State of California

Board of Equalization
Property and Special Taxes Department

Memorandum

To: Honorable Jerome E. Horton, Chairman
Honorable Michelle Steel, Vice Chair
Honorable Betty T. Yee, First District
Senator George Runner (Ret.), Second District
Honorable John Chiang, State Controller

Date: November 4, 2011

From: David J. Gau, Deputy Director
Property and Special Taxes Department

Subject: ***Board Meeting, November 2011—Item N—Administrative Session***
Assessors' Handbook Section 581, Equipment and Fixtures Index, Percent Good and Valuation Factors

I am requesting that Assessors' Handbook Section 581, *Equipment and Fixtures Index, Percent Good and Valuation Factors,* be approved for publication. Revenue and Taxation Code section 401.5 requires that the Board issue to county assessors information that will promote uniformity in assessed values throughout the state. Pursuant to that mandate, staff developed the January 2012 version of AH 581 which contains current tables of equipment index, percent good, and valuation factors that will aid in the mass appraisal of various types of personal property and fixtures. Also included are valuation factors for:

- Nonproduction computers (adopted by the Board in April 2009);
- Semiconductor manufacturing equipment and fixtures (adopted by the Board in October 2008);
- Biopharmaceutical industry equipment and fixtures (adopted by the Board in July 2008);
- Document processors (adopted by the Board in December 2009); and
- Offset printing presses (adopted by the Board in December 2009).

Please place this item on the Board's November 2011 Administrative Session Agenda for approval.

DJG:sk
Attachment
cc: Ms. Diane Olson

Approved:

Kristine Cazadd
Executive Director

Board Approved:

Diane G. Olson, Chief
Board Proceedings Division

ASSESSORS' HANDBOOK
SECTION 581

EQUIPMENT AND FIXTURES INDEX, PERCENT GOOD AND VALUATION FACTORS

JANUARY 2012

(USE FOR LIEN DATE JANUARY 1, 2012)

CALIFORNIA STATE BOARD OF EQUALIZATION

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KRISTINE CAZADD, EXECUTIVE DIRECTOR

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, 5 and 6) 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 2012 lien date, January 1, 2012. 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.

David J. Gau
Deputy Director
Property and Special Taxes Department
California State Board of Equalization
January 2012

[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

2011 Cost = 100	
Year	***Average***
2011	100
2010	104
2009	103
2008	106
2007	110
2006	115
2005	120
2004	128
2003	132
2002	134
2001	135
2000	136
1999	138
1998	139
1997	140
1996	142
1995	144
1994	149
1993	153
1992	157
1991	159
1990	162
1989	166
1988	175
1987	182
1986	185
1985	187
1984	190
1983	196
1982	200
1981	209
1980	230
1979	250
1978	273
1977	294
1976	308
1975	327
1974	361
1973	415
1972	430

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 1.A.: INDUSTRY CLASSES

Industry Class	Description
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.

Industry Class	Description
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.

Industry Class	Description
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

2011 Cost = 100	
Year	***Average***
2011	100
2010	103
2009	103
2008	104
2007	108
2006	111
2005	115
2004	119
2003	123
2002	123
2001	123
2000	124
1999	125
1998	126
1997	128
1996	130
1995	132
1994	136
1993	139
1992	141
1991	144
1990	148
1989	152
1988	159
1987	166
1986	169
1985	171
1984	176
1983	180
1982	184
1981	193
1980	213
1979	237
1978	261
1977	284
1976	304
1975	323
1974	376
1973	444
1972	462

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

2011 Cost = 100

Year	*Agricultural*	*Construction*
2011	100	100
2010	103	104
2009	105	104
2008	109	107
2007	114	110
2006	117	113
2005	120	118
2004	126	125
2003	130	130
2002	132	131
2001	134	133
2000	136	134
1999	138	135
1998	139	137
1997	141	140
1996	143	142
1995	147	145
1994	153	148
1993	157	150
1992	162	154
1991	167	158
1990	172	163
1989	178	169
1988	186	177
1987	191	182
1986	192	186
1985	193	188
1984	194	191
1983	200	194
1982	209	198
1981	226	213
1980	251	236
1979	281	266
1978	306	293
1977	329	319
1976	356	343
1975	386	369
1974	453	448
1973	517	522
1972	533	542

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—6.25 % 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
2011	1	67	75	**81**	84	87	89	90	**92**	93	93	94	95	**95**	96	96	**97**	97	**98**	**98**	**99**	**99**	1	2011
2010	2	37	52	**62**	69	74	78	81	**83**	85	87	88	89	**90**	92	92	**94**	95	**96**	**97**	**98**	**98**	2	2010
2009	3	16	32	**44**	54	61	66	71	**74**	77	80	82	83	**85**	87	88	**90**	92	**93**	**95**	**96**	**97**	3	2009
2008	4	6	17	**29**	40	48	55	61	**65**	69	72	75	77	**80**	83	84	**87**	89	**91**	**93**	**95**	**96**	4	2008
2007	5		8	**17**	27	37	45	51	**57**	61	65	69	71	**74**	78	80	**83**	85	**88**	**92**	**94**	**95**	5	2007
2006	6		3	**10**	18	26	35	42	**48**	53	58	62	65	**69**	74	76	**79**	82	**86**	**90**	**92**	**94**	6	2006
2005	7			**5**	11	18	26	33	**40**	46	51	55	59	**63**	69	71	**75**	79	**83**	**88**	**91**	**93**	7	2005
2004	8			**1**	7	12	19	26	**32**	39	44	49	53	**57**	64	67	**72**	76	**80**	**86**	**90**	**92**	8	2004
2003	9				3	8	13	19	**26**	32	38	43	48	**52**	59	62	**68**	72	**77**	**84**	**88**	**91**	9	2003
2002	10					4	10	14	**20**	25	31	37	42	**46**	54	58	**64**	68	**74**	**82**	**86**	**90**	10	2002
2001	11					1	6	11	**15**	21	26	31	36	**41**	49	53	**60**	65	**71**	**79**	**85**	**89**	11	2001
2000	12						3	8	**12**	16	21	26	31	**36**	45	48	**55**	61	**68**	**77**	**83**	**87**	12	2000
1999	13							4	**9**	13	17	22	26	**31**	40	44	**51**	58	**65**	**75**	**81**	**86**	13	1999
1998	14							2	**6**	10	13	17	22	**27**	35	39	**47**	54	**62**	**72**	**79**	**85**	14	1998
1997	15								**3**	7	11	14	18	**23**	31	35	**43**	50	**59**	**70**	**78**	**83**	15	1997
1996	16								**1**	5	8	12	15	**19**	27	31	**39**	46	**56**	**67**	**76**	**82**	16	1996
1995	17									2	6	9	12	**16**	24	28	**36**	43	**52**	**65**	**74**	**80**	17	1995
1994	18										4	7	10	**14**	20	24	**32**	39	**49**	**62**	**72**	**79**	18	1994
1993	19										1	5	8	**11**	17	21	**29**	36	**46**	**60**	**70**	**77**	19	1993
1992	20											2	6	**9**	15	18	**25**	32	**43**	**57**	**67**	**75**	20	1992
1991	21												4	**7**	13	16	**23**	29	**40**	**54**	**65**	**74**	21	1991
1990	22												2	**5**	11	14	**20**	27	**37**	**51**	**63**	**72**	22	1990
1989	23													**3**	9	11	**18**	24	**34**	**49**	**61**	**70**	23	1989
1988	24													**1**	7	10	**16**	21	**31**	**46**	**59**	**68**	24	1988
1987	25														5	8	**14**	19	**28**	**43**	**56**	**66**	25	1987
1986	26														3	6	**12**	17	**26**	**41**	**54**	**65**	26	1986
1985	27														1	5	**10**	15	**23**	**38**	**52**	**63**	27	1985
1984	28															2	**9**	13	**21**	**36**	**49**	**61**	28	1984
1983	29															1	**7**	11	**19**	**33**	**47**	**59**	29	1983
1982	30																**5**	10	**18**	**31**	**44**	**57**	30	1982
1981	31																**3**	8	**16**	**29**	**42**	**54**	31	1981
1980	32																**2**	7	**15**	**26**	**40**	**53**	32	1980
1979	33																	5	**13**	**25**	**38**	**50**	33	1979
1978	34																	3	**12**	**23**	**36**	**49**	34	1978
1977	35																	2	**10**	**21**	**34**	**46**	35	1977
1976	36																		**8**	**20**	**31**	**44**	36	1976
1975	37																		**6**	**18**	**29**	**42**	37	1975
1974	38																		**5**	**16**	**28**	**41**	38	1974
1973	39																		**3**	**16**	**26**	**38**	39	1973
1972	40																		**2**	**14**	**25**	**37**	40	1972

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*
2011	1	74	91	83
2010	2	66	81	74
2009	3	60	74	67
2008	4	55	68	62
2007	5	51	62	57
2006	6	47	58	53
2005	7	42	52	47
2004	8	38	47	43
2003	9	35	43	39
2002	10	31	38	35
2001	11	28	34	31
2000	12	26	32	29
1999	13	24	29	27
1998	14	22	27	25
1997	15	20	25	23
1996	16	19	23	21
1995	17	16	20	18
1994	18	13	17	15
1993	19	12	13	13
1992	20	11	11	11
1991	21		9	

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*	
2011	1	78	92	85	74	90	82	1
2010	2	70	82	76	64	78	71	2
2009	3	64	75	70	57	69	63	3
2008	4	58	68	63	50	60	55	4
2007	5	52	62	57	43	53	48	5
2006	6	47	56	52	38	46	42	6
2005	7	42	50	46	33	40	37	7
2004	8	38	45	42	29	35	32	8
2003	9	34	40	37	25	30	28	9
2002	10	30	36	33	21	26	24	10
2001	11	27	32	30	19	23	21	11
2000	12	25	30	28	17	21	19	12
1999	13	23	28	26	15	18	17	13
1998	14	22	26	24		16		14
1997	15	20	23	22		14		15
1996	16	18	21	20		14		16
1995	17		19					17
1994	18		17					18
1993	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

Equipment Type	Name of Publication	Telephone Number	Internet Address
Agricultural	*The Official Tractor Blue Book*, Penton Media	800-262-1954 913-967-1719	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

PERSONAL COMPUTERS (Schedule A, column 5a)	*LOCAL AREA NETWORK EQUIPMENT (Schedule A, column 5b)*
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)*
2011	1	54	73
2010	2	39	47
2009	3	24	30
2008	4	15	19
2007	5	10	12
2006	6	6	8
2005	7	4	5
2004	8	2	3
2003	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

Machinery and Equipment (A-1)	
Annealing Equipment Annealing Furnace Asher, Dry Resist Removal Atmospheric Pressure Chemical Vapor Deposition (APCVD) Baking Chemical Mechanical Planarization Equipment Post CMP Clean Tool Wafer Marking Mark Reader Back Grinder Bump Plating Tape Sticker/Peeler Backside Etcher Coater (Spin, Spray, Extrusion) Columnated Sputtering Compound Semiconductor Epitaxial Equipment Contact Aligner Developer Diffusion Furnace Dry Residue Removal Drying Equipment (Spin Dryer, Spin Rinse Dryer) (SRD) E-Beam Direct Write EUV Edge Bead Removal System Electroplating (ECD) Equipment Gas Etching Hardening System, Resist Stabilizing Equipment High Current High Density Plasma Chemical Vapor Deposition (HDPCVD) High Energy and Plasma Immersion High Pressure Jet Cleaner Holographic Mask Aligner, and Other Exposure Tools for Device Production Mask Aligner IPA Dryer Ion Beam Etching Ion Beam Milling Ion Milling Ionized Sputtering Laser Annealer Long Throw Sputtering Low Pressure Chemical Vapor Deposition (LPCVD) Magnetically Enhanced (RIE)	Measuring and Analytical Instrumentation AUGER EPMA ESCA Failure Analysis Equipment (E-beam, Laser, FIBS, Atomic Force) IR Life-time Measurement Film Thickness Monitoring Liquid/Gas/Air/Dust Counter Particle Inspection Reflection Measuring Spectrophotometer Medium Current Megasonic and Ultrasonic Cleaning System Metal Organic Chemical Vapor Deposition (MOCVD) Oxidation Furnace Metal Organic Vapor Phase Epitaxy (MOVPE) Molecular Beam Epitaxy (MBE) Plasma Enhanced Chemical Vapor Deposition (PECVD) Plasma Etching Plasma Stripper Processing Equipment Projection Aligner Projection Exposure System Proximity Aligner Rapid Thermal Reactive Ion Etch (RIE) Resist Development Analyzer Resist Processing Tools for Device Production Resist Stabilizing Equipment SCALPEL Silicon Epitaxial Growing Equipment Spin-On Deposition Tools Spin Processor, Wafer (Photoresist) Track Step-and-Scan Sputter Etching Stepping Projection Aligner Supercritical Cleaning System Surface Tension Dryer Synchrotron Radiation (SR) Aligner UV Photoresist Curing Vacuum Evaporation Equipment (Aluminum and Gold Evaporators)Wafer Brush/Scrubber Wafer Peripheral Exposure Equipment Wet Bench (Immersion, Spray, Recirculators), Sink Wet Etching Equipment Wet Spin Etcher X-ray Aligner X-Ray Stepper

Fixtures (B-2)	
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)*
2011	1	78	92
2010	2	61	85
2009	3	46	76
2008	4	34	68
2007	5	25	61
2006	6	18	53
2005	7	12	46
2004	8	8	39
2003	9		32
2002	10		25
2001	11		19
2000	12		14
1999	13		13
1998	14		13
1997	15		13
1996	16		13
1995	17		13

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

Machinery and Equipment (A-1) ***Lab Equipment***	
Hi-Tech Analytical Instruments	
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	

Machinery and Equipment (A-1) ***Lab Equipment***	
General Laboratory Equipment	
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

Other Equipment (A-3) ***Commercial Manufacturing Equipment***	
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

Tools, Molds, Dies, Jigs (A-4) ***Pilot Scale Manufacturing Equipment***	
Mobile Pilot Plants	Skids
Pilot Scale Fermentation Control	Small Fermentors (< 500 liters)
Pilot Scale Mixers	Small Scale Process Control Devices
Pilot Scale Pumps and Hose Apparatus	Individual components aggregated into pilot scale manufacturing equipment systems
Pilot Scale Purification Vessels and Devices	

Fixtures (B-2) ***Fixtures and Process Piping***	
Benches and Counters, Built-in	HVAC systems and ductwork unique to process
Cabinets, Built-in	Individual components aggregated into fixtures
Casework, Metal	Piping and plumbing related to process
Casework, Wood	RO, DI, WFI Water Piping
Clean In Place Equipment	Safety Stations and First Aid Cabinets
Clean Room Air Ducts/Handlers	Clean Room Special Wall Surfaces
Clean Room Filter Units	Steam supply unique to process
Clean Room Fixtures, not specified	Walk-in freezers and refrigerator units
Clean Room Special Floor Surfaces	Wall Cases, Built-in
Cleanrooms	Waste disposal equipment unique to process
Electric supply systems unique to process	Water supply systems unique to process (WFI)
Emergency Generators (for process)	Water, electric, and gas hook-ups to lab stations
Feedwater System	Other items meeting the definition of a fixture as specified in Property Tax Rule 122.5
Fiber optic communication systems (for process)	
Fume Hoods (built-in)	

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)*
2011	1	85	92	89	92
2010	2	71	85	80	85
2009	3	56	77	69	77
2008	4	42	69	58	69
2007	5	30	62	49	62
2006	6	20	54	39	54
2005	7	13	46	30	46
2004	8	12	39	23	39
2003	9	12	32	16	32
2002	10	12	25	12	25
2001	11	12	18	12	18
2000	12	12	14	12	14
Prior	Prior Years	12	13	12	13

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*
2011	1	58
2010	2	47
2009	3	32
2008	4	28
2007	5	23
2006	6	19
2005	7	15
2004	8	13
2003	9	10
2002	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*
2011	1	91
2010	2	82
2009	3	74
2008	4	66
2007	5	58
2006	6	50
2005	7	43
2004	8	37
2003	9	31
2002	10	23
2001	11	20
2000	12	17
1999	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 2008. What is the estimated value for taxation purposes as of the January 1, 2012 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 2008.

TABLE 1: COMMERCIAL EQUIPMENT INDEX FACTORS

Year	Average
2011	100
2010	104
2009	103
2008	**106**

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
6.25% Rate of Return

Year Acquired	AGE	5 Years	10 Years	**12 Years**	15 Years	AGE	Year Acquired
2011	1	81	92	93	95	1	2011
2010	2	62	83	87	90	2	2010
2009	3	44	74	80	85	3	2009
2008	4	29	65	**72**	80	4	**2008**

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
2008	$5,000	**1.06**	$5,300	**.72**	$3,816

In summary, application of the index factor and the percent good factor to office furniture purchased in 2008 for $5,000 results in an estimated value for taxation purposes of $3,816 on lien date January 1, 2012. 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 1994. 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 1997 (2012 - 15). The index factor is 140 percent.
- Actual age of equipment on 2012 lien date is 18 years (2012 - 1994 = 18). Without using the recommended maximum, the index factor for 1994 is 149 percent.

TABLE 1: COMMERCIAL EQUIPMENT INDEX FACTORS

Year	Average
2011	100
2010	104
2009	103
1997	**140**
1996	142
1995	144
1994	**149**

The following table indicates the estimated reproduction cost new of the property using the maximum recommended index factor (1.40) and the index factor using the actual age (1.49). Application of the maximum recommended index factor results with an estimated reproduction cost new of $21,000 to reproduce the warehouse equipment purchased in 1994 for $15,000. Application of the index factor associated with the actual age of the property results with an estimated reproduction cost new of $22,350 to replace the warehouse equipment purchased in 1994 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	1997[9]	$15,000	1.40	$21,000
Actual	1994	$15,000	1.49	$22,350

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 2008. What is the estimated value for taxation purposes as of the January 1, 2012 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 2008.

TABLE 3: AGRICULTURAL AND CONSTRUCTION EQUIPMENT INDEX FACTORS

YEAR	**Agricultural**	Construction
2011	100	100
2010	103	104
2009	105	104
2008	**109**	107

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 1994. The year 1997 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	
2011	1	78	92	85	74	90	82	1
2010	2	70	82	76	64	78	71	2
2009	3	64	75	70	57	69	63	3
2008	4	58	68	63	**50**	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
2008	$100,000	**1.09**	$109,000	**.50**	$54,500

In summary, application of the index factor and the percent good factor to a tomato harvester purchased new in 2008 for $100,000 results in an estimated value for taxation purposes of $54,500 on lien date January 1, 2012.

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 2009. What is the full cash value as of the January 1, 2012 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 2009.

TABLE 7: COMPUTER VALUATION FACTORS

Year Acquired	Age	PERSONAL COMPUTERS	LOCAL AREA NETWORK EQUIPMENT (PLUS MAINFRAMES)
2011	1	54	73
2010	2	39	47
2009	3	24	**30**

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
2009	$25,000	**.30**	$7,500

In summary, application of the valuation factor to LAN equipment purchased in 2009 for $25,000 results with a full cash value of $ 7,500 on lien date January 1, 2012.

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 and Fixtures Index, Percent Good and Valuation 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.

STRUCTURE ITEMS	***FIXTURES***
Air conditioning—office and building cooling	Air conditioning—process cooling
Auxiliary power generation equipment—for building purposes	Air lines
Awnings	Auxiliary power generation equipment—for trade or production purposes
Batch plants—buildings, fences, paving, yard lights, and spur tracks	Back bars
Boilers—office and building heating	Batch plant—scales, silos, hoppers, bins, machinery
Building renovations	Boilers—for manufacturing process
Butane and propane installations—used for heating buildings	Bowling lanes
Car washes—all buildings, canopies, interior and exterior walls, fences, paving, and normal plumbing	Burglar alarm systems
Carpets and floor coverings affixed to floor—wall-to-wall carpeting and specially installed strip or area carpeting, tile, terrazzo coverings	Butane and propane installations—used for trade or production purposes
Central heating and cooling plants	Car washes—special plumbing, wiring, and car washing equipment
Chutes—built-in	Compressors—air
Coin-operated laundries—restroom, sanitary plumbing fixtures	Conveyors—for moving materials and products
Conveyors—for moving people	Cooling towers—used in a trade or production process
Cooling towers—other than used in a trade or production process	Counters
Crane ways	Cranes—traveling
Dock elevators	Environmental control devices—used in the production process
Elevators—including machinery and power wiring	Fans and ducts—used for processing

STRUCTURE ITEMS	***FIXTURES***
Environmental control devices—if an integral part of the structure	Fences and railings—inside of buildings
Escalators	Furnaces—process
External window coverings	Furnishings—built-in, i.e., wall-hung desks
Fans and ducts—which are part of an air circulation or exhaust system for the building	Heating—boilers—for the manufacturing process
Fences—outside of building	Hoists
Flagpoles	Incinerators—commercial and industrial
Heating—boilers—used in office or building heating	Ice dispensers—coin operated
Kiosk—permanently attached	Kilns—beehive, tunnel, or cylinder type, and equipment
Movie sets—which are a complete building	Kilns—lumber
Paint spray rooms—if an integral part of the building	Laundromat—plumbing, wiring, and concrete work for equipment
Parking lot gates	Lighting fixtures—lighting associated with a commercial or industrial process
Partitions—floor to ceiling	Machinery foundations and pits—not part of normal flooring or foundation
Pipelines and pipe supports—used to convey air, water, steam, oil, or gas to operate the facilities in a building	Miniature golf courses
Pits—not used in the trade or process	Movie sets—which are not a complete building
Pneumatic tube systems	Ovens
Radiators—steam	Paint spray booths
Railroad spurs	Partitions—annexed—less than floor to ceiling
Refrigeration systems—that are an integral part of the building	Pipelines and pipe supports—used to convey air, water, steam, oil, or gas to equipment used in the production process

STRUCTURE ITEMS	***FIXTURES***
Refrigerators—walk in—which are an integral part of the building—excluding operating equipment	Pits—used as wine and sugar clarifiers, skimming pits, grease pits, sump pits, and pits used to house machinery in the manufacturing
Restaurants—rough plumbing to fixtures	Plumbing—special purpose
Renovations to building structures	Power wiring, switch gear, and power panels—for manufacturing process
Security—Banks and Financial Fire alarm systems Safes-embedded Night depository –(if an integral part of the building) Teller cages Vault alarm system Vaults	Refrigeration systems—that are not an integral part of the building
Service stations—canopies, paving, sign, pylons	Refrigerators—walk in—unitized—including operating equipment
Shelving—originally designed as an integral part of the building	Restaurant equipment—plumbing fixtures, stainless steel or galvanized sinks in kitchens, bars, soda fountains, garbage disposals, dishwashers, hoods, etc.
Shielded or clean rooms—if an integral part of the building	Roller skating surface
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	Scales—including platform and pit
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	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
Smog control devices—when attached to incinerator or building heating plant	Service Stations—gasoline storage tanks, pumps, air and water wells

STRUCTURE ITEMS	***FIXTURES***
Sprinkler systems—where primary function is the protection of a building or structure	Shelving—other than that which is an integral part of the building
Store fronts	Shielded or clean rooms—if not an integral part of the building
Television and radio antenna towers	Signs—sign cabinets and free standing signs, including supports
Trout ponds—concrete	Silos or tanks—whose primary function is as part of a process, including temporary process holding such as breweries or refineries
Theaters—drive-in—buildings, screen and structures, fencing, paving, lighting	Ski lifts, tows, trams
Water systems at golf courses	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