



2016 Level II Tutorials

Cost Approach



Level II Prep Class

- Material will cover:
 - Book 2 Real Property Assessment Guidelines
 - Chapter 6 – Commercial and Industrial Units
 - Chapter 7 – Commercial and Industrial Yard Structures
 - Chapter 8 – Special Use Commercial Properties
 - Chapter 9 – Utility Properties



Level II Prep Class

- Material will cover (cont):
 - Appendix D – General Commercial Models
 - Appendix E – Commercial and Industrial Grade
 - Appendix F – Commercial and Industrial Depreciation
 - Appendix G – Commercial and Industrial Cost Schedules



Guidelines Chapter 6

Commercial and Industrial Units



Guidelines Chapter 6

- Methods Used to Complete the Property Record Card: (all found on page 4)
 - Sketching a structure
 - Measuring and calculating areas
 - Using the general commercial models
 - Using schedules
 - Understanding base rates for floor levels



Guidelines Chapter 6

- Determining a structure's finish type
- Determining a structure's use type
- Determining a structure's wall type
- Using a structure's floor height
- Understanding the perimeter-to-area ratio for a structure
- Determining a structure's construction type



Guidelines Chapter 6

- Understanding vertical and horizontal costs
- Determining the number of property record cards to use for a parcel



Guidelines Chapter 6

- Sketching a structure: (page 5)
 - If more than one structure is listed on the same card, number each one for identification purposes.
 - Draw the structure to approximate scale.
 - Draw the structure with the side facing the street towards the bottom of the sketch grid.





Guidelines Chapter 6

- Write the dimensions inside the sketch area as close to the corresponding lines as possible.
- Record the story height of the structure.
- Identify all party walls (walls held in common ownership between two structures).
- Identify all additions by name and exterior wall construction.



Guidelines Chapter 6

- Measuring and Calculating Areas: (page 6)
 - Measure sufficient outside dimensions of the structure to compute the gross square footage of the ground area.
 - Enter all the measurements carefully on the sketch grid.



Guidelines Chapter 6

- Using the General Commercial Models (page 7)
 - Conceptual tools used to assist in estimating the replacement cost new of a given structure.
 - Assumes that there are certain elements of construction for a given use type.



Guidelines Chapter 6

- Used to determine if adjustments are applicable between the subject structure being valued and the model selected for use.



Guidelines Chapter 6

- Using the Schedules (page 8)
 - Schedule A – Base Rates
 - Provides base square foot unit rates by floor for various use and finish types.
 - Rates are for a range of perimeter-to-area ratios for a specific type of construction.



Guidelines Chapter 6

- Schedule A.1 – General Commercial Mercantile (GCM) (page 10)
- Includes use types generally associated with mercantile districts.
 - Banks, medical offices, apartments, shopping centers, etc.
 - Structures with four or more stories.
 - Use types characteristic of commercial-type construction.





Guidelines Chapter 6

- Schedule A.2 – General Commercial Industrial (GCI) (page 10)
- Includes use types generally associated with industrial-related operations.
 - Mill manufacturing, industrial offices, light and heavy manufacturing, warehouses, etc.



Guidelines Chapter 6

- Schedule A.3 – General Commercial Residential (GCR) (page 10)
- Includes use types generally associated with commercially-operated residential accommodations.
 - Structures that have up to three stories.
 - Apartments, motel units, nursing homes, etc.
 - If 4 or more stories, use GCM schedule.
 - If structure is fire resistant, cannot use GCR to price.



Guidelines Chapter 6

- Schedule A.4 – General Commercial Kit (GCK) (page 10)
- Is used to value light pre-engineered and pre-designed wood pole and metal framed structures with exterior walls of light metal or wood that are used for commercial and industrial purposes only.



Guidelines Chapter 6

- Schedule B – Base Price Adjustment (page 11)
 - Provides adjustments to total base unit rate obtained from Schedule A for story height variations.
 - Required to account for added construction costs of supports and material handling for multiple story construction.



Guidelines Chapter 6

- Schedule C – GC Base Price Components and Adjustments (page 11)
 - Three sub-schedules (all on page 11)
 - Base Price Components and Adjustments
 - Unit Cost Adjustments
 - Unit Finish Adjustments



Guidelines Chapter 6

- Base Price Components and Adjustments
 - Indicates the cost of the interior and mechanical components included in the base rate unless otherwise noted.
 - All component prices are expressed as square foot rates except for column headed “Walls per LF” under the “Interior Finish” heading.
 - Includes guidelines to help in adjusting base rate for lighting.



Guidelines Chapter 6

- Unit Cost Adjustments
 - Table of unit costs for the most typical interior components.
- Unit Finish Adjustments
 - Tables of composite adjustments rather than individual component adjustments.
 - Applies to apartments, motels and hotels.



Guidelines Chapter 6

- Schedule D – Plumbing (page 11)
 - Whole dollar values to be added per plumbing fixture unless otherwise noted.



Guidelines Chapter 6

- Schedule E – Special Features (page 12)
 - Either whole dollar or square foot unit values used to calculate the whole dollar replacement cost of special features not included in the Schedule A base rates.
 - Mezzanines, elevators, cold storage facilities, money vaults, record storage vaults, grade walls for truck wells and ramps.



Guidelines Chapter 6

- Schedule F – Quality Grade and Design Factor (page 12)
 - Provides the grade factor percentages corresponding to the grade classifications for commercial and industrial structures.
 - Prices reflect a “C” grade.



Guidelines Chapter 6

- Base rates for floor levels (page 12)
 - Includes the cost of the exterior walls, exterior wall openings, and interior components (interior finish, partitioning, built-ins, and mechanical features typical for that particular model).



Guidelines Chapter 6

- Also includes the following structural components:
- Basement-level:
 - Excavation and back-fill, the cost of which exceeds the cost of the inclusions for the first floor.
 - Structural floor construction of the first floor (subfloor and framing).
 - Stairways and access ways.



Guidelines Chapter 6

- First-level:
 - Site preparation and normal foundation construction for a structure at grade level.
 - Concrete ground floor slab, including base and cement finish.
 - Roof construction (roofing, insulation, decking and framing).
 - Wall copings and parapets.
 - Utility service.



Guidelines Chapter 6

- Upper-level:
 - Structural floor construction (subfloor and framing for each respective floor.
 - Stairways and access ways.



Guidelines Chapter 6

- Determining a Structure's Finish type (page 13)
 - In Schedule A, finish type is a descriptive classification indicating the extent to which the interior finish is included in the base rate.





Guidelines Chapter 6

- Determining a Structure's Use Type (page 14)
 - Descriptive classification indicating the commercial and industrial use model that best describes the structure.



Guidelines Chapter 6

- Determining a Structure's Wall Type (page 14)
 - Descriptive classification indicating the exterior wall construction material used for most of the use types.
 - Most all use types use Type 1 or Type 2.
 - Type 3 is used with GCI use types.
 - Type 4 is only for parking garages.



Guidelines Chapter 6

- Determining a Structure's Wall Height (page 14)
 - Model specific and represents floor-to-floor or floor-to-roof heights.
 - Defined as the vertical distance from the top of the interior floor to either the top of the next upper interior floor or to the eave of the roof.



Guidelines Chapter 6

- Understanding Vertical and Horizontal Costs (page 15)
 - Vertical Cost components:
 - Structural components that are vertical in nature.
 - Valued according to linear feet of surface.
 - Examples are: studding, wall sheathing, brick or wood siding, wall insulation, interior finish, or exterior walls.





Guidelines Chapter 6

- Horizontal Cost components:
 - Structural components that are horizontal in nature.
 - Linked directly to the square feet of floor area.
 - Examples are: floor slabs, structural floors, floor covering, ceiling covering, roof structure, roof covering, and insulation.



Guidelines Chapter 6

- Understanding the Perimeter-to-Area Ratio of a Structure (page 15) & (2 examples on pages 16 – 17)
 - Divide the perimeter (add the dimensions on the four sides together) by the area (multiply the length times the width) and multiply the result by 100 to determine the ratio to be used.



Guidelines Chapter 6

- Perimeter-to-Area Ratio
 - Used to convert the vertical cost of a structure into a dollar amount per square foot.
- If there is more than one floor, the PAR should be calculated for each floor.



Guidelines Chapter 6

- If the PAR is greater than 10: (page 40)
 1. Subtract 10 from the calculated PAR.
 2. Multiply the adjustment price in the “+1” column in the same row by the result of the subtraction.
 3. Add the result of the multiplication to the base rate in the “10” column in the schedule.



Guidelines Chapter 6

- Determining a Structure's Construction Type:
(page 17 & 18)
 - Base rates for GCM and GCI are based on framing that is fire resistant construction.
 - Base rates for GCR are based on wood joist construction and must be adjusted for fire resistant construction.



Guidelines Chapter 6

- How many property record cards to use?
 - Determined on a parcel by parcel basis.
 - Depends on either the number of structures that require a sketch area or the number of structures and yard improvements that are recorded in the “Summary of Improvements” section.



Guidelines Chapter 6

- Determining average wall height: (page 39)
 - If a structure has two or more sections with varying exterior wall heights you must arrive at an average wall height.
 1. Determine the percentage of the structure containing each wall height.
 2. Multiply each percentage by its corresponding wall height.



Guidelines Chapter 6

3. Determine the average wall height for the structure by adding the results of 1 and 2 and rounding to the nearest whole number.
 - Keep in mind that once you arrive at an average wall height, that is the wall height you use to compute the value of the property.



Problem 1

- A commercial building contains a total of 5,200 square feet. Of this total, 3,900 square feet of the area has a wall height of 16 feet. The remaining 1,300 square feet of the area has a wall height of 14 feet. What is the average wall height for this structure?



Problem 1 Answer

1. $3,900$ divided by $5,200 = 75\%$
 $1,300$ divided by $5,200 = 25\%$

2. $16' \times .75 = 12'$
 $14' \times .25 = 3.5'$

$12' + 3.5' = 15.5'$ rounded to 16 ft.



Problem 2

- A commercial building measures 200 feet by 500 feet. What is the PAR of this structure?



Problem 2 Answer

- $200 + 200 + 500 + 500 = 1,400$ (perimeter)
- $200 \times 500 = 100,000$

- $1,400$ divided by $100,000 = .014$
- $0.014 \times 100 = 1.4$ or a PAR of 1



Guidelines Chapter 6

- If a structure has more than one use type:
(page 40 & 41)
 1. Determine the PAR for the structure.
 2. Determine the use type for each finish type in the structure.
 3. Using Schedule A, determine the base rate for each use type.



Guidelines Chapter 6

4. Determine the percentage of floor space occupied by each use type by dividing the area for each use type by the total area x 100.
5. Multiply the base rate for each use type by the percentage of that use for each floor.
6. Add the results of Step 5 for each use type together to get an adjusted base rate.



Problem 3

- A structure has 2,500 square feet of area of which 1,500 square feet is general office and 1,000 square feet is utility storage area. The walls of the structure are Type 1. The building measures 100 feet by 25 feet.
- Figure the adjusted base rate for this structure using the GCM schedule.



Problem 3 Answer

Step 1 – Figure the PAR

- $100 + 100 + 25 + 25 = 250$
- $100 \times 25 = 2,500$
- $250 \text{ divided by } 2,500 = 0.10 \times 100 = 10$



Problem 3 Answer

Step 2 – Percentage of each use

- 1,500 divided by 2,500 = 60% (General Office)
- 1,000 divided by 2,500 = 40% (Utility Storage)





Problem 3 Answer

Step 3 – Go to appropriate Schedule in Appendix G and select the correct base rates

- General office - \$111.85
- Utility storage - \$ 66.46





Problem 3 Answer

Step 4: Figure adjusted rates for each use

- $\$111.85 \times .60 = \67.11
- $\$ 66.46 \times .40 = \26.58



Problem 3 Answer

Figure new adjusted base rate by adding the individual rates together

$$\$67.11 + \$26.58 = \$93.69$$



Problem 4

A fire resistant building with exterior walls of brick measures 100' x 180'. Twenty-five percent of the building is used as industrial office space, and the remainder of the building is used as light warehousing. The office space has a wall height of 12 feet and the warehouse space has a wall height of 18 feet.

What is the average wall height?

What is the adjusted base rate?



Problem 4 Answer

- Area: $100 \times 180 = 18,000$ sq. ft
- Perimeter: $100+100+180+180 = 560$ linear feet
- $560/18,000 = .03 \times 100 = \text{PAR } 3$

- $12' \times 25\% = 3'$
- $18' \times 75\% = 13.50'$



Problem 4 Answer

- $3' + 13.50' = 16.5'$ rounded to 17' so the average wall height is 17 feet.
- Since the office walls are 12 feet, we need to make a positive 5 foot adjustment on it.
- Since the warehouse walls are 18 feet, we need to make a negative 1 foot adjustment on it.



Problem 4 Answer

- Office: base rate is \$67.39, adjustment is 5' x \$1.32 for a total of \$73.99
- Warehouse: base rate is \$42.39, minus adjustment of 1' x \$.80 for a total of \$41.59



Problem 4 Answer

- $\$73.99 \times 25\% = \18.50
- $\$41.59 \times 75\% = \31.19

- $\$18.50 + \$31.19 =$ adjusted rate of $\$49.69$ for the building.



Problem 4 Answer

- When you are using an average wall height, you must take into consideration the original wall heights of each part of the building and make wall height adjustments as necessary to the base rate.



Guidelines Chapter 6

- If the framing material is not consistent throughout the structure (page 41)
 1. Determine the percentage of floor area that is not constructed of all fire resistant framing material.
 2. Determine the adjustment necessary as if the entire building were constructed of non-fire resistant material.
 3. Multiply the percentage from 1 by the adjustment from 2.





Problem 5

- A structure has 3,000 square feet of area, of which 1,800 square feet is fire resistant. The remainder of the building is constructed with fireproof steel. The PAR is 8. The exterior walls are Type 1. The building is used as a bank. What is the amount of adjustment, per square foot, necessary to account for the fireproof steel framing?



Problem 5 Answer

- $1,200 \text{ square feet} / 3,000 \text{ square feet} = 40\%$
- Fireproof steel frame adjustment: $\$8.96 \times 40\% = \3.58



Guidelines Chapter 6

Schedule C – Unit Finish Adjustments (page 48)

- Applied to the following use types:
 - Apartments
 - Motels and Hotels
 - Strip retail centers
 - Neighborhood shopping centers
 - Regional shopping centers





Guidelines Chapter 6

Apartment Table: (page 48 – 49) & Appendix G, Page 20

- The square foot cost of partitioning, built-ins, plumbing fixtures, and central air conditioning is directly related to the average size of the living unit.
- Average unit size = Total square footage divided by number of rentable units



Guidelines Chapter 6

Motels and Hotels Table (page 49 – 50) & Appendix G (page 20)

- The square foot cost of built-ins, partitioning, and plumbing fixtures is directly related to the average size and arrangements of guest rooms.
 - Strip
 - Back-to-Back
 - Center Hall



Guidelines Chapter 6

Strip Retail Table (page 50) & Appendix G (page 20)

- Applicable when using the general retail model for strip centers, neighborhood shopping center model or the regional shopping center model.
- Models do not include an amount for division walls (common wall between units).



Guidelines Chapter 6

Calculating the Replacement Cost (pages 50 - 51)

- Follow the pricing ladder down to the Sprinkler Cell—the values you are adding are all per square foot.
- Enter this total square foot price in the S.F. Area cell.
- Multiply this total square foot price by the area and round to the nearest \$10.00 and enter it on the Sub-total line.



Guidelines Chapter 6

- Calculating the Replacement Cost (cont.)
 - Add for plumbing from Schedule D – Appendix G.
 - Add for any special features from Schedule E in Appendix G.
 - Add for any exterior features from Schedule G in Appendix G.
 - Total these amounts on the Total Base line.
 - Multiply the Total Base line by the Location Multiplier for the County location (Appendix G (page 45)).





Guidelines Chapter 6

Calculating the Replacement Cost (cont.)

- Multiply this total by the Quality and Grade Factor.
- You now have the Replacement Cost New of the structure.





Guidelines Chapter 6

- When you have a feature such as a canopy or a loading dock that is built as a part of the initial construction of the building, it is not figured separately as an improvement, but is figured as an exterior feature and a total is included on the “Exterior Features” line of the pricing ladder.



Guidelines Chapter 6

Special Features – Schedule E of Appendix G:

- This schedule provides whole dollar or square foot unit values used to calculate the whole dollar replacement cost of special features not included in the Schedule A base rates.
- To apply this schedule, identify the special feature and select the most representative rate based on the description of the special feature. All replacement costs are rounded to the nearest \$10.





Guidelines Chapter 6

- Some examples of items in Schedule E are:
 - Banking features (pages 22)
 - Elevators (pages 23 and 24)
 - Health/Recreational Club Facilities (page 23)
 - Boilers (page 25)
 - Cold Storage Facilities (page 25)
 - Dock Facilities (page 26)
 - Canopies (Page 26)



Guidelines Chapter 6

- To complete the property record card you must now determine the correct depreciation for the structure and apply it.
- Next apply and subtract any obsolescence.
- You now have the True Tax Value of the structure which is rounded to the nearest \$100.



Guidelines Chapter 7

Commercial and Industrial Yard Structures



Guidelines Chapter 7

- Pricing cost schedules for commercial and industrial yard structures are in Appendix G and depreciation tables are in Appendix F.



Guidelines Chapter 7

- Examples of Commercial and Industrial Yard Structures include the following (page 2)
 - Fencing
 - Greenhouses
 - Golf Courses
 - Grain Elevators and supporting structures
 - Paving



Guidelines Chapter 7

- The valuation of Commercial and Industrial yard structures involves the application of various models that represent typical types of construction. Each model assumes that there are certain elements of construction that can be defined as specifications. These specifications create the use of the average or “C” quality and grade factor.



Guidelines Chapter 7

- The steps for completing the Property Record Card for Commercial and Industrial Yard Structures are as follows:

Task 1—Record information about the item (page 6)

Task 2—Determine the base rate for the item (page 12)

Task 3—Determine the adjusted base rate (page 21)

Task 4—Calculate the remainder value (page 24)

Task 5—Calculate the True Tax Value (page 27)

Task 6—Calculate the total for the total property (page 29)



Guidelines Chapter 7

Task 1—Record information about the item (page 6)

- In this task you provide descriptive information about the characteristics of the yard structure.



Guidelines Chapter 7

Task 2—Determine the base rate for the item

- Two distinct types of structures that use the square foot base rate cost schedules:
 - Type 1 – Flat square foot rate dependent on construction material (page 14).
 - Type 2 – Variable square foot rate dependent on size of structure and type of construction materials (page 14).





Guidelines Chapter 7

- Four distinct types of structures that use whole dollar amount cost schedules: (page 15)
 - Type 1 – Amount is dependent on the storage capacity of the yard structure
 - Oil storage tanks, fuel oil tanks, etc.



Guidelines Chapter 7

- Type 2 – Amount is dependent on the diameter and height of the yard structure
 - Dry storage bins, brick, and concrete stacks, etc.
- Type 3 – Amount is dependent on the capacity and height of the yard structure
 - Elevated steel tanks, towers



Guidelines Chapter 7

- Type 4 – Amount is dependent on specific attributes other than those named in the other types
 - Incinerators, do-it-yourself car wash buildings, shuffleboard courts, etc.





Guidelines Chapter 7

- Linear Feet (page 19)
- The cost schedules that use linear feet are:

Fencing	Masonry walls
Guardrails	Railroad siding
Retaining walls	Bulkhead piling





Guidelines Chapter 7

- There are cost schedules that use other methods of determining the base rate. Grain elevators, for example, use bushels.
- **Golf courses are no longer assessed under the Cost Approach. Golf courses are priced using the income approach to value.**





Guidelines Chapter 7

Task 3—Determine the adjusted base rate (page 21), also see step 4 on page 23

- The adjusted base rate for the yard structure is the base rate adjusted to take into account any relevant features identified for the structure, an adjustment for location, and the grade factor percentage.
- If the structure uses a cost schedule based on whole dollar amounts, the replacement cost is the same as the adjusted base rate, rounded to the nearest \$10.



Guidelines Chapter 7

- If the structure uses a schedule based on a unit of measurement other than a whole dollar amount, the replacement cost will be the adjusted base rate multiplied by the unit of measurement (area, linear feet, bushels, etc.).
- Base Rate
- **Base rate = Base rate from Schedule G multiplied by the applicable grade factor adjustment.**



Guidelines Chapter 7

Task 4—Calculate the remainder value (page 24)

- The remainder value is the replacement cost of the yard structure adjusted for normal depreciation.
(Rounded to nearest \$10.)



Guidelines Chapter 7

Task 5—Calculate the True Tax Value (page 27)

- The yard structure's True Tax Value is its remainder value adjusted for obsolescence depreciation, if necessary. (round to nearest \$100)

Task 6—Calculate the total for the total property (page 29)

- Calculate the True Tax Value for each structure by performing Task 1 through Task 5 for each yard structure. (round to nearest \$100)





Guidelines Chapter 8

Special Use Commercial Properties



Guidelines Chapter 8

- Special Use Commercial Properties (page 2)
 - Fast food restaurants
 - Gasoline service stations, with and without service bays
 - Self-service cashier booths
 - Public restroom buildings
 - Detached canopies



Guidelines Chapter 8

- Pricing schedules for special use commercial properties consist of square foot unit values based on C quality grade construction.
- Basic layout for fast food restaurant may include the following:
 - Small office
 - Two restrooms
 - Areas for employee dressing, storage, food preparation, serving, and dining





Guidelines Chapter 8

- Basic layout for gasoline service station may include the following:
 - Sales and office area
 - Utility area
 - Two restrooms
 - One or more service bays



Guidelines Chapter 8

- Fast food restaurant (page 3)
 - Pre-designed
 - Normally built with different variations of the same plans with periodic updates of design
 - Solariums are included in the square footage calculation of the structure and are **not** valued as an exterior feature.



Guidelines Chapter 8

- Fast food restaurant:
 - Concerning air conditioning: The value of air conditioning is not an add on for the fast food restaurants. It is taken into account in the grade of the structure. Please see pages 63 & 64 of Appendix E. Look at the row titled Climate Control System. For grades A, B, and C, air conditioning is reflected in the grade. For grades D and E it is not. Most likely the D and E grades will either have no air or window units of some type.





Guidelines Chapter 8

- Gasoline service stations:
 - Assessor must determine whether converted stations with mini-grocery stores more resemble the service station without bay model or the convenience market model.



Guidelines Chapter 8

- Self-Service Cashier Booths: (page 5)
 - May or may not include restroom facilities
 - Divided into three quality ratings
- Public Restroom buildings: (page 5)
 - Rated by the area in square feet
- Detached Canopies: (pages 6-7)
 - Rated on quality and square footage



Guidelines Chapter 8

- Pricing Special Use Properties
 - Replacement Cost New = Total base value x grade multiplier x location multiplier.
 - Remainder Cost = (Replacement Cost New times Depreciation Multiplier with resulting amount subtracted from Replacement Cost New.)
 - Both the Replacement Cost New & Remainder Cost are rounded to the nearest \$10.





Guidelines Chapter 8

- True tax value is the remainder value rounded to the nearest \$100.
- Don't forget to include items such as paving or other items not included in the construction features in the "Summary of Improvements" on the PRC.





Guidelines Chapter 9

Utility Properties



Guidelines Chapter 9

- This chapter describes the process used for valuing utility properties. It also provides information about distinguishing locally assessed real property from locally assessed personal property and distributable property.
- Additionally, it provides guidelines for identifying local real property for the following types of companies.





Guidelines Chapter 9

- Bus companies
- Light, heat, or power companies
- Pipeline companies
- Railroad companies
- Sewage companies
- Telephone, telegraph, or cable companies
- Water distribution companies



Guidelines Chapter 9

- All companies engaged in public utility business in Indiana were required to file Form 1 (Tax return for Fixed Personal Property of Public Utilities) with the local assessing official for each taxing unit where fixed personal property is located. If the public utility company owned, held, possessed, or controlled any leased or other not-owned locally assessed personal property, a Form N-1 was to be filed with the local assessing official of each taxing unit where the leased personal property is located.





Guidelines Chapter 9

- The legislature in 2009 changed that. Effective with the March 1, 2010 assessment date, all companies engaged in public utility business in Indiana will no longer file Form 1 with the local assessing official. The property previously reported on the Form 1 will now be reported with the company's filing with the Department on its Utility Ad Valorem Tax Return (Annual Report-Form UD-45).





Guidelines Chapter 9

- The use of a specific item or unit of property determines its classification as either locally assessed real property, locally assessed personal property, or distributable property. (Pages 4 through 8 provide detail)





Guidelines Chapter 9

- The DLGF is responsible for the assessment of the distributable property. This is sometimes referred to as state assessed distributable property.
- The DLGF now is also responsible for the locally assessed personal property.
- The only property assessed locally by the county assessing official is the real property.





Guidelines Appendix D

General Commercial Models



Guidelines Appendix D

- This appendix contains Models for:
 - General Commercial Mercantile (GCM)
 - General Commercial Industrial (GCI)
 - General Commercial Residential (GCR)





Guidelines Appendix D

- GCR models are only applicable to wood or metal stud framed load bearing construction, regardless of story height.
- Masonry construction requires the application of either GCM or GCI models.



Guidelines Appendix E

Commercial and Industrial Grade



Appendix E

- For each of the types of commercial and industrial improvements, a model has been defined to summarize the elements of construction quality that are typical of the majority of that type of improvement.
- Model has been assigned a “C” grade
- The characteristics of these typical models can be thought of as construction specifications for an improvement that was built with average quality materials and workmanship.



Appendix E

- The quality grade factor percentages are located in Table E-2 on page 7.
- Table E-3 (page 8) provides a list of the typical construction materials and design elements found in each full construction quality grade. It is designed to aid the local assessing official in determining the appropriate quality grade to assign to commercial and industrial structures.





Appendix F

Commercial and Industrial Depreciation



Appendix F

- Understanding the Concept of Depreciation
- Accrued depreciation is a loss in value to the cost new of the improvements from any and all causes.
- There are three major categories, or causes, of depreciation: (page 4)
 1. Physical Deterioration
 2. Functional Obsolescence
 3. External Obsolescence





Appendix F

- Physical Deterioration – loss in value caused by the building materials wearing out over time.
- May be caused by wear and tear, use or abuse, action of the elements, and/or insect infestation.



Appendix F

- Functional Obsolescence – loss in value caused by inutility within the improvement.
- May be caused by defects in design, style, size, poor room layout, a deficiency, the need for modernization, a super adequacy, and/or by changes in the tastes of potential buyers.





Appendix F

- External Obsolescence – caused by an influence outside the property's boundaries that has a negative influence on its value.
- Noise, air, water or light pollution; heavy traffic; inharmonious land uses; and/or crime.





Appendix F

- When applying any form of obsolescence, the assessor should reevaluate the obsolescence on an annual basis.



Appendix F

- Determining the Actual Age of a Structure:
 - Actual age of a structure should be determined from the records of the owner. If not available, public records, such as building permits, may be used.
 - If structure has had additions built on, a “weighted” age must be calculated.





Appendix F

- Determining the “weighted” age of a structure (example on page 5)
 - Method used is one of weighting the actual age of the original structure and each of its additions by the square footage contained in each part.



Appendix F

- Determining the Normal Depreciation Percentage:
- There are seven steps in this process:
 1. Determine the actual age of the structure: Use the construction date of the structure and subtract it from the current assessment date (2016).
 2. Assign the structure a condition rating (Table F-1).
 3. Convert the actual age to an effective age using the condition rating and actual age (Table F-2, page 21).
 4. Determine the typical life expectancy of the structure. (Tables F-3a, b, c, d, and e on pages 22 through 27)





Appendix F

5. Go to Table F-4 (page 28) and locate the life expectancy (from Step 4) across the top of the table.
6. Locate the effective age (from Step 3) in the left hand column.
7. Where Steps 5 and 6 intersect, this provides you with the normal depreciation percentage.



Appendix F

- Determining Abnormal Functional Obsolescence:
 - Any abnormal or excessive functional and external obsolescence that affect a structure must be considered separately since they have not been accounted for in the normal depreciation table.





Appendix F

- Abnormal Functional Obsolescence
 - Most common forms
 - Deficiency requiring an addition – something lacking in the improvement that potential owners of the property desire. (page 8)
 - Need for modernization – improvement has the item desired by the potential owners but it is outdated or inefficient. (page 9)



Appendix F

- Super adequacy – an item that is bigger, better, or larger than potential owners demand. (page 9)
- Excess operating costs – the inutility within the structure causes the owner to have to pay more to operate the property than he/she would if the inutility did not exist. (page 10)





Appendix F

- Determining Abnormal External Obsolescence
 - Temporary – caused by factors in the market such as an oversupply of the type of space it provides. (page 12)
 - Permanent – caused by the subject property's location to an encroaching land use. (page 12)





Appendix F

- Two methods of measuring external obsolescence, both requiring the use of market data. (page 13)
 - Paired Sales Analysis Method
 - Capitalization of Income Method





Appendix F

- In determining condition classifications, identify the classification that best fits the structure being assessed – not all of the descriptions must be met. (see Table F-1, page 20)



Level II Prep Class

- The rest of the session will be spent working problems from the problem packet.
- You will receive an answer packet at the end of the prep class that will contain the answers to all of the problems we have worked during these sessions.
- Please turn to Problem 6 in your packet, the parking lot.





Problem 6

- A parking lot of 20,000 square feet is paved with 2 inches of asphalt over an 8-inch base. It is located in Dearborn County and is in average condition with a quality grade of C-1.
- It has 200 linear feet of metal guardrail on one side, which is also in average condition, with a quality grade of C. Both were installed in 1990.
- What is the total true tax improvement value?





Problem 6 Answer

- Since the square footage of the lot is 20,000, our base rate is \$2.29, and then we add \$0.36 for the 3" of base, so we start with a rate of \$2.65. However, the lot is a C-1 grade, so we need to account for that.
- $\$2.65 \times 0.95 = \2.52 for our base rate
- Now we need to account for the location multiplier, 0.91, so $\$2.52 \times 0.91 = \2.29 (our adjusted rate)





Problem 6 Answer

- We take $\$2.29 \times 20,000 = \$45,800$ for the replacement cost.
- Next is the depreciation. The lot is 26 years old and in average condition, so the depreciation percentage is 80%.
- $\$45,800 \times .80 = \$36,640$ and $\$45,800 - \$36,640 = \$9,160$.
- Or $\$45,800 \times .20 = \$9,160$





Problem 6 Answer

- Taking the remainder value to the nearest \$100, our asphalt has a true tax value of \$9,200.
- The guardrail has a base rate of \$21.80, and since it is a C grade, we do not have to make any grade adjustment.
- We do need to make the adjustment for the location, however. Taking the $0.91 \times \$21.80$, gives you an adjusted rate of \$19.84.
- Then just take the 200 linear feet $\times \$19.84 = \$3,970$.





Problem 6 Answer

- Looking up the depreciation for the guard rail, it is also 80%, so $\$3,970 \times .80$ and subtracting (or $.20$ and not subtracting, whichever is easier for you) gives us a remainder value for the guard rail of $\$790$, rounded to $\$800$ for the true tax value.
- Adding our paving to the guardrail amount, we should have a total true tax improvement value of $\$10,000$.



Walls		Roofing		IMPROVEMENT DATA AND COMPUTATIONS																		
Brick		Built - up		<p align="center">Level II Cost Approach</p> <p align="center">Class Problem # 6</p> <p>Dearborn County LCM - 91%</p> <p>Paving 20,000 sq. ft. \$2.29 + \$.36 for 3 " base = \$2.65</p> <p>\$2.65 X 95% for C - 1 Grade = \$2.52 base rate.\$2.52</p> <p>\$2.52 X 91% L/M = \$2.29 adj. rate X 20,000 sq. ft. = \$45,800</p> <p>Guard Rail = \$21.80 X 91% = \$19.84 X 200 = \$3,970, round to nearest \$10 = \$3,970 X .20 = \$790 rounded to the nearest \$100 = \$800.</p> <p>Actual Age 26</p> <p>Eff age 26</p> <p>Structure Life 10</p>																		
Stone		Metal																				
Concrete		Slate / Tile																				
Frame or Metal		Shingle																				
C.B. or Tile		Insulation																				
Framing	B																					
Wood Joist																						
Fire Resistant																						
Fire Proof Steel																						
Reinf. Concrete																						
Flooring	B																					
Concrete																						
Wood																						
Tile or Carpet																						
Finish Type	B																					
Unfinished																						
Semifinished																						
Finished Open																						
Finished Divided																						
Use	B																					
Store																						
Office																						
Apartment																						
Vacant or Aband.																						
Heating & Air Conditioning																						
No Heating																						
Central Warm Air																						
Hot Water or Steam																						
Unit Heating																						
Central Air																						
Package or Unit Air																						
Sprinkler																						
Plumbing Fixtures	#	TF																				
Full Bath																						
Half Bath																						
Extra Fixtures																						
TOTAL	0																					
Other Fixtures																						
Wash Fountain	G/F	ES	SS																			
Circular 36"																						
Circular 54"																						
Semi-circular 36"																						
semi-circular 54"																						
Industrial Gang Sinks																						
4' long, 4 man																						
8' lone, 8 man																						
Shower-Column																						
Circular, 5 per																						
semi-circular, 3 per																						
Corner, 2 per																						
Shower Multi-Stall																						
Circular, 5 per																						
Semi-circular, 3 per																						
Corner, 2 per																						
No. Fixtures																						
Gang Shower Heads																						
Drinking Fountains																						
Refrigerated Water Coolers																						
.....with Hot & Cold Water																						
Emergency Shower/eye Wash																						
SPECIAL FEATURES				SUMMARY OF IMPROVEMENTS																		
Description		Value		ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Norm. Depr.	Remainder Value	Obsol Depr.	True Tax Value	
				01	Paving	2"/8"	Asph	C-1	1990		Av	\$2.52		91%	\$2.29	20,000	\$45,800	80%	\$9,160		\$9,200	
				02	Guard Rail		Mtl	C	1990		Av	\$21.80		91%	\$19.84	200	\$3,970	80%	\$790		\$800	
				03																		
				04																		
				05																		
				06																		
				07																		
				08																		
				09																		
				10																		
				11																		
				12																		
				13																		
				14																		
				15																		
				16																		
				17																		
				18																		
Data Collector / Date										Appraiser / Date										Total True Tax Improvement Value		\$10,000

Class Problem #7

You are assessing a building located at 239 Main Street in Fulton County. It is owned by Vic and Rose Jones. It is a two story brick building that was built in 1929. The first floor is occupied by Vic and Rose's Café. The second floor is divided into apartments. The brick basement is used for storage. The building is in average condition and is graded a C.

The building sits on a lot that is 66' by 99' and was assessed using a front foot value of \$4,544.

Each floor has 4,320 square feet. There are 4 apartments on the second floor. The building is 60' by 72'. There is a small parking lot of 1,200 square feet at the rear of the building. It is asphalt paving with a 2" over a 5" base. The paving was laid down in 1990 and is in fair condition and graded a C-1.

The building is of wood joist construction throughout and has a full basement of 4,320 square feet. The exterior walls are 10 feet high and are brick. The interior and mechanical features of the basement are consistent with the utility storage model.

The first floor has a wall height of 12 feet, and the interior and mechanical features are consistent with the GCR Dining/Lounge model. There are 15 plumbing fixtures on this floor. The first floor has central air conditioning and heating and is sprinkled.

The second floor has a wall height of 12 feet. The apartments each feature one full bath and one complete kitchen. Each apartment has thru the wall type air conditioners.

What is the true tax improvement value of this property?



Walls	Roofing
Brick	Built - up
Stone	Metal
Concrete	Slate / Tile
Frame or Metal	Shingle
C.B. or Tile	Insulation
Framing	B
Wood Joist	
Fire Resistant	
Fire Proof Steel	
Reinf. Concrete	
Flooring	B
Concrete	
Wood	
Tile or Carpet	
Finish Type	B
Unfinished	
Semifinished	
Finished Open	
Finished Divided	
Use	B
Store	
Office	
Apartment	
Vacant or Aband.	
Heating & Air Conditioning	
No Heating	
Central Warm Air	
Hot Water or Steam	
Unit Heating	
Central Air	
Package or Unit Air	
Sprinkler	
Plumbing Fixtures	# TF
Full Bath	
Half Bath	
Extra Fixtures	
TOTAL	0

IMPROVEMENT DATA AND COMPUTATIONS

Level II Cost Approach

Class Problem # 7 Answer (Back of Property Record Card)

Basement = utility storage, wall type 2, PAR 6 = \$22.73

1st floor = dining lounge, wall type 2, PAR 6 = \$91.25

2nd floor = apartments, wall type 2, PAR 6 = \$44.54

Average unit size = 4320 / 4 = 1080

Unit finish adjustment (apartments size 1100 W/O) = \$5.79

Sprinkler on first floor = type 4 less than 5000 = \$4.93

Plumbing = 15 X \$1,600 = \$24,000

Paving under 20,000 sq. ft. = \$2.50 X 95% = \$2.38 base rate

\$2.38 base rate X 88% L/M = \$2.09 (adj. rate) X 1,200 sq. ft. = \$2,508 or \$2,510 (Rounded to nearest \$10.00)

Circle One →	1 or A	2 or B	3 or C	4 or D
Pricing Key	GCR	GCR	GCR	
S. F. Area	4320	4320	4320	
Effective Perimeter	264	264	264	
P. A. R.	6	6	6	
Number of Units			4	
Average unit size			1080	
Floor	Hgt.	Rate	Hgt.	Rate
Basement	10	\$22.73		
1st			12	\$91.25
2nd			12	\$44.54
3rd				
4th				
Frame Adj.	[±]			
Wall Hght. Adj.	[±]			
Base Price	\$22.73	\$91.25	\$44.54	
B. P. A. %	100%	100%	100%	
Sub-total	\$22.73	\$91.25	\$44.54	
Unit Finish			5.79	
Interior Finish				
Div./Pin Walls				
Lighting				
Heating/Air Cond.				
Sprinkler		4.93		
S. F. Price	\$22.73	96.18	50.33	
Area	4320	4320	4320	
Sub.-total	\$98.190	\$415.500	\$217.430	
Plumbing		\$24.000		
Special Features				
Exterior Features				
TOTAL BASE	\$98.190	\$439.500	\$217.430	
Location Multiplier	88%	88%	88%	
Grade Factor	100%	100%	100%	
Replacement Cost	\$86.410	\$386.760	\$191.340	

Other Fixtures	
Wash Fountain	G/F ES SS
Circular 36"	
Circular 54"	
Semi-circular 36"	
semi-circular 54"	
Industrial Gang Sinks	
4' long, 4 man	
8' lone, 8 man	
Shower-Column	
Circular, 5 per	
semi-circular, 3 per	
Corner, 2 per	
Shower Multi-Stall	
Circular, 5 per	
Semi-circular, 3 per	
Corner, 2 per	
Gang Shower Heads	No. Fixtures
Drinking Fountains	
Refrigerated Water Coolers	
....with Hot & Cold Water	
Emergency Shower/eye Wash	

SPECIAL FEATURES	
Description	Value
ID	Use
01	Dining Lounge
02	
03	
04	
05	Paving
06	
07	
08	
09	
10	
11	
12	
13	
14	
15	
16	
17	
18	
Data Collector / Date	

SUMMARY OF IMPROVEMENTS														
Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Norm. Depr.	Remainder Value	Obsol. Depr.	True Tax Value					
					\$664,510	80%	\$132,900		\$132,900					
\$2.38		88%	\$2.09	1200	\$2,510	80%	\$500		\$500					
Appraiser / Date					Total True Tax Improvement Value				\$133,400					

Class Problem #8

This is a fast food restaurant built on a slab in Daviess County in 2001. It contains 1,902 square feet and has a perimeter of 202 linear feet. It also has a commercial heating/air conditioning package that heats and cools the entire 1,902 square feet. It is graded a C and is in average condition.

There is 18,000 square feet of asphalt paving on a 2" over a 8" base. It was put down at the same time as the construction date of the building. It is graded a C +1 and is in average condition.

The restaurant is located on a one acre tract of land that is primary commercial land. The base rate for primary commercial land in this area is \$525,000 per acre.

What is the total improvement value of this property?



Walls		Roofing		IMPROVEMENT DATA AND COMPUTATIONS																															
Brick	Built - up	Level II Cost Approach																Circle One →		1 or A		2 or B		3 or C		4 or D									
Stone	Metal	Class Problem # 8 Answer (Back of PRC)																Pricing Key		Fast Food															
Concrete	Slate / Tile	Paving = under 20,000 sq. ft. \$2.50 + \$.36 for 3 " base = \$2.86 \$2.86 X 105% for C + 1 Grade = \$3.00 base rate. \$3.00 X 89% L/M = \$2.67 adj. rate X 18,000 sq. ft. = \$48,060 Actual Age 15 Effective Age 14																S. F. Area		1,902															
Frame or Metal	Shingle																	Effective Perimeter																	
C.B. or Tile	Insulation																	P. A. R.																	
																		Number of Units																	
																		Average unit size																	
Framing	B																	Floor		Hgt.		Rate		Hgt.		Rate		Hgt.		Rate		Hgt.		Rate	
Wood Joist																		Basement																	
Fire Resistant																		1st				\$115.09													
Fire Proof Steel																		2nd																	
Reinf. Concrete																		3rd																	
Flooring	B	4th																																	
Concrete		Frame Adj.		[±]																															
Wood		Wall Hght. Adj.		[±]																															
Tile or Carpet		Base Price				\$115.09																													
Finish Type	B	B. P. A. %				100%																													
Unfinished		Sub-total				\$115.09																													
Semifinished		Unit Finish																																	
Finished Open		Interior Finish																																	
Finished Divided		Div./Pin Walls																																	
Use	B	Lighting																																	
Store		Heating/Air Cond.																																	
Office		Sprinkler																																	
Apartment		S. F. Price				\$115.09																													
		Area				1,902																													
Vacant or Aband.		Sub.-total				\$218,900																													
Heating & Air Conditioning		Plumbing																																	
No Heating		Special Features																																	
Central Warm Air		Exterior Features																																	
Hot Water or Steam		TOTAL BASE				\$218,900																													
Unit Heating		Location Multiplier				89%																													
		Grade Factor				100%																													
Central Air		Replacement Cost				\$194,820																													
Package or Unit Air																																			
Sprinkler																																			
Plumbing Fixtures	#	TF																																	
Full Bath																																			
Half Bath																																			
Extra Fixtures																																			
		TOTAL	(0)																																
Other Fixtures		SPECIAL FEATURES																																	
Wash Fountain	G/F	ES	SS	Description		Value		ID	Use	Story Height	Const. Type	Grade	Year Const.	Eff. Age	Cond.	Base Rate	Features	L/M	Adj. Rate	Size or Area	Replacement Cost	Nom. Depr.	Remainder Value	Obsol. Depr.	True Tax Value										
Circular 36"								01	Fast Food	1	Br	C	2001		Av						\$194,820	50%	\$97,410		\$97,400										
Circular 54"								02																											
Semi-circular 36"								03	Paving	2"/8"	Asph	C+1	2001		Av	\$3.00		89%	\$2.67	18000	\$48,060	80%	\$9,610		\$9,600										
Industrial Gang Sinks								04																											
4' long, 4 man								05																											
8' long, 8 man								06																											
Shower-Column								07																											
Circular, 5 per								08																											
semi-circular, 3 per								09																											
Corner, 2 per								10																											
Shower Multi-Stall								11																											
Circular, 5 per								12																											
Semi-circular, 3 per								13																											
Corner, 2 per								14																											
								15																											
Gang Shower Heads		No. Fixtures						16																											
Drinking Fountains								17																											
Refrigerated Water Coolers								18																											
.....with Hot & Cold Water																																			
Emergency Shower/eye Wash																																			
									Data Collector / Date												Appraiser / Date					Total True Tax Improvement Value	\$107,000								

Practice Problem #1

The Walgreen company owns and operates a drug store which was constructed in Lake County. The building has 15,400 square feet with a perimeter of 450 feet. The drug store was built in 2001. The building is fire resistant construction and is wall type #1. The interior finish meets the criteria of the GCM General Retail model. There are a total of five commercial plumbing fixtures in the building. The building is totally sprinkled and has an average quality attached commercial canopy of 900 square feet. It has been determined the building is in average condition and is classified as a C+1 quality grade.

There is a 28,000 square feet asphalt paved parking area surrounding the building. It was constructed when the building was built and the asphalt is 2" on 5" base. The asphalt paving is C quality grade and is in average condition.

What is the total true tax value of the improvements?



Level II Cost Approach

This concludes the cost approach tutorial and is a reminder that should you have questions you can email these questions to the DLGF.

Please send emails to Level2@dlgf.in.gov

