

State of California
BOARD OF EQUALIZATION
PROPERTY TAX RULES

Division 1. State Board of Equalization-Property Tax
Chapter 3. Local Equalization
Article 1. Hearing by County Board

Rule 321. Burden of Proof.

Authority: Section 15606(c), Government Code.

Reference: Sections 110, 167, 205.5, 218 and 1601 et seq., Revenue and Taxation Code; and Section 664, Evidence Code.

(a) Subject to exceptions set by law, it is presumed that the assessor has properly performed his or her duties. The effect of this presumption is to impose upon the applicant the burden of proving that the value on the assessment roll is not correct, or, where applicable, the property in question has not been otherwise correctly assessed. The law requires that the applicant present independent evidence relevant to the full value of the property or other issue presented by the application.

(b) If the applicant has presented evidence, and the assessor has also presented evidence, then the board must weigh all of the evidence to determine whether it has been established by a preponderance of the evidence that the assessor's determination is incorrect. The presumption that the assessor has properly performed his or her duties is not evidence and shall not be considered by the board in its deliberations.

(c) The assessor has the burden of establishing the basis for imposition of a penalty assessment.

(d) Exceptions to subsection (a) apply in any hearing involving the assessment of an owner-occupied single-family dwelling or an escape assessment. An owner-occupied single-family dwelling means a single-family dwelling that is the owner's principal place of residence and qualifies for a homeowners' property tax exemption pursuant to Revenue and Taxation Code section 218. "Property that qualifies for a homeowners' property tax exemption" also includes property that is the principal place of residence of its owner and qualifies for the disabled veterans' exemption provided by Revenue and Taxation Code section 205.5. In such instances, the presumption in section 167 of the Revenue and Taxation Code affecting the burden of proof in favor of the applicant who has supplied all information to the assessor as required by law imposes upon the assessor the duty of rebutting the presumption by the submission of evidence supporting the assessment.

(e) In hearings involving change in ownership, except as provided in section 110 of the Revenue and Taxation Code, the purchase price is rebuttably presumed to be the full cash value. The party seeking to rebut the presumption bears the burden of proof by a preponderance of the evidence.

(f) In weighing evidence, the board shall apply the same evidentiary standard to the testimony and documentary evidence presented by the applicant and the assessor. No greater relief may be granted than is justified by the evidence produced during the hearing.

History: Adopted May 11, 1967, effective June 11, 1967.
Amended October 4, 1967, effective October 5, 1967.
Amended November 20, 1968, effective November 22, 1968.
Amended April 14, 1972, effective May 14, 1972.
Amended November 4, 1976, effective January 1, 1977.
Amended July 27, 1982, effective February 10, 1983
Amended January 5, 2000, effective April 22, 2000
Amended August 21, 2012, effective November 22, 2012.

State of California
BOARD OF EQUALIZATION
PROPERTY TAX RULES

Division 1. State Board of Equalization-Property Tax
Chapter 3. Local Equalization
Article 1. Hearing by County Board

Rule 324. Decision.

Authority: Section 15606, Government Code.

Reference: Article XIII A, California Constitution; and Sections 402.1, 402.5, 1609, 1610.8 and 1611.5, Revenue and Taxation Code.

(a) DETERMINATION OF FULL VALUE, CLASSIFICATION CHANGE IN OWNERSHIP, OR OTHER ISSUES.

Acting upon proper evidence before it, the board shall determine the full value of the property, including land, improvements, and personal property, that is the subject of the hearing. The determination of the full value shall be supported by a preponderance of the evidence presented during the hearing. The board shall consider evidence of value derived by the use of any of the valuation methods described in regulation 3 of subchapter 1 of this chapter. It shall determine whether the method(s) used was (were) properly applied, considering the type of property assessed, governmentally imposed land use restrictions, and any recorded conservation easements as described in Civil Code section 815.1 et seq., by examining the factual data, the presumptions, and the estimates relied upon. The board shall also determine the classification, amount, and description of the property that is the subject of the hearing, the existence of a change in ownership or new construction, or any other issue that is properly before the board, or that is necessary to determine the full value of the property. The board shall provide to the clerk such details as are necessary for the implementation of the board's decision.

(b) JURISDICTION. The board's authority to determine the full value of property or other issues, while limited by the laws of this state and the laws of the United States and usually exercised in response to an application for equalization, is not predicated on the filing of an application nor limited by the applicant's request for relief. When an application for review includes only a portion of an appraisal unit, whether real property, personal property, or both, the board may nevertheless determine the full value, classification, or other facts relating to other portions that have undergone a change in ownership, new construction or a change in value. Additionally, the board shall determine the full value of the entire appraisal unit whenever that is necessary to the determination of the full value of any portion thereof.

The board is not required to choose between the opinions of value promoted by the parties to the appeal, but shall make its own determination of value based upon the evidence properly admitted at the hearing.

An appraisal unit of property is a collection of assets that functions together, and that persons in the marketplace commonly buy and sell as a single unit or that is normally valued in the marketplace separately from other property, or that is specifically designated as such by law.

(c) VALUATION PRINCIPLES. The board, the applicant, and appraisal witnesses shall be bound by the same principles of valuation that are legally applicable to the assessor.

(d) COMPARABLE SALES. When valuing a property by a comparison with sales of other properties, the board may consider those sales that, in its judgment, involve properties similar in size, quality, age, condition, utility, amenities, site location, legally permitted use, or other physical attributes to the property being valued. When valuing property for purposes of either the regular roll or the supplemental roll, the board shall not consider a sale if it occurred more than 90 days after the date for which value is being estimated. The provisions for exclusion of any sale occurring more than 90 days after the valuation date do not apply to the sale of the subject property.

The board shall presume that zoning or other legal restrictions, of the types described in Revenue and Taxation Code section 402.1, on the use of either the property sold or the property being valued will not be removed or substantially modified in the predictable future unless sufficient grounds as set forth in that section are presented to the board to overcome that presumption.

Rule 324 (Contd.)

(e) FINDINGS OF FACT. When written findings of fact are made, they shall fairly disclose the board's findings on all material points raised in the application and at the hearing. The findings shall also include a statement of the method or methods of valuation used in determining the full value of the property or its components.

History: Adopted May 11, 1967, effective June 11, 1967.
Amended October 4, 1967, effective October 5, 1967.
Amended May 21, 1968, effective June 26, 1968.
Amended November 20, 1968, effective November 22, 1968.
Amended May 6, 1970, effective June 6, 1970.
Amended May 5, 1971, effective June 10, 1971.
Amended April 14, 1972, effective May 14, 1972.
Amended December 17, 1975, effective January 25, 1976.
Amended July 27, 1982, effective February 10, 1983.
Amended March 6, 1990, effective May 23, 1990.
Amended November 19, 1999, effective April 22, 2000.

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Section 110

PROPERTY TAXES LAW GUIDE –
REVISION 2010

REVENUE AND TAXATION CODE

Property Taxation

PART 1. GENERAL PROVISIONS

CHAPTER 1. CONSTRUCTION

SECTION 110

110. "Full cash value." (a) Except as is otherwise provided in Section 110.1, "full cash value" or "fair market value" means the amount of cash or its equivalent that property would bring if exposed for sale in the open market under conditions in which neither buyer nor seller could take advantage of the exigencies of the other, and both the buyer and the seller have knowledge of all of the uses and purposes to which the property is adapted and for which it is capable of being used, and of the enforceable restrictions upon those uses and purposes.

(b) For purposes of determining the "full cash value" or "fair market value" of real property, other than possessory interests, being appraised upon a purchase, "full cash value" or "fair market value" is the purchase price paid in the transaction unless it is established by a preponderance of the evidence that the real property would not have transferred for that purchase price in an open market transaction. The purchase price shall, however, be rebuttably presumed to be the "full cash value" or "fair market value" if the terms of the transaction were negotiated at arms length between a knowledgeable transferor and transferee neither of which could take advantage of the exigencies of the other. "Purchase price," as used in this section, means the total consideration provided by the purchaser or on the purchaser's behalf, valued in money, whether paid in money or otherwise. There is a rebuttable presumption that the value of improvements financed by the proceeds of an assessment resulting in a lien imposed on the property by a public entity is reflected in the total consideration, exclusive of that lien amount, involved in the transaction. This presumption may be overcome if the assessor establishes by a preponderance of the evidence that all or a portion of the value of those improvements is not reflected in that consideration. If a single transaction results in a change in ownership of more than one parcel of real property, the purchase price shall be allocated among those parcels and other assets, if any, transferred based on the relative fair market value of each.

(c) For real property, other than possessory interests, the change of ownership statement required pursuant to Section 480, 480.1, or 480.2, or the preliminary change of ownership statement required pursuant to Section 480.4, shall give any information as the board shall prescribe relative to whether the terms of the transaction were negotiated at "arms length." In the event that the transaction includes property other than real property, the change in ownership statement shall give information as the board shall prescribe disclosing the portion of the purchase price that is allocable to all

elements of the transaction. If the taxpayer fails to provide the prescribed information, the rebuttable presumption provided by subdivision (b) shall not apply.

(d) Except as provided in subdivision (e), for purposes of determining the "full cash value" or "fair market value" of any taxable property, all of the following shall apply:

(1) The value of intangible assets and rights relating to the going concern value of a business using taxable property shall not enhance or be reflected in the value of the taxable property.

(2) If the principle of unit valuation is used to value properties that are operated as a unit and the unit includes intangible assets and rights, then the fair market value of the taxable property contained within the unit shall be determined by removing from the value of the unit the fair market value of the intangible assets and rights contained within the unit.

(3) The exclusive nature of a concession, franchise, or similar agreement, whether de jure or de facto, is an intangible asset that shall not enhance the value of taxable property, including real property.

(e) Taxable property may be assessed and valued by assuming the presence of intangible assets or rights necessary to put the taxable property to beneficial or productive use.

(f) For purposes of determining the "full cash value" or "fair market value" of real property, intangible attributes of real property shall be reflected in the value of the real property. These intangible attributes of real property include zoning, location, and other attributes that relate directly to the real property involved.

History.—Added by Stats. 1971, p. 3050, in effect March 4, 1972, operative on the lien date in 1972. Stats. 1974, Ch. 311, p. 589, in effect January 1, 1975, substituted " 'fair market value' " for " 'market value' or, 'value' ". Stats. 1978, Ch. 292, in effect June 24, 1978, added the phrase "Except as is otherwise provided in Section 110.1,". Stats. 1988, Ch. 1519, in effect January 1, 1989, added "(a)" at the beginning of the first paragraph and added subdivisions (b) and (c). Stats. 1995, Ch. 498, in effect January 1, 1996, substituted "that" for "which" after "equivalent" in subdivision (a), and added subdivisions (d), (e), and (f). Stats. 1998, Ch. 783 (SB 1997), in effect September 23, 1998, substituted "other, and both the buyer and the seller have" for "other and both with" after "exigencies of the" and added a comma after "being used" in the first sentence of subdivision (a); substituted "is" for "shall be" in the first sentence and added the fourth and fifth sentences of subdivision (b); substituted "that" for "which" in the second sentence of subdivision (c); deleted "such" after "and other" in the second sentence of subdivision (f).

Construction.—"Enforceable restrictions", defined in Revenue and Taxation Code Section 402.1, include only governmentally imposed land restrictions. *Carlson v. Assessment Appeals Board No. 1*, 167 Cal.App.3d 1004. Under this section, an arm's length, open market sale for a price that is not influenced by an exigency of either buyer or seller permits the assessor to presume fair market value from the purchase price, but the presumption may nevertheless be rebutted by evidence that the fair market value of the property is otherwise. *Dennis v. Santa Clara County*, 215 Cal.App.3d 1019.

Lien date.—The assessment of a taxpayer's plant fixtures was correct, even though the assessment appeals board failed to consider the reduction in market value of the fixtures resulting from the taxpayer's announcement of closing, and subsequent closing of the plant six months after the lien date. The effects of the plant closure were irrelevant to the appraised value of the fixtures, and the fact that there was a forced sale of property at a sacrificial price after the lien date had no bearing on the property's value on the lien date. The taxpayer's contention to the contrary was also contrary to the principle of "fair market value" as set forth in subdivision (a). *Fujitsu Microelectronics, Inc. v. Assessment Appeals Board*, 55 Cal.App.4th 1120.

Value.—The value of a building in the marketplace is its value to potential purchasers generally, and the normal uses to which potential purchasers could put it must be considered. In valuing property, the assessor must adhere to the statutory standard of "full cash value", and in doing so, net earnings to be capitalized are not those of the present owner of the property but those that would be anticipated by a prospective purchaser. *Pacific Mutual Life Insurance*

Company v. Orange County, 187 Cal.App.3d 1141. Although the cost of pollution cleanup that reduces the fair market value of property may form the basis for a reduction in that property's valuation, where the weight of the evidence supports the conclusion that as of the lien date a potential purchaser would not have been aware of the contamination, there was insufficient evidence to establish that the assessor knew or should have known that a tire manufacturing plant was contaminated on the date he valued it. *Firestone Tire & Rubber Co. v. Monterey County*, 223 Cal.App.3d 382. The proper assessed valuation of a contaminated property is the price at which a willing buyer and a willing seller would consummate an open market sale of the property, considering the polluted condition of the property. As all property is to be assessed at fair market value, the dispositive question is whether, and to what extent the property's value is effected by the contamination. In the context of property known to be polluted on the lien date, its value is what it would cost on the open market, independent of what the purchaser may be able to recover from others for cleanup costs imposed by environmental law. *Mola Development Corporation v. Orange County Assessment Appeals Board No. 2*, 80 Cal.App.4th 309.

County assessment appeals board's use of the cost replacement method to value a cable television system's taxable, tangible property, which resulted in a value lower than the value using the comparable sales method or the income method, was not a failure to assess at full value as required by law. The values differed because the method the assessor had used captured intangibles that were not subject to taxation. *Orange County v. Orange County Assessment Appeals Board No. 1*, 13 Cal.App.4th 524. The assessment appeals board properly included the value of certain related intangibles, operating permits and "business enterprise" value, when determining the market value of plaintiff's landfill property. While intangibles are not subject to property tax, the presence of intangibles may enhance the value of real property, and that value may be determined by assuming their presence. *American Sheds, Inc. v. Los Angeles County*, 66 Cal.App.4th 384.

In valuing geothermal power plants for property tax purposes, the county assessor properly capitalized the plants' income from fixed-price contracts under which the plants sold electricity to a power company at rates far above market price. Although the contracts were no longer available, the full value of the property included projected income at the contract rates rather than market rates, since a prospective buyer would be willing to pay more for the plants with the existing contracts. Also, the contracts were the means by which the property was put to beneficial use and thus, had to be considered for purposes of assessing the property's full value. *Freeport-McMoran Resource Partners v. Lake County*, 12 Cal.App.4th 634.

Methods.—The market data and income methods of assessing the fair market value of real property are traditional and well accepted. *Norby Lumber Company, Inc. v. Madera County*, 202 Cal.App.3d 1352; *Dennis v. Santa Clara County*, 215 Cal.App.3d 1019. The income method is one of three basic methods for determining full cash value, the others being the comparative sales approach and the reproduction and replacement cost approach. The income method assumes that in an open market a willing buyer of the property would pay a willing seller an amount approximately equal to the present value of the future income to be derived from the property. Since a property's full value must be determined by reference to the price it would bring on an open market, the net earnings to be capitalized are not those of the present owner of the property, but those that would be anticipated by a prospective purchaser. *Freeport-McMoran Resource Partners v. Lake County*, 12 Cal.App.4th 634. Where taxpayers failed to carry their burden of proving that the assessor arbitrarily used the band-of-investment method for deriving the applicable capitalization rate, the use of this method was proper. *Mission Housing Development Company v. City and County of San Francisco*, Cal. 59 Cal.App.4th 55. When valuing low-income housing developed and operated under section 15 of the National Housing Act of 1949, which housing is subject to various restrictions, including a maximum return on equity; the financing for which is federally subsidized; and for which the government provides credits that result in a 1 percent effective mortgage interest rate, the assessor properly calculated the band-of-investment capitalization rate for the income method as required by Property Tax Rule 8 using the effective 1 percent rate resulting from government credits for such property, as it represented the only applicable market rate for the property. *Maples v. Kern County Assessment Appeals Board*, 96 Cal.App.4th 1007; *Bontrager v. Siskiyou County Assessment Appeals Board*, 97 Cal.App.4th 325.

Cash or its equivalent.—The assessment of property at fair market value requires a calculation of value in terms of cash, and property tax rule 4, providing that an assessor shall convert debts to their cash equivalents, is mandatory and expresses the policy of the Legislature that property be assessed locally in a uniform manner. Thus, in failing to discount to its cash equivalent a loan the purchaser had assumed from the seller at a below market rate, the assessor incorrectly determined the property's value, thereby resulting in an excessive assessment. *Prudential Insurance Co. v. City and County of San Francisco*, 191 Cal.App.3d 1142. Property tax rule 4 is mandatory and must be strictly followed in order to provide the assessment appeals board with an evidentiary foundation for its assessment. Merely

giving the assessment appeals board raw sales data and stating that the assessor's opinion was within the "range of values" shown by the data does not comport with the rule and requires reversal of the board's decision, since the fair market value of the properties as determined by the board is based on evidence that is legally incompetent. *Main & Von Karman Associates v. Orange County*, 23 Cal.App.4th 337. The assessor's valuation of residential property based on the comparable sales method was not supported by legally competent evidence and invalid where the assessor failed to make adjustments to reflect the differences between the comparable sales and the subject property as required by Property Tax Rule 4. *Mitchell v. Los Angeles County*, 60 Cal.App.4th 497.

An assessor's appraisals met legal standards where ratios used by his experts in appraising oil-producing property to quantify several types of risk factors associated with each projected net cash flow were not the sole basis for assessment. The appraisers made separate adjustments to each of the comparable sales, as required by Property Tax Rule 4, for which purpose the ratios were developed. Nor did the appraisers violate Rule 4 in failing to separately consider certain factors associated with each sale, such as capital costs, operating costs, and geology. Variations in these types of factors were already accounted for in the projected cash flows. *Texaco Producing, Inc. v. Kern County*, 66 Cal.App.4th 1029.

Highest and best use.—A county board did not impermissibly assess real property owned by an airplane manufacturer and located next to an airport in relation to the unique value of the property to the manufacturer instead of its general value in the market place. The board did find that the restrictions and regulations affecting the use of the property constituted an enhancement and benefit to the nature of the manufacturer's operation at the airport as a peculiarly suitable location in that the manufacturer was operating under those conditions for years and would continue to do so for years. However, the board was making that finding in conjunction with its conclusion that the highest and best use at the time of purchase of the property (the manufacturer had recently purchased it after previously renting it) was for aviation industrial purposes. Under this section, the board was entitled to consider the prior and current use of the property in making its determination of the highest and best use of the property. *Los Angeles County v. McDonnell Douglas Corp.*, 219 Cal.App.3d 715. The assessor did not improperly assess an independent power plant developed and operated under an above-market price, government-facilitated power purchase agreement by using the actual income stream resulting from the agreement. The highest and best use of the property as of the lien date was as a qualifying facility, selling its power to a public utility pursuant to the agreement. That assured the taxpayer a guaranteed purchaser for its entire output and provided for sale of that power at an above-market price. Thus, the assessor's use of the actual applicable terms of the agreement to capitalize the property's income was an appropriate exercise of discretion. *Watson Cogeneration Co. v. Los Angeles County*, 98 Cal.App.4th 1066.

Improvement bonds.—The 1998 amendment to this section, which created a rebuttable presumption that the amount of an improvement bond is included in the purchase price, was intended to clarify the existing method of real property assessments to exclude improvement bond liens from the calculation of a property's fair market value and thus, applied to a taxpayer's claim/refund action which was pending as of the date of the amendment. *Huson v. Ventura County*, 80 Cal.App.4th 1131.

Investment tax credit.—An assessor does not have to take the availability of investment tax credit into account in determining value. *May Department Stores Co. v. Los Angeles County*, 196 Cal.App.3d 755.

Use of purchase price.—Persons who purchased real property after March 1975, and whose property was appraised as of the date of purchase were not denied equal protection of the law where both before and after the adoption of Article XIII A of the Constitution, assessment procedures were consistent with the section and the "regression analysis procedure" used in reaching the computer calculated value for the property as of the date of purchase was the same as was used before the adoption of Article XIII A. The only difference in appraisal procedures was that the purchase price of the property rather than a hypothetical figure was used for fair market value, and increased accuracy does not amount to a denial of equal protection. *Schoderbek v. Carlson*, 152 Cal.App.3d 1027. The purchase price paid by the buyer of real property, which had been used by the federal government as a petroleum reserve, established a presumptive fair market value of the property for assessment purposes, pursuant to subdivision (b). The term "negotiated" means simply "arranged" or "concluded". *Maples v. Assessment Appeals Board*, 103 Cal.App. 4th 172. While a recent, open market, arm's length sale of a particular type of property may be a very important factor in determining its fair market value, the sale, by itself, does not provide sufficient, reliable data to enable the assessor to make an accurate valuation of that property; it is only a starting point in appraising the property. Even an arm's length transaction may involve factors that skew the purchase price and make it an unreliable indicator of the fair market value. In this instance, at the time of purchase, the purchasers had an ownership interest in the corporate tenant

leasing the property and the lease generated rent below market value. Market value, therefore, is generally established by numerous sales of the same or comparable property and, although the price paid for property may be admissible to prove its market value, that fact alone is not conclusive. Thus, the assessor properly applied the valuation method by determining that comparable commercial properties had recently been sold at greater dollar amounts per square foot. *Dennis v. Santa Clara County*, 215 Cal.App.3d 1019. The purchase by a property owner of transferable development rights allowing the owner, in developing its property, to exceed the maximum floor area ratio otherwise allowed under a city redevelopment plan, was a taxable event within the framework of Article XIII A of the Constitution, permitting reappraisal upon a change of ownership. In the absence of substantial and convincing evidence to the contrary, the assessor was entitled, under this section, to rely upon the purchase price paid for the rights for purposes of determining their full cash value. *Mitsui Fudosan (U.S.A.), Inc. v. Los Angeles County*, 219 Cal.App.3d 525.

Presumptive fair market value—Oil and gas interests.—A taxpayer, in challenging the valuation of oil and gas mineral property interests for the purpose of determining ad valorem taxes, had the burden of proving a fair market value different from the purchase price by a preponderance of the evidence. However, the only evidence the taxpayer presented was that no evidence of proved oil and gas reserves had been established at the time of acquisition. In other words, reserves had not been proved or disproved. Rather, the reserves were probable or possible. This absence of evidence was not equivalent to affirmative evidence of the property's fair market value. Proved reserves are not the only value component of an oil and gas mineral interest. Moreover, knowledgeable and informed persons testified that the purchase price was the fair market value, which was contrary to the taxpayer's claim that the value of the oil and gas mineral interest was zero. Accordingly, the court of appeals held that the assessor correctly determined the base year value of the property interest to be its purchase price and that the taxpayer did not rebut this section's purchase price presumption. *California Minerals v. County of Kern*, 152 Cal.App.4th 1016.

Decisions Under Former Section 110, "Full cash value".

Full cash value.—"Full cash value" is the price that property would bring to its owner if it were offered for sale on an open market under conditions in which neither buyer nor seller could take advantage of the exigencies of the other; it is synonymous with market value. *A. F. Gilmore Co. v. Los Angeles County*, 186 Cal.App.2d 471.

A single, recent, open market and arm's-length sale of a particular property, per se, does not provide sufficient, reliable data for the assessor to make an accurate valuation of that property. Market value becomes an important standard of measurement in the valuation of property only after there have been numerous sales or exchanges of similar property, but if the property is of a kind seldom exchanged, then recourse must be had to other means of ascertaining value. *Guild Wineries & Distilleries v. Fresno County*, 51 Cal.App.3d 182.

Factors to be considered.—In arriving at the value of land it is proper to consider every use to which the land is naturally adapted and which would enhance its value in the estimation of persons generally purchasing in the open market. *Wild Goose Country Club v. Butte County*, 60 Cal.App. 339, holding that a hunting preserve need not be assessed solely with reference to its value as grazing land.

The court approved the valuation of a water company where the appraisal method, based on the capitalization of income, utilized an income study of rates charged by four other water companies in the general area. *Maywood Mutual Water Co. v. Los Angeles County*, 12 Cal.App.3d 957.

The assessor correctly considered the full economic rental value of real property subject to a lease even though the actual rental income was below the economic rental. *Clayton v. Los Angeles County*, 26 Cal.App.3d 390.

Interdivisional transfers of manufactured goods with an accompanying markup in value, for purposes of delivery or to facilitate marketing, result in a trade level increase and corresponding increase in value in accord with Property Tax Rule No. 10. *Beckman Instruments, Inc. v. Orange County*, 53 Cal.App.3d 767.

Under the market value concept, where price is the basis of value, the sales tax and freight charges are elements of value. *Xerox Corp. v. Orange County*, 66 Cal.App.3d 746. Under the trade level theory of assessment, if the owner of property at the consumer level is subject to application of a sales tax element in the valuation of the property, the lessor of the same kind of property at the consumer level is subject to the same sales tax element. *San Diego County v. Assessment Appeals Board No. 2*, 140 Cal.App.3d 52. Since California sales tax is unconstitutional as to leases of tangible personal property to the United States because the legal incidence of the tax falls on the United States,

United States v. California State Board of Equalization, 650 F.2d 1127, aff'd 456 U.S. 901, the value of equipment leased to the federal government should not include sales tax.

General rules may be followed.—It is proper for the assessor to promulgate certain general rules and formulas of percentages of depreciation, construction costs, square foot area charges and other factors in order to secure uniformity in valuations as required by law. *Eastern-Columbia, Inc. v. Los Angeles County*, 61 Cal.App.2d 734, 742.

Possessory interest.—In valuing a leasehold interest in exempt lands and improvements by the capitalization of income method it is improper, in computing the anticipated net income to be capitalized, to deduct from anticipated gross income the lessee's charges for rent, amortization of his investment, or payments of principal and interest on his mortgage debt. The proper method of valuing a possessory interest in a housing project at a permanent military installation is to deduct from annual anticipated gross income the operating and maintenance expenses and the amount required by the lease to be deposited to a replacement reserve, and to capitalize the difference for the remaining years of the lease at a rate which will allow for risk, interest, and taxes. *De Luz Homes, Inc. v. San Diego County*, 45 Cal.2d 546; *Fairfield Gardens, Inc. v. Solano County*, 45 Cal.2d 575; *Victor Valley Housing Corp. v. San Bernardino County*, 45 Cal.2d 580; *El Toro Development Co., Inc. v. Orange County*, 45 Cal.2d 586.

The "full cash value" of a possessory interest is the present value of its use for the unexpired term of the lease, not lessened by the amount of rent reserved. The rent is not an interest in land that must be deducted to determine the lessee's interest, but is merely the consideration for the use of the land. *The Texas Co. v. Los Angeles County*, 52 Cal.2d 55.

A reasonably anticipated term of possession may not be imputed to a possessory interest when the assessee has no taxable interest in the property at the expiration of the leased term. *American Airlines, Inc., v. Los Angeles County*, 65 Cal.App.3d 325.

Assessment of motion picture negatives.—"Market value" for assessment purposes is the value of property when put to beneficial use; it is not merely whatever residual value may remain should the property be reduced to its constituent elements. In the event the beneficial use of the property would not pass to a willing buyer on an open market, the assessor must treat the property as having no actual market for valuation purposes and use such pertinent factors as replacement costs and income analysis for determining valuation. *Michael Todd Co. v. Los Angeles County*, 57 Cal.2d 684.

Water rights of a city.—A county, in assessing taxable water rights owned by a city, may use as a basis for capitalization of income, a price for water taken from Bureau of Reclamation contracts, and a price for electricity agreed to be paid by a gas and electric company in a contract with the city, rather than the water and power prices actually charged in the city's nonprofit operation. *Tuolumne County v. State Board of Equalization*, 206 Cal.App.2d 352.

Lease of grazing land.—In assessing the possessory interest of a lessee of tax-exempt land leased for grazing purposes, it is proper to capitalize the rent for the total number of years of the lease and renewal options. *El Tejon Cattle Co. v. San Diego County*, 64 Cal.2d 428.

Income method—oil lands.—In capitalizing anticipated future oil recoveries on public lands, no deduction is proper for royalty payments due the government under a standard oil and gas lease. Under a "unit contract", however, the government's "working interest" is exempt real property requiring an allocation of potential oil recoveries. *Atlantic Oil Co. v. Los Angeles County*, 69 Cal.2d 585.

Assessment of title plant.—"Market value" for assessment purposes is the value of property when put to beneficial use. In the absence of any actual market for a title insurance company's "title plant" of the history of real property parcels in a county, an assessor's use of the cost approach method for determining valuation of the plant is not arbitrary and does not violate any standards prescribed by the Legislature. *Western Title Guaranty Co. v. Stanislaus County*, 41 Cal.App.3d 733.

Note.—For additional cases relating to value, see annotations to Section 401 of the code and to Section 1, Article XIII of the Constitution.

State of California
BOARD OF EQUALIZATION
PROPERTY TAX RULES

Division 1. State Board of Equalization-Property Tax
Chapter 1. Valuation Principles and Procedures

Rule 2. The Value Concept.

Authority: Section 15606, Government Code.

Reference: Sections 110, 110.1, 401, Revenue and Taxation Code; *Carlson v. Assessment Appeals Board No. 1* (1985) 167 Cal.App.3d 1004; *Dennis v. County of Santa Clara* (1989) 215 Cal.App.3d 1019.

(a) In addition to the meaning ascribed to them in the Revenue and Taxation Code, the words "full value", "full cash value", "cash value", "actual value", and "fair market value" mean the price at which a property, if exposed for sale in the open market with a reasonable time for the seller to find a purchaser, would transfer for cash or its equivalent under prevailing market conditions between parties who have knowledge of the uses to which the property may be put, both seeking to maximize their gains and neither being in a position to take advantage of the exigencies of the other.

When applied to real property, the words "full value", "full cash value", "cash value", "actual value" and "fair market value" mean the price at which the unencumbered or unrestricted fee simple interest in the real property (subject to any legally enforceable governmental restrictions) would transfer for cash or its equivalent under the conditions set forth in the preceding sentence.

(b) When valuing real property (as described in paragraph (a)) as the result of a change in ownership (as defined in Revenue and Taxation Code, Section 60, et seq.) for consideration, it shall be rebuttably presumed that the consideration valued in money, whether paid in money or otherwise, is the full cash value of the property. The presumption shall shift the burden of proving value by a preponderance of the evidence to the party seeking to overcome the presumption. The presumption may be rebutted by evidence that the full cash value of the property is significantly more or less than the total cash equivalent of the consideration paid for the property. A significant deviation means a deviation of more than 5% of the total consideration.

(c) The presumption provided in this section shall not apply to:

(1) The transfer of any taxable possessory interest.

(2) The transfer of real property when the consideration is in whole, or in part, in the form of ownership interests in a legal entity (e.g., shares of stock) or the change in ownership occurs as the result of the acquisition of ownership interests in a legal entity.

(3) The transfer of real property when the information prescribed in the change in ownership statement is not timely provided.

(d) If a single transaction results in a change in ownership of more than one parcel of real property, the purchase price shall be allocated among those parcels and other assets, if any, transferred based on the relative fair market value of each.

History: Adopted June 21, 1967, effective July 23, 1967.

Amended December 17, 1975, effective January 25, 1976.

Amended October 9, 1984, effective September 20, 1985.

Amended July 24, 1991, effective September 25, 1991.

State of California
BOARD OF EQUALIZATION
PROPERTY TAX RULES

Division 1. State Board of Equalization-Property Tax
Chapter 1. Valuation Principles and Procedures

Rule 3. Value Approaches.

Authority: Section 15606, Government Code.

Reference: Article 2, Chapter 3, Part 2, Division 1, Revenue and Taxation Code. Sections 110, 401, Revenue and Taxation Code.

In estimating value as defined in section 2, the assessor shall consider one or more of the following, as may be appropriate for the property being appraised:

(a) The price or prices at which the property and comparable properties have recently sold (the comparative sales approach).

(b) The prices at which fractional interests in the property or comparable properties have recently sold, and the extent to which such prices would have been increased had there been no prior claims on the assets (the stock and debt approach).

(c) The cost of replacing reproducible property with new property of similar utility, or of reproducing the property at its present site and at present price levels, less the extent to which the value has been reduced by depreciation, including both physical deterioration and obsolescence (the replacement or reproduction cost approach).

(d) If the income from the property is regulated by law and the regulatory agency uses historical cost or historical cost less depreciation as a rate base, the amount invested in the property or the amount invested less depreciation computed by the method employed by the regulatory agency (the historical cost approach).

(e) The amount that investors would be willing to pay for the right to receive the income that the property would be expected to yield, with the risks attendant upon its receipt (the income approach).

History: Adopted June 21, 1967, effective July 23, 1967.

State of California
BOARD OF EQUALIZATION
PROPERTY TAX RULES

Division 1. State Board of Equalization-Property Tax
Chapter 1. Valuation Principles and Procedures

Rule 4. The Comparative Sales Approach to Value.

Authority: Section 15606, Government Code.

Reference: Sections 110, 110.1, 110.5 and 401, Revenue and Taxation Code; and Article XIII A, Sections 1 and 2, California Constitution.

When reliable market data are available with respect to a given real property, the preferred method of valuation is by reference to sales prices. In using sales prices of the appraisal subject or of comparable properties to value a property, the assessor shall:

(a) Convert a noncash sale price to its cash equivalent by estimating the value in cash of any tangible or intangible property other than cash which the seller accepted in full or partial payment for the subject property and adding it to the cash portion of the sale price and by deducting from the nominal sale price any amount which the seller paid in lieu of interest to a lender who supplied the grantee with part or all of the purchase money.

(b) When appraising an unencumbered-fee interest, (1) convert the sale price of a property encumbered with a debt to which the property remained subject to its unencumbered-fee price equivalent by adding to the sale price of the seller's equity the price for which it is estimated that such debt could have been sold under value-indicative conditions at the time the sale price was negotiated and (2) convert the sale price of a property encumbered with a lease to which the property remained subject to its unencumbered-fee price equivalent by deducting from the sale price of the seller's equity the amount by which it is estimated that the lease enhanced that price or adding to the price of the seller's equity the amount by which it is estimated that the lease depressed that price.

(c) Convert a sale to the valuation date of the subject property by adjusting it for any change in price level of this type of property that has occurred between the time the sale price was negotiated and the valuation date of the subject property.

(d) Make such allowances as he deems appropriate for differences between a comparable property at the time of sale and the subject property on the valuation date, in physical attributes of the properties, location of the properties, legally enforceable restrictions on the properties' use, and the income and amenities which the properties are expected to produce. When the appraisal subject is land and the comparable property is land of smaller dimensions, and it is assumed that the subject property would be divided into comparable smaller parcels by a purchaser, the assessor shall allow for the cost of subdivision, for the area required for streets and alleys, for selling expenses, for normal profit, and for interest charges during the period over which it is anticipated that the smaller properties will be marketed.

History: Adopted June 21, 1967, effective July 23, 1967.

Amended July 27, 1982, effective December 30, 1982.

State of California
BOARD OF EQUALIZATION
PROPERTY TAX RULES

Division 1. State Board of Equalization-Property Tax
Chapter 1. Valuation Principles and Procedures

Rule 6. The Reproduction and Replacement Cost Approaches to Value.

Authority: Section 15606, Government Code.
Reference: Sections 110, 401, Revenue and Taxation Code

(a) The reproduction or replacement cost approach to value is used in conjunction with other value approaches and is preferred when neither reliable sales data (including sales of fractional interests) nor reliable income data are available and when the income from the property is not so regulated as to make such cost irrelevant. It is particularly appropriate for construction work in progress and for other property that has experienced relatively little physical deterioration, is not misplaced, is neither over- nor underimproved, and is not affected by other forms of depreciation or obsolescence.

(b) The reproduction cost of a reproducible property may be estimated either by (1) adjusting the property's original cost for price level changes and for abnormalities, if any, or (2) applying current prices to the property's labor and material components, with appropriate additions for entrepreneurial services, interest on borrowed or owner-supplied funds, and other costs typically incurred in bringing the property to a finished state (or to a lesser state if unfinished on the lien date). Estimates made under (2) above may be made by using square-foot, cubic-foot, or other unit costs; a summation of the in-place costs of all components; a quantity survey of all material, labor, and other cost elements; or a combination of these methods.

(c) The original cost of reproducible property shall be adjusted, in the aggregate or by groups, for price level changes since original construction by multiplying the cost incurred in a given year by an appropriate price index factor. When detailed investment records are unavailable for earlier years or when only a small percentage of the total investment is involved, the investments in such years may be lumped and factored to present price levels by means of an index number that represents the assessor's best judgment of the weighted average price change. If the property was not new when acquired by its present owner and its original cost is unknown, its acquisition cost may be substituted for original cost in the foregoing calculations.

(d) The replacement cost of a reproducible property may be estimated as indicated in (b) (2) of this section by applying current prices to the labor and material components of a substitute property capable of yielding the same services and amenities, with appropriate additions as specified in subsection (b) (2).

(e) Reproduction or replacement cost shall be reduced by the amount that such cost is estimated to exceed the current value of the reproducible property by reason of physical deterioration, misplacement, over- or underimprovement, and other forms of depreciation or obsolescence. The percentage that the remainder represents of the reproduction or replacement cost is the property's percent good.

(f) When the allowance made pursuant to paragraph (e) exceeds the amount included in the depreciation tables used by the assessor, the reasons therefor shall be noted in the appraisal record for the property and the amount thereof shall be ascertainable from the record.

History: Adopted September 1, 1967, effective October 7, 1967.
Amended February 16, 1970, effective March 26, 1970.
Amended February 18, 1971, effective March 24, 1971.
Amended February 16, 1977, effective February 18, 1977.
Amended December 19, 1997, effective January 18, 1998.

ASSESSORS' HANDBOOK
SECTION 501

BASIC APPRAISAL

JANUARY 2002

REPRINTED JANUARY 2015

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Market demand and market supply interact in a competitive market to determine the price and quantity of the good traded. When the quantity demanded and the quantity supplied are equal, there is a state of balance known as equilibrium. From an equilibrium position, if market demand increases while market supply remains constant, price tends to increase. On the other hand, if market supply increases while market demand remains constant, price tends to decrease.

A change in just one of the many variables affecting supply or demand is likely to create a price and/or quantity movement in the market. The relative strength of the market forces underlying demand and supply determines whether price increases or decreases, and whether quantities demanded and supplied increase or decrease.

Thus, neither demand nor supply alone determines value. British economist Alfred Marshall illustrated this by asking the rhetorical question: Which blade of the scissors cuts the cloth? The answer, obviously, is that both blades cut it. Similarly, in a competitive market both demand and supply interact to determine value. A change in one of the variables affecting *either* supply or demand is likely to create a price movement in the market.

The essence of market value is that it is market derived. In a market subject to the interaction of supply and demand, value is determined by the actions of buyers and sellers bidding, and seeking bids, in competition with each other. The market value concept presupposes that: (1) there is competition for the acquisition of similar properties; (2) market participants have alternative choices; and (3) prospective purchasers make rational decisions. The ideal market reflects conditions of perfect competition.

A perfectly competitive market requires: (1) many buyers and sellers, none of whom can affect market price through their own singular efforts; (2) a standardized product; (3) no artificial restrictions; (4) easy entry and exit into the market by buyers and sellers; (5) complete knowledge and information regarding bids and offers; and (6) the mobility to take immediate action. The stock market and some agricultural markets may be the closest approximations of perfectly competitive markets, but few other markets meet these ideal standards. The real estate market, for example, trades in a non-standardized product with buyers and sellers frequently lacking complete information.⁵ In addition, many markets are subject to governmental interventions or restrictions that disrupt the natural market determination of price and quantity traded.

ECONOMIC CONCEPT OF USE VALUE

It is important to distinguish between the concept of market value and another value concept known as use value or value in use. The concept of use value is concerned with the value of property based on its utilization by a particular owner or group of owners. *The Appraisal of Real Estate* defines and describes use value as follows:

⁵ The real estate market is discussed further in Chapter 4.

*Use value is the value a specific property has for a specific use. In estimating use value, the appraiser focuses on the value the real estate contributes to the enterprise of which it is a part, without regard to the property's highest and best use or the monetary amount that might be realized upon its sale.*⁶

As already discussed, market value, as opposed to use value, presupposes a value determined by relevant market forces, such as supply and demand, scarcity, and utility, in a competitive market in which the participants act prudently, rationally, knowledgeably, and for self-interest. These market forces and the interactions of buyers and sellers ensure that market value will be the value of the property when put to its most profitable or "highest and best" use.⁷

Property tax appraisers in California, with certain exceptions set forth in the next chapter, are required by the California Constitution, statutes, and regulations to appraise property at market value. This requirement means that appraisals of both real and personal property must be based on the most productive, or highest and best use of the property. A section in the following chapter will discuss the issue of market value as opposed to use value in the context of appraising limited-market properties.

OTHER VALUE CONCEPTS

PRICE, COST, AND VALUE

Appraisers should not confuse the concepts of *price*, *cost*, and *value*.

Price is the amount actually paid for a property in a particular transaction. Price is a historical fact; it is not a prospective concept. The price paid is the amount a particular buyer has agreed to pay and a particular seller has agreed to accept under the conditions surrounding their transaction.

Cost refers to production, not exchange. It is the expenditure required to produce property, such as the cost of constructing a building. Cost can be a historical amount, a current amount, or a prospective amount. Appraisers also distinguish among *direct costs*, *indirect costs*, and *development cost*.

Direct costs are the expenditures for labor and materials, sometimes called *hard costs*, or *brick and mortar costs*. Direct costs include the general contractor's overhead and profit, as well as payments to subcontractors.

Indirect costs are expenditures for items other than labor and materials. Indirect costs include administrative costs related to a project, professional fees (e.g., payments for architectural, engineering, or legal services), construction financing costs, property taxes and insurance during

⁶ Appraisal Institute, *The Appraisal of Real Estate*, 24.

⁷ The principle of highest and best use is discussed further in Chapter 4. Briefly, highest and best use is the legally permissible, physically possible, financially feasible or probable, and maximally productive use that produces the highest residual land value. It is the use that produces the greatest long term net return to the owner.

jobs are bid low in order to keep crews together, minimize fixed costs, and utilize on-hand inventories. The converse may occur during an economic boom because of demand far in excess of supply. Because these temporary imbalances eventually yield to a more normal long-range situation, the appraiser should ensure that such short-run costs are used only if they are typical and if construction activity is actually occurring.

In general, the newer the property, the more reliable the cost approach will be as an indicator of value. When a property is a new and proper improvement, replacement, historical, and reproduction costs will usually coincide. Depreciation in most new or almost new properties will be minimal, and this decreases the significance of the most subjective portion of the cost estimate. In such cases, the appraiser can attach a greater weight to the cost approach in the value conclusion. However, the same may not be true for machinery and equipment that is subject to rapid technological advancement. In this case, even relatively new items may be subject to functional obsolescence.

COMPARATIVE SALES APPROACH

INTRODUCTION

The comparative sales approach may be defined as an approach that uses direct evidence of the market's opinion of the value of a property. In this approach, the appraiser estimates the market value of the subject property by comparing it to similar properties that have recently sold. In addition to actual sales, the appraiser may consider listings, offers, options, and the opinions of owners, real estate agents, and other appraisers as to the selling prices that comparable properties might command. The comparative sales approach is based on the premise that the fair market value of a property is closely and directly related to the sales prices (under the conditions of fair market value) of comparable, competitive properties.

The comparative sales approach is not the only approach that utilizes market data. Construction costs and income information are also market data. However, significant differences exist in the nature of the market data in the cost and income approaches in contrast to the comparative sales approach. Neither costs nor incomes are direct evidence of market value. Rational people would consider cost and future income when buying or selling property in order to form their opinions of market value. However, in the comparative sales approach, an indicated value is direct evidence of the market's opinion of value, which gives this approach a certain preeminence.

Rule 4 states, in part:

When reliable market data are available with respect to a given real property, the preferred method of valuation is by reference to sales prices.

The comparative sales approach is based upon the principle of substitution and presumes that the market value of a property will approximate the sales prices, listings, offers, and appraisals of competitive substitutes. With a perfect degree of substitution and purely competitive market conditions, properties would have exactly the same value. No two real properties are ever

ASSESSORS' HANDBOOK
SECTION 502

ADVANCED APPRAISAL

DECEMBER 1998

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RESTRICTED VALUE CONCEPT

As previously mentioned, there are certain exceptions to the fair market value standard. These exceptions fall under the "restricted value" concept. Rule 460(b)(3) defines "restricted value" to mean "a value standard other than full cash value prescribed by the Constitution or by statute authorized by the Constitution."

For properties subject to a restricted value standard, the law sets aside the general concept of fair market value based on highest and best use in favor of specific value limitations. In some cases, the statutory appraisal formula is compensation for the owner's agreement to limit the future use of the property; that is, the property value is premised on the restricted use rather than the most profitable or productive use.¹³

MARKET VALUE, USE VALUE, AND LIMITED MARKET OR SPECIAL PURPOSE PROPERTIES

It is important to distinguish between the concept of market value and another value concept known as "use value" or "value in use."¹⁴ The concept of use value is concerned with the value of property based on its utilization by a particular owner or group of owners. As defined in a current appraisal text:

Use value is the value a specific property has for a specific use. In estimating use value, the appraiser focuses on the value the real estate contributes to the enterprise of which it is a part, without regard to the property's highest and best use or the monetary amount that might be realized upon its sale.¹⁵ [Emphasis retained.]

It is clear that the standard of value for property tax purposes is market value and not value in use. However, questions concerning market value in relation to use value sometimes arise when appraising limited market or special use properties. A widely used appraisal text provides the following definition of a limited market property:

A limited-market property is a property that has relatively few potential buyers at a particular time. It may be a limited-market property because of unique design features or changing market conditions. Large manufacturing plants, railroad sidings, and research and development properties are examples of limited-market properties that typically appeal to relatively few potential purchasers.¹⁶

¹³ Several types of restricted value properties are discussed in Chapter 2 of AH 501, *Basic Appraisal*.

¹⁴ This concept is also sometimes referred to "value to an owner."

¹⁵ Appraisal Institute, *The Appraisal of Real Estate*, 11th ed. (Chicago: Appraisal Institute, 1996), 24.

¹⁶ Appraisal Institute, *The Appraisal of Real Estate*, 25.

replacement cost of a newly constructed improvement is easier to estimate and more relevant to the basic principle of substitution, because it relies on the cost of comparable improvements rather than the historical costs of the property being appraised. Common sources of replacement cost data include *Marshall Valuation Service*, published by Marshall and Swift; AH 531, *Residential Building Costs*, and AH 534, *Rural Building Costs*, published by the California State Board of Equalization.

One means of estimating reproduction cost uses the historical, or original, costs incurred by the property owner during the construction of a structure or fixture. When using reproduction cost to appraise new construction, appraisers should distinguish between "uniquely useful" properties and "special-purpose" designs for which there might be a market. Historical, or original, costs for owner-occupied properties may reflect specialized designs, building materials, expedited construction schedules, or other items that would not be currently recognized by the market for such properties. Under certain conditions, these abnormal costs may reflect value in use, rather than value in exchange.

Costs of Construction May or May Not Equal Value

Appraisers should use caution when applying the cost approach, since construction costs may be highly divergent between different projects. Especially in the cases of over- or under-improvements, the actual market value of new construction may vary widely from the cost to construct those improvements. To compensate for these potential differences, the values derived with the cost approach should be checked against values derived from the other approaches to value whenever possible.

EXAMPLE 6–2: Cost May Not Equal Value

Owners of a single family residence construct a new, average quality, in-ground swimming pool on their property. The owners reported actual costs of construction at \$35,000. An analysis of relevant market data, however, shows that adding a swimming pool increases that property's value by only \$20,000. In this case, the addition of the swimming pool should be assessed at its market value of \$20,000, rather than the actual cost of \$35,000.

Income Approach

When new construction involves income-producing properties, the appraiser may estimate the value of new construction using the income approach. Using current market-derived rates, the appraiser may capitalize the difference in the subject property's economic rent with and without the new construction to yield an estimate of value for the new construction. As with the comparative sales approach, application of the income approach requires income data and capitalization rates from highly comparable properties. In certain circumstances, the income approach may capture value attributable to more than just the qualifying new construction.

ASSESSORS' HANDBOOK
SECTION 504

ASSESSMENT OF
PERSONAL PROPERTY AND FIXTURES

OCTOBER 2002

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property being valued is not so regulated as to make current replacement costs irrelevant to value.

Rule 6 allows and prescribes more than one type of cost approach that an appraiser may use. The three variations of the cost approach provided are reproduction cost, replacement cost, and historical cost. Although an appraiser may not utilize each variation, general knowledge of the terms and concepts associated with each is important to a thorough understanding of value in the context of property tax appraisal. Each variation is briefly described below.

Reproduction Cost Approach

The reproduction cost approach, as a variation of the cost approach, has limited usefulness because it uses reproduction cost (the cost to replace an existing property with an identical property, a replica) as a basis for estimating value. It is frequently not possible or desirable to duplicate an existing property, due either to the lack of certain materials or trade skills or the functional obsolescence of a property.

The difficulty of using reproduction cost increases as a property ages. When a property would not be exactly duplicated, as is often the case, reproduction cost loses validity as an indicator of market. This lack of validity can be overcome if depreciation is accurately estimated, but this can be somewhat difficult to determine for an exact replica.

Replacement Cost Approach

Replacement cost is the cost to replace an existing property with a property of equivalent utility¹¹¹ as of a particular date. The replacement cost concept is the most meaningful as far as the principle of substitution is concerned.

In the replacement cost approach, elements of a property that would clearly not be included in a substitute of equal utility are excluded from the estimated replacement cost. For example, a buyer may not look for an identical new property to replace an older property. The buyer would look instead for the best way to perform the same function(s). The best way may be to use the latest state-of-the-art technology and materials, or may be another used piece of equipment able to perform to specifications of equivalent utility. In making this decision, a buyer would look at various aspects of available properties. These considerations include, but are not limited to, the cost to acquire each property, the age of the properties, the remaining expected lives of the properties, and the expected cost to operate each in comparison to the property being replaced and to each other.

Historical Cost Approach

Historical cost reflects the level of cost at the time of a property's original construction or acquisition, and is discussed in Rules 3 and 6 in two contexts: (1) as a method of estimating

¹¹¹ Rule 6(d) provides that the "replacement cost of a reproducible property may be estimated . . . by applying current prices to the labor and material components of a substitute property capable of yielding the same services and amenities, with appropriate additions . . .".

Types of Depreciation Defined

A property may suffer from one or more forms of depreciation. That is, a single piece of equipment may contain elements of physical deterioration as well as both functional and external obsolescence. In some cases, calculation methodologies may be used to separately estimate the amount of depreciation attributable to each cause. In many situations, however, it may be impossible to categorize the amount of depreciation attributable to each cause. Regardless of whether total depreciation is calculated as a whole or as a sum of parts, recognizing and identifying the types of depreciation applicable to a property may aid in estimating total depreciation to arrive at value.

Physical Deterioration

Physical deterioration is the loss in value which may be the result of wear and tear either from use or exposure to various elements. This type of depreciation is expected on most equipment. Virtually all properties deteriorate as they age, and it is not abnormal unless equipment is put to excessive use or misused. Good maintenance will slow the process, while lack of maintenance and overuse will increase physical deterioration.

Most physical deterioration can be corrected. However, the relationship between the costs involved and the economic benefit derived determines whether it is economically feasible to correct or repair physical deterioration. An element of physical deterioration is considered *curable* when the cost to correct the deficiency is less than the economic benefit resulting therefrom. When the cost to correct the deficiency is greater than the resulting economic benefit, the element of physical deterioration is considered *incurable*.

Functional Obsolescence

Functional obsolescence is the loss of value in a property caused by the design of the property itself. When the capacity of a property to perform the function for which it was intended declines, functional obsolescence is present. Functional obsolescence may include such things as changes in taste in the marketplace, changes in equipment design, materials, or process, or poor initial design.

Changing technology commonly creates functional obsolescence for machinery and equipment, and some functional obsolescence can be or should be considered normal to varying degrees (depending upon the industry and equipment type). Older machines and sometimes newer machines or entire lines of equipment, even though still in use, may be made obsolete by new technologies and manufacturing processes and the market value may be reduced because of functional obsolescence.

Functional obsolescence may be less tangible or visible than physical deterioration, but it may be more significant. However, it may be curable. An element of functional obsolescence is considered *curable* when the cost to correct the deficiency is less than the resulting economic benefit. When the cost to correct the deficiency is greater than the resulting economic benefit, the element of functional obsolescence is considered *incurable*.

External Obsolescence

External obsolescence, also known as economic obsolescence, is a loss in value resulting from adverse factors external to the property that decrease the desirability of the property. This type of depreciation may include the loss of value due to: inflation, high interest rates, legislation, environmental factors, reduced demand for the product, increased competition, changes in raw material supplies, and increasing costs of raw material, labor or utilities without a corresponding price increase of the product.

Loss in value attributable to external obsolescence is usually beyond the owner's control and is mostly atypical depreciation. It can, however, be normal in industries where markets have shown long-term, sustained, and predictable shifts, such as the market for semiconductor and other high-technology equipment. It can be identified by studying the overall market conditions for a property. For example, if the output of a machine is superseded in the marketplace by output of a different material (i.e., fiberglass for metal or plastic for wood), and the market no longer absorbs the superseded output, then the machinery has suffered external obsolescence.

Methods of Estimating Depreciation and Value

There are several methods of estimating depreciation and value for appraisal and assessment purposes. Appraisers may need to use one or more of these methods while determining depreciation from all causes. Again, the appraiser's methods are not the same as the accountant's methods because an accountant uses depreciation to recover cost over a preselected useful life of the property as determined by GAAP and/or federal and state income tax laws while an appraiser uses depreciation to estimate market value.¹⁴³

Market Method

The Market Method of calculating value factors (and/or developing depreciation tables) relies on market data, with adjustments made for relevant property characteristics incorporated (see Appendix H). It is a method of estimating a property's total depreciation directly without utilizing indirect engineering economics calculations. The market method is the preferred method when reliable data¹⁴⁴ are available because it captures all forms of depreciation, including both external and functional obsolescence.

Using a variation of this methodology, an analyst and/or appraiser may gather market data for identical or similar property to compare the used price of an asset to the original new price of that same asset. The difference is the analyst and/or appraiser's estimate of percent good (used price / new price = percent good factor or value factor)¹⁴⁵ at the age it was at the time of

¹⁴³ Assessors tend to utilize equipment index factors and percent good factors published by the Board for the majority of appraisals concerning machinery and equipment, and fixtures. However, different methods of estimating depreciation and value may be appropriate.

¹⁴⁴ See AH 501, *Basic Appraisal*, Chapter 6, under the discussion of the cost approach for information regarding data collection and analysis.

¹⁴⁵ Using the market method, a combined factor may be estimated similar to the result of multiplying the index factor and the percent good factor used from AH 581 tables discussed in this chapter.



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June 11, 2010

TO COUNTY ASSESSORS AND INTERESTED PARTIES:

No. 2010/030

NOTICE OF BOARD ACTION

GUIDELINES FOR SUBSTANTIATING ADDITIONAL OBSOLESCENCE FOR PERSONAL PROPERTY AND FIXTURES

On May 26, 2010, the Board of Equalization approved the enclosed *Guidelines for Substantiating Additional Obsolescence for Personal Property and Fixtures*.

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). AH 581 contains several tables of equipment index, percent good, and valuation factors. The tables are intended to promote uniformity of assessment for use in mass appraisal; however, appraisers should be cognizant of how to recognize and measure additional obsolescence in personal property and fixtures.

After receiving numerous inquiries from county assessors' staff and assessees in reference to recognition and measurement of additional obsolescence in personal property and fixtures, staff drafted these *Guidelines* in consultation with interested parties and, after discussions, the *Guidelines* were approved by the Board. The *Guidelines* discuss methods of recognizing and measuring additional or extraordinary obsolescence for personal property and fixtures.

The *Guidelines* are posted on the Board's website at www.boe.ca.gov/proptaxes/guideproc.htm. We hope this information proves useful and promotes uniformity of assessment for these properties. If you have any questions, please contact our Assessment Services Unit at 916-445-4982.

Sincerely,

/s/ David J. Gau

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Deputy Director
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DJG:lf
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GUIDELINES FOR SUBSTANTIATING ADDITIONAL OBSOLESCENCE FOR PERSONAL PROPERTY AND FIXTURES

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GUIDELINES FOR SUBSTANTIATING ADDITIONAL OBSCOLESCENCE FOR PERSONAL PROPERTY AND FIXTURES

INTRODUCTION

The State Board of Equalization (Board) co-administers property tax in California with the county assessors. The 58 county assessors are charged with the assessment of locally assessed real and personal property for taxation purposes and resolution of appeals of property values at the local level in conjunction with county assessment appeals boards. The Board's role is advisory and does not include setting values for any locally assessed property or resolving disputes over those assessments.

All property is taxable (or assessable) unless it is exempt by the Constitution or statutes.¹ This taxable property may be defined as real property or personal property. *Real property* includes the possession of, the claim to, the ownership of, and the right to the possession of land and improvements. For valuation purposes, all improvements should be subclassified as structure items or fixtures because fixtures are treated differently for valuation purposes.² *Personal property* includes all property except real property. Unlike real property, personal property is not governed by the base year value limitations of article XIII A of the California Constitution (Proposition 13) and must be valued on an annual basis.³

Property statements are filed by assesseees and are used by county assessors to gather information and ultimately determine the assessable value of personal property and fixtures on an annual basis. These statements must be filed timely⁴ and signed under penalty of perjury by the deadline as prescribed under Revenue and Taxation Code section 441.⁵ If a property statement is filed by May 7, a property owner may amend the statement until May 31 for errors or omissions that were not the result of willful intent to erroneously report. The auditor-appraiser determines the taxable value of the property reported on the statement, and the value is placed on the local assessment roll. The county assessor is required to complete the local assessment roll and deliver it to the county auditor on or before July 1.⁶

In most cases, valuation of the personal property and fixtures reported on the property statement involves using the cost approach and the application of factors that are provided in Assessors' Handbook Section 581 (AH 581), *Equipment and Fixtures Index, Percent Good and Valuation Factors*. AH 581 contains several tables of equipment index, percent good, and valuation factors.

The tables are intended to promote uniformity of assessment for use in the mass appraisal of

¹ California Constitution, article XIII, section 1.

² See Assessors' Handbook Section 504 (AH 504), *Assessment of Personal Property and Fixtures*, and Assessors' Handbook Section 502 (AH 502), *Advanced Appraisal*, for information on the importance on classification of structure items and fixtures.

³ Exceptions are manufactured homes and floating homes.

⁴ Property statements should be filed with the county assessor between the lien date (January 1) and 5 p.m. on April 1. A late penalty applies if the statement is filed after May 7.

⁵ All statutory references are to the Revenue and Taxation Code unless otherwise specified.

⁶ Sections 616 and 617.

equipment and fixtures when determining value for taxation purposes. *Mass appraisal* is the process of valuing a group of properties as of a given date using standard methodology for taxation purposes. Use of mass appraisal by county assessors is supported in a court decision which, in part, found that:

...After considering the circumstances and the various factors influencing value, it is the assessor's duty to exercise a prudent discretion in reaching conclusions. The magnitude of the assessor's task—appraisal and assessment of all property within a limited time—demonstrates the necessity for him to promulgate general rules, formulas, and percentages for depreciation, construction costs, square foot area charges, and other factors, in order to secure uniformity.⁷

Application of the index and percent good factors determines the value of equipment and fixtures for property taxation purposes. ***Relevant data pertinent to the assessment of a specific property should always be reviewed and considered because the value determined by use of data contained in AH 581 may need to be adjusted for actual available market data.*** However, in order to ensure that the evidence is considered, it should be submitted prior to the enrollment of the assessment; otherwise, it might only be considered if a timely assessment appeal application is filed or an audit is conducted.

To assist a county assessor in (1) reviewing data that may be submitted by an assessee, or (2) valuing property using a method other than application of the factors provided in AH 581, the following information is provided on the cost approach, comparative sales approach, income approach, and other methods of calculating depreciation.⁸ For additional information on personal property and fixture valuation issues, see Assessors' Handbook Section 504, *Assessment of Personal Property and Fixtures*.

APPROACHES TO VALUE

Rule 3, *Value Approaches*,⁹ prescribes the application of one or more of the following approaches to value in order to arrive at fair market value:

- Comparative sales approach
- Replacement/reproduction cost approach
- Historical cost approach
- Income approach
- Stock and debt approach

⁷ *Louis F. Domenghini as Trustee v. County of San Luis Obispo* (1974) 40 Cal.App.3d 689, 695-696.

⁸ See Assessors' Handbook Section 501 (AH 501), *Basic Appraisal*, AH 502, and AH 504 for additional information on these approaches.

⁹ All references to Rules are Property Tax Rules from Title 18, Public Revenues, California Code of Regulations.

The three major appraisal approaches for estimating value for locally assessed property are the cost, comparative sales, and income approaches.

Although all three approaches to value should be considered, the use of all three may not always be appropriate. The nature of a property, its market, and the availability of data will normally dictate which approach(es) is most applicable. The appraiser/auditor-appraiser, therefore, should analyze all the data available on a subject property and use the most applicable approach(es) in the appraisal. An appraiser/auditor-appraiser should have knowledge of each approach as it applies to personal property and business fixtures to make this determination. This is supported by Rule 3, which states in part:

In estimating value as defined in section 2 [Rule 2], the assessor shall consider one or more of the following [approaches to value], as may be appropriate for the property being appraised.

In the absence of reliable sales data, the cost and income approaches assume greater importance. If a property is owned for the purpose of producing rental income, and if there is an active rental market for similar property, the income approach is generally most appropriate. Additionally, pursuant to Rule 8, subsection (a), the income approach:

...is the preferred approach for the appraisal of land when reliable sales data for comparable properties are not available. It is the preferred approach for the appraisal of improved real properties and personal properties when reliable sales data are not available and the cost approaches are unreliable because the reproducible property has suffered considerable physical depreciation, functional obsolescence or economic obsolescence, or a substantial over-or underimprovement, is misplaced, or is subject to legal restrictions on income that are unrelated to cost.

However, if there are neither comparable sales nor reliable income data available, the cost approach becomes more appropriate.

Each appraisal approach used should be carried out independently from the others and completed on the basis of market data supporting that approach, and all data should be derived from the market relevant to the property being appraised. The process of resolving the differences among value indicators is called *reconciliation*. In reconciliation, the appraiser should consider the various factors influencing value that are either not reflected or only partially reflected in the value indicators. The result of reconciliation should be a meaningful, defensible conclusion concerning the final value estimate.

These *Guidelines* focus on quantifying additional obsolescence of personal property and fixtures when using the cost approach. For additional information on using the comparative sales approach and the income approach to value personal property and fixtures, see AH 504.

COST APPROACH

The cost approach to value estimates the value of an asset or a group of assets as the original cost or historical cost of the asset (or group of assets), adjusted to account for changes in value since purchase and/or installation. The rationale for the use of the cost approach is based upon the economic *principle of substitution*. This principle holds that a rational person will pay no more for a property than the cost of acquiring a satisfactory substitute, assuming no costly delay.¹⁰ The cost approach is the method of valuation used most frequently to value personal property and business fixtures for assessment purposes because it lends itself to mass appraisal and is employed based on information provided on yearly property statements.¹¹

Rule 6, subdivision (a), directs when to use the cost approach:

The reproduction or replacement cost approach to value is used in conjunction with other value approaches and is preferred when neither reliable sales data (including sales of fractional interests) nor reliable income data are available and when the income from the property is not so regulated as to make such cost irrelevant. It is particularly appropriate for construction work in progress and for other property that has experienced relatively little physical deterioration, is not misplaced, is neither over- nor underimproved, and is not affected by other forms of depreciation or obsolescence.

Rule 6 allows and prescribes more than one type of cost approach that an appraiser may use. The two variations of the cost approach provided are reproduction cost and replacement cost. In general, for mass appraisal purposes, the county assessor applies an index factor to historical or original cost to estimate reproduction cost new or replacement cost new.¹² However, replacement cost new is generally the proper starting point for developing an opinion of value using the cost approach.

REPRODUCTION COST APPROACH

The reproduction cost approach uses the cost to replace an existing property with an identical property, a replica, as a basis for estimating value. It is frequently not possible or desirable to duplicate an existing property due either to the:

- Lack of certain materials or trade skills; or
- Functional obsolescence that may exist for the property.

The difficulty of using reproduction cost increases as a property ages. When a property would not or cannot be exactly duplicated, as is often the case, reproduction cost loses validity as an

¹⁰ See AH 501 for more information regarding the principle of substitution.

¹¹ See AH 504.

¹² Rule 6 uses the terms *historical cost* and *original cost* synonymously—the cost of the property when new. The term *acquisition cost* is used as the cost to the current owner. For purposes of these *Guidelines*, the terms are used as defined in Rule 6.

indicator of market value. This lack of validity can be overcome if depreciation is accurately estimated, but this can be somewhat difficult to determine for an exact replica.

REPLACEMENT COST APPROACH

Replacement cost is the cost to replace an existing property with a property of equivalent utility as of a particular date. The replacement cost is the most meaningful approach considering the principle of substitution.

In the replacement cost approach, elements of a property that would clearly not be included in a substitute of equal utility are excluded from the estimated replacement cost. For example, a buyer may not look for an identical new property to replace an older property. The buyer would look instead for the best way to perform the same function(s). The best way may be to use the latest state-of-the-art technology and materials, or to purchase another used piece of equipment able to perform to specifications of equivalent utility. In making this decision, a buyer would look at various aspects of available properties. These considerations include, but are not limited to, the:

- Cost to acquire each property,
- Age of the properties,
- Remaining expected lives of the properties, and
- Expected cost to operate each in comparison to the property being replaced and to each other.

VARIATIONS OF THE COST APPROACH

The reproduction cost approach and the replacement cost approach, as discussed in Rule 6, are the variations most commonly used to value personal property and business fixtures at the county level. In general, these variations of the cost approach use historical or original cost information to estimate a reproduction cost new (current cost new to reproduce an *identical* property) or replacement cost new (current cost new to replace a property with a *similar* property of the same utility). Then, the reproduction or replacement cost new is adjusted to reflect depreciation to arrive at a value for taxation purposes.¹³

The indexes and percent good factors provided in AH 581 are intended for use in the mass appraisal of equipment and fixtures when determining the value for taxation purposes. In most cases, it is a practical method for mass appraisal purposes.

When using the factors and valuation method contained in AH 581, an appraiser should not only estimate a full economic cost (replacement cost new or reproduction cost new) and consider all forms of depreciation that apply to a particular property, but should also be aware of the limitations inherent to this approach. It is important for an appraiser to recognize the limitations

¹³ Alternatively, one factor may be developed and used to estimate value using one mathematical operation (original/historical cost times value factor equals value estimate, as opposed to original/historical cost times index factor times percent good factor equals value estimate).

of the cost approach in regard to a specific property because adjustments may be needed, or a different approach to value warranted. The annual business property statement allows property owners to identify all property specific conditions that would warrant adjustment. Supplemental information that may be presented by the assessee may be valid, whether or not submitted with the business property statement. However, in order to ensure that the evidence is considered, it should be submitted prior to the enrollment of the assessment; otherwise, it might only be considered if a timely assessment appeal application is filed or an audit is conducted.¹⁴

VALID COST COMPONENTS

Rules 6 and 10 define valid cost components as including labor, material, entrepreneurial services, interest on borrowed or owner-supplied funds, freight or shipping costs, installation costs, sales or use tax, and "other costs typically incurred in bringing the property to a finished state (or to a lesser state if unfinished on the lien date)."¹⁵ In general, the cost to be assessed is that to the end-user or the retail level. Additional information on the cost components is included in AH 504.

It is important that the appropriate cost components be reflected in the historical cost when developing the cost indicator. A property's recorded purchase price does not necessarily reflect all costs required to estimate value for assessment purposes, nor does it necessarily exclude costs which do not contribute to value. In other words, not all costs contributing to value are booked and not all costs booked contribute to value. For example, the booked cost may represent acquisition cost as opposed to historical cost—acquisition cost being the cost to the current owner, and historical cost being the original cost when new. If either the historical cost or the cost to the current owner does not accurately reflect all valid cost components or market value at the time the property was purchased,¹⁶ resulting cost approach value estimates may not be good indicators.

DEPRECIATION OF MACHINERY AND EQUIPMENT

Depreciation, for appraisal purposes, is a loss in value from any cause. It is the difference between the value of a hypothetical new, similar property and the current value of the subject property; the total measure of the reduced value at a particular point in time. It is a by-product of the value estimate.

For appraisal purposes, depreciation occurs in two different ways. First, and probably most important, the remaining economic life of a property may decline. Instead of yielding benefits for ten years as when new, a property may now have only eight years remaining service. Second, there may be a reduction in net benefits from the property. Fewer benefits may be provided, or the same benefits are provided at a higher cost (thus, fewer net benefits are provided). Thus, a decline in the remaining life or the efficiency of property causes depreciation.

¹⁴ Rules 191 and 305.

¹⁵ Rule 6, subdivision (b).

¹⁶ *Dennis v. County of Santa Clara* (1989) 215 Cal.App.3d 1019.

The appraiser's definition and use of depreciation is fundamentally different from the accountant's definition and use of depreciation. The accountant uses depreciation to amortize a property's cost over the estimated life of the property.

The appraiser should recognize that depreciation from reproduction cost new is different from depreciation from replacement cost new when these costs are different. In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar. Although depreciation may be estimated in a lump sum, it is important to be aware of each type of depreciation in order to determine:

1. If all necessary adjustments have been made;
2. That there are no duplicate allowances for any one type; and
3. If information submitted by a taxpayer (with the business property statement or through an appeal) calculates depreciation in a manner consistent with accepted principles.

Appraisers analyze three generally recognized types, or causes, of depreciation:

- Physical deterioration
- Functional obsolescence
- External, or economic obsolescence

A property may suffer from more than one form of depreciation at one time. That is, a single piece of equipment may contain elements of physical deterioration as well as both functional and external obsolescence. In some cases, calculation methodologies may be used to separately estimate the amount of depreciation attributable to each cause. These methodologies should be used in situations where the taxpayer questions the accuracy of the mass appraisal method on the valuation of his/her property. When estimating each element of depreciation it is important to ensure that the estimate is attributable only to that element of depreciation. For example, if estimating physical deterioration, it is important to avoid including elements that may be attributable to functional obsolescence and/or external obsolescence.

In many situations, however, it may be impossible to categorize the amount of depreciation attributable to each cause. Regardless of whether total depreciation is calculated as a whole or as a sum of parts, recognizing and identifying the types of depreciation applicable to a property may aid in estimating total depreciation to arrive at value.

Physical Deterioration

Physical deterioration is the loss in value which may be the result of wear and tear either from use or exposure to various elements. This type of depreciation is expected on most equipment. Virtually all properties deteriorate as they age, and it is not abnormal unless equipment is put to excessive use or misused. Good maintenance will slow the process, while lack of maintenance and/or overuse will increase physical deterioration.

Much physical deterioration can be cured. However, the relationship between the costs involved and the economic benefit derived determines whether it is economically feasible to cure or repair physical deterioration. An element of physical deterioration is considered *curable* when the cost to cure the deficiency is less than the resulting economic benefit. When the cost to cure the deficiency is greater than the resulting economic benefit, the element of physical deterioration is considered *incurable*.

Functional Obsolescence

Functional obsolescence is the loss of value in a property caused by the design of the property itself. For example, when the capacity of a property to perform the function for which it was intended declines, functional obsolescence is present. Functional obsolescence may include such things as changes in taste in the marketplace, changes in equipment design, materials, or process, or poor initial design.

Changing technology commonly creates functional obsolescence for machinery and equipment. Older machines, and sometimes newer machines or entire lines of equipment, even though still in use may be made obsolete by new technologies and manufacturing processes and the market value may be reduced because of functional obsolescence.

Functional obsolescence may be less tangible or visible than physical deterioration, but it may be more significant. However, it may be curable. An element of functional obsolescence is considered *curable* when the cost to cure the deficiency is less than the present value of the excess operating expense associated with allowing the conditions creating the functional obsolescence to continue over the remaining life of the property. When the cost to cure the deficiency is greater than the present value of allowing the conditions which result in functional obsolescence to continue, the element of functional obsolescence is considered *incurable*.

External Obsolescence

External obsolescence, also known as economic obsolescence, is a loss in value resulting from adverse factors external to the property that decrease the desirability of the property. This type of depreciation may include the loss of value due to any one or a combination of the following factors:

- Inflation
- High interest rates
- Legislation or regulations
- Environmental factors
- Inadequate demand for the product relative to production capacity
- Increased competition

- Changes in raw material supplies
- Increasing costs of raw materials, labor or utilities without a corresponding price increase of the product

Loss in value attributable to external obsolescence is usually beyond the owner's control. It can be identified by studying the overall market conditions for a property. For example, if the output of a machine is superseded in the marketplace by output of a different material (for examples, fiberglass for metal or plastic for wood) and the market no longer absorbs the superseded output, then the machinery has suffered external obsolescence. Continued operation or continued profitability does not necessarily disprove the existence of external obsolescence or indicate that no external obsolescence exists.

METHODS OF ESTIMATING DEPRECIATION

There are several methods of estimating depreciation for appraisal and assessment purposes. The appraiser's methods are not the same as the accountant's methods because an accountant uses depreciation to recover cost over a pre-selected useful life of the property as determined by GAAP and/or federal and state income tax laws, while an appraiser uses depreciation to estimate market value.

Five methods are discussed in this section:

- Market method
- Equipment index factor and percent good factor method
- Sampling method
- Straight-line or age-life method
- Breakdown method

Of the five methods, only the breakdown method measures depreciation according to its separate sources: physical deterioration, functional obsolescence, and external obsolescence. The other methods measure depreciation from all sources in a lump sum. Although some of these methods are time-consuming and may not be practical in mass appraisal (particularly the breakdown method), it is important to be familiar with each of the methods. If a taxpayer provides information on the valuation of his/her property using one of the methods either as an attachment to a business property statement or through the appeal process, the appraiser must be familiar with the method in order to determine the validity of the appraisal.

Market Method

The *market method* of calculating value factors (and/or developing depreciation tables) relies on market data, with adjustments made for relevant property characteristics incorporated. It is a method of estimating a property's total depreciation directly without utilizing indirect engineering economics calculations. The market method is the preferred method when reliable

data¹⁷ are available because it captures all forms of depreciation, including both external and functional obsolescence.

Using a variation of this methodology, an appraiser may gather market data for identical or similar property to compare the used price of an asset to the original new price of that same asset. The difference is the appraiser's estimate of a value factor (used price divided by new price = value factor)¹⁸ at the age it was at the time of sale. The estimates are reduced to a table of value factors. When arrayed on a scattergram, a best-fit curve, passing through the entire mass of points, estimates average value factors at each age and the average decline in value per year. (It is usually set to 100 percent at age 0 in order to correspond with the assumption that a new asset is purchased at its market value when new.) When reliable, accurate, and representative data are available regarding machinery and equipment and fixtures, use of this approach (or a modified version) is the preferred method.

Equipment Index Factor and Percent Good Factor Method

The valuation of personal property and business fixtures for assessment purposes most often involves the use of a mass appraisal method. The property statement is organized to facilitate the use of such a method, specifically equipment index and percent good factors. Property (normally equipment) is valued based on information reported on property statements. Each piece of equipment is not identified and valued separately, but rather, the equipment is valued as a group based on the type of business and the classification of the property.¹⁹ The first step in the calculation process is to "trend" the historical cost of the property to an estimated reproduction or replacement cost new (by applying the appropriate index factor to historical cost). This trending is accomplished using an equipment index factor. The next step is to apply a percent good factor to trended historical cost in order to calculate reproduction or replacement cost new less depreciation.

Equipment index factors and percent good factors in AH 581 are computed and published by the Board for use in estimating reproduction cost new and equipment/fixture value, respectively. The tables are based upon data for different types of property.

Equipment Index Factors

Equipment index factors are developed for use in mass appraisals for converting original cost to estimates of reproduction cost or replacement cost new. Index factors are used to adjust a property's historical cost for price level changes since the property was acquired. The index factors recommended by the Board, updated and distributed annually in AH 581, include three separate index factor tables: Table 1, *Commercial Equipment*; Table 2, *Industrial Machinery and Equipment*; and Table 3, *Agricultural and Construction Equipment*. The tables rely on indexes

¹⁷ See AH 501, Chapter 6, under the discussion of the cost approach for information regarding data collection and analysis.

¹⁸ Using the market method, a combined factor may be estimated similar to the valuation factors in AH 581 or the result of multiplying the index factor and the percent good factor used from the tables in AH 581.

¹⁹ An exception is form AH 571-F, *Agricultural Property Statement*; each piece of equipment is listed separately on this form.

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 or where technology may not rapidly change but newer technology is available, 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 can be applied when determining value for 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.

Price Changes

Price changes are usually an increasing factor (inflation). Price changes are measured from a base year, in which a beginning index number is typically set at 100. During those periods of time when the cost of raw material and/or labor actually declines, however, price changes may be a decreasing factor (deflation). If raw materials, labor, and other costs rise, the index will probably increase.

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.

Indications of changes in technology may include increased capacity of new equipment, changes in equipment design, material, or process, or lower operating or acquisition costs for new equipment. Forces that may cause obsolescence include changes in taste in the marketplace and regulatory requirements.

Percent Good Factors

In a mass appraisal program, percent good factors are frequently used in estimating depreciation. Percent good, as a percentage, is the complement of depreciation. For example, if total depreciation is 20 percent, then percent good is 80 percent. The percent good concept is used in the appraisal process for two reasons: (1) it focuses the appraisal on the benefits remaining or the economic life remaining in the property rather than the benefits used; and (2) it saves one arithmetical operation.

Percent good factors are provided in AH 581 for use in valuing personal property and fixtures. In general, an *average service life* (the average life term of a group of items) estimate is needed in order to use the table. In mass appraisal situations, estimating life for each piece of equipment is not practical; therefore, service life is not generally estimated on an individual basis. (It may occur in practice, however, when the assessee files an appeal, when an audit is conducted, or when equipment is self-constructed.) Average service life can be estimated by an appraiser based on a mortality study of individual acquisitions and retirements, historical usage of property, useful life expectancy as reflected by the applicable industry, or other information as available.

Any percent good table or depreciation schedule, including those published by the Board, should be used only as a guide in the estimation of value. They may reflect more or less depreciation than the actual market indicates.

Sampling Method

Indexes published in AH 581 are based on government price indexes derived by market sampling. When necessary, and resources are available, the county assessor may conduct similar such studies to derive his/her own indexes.

In order to promote uniformity in appraisal practices and values throughout the state, the Board issues information and data relating to commercial and industrial property. This information includes, but is not limited to, appropriate index factors and percent good factors. Most counties do not have staff to conduct independent and statistically sound sampling procedures to develop their own valuation factors. Furthermore, achieving statistically sound samples may be very difficult for a county assessor seeking to develop valuation factors because it can be difficult to obtain data from entities that are outside the county assessor's jurisdiction and are not stakeholders in the outcome. Moreover, when counties develop and use different valuation factors for property, value inequities may result between counties for the same type of property.

Most notably, where the equipment index and percent good factors provided by the Board and other approaches to value and methods of estimating depreciation are not good indicators of value, a county assessor may wish to use some type of sampling methodology to develop his/her own factors. To use sampling, county assessors must develop and use recognized methods that will be accepted with confidence by the Board and assessees. In developing a sample plan, technique, and program, consulting a textbook on statistics for information on the theory and application of sampling is recommended. For an example, see the *Board's Sales and Use Tax Audit Manual*, Chapter 13: *Statistical Sampling*.²⁰

Straight-Line or Age-Life Method

Under *straight-line* or *age-life method*, depreciation is estimated by dividing the actual or effective age of the property by the estimated economic life. The straight-line or age-life method is based on the relationship between physical age and estimated economic life. *Physical life* is the estimated number of years that a new property will physically endure before it deteriorates or

²⁰ See AH 504, Appendix G.

fatigues to an unusable condition purely from physical causes, without considering the possibility of earlier retirement due to functional or external obsolescence.²¹ Economic life of a property represents the period of time during which the property has value.

Although straight-line depreciation may have little or no bearing on market value, effective age should be recognized whenever data reasonably indicates that effective age is different than actual age. *Effective age* is the apparent age of a property in comparison with a new property of like kind; that is, the age indicated by the actual condition of a property.²² Because there may be a large variation in the condition of property having the same age, the effective age (as opposed to the actual age) is the best indicator of the market's perception of age.

This approach does not reflect the relationship between the present worth of the future earnings of a property versus the present worth of future earnings of a new replacement property. It ignores the principle that money has a time value (income earned in the near future has a greater value than the same amount of income to be earned in the distant future). Thus, it tends to understate the economic value of older property that is producing a current income comparable to the current income that would be produced by a new replacement. Conversely, this method does not reflect additional depreciation that should be recognized if the existing property benefits are *less* than the benefits that would be earned by a new replacement. While an estimate of depreciation is easily achieved, the result is an approximation based on the usually faulty assumption that property depreciates on a straight-line basis throughout its economic life. Therefore, this method should be used in combination with another method or methods.

Breakdown Method

The *breakdown method* measures depreciation according to its separate sources: physical deterioration, functional obsolescence, and external obsolescence. When using the breakdown method to measure depreciation, each type of depreciation is deducted separately in a specific order. For example, under the cost approach, the appraiser would first deduct the percentage of depreciation attributed to physical deterioration from replacement cost new. Second, the appraiser would deduct the percentage of depreciation attributed to functional obsolescence from replacement cost new less physical deterioration. Third, the appraiser would deduct the percentage of depreciation attributed to external obsolescence from replacement cost new less physical deterioration and functional obsolescence. In some cases, it may be more appropriate to deduct external obsolescence before functional obsolescence depending on the methodology used. However, if an appraisal is presented that deducts each type of depreciation in a different order, a reasonable explanation should be provided to support the reason for using a methodology contrary to industry accepted appraisal practice and standards.

²¹ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 74.

²² American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 71.

The following provides information to assist an appraiser in recognizing various methods that may be used by taxpayers when providing valuation evidence with a business property statement or through the appeal process.

Estimating Physical Deterioration

In general, physical deterioration is measured as a percentage. For example, a new property would have 0 percent physical deterioration. A percentage attributed to physical deterioration is the first deduction from replacement cost new in the breakdown method. There are various methods of estimating physical deterioration. The American Society of Appraisers identifies three methods of measuring physical deterioration.²³ These methods include observation, formula ratio, and direct dollar measurement.

Observation Method

One method of estimating physical deterioration is the *observation method*.²⁴ Under this method, physical deterioration is estimated by observing the condition of the property. Physical deterioration is calculated as a percentage, which is deducted from replacement or reproduction cost new. The appraiser conducts a physical inspection to identify the wear and tear of the equipment in order to estimate physical deterioration of the subject property when compared to that property if it was new. Although some wear and tear may be visible to the appraiser, not all wear and tear can be observed. To identify all wear and tear, the appraiser may interview knowledgeable personnel and inspect maintenance records. Under the observation method, the appraiser estimates physical deterioration as a percentage based on his/her subjective opinion. Therefore, the appraiser should gather as much information as practicable to ensure that each estimate of physical deterioration is as accurate as is possible under the circumstances.

The following is an excerpt from *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets* (pages 68-69) and is provided to illustrate guidelines in determining the overall condition of equipment when estimating physical deterioration using the observation method. The following is provided for illustration purposes only, an appraiser should identify his/her overall guidelines when utilizing the observation method and identify a percentage range to use within each classification (for example, identify applicable percentage range to use for equipment in excellent condition vs. very good condition).

²³ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 71.

²⁴ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 71.

New (N)	This term describes new items that have not been used before.
Excellent (E)	This term describes those items that are in near-new condition and have had very little use.
Very Good (VG)	This term describes an item of equipment in excellent condition capable of being used to its fully specified utilization for its designed purpose without being modified and without requirement of any repairs or abnormal maintenance at the time of inspection or within the foreseeable future.
Good (G)	This term describes those items of equipment which are in good operating condition. They may or may not have been modified or repaired and are capable of being used at or near their fully specified utilization.
Fair (F)	This term describes those items of equipment which because of their condition are being used at some point below their fully specified utilization because of the effects of age and/or application and which may require general repairs and some replacement of minor elements in the foreseeable future to raise them to be capable of being utilized to or near their original specifications.
Poor (P)	This term is used to describe those items of equipment which because of their condition can be used only at some point well below their fully specified utilization, and it is not possible to realize full capacity in their current condition without extensive repairs and/or the replacement of major elements in the near future.
Salvage (S)	This term is used to describe those items of equipment whose value remains in the whole property or a component of the whole property that has been retired from service.
Scrap (X)	This term is used to describe those items of equipment which are no longer serviceable and which cannot be utilized to any practical degree regardless of the extent of the repairs or modifications to which they may be subjected. This condition applies to items of equipment which have been used for 100 percent of their useful life or which are 100 percent technologically or functionally obsolete and are no longer serviceable and have no value other than for their material content.

Formula Ratio Method

A second method of estimating physical deterioration is the *formula ratio method*.²⁵ Use versus total use and age/life are two different formula ratios identified. In general, when using the use versus total use ratio, a percentage is calculated by dividing the use of the equipment at a point in time by the total use expected out of the property (use / total use = percent of physical deterioration). If the use exceeds the expected (or projected) total use of the equipment or if the equipment is rebuilt, then an adjustment is necessary to the total use. (For example, if a piece of equipment is expected to be used for 50,000 hours but it is rebuilt at 50,000 hours and is expected to continue operation for additional 25,000 hours, physical deterioration using the use vs. total use method is calculated as follows: $[50,000 / (50,000 + 25,000)] \times 100 = 67$ percent.)

In general, when using the age / life ratio, a percentage is calculated by dividing the effective age of the equipment at a point in time by the physical life of the equipment (effective age / physical life = percent of physical deterioration). For older equipment, an adjustment is necessary to the denominator in the equation as follows: effective age / (effective age + remaining physical life) = percent of physical deterioration. Chronological age is not synonymous with effective age. "*Chronological age* is the number of years that have elapsed since an item or a property was originally built or placed in service."²⁶ "*Effective age* is the apparent age of a property in comparison with a new property of like kind; that is, the age indicated by the actual condition of a property."²⁷

Remaining physical life is the estimated period during which a property of a certain effective age is expected to physically endure before it deteriorates or fatigues to an unusable condition purely from physical causes, without considering the possibility of earlier retirement due to functional or external obsolescence.

The discussion of use versus total use and the age / life ratio, formula ratio methods, are presented in a simplified format. The discussion does not consider the time value of money; a more detailed treatment would consider the time value of money. The "time value of money" refers to the fact that a dollar today is worth more than a dollar in the future. Time value of money concepts and techniques are used to calculate and to compare the values of sums of money at different points in time.

Direct Dollar Measurement Method

A third method of estimating physical deterioration is the *direct dollar measurement method*.²⁸ This method is recommended for equipment that may have a physical problem that requires a large expenditure to cure the physical problem. Under this method the curable physical

²⁵ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, pp. 71 and 72.

²⁶ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 73.

²⁷ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 73.

²⁸ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, pp. 82 - 86.

deterioration is estimated using the direct dollar measurement method and the incurable physical deterioration is estimated using either the observation method or one of the formula ratio methods. In other words, under the direct dollar measurement method, calculation of physical deterioration is a two step process.

Under the direct dollar measurement method, curable physical deterioration is estimated by determining the cost to cure the physical problem with the property. Once the cost to cure the physical problem with the property is calculated, it is deducted from the reproduction cost new of the property to compute the reproduction cost new less curable physical deterioration. The next step is to calculate the incurable physical deterioration using the observation method or one of the formula ratio methods. As described under the applicable headings above, these calculations result in a percentage. The percentage is applied to the reproduction cost new less curable physical deterioration to determine incurable physical deterioration. The curable physical deterioration is added to the incurable physical deterioration to compute the total physical deterioration. This total is divided by the reproduction cost new to calculate a composite physical deterioration percentage that can be applied to replacement cost new in the breakdown method.

Estimating Functional Obsolescence

When the capacity or efficiency of a property to perform the function for which it was intended declines, functional obsolescence is present. Two common methods of estimating functional obsolescence in equipment, if present, include analysis of excess capital costs and analysis of excess operating expenses. Functional obsolescence is considered curable if, on the appraisal date, it is economically feasible to cure the problem; otherwise, it is incurable.

Excess Capital Costs

If the property's replacement cost is less than its reproduction cost, excess capital costs may be estimated by calculating the difference between reproduction cost and replacement cost. In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar. In these situations, there would be no functional obsolescence due to excess capital costs. But, in industries where the equipment used is undergoing rapid changes in technology, there could be functional obsolescence due to excess capital cost.

If the replacement property's capacity is greater than the subject property's capacity, the cost-to-capacity method²⁹ may be used to estimate the cost of the subject property with the same capacity as the replacement property. The cost-to-capacity method uses a scale factor to estimate the cost of the subject property. The cost-to-capacity formula is as follows:

$$C_2 = C_1 (Q_2 / Q_1)^x$$

C_2 = desired cost (replacement cost) of capacity Q_2

C_1 = known cost of capacity Q_1

²⁹ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, pp. 61-65.

Q_2 = capacity of subject property
 Q_1 = capacity of replacement property
 x = scale factor³⁰

The cost estimate that results from the cost-to-capacity method represents the cost of a new, modern replacement asset of the same capacity as the subject property. Subtracting this cost from the trended acquisition cost represents functional obsolescence from excess capital costs. (See Step 1 in the Example of the Breakdown Method.)

Excess Operating Expenses

Functional obsolescence may also be caused from excess operating expenses. In some cases, replacement equipment not only has less of an acquisition cost but may also be less expensive to operate. In other words, operation of inefficient equipment may result with excess operating expenses (labor, material, overhead, etc.).

A method that may be used to quantify obsolescence from excess operating costs is summarized as follows (calculates the excess cost to operate the equipment rather than the cost to cure the deficiency of the equipment):³¹

A = Operating expense per unit of production for the subject property
 B = Operating expense per unit of production for replacement property
 C = Difference in operating expense per unit ($A - B = C$)
 D = Annual excess operating expense (*projected annual units of production* $\times C = D$)
 E = Income tax on incremental income (to account for additional income using modern equipment due to less operating expenses)
 $(D \times \text{combined federal and state income tax rate} = E)$
 F = Annual excess operating expense reduced by income tax on incremental income
 $(D - E = F)$
 G = Remaining economic life of subject property
 H = Present value factor for annuity (G @ appropriate discount rate)

Operating Obsolescence = Annual excess operating expense reduced by income tax on incremental income $\times$ applicable present value factor for annuity
 $(F \times H)$

The American Society of Appraisers also identifies situations where functional obsolescence may be typically found. Examples given include:

...plants involved in the process industry, plants involved in industries that either use assets or manufacture products with a high degree of technology, older plants that have increased in size over time, plants in which there are a number of

³⁰ Scale factor is discussed in the guidelines under the heading of "Inutility."

³¹ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 89.

identical units, plants involved in industries that handle large volumes of material, and plants with areas of inactive machinery.³²

Estimating External Obsolescence

External obsolescence is typically incurable because it is not within the control of the property owner, but it is not always permanent. External obsolescence can either diminish or increase in the future. If the external obsolescence is not permanent, the estimated duration of the obsolescence should be considered in the determination of value. Compared to physical deterioration and functional obsolescence, external obsolescence is the most difficult to measure. It is difficult to measure because it may not be easy to isolate the impact of adverse factors external to the property when other factors are present. In the breakdown method, calculation of external obsolescence is typically the last step in the determination of market value. The measurement of external obsolescence is removed from replacement cost new less physical deterioration and functional obsolescence. The American Society of Appraisers describes an inutility adjustment as one method of measuring external obsolescence and also provides a discussion on other methods available.³³

Inutility

An inutility penalty may be used to measure external obsolescence. One factor that may cause external obsolescence is a reduced demand for the product. Therefore, a plant not operating at full capacity may be a sign of external obsolescence, but it may also be a sign of functional obsolescence and/or physical deterioration. For example, a plant may not operate at capacity due to reduced demand for the product (external obsolescence), or it may not operate at full capacity due to a bottleneck in the production line that does not exist with replacement property (functional obsolescence), or it may not operate at full capacity due to poor condition of the equipment (physical deterioration). It is important to identify the cause of obsolescence when using the breakdown method.

The following is one method for calculating an inutility penalty.³⁴

$$\text{Inutility percent} = [1 - (\text{Capacity B} / \text{Capacity A})^x] \times 100$$

Capacity A	=	rated or design capacity
Capacity B	=	actual production
x	=	exponent or scale factor

In estimating inutility, information on the rated or design capacity for a property may be acquired from the manufacturer of the equipment and/or it may be identified in the property's instruction/operation manual. Information on the actual production (actual or predicted use) of the property may be acquired from the plant manager and/or equipment operation logs. In

³² American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 90.

³³ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, pp. 96-102.

³⁴ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, p. 98.

addition, it may not always be appropriate to use a property's rated or design capacity as "Capacity A" for determining obsolescence.³⁵ If the expected capacity of the user differs from the rated capacity of the manufacturer, it may be valid to use the expected capacity instead of the rated or design capacity when the expected capacity is less than the rated or design capacity.

The scaling factor is based on the concept that the cost of property of different capacities may vary in a nonlinear fashion because of economies of scale. Therefore, as capacity increases, so does cost, but at a different rate and vice versa. Simply put, property with twice the capacity of the current property may not cost twice as much to build, or property with half the capacity may not cost half as much to build. Scaling factors generally range from .4 to slightly higher than 1.0³⁶ and will vary depending upon the type of equipment and the labor/material ratios. The most common scale factors are between 0.6 and 0.7.³⁷ In appraisal texts and literature, the general discussion regarding scaling factors references a single purpose plant or piece of equipment. Scaling factors should be selected for the property in question.

Additionally, inutility must be evaluated in the context of whether the obsolescence has already been recognized through market forces typically in place for a recent sale. For example, recently purchased equipment is presumed to be acquired at market value, reflecting the expected capacity (rate or design capacity) and usage (actual production) at the time of acquisition; any additional inutility adjustment should be viewed in this context. However, even recently purchased equipment, the price and capacity of which is used to establish replacement cost new, may require further adjustment for inutility. For example, in situations where the planning, development, and installation stages are lengthy, and the economy changes whereby it reduces the demand for the product in a way not anticipated during the planning of the property, an inutility adjustment may be appropriate where supported by demonstrable and credible evidence. Although this situation is the exception, it is important for an appraiser to consider the entire context of the acquisition and operation to make a determination concerning the presence or absence of obsolescence.

Other

Other methods are mentioned by the American Society of Appraisers to measure external obsolescence.³⁸ One of the methods is to measure external obsolescence due to excess operating expenses caused by external factors. This is analogous to the method that is used to measure functional obsolescence due to excess operating expenses caused by internal factors.

³⁵ As indicated above, a plant not operating at full capacity may be a sign of external obsolescence, functional obsolescence, and/or physical deterioration. It is important to identify the cause of obsolescence when using the breakdown method.

³⁶ Frazier Capital Publications, *Business Valuation Resource Guide*, p. 211.

³⁷ Donald S. Remer and Lawrence H. Chai, *Design Cost Factors for Scaling-up Engineering Equipment*, Chemical Engineering Progress (Aug. 1990), pages 77 - 82. Kenneth K. Humphreys and Paul Wellman, *Basic Cost Engineering*, Second Edition (1987), pages 7 - 13. Donald S. Remer and Lawrence H. Chai, Estimate Costs of Scaled-Up Process Plants, Chemical Engineering Progress (Apr. 1990), pages 138 - 139, and pages 141 - 175.

³⁸ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, pp. 101-102.

The difference in the computation for external obsolescence and for functional obsolescence is the reason attributed to the excess operating expenses (see the discussion under estimating functional obsolescence for additional information on this method). The presence or absence of one form of external obsolescence does not rule out the presence of a different form. Care must be taken not to double count functional and external obsolescence, but care must also be taken to consider each aspect of obsolescence that may impact the property value.

Example of the Breakdown Method

The following example demonstrates application of the breakdown method to estimate full cash value of business personal property. As indicated previously, the breakdown method measures depreciation according to its separate sources: physical deterioration, functional obsolescence, and external obsolescence.

Example

A taxpayer acquired the following Model A Widget Production Equipment for \$400,000 in 2004.

Subject Property—Widget Production Equipment, Model A

- Capacity is 1,000 units per day (260,000 units per year)*
- Reproduction cost using trending is \$520,000**
- Model A no longer produced
- Operating cost per year is \$50,000***

* Rates capacity from manufacturer of Widget Production Equipment (Model A).

** Reproduction cost new determined using the Bureau of Labor Statistics' *Producer Price Indexes*. Series Id: WPU 107, Not Seasonally Adjusted, Group: Metals and Metal Products, Item: Fabricated Structural Metal Products, Base Date: 1982. [212.6 (2008 index)/163.4 (2004 index) = 1.30 index factor]. 2004 acquisition cost of \$400,000 x 1.30 = \$520,000 reproduction cost.

*** Operating cost includes cost of labor, material, overhead, etc. Cost estimate based on information received from the plant manager and the plant controller using the subject equipment.

What is the estimated full cash value as of the Model A Widget Production Equipment as of the January 1, 2009 lien date?

Step 1: Determine the replacement cost new of the equipment as of January 1, 2009. *Replacement cost new* is the cost to replace an existing property with a property of equivalent utility as of a particular date and is the most meaningful under the principle of substitution. In situations where equipment has undergone minimal changes in technology, reproduction cost and replacement cost are likely to be similar.

For purposes of this example, assume that Widget Production Equipment has undergone more than minimal changes in technology; Model A Widget Production Equipment is no longer produced and is not available for purchase as of January 1, 2009. Instead, the available replacement property on January 1, 2009 is Model B Widget Production

Equipment. Therefore, the appraiser identifies the following Model B Widget Production Equipment as the replacement for the subject property.

Replacement Property—Widget Production Equipment, Model B

- Model B's capacity is 1,200 units per day (312,000 units per year)+
- Replacement cost (using price guide publication) is \$550,000
- Model B is the replacement equipment for Model A
- Operating cost per year is \$30,000++

+ Rated capacity from manufacturer of Widget Production Equipment (Model B).

++ Operating cost includes cost of labor, material, overhead, etc. Cost based on information received from the plant manager and the plant controller using the replacement equipment.

Comment: The subject asset has a capacity of 260,000 units per year while the replacement asset has a capacity of 312,000 units per year. This is a betterment that must be reflected in the Replacement Cost. One method to be considered would be to ratio the Replacement Cost down to subject capacity through the use of a Scale Factor as follows:

Subject Capacity = 260,000 units/year

Replacement Capacity = 312,000 units/year

Replacement Cost = \$550,000

Using the cost-to-capacity method,³⁹ the Subject's Replacement Cost for an asset of the same capacity would be as follows:

$$\begin{aligned}\text{Subject Replacement Cost} &= \$550,000 \times (260,000/312,000)^{0.7} \\ &= \$550,000 \times 0.8333^{0.7} \\ &= \$550,000 \times 0.8802 \\ &= \$484,110\end{aligned}$$

The \$484,110 represents the cost of a new, modern replacement asset of the same capacity of the subject. Subtracting the \$484,110 from the trended acquisition cost represents functional obsolescence from excess capital costs of \$35,890 (\$520,000 – 484,110).

Step 2: Estimate physical deterioration. *Physical deterioration* is the loss in value which may be the result of wear and tear from either use or exposure to various elements. There are various methods of measuring physical deterioration. Therefore, after reviewing the available data, the appraiser decides to use the age/life ratio. When using the age/life ratio, a

³⁹ American Society of Appraisers, *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, pp. 61-65.

percentage is calculated by dividing the age of the equipment at a point in time by the life of the equipment (effective age/physical life = physical deterioration percentage).⁴⁰

In general, the age/life ratio does not reflect the time value of money (income earned in the near future has a greater value than the same amount of income to be earned in the distant future). In order to reflect the time value of money when using the age/life ratio, a rate of return is applied to the ratio.

- **Effective age:** In estimating the effective age of the Model A Widget Production Equipment, the appraiser interviews the plant manager and operators of the equipment. The appraiser discovers that the equipment goes through a major overhaul once a year and is considered to be in above-average condition. The appraiser estimates the effective age of the equipment to be 3 years.
- **Physical life:** In estimating the physical life of the Model A Widget Production Equipment, the appraiser interviews the plant manager, operators of the equipment, plant managers of other manufacturing companies that use Model A Widget Production Equipment, and the company that manufactures the equipment. The appraiser estimates the physical life of the equipment to be 20 years.
- **Rate of return is 7 percent** (this is the rate of return used in the calculation of the percent good factors for 2009).⁴¹

$$1 - (\text{PW\$1/P for 17 (20 - 3) years @ 7\%} / \text{PW\$1/P for 20 years @ 7\%}) =$$

$$1 - (9.763223 / 10.594014) =$$

$$1 - .9215792 = .078 \text{ (7.8 \% Physical deterioration)}$$

$$484,110 \times .078 = \$ 37,761$$

Step 3: Calculate replacement cost new less physical deterioration.

Replacement cost new (Step 1)	\$484,110
Physical deterioration (Step 2)	- 37,761
Replacement cost new less physical deterioration	<u>\$446,349</u>

Step 4: Estimate functional obsolescence. *Functional obsolescence* is the loss of value in a property caused by the design of the property itself. Two common methods of estimating functional obsolescence, if present, include analysis of excess capital costs and analysis of excess operating expenses.

⁴⁰ When using the age/life ratio for older equipment, a percentage is calculated as follows: effective age/(effective age + remaining physical life).

⁴¹ See 2009 update of Assessors' Handbook Section 581 (AH 581), *Equipment Index and Percent Good Factors*, page 19. The following formula is from page 9 of Assessors' Handbook Section 582, *Explanation of the Derivation of Equipment Percent Good Factors*. The factors are from page 37, column 5 of Assessors' Handbook Section 505, *Capitalization Formulas and Tables*.

- Excess capital cost: The appraiser begins with replacement cost in the appraisal; therefore, the step attributed to calculation of functional obsolescence from excess capital costs is eliminated. As indicated in Step 1, the \$484,110 represents the cost of a new, modern replacement asset of the same capacity of the subject. Subtracting the \$484,110 from the trended acquisition cost represents functional obsolescence from excess capital costs of \$35,890 (\$520,000 – 484,110).
- Excess operating expenses: Calculation of excess operating expenses quantifies the economic penalty of operating the equipment rather than the cost to cure. The appraiser estimates functional obsolescence due to excess operating expenses as follows:

Operating expense per unit of production for the subject property (A)	19¢ per unit*
Operating expense per unit of production for replacement property (B)	10¢ per unit**
Difference in operating expense per unit (C) [A-B=C]	19¢ - 10¢ = 9¢ per unit
Annual excess operating expense (D) [Projected annual units of production x C=D]***	175,000 x 9¢ = \$15,750
Income tax on incremental income (to account for additional income using modern equipment due to less operating expenses) (E) Combined federal and state income tax is 40% [D x 40%]	\$15,750 x 40% = \$6,300
Annual excess operating expense reduced by income tax on incremental income (F) [D – E = F]	\$15,750 - \$6,300 = \$9,450
Remaining economic life of subject property (G)****	17 years
Present value of \$1 per period factor for annuity (H) [17 years, discount rate 10%]*****	8.021553
Operating obsolescence [F x H]	\$9,450 x 8.021553 = <u>\$75,804</u>

- * Operating cost per year \$50,000/260,000 units per year.
- ** Operating cost per year \$30,000/312,000 units per year.
- *** Projected annual units of production of subject equipment (175,000) based on interview with the plant manager.
- **** *Remaining economic life* is the expected remaining life of the property on the appraisal date. For purposes of the subject property, the remaining economic life is 17 years (physical life – effective age).
- ***** The discount rate selected is for purposes of demonstrating the calculation of excess operating expenses. For information on calculation of a discount rate, see AH 502.

Step 5: Calculate replacement cost new less physical deterioration and functional obsolescence.

Replacement cost (Step 1)	\$484,110
Physical deterioration (Step 2)	<u>-37,761</u>
Replacement cost less physical deterioration (Step 3)	\$446,349
Less functional obsolescence from excess operating costs (Step 4)	<u>-75,804</u>
Replacement cost new less physical deterioration and functional obsolescence	<u>\$370,545</u>

Step 6: Estimate external obsolescence. *External obsolescence* is a loss in value resulting from adverse factors external to the property that decreases the desirability of the property. Therefore, the appraiser estimates external obsolescence by calculating an inutility penalty⁴² as follows:

Subject property: Capacity A ⁴³	
[Rated or design capacity]	260,000 units
Subject property: Capacity B	
[Actual production]	175,000 units
Exponent or scale factor+	.7

⁴² Methodology from the American Society of Appraisers, *Valuing Machinery and Equipment; The Fundamentals of Appraising Machinery and Technical Assets*, p. 98. As indicated on page 19 of the guidelines, a plant not operating at full capacity may be a sign of external obsolescence, but it may also be a sign of functional obsolescence and/or physical deterioration. Therefore, when using the breakdown method it is important to identify the cause of obsolescence. In Step 1, the cost-to-capacity method was used to estimate the replacement cost of the subject property because the replacement property has a capacity of 312,000 units per year and the subject property has a capacity of 260,000 units per year (functional obsolescence caused from excess capital cost). Using the cost-to-capacity method, the replacement cost of property with the same capacity as the subject was estimated. In other words, this method estimated the replacement cost of property with a capacity of 260,000 units per year. Step 6 uses an inutility adjustment to estimate external obsolescence because although the subject property has a capacity of 260,000 units per year the actual production is 175,000 units per year due to external factors.

⁴³ Where expected capacity is less than rated or design capacity, see earlier discussion under the heading "Inutility."

Inutility percent

$$[1 - (\text{Capacity B/Capacity A})^x] \times 100$$

$$[1 - (175,000/260,000)^.7] \times 100$$

$$[1 - (.673077)^.7] \times 100$$

$$[1 - .757958] \times 100$$

$$.242042 \times 100 = 24.2042\% \text{ (rounded to 24.2\%)}$$

24.2%

+ The exponent or scale factor may be found in various published sources and varies depending on the type of property.

Step 7: Calculate replacement cost new less physical deterioration, functional obsolescence, and external obsolescence (full cash value).

Replacement cost (Step 1)	\$484,110
Physical deterioration (Step 2)	<u>-37,761</u>
Replacement cost less physical deterioration (Step 3)	\$446,349
Less functional obsolescence from excess operating costs (Step 4)	<u>-75,804</u>
Replacement cost new less physical deterioration and functional obsolescence (Step 5)	\$370,545
Less external obsolescence (24.2%) (Step 6) (370,545 x .242)	<u>-89,672</u>
Full cash value	<u>\$280,873</u>

In conclusion, the estimated full cash value as of the January 1, 2009 lien date of the Model A Widget Production Equipment, which was purchased for \$400,000 in 2004 (using the breakdown method of measuring depreciation) is \$280,873.

TAXPAYER EVIDENCE

Assesseees may present evidence to a county assessor to support their estimation of market value when they believe that application of the index and percent good factors do not produce results within an acceptable range of value. Evidence presented to a county assessor should be reviewed and considered if the information is submitted prior to the enrollment of the assessment; otherwise, the evidence may only be considered if a timely assessment appeal application is filed or an audit is conducted. Evidence may be presented in a number of ways, including in the form of an independent appraisal, a market study, price lists for new equipment, and/or data from used equipment price guides.

An independent appraisal is an appraisal conducted by an unrelated firm that specializes in the valuation of personal property and fixtures. The appraisal typically includes a listing of all of the property included in the valuation. The appraisal may include itemized valuations of each piece of equipment or a total value estimate. The format presented must clearly identify the appraisal approach and may vary depending on the appraisal approach (for example, cost, comparative sales, and income) used by the appraiser.

The evidence may also be presented in the format of a market study. An example of a market study is described as the market method presented earlier in these *Guidelines*. The market method is any method of calculating value factors (and/or developing depreciation tables) which

relies on market data, with adjustments made for relevant property characteristics incorporated in the data. Data used for the market study should include recent market sales that meet all conditions of an arm's-length transaction. Data from bankruptcy and/or liquidation sales would generally not provide good indications of market value.

Price lists for new equipment and price guides for used equipment are other sources that may be used to value personal property. When reliable evidence of current replacement costs is available in a verifiable format, it is more appropriate to use market-indicated costs rather than trended historical costs. Price lists and used equipment price guides provide market-indicated costs. If price lists for new equipment are used, adjustments may be necessary if the equipment being valued is no longer available in the market. In addition, depending on the technological advances in some industries, the price lists for new equipment may not provide any benefit. With regard to used equipment price guides, if no market exists for used equipment in a particular industry, such guides may not be a useful alternative.

The methods mentioned above are provided as examples of methods that may be used to determine fair market value when it is necessary to test whether the application of index factors and percent good factors in AH 581 provide an acceptable value indicator. Other methods may be presented depending on the type of data available.

Pursuant to section 441, subdivision (d):

(1) At any time, as required by the assessor for assessment purposes, every person shall make available for examination information or records regarding his or her property or any other personal property located on premises he or she owns or controls.

Consistent with section 441, subdivision (d), any evidence and/or data submitted by the taxpayer may be subject to verification by the county assessor through a review of source documents. Therefore, the taxpayer should maintain supporting documents in order to comply with the county assessor's request for additional information and records. The records should not only support costs reported on the business property statement, but also support the evidence submitted by the taxpayer to the county assessor for review and consideration when they believe that application of the index and percent good factors do not produce results within an acceptable range of value. Examples of the types of records the county assessor may request include, but are not limited to:

- Accounting books and records
- Invoices
- Lease agreements
- Purchase agreements
- Sales and rental reports
- Production reports

- Maintenance records
- Construction contracts
- Cost segregation studies
- Board of directors' meeting notes
- Internal memos.

Some areas the county assessor should consider when reviewing evidence presented include the following:

- Are causes of rapid change in technology apparent in the industry?
- Does the appraisal used by the assessee to estimate fair market value include appropriate adjustments?
- Are the data provided by the assessee verifiable?
- Were the data applied/interpreted correctly?

LIMITATIONS OF THE COST APPROACH

An appraiser cannot assume that the cost approach, or any valuation approach, automatically provides the best indicator of value. All available information must be analyzed to determine the best indicator of value. When available or possible, it is best to compare the estimated value to actual market value of similar property to verify accuracy of results.

The cost approach, like other approaches to value, is not valid unless it is made as of a specific date. The fluctuating purchasing power of money, together with changes in the efficiency of labor and changing techniques of production, and other economic factors cause costs and depreciation to vary over time. It is therefore essential to specify that costs are as of a certain date (the appraisal date) in order for the principle of substitution to be meaningful. The cost approach is most reliable when the property being appraised is relatively new and has experienced little depreciation.

The cost approach is also limited by the accuracy of the information used. If the cost and depreciation estimates are skewed or otherwise unrepresentative of the property, the resulting value will not be an appropriate representation of the property's market value.