ASSESSORS' HANDBOOK
SECTION 581

# EQUIPMENT AND FIXTURES INDEX, PERCENT GOOD AND VALUATION FACTORS

JANUARY 2011

(USE FOR LIEN DATE JANUARY 1, 2011)

# FOREWORD

Section 401.5 of the Revenue and Taxation Code requires that the Board issue to county assessors data relating to costs of property and other information to promote uniformity in appraisal practices and in assessed values throughout the state. In an effort to comply with section 401.5, the Board annually publishes Assessors' Handbook Section 581, *Equipment and Fixtures Index, Percent Good and Valuation Factors* (AH 581).

This revision of AH 581 contains several tables of index, percent good, and valuation factors that will aid in the mass appraisal of various types of personal property and fixtures. General instructions and pertinent information regarding the use of these tables are included in the text.

In 2002, staff researched the issue of whether the use of the index factors in Tables 1, 2, and 3 results in an estimate of replacement cost new or reproduction cost new. Board staff contacted representatives from the publications used to derive the index factors[1] while investigating this issue. From the responses, staff concluded that application of the index factors to a property's original cost typically results in reproduction cost new.

Starting with the 2002 lien date, the commercial equipment index factors and the industrial equipment index factors (Tables 1 and 2) have been averaged into a single category of factors for each table. Use of a single category of factors for commercial equipment and a single category of factors for industrial equipment will provide value estimates within a reasonable band of value for the mass appraisal of business property for property taxation purposes.

Index factors (Tables 1, 2, and 3) may be used to estimate current reproduction costs. Table 1, *Commercial Equipment Index Factors*, was compiled based on equipment price data in *Marshall Valuation Service*.[2] Table 2, *Industrial Machinery and Equipment Index Factors*, and Table 3, *Agricultural and Construction Equipment Index Factors*, were derived using the *Producer Price Indexes*[3] as a basis. A discussion regarding the use of these factors is included in the text.

Percent good factors (Tables 4 and 5) may be used in conjunction with the index factors to estimate reproduction cost new less normal depreciation. Table 4, *Machinery and Equipment Percent Good Factors*, was derived from a methodology described in Assessors' Handbook Section 582, *Explanation of the Derivation of Equipment Percent Good Factors*. Table 5, *Construction Mobile Equipment Percent Good Factors*, and Table 6, *Agricultural Mobile Equipment Percent Good Factors*, were derived from a detailed analysis of used equipment sales data.

For construction mobile equipment and agricultural mobile equipment, we suggest using the comparative sales approach, if possible. Several valuation guides are available for this purpose (see Chapter 2). If the valuation guides are not used, the cost approach can be employed. The

[1] Marshall & Swift/Boeckh, LLC and the U.S. Bureau of Labor Statistics.
[2] Published by Marshall & Swift/Boeckh, LLC.
[3] Compiled by the U.S. Bureau of Labor Statistics.

appropriate index factor (from Table 3) should be applied to the equipment cost along with a percent good factor (from Table 5) for construction mobile equipment. The appropriate index factor (from Table 3) should be applied to the equipment cost along with a percent good factor (from Table 6) for agricultural mobile equipment.

Valuation factors (Tables 7, 8, 9, 10, and 11) are intended to be applied directly to historical costs. The valuation factors for non-production computers (Table 7) were adopted by the Board in April 2009. The valuation factors for semiconductor manufacturing equipment and fixtures (Table 8) were adopted by the Board in October 2008. The valuation factors for biopharmaceutical industry equipment and fixtures (Table 9) were adopted by the Board in July 2008. The valuation factors for document processors (Table 10) and offset lithographic printing presses (Table 11) were adopted by the Board in December 2009.

Section 15606, subdivision (c), of the Government Code directs the Board to prescribe rules and regulations governing county assessors in the performance of their duties, and subdivision (f) provides that the Board will issue instructions, such as those set forth in this handbook. While regulations adopted by the Board are binding as law, Board-adopted handbooks are advisory only. Nevertheless, courts have held that they may be properly considered as evidence in the adjudicatory process.[4]

All of the information presented in this section of the Assessors' Handbook is current for use as of the 2011 lien date, January 1, 2011. We hope the information presented proves useful to all concerned parties, and that it promotes uniformity of assessment. The tables are intended for use in the mass appraisal of equipment and fixtures when determining value for property taxation purposes.

/s/ David J. Gau

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January 2011

[4] *Coca-Cola Co. v. State Board of Equalization* (1945) 25 Cal.2d 918; *Prudential Ins. Co. v. City and County of San Francisco* (1987) 191 Cal.App.3d 1142; *Hunt-Wesson Foods, Inc. v. County of Alameda* (1974) 41 Cal.App.3d 163.

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# CHAPTER 1: EQUIPMENT INDEX FACTORS

Equipment index factors are developed for use in mass appraisals and are generally reliable and practical for converting original cost to estimates of reproduction cost or replacement cost new. Index factors are used to adjust a property's original cost for price level changes since the property was acquired. The index factors recommended by the Board, updated and distributed annually, include three separate index factor tables: Table 1, *Commercial Equipment Index Factors*; Table 2, *Industrial Machinery and Equipment Index Factors*; and Table 3, *Agricultural and Construction Equipment Index Factors*. The tables rely on indexes published by the U.S. Government Bureau of Labor Statistics (BLS) and on information published by Marshall & Swift/Boeckh, LLC (Marshall & Swift). The BLS and Marshall & Swift have indicated to Board staff that their indexes attempt to track price changes for an identical product sold under identical terms over time, such that the indexes approximate an estimate of reproduction cost new. Thus, when the original cost of property is multiplied by the Board's index factor for the year of acquisition, the product typically approximates current reproduction cost new.

In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar. In industries where the equipment used is undergoing rapid changes in technology, further adjustments are likely to be needed to arrive at replacement cost new. Thus, there may be situations where market evidence supports the need to make adjustments to reproduction cost to account for functional obsolescence before the percent good factors from Table 4 can be applied when determining market value for property taxation purposes. Any such adjustments should be based on reasonable evidence and appropriate adjustments should be made to arrive at replacement cost new. County assessors should consider such evidence provided by assessees when making these adjustments.

Please refer to Assessors' Handbook Section 504, *Assessment of Personal Property and Fixtures*, for guidelines on the use of reproduction and replacement costs in the appraisal process.

## PRICE CHANGES

Price changes are usually an increasing factor (inflation). During those periods of time when the cost of raw material and/or labor actually declines, price changes may be a decreasing factor (deflation).

### Effects of Technological Progress

If technological progress has occurred since the acquisition date of an asset, the cost of producing a functionally superior but physically similar asset may now be lower. Consequently, the current replacement cost new of previously existing assets will probably decline. High technology equipment, for example, typically suffers greater than normal functional obsolescence due to technological progress.

## COMMERCIAL EQUIPMENT INDEX FACTORS

Table 1, *Commercial Equipment Index Factors,* was compiled based on equipment price data published by the Marshall & Swift/Boeckh, LLC, *Marshall Valuation Service.* Application of the index factors to a property's historical cost typically results in reproduction cost new. In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar. In industries where the equipment used is undergoing rapid changes in technology, further adjustments are likely to be needed to arrive at replacement cost new. The commercial equipment index factors are averaged into a single category of factors. Use of a single category of factors for commercial equipment will provide value estimates within a reasonable band of value for the assessment of business property. The commercial classes contained in the Table 1 include the following:

- Bank
- Garage
- Hospital
- Hotel
- Laundry
- Library
- Office
- Restaurant
- Retail
- Theater
- Warehouse

Because rapid technological changes have taken place in recent years, Board staff recommends that appraisers/auditor-appraisers use a maximum equipment index factor when valuing equipment. The recommended maximum factor is the factor for an age equal to 125 percent of the estimated average service life.

## TABLE 1: COMMERCIAL EQUIPMENT INDEX FACTORS

| 2010 Cost = 100 | |
|---|---|
| ***Year*** | ***Average*** |
| 2009 | 100 |
| 2008 | 103 |
| 2007 | 106 |
| 2006 | 111 |
| 2004 | 124 |
| 2003 | 128 |
| 2002 | 130 |
| 2001 | 130 |
| 1998 | 134 |
| 1997 | 135 |
| 1996 | 137 |
| 1993 | 148 |
| 1992 | 152 |
| 1991 | 154 |
| 1988 | 169 |
| 1987 | 176 |
| 1986 | 179 |
| 1983 | 190 |
| 1982 | 194 |
| 1981 | 202 |
| 1978 | 264 |
| 1977 | 284 |
| 1976 | 298 |
| 1973 | 401 |
| 1972 | 416 |
| 1971 | 429 |

**This table is intended for use in the mass appraisal of equipment and fixtures when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

## INDUSTRIAL EQUIPMENT INDEX FACTORS

Table 2, *Industrial Machinery and Equipment Index Factors*, was derived using the Bureau of Labor Statistics' *Producer Price Indexes* as a basis. Application of the index factors to a property's historical cost typically results in reproduction cost new. In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar. In industries where the equipment used is undergoing rapid changes in technology, further adjustments are likely to be needed to arrive at replacement cost new.

The industrial equipment index factors are averaged into a single category of factors. See Exhibit 1.A for a listing of the industry classes contained in Table 2, including a detailed description of each industry class. Use of a single category of factors for industrial equipment will provide value estimates within a reasonable band of value for the assessment of business property.

Because rapid technological changes have taken place in recent years, Board staff recommends that appraisers/auditor-appraisers use a maximum equipment index factor when valuing equipment. The recommended maximum factor is the factor for an age equal to 125 percent of the estimated average service life.

## EXHIBIT 1A: INDUSTRY CLASSES

| | |
|---|---|
| Aerospace | Includes the manufacture of aircraft, spacecraft, rockets, missiles, and component parts. |
| Cement Manufacturing | Includes the manufacture of cement. Excludes the manufacture of concrete and concrete products. |
| Chemicals and Allied Products | Includes the manufacture of basic chemicals such as acids, alkalis, salts, organic and inorganic chemicals; chemical products to be used in further manufacture, such as synthetic fibers and plastics materials; and finished chemical products, such as pharmaceuticals, cosmetics, soaps, fertilizers, paints, varnishes, explosives, and compressed and liquefied gases. |
| Electrical Equipment Manufacturing | Includes the manufacture of electric household appliances, electronic equipment, batteries, ignition systems, and machinery used in the generation and utilization of electrical energy. |
| Electronic Equipment | Includes the manufacture of electronic communications, detection, guidance, control, radiation, computation, test, and navigation equipment, and components thereof. Excludes manufacturers that, in addition to electronic equipment, also produce other equipment included under electrical equipment. |
| Fabricated Metal Products | Includes the manufacture of fabricated metal products, such as cans, tinware, hardware, metal structural products, stampings, and a variety of metal and wire products. |
| Food and Kindred Products | Includes the manufacture of foods and beverages, such as meat and dairy products; baked goods; canned, frozen, and preserved products; confectionery and related products; and soft drinks and alcoholic beverages. Excludes the manufacture of grain and grain mill products, sugar and sugar products, and vegetable oils and vegetable oil products. |
| Glass and Glass Products | Includes the manufacture of flat, blown, or pressed glass products, such as plate, safety, and window glass, glass containers, glassware, and fiberglass. Excludes the manufacture of lenses. |
| Grain and Grain Mill Products | Includes the manufacture of blended and prepared flours, cereals, feeds, and other grain and grain mill products. |

| | |
|---|---|
| Leather and Leather Products | Includes the manufacture of finished leather products, the tanning, currying, and finishing of hides and skins, and the processing of fur pelts. |
| Lumber, Wood Products, and Furniture | Includes the manufacture of lumber, plywood, veneers, furniture, flooring, and other wood products. Excludes the manufacture of pulp and paper. |
| Machinery, Except Electrical, Metal Working, and Transportation | Includes the manufacture of machinery, such as engines and turbines, farm machinery, construction and mining machinery, food products machinery, textile machinery, woodworking machinery, paper industry machinery, compressors, pumps, ball and roller bearings, blowers, industrial patterns, process furnaces and ovens, office machines, and service industry machines and equipment. |
| Mining | Includes the mining and quarrying of metallic and nonmetallic minerals and the milling, benefaction, and other primary preparation of such materials. |
| Motor Vehicles and Parts | Includes the manufacture of automobiles, trucks, buses, and their component parts. Excludes the manufacture of glass, tires, and stampings. |
| Paper Finishing | Includes paper finishing and conversion into cartons, bags, envelopes, and similar products. |
| Petroleum Exploration and Production | Includes the exploration, drilling, maintenance, and production activities of petroleum and natural gas producers. Includes gathering pipelines and related storage facilities of such producers. Excludes gathering pipelines and related storage facilities of pipeline companies. |
| Petroleum Refining | Includes the distillation, fractionation, and catalytic cracking of crude petroleum into gasoline and its other components. |
| Plastics Products | Includes the manufacture of processed, fabricated, and finished plastic products. Excludes the manufacture of basic plastic materials. |
| Primary Metals | Includes the smelting, reducing, refining, and alloying of ferrous and nonferrous metals from ore, pig, or scrap, and the manufacture of castings, forgings, and other basic ferrous and nonferrous metals products. |

| | |
|---|---|
| Professional and Scientific Instruments | Includes the manufacture of mechanical measuring, engineering, laboratory, and scientific research instruments; optical instruments and lenses; surgical, medical, and dental instruments and equipment; ophthalmic equipment; photographic equipment; and watches and clocks. |
| Printing and Publishing | Includes printing, publishing, lithographing, and printing services, such as bookbinding, typesetting, photoengraving, and electrotyping. |
| Pulp and Paper | Includes the manufacture of pulp from wood, rags, and other fibers and the manufacture of paper and paperboard from pulp. Excludes paper finishing. |
| Rubber Products | Includes the manufacture of finished rubber products, and the recapping, retreading, and rebuilding of tires. |
| Stone and Clay Products, Except Cement | Includes the manufacture of structural clay products, such as brick, tile, and pipe; pottery and related products, such as vitreous-china, plumbing fixtures, earthenware, and ceramic insulating material; concrete; asphalt building materials; concrete, gypsum, and plaster products; cut and finished stone; and abrasive, asbestos, and miscellaneous nonmetallic mineral products. |
| Sugar and Sugar Products | Includes the manufacture of raw sugar, syrup, or finished sugar from sugar cane or sugar beets. |
| Textile Mill Products | Includes the manufacture of spun, woven, or processed yarns and fabrics from natural or synthetic fibers. Excludes finishing and dyeing. |
| Vegetable Oil Products | Includes the manufacture of vegetable oils and vegetable oil products. |

## TABLE 2: INDUSTRIAL MACHINERY AND EQUIPMENT INDEX FACTORS

| 2010 Cost = 100 | |
|---|---|
| ***Year*** | ***Average*** |
| 2008 | 101 |
| 2007 | 106 |
| 2006 | 108 |
| 2003 | 119 |
| 2002 | 120 |
| 2001 | 120 |
| 1998 | 122 |
| 1997 | 124 |
| 1996 | 126 |
| 1993 | 135 |
| 1992 | 137 |
| 1991 | 139 |
| 1988 | 155 |
| 1987 | 161 |
| 1986 | 164 |
| 1983 | 174 |
| 1982 | 178 |
| 1981 | 187 |
| 1978 | 254 |
| 1977 | 276 |
| 1976 | 296 |
| 1973 | 430 |
| 1972 | 448 |
| 1971 | 460 |

**This table is intended for use in the mass appraisal of equipment and fixtures when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

## AGRICULTURAL AND CONSTRUCTION EQUIPMENT INDEX FACTORS

Table 3, *Agricultural and Construction Equipment Index Factors*, was derived using the Bureau of Labor Statistics' *Producer Price Indexes* as a basis. Application of the index factors to a property's historical cost typically results in reproduction cost new. In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar. Board staff recommends that appraisers/auditor-appraisers use a maximum equipment index factor when valuing equipment. The recommended maximum factor is the factor for an age equal to 125 percent of the estimated average service life.

## TABLE 3: AGRICULTURAL AND CONSTRUCTION EQUIPMENT INDEX FACTORS

**2010 Cost = 100**

| *Year* | *Agricultural* | *Construction* |
|---|---|---|
| 2008 | 105 | 103 |
| 2007 | 110 | 106 |
| 2006 | 113 | 109 |
| 2003 | 126 | 125 |
| 2002 | 128 | 126 |
| 2001 | 130 | 128 |
| 1998 | 135 | 131 |
| 1997 | 136 | 134 |
| 1996 | 138 | 137 |
| 1993 | 152 | 145 |
| 1992 | 157 | 148 |
| 1991 | 161 | 152 |
| 1988 | 180 | 171 |
| 1987 | 185 | 175 |
| 1986 | 186 | 179 |
| 1983 | 194 | 187 |
| 1982 | 203 | 191 |
| 1981 | 219 | 205 |
| 1978 | 296 | 282 |
| 1977 | 319 | 307 |
| 1976 | 345 | 330 |
| 1973 | 501 | 502 |
| 1972 | 517 | 522 |
| 1971 | 537 | 539 |

**This table is intended for use in the mass appraisal of equipment and fixtures when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

# CHAPTER 2: PERCENT GOOD FACTORS

Percent good factors may be used in conjunction with the index factors to estimate reproduction cost new less normal depreciation.

## MACHINERY AND EQUIPMENT PERCENT GOOD FACTORS

Table 4, *Machinery and Equipment Percent Good Factors*, is designed to assist the appraiser in estimating reproduction cost new less normal depreciation of commercial and industrial equipment in conjunction with index factors as discussed in Chapter 1.[5] This table was derived using the "individual method" of computation. The rationale and the mathematics of the methods of computation are explained in Assessors' Handbook Section 582, *Explanation of the Derivation of Equipment Percent Good Factors*.

The rate of return used to compute the factors shown in Table 4 is calculated annually and is shown at the top of the table. The column headings represent the average service life expectancy of the equipment under consideration. Each column contains the percent good factor for the corresponding age.[6] No minimum percent good factor is intended in this table. If the county assessor uses a minimum percent good factor, it must be determined in a supportable manner.[7]

[5] Separate percent good tables are provided for construction mobile equipment (Table 5) and agricultural mobile equipment (Table 6).
[6] Life expectancies are derived from the R-3 survivor curve.
[7] Revenue and Taxation Code section 401.16(b). All statutory references refer to Revenue and Taxation Code sections unless otherwise noted.

## TABLE 4: MACHINERY AND EQUIPMENT PERCENT GOOD FACTORS

**Individual Properties—Average Service Life—6.75 % Rate of Return**

| Year Acqd | Age | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 17 | 18 | 20 | 22 | 25 | 30 | 35 | 40 | Age | Year Acqd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 | 3 | 17 | 32 | **45** | 54 | 61 | 67 | 71 | **75** | 78 | 80 | 82 | 84 | **85** | 88 | 89 | **91** | 92 | **94** | **95** | **97** | **98** | 3 | 2008 |
| 2007 | 4 | 6 | 17 | **29** | 40 | 49 | 56 | 61 | **66** | 70 | 73 | 76 | 78 | **80** | 83 | 85 | **87** | 89 | **91** | **94** | **96** | **97** | 4 | 2007 |
| 2006 | 5 | | 8 | **18** | 28 | 37 | 45 | 52 | **57** | 62 | 66 | 69 | 72 | **75** | 79 | 81 | **84** | 86 | **89** | **92** | **94** | **96** | 5 | 2006 |
| 2003 | 8 | | | **1** | 7 | 13 | 19 | 26 | **33** | 39 | 45 | 50 | 54 | **58** | 65 | 68 | **72** | 76 | **81** | **87** | **90** | **93** | 8 | 2003 |
| 2002 | 9 | | | | 3 | 8 | 14 | 20 | **26** | 32 | 38 | 44 | 48 | **53** | 60 | 63 | **69** | 73 | **78** | **85** | **89** | **92** | 9 | 2002 |
| 2001 | 10 | | | | | 4 | 10 | 15 | **20** | 26 | 32 | 37 | 43 | **47** | 55 | 59 | **65** | 70 | **75** | **83** | **87** | **91** | 10 | 2001 |
| 1998 | 13 | | | | | | | 5 | **9** | 13 | 17 | 22 | 27 | **32** | 41 | 45 | **52** | 59 | **66** | **76** | **82** | **87** | 13 | 1998 |
| 1997 | 14 | | | | | | | 2 | **6** | 10 | 14 | 18 | 23 | **27** | 36 | 40 | **48** | 55 | **63** | **74** | **81** | **86** | 14 | 1997 |
| 1993 | 18 | | | | | | | | | | 4 | 7 | 10 | **14** | 21 | 25 | **33** | 40 | **51** | **64** | **73** | **80** | 18 | 1993 |
| 1992 | 19 | | | | | | | | | | 1 | 5 | 8 | **11** | 18 | 22 | **29** | 37 | **47** | **61** | **71** | **78** | 19 | 1992 |
| 1991 | 20 | | | | | | | | | | | 2 | 6 | **10** | 15 | 19 | **26** | 33 | **44** | **58** | **69** | **77** | 20 | 1991 |
| 1988 | 23 | | | | | | | | | | | | | **3** | 10 | 12 | **18** | 24 | **35** | **50** | **62** | **72** | 23 | 1988 |
| 1987 | 24 | | | | | | | | | | | | | **1** | 8 | 10 | **16** | 22 | **32** | **48** | **60** | **70** | 24 | 1987 |
| 1986 | 25 | | | | | | | | | | | | | | 6 | 8 | **14** | 19 | **29** | **45** | **58** | **68** | 25 | 1986 |
| 1983 | 28 | | | | | | | | | | | | | | | 2 | **9** | 14 | **22** | **37** | **51** | **63** | 28 | 1983 |
| 1982 | 29 | | | | | | | | | | | | | | | 1 | **7** | 12 | **20** | **34** | **49** | **60** | 29 | 1982 |
| 1981 | 30 | | | | | | | | | | | | | | | | **5** | 11 | **18** | **32** | **46** | **59** | 30 | 1981 |
| 1978 | 33 | | | | | | | | | | | | | | | | | 5 | **14** | **26** | **40** | **52** | 33 | 1978 |
| 1977 | 34 | | | | | | | | | | | | | | | | | 3 | **12** | **24** | **38** | **50** | 34 | 1977 |
| 1976 | 35 | | | | | | | | | | | | | | | | | 2 | **10** | **22** | **35** | **48** | 35 | 1976 |
| 1973 | 38 | | | | | | | | | | | | | | | | | | **5** | **17** | **29** | **42** | 38 | 1973 |
| 1972 | 39 | | | | | | | | | | | | | | | | | | **3** | **16** | **27** | **40** | 39 | 1972 |
| 1971 | 40 | | | | | | | | | | | | | | | | | | **2** | **15** | **26** | **38** | 40 | 1971 |

***No Minimum Percent Good Intended***

**This table is intended for use in the mass appraisal of equipment and fixtures when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

## CONSTRUCTION AND AGRICULTURAL MOBILE EQUIPMENT PERCENT GOOD FACTORS

Table 5, *Construction Mobile Equipment Percent Good Factors*, and Table 6, *Agricultural Mobile Equipment Percent Good Factors*, were derived from a detailed analysis of used equipment sales data. The percent good factors are used when determining the loss of value for construction mobile equipment and agricultural mobile equipment, respectively. Table 5 identifies a pattern of depreciation for construction mobile equipment, and Table 6 identifies a pattern of depreciation for two groups of equipment:

1. Agricultural mobile equipment - *except* harvesters
2. Agricultural mobile equipment - harvesters

Within each group, three columns of percent good figures (new, used, and average) are listed. The column labeled "new" should be used to measure depreciation if the subject property was acquired new. Conversely, the column labeled "used" should be applied when the equipment was purchased used. In cases where the taxpayer does not indicate if the property was first acquired new or first acquired used, Tables 5 and 6 provide an average of the new and used factors. The county assessor may not average the "new" and "used" factors unless the taxpayer does not indicate if the property was first acquired new or first acquired used.[8]

[8] Section 401.16.

## Table 5: Construction Mobile Equipment Percent Good Factors

| *Year Acquired* | *Age* | CONSTRUCTION MOBILE EQUIPMENT | | |
|---|---|---|---|---|
| | | *New* | *Used* | *Average* |
| 2008 | 3 | 60 | 74 | 67 |
| 2007 | 4 | 55 | 68 | 62 |
| 2006 | 5 | 51 | 62 | 57 |
| 2003 | 8 | 38 | 47 | 43 |
| 2002 | 9 | 35 | 43 | 39 |
| 2001 | 10 | 31 | 38 | 35 |
| 1998 | 13 | 24 | 29 | 27 |
| 1997 | 14 | 22 | 27 | 25 |
| 1996 | 15 | 20 | 25 | 23 |
| 1993 | 18 | 13 | 17 | 15 |
| 1992 | 19 | 12 | 13 | 13 |
| 1991 | 20 | 11 | 11 | 11 |

***No Minimum Percent Good Intended***

**This table is intended for use in the mass appraisal of equipment when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

## Table 6: Agricultural Mobile Equipment Percent Good Factors

| *Year Acquired* | *Age* | AGRICULTURAL MOBILE EQUIPMENT | | | | | | *Age* |
|---|---|---|---|---|---|---|---|---|
| | | EXCEPT HARVESTERS | | | HARVESTERS | | | |
| | | *New* | *Used* | *Average* | *New* | *Used* | *Average* | |
| 2008 | 3 | 64 | 75 | 70 | 57 | 69 | 63 | 3 |
| 2007 | 4 | 58 | 68 | 63 | 50 | 60 | 55 | 4 |
| 2006 | 5 | 52 | 62 | 57 | 43 | 53 | 48 | 5 |
| 2003 | 8 | 38 | 45 | 42 | 29 | 35 | 32 | 8 |
| 2002 | 9 | 34 | 40 | 37 | 25 | 30 | 28 | 9 |
| 2001 | 10 | 30 | 36 | 33 | 21 | 26 | 24 | 10 |
| 1998 | 13 | 23 | 28 | 26 | 15 | 18 | 17 | 13 |
| 1997 | 14 | 22 | 26 | 24 | | 16 | | 14 |
| 1996 | 15 | 20 | 23 | 22 | | 14 | | 15 |
| 1993 | 18 | | 17 | | | | | 18 |
| 1992 | 19 | | | | | | | 19 |

***No Minimum Percent Good Intended***

**This table is intended for use in the mass appraisal of equipment when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

## CONSTRUCTION AND AGRICULTURAL EQUIPMENT VALUATION GUIDES

There are numerous valuation guides available that contain sale-derived market values of construction mobile equipment and agricultural mobile equipment. The appraiser should use these valuation guides in making the appraisal estimate when sufficient information regarding the equipment's make, model, etc., is available. The index factors from Table 3 and the percent good factors from Table 5 and Table 6 should be used when sufficient information cannot be obtained from value guides or other market information. Valuation guides that we are aware of are listed in Exhibit 2.A.

### EXHIBIT 2.A.: VALUATION GUIDES

| | | | |
|---|---|---|---|
| Agricultural | *The Official Tractor Blue Book*, Penton Media | 800-654-6776<br>913-967-7453 | www.buypenton.com |
| Agricultural | *Official Guide – Tractors and Farm Equipment*, Iron Solutions | 877-266-4766 | www.ironsolutions.com |
| Agricultural | *Farm Equipment Guide*, Heartland Ag Business Group | 800-673-4763 | www.hotlineguides.com |
| Construction | *Green Guide: Equipment Values*, Penton Media | 800-669-3282 | www.equipmentwatch.com |

# CHAPTER 3: VALUATION FACTORS

Valuation factors (Tables 7, 8, 9, 10, and 11) are intended to be applied directly to historical costs. The valuation factors for non-production computers (Table 7) were adopted by the Board in April 2009. The valuation factors for semiconductor manufacturing equipment and fixtures (Table 8) were adopted by the Board in October 2008. The valuation factors for biopharmaceutical industry equipment and fixtures (Table 9) were adopted by the Board in July 2008. The valuation factors for document processors (Table 10) and offset lithographic printing presses (Table 11) were adopted by the Board in December 2009.

## NON-PRODUCTION COMPUTER VALUATION FACTORS

The *Non-Production Computer Valuation Factors* table (Table 7) was adopted by the Board on April 15, 2009 (effective as of the lien date January 1, 2010). The valuation factors are intended to be applied directly to historical costs.

### DEFINITION

Non-production computers consist of: (1) general purpose computers; (2) general purpose computer peripherals; and (3) local area network (LAN) devices. General purpose computers contain a central processing unit and memory (be it volatile, fixed, on chips, on a disk, or a diskette), and run a stored program (software). General purpose computers can be programmed to do different kinds of tasks, rather than special purpose computers that are limited by design to a specific task. General purpose computers consist of mainframes, servers and microcomputers (desktops and laptops). General purpose computer peripherals consist of the auxiliary equipment which is designed to be placed under the control of a general purpose computer. General purpose computer peripherals include equipment such as monitors, keyboards, mouses, docking stations, printers, scanners, disk drives, tape drives, modems, wireless cards and web cameras. LAN devices are used to connect two or more general purpose computers, to store data and to facilitate data traffic in a network. LANs are usually contained in a single building (but equipment which is part of a LAN is not excluded merely because it is also part of a wide area network). LAN devices include equipment such as routers, computer network switches, hubs, virus protection equipment, and storage devices. Non-production computers do not include telecommunication equipment or lines (wire, fiber or other) used to connect LANs, computers embedded in machinery, and equipment or computers specifically designed for use in any other application directly related to manufacturing.

### CLASSIFICATION – NON-PRODUCTION COMPUTERS

Following is a list to serve as guidance in non-production computers. Personal computers should be reported on Schedule A, column 5a, of the Business Property Statement (BOE-571-L); local area network equipment should be reported on Schedule A, column 5b, of the Business Property Statement.

## Exhibit 3.A.: Non-Production Computers Classification Guidelines

| | |
|---|---|
| Desktops | External Storage Devices |
| Docking Stations | Hubs |
| Ink Jet Printers | Mainframes |
| Laptops | Network Attached Storage Devices |
| Laser Printers | Routers |
| Mini Towers | Servers |
| Monitors | Switches |
| Netbooks | |
| Notebooks | LAN Components, including but not limited to: |
| PC Power Supply | Network Disk & Tape Drives |
| Scanners | Network Fan Trays |
| Workstations | Network Memory |
| | Portable Storage Devices |
| | Network Power Supply |
| Does not include Multi-Functional Printers | Network Adaptors |
| | Network Interface Cards |
| | Network Processors |

## Table 7: Non-Production Computer Valuation Factors

| *Year Acquired* | *Age* | *PERSONAL COMPUTERS* | *LOCAL AREA NETWORK EQUIPMENT (PLUS MAINFRAME COMPUTERS)* |
|---|---|---|---|
| 2008 | 3 | 24 | 30 |
| 2007 | 4 | 15 | 19 |
| 2006 | 5 | 10 | 12 |
| 2003 | 8 | 2 | 3 |
| 2002 | 9 | 2 | 2 |

**Pursuant to Revenue and Taxation Code section 401.20, values determined by use of the valuation factors contained in Table 7 are rebuttably presumed to be the full cash value for non-production computer equipment. A county assessor or taxpayer has the right to present evidence supporting values different from those determined by use of Table 7 in order to attempt to overcome the presumption.**

# SEMICONDUCTOR MANUFACTURING EQUIPMENT AND FIXTURES VALUATION FACTORS

The *Semiconductor Manufacturing Equipment and Fixture Valuation* table (Table 8) was adopted by the Board on October 1, 2008 (effective as of the lien date January 1, 2009). Similar to the computer valuation factors, the semiconductor manufacturing equipment and fixture valuation factors are intended to be applied directly to historical costs.

The semiconductor machinery and equipment valuation factors are based on a 6-year economic life ***untrended***. A minimum valuation factor of 8 percent applies to machinery and equipment. The semiconductor fixtures valuation factors are based on a 10-year economic life ***trended***. A minimum percent good factor of 10 percent applies to the fixtures. The valuation factors include the minimum percent good and the trending.

## DEFINITION

*Semiconductor manufacturing equipment* consists of (1) manufacturing equipment used in a clean room for the fabrication of semiconductor chips; (2) test equipment used in the manufacturing and research and development environment and to test semiconductor manufacturing equipment; and (3) fixtures in place to support a semiconductor fabrication facility. This definition is not limited by the size of a semiconductor facility or the technology of the chips produced.

## CLASSIFICATION — SEMICONDUCTOR MANUFACTURING EQUIPMENT AND FIXTURES

Following is a list to serve as guidance in classifying machinery and equipment and fixtures in the semiconductor industry. Machinery and equipment should be reported on Schedule A-1 of the business property statement (BOE-571-L); fixtures should be reported on Schedule B-2.

Fixturization from the clean room or service bay wall or floor that is directly related to the installation of machinery and equipment should also be reported on Schedule A-1 and valued in the same manner as the machinery and equipment.

# Exhibit 3.B.: Semiconductor Manufacturing Equipment and Fixtures Classification Guidelines

| | |
|---|---|
| Annealing Equipment<br>Annealing Furnace<br>Asher, Dry Resist Removal<br>Atmospheric Pressure Chemical Vapor Deposition (APCVD)<br>Baking<br>Chemical Mechanical Planarization Equipment<br>Post CMP Clean Tool<br>Wafer Marking<br>Mark Reader<br>Back Grinder<br>Bump Plating<br>Tape Sticker/Peeler<br>Backside Etcher<br>Coater (Spin, Spray, Extrusion)<br>Columnated Sputtering<br>Compound Semiconductor Epitaxial Equipment<br>Contact Aligner<br>Developer<br>Diffusion Furnace<br>Dry Residue Removal<br>Drying Equipment (Spin Dryer, Spin Rinse Dryer) (SRD)<br>E-Beam Direct Write<br>EUV<br>Edge Bead Removal System<br>Electroplating (ECD) Equipment<br>Gas Etching<br>Hardening System, Resist Stabilizing Equipment<br>High Current<br>High Density Plasma Chemical Vapor Deposition (HDPCVD)<br>High Energy and Plasma Immersion<br>High Pressure Jet Cleaner<br>Holographic Mask Aligner, and Other Exposure Tools for Device Production Mask Aligner<br>IPA Dryer<br>Ion Beam Etching<br>Ion Beam Milling<br>Ion Milling<br>Ionized Sputtering<br>Laser Annealer<br>Long Throw Sputtering<br>Low Pressure Chemical Vapor Deposition (LPCVD)<br>Magnetically Enhanced (RIE) | Measuring and Analytical Instrumentation<br>AUGER<br>EPMA<br>ESCA<br>Failure Analysis Equipment (E-beam, Laser, FIBS, Atomic Force)<br>IR Life-time Measurement<br>Film Thickness Monitoring<br>Liquid/Gas/Air/Dust Counter<br>Particle Inspection<br>Reflection Measuring<br>Spectrophotometer<br>Medium Current<br>Megasonic and Ultrasonic Cleaning System<br>Metal Organic Chemical Vapor Deposition (MOCVD) Oxidation Furnace<br>Metal Organic Vapor Phase Epitaxy (MOVPE)<br>Molecular Beam Epitaxy (MBE)<br>Plasma Enhanced Chemical Vapor Deposition (PECVD)<br>Plasma Etching<br>Plasma Stripper<br>Processing Equipment<br>Projection Aligner<br>Projection Exposure System<br>Proximity Aligner<br>Rapid Thermal<br>Reactive Ion Etch (RIE)<br>Resist Development Analyzer<br>Resist Processing Tools for Device Production<br>Resist Stabilizing Equipment<br>SCALPEL<br>Silicon Epitaxial Growing Equipment<br>Spin-On Deposition Tools<br>Spin Processor, Wafer (Photoresist) Track Step-and-Scan<br>Sputter Etching<br>Stepping Projection Aligner<br>Supercritical Cleaning System<br>Surface Tension Dryer<br>Synchrotron Radiation (SR) Aligner<br>UV Photoresist Curing<br>Vacuum Evaporation Equipment (Aluminum and Gold Evaporators)Wafer Brush/Scrubber<br>Wafer Peripheral Exposure Equipment<br>Wet Bench (Immersion, Spray, Recirculators), Sink<br>Wet Etching Equipment<br>Wet Spin Etcher<br>X-ray Aligner<br>X-Ray Stepper |

| | |
|---|---|
| Acid Neutralization System | Gas and Chemical Vaults |
| Air Filtration System, HEPA Filters | Gas Monitoring System |
| Air Handlers | Liquid Waste, Storage and Treatment System |
| Air Recirculation Fans Central Utility Building (CUB) for the Process | Nitrogen and Oxygen Lines |
| Bulk Chemicals, Storage and Delivery System | Process Cooling Tower |
| Bulk Gas, Storage and Delivery Systems | Process Cooling Water |
| Chillers | Scrubbers (Fume Scrubbers) |
| Clean room HVAC Support system | Sodium Hydroxide Storage Tanks |
| Compressed Air Systems | Specialty Gases, Storage and Delivery System |
| Deionized Water Tanks and Piping | Storage Bunkers for Corrosives, Flammables, and Solvents |
| Electrical Substations | Sulfuric Acid Storage Tanks |
| | Water Purification System |

## Table 8: Semiconductor Manufacturing Equipment & Fixtures Valuation Factors

| *Year Acquired* | *Age* | *MACHINERY AND EQUIPMENT VALUATION FACTORS (Report on Schedule A-1)* | *FIXTURES VALUATION FACTORS (Report on Schedule B-2)* |
|---|---|---|---|
| 2009 | 2 | 61 | 83 |
| 2008 | 3 | 46 | 75 |
| 2007 | 4 | 34 | 70 |
| 2006 | 5 | 25 | 62 |
| 2004 | 7 | | |
| 2003 | 8 | 8 | 39 |
| 2002 | 9 | | 31 |
| 2001 | 10 | | 24 |
| 1999 | 12 | | 14 |
| 1998 | 13 | | 12 |
| 1997 | 14 | | 12 |
| 1996 | 15 | | |
| 1994 | 17 | | 12 |

**Pursuant to Revenue and Taxation Code section 401.20, values determined by use of the valuation factors contained in Table 8 are rebuttably presumed to be the full cash value for semiconductor manufacturing equipment and fixtures. A county assessor or taxpayer has the right to present evidence supporting values different from those determined by use of Table 8 in order to attempt to overcome the presumption.**

# BIOPHARMACEUTICAL INDUSTRY EQUIPMENT AND FIXTURES VALUATION FACTORS

The *Biopharmaceutical Industry Equipment and Fixtures Valuation* table (Table 9) was adopted by the Board in July 2008 (effective as of the lien date January 1, 2009). These factors are intended to be applied directly to the historical costs of property for each category.

## DEFINITION

*Biopharmaceutical Industry Equipment and Fixtures* consist of equipment and fixtures utilized in connection with, or in support of, research and/or manufacturing activities that use organisms, or materials derived from organisms, their cellular, subcellular, or molecular components, to discover and/or provide products for human or animal therapeutics, diagnostics, and/or vaccines.

## CLASSIFICATION — BIOPHARMACEUTICAL INDUSTRY EQUIPMENT AND FIXTURES

Following is a sample listing of the equipment and fixtures included in these schedules and categories. Other types of equipment (office equipment, computers, etc.) should be valued using the index factors and percent good factors or the valuation factors presented in the remainder of the handbook as appropriate.

### Exhibit 3.C.: Biopharmaceutical Industry Equipment and Fixtures Classification Guidelines

| | |
|---|---|
| Cell Fusion Devices | Molecular Imaging Equipment |
| Cell Sorting Instruments – FACS | Particle Counters and Analyzers |
| Chemstations – computer controlled | Peptide Synthesizers and Sequencers |
| Cryostats | Protein Synthesizers |
| Chromatography – Desktop | Scintillation Counters |
| Cytometry Instruments | Spectrometers |
| DNA Sequencers and Analyzers | Spectrophotometers |
| DNA Synthesizers and Purifiers | Thermal Analysis Instruments |
| Electrolyte Analyzers | Viscometers |
| Electron Scanning Microscopes | X-Ray Diffratometers |
| Electrophoresis – Gas or Liquid | Other unspecified equipment that is similar in character, scale, and technology |
| Mass Spectrometers – NMR, FTIR, AA, MALDI | |

| | |
|---|---|
| Analytical Balances | Incubators |
| Anesthetic Machines | Liquid Samplers |
| Animal Cages | Micromanipulators |
| Autoclaves | Microscopes |
| Autosamplers | Microtomes |
| Bacteria Identification Systems | Optical Scanning Detectors |
| Cameras used in research | Organic Synthesizers |
| Centrifuges (and rotors) | Osmometers |
| Chart Recorders | Ovens |
| Conductivity Monitors | pH Analyzers |
| Control Valves (laboratory scale) | Pipettes |
| Densitometers | Pumps (laboratory scale) |
| Digital Counters | Radiation Monitors |
| Evaporator | Reactor Vessels (<100 liters) |
| Fermentors (< 100 liters) | Refrigerators and Freezers |
| Fume Hoods (portable) | Sample Handling Equipment |
| Glass Handling Equipment | Samplers |
| Glassware Washers | Shakers |
| Glucose Analyzers | Sterilizers |
| Ice Machines | Stirrers |
| Imaging Equipment | Ultrasonic Cleaning Systems |
| | Waterbaths |

| | |
|---|---|
| Air Sampler | Commercial Scale Stainless Steel Tanks and Vessels |
| Clean Room Monitor | Custom Roller Bottle Apparatus |
| Commercial Scale Agitator | Equipment Skids |
| Commercial Scale Control Devices | Filter Housings, Stainless Steel |
| Commercial Scale Fermentation Tanks and Controls | Floor Scale |
| Commercial Scale Glycol System | Flow Meter |
| Commercial Scale Mix Tanks, Stainless Steel | Piping and tubing between Production Vessels |
| Commercial Scale Mixers | Roller Bottle Machine Capper |
| Commercial Scale Pumps | Roller Bottle Machine Unit |
| Commercial Scale Purification Vessels and Devices | Roller Racks |
| Commercial Scale RO Water Unit and System | Sanitary Valves (personal property) |
| | WFI Water Still |
| | Other Commercial Scale Control Devices |
| | Other Commercial Scale Tanks, Vessels, and Devices |

| | |
|---|---|
| Mobile Pilot Plants<br>Pilot Scale Fermentation Control<br>Pilot Scale Mixers<br>Pilot Scale Pumps and Hose Apparatus<br>Pilot Scale Purification Vessels and Devices | Skids<br>Small Fermentors (< 500 liters)<br>Small Scale Process Control Devices<br>Individual components aggregated into pilot scale manufacturing equipment systems |

| | |
|---|---|
| Benches and Counters, Built-in<br>Cabinets, Built-in<br>Casework, Metal<br>Casework, Wood<br>Clean In Place Equipment<br>Clean Room Air Ducts/Handlers<br>Clean Room Filter Units<br>Clean Room Fixtures, not specified<br>Clean Room Special Floor Surfaces<br>Cleanrooms<br>Electric supply systems unique to process<br>Emergency Generators (for process)<br>Feedwater System<br>Fiber optic communication systems (for process)<br>Fume Hoods (built-in) | HVAC systems and ductwork unique to process<br>Individual components aggregated into fixtures<br>Piping and plumbing related to process<br>RO, DI, WFI Water Piping<br>Safety Stations and First Aid Cabinets<br>Clean Room Special Wall Surfaces<br>Steam supply unique to process<br>Walk-in freezers and refrigerator units<br>Wall Cases, Built-in<br>Waste disposal equipment unique to process<br>Water supply systems unique to process (WFI)<br>Water, electric, and gas hook-ups to lab stations<br>Other items meeting the definition of a fixture as specified in Property Tax Rule 122.5 |

## Table 9: Biopharmaceutical Industry Equipment & Fixtures Valuation Factors

| *Year Acquired* | *Age* | SCHEDULE A | | | SCHEDULE B |
|---|---|---|---|---|---|
| | | *Machinery & Equipment (A-1)* | *Other Equipment (A-3)* | *Tools, Molds, Dies, Jigs (A-4)* | *Fixtures (B-2)* |
| 2008 | 3 | 55 | 76 | 68 | 76 |
| 2007 | 4 | 42 | 70 | 59 | 70 |
| 2006 | 5 | 30 | 62 | 49 | 62 |
| 2003 | 8 | 12 | 39 | 23 | 39 |
| 2002 | 9 | 12 | 31 | 16 | 31 |
| 2001 | 10 | 12 | 24 | 12 | 24 |
| Prior | Prior Years | 12 | 12 | 12 | 12 |

**Pursuant to Revenue and Taxation Code section 401.20, values determined by use of the valuation factors contained in Table 9 are rebuttably presumed to be the full cash value for biopharmaceutical industry equipment and fixtures. A county assessor or taxpayer has the right to present evidence supporting values different from those determined by use of Table 9 in order to attempt to overcome the presumption.**

# DOCUMENT PROCESSOR VALUATION FACTORS

The *Document Processor Valuation* table (Table 10) was adopted by the Board in December 2009 (effective as of the lien date January 1, 2010). These factors are intended to be applied directly to the historical costs. A 10 percent minimum valuation factor applies to devices beyond age 8.

## DEFINITION

*Document processors* consist of analog "light–lens" devices, as well as digital devices, which contain a document scanning system and a print controller. These include stand-alone copiers, and multifunction products (MFPs) that are capable of copying, scanning, printing, and faxing.

### Table 10: Document Processor Valuation Factors

| *Year Acquired* | *Age* | *Document Processors* |
|---|---|---|
| 2008 | 3 | 32 |
| 2007 | 4 | 28 |
| 2006 | 5 | 23 |
| 2003 | 8 | 13 |
| 2002 | 9 | 10 |
| 2001 | 10 | 10 |
| Prior | Prior Years | 10 |

**This table is intended for use in the mass appraisal of equipment when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered.**

## OFFSET LITHOGRAPHIC PRINTING PRESSES VALUATION FACTORS

The *Offset Lithographic Printing Presses Valuation* table (Table 11) was adopted by the Board in December 2009 (effective as of the lien date January 1, 2010). These factors are intended to be applied directly to the historical costs. A 10 percent minimum valuation factor applies to devices beyond age 13.

### DEFINITION

Offset lithography is a printing process in which the image area and the non-image area co-exist on the same plane, rather than raised (in the letterpress process) or etched (in the gravure process). The two basic varieties of offset lithography are sheet fed offset lithography and web offset lithography. The valuation factors are intended to be applied to sheet fed offset lithography printing presses.

The offset lithographic printing unit has three principal cylinders: a *plate cylinder*, to which the inked image on a plate is attached, a *blanket cylinder*, to which the offset blanket is attached, and an *impression cylinder*, which carries the paper through the printing unit and provides a solid surface against which the offset blanket can impress the image on the paper or other surface.

The valuation factors are not intended to be applied to plateless or non-impact printing presses (i.e., digital printing or quick printing) or web fed (continuous fed) printing presses. Additionally, the valuation factors are not intended to be applied to other equipment used in print production, such as "prepress" equipment (used to transform an original into a state that is ready for reproduction for printing) and "postpress" equipment (equipment used to finish or bind the printed material).

### TABLE 11: Offset Lithographic Printing Presses Valuation Factors

| *Year Acquired* | *Age* | *Offset Lithographic Printing Presses* |
|---|---|---|
| 2008 | 3 | 74 |
| 2007 | 4 | 66 |
| 2006 | 5 | 58 |
| 2003 | 8 | 37 |
| 2002 | 9 | 31 |
| 2001 | 10 | 23 |
| 1999 | 12 | 17 |
| 1998 | 13 | 13 |
| Prior | Prior Years | 10 |

**This table is intended for use in the mass appraisal of equipment when determining value for taxation purposes. However, relevant data pertinent to the assessment of a specific property should always be reviewed and considered**.

# CHAPTER 4: EXAMPLES

## USE OF COMMERCIAL INDEX AND PERCENT GOOD FACTORS

The following example demonstrates application of the index and percent good factors to estimate value for taxation purposes.

***Example 4.1: Estimating Value for Taxation Purposes of Office Furniture***

A taxpayer acquired office furniture for $5,000 in 2007. What is the estimated value for taxation purposes as of the January 1, 2011 lien date?

Step 1: Determine the appropriate index factor. As indicated below, the index factor is found in Table 1 under the Average column for 2007.

**TABLE 1: COMMERCIAL EQUIPMENT INDEX FACTORS**

| Year | Average |
|---|---|
| 2010 | 100 |
| 2009 | 100 |
| 2008 | 103 |
| **2007** | |

Step 2: Determine the appropriate percent good factor. The appraiser estimates that the average service life of the office furniture is 12 years; therefore, the appropriate percent good factor is found in Table 4, in the column with the heading "12 Years" as shown below.

**TABLE 4: MACHINERY AND EQUIPMENT PERCENT GOOD FACTORS**
INDIVIDUAL PROPERTIES—AVERAGE SERVICE LIFE
6.75% Rate of Return

| Year Acquired | AGE | 5 Years | 10 Years | **12 Years** | 15 Years | AGE | Year Acquired |
|---|---|---|---|---|---|---|---|
| 2010 | 1 | 81 | 92 | 94 | 95 | 1 | 2010 |
| 2009 | 2 | 62 | 83 | 87 | 90 | 2 | 2009 |
| 2008 | 3 | 45 | 75 | 80 | 85 | 3 | 2008 |
| **2007** | 4 | 29 | 66 | | 80 | 4 | **2007** |

Step 3: Determine the value for taxation purposes. As illustrated below, apply the factors to the historical cost of the office furniture. The factors (in Tables 1 and 4) are shown as percentages and must be converted to decimals in order to do the computation.

| Year of Acquisition | Cost | Index Factor | Reproduction Cost New | Percent Good | Value for Taxation Purposes |
|---|---|---|---|---|---|
| 2007 | $5,000 | | $5,300 | | $3,869 |

In summary, application of the index factor and the percent good factor to office furniture purchased in 2007 for $5,000 results in an estimated value for taxation purposes of $3,869 on lien date January 1, 2011. It is important to note that the percent good factor reflects only normal

depreciation. Additional value adjustments may be necessary if the property has experienced above- or below-normal loss in value. See *Guidelines for Substantiating Additional Obsolescence for Personal Property and Fixtures* (*Guidelines*) for a discussion on methods of recognizing and measuring additional obsolescence. The *Guidelines* are available on the Board's website at http://www.boe.ca.gov/proptaxes/pdf/lta10030.pdf.

## USE OF MAXIMUM RECOMMENDED EQUIPMENT INDEX FACTOR

Because rapid technological changes have taken place in recent years, Board staff recommends that appraisers use a maximum equipment index factor when valuing equipment. The recommended maximum factor is the factor for an age equal to 125 percent of the estimated average service life. The following example demonstrates the use of the 125 percent maximum.

***Example 4.2: Estimating the Maximum Recommended Equipment Index Factor***

- A taxpayer acquired warehouse equipment for $15,000 in 1993. What is the maximum recommended equipment index factor if this equipment has a 12 year average service life?
- Average service life of 12 years multiplied by the recommended 125 percent maximum equals 15 years (12 x 1.25 = 15) recommended maximum.
- Since the recommended maximum is 15 years, the appropriate index factor is the index factor corresponding to an item acquired in 1996 (2011 - 15). The index factor is 137 percent.
- Actual age of equipment on 2011 lien date is 18 years (2011 - 1993 = 18). Without using the recommended maximum, the index factor for 1993 is 148 percent.

**TABLE 1: COMMERCIAL EQUIPMENT INDEX FACTORS**

| Year | Average |
|---|---|
| 2010 | 100 |
| 2009 | 100 |
| 2008 | 103 |
| | |
| **1996** | |
| 1995 | 139 |
| 1994 | 144 |
| **1993** | |

The following table indicates the estimated reproduction cost new of the property using the maximum recommended index factor (1.37) and the index factor using the actual age (1.48). Application of the maximum recommended index factor results with an estimated reproduction cost new of $20,550 to reproduce the warehouse equipment purchased in 1993 for $15,000. Application of the index factor associated with the actual age of the property results with an estimated reproduction cost new of $22,200 to replace the warehouse equipment purchased in 1993 for $15,000. The example illustrates the difference in the estimate of reproduction cost new when the recommended maximum is not used.

| | Year of Acquisition | Cost | Index Factor | Reproduction Cost New |
|---|---|---|---|---|
| Maximum | 1996[9] | $15,000 | | $20,550 |
| Actual | 1993 | $15,000 | | $22,200 |

Use of the 125 percent limit is a recommendation. It is not intended to replace appraiser judgment. If the appraiser believes that using the 125 percent limit is inappropriate, the appraiser should provide a well-supported explanation of the reason for deviating from the recommendation.

## USE OF AGRICULTURAL EQUIPMENT INDEX AND PERCENT GOOD FACTORS

The following example demonstrates application of the agricultural index and percent good factors to estimate value for taxation purposes.

***Example 4.3: Estimating Value for Taxation Purposes of Agricultural Mobile Equipment Acquired New***

A taxpayer acquired a **new** tomato harvester for $100,000 in 2007. What is the estimated value for taxation purposes as of the January 1, 2011 lien date?

Step 1: Determine the appropriate index factor. As indicated below, the index factor is found in Table 3 under the Agricultural column for 2007.

**TABLE 3: AGRICULTURAL AND CONSTRUCTION EQUIPMENT INDEX FACTORS**

| YEAR | **Agricultural** | Construction |
|---|---|---|
| 2010 | 100 | 100 |
| 2009 | 102 | 100 |
| 2008 | 105 | 103 |
| **2007** | | 106 |

Step 2: Determine the appropriate percent good factor. The appropriate percent good factor is found in Table 6, in the column under the headings "Harvesters" and "New" as shown below.

[9] Actual year of acquisition is 1992. The year 1995 represents the recommended maximum.

## TABLE 6: AGRICULTURAL MOBILE EQUIPMENT PERCENT GOOD FACTORS

| Year Acquired | Age | AGRICULTURAL MOBILE EQUIPMENT | | | | | | Age |
|---|---|---|---|---|---|---|---|---|
| | | EXCEPT HARVESTERS | | | **HARVESTERS** | | | |
| | | New | Used | Average | **New** | Used | Average | |
| | | | | | | | | |
| 2009 | 2 | 70 | 82 | 76 | 64 | 78 | 71 | 2 |
| 2008 | 3 | 64 | 75 | 70 | 57 | 69 | 63 | 3 |
| **2007** | 4 | 58 | 68 | 63 | | 60 | 55 | 4 |

Step 3: Determine the value for taxation purposes. As illustrated below, apply the factors to the historical cost of the tomato harvester. The factors (in Tables 3 and 6) are shown as percentages and must be converted to decimals in order to do the computation.

| Year of Acquisition | Cost | Index Factor | Reproduction Cost New | Percent Good | Value for Taxation Purposes |
|---|---|---|---|---|---|
| 2007 | $100,000 | | $110,000 | | $55,000 |

In summary, application of the index factor and the percent good factor to a tomato harvester purchased new in 2007 for $100,000 results in an estimated value for taxation purposes of $55,000 on lien date January 1, 2011.

## USE OF VALUATION FACTORS

AH 581 includes valuation factors for computer equipment, semiconductor manufacturing equipment and fixtures, biopharmaceutical industry equipment and fixtures, document processors, and offset lithographic printing presses. Valuation factors are intended to be applied directly to historical cost. The following example demonstrates application of the valuation factors to the estimate full cash value of computer equipment.

### *Example 4.4: Estimating Full Cash Value of Computer Equipment*

A taxpayer acquired Local Area Network (LAN) equipment for $25,000 in 2008. What is the full cash value as of the January 1, 2011 lien date?

Step 1: Determine the valuation factor. As indicated below, the valuation factor is found in Table 7 under Local Area Network Equipment (Plus Mainframe Computers) column for 2008.

**TABLE 7: COMPUTER VALUATION FACTORS**

| Year Acquired | Age | PERSONAL COMPUTERS | LOCAL AREA NETWORK EQUIPMENT (PLUS MAINFRAMES) |
|---|---|---|---|
| 2010 | 1 | 54 | 73 |
| 2009 | 2 | 39 | 47 |
| **2008** | 3 | 24 | |

Step 2: Determine the full cash value. As illustrated below, apply the factor to the historical cost of the Local Area Network equipment. The factors (in Tables 7) are shown as percentages and must be converted to decimals in order to do the computation.

| Year of Acquisition | Cost | Valuation Factor | Full Cash Value |
|---|---|---|---|
| 2008 | $25,000 | | $7,500 |

In summary, application of the valuation factor to LAN equipment purchased in 2008 for $25,000 results with a full cash value of $ 7,500 on lien date January 1, 2011.

# CHAPTER 5: VALUATION FACTOR STUDIES

The factors contained in this handbook section are updated for each January 1 lien date when current market data becomes available that indicate that the factor(s) should be adjusted. Interested parties may provide data to Board staff via a petition[10] in support of changing factors contained in this handbook.

## OVERVIEW

Section 401.5 of the Revenue and Taxation Code requires that the Board issue to county assessors data relating to costs of property and other information to promote uniformity in appraisal practices and in assessed values throughout the state. In an effort to comply with section 401.5, the Board annually publishes Assessors' Handbook Section 581, *Equipment Index and Percent Good Factors* (AH 581). Prior to January 1, 2010, AH 581 contained tables of valuation factors for non-production computer equipment, semiconductor manufacturing equipment, and biopharmaceutical industry equipment and fixtures. In June 2008, the Board directed staff to develop further valuation factors for AH 581 by conducting valuation studies for various industries that petition Board staff for a study of their industry property/equipment.

The purpose of these procedures is to provide guidelines to interested parties in identifying, gathering, and verifying data to submit to Board staff for the purpose of conducting a valuation study of their tangible personal property/equipment. The goal of interested parties is to provide enough quality data to enable Board staff to develop valuation factors that the local county assessors can apply to the historical cost of property/equipment in determining the fair market value for property tax purposes. Depending on the type and scope of a study, the data and source participants will vary.

Generally, there are two types of valuation studies for ad valorem personal property tax purposes: *industry group* and *assets specific*. *Industry group* studies involve a group of assets that are deployed within a particular industry. Biopharmaceutical equipment and semiconductor manufacturing equipment are examples of industry group types. *Asset specific* studies have a very narrow scope and involve assets that are typically owned by a diverse set of property owners and can be found in many operational settings. Computers and copiers are examples of asset specific types.

The findings of a study will be determined by the analysis of market data and will not be influenced by opinions of either industry or counties. Once a study has begun and sufficient quality market data has been received by Board staff, the study will be completed, even in the event that the original petitioner decides to withdraw their petition.

[10] The petition and procedures for property tax valuation factor studies were adopted by the Board on September 17, 2008.

# MARKET DATA

The successful outcome of a study will be completely dependent on the availability of good market data. The industry will be expected to provide verifiable market data in a sufficient quantity to be statistically representative of the property/equipment within the industry.

Market data submitted must include the following fields (see Table 1 below):

- Make
- Model name
- Model number
- Description
- Configuration
- Serial number
- Manufacture date, ship date, or acquisition date
- Price sold to end user and date of sale
- Discount price new

**Table 1**

| MAKE | MODEL NAME | MODEL NUMBER | DESCRIPTION | CONFIGURATION | SERIAL NUMBER | DISCOUNT PRICE NEW DATE[1] | DISCOUNT PRICE NEW | DATE SOLD TO END USER[2] | PRICE SOLD TO END USER |
|---|---|---|---|---|---|---|---|---|---|

[1] The decision as to what date to provide for the purpose of establishing vintage age is driven by the available data and the source of the data. If, for example, you are receiving price sold to the end user along with a full description of the asset from an industry reseller and you have received cooperation from the manufacturer, the manufacturer can provide ship dates. Another example is where you are able to obtain the used sales prices to items listed on a fixed asset listing (FAL). (When using this method, take care to avoid items on a FAL that were purchased used.) In this case, you will provide the acquisition date listed on the FAL.

[2] Enter the date of the related subsequent market transaction that corresponds to the price sold to the end user. Market data related to price sold to end user should be limited to a 12-month period. When your petition is approved, Board staff will provide you with the 12-month range.

If the reseller incurred refurbishing costs in readying equipment for sale to the end user, you should include a field for refurbishing costs and provide the refurbishing costs for the related market transactions.

Discount price new and price sold to end user should contain the same components (for example, installation cost, sales tax, and transportation cost). Ideally, discount price new and price sold to end user should only contain the price of the property/equipment.

## CONFIDENTIALITY OF DATA

Government Code section 15619 prohibits divulgence of information obtained by Board of Equalization employees. Section 15619 provides, in part:

> Any member or ex-member of the State Board of Equalization, or any agent employed by it, or the Controller, or ex-Controller, or any person employed by him or her, or any person who has at any time obtained such knowledge from any of the foregoing officers or persons shall not divulge or make known in any manner not provided by law, any of the following items of information concerning the business affairs of companies reporting to the board:
>
> (a) Any information concerning the business affairs of any company that is gained during an examination of its books and accounts or in any other manner, and is not required by law to be reported to the State Board of Equalization.
>
> (b) Any information, other than the assessment and the amount of taxes levied, obtained by the State Board of Equalization in accordance with law from any company other than one concerning which that information is required by law to be made public.
>
> (c) Any particular item of information relating to the disposition of its earnings contained in the report of a quasi-public corporation that the corporation, by written communication specifying the items and presented at the time when it files its report, requests shall be treated as confidential.

Accordingly, all data obtained from industry in the course of a valuation study will be held confidential and will not be made available to competitors or counties. When Board staff provides results of their analysis of data during and at the conclusion of a study, the data will be masked and/or arrayed in a manner that will preclude identification of the source of any specific data.

## INDUSTRY GROUP STUDIES

### MARKET DATA FOR GROUP STUDIES

See the section *Market Data* above for an expanded discussion and required formatting parameters for market data. For an industry group type study, provide the most current FAL for the companies you listed in your petition (form BOE-401). The FAL will permit you and Board staff to identify classes of assets and to determine the distribution of investments over time. Only through this analysis can Board staff identify the classes, distribution, and volume of market data needed for your study. You should submit this item soon after your petition has been approved. The FAL should include the following fields:

- General ledger account number
- Asset number
- Description
- Serial number
- Location code
- Acquisition date
- Acquisition cost

Additionally, you will be required to provide:

- Descriptions of each general ledger account
- A schedule describing the location codes

The FAL should correspond to the general ledger. These accounting records will be subject to audit by Board staff. Full cooperation of the industry group is a condition of your study's success.

Once Board staff has analyzed your accounting records, you will be notified of the different asset classes and the amount of market data you must obtain. Board staff will provide you with specific information regarding the market data needed, which should eliminate the collection of unnecessary or redundant data.

### ACCOUNTING RECORDS FOR ECONOMIC LIFING STUDY

If you are requesting that Board staff conduct an economic lifing study, you should be prepared to provide FAL's for the most current seven years for each of the companies listed in your petition. Each of the FAL's should contain:

- General ledger account number
- Asset number
- Description
- Serial number
- Location code
- Acquisition date
- Acquisition cost

Additionally, you will be required to provide:

- Descriptions of each general ledger account

- A schedule describing the location codes
- End of year (whether fiscal or calendar) general ledger balances that correspond to the FAL

## ASSET SPECIFIC STUDIES

### MARKET DATA FOR ASSET SPECIFIC STUDIES

See the section *Market Data* above for an expanded discussion and required formatting parameters for market data. Market data for asset specific type studies should reflect the market (according to market share). Therefore, immediately after your petition is approved, the industry representative should submit to Board staff a schedule of market share according to manufacturer for each year dating back seven years. Sources of data should be representative of the users of the property/equipment in California.

Once Board staff has analyzed the market share information, you will be notified of the amount of market data that must be submitted to Board staff.

### ACCOUNTING RECORDS FOR ECONOMIC LIFING STUDY

If you are requesting that Board staff conduct an economic lifing study, you should be prepared to provide FAL's for the most current seven years from a wide variety of companies. Each of the FAL's should contain:

- General ledger account number
- Asset number
- Description
- Serial number
- Location code
- Acquisition date
- Acquisition cost

Additionally, you will be required to provide:

- Descriptions of each general ledger account
- A schedule describing the location codes
- End of year (whether fiscal or calendar) general ledger balances that correspond to the FAL

## VERIFICATION OF DATA

### ACCOUNTING RECORDS

Prior to submitting a FAL, industry should verify that the FAL corresponds to the general ledger amounts. After Board staff reviews the accounting records submitted, Board staff may elect to

audit the accounting records. The industry participants should be fully aware of this requirement and be prepared to cooperate in a timely manner. The lack of cooperation or delays in responding to Board staff requests can negatively impact the process and ultimately may lead to the termination of the study.

### MARKET DATA

Industry should be able to verify each field in the market data by way of a source document, such as an invoice. Price sold to the end user can be obtained from industry resellers and from companies within the industry that have sold directly to an end user. In each case, the invoice of the transaction should be available for inspection by Board staff. Discount price new may prove to be the most difficult to obtain. If, for example, you are able to match used price sold to the end user to discount price new reflected on a FAL, the invoice for that item listed on the FAL should be available. Make sure that the descriptions of your matches are of such detail to reasonably conclude that both items are the same make, model, and configuration. Matching configurations is the most difficult step of this task depending upon the sophistication of the equipment. When obtaining data on the price to the end user, ensure that you obtain all of the fields outlined in Table 1 above for each line item. Failure to secure the necessary fields may render your used price to the end user invalid.

## TIMELINE FOR SUBMITTING DATA

Once a petition has been accepted, the industry will be provided with a timeline for their study which will include specific times to submit accounting records and, after analysis of the accounting records, when market data must be submitted. Generally, a maximum of six months will be allowed for industry to provide sufficient, quality data in order for the study to move forward. If industry does not produce the required data timely, the study will be terminated.

## PETITION

A petition, BOE Form 401, *Petition to Conduct Property Tax Valuation Study*, may be downloaded from the Board's website at www.boe.ca.gov/proptaxes/proptax.htm.

# APPENDIX A: CLASSIFICATION OF IMPROVEMENTS AS STRUCTURE ITEMS OR FIXTURES

The intent of the following listing is to classify property without regard to ownership. The listing does not necessarily indicate appraisal responsibility by a real property appraiser or an auditor–appraiser. It should be used as a guide for classifying improvements reported on Schedule B of the business property statement.

Section 122.5 of Title 18 of the California Code of Regulations (Property Tax Rule 122.5) provides a definition of "fixtures" and is controlling. For ease of use, the general concepts used as a basis for the segregation of improvements to "structure item" or "fixtures" categories are as follows.[11]

**Primary Test**

Rule 122.5(d) states that "…Intent is the primary test of classification." To determine intent the appraiser should look to what is "reasonably manifested by outward appearance."

**Structure Item**

An improvement will be classified as a "structure item" when its primary use or purpose is for housing or accommodation of personnel, personalty, or fixtures; or when the improvement has no direct application to the process or function of the trade, industry, or profession.

**Fixture**

An improvement will be classified as a "fixture" if its use or purpose directly applies to or augments the process or function of a trade, industry, or profession.

**Dual Purpose**

Items that have a dual purpose will be classified according to their primary purpose.

**Examples**

The following pages list a variety of improvements and their typical classifications as structure items or fixtures. It must be emphasized that the listing is illustrative as a guide only. Proper classification as a fixture or structure item is determined according to the actual use or purpose of the property.

[11] See also Assessors' Handbook Section 504, *Assessment of Personal Property and Fixtures*, for additional information.

Air conditioning—office and building cooling

Auxiliary power generation equipment—for building purposes

Awnings

Batch plants—buildings, fences, paving, yard lights, and spur tracks

Boilers—office and building heating

Building renovations

Butane and propane installations—used for heating buildings

Car washes—all buildings, canopies, interior and exterior walls, fences, paving, and normal plumbing

Carpets and floor coverings affixed to floor—wall-to-wall carpeting and specially installed strip or area carpeting, tile, terrazzo coverings

Central heating and cooling plants

Chutes—built-in

Coin-operated laundries—restroom, sanitary plumbing fixtures

Conveyors—for moving people

Cooling towers—other than used in a trade or production process

Crane ways

Dock elevators

Elevators—including machinery and power wiring

Air conditioning—process cooling

Air lines

Auxiliary power generation equipment—for trade or production purposes

Back bars

Batch plant—scales, silos, hoppers, bins, machinery

Boilers—for manufacturing process

Bowling lanes

Burglar alarm systems

Butane and propane installations—used for trade or production purposes

Car washes—special plumbing, wiring, and car washing equipment

Compressors—air

Conveyors—for moving materials and products

Cooling towers—used in a trade or production process

Counters

Cranes—traveling

Environmental control devices—used in the production process

Fans and ducts—used for processing

Environmental control devices—if an integral part of the structure

Escalators

External window coverings

Fans and ducts—which are part of an air circulation or exhaust system for the building

Fences—outside of building

Flagpoles

Heating—boilers—used in office or building heating

Kiosk—permanently attached

Movie sets—which are a complete building

Paint spray rooms—if an integral part of the building

Parking lot gates

Partitions—floor to ceiling

Pipelines and pipe supports—used to convey air, water, steam, oil, or gas to operate the facilities in a building

Pits—not used in the trade or process

Pneumatic tube systems

Radiators—steam

Railroad spurs

Refrigeration systems—that are an integral part of the building

Fences and railings—inside of buildings

Furnaces—process

Furnishings—built-in, i.e., wall-hung desks

Heating—boilers—for the manufacturing process

Hoists

Incinerators—commercial and industrial

Ice dispensers—coin operated

Kilns—beehive, tunnel, or cylinder type, and equipment

Kilns—lumber

Laundromat—plumbing, wiring, and concrete work for equipment

Lighting fixtures—lighting associated with a commercial or industrial process

Machinery foundations and pits—not part of normal flooring or foundation

Miniature golf courses

Movie sets—which are not a complete building

Ovens

Paint spray booths

Partitions—annexed—less than floor to ceiling

Pipelines and pipe supports—used to convey air, water, steam, oil, or gas to equipment used in the production process

Refrigerators—walk in—which are an integral part of the building—excluding operating equipment

Restaurants—rough plumbing to fixtures

Renovations to building structures

Security—Banks and Financial
- Fire alarm systems
- Safes-embedded
- Night depository –(if an integral part of the building)
- Teller cages
- Vault alarm system
- Vaults

Service stations—canopies, paving, sign, pylons

Shelving—originally designed as an integral part of the building

Shielded or clean rooms—if an integral part of the building

Signs—include supporting structure, which forms an integral part of the building, including sign blades, pylons, or marquee structures serving as canopies. Exclude sign cabinet (face) and lettering

Silos or tanks—whose primary function or intent is to store property for a time period, such as storage tank farms and grain and liquid petroleum storage facilities

Smog control devices—when attached to incinerator or building heating plant

Pits—used as wine and sugar clarifiers, skimming pits, grease pits, sump pits, and pits used to house machinery in the manufacturing

Plumbing—special purpose

Power wiring, switch gear, and power panels—for manufacturing process

Refrigeration systems—that are not an integral part of the building

Refrigerators—walk in—unitized—including operating equipment

Restaurant equipment—plumbing fixtures, stainless steel or galvanized sinks in kitchens, bars, soda fountains, garbage disposals, dishwashers, hoods, etc.

Roller skating surface

Scales—including platform and pit

Security—Banks and Financial
- Cameras (surveillance)—attached to walls or columns
- Drive-up and walk-up windows—unitized security type
- Night depository –(if not an integral part of the building)
- Man traps
- Vault doors

Service Stations—gasoline storage tanks, pumps, air and water wells

Sprinkler systems—where primary function is the protection of a building or structure

Store fronts

Television and radio antenna towers

Trout ponds—concrete

Theaters—drive-in—buildings, screen and structures, fencing, paving, lighting

Water systems at golf courses

Shelving—other than that which is an integral part of the building

Shielded or clean rooms—if not an integral part of the building

Signs—sign cabinets and free standing signs, including supports

Silos or tanks—whose primary function is as part of a process, including temporary process holding such as breweries or refineries

Ski lifts, tows, trams

Sky slides

Smog control devices—attached to process device

Theaters—auditorium equipment—seating, screens, stage equipment, sound, lighting, and projection

Theaters—drive in—heater and speaker uprights, wiring and units, projection equipment, signs

Trash compactors and paper shredders

Wash basins—special purpose water softeners for commercial or industrial purposes