

## **Part IV--Proposed New Industry Structure for Fabricated Metal Product Manufacturing**

### *Section A--NAICS Structure*

North American Industry Classification System

(NAICS)

Agreement Number 7

This Document represents the proposed agreement on the structure of the North American Industry Classification System (NAICS) for the following industries:

Fabricated Metal Product Manufacturing

The detailed NAICS structure along with a brief description of the structure is attached (Attachments 1 and 2). Each country agrees to release a copy of the proposed NAICS structure to interested data users. Comments received will be shared among the countries and additional discussions will be held before a final decision on the structure is made. Each country may add additional detailed industries, below the 4-digit level of NAICS, as necessary to meet national needs, so long as this additional detail aggregates to a 4-digit NAICS level in order to ensure full comparability among the three countries. This NAICS structure was presented and provisionally accepted at the NAICS Committee meeting held August 30, 1995 - September 1, 1995 in Washington, D.C.

Accepted:	Signature	Date
Canada	/S/ Jacob Ryten	9/1/95
Mexico	/S/ Enrique Ordaz	9/1/95
United States	/S/ Jack E. Triplett	9/1/95

### **ATTACHMENT 1--NAICS STRUCTURE**

- XX Fabricated Metal Product Manufacturing
- XXX Forging and Stamping
- XXXX Forging and Stamping
- XXX Cutlery and Hand Tool Manufacturing
- XXXX Cutlery and Hand Tool Manufacturing
- XXX Architectural and Structural Metal Manufacturing
- XXXX Platework and Fabricated Structural Product Manufacturing
- XXXX Ornamental and Architectural Metal Product Manufacturing
- XXX Boiler, Tank, and Shipping Container Manufacturing
- XXXX Power Boiler and Heat Exchanger Manufacturing
- XXXX Metal Tank (Heavy Gauge) Manufacturing

XXXX	Metal Can, Box, and Other Metal Container (Light Gauge) Manufacturing
XXX	Hardware Manufacturing
XXXX	Hardware Manufacturing
XXX	Spring, Wire and Turned Product Manufacturing
XXXX	Spring and Wire Product Manufacturing
XXXX	Turned Product Manufacturing
XXX	Other Fabricated Metal Product Manufacturing
XXXX	Metal Valve Manufacturing
XXXX	All Other Fabricated Metal Product Manufacturing
XXX	Machine Shops and Coating, Engraving, Heat Treating, and Allied Activities
XXXX	Machine Shops
XXXX	Coating, Engraving, Heat Treating, and Allied Activities

## **Attachment 2--North American Industry Classification System**

Draft Classification for:

### Fabricated Metal Product Manufacturing

Representatives of the statistical agencies of Canada, Mexico, and the United States agree to a draft industrial classification for these industries.

This draft classification applies to the subsector Fabricated Metal Product Manufacturing. This subsector is further sub-divided into eight industry groups and fourteen industries. The subsector will be part of the Manufacturing sector of the classification.

### *A General Outline*

The Fabricated Metal Product Manufacturing industries transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture. Some important fabricated metal processes are forging, stamping, bending, forming, and machining, which are used to shape individual pieces of metal. Processes such as welding and assembling are used to join separate parts together. Establishments may use one of these processes or they may be used in combination. The NAICS structure distinguishes the forging and stamping processes in a single industry. Other industries identify categories of products whose manufacture involves similar combinations of processes. For example, establishments in Platework and Fabricated Metal Product Manufacturing work with light gauge metal.

NAICS makes a basic distinction between establishments that draw wire from bars or rods, and those that purchase wire and make products from it. The former are classified in the Primary Metal Manufacturing subsector and the latter either in the Fabricated Metal Product Manufacturing subsector; in Spring and Wire Product Manufacturing, if the products are not insulated; or if the product is insulated wire, the establishments are classified in the Electrical Equipment, Appliance, and Component Manufacturing subsector.

### *Limitations and Constraints of the Classification*

There are some analytical needs that cannot be met by the industrial classification. For example, relatively broad NAICS industries were created for Forging and Stamping; Ornamental and Architectural Metal Product Manufacturing; Metal Can, Box and Other Metal Container (Light Gauge) Manufacturing; and Spring, Wire and Turned Product Manufacturing. The way activities are combined in establishments differs to some extent in some countries. For example, forgings and stampings are often made in the same establishments in Mexico, while they are usually produced in separate establishments in Canada and the United States. More often, size constraints prohibit separation of activities in Canada or Mexico. In the Fabricated Metal Product Manufacturing subsector, most activities that were identified in one country exist in the others, but sometimes an activity is not economically significant to the same degree in all countries. For example, Canada cannot support a Precision Turned Product Manufacturing industry because of size.

A structure could have been developed that specified such activities in NAICS, but the resulting statistical tables for any given country would have numerous insignificant or suppressed entries. An operating rule has therefore been adopted for this industry subsector that the NAICS industries must be economically significant and publishable. Each country will publish additional categories that comprise sub-divisions of NAICS industries, to present data for activities that are nationally significant.

For those users requiring detailed commodity information, each country will publish information on the products of these industries. Efforts are also underway to harmonize the commodity classification Structural Product Manufacturing work with heavy gauge metal; those in Ornamental and Architectural industries to allow for greater comparability of these statistics.

### *Relationship to ISIC*

Eight industries can be assigned entirely to ISIC Division 28, Manufacture of Fabricated Metal Products, except Machinery and Equipment of the current International Standard Industrial Classification of all Economic Activities (ISIC, Revision 3) of the United Nations. The following NAICS industries belong largely to ISIC Division 28 with the exception of the activities indicated: Platework and Fabricated Structural Product Manufacturing (fabricated bar joists and concrete reinforcing bars); Power Boiler and Heat Exchanger Manufacturing (heat exchangers); Metal Valve Manufacturing (hose nozzles, rubber hose and tube assemblies, and metal pipe fittings); All Other Fabricated Metal Product Manufacturing (industrial patterns, and ball and roller bearings); Spring and Wire Product Manufacturing (wire carts and hand sieves); and Metal Tank (Heavy Gauge) Manufacturing (gas absorbers, autoclaves, buoys, and floating structures). However, because the exceptions indicated above are a relatively small part of the output of these six NAICS industries, one can combine the industries of NAICS for this subsector, and be quite comparable to ISIC 28, Manufacture of Fabricated Metal Products, except Machinery and Equipment.

### *Some Changes to the National Classifications*

The Forging and Stamping industry represents a major restructuring for Canada. Non-ferrous forgings have been moved from the Primary Metals Major Group, and they are no

longer split by type of metal such as aluminum or bronze. Stampings are brought together from two existing CSIC industries.

The creation of the Hardware Manufacturing industry represents significant change for both Canada and Mexico. Their current classifications place hardware for transportation equipment

in a variety of industries, based on the type of vehicle. All hardware, including locks, is combined in one industry in NAICS.

Coating, Engraving, Heat Treating and Allied Activities in NAICS brings together all activities performed on metal, such as coating and heat treating. This is a significant change for Canada and Mexico, whose classifications only distinguish coating activities. For the United States, heat treating of metals is currently in Primary Metal Manufacturing.

The creation of a Machine Shop industry is a change for all three countries that currently combine this activity with various others. Other changes for the United States involve the creation of several new national industries within the various NAICS industries.

### *Achievement of Objectives*

The classification meets the objectives for the North American Industry Classification System (NAICS). It is comprised of industries that group establishments with similar production processes, that is, it applies the production-oriented economic concept. The hierarchical structure of the classification also follows the production concept.

The classification achieves comparability for the three participating countries. Based on existing data, all three countries expect to be able to publish data regularly at the industry (4-digit) level of the structure. All countries agree on the detailed definitions of the industries.

Other objectives of the NAICS project are not as relevant in this area of the classification as in others. These objectives are the delineation of new and emerging industries, service industries and industries engaged in the production of advanced technologies. The industrial sector in question is relatively mature, generally produces goods, and employs relatively stable technology. Therefore, the emphasis is on the objectives listed above.

The industries have high specialization ratios, and they are economically significant. The detail (4-digit level) and structure of the classification are balanced in size. This enhances the classification's suitability for sampling and other aspects of survey operations. Finally, disruptions to time series, while they exist, have been minimized. The statistical agencies can develop statistical "links" to enable the re-tabulation of time series on the new NAICS classification structure.

### *Section B-Annex: United States National Industry Detail*

As explained in the *Structure* presentation of this notice, for a number of reasons 4-digit industries in the three NAICS industry subsectors presented in *Part I, Section A--Attachment I*, contain less detail than is currently in the U.S. SIC system, and less detail than is required to meet important analytical requirements in the U.S. The three country agreement on NAICS envisions that each country may develop national detailed industries below the NAICS industry level, so long as the national detail can be aggregated to the NAICS classification, thus assuring full North American comparability.

The ECPC is proposing U.S. 5-digit industry detail for the three NAICS industry subsectors covered in Part I of this notice. For cases where no 5-digit detail is shown, the ECPC is proposing that the NAICS 4-digit industries will also represent the most detailed U.S. industries.

TABLE 1

The definitions of status codes are as follows: E-existing industry; N-new industry; R-revised industry; and \* means "part of". The abbreviation NEC is used for Not Elsewhere Classified.

	1997 NAICS and U.S. description	Status code	1987 SIC code	1987 SIC description
XX	Fabricated Metal Product Manufacturing			
XXX	Forging and Stamping			
XXXX	Forging and Stamping			
XXXXX	Custom Roll Forming	N	*3449	Miscellaneous Structural Metal Work (Custom Roll Forming)
XXXXX	Iron and Steel Forging	E	3462	Iron and Steel Forgings
XXXXX	Nonferrous Forging	E	3463	Nonferrous Forgings
XXXXX	Crown and Closure Manufacturing	E	3466	Crowns and Closures
XXXXX	Metal Stamping and Powder Metallurgy Manufacturing	N	*3469	Metal Stampings, NEC (Except Kitchen Utensils, and Pots and Pans for Cooking)
			*3499	Fabricated Metal Products, NEC (Powder Metallurgy)
XXX	Cutlery and Hand Tool Manufacturing			
XXXX	Cutlery and Hand Tool Manufacturing			
XXXXX	Cutlery and Flatware Manufacturing, except Precious	N	3421	Cutlery
			*3914	Silverware, Plated Ware, and Stainless Steel Ware (Cutlery and Flatware except Precious)

XXXXX	Hand and Edge Tool Manufacturing	R	3423	Hand and Edge Tools Except Machine Tools and Handsaws
			*3523	Farm Machinery and Equipment (Hand Hair Clippers for Animals)
			*3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment (Nonpowered Lawnmowers)
			*3545	Cutting Tools, Machine Tools Accessories, and Machinist Precision Measuring Devices (Precision Measuring Devices)
			*3799	Transportation Equipment, NEC (Wheelbarrows)
			*3999	Manufacturing Industries, NEC (Tape Measures)
XXXXX	Saw Blade and Handsaw Manufacturing	E	3425	Saw Blades and Handsaws
XXXXX	Kitchen Utensil, Pot and Pan Manufacturing	N	*3469	Metal Stampings, NEC (Kitchen Utensils, Pots, and Pans for Cooking)
XXX	Architectural and Structural Metal Manufacturing			
XXXX	Platework and Fabricated Structural Product Manufacturing			
XXXXX	Fabricated Structural Metal Manufacturing	E	3441	Fabricated Structural Metal
			*3449	Miscellaneous Structural Metal Work (Fabricated Bar Joists and Concrete Reinforcing Bars)
XXXXX	Plate Work Manufacturing	N	*3443	Fabricated Plate Work (Boiler Shops) (Fabricated Plate Work and Metal Weldments)
XXXXX	Prefabricated Metal Building and Component Manufacturing	E	3448	Prefabricated Metal Buildings and Components
XXXX	Ornamental and Architectural Metal Product Manufacturing			
XXXXX	Metal Door, Sash, Frame, Molding, and Trim Manufacturing	E	3442	Metal Doors, Sash, Frames, Molding and Trim
			*3449	Miscellaneous Structural Metal Work (Curtain Wall)
XXXXX	Sheet Metal Work Manufacturing	R	*3444	Sheet Metal Work (Ducts, Flumes, Flooring, Siding, Dampers, etc.)
XXXXX	Ornamental and Architectural Metal Work Manufacturing	R	3446	Architectural and Ornamental Metal Work
			*3449	Miscellaneous Structural Metal Work (Metal Plaster Bases)

				*3523	Farm Machinery and Equipment (Corrals, Stalls, and Holding Gates)
XXX	Boiler, Tank, and Shipping Container Manufacturing				
XXXX	Power Boiler and Heat Exchanger Manufacturing	N		*3443	Fabricated Plate Work (Boiler Shops) (Power Boilers and Heat Exchangers)
XXXX	Metal Tank Manufacturing (Heavy Gauge)	N		*3443	Fabricated Plate Work (Boiler Shops) (Heavy Gauge Tanks)
XXXX	Metal Can, Box, and Other Metal Container (Light Gauge) Manufacturing				
XXXXX	Metal Can Manufacturing	E		3411	Metal Cans
XXXXX	Other Metal Container Manufacturing	R		3412	Metal Shipping Barrels, Drums, Kegs, and Pails
				*3429	Hardware, NEC (Vacuum and Insulated Bottles, Jugs, and Chests)
				*3444	Sheet Metal Work (Metal Bins and Vats)
				*3499	Fabricated Metal Products, NEC (Metal Boxes)
				*3537	Industrial Trucks, Tractors, Trailers, and Stackers (Metal Air Cargo Containers)
				*5085	Industrial Supplies (Reconditioning Drums)
XXX	Hardware Manufacturing				
XXXX	Hardware Manufacturing	R		*3429	Hardware, NEC (Hardware, Except Hose Nozzles, and Vacuum and Insulated Bottles, Jugs and Chests)
				*3499	Fabricated Metal Products, NEC (Safe and Vault Locks)
XXX	Spring, Wire and Turned Product Manufacturing				
XXXX	Spring and Wire Product Manufacturing				
XXXXX	Steel Spring Manufacturing, except Wire	E		3493	Steel Springs, Except Wire
XXXXX	Wire Spring Manufacturing	E		*3495	Wire Springs (Except Watch and Clock Springs)



XXXXX	Other Fabricated Wire Product Manufacturing	R	*3315	Steel Wiredrawing and Steel Nails and Spikes (Steel Nails and Spikes Not Made in Wiredrawing Plants)
			*3399	Primary Metal Products, NEC (Nonferrous Nails, Brads, Staples, etc.)
			3496	Miscellaneous Fabricated Wire Products
XXXX	Turned Product Manufacturing			
XXXXX	Precision Turned Product Manufacturing	E	3451	Screw Machine Products
XXXXX	Bolt, Nut, Screw, Rivet, and Washer Manufacturing	E	3452	Bolts, Nuts, Screws, Rivets, and Washers
XXX	Other Fabricated Metal Product Manufacturing			
XXXX	Metal Valve Manufacturing			
XXXXX	Industrial Valve Manufacturing	E	3491	Industrial Valves
XXXXX	Fluid Power Valve and Hose Fitting Manufacturing	R	3492	Fluid Power Valves and Hose Fittings
			*3728	Aircraft Parts and Auxiliary Equipment, NEC (Fluid Power Aircraft Subassemblies)
XXXXX	Other Metal Valve and Pipe Fitting Manufacturing	R	*3429	Hardware, NEC (Hose Nozzles)
			*3432	Plumbing Fixture Fittings and Trim (Valves Classified as Fittings and Trim)
			*3494	Valves and Pipe Fittings, NEC (Except Metal Pipe Hangers and Supports)
			*3499	Fabricated Metal Products, NEC (Metal Aerosol Valves)
XXXX	All Other Fabricated Metal Product Manufacturing			
XXXXX	Enameled Iron and Metal Sanitary Ware Manufacturing	E	3431	Enameled Iron and Metal Sanitary Ware
XXXXX	Small Arms Ammunition Manufacturing	E	3482	Small Arms Ammunition
XXXXX	Ammunition Manufacturing, except Small Arms	E	3483	Ammunition, Except for Small Arms
XXXXX	Small Arms Manufacturing	E	3484	Small Arms
XXXXX	Other Ordnance and Accessory Manufacturing	E	3489	Ordnance and Accessories, NEC
XXXXX	Fabricated Pipe and Pipe Fitting Manufacturing	E	3498	Fabricated Pipe and Pipe Fittings
XXXXX	Industrial Pattern Manufacturing	E	3543	Industrial Patterns

XXXXX	Ball and Roller Bearing Manufacturing	E	3562	Ball and Roller Bearings
XXXXX	All Other Miscellaneous Fabricated Metal Product Manufacturing	R	*3053	Gaskets, Packing, and Sealing Devices (Metal Gaskets)
			*3291	Abrasive Products (Steel Wool With or Without Soap)
			*3432	Plumbing Fixture Fittings and Trim (Metal Shower Rods)
			*3494	Valves and Pipe Fittings, NEC (Pipe Hangers and Supports)
			*3497	Metal Foil and Leaf (Foil and Foil Containers)
			*3499	Fabricated Metal Products, NEC (Other Metal Products)
			*3537	Industrial Trucks, Tractors, Trailers, and Stackers (Metal Pallets)
			*3599	Industrial and Commercial Machinery and Equipment, NEC (Flexible Metal Hose)
			*3993	Signs and Advertising Specialties (Metal Signs)
	*3999	Manufacturing Industries, NEC (Other Miscellaneous Metal Products, such as Combs, Hair Curlers, etc.)		
XXX	Machine Shops and Coating, Engraving, Heat Treating, and Allied Activities			
XXXX	Machine Shops	N	*3599	Industrial and Commercial Machinery and Equipment, NEC (Machine Shops)
XXXX	Coating, Engraving, Heat Treating, and Allied Activities			
XXXXX	Metal Heat Treating	E	3398	Metal Heat Treating
XXXXX	Metal Coating, Engraving and Allied Services to Manufacturers, Except Jewelry	R	*3479	Coating, Engraving, and Allied Services, NEC (Except Jewelry Engraving and Etching)
XXXXX	Electroplating, Plating, Polishing, Anodizing and Coloring	E	*3399	Primary Metal Products, NEC (Laminating Steel)

TABLE 2

The abbreviation "pt" means "part of", @ means time series break has been created that is greater than 3% of the 1992 value of shipments for the 1987 SIC industry. The abbreviation NEC is used for Not Elsewhere Classified.

1987 SIC code	1987 SIC description	1997 U.S. description
3053@	Gaskets, Packings and Sealing Devices	
	Cork Gaskets, Packing, and Sealing Devices	Other Wood Product Manufacturing (pt) (Included in Wood Product Manufacturing, except Furniture subsector)
	Metal Gaskets, Packing, and Sealing Devices	All Other Fabricated Metal Product Manufacturing (pt)
	Plastics Gaskets, Packing and Sealing Devices	All Other Plastic Product Manufacturing (pt) (Included in Rubber and Plastic Product Manufacturing subsector)
	Rubber Gaskets, Packing and Sealing Devices	All Other Rubber Product Manufacturing (pt) (Included in Rubber and Plastic Product Manufacturing subsector)
3291	Abrasive Products	
	Steel Wool With or Without Soap	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)
	Abrasive Products (Except Steel Wool With or Without Soap)	Abrasive Product Manufacturing (Included in Nonmetallic Mineral Product Manufacturing subsector)
3315@	Steel Wiredrawing and Steel Nails and Spikes	
	Steel Wiredrawing and Steel Nails and Spikes (Except Steel Nails and Spikes Not Made in Wiredrawing Plants)	Hot-Rolling Mills., Wire Drawing and Other Primary Metal Product Manufacturing (pt) (Included in Primary Metal Manufacturing subsector)
	Steel Nails and Spikes Not Made in Wiredrawing Plants	Other Fabricated Wire Product Manufacturing (pt)

3398	Metal Heat Treating	Metal Heat Treating
3399@	Primary Metal Products, NEC	
	Iron and Steel Powder, Paste, Flakes, etc.	Hot-Rolling Mills, Wire Drawing, and Other Primary Metal Product Manufacturing (pt) (Included in Primary Metal Manufacturing subsector)
	Aluminum Powder, Paste Flakes, etc.	Aluminum Extruded Product Manufacturing (pt) (Included in Primary Metal Manufacturing subsector)
	Nonferrous Powder, Paste, Flakes, etc.	Secondary Smelting and Refining of Nonferrous Metals (pt) (Included in Primary Metal Manufacturing subsector)
	Nonferrous Nails, Brads, Staples, etc. Laminated Steel	Other Fabricated Wire Product Manufacturing (pt) Electroplating, Plating, Polishing, Anodizing, and Coloring (pt)
3411	Metal Cans	Metal Can Manufacturing
3412	Metal Shipping Barrels, Drums, Kegs and Pails	Other Metal Container Manufacturing (pt)
3421	Cutlery	Cutlery and Flatware Manufacturing, Except Precious (pt)
3423	Hand and Edge Tools, Except Machine Tools and Handsaws	Hand and Edge Tool Manufacturing (pt)
3425	Saw Blades and Handsaws	Saw Blade and Handsaw Manufacturing
3429@	Hardware, NEC	
	Vacuum and Insulated Bottles, Jugs, and Chests	Other Metal Container Manufacturing (pt)
	Hose Nozzles	Other Metal Valve and Pipe Fitting Manufacturing (pt)
	Hardware, NEC (Hardware, Except Hose Nozzles, and Vacuum and Insulated Bottles, Jugs, and Chests)	Hardware Manufacturing (pt)

3431	Enameled Iron and Metal Sanitary Ware	Enameled Iron and Metal Sanitary Ware Manufacturing
3432	Plumbing Fixture Fittings and Trim	
	Valves Classified as Fittings and Trim	Other Valve and Pipe Fitting Manufacturing (pt)
	Metal Shower Rods	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)
3433	Heating Equipment, Except Electric and Warm Air Furnaces	Heating Equipment except Electric Warm Air Furnace Manufacturing (pt) (Included in Machinery Manufacturing subsector)
3441	Fabricated Structural Metal	Fabricated Structural Metal Manufacturing
3442	Metal Doors, Sash, Frames, Molding, and Trim	Metal Door, Sash, Frame, Molding, and Trim Manufacturing
3443@	Fabricated Plate Work (Boiler Shops)	
	Fabricated Plate Work and Metal Weldments	Plate Work Manufacturing
	Power Boilers and Heat Exchangers	Power Boiler and Heat Exchanger Manufacturing
	Heavy Gauge Tanks	Metal Tank Manufacturing (Heavy Gauge)
	Metal Cooling Towers	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing (pt) (Included in Machinery Manufacturing subsector)
3444	Sheet Metal Work	
	Ducts, Flumes, Flooring, Siding, Dampers, etc.	Sheet Metal Work Manufacturing (pt)
	Metal Bins and Vats	Other Metal Container Manufacturing (pt)
3446	Architectural and Ornamental Metal Work	Ornamental and Architectural Metal Work Manufacturing (pt)

3448	Prefabricated Metal Buildings and Components	Prefabricated Metal Building and Component Manufacturing
3449@	Miscellaneous Structural Metal Work	
	Custom Roll Forming	Custom Roll Forming
	Fabricated Bar Joists and Concrete Reinforcing Bars	Fabricated Structural Metal Manufacturing (pt)
	Curtain Wall	Metal Door, Sash Frame, Molding, and Trim Manufacturing (pt)
	Metal Plaster Bases	Ornamental and Architectural Metal Work Manufacturing (pt)
3451	Screw Machine Products	Precision Turned Product Manufacturing
3452	Bolts, Nuts, Screws, Rivets, and Washers	Bolt, Nut, Screw, Rivet, and Washer Manufacturing
3462	Iron and Steel Forgings	Iron and Steel Forging
3463	Nonferrous Forgings	Nonferrous Forging
3465	Automotive Stampings	Motor Vehicle Metal Stamping Manufacturing (Included in Transportation Equipment Manufacturing subsector)
3466	Crowns and Closures	Crown and Closure Manufacturing
3469	Metal Stampings, NEC	
	Metal Stampings, NEC (Except Kitchen Utensils, and Pots and Pans for Cooking)	Metal Stamping and Powder Metallurgy Manufacturing (pt)
	Kitchen Utensils, and Pots and Pans for Cooking	Kitchen Utensil, Pot, and Pan Manufacturing

3471	Electroplating, Plating, Polishing, Anodizing, and Coloring	Electroplating, Plating, Polishing, Anodizing, and Coloring (pt)
3479	Coating, Engraving, and Allied Services, NEC	
	Coating, Engraving, and Allied Services, NEC (Except Jewelry Engraving and Etching)	Metal Coating, Engraving, and Allied Services to Manufacturers, except Jewelry
	Jewelry Engraving and Etching	Precious Metal Jewelry Manufacturing (pt) (Included in the Miscellaneous Manufacturing subsector)
3482	Small Arms Ammunition	Small Arms Ammunition Manufacturing
3483	Ammunition, Except for Small Arms	Ammunition Manufacturing, except Small Arms
3484	Small Arms	Small Arms Manufacturing
3489	Ordnance and Accessories, NEC	Other Ordnance and Accessory Manufacturing
3491	Industrial Valves	Industrial Valve Manufacturing
3492	Fluid Power Valves and Hose Fittings	Fluid Power Valve and Hose Fitting Manufacturing
3493	Steel Springs, Except Wire	Steel Spring Manufacturing, except Wire
3494	Valves and Pipe Fittings, NEC	
	Valves and Pipe Fittings, NEC (Except Metal Pipe Hangers and Supports)	Other Metal Valve and Pipe Fitting Manufacturing (pt)

	Metal Pipe Hangers and Supports	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)
3495	Wire Springs	
	Wire Springs (Except Watch and Clock Springs)	Wire Spring Manufacturing
	Watch and Clock Springs	Watch, Clock, and Part Manufacturing (pt) (Included in Computer and Electronic Product Manufacturing subsector)
3496	Miscellaneous Fabricated Wire Products	Other Fabricated Wire Product Manufacturing (pt)
3497	Metal Foil and Leaf	
	Laminated Aluminum Foil Rolls/Sheets for Flexible Packaging Uses	Laminated Aluminum Foil Manufacturing for Flexible Packaging Uses (Included in Paper Manufacturing subsector)
	Foil and Foil Containers	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)
3498	Fabricated Pipe and Pipe Fittings	Fabricated Pipe and Pipe Fitting Manufacturing
3499@	Fabricated Metal Products, NEC	
	Powder Metallurgy	Metal Stamping and Powder Metallurgy Manufacturing (pt)
	Metal Boxes	Other Metal Container Manufacturing (pt)
	Safe and Vault Locks	Hardware Manufacturing (pt)
	Metal Aerosol Valves	Other Valve and Pipe Fitting Manufacturing (pt)
	Metal Furniture Parts, Household	Metal Household Furniture Manufacturing (pt) (Included in Furniture Manufacturing subsector)
	Metal Furniture Parts, Office	Metal Office Furniture Manufacturing (pt) (Included in Furniture Manufacturing subsector)
	Trophies, Except Precious	Costume Jewelry Manufacturing (Included in Miscellaneous Manufacturing subsector)
	Other Metal Products	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)



3523@	Farm Machinery and Equipment	Farm Machinery and Equipment Manufacturing (Included in Machinery Manufacturing subsector)
	Farm Machinery and Equipment (Except Corrals, Stalls, Holding Gates, Hand Hair Clippers for Animals, Farm Conveyors, Elevators, Loaders, Stackers and Bale Throwers)	
	Corrals, Stalls, Holding Gates	Ornamental and Architectural Metal Work Manufacturing (pt)
	Hand Hair Clippers for Animals	Hand and Edge Tool Manufacturing(pt)
	Farm Conveyors and Farm Elevators, Stackers, and Bale Throwers	Conveyor and Conveying Equipment Manufacturing (pt) (Included in Machinery Manufacturing subsector)
3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment	Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing (Included in Machinery Manufacturing subsector)
	Lawn and Garden Tractors and Home Lawn and Garden Equipment (Except Nonpowered Lawnmowers)	
	Nonpowered Lawnmowers	Hand and Edge Tool Manufacturing (pt)
3537	Industrial Trucks, Tractors, Trailers, and Stackers	Industrial Truck, Tractor, Trailer, and Stacker Manufacturing (Included in Machinery Manufacturing subsector)
	Industrial Trucks, Tractors, Trailers, and Stackers (Except Metal Pallets and Air Cargo Containers)	
	Metal Pallets	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)
	Metal Air Cargo Containers	Other Metal Container Manufacturing (pt)
3543	Industrial Patterns	Industrial Pattern Manufacturing
3545@	Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices	Cutting Tool and Machine Tool Accessory Manufacturing (Included in Machinery Manufacturing subsector)
	Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices (Except Precision Measuring Devices)	
	Precision Measuring Devices	Hand and Edge Tool Manufacturing (pt)

3562	Ball and Roller Bearings	Ball and Roller Bearing Manufacturing
3599	Industrial and Commercial Machinery and Equipment, NEC  Industrial and Commercial Machinery and Equipment, NEC (Except Flexible Metal Hose; Gasoline, Oil and Intake Filters for Internal Combustion Engines, Except those for Motor Vehicles; Carnival Amusement Park Equipment and Machine Shops)  Flexible Metal Hose  Gasoline, Oil and Intake Filters for Internal Combustion Engines, Except those for Motor Vehicles  Carnival Amusement Park Equipment  Machine Shops	Other Industrial Manufacturing and Industrial Commercial Machinery and Equipment (pt) (Included in Machinery Manufacturing subsector)  All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)  Other Motor Vehicle Part Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)  Other Commercial and Service Industry Machinery Manufacturing (pt) (Included in Machinery Manufacturing subsector)  Machine Shops
3728	Aircraft Parts and Auxiliary Equipment, NEC  Fluid Power Aircraft Subassemblies  Other Aircraft Parts and Equipment	Fluid Power Valve and Hose Fitting Manufacturing (pt)  Other Aircraft Part and Auxiliary Equipment Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)
3799@	Transportation Equipment, NEC  Wheelbarrows  Automobile, boat, light truck, and utility trailers  Other	Hand and Edge Tool Manufacturing (pt)  Travel Trailer and Camper Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)  All Other Transportation Equipment Manufacturing (Included in Transportation Equipment Manufacturing subsector)
3914	Silverware, Plated Ware, and Stainless Steel Ware  Cutlery and Flatware Except Precious	Cutlery and Flatware Manufacturing, Except Precious (pt)

	Silverware, Plated Ware, and Stainless Steel Ware (Except Nonprecious Flatware and Cutlery)	Silverware and Plated Ware (Included in Miscellaneous Manufacturing subsector)
3993@	Signs and Advertising Specialties (Metal Signs)	
	Electrical Signs	Electric Sign Manufacturing (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)
	Metal Signs	All Other Miscellaneous Fabricated Metal Product Manufacturing (pt)
	Plastic Signs	All Other Plastic Product Manufacturing (pt) (Included in Rubber and Plastic Product Manufacturing subsector)
	Wood Signs	Other Wood Product Manufacturing (pt) (Included in Wood Product Manufacturing, except Furniture subsector)
3999@	Manufacturing Industries, NEC	
	Beauty and Barber Chairs	Metal Office Furniture Manufacturing (pt) (Included in Furniture Manufacturing subsector)
	Burnt Wood Articles	Other Wood Product Manufacturing (pt) (Included in Wood Product Manufacturing, except Furniture subsector)
	Fur Bleaching, Currying, Scraping, Tanning and Dyeing	Leather and Hide Tanning and Finishing Manufacturing (pt) (Included in Leather and Leather Product Manufacturing subsector)
	Lamp Shades of Paper and Textile	Other Lighting Equipment Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)
	Matches	Other Miscellaneous Chemical Product Manufacturing (pt) (Included in Chemical Manufacturing subsector)
	Metal Products, such as Combs, Hair Curlers, etc.	All Other Fabricated Metal Product Manufacturing (pt)
	Plastics Products, such as Combs, Hair Curlers, etc.	All Other Plastic Product Manufacturing (pt) (Included in Rubber and Plastic Product Manufacturing subsector)
	Flexographic Printing Eyeglass Frames for the Trade	Commercial Flexographic Printing (pt) (Included in Printing and Related Support Activities subsector)
	Gravure Printing Eyeglass Frames for the Trade	Commercial Gravure Printing (pt) (Included in Printing and Related Support Activities subsector)

Lithographic Printing Eyeglass Frames for the Trade

Commercial Lithographic Printing (pt) (Included in Printing and Related Support Activities subsector)

Screen Printing Eyeglass Frames for the Trade

Commercial Screen Printing (pt) (Included in Printing and Related Support Activities subsector)

Other Printing Eyeglass Frames for the Trade

Other Commercial Printing (pt) (Included in Printing and Related Support Activities subsector)

Tape Measures

Hand and Edge Tool Manufacturing (pt)

Other

All Other Miscellaneous Manufacturing (pt) (Included in Miscellaneous Manufacturing subsector)

5085

Industrial Supplies (Wholesale)

Reconditioning Drums

Other Metal Container Manufacturing (pt)

Other

(Included in Wholesale subsector)

### *Description of Changes to the U.S. System*

A number of the changes listed in this section were made for reasons of international comparability. Where one or more of the three North American countries had different definitions of an industry classification, adjustments to the definitions in one or more countries were required. In constructing NAICS, the three countries agreed to move, where change was required to attain international comparability, in the direction of the country or countries whose existing classification definitions most closely corresponded to the production-oriented concept adopted for NAICS. Cases where the U.S. changed are listed below; other cases where Canada or Mexico moved toward the U.S. classification are not, of course, listed in this section.

Eight new industries were added to the 1997 industry structure for this industry subsector. Four of these new industries were created by breaking apart 1987 not elsewhere classified (nec) industries. New industries were created for:

Custom Roll Forming Manufacturing from part of 1987 SIC 3449, Miscellaneous Structural Metal Work. This was requested by the industry and is defined by production process.

Metal Stamping and Powder Metallurgy Manufacturing from part of 1987 SIC 3469, Metal Stampings, NEC, and part of 1987 SIC 3499, Fabricated Metal Products, NEC. This achieves international comparability and combines activities having similar processes. The U.S. moved to match Canada.

Cutlery and Flatware Manufacturing, except Precious from 1987 SIC 3421, Cutlery, and part of 1987 SIC 3914, Silverware, Plated Ware, and Stainless Steel Ware, to achieve international comparability. The change combines activities having similar production processes.

Kitchen Utensil, Pot and Pan Manufacturing from part of 1987 SIC 3469, Metal Stampings, NEC, to achieve international comparability. Mexico had an industry, CMAP 381411, Manufacturing of Kitchen Utensils, Pots and Pans.

Plate Work Manufacturing from part of 1987 SIC 3443, Fabricated Plate Work (Boiler Shops), to achieve international comparability. Both Canadian and Mexican classification systems contained an industry for this activity.

Power Boiler and Heat Exchanger Manufacturing from part of 1987 SIC 3443, Fabricated Plate Work (Boiler Shops), to achieve international comparability. Both Canadian and Mexican classification systems contained an industry for this activity.

Metal Tank Manufacturing (Heavy Gauge) from part of 1987 SIC 3443, Fabricated Plate Work (Boiler Shops), to achieve international comparability. Both Canadian and Mexican classification systems contained an industry for this activity. Machine Shops from part of 1987 SIC 3599, Industrial and Commercial Machinery and Equipment, NEC, to achieve international comparability, and combine similar production processes. This industry includes establishments engaged in machining or otherwise working of industrial material, on a job or order basis, producing parts from raw materials, or rebuilding existing parts.

Two complete industries were transferred out of this industry group, because of NAICS decisions that produced international comparability:

Heating Equipment, Except Electric and Warm Air Furnaces was transferred into the Machinery Manufacturing subsector.



Motor Vehicle Metal Stampings were transferred into the Transportation Equipment Manufacturing subsector.

Four activities were transferred out of 1987 SIC Major Group 34, Fabricated Metal Products, and are described more fully in their new respective NAICS subsectors.

Clock and watch spring manufacturing was transferred from 1987 SIC 3495, Wire Springs, into Navigational, Measuring and Control Instrument Manufacturing.

Metal laminated foil roll and sheet manufacturing for flexible packaging was transferred from part of 1987 SIC 3497, Metal Foil and Leaf, to the subsector for Paper Manufacturing, because the production processes are similar, regardless of the material used. This is the lamination, not creation of foil.

Metal cooling tower manufacturing was transferred from 1987 SIC 3443, Fabricated Plate Work, to the Machinery Manufacturing subsector for international comparability. In Canada, cooling towers are produced by establishments producing air conditioning equipment.

Metal furniture part manufacturing was transferred from 1987 SIC 3499, Fabricated Metal Products, NEC, into Metal Furniture Manufacturing.

Three industries were transferred into this subsector:

Industrial Pattern Manufacturing was transferred from 1987 SIC 3543, Industrial Patterns (in the Industrial and Commercial Machinery and Computer Equipment major groups), to achieve international comparability. The U.S. and Mexico moved to match Canada.

Metal Heat Treating was transferred from 1987 SIC 3398, Metal Heat Treating (in the Primary Metal Industries major group). This change achieves international comparability. The U.S. moved to match Canada and Mexico.

Ball and Roller Bearing Manufacturing from 1987 SIC 3562, Ball and Roller Bearings (in the Industrial and Commercial Machinery and Computer Equipment major group). This reflects the fact that this activity is really metal fabrication. Previously, the U.S., Canada, and Mexico all had this industry in machinery.

Seventeen activities were transferred into the Fabricated Metal Product Manufacturing subsector:

Nonpowered hand-held animal clipper manufacturing was transferred from 1987 SIC 3523, Farm Machinery and Equipment, into Hand and Edge Tool Manufacturing, to achieve international comparability and combine activities having similar inputs and production processes.

Metal corral, stall, and holding gate manufacturing was transferred from 1987 SIC 3523, Farm Machinery and Equipment, into Ornamental and Architectural Metal Work Manufacturing, to achieve international comparability.

Nonpowered lawnmower manufacturing was transferred from 1987 SIC 3524, Lawn and Garden Tractors and Home, Lawn and Garden Equipment, into Hand and Edge Tool Manufacturing, to achieve international comparability and combine activities having similar inputs and production processes. The U.S. and Canada moved to agree with Mexico.

Precision measuring tool manufacturing was transferred from 1987 SIC 3545, Cutting Tools, Machine Tools Accessories and Machinist Precision Measuring Devices, into Hand and Edge Tool Manufacturing, to achieve international comparability and combine activities having similar inputs. The U.S. and Canada

moved to agree with Mexico.



Wheelbarrow manufacturing was transferred from 1987 SIC 3799, Transportation Equipment, NEC, into Hand and Edge Tool Manufacturing to achieve international comparability. The U.S. and Canada moved to agree with Mexico.

Tape measure manufacturing was transferred from 1987 SIC 3999, Manufacturing Industries, NEC, into Hand and Edge Tool Manufacturing to achieve international comparability. The U.S. and Canada moved to agree with Mexico.

Metal air cargo container manufacturing was transferred from 1987 SIC 3537, Industrial Trucks, Tractors, Trailers, and Stackers, into Other Metal Container Manufacturing to achieve comparability with Mexico.

Metal pallet manufacturing was transferred from 1987 SIC 3537, Industrial Trucks, Tractors, Trailers, and Stackers, into All Other Fabricated Metal Product Manufacturing to achieve comparability with Mexico.

Reconditioning drum manufacturing was transferred from 1987 SIC 5085, Wholesale of Industrial Supplies, into Metal Shipping Barrels, Drums, Kegs, and Pails Manufacturing to achieve comparability with Mexico. In NAICS, rebuilding on a factory basis is placed in the Manufacturing sector.

Nonferrous nail, brad and staple manufacturing was transferred from 1987 SIC 3399, Primary Metal Products, into Miscellaneous Fabricated Wire Product Manufacturing to achieve international comparability, and because of similar production processes. If the process includes drawing, it remains in primary metals.

Steel nail, spike, etc., manufacturing was transferred from 1987 SIC 3315, Steel Wiredrawing and Steel Nails and Spikes, into Miscellaneous Fabricated Wire Product Manufacturing to achieve international comparability, and because of similar production processes. If the process includes drawing, it remains in primary metals.

Metal gasket packing and sealing device manufacturing was transferred from 1987 SIC 3053, Gaskets, Packing, and Sealing Devices, into All Other Fabricated Metal Product Manufacturing to achieve international comparability. The U.S. and Canada moved to match Mexico.

Steel wool manufacturing was transferred from 1987 SIC 3291, Abrasive Products, into All Other Fabricated Metal Product Manufacturing to achieve international comparability. The U.S. moved to match Canada and Mexico.

Flexible metal hose manufacturing was transferred from 1987 SIC 3599, Industry and Commercial Machinery and Equipment, NEC, into All Other Fabricated Metal Product Manufacturing to achieve international comparability.

Metal sign manufacturing was transferred from 1987 SIC 3993, Signs and Advertising Specialties, into All Other Fabricated Metal Product Manufacturing to achieve international comparability. The U.S. and Canada moved to match Mexico.

Comb, hair curler, and other metal product manufacturing was transferred from 1987 SIC 3999, Manufacturing Industries, NEC, into All Other Fabricated Metal Product Manufacturing to achieve international comparability.

Laminating steel was transferred from 1987 SIC 3399, Primary Metal Products, NEC, into Electroplating, Plating, Polishing, Anodizing and Coloring. This change achieves international comparability. The U.S. moved to match Canada and Mexico.

Also, there were several activities that transferred within the Fabricated Metal Product Manufacturing subsector. The number of Fabricated Metal Product industries increased from 38 in 1987 to 41 in 1997. For time series linkage, 32 of the 38 1987

industries are comparable within three percent of the 1997 industries.