



2014 Level II Prep Class 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.





Answer to Problem 3

Step 1 – Figure the PAR

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





Answer to Problem 3

Step 2 – Percentage of each use

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





Answer to Problem 3

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

- General office - \$111.96
- Utility storage - \$66.22





Answer to Problem 3

Step 4: Figure adjusted rates for each use

- $\$111.96 \times .60 = \67.18
- $\$66.22 \times .40 = \26.49



Answer to Problem 3

Figure new adjusted base rate by adding the individual rates together

$$\$67.18 + \$26.49 = \$93.67$$



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?





Answer to Problem 4

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

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





Answer to Problem 4

- $3' + 13.50' = 16.5'$ 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.





Answer to Problem 4

- Office: base rate is \$66.56, adjustment is 5' x \$1.30 for a total of \$73.06
- Warehouse: base rate is \$43.10, minus adjustment of 1' x \$.79 for a total of \$42.31





Answer to Problem 4

- $\$73.06 \times 25\% = \18.27
- $\$42.31 \times 75\% = \31.73

- $\$18.27 + \$31.73 =$ adjusted rate of $\$50.00$ for the building.





Answer to Problem 4

- 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?





Answer to Problem 5

- $1,200 \text{ square feet} / 3,000 \text{ square feet} = 40\%$
- Fireproof steel frame adjustment: $\$9.43 \times 40\% = \3.77





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 (2014).
 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

Determining the Normal Depreciation Percentage: (cont)

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 Jackson 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?





Answer to Problem 6

- 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)





Answer to Problem 6

- We take $\$2.29 \times 20,000 = \$45,800$ for the replacement cost.
- Next is the depreciation. The lot is 24 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 $\$45,800 \times .20 = \$9,160$





Answer to Problem 6

- 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 \$22.95, 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 $0.91 \times \$22.95$, gives you an adjusted rate of \$20.88.
- Then just take the 200 linear feet $\times 20.88 = \$4,180$.





Answer to Problem 6

- Looking up the depreciation for the guard rail, it is also 80%, so $\$4,180 \times .80$ and subtracting (or $.20$ and not subtracting, whichever is easier for you) gives us a remainder value for the guard rail of $\$840$, 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	Level II Cost Approach Class Problem # 6 Jackson County LCM - 91% Paving 20,000 sq. ft. \$2.29 + \$.36 for 3" base = \$2.65 Fire Resistant Fire Proof Steel \$2.65 X 95% for C-1 Grade = \$2.52 base rate, \$2.52 Reinf. Concrete Flooring Concrete B \$2.52 X 91% L/M = \$2.29 adj. rate X 20,000 sq. ft. = \$45,800 Wood Title or Carpet Finish Type B Unfinished \$10 = \$4,180 X .20 = \$840 rounded to the nearest \$100 = \$800. 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																Circle One →		1 or A		2 or B		3 or C		4 or D																																	
Stone	Met																	Pricing Key		S. F. Area		Effective Perimeter		P. A. R.		Number of Units		Average unit size		Floor		Basement		1st		2nd		3rd		4th																			
Concrete	Slate / Tile																	Frame Adj. [±]		Wall Hght. Adj. [±]		Base Price		B. P. A. %		Sub-total		Unit Finish		Interior Finish		Div./Pin Walls		Lighting		Heating/Air Cond.		Sprinkler		S. F. Price		Area		Sub.-total		Plumbing		Special Features		Exterior Features		TOTAL BASE		Location Multiplier		Grade Factor		Replacement Cost	
Frame or Metal	Shingle																	Use		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							
C.B. or Tile	Insulation																	Eff age 23		Structure Life 10																																							
				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																																		
				Wash Fountain		G/F ES SS																																																					
				Circular 36"				01	Paving	2"/8"	Asph	C-1	1990		Av	\$2.52		91%	\$2.29	20,000	\$45,800	80%	\$9,160		\$9,200																																		
				Circular 54"				02	Guard Rail		Mtl	C	1990		Av	\$22.95		91%	\$20.88	200	\$4,180	80%	\$840		\$800																																		
				Semi-circular 36"				03																																																			
				semi-circular 54"				04																																																			
				Industrial Gang Sinks				05																																																			
				4' long, 4 man				06																																																			
				8' lone, 8 man				07																																																			
				Shower-Column				08																																																			
				Circular, 5 per				09																																																			
				semi-circular, 3 per				10																																																			
				Corner, 2 per				11																																																			
				Shower Multi-Stall				12																																																			
				Circular, 5 per				13																																																			
				Semi-circular, 3 per				14																																																			
				Corner, 2 per				15																																																			
				No. Fixtures				16																																																			
				Gang Shower Heads				17																																																			
				Drinking Fountains				18																																																			
				Refrigerated Water Coolers																																																							
			with Hot & Cold Water																																																							
				Emergency Shower/eye Wash																																																							
										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 Jay 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.

Including the land, what is the true tax value of this property?



Class Problem #8

This is a fast food restaurant built on a slab in Pulaski 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 value of this property, including both land and improvements?



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 88% L/M = \$2.64 adj. rate X 18,000 sq. ft. = \$47,520														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														
																		Floor		Hgt.	Rate	Hgt.	Rate	Hgt.	Rate	Hgt.	Rate					
																		Basement														
																		1st			\$109.59											
																		2nd														
																		3rd														
				4th																												
				Frame Adj.		±																										
				Wall Hght. Adj.		±																										
				Base Price			\$109.59																									
				B. P. A. %			100%																									
				Sub-total			\$109.59																									
				Unit Finish																												
				Interior Finish																												
				Drv./Pin Walls																												
				Lighting																												
				Heating/Air Cond.																												
				Sprinkler																												
				S. F. Price			\$109.59																									
				Area			1.902																									
				Sub.-total			\$208.440																									
				Plumbing																												
				Special Features																												
				Exterior Features																												
				TOTAL BASE			\$208.440																									
				Location Multiplier			88%																									
				Grade Factor			100%																									
				Replacement Cost			\$183.430																									
				TOTAL			0																									
Other Fixtures				SPECIAL FEATURES														SUMMARY OF IMPROVEMENTS														
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						\$183,430	50%	\$91,720		\$91,700									
Circular 54"						02																										
Semi-circular 36"						03	Paving	2"/8"	Asph	C+1	2001		Av	\$3.00		88%	\$2.64	18000	\$47,520	80%	\$9,500		\$9,500									
semi-circular 54"						04																										
Industrial Gang Sinks						05																										
4' long, 4 man						06																										
8' lone, 8 man						07																										
Shower-Column						08																										
Circular, 5 per						09																										
semi-circular, 3 per						10																										
Corner, 2 per						11																										
Shower Multi-Stall						12																										
Circular, 5 per						13																										
Semi-circular, 3 per						14																										
Corner, 2 per						15																										
				No. Fixtures		16																										
Gang Shower Heads						17																										
Drinking Fountains						18																										
Refrigenated Water Coolers																																
.....with Hot & Cold Water																																
Emergency Shower/ eye Wash																																
						Data Collector / Date							Appraiser / Date							Total True Tax Improvement Value			\$101,200									



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 2000. 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?



IMPROVEMENT DATA AND COMPUTATIONS

Level II Cost Approach
Practice Problem #1 (Walgreen's Drug Store)

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	

Circle One →	1 or A	2 or B	3 or C	4 or D
Pricing Key	GCM Gen Retail			
S. F. Area	15,400			
Effective Perimeter	450			
P. A. R.	3			
Number of Units				
Average unit size				
Floor	Hgt.	Rate	Hgt.	Rate
Basement				
1st		\$52.90		
2nd				
3rd				
4th				
Frame Adj.	±			
Wall Hght. Adj.	±			
Base Price	\$52.90			
B. P. A. %	100%			
Sub-total	\$52.90			
Unit Finish				
Interior Finish				
Drv./Pin Walls				
Lighting				
Heating/Air Cond.				
Sprinkler	\$3.66			
S. F. Price	\$56.56			
Area	15,400			
Sub.-total	\$871,020			
Plumbing	\$7,000			
Special Features	\$22,020			
Exterior Features				
TOTAL BASE	\$900,040			
Location Multiplier	104%			
Grade Factor	105%			
Replacement Cost	\$982,840			

SUMMARY OF IMPROVEMENTS

Other Fixtures	SPECIAL FEATURES		SUMMARY OF IMPROVEMENTS																				
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	GCM Gen Retail	1	Fr	C+1	2000		Av						\$982,840	19%	\$796,100		\$796,100
Circular 54"						02																	
Semi-circular 36"						03	Paving	2"/5"	Asph	C	2000		Av	\$2.29		104%	\$2.38	28000	\$66,640	80%	\$13,330		\$13,300
semi-circular 54"						04																	
Industrial Gang Sinks						05																	
4' long, 4 man						06																	
8' lone, 8 man						07																	
Shower-Column						08																	
Circular, 5 per						09																	
semi-circular, 3 per						10																	
Corner, 2 per						11																	
Shower Multi-Stall						12																	
Circular, 5 per						13																	
Semi-circular, 3 per						14																	
Corner, 2 per						15																	
	No. Fixtures					16																	
Gang Shower Heads						17																	
Drinking Fountains						18																	
Refrigerated Water Coolers																							
.....with Hot & Cold Water																							
Emergency Shower/eye Wash																							
Data Collector / Date												Appraiser / Date						Total True Tax Improvement Value				\$809,400	





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

