## MANUFACTURING



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## Manufacturing Cluster

## What is included in the Manufacturing Cluster?

The Manufacturing Cluster is comprised of industries engaged in the mechanical, physical or chemical transformation of materials, substances or components into new products. These activities, generally performed in plants, factories and mills, characteristically use power-driven machines and material-handling equipment. Some establishments that assemble goods by hand are also included. Manufacturing may yield either a finished product ready for consumption or an intermediate product to be used as an input for further assembly. This report groups industries in the Manufacturing Cluster into eleven subsectors, which generally reflect distinct production processes related to material inputs, production equipment and employee skills.

Food \& Beverage Manufacturing establishments process raw materials, generally of animal or vegetable origin, into food products, which are typically sold to either wholesalers or retailers. Transforming raw materials often takes place in establishments separate from those that produce consumables. Detailed industries are defined by the materials processed. Dairy products, seafood, meat, fruits/vegetables, baked goods, beverages, and animal feed are among the output.

Textile Mill, Apparel \& Leather Product Manufacturing industries transform natural or synthetic fibers into yarn or fabric and/or process that material into items such as apparel, bedding and other household textiles, fabric bags, luggage, leather products, and footwear. Production activities may involve cutting and sewing material, knitting, weaving, and dyeing. Design and marketing may also be part of the industry.

Wood \& Paper Product Manufacturing includes establishments involved in the transforming of wood or paper into either products for further processing or finished goods for consumption. Detailed industries are defined primarily by specific output. Wood product manufacturers make goods such as lumber, plywood, veneers, containers, flooring, trusses, and prefabricated buildings, using equipment to saw, plane, shape, or laminate. Paper product manufacturing involves three basic activities, with more than one often carried out in a single plant. This includes (1) production of pulp from wood or used paper; (2) transforming pulp fibers into sheet paper or paperboard, and (3) processing paper and other materials into final products such as newsprint, bags, boxes, and sanitary products.

Printing and Related Support Activities establishments use a variety of methods to transfer (print) an image from a plate, screen, film, or computer file to some medium such as paper, plastic, metal, textiles, or wood. Establishments are classified by process and product, such as commercial lithographic, screenprinting, quick printing, manifold business forms, books, and digital printing. Also included are printing support services, both pre-press (platemaking, typesetting) and post-press (embossing, folding, tradebinding). Publishing is not part of the industry.

Petroleum, Coal \& Chemical Product Manufacturing transforms certain raw materials, using distinct processes, into usable products. Petroleum and coal product manufacturing includes refining of crude oil, production of lubricating oils and greases, manufacture of asphalt paving, roofing materials and coke oven products. Chemical manufacture involves the chemical transformation of organic and inorganic raw materials into basic chemicals and the production of intermediate and end products. Among the basic chemicals are petrochemicals, industrial gases, and synthetic dyes and pigments. Substances produced by further processing include: plastics, synthetic fibers, fertilizer, pesticides, paint, cleaning agents, toiletries, and cosmetics. The industry also encompasses the production of medicines, and pharmaceutical and biological products. Medical and biological research are often part of the process; the production "plant' may be a laboratory.

Plastics, Rubber \& Nonmetallic Mineral Products Manufacturing establishments process plastics (new and recycled), rubber (natural, synthetic, and reclaimed), and quarried or mined nonmetallic minerals into goods. Plastics manufacture employs a variety of molding processes, casting, and lamination. Plastic bottles, bags, pipes and plumbing fixtures, floor coverings, sidings, and a wide variety of goods for households and businesses are among the output. Rubber product manufacturing uses vulcanizing, cementing, molding, extruding, and lathe-cutting to render goods that include: tires; parts for machinery, equipment, and vehicles; and a number of personal and household items. Nonmetallic minerals such as sand, gravel, stone, and clay are processed through grinding, mixing, cutting, shaping, and honing into intermediate or final goods. Resulting products include: cement, concrete blocks and pipes, bricks, glass products, ceramics, and plumbing fixtures, among others.

Primary \& Fabricated Metals Manufacturing includes industries which process metals into basic or final goods. Primary manufacturers smelt and/or refine ferrous and nonferrous metals from ore, pig, or scrap into sheet, strip, bar, rod, wire, castings, and other basic metal products. These basic metals are further transformed into intermediate or end goods through fabricated metals manufacture. Both primary and fabricated manufacturing may occur in the same establishment. Fabricated goods such as kitchen utensils, pots and pans, hand tools, hardware, metal containers, windows and doors, pipes and plumbing fixtures, and ordnance and ammunition are among the final outputs.

Machinery Manufacturing industries create end products that use mechanical force to perform work. Production processes use a variety of methods to shape metal pieces, which are then joined together by means such as assembling and welding. Design is an integral part of this industry sector since machinery produced is often used for specialized purposes. Products include: farm machinery, home lawn and garden equipment, power-driven hand tools, photographic equipment, construction machinery, HVAC and refrigeration equipment, pumps, industrial production machinery, and other heavy machinery, equipment, and parts.

Computer, Electronic \& Electrical Products/Equipment Manufacturing includes establishments that produce computing and communications equipment, electrical appliances, and related components. Processes used by the computer and electronics industry are fundamentally different than those of other machinery and equipment manufacturers; the design and use of integrated circuits and the application of highly specialized miniaturization technologies are common production elements, unique to the sector. Products delivered include: personal computers, mainframes, printers, telephones, household audio and video equipment, radio and TV broadcasting equipment, semiconductors, circuit boards, radar and sonar devices, environmental controls, and laboratory analytical equipment, among others. Also included in this grouping are manufacturers of electrical equipment and appliances-products that generate, distribute, and use electrical power to operate. Goods such as: light bulbs, light fixtures, small household appliances (portable cooking appliances, hair dryers, space heaters, fans), major appliances (laundry equipment, stoves, hot water heaters), and electric power distribution equipment (electric motors, generators, transformers, and batteries) are part of the output.

Transportation Equipment Manufacturing establishments make equipment for transporting people and goods. Production processes involve typical machinery manufacturing activities-bending, forming, welding, machining, and assembling parts-but the assembly portion-from parts, to subassemblies, and finally, a complete vehicle-is more common. Vehicle parts, bodies, and components may be manufactured in separate plants and assembled into a finished vehicle in another. Intermediate goods and parts produced include: engines, transmissions, steering assemblies, brakes, wheels, pumps, spark plugs, lighting fixtures, seats, air bags, and air conditioning systems, among others. Automobiles, trucks, travel trailers, aircraft, space vehicles, guided missiles, boats, bicycles, and military armored vehicles are among the end products.

Furniture \& Related Products \& Miscellaneous Manufacturing includes industries that make furniture and related items for households and businesses, as well as establishments that produce a variety of miscellaneous articles for personal or business use. Furniture and related manufacture involves processes such as cutting, bending, molding, laminating, and assembly of materials such as wood, metal, glass, plastic, and fabric. Design is also an important part of the industry, for both esthetic and functional purposes. Products include: household, office, and institutional furniture; mattresses; kitchen cabinets and countertops; business fixtures and partitions; and window blinds and shades. Miscellaneous manufacturing establishments make a wide variety of goods using very diverse production processes. Foremost is medical equipment and supplies, which produces goods such as: medical and surgical instruments and apparatus, dental equipment, prosthetic appliances, personal industrial safety devices, and contact lenses. Output from other miscellaneous manufacturing includes: jewelry, silverware, athletic goods, toys, office supplies, signs, and musical instruments, among other items.

For additional descriptive information on NAICS, go to www.census.gov/epcd/naics02/

This publication was developed using data from the Quarterly Census of Employment and Wages (ES 202) and from the Occupational Employment Statistics (OES) Programs.

Maryland
Employment and Wages in the Manufacturing Cluster Industries

| NAICS | Industry Description | Employment |  | Payroll |  | AverageWkly Wage2004 | Industry Share of Cluster |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 2001 | 2004 | 2001 | 2004 |  |  |
|  | Manufacturing | 165,727 | 141,418 | \$7,751,576,889 | \$7,482,055,399 | \$1,017 | 100.0 |
|  | Food \& Beverage Manufacturing | 21,365 | 20,209 | 745,373,339 | 766,912,528 | 730 | 14.2 |
| 3111 | Animal food mfg. | 510 | 488 | 18,350,888 | 21,405,778 | 844 | 0.3 |
| 3112 | Grain \& oilseed milling | 205 | 205 | 7,252,796 | 7,885,933 | 740 | 0.1 |
| 3113 | Sugar \& confectionery products | 846 | 882 | 39,933,543 | 39,167,066 | 854 | 0.6 |
| 3114 | Fruit \& veg. preserving \& specialty | 760 | 771 | 27,440,346 | 31,843,065 | 794 | 0.5 |
| 3115 | Dairy product mfg. | 2,121 | 1,869 | 72,067,726 | 66,623,139 | 686 | 1.3 |
| 3116 | Animal slaughtering \& processing | 3,573 | 3,119 | 85,145,266 | 86,720,265 | 535 | 2.2 |
| 3117 | Seafood prod. preparation \& pkg. | 1,348 | 1,233 | 31,709,479 | 34,147,568 | 533 | 0.9 |
| 3118 | Bakeries \& tortilla mfg. | 4,022 | 3,691 | 111,954,876 | 112,491,433 | 586 | 2.6 |
| 3119 | Other food mfg. | 3,497 | 3,515 | 164,722,324 | 173,712,162 | 950 | 2.5 |
| 3121 | Beverage mfg. | 4,483 | 4,436 | 186,796,095 | 192,916,119 | 836 | 3.1 |
|  | Textile, Apparel \& Leather Prod. Mfg. | 7,240 | 5,679 | 194,669,033 | 172,987,274 | 586 | 4.0 |
| 3131 | Fiber, yarn, and thread mills | 236 | 256 | 11,865,291 | 11,045,822 | 830 | 0.2 |
| 3132 | Fabric mills | 1,292 | 787 | 28,833,605 | 19,102,848 | 467 | 0.6 |
| 3133 | Textile and fabric finishing mills | 672 | 660 | 20,385,490 | 21,617,895 | 630 | 0.5 |
| 3141 | Textile furnishings mills | 384 | 344 | 10,835,543 | 9,507,233 | 531 | 0.2 |
| 3149 | Other textile product mills | 718 | 800 | 22,072,179 | 27,549,554 | 662 | 0.6 |
| $\begin{gathered} 3151 \& 52 \\ \& 3159 \end{gathered}$ | Apparel knitting mills \& cut/sew apparel mfg., accessories \& other app. mfg. | 2,644 | 1,984 | 59,489,803 | 51,181,558 | 496 | 1.4 |
| 3161 \& 62 | Leather product \& footwear |  |  |  |  |  |  |
| \& 3169 | manufacturing | 1,294 | 848 | 41,187,122 | 32,982,364 | 748 | 0.6 |
|  | Wood \& Paper Prod. Mfg. | 9,691 | 8,857 | 355,617,443 | 348,700,654 | 757 | 6.2 |
| 3211 | Sawmills and wood preservation | 952 | 774 | 25,807,961 | 22,227,301 | 552 | 0.5 |
| 3212 | Plywood \& engineered wood prod. mfg. | 1,046 | 1,198 | 37,489,185 | 46,545,845 | 747 | 0.8 |
| 3219 | Other wood product mfg. | 1,789 | 1,689 | 52,549,403 | 57,655,087 | 656 | 1.2 |
| $3221 \text { \& }$ | Pulp, paper, paperboard mills \& |  |  |  |  |  |  |
| 3222 | converted paper prod. mfg. | 5,904 | 5,196 | 239,770,894 | 222,272,421 | 823 | 3.6 |
| 3231 | Printing and Related Support Activities | 17,642 | 14,247 | 698,788,999 | 625,326,665 | 844 | 10.1 |
|  | Petroleum, Coal \& Chemical Prod. Mfg. | 14,667 | 13,598 | 864,945,892 | 867,490,660 | 1,227 | 9.5 |
| 3241 | Petroleum \& coal products mfg. | 928 | 965 | 42,547,524 | 52,847,789 | 1,053 | 0.7 |
| 3251 | Basic chemical mfg. | 1,969 | 1,516 | 142,228,013 | 132,173,292 | 1,677 | 1.1 |
| 3252 | Resin, rubber, \& artificial fibers mfg. | 210 | 174 | 8,266,493 | 7,955,375 | 879 | 0.1 |
| 3253 | Agricultural chemical mfg. | 547 | 350 | 32,015,178 | 21,379,712 | 1,175 | 0.2 |
| 3254 | Pharmaceutical \& medicine mfg. | 4,679 | 5,141 | 341,483,787 | 359,802,402 | 1,346 | 3.6 |
| 3255 | Paint, coating \& adhesive mfg. | 2,291 | 2,093 | 106,273,855 | 115,698,139 | 1,063 | 1.5 |
| 3256 | Soap, cleaning compound \& toiletry mfg. | 3,050 | 2,437 | 156,879,421 | 140,510,205 | 1,109 | 1.7 |
| 3259 | Other chemical prod. \& preparation mfg. | 993 | 922 | 35,251,621 | 37,123,746 | 774 | 0.6 |
|  | Plastics, Rubber \& Nonmetallic Mineral Product Manufacturing | 14,214 | 13,107 | 542,784,477 | 575,353,263 | 844 | 9.2 |
| 3261 | Plastics product mfg. | 7,479 | 7,392 | 290,798,426 | 335,287,264 | 872 | 5.2 |
| 3262 | Rubber product mfg. | 869 | 587 | 24,708,162 | 18,532,915 | 607 | 0.4 |
| 3271 | Clay product \& refractory mfg. | 1,270 | 1,123 | 41,939,283 | 36,247,062 | 621 | 0.8 |
| 3272 | Glass \& glass product mfg. | 439 | 268 | 15,692,182 | 10,020,450 | 719 | 0.2 |
| 3273 | Cement \& concrete product mfg. | 3,368 | 2,872 | 134,492,604 | 133,455,978 | 894 | 2.0 |
| 3274 | Lime \& gypsum product mfg. | 413 | 428 | 20,382,570 | 23,126,921 | 1,039 | 0.3 |
| 3279 | Other nonmetallic mineral products | 376 | 437 | 14,771,250 | 18,682,673 | 822 | 0.3 |

## Maryland <br> Employment and Wages in the Manufacturing Cluster Industries (cont'd)

| NAICS | Industry Description | Employment |  | Payroll |  | Average <br> Wkly Wage <br> 2004 | Industry Share of Cluster |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 2001 | 2004 | 2001 | 2004 |  |  |
|  | Manufacturing | 165,727 | 141,418 | \$7,751,576,889 | \$7,482,055,399 | \$1,017 | 100.0 |
|  | Primary \& Fabricated Metals Mfg. Iron, steel mills, ferroalloy mfg. \& | 17,667 | 14,056 | 743,953,533 | 697,135,109 | 954 | 9.9 |
|  |  |  |  |  |  |  |  |
| $3312$ | Steel prod. mfg. from purchased steel | 4,731 | 3,279 | 247,229,347 | 237,505,310 | 1,393 | 2.3 |
| 3313 \& | Alumina \& aluminum production |  |  |  |  |  |  |
| 3314 | other nonferrous metal production | 1,094 | 816 | 57,194,659 | 45,377,448 | 1,069 | 0.6 |
| 3315 | Foundries | 260 | 219 | 8,006,489 | 7,815,972 | 686 | 0.2 |
| 3321 | Forging \& stamping | 341 | 302 | 10,562,335 | 10,878,260 | 693 | 0.2 |
| 3323 | Architectural \& structural metals mfg. | 3,478 | 2,862 | 122,175,120 | 112,885,677 | 759 | 2.0 |
| 3324 | Boiler, tank \& shipping container mfg. | 986 | 694 | 37,584,753 | 29,303,385 | 812 | 0.5 |
| 3326 | Spring \& wire product mfg. | 1,541 | 1,137 | 55,583,191 | 45,398,662 | 768 | 0.8 |
| 3327 | Machine shops \& threaded prod. mfg. | 2,516 | 2,239 | 97,902,012 | 97,813,498 | 840 | 1.6 |
| 3328 | Coating, engr. \& heat treating metals | 608 | 457 | 20,882,493 | 16,848,279 | 709 | 0.3 |
| $\begin{gathered} 3322 \& 25 \\ \& 3329 \end{gathered}$ | Cutlery/handtool mfg., hardware mfg. \& other fabric. metal prod. mfg. | 2,112 | 2,051 | 86,833,134 | 93,308,618 | 875 | 1.4 |
|  | Machinery Manufacturing | 11,119 | 8,525 | 579,296,676 | 541,457,374 | 1,221 | 6.0 |
| 3331 | Ag., constr. \& mining machinery mfg. | 278 | 167 | 11,807,191 | 7,887,876 | 908 | 0.1 |
| 3332 | Industrial machinery mfg. | 1,197 | 843 | 56,228,653 | 39,126,415 | 893 | 0.6 |
| 3333 | Commercial \& svc. industry mach. | 667 | 538 | 25,569,730 | 23,036,921 | 823 | 0.4 |
| 3334 | HVAC \& commercial refrig. equip. | 1,779 | 1,245 | 73,491,056 | 65,670,813 | 1,014 | 0.9 |
| 3335 | Metalworking machinery mfg. | 585 | 529 | 24,772,520 | 22,110,491 | 804 | 0.4 |
| 3336 \& | Turbine \& power trans. equip. mfg. \& |  |  |  |  |  |  |
| 3339 | other general purpose mach. mfg. | 6,613 | 5,203 | 387,427,526 | 383,624,858 | 1,418 | 3.6 |
|  | Computer, Electronic \& Electrical Product/Equipment Mfg. | 30,781 | 25,285 | 2,122,017,172 | 2,062,711,403 | 1,569 | 17.7 |
| 3341 | Computer \& peripheral equip. mfg. | 858 | 898 | 53,933,078 | 89,521,117 | 1,917 | 0.6 |
| 3342 | Communications equip. mfg. | 9,212 | 6,185 | 672,675,062 | 523,430,146 | 1,627 | 4.3 |
| 3344 | Semiconductor \& electr. component mfg. | 3,324 | 2,422 | 144,427,566 | 120,284,457 | 955 | 1.7 |
| 3345 | Electronic instrument mfg. | 11,210 | 10,912 | 800,045,389 | 926,993,756 | 1,634 | 7.7 |
| 3343 \& | AV equipment mfg. \& magnetic |  |  |  |  |  |  |
| 3346 | media mfg. \& reproducing | 2,976 | 2,624 | 304,367,947 | 293,145,256 | 2,148 | 1.9 |
| 3351 \& | Electric lighting equip. \& |  |  |  |  |  |  |
| 3352 | household appliance mfg. | 559 | 314 | 30,928,901 | 17,223,731 | 1,055 | 0.2 |
| 3353 | Electrical equipment mfg. | 1,849 | 1,403 | 63,762,856 | 58,012,122 | 795 | 1.0 |
| 3359 | Other electrical equip. \& component mfg. | 793 | 527 | 51,876,373 | 34,100,818 | 1,244 | 0.4 |
|  | Transportation Equipment Mfg.* | 11,362 | 8,487 | 529,546,646 | 447,123,854 | 1,013 | 6.8 |
| 3361 | Motor vehicle manufacturing* | 2,143 | 205 | 133,882,182 | 11,879,269 | 1,114 | 0.9 |
| 3362 | Motor vehicle body \& trailer mfg. | 566 | 673 | 15,940,055 | 20,102,108 | 574 | 0.5 |
| 3363 | Motor vehicle parts mfg. | 2,251 | 2,139 | 74,173,814 | 104,977,296 | 944 | 1.5 |
| 3364 | Aerospace product \& parts mfg. | 4,721 | 4,215 | 251,603,445 | 265,538,461 | 1,212 | 3.0 |
| 3366 | Ship \& boat building | 1,420 | 1,035 | 42,311,376 | 34,122,925 | 634 | 0.7 |
| $3361 \text { \& }$ | Railroad rolling stock mfg. \& |  |  |  |  |  |  |
| 3365 | other transportation equip. mfg. | 261 | 220 | 11,635,774 | 10,503,795 | 918 | 0.2 |
|  | Furniture/Rel. Prod. \& Misc. Mfg. | 9,327 | 8,800 | 305,962,762 | 333,392,717 | 729 | 6.2 |
| 3371 | Household \& institutional furniture mfg. | 1,922 | 1,800 | 57,532,627 | 61,063,508 | 652 | 1.3 |
| 3372 | Office furniture \& fixtures mfg . | 1,059 | 815 | 37,609,901 | 32,403,757 | 765 | 0.6 |
| 3379 | Other furniture related product mfg. | 1,200 | 1,213 | 32,300,022 | 39,451,669 | 625 | 0.9 |
| 3391 | Medical equipment \& supplies mfg. | 2,135 | 2,302 | 81,550,045 | 100,804,294 | 842 | 1.6 |
| 3399 | Other miscellaneous mfg. | 3,011 | 2,670 | 96,970,167 | 99,669,489 | 718 | 1.9 |
|  | Nondistributable** | 652 | 568 | 68,620,917 | 43,463,898 | 1,472 | 0.4 |

[^0]Maryland
Employment in the Manufacturing Cluster Industry Subsectors 2004


Maryland
Wages in the Manufacturing Cluster Industry Subsectors 2004


Reporting Units and Employment Concentration in the Manufacturing Cluster by Size Class
Based on 4th Quarter 2004 Average Employment


|  | Reporting Units |  |  |  | Employment |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Less than 20 | 20 to 99 | 100 to 249 | 250 \& over | Less than 20 | 20 to 99 | 100 to 249 | 250 \& over |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Manufacturing Cluster | 3,100 | 843 | 219 | 90 | 15,164 | 36,328 | 33,857 | 55,888 |
| Percent of Total | $72.9 \%$ | $19.8 \%$ | $5.2 \%$ | $2.1 \%$ | $10.7 \%$ | $25.7 \%$ | $24.0 \%$ | $39.6 \%$ |
|  |  |  |  |  |  |  |  |  |

- About 4,250 establishments made up the Manufacturing Cluster during the 4th quarter of 2004. Nearly three-fourths of the businesses in the cluster were categorized as small employers, employing fewer than 20 workers. The highest density of small businesses were classified as manufacturers' engaged in printing and related services.
- While just over three-fourths of all printing/related services manufacturers' were characterized as small employers, the highest share -- 35\% -- of this industry's employment was provided by establishments employing 100-249 workers.
- Within the cluster, large establishments of 250 or more workers, while accounting for just $2 \%$ of all business locations, employed the majority -- about $40 \%-$ - of the cluster's workforce. The combined workforces at facilities engaged in the manufacture of electronic equipment, plastics and communications equipment accounted for nearly a third of the size class' nearly 56,000 workers.
* Includes establishments in all Manufacturing NAICS industries that cannot be distributed geographically.


## Maryland Occupations With the Highest Employment Concentrations in the Manufacturing Cluster

| Occupation | Annual Openings |  |  | $\begin{array}{\|c} \text { Training } \\ \text { Code } \\ \hline \end{array}$ | Median Hrly/Annual Wage |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Growth * | Replacements* | Total * |  |  |
| General \& Operations Managers | 1,420 | 1,230 | 2,650 | 4 | \$38.75 |
| Industrial Production Managers | 20 | 40 | 60 | 5 | 35.25 |
| Industrial Engineers | 35 | 50 | 85 | 5 | 32.75 |
| Mechanical Engineers | 50 | 125 | 175 | 5 | 35.75 |
| First-Line Supv./Mgrs. of Production \& Operating Wkrs. | 95 | 170 | 265 | 8 | 23.50 |
| Purchasing Agts., Exc. Whsle., Retail \& Farm Prod. | 70 | 135 | 205 | 8 | 27.00 |
| Industrial Machinery Mechanics | 15 | 50 | 65 | 9 | 19.75 |
| Machinists | 20 | 80 | 100 | 9 | 19.25 |
| Welders, Cutters, Solderers \& Brazers | 35 | 85 | 120 | 9 | 16.75 |
| Sales Rep., Whsle. \& Mfg., Exc. Tech. \& Sc. Prod. | 520 | 645 | 1,165 | 10 | 23.50 |
| Customer Service Representatives | 735 | 485 | 1,220 | 10 | 14.25 |
| Bookkeeping, Accounting \& Auditing Clerks | 150 | 550 | 700 | 10 | 15.75 |
| Maintenance \& Repair Workers, General | 370 | 390 | 760 | 10 | 15.25 |
| Team Assemblers | 50 | 275 | 325 | 10 | 12.00 |
| Cutting/Punching/Press Mach. Setters, Oprs. \& Tndrs. | 0 | 25 | 25 | 10 | 15.00 |
| Molding/Coremaking/Casting Mach. Strs., Oprs. \& Tndrs. | 10 | 35 | 45 | 10 | 12.50 |
| Mixing/Blending Machine Setters, Oprs. \& Tndrs. | 0 | 35 | 35 | 10 | 16.75 |
| Inspectors, Testers, Sorters, Samplers \& Weighers | 50 | 120 | 170 | 10 | 15.75 |
| Truck Drivers, Heavy \& Tractor-Trailer | 325 | 390 | 715 | 10 | 17.25 |
| Computer-Controlled Machine Tool Operators | 5 | 15 | 20 | 10 | 14.75 |
| Machine Feeders \& Offbearers | 0 | 50 | 50 | 11 | 10.50 |
| Packers \& Packagers, Hand | 135 | 175 | 310 | 11 | 10.25 |
| Office Clerks, General | 695 | 1,165 | 1,860 | 11 | 12.25 |
| Production, Planning \& Expediting Clerks | 65 | 105 | 170 | 11 | 19.25 |
| Industrial Truck \& Tractor Operators | 120 | 175 | 295 | 11 | 14.25 |
| Shipping, Receiving \& Traffic Clerks | 15 | 210 | 225 | 11 | 12.50 |
| Electrical \& Electronic Equipment Assemblers | 0 | 70 | 70 | 11 | 11.75 |
| Packaging \& Filling Machine Operators \& Tenders | 45 | 80 | 125 | 11 | 12.00 |
| Helpers--Production Workers | 0 | 140 | 140 | 11 | 11.25 |
| Laborers \& Freight, Stock \& Material Movers, Hand | 175 | 1,280 | 1,455 | 11 | 10.50 |

Note: Occupations are ranked according to training code
*Estimates for Annual Openings, representing economy-wide demand for 2002-2012, are rounded to the nearest 5

Wages adjusted to reflect inflationary pressures through September 2005.

## Education and Training Categories

Occupations are classified into 1 of 11 categories by the Bureau of Labor Statistics based on analyses of the occupation's usual education and training requirements conducted while developing information to present in the Occupational Outlook Handbook. The 11 classifications are as follows:

1 First professional degree. Completion of the academic program usually requires at least 6 years of fulltime equivalent academic study, including college study prior to entering the professional degree program.

2 Doctoral degree. Completion of the degree program usually requires at least 3 years of full-time equivalent academic work beyond the bachelor's degree.
3 Master's degree. Completion of the degree program usually requires 1 or 2 years of full-time equivalent study beyond the bachelor's degree.
4 Bachelor's or higher degree, plus work experience. Most occupations in this category are managerial occupations that require experience in a related nonmanagerial position.
5 Bachelor's degree. Completion of the degree program generally requires at least 4 years but not more than 5 years of full-time equivalent academic work.
6 Associate degree. Completion of the degree program usually requires at least 2 years of full-time equivalent academic study.
$7 \quad$ Postsecondary vocational award. Some programs last only a few weeks while others may last more than a year. In some occupations, a license is needed that requires passing an examination after completion of the training.
8 Work experience in a related occupation. Some occupations requiring work experience are supervisory or managerial occupations.
9 Long-term on-the-job training. This category includes occupations that generally require more than 12 months of on-the-job training or combined work experience and formal classroom instruction for workers to develop the skills needed for average job performance. This category includes formal and informal apprenticeships that may last up to 4 years and short-term intensive employer-sponsored training that workers must successfully complete. Individuals undergoing training are generally considered to be employed in the occupation. This category includes occupations in which workers may gain experience in non-work activities, such as professional athletes who gain experience through participation in athletic programs in academic institutions.
10 Moderate-term on-the-job training. This category includes occupations in which workers can develop the skills needed for average job performance after 1 to 12 months of combined on-the-job experience and informal training.
11 Short-term on-the-job training. This category covers occupations in which workers can develop the skills needed for average job performance after a short demonstration or up to one month of on-the-job experience or instruction.

## Manufacturing Cluster-2004



Employment and Wages in the Manufacturing Cluster By WIA and Select Local Jurisdictions

| WIA | Employment |  | Employment Change 2001-2004 | Number of Reporting Units 2004 | Total Wages2004 | Average Weekly Wage 2004 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2001 | 2004 |  |  |  |  |
| Anne Arundel | 14,409 | 13,940 | -469 | 366 | \$998,993,333 | \$1,378 |
| Baltimore City | 23,278 | 17,311* | -5,967 | 574 | 787,682,322 | 875 |
| Baltimore County | 31,415 | 26,488 | -4,927 | 631 | 1,507,286,150 | 1,094 |
| Frederick | 7,344 | 6,535 | -809 | 195 | 304,345,299 | 896 |
| Montgomery | 17,600 | 15,184 | -2,416 | 526 | 1,156,317,547 | 1,464 |
| Prince George's | 12,505 | 11,352 | -1,153 | 374 | 604,506,352 | 1,024 |
| Lower Shore | 7,345 | 5,883 | -1,462 | 171 | 195,134,143 | 638 |
| Somerset | 492 | 346 | -146 | 18 | 9,493,444 | 528 |
| Wicomico | 4,953 | 4,414 | -539 | 102 | 152,706,359 | 665 |
| Worcester | 1,900 | 1,123 | -777 | 51 | 32,934,340 | 564 |
| Mid Maryland | 14,223 | 11,044 | -3,179 | 403 | 544,918,005 | 949 |
| Carroll | 5,032 | 4,532 | -500 | 166 | 196,683,619 | 835 |
| Howard | 9,191 | 6,512 | -2,679 | 237 | 348,234,386 | 1,028 |
| Southern Maryland | 2,579 | 2,494 | -85 | 165 | 101,680,876 | 784 |
| Calvert | 760 | 741 | -19 | 53 | 26,918,519 | 699 |
| Charles | 1,298 | 1,272 | -26 | 75 | 52,486,083 | 794 |
| St Mary's | 521 | 481 | -40 | 37 | 22,276,274 | 891 |
| Susquehanna | 10,094 | 9,419 | -675 | 241 | 441,004,167 | 900 |
| Cecil | 3,723 | 4,198 | 475 | 69 | 221,881,246 | 1,016 |
| Harford | 6,371 | 5,221 | -1,150 | 172 | 219,122,921 | 807 |
| Upper Shore | 9,575 | 7,502 | -2,073 | 205 | 250,249,159 | 641 |
| Caroline | 1,821 | 1,456 | -365 | 32 | 47,717,019 | 630 |
| Dorchester | 3,322 | 2,841 | -481 | 56 | 92,898,698 | 629 |
| Kent | 905 | 779 | -126 | 26 | 25,371,288 | 626 |
| Queen Anne's | 915 | 820 | -95 | 47 | 29,573,289 | 694 |
| Talbot | 2,612 | 1,606 | -1,006 | 44 | 54,688,865 | 655 |
| Western Maryland | 14,708 | 13,698 | -1,010 | 269 | 546,474,148 | 767 |
| Allegany | 3,754 | 3,407 | -347 | 63 | 127,903,942 | 722 |
| Garrett | 953 | 935 | -18 | 50 | 26,020,282 | 535 |
| Washington | 10,001 | 9,356 | -645 | 156 | 392,549,924 | 807 |
| Nondistributable** | 652 | 568 | -84 | 729 | 43,463,898 | 1,472 |
| Maryland | 165,727 | 141,418 | -24,309 | 4,390 | 7,482,055,399 | 1,017 |

* 2004 industry employment adjusted to reflect susbsequent closing of GM in 2005
** Includes establishments in Manufacturing Cluster NAICS industries that cannot be distributed geographicall!



## Average Weekly Wage in the Manufacturing Cluster by WIA

 2004


Prepared by the Division of Workforce Development - O ffice of Workforce Information \& Perfomance




[^0]:    * 2004 industry employment adjusted to reflect subsequent closing of GM in 2005
    ** Includes data from establishments in the Manufacturing Cluster that cannot be assigned to a specific industry

