21,731	$23,435	$24,179

1/ Computed on unrounded total annual payroll figures.

2/ Production and related workers include working supervisors and all nonsupervisory workers engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, packing, warehousing, shipping, maintenance, repair, janitorial and watchman services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with the above production operations. Also included are any full-time contract employees. Production and related workers do not include supervisory employees (above the working foreman level) or their clerical staff, salesmen, and general office workers.

3/ Estimated by the staff of the U.S. International Trade Commission.

4/ Not available.

Source: Compiled from official statistics (some of which are unpublished) of the U.S. Department of Labor, Bureau of Labor Statistics, except as noted.

As shown in the following tabulation, the average hourly earnings, excluding benefits, for production and related workers in the U.S. industry in 1983 was approximately $9.22, up from $6.98 in 1979:

	U.S. fabricated structural steel workers 1/	Western U.S. fabricated structural steel workers 2/	Workers in all operating manufacturing establishments 1/
1979	$6.98	$7.76	$6.70
1980	7.56	8.52	7.27
1981	8.29	9.22	7.99
1982	8.94	10.13	8.50
1983	9.22	10.59	8.84

1/ Compiled from official statistics of the U.S. Department of Labor.
2/ Estimated by the staff of the U.S. International Trade Commission.

Average hourly earnings of production and related workers in the Western U.S. industry rose from $7.76 in 1979 to $10.59 in 1983. This compares to an "all manufacturing" average hourly earnings increase from $6.70 in 1979 to $8.84 in 1983. Direct labor costs accounted for about 15 percent of the value of 1983 shipments, or about 34 percent of the value added by the industry. 1/

Employees of the industry are employed in occupations such as maintenance (carpenters, electricians, and machinists) and welding, as indicated in the following tabulation showing U.S. employment data for the fabricated structural steel industry as of November 1979 2/:

Occupation	Number of workers
Maintenance (total)	746
Processing (total)	29,008
Structural fitters	5,610
Helpers	3,047
Hand welders	5,825
Machine welders	2,800
Other	11,726
Inspection and testing (total)	798
Recording and control (total)	298
Material movement (total)	4,225
Electric bridge crane operators	1,509
Truck drivers	1,361
Custodial (total)	417
Total	35,492

1/ Based on data provided in response to questionnaires of the U.S. International Trade Commission.
2/ Data from the Industry Wage Survey: Fabricated Structural Metal, November 1979, U.S. Department of Labor, Bureau of Labor Statistics, May 1981.

Due to the specialized skill levels of these employees, shortages in certain occupations, and the easy transference of these skills to other industries, fabricators attempt to retain these employees during slack periods by bidding on smaller projects or by lowering their project bids. Fabricators are then able to retain their skilled work force and generate a cash flow to cover overhead costs. 1/

Although a large proportion of the industry's work force is considered semiskilled, these jobs generally require more training, personal judgment abilities, and manual operations than those semiskilled workers in other manufacturing industries. Many of the semiskilled positions are classified as machine operators, including flame-cutting and power-shearing machines. 2/ Workers are trained in several occupations by some fabricating plants to benefit from job flexibility, but this is not an industrywide practice. 3/ Technological changes, such as the use of semiautomatic beamlines, have resulted in the elimination of certain unskilled jobs (e.g., punch press and power shear "helper" operators), with little or no effect on the level of skilled or semiskilled workers employed in the industry.

Shipments and exports

U.S. shipments of fabricated structural steel rose from an estimated 6.3 million tons ($6.7 billion) in 1979 to 6.9 million tons ($8.2 billion) in 1981 before declining annually, to 4.8 million tons ($5.2 billion) in 1983 (table 6). Western U.S. shipments followed a similar pattern, rising from 723,000 tons ($856 million) in 1979 to 971,000 tons ($1.1 billion) in 1981, before falling to 679,000 short tons ($770 million) in 1983. Western U.S. shipments accounted for 11 to 14 percent of total U.S. shipments. Buildings constituted the largest product category, accounting for an average 65 percent of total U.S. shipments during 1979-83, while the importance of buildings in the Western United States was more pronounced, accounting for 76 percent of total shipments during the same period.

U.S. exports of fabricated structural steel and related products, 4/ rose from 121,295 tons ($195 million) in 1979 to 175,035 ($314 million) in 1980 before declining to 65,803 tons ($133 million) in 1983 (table 7). Shifts in Western U.S. exports were less pronounced, rising from 9,726 tons ($18.5 million) in 1979 to 14,924 tons ($27.3 million) in 1982 before declining to 10,395 tons ($24.0 million) in 1983.

1/ U.S. Department of Labor, Bureau of Labor Statistics, "Productivity growth below average in fabricated structural metals," Monthly Labor Review, June 1980.

2/ "The Impact of Technology on Labor in Five Industries".

3/ Ibid.

4/ Exports of the products subject to the investigation are not separately provided for in Schedule B; instead, they are classified with related items.

Table 6.—Fabricated structural steel: U.S. and Western U.S. shipments, by product, 1979–83

Item	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
U.S. shipments:					
Buildings	3,847	4,269	4,404	3,864	3,394
Bridges	429	506	551	344	298
Towers	1/	1/	1/	228	1/
Oil platforms	380	413	448	251	180
Ship and barge sections	1/	1/	1/	325	1/
Other	2/1,691	2/ 1,319	2/ 1,510	1,059	2/ 931
Total	6,347	6,507	6,913	6,071	4,803
Western U.S. shipments:					
Buildings	508	610	749	576	529
Other 3/	215	206	222	136	150
Total	723	816	971	712	679
	Value (million dollars)				
U.S. shipments:					
Buildings	3,917	4,966	4,757	4,537	3,394
Bridges	483	576	649	422	378
Towers	1/	1/	1/	229	1/
Oil platforms	733	818	876	534	317
Ship and barge sections	1/	1/	1/	426	1/
Other	2/1,533	2/ 1,290	2/ 1,928	1,741	2/ 1,141
Total	6,666	7,650	8,210	7,889	5,230
Western U.S. shipments:					
Buildings	556	760	742	681	550
Other 3/	300	206	325	345	220
Total	856	966	1,067	1,026	770

1/ Not available.
2/ Including towers, ship and barge sections, and nonclassified shipments.
3/ Including bridges, towers, oil platforms, ship and barge sections, and nonclassified shipments.

Sources: Estimated from data submitted in response to questionnaires of the U.S. International Trade Commission, data of the U.S. Department of Commerce, and data of the American Institute of Steel Construction. Respondents to the Commission's questionnaire accounted for 22 percent of the value of shipments reported in the 1982 Census of Manufactures, and the following percentage of product shipments: buildings, 20 percent; bridges, 49 percent; and oil platforms, 89 percent. Western U.S. respondents accounted for 36 percent of the total value of estimated 1982 Western U.S. shipments and 39 percent of building shipments.

U.S. exports represented about 2.1 percent of total industry shipments, whereas Western U.S. producers' exports represented 1.6 percent of total Western U.S. shipments. Exports to Mexico, Saudi Arabia, and Canada accounted for about 50 percent of total U.S. exports during 1979–83, and exports to Mexico and Canada accounted for about 56 percent of Western U.S. exports during the same period. 1/

Table 7.—Fabricated structural steel: 1/ U.S. and Western U.S. exports, 1979–83, January–June 1983, and January–June 1984

Period	U.S. exports		Western U.S. exports	
	Quantity	Value	Quantity	Value
	Short tons	1,000 dollars	Short tons	1,000 dollars
1979	121,295	195,258	9,726	18,502
1980	175,035	313,644	10,614	22,438
1981	172,388	390,526	15,165	26,584
1982	119,303	268,678	14,924	27,313
1983	65,803	133,037	10,395	24,048
January–June—				
1983	35,606	75,991	7,097	15,107
1984	47,302	75,983	19,195	9,879

1/ Schedule B items 652.9180 and 652.9190.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Capacity and capacity utilization

U.S. producers' production capacity increased by 4 percent during 1979–83, from 9.5 million tons in 1979 to 9.9 million tons in 1982 and 1983 (table 8). During the same period, Western U.S. capacity increased at a greater rate of 15 percent, from 1.3 million tons in 1979 to 1.5 million tons in 1983. Buildings constituted the largest product category, accounting for about 66 percent of both total U.S. and Western U.S. capacity.

Capacity utilization in the U.S. fabricated structural steel industry fluctuated during 1979–83, rising from 67 percent in 1979 to 73 percent in 1982 before declining to 49 percent in 1983. The fluctuations were fairly uniform among the product categories. Capacity utilization rates in the Western United States paralleled those of the total United States; however, on average, rates were lower than for the entire United States.

1/ See app. G for commodity analysis, by countries, of exports.

Table 8.—Fabricated structural steel: U.S. and Western U.S. production capacity and capacity utilization, by product, 1979–83

Item	1979	1980	1981	1982	1983
U.S. capacity:					
Buildings					
1,000 short tons	6,060	5,915	6,013	6,319	6,258
Bridges—do	881	836	825	824	835
Towers—do	1/	1/	1/	1/	1/
Oil platforms—do	470	488	530	530	490
Ship and barge sections do	1/	1/	1/	1/	1/
All other 2/—do	2,100	2,100	2,200	2,200	2,300
Total—do	9,511	9,339	9,568	9,873	9,883
Western U.S. capacity:					
Buildings					
1,000 short tons	841	864	936	940	998
All other 3/—do	433	445	482	484	514
Total—do	1,274	1,309	1,418	1,424	1,512
U.S. capacity utilization:					
Buildings—percent	64	72	73	61	54
Bridges—do	55	69	79	51	45
Towers—do	1/	1/	1/	1/	1/
Oil platforms—do	81	85	85	47	37
Ship and barge sections do	1/	1/	1/	1/	1/
All other 2/—do	81	58	62	73	41
Average—do	67	69	71	73	49
Western U.S. capacity utilization:					
Buildings—percent	60	71	80	61	53
All other 3/—do	50	46	46	28	29
Average—do	57	62	68	50	45

1/ Not available.

2/ Including towers, ship and barge sections, and nonclassified shipments.

3/ Including bridges, towers, oil platforms, ship and barge sections, and nonclassified shipments.

Sources: Estimated from data submitted in response to questionnaires of the U.S. International Trade Commission and data of the U.S. Department of Commerce.

Financial experience 1/

Overall operations.—Total net sales of all products produced by U.S. fabricators, as reported by respondents to the Commission's questionnaire,

1/ U.S. and Western U.S. producers responding to the Commission's questionnaire accounted for 20 percent and 32 percent, respectively, of U.S. and Western U.S. shipments in 1983. See app. H for financial experience breakdown.

increased by 33 percent, from an estimated $2.1 billion in 1979 to $2.8 billion in 1981, before declining by 43 percent to $1.6 billion in 1983 (table 9). Reflecting the more pronounced market shifts in the Western U.S. region, total net sales of all products produced by Western U.S. producer respondents increased at a greater rate, rising by 58 percent from $219 million in 1979 to $347 million in 1982 before declining by 33 percent to $231 million in 1983 (table 9). The return on sales of U.S. and Western U.S. fabricators generally paralleled one another during 1979–83, with both falling to period lows of -1.8 and -0.9 percent, respectively, in 1983.

Table 9.—Fabricated structural steel: Financial experience of certain U.S. and Western U.S. fabricators on overall operations in establishments producing fabricated structural steel, 1979–83

Item	1979	1980	1981	1982	1983
United States:					
Net sales					
million dollars—	2,121	2,466	2,788	2,153	1,600
Net profit or					
(loss)——————do——	58	130	95	43	(28)
Return on sales					
percent—	2.7	5.3	3.4	2.0	-1.8
Western United States:					
Net sales					
million dollars—	219	231	289	347	231
Net profit or					
(loss)——————do——	6	12	21	24	(2)
Return on sales					
percent—	2.7	5.2	7.3	6.9	-0.9

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Fabricating operations.—Total net sales of fabricated structural steel products produced by U.S. producer respondents accounted for between 74 to 79 percent of total sales during 1979–83. Sales increased by 31 percent, from an estimated $1.6 billion in 1979 to $2.1 billion in 1981, before declining by 38 percent to $1.3 billion in 1983 (table 10). Total net sales of fabricated structural steel products produced by Western U.S. producer respondents accounted for between 75 and 91 percent of total sales during 1979–83. These sales increased by 68 percent from $165 million in 1979 to $277 million in 1982, before declining by 24 percent to $210 million in 1983. Profitability on fabricating operations was generally slightly lower than profitability on all operations for both U.S. and Western U.S. producers during 1979–83.

Table 10.—Fabricated structural steel: Financial experience of certain U.S. and Western U.S. fabricators on fabricated structural steel operations, 1979–83

Item	1979	1980	1981	1982	1983
United States:					
Net sales					
million dollars—	1,567	1,892	2,121	1,700	1,261
Net profit or					
(loss)——do——	33	114	88	40	(20)
Return on sales					
percent—	2.1	6.0	4.1	2.4	-1.6
Western United States:					
Net sales					
million dollars—	165	198	244	277	210
Net profit or					
(loss)——do——	2	12	20	22	5
Return on sales					
percent—	1.2	6.1	8.2	7.9	2.4

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

As shown in figures 6 and 7, raw materials and factory costs represented the largest cost elements for fabricators in 1983, accounting for about 70 percent of total costs in 1983. Direct labor and general, selling, and administrative expenses accounted for most of the balance.

Capital expenditures

Both U.S. and Western U.S. producers increased capital expenditures during 1979–81 and then decreased these outlays in both 1982 and 1983. U.S. producers' new expenditures climbed from an estimated $258.7 million in 1979 to $277.9 million in 1981, before falling to a low at $76.7 million in 1983 (table 11). Western U.S. producers' new expenditures reached a high at $42.2 million in 1981, before falling to a low of $12 million in 1983. Both U.S. and Western U.S. producers invested the majority of these outlays in new machinery and equipment. Research and development expenditures by firms are believed to be minimal, though there are cooperative projects among companies coordinated through the industry's trade association.

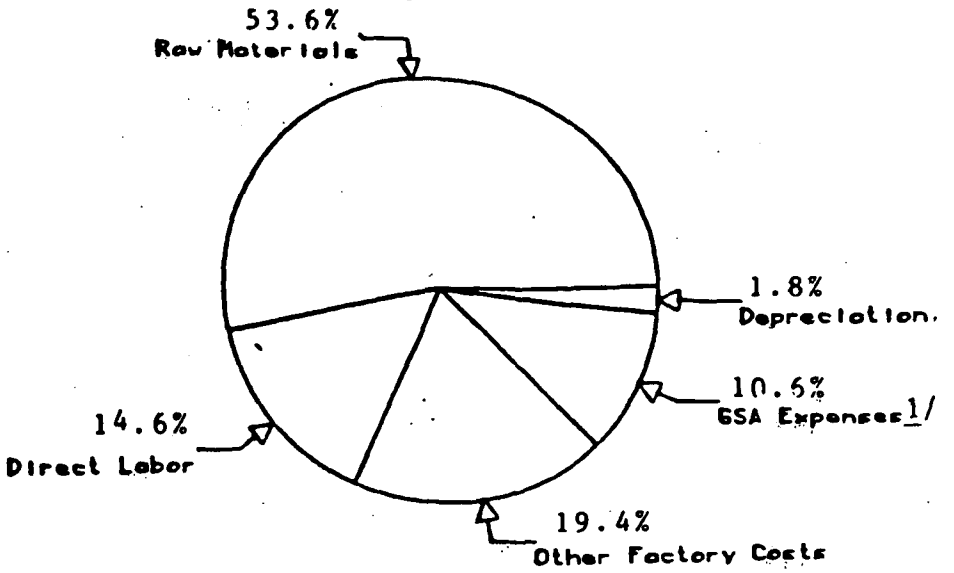


Figure 6.
US Industry

1/ General, selling, and administrative expenses.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

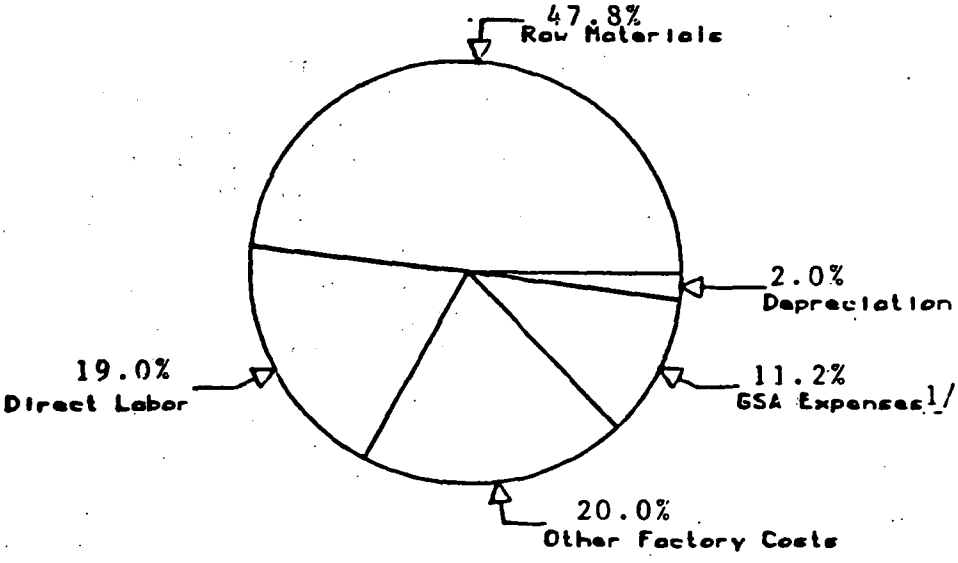


Figure 7.
Western US Industry

1/ General, selling, and administrative expenses.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 11.—Fabricated structural steel: New capital expenditures of U.S. producers and Western U.S. producers, 1979-83

(In millions of dollars)

Item	1979	1980	1981	1982	1983
U.S. producers	258.7	266.8	277.9	195.2	76.7
Western U.S. producers	39.3	40.5	42.2	29.7	11.6

Sources: Estimated from official statistics of the U.S. Department of Commerce and data submitted in response to questionnaires of the U.S. International Trade Commission.

Foreign Competitors

Republic of Korea

The fabricated structural steel industry in Korea consists of four major companies whose combined annual capacity during 1981-83 was at least 224,000 tons of fabricated steel. 1/ Compared with most of their U.S. counterparts, three of the four companies are major diversified entities involved in shipbuilding, equipment manufacturing, and construction work on a worldwide basis. Worldwide export volume of all products of three firms totaled nearly $800 million in 1981, increasing to nearly $1.1 billion in 1983. Sales of fabricated structural steel by the same three firms totaled $272.4 million in 1983, of which $36.4 million was exported to the United States. 2/ These firms do not appear to be related to any Korean raw steel producers, but they purchase much of their basic steel needs from the same source, Korea's largest raw steel producer, or from steel producers in other countries such as Japan.

Korean exports of structures and parts of structures rose from 29,344 short tons ($42.7 million) in 1979 to 386,633 short tons ($481.3 million) in 1983 (table 12). During 1979-83, Middle Eastern and Asian countries were the principal markets for Korean exports, with the United States emerging as a major Korean export market in 1983, accounting for 11 percent (41,223 short tons) of total Korean tonnage exported. 3/ Korean fabricators have no planned changes in production, capacity, or technology, or improvements in their manufacturing facilities.

1/ Telegram from American Embassy in Seoul, Korea, dated July 30, 1984 and data submitted by the American Institute of Steel Construction in connection with investigations Nos. 332-187 and TA 503(a)-12.

2/ Pre-hearing brief of the Korean Iron & Steel Association on investigation No. 332-181, table 1, and Posthearing brief, pp. 5 and 6 of addendum.

3/ See app. I for an analysis of Korean exports, by countries and by products.

Table 12.—Structures and parts of structures: Korean exports to all countries and to the United States, by specified products, 1979–83

Product	1979	1980 1/	1981	1982	1983
	Quantity (short tons)				
To all countries:					
Towers	2,807	13,045	11,799	28,752	87,557
Bridges	657	9,093	11,010	15,015	1,733
Lock gates	37	61	404	7,076	1,735
All other 2/	25,843	49,304	195,313	171,604	295,608
Total	29,344	71,502	218,526	192,441	386,633
To the United States:					
Towers	0	928	0	0	5,274
Bridges	0	0	0	0	0
Lock gates	0	60	37	3	0
All other 2/	4,589	427	3,315	14,107	35,959
Total	4,589	1,415	3,352	14,110	41,223
	Value (1,000 dollars)				
To all countries:					
Towers	3,297	8,421	9,368	21,422	23,450
Bridges	529	7,915	8,495	12,581	1,590
Lock gates	66	71	560	2,334	2,177
All other 2/	38,842	56,819	184,152	249,031	454,124
Total	42,734	73,216	202,575	285,368	481,341
To the United States:					
Towers	0	543	0	0	4,006
Bridges	0	0	0	0	0
Lock gates	0	70	55	4	0
All other 2/	1,224	185	3,233	12,825	22,528
Total	1,224	798	3,288	12,829	26,534

1/ Estimated by the staff of the U.S. International Trade Commission.

2/ Includes certain fabricated products not in the scope of the investigation. Excludes doors, sashes, window frames, and other finished structural parts and structures of iron and steel.

Source: Compiled from official statistics of the Monthly Foreign Trade Statistics, Office of Customs Administration, Republic of Korea, except as noted.

Canada

The Canadian fabricated structural steel industry consists of between 225 and 270 firms. The industry is more highly concentrated than its U.S. counterpart, as the five largest producers together account for nearly 40 percent of production. One of these five companies has a major Canadian steel producer as a major shareholder.

Buildings, bridges, and transmission towers constitute the majority of the fabricated structural steel products produced in Canada. In addition, buildings and bridges are exported to the United States, but transmission towers, oil platforms, and ship and barge sections were not widely shipped to the U.S. market.

Canadian fabricators generated average annual sales in excess of $1.1 billion during 1979–81 and net income ranging from $26 million to $62 million during the same period (table 13).

Table 13.—Fabricated structural steel: Canadian aggregate sales and net income, 1979–82

(In millions of dollars)

Item	1979	1980	1981	1982
Aggregate sales	975	1,215	1,292	1,029
Net income	26	29	62	1/

1/ Not available.

Source: Canadian Institute of Steel Construction, Ontario, Canada, July 1984.

Production capacity for the Canadian fabricated structural steel industry ranged between 600,000 to 900,000 tons during 1979–83, with the four or five largest Canadian fabricators having normal capacities of 30,000 to 40,000 tons per year (i.e., smaller than those of the largest American fabricators). Aggregate production figures reflect the dominance of buildings and related structures in the Canadian industry (table 14). Buildings accounted for an annual average of $428 million in production value, bridges averaged $40 million in yearly value, and transmission towers, $54 million.

Table 14.—Fabricated structural steel: Canadian production, 1979–82

Production	1979	1980	1981	1982
	Quantity (1,000 short tons)			
Buildings	1/	1/	1/	1/
Bridges	1/	1/	1/	1/
Towers	51	55	59	69
Total	1/	1/	1/	1/
	Value (million dollars)			
Buildings	375	434	493	412
Bridges	37	48	33	42
Towers	53	43	52	68
Total	465	525	578	522

1/ Not available.

Source: Canadian Institute of Steel Construction, Ontario, Canada, July 1984.

Nearly 18,000 workers were employed in the Canadian industry between 1979 and 1982. These workers were paid an average annual salary of approximately $318 million. Production workers numbered about 13,000 and were paid an average annual salary of nearly $228 million during the same period.

Canadian fabricators reported rising capital expenditures between 1979–81 and a significant drop in these outlays between 1982 and 1983. Capital expenditures for land and buildings averaged nearly $7 million annually during 1979–83, and funds to purchase equipment averaged about $17 million per year.

Exports of buildings and bridges to the United States peaked in 1982 at 53,000 tons, and similar exports to other countries were highest in 1979 at 18,000 tons (table 15). Exports to the U.S. averaged 32,000 tons annually between 1979 and 1983, and exports to other countries averaged 7,000 tons per year during the same period.

Table 15.—Fabricated structural steel: Canadian export bookings, to the United States and all other countries, 1979–83

(In thousands of tons)

Market	1979	1980	1981	1982	1983
United States	39	33	20	53	16
All other	18	10	5	2	2
Total	57	43	25	55	18

Source: Canadian Institute of Steel Construction, Ontario, Canada, July 1984.

Japan

The Japanese fabricated structural steel industry is made up of over 10,000 firms, most of which are relatively small companies with 25 or fewer employees. Concentration is lowest among building frame fabricators, where the top five producers, all of which are major corporations involved in other lines of business, account for 10 to 14 percent of total production. 1/ In contrast to building frame producers, the number of companies which fabricate steel for bridges, towers, and oil platforms is believed to total 100 or fewer sizable producers in each category. At least two fabricators are major steel producers as well as fabricators.

Production in the Japanese industry during 1979–81 averaged about $8.5 billion per year (table 16). Buildings represented the largest product category, accounting for close to 50 percent of the value of production in each of the 3 years. Data from the larger Japanese firms (i.e., those employing 50 or more workers) are available for each of the years 1979–83. Production by these larger companies fell from a relatively stable 2.7 million to 2.8 million tons ($2.7 billion to $3.0 billion) during 1979–82 to 2.4 million tons ($2.6 billion) in 1983 (table 17). The largest product category on which information was available is buildings, which accounted for over 60 percent of the quantity of production in each of the 5 years.

Table 16.—Fabricated structural steel: Japanese production, 1979–81

Product	1979	1980	1981
	Quantity (1,000 short tons)		
Buildings:			
Steel frames	5,487	6,194	6,135
Light weight steel frames	747	758	693
Subtotal	6,234	6,952	6,828
Bridges	862	443	893
Towers	457	1/	468
All other	1/	1/	1/
Total	1/	1/	1/
	Value (million dollars)		
Buildings:			
Steel frames	3,514	3,871	4,136
Light weight steel frames	408	399	365
Subtotal	3,922	4,270	4,501
Bridges	1,204	1,201	1,272
Towers	452	535	535
All other	2,366	2,373	2,982
Total	7,944	8,379	9,290

1/ Not available.

Source: U.S. Department of State telegram, U.S. Embassy, Tokyo, July 1984.

1/ U.S. Department of State telegram, U.S. Embassy, Tokyo, July 1984.

Table 17.—Fabricated structural steel: Japanese production of selected products, from selected firms, 1/ 1979–83

Product	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
Buildings:					
Steel frames	1,634	1,753	1,743	1,652	1,476
Light weight steel frames	104	116	111	120	122
Subtotal	1,738	1,869	1,854	1,772	1,598
Bridges	605	615	572	592	607
Towers	293	274	287	282	182
Oil platforms	38	37	41	49	31
Subtotal	2,674	2,795	2,754	2,695	2,418
	Value (million dollars)				
Buildings:					
Steel frames	1,211	1,357	1,446	1,256	1,077
Light weight steel frames	89	92	93	91	93
Subtotal	1,300	1,449	1,539	1,347	1,170
Bridges	1,019	985	1,000	1,013	1,092
Towers	337	310	368	330	217
Oil platforms	63	60	76	141	79
Subtotal	2,719	2,804	2,983	2,831	2,558

1/ Production from factories with 50 or more employees.

Source: U.S. Department of State telegram, U.S. Embassy, Tokyo, July 1984.

Japanese exports of structures and parts of structures 1/ rose from 417,083 tons ($513 million) in 1979 to 643,604 tons ($771 million) in 1980, before declining to 576,036 tons ($923 million) in 1983 (table 18). Although not separately identified, buildings most likely constituted a major export product, followed by towers and bridges. The largest foreign markets for Japanese structures throughout 1979–83 were Asian and Middle Eastern countries, with the United States accounting for between 1 and 8 percent of total Japanese exports during the period. 2/

1/ Trade statistics include products not in the scope of the investigation classified as "other structures and parts thereof."

2/ See app. J.

Table 18.—Structures and parts thereof of iron or steel: Japanese exports to all countries and to the United States, by specified product, 1979–83

Product	1979	1980	1981	1982	1983
	Quantity (short tons)				
To all countries:					
Bridges	24,793	27,165	19,122	45,496	10,168
Towers	83,784	107,276	71,419	93,960	100,469
Lockgates	7,347	9,866	8,092	7,635	5,176
All other 1/	301,159	499,297	510,421	444,505	460,223
Total 1/	417,083	643,604	609,054	591,596	576,036
To the United States:					
Bridges	12,448	22,576	3,351	17,739	2,061
Towers	1,010	5,447	11,071	12,073	532
Lockgates	14	277	293	605	528
All other 1/	12,750	1,824	11,864	10,954	1,731
Total 1/	26,222	30,124	26,579	41,371	4,852
	Value (1,000 dollars)				
To all countries:					
Bridges	21,801	22,110	26,741	61,349	11,106
Towers	89,136	108,936	74,067	83,788	104,984
Lockgates	14,658	19,019	20,496	18,829	15,543
All other 1/	387,857	620,781	732,192	756,892	791,468
Total 1/	513,452	770,846	853,496	920,858	923,101
To the United States:					
Bridges	9,050	14,591	3,802	16,532	2,597
Towers	950	3,723	7,977	11,537	1,090
Lockgates	82	1,118	1,320	3,155	1,263
All other 1/	10,083	1,971	16,525	23,254	2,741
Total 1/	20,165	21,403	29,624	54,478	7,691

1/ Does not include oil platforms.

Source: Compiled from statistics of the Japan Tariff Association.

STRUCTURAL FACTORS OF COMPETITION

U.S., Western U.S., and Selected Foreign Industries

An assessment of U.S. fabricators of the structural factors affecting industry competitiveness indicates that domestic producers do not hold a clear advantage in any of the various factors rated (table 19). Production technology is seen as essentially the same in the United states compared with that in Korean, Canadian, and Japanese fabricating industries and, therefore, is not a significant factor in relative competitive positions. Foreign producers were accorded competitive advantages in raw-material cost, capital formation, labor availability and cost, and in government-related areas such as alleged subsidies and tariff levels on imports. Respondents indicated that Korean and

Table 19.—Fabricated structural steel: U.S. producers' competitive assessment of structural factors of competition for the U.S. industry and foreign industries, by product categories, 1982-84 1/

Item	Buildings	Bridges	Towers	Oil platforms	Ship and barge sections	Korea	Canada	Japan
Fuel:								
Availability	S	S	2/	S	2/	S	S	S
Cost	S	S	2/	D	2/	S	S	S
Raw materials:								
Availability	S	S	2/	S	2/	S	S	S
Cost	F	F	F	F	2/	F	S	F
Capital:								
Availability	S	S	F	F	2/	S	S	F
Cost	F	S	F	F	2/	F	S	F
Ability of industry profits to attract funds	S	S	F	F	2/	F	S	F
Labor:								
Availability	S	S	F	S	2/	S	S	F
Cost	F	F	F	F	2/	F	F	F
Production technology	S	S	2/	S	2/	S	S	S
Government involvement:								
Subsidies	F	S	2/	F	2/	F	S	F
Research and development assistance	S	S	2/	F	2/	F	S	F
Tariff levels on imports	F	F	F	F	2/	F	F	F
Nontariff barriers to imports	F	S	2/	S	2/	F	S	F
U.S. Government regulations which increase costs	F	S	F	S	2/	S	S	F
Foreign government regulations which increase costs	S	S	F	S	2/	S	S	S

1/ D=60 percent or more of total respondents accorded domestic fabricators an advantage; F=60 percent or more of total respondents accorded foreign fabricators an advantage; S=competitive position the same.

2/ Data not available or response insufficient to provide an assessment.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Japanese fabricators held an advantage in most of these structural factors, and Canada was accorded an advantage in two elements: labor cost and tariff levels on imports. On a product-by-product basis there was considerable variation in assessments, with foreign producers of oil platforms and towers being accorded more advantages than producers of other products. 1/

The advantages accorded foreign producers in raw-material and labor costs are particularly important, as U.S. and Western U.S. fabricators rate these elements as two of the most significant factors affecting their firms' competitive position vis-a-vis that of foreign and other domestic fabricators (table 20).

Table 20.—Fabricated structural steel: Frequency of responses by U.S. and Western U.S. fabricators assessing the importance of factors affecting their firms' relative competitiveness with foreign and other domestic fabricators in U.S. markets

Factor	Minimal		Moderate		Significant	
	Total United States	Western United States	Total United States	Western United States	Total United States	Western United States
Raw-material costs	4	0	12	3	49	12
Level of capital investment	9	4	24	8	10	2
Labor costs	3	0	15	6	45	10
Transportation costs	29	8	20	3	14	5
Technology	17	7	26	8	21	3
Marketing	20	3	16	6	11	2

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Raw materials 2/

U.S. fabricators have indicated that Japan, Canada, and Korea have cost advantages with respect to raw materials, and Korea and Japan have advantages with respect to materials availability. The fabricators' views on relative cost competitiveness are supported by an analysis of developments in steel markets in recent years, as discussed below.

The primary raw materials purchased by fabricators are heavy steel structural shapes and plate. During 1979-83, domestic demand for these

1/ See app. K for a country-by-country and product assessment analysis.

2/ Information on import penetration levels and prices are from Carbon and Certain Alloy Steel Products: Report to the President on Investigation No. TA-201-51 . . . Appendixes to the Report to the President on Investigation No. TA-201-51, vols. I and II, USITC Publication 1553, July 1984, pp. A-163 to A-165, A-175 to A-178, G-4, G-29, H-5, H-30, and O-2 to O-9.

products was met largely by domestic steel producers. An analysis of steel prices during 1982 and 1983 indicates that imports of a representative wide-flange beam product 1/ undersold domestic merchandise by 19 and 23 percent, respectively ($78 and $94 per ton, respectively). 2/ Moreover, the difference between import prices and domestic prices for a representative plate product 3/ ranged from 8 to 10 percent lower for imports in the Western U.S. market area and from 17 to 29 percent lower for imports in certain other areas during 1982 and 1983. As Korea, Japan, and Canada are significant sources of one or both of these products to the U.S. market, fabricators in their respective countries were most likely in a position to benefit from lower overall materials costs. The advantage was probably more pronounced in the case of Korea and Japan, since Canada meets part of its structural steel needs by purchasing materials from U.S. steel producers. 4/

The foreign raw-material cost advantage is likely to have been narrower for domestic fabricators in the Western U.S. region, where import penetration is higher, reflecting the fact that there are a limited number of domestic steel producers in the area. 5/ Despite their higher dependence on lower priced imported steel, Western fabricators were probably nonetheless at a price disadvantage relative to their primary competitors, Japan and Korea, due to the various measures taken during 1979-83 which affected the terms on which steel could be imported. These measures included the Trigger-Price Mechanism (TPM), the U.S.-EC Steel Arrangement Concerning Trade in Certain Steel Products (the Arrangement), Japanese voluntary export restraints, and a number of antidumping and countervailing duty cases. 6/

An assessment of these measures by U.S. fabricators indicated that the effect of the TPM was to increase steel prices, a point on which Western fabricators concurred (table 21). Opinion was divided, however, as to whether the Arrangement or Japanese restraints had any effect on steel prices and supply, with Western fabricators generally indicating both to have been affected. The decline in prices attributed to the Arrangement by a number of Western fabricators is in sharp contrast with those indicating an increase. This divergence may be explained by the fact that at the time the Arrangement came into force, steel prices were generally declining due to weakness in the steel markets.

1/ Wide-flange carbon steel beams, A-36 or equivalent, 8 inches by 8 inches, 31 through 67 pounds per foot, 40 through 60 feet in length, item order of 5 tons and over.

2/ Imports undersold domestic integrated producers by an average of 23 percent, and domestic minimills, by 19 percent.

3/ Hot-rolled carbon steel plate, in cut lengths, A-36 or equivalent, sheared edge, not heat treated, not cleaned or oiled, 3/8 inch to under 1/2 inch in thickness, over 90 inches through 100 inches in width.

4/ Brief of the Canadian Institute of Steel Construction on investigation No. 332-181, p. 7.

5/ West coast fabricators indicated that raw steel supplied by foreign mills accounts for as much as 75 percent of the steel used in fabrication by some companies on the west coast (transcript of the hearing, p. 3).

6/ See app. L for a discussion of these measures.

Table 21.—Fabricated structural steel: Frequency of responses by U.S. and Western U.S. fabricators assessing the effect of certain trade measures on domestic and foreign steel prices and availability

Item	Trigger-Price Mechanism		United States-EC Steel Arrangement		Japanese export restraints	
	Western United States	Total United States	Western United States	Total United States	Western United States	Total United States
Prices:						
Increase	9	19	6	10	8	15
No effect	2	9	2	11	3	12
Decrease	0	3	4	5	0	1
Availability:						
Increase	2	4	2	3	1	2
No effect	7	21	3	13	3	11
Decrease	0	2	6	8	7	12

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Respondents to the Commission's questionnaire indicate that neither the TPM nor the Arrangement significantly affected their competitiveness in the U.S. market (table 22). Opinions were divided with respect to Japanese restraints, however. In contrast to the views of all U.S. fabricators, Western U.S. fabricators indicated that the Arrangement and Japanese restraints had an effect, which was sometimes significant on their competitiveness.

Table 22.—Fabricated structural steel: Frequency of responses by U.S. and Western U.S. fabricators assessing the effect of certain trade measures on their firms' competitiveness with imported fabricated steel

Effect	Trigger-Price Mechanism		U.S.-EC Steel Arrangement		Japanese export restraints	
	Western United States	Total United States	Western United States	Total United States	Western United States	Total United States
Minimal	5	14	3	13	3	12
Moderate	3	7	3	7	2	6
Significant	3	5	5	7	6	9

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Information provided to the Commission by Western U.S. fabricators on the sales of structural steel to U.S. and Korean fabricators from third countries contains allegations that Japanese importers sold, or offered to sell, wide-flange beams to Korean firms at prices about 20 percent below those offered to U.S. firms during 1981-84. The disparity reportedly narrowed when, in response to an April 1983 bill introduced into the California legislature which would have imposed a $100-per-ton tax on imported fabricated steel, Japanese suppliers agreed to achieve parity by raising prices to Korean fabricators and lowering those to U.S. fabricators. 1/

The allegations of price discrimination were tested through an examination of official Japanese trade statistics of exports of wide-flange beams (H-shapes over 80mm) during 1981-84. Figure 8 shows that the unit values of exports to the United States exceeded those of exports to Korea during 1981-1982 and that the values had converged by the third quarter of 1983. While it appears that trade data support U.S. producers' allegations, at least insofar as there were discounts accorded to Korean firms through mid-1983, these data are not conclusive since the trade figures may not represent a comparable product mix. For example, the mix of products within the Japanese export classification for H-shapes is likely to differ among countries, and from quarter to quarter. These product mix differences are likely to affect unit values.

Capital

With respect to capital, U.S. producers indicated that Japan has enjoyed a competitive edge in cost and availability of capital, and Korea has held an advantage in the cost of capital. Statistics of the Organization for Economic Cooperation and Development indicate that 1983 long-term nominal interest rates (i.e., not adjusted for inflation) for Canada and the United States were 12.02 percent and 11.44 percent, respectively, while the Japanese interest rate was 6.94 percent. Official statistics of the Bank of Korea indicate that the 1983 major interest rate on commercial bank loans of three to eight years was 15.0 percent.

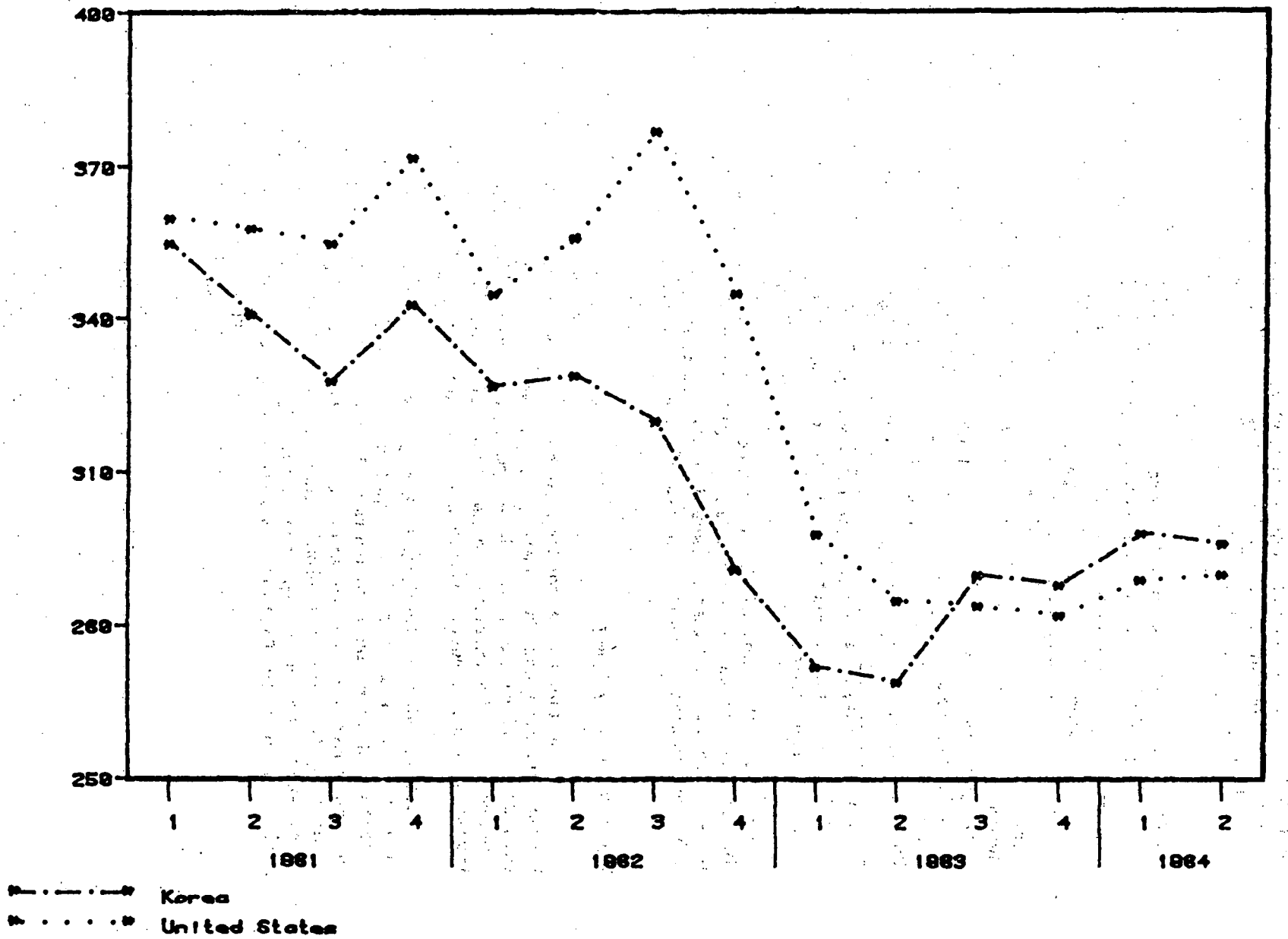
Labor

Although U.S. productivity is believed to be on a par with that in foreign plants, 2/ the United States is believed to be at a competitive disadvantage with respect to wage labor costs because of the significantly lower wage rates paid by Japanese and Korean firms. Table 23 represents data on monthly earnings for U.S. fabricated metal workers compared with those of workers in major competing countries. Although the figures include earnings from a number of other industries and may reflect different average monthly hours worked, they are believed to be indicative of the differences in wage scales for the fabricated structural steel industry. The data indicate that during 1982, Korean wages were 16 percent of the U.S. wage level of $1,553 per

1/ American Metal Market, Jan. 10, 1984.
2/ Transcript of the hearing, p. 19.

(Dollars per short ton)

Figure 8. Unit value of Japanese exports of "H" shapes over 80 millimeters, by quarters, 1981-84



Source: Japan Exports and Imports Commodity by Country, published by Japan Tariff Association.

month and that Japanese wages were 60 to 72 percent of those in the United States. Canadian wages, on the other hand, were about 4 percent less than the U.S. level.

Table 23.—Fabricated metal products: Average monthly earnings of workers in the fabricated metal products sector, by specified countries, 1979-83

Country	1979	1980	1981	1982	1983
Korea	$249	$238	$247	$256	3/
Japan:					
Larger companies 1/	1,031	1,050	1,165	1,111	3/
Smaller companies 2/	835	878	911	928	3/
Canada	1,179	1,300	1,425	1,495	3/
United States	1,298	1,419	1,497	1,553	1,714

1/ Establishments with 30 or more regular workers.
2/ Establishments with 5 to 29 regular workers.
3/ Not available.

Sources: The Bank of Korea, Economic Statistics Yearbook: 1983, p. 276; Statistics Bureau, Prime Minister's Office, Japan Statistical Yearbook: 1983, p. 93; Statistics Canada, Canadian Statistical Review, selected issues; the U.S. Department of Labor, Bureau of Labor Statistics.

Government involvement

U.S. producers responding to the Commission's questionnaire reported that Korean and Japanese fabricators had an advantage with respect to alleged subsidies and research and development assistance provided by their foreign governments. No information was developed during the course of the investigation, however, which would support these allegations.

U.S. producers indicated that all foreign governments and product categories benefited from a competitive advantage in tariff levels on imports. With respect to nontariff barriers which confront U.S. fabricators in export markets, the majority of the fabricated structural steel producers responding to the Commission's questionnaire have not exported. Those U.S. fabricators that have exported, or would export absent such barriers, have indicated that the following barriers exist for the specified countries:

Barrier	Country
Licensing requirement	Middle Eastern countries, Mexico.
Embargoes	Mexico.
Exchange and other monetary or financial controls.	Canada.
Local content and mixing requirements	Mexico, Brazil.
Discriminatory bilateral agreements	Canada.
Nationalization	Mexico.
"Border" taxes	Mexico.
State trading, government monopolies, and exclusive franchises.	Mexico.
Laws and practices which discourage imports.	Japan, Canada.
Administrative difficulties	Mexico.

U.S. producers reported that U.S. Government regulations that increase costs benefit Korean and Japanese producers in the U.S. market for nearly all products. The most notable of these regulations are those of the Occupational, Safety, and Health Administration, which affect the working conditions and safety of employees. U.S. producers indicated that U.S. and foreign products and all countries are equally competitive when affected by foreign government regulations which increase costs.

Certain generic programs or laws which exist in the United States, Canada, and Japan are believed to benefit the fabricated structural steel industries in these countries. In the United States, for example, "Buy American" laws are judged to have a significant effect on the U.S. bridge market, approximately 90 percent of which involves the expenditures of Federal funds. In Canada, certain Provincial laws accord preferences to local companies on Government purchases, and in Japan, a segment of the industry was made eligible for assistance due to the effects of the global recession on its operations. The following is a description of known government activities in these areas.

United States.—Various "Buy American" provisions have affected imports of fabricated structural steel. Under the 1978 Buy America Act (41, U.S.C. 10a–10d), Government agencies may purchase products of foreign origin only if the cost of the domestic product exceeds the cost of the foreign product, including duty, by 6 percent or more. If the low domestic bidder is situated in a labor surplus area, the difference rises to 12 percent and to 50 percent if the purchaser is the Department of Defense.

Section 401 of the Surface Transportation Assistance Act of 1978 (Federal-Aid Highway Act of 1978), Public Law 95–599, provided that funds authorized by the act be provided by the Secretary of Transportation only if steel and certain other products used in public highways and bridge infrastructure and certain mass-transit rolling stock were obtained from domestic suppliers (provided products were available in adequate quantities with satisfactory quality), unless inclusion of domestic material would increase the cost of the overall project contract by more than 10 percent.

The provisions of this act applied only to project contracts where total cost exceeded $500,000 and where determined by the Secretary of Transportation to be consistent with the public interest.

Section 165 of the Surface Transportation Assistance Act of 1982 (Highway Improvement Act of 1982), Public Law 97-424, repealed section 401 of the Federal-Aid Highway Act of 1978. The new law raises the "Buy American" preference level from 10 to 25 percent and repeals the "Buy American" waiver on projects below $500,000. Also, it expands "Buy American" rules to cement, 1/ all steel, and other manufactured products.

The importance of domestic preference legislation differs among products. Most fabricators responding to the Commission's questionnaire indicated that 10 percent or less of their building, tower, and oil platform sales were subject to such legislation, while more than half indicated that 90 percent or more of their bridge sales were subject to domestic preference laws.

U.S. and Western U.S. producers indicated that domestic preference legislation had minimal or no effect on their ability to compete against foreign fabricators of buildings, whereas a majority of both reported that this legislation was significant when competing with foreign fabricated structural steel for bridges, towers, oil platforms, and ship and barge sections (table 24).

Table 24.—Fabricated structural steel: Frequency of responses on the effects of domestic preference legislation on U.S. and Western U.S. producers' ability to compete against foreign fabricators, by specified items

Item	Impediment	Favorable effect		
		Minimal or no effect	Moderate	Significant
U.S. producers:				
Buildings	1	20	7	11
Bridges	0	4	6	18
Towers	0	0	1	3
Oil platforms	0	1	0	3
Ship and barge sections	0	0	0	2
Western U.S. producers:				
Buildings	0	7	3	3
Bridges	0	1	2	3
Towers	0	0	1	2
Oil platforms	0	0	0	2
Ship and barge sections	0	0	0	2

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

1/ Public Law 98-229 of Mar. 9, 1984, amended this section to exclude cement.

Japan.—The Japanese steel building frames industry was designated by the Government as one of the industries adversely affected by the global recession under the Small and Medium Enterprise Countermeasures Law during fiscal year 1984 (Apr. 1, 1983–Mar. 31, 1984). Under the law, smaller sized producers were eligible to obtain low-interest loans for their factory operation funds. In addition, allowances to employees of temporarily closed factories or expenses for employee training are being partly covered by the Japanese Government under the employment adjustment subsidy system administered by the Ministry of Labor during the 2-year period ending December 31, 1984.

Canada.—Several Provinces in Canada exercise preferential policies on Government purchases. These policies apply to products made in other Provinces in Canada, as well as to imported merchandise.

Transportation

Domestic fabricators appear to maintain a competitive advantage over offshore foreign fabricators such as Korea and Japan with respect to transportation factors. On a cost basis, transportation accounted for 5 percent or less of the delivered cost of raw materials to domestic fabrication facilities during 1979–84 and 5 percent or less of the delivered value of domestic fabricated products to erection or assembly sites. 1/ The average was somewhat larger for raw materials in the Western U.S. region, where reliance on imported steel is relatively high. In contrast, an analysis of official U.S. trade statistics indicates that the insurance and freight component of shipping building components from Korea to Seattle in 1983 averaged about 5.9 percent of the delivered, c.i.f., value of the merchandise. 2/ Transportation costs to more distant U.S. ports would undoubtedly be higher.

In addition to cost, other transportation factors may be significant, such as the additional shipping time required to transport imported products from offshore sources and the logistical problems associated with transporting sizable assembled structures, like oil platforms. The relative importance of shipping time differs among products, as delivery lead times may be shorter for steel building components than for oil platforms and towers. The logistical problems associated with shipping platforms relate to the size of barges needed for transoceanic transport. These logistical problems may diminish if, as domestic producers have indicated, 3/ oil platform components are shipped from Japan or Korea to Mexico for assembly. 4/

Exchange rates

Exchange-rate changes can affect the competitive position of industries in different countries by altering their relative cost structures, and consequently, their price competitiveness vis-a-vis that of foreign

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1/ See app. M.
2/ Based on 1983 Korean imports of TSUS item 652.94 into the port of Seattle.
3/ Transcript of the hearing, pp. 104 and 105.
4/ Mexico was cited as an assembly site because of relatively low wage rates.

competitors. During 1979-83 the real value of the dollar (i.e., adjusted for inflation) 1/ increased by close to 20 percent with respect to the Japanese yen and Korean won, and remained stable relative to the Canadian dollar. This contributed to a strengthening of the competitive position of the Japanese and Korean industries against their U.S. counterparts; the competitive position of the Canadian industry, however, remained unchanged.

THE U.S. AND WESTERN U.S. MARKETS

Consumption

Domestic consumption of fabricated structural steel rose from an estimated level of 6.4 million tons ($6.6 billion) in 1979 to 6.9 million tons ($8.0 billion) in 1981 before declining to 4.9 million tons ($5.2 billion) in 1983 (table 25). Shifts in Western U.S. consumption were more pronounced, rising from an estimated 822,000 tons ($937 million) in 1979 to 1.1 million tons ($1.2 billion) in 1981 before declining to 758,000 tons ($817 million) in 1983. The markets for fabricated steel are influenced by a number of factors, including interest rates, which affect construction activity; energy demand, which affects offshore-oil- and gas-drilling activity and investment by utilities; Federal highway spending, which affects the bridge market; and capital spending by firms for new plant and equipment, which indirectly affects all the markets for fabricated structural steel. As none of these factors were conducive to growth in the fabricated structural steel market during 1982 and 1983, consumption declined in both the U.S. and Western U.S. markets. The enactment of the 5-cent gas tax under the Surface Assistance Transportation Act of 1982, however, could have a favorable effect on bridge construction, since funds are to be used for highway repair, including bridge work.

1/ See app. N for an analysis of exchange rate shifts during 1979-83.

Table 25.—Fabricated structural steel: U.S. and Western U.S. shipments, exports, imports for consumption, and apparent consumption, 1979–83

(Quantity in thousands of short tons; value in millions of dollars)

Year	Shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
Total United States:					
1979	6,347	121	189	6,415	2.9
1980	6,507	175	174	6,506	2.7
1981	6,913	172	168	6,909	2.4
1982	6,071	119	145	6,097	2.4
1983	4,803	66	203	4,940	4.1
Western U.S. region:					
1979	1/ 775	10	57	822	6.9
1980	1/ 859	11	49	897	5.5
1981	1/ 1,026	15	62	1,073	5.8
1982	1/ 776	15	27	788	3.4
1983	1/ 708	10	60	758	7.9
	Value				
Total United States:					
1979	6,666	195	160	6,631	2.4
1980	7,650	314	168	7,504	2.2
1981	8,210	391	177	7,996	2.2
1982	7,889	269	135	7,755	1.7
1983	5,230	133	149	5,246	2.8
Western U.S. region:					
1979	1/ 912	19	44	937	4.7
1980	1/ 1,010	22	60	1,048	5.7
1981	1/ 1,124	27	86	1,183	7.3
1982	1/ 1,085	27	25	1,083	2.3
1983	1/ 796	24	45	817	5.5

1/ Including net regional shipments to the Western U.S. market.

Sources: Shipments, estimated from data submitted in response to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce.

Imports

U.S. imports of the products subject to the investigation and related products 1/ fluctuated during 1979–83, declining annually from 189,406 tons ($160.0 million) in 1979 to 144,975 tons ($135.1 million) in 1982 before increasing to 203,312 tons ($149.4 million) in 1983 (table 26). Imports during January–June 1984 were up 82 percent over those in January–June 1983 to

1/ Imports of the products subject to the investigation are not separately provided for in the TSUSA; they are, instead, classified with related items.

139,427 tons. Western U.S. imports accounted for 19 to 37 percent of total U.S. imports during 1979–83, with the share increasing from 30 percent in 1983 to 43 percent of the total during January–June of 1984. The primary sources throughout the period, both on a national and Western regional basis, were Japan and Canada, with Korea developing into a major source in 1983 and 1984. 1/ The ratio of imports to total U.S. consumption ranged from 2 to 4 percent during 1979–83, which compares to an import penetration level of 3 to 8 percent in the Western United States (table 25).

Table 26.—Fabricated structural steel: 1/ U.S. and Western U.S. imports for consumption, 1979–83, January–June 1983, and January–June 1984

Period	U.S. imports		Western U.S. imports	
	Quantity	Value	Quantity	Value
	Short tons	1,000 dollars	Short tons	1,000 dollars
1979	189,406	159,962	57,376	44,321
1980	174,421	168,282	48,771	59,588
1981	167,598	177,448	62,401	86,271
1982	144,975	135,140	27,496	25,057
1983	203,312	149,425	60,358	44,886
January–June—				
1983	76,650	66,759	28,239	26,453
1984	139,427	91,768	60,145	31,148

1/ Including TSUS items 609.84, 609.86, 652.94, 652.95, 652.96, 652.97, and 653.00.

Source: Compiled from official statistics of the U.S. Department of Commerce.

According to questionnaire responses of U.S. purchasers, the role of Korean imports in U.S. markets is expected to increase moderately during 1984–89, and imports from Canada and "other" countries are expected to remain the same. Opinion was divided with respect to Japan, with an almost equal number of purchasers predicting no change as those predicting an increased role of Japanese imports in the U.S. market during the period. The share of respondents' purchases that were imported during 1979–83 averaged between 13 and 14 percent. Purchasers indicated that the import share of their fabricated steel purchases is expected to remain the same during 1984–89, despite their predictions for overall increases in imports.

Western U.S. purchasers' predictions on future imports into the Western U.S. region generally paralleled those made for the entire United States, though almost an equal number envisioned a significant increase as envisioned

1/ See apps. O and P for a country–by–commodity and commodity–by–country analysis of imports.

a moderate increase in imports from Korea. A greater percentage of Western U.S. purchasers also indicated a moderate increase in imports from "other" countries. The share of respondents' purchases that were imported during 1979-83 was 23 percent; the share was expected to decline slightly during 1984-89 to 22 percent.

Competitive Assessment of Product-Related Factors in the U.S. and Western U.S. Markets

Although there may be instances where contracts are negotiated between parties on a particular project, fabricated structural steel is typically marketed through competitive bidding. 1/ The nature of the bidding and the types of parties involved vary not only among products, but depend on whether the structure is privately financed or involves the expenditure of public funds which are subject to relatively rigid procurement procedures. Although purchase price is most important in purchasing decisions, other factors such as product quality, the reliability of suppliers, and availability of material also figure prominently in purchasing decisions as shown in table 27.

Table 27.--Fabricated structural steel: Ranking of responses by U.S. purchasers assessing the importance of selected factors in purchasing decisions

Item	Ranking 1/
Purchase price	4.6
Product quality	4.3
Reliability of supplier	4.1
Availability of material	4.0
Delivery time	3.7
Terms of sale	3.4
Design	3.1
Servicing	3.0

1/ Average ranking on a scale of 1 (least important) to 5 (most important).

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. and Western U.S. fabricators indicated that foreign competitors have an overall competitive advantage in U.S. markets, due principally to their price competitiveness which, as indicated, is the most important purchasing factor (table 28). 2/ Those fabricators which indicated domestic fabricators hold an overall advantage generally cited non-price factors such as servicing,

1/ For a discussion of how products are marketed and bids are prepared, see app. R.

2/ See app. Q for country-by-country competitive assessment analysis.

shorter delivery time, and availability as the principal advantages favoring domestic fabricators.

The price advantage accorded to foreign fabricators is supported by an analysis of the factors which influenced purchasing decisions during 1981-84; lower purchase price was overwhelmingly ranked by purchasers as the principal advantage which influenced their firms' decisions to import (table 29). Reasons cited by U.S. purchasers in buying domestic material in lieu of foreign merchandise were more varied, with shorter delivery time and the availability of material ranked as highly as price. 1/ Western U.S. purchasers differed somewhat from the overall national assessment, ranking delivery time and "Buy America" laws as the two most important factors.

1/ Because of the importance of competitive bidding in winning, it is not unusual that lower purchase price is considered by purchasers as an advantage at certain times to both foreign and U.S. fabricators.

Table 28.—Fabricated structural steel: Frequency of responses by U.S. and Western U.S. producers assessing the competitive advantage of the U.S. versus the imported product, 1982-84

Item	Domestic advantage		Foreign advantage		Same	
	Total United States	Western United States	Total United States	Western United States	Total United States	Western United States
Overall competitive advantage	61	20	101	28	68	21
Principal reasons cited for overall advantage:						
Lower purchase price (delivered)	10	1	95	33	–	–
Shorter delivery time	27	14	3	0	–	–
Availability	26	16	2	1	–	–
Servicing	33	17	6	1	–	–
Favorable terms of sale	8	4	37	9	–	–
Product performance features:						
Superior design	7	4	1	1	–	–
Quality	9	8	2	1	–	–
Reliability of supplier	19	13	3	1	–	–

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 29.—Fabricated structural steel: Assessment by U.S. purchasers of the advantag of foreign or domestic products which influenced purchasing decisions

Item	Domestic merchandise		Foreign merchandise	
	Total United States	Western United States	Total United States	Western United States
Lower purchase price (delivered)	23	8	21	16
Shorter delivery time	25	13	7	5
Availability	21	7	6	4
Servicing	12	4	1	1
Favorable terms of sale	11	1	6	4
Reliability	16	5	7	6
Performance features:				
Superior design	2	0	3	2
Quality	9	3	8	6
"Buy domestic" company policy	8	5	0	0
Federal, State, or local "Buy American" laws	16	11	1	0

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Import Interaction in U.S. Markets

Buildings

During 1979–83, imports of steel building frames fluctuated ranging from an estimated 35,307 tons, in 1981, to 77,922 tons, in 1982 (table 30). Throughout the period, imports accounted for 1–2 percent of shipments. The primary source of imports during 1979–82 was Canada, with Korea developing into a major source in 1983 (table 31).

Table 30.—Buildings: U.S. shipments, exports, imports for consumption, and apparent consumption, 1979–83

Period	Shipments 1/	Exports	Imports 1/	Apparent consumption 1/	Ratio (percent) of imports to consumption 1/
	Short tons				Percent
1979	3,847,000	2/	49,134	2/	2/
1980	4,269,000	2/	36,037	2/	2/
1981	4,404,000	2/	35,307	2/	2/
1982	3,864,000	2/	77,922	2/	2/
1983	3,394,000	0	53,803	3,447,803	1.6

1/ Estimated by the staff of the U.S. International Trade Commission.
2/ Withheld to avoid disclosure of business confidential information.

Sources: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, data of the Canadian Institute of Steel Construction, and official Japanese and Korean trade statistics, except as noted.

Table 31.—Buildings: U.S. imports for consumption, by sources, 1/ 1979–83

(In short tons)

Source	1979	1980	1981	1982	1983
Canada 2/	31,795	32,798	20,128	52,877	16,123
Japan 3/	12,750	1,824	11,864	10,954	1,731
Korea 3/	4,589	1,415	3,315	14,091	35,949
Total	49,134	36,037	35,307	77,922	53,803

1/ Imports from Japan and Korea are overstated because of the inclusion of certain structures other than building frames in the official statistics used. The data presented should be interpreted as representing maximum tonnages, with actual U.S. imports somewhat lower.
2/ Canadian export orders for building frames used as a proxy for U.S. imports.
3/ Exports of certain structures, including building frames, are used as a proxy for U.S. imports, since statistics are more narrowly defined than U.S. import statistics and therefore are believed to reflect actual U.S. imports more accurately.

Sources: Canadian Institute of Steel Construction and official Japanese and Korean trade statistics.

With respect to the nature of import competition, approximately the same number of U.S. and Western U.S. producers indicated that competition was focused in higher value projects (i.e., projects whose total value exceeded $25 million) as indicated that competition was relatively equal in higher and

lower value projects. 1/ The involvement of foreign fabricators in U.S. markets (as indicated by the level of bid activity) was viewed as having risen from 8 percent in 1979 to 14 percent in 1983; Western U.S. producers indicated an increase in foreign bid activity from 19 to 30 percent in the markets they serve. Thirty percent of total respondents, however, several of which were in the Western U.S. region, did not experience any import competition in their markets during the 5-year period.

Canada.—Canadian fabricators were active both on the west coast and in the Northeastern United States during 1979-83, with most of their success coming in the latter area (table 32). Bids were tendered on projects of all sizes, with approximately two-thirds of the successes of nine major fabricators coming on projects of less than 3,000 tons. Three projects, which together accounted for about 10 percent of the total number of projects awarded, involved fabrication of over 10,000 tons of steel. The success ratio of Canadian fabricators in the U.S. building market, as measured by the share of contracts won, declined during 1979-83 from 21.6 to 8.0 percent (table 32). On the basis of tonnage, the success ratio ranged from a low of 5.5 percent in 1983, to a high of 28.1 percent in 1982. Several of the contracts won were joint efforts between Canadian and U.S. fabricators.

Table 32.—Buildings: Summary of 9 major Canadian fabricators' bid activities in the U.S. and Western U.S. markets, 1979-83

Item	Projects bid		Projects awarded		Share of projects awarded by	
	Number	Tonnage	Number	Tonnage	Number	Tonnage
		Short tons		Short tons	Percent	Percent
U.S. market:						
1979	37	132,782	8	23,604	21.6	17.8
1980	28	132,774	1/ 5	25,096	17.9	18.9
1981	40	162,102	5	10,907	12.5	6.7
1982	58	166,984	1/ 7	46,861	12.1	28.1
1983	50	103,758	2/ 4	5,685	8.0	5.5
Western U.S. market:						
1979	12	27,683	0	0	—	—
1980	4	7,609	0	0	—	—
1981	9	14,647	1	1,200	11.1	8.2
1982	4	2,447	0	0	—	—
1983	2	2,700	0	0	—	—

1/ 1 contract was a joint U.S./Canadian effort.
2/ 2 contracts were joint U.S./Canadian efforts.

Source: Compiled from data submitted by the Canadian Institute of Steel Construction, dated July 24, 1984.

1/ Information submitted in response to questionnaires of the U.S. International Trade Commission.

Korea.—Korean fabricators were active in Western U.S. markets, primarily during 1983 and 1984. Purchasers indicated that lower purchase price was the principal advantage which influenced their firms' decisions to import material, though the reliability of foreign suppliers and product quality were also factors. An analysis of contracts awarded to firms purchasing Korean fabricated steel indicates that the margins of underbidding on 14 projects in which Korean steel was selected ranged from less than 5 percent to over 30 percent; the average of the margins of Korean underbidding in the projects was on the order of 15 percent. 1/ Approximately one-half of the projects bid by Korean firms were in the 3,000- to 5,000- ton category, and the other one-half was equally divided among higher and lower tonnage projects. Three projects involved fabrication of over 10,000 tons of steel. The success rate on the projects bid rose from 29.5 percent in 1983 to 38.1 percent during 1984 (table 33). The percentage of successes was fairly evenly distributed among the three tonnage categories. All but two projects bid were located in the Western U.S. region; the other two were located in Alaska.

Table 33.—Buildings: Summary of Korean bid activity in the U.S. and Western U.S. markets, 1983 and 1984

Item	Projects bid		Projects awarded		Percentage of projects awarded by	
	Number	Tonnage	Number	Tonnage	Number	Tonnage
		Short tons		Short tons	Percent	Percent
U.S. market:						
1983	2/ 44	211,686	3/ 13	76,013	29.5	35.9
1984 1/	21	82,334	4/ 8	28,906	38.1	35.1
Western U.S. market:						
1983	2/ 43	208,456	3/ 12	72,783	27.9	34.9
1984 1/	20	80,334	4/ 8	28,906	40.0	36.0

1/ Partial year data.
2/ Not including three projects lost by a Korean firm, on which tonnage information was not available.
3/ Three project awards were partial awards.
4/ One project award was a partial award.

Source: Compiled from data supplied in Korean posthearing brief in inv. No. 332-181.

1/ Information submitted in response to questionnaires of the U.S. International Trade Commission.

Representatives of the Korean industry have attributed the country's entry into the Western U.S. market to the U.S.-EC Steel Arrangement and Japanese export restraints, which reduced the supply of raw structural steel available for fabrication to U.S. producers from the EC and Japan. 1/ The restraints were seen as having created a shortage which was partially filled by imports of fabricated steel from Korea and other sources. Increases in the supply of Japanese structurals in the U.S. market in 1984, however, were viewed as having alleviated the raw materials shortage, thereby improving the competitive posture of U.S. fabricators. U.S. fabricators have disputed the contention that there was a shortage of raw structural steel, noting that the reduction in such imports in 1983 paralleled the decline in the west coast building market. 2/ It was noted that at least three domestic fabricators actively bid on projects which were awarded to Korean firms, a fact which was viewed as supporting the U.S. industry's contention that a shortage did not exist. Entry of Korean fabricators in the Western U.S. market was stated to be associated with a contractual award granted to a domestic firm for erection of a major west coast project. The firm won the contract on the basis of using Korean fabricated steel which was allegedly priced 20 percent ($200 per ton) less than steel fabricated by domestic firms. 3/ The lower Korean cost was attributed to advantages with respect to wage rates, and an ability of Korean fabricators to purchase raw structural shapes from Japanese mills at prices up to 30 percent less than those available to west coast fabricators. 4/

While no information was developed during the investigation which demonstrated a shortage of raw steel structurals in Western U.S. markets, Western fabricators indicated that Japanese export restraints and the U.S.-EC Steel Arrangement decreased the availability of steel (see pp. 40-41). Western U.S. fabricators' statements on Korean wage rates are supported by information developed in the investigation (see pp. 42-44), while there is no conclusive information on the pricing of Japanese raw structurals to U.S. and Korean fabricators (see pp. 42-43).

Bridges

Import competition in the U.S. bridge market during 1979-83 was limited to several projects in which Canadian and Japanese fabricators participated. Korea entered the market in 1984 and received a contractual award for a bridge that will span the Mississippi River. Table 34 presents data on U.S. shipments and known imports, and table 35 presents data on a commodity-by-country basis. 5/ Imports represented less than 5 percent of apparent consumption during 1979-83.

1/ Brief submitted on behalf of the Korean Iron and Steel Association on investigation No. 332-181, pp. 13, 14, 37, and 38.

2/ Post-hearing brief submitted on behalf of the West Coast Fabricators and Steel Industry Association on investigation No. 332-181, p. 5.

3/ Transcript of the hearing, pp. 49-50.

4/ Testimony of Mr. Stephen Schwartz before the U.S. International Trade Commission in investigation No. 332-181, p. 7.

5/ Since imports of bridges, and parts thereof, are not separately provided for in the TSUSA, data provided by the Canadian Institute of Steel Construction and official Japanese and Korean trade statistics on exports were used as proxies. U.S. imports from other countries are believed to be negligible.

Table 34.—Bridges and parts thereof: U.S. shipments, exports, imports for consumption, and apparent consumption, 1979–83

Year	Shipments 1/	Exports	Imports 1/	Apparent consumption 1/	Ratio of imports to consumption 1/
	Short tons				Percent
1979	429,466	0	19,778	449,244	4
1980	506,281	0	22,576	528,857	4
1981	551,365	0	3,351	554,716	1
1982	343,752	0	17,915	361,667	5
1983	298,326	0	2,061	300,387	1

1/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission and from official statistics of the U.S. Department of Commerce, except as noted.

Table 35.—Bridges and parts thereof: U.S. imports, by specified sources, 1979–83

(In short tons)

Source	1979	1980	1981	1982	1983
Japan	12,448	22,576	3,351	17,739	2,061
Canada	7,330	0	0	176	0
Total	19,778	22,576	3,351	17,915	2,061

Source: Imports from Canada, compiled from Canadian Institute of Steel Construction; imports from Japan, compiled from Official Japanese trade statistics.

Towers

Imports of fabricated structural steel for towers rose from an estimated 8,217 short tons in 1979 to 22,490 short tons in 1980 before declining gradually to an estimated 14,199 in 1983 (table 36). In 1982, imports accounted for 7 percent of apparent consumption.

Table 36.—Towers: U.S. producers' shipments, exports, imports for consumption, and apparent consumption, 1979–83

Year	U.S. producers' shipments	Exports	Imports 1/	Apparent consumption	Ratio of imports to consumption
	Short tons				Percent
1979	2/	3/	8,217	2/	2/
1980	2/	0	22,490	2/	2/
1981	2/	3/	20,245	2/	2/
1982	1/ 228,000	0	16,044	1/244,044	1/ 7
1983	2/	0	14,199	2/	2/

1/ Estimated by the staff of the U.S. International Trade Commission.
2/ Not available.
3/ Withheld to avoid disclosure of business confidential information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except as noted.

Italy and Japan were the two principal sources of this product during the period (table 37). Most of the purchasers of Italian fabricated structural steel for towers were utilities located outside the Western U.S. region, whereas nearly all imports from Japan were purchased by a major west coast public power company. 1/ Korea emerged as a major supplier in 1983, with 5,274 short tons exported to the United States.

Table 37.—Towers: U.S. imports, by specified sources, 1979–83

(In short tons)

Source	1979	1980	1981	1982	1983
Italy	7,207	16,115	9,174	3,971	8,393
Japan	1,010	5,447	11,071	12,073	532
Korea	0	928	0	0	5,274
Canada	1/	1/	1/	1/	1/
Total	8,217	22,490	20,245	16,044	14,199

1/ Negligible.

Source: Data for imports from Italy, compiled from Saelectric Transmission, Inc., submission dated June 26, 1984; Japan, Japan Tariff Association; Korea, Monthly Foreign Trade Statistics, Office of Customs Administration; and Canada, Canadian Institute of Steel Construction.

1/ Statement submitted by the U.S. representative of the major Italian tower fabricator in connection with investigation No. 201-51.

Import competiton in this sector of the U.S. fabricated structural steel market is believed to be dominated by one major Italian fabricator of towers, at least three major diversified Japanese companies, and two Korean fabricators active worldwide in many activities. The major Italian fabricator is reportedly strong in tower design and engineering, contributing to its success in the U.S. market. The Japanese producers reportedly provide good quality and have an advantage over many other producers because of their ability to deliver to the Western U.S. region at lower costs.

Oil platforms

There are two distinct regional markets for oil platforms in the United States—the gulf coast market and the west coast market. In the Gulf of Mexico, there are relatively more, but smaller, platforms in relatively shallow water depths. Gulf coast platforms are constructed by regional fabricators who do not face large-scale import competition because of transportation impediments related to the logistics and cost of shipping the platforms. However, gulf coast fabricators expect import competition may develop over the next 5 to 10 years from regional fabricators in certain Latin American countries.

The west coast market comprises various locations in waters offshore of Alaska and California. Industry sources forecast that over 50 offshore platforms will be installed on the west coast over the next 8 years, with costs ranging from $30 million to $300 million. Almost one-half of these platforms are expected to be for large jackets (for placement in depths in excess of 500 feet), with contract values of at least $100 million. Thus, deep-water platforms potentially represent a market of over $2 billion.

Platform projects are put out to bid by energy companies on a global market basis. Oil platform purchasers rank both price and quality as being the two central factors in their acquisition decisions, with quality being especially important because of the complex nature of platforms, allowing no margin for fabrication errors. Only a small number of foreign and domestic fabricators have typically been presented with the opportunity to bid on a project; however, once a fabricator (foreign or domestic) has won a major job, the company has begun the process of qualifying for future work. Thus, with an increasing number of foreign producers winning contracts in recent years, the number of eligible fabricators desiring to bid on a particular project has increased accordingly.

During 1964-77, when there was virtually no foreign competition in the west coast market, price levels for oil platforms were in the range of $2,500 to $3,000 per ton. 1/ In 1978, Japanese shipyards entered the market at prices reported in the range of $1,500 per ton, and foreign participation increased to over 50 percent of the market principally because of low bids. 2/ Since 1979, 10 platforms have been put out for bid, but only 1 platform and the deck sections for 3 others were awarded to domestic fabricators. The high-tonnage components (the jackets and pilings) were awarded to Japanese producers in eight projects and to a Korean fabricator in one case. At

1/ Transcript of the hearing, p. 95.
2/ Ibid.

present, unit prices of foreign fabricated structures are reported to be at the same level as prevailed in the mid-1970's. 1/

As shown in table 38, imports of oil platforms represented under 2 percent of U.S. shipments during 1979-83. 2/ However, as shown in tables

Table 38.--Offshore oil and natural-gas-drilling and production platforms and parts thereof: U.S. shipments, exports, imports for consumption, and apparent consumption, 1979-83

Year	Shipments 1/	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
1979	380,000	2/	7,913	2/	2/
1980	413,000	2/	447	2/	2/
1981	448,000	2/	12,420	2/	2/
1982	251,084	2/	1,243	2/	2/
1983	180,000	2/	5,656	2/	2/

1/ Estimated by the staff of the U.S. International Trade Commission.
2/ Withheld to avoid disclosure of business confidential information.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission and from official statistics of the U.S. Department of Commerce, except as noted.

39 and 40, import penetration has been at much higher levels in the Western U.S. market, with virtually all imports coming from Japan and Korea. 3/

Table 39.--Oil platforms: Major west coast oil platform contract awards, 1979-82 and January-September 1984

Period	Tons awarded	Domestic	Foreign	Ratio of imports to tons awarded
	Short tons			Percent
1979	7,300	0	7,300	100
1980	7,100	1,400	5,700	80
1981	12,300	4,000	8,300	67
1982	29,500	29,500	0	0
1984 (January-September)	46,710	7,600	39,110	84

Source: Kaiser Steel Corp. brief.

1/ Ibid, p. 96.
2/ U.S. exports were withheld to avoid disclosing data for individual companies.
3/ See app. Q for country-by-country analysis of imports.

Table 40.—Oil platforms: Major foreign contracts awarded, by countries, 1979–83 and January–September 1984

(In short tons)

Country	1979	1980	1981	1982	1983	January–September 1984
Japan	7,300	5,700	8,300	0	22,700	39,110
Korea	0	0	0	0	24,300	0
Total	7,300	5,700	8,300	0	47,000	39,110

Source: Kaiser Steel Corp. brief.

U.S. and Western U.S. Producers' Response to Import Competition

U.S. and Western U.S. producers, in response to increased import competition in their U.S. markets, have taken a number of actions (table 41). The most common response was to cut back operations and to implement cost reduction efforts. Other frequent responses included reducing project bids, focusing efforts on more specialized work, reducing or dropping capital investments, and closing fabricating lines. Importing and bidding jointly with foreign firms for a portion of the project were the least selected options. No U.S. or Western U.S. respondents indicated that they had opened fabrication plants abroad.

Certain U.S. and Western U.S. producers took no actions or few actions, principally because of a lack of capital funds to counter foreign competition.

Table 41.—Fabricated structural steel: Frequency of responses by U.S. and Western U.S. producers indicating responses to increased competition from foreign-made fabricated structural steel products, 1979-84

Item	Buildings		Bridges		Towers		Oil platforms		Ship and barge sections	
	Total	Western region	Total	Western region	Total	Western region	Total	Western region	Total	Western region
Fabricators took the following actions:										
Reduced project bids	18	6	8	1	2	0	5	2	1	0
Reduced or dropped capital investments	10	2	5	0	2	1	3	1	2	1
Cut back operations	22	7	10	2	3	1	5	3	1	0
Closed fabricating lines	8	3	6	2	1	0	3	2	1	0
Implemented cost reduction efforts	21	7	10	2	3	1	3	2	2	1
Imported	0	0	0	0	0	0	1	0	0	0
Opened fabrication plant abroad	0	0	0	0	0	0	0	0	0	0
Focused efforts on more specialized work	0	0	0	0	1	1	1	1	1	1
Bid jointly with foreign firms for portion of projects	1	1	0	0	0	0	3	0	0	0
Fabricators took no action or few actions because of a Lack of capital funds to counter foreign competition	9	3	5	1	4	2	2	2	3	2

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX A

COPIES OF LETTERS TO CHAIRMAN ALFRED E. ECKES FROM CHAIRMAN SAM GIBBONS, SUBCOMMITTEE ON TRADE, HOUSE WAYS AND MEANS COMMITTEE, REQUESTING AN INVESTIGATION

DAN ROSTENKOWSKI, ILL., CHAIR
COMMITTEE ON WAYS AND MEANS

JOHN J. SALMON, CHIEF COUNSEL
A. L. SINGLETON, MINORITY CHIEF OF S

DAVID B. ROHR, SUBCOMMITTEE STAFF D

COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

SUBCOMMITTEE ON TRADE

4:23

January 19, 1984

The Honorable Alfred E. Eckes
Chairman
U.S. International Trade Commission
701 E Street, N.W.
Washington, D.C. 20436

Dear Mr. Chairman:

On behalf of the Subcommittee on Trade, I would like to request an investigaiton pursuant to Section 332 of the Tariff Act of 1930 on conditions of competition between domestic and imported fabricated steel products.

The Subcommittee's interest in this matter stems from significant developments in the West Coast market for fabricated steel products, where recent data indicate a large increase in Korean imports. In fact, it appears that for the past year imports have supplied most of the major high-rise construction projects involving structural steel and that domestic suppliers have been substantially underbid. There have also been allegations within the domestic industry of past inequities in the pricing of raw steel by other foreign suppliers which have favored Korean fabricators.

We request that your investigation of these developments include a review of the following points or questions:

1. What are the recent trends in trade in steel and structural steel products into the Western United States (as defined in previous ITC studies of the West Coast steel industry)? In particular, what is the import penetration ratio and its trend line; what price differences have existed between domestic and imported products; and which countries play a major role in the West Coast market?

2. What is the tariff classification and rate on these imports (and are there any classification problems)?

3. To the extent that you can determine from available sources, are there differences in the pricing of raw steel products by foreign suppliers which favor Korean fabricators and adversely affect domestic fabricators?

4. What programs does the Government of the Republic of Korea maintain to assist its steel fabricators, both domestically and to assist their exports?

5. What is the nature of the steel fabrication industry in the Republic of Korea; i.e., how many firms are involved, what is their relation to steel producers, what are their level of sales and net income?

Please let us know if you require further information concerning this request.

Sincerely,

Sam M. Gibbons
Chairman

SMG/RYm

COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

SUBCOMMITTEE ON TRADE

February 27, 1984

The Honorable Alfred E. Eckes
Chairman
International Trade Commission
701 E Street, N.W.
Washington, D.C. 20436

Dear Mr. Chairman:

On January 19, 1984, I wrote you on behalf of the Subcommittee on Trade seeking an investigation pursuant to section 332 of the Tariff Act of 1930 on the conditions of competition between domestic and imported fabricated structural steel products in the western U.S. market.

Since then I have been in contact with other Members and with industry groups who have expressed the need to enlarge the scope of this study so that it addresses the competitive conditions within the U.S. fabricated structural steel industry as a whole.

All of our concerns regarding the West Coast market for fabricated structural steel remain. But there are a number of issues related to competition between U.S. and foreign suppliers within the larger U.S. market. In addition, there are other foreign suppliers, particularly Canada, whose involvement in the U.S. market should be analyzed.

I therefore request that the questions or points enumerated in my earlier letter be modified and expanded to address this larger scope. Specifically, I request that the questions regarding trends in steel trade, import penetration, price competition, tariff classifications, and major importers be addressed for the national steel market as well as for the separate western United States region. Moreover, while our original request addressed several issues concerning Korean fabricators and their role in the West Coast market, we would also like you to examine briefly

the other major suppliers to the national market, including Canada. In particular, please examine the nature of the steel fabrication industry in the other major supplier countries (including Canada) and the type of government programs which exist.

Please let us know if you require additional information with respect to this request.

Sincerely,

Sam M. Gibbons
Chairman

SMG/RYc

APPENDIX B

NOTICE OF INSTITUTION OF INVESTIGATION NO. 332-181 AND PRELIMINARY NOTICE OF HEARING

[332-181]

Conditions of Competition Between Certain Domestic and Imported Fabricated Structural Steel Products

AGENCY: International Trade Commission.

ACTION: Institution of an investigation under Section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)) concerning the conditions of competition between certain domestic and imported fabricated structural steel products. and the scheduling of a hearing in connection therewith.

EFFECTIVE DATE: March 16. 1984.

FOR FURTHER INFORMATION CONTACT: Peter Avery (202–523–0342) or Dennis Rapkins (202–523–0438), Minerals and Metals Division. U.S. International Trade Commission. Washington. D.C. 20436.

Background and Scope of Investigation

The Commission instituted the investigation. No. 332–181. on its own motion. following receipt on January 27 and March 1. 1984. of a request therefore from the Chairman of the Subcommittee on Trade. Committee on Ways and Means. U.S. House of Representatives.

In accordance with the Subcommittee's request. the study will include a review of the following points or questions with regard to the western U.S. market for fabricated steel products: (1) What are the recent trends in trade in steel and structural steel products into the western United States (as defined in previous Commission studies of the western U.S. steel industry)? What is the import penetration ratio and its trend line? What price differences have existed between domestic and imported

products? Which countries play a major role in the western U.S. market? (2) What are the tariff classifications and rates on these imports (and are there any classification problems)? (3) To the extent it can be determined from available sources, are there differences in the pricing of raw steel products by foreign suppliers which favor Korean fabricators and adversely affect domestic fabricators? (4) What programs does the Government of the Republic of Korea maintain to assist its steel fabricators, both domestically and with respect to exports? (5) What is the nature of the steel fabrication industry in the Republic of Korea (i.e., how many firms are involved, what is this relation to steel producers, and what are their level of sales and net income)?

In addition, the same questions regarding trends in steel trade, import penetration, price competition, tariff classifications, and major importers will be addressed for the national steel market. Moreover, the nature of the steel fabrication industries in other major supplier countries, including Canada, and the type of government programs which exist will be examined. The Commission expects to complete its study by October 26, 1984.

Public Hearing

A public hearing in connection with this investigation will be held at the International Trade Commission in Washington, D.C. on August 20, 1984, at 10 A.M. All persons shall have the right to appear by counsel or in person, to present information and to be heard. Requests to appear at the public hearing should be filed with the Secretary, U.S. International Trade Commission, 701 E Street, NW, Washington, D.C. 20436, not later than noon, August 21, 1984.

Written Submissions

In lieu of or in addition to appearance at the public hearing, interested persons are invited to submit written statements concerning the investigation. Commercial or financial information which a submitting party desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of § 201.6 of the Commission's *Rules of Practice and Procedure* (19 CFR 201.6). All written submissions, except for confidential business information, will be available for inspection by interested persons. To be ensured of consideration by the Commission, written statements should be received at the earliest possible date, but no later than August 21, 1984. All submissions should be addressed to the Secretary at the Commission's Office in Washington, D.C.

By order of the Commission.

Issued: March 20, 1984.

Kenneth R. Mason,

Secretary.

[FR Doc. 84-8303 Filed 3-27-84; 8:45 am]

BILLING CODE 7020-02-M

APPENDIX C

LIST OF WITNESSES APPEARING AT THE HEARING

TENTATIVE CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject : Conditions of Competition Between Certain Domestic and Imported Fabricated Structural Steel Products

Inv. No. : 332-181

Date and time: August 28, 1984 - 10:00 a.m.

Sessions were held in connection with the investigation in the Hearing Room of the United States International Trade Commission, 701 E Street, N.W., in Washington.

WITNESS AND ORGANIZATION

DOMESTIC:

American Institute of Steel Construction, Inc., Washington, D.C.

Werner H. Quasebarth, Vice Chairman, AISC and President, Atlas Machine and Iron Works, Gainesville, Virginia

Neil W. Zundel, President, AISC

William Y. Epling, Director of Government Affairs

West Coast Fabricators and Steel Industry Association, Sacramento, California

Stephen Schwartz, President

Dale Long, Secretary

Joseph L. Lang, Government Relations

Walter Hogan, President, Hogan Manufacturing, Inc.

- more -

Government Relations Associates, Inc.
Washington, D.C.
on behalf of

Kaiser Steel Corporation

Kenneth L. Gibson, Vice President, Corporate Development

John W. Feist, Esq.

IMPORTERS:

Paul, Weiss, Rifking, Wharton & Garrison--Counsel
Washington, D.C.
on behalf of

The Korea Iron and Steel Association

Terence J. Fortune)
Robert E. Montgomery) --OF COUNSEL

APPENDIX D

EXPLANATION OF THE RATES OF DUTY APPLICABLE TO FABRICATED STRUCTURAL STEEL PRODUCTS AND SELECTED PORTIONS OF THE TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1984)

Explanation of the rates of duty applicable to fabricated structural steel

The rates of duty in column 1 are most-favored-nation (MFN) rates, and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUSA. 1/ However, such rates do not apply to products of developing countries which are granted preferential tariff treatment under the Generalized System of Preferences (GSP) or under the "LDDC" column.

The rates of duty in the "LDDC" column are preferential rates (reflecting the full U.S. MTN concession rate for a particular item without staging of duty reductions) and are applicable to products of the least developed developing countries designated in general headnote 3(d) of the TSUSA which are not granted duty-free treatment under the GSP. If no rate of duty is provided in the "LDDC" column for a particular item, the column 1 rate applies.

The rates of duty in column 2 apply to imported products from those Communist countries and areas enumerated in general headnote 3(f) of the TSUSA.

The GSP is a program of nonreciprocal tariff preferences granted by the United States to developing countries to aid their economic development by encouraging greater diversification and expansion of their production and exports. The GSP, implemented by Executive Order No. 11888, of November 24, 1975, applies to merchandise imported on or after January 1, 1976, and is scheduled to remain in effect until January 4, 1985. It provides for duty-free treatment of eligible articles imported directly from designated beneficiary developing countries. Eligible articles are identified in the column marked "GSP" with an "A," which means that all beneficiary developing countries are eligible for the GSP.

1/ The only Communist countries currently eligible for MFN treatment are the People's Republic of China, Hungary, Romania, and Yugoslavia.

1. Tariff Treatment of Imported Articles. All articles imported into the customs territory of the United States from outside thereof are subject to duty or exempt therefrom as prescribed in general headnote 3.

2. Customs Territory of the United States. The term "customs territory of the United States", as used in the schedules, includes only the States, the District of Columbia, and Puerto Rico.

3. Rates of Duty. The rates of duty in the "Rates of Duty" columns numbered 1 and 2 and the column designated LDDC of the schedules apply to articles imported into the customs territory of the United States as hereinafter provided in this headnote:

(a) Products of Insular Possessions.

(i) Except as provided in headnote 6 of schedule 7, part 2, subpart E, and except as provided in headnote 3 of schedule 7, part 7, subpart A, articles imported from insular possessions of the United States which are outside the customs territory of the United States are subject to the rates of duty set forth in column numbered 1 of the schedules, except that all such articles the growth or product of any such possession, or manufactured or produced in any such possession from materials the growth, product, or manufacture of any such possession or of the customs territory of the United States, or of both, which do not contain foreign materials to the value of more than 50 percent of their total value, coming to the customs territory of the United States directly from any such possession, and all articles previously imported into the customs territory of the United States with payment of all applicable duties and taxes imposed upon or by reason of importation which were shipped from the United States, without remission, refund, or drawback of such duties or taxes, directly to the possession from which they are being returned by direct shipment, are exempt from duty.

(ii) In determining whether an article produced or manufactured in any such insular possession contains foreign materials to the value of more than 50 percent, no material shall be considered foreign which either-

(A) at the time such article is entered, or

(B) at the time such material is imported into the insular possession,

may be imported into the customs territory from a foreign country, other than Cuba or the Philippine Republic, and entered free of duty; except that no article containing material to which (B) of this subdivision applies shall be exempt from duty under subdivision (i) unless adequate documentation is supplied to show that the material has been incorporated into such article during the 18-month period after the date on which such material is imported into the insular possession.

(iii) Subject to the limitations imposed under section 503(b) and 504(c) of the Trade Act of 1974, articles designated eligible articles under section 503 of such Act which are imported from an insular possession of the United States shall receive duty treatment no less favorable than the treatment afforded such articles imported from a beneficiary developing country under title V of such Act.

(b) Products of Cuba. Products of Cuba imported into the customs territory of the United States, whether imported directly or indirectly, are subject to the rates of duty set forth in column numbered 1 of the schedules. Preferential rates of duty for such products apply only as shown in the said column 1. 1/

1/ By virtue of section 401 of the Tariff Classification Act of 1962, the application to products of Cuba of either a preferential or other reduced rate of duty in column 1 is suspended. See general headnote 3(f), infra.

(c) Products of Countries Designated Beneficiary Developing Countries for Purposes of the Generalized System of Preferences (GSP).

(i) The following countries, territories, and associations of countries eligible for treatment as one country (pursuant to section 502(a)(3) of the Trade Act of 1974 (19 U.S.C. 2462(a)(3)) are designated beneficiary developing countries for the purposes of the Generalized System of Preferences, provided for in Title V of the Trade Act of 1974, as amended (19 U.S.C. 2461 et seq.):

Independent Countries 2/

Angola	Maldives
Antigua and Barbuda	Mali
Argentina	Malta
Bahamas	Mauritania
Bahrain	Mauritius
Bangladesh	Mexico
Barbados	Morocco
Belize	Mozambique
Benin	Nauru
Bhutan	Nepal
Bolivia	Nicaragua
Botswana	Niger
Brazil	Oman
Burma	Pakistan
Burundi	Panama
Cameroon	Papua New Guinea
Cape Verde	Paraguay
Central African Republic	Peru
Chad	Philippines
Chile	Portugal
Colombia	Romania
Comoros	Rwanda
Congo	Saint Lucia
Costa Rica	Saint Vincent and the Grenadines
Cyprus	Sao Tome and Principe
Djibouti	Senegal
Dominica	Seychelles
Dominican Republic	Sierra Leone
Ecuador	Singapore
Egypt	Solomon Islands
El Salvador	Somalia
Equatorial Guinea	Sri Lanka
Fiji	Sudan
Gambia	Suriname
Ghana	Swaziland
Grenada	Syria
Guatemala	Taiwan
Guinea	Tanzania
Guinea Bissau	Thailand
Guyana	Togo
Haiti	Tonga
Honduras	Trinidad and Tobago
India	Tunisia
Indonesia	Turkey
Israel	Tuvalu
Ivory Coast	Uganda
Jamaica	Upper Volta
Jordan	Uruguay
Kenya	Vanuatu
Kiribati	Venezuela
Korea, Republic of	Western Somoa
Lebanon	Yemen (Sanaa)
Lesotho	Yugoslavia
Liberia	Zaire
Madagascar	Zambia
Malawi	Zimbabwe
Malaysia	

2/ Pursuant to section 4(b)(1) of the Taiwan Relations Act (22 U.S.C. 3303(b)(1)) the reference to countries includes Taiwan.

TSUS item Number	Country or territory 1/
676.52	Hong Kong, Mexico, Singapore, Taiwan
678.50	Hong Kong, Republic of Korea, Taiwan
682.35	Mexico
682.60	Hong Kong, Mexico, Taiwan
683.05	Taiwan
683.15	Mexico
683.70	Hong Kong, Taiwan
683.80	Hong Kong
684.10	Taiwan
684.15	Singapore
684.48	Hong Kong
684.53	Taiwan
684.55	Mexico
684.70	Republic of Korea, Taiwan
685.24	Hong Kong, Republic of Korea, Singapore, Taiwan
685.29	Taiwan
685.40	Republic of Korea, Taiwan
685.90	Mexico, Taiwan
686.30	Taiwan
687.42	Taiwan
688.10	Taiwan
688.12	Mexico
688.15	Mexico
688.43	Hong Kong
692.32	Brazil, Mexico
696.10	Taiwan
696.35	Taiwan
700.90	Mexico
702.47	Mexico
703.14	Mexico
706.39	Hong Kong, Republic of Korea, Taiwan
706.61	Hong Kong, Taiwan
708.47	Hong Kong
709.15	Israel
709.40	Hong Kong
711.38	Mexico
713.15	Mexico
722.14	Macao
725.32	Taiwan
725.50	Taiwan
726.65	Mexico
727.06	Mexico
727.23	Taiwan
727.29	Yugoslavia
727.35	Taiwan
727.55	Taiwan
728.22	Taiwan
730.94	Republic of Korea
734.10	Taiwan
734.15	Taiwan
734.20	Hong Kong, Taiwan
734.25	Hong Kong
734.34	Hong Kong
734.51	Taiwan
734.56	Haiti
734.70	Republic of Korea
734.86	Taiwan
734.87	Taiwan
734.90	Taiwan
735.07	Republic of Korea
735.09	Taiwan
735.12	Taiwan
735.20	Taiwan
737.07	Hong Kong
737.15	Hong Kong
737.21	Hong Kong
737.23	Taiwan
737.28	Republic of Korea
737.30	Republic of Korea
737.40	Republic of Korea
737.43	Hong Kong
737.47	Hong Kong, Taiwan
737.49	Hong Kong, Taiwan
737.51	Hong Kong, Taiwan
737.60	Hong Kong
737.80	Hong Kong
737.95	Hong Kong, Taiwan
740.11	Hong Kong, Israel, Peru
740.12	Hong Kong
740.13	Hong Kong
740.14	Hong Kong
740.15	Hong Kong
740.30	Hong Kong
740.34	Hong Kong
740.75	Republic of Korea
741.25	Hong Kong
750.22	Taiwan
750.25	Hong Kong
750.35	Taiwan
750.40	Hong Kong
750.45	Republic of Korea
750.50	Republic of Korea
751.05	Taiwan
755.25	Hong Kong
756.45	Hong Kong
771.43	Taiwan
771.45	Taiwan
772.35	Taiwan
772.51	Republic of Korea
772.60	Republic of Korea
774.45	Hong Kong
790.03	Taiwan
790.39	Taiwan
790.70	Republic of Korea
791.28	India
792.10	Mexico
792.50	Philippines
792.60	Hong Kong
792.75	Hong Kong

(d) Products of Least Developed Developing Countries.

(i) The following countries are designated least developed developing countries (LDDC's) and, subject to restrictions of subparagraph (ii), products of such countries imported into the customs territory of the United States, whether imported directly or indirectly, and which are entered under TSUS item numbers for which rates of duty appear in the column entitled "LDDC" of the schedules, are eligible for full tariff reductions without staging in accordance with Section 503(a)(2)(A) of the Trade Agreements Act of 1979 (93 Stat. 251):

Bangladesh	Malawi
Benin	Maldives
Bhutan	Mali
Botswana	Nepal
Burundi	Niger
Cape Verde	Rwanda
Central African Republic	Somalia
Chad	Sudan
Comoros	Tanzania
Gambia	Uganda
Guinea	Upper Volta
Haiti	Western Samoa
Lesotho	Yemen (Sana)

(ii) Imported articles, the products of least developed developing countries as designated in paragraph (i) above, provided for under the TSUS items for which rates of duty appear in the column entitled "LDDC" of the schedules, and which are not entitled to duty-free treatment under subdivision (c) of this headnote, are subject to those rates of duty rather than the rates of duty provided for in column numbered 1, except that articles subject to temporary modifications under any provisions of the Appendix to these schedules shall be subject to the rates of duty set forth therein. If no rate of duty is provided in the "LDDC" column for a particular item, the rate of duty provided in column numbered 1 shall apply.

(e) Products of Canada.

(i) Products of Canada imported into the customs territory of the United States, whether imported directly or indirectly, are subject to the rates of duty set forth in column numbered 1 of the schedules. The rates of duty for a Canadian article, as defined in subdivision (e)(ii) of this headnote, apply only as shown in the said column numbered 1.

(ii) The term "Canadian article", as used in the schedules, means an article which is the product of Canada, but does not include any article produced with the use of materials imported into Canada which are products of any foreign country (except materials produced within the customs territory of the United States), if the aggregate value of such imported materials when landed at the Canadian port of entry (that is, the actual purchase price, or if not purchased, the export value, of such materials, plus, if not included therein, the cost of transporting such materials to Canada but exclusive of any landing cost and Canadian duty) was --

(A) with regard to any motor vehicle or automobile truck tractor entered on or before December 31, 1967, more than 60 percent of the appraised value of the article imported into the customs territory of the United States; and

(B) with regard to any other article (including any motor vehicle or automobile truck tractor entered after December 31, 1967), more than 50 percent of the appraised value of the article imported into the customs territory of the United States.

(f) Products of Communist Countries. Notwithstanding any of the foregoing provisions of this headnote, the rates of duty shown in column numbered 2 shall apply to products, whether imported directly or indirectly, of the following countries and areas pursuant to section 401 of the Tariff Classification Act of 1962, to section 231 or 257(e)(2) of the Trade Expansion Act of 1962, or to action taken by the President thereunder or pursuant to Presidential Proclamation 4991, dated October 27, 1982: 2/

1/ Pursuant to section 4(b)(1) of the Taiwan Relations Act (22 U.S.C. 3303(b)(1)) the reference to countries includes Taiwan.

2/ In Proclamation 4697, dated October 23, 1979, the President, acting under authority of section 404(a) of the Trade Act of 1974 (88 Stat. 1978) amended general headnote 3(f) by deleting "China (any part of which may be under Communist domination or control)" and "Tibet", effective February 1, 1980, the date on which written notices of acceptance were exchanged, following adoption on January 24, 1980 by the Congress of a concurrent resolution of approval extending nondiscriminatory treatment to the products of the People's Republic of China.

Albania
Bulgaria
Cuba 1/
Czechoslovakia
Estonia
German Democratic Republic and East Berlin
Indochina (any part of Cambodia, Laos, or Vietnam which may be under Communist domination or control)
Korea (any part of which may be under Communist domination or control)
Kurile Islands
Latvia
Lithuania
Outer Mongolia
Polish People's Republic
Southern Sakhalin
Tanna Tuva
Union of Soviet Socialist Republics and the area in East Prussia under the provisional administration of the Union of Soviet Socialist Republics.

(g) Products of All Other Countries. Products of all countries not previously mentioned in this headnote imported into the customs territory of the United States are subject to the rates of duty set forth in column numbered 1 of the schedules.

4. Modification or Amendment of Rates of Duty. Except as otherwise provided in the Appendix to the Tariff Schedules --

(a) a statutory rate of duty supersedes and terminates the existing rates of duty in both column numbered 1 and column numbered 2 unless otherwise specified in the amending statute;

(b) a rate of duty proclaimed pursuant to a concession granted in a trade agreement shall be reflected in column numbered 1 and, if higher than the then existing rate in column numbered 2, also in the latter column, and shall supersede but not terminate the then existing rate (or rates) in such column (or columns);

(c) a rate of duty proclaimed pursuant to section 336 of the Tariff Act of 1930 shall be reflected in both column numbered 1 and column numbered 2 and shall supersede but not terminate the then existing rates in such columns; and

(d) whenever a proclaimed rate is terminated or suspended, the rate shall revert, unless otherwise provided, to the next intervening proclaimed rate previously superseded but not terminated or, if none, to the statutory rate.

5. Intangibles. For the purposes of headnote 1 --

(a) corpses, together with their coffins and accompanying flowers,

(b) currency (metal or paper) in current circulation in any country and imported for monetary purposes,

(c) electricity,

(d) securities and similar evidences of value,

(e) records, diagrams, and other data with regard to any business, engineering, or exploration operation whether on paper, cards, photographs, blueprints, tapes, or other media; and

1/ In Proclamation 3447, dated February 3, 1962, the President, acting under authority of section 620(a) of the Foreign Assistance Act of 1961 (75 Stat. 445), as amended, prohibited the importation into the United States of all goods of Cuban origin and all goods imported from or through Cuba, subject to such exceptions as the Secretary of the Treasury determines to be consistent with the effective operation of the embargo.

(f) vessels which are not "yachts or pleasure boats" within the purview of subpart D, part 6, of schedule 6, are not articles subject to the provisions of these schedules.

6. Containers or Holders for Imported Merchandise. For the purposes of the tariff schedules, containers or holders are subject to tariff treatment as follows:

(a) Imported Empty: Containers or holders if imported empty are subject to tariff treatment as imported articles and as such are subject to duty unless they are withir the purview of a provision which specifically exempts them from duty.

(b) Not Imported Empty: Containers or holders if imported containing or holding articles are subject to tariff treatment as follows:

(i) The usual or ordinary types of shipping or transportation containers or holders, if not designed for, or capable of, reuse, and containers of usual types ordinarily sold at retail with their contents, are not subject to treatment as imported articles. Their cost, however, is, under section 402 of the tariff act, a part of the value of their contents and if their contents are subject to an ad valorem rate of duty such containers or holders are, in effect, dutiable at the same rate as their contents, except that their cost is deductible from dutiable value upon submission of satisfactory proof that they are products of the United States which are being returned without having been advanced in value or improved in condition by any means while abroad.

(ii) The usual or ordinary types of shipping or transportation containers or holders, if designed for, or capable of, reuse, are subject to treatment as imported articles separate and distinct from their contents. Such holders or containers are not part of the dutiable value of their contents and are separately subject to duty upon each and every importation into the customs territory of the United States unless within the scope of a provision specifically exempting them from duty.

(iii) In the absence of context which requires otherwise, all other containers or holders are subject to the same treatment as specified in (ii) above for usual or ordinary types of shipping or transportation containers or holders designed for, or capable of, reuse.

7. Commingling of Articles. (a) Whenever articles subject to different rates of duty are so packed together or mingled that the quantity or value of each class of articles cannot be readily ascertained by customs officers (without physical segregation of the shipment or the contents of any entire package thereof), by one or more of the following means:

(i) sampling,

(ii) verification of packing lists or other documents filed at the time of entry, or

(iii) evidence showing performance of commercial settlement tests generally accepted in the trade and filed in such time and manner as may be prescribed by regulations of the Secretary of the Treasury,

the commingled articles shall be subject to the highest rate of duty applicable to any part thereof unless the consignee or his agent segregates the articles pursuant to subdivision (b) hereof.

(b) Every segregation of articles made pursuant to this headnote shall be accomplished by the consignee or his agent at the risk and expense of the consignee within 30 days (unless the Secretary authorizes in writing a longer time) after the date of personal delivery or mailing, by such employee as the Secretary of the Treasury shall designate, of written notice to the consignee that the articles are commingled and that the quantity or value of each class of articles cannot be readily ascertained by customs officers. Every such segregation shall be accomplished under

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
	605.20		Gold or silver bullion, doré, and gold or silver precipitates	.....	Free		Free
			Bullion:				
		20	Gold content	Oz.troy1/			
		40	Silver content	Oz.troy1/			
			Other:				
		60	Gold content	Oz.troy1/			
		80	Silver content	Oz.troy1/			
			Gold (including platinum- or silver-plated gold but not rolled gold), unwrought (except bullion, doré, and precipitates) or semimanufactured:				
A	605.27	00	Platinum- or silver-plated	Oz.troy.	10.7% ad val.	7.5% ad val.	65% ad val.
	605.28	00	Other	Oz.troy.	12.6% ad val.	8.2% ad val.	65% ad val.
			Silver (including platinum- or gold-plated silver but not rolled silver), unwrought (except bullion, doré, and precipitates) or semimanufactured:				
	605.46	00	Platinum-plated	Oz.troy.	10.7% ad val.	7.5% ad val.	65% ad val.
	605.47	00	Gold-plated	Oz.troy.	15.6% ad val.	10% ad val.	65% ad val.
A*	605.48	00	Other	Oz.troy.	7.7% ad val.	6% ad val.	65% ad val.
			Rolled precious metals, unworked or semimanufactured:				
A	605.60	00	Plates and sheets	Oz.troy.	8.6% ad val.	6.5% ad val.	30% ad val.
			Other:				
A	605.65	00	Rolled silver	Oz.troy.	7.7% ad val.	6% ad val.	65% ad val.
A	605.66	00	Other	Oz.troy.	20% ad val.		65% ad val.
	605.70		Precious-metal sweepings and other precious-metal waste and scrap	.....	Free		Free
		20	Gold content	Oz.troy1/			
		40	Silver content	Oz.troy1/			
		60	Other precious-metal content	Oz.troy1/			

Subpart B. - Iron or Steel

Subpart B headnotes:

1. This subpart covers iron and steel, their alloys, and their so-called basic shapes and forms, and in addition covers iron or steel waste and scrap.

2. Grades of Iron, Steel, and Ferroalloys.--For the purposes of the tariff schedules, the following terms have the meanings hereby assigned to them:

1/ Report value only of stated metal content.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			(ii) the term "tin plate and tin coated sheets" refers to tin coated steel sheets; and (iii) the term "terne plate and terne coated sheets" refers to steel sheets coated with terne metal (a lead-tin alloy). (h) Strip: A flat rolled product whether or not corrugated or crimped, in coils or cut to length, under 0.1875 inch in thickness, and, if cold rolled, over 0.50 inch but not over 12 inches in width, or, if not cold rolled, not over 12 inches in width. (i) Wire: A finished, drawn, non-tubular product, of any cross-sectional configuration, in coils, and not over 0.703 inch in maximum cross-sectional dimension. The term also includes a product of solid rectangular cross section, in coils, with a cold-rolled finish, and not over 0.25 inch thick and not over 0.50 inch wide. (j) Angles, shapes, and sections: Products which do not conform completely to the respective specifications set forth herein for blooms, billets, slabs, sheet bars, bars, wire rods, plates, sheets, strip, wire, rails, joint bars, or tie plates, and do not include any tubular products. (k) Rails: Hot-rolled steel products, weighing not less than 8 pounds per yard, with cross-sectional shapes intended for carrying wheel loads in railroad, railway, and crane runway applications. Rails may be punched or not punched. (l) Joint bars: Hot-rolled steel products designed to connect the ends of adjacent rails in track. Joint bars are usually punched or slotted. (m) Tie plates: Hot-rolled steel products used to support rails in track, to maintain track gauge and protect the ties. Tie plates are punched to provide holes for spikes and have one or two shoulder sections as rail guides. 4. Additional duties: Iron or steel products which contain, by weight, one or more of the following elements in the quantity, by weight, respectively indicated: over 0.2 percent of chromium, or over 0.1 percent of molybdenum, or over 0.3 percent of tungsten, or over 0.1 percent of vanadium, are subject to additional cumulative duties as provided for in items 606.00, 606.02, 606.04, and 606.06, but these duties apply only with respect to products covered by provisions which make specific reference to "additional duties" in the "Rates of Duty" columns.				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Angles, shapes, and sections, all the foregoing, of iron or steel, hot rolled, forged, extruded, or drawn, or cold formed or cold finished, whether or not drilled, punched, or otherwise advanced; sheet piling of iron or steel (con.):				
			Angles, shapes, and sections (con.):				
			Hot rolled; or, cold formed and weighing over 0.29 pound per linear foot (con.):				
			Drilled, punched, or otherwise advanced:				
	609.84	00	Other than alloy iron or steel.....	Lb.....	5.5% ad val.	4.4% ad val.	20% ad val.
	609.86	00	Alloy iron or steel.....	Lb.....	6.9% ad val. + additional duties (see headnote 4)	5.3% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
			Cold formed and weighing not over 0.29 pound per linear foot:				
A	609.88	00	Other than alloy iron or steel.....	Lb.....	6.2% ad val.	4.9% ad val.	20% ad val.
A	609.90	00	Alloy iron or steel.....	Lb.....	7.6% ad val. + additional duties (see headnote 4)	5.7% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
			Sheet piling:				
	609.96	00	Other than alloy iron or steel.....	Lb.....	0.8% ad val.		2% ad val.
	609.98	00	Alloy iron or steel.....	Lb.....	1.9% ad val. + additional duties (see headnote 4)	1.8% ad val. + additional duties (see headnote 4)	8% ad val. + additional duties (see headnote 4)
			Rails, joint bars, and tie plates, all the foregoing of steel:				
			Rails:				
	610.20		Other than alloy steel.....	.....	0.3% ad val.		1% ad val.
		10	Standard tee rails over 60 pounds per yard.....	Lb.			
		20	Other.....	Lb.			
	610.21	00	Alloy steel.....	Lb.....	4.1% ad val. + additional duties (see headnote 4)	3.5% ad val. + additional duties (see headnote 4)	9% ad val. + additional duties (see headnote 4)
			Joint bars and tie plates:				
	610.25	00	Other than alloy steel.....	Lb.....	0.9% ad val.		2% ad val.
	610.26	00	Alloy steel.....	Lb.....	3.6% ad val. + additional duties (see headnote 4)	3.1% ad val. + additional duties (see headnote 4)	8% ad val. + additional duties (see headnote 4)

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
A	652.75	00	Sign-plates, name-plates, numbers, letters, and other signs, all the foregoing of base metal.....	X.....	5.9% ad val.	3.8% ad val.	45% ad val.
	652.76	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6)....	X.....	Free		
A	652.80	00	Expanded metal, of base metal.....	Sq. ft.v Lb.	5.9% ad val.	3.8% ad val.	45% ad val.
			Springs and leaves for springs, of base metal:				
A*	652.84	00	Suitable for motor-vehicle suspension.....	X.....	4% ad val.		25% ad val.
	652.85	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free		
A	652.86	00	Hairsprings.....	X.....	4.2% ad val.	3.7% ad val.	65% ad val.
	652.87	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free		
A	652.88	00	Other.....	X.....	7.1% ad val.	5.7% ad val.	45% ad val.
	652.89	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free		
			Hangars and other buildings, bridges, bridge sections, lock-gates, towers, lattice masts, roofs, roofing frameworks, door and window frames, shutters, balustrades, columns, pillars, and posts, and other structures and parts of structures, all the foregoing of base metal:				
			Of iron or steel:				
			Door and window frames:				
A	652.90	00	Of stainless steel.....	Lb.....	5.3% ad val.	3.4% ad val.	35% ad val.
A	652.92	00	Other.....	Lb.....	3.8% ad val.	2.4% ad val.	25% ad val.
			Columns, pillars, posts, beams, girders, and similar structural units:				
			Not in part of alloy iron or steel:				
A	652.93	00	Cast-iron (except malleable cast-iron) articles, rough or advanced.....	Lb.....	1.4% ad val.		10% ad val.
	652.94	00	Other.....	Lb.....	3.1% ad val.	2.8% ad val.	20% ad val.
			In part of alloy iron or steel:				
	652.95	00	In part of stainless steel.....	Lb.....	4.9% ad val.	4.2% ad val.	30% ad val.
	652.96	00	Other.....	Lb.....	4.5% ad val.	3.9% ad val.	28% ad val.
	652.97	00	Offshore oil and natural gas drilling and production platforms and parts thereof.....	Lb.....	7.1% ad val.	5.7% ad val.	45% ad val.
A	653.00	00	Other.....	Lb.....	7.1% ad val.	5.7% ad val.	45% ad val.
A	653.01		Other.....	.....	7.1% ad val.	5.7% ad val.	45% ad val.
		10	Mobile homes.....	No.			
		20	Other.....	Lb.			
			Fence or sign posts of iron or steel:				
	653.02	00	Not of alloy iron or steel.....	Lb.....	Free		20% ad val.
A	653.03	00	Of alloy iron or steel.....	Lb.....	5.5% ad val.		28% ad val.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

APPENDIX E

PLANT CLOSURES IN THE U.S. FABRICATED STRUCTURAL STEEL INDUSTRY, BY STATE

Table E-1.—Fabricated structural steel: Number of plant closures by firms, by state, by reasons cited for closure, 1979-84

State	Number of closures	Import competition	Economic conditions	Domestic competition	Other
Arizona	5	3	4	3	0
Arkansas	1	0	1	0	0
California	9	2	2	2	0
Colorado	8	1	6	5	0
Connecticut	2	0	0	0	0
Florida	3	2	2	2	0
Georgia	2	0	0	0	0
Illinois	7	0	0	0	0
Indiana	13	2	5	3	0
Iowa	1	0	0	0	0
Maine	1	0	0	0	0
Maryland	2	0	0	0	0
Massachusetts	8	1	5	1	1
Michigan	11	0	0	0	0
Minnesota	5	2	8	2	0
Missouri	1	0	0	0	0
Nevada	3	0	3	0	0
New Hampshire	1	0	0	0	1
New Jersey	2	0	1	0	0
New York	25	1	3	1	0
North Carolina	6	2	10	2	0
Ohio	8	0	9	4	0
Oklahoma	1	0	0	0	0
Oregon	5	5	5	0	0
Pennsylvania	19	2	13	3	0
South Carolina	3	0	2	0	0
South Dakota	1	1	2	1	0
Tennessee	6	0	1	0	0
Texas	8	0	2	0	0
Virginia	2	0	0	0	0
Washington	5	6	5	2	0
Wisconsin	2	1	2	1	0
Wyoming	1	0	2	1	0

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX F

TECHNOLOGICAL PROFILES OF U.S. AND WESTERN U.S. FABRICATORS

Table F-1.--Fabricated structural steel: Technological profile of 51 U.S. firms, 1979-83

Item	Number of companies with equipment--		If not in operation, or no plans to install, frequency of reasons: 1/			
	In operation	To be installed	A	B	C	D
Computer-aided bidding	26	8	3	11	1	
Computer-aided design (CAD/CAM)	13	2	5	14	9	
Beamline:						
Semiautomatic control	26	2	1	16	1	
Computer numerical control	9	4	6	24	3	
Direct numerical control: (CAD/CAM)	1	5	7	26	3	
Welding:						
Semiautomatic	34	0	1	5	1	
Mechanized application	27	0	1	5	7	
Platecutting:						
Computer numerical control	8	6	7	14	9	
Optical trace control	24	1	1	9	6	
Cold-cutting saw	36	3	0	4	2	

1/ Symbols relate to the following reasons:
A - Lack of capital
B - Return does not justify investment
C - Type of equipment not applicable
D - Other.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table F-2.—Fabricated structural steel: Technological profile of the Western U.S. industry, 1979-83

Item	Number of companies with equipment—		If not in operation, or no plans to install, frequency of reasons: 1/			
	In operation	To be installed	A	B	C	D
Computer-aided bidding	9	2	0	3	0	1
Computer-aided design (CAD/CAM)	4	0	3	3	2	2
Beamline:						
Semiautomatic control	8	1	0	4	0	0
Computer numerical control	4	0	2	7	1	0
Direct numerical control (CAD/CAM)	0	1	2	8	1	0
Welding:						
Semiautomatic	10	0	0	3	0	0
Mechanized application	7	0	0	3	0	0
Platecutting:						
Computer numerical control	2	0	3	6	3	0
Optical trace control	6	1	2	3	2	0
Cold-cutting saw	10	0	0	3	0	0

1/ Symbols relate to the following reasons:
A - Lack of capital
B - Return does not justify investment
C - Type of equipment not applicable
D - Other.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX G

U.S. AND WESTERN U.S. EXPORTS OF SPECIFIED FABRICATED STRUCTURAL STEEL PRODUCTS, COMMODITY BY COUNTRY

Table G-1.—Angles, shapes, and sections of iron or steel, as parts of structures: 1/ U.S. exports of domestic merchandise, by principal markets, 1979-83, January-June 1983, and January-June 1984

Markets	1979	1980	1981	1982	1983	January-June	
						1983	1984
	Quantity (short tons)						
Saudi Arabia	3,086	6,176	4,749	2,950	2,132	1,497	653
Gabon	1	73	40	0	822	0	56
Canada	5,271	3,572	3,742	1,910	2,147	1,293	1,066
Philippines	240	1,781	4,678	1,962	800	170	410
Oman	0	72	2/	256	764	22	245
Yugoslavia	28	32	38	181	72	72	0
Republic of Korea	715	669	675	827	238	122	149
Bahamas	431	1,214	2,692	2,923	2,074	1,105	1,372
Japan	200	308	140	46	189	172	140
All other	26,322	33,954	28,217	16,298	6,895	4,094	6,787
Total	36,294	47,851	44,971	27,353	16,133	8,547	10,878
	Value (1,000 dollars)						
Saudi Arabia	5,159	10,876	8,181	6,508	5,117	3,783	1,916
Gabon	2	286	23	0	3,700	0	20
Canada	7,710	6,438	6,109	3,767	3,553	2,260	1,734
Philippines	746	2,240	8,494	5,611	1,932	967	680
Oman	0	191	5	480	1,860	53	917
Yugoslavia	159	80	227	1,479	1,493	1,493	0
Republic of Korea	1,371	1,430	1,308	1,258	997	694	286
Bahamas	220	567	1,873	2,040	988	614	893
Japan	295	540	335	256	283	208	387
All other	34,502	50,589	43,938	26,005	8,912	5,189	11,642
Total	50,164	73,237	70,493	47,404	28,835	15,261	18,475

1/ Schedule B item 652.9180.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table G-2.--Angles, shapes, and sections of iron or steel, as parts of structures: 1/ Western U.S. exports of domestic merchandise, by principal markets, 1979-83, January-June 1983, and January-June 1984

Markets	1979	1980	1981	1982	1983	January-June	
						1983	1984
	Quantity (short tons)						
Philippines	111	171	541	1,671	350	173	385
Canada	668	789	1,082	724	650	378	225
Republic of Korea	30	341	259	510	144	60	23
Australia	91	101	118	100	67	36	37
Taiwan	638	428	228	162	46	45	0
Japan	55	70	12	15	28	13	39
United Arab Emirates	22	0	0	0	21	0	0
Mexico	279	798	763	1,636	194	138	20
All other	685	1,042	784	1,094	163	117	204
Total	2,579	3,740	3,787	5,912	1,663	960	933
	Value (1,000 dollars)						
Philippines	450	247	1,746	4,630	1,490	705	605
Canada	1,022	1,464	1,672	1,363	766	446	388
Republic of Korea	209	909	683	984	758	558	81
Australia	6	196	280	248	164	74	165
Taiwan	1,135	1,200	564	253	161	160	0
Japan	95	176	37	194	138	81	141
United Arab Emirates	26	0	0	0	138	0	0
Mexico	192	715	622	592	130	78	25
All other	1,291	3,280	1,735	2,459	515	354	402
Total	4,426	8,187	7,339	10,723	4,260	2,456	1,807

1/ Schedule B item 652.9180.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table G-3.—Structures and parts of structures, of iron or steel: 1/ U.S. exports of domestic merchandise, by principal markets, 1979-83, January-June 1983, and January-June 1984

Markets	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Saudi Arabia	7,681	15,014	14,753	21,346	15,108	8,769	5,241
Mexico	29,292	59,001	60,297	9,230	4,735	3,160	2,308
Canada	9,745	9,304	9,854	7,637	4,546	2,186	4,628
Indonesia	328	94	146	352	456	229	102
Egypt	586	1,154	2,101	3,068	2,943	1,116	1,243
Bahamas	1,034	2,153	3,451	3,493	3,710	1,809	2,095
Kuwait	883	709	1,454	1,594	1,082	539	238
Oman	5	20	2/	234	1,667	829	230
Republic of Korea	635	577	323	390	637	350	15,216
Japan	610	426	365	745	272	180	57
All other	34,202	38,732	34,673	43,861	14,514	7,892	5,065
Total	85,001	127,184	127,417	91,950	49,670	27,059	36,423
	Value (1,000 dollars)						
Saudi Arabia	15,160	33,760	33,579	49,095	38,342	21,710	26,168
Mexico	48,530	113,019	153,445	18,862	10,415	5,671	1,870
Canada	13,080	16,181	17,347	13,805	7,734	4,025	4,114
Indonesia	502	260	135	3,437	5,824	4,454	566
Egypt	1,149	1,246	3,092	5,059	3,370	1,734	1,803
Bahamas	732	2,116	3,559	2,561	2,879	1,243	3,334
Kuwait	1,780	1,335	3,836	3,803	2,365	1,286	3,577
Oman	11	358	2	416	2,000	1,375	154
Republic of Korea	2,121	2,736	1,538	1,375	1,849	1,207	4,505
Japan	1,156	1,492	1,262	1,513	557	334	176
All other	60,873	67,904	102,238	121,348	28,867	17,691	11,241
Total	145,094	240,407	320,033	221,274	104,202	60,730	57,508

1/ Schedule B item 652.9190.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table G-4.—Structures and parts of structures, of iron or steel: 1/ Western U.S. exports of domestic merchandise, by principal markets, 1979-83, January-June 1983, and January-June 1984

Markets	1979	1980	1981	1982	1983	January-June	
						1983	1984
	Quantity (short tons)						
Mexico	947	1,800	5,697	5,168	3,546	2,355	76
Indonesia	3	64	2/	2	126	75	81
Saudi Arabia	143	50	172	147	2,000	1,816	41
Canada	2,393	1,795	2,822	1,726	860	447	2,762
Singapore	62	103	766	536	728	509	32
Republic of Korea	293	443	108	109	332	141	14,803
Philippines	106	263	186	400	380	297	24
Brunei	4	31	131	5	264	246	2
Japan	156	191	200	123	61	40	32
All other	3,040	2,134	1,296	796	435	211	409
Total	7,147	6,874	11,378	9,012	8,732	6,137	18,262
	Value (1,000 dollars)						
Mexico	1,104	1,411	6,013	5,787	5,765	3,288	118
Indonesia	6	145	1	23	3,634	2,517	504
Saudi Arabia	336	520	402	739	2,468	2,220	704
Canada	3,726	2,910	4,609	2,689	1,539	759	952
Singapore	194	199	2,117	1,259	1,461	925	92
Republic of Korea	649	1,883	560	814	1,351	853	3,984
Philippines	984	761	302	2,102	1,056	850	59
Brunei	7	26	732	14	446	415	10
Japan	283	492	855	393	229	130	132
All other	6,787	5,904	3,654	2,769	1,838	694	1,517
Total	14,076	14,251	19,245	16,589	19,787	12,651	8,072

1/ Schedule B item 652.9190.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table G-5.—Fabricated structural steel: 1/ U.S. exports of domestic merchandise, by principal markets, 1979-83, January-June 1983, and January-June 1984

Markets	1979	1980	1981	1982	1983	January-June	
						1983	1984
	Quantity (short tons)						
Saudi Arabia	10,767	21,190	19,502	24,296	17,240	10,266	5,894
Canada	15,016	12,876	13,596	9,547	6,693	3,479	5,695
Mexico	32,655	67,289	71,058	12,346	5,521	3,329	2,481
Indonesia	611	543	218	630	520	286	125
Egypt	2,059	2,972	4,819	3,425	3,760	1,911	2,971
Gabon	4	73	40	0	933	71	56
Bahamas	1,466	3,367	6,144	6,417	5,784	2,914	3,467
Oman	5	92	1	490	2,431	851	475
Republic of Korea	1,350	1,246	998	1,218	875	472	15,365
Japan	810	734	504	792	461	353	197
All other	56,552	64,653	55,508	60,142	21,585	11,674	10,576
Total	121,295	175,035	172,388	119,303	65,803	35,606	47,302
	Value (1,000 dollars)						
Saudi Arabia	20,319	44,636	41,760	55,603	43,459	25,494	28,084
Canada	20,789	22,620	23,455	17,572	11,287	6,284	5,848
Mexico	53,829	118,916	164,779	20,676	10,897	5,840	2,733
Indonesia	809	610	237	3,731	6,006	4,602	636
Egypt	2,256	3,686	6,812	5,359	4,284	2,570	5,102
Gabon	7	286	23	0	4,027	227	20
Bahamas	951	2,683	5,433	4,601	3,867	1,855	4,227
Oman	11	218	7	896	3,859	1,428	1,071
Republic of Korea	3,493	4,167	2,846	2,633	2,846	1,901	4,792
Japan	1,451	2,032	1,596	1,770	840	542	563
All other	91,343	113,790	143,578	155,837	41,665	25,248	22,907
Total	195,258	313,644	390,526	268,678	133,037	75,991	75,983

1/ Schedule B items 652.9180 and 652.9190.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table G-6.—Fabricated structural steel: 1/ Western U.S. exports of domestic merchandise, by principal markets, 1979-83, January-June 1983, and January-June 1984

Markets	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Mexico	1,226	2,598	6,460	6,804	3,739	2,493	96
Indonesia	32	108	20	93	126	75	81
Philippines	217	434	727	2,071	730	469	409
Saudi Arabia	220	125	261	176	2,044	1,858	61
Canada	3,062	2,583	3,904	2,450	1,510	825	2,987
Republic of Korea	323	784	367	619	476	202	14,826
Singapore	92	186	807	570	762	523	36
Brunei	31	34	131	7	264	246	9
Japan	211	261	212	138	89	52	70
All other	4,312	3,501	2,276	1,996	655	354	620
Total	9,726	10,614	15,165	14,924	10,395	7,097	19,195
	Value (1,000 dollars)						
Mexico	1,296	2,126	6,635	6,379	5,894	3,367	144
Indonesia	34	175	45	173	3,635	2,518	504
Philippines	1,434	1,008	2,048	6,732	2,546	1,555	664
Saudi Arabia	453	982	648	848	2,518	2,265	719
Canada	4,747	4,374	6,281	4,053	2,305	1,205	1,340
Republic of Korea	858	2,792	1,243	1,798	2,109	1,412	4,065
Singapore	230	343	2,167	1,315	1,549	956	104
Brunei	76	36	732	28	447	415	30
Japan	377	669	893	588	367	121	273
All other	8,997	9,933	5,892	5,399	2,678	1,293	2,036
Total	18,502	22,438	26,584	27,313	24,048	15,107	9,879

1/ Schedule B items 652.9180 and 652.9190.

Source: Compiled from official statistics of the U.S. Department of Commerce.

APPENDIX H

FINANCIAL EXPERIENCE OF U.S. AND WESTERN U.S. FABRICATORS, 1979-83

Table H-1.—Fabricated structural steel: Financial experience of certain U.S. fabricators on overall operations in establishments producing fabricated structural steel, 1979-83

(In millions of dollars)

Item	1979	1980	1981	1982	1983
Net sales (less discounts, returns, allowances, and prepaid freight)	2,121	2,466	2,788	2,153	1,600
Cost of goods sold:					
Raw materials 1/	1,118	1,290	1,465	1,160	870
Direct labor 1/	317	367	418	327	246
Depreciation of plant and equipment 1/	49	56	64	50	39
Other factory costs 1/	420	438	552	390	295
Total	1,904	2,151	2,500	1,927	1,450
Gross profit or (loss)	217	315	288	226	150
General, selling, and administrative expenses	159	185	193	183	178
Net operating profit or (loss)	58	130	95	43	(28)
Return on sales (percent)	2.7	5.3	3.4	2.0	-1.8
Fabricated structural steel sales as a percentage of overall sales	74	77	76	79	79

1/ Estimated from data submitted in response to questionnaires of the U.S. International Trade Commission.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except as noted.

Table H-2.—Fabricated structural steel: Financial experience of certain Western U.S. fabricators on overall operations in establishments producing fabricated structural steel, 1979-83

(In millions of dollars)

Item	1979	1980	1981	1982	1983
Net sales (less discounts, returns, allowances, and prepaid freight)	219	231	289	347	231
Cost of goods sold:					
Raw materials 1/	105	106	131	160	110
Direct labor 1/	41	42	52	63	45
Depreciation of plant and equipment 1/	6	5	6	8	6
Other factory costs 1/	44	45	55	67	47
Total	196	198	244	298	208
Gross profit or (loss)	23	33	45	49	23
General, selling, and administrative expenses	17	21	24	25	25
Net operating profit or (loss)	6	12	21	24	(2)
Return on sales (percent)	2.7	5.2	7.3	6.9	-0.9
Fabricated structural steel sales as a percentage of overall sales	75	86	84	80	91

1/ Estimated from data submitted in response to questionnaires of the U.S. International Trade Commission.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except as noted.

Table H-3.—Fabricated structural steel: Financial experience of certain U.S. fabricators on fabricated structural steel operations, 1979-83

(In millions of dollars)

Item	1979	1980	1981	1982	1983
Net sales (less discounts, returns, allowances, and prepaid freight)	1,567	1,892	2,121	1,700	1,261
Cost of goods sold:					
Raw materials 1/	852	983	1,127	895	687
Direct labor 1/	239	274	320	259	189
Depreciation of plant and equipment 1/	30	37	41	39	23
Other factory costs 1/	302	350	404	327	246
Total	1,423	1,644	1,892	1,520	1,145
Gross profit or (loss)	144	248	229	180	116
General, selling, and administrative expenses	111	134	141	140	136
Net operating profit or (loss)	33	114	88	40	(20)
Return on sales (percent)	2.1	6.0	4.1	2.4	-1.6

1/ Estimated from data submitted in response to questionnaires of the U.S. International Trade Commission.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except as noted.

Table H-4.—Fabricated structural steel: Financial experience of certain Western U.S. fabricators on fabricated structural steel operations, 1979-83

(In millions of dollars)

Item	1979	1980	1981	1982	1983
Net sales (less discounts, returns, allowances, and prepaid freight)	165	198	244	277	210
Cost of goods sold:					
Raw materials 1/	80	90	109	126	98
Direct labor 1/	31	35	43	50	39
Depreciation of plant and equipment 1/	3	4	4	5	4
Other factory costs 1/	34	38	47	52	41
Total	148	167	203	233	182
Gross profit or (loss)	17	31	41	44	28
General, selling, and administrative expenses	15	19	21	22	23
Net operating profit or (loss)	2	12	20	22	5
Return on sales (percent)	1.2	6.1	8.2	7.9	2.4

1/ Estimated from data submitted in response to questionnaires of the U.S. International Trade Commission.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except as noted.

APPENDIX I

KOREAN EXPORTS OF FABRICATED STRUCTURAL STEEL PRODUCTS, COMMODITY-BY-COUNTRY ANALYSIS, 1979-83

Table I-1.—Electric transmission towers and parts thereof: Korean exports, by markets, 1979-83

Markets	1979	1/ 1980	1981	1982	1983
	Quantity (short tons)				
United States	0	928	0	0	5,274
Saudi Arabia	94	0	88	494	5,409
Malaya	0	0	2,077	745	3,861
Philippines	2,413	3,264	0	6,884	2,311
Pakistan	0	0	0	3,532	1,762
Indonesia	0	0	0	30	1,514
Bangladesh	300	0	2,141	4,238	341
Kuwait	0	0	2,632	4,794	52,600
All other	0	8,853	4,861	8,035	14,485
Total	2,807	13,045	11,799	28,752	87,557
	Value (1,000 dollars)				
United States	0	543	0	0	4,006
Saudia Arabia	83	0	152	401	3,317
Malaya	0	0	1,699	537	2,578
Philippines	2,970	1,921	0	4,491	1,683
Pakistan	0	0	0	2,625	1,296
Indonesia	0	0	0	25	1,135
Bangladesh	244	0	2,380	4,506	342
Kuwait	0	0	1,619	3,317	150
All other	0	5,957	3,518	5,520	8,943
Total	3,297	8,421	9,368	21,422	23,450

1/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the Monthly Foreign Trade Statistics, Office of Customs Administration, Republic of Korea, except as noted.

Table I-2.—Bridges and parts thereof of iron and steel: Korean exports, by markets, 1979-83

Markets	1979	1/ 1980	1981	1982	1983
	Quantity (short tons)				
Saudi Arabia	647	5,349	9,866	12,787	1,022
Malaya	10	0	0	0	332
Philippines	0	3,149	0	774	213
United Arab Emirates	0	0	0	0	164
Indonesia	0	595	537	908	0
All other	0	0	607	546	2
Total	657	9,093	11,010	15,015	1,733
	Value (1,000 dollars)				
Saudi Arabia	6	5,409	7,700	10,943	1,042
Malaya	523	0	0	0	212
Philippines	0	1,865	0	408	200
United Arab Emirates	0	0	0	0	134
Indonesia	0	641	479	808	0
All other	0	0	316	421	3
Total	529	7,915	8,495	12,581	1,590

1/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the Monthly Foreign Trade Statistics, Office of Customs Administration, Republic of Korea, except as noted.

Table I-3.—Lockgates: Korean exports, by markets, 1979-83

Markets	1979	1/ 1980	1981	1982	1983
	Quantity (short tons)				
Philippines	0	0	167	1,220	1,334
Australia	0	0	0	308	401
A.R.E.	0	0	0	55	0
Jordan	0	0	0	5,490	0
United States	0	60	37	3	0
All other	37	1	200	0	0
Total	37	61	404	7,076	1,735
	Value (1,000 dollars)				
Philippines	0	0	279	1,411	1,398
Australia	0	0	0	632	780
A.R.E.	0	0	0	253	0
Jordan	0	0	0	34	0
United States	0	70	55	4	0
All other	66	1	226	0	0
Total	66	71	560	2,334	2,177

1/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the Monthly Foreign Trade Statistics, Office of Customs Administration, Republic of Korea, except as noted.

Table I-4.—Other fabricated structural steel: Korean exports, by markets, 1979-83

Markets	1979	1/ 1980	1981	1982	1983
	Quantity (short tons)				
Saudi Arabia	12,080	22,683	123,751	49,019	159,563
India	0	11	588	7,840	17,169
Malaya	0	289	31,127	33,932	23,316
United States	4,589	427	3,315	14,107	35,959
Japan	30	264	442	1,396	3,232
Singapore	0	0	1,929	1,967	11,692
Indonesia	6,123	145	122	13,533	4,575
United Kingdom	0	0	0	0	317
All other	3,021	25,485	34,037	49,810	39,785
Total	25,843	49,304	195,313	171,604	295,608
	Value (1,000 dollars)				
Saudi Arabia	31,793	40,491	57,071	61,742	187,547
India	0	11	856	26,647	140,278
Malaya	0	251	32,750	65,297	29,691
United States	1,224	185	3,233	12,825	22,528
Japan	32	188	257	2,553	18,039
Singapore	0	0	1,517	1,848	9,778
Indonesia	3,009	133	42	11,815	6,309
United Kingdom	0	0	0	0	4,742
All other	2,784	15,560	88,426	66,304	35,212
Total	38,842	56,819	184,152	249,031	454,124

1/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the Monthly Foreign Trade Statistics, Office of Customs Administration, Republic of Korea, except as noted.

APPENDIX J

JAPANESE EXPORTS OF FABRICATED STRUCTURAL STEEL PRODUCTS, COMMODITY-BY-COUNTRY ANALYSIS, 1979-83

Table J-1.—Electric transmission towers and parts thereof: Japanese exports, by markets, 1979-83

Item	1979	1980	1981	1982	1983
	Quantity (short tons)				
Saudi Arabia	7,980	6,572	4,432	10,002	32,624
Iran	17,131	28,911	4,281	7,671	7,202
Taiwan	6,660	6,179	737	27,070	13,123
Indonesia	1,785	14,601	166	2,533	11,963
Philippines	6,641	1,596	3,160	10,949	4,944
Malaya 1/	2,422	4,486	3,231	5,443	6,737
Bangladesh	1,366	737	3,760	1,319	3,101
Chile	0	0	0	0	2,683
Sarawak 1/	1	0	0	179	3,780
United States	686	5,314	11,063	7,562	0
All other	14,398	20,588	34,390	12,368	6,282
Total	59,070	88,984	65,220	85,096	92,439
	Value (1,000 dollars)				
Saudi Arabia	5,749	5,079	3,763	9,168	36,724
Iran	18,362	34,530	4,668	7,742	8,601
Taiwan	4,621	5,496	725	19,328	8,218
Indonesia	1,431	10,117	308	1,680	7,830
Philippines	5,877	1,352	3,436	8,830	6,041
Malaya 1/	1,759	2,886	2,110	3,553	5,120
Bangladesh	1,486	1,031	4,946	1,158	3,336
Chile	0	0	0	0	2,955
Sarawak 1/	2	0	0	177	2,914
United States	616	3,540	7,942	6,185	0
All other	14,829	17,302	30,258	9,844	6,326
Total	54,732	81,333	58,156	67,665	88,065

1/ Malaysia.

Source: Compiled from statistics of the Japan Tariff Association.

Table J-2.—Towers and parts thereof of iron and steel, other than electric transmission towers: Japanese exports, by markets, 1979-83

Market	1979	1980	1981	1982	1983
	Quantity (short tons)				
Iraq	1,002	64	1,825	930	456
Saudi Arabia	18,071	13,217	42	187	881
Nigeria	63	71	353	702	799
Bangladesh	0	126	0	14	1,265
Tunisia	0	0	230	0	592
United States	324	133	8	4,511	532
Jordan	0	0	0	0	281
Thailand	611	311	64	71	377
United Kingdom	0	34	10	0	43
Syria	538	0	0	0	546
All other	4,105	4,336	3,667	2,449	2,258
Total	24,714	18,292	6,199	8,864	8,030
	Value (1,000 dollars)				
Iraq	1,746	80	4,447	3,028	3,027
Saudi Arabia	21,147	16,693	91	513	2,316
Nigeria	120	112	1,331	1,813	1,656
Bangladesh	0	168	0	23	1,644
Tunisia	0	0	540	0	1,150
United States	334	183	35	5,352	1,090
Jordan	0	0	0	0	575
Thailand	691	429	115	199	549
United Kingdom	0	97	40	0	529
Syria	507	0	0	0	522
All other	9,859	9,841	9,312	5,195	3,861
Total	34,404	27,603	15,911	16,123	16,919

Source: Compiled from statistics of the Japan Tariff Association.

Table J-3.—Bridges and parts thereof of iron and steel: Japanese exports, by markets, 1979-83

Country	1979	1980	1981	1982	1983
	Quantity (short tons)				
Hong Kong	373	31	1,063	192	1,434
United States	12,448	22,576	3,351	17,739	2,061
Colombia	0	0	0	0	3,070
Indonesia	190	252	1	881	2,089
Philippines	13	132	0	18,663	895
Papua New Guinea	0	138	85	0	431
Thailand	0	368	0	0	51
Saudi Arabia	2,437	134	1,680	0	36
Brunei	340	0	0	0	69
Taiwan	0	4	0	39	28
All other	8,992	3,530	12,942	7,982	4
Total	24,793	27,165	19,122	45,496	10,168
	Value (1,000 dollars)				
Hong Kong	378	25	790	209	2,653
United States	9,050	14,591	3,802	16,532	2,597
Colombia	0	0	0	0	1,893
Indonesia	410	216	11	830	1,533
Philippines	13	85	0	27,473	1,084
Papua New Guinea	0	148	148	0	725
Thailand	0	372	0	0	211
Saudi Arabia	1,834	190	1,674	0	198
Brunei	342	0	0	0	98
Taiwan	0	12	0	111	96
All other	9,774	6,471	20,316	16,194	18
Total	21,801	22,110	26,741	61,349	11,106

Source: Compiled from statistics of the Japan Tariff Association.

Table J-4.—Lockgates and parts thereof of iron and steel: Japanese exports, by markets, 1979-83

Markets	1979	1980	1981	1982	1983
	Quantity (short tons)				
Honduras	0	0	0	258	1,699
Taiwan	0	0	62	159	1,294
United States	14	277	293	605	528
Iraq	9	0	112	112	594
Malaya 1/	340	0	534	1,269	183
Indonesia	1,373	632	882	623	239
Panama	0	0	0	72	67
Laos	0	0	0	0	98
Singapore	9	2	44	4	139
Yemen	0	0	0	0	58
All other	5,602	8,955	6,165	4,533	277
Total	7,347	9,866	8,092	7,635	5,176
	Value (1,000 dollars)				
Honduras	0	0	0	426	4,846
Taiwan	0	0	380	275	3,940
United States	82	1,118	1,320	3,155	1,263
Iraq	30	0	880	433	972
Malaya 1/	420	0	554	3,448	888
Indonesia	5,831	2,918	3,438	2,477	745
Panama	0	0	0	181	461
Laos	0	0	0	0	438
Singapore	38	16	93	19	396
Yemen	0	0	0	0	309
All other	8,257	14,966	13,831	8,415	1,285
Total	14,658	19,019	20,496	18,829	15,543

1/ Malaysia.

Source: Compiled from statistics of the Japan Tariff Association.

Table J-5.—Structures and parts thereof of iron and steel, not elsewhere classified: Japanese exports, by markets, 1979–83

Markets	1979	1980	1981	1982	1983
	Quantity (short tons)				
Saudi Arabia	60,424	125,905	50,635	64,165	70,166
Indonesia	5,831	28,207	23,789	46,790	36,247
Hong Kong	24,863	22,917	29,004	20,249	52,979
Thailand	5,887	17,064	16,184	20,382	34,924
Malaya 1/	453	1,073	720	16,003	24,652
Kuwait	3,567	7,659	12,495	8,917	21,423
Singapore	9,774	14,937	20,106	27,440	36,104
Philippines	3,678	3,316	12,944	8,579	12,574
Mexico	5,087	8,543	8,663	5,753	13,131
United States	12,750	1,824	11,864	10,954	1,731
All other	168,845	267,852	324,017	215,273	156,292
Total	301,159	499,297	510,421	444,505	460,223
	Value (1,000 dollars)				
Saudi Arabia	87,196	171,689	90,535	118,809	172,708
Indonesia	8,292	23,218	25,217	50,001	69,039
Hong Kong	19,743	21,964	32,300	22,749	68,189
Thailand	5,911	11,834	15,419	20,179	45,446
Malaya 1/	774	1,464	891	13,380	38,772
Kuwait	3,109	8,325	12,216	10,477	34,692
Singapore	7,668	15,804	25,065	29,719	28,630
Philippines	15,535	4,450	21,200	11,806	28,211
Mexico	13,078	6,622	16,879	10,105	25,809
United States	10,083	1,971	16,525	23,254	2,741
All other	216,467	353,440	475,945	446,413	277,231
Total	387,857	620,781	732,192	756,892	791,468

1/ Malaysia.

Source: Compiled from statistics of the Japan Tariff Association.

APPENDIX K

COMPETITIVE ASSESSMENT BY U.S. AND WESTERN U.S. FABRICATORS OF STRUCTURAL FACTORS OF COMPETITION FOR THE U.S. AND FOREIGN INDUSTRIES, BY PRODUCT CATEGORIES

Table K-1.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the structural factors of competition between the U.S. and Canadian fabricated structural steel industries, 1982-84

Item	Fabricated structural steel for use in—1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Fuel:															
Availability	1	3	6	0	2	2	0	0	1	0	0	3	0	0	0
Cost	0	4	5	0	3	1	0	1	0	1	1	1	1	0	0
Raw materials:															
Availability	3	1	8	0	0	5	0	0	1	0	0	3	0	0	0
Cost	1	7	4	0	4	2	0	1	0	0	1	2	0	0	0
Capital:															
Availability	1	2	6	0	1	3	0	1	0	0	1	2	0	0	0
Cost	1	2	6	0	1	3	0	1	0	1	1	1	1	0	0
Ability of industry profits to attract funds	0	2	6	0	0	4	0	0	1	0	0	3	0	0	0
Labor:															
Availability	1	4	5	0	3	2	0	1	0	0	1	2	0	0	0
Cost	1	8	2	0	4	1	0	0	0	0	0	2	0	0	0
Production technology	3	0	6	1	0	4	0	0	1	0	0	3	0	0	0
Government involvement:															
Subsidies	0	3	4	1	2	2	0	0	1	0	1	2	0	0	0
Research and development assistance	0	2	4	0	1	2	0	0	1	0	0	3	0	0	0
Tariff levels on imports	0	8	3	0	5	2	0	1	0	0	1	2	0	0	0
Nontariff barriers to imports	0	3	3	0	1	2	0	0	0	0	0	2	0	0	0
U.S. Government regulations which increase costs	0	4	3	0	2	2	0	0	0	0	0	1	0	0	0
Foreign government regulations which increase costs	0	1	4	0	1	2	0	0	0	0	1	0	0	0	0

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table K-2.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the structural factors of competition between the U.S. and Japanese fabricated structural steel industries, 1982-84

Item	Fabricated structural steel for use in—1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections					
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Fuel:																		
Availability	3	0	6	2	0	3	1	0	0	3	1	0	0	0	0	0	0	0
Cost	3	1	6	3	0	2	1	0	0	4	0	0	0	0	0	0	0	0
Raw materials:																		
Availability	2	8	2	1	1	2	0	1	0	0	2	2	0	0	0	0	0	0
Cost	2	8	3	2	4	1	0	2	0	0	6	0	0	0	0	0	0	0
Capital:																		
Availability	1	8	2	1	4	1	0	2	0	1	4	0	0	0	0	0	0	0
Cost	1	8	2	1	4	1	0	2	0	1	4	0	0	0	0	0	0	0
Ability of industry profits to attract funds	0	7	2	0	4	1	0	2	0	0	4	0	0	0	0	0	0	0
Labor:																		
Availability	1	9	3	1	4	2	0	1	0	1	3	1	0	0	0	0	0	0
Cost	1	13	2	1	6	1	0	2	0	1	6	0	0	0	0	0	0	0
Production technology	1	5	4	1	3	2	0	1	0	1	3	1	0	0	0	0	0	0
Government involvement:																		
Subsidies	0	6	2	1	3	1	0	1	0	0	5	0	0	0	0	0	0	0
Research and development assistance	0	5	2	0	2	1	0	1	0	0	4	0	0	0	0	0	0	0
Tariff levels on imports	0	8	2	1	4	1	0	1	0	1	3	0	0	0	0	0	0	0
Nontariff barriers to imports	0	6	2	1	2	1	0	0	0	1	1	0	0	0	0	0	0	0
U.S. Government regulations which increase costs	0	5	3	0	2	2	0	1	0	1	2	0	0	0	0	0	0	0
Foreign government regulations which increase costs	0	1	4	0	0	2	0	0	0	1	1	1	0	0	0	0	0	0

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table K-3.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the structural factors of competition between the U.S. and Korean fabricated structural steel industries, 1982-84

Item	Fabricated structural steel for use in—1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Fuel:															
Availability	2	0	8	1	0	5	0	0	0	2	0	1	0	0	0
Cost	3	4	5	2	3	3	0	1	0	2	1	1	0	0	0
Raw materials:															
Availability	2	11	4	1	3	3	0	1	1	0	2	2	0	0	0
Cost	1	15	1	0	7	2	0	2	0	0	5	0	0	0	0
Capital:															
Availability	3	9	3	2	3	4	0	2	0	1	4	0	0	0	0
Cost	3	11	1	2	5	2	0	2	0	1	4	0	0	0	0
Ability of industry profits to attract funds	1	7	2	0	5	2	0	1	0	0	2	1	0	0	0
Labor:															
Availability	3	11	4	2	5	3	0	1	0	1	3	1	0	0	0
Cost	3	16	1	2	8	1	0	2	0	1	5	0	0	0	0
Production technology	5	1	10	3	2	6	0	0	0	1	1	2	0	0	0
Government involvement:															
Subsidies	1	8	1	0	4	1	0	1	0	0	5	0	0	0	0
Research and development assistance	1	4	1	0	2	1	0	0	0	0	2	0	0	0	0
Tariff levels on imports	1	10	1	0	4	2	0	1	0	1	2	0	0	0	0
Nontariff barriers to imports	1	5	1	0	2	1	0	0	0	1	1	0	0	0	0
U.S. Government regulations which increase costs	2	6	2	2	3	2	0	1	0	1	2	0	0	0	0
Foreign government regulations which increase costs	2	2	2	1	1	2	1	0	0	1	1	1	0	0	0

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table K-4.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the structural factors of competition between the Western U.S. and Korean fabricated structural steel industries, 1982-84

Item	Fabricated structural steel for use in—1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections					
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Fuel:																		
Availability	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Cost	0	2	3	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0
Raw materials:																		
Availability	0	8	1	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0
Cost	0	7	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
Capital:																		
Availability	1	5	1	1	0	1	0	1	0	1	1	0	0	0	0	0	0	0
Cost	1	6	0	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0
Ability of industry profits to attract funds	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Labor:																		
Availability	1	7	2	1	1	1	0	1	0	1	1	0	0	0	0	0	0	0
Cost	1	9	0	1	2	0	0	1	0	1	1	0	0	0	0	0	0	0
Production technology	2	1	5	0	1	2	0	0	0	0	1	0	0	0	0	0	0	0
Government involvement:																		
Subsidies	0	4	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Research and development assistance	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tariff levels on imports	0	5	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Nontariff barriers to imports	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U.S. Government regulations which increase costs	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign government regulations which increase costs	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table K-5.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the structural factors of competition between the Western U.S. and Japanese fabricated structural steel industries, 1982-84

Item	Fabricated structural steel for use in—1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections					
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S			
Fuel:																		
Availability	2	0	2	1	0	0	1	0	0	1	0	0	0	0	0	0		
Cost	1	1	3	1	0	0	1	0	0	1	0	0	0	0	0	0		
Raw materials:																		
Availability	1	5	0	0	1	0	0	1	0	0	1	0	0	0	0	0		
Cost	0	4	1	0	1	0	0	1	0	0	1	0	0	0	0	0		
Capital:																		
Availability	1	4	0	1	1	0	0	1	0	1	1	0	0	0	0	0		
Cost	1	4	0	1	1	0	0	1	0	1	1	0	0	0	0	0		
Ability of industry profits to attract funds	0	3	0	0	1	0	0	1	0	0	1	0	0	0	0	0		
Labor:																		
Availability	1	5	1	1	1	0	0	1	0	1	1	0	0	0	0	0		
Cost	1	6	0	1	1	0	0	1	0	1	1	0	0	0	0	0		
Production technology	0	4	1	0	2	0	0	1	0	0	2	0	0	0	0	0		
Government involvement:																		
Subsidies	0	2	0	0	1	0	0	1	0	0	1	0	0	0	0	0		
Research and development assistance	0	3	0	0	1	0	0	1	0	0	1	0	0	0	0	0		
Tariff levels on imports	0	4	0	0	1	0	0	1	0	0	1	0	0	0	0	0		
Nontariff barriers to imports	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U.S. government regulations which increase costs	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Foreign government regulations which increase costs	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

1/ D=Domestic advantage; F=Foreign advantage; and S=Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX L

DESCRIPTION OF SELECTED TRADE MEASURES AFFECTING IMPORTS OF STEEL MILL PRODUCTS

Trigger Price Mechanism.--On December 30, 1977, the Treasury Department announced its intention to implement the Trigger Price Mechanism (TPM). The TPM, instituted under the authority of section 201 of the Antidumping Act of 1921 as amended (19 U.S.C. 160), was designed to permit Treasury to administer U.S. antidumping laws without having to wait for individual antidumping petitions from the domestic steel industry. The TPM covered most basic steel mill products imported into the United States. Under the TPM, the landed prices of imported steel products were compared to trigger prices to detect instances where sales at less than fair value (LTFV) could be occurring. The trigger prices were developed from cost figures submitted quarterly to U.S. officials by the Ministry of International Trade and Industry (MITI) on the Japanese steel industry. Japan, it was believed, was the world's largest producer of steel, and Japanese steel was considered the world's lowest in cost. Steel imported into the United States at prices below trigger prices, which suggested costs below those of the Japanese, provided the U.S. Government with prima facie evidence of sales at LTFV. On the basis of this evidence, the Government indicated it would consider self-initiated antidumping investigations.

The TPM operated until March 24, 1980. At that time it was suspended as a result of the filing of antidumping complaints against European steel producers. The petitions were withdrawn, and a modified TPM was reinstated on October 21, 1980. The TPM continued in operation until January 11, 1982, when it was again discontinued by Commerce 1/ in response to the filing of antidumping and countervailing duty petitions by the domestic steel industry.

U.S.-EC Arrangement concerning trade in certain steel products.--Carbon and alloy steel plate and structurals were also subjected to import restrictions under the U.S.-EC Arrangement in Trade Concerning Certain Steel Products (the Arrangement) which was announced October 21, 1982. In exchange for the withdrawal and termination of antidumping and countervailing duty petitions concerning U.S. imports of steel products from the European Community (EC), and a commitment by major domestic producers not to initiate any anti-dumping or countervailing duty investigations, the EC agreed to limit exports of 10 carbon and alloy steel products to market-share allowances based on projected apparent consumption in the United States. Under this agreement, imports of the subject steel products from the EC must be accompanied by an export license provided by EC officials in order to be granted entry into the United States. The Arrangement, designed to permit the domestic industry a period of trade stability and a period for restructuring itself, will be in effect from November 1, 1982 through December 31, 1985.

Japanese voluntary restraints.--It has been reported that steel imports from Japan have been subject to voluntary restraints since the late 1970's. Originally, the restraints were reported to be in the form of an export ceiling of about 6 million tons per year, which is not inconsistent with actual imports in the late 1970's (see table L-1).

The subject of U.S. imports from Japan was discussed in testimony of counsel for The Japan Iron and Steel Exporters' Association, The Japan Galvanized Iron Sheet Exporters' Association, and The Japan Wire Products

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1/ Administration of the TPM was turned over to the Commerce Department on January 2, 1980.

Exporters' Association on ITC Investigation No. TA-201-51 under Section 201 of the Trade Act of 1974, concerning carbon and alloy steel products. Counsel stated that, "imports from Japan have not flooded the U.S. market. Each Japanese company carefully monitors the market in the U.S. for its products. In this it is assisted by Japanese trading companies which handle sales. Orders are refused if there is any likelihood that dumping would be a risk." 1/

Table L-1 presents data on steel imports from Japan and contrasts them with data for all imports for the 1979-83 period. As can be seen, the share of imports from Japan to total imports fell from a peak of 39 percent in 1980 to 25 percent in 1983. While total import penetration rose from 15 percent in 1979 to over 20 percent in 1982 and 1983, import penetration from Japan fluctuated, falling to a period low of 5.1 percent in 1983.

Table L-1.—Steel mill products: U.S. imports and imports as a percent of apparent consumption, from all sources and from Japan, 1979-83

Period	Imports			Imports as a percent of apparent consumption	
	Total	From Japan	Percent from Japan	Total	From Japan
	1,000 short tons		Percent	Percent	
1979	17,518	6,336	36.2	15.2	5.5
1980	15,495	6,007	38.8	16.3	6.3
1981	19,898	6,220	31.3	18.9	5.9
1982	16,663	5,185	31.1	21.8	6.8
1983	17,070	4,237	24.8	20.5	5.1

Source: American Iron and Steel Institute.

Antidumping and countervailing duty cases.—Carbon and alloy steel plates and structural shapes, which are used to fabricate structural steel covered in this report, have been subject to a number of trade actions during 1979-83 under U.S. antidumping and countervailing duty laws.

Of 47 petitions filed by the domestic industry against foreign steel producers of carbon and alloy plate, 7 were terminated upon institution of the TPM, 6 were terminated as a result of the Arrangement, 18 were terminated upon lack of injury findings, 1 was withdrawn as a result of a voluntary restraint agreement, 1 suspension agreement was negotiated, 7 cases are subject to antidumping or countervailing duty orders, and 7 are currently awaiting final action.

Twenty-six petitions were filed by the domestic industry against foreign producers of structural shapes. Of these, 6 cases were terminated upon institution of the TPM, 10 were terminated as a result of the Arrangement, 4

1/ Hearing held before the U.S. International Trade Commission, May 11, 1984, p. 782.

were terminated due to lack of injury findings or for other reasons, 2 were withdrawn as a result of a voluntary restraint agreement, 2 are subject to antidumping or countervailing duty orders, 1 was the subject of a negotiated suspense agreement, and 1 is currently awaiting final action.

APPENDIX M

TRANSPORTATION COSTS OF U.S. AND WESTERN U.S. FABRICATORS

Table M-1.—Frequency of responses by U.S. and Western U.S. fabricators assessing transportation costs as a share of the total delivered value of raw materials purchased by them, by specified percentages, 1979-84

Region and product	Less than 3	5	10	15	20
United States:					
Buildings	23	20	14	4	3
Bridges	11	12	6	2	1
Towers	1	1	1	0	0
Oil platforms	4	1	2	0	0
Bridge and barge sections	1	2	0	0	0
Western U.S. region:					
Buildings	7	1	3	3	3
Bridges	1	1	1	2	1
Towers	0	0	1	0	0
Oil platforms	0	1	2	0	0
Bridge and barge sections	0	1	0	0	0

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table M-2.—Transportation costs as a percentage of the total delivered value of U.S. and Western U.S. fabricated structural steel products during 1979-84

Region and product	Percentage of transportation cost to delivered cost				
	Less than 3	5	10	15	20
United States:					
Buildings	36	18	9	3	2
Bridges	14	12	6	1	0
Towers	0	1	2	0	0
Oil platforms	4	0	2	0	0
Ship and barge sections	2	1	0	0	0
Western U.S. region:					
Buildings	10	2	2	3	0
Bridges	1	1	3	1	0
Towers	0	0	1	0	0
Oil platforms	1	0	2	0	0
Ship and barge sections	1	0	0	0	0

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX N

A DISCUSSION OF THE METHOD USED TO CALCULATE REAL-EXCHANGE-RATE INDEXES

The value of the Japanese yen, Korean won, and Canadian dollar relative to the U.S. dollar has declined significantly since 1979. The depreciation in these currencies was offset by differences in inflation rates only in the instance of Canada. The declines in value of the other two currencies contributed to the strengthening of the competitive position of foreign-produced fabricated structural steel in the United States because it resulted in a decline in costs, expressed in dollars.

Table N-1 shows the average indexes of nominal exchange rates in U.S. dollars per unit of foreign currency for three principal fabricated structural steel producing countries during 1979-83 ranged from declines of 5 percent (Canada) to 38 percent (Korea).

Table N-1.—Indexes of nominal exchange rates, 1979-83

(1979=100)

Year	Canada	Japan	Korea
1979	100.0	100.0	100.0
1980	100.2	95.7	76.2
1981	97.7	97.8	71.4
1982	95.0	87.0	66.7
1983	95.0	91.3	61.9

Source: Compiled from official statistics of the International Monetary Fund.

Real exchange rates are used to express the probable effect of general inflation rates on each country's export prices. Real exchange rates are determined by the following formula:

$$\text{Real-exchange-rate index} = \frac{\text{Nominal-exchange-rate index} \times \text{U.S. price index}}{\text{Foreign price index}}$$

Table N-2 shows the average indexes of real exchange rates for Canada, Japan, and Korea for the period 1979 to 1983. As indicated in the table, changes in the real value of these currencies vis-a-vis the U.S. dollar ranged from declines of 15 percent (Korea) and 16 percent (Japan), to an appreciation of 1 percent (Canada). To the extent the real exchange rates reflect shifts in relative price competitiveness in the fabricated structural steel industry, Korea and Japan have therefore increased their competitiveness versus U.S. fabricators, while Canada's position remains virtually unchanged.

Table N-2.—Indexes of real exchange rates, 1979-83

Year	Canada	Japan	Korea
1979	100.0	100.0	100.0
1980	99.7	98.9	92.8
1981	98.2	93.9	96.0
1982	99.2	83.3	91.9
1983	101.3	84.3	84.8

Source: Compiled from official statistics of the International Monetary Fund.

APPENDIX O

U.S. AND WESTERN U.S. IMPORTS OF SPECIFIED FABRICATED STRUCTURAL STEEL PRODUCTS, COMMODITY BY COUNTRY

Table O-1.—Angles, shapes, and sections; drilled, punched or otherwise advanced: 1/ U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Canada	17,242	5,463	4,903	5,887	3,571	2,410	1,008
Mexico	673	0	0	441	2,800	1,676	1,284
West Germany	566	257	215	91	1,246	10	7
Republic of Korea	0	2/	2	37	765	303	498
Italy	5,134	14,232	7,610	3,062	419	404	996
Austria	199	83	58	69	55	34	88
Japan	7,162	7,262	12,205	7,734	583	91	4,274
Belgium and Luxembourg	273	72	132	1,390	509	13	0
All other	1,717	1,890	625	465	586	348	2,352
Total	32,966	29,259	25,750	19,176	10,534	5,289	10,507
	Value (1,000 dollars)						
Canada	17,531	3,923	4,529	4,425	2,633	1,702	766
Mexico	304	0	0	253	1,532	952	641
West Germany	1,026	654	685	179	560	18	13
Republic of Korea	0	3/	1	17	416	148	195
Italy	3,224	9,176	5,786	2,379	320	305	689
Austria	764	338	300	341	295	175	507
Japan	13,674	13,442	10,383	5,942	285	60	3,392
Belgium and Luxembourg	115	84	237	762	237	6	0
All other	2,228	2,941	1,335	446	497	240	1,165
Total	38,866	30,558	23,256	14,744	6,775	3,606	7,368

1/ Includes TSUS items 609.84 and 609.86.
2/ Less than 0.5 short ton.
3/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-2.—Angles, shapes, and sections; drilled, punched or otherwise advanced: 1/ Western U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Mexico	2/	0	0	441	2,130	1,601	0
Republic of Korea	0	0	2	37	765	303	498
Canada	345	197	246	553	310	232	111
Japan	2,325	3,107	10,934	7,684	504	46	4,193
Austria	219	91	37	98	50	38	84
Taiwan	3	34	29	74	60	0	85
Italy	0	69	0	0	8	0	82
Belgium and Luxembourg	34	35	3	1,119	0	0	0
All other	126	177	195	7	0	0	2
Total	3,052	3,710	11,446	10,013	3,827	2,220	5,055
	Value (1,000 dollars)						
Mexico	1	0	0	250	1,229	912	0
Republic of Korea	0	0	1	17	416	148	195
Canada	288	171	185	539	303	198	95
Japan	3,878	3,495	7,699	5,885	223	26	3,340
Austria	108	48	39	60	54	24	53
Taiwan	2	23	17	42	45	0	35
Italy	0	80	0	0	9	0	89
Belgium and Luxembourg	30	46	2	557	0	0	0
All other	200	368	336	35	0	0	4
Total	4,507	4,231	8,279	7,385	2,279	1,308	3,811

1/ Includes TSUS items 609.84 and 609.86.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-3.—Columns, pillars, posts, beams, girders and similar structural units: 1/ U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Canada	68,754	51,332	46,961	32,080	60,231	22,256	23,511
Japan	41,241	42,318	36,161	61,246	65,643	22,981	41,330
Republic of Korea	4,370	1,373	800	3,729	30,515	3,082	33,555
Italy	467	215	15	260	7,924	6,674	76
United Kingdom	2,547	1,597	3,429	2,362	1,049	634	727
Belgium and Luxembourg	111	106	0	10	1,926	1,358	1,732
Mexico	136	22	6	63	296	273	378
West Germany	322	721	1,144	160	115	64	29
All other	2,918	4,127	3,725	1,165	286	88	998
Total	120,866	101,811	92,241	101,075	167,985	57,410	102,336
	Value (1,000 dollars)						
Canada	48,470	40,758	38,696	24,799	43,558	16,365	17,643
Japan	17,792	20,853	16,551	33,849	23,812	9,003	14,802
Republic of Korea	1,108	390	187	5,368	20,714	1,864	18,214
Italy	300	185	67	266	6,798	5,621	84
United Kingdom	2,971	2,252	3,605	3,573	1,640	1,034	1,042
Belgium and Luxembourg	38	20	0	8	891	632	859
Mexico	110	23	11	26	161	150	158
West Germany	269	948	428	252	152	90	34
All other	2,202	2,287	1,439	2,396	254	99	1,897
Total	73,260	67,716	60,984	70,537	97,980	34,858	54,733

1/ Includes TSUS items 652.94, 652.95, and 652.96.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-4.—Columns, pillars, posts, beams, girders, and similar structural units: 1/ Western U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June 1983	January-June 1984
	Quantity (short tons)						
Japan	21,723	15,465	17,414	9,485	20,939	8,484	10,894
Republic of Korea	4,370	1,373	796	17	14,717	2,615	29,098
Italy	0	0	0	2/	7,236	6,110	3
Canada	13,071	6,589	1,365	1,409	3,471	1,196	1,788
Netherlands	0	0	0	2/	44	0	4
Finland	0	0	0	0	1	0	0
West Germany	0	2/	39	1	1	0	6
Mexico	2/	0	1	2/	7	2/	28
All other	294	119	783	55	1	0	62
Total	39,458	23,546	20,398	10,967	46,417	18,405	41,883
	Value (1,000 dollars)						
Japan	7,193	5,435	7,898	3,757	7,935	2,864	4,244
Republic of Korea	1,108	390	182	28	7,040	1,328	13,342
Italy	0	0	0	5	6,148	5,105	6
Canada	9,466	7,744	1,592	1,276	3,314	1,041	1,889
Netherlands	0	0	0	3/	32	0	3
Finland	0	0	0	0	11	0	0
West Germany	0	1	78	3/	7	0	14
Mexico	1	0	3	3/	3	1	18
All other	262	183	1,460	53	2	0	166
Total	18,030	13,753	11,213	5,121	24,492	10,340	19,682

1/ Includes TSUS items 652.94, 652.95, and 652.96.
2/ Less than 0.5 short ton.
3/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-5.—Offshore oil and natural-gas-drilling and production platforms and parts thereof: 1/ U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Japan	7,072	115	10,821	1	5,607	5,603	0
United Kingdom	0	0	195	17	42	21	0
Sweden	0	0	2/	0	6	0	21
West Germany	3	0	34	0	2/	2/	0
Canada	28	15	0	364	2/	2/	7
Norway	0	0	10	0	2/	2/	0
France	0	0	766	774	0	0	0
Mexico	809	306	563	54	0	0	0
All other	0	11	31	33	0	0	47
Total	7,913	447	12,420	1,243	5,656	5,625	75
	Value (1,000 dollars)						
Japan	5,716	87	14,220	7	10,903	10,880	0
United Kingdom	0	0	278	109	194	63	25
Sweden	0	0	1	0	37	0	0
West Germany	13	0	64	0	6	6	0
Canada	25	80	0	447	1	1	17
Norway	0	0	10	0	1	1	0
France	0	0	1,294	1,506	0	0	0
Mexico	818	443	508	151	0	0	0
All other	0	14	56	60	0	0	225
Total	6,572	624	16,431	2,280	11,142	10,952	267

1/ Includes TSUS item 652.97.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-6.—Offshore oil and natural-gas-drilling and production platforms and parts thereof: 1/ Western U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Japan	7,072	0	10,821	1	5,605	5,603	0
United Kingdom	0	0	0	0	21	21	2/
Canada	0	12	0	0	0	0	0
Mexico	14	0	0	0	0	0	0
Singapore	0	0	0	2/	0	0	0
All other	0	0	0	0	0	0	33
Total	7,085	12	10,821	1	5,626	5,625	33
	Value (1,000 dollars)						
Japan	5,716	0	14,220	7	10,901	10,880	0
United Kingdom	0	0	0	0	63	63	25
Canada	0	45	0	0	0	0	0
Mexico	14	0	0	0	0	0	0
Singapore	0	0	0	1	0	0	0
All other	0	0	0	0	0	0	44
Total	5,730	45	14,220	8	10,964	10,944	69

1/ Includes TSUS item 652.97.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-7.—Other fabricated structural steel: 1/ U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Canada	19,991	11,167	26,959	13,872	12,492	6,245	7,056
Italy	291	69	104	527	684	428	421
Japan	2,726	19,443	3,884	4,393	438	291	210
Republic of Korea	0	869	3,927	430	2,663	99	10,506
United Kingdom	303	255	544	796	467	96	140
West Germany	663	461	382	1,071	416	142	694
France	236	492	60	119	216	182	62
Netherlands	840	312	195	364	293	126	177
All other	2,611	9,835	1,131	1,910	1,468	717	7,243
Total	27,661	42,903	37,186	23,482	19,137	8,326	26,509
	Value (1,000 dollars)						
Canada	29,858	22,571	63,226	30,410	22,211	12,394	14,555
Italy	358	35	116	2,340	2,718	1,772	641
Japan	2,563	31,767	5,362	5,395	1,700	1,131	537
Republic of Korea	0	568	3,662	465	1,436	88	7,543
United Kingdom	539	294	668	806	1,087	123	293
West Germany	2,525	897	1,412	2,153	1,027	328	1,108
France	432	744	116	228	501	423	87
Netherlands	1,449	913	322	708	498	187	370
All other	3,542	11,594	1,892	5,075	2,349	897	4,266
Total	41,266	69,383	76,776	47,580	33,527	17,343	29,400

1/ Includes TSUS item 653.00.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-8.—Other fabricated structural steel: 1/ Western U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Country	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Canada	5,130	4,150	19,129	4,289	2,587	1,620	873
Japan	122	8,822	256	1,685	335	200	167
Republic of Korea	0	18	1	13	1,088	21	5,956
Switzerland	0	0	0	0	41	2/	2/
United Kingdom	22	14	64	2	108	3	74
Mexico	1,831	272	208	110	212	80	216
Belgium and Luxembourg	9	0	0	248	48	48	0
Netherlands	310	16	15	84	52	3	67
All other	357	8,212	63	84	17	15	5,819
Total	7,781	21,504	19,736	6,515	4,488	1,990	13,172
	Value (1,000 dollars)						
Canada	12,558	8,451	51,582	10,511	4,441	3,201	1,684
Japan	174	23,177	271	1,638	1,076	565	292
Republic of Korea	0	23	1	21	499	11	3,194
Switzerland	0	0	0	0	455	1	7
United Kingdom	62	29	165	28	333	8	16
Mexico	1,932	260	261	92	161	58	238
Belgium and Luxembourg	2	0	0	56	91	91	0
Netherlands	494	94	30	100	72	6	62
All other	832	9,525	249	97	23	10	2,093
Total	16,054	41,559	52,559	12,543	7,151	3,951	7,586

1/ Includes TSUS item 653.00.
2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-9.—Fabricated structural steel: 1/ U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
Canada	106,015	67,977	78,824	52,203	76,294	30,912	31,582
Japan	58,201	69,138	63,071	73,373	72,270	28,967	45,814
Republic of Korea	4,370	2,242	4,729	4,196	33,942	3,484	44,559
Italy	5,892	14,516	7,729	3,849	9,027	7,506	1,526
United Kingdom	2,963	1,852	4,168	3,175	1,558	813	995
West Germany	1,554	1,439	1,775	1,322	1,777	216	730
Mexico	3,734	328	569	558	3,096	2,062	2,187
Belgium and Luxembourg	2,903	178	132	1,400	2,435	36	103
All other	3,773	16,751	6,604	4,899	2,913	2,654	11,931
Total	189,406	174,421	167,598	144,975	203,312	76,650	139,427
	Value (1,000 dollars)						
Canada	95,884	67,333	106,450	60,081	68,403	30,461	32,980
Japan	39,745	66,150	46,516	45,193	36,700	21,073	18,732
Republic of Korea	1,108	958	3,850	5,850	22,566	2,100	25,952
Italy	3,882	9,395	5,970	4,984	9,836	7,699	1,457
United Kingdom	3,510	2,546	4,551	4,488	2,921	1,272	1,449
West Germany	3,833	2,499	2,589	2,584	1,745	443	1,156
Mexico	1,694	466	519	430	1,693	1,196	1,178
Beglium and Luxembourg	153	104	237	770	1,128	190	513
All other	10,152	18,831	6,766	10,760	4,433	2,325	8,351
Total	159,962	168,282	177,448	135,140	149,425	66,759	91,768

1/ Includes TSUS items 609.84, 609.86, 652.94, 652.95, 652.96, 652.97, and 653.00.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table O-10—Fabricated structural steel: 1/ Western U.S. imports for consumption, by principal sources, 1979-83, January-June 1983, and January-June 1984

Source	1979	1980	1981	1982	1983	January-June— 1983	January-June— 1984
	Quantity (short tons)						
Japan	31,242	27,393	39,425	18,854	27,383	14,333	15,253
Canada	18,546	10,947	20,741	6,250	6,368	3,048	2,773
Republic of Korea	4,370	1,391	799	67	16,570	2,939	35,552
Italy	0	71	2/	1	7,244	6,110	122
Mexico	1,845	272	209	551	2,349	1,681	244
Switzerland	0	0	0	0	41	2/	2/
United Kingdom	90	122	846	7	129	24	128
Netherlands	310	16	15	96	96	3	72
All other	974	8,559	366	1,670	178	102	6,000
Total	57,376	48,771	62,401	27,496	60,358	28,240	60,144
	Value (1,000 dollars)						
Japan	16,961	32,108	30,087	11,286	20,135	14,335	7,877
Canada	22,312	16,410	53,359	12,326	8,058	4,439	3,668
Republic of Korea	1,108	413	184	66	7,955	1,487	16,731
Italy	0	86	1	7	6,157	5,105	169
Mexico	1,948	260	264	342	1,393	970	256
Switzerland	0	0	0	0	455	1	7
United Kingdom	134	203	1,625	47	396	71	105
Netherlands	494	94	30	101	104	6	65
All other	1,362	10,013	721	882	233	128	2,270
Total	44,321	59,587	86,271	25,057	44,886	26,542	31,148

1/ Includes TSUS items 609.84, 609.86, 652.94, 652.95, 652.96, 652.97, and 653.00.

2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

APPENDIX P

U.S. AND WESTERN U.S. IMPORTS OF SPECIFIED FABRICATED STRUCTURAL STEEL PRODUCTS, COUNTRY BY COMMODITY

Table P-1.—Canada: U.S. and Western U.S. imports of certain fabricated structural steel, 1/ 1979-83, January-June 1983, and January-June 1984

Item	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
United States:							
Angles	17,242	5,463	4,903	5,887	3,571	2,410	1,008
Columns	68,754	51,332	46,961	32,080	60,231	22,256	23,511
Oil platforms	28	15	0	364	2/	2/	7
Other	19,991	11,167	26,959	13,872	12,492	6,245	7,056
Total	106,015	67,977	78,824	52,203	76,294	30,912	31,582
Western region:							
Angles	345	197	246	553	310	232	111
Columns	13,071	6,589	1,365	1,409	3,471	1,196	1,788
Oil platforms	0	12	0	0	0	0	0
Other	5,130	4,150	19,129	4,289	2,587	1,620	873
Total	18,546	10,947	20,741	6,250	6,368	3,048	2,773
	Value (1,000 dollars)						
United States:							
Angles	17,531	3,923	4,529	4,425	2,633	1,702	766
Columns	48,470	40,758	38,696	24,799	43,558	16,365	17,643
Oil platforms	25	80	0	447	1	1	17
Other	29,858	22,571	63,226	30,410	22,211	12,394	14,555
Total	95,884	67,333	106,450	60,081	68,403	30,461	32,980
Western region:							
Angles	288	171	185	539	303	198	95
Columns	9,466	7,744	1,592	1,276	3,314	1,041	1,889
Oil platforms	0	45	0	0	0	0	0
Other	12,558	8,451	51,582	10,511	4,441	3,201	1,684
Total	22,312	16,410	53,359	12,326	8,058	4,439	3,668

1/ Includes angles (TSUS items 609.84 and 609.86), columns (TSUS items 652.94, 652.95, and 652.96), oil platforms (TSUS item 652.97), and other products (TSUS item 653.00).

2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table P-2.—Japan: U.S. and Western U.S. imports of certain fabricated structural steel, 1/ 1979-83, January-June 1983, and January-June 1984

Item	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
United States:							
Angles	7,162	7,262	12,205	7,734	583	91	4,274
Columns	41,241	42,318	36,161	61,246	65,643	22,981	41,330
Oil platforms	7,072	115	10,821	1	5,607	5,603	0
Other	2,726	19,443	3,884	4,393	438	291	210
Total	58,201	69,138	63,071	73,373	72,270	28,967	45,814
Western region:							
Angles	2,325	3,107	10,934	7,684	504	46	4,193
Columns	21,723	15,465	17,414	9,485	20,939	8,484	10,894
Oil platforms	7,072	0	10,821	1	5,605	5,603	0
Other	122	8,822	256	1,685	335	200	167
Total	31,242	27,393	39,425	18,854	27,383	14,333	15,253
	Value (1,000 dollars)						
United States:							
Angles	13,674	13,442	10,383	5,942	285	60	3,392
Columns	17,792	20,853	16,551	33,849	23,812	9,003	14,802
Oil platforms	5,716	87	14,220	7	10,903	10,880	0
Other	2,563	31,767	5,362	5,395	1,700	1,131	537
Total	39,745	66,150	46,516	45,193	36,700	21,073	18,732
Western region:							
Angles	3,878	3,495	7,699	5,885	223	26	3,340
Columns	7,193	5,435	7,898	3,757	7,935	2,864	4,244
Oil platforms	5,716	0	14,220	7	10,901	10,880	0
Other	174	23,177	271	1,638	1,076	565	292
Total	16,961	32,108	30,087	11,286	20,135	14,335	7,877

1/ Includes angles (TSUS items 609.84 and 609.86), columns (TSUS items 652.94, 652.95, and 652.96), oil platforms (TSUS item 652.97), and other products (TSUS item 653.00).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table P-3.—Republic of Korea: U.S. and Western U.S. imports of certain fabricated structural steel, 1/ 1979-83, January-June 1983, and January-June 1984

Item	1979	1980	1981	1982	1983	January-June—	
						1983	1984
	Quantity (short tons)						
United States:							
Angles	0	2/	2	37	765	303	498
Columns	4,370	1,373	800	3,729	30,515	3,082	33,555
Oil platforms	0	0	0	0	0	0	0
Other	0	869	3,927	430	2,663	99	10,506
Total	4,370	2,242	4,729	4,196	33,942	3,484	44,559
Western region:							
Angles	0	0	2	37	765	303	498
Columns	4,370	1,373	796	17	14,717	2,615	29,098
Oil platforms	0	0	0	0	0	0	0
Other	0	18	1	13	1,088	21	5,956
Total	4,370	1,391	799	67	16,570	2,939	35,552
	Value (1,000 dollars)						
United States:							
Angles	0	3/	1	17	416	148	195
Columns	1,108	390	187	5,368	20,714	1,864	18,214
Oil platforms	0	0	0	0	0	0	0
Other	0	568	3,662	465	1,436	88	7,543
Total	1,108	958	3,850	5,850	22,566	2,100	25,952
Western region:							
Angles	0	0	1	17	416	148	195
Columns	1,108	390	182	28	7,040	1,328	13,342
Oil platforms	0	0	0	0	0	0	0
Other	0	23	1	21	499	11	3,194
Total	1,108	413	184	66	7,955	1,487	16,731

1/ Includes angles (TSUS items 609.84 and 609.86), columns (TSUS items 652.94, 652.95, and 652.96), oil platforms (TSUS item 652.97), and other products (TSUS item 653.00).

2/ Less than 0.5 short ton.

3/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table P-4.—Other countries: U.S. and Western U.S. imports of certain fabricated structural steel, 1/ 1979-83, January-June 1983, and January-June 1984

Item	1979	1980	1981	1982	1983	January-June	
						1983	1984
	Quantity (short tons)						
United States:							
Angles	8,562	16,534	8,640	5,518	5,615	2,485	4,727
Columns	6,501	6,788	8,319	4,020	11,596	9,091	3,940
Oil platforms	812	317	1,599	878	49	22	68
Other	4,944	11,424	2,416	4,787	3,544	1,691	8,737
Total	20,819	35,064	20,974	15,202	20,806	13,287	17,472
Western region:							
Angles	382	406	264	1,739	2,248	1,639	253
Columns	294	119	823	56	7,290	6,110	103
Oil platforms	14	0	0	2/	21	21	33
Other	2,529	8,514	350	528	478	149	6,176
Total	3,219	9,040	1,436	2,323	10,037	7,920	6,566
	Value (1,000 dollars)						
United States:							
Angles	7,661	13,193	8,343	4,360	3,441	1,696	3,015
Columns	5,890	5,715	5,550	6,521	9,896	7,626	4,074
Oil platforms	831	457	2,211	1,826	239	71	250
Other	8,845	14,447	4,526	11,310	8,180	3,730	6,765
Total	23,227	33,841	20,632	24,016	21,756	13,125	14,104
Western region:							
Angles	341	565	394	944	1,337	936	181
Columns	263	184	1,541	60	6,203	5,106	207
Oil platforms	14	0	0	1	63	63	69
Other	3,322	9,908	705	373	1,135	174	2,416
Total	3,940	10,656	2,641	1,378	8,738	6,279	2,872

1/ Includes angles (TSUS items 609.84 and 609.86), columns (TSUS items 652.94, 652.95, and 652.96), oil platforms (TSUS item 652.97), and other products (TSUS item 653.00).

2/ Less than 0.5 short ton.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

APPENDIX Q

COMPETITIVE ASSESSMENT BY U.S. AND WESTERN U.S. FABRICATORS OF U.S. AND FOREIGN-PRODUCED FABRICATED STRUCTURAL STEEL IN U.S. MARKETS

Table Q-1.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the competitive advantage of U.S. versus Canadian-made fabricated structural steel in U.S. markets, 1982-84

Item	Fabricated structural steel for use in— 1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Overall competitive advantage	7	9	12	8	4	6	0	0	2	1	0	3	1	0	1
Principal reason(s) cited for overall advantage:															
Lower purchase price (delivered)	2	9		2	3		0	0		0	0		0	0	
Shorter delivery time	5	0		2	0		0	0		0	0		0	0	
Availability (what you want and where you want it)	5	0		2	0		0	0		0	0		0	0	
Servicing	4	0		4	0		0	0		1	0		0	0	
Favorable terms of sale	0	4		3	1		0	0		1	0		0	0	
Product performance features:															
Superior design	0	0		1	0		0	0		1	0		0	0	
Quality	1	0		1	0		0	0		0	0		0	0	
Reliability of supplier	3	0		1	0		0	0		0	0		0	0	

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table Q-2.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the competitive advantage of U.S. versus Japanese-made fabricated structural steel in U.S. markets, 1982-84

Item	Fabricated structural steel for use in— 1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Overall competitive advantage	9	15	9	6	8	5	0	2	0	0	6	0	0	1	0
Principal reason(s) cited for overall advantage:															
Lower purchase price (delivered)	1	14		1	9		0	12		0	6		0	1	
Shorter delivery time	6	0		1	0		0	0		0	1		0	0	
Availability (what you want and where you want it)	6	1		2	0		0	0		0	1		0	0	
Servicing	5	2		2	1		0	0		0	1		0	0	
Favorable terms of sale	1	6		1	3		0	0		0	5		0	0	
Product performance features:															
Superior design	1	1		1	0		0	0		0	0		0	0	
Quality	2	1		1	0		0	0		0	1		0	0	
Reliability of supplier	4	1		1	0		0	0		0	1		0	0	

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table Q-3.—Fabricated structural steel: Frequency of responses by U.S. producers assessing the competitive advantage of U.S. versus Korean-made fabricated structural steel in U.S. markets, 1982-84

Item	Fabricated structural steel for use in— 1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Overall competitive advantage	8	22	8	10	9	5	1	3	1	0	7	1	1	2	1
Principal reason(s) cited for overall advantage:															
Lower purchase price (delivered)	1	22		1	7		0	2		0	6		0	1	
Shorter delivery time	6	1		4	0		0	0		0	1		0	0	
Availability (what you want and where you want it)	5	0		4	0		0	0		0	0		0	0	
Servicing	5	1		4	0		0	0		0	0		0	0	
Favorable terms of sale	0	7		2	3		0	1		0	5		0	1	
Product performance features:															
Superior design	0	0		1	0		1	0		0	0		1	0	
Quality	2	0		2	0		0	0		0	0		0	0	
Reliability of supplier	4	1		3	0		0	0		0	0		0	0	

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table Q-4.—Fabricated structural steel: Frequency of responses by Western U.S. producers assessing the competitive advantage of U.S. versus Canadian-made fabricated structural steel in U.S. markets, 1982-84

Item	Fabricated structural steel for use in— 1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Overall competitive advantage	7	0	8	4	0	2	0	0	2	2	0	0	2	0	0
Principal reason(s) cited for overall advantage:															
Lower purchase price (delivered)	0	0		0	0		0	0		0	0		0	0	
Shorter delivery time	7	0		2	0		0	0		0	0		0	0	
Availability (what you want and where you want it)	7	0		4	0		0	0		0	0		0	0	
Servicing	7	0		4	0		0	0		2	0		0	0	
Favorable terms of sale	0	0		2	0		0	0		2	0		0	0	
Product performance features:															
Superior design	0	0		2	0		0	0		1	0		0	0	
Quality	2	0		2	0		0	0		0	0		0	0	
Reliability of supplier	5	0		2	0		0	0		0	0		0	0	

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table Q-5.—Fabricated structural steel: Frequency of responses by Western U.S. producers assessing the competitive advantage of U.S. versus Japanese-made fabricated structural steel in U.S. markets, 1982-84

Item	Fabricated structural steel for use in— 1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Overall competitive advantage	6	9	6	2	2	4	0	2	0	0	4	0	0	2	0
Principal reason(s) cited for overall advantage:															
Lower purchase price (delivered)	0	7		0	4		0	2		0	4		0	2	
Shorter delivery time	5	0		0	0		0	0		0	0		0	0	
Availability (what you want and where you want it)	5	1		2	0		0	0		0	0		0	0	
Servicing	5	1		2	0		0	0		0	0		0	0	
Favorable terms of sale	0	3		2	0		0	0		0	2		0	0	
Product performance features:															
Superior design	1	1		2	0		0	0		0	0		0	0	
Quality	4	1		2	0		0	0		0	0		0	0	
Reliability of supplier	3	1		2	0		0	0		0	0		0	0	

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table Q-6.—Fabricated structural steel: Frequency of responses by Western U.S. producers assessing the competitive advantage of U.S. versus Korean-made fabricated structural steel in U.S. markets, 1982-84

Item	Fabricated structural steel for use in— 1/																	
	Buildings			Bridges			Towers			Oil platforms			Ship and barge sections		
	D	F	S	D	F	S	D	F	S	D	F	S	D	F	S
Overall competitive advantage	5	16	4	2	5	4	0	2	0	0	3	0	0	2	0
Principal reason(s) cited for overall advantage:															
Lower purchase price (delivered)	0	16		2	3		0	2		0	5		0	2	
Shorter delivery time	5	0		2	0		0	0		0	0		0	0	
Availability (what you want and where you want it)	5	0		2	0		0	0		0	0		0	0	
Servicing	5	0		2	0		0	0		0	0		0	0	
Favorable terms of sale	0	2		2	0		0	2		0	4		0	2	
Product performance features:															
Superior design	0	0		2	0		0	0		0	0		0	0	
Quality	2	0		2	0		0	0		0	0		0	0	
Reliability of supplier	5	0		2	0		0	0		0	0		0	0	

1/ D = Domestic advantage; F = Foreign advantage; and S = Competitive position the same.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

APPENDIX R

FABRICATED STRUCTURAL STEEL: MARKETING PRACTICES AND BID PREPARATION

Marketing Practices

Buildings.—Speculative ventures constitute the largest share of the market for buildings. Typically, entrepreneurs undertake speculative projects upon securing a commitment from a major tenant who, upon completion, would occupy several stories of a multistory building. Following a decision to build, an owner might engage an architect to design and develop cost estimates for a completed structure. Currently, however, it is more common for owners to retain the services of construction managers to act as their representatives in designing and executing projects. General contractors are generally engaged either prior to design completion to provide cost and design input or subsequently, when competitive bids for completed structures are solicited. Once the design is completed, the general contractor subcontracts various portions of a project, including steel fabrication and erection. The fabrication and erection contract is generally awarded to a fabricator, who either provides or subcontracts the erection service. In the Western United States, independent erectors appear to be fairly active in bidding contracts and have served as a vehicle for imported fabricated steel. 1/

The timely shipping of material to construction sites is critical if construction schedules are to be met. Proximity of domestic fabricators to erection sites is, therefore, viewed as an important domestic advantage. There are, however, tradeoffs between price and nonprice marketing factors; although discounts are subject to variation from project to project, a discount of 20 percent has been cited as sufficient to outweigh nonprice factors. 2/

In order to reduce overall cost, an owner may elect to fast-track construction, whereby a construction manager or general contractor is selected and all subcontract work is awarded prior to the completion of a building's design. The contractor may assemble a team which is used on a number of projects, or competitive bids may be solicited. In the case of steel fabrication and erection, work would most likely be contracted on a unit basis (e.g., cents per pound). Although flexible, the fast-tracking process can at the same time be cumbersome, as design changes may occur during construction to accommodate the needs of future tenants. The uncertainty and turnaround on such projects is viewed as an advantage to domestic fabricators, who rated servicing capability as one of their more important strengths. Although construction costs may be higher, overall costs on a project may be reduced, since interest paid on money borrowed during the construction phase of a project is considerably higher than the mortgage rates payable when the project is completed. Because shipping items from foreign countries to the United States may take several weeks, foreign fabricators are effectively precluded from participating in the initial phases of fast-track projects; they may, however, be actively involved in subsequent phases, where lead times are longer.

1/ Integrated fabricators, which are firms having the capability to fabricate and/or erect steel, have bid contracts using foreign fabricated steel also.

2/ Transcript of the hearing, p. 38.

Both foreign and domestic firms must conform to the various building codes in effect throughout the United States affecting steel fabrication. Although there are a relatively large number of such codes, they are fairly uniform.

Bridges.—In contrast to the market for buildings, the bridge market is heavily influenced by Federal procurement guidelines, reflecting the importance of Federal highway funds in bridge construction. Once a State has been allocated funds for a project and demonstrated an ability to provide required matching funds, it assumes the responsibility for managing the project. A designer is selected, subject to Federal approval, to develop estimates on both concrete and steel structures. The estimates are provided to Federal officials, who determine whether the estimates are close enough to warrant the preparation of two complete designs, on which bids would be solicited. Contracts for bridges are awarded to the lowest bidder, which is currently viewed as an advantage for domestic fabricators in light of domestic preference legislation. Standards for fabrication are established by the American Society of Highway Transportation Officials, which is comprised of State and Federal transportation officials.

Towers.—Orders for towers are placed by public and private firms alike. The owner typically is responsible for the preparation of tower specifications and solicits bids by invitation. Public power entities have an open bidding process, with the results of the bid competition sent to all bidders. Investor-owned utilities generally do not make all bids public, and often, losing bidders may not know the amount of the winning bid or the winning bidder's identity. Project specifications that accompany a request for quotes may be to existing designs or may involve new competitive design. Bids to existing design specifications are usually for replacement or for add-ons to systems already in place. Large, new projects are almost always bid on new competitive design, which involves significant engineering costs and costly testing requirements on the part of the fabricator. Design capabilities, an area where the United States has faced foreign competition, can therefore be a significant marketing factor.

Oil platforms.—The size of oil platforms may be a factor in the manner in which they are marketed. Certain oil producers have considerable in-house expertise and are capable of designing and overseeing construction of smaller platforms. Larger platforms, however, may necessitate the retention of an outside firm to work with company officials to develop a cost-effective structure. In this latter instance, an outside firm may prepare a formal study or general estimates on the cost of a platform. On the basis of the results of such a study, oil companies may then invite selected fabricators to quote the project. Contracts for jackets and other components may be awarded separately but are often awarded in a single contract to a single fabricator.

The invitation to bid on a platform contract is generally restricted to several firms with proven capabilities and reliability. The larger and more sophisticated a project, the higher the standards are likely to be. Currently, six domestic firms together account for most of the oil platform jacket business. Entry into the market by foreign firms was a relatively slow process due to the qualification standards and buy-domestic policies exercised by U.S. platform purchasers. Acceptance in the market was achieved through

proven successes in the field at highly competitive prices. Domestic fabricators have assessed price as the primary advantage foreign fabricators have had over U.S. producers. Production of platforms is overseen by purchasers or their representatives, a practice which is believed to put foreign fabricators at a competitive disadvantage in bidding on U.S. projects.

Preparation of Bids

The preparation of competitive bids by fabricators is critical to their ability to win contracts and maintain business volume. Because of the cost involved and resources required in bid preparation, only projects for which there is a reasonable chance for success are bid. Nonetheless, on average four out of every five bids made by fabricators have been unsuccessful in recent years (table R-1).

Table R-1.—Fabricated structural steel: Percent of contracts won by U.S. and Western U.S. fabricators, by product, 1979-83

Year	Product			
	Buildings	Bridges	Other	Total
	Percent			
U.S. fabricators:				
1979	27.9	33.6	26.9	28.3
1980	23.4	33.3	23.4	24.1
1981	19.1	29.7	20.1	19.9
1982	18.3	26.3	24.1	19.4
1983	18.6	29.4	23.7	19.9
Western U.S. fabricators:				
1979	32.9	1/	23.5	31.9
1980	22.1	1/	16.7	21.7
1981	8.4	1/	14.5	18.2
1982	15.0	1/	18.4	15.3
1983	19.6	1/	23.6	20.0

1/ Insufficient data provided.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

To maintain market knowledge on structures (particularly buildings), the larger fabricators have representatives who work closely with architects and other firms in the construction business. Smaller fabricators are more likely to rely on information provided in trade reports. Joint ventures among firms are not common, though a group of companies may team up to bid on large projects, with a lead firm acting as contractor to the others. The marketing areas for fabricators vary considerably, as shown in table R-2. However, the marketing areas for Western U.S. fabricators differ somewhat from those of the

rest of the United States. Relatively few of them market products beyond a radius of 500 miles.

Table R-2.—Fabricated structural steel: Marketing area generally serviced by U.S. fabricators

Fabricated structural steel for use in—	Area served		
	Up to 200 mile radius	200–500 mile radius	Over 500 mile radius
Buildings	19	26	20
Bridges	6	11	17
Towers	0	1	3
Oil platforms	1	3	4
Ship and barge sections	0	0	2

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The actual preparation of a bid begins with a fabricator's acquisition of detailed project schematics, which are prepared by a detailer engaged by the general contractor. A complete list of all materials (i.e., "takeoff") is made and used to determine raw materials requirements and cost. In addition, the firm's estimator determines the cost of preparing shop drawings and the manhours required to fabricate and otherwise finish the steel for erection or assembly. While there may be a fair number of standard, repetitive elements in a project, there may also be certain aspects requiring close analysis to determine likely fabricator costs. Overhead, freight cost, and anticipated engineering costs are other elements of costs incorporated into a bid.

The cost for preparing a bid varies according to the complexity and size of a job, from several thousand dollars, to hundreds of thousands of dollars for complex projects, the bid documents for which may exceed 12" in thickness, and the drawings on which may number over 100. The less standard a project, the greater the bid cost and the greater need for engineering support. Computer technology has been of assistance in simplifying the bid process by reducing the time required to calculate costs on standard items.