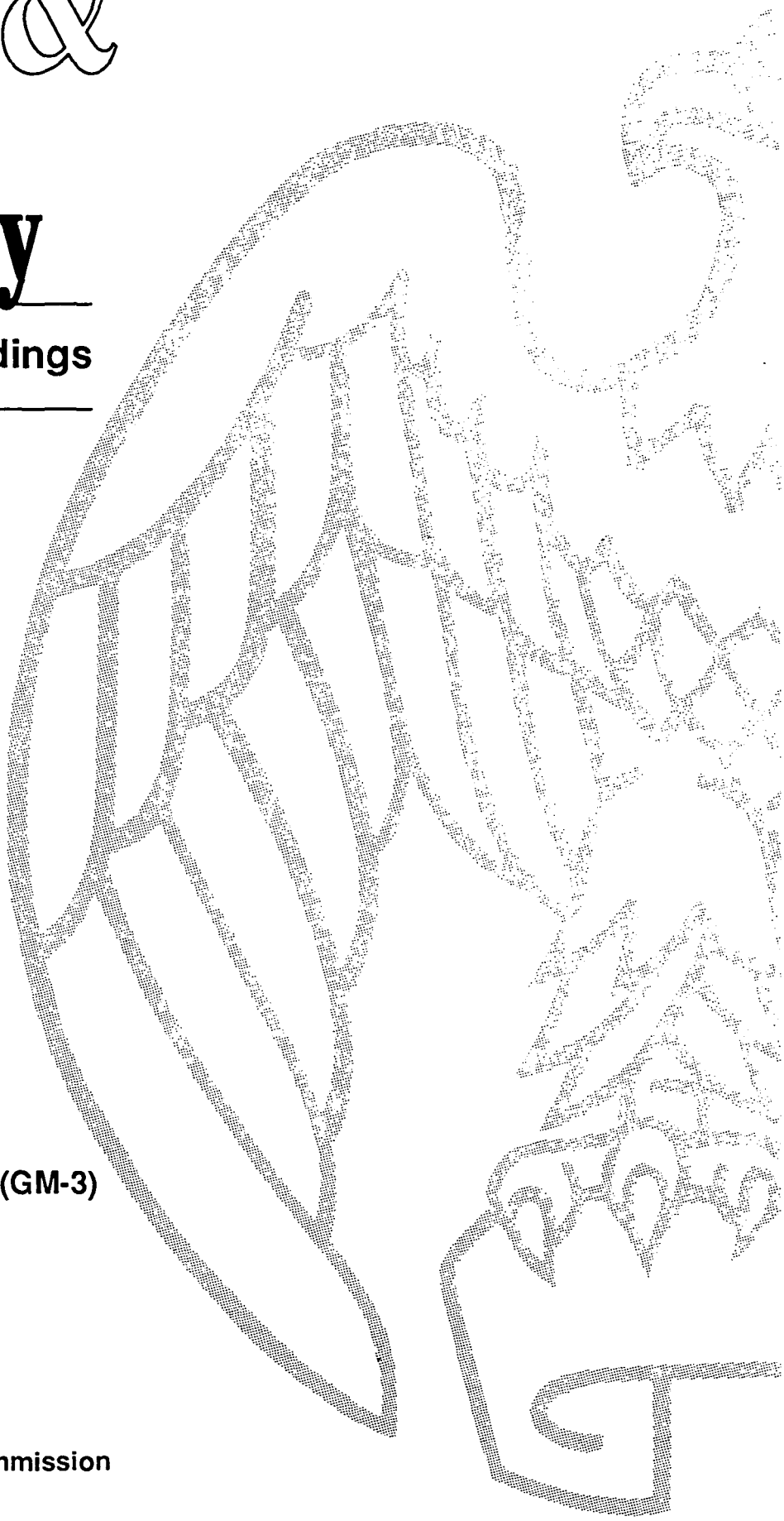
Industry & Trade Summary

Prefabricated Buildings



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PREFACE

In 1991, the United States International Trade Commission initiated its current *Industry and Trade Summary* series of informational reports on the thousands of products imported into and exported from the United States. Each summary addresses a different commodity/industry area and contains information on product uses, U.S. and foreign producers, and Customs treatment. Also included is an analysis of the basic factors affecting trends in consumption, production, and trade of the commodity, as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.[1]

This report on prefabricated buildings covers the period 1986 through 1990 and represents one of approximately 250-300 individual reports to be produced in this series during the first half of the 1990s. Listed below are the individual summary reports published to date on the miscellaneous manufactures sector.

USITC publication number	*Publication date*	*Title*
2426 (GM-1)	November 1991	Toys and models
2476 (GM-2)	January 1992	Lamps and lighting fittings
2523 (GM-3)	June 1992	Prefabricated buildings

[1] The information and analysis provided in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under statutory authority covering the same or similar subject matter.

CONTENTS

INTRODUCTION

This report provides information on the domestic and foreign industries producing prefabricated buildings, on U.S. and foreign tariff policies and nontariff measures in effect for these products, and on the U.S. industry's performance in domestic and foreign markets. The report covers the period 1986 through 1990.

The products covered here include prefabricated buildings, also known as "industrialized buildings," made from all materials. Prefabricated buildings are built in a manufacturing facility and then shipped to the construction site in packages that require different amounts of assembly. These different levels of assembly are categorized as (1) completely assembled modular buildings, (2) partially assembled panelized sections (roofs, walls, floors), (3) precut unassembled packages, and (4) components of buildings. Prefabricated buildings fall into three product categories: (1) mobile homes[1]; (2) wood prefabricated buildings; and (3) metal prefabricated buildings. For the purpose of tariff classification, prefabricated buildings may be equipped only with built-in equipment normally supplied with buildings.[2]

The U.S. prefabricated building industry consisted of an estimated 1,300 producers in 1990; employment totalled roughly 86,000 employees, and production workers accounted for 75 percent of total employment in 1990. U.S. producers' shipments of prefabricated buildings were an estimated $9.1 billion in 1990; mobile homes accounted for 44 percent of the total. Wood prefabricated buildings were 25 percent of such shipments in 1990; those of metal, 31 percent. U.S. imports of prefabricated buildings totaled $34 million in 1990—less than 1 percent of total U.S. consumption.

The manufacturing process for prefabricated buildings employs standard production line techniques. Materials are cut to architectural specifications and then sent to a production line. Each production line specializes in the construction of either roofs, walls, or floors.

Wood and metal are the principal materials used in the manufacture of prefabricated buildings. The proportions of these materials vary according to product category. Mobile homes are made from (1) miscellaneous articles of steel or metal—castings, chassis, forgings, doors, windows, siding, fixtures, and fittings (27 percent of the total cost of materials); (2) household furnishings—furniture, cabinets, and bathroom fixtures (25 percent); and (3) wood and wood composites (22 percent). Mobile homes are used primarily for residential housing; some are used as mobile offices.

Wood prefabricated buildings are built from wood (55 percent of the total cost of materials) and metal structural supports and builders' hardware (14 percent). Dressed lumber, particularly softwood, accounts for 58 percent of all wood usage. Wood prefabricated buildings are used for residential housing, low-rise office buildings, or apartments.

Metal prefabricated buildings are primarily built of (1) steel shapes and forms (62 percent of the cost of materials); (2) insulation, glass, paints and varnishes, and nuts and bolts (8 percent); and (3) sheets, plates, and shapes of copper, aluminum, and iron (7 percent). The majority of metal prefabricated buildings are functional structures used for institutional, religious, educational, or field office purposes. Approximately 20 percent are used for farm service buildings and industrial facilities (see figure 1).

U.S. INDUSTRY PROFILE

Industry Structure

The U.S. industry examined in this report is included in Standard Industrial Classification (SIC) 2451, Mobile Homes; SIC 2452, Prefabricated Wood Buildings; and SIC 3448, Prefabricated Metal Buildings.

Approximately 1,300 establishments produced prefabricated buildings in the United States in 1990, up from an estimated 1,200 in 1986. Although producers are scattered throughout the United States, the largest number of most major types are located in California, Texas, and Florida.[3] U.S. employment in the industry was estimated at 86,000 in 1990, up from 84,000 in 1986. The average prefabricated building firm had annual shipments of nearly $7 million in 1990, and employed 50 production employees. Due to high transportation costs, firms usually serve a market within a radius of 300 miles.

U.S. producers' shipments of prefabricated buildings rose from an estimated $8.6 billion in 1986 to $9.1 billion in 1990, an average annual increase of 1.9 percent. U.S. producers' shipments of wood prefabricated buildings rose by 8 percent during 1986-90. U.S. shipments of metal prefabricated buildings increased by 15 percent during the period[4]

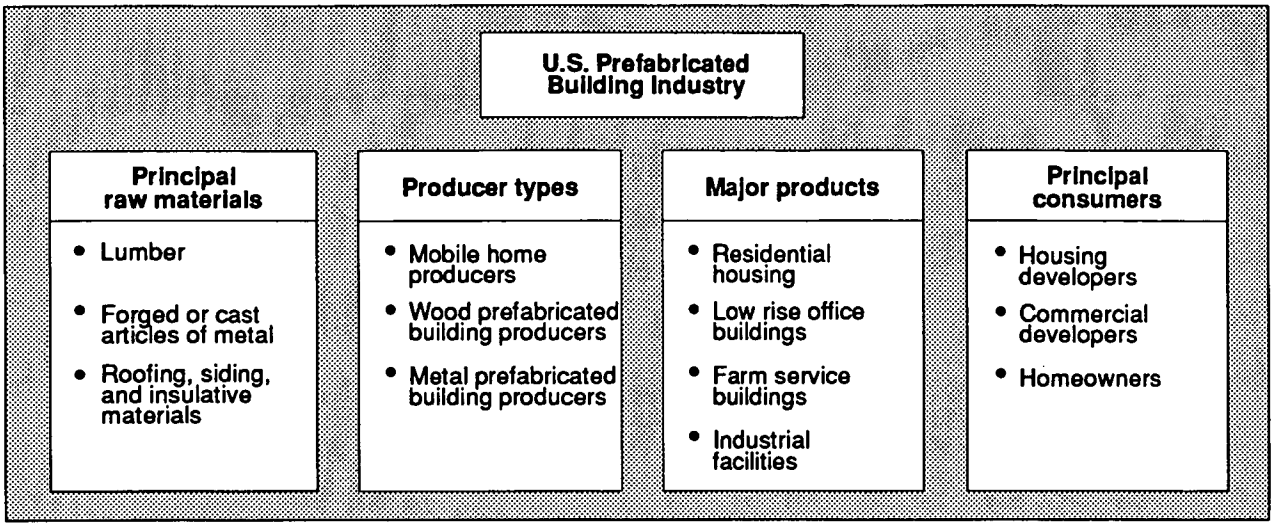
[1] Mobile homes, also known in the industry as manufactured homes, are always shipped in modular form. Mobile homes differ from prefabricated homes in that they are built to Housing and Urban Development (HUD) guidelines and are permanently attached to a chassis that can serve as a foundation. Prefabricated homes are built to State and local building codes and must be placed on a permanent foundation that is built on site.

[2] Built-in equipment includes heating, air conditioning, bathroom, and kitchen equipment, electrical fittings, and items of furniture that are designed to be built-in (cupboards, etc.). Other equipment, even though imported with prefabricated buildings, is not classified as part of prefabricated buildings.

[3] The exception was Pennsylvania, which had the greatest number of producers of prefabricated buildings of wood—followed by California, Texas, and Florida.

[4] U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook 1991* (Washington, DC: U.S. Department of Commerce, 1991), p. 7-4.

Figure 1
U.S. prefabricated building industry: Principal raw materials, producer types, major products, and principal consumers



Source: U.S. Department of Commerce, Bureau of Census, *Census of Manufactures, 1987*; industry sources.

while that for mobile homes remained stable. Overall, the rate of growth for the prefabricated building industry has mirrored the slow growth in the U.S. economy, in large part due to a shortage of credit available for housing and construction. In addition, the mobile home industry has been troubled by poor image, zoning restrictions, and stringent mortgage financing standards.

The growth rate for wood prefabricated buildings should recover as many mobile home producers and on-site builders begin to incorporate prefabricated building techniques. Mobile home producers are making modular homes because of the similarity of production methods and the desire to reach markets where zoning practices exclude mobile homes. On-site home builders are using up to 60 percent preassembled factory-built components in their final products.

Slow economic growth from 1989 to 1990, combined with the shortage of credit, could lead to increased consolidation in the prefabricated building industry. Large builders are more cost competitive because their larger volumes enable them to introduce more automated methods of manufacture and achieve economies of scale. Computerized building designs now allow larger, more standardized builders to offer a greater variety of structures. The main competitive advantage of small builders has been their ability to provide custom-made buildings. However, smaller builders often lack the financial resources to withstand a recession.

The mobile home industry is the most concentrated segment of the homebuilding industry. Mobile home producers accounted for an estimated 24 percent of all prefabricated building producers in 1990, and 47 percent of the employment.

The total number of mobile home producers fell from 376 in 1982 to 288 in 1987, indicating increasing levels of concentration within the mobile home industry. Mobile home producers exist throughout the United States with the highest concentration found in the Southeast (33 percent). The South is a major market as mobile homes are particularly cost efficient in moderate climates.

Wood prefabricated building producers accounted for an estimated 42 percent of all prefabricated building producers in 1990 and 27 percent of the employment. The total number of establishments rose from 472 in 1982 to 502 in 1987. Wood prefabricated building producers are found throughout the United States.

Metal prefabricated building producers accounted for an estimated 34 percent of all prefabricated building producers in 1990 and 26 percent of employment. The number of establishments producing metal prefabricated buildings remained level during 1982-87. A large number of producers in this segment of the industry are located in California, Texas, and Florida.

Increased concentration in the industry has coincided with new capital equipment, including: (1) high-speed computerized saws that perform several operations; (2) high speed machines that staple wall covering to an entire wall panel; (3) conveyor equipment that hoists wall panels and roof sections into position; and (4) machinery for the automated production of doors, stairs, and banisters. For mobile

homes and metal prefabricated buildings, new capital expenditures amounted to 1 percent of total shipments in 1989 (the latest year for which such data are provided by the Department of Commerce's Annual Survey of Manufactures). For wood prefabricated buildings, new capital expenditures as a percentage of shipments amounted to 2 percent.

The prefabricated building industry is moderately labor intensive. Methods of production are becoming increasingly automated. However, the industry is a relatively low-technology one and production does not require highly sophisticated or particularly costly equipment. The labor force used in the construction of prefabricated buildings is unskilled or semi-skilled and employed year round on an assembly line. In 1989, the cost of production labor was 13 percent of the total value of shipments for mobile homes, 12 percent for wood prefabricated buildings, and 9 percent for metal prefabricated buildings (table 1).

Product innovation for the prefabricated building industry is occurring primarily in plastics. Producers recently started to use plastics in shingles, panels, plumbing, cabinet surfaces, and electrical fixtures. Industry sources predict that foundations of plastics will become more durable than foundations of cement currently in use. There will also be use of structural plastics. Product innovation is more limited in mobile homes because they are built to the Department of Housing and Urban Development (HUD) standards which specify the types of materials that can be used.

There is very little vertical integration in the mobile home industry. Mobile home producers find that the most cost-efficient method of production is to assemble a finished product from components (roofing, metal siding, door and window frames, household furnishings) that have been purchased from independent U.S. suppliers. Mobile homes are sold by independent dealers; they normally represent four cr five different manufacturers and may develop mobile home parks or sites of land. Only a small number of the largest mobile home producers have their own showrooms.

There is a significant amount of forward and backward integration in the wood prefabricated building industry because lumber and real estate prices experience significant fluctuations. Large manufacturers may own one or more of the following: (1) lumber yard; (2) trucking operations; (3) housing sites; (4) real estate operations; and (5) mortgage banking facilities. Generally, these operations function as independent cost centers that compete with outside organizations for their company's business.

Metal prefabricated building companies are less integrated. Industry leaders generally purchase virtually all of their materials from independent suppliers and build according to orders they receive from distributors of metal prefabricated buildings. The industry operates most efficiently this way because the market for metal prefabricated buildings is highly fragmented—ranging from airports to agricultural operations—and producers do not have the resources to reach all potential markets. Purchasing building materials instead of making metal sheet in-house avoids problems involved in investment in manufacturing equipment, excess production capacity, and inventories.

The degree of integration of foreign suppliers, producers, and assemblers with U.S. producers of prefabricated buildings is limited. Foreign suppliers are primarily found in high-end fixtures that go into modular prefabricated homes (bathroom, kitchen, lighting). Generally, U.S. distributors of construction materials do business with foreign producers of fixtures. Foreign producers of prefabricated buildings have not entered the U.S. market in significant numbers because high transportation costs and local construction codes inhibit international trade in prefabricated buildings. Foreign firms wishing to export to the United States have to absorb the cost of having U.S. officials certify their factories and their output.[5] Joint ventures with U.S. firms appear to be the best avenue of entry for foreign producers. There are approximately two dozen Japanese and Swedish companies that have established joint venture operations in the United States.

Marketing methods for prefabricated buildings differ according to product category. Mobile homes are marketed on their affordability and as an avenue to enter the housing market. In the last decade, average new single-family home prices (including land) have appreciated more than 75 percent, while mobile home

[5] The enforcement process for building codes involves on-site inspections, product inspections with resulting approval seals, design review, and plant certifications.

Table 1
Prefabricated buildings: Share of value of materials and labor as a percentage of total shipments, by major product categories; 1982 and 1989

(Percent)

	1982		1989	
Industry	*Material*	*Labor*	*Material*	*Labor*
Mobile homes	67	12	65	13
Wood prefabricated buildings	59	11	61	12
Metal prefabricated buildings	60	10	60	9

Source: U.S. Department of Commerce, Bureau of Census, *Census of Manufactures, 1982,* and *Survey of Manufactures, 1989.*

prices rose by nearly 40 percent.[6] Mobile homes accounted for approximately 80 percent of housing costing less than $50,000 in 1990. In 1990, the average price of a mobile home was $27,100, compared with $19,700 in 1982.[7]

Unlike mobile home production, which is dominated by a number of large firms, distribution and installation are highly fragmented. Mobile home dealerships operate much the same way as an automobile dealership, with a show room, model homes, and walk-in clientele. Dealers own their model homes, as opposed to leasing them or receiving them from the manufacturer at no cost. A mobile home dealer may also be responsible for preparing the land; delivering the home to the site; and completing the foundation, utility work, and anchoraging system.

As indicated earlier, mobile homes must be built to conform to HUD guidelines. As a result, the exterior design and structure of mobile homes are very similar among units and manufacturers. Mobile homes are generally built to widths that conform to maximum permissible highway loads—14 feet wide. Single units are often joined at the housing site to form a "double wide." There are a wide variety of mobile home interiors. Current taste places an emphasis on large closets and bathrooms.

The bulk of wood prefabricated buildings is sold in multiple units to residential or commercial developers. Prefabricated buildings are marketed as providing a cost-efficient method of home building; savings to the developer come from a much faster return on investment because of the shorter construction time required. A large prefabricated building producer can provide an assembled building on site in about one-third the time of an on-site builder. In addition, the prefabricated method cuts down on intangible costs by providing greater material and production control, economies of mass production, more consistent quality, and fewer financial and material losses because of weather conditions or theft.

Prefabricated buildings are built to conform to local building codes. Product designs range from one-room log cabins priced at under $10,000, to multibedroom mansions priced at up to $1 million, and low-rise hotel or office buildings. Producers generally have their own in-house sales force that contacts developers. Large prefabricated building producers may also be developers. Such operations provide the final consumer with sites, various models to chose from, and financial and legal services.

Metal prefabricated buildings are marketed on affordability, shorter construction schedules, and quality control. Consumers of metal prefabricated buildings—corporations, institutions, and manufacturing operations—are generally contacted by independent dealers. The dealer then orders the buildings from manufacturers. Dealers often take possession of a structure and then lease it.

Several U.S. Government programs affect this industry. The most prominent is the Manufactured Homes Construction and Safety Standard Act of 1974, which is administered by HUD. This act regulates how mobile homes are built, and it covers design, construction, fire safety, plumbing, heat-producing and electrical systems, lighting and ventilation, and all equipment and installation processes for mobile homes designed to be used as dwelling units. The act also regulates structural design and major subassemblies, anchorage to a foundation, roof loads, formaldehyde emissions from wood products, air flow and condensation control, and insulation. A HUD-specified metallic label certifying compliance must be applied to all mobile homes sold in this country.

Proper installation is an important component of HUD regulations. Improper installation degrades the stability of a mobile home and lowers wind resistance. It can also lead to structural stress that can in turn weaken the structural integrity. However, it is difficult to enforce the standard because distribution and installation of mobile homes is in the hands of a very large number of small dealers.

Several Federal programs encourage the development of the housing market, including the market for prefabricated buildings, by providing Federal insurance or a secondary market for home loans. These programs and agencies that administer them include—

1. The Federal Housing Administration (FHA), which offers loan insurance under title I of the National Housing Act;
2. The Veterans Administration (VA), which guarantees home purchase loans under the Veterans Housing Act of 1970;
3. The Farmers Home Administration, which allows financing of prefabricated buildings under a Rural Housing Program;
4. The Government National Mortgage Association, which is authorized to include FHA or VA insured home loans in its mortgage-backed security program; and
5. The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation, which provide home mortgage purchase programs.

State and local governments also influence the housing market because they enact and enforce building codes. Building codes are comprehensive regulations which specify how a structure can be built. They often cover such detailed items as the placement of smoke alarms within a structure. The lack of consistency between the building codes of various States affects prefabricated builders more than on-site builders because prefabricated builders have less flexibility, owing to more automated methods of production. The lack of uniformity between codes

[6] U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook 1991* (Washington, DC: U.S. Department of Commerce 1991), p. 5-6.
[7] *Ibid.*

increases production costs by discouraging long production runs that might justify development of more automated manufacturing methods.

Consumer Characteristics and Factors Affecting Demand

The most significant factor influencing the demand for prefabricated buildings is the availability of credit. The industry has been severely affected by the savings and loan crisis, which has inhibited the availability of credit to both developers and potential homeowners.

U.S. consumers of mobile homes are generally individuals who are outside the traditional housing market owing to financial status (newlyweds, first-time buyers, retirees, single parents). In addition, a significant portion of mobile home consumers traditionally purchase their mobile homes as second or vacation homes. Even though the growth of the traditional market of first-time home buyers (25-44 average age) has slowed, there is an increasing potential market of retired people of moderate and low incomes.[8]

The demand for mobile homes has been constrained by property assessment and zoning procedures practiced in certain residential communities. Mobile homes are often classified as personal property instead of real property and, as a result, owners are unable to obtain long-term mortgage financing. Retail financing is usually for lower amounts than mortgage financing, has higher interest rates, and shorter terms. Furthermore, mobile homes classified as personal property may be assessed a local personal property tax that is often higher than the tax on real estate. Some communities zone property to exclude mobile homes on the grounds that they do not return in taxes the amount they add to the local budget in terms of education costs and other government services.

FOREIGN INDUSTRY PROFILE

The major world producers of prefabricated buildings are the United States, the EC, Japan, members of the European Free Trade Association (EFTA),[9] and Canada. International trade in prefabricated buildings is limited because of high transportation costs and local building codes. Consequently, domestic markets account for the vast majority of shipments by both U.S. and foreign producers. U.S. exports of prefabricated buildings accounted for less than 1 percent of U.S. producers' shipments in 1990. Because of proximity, the United States and Canada are each other's leading trading partner for both imports and exports. Similarly, the EC and EFTA countries were each other's leading trading partners. EC imports from EFTA countries totaled $60 million in 1988, but EC imports from the United States and Canada were only $12 million.[10] Because of high transportation costs and the lack of native materials, especially wood, Japan's exports to the EC and the United States combined amounted to less than $1 million in 1990.

Sweden and Austria were the principal suppliers of prefabricated buildings to the EC in 1989, each accounting for 22 percent, or $20 million of the total. Finland was the third-largest EC supplier in that year, accounting for 12 percent ($10 million) of the total. West Germany and the United Kingdom were the largest EC markets for EFTA-made prefabricated buildings. West Germany accounted for 45 percent of all EC imports of prefabricated buildings in 1989, while the United Kingdom accounted for 20 percent. Austria was the principal source of West German imports of prefabricated buildings in 1989, accounting for 41 percent ($17 million) of the total. The United States, by comparison, accounted for only 3 percent of such imports in that year. Sweden was the principal source of such imports for the United Kingdom in 1989, accounting for 57 percent ($10 million) of the total. The United States accounted for 9 percent ($2 million) of the United Kingdoms's imports. Finland's exports to the EC were well dispersed among the EC countries.

Japanese production of prefabricated buildings is highly automated and producers are usually subsidiaries of major corporations that have close linkages to the banking industry. In recent years, the top five producers of prefabricated homes produced 80 percent of all prefabricated housing in Japan; the top 10 firms manufactured 90 percent. Three of the top five firms are affiliates of large, diversified industrial organizations; one is an affiliate of a large general construction company; and one is exclusively a housing producer. Prefabricated buildings are used primarily for housing; there is very little production for industrial use. All of the top five Japanese companies produce metal frame units with composite exteriors (precast concrete).[11]

Steel frame units account for over 50 percent of all prefabricated units in Japan, wood panel systems for about 20 percent, and concrete systems for about 15 percent. Japan's production is geared toward metal units, which are more easily automated than wood panel systems. Moreover, steel units are preferred over wood because they are more able to withstand typhoons and earthquakes and are more fire-resistent and thus better able to meet strict fire code requirements. Steel units are also preferred because they can be used in multistory construction. Land prices in most Japanese urban areas are very

[8] Ibid.

[9] European Free Trade Association members include Norway, Sweden, Finland, Iceland, Switzerland, Austria, and Liechtenstein.

[10] Based on official statistics of the EC.

[11] Renee Mathieu, "The Prefabricated Housing Industries on the United States, Sweden, and Japan," *Construction Review*, July-Aug. 1987, p. 17.

high, and single-family home sites are often prohibitively expensive and well beyond the means of an average wage earner. Metal prefabricated building manufacturers benefit from the low-cost steel produced in Japan's efficient steel mills.[12]

The Japanese Government is extensively involved with the prefabricated building industry through both the Ministry of Construction (MOC) and the Ministry of International Trade and Industry (MITI). MITI's role with respect to housing and prefabricated buildings is to upgrade urban housing by increasing the life expectancy and functional characteristics (heating, plumbing, energy efficiency) of buildings. MOC accounts for nearly 70 percent of the national public works budget and is therefore a consumer of prefabricated buildings. Its administrative responsibility includes preparing a 5-year housing construction program. Japan also has a National Building Standards Law that applies to all buildings in Japan, including imports of prefabricated buildings.[13]

There are reportedly about 100 producers of prefabricated buildings in Canada. The total number of units produced in 1990 were estimated at between 7,500 and 8,500, with total industry shipments estimated at $200 million. Prefabricated buildings account for less than 8 percent of Canadian housing starts. The low level of prefabricated building is the result of the limited number of urban areas that are large enough to support a prefabricated building plant. Low-rise, semi-detached, and row housing account for most of the housing starts in Canada. Prefabricated housing producers have not succeeded in either entering this market or supplying subdivision developers with these types of buildings. The industry is most successful in the production of energy-efficient units and architecturally attractive modular homes in rural locations.[14]

Canadian companies have favorable access at relatively low prices to materials and components such as lumber, plywood, windows, doors, and cabinetry. These items represent the major cost elements in the wood prefabricated building industry. Canada's prefabricated building industry, though much smaller than that in the United States, has comparable methods of manufacture.

There are a little over 100 prefabricated housing manufacturers in Sweden; average annual output per firm is approximately 250 single family homes and 140 multiple homes. In recent years, prefabricated housing made up most of Sweden's new housing starts.[15] Swedish prefabricated housing manufacturers produce wood-framed, highly insulated structures, placing a high emphasis on automation and the flexible use of highly trained production workers. Computer-controlled equipment allows buildings to be cost-efficiently customized. There is very little difference in product quality among the various manufacturers because of Sweden's highly detailed, performance-based national building code; differences between manufacturers center on the intricacies of finishes and components. Homes are designed to fit several basic foundation systems, which are also prefabricated.

The Swedish Government's involvement in the industry is as follows: (1) the National Swedish Housing Board (Bostadsstyrelsen) is the central authority for the Swedish Government's programs for housing; (2) the National Board of Physical Planning and Building produces national building codes and provides inspection to monitor both factory and on-site work; and (3) the Swedish Council on Building Research (SWEBEX) is responsible for technical research and development in cooperation with the various universities and research facilities. These Government agencies plan and implement the Swedish Government's programs for public works construction.[16]

Sweden's proximity and its virtual duty-free access to the EC and EFTA markets provide Swedish manufacturers with a substantial trade advantage over U.S. manufacturers in Europe. Sweden accounted for 22 percent of EC imports in 1988 compared with 7 percent for the United States.

The EC prefabricated building industry is well established and its methods of construction are comparable to those in other industrialized countries. The markets served by individual firms are limited by high transportation costs and the local nature of building codes; however, the EC is working towards a market-wide building code.

U.S. TRADE MEASURES

Table 2 shows the rates of duty as of January 1, 1991, applicable to imports of prefabricated buildings under the Harmonized Tariff Schedule of the United States (HTS). The table shows the column 1 general rates of duty for countries considered for general or most-favored-nation (MFN) treatment, as well as special duty rates under column 1 for countries that qualify under particular special tariff programs.

The 1991 column 1 general rate of duty for prefabricated buildings of wood (HTS heading 9406.00.40) was 5.1 percent; that for prefabricated buildings not of wood (HTS heading 9406.00.80) was 5.7 percent. Imports of prefabricated buildings are free of duty under the Generalized System of Preferences, the Caribbean Basin Economic Recovery Act, and under the free-trade agreement with Israel. Under the U.S.-Canada Free-Trade Agreement, staged reductions

[12] Ibid.

[13] Ibid., pp. 13-14.

[14] Department of Regional Industrial Expansion, Ministry of Forestry. "Review of the Canadian Manufactured Housing Industry," Ottawa, Canada, Sept. 1986.

[15] Mathieu, "The Prefabricated Housing Industries in the United States, Sweden, and Japan," p. 9.

[16] Ibid., p. 11.

Table 2
Prefabricated buildings: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1991; U.S. exports and imports, 1990

HTS subheading	Description	Col. 1 rate of duty As of Jan. 1, 1991 General	Special[1]	U.S. exports, 1990	U.S. imports, 1990
				—Million dollars—	
9406.00.40	Prefabricated buildings of wood	5.1%	Free (A, E, IL) 3.5 % (CA)	36	11
9406.00.80	Prefabricated buildings not of wood	5.7%	Free (A, E, IL) 3.9% (CA)	137	23

[1] Programs under which special tariff treatment may be provided, and the corresponding symbols for such programs as they are indicated in the "Special" subcolumn, are as follows: Generalized System of Preferences (A); Automotive Products Trade Act (B); Agreement on Trade in Civil Aircraft (C); United States–Canada Free–Trade Agreement (CA); Caribbean Basin Economic Recovery Act (E); and United States–Israel Free–Trade Area (IL).

Source: U.S. exports and imports compiled from official statistics of the U.S. Department of Commerce.

in tariffs on bilateral trade in these goods will occur until 1998, by which time all duties between the two countries will be reduced to zero. During 1991, imports of prefabricated buildings of wood from Canada were dutiable at 3.5 percent ad valorem; other prefabricated buildings from Canada were dutiable at 3.9 percent ad valorem.

The changeover to the HTS effective in 1989 classifies all buildings which are finished in the factory under heading 9406.00, "Prefabricated buildings." Prefabricated buildings, also known as "industrialized buildings" are generally presented in the form of: (1) complete buildings, fully assembled, ready for use; (2) complete buildings, unassembled; or (3) incomplete buildings, whether or not assembled, having the essential character of prefabricated buildings. Built-in equipment may be classified under this heading provided it accompanies a building and is "normally" included in the structure. Examples of such built-in equipment are: electrical fittings, heating and air conditioning equipment, bathroom and kitchen equipment, and items of furniture which are built-in or designed to be built-in (cupboards, etc.). Under the Tariff Schedules of the United States, prior to 1989, prefabricated buildings were classified throughout the schedules according to chief material of construction.

There are no known U.S. nontariff trade measures that significantly influence trade in prefabricated buildings.

FOREIGN TRADE MEASURES

In 1991, the duty rates applied on prefabricated buildings by countries that are major markets for U.S. exports ranged from 3.9 percent to 6 percent. The tariff rates charged by these countries were as follows: Canada, 4 percent for wood prefabricated buildings and 4.5 percent for prefabricated buildings not of wood; Japan, 3.9 percent on all prefabricated buildings; and the EC, 6 percent on all prefabricated buildings.

There are no known foreign country nontariff trade measures that significantly influence trade in prefabricated buildings.

U.S. MARKET

Consumption

U.S. consumption of prefabricated buildings is estimated to have risen from $8.5 billion to $9.1 billion during 1986-90 (table 3). U.S. shipments supplied virtually all the U.S. market during this period. The ratio of imports to consumption during 1986-90 was about 0.5 percent (table 3 and figure 2).

Production

U.S. producers' shipments of prefabricated buildings rose from an estimated $8.6 billion in 1986 to roughly $9.1 billion in 1990. Mobile homes accounted for an estimated 44 percent of total U.S. producers' shipments in 1990. Wood prefabricated buildings accounted for 25 percent of such shipments in 1990, while those of metal accounted for 31 percent.

U.S. producers' shipments of wood prefabricated buildings rose by 8 percent during 1986-90. Shipments of metal prefabricated buildings increased by 15 percent during the period, while that of mobile homes remained stable.

Imports

U.S. imports of prefabricated buildings fell from $37 million in 1986 to $34 million in 1990 (see table 4). U.S. imports fluctuated during this period, reaching highs in 1987 ($43 million) and 1989 ($47 million), and a low in 1988 ($32 million). U.S. imports of wood prefabricated buildings accounted for 32 percent of the total in 1990, compared with 76 percent in 1986. According to industry representatives, mobile homes are not imported into the United States.

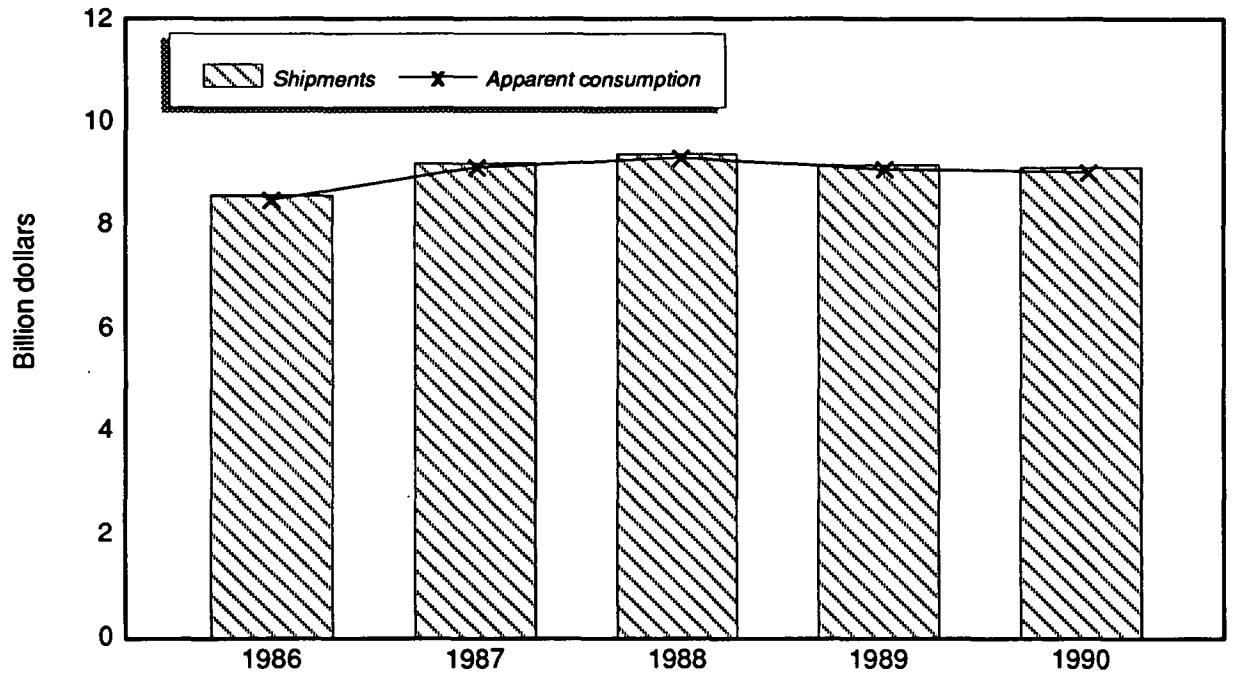
Table 3
Prefabricated buildings: U.S. shipments, exports of domestic merchandise, imports for consumption, apparent U.S. consumption, and ratio of imports to consumption, 1986–90

Year	U.S. shipments	U.S. exports	U.S. imports	Apparent U.S. consumption	Ratio of imports to consumption
		Million dollars			Percent
1986	8,571	81	37	8,527	(1)
1987	9,204	92	43	9,155	(1)
1988	9,381	114	32	9,299	(1)
1989	9,178	154	47	9,071	(1)
1990	[2]9,120	171	34	[2]8,983	(1)

[1] Less than 0.5 percent.
[2] Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Figure 2
Prefabricated buildings: U.S. producers' shipments and apparent consumption,[1] 1986-90



[1] Apparent consumption= producers' shipments + imports-exports. U.S. imports account for less than 0.5 percent of apparent consumption.

Source: Compiled from official statistics of the U.S. Department of Commerce. U.S. shipments in 1990 estimated by the staff of the U.S. International Trade Commission.

During 1986-90, Canada was the principal source of U.S. imports of prefabricated buildings; in 1990, Canada accounted for 78 percent of the total value of such imports (see table 4, figure 3). U.S. imports from Canada in 1990 were primarily of prefabricated buildings of metal (70 percent), whereas those in 1986 were primarily of wood (82 percent). This shift reflected the downturn in the home construction industry in the United States—which uses wood prefabricateld assemblies, compared with the relative stability in the demand for prefabricated industrial and farm buildings—which are made of metal. As previously stated, the production methods of the Canadian metal prefabricated building industry are comparable to those in the United States. As a result, Canadian producers along the border are able to supply

Table 4
Prefabricated buildings: U.S. imports for consumption, by principal sources, 1986–90
(In thousands of dollars)

Source	1986	1987	1988	1989	1990
Canada	26,017	33,398	22,475	22,235	26,706
United Kingdom	197	521	386	1,471	1,699
Germany	1,190	1,074	821	1,409	883
Italy	407	432	407	300	874
Sweden	3,103	3,229	1,505	489	746
Netherlands	108	61	163	10	733
Japan	915	339	481	528	494
Denmark	811	459	416	974	465
Philippines	0	100	533	522	421
Korea	418	403	1,283	47	369
All other	3,373	3,121	3,489	18,779	861
Total	36,539	43,137	31,959	46,764	34,251

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

nearby markets in the United States. Canadian producers of prefabricated wood buildings are cost competitive with those in the United States as a result of Canadian producers' access to large sources of high quality, relatively inexpensive lumber, and low transportation costs due to the proximity of the U.S. market.

In 1990, imports from the EC, the second largest supplier, accounted for 15 percent of all U.S. imports of prefabricated buildings. Such imports were divided between wood and metal buildings. The United Kingdom, the leading EC supplier in 1990, accounted for one-third of U.S. imports from the EC but only 5 percent of total U.S. imports. Sweden's share of U.S. imports dropped from 8 percent ($3.1 million) to 2 percent ($746,000) during 1986-90, reflecting strong internal demand in Sweden and a focus on export markets in the EC where Swedish producers enjoy lower transportation costs than exporting to the United States and more uniform building codes. U.S. imports of prefabricated buildings from countries eligible for the Generalized System of Preferences totaled $500,000 in 1990. U.S. imports of prefabricated buildings under HTS heading 9802.00.80[17] were under $1 million in 1990. Canada was the sole source of such imports.

FOREIGN MARKETS

Foreign Market Profile

Canada is currently the largest market for U.S.-made prefabricated buildings, accounting for 35 percent ($61 million) of U.S. exports in 1990 (see table 5). Canadian demand is primarily for prefabricated buildings of metal. Trade with Canada has been encouraged by its proximity and the integration of the two markets. Industry sources indicate that prefabricated buildings of wood account for less than 8 percent of total Canadian housing starts. Canada's market for prefabricated buildings is one-tenth the size of that in the United States.

The largest potential markets for U.S.-made prefabricated buildings are the EC[18] and Japan. Both have large, urban markets, in which prefabricated buildings can be a cost-effective alternative to traditional building methods. Prefabricated buildings account for about 15 percent of Japanese housing starts; in the EC, prefabricated buildings accounted for a significantly lower portion of housing starts. Japan has a single building code which applies to the whole country and the EC is moving towards a single building code. U.S. producers have not had access to the EC "standards" drafting process and fear they may lose competitiveness with respect to Scandinavian producers who, owing to their EFTA status, may participate in the EC process.

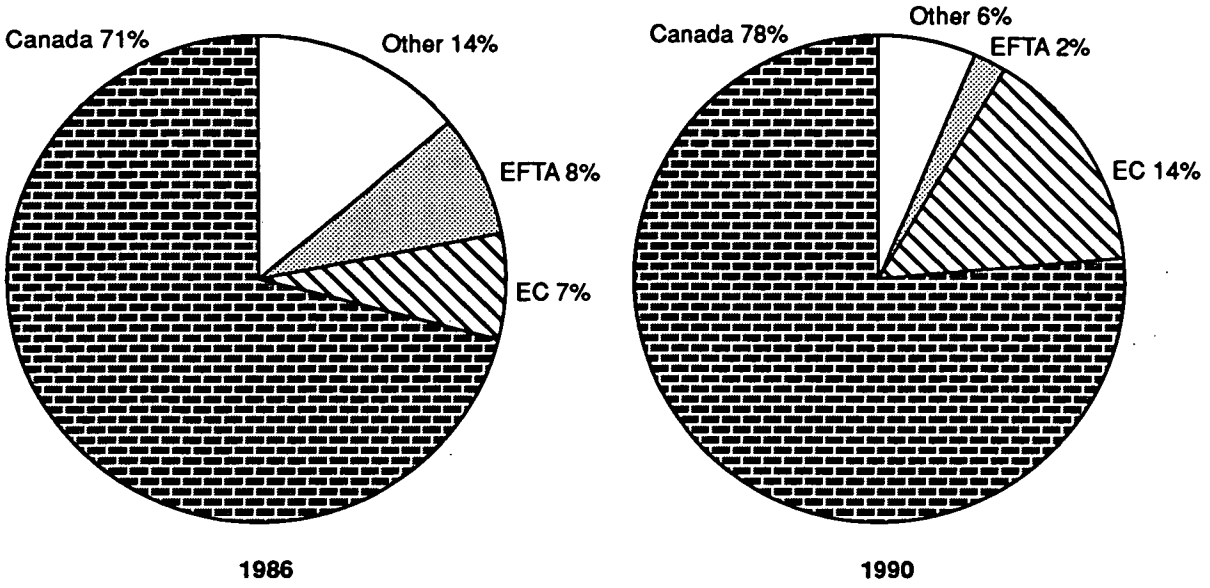
In terms of quality and product variety, U.S. producers of prefabricated buildings are competitive with those in the EC and Japan. However, the high cost of long-distance freight to Japan and the EC, difficulties complying with local construction codes, longer lead times, and logistical problems providing customer service and product repairs combine to make penetration of the Japanese and EC markets by U.S. firms extremely difficult.

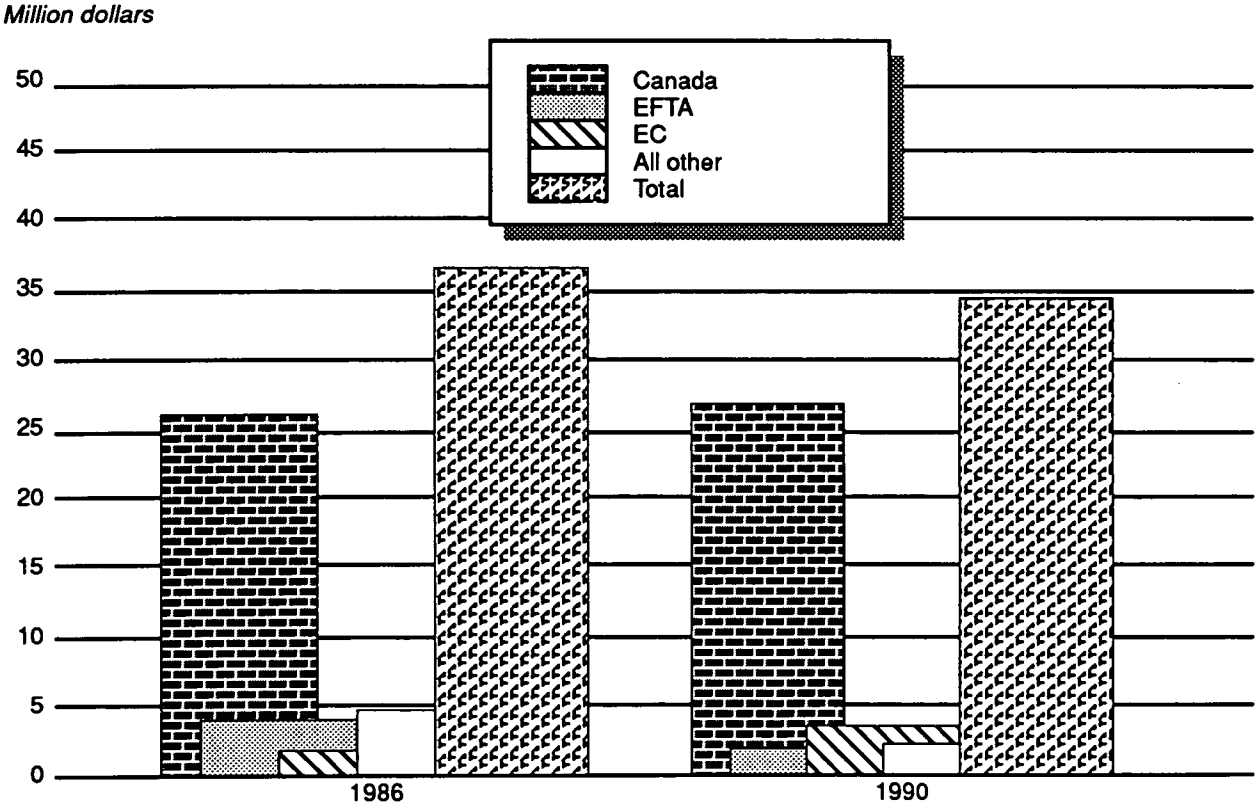
Government policy strongly influences the market for prefabricated construction in the EC and Japan. According to a report prepared for the U.S. Department of Commerce, Japan's Ministry of International Trade and Industry (MITI) is planning to upgrade urban housing. MITI's goals are to increase the life

[17]This heading provides tariff treatment for eligible imported goods that contain U.S.-made components. Duty is applied on the value of the imported product minus the value of the U.S-made components.

[18]According to an October 1990 article in *Constructis—Construction Market Focus,* construction markets in Germany, France, Italy, and the United Kingdom accounted for roughly 80 percent of all new residential construction in the EC in 1989.

Figure 3
Prefabricated buildings: U.S. imports from leading sources, by share of total and by value, 1986 and 1990





Source: Based on official statistics of the U.S. Department of Commerce.

Table 5
Prefabricated buildings: U.S. exports of domestic merchandise, by principal markets, 1988–90

(In thousands of dollars)

Market	*1988*	*1989*	*1990*
Canada	36,803	53,962	60,597
Japan	14,164	25,861	27,637
United Arab Emirates	6	2,254	6,531
Egypt	1,025	709	6,057
Mexico	3,294	2,853	5,393
United Kingdom	1,592	2,338	4,250
Germany	6,439	2,920	3,779
Turkey	3,996	273	3,248
Chile	156	42	3,239
France	1,524	1,926	2,673
All other	44,610	60,800	47,914
Total	113,609	153,938	171,318

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

expectancy of the structures (currently at 20 years), improve functional characteristics, and enhance energy efficiency. In the EC, the prefabricated building industry is expected to participate in the following building projects: (1) a project in northern France (Picardie) in connection with the completion of the English Channel tunnel is expected to result in 1.5 million new dwellings by 1995; (2) 800,000 units will be built in Germany to house immigrants from Eastern Europe; and (3) 2 million units are expected to be constructed in the United Kingdom to bring housing stock up to standard.[19]

Contracts for public works projects are awarded in the EC and Japan through an open bidding process.[20] The construction industry, compared with other industries in the EC and Japan, is relatively conservative and building materials from abroad are not readily accepted. Contracts for private sector construction in the EC and Japan are initiated by major real estate companies. These firms are typically responsible for preparing comprehensive development plans for residential areas, industrial parks, and industrial complexes. In industrialized countries, in general, about 70 percent of total construction is initiated by private companies with the remaining 30 percent developed by government organizations.

In Japan, imports of construction materials involve the participation of Japanese general trading houses. Approaches to the Japanese Government by foreign governments to promote sales of basic building materials through these trading houses is considered very important. Many European countries engage in such promotions through their embassies in Tokyo.

[19] *Constructis—Construction Market Focus,* vol. 2, No. 9, McGraw Hill, Oct. 1990.

[20] Specifications for building projects are advertised in government journals (i.e., Commerce Business Daily; Official Journal of the EC, Tender Electronics Daily). Contracts are awarded on merit.

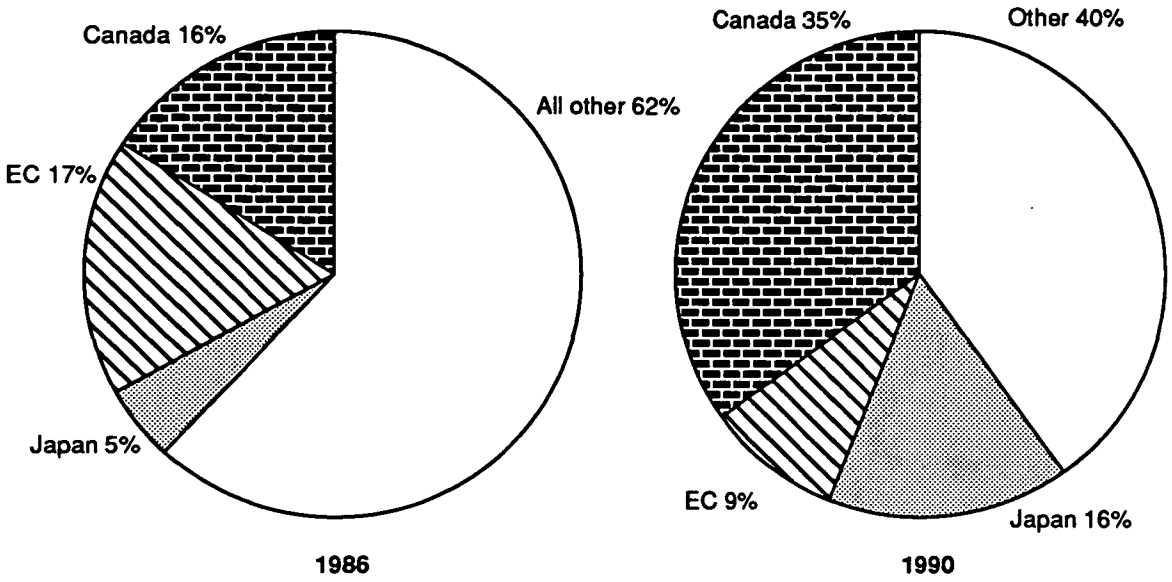
Foreign markets for prefabricated buildings are potentially competitive because barriers to entry are low and the methods of production are not sophisticated. However, local builders, particularly with the encouragement of their governments, tend to dominate the markets. The most likely avenue for U.S. producers to become involved in overseas markets is through the sale of U.S. technical expertise. U.S. producers of prefabricated buildings can also participate in foreign markets through emergency sales in response to natural disasters or political emergencies (e.g., hurricanes, surges in immigration, and housing shortages).

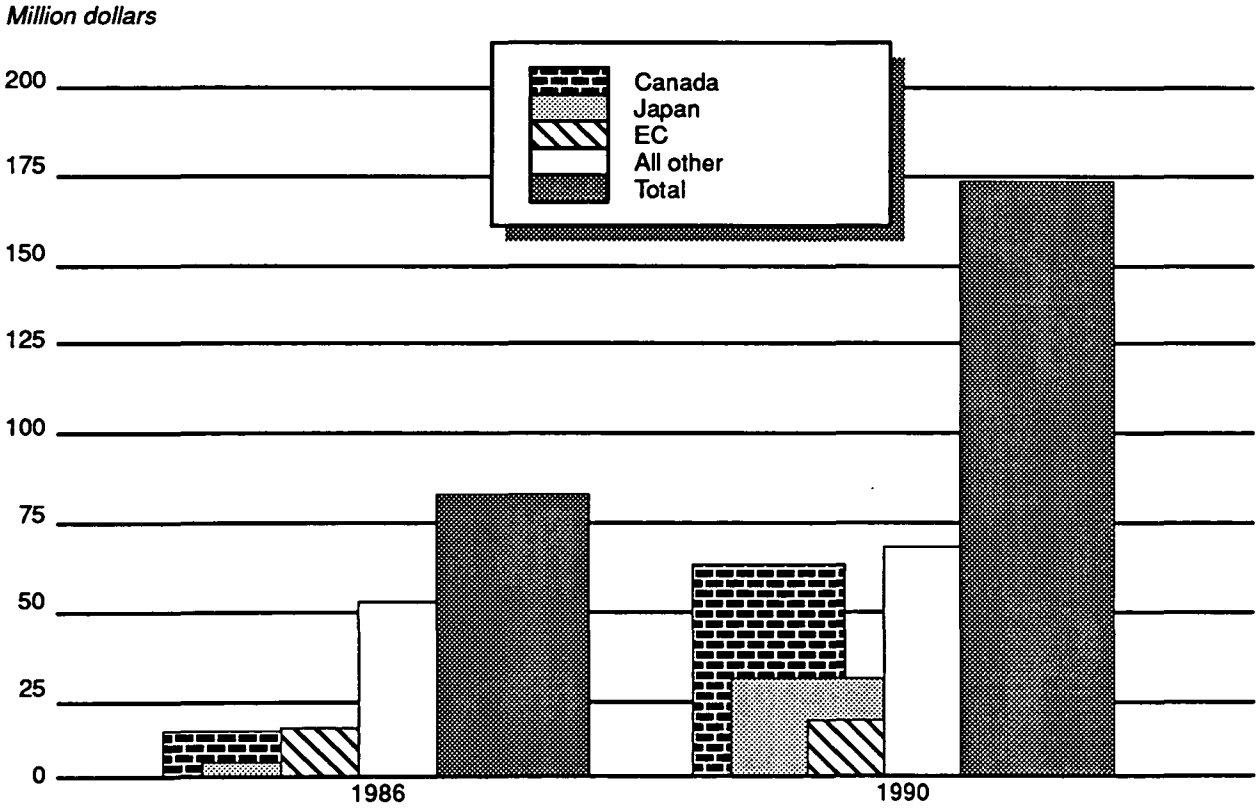
U.S. Exports

Despite the factors limiting foreign trade in prefabricated buildings (transportation costs and building codes), U.S. exports of prefabricated buildings more than doubled during 1986-90, rising from $81 million to $171 million (table 5). However, exports accounted for only 2 percent of U.S. shipments in 1990. Canada, the principal market for U.S.-made prefabricated buildings, accounted for 35 percent of U.S. exports in 1990; U.S. exports to Canada rose from $13 million in 1986 to $61 million in 1990 (table 5, figure 4). Japan, the next largest market, accounted for 16 percent of the export total in 1990. Metal prefabricated buildings accounted for 79 percent of total U.S. exports of prefabricated buildings in 1990.

U.S. exports to Canada in 1990 were mainly of metal prefabricated buildings (72 percent). U.S. firms along the border are able to supply a portion of the Canadian market. Wood prefabricated buildings supply a limited portion of Canadian housing, mostly modular, energy-efficient units for rural locations. Though data are not available, U.S. exports of mobile homes are believed to be negligible. The bulk of U.S. exports to Japan are sophisticated prefabricated log cabins, used primarily by wealthy Japanese as vacation homes.

Figure 4
Prefabricated buildings: U.S. exports to leading markets, by share of total and by value, 1986 and 1990





Source: Based on official statistics of the U.S. Department of Commerce.

Over the past few years, U.S. shipments to other countries have fluctuated significantly because of the relatively small volume of exports and the crisis nature of demand for prefabricated buildings. For example, combined exports to the United Arab Emirates and Egypt increased twelvefold from $1 million in 1988 to $13 million in 1990 (7 percent of total exports), reflecting the need to house refugees from Iraq's invasion of Kuwait. Similarly, exports to the Caribbean countries almost tripled, increasing from $7 million in 1988 to $18 million in 1989 (12 percent of total exports that year). This growth reflects the U.S. industry's response to demand created by destruction caused by hurricanes—$10 million went to Jamaica alone, compared with $13 million to the entire EC market.

U.S. TRADE BALANCE

As a result of the combination of high transportation costs and unique state-wide construction codes, housing markets in the United States tend to be supplied by local firms. It is difficult for foreign firms to penetrate the U.S. market. Joint ventures with U.S. firms appear to be the best avenue of entry for foreign producers. Although U.S. exports were more than five times as large as U.S. imports in 1990 (a trade surplus of $137 million), the volume of exports was quite small in terms of U.S. producers' shipments (2 percent) and the size of foreign markets. As shown in table 6, the United States had a trade surplus with all of its top 10 trading partners in 1990. Given the complexity of penetrating the U.S. market and the likely continued demand for U.S.-origin prefabricated buildings in response to natural disasters and other crises around the world, the United States should remain a net exporter of prefabricated buildings.

Table 6
Prefabricated buildings: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 1986-90[1]

(Million dollars)

Item	1986	1987	1988	1989	1990
U.S. exports of domestic merchandise:					
Canada	13	20	37	54	61
Japan	4	8	14	26	28
United Arab Emirates	0	0	0	2	7
Egypt	2	1	1	1	6
United Kingdom	2	3	2	2	4
Mexico	10	3	3	3	5
Germany	9	20	6	3	4
Turkey	0	2	4	0	3
Chile	0	1	0	0	3
Korea, Republic of	4	4	3	2	3
All other	36	31	44	61	48
Total	81	92	114	154	171
EC-12	14	26	13	13	16
OPEC	11	6	7	5	12
ASEAN	2	2	2	5	4
CBERA	6	7	7	18	12
Eastern Europe	1	0	1	1	0
U.S. imports for consumption:					
Canada	26	33	22	22	27
Japan	1	0	0	1	0
United Arab Emirates	0	0	0	0	0
Egypt	0	0	0	0	0
United Kingdom	0	1	0	1	2
Mexico	0	0	0	1	0
Germany	1	1	1	1	1
Turkey	0	0	0	0	0
Chile	0	0	0	0	0
Korea, Republic of	0	0	1	0	0
All other	8	7	6	20	4
Total	37	43	32	47	34
EC-12	3	3	2	5	5
OPEC	0	0	0	0	0
ASEAN	0	0	1	15	0
CBERA	0	0	0	0	0
Eastern Europe	1	0	1	1	0
U.S. merchandise trade balance:					
Canada	-13	-13	15	32	34
Japan	3	8	14	25	28
United Arab Emirates	0	0	0	2	7
Egypt	2	1	1	1	6
United Kingdom	2	2	2	1	2
Mexico	10	3	3	2	5
Germany	8	19	5	2	3
Turkey	0	2	4	0	3
Chile	0	1	0	0	3
Korea, Republic of	4	4	2	2	3
All other	28	24	38	41	44
Total	44	49	82	107	137
EC-12	11	23	11	8	11
OPEC	11	6	7	5	12
ASEAN	2	2	1	-10	4
CBERA	6	7	7	18	12
Eastern Europe	0	0	0	0	0

[1] Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export. U.S. trade with East Germany is included in "Germany" but not "Eastern Europe".

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

APPENDIX A
EXPLANATION OF TARIFF AND TRADE AGREEMENT TERMS

TARIFF AND TRADE AGREEMENT TERMS

The ***Harmonized Tariff Schedule of the United States*** (HTS) replaced the *Tariff Schedules of the United States* (TSUS) effective January 1, 1989. Chapters 1 through 97 are based on the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description, with additional U.S. product subdivisions at the 8-digit level. Chapters 98 and 99 contain special U.S. classification provisions and temporary rate provisions, respectively.

Rates of duty in the ***general*** subcolumn of HTS column 1 are most-favored-nation (MFN) rates; for the most part, they represent the final concession rate from the Tokyo Round of Multilateral Trade Negotiations. Column 1-general duty rates are applicable to imported goods from all countries except those enumerated in general note 3(b) to the HTS, whose products are dutied at the rates set forth in ***column 2***. Goods from the People's Republic of China, the Czech and Slovak Federal Republic, Hungary, Poland, and Yugoslavia are among those eligible for MFN treatment. Among articles dutiable at column 1-general rates, particular products of enumerated countries may be eligible for reduced rates of duty or for duty-free entry under one or more preferential tariff programs. Such tariff treatment is set forth in the ***special*** subcolumn of HTS column 1.

The ***Generalized System of Preferences*** (GSP) affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974 and renewed in the Trade and Tariff Act of 1984, applies to merchandise imported on or after January 1, 1976, and before July 4, 1993. Indicated by the symbol "A" or "A*" in the special subcolumn of column 1, the GSP provides duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries, as set forth in general note 3(c)(ii) to the HTS.

The ***Caribbean Basin Economic Recovery Act*** (CBERA) affords nonreciprocal tariff preferences to developing countries in the Caribbean Basin area to aid their economic development and to diversify and expand their production and exports. The CBERA, enacted in title II of Public Law 98-67, implemented by Presidential Proclamation 5133 of November 30, 1983, and amended by the Customs and Trade Act of 1990, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984; this tariff preference program has no expiration date. Indicated by the symbol "E" or "E*" in the special subcolumn of column 1, the CBERA provides duty-free entry to eligible articles the product of and imported directly from designated countries, as set forth in general note 3(c)(v) to the HTS.

Preferential rates of duty in the special subcolumn of column 1 followed by the symbol "IL" are applicable to products of Israel under the ***United States-Israel Free-Trade Area Implementation Act*** of 1985, as provided in general note 3(c)(vi) of the HTS. When no rate of duty is provided for products of Israel in the special subcolumn for a particular provision, the rate of duty in the general subcolumn of column 1 applies.

Preferential rates of duty in the special duty rates subcolumn of column 1 followed by the symbol "CA" are applicable to eligible goods originating in the territory of Canada under the ***United States-Canada Free-Trade Agreement***, as provided in general note 3(c)(vii) to the HTS.

Other special tariff treatment applies to particular ***products of insular possessions*** (general note 3(a)(iv)), goods covered by the ***Automotive Products Trade Act*** (general note 3(c)(iii)) and the ***Agreement on Trade in Civil Aircraft*** (general note 3(c)(iv)), and ***articles imported from freely associated states*** (general note 3(c)(viii)).

The ***General Agreement on Tariffs and Trade*** (GATT) (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) is the multilateral agreement setting forth basic principles governing international trade among its more than 90 signatories. The GATT's main obligations relate to most-favored-nation treatment, the maintenance of scheduled concession rates of duty, and national (nondiscriminatory) treatment for imported products. The GATT also provides the legal framework for customs valuation standards, "escape clause" (emergency) actions, antidumping and countervailing duties, and other measures. Results of GATT-sponsored multilateral tariff negotiations are set forth by way of separate schedules of concessions for each participat-

ing contracting party, with the U.S. schedule designated as schedule XX.

Officially known as "The Arrangement Regarding International Trade in Textiles," the ***Multifiber Arrangement*** (MFA) provides a framework for the negotiation of bilateral agreements between importing and producing countries, or for unilateral action by importing countries in the absence of an agreement. These bilateral agreements establish quantitative limits on imports of textiles and apparel, of cotton and other vegetable fibers, wool, manmade fibers, and silk blends, in order to prevent market disruption in the importing countries—restrictions that would otherwise be a departure from GATT provisions. The United States has bilateral agreements with more than 30 supplying countries, including the four largest suppliers: China, Hong Kong, the Republic of Korea, and Taiwan.