Worcester County Assessors Association Workshop
October 26, 2016

The What the Flier Says Program

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Value of a single family residence in Hopkinton using a Marshall and Swift Worksheet Page and the construction costs from Marshall and Swift

Comparison between the construction costs in the Patriot CAMA system for Hopkinton and the construction costs in Marshall and Swift

Comparison between the Depreciation Schedule in the Patriot CAMA system for Hopkinton and the Depreciation Schedule in Marshall and Swift

Value of a commercial property in Hopkinton using a JHN Worksheet Page and the construction costs from Marshall and Swift

Comparison between the construction costs in the Patriot CAMA system for Hopkinton and the construction costs in Marshall and Swift

Reconciliation of the value in the Patriot CAMA System for Hopkinton by market adjusted cost approach and the value in the Patriot CAMA System for Hopkinton by income approach of the commercial building

Repeat After Me…..

- I Like the Cost Approach to Value
- This is an Interactive Session
- I Will Roll Up My Sleeves This Morning
- Questions Any Time

AN APPRAISER'S DILEMMA: THE COST APPROACH TO VALUE

By JOHN D. O'FLAHERTY

Reprinted from January-February, 1969 THE REAL ESTATE APPRAISER

ONE of the most perplexing and mystifying problems to face the appraiser as he prepares to write his examinations and demonstration narrative appraisal reports for credits towards receiving a professional appraisal designation is the proper understanding and applications of the techniques involved in the Cost Approach to Value.

This article should in no way be interpreted as an attempt to argue pro or con as to the merits of whether the Cost Approach is or is not a valid approach to value. It is still one of the accepted approaches to value. It is still required by our clients, and a thorough knowledge of the subject is still required by the SRA Admissions Committee, and the admissions committees of other leading professional appraisal organizations.

As a practicing appraiser, it would be a mark of incompetency not to give full and complete reliance to direct market comparisons, provided there is an overabundance of recent and similar sales data. In everyday appraisal practice, perfect comparable sales are often few and far between. Even under the most ideal conditions, it is necessary for the appraiser to delve into the minds of buyers and sellers and try to extract the actual motivations behind the actual and final selling price. Of course, adjustments can be made for dissimilarities, but the adjustments must be supported by market evidence based on the actions of buyers and sellers.

Unfortunately, for the appraiser, the market does not act along set patterns of behavior.

If all people had the same idea of the value of a parcel of real estate, no property could either be bought or sold. The real estate market would be stagnant. Property can be sold only when the buyer thinks it is more valuable than the seller thinks it has or conversely, when the seller thinks it is less valuable than the buyer does. Thus, it is inconceivable that even two professionally competent appraisers would ever arrive at an identical estimate of value on any given property at any given time except by pure accident.

The three approaches to value are the tools of the real estate appraiser in his everyday appraisal practice. The effectiveness of his efforts depends upon the proper use of these tools. Any of the three approaches improperly applied can lead to erroneous conclusions. Pertinence and reliability are the key words. There is no question that the Market Data Approach is always the most pertinent when market value is being sought; however, when good sales data are scarce, the reliablity of this approach is subject to questions. This is true of the Income Approach as well as the Cost Approach.

Today's practicing appraiser uses, to the best of his ability, the current techniques available to him and which are accepted by his clients. Modern appraisal thinking not withstanding, if the appraisal client wants a Cost Approach to value, the appraiser should give the best supportable estimate of value possible from the cost approach with the data available. This does not mean the appraiser will place primary emphasis on this approach in his summation. I would certainly question the advisability of giving the client a dissertation on the reasons why the Cost Approach should be banned from appraisal theory in lieu thereof.

With the above background material in mind, I will now take the calculated risk of possibly setting appraisal theory back twenty or more years. If these thoughts can be of some help to the long belabored appraiser as he attempts to master the vagaries and imponderables of estimating accrued depreciation, then I will be quite willing to accept the brickbats and scorn of appraisal theorists who have never been faced with the problem of appraising a nice, modern ranch house on a five-acre tract of land twenty miles from the nearest village or city, without recent comparable sales data within a thirty-mile radius, except possibly a few scattered sales of from twenty to forty acre tracts improved with seventy to one-hundred-year-old farm houses.

In recommending the techniques which follow, I certainly do not imply that other methods are not available to the appraisers.

In daily practice, the appraiser must be able to handle those techniques which are best suited to the appraisal problem at hand. Whichever method is used, however, must be logical, professionally acceptable, and consistent with the other steps in the appraisal process. Of even greater importance, the appraiser's conclusions must be supported by clear and strong market evidence. All approaches to value estimation are market-oriented and must reflect market data and market behavior of purchasers. Moreover, all approaches to value estimation are comparative approaches, since they involve the

Steps in the Cost Approach to Value…

- Estimate the value of the site as if vacant and available for highest and best use
- Estimate reproduction cost new of improvements
- Subtract all elements of accrued depreciation
- Add depreciated present worth of site improvements

Substitution…the informed purchaser will pay no more for a residential property than the cost to produce a substitute property…

Contribution + Balance + Highest and Best Use

Cost is not the same as value; cost does not create value; but under certain circumstances, **cost may be an appropriate measure of value…**

All approaches to value are market-oriented, and must reflect market data and market behavior of purchasers or **builders** in the case of the cost approach…

Special Purpose Properties
"No-Market" Appraisals
New or Proposed Construction
Property Insurance Purposes
Property Taxation
Eminent Domain

Reproduction Cost is the cost of construction at current prices of an exact duplicate or replica using the same materials, construction standards, design, layout and quality of workmanship, and embodying all the deficiencies, super adequacies and obsolescence of the subject property…

Replacement Cost is the cost of construction at current prices of a building having utility equivalent to the building being appraised but built with modern materials and according to current standards, design and layout…

The essence of reproduction cost is the same physical structure and the essence of replacement cost is the same utility…

Direct Costs –

- Labor
- Materials
- Equipment
- Subcontractor charges

Indirect Costs -

- Builder's overhead and profit
- Architect fees
- Surveyor costs
- Legal fees and expenses
- Permit and license fees
- Insurance premiums
- Taxes
- Financing charges
- Selling expenses (advertising, sales commission)

- Waiting expenses (vacancy carrying charges until the sale and occupancy)

Sources of Cost Data –

- Local contractors and builders
- Bench mark estimates
- Cost estimators
- Cost studies and surveys
- Appraiser's own files
- Cost services

The Alternative Methods of Cost Estimation –

- **Quantity Survey Method…**the most detailed, most complex, most costly and most time consuming method of cost estimation…rarely used for residential appraising…it involves a calculation of all the types of labor and materials, subcontractor fees, and equipment required for reproduction of the residence new…each item of cost is priced in terms of current, local prices and wages per unit (that is, per hour, per thousand board feet, per pound…)…the unit figures are then multiplied by the number of units required to create the structure…overhead, profit and other indirect costs are added in as a lump-sum or an appropriate percentage at the end…

- **Unit-In-Place-Method…**this method of cost estimation involves estimating the unit cost of materials or component sections of the structure installed or "in place"…the unit thus consists of both materials and the labor necessary to put them in place per unit…for example, the installed or "in place" cost of exterior walls from the paint on the siding to the wallpaper on the interior might be calculated at so much per square foot or per lineal foot…then this unit cost is multiplied by the number of square feet or lineal feet to obtain the installed cost of exterior walls "in place"…the same process is followed for all other component units of the structure…this method is also too expensive and time consuming to be warranted in most residential appraisals…

- **Trade Breakdown, Segregated or Builder's Method…**this is similar to the unit-in-place method, but in this case, the units are the major functional parts of the structure…an installed unit cost is developed from current, local market data for each component part of the structure – excavation, foundation, frame exterior walls, roof, roofing, interior partitions, painting-decoration, floors, plumbing, heating system, electrical system…this unit cost is then multiplied by the appropriate number of units (square feet, lineal feet, electrical outlets) to obtain the installed cost estimate for each component segment of the structure…the installed cost of fixtures, fireplaces and equipment are added as lump sums per element…then appropriate indirect costs are added to obtain the final total…this method most nearly represents the thinking of most residential contractors…this method can be applied through the use of cost services…it is widely used and accepted by professional real estate appraisers and lenders…

- **Comparative Unit Method…**this method is applied by lumping together all components of the structure on a unit basis – cost per square foot of building area…the costs estimated are completed construction costs, including all installation expenses, and usually builder's overhead and profit as well…this method is the least accurate of the alternative methods available to the appraiser, but it is also the easiest to apply, the least time consuming, and the least costly…this method is acceptable and widely used in practice…

The Steps in the Cost Approach –

- Estimate the Site Value As If Vacant
  - Allocation Method
  - Ground Rent Capitalization Method
  - Land Residual Method
  - Market Abstraction Method
  - Sales Comparison Method
  - Subdivision Development Method

- Estimate the Cost New of Improvements

  Sources
  - Local Contractors and Builders
  - Bench Mark Estimates
  - Cost Estimators
  - Cost Studies and Surveys
  - Your Own Files
  - ****** Cost Services – Marshall and Swift – RS Means***

  Methods
  - Quantity Survey Method
  - Unit in Place Method
  - Segregated Cost or Trade Breakdown or Builder Method
  - *** Comparative Unit Method
  - Cost Index Method

- Estimate and Then Subtract Total Accrued Depreciation

  Types
  - Physical Depreciation
  - Functional Obsolescence
  - External (Economic) Obsolescene

  Methods
  - Economic Age-Life
  - Modified Economic Age-Life
  - Breakdown
  - Market Extraction
  - Straight Line
  - Marshall and Swift Chart
  - CAMA System

- Add Depreciated Present Worth of Site Improvements

- Add Site Value to Depreciated Cost to Arrive at Cost Value

LOT #	ACREAGE	LOT #	ACREAGE	LOT #	ACREAGE
1	.77	5	.73	9	.89
2	.69	6	.77	10	.88
3	.69	7	.73	11	.69
4	.69	8	1.28	12	.69

For More Information Contact: Trina Macchi 508.625.0929

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First Floor

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Features

A Complete Guide to Commercial Building Costs

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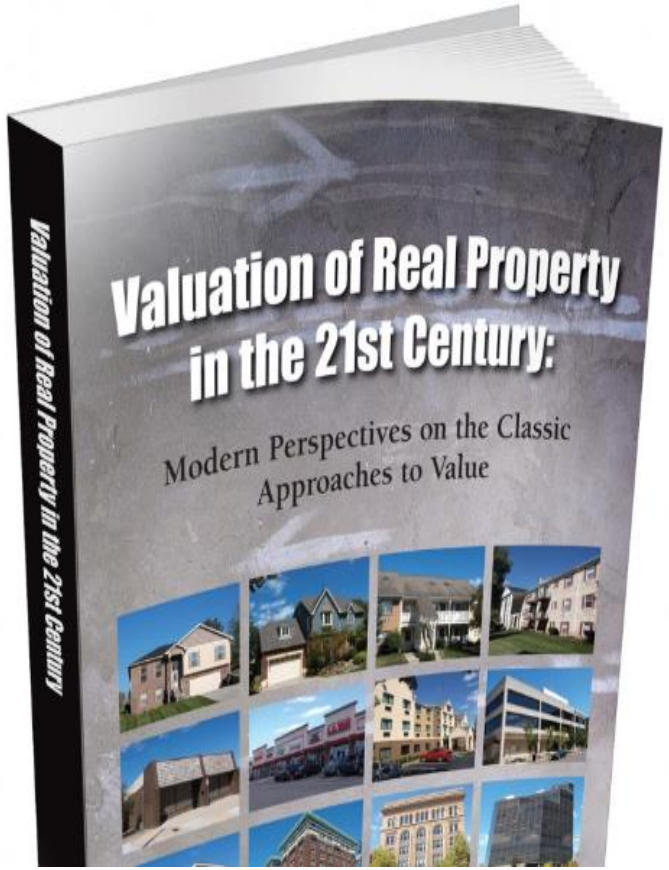


Modern Perspectives on the Classic Approaches to Value

Table of Contents (Preliminary)

Built in 1986 during the energy crisis, this geodesic home, left, at 243 Oak St. in Hellerton is set on a 13-acre lot that enhances its sense of natural living. The roof is comprised of energy efficient materials mimicking cedar shingles that have been polyurethaned to increase energy efficiency. A dome, the current owners said, provides more volume to the home and increases energy efficiency. Above, the first paperboard geodesic dome at Yale University's Architectural School in 1951.

HOME IN A DOME

UNIQUE GEODESIC DOME IS A LESSON IN ALTERNATIVE LIVING

The kitchen, above, is wide open and separated from the living room by a tall, partial wall. Above right, the rear view of the house. The lot has a multitude of fruit trees, including apple, pear and peach as well as dogwood trees and strawberries. A raised garden, right, is perfect for vegetables and the open lawn a wonderful play or barbecue area.

By Susan Brickman
ON REAL ESTATE DESIGN

Buckminster Fuller would be proud.

His unique geodesic dome house design is still unusual, although they are few and far between. While the domes became rather popular in the 1960s after they appeared at the United States pavilion at the Montreal World's Fair in 1967, they are an oddity in New England, home to traditional capes and colonials.

And that is just one reason the dome home at 243 Oak St. in Hellerton is a rare find.

Geodesic comes from the word geode, which means earth form, or a hollow, rounded nodule. In architecture, it means having a structurally strong surface made up of short, straight, lightweight bars that form a grid of polygons.

Buckminster Fuller patented the Geodesic Dome in the late 1940s to demonstrate some ideas about housing and "energetic-synergetic geometry" which he had developed during World War II.

However, according to sources on the Internet, the geodesic dome was actually invented by Walter Bauersfeld of the Zeiss Optical Works in Jena, Germany, in 1922, and the first use of it was as a planetarium on the roof of Zeiss that year.

Fuller, though, was awarded several patents for the dome. Moreover, Fuller was the one who popularized the technology and pointed out the dome's advantages and the reasons for its great strength.

And that, in a nutshell, brings us back to Hellerton, where Marie Kelley of ReMax Executive Realty is marketing one of the two domes in town, the one priced at $549,900. Due to the fact there are no load-bearing interior walls in a dome, floor plans are limitless. And even with the soaring ceilings, domes use almost 30 to 50 percent less energy than traditional homes.

This home features a wooden staircase up to a small deck outside the main doorway. Inside is a tiled foyer and rounded walls, with a staircase on the right leading up and up and up. The first floor features four bedrooms, one a master with a huge closet, a private bath, sliders on a rear patio and the grounds beyond, plus a closet with a washer and dryer. Can't get more convenient than that!

Around the corner – walls aside the corners in this round house – is another large bedroom and across the hallway are two more bedrooms sharing a full bath. The downstairs – or rather lower level since this is a walk-out – is perhaps the greatest space in the house. The current owners, who built the home and are downsizing, have made it into a real work space with benches, a room with a drill press table saw, shelves, another room with a small table, file cabinets, and a partial kitchen with a stove and sink and a ha bath. It's an unbelievable space th could be used for just about anything.

Up on the second floor is anothe bedroom, off from the kitchen and half bath that can be plumbed and e panded for a full bath. The room currently used as an office or den. Th kitchen is wide open, separated by tall, partial wall from the living room The kitchen wall has the sink and dish washer with lots of counter space yo like and a long island is home to th stove and more oak cabinets. On th other side of that island is an informa dining area.

The living room is enormous, with dining area off to the side and spac for all kinds of furniture. Skylights wa ups the ceiling and more natural ligh to the already bright rooms. Most o the rooms have wall-to-wall carpe and the bath sink counters are Corian This is a very unique house, set down long, winding driveway and surround ed by woods. There are solar panels currently not used but which could b returned to working order. The yard i wonderful with a raised vegetable bed perennials and flowering trees. Thi home could truly be a one-of-a-kin masterpiece.

For more information, contac Marie Kelley at ReMax Executive Re alty, 508-429-6767.

Home on the missile range: Silo living

By John Hanna
ASSOCIATED PRESS

MAPLE HILL, Kan. — The garage door of Ed Peden's workshop weighs 47 tons. It's steel, painted gray, 20 feet wide and 18 feet high.

Visitors to his home have to wait a good 30 seconds for him to answer the doorbell. The front door sits at the end of a long and cramped underground tunnel with curved walls and a curved ceiling of silver, ribbed steel.

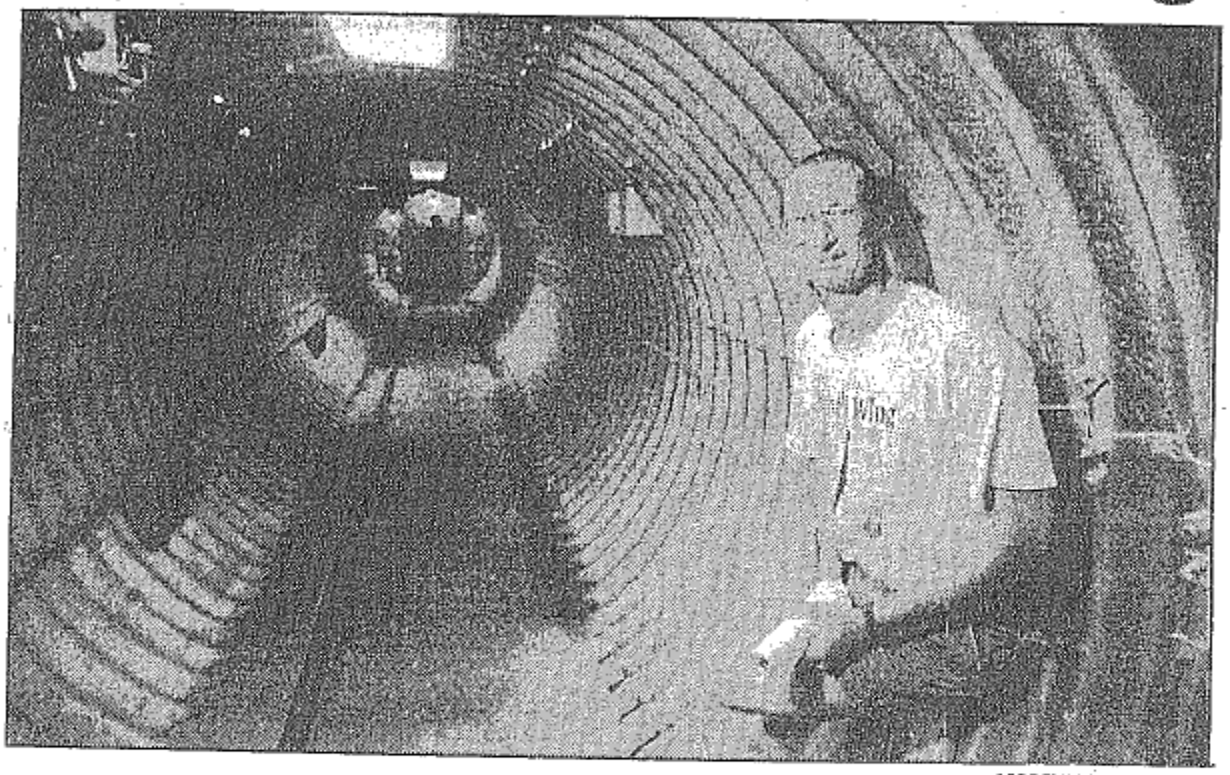
Peden lives in what used to be a nuclear missile silo.

In what once housed an 82-foot Atlas-E rocket and a command center where two officers sat ready to push launch buttons that would bring about nuclear doomsday, there is a three-level home with an antique piano, comfortable furniture and all the other accoutrements of civilized living for Peden and his wife, Dianna.

The Pedens have been living in their Cold War-era home for 18 months. Heat is provided by a wood stove, and there's no need for air conditioning: The summer's top inside temperature was 76 degrees. The chances of getting inside uninvited — whether you're a burglar or a tornado — are slim.

"This structure was built to withstand a one-megaton blast within a mile," Peden said. "It's the ultimate underground home."

In the 1960s, a right turn off state Highway 4 onto this lonely paved road 20 miles west of Topeka would have brought you into a secured Air Force area — and into a world of trouble if you didn't have the proper clearances.



ASSOCIATED PRESS PHOTO

Ed Peden leans against the corrugated steel tunnel leading to the front door of his Shawnee County, Kan., home. Peden's 15,000-square-foot facility used to be an Atlas missile base.

Now, the only air force here is a fleet of light recreational planes under construction in Peden's workshop and ready for test flights on the small airstrip on the ground above.

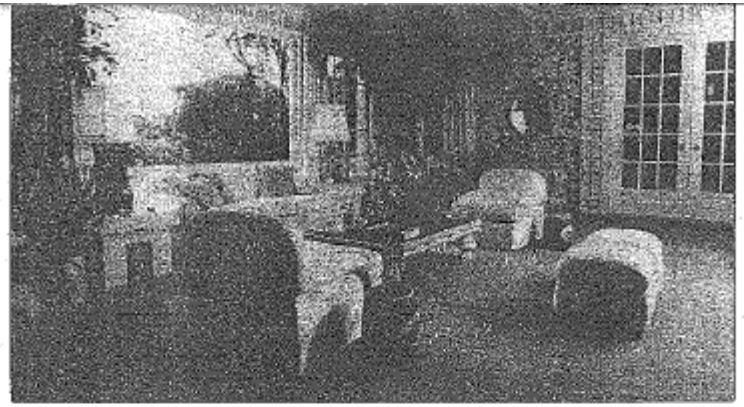
The kitchen, living room and study have a cozy, rustic feel, mostly because of the white cement walls and unfinished wood floors, which are waiting for carpet.

Sunlight filters through a greenhouse-type window that covers the 6-by-10-foot opening once used to lower equipment inside.

The silo — actually an underground trench 15 feet deep, 90 feet long and 40 feet wide — was one of 118 Atlas sites built by 1961 in Kansas, Nebraska, New Mexico, New York, Washington, Wyoming, and California. By 1965, all were abandoned, rendered obsolete by better missiles such as the Titan and the Minuteman.

The government left the bases behind to cities, school districts and private citizens. Some were neglected. Peden said his silo had become "kind of a party zone. I think young people liked to come here and drink beer and have fun."

"It's tremendously overbuilt," said the 48-year-old Peden. "Money — it didn't matter."



Beauty and the bucks

The right remodeling project can yield impressive returns on your home investment

ere's no question that emodeling will add to he value and resale rice of your home, not o mention the comfort nd satisfaction you'll ore enjoyable environ-

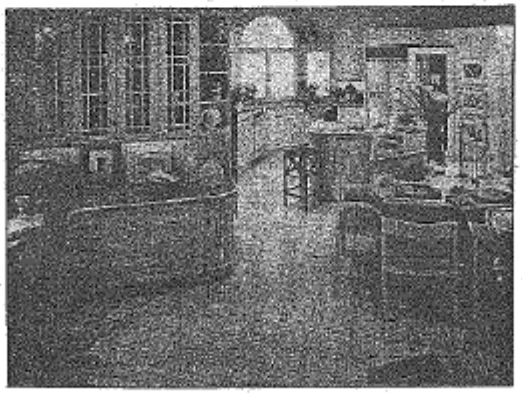
ok at some new trends e most popular remod- s and a rundown on the rns you can expect to nvestment.

T DOORS AND WINDOWS: eather-beaten doors and ains the most popular emodeling project. And hasis on high-quality l doors, unique window uch as round-tops, box, eresories — and techno- vanced high efficiency paying off in higher re- t to recoup as much as f this investment now just 40 percent about ago. But the higher es with a beefier price ng all exterior doors and a modest house can run 0 $13,000.

: Installing new siding ng board is far less ex- st over $6,000 on the av- l can boost your home's by 75 percent to 100 per- roject's cost. Higher en- ergy efficiency accounts for some of this project's value, but more important is the enhanced curb appeal it gives your home.

Vinyl and vinyl-coated aluminum siding remain the most popular because they require little maintenance, but owners of more expensive houses may be better off going with natural wood. It's more expensive and, if painted, more difficult to maintain, but is generally preferred by home buyers at the upper end of the market.

When renovating your house's exterior, pay special attention to creating a dramatic entry — for example, a landscaped brick path leading to a carved door flanked by fluted pilasters and topped by a classical pediment. This feature alone can help swing sales negotiations to your favor.



Renovations can be costly — but they are sure to add value to the resale of your home. Among the most popular remodeling projects: sleek, modern kitchens, replacement windows.

ROOM ADDITION: Building a 15- by 25-foot room addition is costly — close to $35,000 on average — and has a relatively modest recovery rate — about 70 percent if you sell within two years. But if you like your present location and simply need more space, you're often better off adding a room or even an entire second floor than buying a larger house. To get the best return on resale, make sure the addition blends in with the layout and architectural character of the house. Also, a multipurpose room will do better than one restricted to a single purpose such as a gym or workshop.

REMODELED KITCHEN: The kitchen can have more impact on the market value of your house than any other single room. The trend today is toward opening up the kitchen to living areas and bringing in natural light via skylights, greenhouse or clerestory windows.

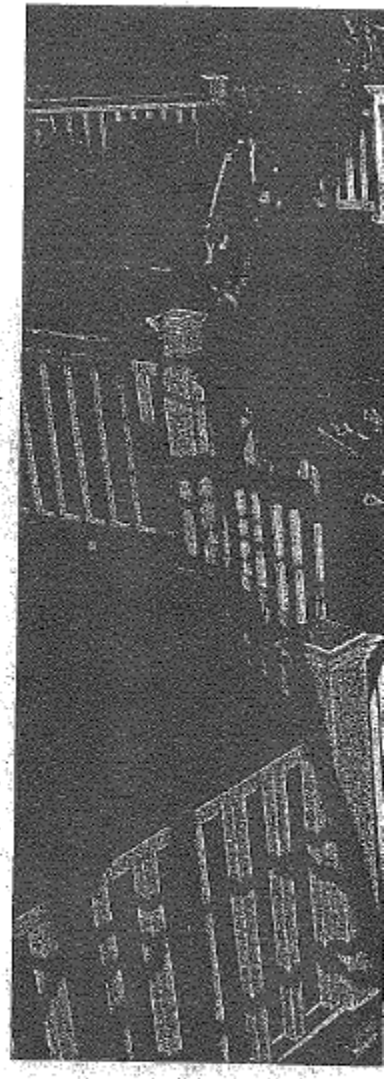
Sleek, Eurostyle cabinetry — made of either natural wood or high-quality laminates — are still the rage, as are countertops of granite, and marble look-alikes such as

REMODELING, PAGE 6E

All Decked Out

The tweaking of the American home continues—even in a lousy real estate market. Introducing the $75,000 deck.

By Brad Reagan



EDDY ZARETSKY WORKS as a corporate concierge, arranging for well-heeled clients to live it up at marquee events like the Super Bowl. Suffice it to say he knows how to throw a party, and his brand-new home outside Charlotte, N.C., shows it. In the sprawling living space where he does his entertaining, he pampers guests with a wet bar complete with ice maker, a built-in stereo system and a hot tub big enough for eight. The only things missing: walls.

Zaretsky's party "room" is a deck that spans 1,150 square feet—twice as big as his living room. The souped-up space boasts dueling gazebos—the hot tub sits under one, a dining table under the other—a gurgling fountain and a stainless-steel grill with a restaurant-caliber infrared burner for searing Zaretsky's signature filet mignons. His first order of business after buying his place last year was to rip the postage-stamp deck off the back of the house and commission this pleasure platform, which has room for 50 or 60 of his closest friends. Even this past winter he and his wife hosted several gatherings, creating a competition of sorts with the homeowners association's clubhouse. "We wanted people to say, 'Should we go to the clubhouse, or should we go to Eddy's?'" he says.

Photograph courtesy of Archadeck; inset by Geostock/Getty Images

NZ

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Points and fees may apply

Real Estate

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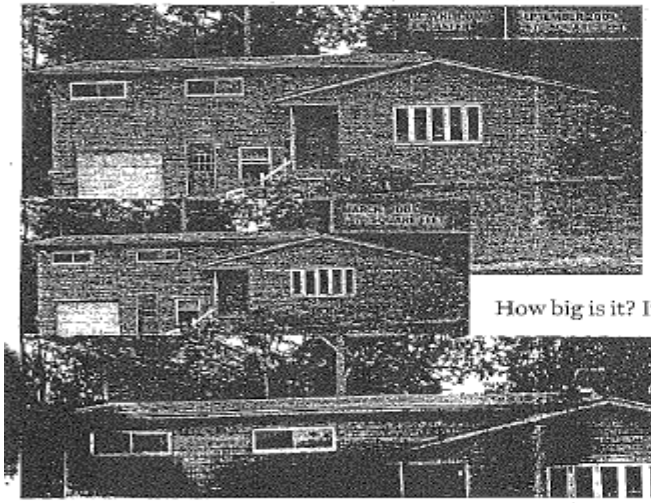


THE INCREDIBLI SHRINKIN((AND EXPANDIN(HOUSI

How big is it? It often depends on who's doing the measur

By Stephanie Ebbert

It took eight years for the Gregerson family to their house wasn't as big as they thought it was. The Colonial was advertised as a sprawling 3,200 sq when they bought it in 1997. Only when they put market this summer did they realize they had onl 2,700 square feet for their money.

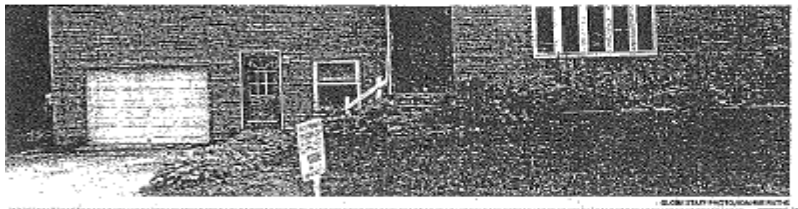
"I was a little annoyed that it was wrong," said Li gerson. "It was just something we never really wo thought to check."

Their incredibly shrinking house may have cost both ends. Had they known the accurate dimensions, th gersons might not have offered the $315,000 that was the house eight years ago. Now, they're not making as money as they'd hoped in the resale. Their broker -- wh insisted they take measurements and check town reco substantiate discrepancies that she found dubious -- re lowered their asking price to $299,000 from $329,900.

"We just couldn't justify the price with the square fo said the broker, Elaine Davis.

Home buyers have a lot to learn when it comes to ju the size and relative worth of the houses on the marke listings that buyers rely on offer notoriously unreliable measurements of "gross living area," and brokers and sellers an incentive to inflate sizes to attract buyers. From the S

SIZE, Pa



GLOBE STAFF PHOTO/JOANNE RATHE

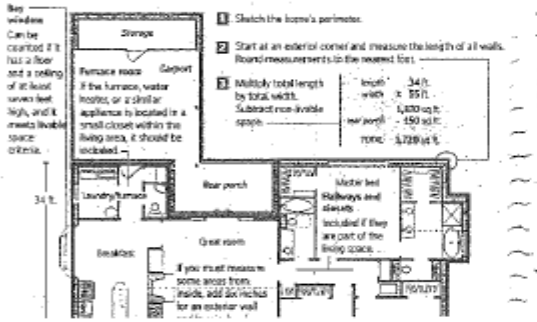
Does it measure up?

Surprisingly, there are no set guidelines for measuring a home's living area. "There's no black and white in this sort of thing," says one realtor/appraiser.

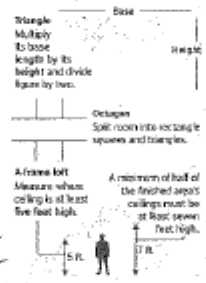
LIVABLE SPACE

Area intended for human occupancy. Must have walls, floors, and ceilings.
Heated by a conventional, permanent heating system. Must be directly accessible from another finished area.

Livable space — Non-livable space; do not include in total square footage



MEASURING DIFFICULT AREAS



IS THE BASEMENT INCLUDED?

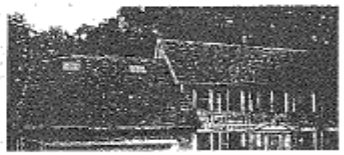
The realtor/appraiser says:

"As an appraiser, one is only supposed to measure or take into account gross living area that is above grade. But when you're looking as a broker, a lot of finished will count that space. It's a marketing thing."

The listing service says:

GLOBE STAFF PHOTO/JOHN TLUMACKI

This Westborough house was listed at 3,400 square feet wh it was sold in 2001 but grew to 4,200 square feet when it we on the market this spring. A disclosure shows the broker w including an unheated basement.



Good Quality

The homes are good quality with some attention to detail and refinements and might be mass produced in more expensive residential neighborhoods or might be custom-designed for an individual owner. These homes usually exceed the minimum construction requirements of the building code and good quality standard materials are used.

Exterior and Interior Finish: Exteriors might have some custom ornamentation and trim. Poured concrete foundation, wood clapboard or wood shingle siding, double-hung insulated glass windows and asphalt or wood shingle roof. Plaster interior walls with better quality paint or wallpaper or wood paneling. Better quality cabinets in the kitchen with Corian counters, ceramic tile backsplash, center island, pantry closet and/or built-in desk area. Floor cover would be good quality carpet, ceramic tile or hardwood. Good quality bathroom vanities. Vaulted or cathedral ceilings. Six-panel doors with good quality hardware. Better quality trim throughout the house with wainscot in dining room. Walk-in closets and ample storage. Well-positioned and extra electrical outlets and good-quality lighting fixtures throughout and recessed lights. The heating system might be a forced hot-air furnace with central air or a forced hot-water system with central air.

Concept of Cost versus Value!!!!!

Cost is the total spent for goods or services including money, labor and time.

Value is the worth of real estate at any given time.

Under certain circumstances, cost may be an appropriate measure of value.


27

U2	53	0	1 of 1	RESIDENTIAL	TOTAL ASSESSED:	628,500
Map	Block	Lot	CARD		!4803!	

Town of Hopkinton

PROPERTY LOCATION

No	Alt No	Direction/Street/City
27		ROCKY WOODS RD, HOPKINTON

OWNERSHIP

Unit #

Owner 1:	BATES, JR., HAMILTON M.
Owner 2	BATES, MICHELLE C.
Owner 3:	
Street 1.	27 ROCKY WOODS ROAD
Street 2:	
Twn/City:	HOPKINTON
St/Prov:	MA Cntry Own Occ: Y
Postal:	01748 Type:

PREVIOUS OWNER

Owner 1:	SHANAHAN, MICHAEL J. III -
Owner 2:	SHANAHAN, CYNTHIA L. -
Street 1:	27 ROCKY WOODS ROAD
Twn/City:	HOPKINTON
St/Prov:	MA Cntry
Postal:	01748

NARRATIVE DESCRIPTION

This Parcel contains .788 ACRES of land mainly classified as ONE FAM with a(n) COLONIAL Building Built about 1998, Having Primarily VINYL Exterior and ASPHALT SH Roof Cover, with 1 Units, 2 Baths, 1 HalfBaths, 0 3/4 Baths, 9 Rooms, and 4 Bdrms.

OTHER ASSESSMENTS

Code	Descrip/No	Amount	Com. Int

PROPERTY FACTORS

Item	Code	Descip	%	Item	Code	Descrip
Z	A2	A	100	U	1	TYPICAL
o				t		
n				l		
Census.				Exmpt		
Flood Haz:						
D				Topo	4	ROLLING
s				Street	1	PAVED
t				Traffic	2	LIGHT

IN PROCESS APPRAISAL SUMMARY

Use Code	Building Value	Yard Items	Land Size	Land Value	Total Value
101	387,400		0.788	241,100	628,500
Total Card	387,400		0.788	241,100	628,500
Total Parcel	387,400		0.788	241,100	628,500

Source: Market Adj Cost | Total Value per SQ unit /Card: 219.14 | /Parcel: 219.14

Legal Description

User Acct

GIS Ref

GIS Ref

Entered Lot Size

Total Land:

Land Unit Type

Insp Date 09/30/14

PREVIOUS ASSESSMENT

Parcel ID: U2 53 0

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Asses'd Value	Notes	Date
2017	101	PV	376,100	0	.788	236,400	612,500	612,500		5/19/2016
2016	101	FV	376,100	0	.788	236,400	612,500	612,500	year end	11/30/2015
2015	101	FV	326,500	0	.788	229,400	555,900	555,900		12/8/2014
2014	101	FV	312,800	0	.788	209,600	522,400	522,400		10/21/2013
2014	101	PV	319,100	0	.788	209,600	528,700	528,700		6/11/2013
2013	101	FV	319,100	0	.788	209,600	528,700	528,700	Final FY13 Value	11/14/2012
2012	101	FV	320,000	0	.788	209,600	529,600	529,600		9/21/2011
2011	101	FV	320,000	0	.788	209,600	529,600	529,600		10/15/2010

PRINT

Date	Time
10/05/16	15:32:34

LAST REV

Date	Time
10/05/16	15:32:19

apro

4803

SALES INFORMATION

TAX DISTRICT

PAT ACCT.

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	Tst	Verif	Assoc PCL Value	Notes
SHANAHAN, MICHA	63860-495		7/2/2014		649,900	No	No			TENANTS BY THE ENTIRETY
POLLARD, GARY A	40883-486		9/15/2003		630,000	No	No			
NATION, RONALD,	28751-164		6/25/1998		340,000	No	No			
FEDERAL DEPOSIT	23660-342		9/16/1993	FORCLOSURE	688,750	Yes	No			
RAFTER, CRAIG L	1099-062		8/12/1992	FORCLOSURE	497,000	Yes	No			
GOODALL, CARL L	1020-69		10/1/1986	INC. OT TWN	1,500,000	Yes	No			

BUILDING PERMITS

Date	Number	Descrip	Amount	C/O	Last Visit	Fed Code	F Descrip	Comment
11/10/2010	1178-10	RE ROOF	15,980	C				
2/2/1998	37-98	NEW HOUS	143,200	C				

ACTIVITY INFORMATION

Date	Result	By	Name
9/30/2014	SALES INTR.	541	PATTI H.
10/8/2013	FIELD REVIEW	541	PATTI H.
10/24/2005	MEAS LEFT N	538	WILL NASER
6/3/1998	FINAL INSPEC	169	DRW

Patriot Properties Inc

USER DEFINED

Prior Id # 1	86-449
Prior Id # 2	98-268A
Prior Id # 3:	
Prior Id # 1	92-325
Prior Id # 2	
Prior Id # 3:	
Prior Id # 1.	93-437
Prior Id # 2:	03-297
Prior Id # 3.	
ASR Map	
Fact Dist	
Reval Dist	
Year	
LandReason	
BldReason	

Sign: VERIFICATION OF VISIT NOT DATA __/__/__

LAND SECTION (First 7 lines only)

Use Code	Description	LUC Fact	No of Units	Depth / PriceUnits	Unit Type	Land Type	LT Factor	Base Value	Unit Price	Adj	Neigh	Neigh Influ	Neigh Mod	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	J Code	Fact	Use Value	Notes
101	ONE FAM		34331		SQUARE FESITE			0	5.73	1.226	7	1.02								241,106						241,100	

Total AC/HA:	0.78813	Total SF/SM:	34330.94	Parcel LUC:	101	ONE FAM	Prime NB Desc:	VERY GOOD-7	Total:	241,106	Spl Credit		Total:	241,100

EXTERIOR INFORMATION

Type:	6 - COLONIAL		
Sty Ht:	2 - 2		
(Liv) Units:	1	Total:	1
Foundation:	1 - CONCRETE		
Frame:	1 - WOOD		
Prime Wall:	4 - VINYL		
Sec Wall:			%
Roof Struct:	1 - GABLE		
Roof Cover:	1 - ASPHALT SH		
Color:	YELLOW		
View / Desir:			

GENERAL INFORMATION

Grade:	B- - GOOD (-)		
Year Blt:	1998	Eff Yr Blt:	
Alt LUC:		Alt %:	
Jurisdict:		Fact:	
Const Mod:			
Lump Sum Adj:			

INTERIOR INFORMATION

Avg Ht/FL:	STD		
Prim Int Wal:	2 - PLASTER		
Sec Int Wall:			%
Partition:	T - TYPICAL		
Prim Floors:	3 - HARDWOOD		
Sec Floors:	4 - CARPET	50	%
Bsmnt Flr:	12 - CONCRETE		
Bsmnt Gar:	2		
Electric:	3 - ADEQUATE		
Insulation:	2 - TYPICAL		
Int vs Ext:	S		
Heat Fuel:	2 - GAS		
Heat Type:	1 - FORCED H/A		
# Heat Sys:	1		
% Heated:	100	% AC:	100
Solar HW:	NO	Central Vac:	Yes
% Com Wal		% Sprinkled	

BATH FEATURES

Full Bath	2	Rating:	GOOD
A Bath.		Rating:	
3/4 Bath:		Rating:	
A 3QBth		Rating:	
1/2 Bath:	1	Rating:	GOOD
A HBth.		Rating:	
OthrFix:	3	Rating:	GOOD

OTHER FEATURES

Kits:	1	Rating:	GOOD
A Kits.		Rating:	
Frpl:	1	Rating:	GOOD
WSFlue.		Rating:	

CONDO INFORMATION

Location:	
Total Units:	
Floor.	
% Own.	
Name:	

DEPRECIATION

Phys Cond:	GD - Good	7.9	%
Functional:			%
Economic:			%
Special:			%
Override:			%
	Total:	7.9	%

CALC SUMMARY

Basic $ / SQ:	86.00
Size Adj.:	0.90209204
Const Adj:	1.02509999
Adj $ / SQ:	79.527
Other Features:	68637
Grade Factor:	1.25
Neighborhood Inf:	1.02999997
LUC Factor:	1.00
Adj Total:	420667
Depreciation:	33233
Depreciated Total:	387434

COMMENTS

LOT 39 PDAS/2014 SALE MLS#71680069.

RESIDENTIAL GRID

1st Res Grd	Desc:	Line 1							# Units:	1		
Level	FY	LR	DR	D	K	FR	RR	BR	FB	HB	L	O
Other												
Upper												
Lvl 2												
Lvl 1												
Lower												

Totals	RMs:	9	BRs:	4	Baths: 2	HB 1

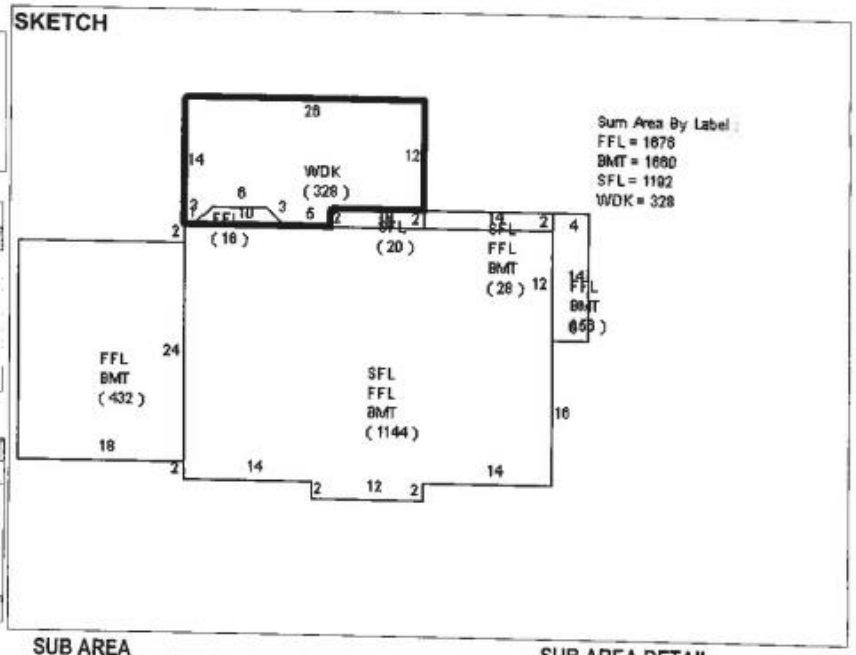
REMODELING

Exterior:	
Interior:	
Additions:	
Kitchen:	
Baths:	
Plumbing:	
Electric:	
Heating:	
General:	

RES BREAKDOWN

No Unit	RMS	BRS	FL
1	9	4	M
Totals			
1	9	4	

SKETCH



COMPARABLE SALES

Rate	Parcel ID	Typ	Date	Sale Price
82.5	U2 54 0		7/21/2015	665,000
78.9	R6 52 0		8/17/2015	719,000
76.9	U2 22 0		6/10/2016	645,000
76.6	R22 212 0		6/24/2016	687,500
76.3	U22 97 0		10/2/2015	640,000

WtAv$/SQ:	AvRate:	78.24	Ind.Val: 22944800.00

Juris. Factor:		Before Depr:	102.23
Special Features:	0	Val/Su Net:	79.78
Final Total:	387400	Val/Su SzAd:	135.08

SUB AREA

Code	Description	Area - SQ	Rate - AV	Undepr Value
FFL	1ST FLOOR	1,676	79.530	133,288
BMT	BASEMENT	1,660	15.910	26,403
SFL	2ND FLOOR	1,192	79.530	94,796
WDK	WOOD DECK	328	12.590	4,131

Net Sketched Area:	4,856			Total:	258,618
Size Adj	2868	Gross Area	4856	FinArea	2868

SUB AREA DETAIL

Sub Area	% Usbl	Descrip	% Type	Qu	# Ten

SPEC FEATURES/YARD ITEMS

Code	Description	A	Y/S	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/S	Dep	LUC	Fact	NB Fa	Appr Value	JCod	JFact	Juris. Value

PARCEL ID U2 53 0

IMAGE

AssessPro Patriot Properties, Inc

Style	Single Family - Two Story Colonial
Age	Constructed in 1998
Exterior Finish	Vinyl Siding
First Floor Area	1,676 Square Feet
Second Floor Area	1,192 Square Feet
Basement Area	1,660 Square Feet - Unfinished
Floor Cover	Hardwood, Ceramic Tile and Carpet
Heating and Cooling	Warm Air and Central Air
Appliances	Range and Oven, Microwave, Dishwasher
Plumbing Fixtures	11 + 1 Rough-In
Condition	Good
Garage	Two Under
Land Value	241,100
Yard Items	Town Water, Private Septic System,Landscaping, Paved Driveway
Climate	Moderate
Assessed Value	628,500

Certification Standards

(Guidelines for Development of a Minimum Reassessment Program)
Revised August 2016

Bureau of Local Assessment

Informational Guideline Release 16-401

Cost Approach

Utilizing the cost approach, the value of a property can be estimated by totaling the land value and the depreciated value of any improvements. This approach is most reliable when used on newer structures and less reliable when applied to older properties. The cost approach may be the most reliable approach in dealing with specialty use properties.

The assessor shall value improvements in accordance with generally accepted mass appraisal practices, cost service manuals with applicable updates and or use of local building costs, where available. All data must be documented and presented for certification.

In using the cost approach, base costs shall be determined as appropriate for each improvement style or type. Current local modifiers and costs appearing in a generally accepted cost calculator can be adjusted where necessary and documented by an analysis of local construction costs and market sales data.

Accrued depreciation, including physical deterioration, functional and economic obsolescence must be accurately documented by market evidence prior to deduction from the replacement costs. Functional and economic obsolescence should be applied in accordance with generally accepted appraisal practices. These adjustments should be noted on the PRC, clearly defined and substantiation presented during certification.

In reference to commercial and industrial property, the CAMA system must utilize all cost components necessary to value the various uses within the community. This should include type and size of the structure(s), story height, paved areas, signage, lighting, etc.

Marshall and Swift Worksheet Page
and Cost Pages
from Residential Cost Handbook

SQUARE FOOT APPRAISAL FORM - GOOD QUALITY - Two Story

Date							
Address		27 Rocky Woods Road, Hopkinton					
Survey By							
Type		Single Family					
Floor area	First	1,536	Basement Area			Garage Type	Tuck under
	Second	1,152	Unfinished	1,660		Garage Size	
	Third		Finished	0			
	Total	2,888	Number of Plumbing			Porch	Type / Area
			Fixtures	11		Wood Deck	328
			Rough In	1			

Line	Item	Description	Quantity	Cost	Extension
1	COMPLETE RESIDENCE BASIC COST: Floor area x selected sq. ft. cost		2888		
	SQUARE FOOT ADJUSTMENTS:				
2	Roofing	Composition Shingle Roof	2888		
3	Subfloor	Floor Insulation	2888		
4	Floor Cover (see detail below)		2888		
5	Plaster Interior		2888		
6	Heating/Cooling	Warm and Cool Air	2888		
7	Energy Adjustment	Moderate	2888		
8	Foundation	Moderate	2888		
	LUMP SUM ADJUSTMENTS:				
9	Plumbing (Based on 11 fixtures)		11		
	Rough-ins (Based on 1 rough-in)		1		
10	Fireplaces	Single Masonry Fireplace - Two Story			
11	Built-in Appliances (see detail below)				
12	Miscellaneous (Extras)				
13	SUBTOTAL ADJ. RESIDENCE COST: Line 1 plus or minus lines 2-14				
14	BASEMENT, UNFINISHED		1660		
15	Add for basement interior finish				
16	Add for basement outside entrance				
17	Add for basement garage: Single ___ Double _X_				
18	PORCH/BREEZEWAY, describe	Wood deck	328		
19					
20	SUBTOTAL RESIDENCE COST: Total of Lines 15-21				
21	GARAGE OR CARPORT - sq. ft. area x selected sq. ft. cost				
22	Miscellaneous (roofing adjustment)				
23	SUBTOTAL GARAGE COST: Line 23 plus or minus Line 24				
24	SUBTOTAL OF ALL BUILDING IMPROVEMENTS: Sum of Lines 22 and 25				
25	Current Cost Multiplier ________ x Local Multiplier ________				
26	REPLACEMENT COST NEW: Line 26 x 27				
27	Depreciation: Age 1988 Condition Good Depreciation ________ % of Line 28				
28	Economic and/or Excessive Functional Obsolescence				
29	Depreciated cost of buildings improvements: Line 28 less Line 29				
30	Yard improvements cost:				
31	Landscaping cost: List and compute on reverse side				
32	Lot or land value				
33	TOTAL INDICATED VALUE: Total of Lines 30-33				

Floor Cover	Cost	S.F.	Total
Carpet & Pad	$ 5.73	0	$0
Ceramic Tile	$ 17.53	0	$0
Hardwood Floor	$ 14.80	0	$0
Parquet blocks	$ 15.40	0	$0
Terrazzo	$ 17.10	0	$0
Vinyl Comp	$ 3.48	0	$0
Vinyl sheet	$ 6.55	0	$0
Total Allowance	$ 7.32	2,888	

Appliances	Cost	Number	Total
Dishwasher	$800	0	$0
Microwave	$640	0	$0
Oven	$1,400	0	$0
Garbage Disp.	$258	0	$0
Trash Compactor	$ 0	0	$0
Hood with Fan	$475	1	$0
Security System	$2,578	0	$0
Total Allowance			$5,950

GOOD QUALITY

Residences of Good Quality may be mass produced in above-average residential developments or built for an individual owner. Good-quality standard materials are used throughout. These houses generally exceed the minimum construction requirements of lending institutions, mortgage-insuring agencies and building codes. Some attention is given to architectural design in both refinements and detail. Interiors are well finished, usually having some good-quality wallpaper or wood paneling. Exteriors have good fenestration with ornamental materials or other refinements.

At Good Quality, Square Foot Method Costs are provided for one-, two-, one-and-one-half- and two-and-one-half-story, two-story bi-level, and split-level residences. For residences in excess of 4,000 square feet, use the Large Residence Multipliers found on Page Good-4.

In addition to illustrations and discussions in the introduction to the Square Foot Method, the following will further describe building components at this quality of construction.

RESIDENCE

FOUNDATION

A continuous, reinforced concrete perimeter foundation and foundation or piers under interior bearing wall, based on a moderate climate. Use the Square Foot Adjustments for mild- or extreme-climate foundations.

FLOOR STRUCTURE

Wood or steel floor joists and subfloor on first and upper floors. For concrete slab on grade, deduct using Square Foot Adjustment per square foot of slab area. The exception is the bi-level with a concrete slab on the lower level.

FLOOR INSULATION

None is included in the basic residence cost. Add as needed.

FLOOR COVER

Carpet, hardwood, sheet vinyl or vinyl tile floor cover is used. Floor cover is not included in the basic residence cost. The Floor Cover Allowance is a weighting of those floor coverings typically found at this quality and can be used if floor cover is not itemized.

EXTERIOR WALL

Good fenestration using good-quality sash. Some ornamental trim.

ROOF

Wood rafters and sheathing with hips and valleys. Good-quality cedar shingles are included in the basic residence cost. Square Foot Adjustments are provided for other typical roof covers.

INTERIOR FINISH

Interior walls are taped and painted drywall with some good-quality wallpaper or wood paneling. Kitchen and baths have enamel-painted walls and ceilings. An ample amount of cabinetry with natural wood-veneer finish is used in the kitchen, with a large pullman or vanity in the bath areas. Countertops and splash are laminated plastic, ceramic tile or simulated marble. Ceilings are painted drywall. Some small areas, i.e., entries or foyers, may have vaulted or cathedral ceilings. Doors are good quality, hollow core with attractive hardware. Baseboard and casings are hardwood or softwood and have mitered corners. Walk-in closets or large sliding door wardrobes. Ample linen and storage closets. Workmanship throughout is of good quality.

NOTE: Base interior wall height is 8' (except for Excellent Quality). For each foot of variation, add to or deduct from the base cost only, 4% for all masonry exterior walls including masonry veneers and 3% for frame exterior walls.

HEATING/COOLING

A forced-air furnace with adequate output and ductwork to all main areas is included in the basic residence cost. Use Square Foot Adjustments for other types of heating and/or cooling. When heat pumps require a conventional back-up furnace, add from the Unit-in-Place cost section.

ENERGY PACKAGE

The energy package in the basic residence cost includes those insulation, framing and glazing items typically found in a moderate climate, as outlined in the Introduction to the Square Foot Method. Square Foot Energy Adjustments should be made for deviations from the moderate-climate base. Floor insulation is not included as part of the Energy Adjustment Costs. Add as needed.

ELECTRICAL

A good amount of convenience outlets. Luminous fixtures in kitchen and bath areas.

PLUMBING

Eleven good-quality, white or colored plumbing fixtures with one plumbing rough-in are included in the basic residence cost. The fixtures can include any of the following: water heater, laundry tray, tiled or modular plastic shower stall, toilet, lavatory, tub, tub with shower over, or kitchen sink. Lump-sum Adjustments should be used for any deviation from eleven fixtures and a rough-in.

BUILT-IN APPLIANCES

None are included in the basic residence cost. The Built-in Appliance Allowance is a weighting of those typically found at this quality level and can be used when appliances are not itemized.

FIREPLACES

None are included in the basic residence cost. Add from Lump-sum Adjustments.

BASEMENTS

UNFINISHED

Square Foot Method Costs are provided for two common basement wall types: poured concrete and concrete block. Three wall thicknesses are now available to choose from: 6 inches, 8 inches or 12 inches. Interpolate for 10-inch walls. The costs also include a moistureproof concrete slab floor, adequate floor drains, wood or steel columns to support the living area above, an adequate number of electrical outlets, windows and a softwood stairway. The cost for a basement is not included in the basic residence cost.

FINISHED

Three types of finish are provided, all of which are additive costs to be used in conjunction with the unfinished basement cost and should be applied only to that portion which is finished.

The minimal basement finish includes vinyl composition tile floor covering, ceiling and wall finishes,, minimum electrical lighting and incidental heating. The minimal-finish basement cost must be used in conjunction with an unfinished basement cost.

The recreation room finish may have carpeting or vinyl flooring, wood paneling or drywall wall finishes and drywall ceiling finishes. There is generally an average amount of electrical lighting, as well as several heating ducts. An example of recreation room finish is a large open finished room. The cost must be used in conjunction with an unfinished basement cost.

The partitioned basement finish is somewhat similar in both quality of materials and workmanship to the above grade living area of the residence. It is fully partitioned for multiple rooms including, but not limited to: family room, bedroom, laundry room, bathrooms, home theater, etc. The costs include ceiling, wall and floor finishes, an abundance of electrical lighting and outlets, as well as adequate heating (allowance for additional ducts and room registers). The cost must be used in conjunction with an unfinished basement cost.

When adding partial finish (minimal, recreation or partitioned) to a basement, enter the chart at the size of the area being finished. If you have a 1600 square foot basement, and only 800 square feet is finished, cost out the finish using the 800 square foot column.

PORCHES/BREEZEWAYS

Porches and breezeways are similar in quality of both material and workmanship to the residence, and are to be priced per square foot of floor area. Costs are provided for three types of floor structures, three types of wall enclosures, a roof and a ceiling finish. For a roof cover other than wood shingle, use the Add For Roof cost and make the appropriate roofing adjustment from the One-Story cost page. Floor cover is not included and can be priced from the residence floor cover costs.

GARAGES

GARAGES

Garage costs include a reinforced concrete slab floor, overhead door, ornamentation, windows and electrical lighting, all of which conform to the basic residence in both quality and construction. For a roof cover other than wood shingle, use the appropriate roofing adjustments from the One-Story cost page. For garages built with synthetic plaster (EIFS), use the Stucco on Frame cost and increase by 4%. For garages built with stay-in-place (SIP) forming use the Stucco on Block cost and increase the cost by 4%. For garages with asphalt floors, deduct using the Square Foot Adjustment per square foot of slab area (see Subfloor Square Foot Adjustment).

Detached garages are freestanding, and costs do not include any interior finish. Attached garages share a common wall with the residence, and costs include interior finish for only that wall which is common. Built-in garages have living area both adjacent to and above, and costs include finish for all common surfaces. The Add For Finish costs include the necessary wall and/or ceiling finish to finish all interior surfaces. All costs are based on square footage of floor area. Basement garage costs are Lump-sum Adjustments and are to be used in conjunction with unfinished basement costs. Both the ceiling and the common wall are finished.

When adding partial finish to a garage, enter the chart at the size of the total garage. So if you have an 800 square foot garage, but only 200 square feet is finished, cost out the finish using the 800 square foot row. The primary addition is for the wall finish, which is mostly dependant on perimeter.

The base wall height for all garages is 8 feet. For each foot of variation from that height, add or subtract from the base costs (for all wall types) 6% for detached garages and 4% for attached and built-in garages. Use these same factors for the interior finish costs.

AREAS OVER GARAGE

If the area over an attached garage has interior finish equal to the rest of the residence, include that area in the total square footage of the residence and price the garage as a built-in. If this area has minimal (bonus room) or no finish (storage attic), use the Attached Minimal (bonus room) or No Finish cost on page Good-26. If this area has a high-pitched roof, use the Attached High-Pitched Roof Gable Ends cost on page Good-26. Add for minimal finish from below, and stairs, plumbing and floor cover from pages Good-23 – Good-25.

For living area over a detached garage, use Detached Rooms w/ Full Exterior Walls on page Good-26. If this area has a high-pitched roof, use the Detached High-Pitched Roof Gable Ends cost on page Good-26. Add for minimal, recreation room or apartment room from below, and stairs, plumbing and floor cover from pages Good-23 – Good-25.

CARPORTS

Carports are a cost per square foot of floor area. Costs include roof cover and structure, necessary structural supports and concrete slab. The shed- or flat-roof structure is two-dimensional, and the gable roof structure is a three-dimensional, trussed roof system. For roof covers other than wood shingle, use the appropriate roof adjustment from the One-Story cost page. For carports with asphalt floors, deduct using the Square Foot Adjustment per square foot of slab area (see Subfloor Square Foot Adjustment).

To estimate the replacement cost for a three-story residence, enter the Two-Story cost table at the total floor area of all three levels and multiply that cost by .976. For a three-and-one-half-story residence with an unfinished upper level, enter the Two-Story cost table at the total floor area of the first three levels only, and multiply that cost by 1.010. For a three-and-one-half-story residence with a finished upper level, enter the Two-Story cost table at the total floor area of all four levels, and multiply that cost by .967.

GOOD QUALITY LARGE RESIDENCE MULTIPLIERS

To estimate replacement costs for residences greater than 4,000 square feet, use the following multipliers and apply to the 4,000 square foot cost for the appropriate residence and exterior wall type. Square Foot and Lump Sum Adjustments and other Square Foot Method Costs should be taken from the appropriate cost page.

Sq. Ft. Area	Multiplier	Sq. Ft. Area	Multiplier	Sq. Ft. Area	Multiplier
4400	.983	5000	.961	5600	.941

HOW TO USE ILLUSTRATIONS

GOOD QUALITY is our term for a home which is above average. Such a house could have easily been Rank 4, on a scale of 1 to 6, with Low Quality equal to Rank 1, Fair Quality equal to Rank 2, etc. It is just the next level in cost for residential housing. Good-quality residences are typical of the upper middle class or move-up type development. From the exterior, they frequently resemble the Very Good residence, but usually with less detail and workmanship in the interior. This quality cost level could easily be Average Quality or Very Good Quality in your area. The most important matter is where the cost lies for the home that is being appraised.

Older homes may require a plus adjustment for plaster interiors and at the same time a minus adjustment for the lack of current energy (insulation) standards. While some may have added trim and built-in features, other items such as kitchen cabinetry and mechanical items will be deficient by today's standards.

These illustrations attempt to show the quality and construction class of the various residences as the appraiser would be able to determine them from an observation of the exterior.

Many residences may require more than a casual view to determine the construction class, and an inspection must be made of the interior for reliable determination of quality. However, the experienced appraiser will notice the details of workmanship, design and exterior finish materials, which often indicate the quality to be found inside.

Some items which affect the cost and which may be observed from the exterior are roof pitch and type. Costs of shed roofs, gable and hip roofs generally ascend in that order. Typically, a cut-up roof requires more labor and materials than a simply designed roof.

Eave soffits and gutters, or their absence, and the trim and ornamentation should be observed, as well as the quantity and quality of fenestration.

In most cases, the interior improvements will be commensurate with the exterior, but even when they are not, the exterior design and finish have a great effect on the cost.

Tract developments, where a large number of identical or similar dwellings are built at one time, may effect savings in construction costs. However, in evaluating a single residence in a tract, the appraiser must use his own judgment as to whether there was a saving which is pertinent to his specific appraisal.

SUMMARY

Fenestration, roof pitch, design, materials and workmanship are the major indicators of cost from an exterior view. Fireplaces, porches and appliances are separate items not considered in the quality of the house, although they may be indicative of the quality of other, structural items. Interiors may not conform to the exterior quality. The costs included on the following pages are derived from construction costs of many buildings and are medians of cost ranges which will include the homes illustrated.

The following pictures have been provided as a guide only. They give an example of the exterior shell quality. An estimator still needs to account for the interior, which may result in increasing or decreasing the quality. See page 6 of the Introduction section for a description on what factors determine which quality to use.

RESIDENCE

STUD FRAMED

Total Area	Plywood or Hardboard	Metal or Vinyl Siding	Stucco	Wood Siding	Wood Shingles	Synth. Plaster (EIFS)
1000	111.98	111.28	114.25	114.45	114.60	116.74
1200	108.03	107.38	110.14	110.32	110.64	114.30
1400	104.80	104.19	106.78	106.94	107.25	110.67
1600	102.08	101.51	103.94	104.11	104.39	107.62
1800	99.74	99.19	101.51	101.68	101.93	105.00
1900	98.68	98.15	100.41	100.56	100.83	103.82
2000	97.69	97.17	99.38	99.53	99.78	102.71
2100	96.76	96.25	98.41	98.55	98.81	101.67
2200	95.88	95.38	97.49	97.63	97.88	100.69
2300	95.04	94.55	96.63	96.76	97.00	99.75
2400	94.25	93.77	95.80	95.94	96.17	98.87
2600	92.77	92.31	94.27	94.40	94.63	97.23
2800	91.43	90.98	92.88	93.00	93.22	95.73
3000	90.20	89.76	91.60	91.72	91.93	94.36
3200	89.06	88.64	90.41	90.53	90.74	93.09
3400	88.00	87.59	89.32	89.43	89.63	91.92
3600	87.01	86.62	88.30	88.41	88.60	90.83
3800	86.09	85.71	87.34	87.45	87.64	89.81
4000	85.23	84.85	86.45	86.55	86.74	88.85

STUD FRAMED			MASONRY			
Total Area	Rustic Log	Masonry Veneer	Stucco on Block	Common Brick	Face Brick or Stone	Poured Concrete (SIP Forms)
1000	129.99	130.08	120.37	132.71	147.87	131.78
1200	133.35	124.79	115.82	127.24	141.16	125.83
1400	128.67	120.40	112.10	122.79	135.84	121.02
1600	124.76	116.89	108.96	119.06	131.04	117.00
1800	121.48	113.83	106.29	115.87	127.10	113.56
1900	119.90	112.42	105.08	114.43	125.34	112.01
2000	118.48	111.11	103.95	113.08	123.69	110.57
2100	117.15	109.89	102.88	111.82	122.14	109.21
2200	115.90	108.73	101.87	110.62	120.67	107.93
2300	114.71	107.64	100.92	109.49	119.29	106.72
2400	113.59	106.61	100.01	108.42	117.98	105.58
2600	111.50	104.68	98.33	106.44	115.57	103.46
2800	109.61	102.94	96.80	104.63	113.38	101.64
3000	107.87	101.34	95.40	102.98	111.37	99.78
3200	106.27	99.86	94.13	101.48	109.53	98.16
3400	104.79	98.50	92.90	100.04	107.82	96.67
3600	103.41	97.22	91.79	98.73	106.24	95.28
3800	102.13	96.04	90.74	97.51	104.77	93.98
4000	100.92	94.93	89.76	96.36	103.39	92.77

SQUARE FOOT ADJUSTMENTS

ROOFING:

Wood shingle		(base)
Clay tile	+	$4.73
Concrete tile	+	2.17
Metal, preformed	+	.57
Wood shake	+	.20
Composition shingle or Built-up, small rock	-	.94
Composition roll	-	1.79

ENERGY ADJ: Mod. Climate (base)

Mild climate	-	$1.52
Extreme climate	+	2.09
Superinsulated	+	5.79

FOUNDATION ADJ: Mod. Climate (base)

Mild climate	-	$2.21
Extreme climate	+	4.10
Hillside moderate slope	+	2.05
Hillside steep slope	+	6.15

Add for SEISMIC ZONES (Z)/HURRICANE (Wind) ADJ.: See Intro-9; maps, D-12.
Frame (Z2) +$2.23, (Z3-4/wind) +$3.31 Masonry (Z2) +$1.99, (Z3-4/wind) +$2.73

See Pages Good-23 — Good-26 for other Sq. Ft. Adjustments, Basements, Porches, Garages, etc.

SQUARE FOOT ADJUSTMENTS

SUBFLOOR:		
Wood subfloor		(base)
Concrete slab	-	4.35
Asphalt (for garage or carport)	-	2.57
PLASTER INTERIOR:	+	4.98
FLOOR COVER:		
Allowance (if not itemized), single family	+	7.32
Asphalt tile	+	3.07
Bamboo laminated planks	+	15.30
Block, wood, treated	+	9.80
Brick, common, in mortar	+	12.55
Brick pavers, in concrete	+	14.80
Carpet and pad	+	5.78
custom high-value	+	23.45
indoor/outdoor	+	3.64
Color, concrete	+	1.65
Cork	+	7.89
Flagstone, random local stone, in concrete	+	19.80
Hardener and sealer, concrete	+	1.47
* Hardwood	+	14.60
Linoleum	+	5.30
Marble or granite	+	49.00
cast tile	+	21.15
Melamine laminated tile or sheet	+	5.89
deluxe	+	10.70
Plastic tile, interlocking	+	9.15
Rubber fabric tile	+	13.60
Rubber tile or sheet	+	8.08
Seamless plastic, epoxy, urethane, neoprene		
1/32" - 1/16" thincoat	+	6.20
1/8" - 3/16"	+	10.05
Add for colored chips or glitter	+	2.59
Slate, grouted	+	21.95
Softwood	+	9.61
Terrazzo (exclusive of base slab)	+	17.10
tile	+	27.00
FLOOR COVER: (Cont.)		
Tile, ceramic or quarry	+	17.65
custom, high value	+	37.00
Vinyl composition tile or sheet	+	3.49
Vinyl sheet	+	6.55
Vinyl tile	+	7.79
* Wood over concrete, hardwood parquet blocks, prefinished,	+	16.40
in mastic	+	18.25
softwood	+	10.90
*Add for wood floor for custom quality	+	22.15
For pictorial artwork, add	+	20.95
FLOOR INSULATION:		
Mild climate	+	1.06
Moderate climate	+	1.33
Extreme climate	+	1.77
HEATING/COOLING:		
Forced air		(base)
Oil - fired	+	0.75
Glass panel, electric	-	0.62
Floor or wall furnace	-	2.33
Electric, radiant	-	0.62
Baseboard or panel	-	0.52
Hot water, baseboard	+	1.96
Radiant	+	2.67
Warm & cooled air	+	2.39
Heat pump	+	3.09
Ground-loop heat system	+	5.20
Individual thru-wall heat-pumps	-	0.50
Evap. cooling w/ducts	+	2.80
Air - to -air exchange system	+	1.52
Blowers and ducts	-	2.96
Simple exhaust fan and air inlets only	-	3.46
Refrigerated A/C only, zoned system	+	2.58
package unit, short ducts	+	0.40
No heat	-	4.22

LUMP SUM ADJUSTMENTS

PLUMBING: 11 fixtures +rough-in		(base)
Per fixture	+ or-	2,180.00
Per rough-in	+ or -	695.00
DORMERS: per linear foot		
Unfinished: hip or gable roof		129.00
Shed roof		109.00
Finished: hip or gable roof		260.00
Shed roof		220.00

FIREPLACES	**Steel**	**Masonry**
Single one-story	2,575.00	5,400.00
Single two-story	3,220.00	6,580.00
Single three-story	5,795.00	7,760.00
Double one-story	3,605.00	7,560.00
Double two-story	4,250.00	8,740.00
Double three-story	6,765.00	12,990.00
Direct-vented, gas		3,125.00

BUILT-IN APPLIANCES:		
Allowance (if not itemized)	+	5,950.00
Dishwasher	+	800.00
deluxe, built-in	+	2,010.00
Exhaust Fan or Bath Heater	+	245.00
Exhaust fan	+	215.00
Garbage disposal	+	255.00
deluxe, heavy duty	+	590.00
Hood & fan	+	475.00
custom, stainless steel or copper	+	5,500.00
countertop down draft	+	1,230.00
Oven	+	1,400.00
Oven, microwave combo	+	2,525.00
warming ovens	+	930.00
Oven, microwave	+	640.00
Oven, custom double wall	+	6,300.00
Cookware racks	+	800.00

LUMP SUM ADJUSTMENTS (Cont.)

BUILT-IN APPLIANCES:

Range and oven	+	1,170.00
commercial quality	+	5,600.00
custom, double wide	+	13,900.00
microwave or refrigerated combination	+	2,370.00
Range top	+	855.00
induction top	+	1,730.00
per component	+	910.00
custom tops	+	4,900.00
Radio Intercom	+	1,350.00
add per satellite	+	130.00
Gas incinerator	+	1,230.00
Resid. security sys., wireless	+	2,575.00
hard-wired	+	4,600.00
Trash Compactor	+	735.00
Vacuum Cleaner System	+	2,250.00
add for extra inlets	+	260.00
Clothes washer, single-family	+	905.00
dryer	+	760.00
combination unit	+	1,850.00
add for pedestals	+	230.00
drying center	+	1,490.00
Closet carousals	+	4,800.00
Water softener	+	2,300.00
House phone, located at entrance	+	725.00
add per door release	+	195.00
Home automation system	+	4,275.00
Ironing center	+	845.00
Refrigerator or freezer	+	1,760.00
deluxe, built-in, each unit	+	5,650.00
individual drawers, built-in, each	+	4,975.00
Mixer/blender (food center processor)	+	690.00
deluxe, built-in	+	2,170.00
Ice machines, residential	+	840.00
Wine captains, undercounter	+	1,280.00
standing units	+	3,175.00
Audio-video entry system	+	5,250.00
each extra monitor station	+	1,100.00
Safe, built-in, small wall or floor	+	985.00
deluxe	+	4,175.00
Misc. built-ins:Bathroom scale	+	255.00
Can opener	+	112.00
Coffeemaker	+	465.00
Toaster	+	205.00
Towel/food wrap dispenser	+	260.00

BASEMENTS

Unfin. Basements	200	400	600	1200	1600	2000	2400
Concrete walls 6"	43.54	32.68	26.05	23.00	21.45	20.82	19.94
8"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12"	51.94	38.62	30.34	26.45	24.48	23.68	22.44
Conc. Block walls 6"	43.09	30.28	23.01	[illegible]	[illegible]	[illegible]	[illegible]
8"	42.39	31.87	25.47	22.53	21.04	20.42	19.60
12"	51.48	35.16	26.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Add for finish, minimal	12.21	10.98	10.26	9.94	9.77	9.70	9.59
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
partitioned	48.85	43.69	40.80	39.62	39.04	38.55	38.28

Outside Entrance: Below grade $2,750 Above grade $1,800
For radon removal fan & alarm, add $450

PORCH/BREEZEWAYS

	FLOOR STRUCTURE:			WALL ENCLOSURE:				
Square Feet (Each)	Open Slab	Open W/Steps	Wood Deck	Screen Only	Knee Wall W/Glass	Solid Walls	Add For Roof	Add For Ceiling
25	9.09	23.60	44.72	26.21	57.00	46.60	21.61	8.05
50	8.34	20.55	37.43	17.47	58.00	40.40	19.36	6.79
75	8.13	19.45	31.71	14.56	48.33	33.67	18.75	6.22
100	7.91	18.35	25.98	13.10	43.50	30.30	18.23	5.97
150	7.79	17.40	23.44	10.19	33.83	23.57	17.[illegible]	5.5[illegible]
200	7.67	16.45	20.90	8.74	29.00	20.20	17.10	5.52
300	7.43	14.55	15.81	7.28	24.17	16.83	15.96	5.34

BALCONIES

UNDERSIDE OF BALCONY	WOOD FLOOR		CEMENT COMPOSITION FLOOR	
	Or. Iron Rail	Wood Rail	Or. Iron Rail	Wood Rail
Unfinished Soffit	35.75	27.50	39.25	32.00
Plastered Soffit	41.00	32.75	44.50	37.25

Note: Add for balcony roofs and ceiling from the porch/breezeways table above

EXTERIOR STAIRWAYS PER FLIGHT

(Approximately 14 steps per flight)
For landings, use balcony costs.

UNDERSIDE OF STAIRWAY	WOOD	CEMENT COMPOSITION	STEEL
Unfinished Soffit	1,775.00	2,900.00	3,525.00
Plastered Soffit	2,000.00	3,125.00	----

GARAGES

STUD FRAMED							
Type	Total Area	Plywood or Hardboard	Metal or Vinyl Siding	Stucco	Wood Siding	Wood Shingles	Synthetic Plaster (EIFS)
Detached	200	54.33	53.94	56.48	57.23	57.50	61.55
	400	43.04	42.76	44.58	45.12	45.31	48.22
	600	38.66	37.83	39.33	39.77	39.93	42.32
	800	34.80	34.60	35.88	36.26	36.40	38.43
	1000	33.15	32.97	34.14	34.49	34.61	36.48
Attached	200	45.77	45.58	46.80	47.16	47.29	49.23
	400	38.92	38.21	38.92	37.14	37.21	38.36
	600	32.87	32.79	33.36	33.53	33.60	34.52
	800	30.84	30.76	31.26	31.42	31.47	32.28
	1000	29.37	29.31	29.73	29.85	29.90	30.57
Built-in	200	33.91	33.80	34.54	34.76	34.84	37.09
	400	29.13	29.04	29.62	29.79	29.85	30.77
	600	27.02	26.94	27.47	27.63	27.68	28.52
	800	25.02	24.95	25.42	25.56	25.61	26.35
	1000	23.58	23.52	23.91	24.03	24.07	24.69

STUD FRAMED				MASONRY			FINISH
Type	Total Area	Rustic Log	Masonry Veneer	Stucco on Block	Common Brick	Face Brick or Stone	Add For Finish
Detached	200	77.46	71.50	63.43	72.01	88.14	9.41
	400	59.63	55.42	49.66	56.58	68.02	7.92
	600	51.70	48.24	43.53	51.75	58.58	7.29
	800	46.45	43.50	39.49	46.54	52.34	6.88
	1000	43.82	41.11	37.46	43.84	49.21	6.66
Attached	200	57.15	54.34	52.23	58.75	65.54	8.74
	400	42.17	40.64	40.17	43.91	47.87	7.19
	600	37.09	35.92	35.76	38.68	41.50	6.55
	800	35.63	34.46	33.98	36.92	39.60	6.13
	1000	33.38	32.41	32.18	34.66	36.90	5.75
Built-in	200	41.32	39.85	37.90	42.14	47.07	4.54
	400	34.82	33.53	31.34	34.33	37.68	2.99
	600	30.39	29.83	28.83	30.70	33.44	2.35
	800	29.60	28.51	28.32	29.84	33.47	1.93
	1000	27.42	26.52	26.58	27.76	30.87	1.55

Cabinetry per linear foot: $172.00

Basement Garages: Add lump sum to unfinished basement costs.

Single: $2,100 Double: $3,000

Carports: Shed or flat roof: $16.80 Gable roof: $24.65

Interior Stairways: $840.00

AREAS OVER GARAGE

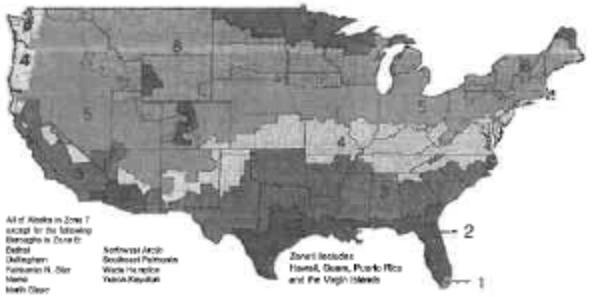
The only exception is that if there is living area above the garage, use the cost tables on the following page (instead of the tables above) for the cost of the garage and living area above it. If the area over an attached garage has interior finish equal to the rest of the residence, include that area in the total square footage of the residence and price the garage as a built-in. If this area has minimal (bonus room) or no finish (storage attic), use the Attached Minimal (bonus room) or No Finish cost on the following page Good-26. If this area has a high-pitched roof, use the Attached High-Pitched Roof Gable Ends cost on the following page. Add for minimal finish from below, and stairs, plumbing and floor cover from pages Good-23 – Good-25.

For living area over a detached garage, use Detached Rooms w/ Full Exterior Walls on the following page. If this area has a high-pitched roof, use the Detached High-Pitched Roof Gable Ends cost on the following page. Add for minimal, recreation room or apartment room from below, and stairs, plumbing and floor cover from pages Good-23 – Good-25.
NOTE: Apply the cost to the ground floor area of the garage only.

Square Feet	100	200	300	400	500	600
Add for finish, minimal	13.29	11.36	10.07	9.42	9.03	8.78
recreation room	35.31	26.88	22.47	20.27	18.95	18.07
apartment room	----	----	46.15	43.94	42.62	41.74

USEFUL INFORMATION

CLIMATE CLASSIFICATION KEY



Map: Department of Energy http://www.energysavers.gov/tips/insulation.cfm

INSULATION REQUIREMENTS

Zone	Ceilings	Wall	Floor	Zone	Ceilings	Wall	Floor
1	R-38	R-13	R-13	5	R-38	R-20	R-38
2	R-30	R-13	R-13	6	R-49	R-20	R-21
3	R-30	R-13	R-13	7 & 8	R-49	R-21	R-38
4	R-38	R-13	R-13				

The above Insulation Requirements "Guidelines" table is a compilation of data from the Residential and Commercial Energy Efficiency sections of the 2009 IECC (International Energy Conservation Code).

FLOOR INSULATION IS NOT INCLUDED IN SECTION A SQUARE FOOT MODERATE CLIMATE BASE COSTS. SEE INTRODUCTION DISCUSSION FOR FURTHER INFORMATION.

The following table lists the typical thickness ±½" required at a designated R-value for fiberglass or mineral wool insulation used in residential construction for the ceiling, wall and floor areas. Rockwood is typically ½" thinner than fiberglass at the same R-value. R-values are averages of unfaced, foil-faced and kraft-paper-faced insulation when available.

CEILINGS

Fiberglass batt or blanket insulation

R-13	One 3-5/8" batt
R-19	One 6-1/2" batt
R-26	Two 3-5/8" batt
R-30	One 6-1/2" batt & one 3-1/2" batt
R-35	One 7" batt & one 3-5/8" batt
R-38	Two 6-1/2" batts

Loosefill wool and fiberglass batts or blankets:

R-19	7-1/2" wool fill or 6-1/2" batt
R-26	2-1/2" wool fill and 6-1/2" batt
R-30	4-1/2" wool fill and 6-1/2" batt
R-38	7-1/2" wool fill and 6-1/2" batt

WALLS

R-5.5	5/8" rigid insulation board
R-7	2-1/2" fiberglass batt
R-11	3-1/2" fiberglass batt
R-19	3-5/8" fiberglass batt and 1" polystyrene sheathing, or one 6-1/2" batt

FLOORS

(Not included in Section A costs)

R-11	3-1/2" fiberglass batt or blanket
R-13	3-5/8" fiberglass batt or blanket
R-19	6-1/2" fiberglass batt or blanket
R-22	7" fiberglass batt or blanket

HEATING/COOLING DEGREE DAYS
(See maps on next page)

Heating degree days: Measure of the need for heating. Each degree of a day's average temperature below 65°F is one heating degree day. For example, a day with an average temperature of 60°F has five heating degree days.

Cooling degree days: Measure of the need for air conditioning. Each degree of a day's average temperature above 65°F is one cooling degree day. For example, a day with an average temperature of 70°F has five cooling degree days.

QUARTERLY MULTIPLIERS

SEPTEMBER 2016

The Current Cost and Local Multipliers should be used to trend the costs published on the preceding pages to a current date and to adjust the costs by location. This section is republished quarterly and is based on two Marshall & Swift building cost indexes from three districts as published in the *Marshall Valuation Service*. Other conditional adjustments are found on Page F-11. Comparative Cost Multipliers, for residential construction, are found on Pages F-12 through F-16.

CURRENT COST MULTIPLIERS

Use the following Current Cost Multipliers by district (see map below) to trend the costs on the preceding cost pages to a current level.

PAGES	PUB. DATE	EASTERN		CENTRAL		WESTERN	
		FRAME	MASONRY	FRAME	MASONRY	FRAME	MASONRY
SECTION A							
Low, Fair, Avg. (Single-fam., Detached Houses)	12/15	1.00	1.02	.99	.98	1.02	1.00
Good, VG, Exc. (Single-fam., Detached Houses)	12/15	1.00	1.02	.99	.98	1.02	1.00
Mfg-1 to Mfg-26 (Mobile/Mfg. Housing)	6/15	.99	-----	1.00	-----	1.04	-----
Mul-3 to Mul-19 (Multiple Residences)	3/16	1.03	1.01	1.00	.97	1.00	1.01
Mul-21 to Mul-37 (Town Houses & Duplexes)	3/16	1.02	1.01	1.00	.97	1.01	1.02
Mul-38 to Mul-49 (Urban Row Houses)	3/16	1.02	1.01	1.00	.97	1.01	1.01
Spec-1 to Spec-11 (Special Studies)	6/16	1.01	1.01	.99	1.00	1.02	.99
Spec-12 to Spec-39 (Special Studies)	6/16	1.01	1.01	.99	.99	1.02	.99
SECTION B							
B-1 to B-26 (Segregated Costs)	9/15	1.01	1.02	1.01	.99	.99	.99

SECTION C		EASTERN	CENTRAL	WESTERN
C-1 to C-17 (Yard Improvement Costs)	9/16	1.00	.96	1.05
C-18 to C-36 (Unit-in-Place Costs)	9/16	1.00	.96	1.05
Green-1 to Green-86 (Green Section)	3/16	1.01	.99	1.02

LOCAL MULTIPLIERS

LOCAL MULTIPLIERS reflect local cost conditions and are designed to adjust the basic costs to each locality. The multipliers are based on weighted labor and material costs, including local sales taxes. In some cases, local building problems and practices must be considered. Refer to Page F-11 for further discussion. Local multipliers should always be combined with the Current Cost Multiplier to obtain a cost multiplier which will bring the costs to the present date and locality of the estimate.

The data is received by us from sources we believe to be reliable; however, no warranty, guaranty or representation is made by Marshall & Swift as to the correctness or sufficiency of any information, prices or representations contained in the *Residential Cost Handbook*, and Marshall & Swift assumes no responsibility or liability in connection therewith.

EXAMPLE

After establishing a replacement cost from a preceding cost page, you should use both a Current Cost and a Local Multiplier. For this example, a Square Foot Method cost page for a wood frame, single-family, detached residence has been used. The assumed Central District Current Cost Multiplier for frame is .99. The Current Cost Multiplier will trend the costs on the Square Foot Method cost page to a current district average.

To adjust the cost to your location, a Local Multiplier should be used. For this example, the assumed location is Canton, Ohio. The Local Multiplier for frame construction is assumed to be .99. If the cost from the Square Foot Method cost page is $145,000, the current cost for the residence in Canton, Ohio would be $140,679.

$145,000 x .99 x .99 = $142,115

DISTRICT MAP

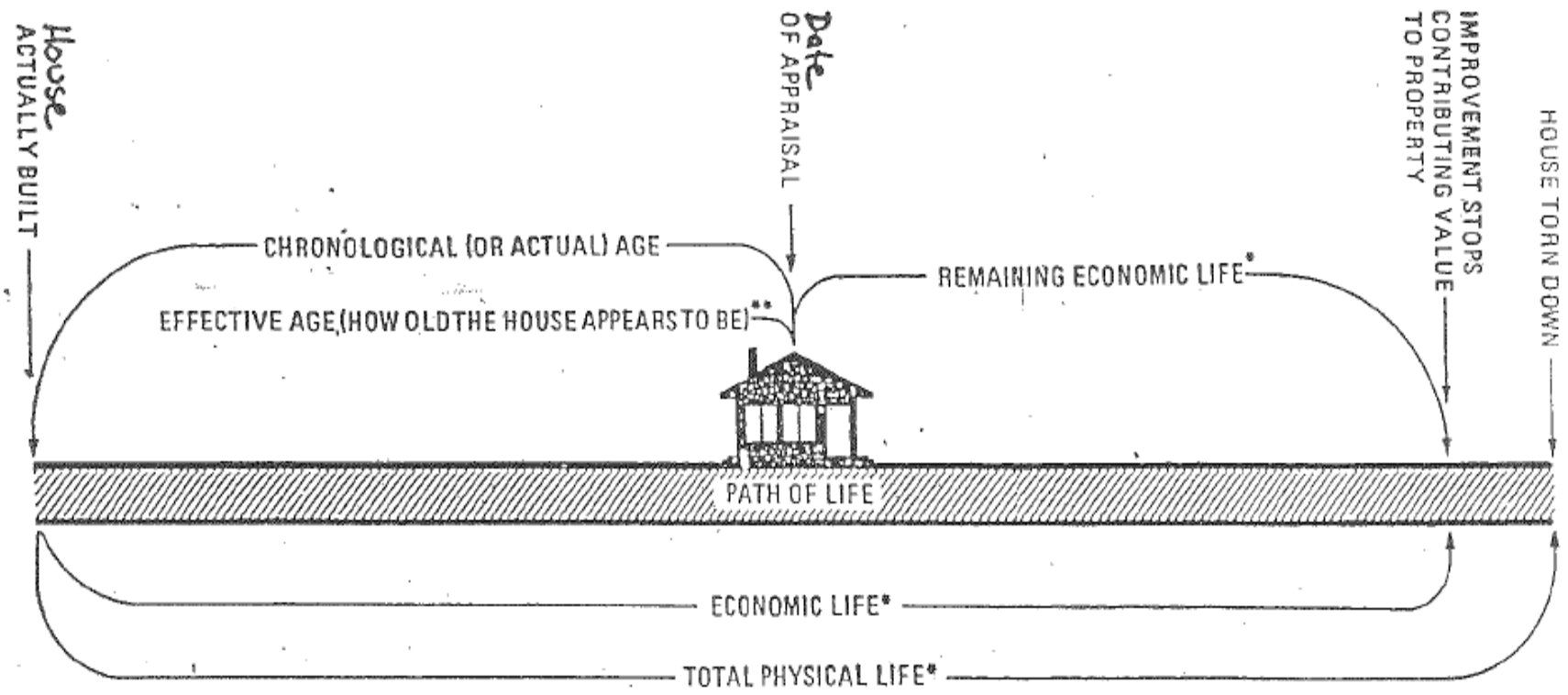
WESTERN CENTRAL EASTERN

LOCAL MULTIPLIERS

	Frame	Masonry
MAINE	1.03	1.04
Auburn	1.06	1.07
Augusta	1.07	1.09
Bangor	1.02	1.03
Biddeford	1.07	1.09
Caribou	.97	.96
Lewiston	1.06	1.07
Portland	1.05	1.07
Presque Isle	.97	.96
Waterville	.99	1.00
MARYLAND	1.03	1.04
Anne Arundel County	1.02	1.01
Baltimore	1.02	1.01
Bethesda	1.03	1.06
Cumberland	1.04	1.05
Eastern Shore Area	.98	.97
Hagerstown	1.03	1.03
Silver Spring	1.03	1.06
MASSACHUSETTS	1.20	1.19
Boston	1.33	1.33
Cape Cod	1.21	1.21
Fall River	1.19	1.20
Holyoke	1.12	1.13
Lawrence	1.21	1.20
Lowell	1.21	1.20
Lynn	1.25	1.24
Methuen	1.23	1.20
Natick	1.26	1.23
New Bedford	1.20	1.20
Pittsfield	1.10	1.08
Springfield	1.15	1.17
Worcester	1.15	1.13
MICHIGAN	1.04	1.04
Adrian	1.06	1.07
Alpena	.97	.98
Ann Arbor	1.11	1.12
Battle Creek	1.02	1.03
Bay City	1.02	1.02
Detroit	1.14	1.13
Escanaba	.97	.97
Flint	1.05	1.06
Grand Rapids	.98	.99
Ishpeming	.99	.99
Jackson	1.05	1.05
Kalamazoo	1.02	1.04
Lansing	1.02	1.04
Marquette	.99	.99
Monroe	1.08	1.08
Muskegon	.99	1.00
Niles	1.02	1.03
Pontiac	1.11	1.11
Port Huron	1.09	1.07
Saginaw	1.00	1.00
Sault Ste. Marie	.97	.98
Traverse City	.99	1.01
Ypsilanti	1.11	1.12

	Frame	Masonry
MINNESOTA	1.07	1.08
Austin	1.05	1.05
Brainerd	1.06	1.07
Duluth	1.07	1.10
Hibbing	1.03	1.07
Mankato	1.03	1.05
Minneapolis	1.15	1.14
Moorhead	1.01	1.04
Rochester	1.05	1.07
St. Cloud	1.08	1.09
St. Paul	1.14	1.14
MISSISSIPPI	.89	.88
Biloxi	.89	.37
Columbus	.90	.88
Greenville	.92	.91
Gulfport	.89	.87
Hattiesburg	.87	.86
Jackson	.89	.89
Laurel	.89	.88
Meridian	.91	.90
Natchez	.87	.87
Tupelo	.88	.87
Vicksburg	.89	.86
MISSOURI	1.01	1.01
Cape Girardeau	.91	.93
Columbia	1.03	1.03
Independence	1.10	1.10
Jefferson City	1.01	.98
Joplin	.92	.93
Kansas City	1.10	1.09
Rolla	.90	.91
Springfield	1.00	1.00
St. Joseph	1.04	1.04
St. Louis	1.10	1.11
MONTANA	.94	.96
Billings	.95	.98
Bozeman	.97	.97
Butte	.95	.98
Great Falls	.92	.95
Helena	.94	.95
Lewistown	.93	.94
Missoula	.95	.98
NEBRASKA	.94	.95
Grand Island	.92	.91
Lincoln	.91	.92
Norfolk	.96	.99
North Platte	.96	.98
Omaha	.93	.94

Effective Age In Years	Typical Life Expectancy in Years: 70	65	60	55	50	45	40	35	30	25	20
	DEPRECIATION – PERCENTAGE										
1	0%	0%	0%	1%	1%	1%	1%	2%	2%	3%	3%
2	1	1	1	2	2	2	3	4	4	6	7
3	1	2	2	2	3	3	4	5	6	9	11
4	2	2	3	3	4	4	5	7	9	12	15
5	2	3	4	4	5	6	7	9	12	15	20
6	3	4	4	5	6	7	9	11	14	18	24
7	4	5	5	6	7	8	10	13	17	22	28
8	4	5	6	7	8	10	12	15	19	25	33
9	5	6	7	8	10	11	14	17	22	29	38
10	5	7	8	9	11	13	16	20	25	32	43
11	6	8	9	10	12	14	18	22	28	36	48
12	7	9	10	11	13	15	20	24	31	40	53
13	8	10	11	12	15	17	22	26	34	44	57
14	8	10	12	13	16	19	24	29	37	48	61
15	9	11	12	15	17	21	26	32	40	52	66
16	10	12	13	16	19	23	28	34	43	55	70
17	10	13	15	17	20	25	30	37	46	59	73
18	11	14	16	19	22	27	32	40	50	63	76
19	12	16	17	20	24	28	34	43	53	67	78
20	13	16	18	21	25	30	37	45	56	71	79
21	13	17	19	22	26	32	39	48	59	74	79
22	14	17	20	23	28	34	42	51	62	76	80
23	15	19	21	24	29	36	44	54	65	77	
24	16	20	23	26	31	38	47	57	68	79	
25	17	21	24	27	33	40	50	60	71	80	
26	18	22	25	29	35	43	52	62	74	80	
27	19	23	26	31	37	45	55	65	75		
28	20	24	28	33	39	47	57	68	77		
29	21	26	29	34	41	49	59	70	78		
30	22	27	31	36	44	52	62	71	79		
31	23	28	32	38	46	54	64	72	79		
32	24	29	34	40	47	56	67	74	80		
33	25	31	35	42	49	58	69	75			
34	27	32	37	44	51	60	71	77			
35	28	34	38	45	53	62	72	78			
36	29	35	40	47	55	65	74	79			
37	30	37	41	49	57	67	75	79			
38	32	38	43	51	59	69	77	80			
39	33	40	45	53	61	70	78				
40	35	41	47	55	63	72	79				
41	36	43	49	57	64	73	79				
42	38	45	51	59	66	75	80				
43	39	47	52	60	67	76					
44	41	48	54	62	69	77					
45	42	50	55	63	70	78					
46	44	51	57	65	72	79					
47	45	53	59	66	73	79					
48	46	54	61	68	75	80					
49	47	56	62	69	76						
50	49	57	64	71	77						
51	51	58	65	72	78						
52	52	60	66	73	78						
53	54	61	68	75	79						
54	55	63	69	76	79						
55	57	64	70	77	80						
56	58	65	71	78							
57	60	66	72	78							
58	61	67	72	79							
59	63	68	73	79							
60	64	69	74	80							
61	65	70	75								
62	67	71	76								
63	68	72	76								
64	70	73	77								
65	71	74	78								
70	76	78	80								
75	80	80									



*MAY BE EXTENDED BY REHABILITATION, REMODELING OR MODERNIZATION OR CHANGING CONDITIONS.
**MAY ALSO BE GREATER THAN ACTUAL AGE.

Tab 7 6

FIG. 12-5: Life Span of a House

SQUARE FOOT APPRAISAL FORM - GOOD QUALITY - Two Story

Date							
Address:		27 Rocky Woods Road, Hopkinton					
Survey By							
Type		Single Family					
Floor Area	First	1,676	Basement Area			Garage Type	Two under
	Second	1,192	Unfinished	1,660		Garage Size	
	Third	-----	Finished	0			
	Total	2,868	Number of Plumbing			Porch	Type / Area
			Fixtures	11		Wood Deck	328
			Rough-in	1			

				Quantity	Cost	+	-	Extension
1	COMPUTE RESIDENCE BASIC COST: Floor area x selected sq. ft. cost			2868	$ 90.98			$260,931
	SQUARE FOOT ADJUSTMENTS:					+	-	
2	Roofing	Composition Shingle Roof		2868	$ (0.94)			($2,696)
3	Subfloor	Floor Insulation		2868	$ 1.33			$3,814
4	Floor Cover (see detail below)			2868				$20,994
5	Plaster Interior			2868	$ 4.98			$14,283
6	Heating/Cooling	Warm and Cool Air		2868	$ 2.39			$6,855
7	Energy Adjustment	Moderate		2868				$0
8	Foundation	Moderate		2868				$0

	LUMP SUM ADJUSTMENTS:					
9	Plumbing (Based on 11 fixtures)		11			$0
	Rough-ins (Based on 1 rough-in)		1			$0
10	Fireplaces	Single Masonry Fireplace - Two Story	1			$5,000
11	Built-in Appliances (see detail below)					$2,840
12	Miscellaneous (Dormers)					$0
13	SUBTOTAL ADJ. RESIDENCE COST: Line 1 plus or minus lines 2-14					$312,020
14	BASEMENT, UNFINISHED		1660	$ 24.48		$40,637
15	Add for basement interior finish					$0
16	Add for basement outside entrance					$0
17	Add for basement garage: Single __ Double _X_					$3,000
18	PORCH/BREEZE WAY, describe	Wood deck	328	$ 15.81		$5,186
19						$0
20	SUBTOTAL RESIDENCE COST: Total of Lines 15-21					$360,843

21	GARAGE OR CARPORT - sq. ft. area x selected sq. ft. cost								$0
22	Miscellaneous (roofing adjustment)								
23	SUBTOTAL GARAGE COST: Line 23 plus or minus Line 24								$0
24	SUBTOTAL OF ALL BUILDING IMPROVEMENTS: Sum of Lines 22 and 25								$360,843
25	Current Cost Multiplier	1.00	x Local Multiplier	1.20					1.20
26	REPLACEMENT COST NEW: Line 26 x 27								$433,011
27	Depreciation:	Age	1998	Condition	Good	0.10	% of Line 28		$43,301
28	Economic and/or Excessive Functional Obsolescence								$0
29	Depreciated cost of buildings improvements: Line 28 less Line 29								$389,710
30	Yard improvements cost:								$15,000
31	Landscaping cost: List and compute on reverse side								-
32	Lot or land Value								$241,100
33	**TOTAL INDICATED VALUE:**		Total of Lines 30-33.						$645,810

Floor Cover	Cost	S.F.	Total
Carpet & Pad	$ 5.78	0	$0
Ceramic Tile	$ 17.65	0	$0
Hardwood Floor	$ 14.60	0	$0
Parquet blocks	$ 16.40	0	$0
Terrazzo	$ 17.10	0	$0
Vinyl Comp	$ 3.49	0	$0
Vinyl sheet	$ 6.55	0	$0
Total			$0
Allowance	$ 7.32	2,868	$ 20,994

Appliances	Cost	Number	Total
Dishwasher	$800	1	$800
Microwave	$640	1	$640
Oven	$1,400	1	$1,400
Garbage Disp.	$255	0	$0
Trash Compactor	$735	0	$0
Hood with Fan	$475	0	$0
Security System	$2,575	0	$0
Total			$2,840
Allowance			$5,950

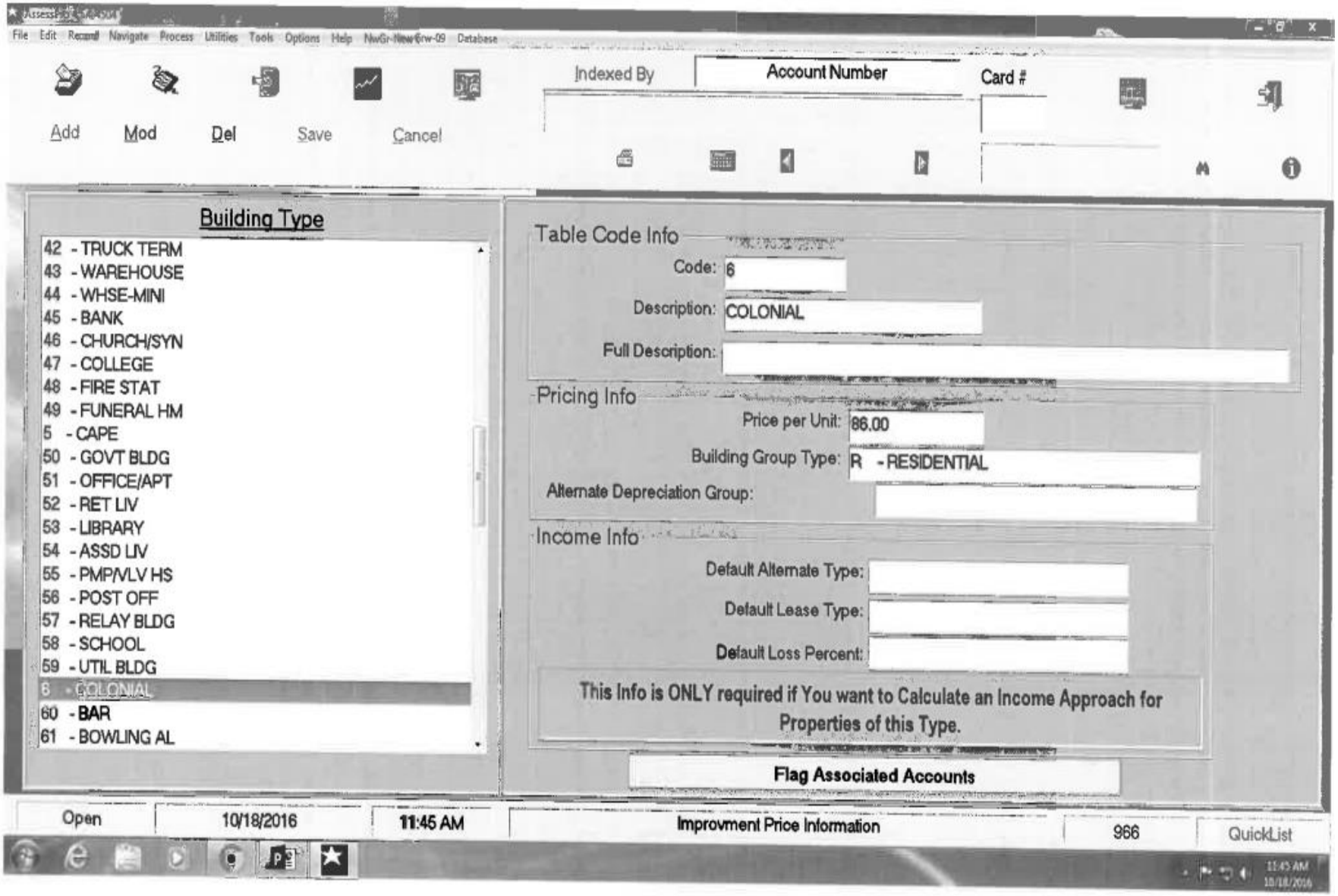
SQUARE FOOT APPRAISAL FORM - GOOD QUALITY - Two Story

Date							
Address:		27 Rocky Woods Road, Hopkinton					
Survey By							
Type		Single Family					
Floor Area	First	1,676	Basement Area			Garage Type	Two under
	Second	1,192	Unfinished	1,660		Garage Size	
	Third	-----	Finished	0			
	Total	2,868	Number of Plumbing Fixtures	11		Porch / Wood Deck	Type: Area: 328
			Rough-in	1			

			Quantity	Cost	+	-	Extension
1	COMPUTE RESIDENCE BASIC COST: Floor area x selected sq. ft. cost		2868	$ 90.98			$260,931
	SQUARE FOOT ADJUSTMENTS:						
2	Roofing	Composition Shingle Roof	2868	$ (0.94)			($2,696)
3	Subfloor	Floor Insulation	2868	$ 1.33			$3,814
4	Floor Cover (see detail below)		2868				$20,994
5	Plaster Interior		2868	$ 4.98			$14,283
6	Heating/Cooling	Warm and Cool Air	2868	$ 2.39			$6,855
7	Energy Adjustment	Moderate	2868				$0
8	Foundation	Moderate	2868				$0
	LUMP SUM ADJUSTMENTS:						
9	Plumbing (Based on 11 fixtures)		11				$0
	Rough-ins (Based on 1 rough-in)		1				$0
10	Fireplaces	Single Masonry Fireplace - Two Story	1				$5,000
11	Built-in Appliances (see detail below)						$2,840
12	Miscellaneous (Dormers)						$0
13	SUBTOTAL ADJ. RESIDENCE COST: Line 1 plus or minus lines 2-14						$312,020
14	BASEMENT, UNFINISHED		1660	$ 24.48			$40,637
15	Add for basement interior finish						$0
16	Add for basement outside entrance						$0
17	Add for basement garage: Single __ Double _X_						$3,000
18	PORCH/BREEZE WAY, describe	Wood deck	328	$ 15.81			$5,186
19							$0
20	SUBTOTAL RESIDENCE COST: Total of Lines 15-21						$360,843
21	GARAGE OR CARPORT - sq. ft. area x selected sq. ft. cost						$0
22	Miscellaneous (roofing adjustment)						
23	SUBTOTAL GARAGE COST: Line 23 plus or minus Line 24						$0
24	SUBTOTAL OF ALL BUILDING IMPROVEMENTS: Sum of Lines 22 and 25						$360,843
25	Current Cost Multiplier	1.00 x Local Multiplier 1.20					1.20
26	REPLACEMENT COST NEW: Line 26 x 27						$433,011
27	Depreciation: Age	1998 Condition Good 0.10 % of Line 28					$43,301
28	Economic and/or Excessive Functional Obsolescence						$0
29	Depreciated cost of buildings improvements: Line 28 less Line 29						$389,710
30	Yard improvements cost:						$15,000
31	Landscaping cost: List and compute on reverse side						-
32	Lot or land Value						$241,100
33	**TOTAL INDICATED VALUE:**	Total of Lines 30-33.					$645,810

Floor Cover	Cost	S.F.	Total	Appliances	Cost	Number	Total
Carpet & Pad	$ 5.78	0	$0	Dishwasher	$800	1	$800
Ceramic Tile	$ 17.65	0	$0	Microwave	$640	1	$640
Hardwood Floor	$ 14.60	0	$0	Oven	$1,400	1	$1,400
Parquet blocks	$ 16.40	0	$0	Garbage Disp.	$255	0	$0
Terrazzo	$ 17.10	0	$0	Trash Compactor	$735	0	$0
Vinyl Comp	$ 3.49	0	$0	Hood with Fan	$475	0	$0
Vinyl sheet	$ 6.55	0	$0	Security System	$2,575	0	$0
Total			$0	Total			$2,840
Allowance	$ 7.32	2,868	$ 20,994	Allowance			$5,950

Town	Colonial - Base Cost Per Square Foot
	CAMA System
Auburn	$84.00
Holden	$85.00
Hopedale	$74.00
Leominster	$75.00
Northborough	$80.00


File Edit Record Navigate Process Utilities Tools Options Help NwGr-NewGrw-09 Database
Add
Mod
Del
Save
Cancel
Indexed By
Account Number
Card #
Building Type
42 - TRUCK TERM
43 - WAREHOUSE
44 - WHSE-MINI
45 - BANK
46 - CHURCH/SYN
47 - COLLEGE
48 - FIRE STAT
49 - FUNERAL HM
5 - CAPE
50 - GOVT BLDG
51 - OFFICE/APT
52 - RET LIV
53 - LIBRARY
54 - ASSD LIV
55 - PMP/VLV HS
56 - POST OFF
57 - RELAY BLDG
58 - SCHOOL
59 - UTIL BLDG
6 - COLONIAL
60 - BAR
61 - BOWLING AL
Table Code Info
Code: 6
Description: COLONIAL
Full Description:
Pricing Info
Price per Unit: 86.00
Building Group Type: R - RESIDENTIAL
Alternate Depreciation Group:
Income Info
Default Alternate Type:
Default Lease Type:
Default Loss Percent:
This Info is ONLY required if You want to Calculate an Income Approach for Properties of this Type.
Flag Associated Accounts
Open
10/18/2016
11:45 AM
Improvment Price Information
966
QuickList

Patriot Properties

10/19/2016

9:22:15AM

Town of Hopkinton

Calculation Table :Building Pricing Table

Town of Hopkinton

Calculation Table :Building Pricing Table

Building Type:	**52**	**RET LIV**			
Price Per Unit:	80.00	Building Group Type:	C - COMMERCIAL	ALV	ALV
Building Type:	**53**	**LIBRARY**			
Price Per Unit:	83.00	Building Group Type:	G - GOVERNMENT		
Building Type:	**54**	**ASSD LIV**			
Price Per Unit:	99.00	Building Group Type:	C - COMMERCIAL	NRS	BED
Building Type:	**55**	**PMP/VLV HS**			
Price Per Unit:	96.00	Building Group Type:	C - COMMERCIAL		
Building Type:	**56**	**POST OFF**			
Price Per Unit:	77.00	Building Group Type:	I - INDUSTRIAL	OFC	NNN
Building Type:	**57**	**RELAY BLDG**			
Price Per Unit:	78.00	Building Group Type:	C - COMMERCIAL	OFC	NNN
Building Type:	**58**	**SCHOOL**			
Price Per Unit:	110.00	Building Group Type:	G - GOVERNMENT	OFC	NNN
Building Type:	**59**	**UTIL BLDG**			
Price Per Unit:	52.00	Building Group Type:	C - COMMERCIAL	SER	NNN
Building Type:	**6**	**COLONIAL**			
Price Per Unit:	86.00	Building Group Type:	R - RESIDENTIAL		

undisplayed areas will be summarized here.

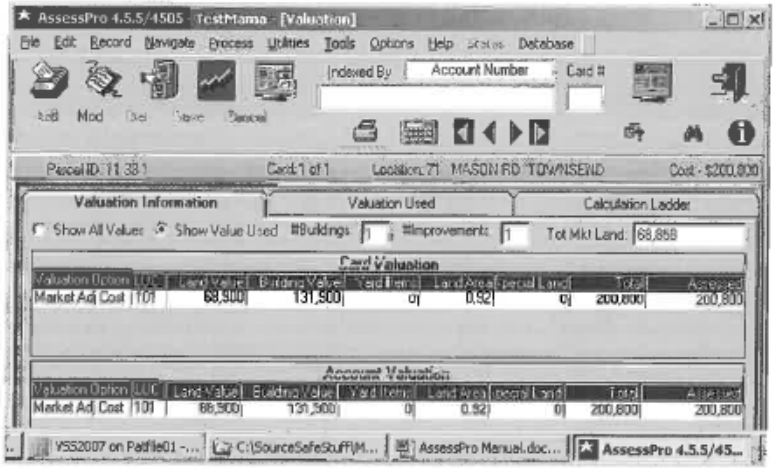
Valuation Information

From the Parcel Data Entry list box, the Valuation Information section is broken into three (3) tabbed sections.

The first tab shows a summary of the valuation for the card and for the entire account as well as any override assessment that may be applicable to that account.

The second tab is for the valuation source. There may be as many as eight (8) value indications for the parcel value. The user may select, at the parcel level, which value indication to use for the final value.

The third and final tab shows the calculation ladder, which shows a summary of the calculations applied in the cost approach for the property.



Valuation Information Tab

This tab displays all of the valuations that have been calculated for the parcel. The valuation options are selected in the Valuation Used tab, and appropriate tables and screens must contain data for a given parcel to have a calculated value of any type.

Screen Components:

Show All Values radio button:

All valuations selected with checkboxes on the Valuation Used screen to be applied to this parcel will be displayed in the tables at the bottom of the screen if this selection is chosen.

Show Value Used radio button:

Only the valuation selected with a radio button on the Valuation Used screen to be the selected valuation for this parcel will be displayed in the tables at the bottom of the screen if the Show Value Used button is chosen.

Card Valuation:

Displays the value of each LUC for each card.

Account Valuation:

Displays the value of each unique

Displays the value of the account by land use code. If Show all Values is selected it will show a line for every value assigned.

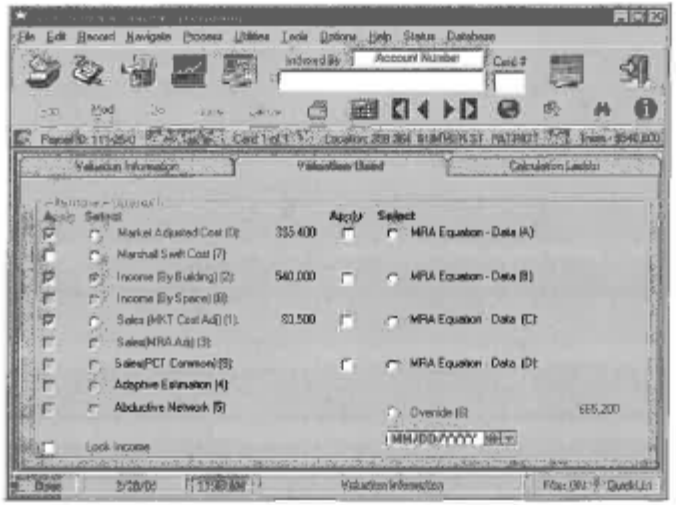
Override Valuation:

Allows you to override the values that are calculated for this parcel for any valuation approach. Enter any of your override values in the desired column and save. The override value will appear above in the grids. Be sure to select Override in the Valuation Used tab if you want these settings applied to the parcel.

Valuation Used Tab

This tab allows you to select the source of the final value. The screen lists all of the possible valuation methods that may be applied to a parcel. Each valuation method has a checkbox and a radio button. Check the checkbox if you have entered the data in the system for that valuation method and you want the value to be calculated. You may select ONE valuation method to actually apply to the parcel for tax purposes. Use the radio button to select this valuation method. When you have selected a method of valuation the value for the parcel using that valuation method will display to the right of the valuation method name and in the tables on the valuation Information screen.

Many of the valuation methods on this screen will not have a checkbox or radio button available. The disabled methods are not available to you at this time.



Market Adjusted Cost:
Table-driven cost approach

Marshall Swift Cost:
Marshall Swift cost approach. In order to use this approach you must buy supplemental software.

Income (By Building):
Generates the value from the building data.

Income (By Space):
Future valuation option to be developed by Patriot Properties.

Sales (MKT Cost Adj):
Future valuation option to be developed by Patriot Properties.

Sales (MRA Adj):
Future valuation option to be developed by Patriot Properties.

Sales (PCT Common):
Future valuation option to be developed by Patriot Properties.

Adaptive Estimation:
Adaptive Estimation ("Feedback") value from external source

Abductive Network:
Abductive Network value from external source

MRA Equation – Data (A):

Multiple Regression Analysis module Value that has been assigned the to Data value A.

MRA Equation – Data (B):

Multiple Regression Analysis module Value that has been assigned the to Data value B.

MRA Equation – Data (C):

Multiple Regression Analysis module Value that has been assigned the to Data value C.

MRA Equation – Data (D):

Multiple Regression Analysis module Value that has been assigned the to Data value D.

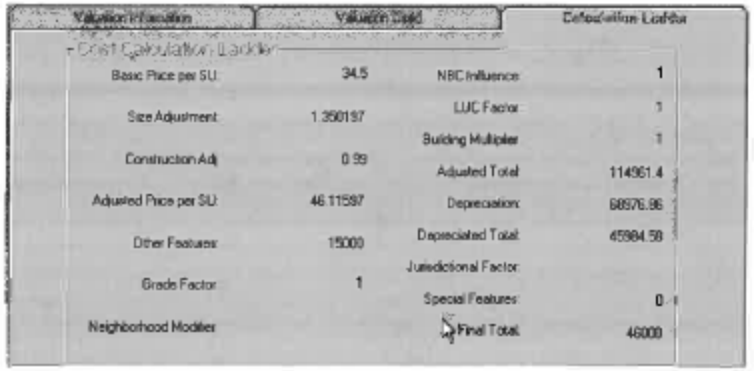
Override:

User enters any value to override calculated values. This is done on the Valuation Information Tab. There is no checkbox available for override because if the override is filled out it will be displayed on the Valuation Information screen by default.

Lock Income:

Lock Income allows the user to lock the income information from calculating on a card by card basis.

Calculation Ladder Tab



Basic Price per SU:

Displays the price per square unit for building type.

Size Adjustment:

Displays the calculated size adjustment.

Construction Adj:

Displays the calculated construction adjustment.

Adjusted Price per SU:

Displays the adjusted price per Square unit for the main building area. For a breakdown of the cost by specific cost area look at the sub area detail screen.

Calculation: Basic price/SU x size adjustment x construction adjustment

Other Features:

Displays the sum of all Bath & Other Features values entered in the Building Description.

Grade Factor:

Displays the grade factor from the Grade Type descriptive table that is associated with the grade selected on the Building Description screen .

Neighborhood Modifier:

Displays the Building Factor set in the Neighborhood Modifier Descriptive table if one is set for this parcel on the Land Data Screen.

NBC Influence:

Factor from neighborhood code set on the Land Data screen

LUC Factor:

Displays the factor associated with the LUC code.

Building Multiplier:

Calculated value.

Calculation: Neighborhood Modifier x NBC Influence x LUC Factor .

Adjusted Total:

Total replacement cost new.

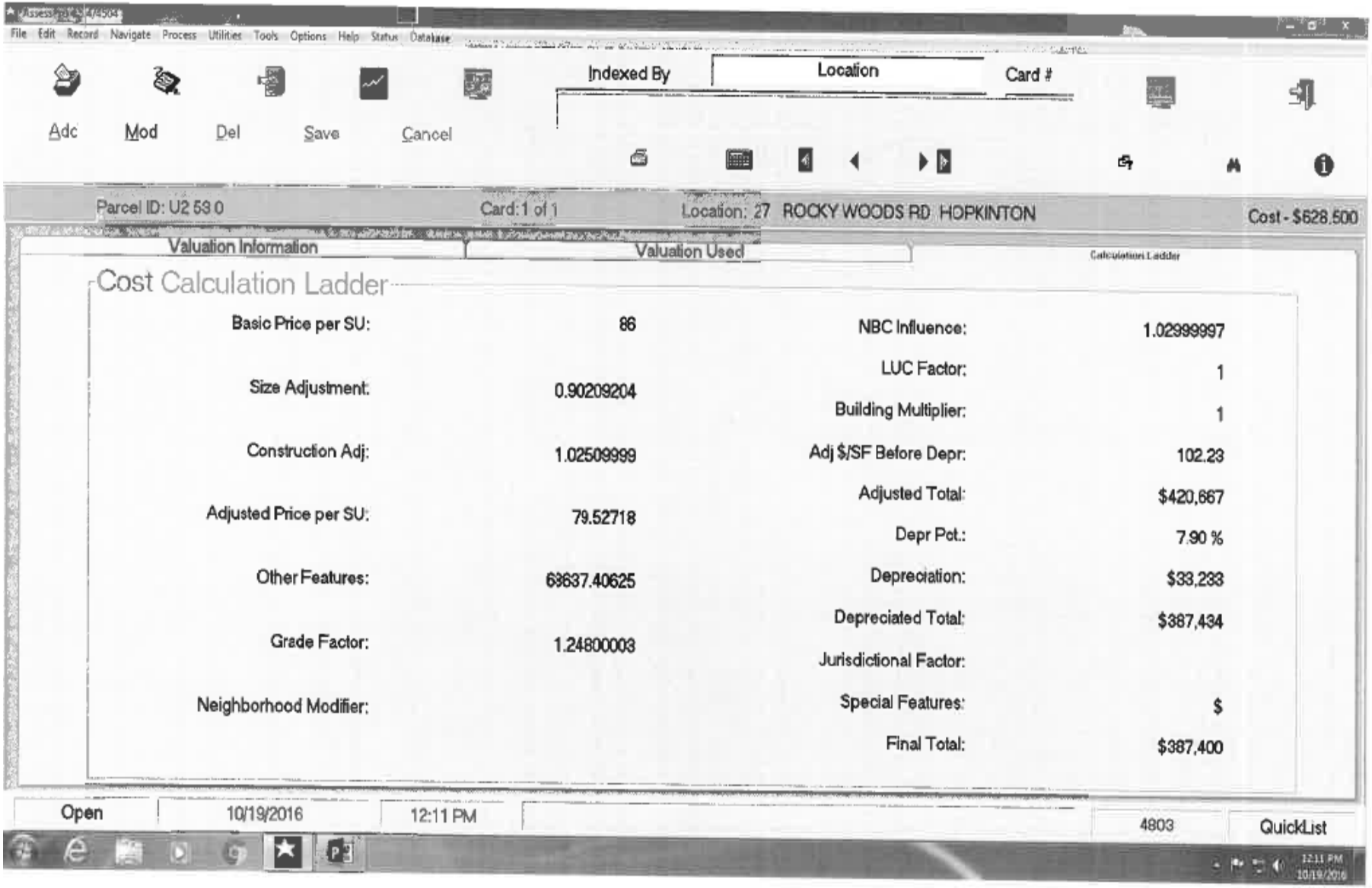
Depreciation:

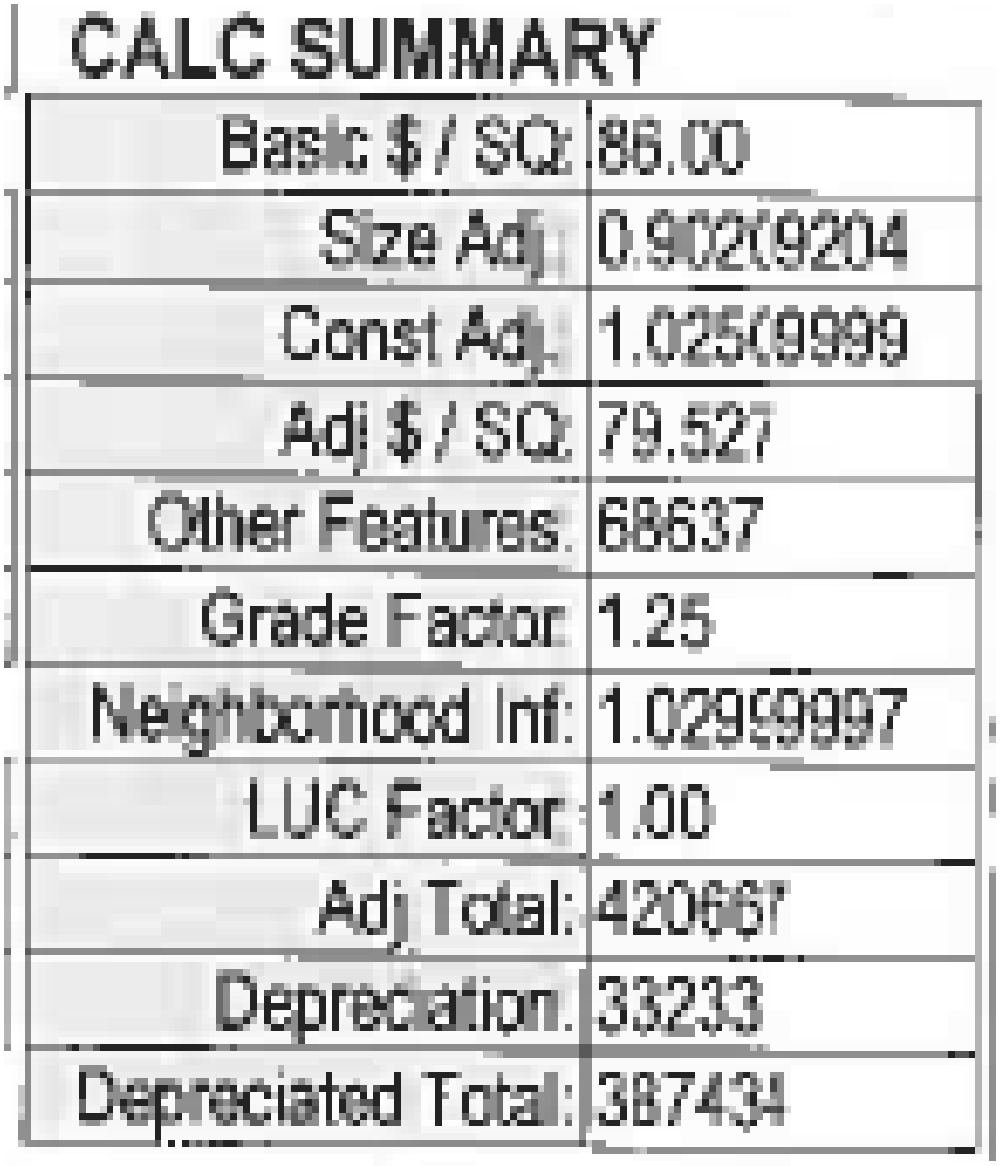
The total Depreciation percent from the Depreciation and Remodeling screen times the adjusted total.

Depreciated Total:

Calculated Value.

Calculation: adjusted total - depreciation


File Edit Record Navigate Process Utilities Tools Options Help Status Database
Indexed By
Location
Card #
Adc
Mod
Del
Save
Cancel
Parcel ID: U2 53 0
Card: 1 of 1
Location: 27 ROCKY WOODS RD HOPKINTON
Cost - $628,500
Valuation Information
Valuation Used
Cost Calculation Ladder
Basic Price per SU: 86
Size Adjustment: 0.90209204
Construction Adj: 1.02509999
Adjusted Price per SU: 79.52718
Other Features: 63637.40625
Grade Factor: 1.24800003
Neighborhood Modifier:
NBC Influence: 1.02999997
LUC Factor: 1
Building Multiplier: 1
Adj $/SF Before Depr: 102.23
Adjusted Total: $420,667
Depr Pct.: 7.90 %
Depreciation: $33,233
Depreciated Total: $387,434
Jurisdictional Factor:
Special Features: $
Final Total: $387,400
Open
10/19/2016
12:11 PM
4803
QuickList



CALC SUMMARY

Basic $ / SQ:	86.00
Size Adj.	0.902(9204
Const Adj.	1.025(9999
Adj $ / SQ:	79.527
Other Features:	68637
Grade Factor:	1.25
Neighborhood Inf:	1.02999997
LUC Factor:	1.00
Adj Total:	420667
Depreciation:	33233
Depreciated Total:	387434

RESIDENTIAL VALUATION

Version 6

VISION's Market Adjusted Cost System.

Effective Area (EA):

Each sub-area of a home has a percent adjustment applied to it.

EX:	BAS	(Primary Floor Living Area)	=	100%
	FEP	(Finished Enclosed Porch)	=	70%
	UBM	(Unfinished Basement)	=	20%

SUB-AREA	ACTUAL AREA	% ADJUST	EFFECTIVE AREA
BAS	1,659	100%	1,659
FEP	100	70%	70
UBM	1,000	20%	200
TOTAL EFFECTIVE AREA			**1,929**

As illustrated, convert the actual area to an effective area, then add all effective areas to arrive at the total EFFECTIVE AREA.

BASE RATE (B.R.)

Each style of a home has a unique base rate. This rate is an unadjusted square foot cost before depreciation.

EX:	01	(Ranch)	=	$70
	02	(Split Level)	=	$72

SIZE ADJUSTMENT FACTOR (S.A.F.)

Based on economics of scale and market inclination, the size adjustment allows for adjustment of square foot costs. Typically (if all else is equal) the smaller the structure, the greater the cost per square foot, and vice versa.

Each community has a different median size home as well as a varying curve factor. The parameters will vary, the Vision system adjusts for size using user-defined tables that factor the base rate based on the home's percentage variation from the median size for the community. Every Vision 6 database comes with 12 default size adjustment tables built using a fixed site cost (FSC) formula, which is described below:

The formula for a FSC curve is as follows:

/Municipality's Median Area\ x (F.S.C. = (1 - F.S.C.)
\ Parcel Effective Area /

= Size Adjustment Factor (S.A.F.)

EX:	Town Median Area	=	2,200 s.f.
	F.S.C.	=	.30
	Max. Factor	=	2.00
Parcel Building Effective Area		=	1,929 s.f.
/2,200\ x (.30) + (1 - .30) \1,929/		=	1.0098

1.14 is the Size Adjustment Factor (S.A.F.)

NOTE: The Maximum Factor will be determined by the highest entry on the table, regardless of the size of the structure.

ADJUSTED BASE RATE

Structure components may have an adjustment value on the base rate. (Refer to Cost Model). In the default model that comes loaded in the V6 database, each base rate adjustment applies as a percentage of the base rate (the user can add adjustments as a simple dollar amount in the cost model if desired). Add up the net base rate adjustments.

EX.
**********Base Rate Adjustments**********
EXTERIOR WALL 1 11 (Clapboard) = .7 + Base Rate
OIL FUEL/HEAT TYPE 05 (Hot Water) = -.42 + Base Rate
INTERIOR FINISH 1 05 (Drywall/Sheet) = 1.4 + Base Rate
BATHS 1 & BEDRMS 3 (3 Bedrooms) = -3.5 + Base Rate
ROOF STRUCTURE 03 (Gable/Hip) = -.7 + Base Rate
FLOOR COVER 14 (Carpet) = .7 + Base Rate

Then the S.A.F. is applied.

EX.

Base Rate: 70
Net Adjustments: -1.82
Size Adjustment: 1.0098
Adjusted Base Rate = (70 + -1.82) * 1.0098
Adjusted Base Rate: 68.85

UNIT/FLAT VALUE ADJUSTMENTS

Structure components can also be valued on straight dollar per unit basis as well, which are then factored by grade adjustments. In this case the cost value is applied per unit being valued:

EX.
FIREPLACE: 1
UNIT VALUE: 2400
FIREPLACES = 2400 + RCN

GRADE/FACTOR ADUSTMENTS

The Quality Grade applies an adjustment factor to the combined value of the adjusted base rate multiplied by the Effective Area plus any Unit value adjustments.

NON-FACTORED UNIT/FLAT VALUE ADJUSTMENTS

Structure components can also be valued on straight dollar per unit basis as well, which do not get factored by grade adjustments. In this case the cost value is applied per unit being valued.

UNDEPRECIATED BUILDING VALUE

To arrive at the worth of the building before depreciation, the formula is as follows:

(((Adjusted Base Rate x Effective Area) + Unit Value Additions) * Factor Adjustments) + Non-factored Unit Value Adjustment

((ABR x EA) + UV) * FA)+ NFUV = Undepreciated Building Value

Ex: Ranch 01, $70 Base Rate (BR)
1,929 s.f. Effective Area (EA)
-1.87 Net Base Adjustments (QI)
1.0098 Size Adjustment Factor (SAF)

/ (BR + NBA) * SAF= ABR\
\ (($70 + -1.87) x 1.0098= $68.85/

ABR (Building square foot cost) = $68.85

Effective Area (EA) x Effective Base Rate (EBR)

((Adjusted Base Rate x Effective Area) + Unit Value Additions) * Factor Adjustments
(((($68.85 * 1,929) + 2400) x 1.1) + 0 = $148,733 (say; $148,700)

```
                                                    cost
OUTPUT FROM STORED PROCEDURE
REPORT GENERATED ON 29-JUL-2012 AT 12:36

**********Building #1 Calc Start**********
Cost Calculation for pid, bid = 102053,101892
Account Number = 38
Use Code = 1010
Cost Rate Group = SIN
Model ID: P01

Section #1
Base Rate: 83
Size Adjustment: .98474
Effective Area: 2679
Adjusted Base Rate = (83 + 6.225) * .98474
Adjusted Base Rate: 87.86
RCN = (((87.86 * 2679) + 0) * 1.33) + 0
RCN: 313051

**********Base Rate Adjustments**********
FLOOR COVER 1 12 (Hardwood) = .415 + BaseRate
AC TYPE 03 (Central) = 3.32 + BaseRate
2 1/2 Bathrms + BEDROOMS 03 (3 Bedrooms) = 1.66 + BaseRate
INTERIOR WALL 1 03 (Plastered) = 1.66 + BaseRate
ROOF STRUCTURE 03 (Gable/Hip) = .83 + BaseRate

**********Factor Adjustments**********
GRADE ADJUSTMENT 06 (Good) = 1.33 x RCN
Actual Year Built:  2008
Effective Age:  0 (EYB Override)

Percent Good = 100
RCNLD: 313100
**************************************************
```

Marshall and Swift	27 Rocky Woods Road	Patriot CAMA System
$90.98	Base Construction Cost	$86.00
$433,011 or $150.98 per square foot	Reproduction Cost New	$420,667 or $146.68 per square foot
$645,810 or $225.18 per square foot	Depreciated Value	$628,500 or $219.14 per square foot

Do the figures need to match???

NO!!!!!

Marshall and Swift		Patriot CAMA System
These are Cost Figures		This is Mass Appraisal and these are
		Market Adjusted Cost Figures

Bureau of Local Assessment: Certification Standards: Cost Approach

The assessor shall value improvements in accordance with generally accepted mass appraisal practices, cost service manuals with applicable updates and or use of local building costs, where available. All data must be documented and presented for certification.

FY 2016 Directives

As part of the program, new items and new accounts should annually be identified, listed and valued in the same system as is used for the existing personalty.

The wireless assets for the 508's should be included in the personal property tables for FY2015.

For further information on data maintenance, cyclical reinspection programs and data quality analyses please refer to "The Guidelines for the Development of a Minimum Reassessment Program."

Other Recommendation

Apartment Land: The 112 unit price that is utilized in the town should reflect location and desirability. Market should support all unit prices utilized.

Town should review their use of economic and functional obsolescence. If after review it is deemed warranted a clear explanation of it's use should be noted on the property record card.

Cost Tables

A complete analysis must be presented demonstrating that cost tables have been updated and the manner in which the updates were determined.

What one town did for their Fiscal Year 2012 recertification -

Style	Style Description	FY'11 Base Rate	Marshall & Swift	Current Cost Multi.	Local Multi. =Natick	M&S Base Rate	M&S Reference Pg.	FY'12 Base Rate
01	Ranch	76	67.83	69.19	89.94	90	A-19	80
02	Split-Level	87	70.89	72.31	94.00	94	A-20	87
03	Colonial	97	62.35	63.60	82.68	83	A-21	99
04	Cape Cod	89	62.59	63.84	82.99	83	A-22	94
05	Bungalow	89	67.83	69.19	89.94	90	A-19	90
06	Conventional	111	78.83	80.41	104.53	105	A-22	105
07	Contemporary	87	62.59	63.84	82.99	83	A-22	90
08	Raised Ranch	87	70.89	72.31	94.00	94	A-20	87
09	Two Family	92	61.00	62.22	80.89	81	Mult11	92
10	Three Family	92	67.00	68.34	88.84	89	Mult11	92
36	Cottage	76	57.78	58.94	76.62	77	F-13	76
60	Estate	135	121.58	124.01	161.22	161	E-11	135

Styles 01-08 = 80-105; Avg 91

This chart demonstrates that the cost figures from Marshall and Swift were not always selected as the final base rate. The preliminary benchmarks were established through Marshall and Swift and then the cost figures were reviewed and refined to bring the base costs into alignment ***with the market***.

Patriot Properties

10/19/2016

9:23:15AM

Town of Hopkinton

Calculation Table :Depreciation Creation

Calculation Table :Depreciation Creation

Table: R
Description: RESIDENTIAL
Max Age: 51
Create Table: Auto
Min Dep for AV: 0
Max Dep for AV: 80
Min Dep for EX: 80
Max Dep for DL: 90
Average Created: Linear
%Per Year for L.S.Q: 0.60

Factors from AV for:

EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
0.20	0.65		0.77	0.90	1.00	1.10	1.25	1.55	2.00	

AGE	EX	VG	GV	GD	AG	AV	FA	FR	PR	VP	DL
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	1	1	1	1	1	2	0
2	0	1	0	1	1	1	1	2	2	4	0
3	1	1	0	1	2	2	2	2	3	5	0
4	1	2	0	2	2	2	3	3	4	7	0
5	1	2	0	2	3	3	3	4	5	9	0
6	1	2	0	3	3	4	4	5	6	11	0
7	1	3	0	3	4	4	5	5	7	13	0
8	1	3	0	4	4	5	5	6	8	14	0
9	2	4	0	4	5	5	6	7	9	16	0
10	2	4	0	5	5	6	7	8	10	18	0
11	2	4	0	5	6	7	7	8	11	20	0
12	2	5	0	6	7	7	8	9	12	22	0
13	2	5	0	6	7	8	9	10	13	23	0
14	3	6	0	7	8	8	9	11	14	25	0
15	3	6	0	7	8	9	10	11	15	27	0
16	3	6	0	7	9	10	11	12	16	29	0
17	3	7	0	8	9	10	11	13	17	31	0
18	3	7	0	8	10	11	12	14	18	32	0
19	3	7	0	9	10	11	13	14	19	34	0
20	4	8	0	9	11	12	13	15	20	36	0
21	4	8	0	10	11	13	14	16	21	38	0
22	4	9	0	10	12	13	15	17	22	40	0
23	4	9	0	11	12	14	15	17	23	41	0
24	4	9	0	11	13	14	16	18	24	43	0
25	5	10	0	12	14	15	17	19	25	45	0
26	5	10	0	12	14	16	17	20	26	47	0
27	5	11	0	13	15	16	18	20	27	49	0
28	5	11	0	13	15	17	19	21	28	50	0
29	5	11	0	13	16	17	19	22	29	52	0
30	5	12	0	14	16	18	20	23	30	54	0
31	6	12	0	14	17	19	21	23	31	56	0
32	6	13	0	15	17	19	21	24	32	58	0
33	6	13	0	15	18	20	22	25	33	59	0
34	6	13	0	16	18	20	22	26	34	61	0
35	6	14	0	16	19	21	23	26	35	63	0
36	7	14	0	17	19	22	24	27	36	65	0
37	7	14	0	17	20	22	24	28	37	67	0
38	7	15	0	18	21	23	25	29	38	68	0
39	7	15	0	18	21	23	26	29	39	70	0
40	7	16	0	19	22	24	26	30	40	72	0
41	7	16	0	19	22	25	27	31	41	74	0
42	8	16	0	19	23	25	28	32	42	76	0
43	8	17	0	20	23	26	28	32	43	77	0
44	8	17	0	20	24	26	29	33	44	79	0
45	8	18	0	21	24	27	30	34	45	81	0
46	8	18	0	21	25	28	30	35	46	83	0
47	9	18	0	22	25	28	31	35	47	85	0
48	9	19	0	22	26	29	32	36	48	86	0
49	9	19	0	23	27	29	32	37	49	88	0
50	9	20	0	23	27	30	33	38	50	90	0
51	9	20	0	24	28	31	34	38	51	90	0


INE JEWELRY
Stephanie G CUSTOM DESIGNS
Stephanie G


KUMON
ELIZABETH BLAKE

U16 Map | 259 Block | 0 Lot | 1 of 1 CARD | COMMERCIAL | TOTAL ASSESSED: 6,157,000 !4139!

Town of Hopkinton

Patriot Properties Inc.

PROPERTY LOCATION

No	Alt No	Direction/Street/City
77		MAIN ST, HOPKINTON

OWNERSHIP

Unit #:

Owner 1:	THOMSON REALTY LIMITED PARTNER
Owner 2:	
Owner 3:	
Street 1:	77 MAIN STREET
Street 2:	
Twn/City:	HOPKINTON
St/Prov:	MA Cntry: Own Occ: X
Postal:	01748 Type:

PREVIOUS OWNER

Owner 1:	PYNE, JOSEPH V. -
Owner 2:	PYNE, JAMES G. -
Street 1:	191 POND STREET
Twn/City:	HOPKINTON
St/Prov:	MA Cntry:
Postal:	01748

NARRATIVE DESCRIPTION

This Parcel contains 10.48 ACRES of land mainly classified as OFFICE with a(n) OFC A Building Built about 2000, Having Primarily BRICK Exterior and RUBBER MBRN Roof Cover, with 0 Units, 2 Baths, 6 HalfBaths, 0 3/4 Baths, 0 Rooms, and 0 Bdrms.

OTHER ASSESSMENTS

Code	Descrip/No	Amount	Com. Int

IN PROCESS APPRAISAL SUMMARY

Use Code	Building Value	Yard Items	Land Size	Land Value	Total Value
340	5,253,600	108,400	10.480	794,800	6,157,000
Total Card	5,253,600	108,400	10.480	794,800	6,157,000
Total Parcel	5,253,600	108,400	10.480	794,800	6,157,000

Source: Market Adj Cost | Total Value per SQ unit /Card: 108.17 | /Parcel: 108.17

Legal Description

Entered Lot Size

Total Land:

Land Unit Type:

User Acct 0

GIS Ref

GIS Ref

Insp Date 06/03/14

PREVIOUS ASSESSMENT

Parcel ID U16 259 0

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Asses'd Value	Notes	Date
2017	340	PV	5,100,700	105200	10.48	779,300	5,985,200	5,985,200		5/19/2016
2016	340	FV	5,100,700	105200	10.48	779,300	5,985,200	5,985,200	year end	11/30/2015
2015	340	FV	4,759,300	96500	10.48	765,100	5,620,900	5,620,900		12/8/2014
2014	340	FV	4,668,800	75500	10.48	765,100	5,509,400	5,509,400		10/21/2013
2014	340	PV	4,668,800	75500	10.48	765,100	5,509,400	5,509,400		6/11/2013
2013	340	FV	4,668,800	75500	10.48	765,100	5,509,400	5,509,400	Final FY13 Value	11/14/2012
2012	340	FV	5,133,200	70500	10.48	776,600	5,980,300	5,980,300		9/21/2011
2011	340	FV	5,133,200	70500	10.48	776,600	5,980,300	5,980,300		10/15/2010

PRINT

Date	Time
10/12/16	15:10:22

LAST REV

Date	Time
10/05/16	15:33:29

apro

4139

SALES INFORMATION

TAX DISTRICT

PAT ACCT.

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	Tst	Verif	Assoc PCL Value	Notes
PYNE, JOSEPH V.	30638-352		9/1/1999	CHANGE IN US	512,000	Yes	No			
PYNE,VIRGIA	18595-310		10/6/1987	FAMILY	68,750	Yes	No			

USER DEFINED

Prior Id # 1:	99-514
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
ASR Map:	
Fact Dist:	
Reval Dist:	
Year:	
LandReason:	
BldReason:	

BUILDING PERMITS

Date	Number	Descrip	Amount	C/O	Last Visit	Fed Code	F. Descrip	Comment
3/30/2016	201-16	MANUAL	3,500	O				MODIFY ALARM SYSTE
2/18/2016	125-16	ADDITION	242,050	O				
12/24/2015	B813-15	MANUAL	1,000					FIRE ALARM ALT
12/24/2015	B812-15	HVAC	4,000	O				
12/2/2015	B756-15	SIGN	1,500	O				
10/28/2015	626-15	REMODEL	141,400	O				
10/13/2015	589-15	REMODEL	13,500	O				TENANT FIT-OUT
8/4/2014	336-14	ALTER IN	18,500	O				RENO LEASE SPACE -
9/6/2013	532-13	REMODEL	48,725	C				
2/27/2013	C13-03	SIGN	3,000	C				

ACTIVITY INFORMATION

Date	Result	By	Name
6/3/2014	PERMIT INT.	536	BOB B.
6/15/2012	FIELD REVIEW	536	BOB B.
11/5/2006	PERMIT INT.	536	BOB B.
10/14/2004	INSPECTED	536	BOB B.
7/7/2004	INSPECTED	536	BOB B.
3/27/2003	MEASURED+INS	105	DUANE ADAMS
8/1/2002	PERMIT INT.	536	BOB B.
8/9/2001	FIELD REVIEW	536	BOB B.
1/3/2000	PERMIT VISIT	232	JOCELYN BALD

Sign: VERIFICATION OF VISIT NOT DATA ___/___/___

PROPERTY FACTORS

Item	Code	Descip	%	Item	Code	Descip
Z	B1	B1	100	U	2	SEWER
o				t	3	WATER
n				l		
Census:				Exmpt		
Flood Haz:						
D				Topo		
s				Street		
t				Traffic		

LAND SECTION (First 7 lines only)

Use Code	Description	LUC Fact	No of Units	Depth / PriceUnits	Unit Type	Land Type	LT Factor	Base Value	Unit Price	Adj	Neigh	Neigh Infl.	Neigh Mod	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	J Code	Fact	Use Value	Notes
340	OFFICE		89094		SQUARE FESITE			0	6.2	0.815	CG	1.02								450,744						450,700	
340	OFFICE		8.4347		ACRES	EXCESS		0	40,000.	1.020	CG	1.02								344,136						344,100	

Total AC/HA: 10.48002 | Total SF/SM: 456509.66 | Parcel LUC: 340 OFFICE | Prime NB Desc: COMM GOOD

Total: 794,880 | Spl Credit: | Total: 794,800

apro

2017

EXTERIOR INFORMATION

Type:	27 - OFC A		
Sty Ht:	3 - 3		
(Liv) Units:		Total:	0
Foundation:	1 - CONCRETE		
Frame:	2 - STEEL		
Prime Wall:	7 - BRICK		
Sec Wall:	25 - CONC.PAN	30	%
Roof Struct:	4 - FLAT		
Roof Cover:	11 - RUBBER MBRN		
Color:			
View / Desir.:	A - AVERAGE		

GENERAL INFORMATION

Grade:	B - GOOD		
Year Blt:	2000	Eff Yr Blt:	
Alt LUC:		Alt %:	
Jurisdict:		Fact:	
Const Mod:			
Lump Sum Adj.:			

INTERIOR INFORMATION

Avg Ht/Fl:	STD		
Prim Int Wall:	1 - DRYWALL		
Sec Int Wall:		%	
Partition:	T - TYPICAL		
Prim Floors:	4 - CARPET		
Sec Floors:		%	
Bsmnt Flr:	12 - CONCRETE		
Bsmnt Gar:			
Electric:	3 - ADEQUATE		
Insulation:	2 - TYPICAL		
Int vs Ext:	S		
Heat Fuel:	2 - GAS		
Heat Type:	1 - FORCED H/A		
# Heat Sys:	1		
% Heated:	100	% AC:	100
Solar HW:	NO	Central Vac:	NO
% Com Wal:		% Sprinkled:	100

BATH FEATURES

Full Bath:	2	Rating:	GOOD
A Bath:		Rating:	
3/4 Bath:		Rating:	
A 3QBth:		Rating:	
1/2 Bath:	6	Rating:	GOOD
A HBth:		Rating:	
OthrFix:	12	Rating:	GOOD

OTHER FEATURES

Kits:		Rating:	
A Kits:		Rating:	
Frpl:		Rating:	
WSFlue:		Rating:	

CONDO INFORMATION

Location:	
Total Units:	
Floor:	
% Own:	
Name:	

DEPRECIATION

Phys Cond:	GD - Good	9.3	%
Functional:			%
Economic:			%
Special:			%
Override:			%
	Total	9.3	%

CALC SUMMARY

Basic $ / SQ:	90.00
Size Adj.:	0.80000001
Const Adj.:	1.06139517
Adj $ / SQ:	76.420
Other Features:	124888
Grade Factor:	1.37
Neighborhood Inf:	1.02999997
LUC Factor:	1.00
Adj Total:	5700413
Depreciation:	530138
Depreciated Total:	5170275

COMMENTS

13 TOTAL OFFICE UNITS IN BUILDING.

RESIDENTIAL GRID

1st Res Grid	Desc.	# Units

Level	FY	LR	DR	D	K	FR	RR	BR	FB	HB	L	O
Other												
Upper												
Lvl 2												
Lvl 1												
Lower												

Totals	RMs:	BRs:	Baths: 2	HB 6

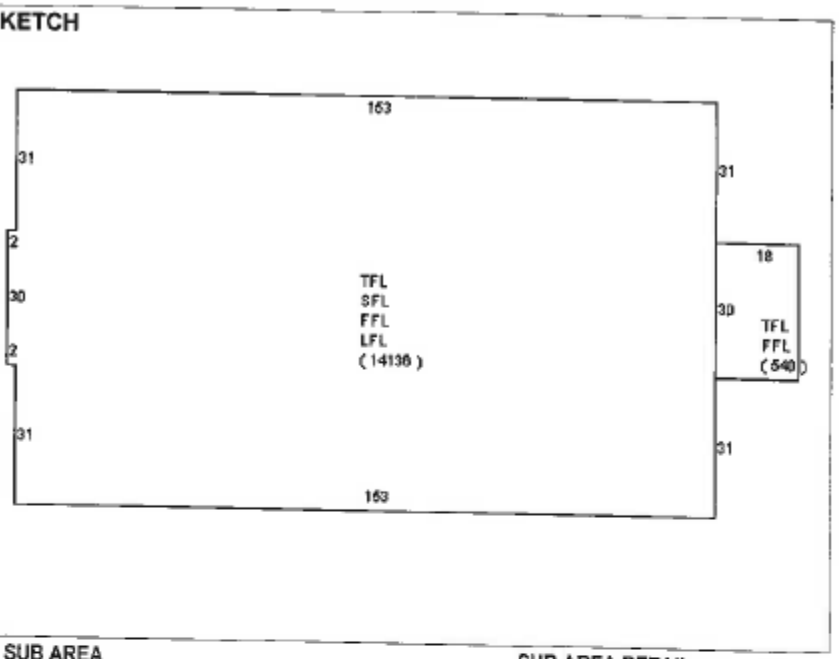
REMODELING

Exterior:	
Interior:	
Additions:	
Kitchen:	
Baths:	
Plumbing:	
Electric:	
Heating:	
General:	

RES BREAKDOWN

No Unit	RMS	BRS	FL
Totals			

SKETCH



COMPARABLE SALES

Rate	Parcel ID	Typ	Date	Sale Price
	R23 67 A		4/17/2015	510,000

WtAv$/SQ:		AvRate: 0	Ind Val:
Juris Factor:		Before Depr:	107.44
Special Features:	83500	Val/Su Net:	92.31
Final Total:	5253800	Val/Su SzAd:	92.31

SUB AREA

Code	Description	Area - SQ	Rate - AV	Undepr Value
FFL	1ST FLOOR	14,676	76.420	1,121,547
TFL	3RD FLOOR	14,676	68.780	1,009,392
SFL	2ND FLOOR	14,136	76.420	1,080,280
LFL	LOWER FLOOR	13,429	53.490	718,386

	Net Sketched Area	56,917		Total:	3,929,605
Size Adj	56917.200	Gross Area	57624	FinArea	56917

SUB AREA DETAIL

Sub Area	% Usbl	Descrip	% Type	Qu	# Ten
LFL	95				

SPEC FEATURES/YARD ITEMS

Code	Description	A	Y/S	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/S	Dep	LUC	Fact	NB Fa	Appr Value	JCod	JFact	Juris Value
85	PAVING	D	Y	1	100X350	G	GD	2000	3.04	T	9.3	340		1.03	99,600			99,600
83	SIGN	D	Y	1	3x3	A	GD	2002	63.56	T	26	340		1.03	400			400
77	LITE-SIN	D	Y	9	1	G	GD	2000	1,210.00	T	38	340		1.03	7,000			7,000
78	LITE-DBL	D	Y	1	1	G	GD	2000	1,452.00	T	9.3	340		1.03	1,400			1,400
61	ELEV-PAS	D	S	1	3	G	GD	2000	29,040.00	T	7	340		1.03	83,500			83,500

PARCEL ID U16 259 0

IMAGE

AssessPro Patriot Properties, Inc

Morell N

Total Yard Items: 108,400

83,500

191,900

Style	Three Story Office and Retail Building
Age	Constructed in 2000
Exterior Finish	Brick
Perimeter Measurement	530 Feet
First Floor Area	14,676 Square Feet
Second Floor Area	14,136 Square Feet
Third Floor Area	14,676 Square Feet
Basement Area	13,429 Square Feet
Floor Cover	Carpet and Ceramic Tile
Heating and Cooling	Hot Air and Central Air
Condition	Good
Land Value	794,800
Special Features/Yard Items	Elevator, Lights, Paving, Signs
Climate	Extreme
Assessed Value	6,157,000

CALCULATOR COST FORM

For subscribers using the **MARSHALL VALUATION SERVICE** *Calculator Cost Method*

SQUARE FOOT COSTS

1. Subscriber making survey _____ Date of survey _____
2. Name of building _____ Owner _____
3. Located at _____

	SECTION I	SECTION II	SECTION III	SECTION IV
4. Occupancy				
5. Building class and quality	Cls. ____ Qual. ____	Cls. ____ Qual. ____	Cls. ____ Qual. ____	Cls. ____ Qual. ____
6. Exterior wall				
7. No. of stories & height per story	No. ____ Ht. ____	No. ____ Ht. ____	No. ____ Ht. ____	No. ____ Ht. ____
8. Average floor area				
9. Average perimeter				
10. Age and condition	Age ____ Cond. ____	Age ____ Cond. ____	Age ____ Cond. ____	Age ____ Cond. ____

11. Region: Western _____ Central ____ Eastern _____
12. Climate: Mild _____ Moderate ____ Extreme _____

	SECTION I	SECTION II	SECTION III	SECTION IV
13. Base Square Foot Cost				
SQUARE FOOT REFINEMENTS				
14. Heating, cooling, ventilation				
15. Elevator deduction				
16. Miscellaneous				
17. Total lines 13 through 16				
HEIGHT AND SIZE REFINEMENTS				
18. Number of stories – multiplier				
19. Height per story – multiplier (see Line 7)				
20. Floor area/perimeter multiplier (see Lines 8 and 9)				
21. Combined height and size multiplier (Lines 18 x 19 x 20)				

FINAL CALCULATIONS	SECTION I	SECTION II	SECTION III	SECTION IV
22. Refined square foot cost (Line 17 x 21)				
23. Current cost multiplier (Sect. 99, p. 3)				
24. Local multiplier (Sect. 99, pp. 5 through 10)				
25. Final sq. ft. cost (Line 22 x Line 23 x Line 24)				
26. Area				
27. Line 25 x Line 26				
28. Lump sums (Line 34)				
29. Replacement Cost (Line 27 + Line 28)				
30. Depreciation % (Section 97)				
31. Depreciation amount (Line 29 x Line 30)				
32. Depreciated Cost (Line 29 – Line 31)				

TOTAL OF ALL SECTIONS

33. Replacement Cost: _____ Depreciated Cost: _____ Insurable Value: _____

FORM 1003.1 (Calc. Cost) See back of form for drawings, area and insurable value calculations. *Printed in U.S.A. 2012*

Calculations:

Lump sum (sprinklers, elevators, etc.)	
34. Total lump sum cost; move to Line 28	

Insurance Exclusions (Section 96)	SECTION I	SECTION II	SECTION III	SECTION IV
35. Replacement or depreciated cost (Line 29 or 32)				
36. Demolition, debris removal %				
37. Added amount (Line 36 x Line 35)				
38. Basement excavation				
39. Foundation below ground				
40. Piping below ground				
41. Architects' plans and specifications				
42. Total % of exclusions (Lines 38 through 41)				
43. Excluded amount (Line 42 x Line 35)				
44. Insurable value (Line 35 + Line 37 – Line 43)				

Notes:

THE COST APPROACH		
Client	*Town of Hopkinton*	
Property Address	***77 Main Street***	
Date of Valuation	***1-Jan-16***	
Occupancy		
Building Class/Quality		
Exterior Walls		
Number of Stories		story
Total Floor Area		square feet
Basement Area		square feet
Building Perimeter	530	feet
Condition/Effective Age		
Base Square Foot Cost - Three Floors		per square foot
HVAC Adjustment		
Sprinkler Adjustment		
Miscellaneous Adjustment		
Total Adjustments		per square foot
Number of Stories Multiplier		
Height/Story Multiplier		
Floor Area/Perimeter Multiplier		
Combined Refinements		
Refined Square Foot Cost - Three Floors		per square foot
Current Multiplier		
Local Multiplier		
Final Square Foot Cost		per square foot
Building Area		square feet
Building Area x Final Square Foot Cost		
Base Square Foot Cost - Basement		per square foot
Current Multiplier		
Local Multiplier		
Final Square Foot Cost		per square foot
Building Area		square feet
Building Area x Final Square Foot Cost		
Total Building Cost		
Lump Sum Additions - Paving, Landscaping, Lighting,Signs		
Reproduction Cost New		
Depreciation		
Physical - Effective age		
Economic life		
Functional		
External - Market Conditions		
Depreciated Reproduction **Cost**		
Site Value		
Total Value By Cost Approach		

CLASS OF CONSTRUCTION

The Class of Construction is the basic subdivision in the *Marshall Valuation Service*, dividing all buildings into five basic cost groups by type of framing (supporting columns and beams), walls, floors and roof structures, and fireproofing.

Class A buildings have fireproofed structural steel frames with reinforced concrete or masonry floors and roofs.

Class B buildings have reinforced concrete frames and concrete or masonry floors and roofs.

Class C buildings have masonry or concrete exterior walls, and wood or steel roof and floor structures, except for concrete slab on grade.

Class D buildings generally have wood frame, floor, and roof structure. They may have a concrete floor on grade and other substitute materials, but are considered combustible construction. This class includes the pre-engineered pole- or post-frame, hoop and arch-rib-frame buildings.

Class S buildings have frames, roofs, and walls of incombustible metal. This class includes the pre-engineered metal buildings, including slant-wall and quonset structures.

In each class, there will be variations, combinations, and subclasses, but for purposes of pricing, the major elements of the building should be considered in selecting costs from the tables. Thus, if a building, which is otherwise in Class B, has a wood or steel truss roof, the costs for the Class B building may still be representative, or a Class C building may have concrete plank floors. Interpolations may be made if the appraiser feels the building overlaps two classes sufficiently or the Segregated Cost Sections may be used to modify the cost.

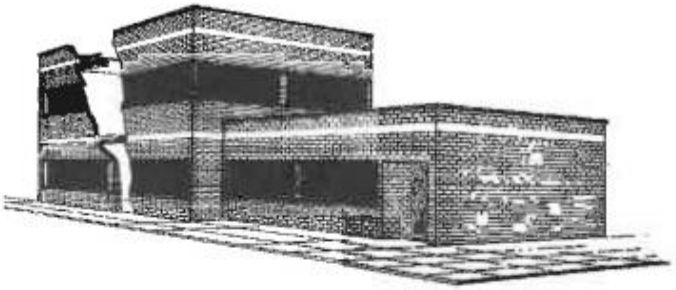
In most localities, some buildings are built which are hybrids in construction, such as those with complete Class A framing, including columns and girders, but with wood floor joists and sheathing. In all such hybrids, the appraiser must judge whether to adjust the costs or interpolate between classes and qualities.

Further details and sketches of the various construction types will be found on pages 5 through 9 of this section, as well as in Section 51, which has definitions and sketches of framing types. Building code and ISO Construction Classifications are referenced on pages 5 through 9. Those indicated are the classification before considering any adjustments for construction deficiencies or insurance rating purposes. For example, a building of Class 6 construction that is rated as Class 1 because of extensive insulation, not listed by UL, would still be valued as a Class 6 building.

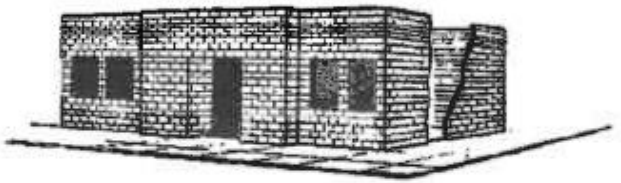
CLASS OF CONSTRUCTION INDICATORS

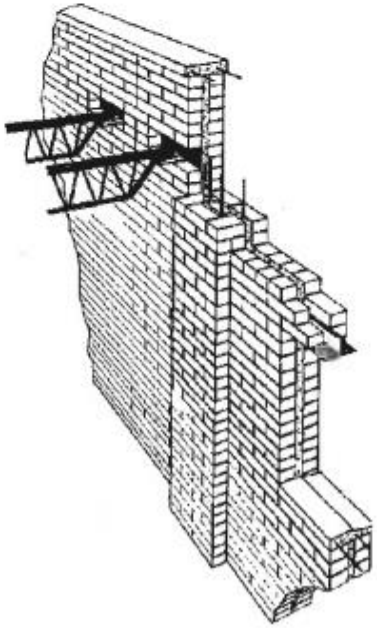
CLASS	FRAME	FLOOR	ROOF	WALLS
A	Structural steel columns and beams, fireproofed with masonry, concrete, plaster, or other noncombustible material.	Concrete or concrete on steel deck, fireproofed.	Formed concrete, precast slabs, concrete or gypsum on steel deck, fireproofed.	Nonbearing curtain walls, masonry, concrete, metal and glass panels, stone, steel studs and masonry, tile or stucco, etc.
B	Reinforced concrete columns and beams. Fire-resistant construction.	Concrete or concrete on steel deck, fireproofed.	Formed concrete, precast slabs, concrete or gypsum on steel deck, fireproofed.	Nonbearing curtain walls, masonry, concrete, metal and glass panels, stone, steel studs and masonry, tile or stucco, etc.
C	Masonry or concrete load-bearing walls with or without pilasters. Masonry, concrete or curtain walls with full or partial open steel, wood, or concrete frame	Wood or concrete plank on wood or steel floor joists, or concrete slab on grade.	Wood or steel joists with wood or steel deck. Concrete plank.	Brick, concrete block, or tile masonry, tilt-up, formed concrete, nonbearing curtain walls.
D	Wood or steel studs in bearing wall, full or partial open wood or steel frame, primarily combustible construction.	Wood or steel floor joists or concrete slab on grade.	Wood or steel joists with wood or steel deck.	Almost any material except bearing or curtain walls of solid masonry or concrete. Generally combustible construction.
S	Metal bents, columns, girders, purlins and girts without fireproofing, incombustible construction.	Wood or steel deck on steel floor joists, or concrete slab on grade.	Steel or wood deck on steel joists.	Metal skin or sandwich panels. Generally incombustible.

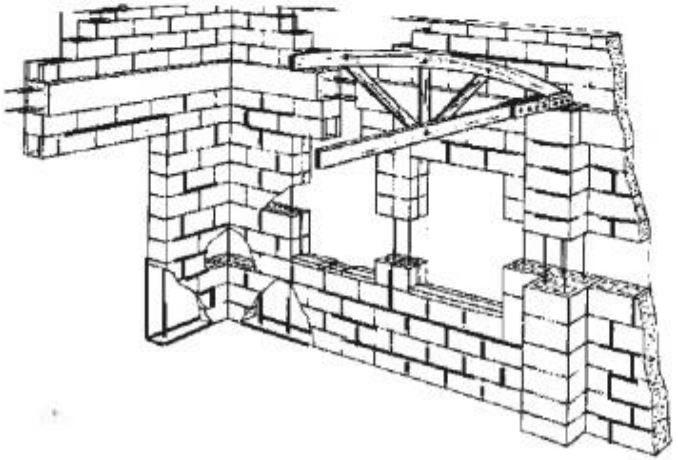
CLASS C BUILDINGS

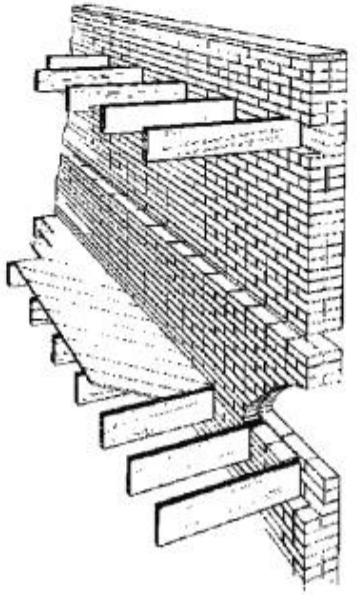


Class C buildings are characterized by masonry or reinforced concrete (including tilt-up) construction. The walls may be load-bearing, i.e., supporting roof and upper floor loads, or non-bearing with open concrete, steel, or wood columns, bents or arches supporting the load. Floors and roofs are supported on wood or steel bar or web joists or trusses, or the floor may be a concrete slab on the ground. Upper floors or roofs may be of concrete plank, steel deck, or wood. Bearing walls are frequently strengthened by concrete bond beams and pilasters. Included in this classification are Uniform and Basic Building Code Type III (noncombustible wall), Standard Code Type V and ISO Classes 2 and 4, and those Class 5 and 6 buildings which have load-bearing walls without interior framing and of low-rise (3 stories or less) design. This class is also referred to as Masonry or Unprotected Noncombustible, Joisted or Unprotected Masonry, or Ordinary or Unprotected One-hour and to include certain Two-hour or Mill construction (heavy timber).









CLASS D BUILDINGS

Class D buildings are characterized by combustible construction. The exterior walls may be made up of closely spaced wood or steel studs, as in the case of a typical frame house, with an exterior covering of wood siding, shingles, stucco, brick or stone veneer, or other materials.

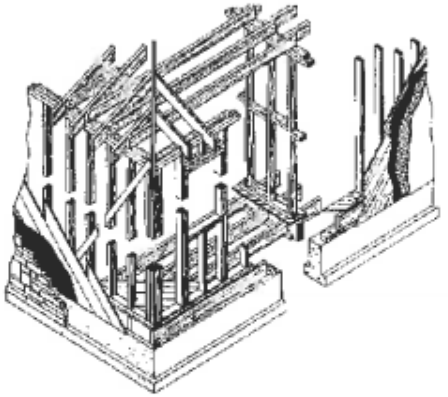
Floors and roofs are supported on wood or steel joists or trusses or the floor may be a concrete slab on the ground. Upper floors or roofs may consist of wood or metal deck, prefabricated panels or sheathing.

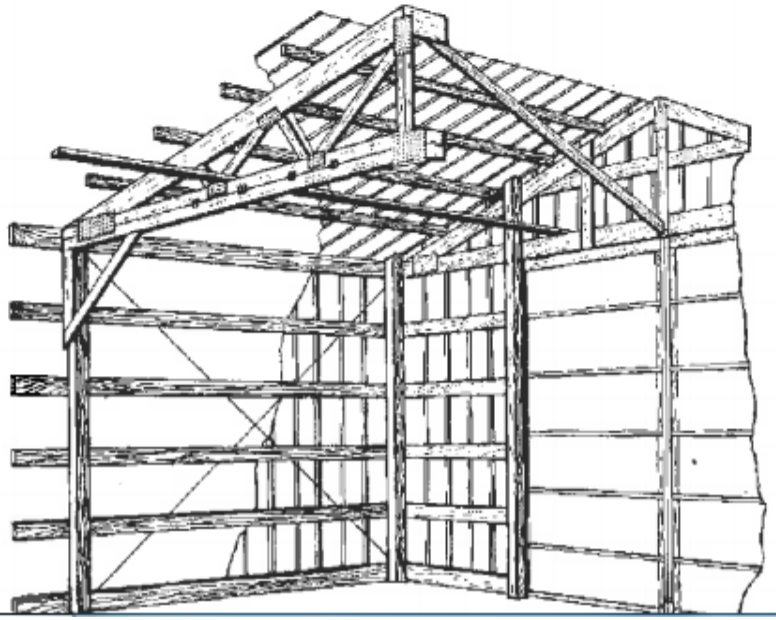
Class D pole (a subset of Class D) buildings are characterized by combustible prefabricated wood structural members. The exterior walls comprise an open-wood skeleton post frame and trusses, with exterior coverings of prefabricated metal panels or sheet siding. Wall girts span between posts, and there can be an in-fill of wood studs. Upper floors are supported on wood joists or trusses. The roof is supported by prefabricated trussed rafters with wood purlins or nailers. Ground floors are typically concrete slabs or dirt.

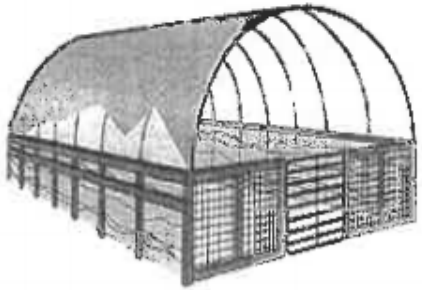
Class D hoop arch (another subset of Class D) buildings are characterized by combustible, prefabricated, wood-post and tubular-steel, semicircular (hoop - quonset shape), framed roofs that curve to a short wooden pony wall or to the ground. The roof and walls are generally covered with canvas or a woven vinyl tarp. Ground floors are typically dirt or can be a concrete slab.

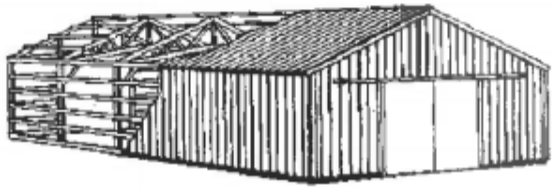
Construction Type V (wood-frame) of the Uniform, Type IV Basic and Type VI Standard Building Code are included in this classification as are ISO Class 1 buildings. This class is also referred to as Unprotected-protected One-hour Construction.

Class D is further used to include all buildings that do not fit into any other classification, however special buildings such as service stations, greenhouses, etc. will be found in the supplemental Unit-in-Place building cost sections of the manual.









STORES AND COMMERCIAL BUILDINGS

GENERAL INFORMATION

Calculator Costs are averages of final costs including architects' fees and contractors' overhead and profit, sales taxes, permit fees and insurance during construction. Interest on interim construction financing is also included, but not financing costs, real estate taxes or brokers' commissions (see Section 1 for complete list). These costs do not represent any building illustrated, except as the building is included in the averages. Refinements to the average costs for type of heating, sprinklers, basement elevator stops, area/perimeter ratio and story height are given at the end of the section, and adjustments for elevators and number of stories are on the cost pages. Exterior balconies are not included in the basic building costs and must be added separately. For buildings with solid rustic log or solid cut stone walls, it is advisable to use Section 43, as the costs of these buildings may be 5% to 15% (log) or 25% to 35% (stone) higher than the standard Class D or Class C costs contained in the Calculator Section. Current and Local Cost Multipliers are given in Section 99.

DESCRIPTIONS

The abbreviated descriptions given in the tables show some of the items generally found in buildings of the class, quality and occupancy listed. They are merely indicative of many buildings in this cost classification, and are not meant to be building specifications.

CONSTRUCTION

Buildings are divided into five construction classes: A, B, C, D and S, as described in Section 1. In each class there will be variations and subclasses, but for purposes of pricing, the major elements of the building should be considered in entering the tables. Thus, if a building which is otherwise a Class B has a steel truss roof, the costs for the Class B building will still be representative. Interpolations may be made if the appraiser feels the building overlaps two classes, or the segregated costs in Section 43 may be used for adjustments.

OCCUPANCY VARIATIONS

Care should be taken to use proper costs for varying types of occupancy. For example, compute separately a floor or section of a building constructed for a use differing from that of the building generally, i.e., compute the basement as a basement.

As an example, a building is a multistory office building with the first floor occupied by a retail store and the other floors by offices. In addition, there is a basement below grade. In this case three different divisions of the building should be computed separately: the office portion (Section 15), the retail store, and the basement. Each of these is subject to refinements based on its own individual characteristics except that all, including the basement, are subject to the same multiplier for the number of stories above grade in the building when applicable. A further explanation on multistory adjustments can be found in Section 10.

OCCUPANCY

Restaurants are constructed for the purpose of preparation and sale of food and/or beverages, and include cafeterias, bars and taverns where the design is of restaurant type. The costs include all necessary plumbing, built-in refrigerators and electrical connections to provide for these services but do not include the restaurant and bar fixtures or equipment or signs. **Bars** or **taverns** are designed primarily for the service and consumption of beverages, with the better qualities having limited food preparation areas and service. **Cocktail lounges** are typically larger facilities with entertainment floors and stages, with the better qualities containing full kitchens. **Cafeterias** will have large, open dining rooms for self-service of large groups, and include commercial as well as institutional facilities. **Truck stop** restaurants are of multipurpose design to include convenience store, food service, shower and toilet, game and rest facilities for truckers. **Fast food** or small limited-menu outlets will contain limited seating in relation to preparation area, including drive-up windows commensurate with the quality. Site costs outside the building line are not included. **Dining atriums** and **playrooms** are open-shell extensions for enclosed extra seating or game/play areas. **Banquet halls** are clubhouse type facilities that offer food services. **Modular restaurants** are the prefabricated stainless steel diners. **Snack bars** or **concession stands** have no seating area and include the very marginal seasonal camp-type facility to the best municipal structure with completely finished food preparation area. Separate shower and restroom buildings can be priced from Section 18.

Markets are retail food stores which often handle limited lines of other merchandise. The costs include built-in refrigerators, cold rooms and ancillary cooling equipment which are usually classed as real estate, but do not include display freezers and coolers or other equipment generally classed as personal property or trade fixtures. **Supermarkets** are the large chain type food stores. **Convenience markets** are small food stores, typically 2,000 to 8,000 square feet, with limited interior facilities. The better qualities will include the small specialty or gourmet food, meat and liquor shops. **Mini-mart** food stores are small convenience and service station fueling outlets, typically 1,000 to 2,000 square feet, that cater primarily to a transient trade for self-service snack foods and beverages. The better stores will have public restrooms and limited hot or deli food preparation and service areas. **Dairy sales** buildings are drive-up store buildings designed for sale and limited storage of dairy products. **Florist shops** are convenience stores for the sale of cut flowers, with the better stores containing finished display areas for other gift merchandise. **Roadside** or **farmers' markets** are typically rural structures for the sale of fresh produce, from the simple open stand to the enclosed, full retail market barn with refrigerated storage. **Winery shops** are for the display, tasting and sales directly from the vineyard.

Drugstores include both the small neighborhood pharmacy and the large chain discount-type store with a variety of merchandise departments including convenience foods. Costs include built-in refrigerators, but do not include display freezers and coolers or other trade fixtures.

Discount stores are typically large open shells with some partitioning for offices and storage areas. Often called department stores, the best quality approaches the low-quality department store in cost. This category will also include the large off-price center and furniture- and home-improvement-type shell outlets. **Warehouse discount stores** are of warehouse construction with minimal interior partitioning. Membership stores typically fall into this category. **Mega warehouse stores** are the very large discount and food outlets, typically over 200,000 square feet. **Warehouse showroom stores** are typical of the large walk-through furniture outlets with a semifinished showroom and large carry-out warehouse as one complete facility. **Warehouse food stores** are large markets of warehouse construction, offering limited perishable products, excluding any built-in coolers or refrigerated storage. The better qualities will merge into the market occupancy, with a number of finished major product departments, but excluding any storage/display walk-in boxes.

Retail stores are buildings designed for retail sales and display and usually have display and/or decorative fronts. Both one- and two-story stores are included in the averages. They will include stores occupied by so-called secondary or junior department stores with limited merchandise lines, specialty shops and commercial buildings designed for general occupancy. **Luxury boutiques** are small, highly decorative stores catering to a select clientele.

Department stores are buildings of two or more stories, typically found in large cities and regional shopping centers and handling multiple lines of merchandise, for which they are subdivided into departments. **Mall anchor stores** are the modern regional anchors that are a transition between the pure discount/big box store and the old full-line department store.

Basement costs include finish compatible with the type of basement, including stairs and ramps as necessary, and must be refined for size, shape and height. Add elevator stops from the refinement page.

Mezzanine costs include floor structure, soffit, stairs and flooring, as well as typical partitions and lighting for the type of mezzanine, but none of the exterior building walls, which are included in the building cost. Elevator stops can be added from the refinement page.

Barber shop or **beauty salon** costs include sinks, plumbing and electrical fixtures necessary for operation but do not include the mirrors, chairs and barber cabinets, which are usually tenant-owned. The good quality includes more plumbing associated with numerous work stations found in better beauty parlors or shops.

Laundromats are constructed to hold automatic self-service washing machines, dryers, and dry cleaning machines, and the costs include the plumbing and electrical fixtures necessary for operation but not the laundry or cleaning equipment, which is usually tenant-owned.

Laundry and **dry cleaning stores** are designed for full-service laundry cleaning including typical retail storefront and laundry work space commensurate with the quality level.

Shopping centers are buildings designed for a group of commercial enterprises developed as a unit. Complete centers are broken down into specific pricing categories, which are described in detail on Page 31.

TRADE FIXTURES AND EQUIPMENT

Some fixtures and equipment costs for buildings in this section are listed in Section 65.

CALCULATOR METHOD

RETAIL STORES (353)

CLASS	TYPE	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING, PLUMBING AND MECHANICAL	HEAT	COST Sq. M.	COST Cu. Ft.	COST Sq. Ft.
A	Excellent	Stone, face brick, best metal, fine display fronts	Best plaster and paneling, highly ornamental, terrazzo, carpet	Special lighting fixtures and effects, deluxe restrooms	Hot and chilled water (zoned)	1,884.02	14.59	175.03
	Good	Brick or concrete, good metal or stone display front	Plaster, acoustic plaster or tile, carpet, plain terrazzo, vinyl	Good lighting and outlets, good restrooms and fixtures	Warm and cool air (zoned)	1,413.96	10.95	131.36
	Average	Brick or concrete, average metal display fronts	Plaster or drywall, acoustic tile, rubber or vinyl composition tile	Adequate lighting and outlets, small restrooms	Warm and cool air (zoned)	1,112.14	8.61	103.32
	Low cost	Block and brick, concrete panels, plain front	Very plain, acoustic tile, asphalt tile	Minimum lighting, outlets and plumbing fixtures	Hot water	846.16	6.55	78.61
B	Excellent	Stone, face brick, best metal walls, fine display fronts	Best plaster and paneling, highly ornamental, terrazzo, carpet	Special lighting fixtures and effects, deluxe restrooms	Hot and chilled water (zoned)	1,837.63	14.23	170.72
	Good	Brick or concrete, good walls, fine display fronts	Plaster, acoustic plaster or tile, carpet, plain terrazzo, vinyl	Good lighting and outlets, good restrooms and fixtures	Warm and cool air (zoned)	1,371.44	10.62	127.41
	Average	Brick or concrete, average metal display fronts	Plaster or drywall, acoustic tile, rubber or vinyl composition tile	Adequate lighting and outlets, small restrooms	Warm and cool air (zoned)	1,074.14	8.32	99.79
	Low cost	Block and brick, concrete panels, plain front	Very plain, acoustic tile, asphalt tile	Minimum lighting, outlets, and plumbing fixtures	Hot water	812.79	6.29	75.51
C	Excellent	Face brick, metal, fine ornamentation and displays	Best plaster, ornamental ceilings, paneling, terrazzo, carpet	Special lighting effects, good restrooms and fixtures	Warm and cool air (zoned)	1,542.05	11.94	143.26
	Good	Brick, stucco on block, best tilt-up, good display front	Plaster, acoustic plaster or tile ceilings, carpet, vinyl tile	Good lighting and outlets, adequate restrooms	Package A.C.	1,138.40	8.81	105.76
	Average	Brick, block, tilt-up, plain front, some ornamentation	Drywall/plaster, exposed masonry, acoustic tile, vinyl composition	Adequate lighting and outlets, small employees' restroom	Package A.C.	864.78	6.70	80.34
	Low cost	Low-cost brick, block, tilt-up, low-cost front	Painted walls, drywall or acoustic tile, asphalt tile	Minimum lighting and employees' restroom	Forced air	622.91	4.82	57.87
D	Excellent	Good brick or stone veneer, good front and entrance	Plaster, acoustic plaster or good mineral tile, carpet and vinyl	High-level lighting and outlets, good restrooms	Warm and cool air (zoned)	1,468.75	11.37	136.45
	Good	Good stucco or siding, brick veneer, good display front, ornamentation	Plaster, acoustic plaster or good acoustic tile, vinyl composition	Good lighting and outlets, restrooms, standard fixtures	Package A.C.	1,078.01	8.35	100.15
	Average	Stucco or siding, plain front, little ornamentation	Plaster or drywall, acoustic tile, vinyl composition, little trim	Adequate store lighting, restrooms, low cost fixtures	Package A.C.	815.37	6.31	75.75
	Low cost	Low-cost stucco, siding, very plain exterior	Drywall, cheap acoustic tile, asphalt tile, few partitions	Minimum lighting and outlets, minimum plumbing	Forced air	582.87	4.51	54.15
DPOLE	Low cost	Pole frame, metal panels, lined and insulated, small front	Drywall, cheap acoustic tile, vinyl composition, few partitions	Minimum lighting and employees' restroom	Forced air	530.34	4.11	49.27
S	Good	Sandwich panels, metal & glass, ornamentation, good display front	Acoustic tile, vinyl composition and carpet, some trim	Good lighting and outlets, restrooms, standard fixtures	Package A.C.	1,046.15	8.10	97.19
	Average	Good colored panels, little ornamentation, plain front	Acoustic tile, vinyl composition, carpet, interior finish	Adequate store lighting, restrooms, low-cost fixtures	Package A.C.	777.05	6.02	72.19
	Low cost	Metal panels on light frame, finished interior, small front	Acoustic tile, gypsum board wall finish, vinyl composition	Minimum lighting and outlets, minimum plumbing	Forced air	544.01	4.21	50.54

NOTES: For retail basements, see Page 30. For parking structures, see Section 14. Pedestrian bridges, see Section 15 or 66.

MULTISTORY BUILDINGS

Add 0.5% (1/2%) for each story over three, above ground, to all base costs, including basements but excluding mezzanines, up to 30 stories. Add 0.4% (4/10%) for each additional story over 30.

CANOPIES

To determine the cost for large entrance marquees or carport canopies use one of the following: Page 40 in this section; compute from the Segregated Costs in Section 43; or from Unit-In-Place Costs in Section 66.

SPRINKLERS

Systems are not included. Costs should be added from Page 40.

ELEVATORS

Elevator costs are not included in the base costs for retail stores. Extreme care must be exercised when using square foot elevator costs. Small commercial buildings may have only one elevator and/or handicap lift regardless of size, where a normal range or area served is not feasible for low- to mid-rise applications. Costs should be added as a lump sum from Page 39.

BALCONIES

To determine the cost for exterior balconies use one of the following: Page 40 in this section; compute from the Segregated Costs in Section 43; or from Unit-In-Place Costs in Section 66.

OFFICES, MEDICAL AND PUBLIC BUILDINGS

GENERAL INFORMATION

Calculator Costs are averages of final costs including architects' fees and contractors' overhead and profit, sales taxes, permit fees, and insurance during construction. Interest on interim construction financing is also included, but not financing costs, real estate taxes, or brokers' commissions (see Section 1 for complete list). They do not represent any building illustrated, except as the building is included in the averages. Refinements to the average costs for type of heating, sprinklers, basement elevator stops, area/perimeter ratio, and story height are given at the end of the section, and adjustments for elevators and number of stories are on the cost pages. Current and Local Cost Multipliers are given in Section 99.

DESCRIPTIONS

The abbreviated descriptions given in the tables show some of the items most generally found in buildings of the class, quality and occupancy listed. They are merely indicative of many buildings in this cost classification, and are not meant to be building specifications.

CONSTRUCTION

Buildings are divided into five construction classes: A, B, C, D, and S, as described in Section 1. In each class there will be variations and subclasses, but for purposes of pricing, the major elements of the building should be considered in entering the tables. Thus, if a building which is otherwise a Class B has a steel truss roof, the costs for the Class B building will still be representative. Interpolations may be made if the appraiser feels the building overlaps two classes, or the segregated costs in Section 45 may be used for adjustments. Pole or post frame prefabricated metal skin structures are a subcategory of Class D. All metal buildings (skin and frame) with mixed secondary wood purlins and girts can be interpolated between Classes S and D pole frame structure costs or adjusted from Section 64.

OCCUPANCY

Office buildings are buildings designed for general commercial occupancy, including administrative government and corporate uses, and are normally subdivided into relatively small units. If part of an office building has some other occupancy, such as a bank or store on the first floor, that portion should be priced using its appropriate base cost. For light shed office structures, see Section 17. For office apartments, see Section 12.

Atrium and vestibule entries or lobbies are glassed structures which usually abut or are underneath elevated buildings. For prefabricated greenhouse structures, see Section 17 or 18.

Mechanical penthouses shelter the building's elevator and other mechanical equipment. For finished penthouses, i.e., those containing roof apartments, restaurants, etc., use the proper occupancy cost.

Parking-level floors are intermediate and ground-level parking facilities found underneath elevated buildings and include all framing, ramps and stairs necessary.

Basements include finish compatible with the type of basement, including stairs and ramps as necessary and must be refined for size, shape and height. Add elevator stops from the refinement table at the end of the section.

Mezzanines do not include exterior wall or heating which are included in the building cost refinement for wall height. Elevator stops can be added from the refinement page.

Banks, branch and central offices, include savings and loan and credit union occupancies where the design is of a bank type. Where such uses are made of ordinary store or office buildings, the store or office costs should be used, adding for any extra features. While a branch bank tends to be a single-purpose, low-rise neighborhood facility, the central or main bank facility may be more office building in character, where high-rise administrative office floors should be priced as such. **Minibanks** are small walk- or drive-up facilities, typically between 500 and 2,000 square feet in size. Costs include vaults, but do not include banking fixtures or equipment, vault doors, or safe deposit boxes. Drive-up windows, night depositories, and surveillance systems commensurate with the quality, are included.

Medical office buildings are designed for medical and/or dental services with examination and outpatient treatment, and includes private and public clinics. **Dental clinics** are small, standalone facilities and will generally have a greater amount of plumbing and partitions.

Urgent Care Clinics or infirmaries are designed for emergency, urgent care, first aid and medical treatment, usually having no facilities for surgery or a minimum of such facilities.

General hospital costs include fixed equipment (Group I) but not Groups II and III equipment, whether installed or classed as personal property. See definitions of equipment groups on cost pages of this section.

Outpatient centers are freestanding, specialty treatment centers for ambulatory outpatient or same-day surgery facilities and include all clinical surgery, diagnostic, lab, administrative and public areas commensurate with the quality level. Operating rooms on average represent 2.5% of the total floor area. Cost includes fixed equipment only. This category will also include specialized imaging and radiation treatment, and diagnostic centers for cancer, diabetes, and eye and kidney diseases, etc. Extremely small vault-type imaging equipment buildings only, are not included, where reported costs have been 50% to 100% greater.

Nursing Homes (Convalescent hospitals) lack facilities for surgical care and treatment, and include so-called skilled nursing homes, rest homes, sanitariums and like buildings of hospital-type construction, giving full nursing care. Treatment and therapy rooms commensurate with the quality, are included. Retirement living facilities are found in Section 11 or 12. Group care homes are found in Section 11.

Veterinary hospitals are designed for the medical and surgical care and treatment of small animals. Costs do not include cages and runs or open shelters, which should be priced separately.

Kennels have limited examination and treatment facilities and are predominantly for the boarding of small animals. The better qualities include the large public animal control facilities and the high-cost "pet hotels." Costs include the cages and enclosed runs.

Governmental buildings include major city halls or town centers, courthouses, etc., but do not include typical office or service buildings, which should be priced under the proper category in this or other sections of the manual. **Community service buildings** are mixed-use structures, typically found in rural communities, and are generally smaller and utilitarian in scope. The lower qualities are generally composed of public safety facilities, volunteer fire, limited office and council meeting rooms and/or small libraries, etc. The better qualities will have a large proportion of well-finished, full-service facilities and will merge into the government occupancy.

Fire stations, staffed, are emergency service buildings designed with engine storage, dormitory, and light kitchen facilities. **Volunteer stations** are primarily for vehicular/apparatus storage only, with minimum office and meeting room facilities commensurate with the quality. The good quality may also include restroom and kitchenette facilities. If part of a station has some other occupancy, such as a library or social hall, that portion should be priced using its appropriate base cost, with each portion modified by its area/perimeter multiplier, considering the common wall as belonging to half of each of the portions, or see community service buildings above.

Jails, correctional facilities or detention centers include the jail hardware; i.e., cell blocks and locking equipment, for which average costs are given. The full range of facilities, for minimum to maximum security, is included, commensurate with the quality of the entire prison plant. **Police stations** are basically law enforcement facilities with limited numbers of jail holding cells. Sallyport facilities commensurate with the quality are included. Costs do not include any service equipment for kitchen, laundry or recreation.

Public libraries or media/resource centers include the basic construction of the building, including most items found in the general contract, but not furnishings and fixtures such as counters, kitchenette, seating or book stacks which are not considered built-in and permanently attached under the general building contract. For school and university libraries, see Section 18.

TRADE FIXTURES AND EQUIPMENT

Some fixtures and equipment costs for buildings in this section are listed in Section 65.

OFFICE BUILDINGS (344)

CLASS	TYPE	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING, PLUMBING AND MECHANICAL	HEAT	COST Sq. M.	COST Cu. Ft.	COST Sq. Ft.
A	Excellent	Best metal or stone, brick or block backup, solar glass	Plaster, best veneers, vinyl wall coverings, vinyl, terrazzo, carpet	*Luminous ceilings, many outlets, many private restrooms	Hot and chilled water (zoned)	$2,842.13	$22.00	$264.04
	Good	Good metal and solar glass, face brick, precast concrete panels	Drywall or plaster, some wall cover, acoustic tile, vinyl tile, carpet	*Good fluorescent, high intensity lighting, good restrooms	Hot and chilled water (zoned)	2,250.86	17.43	209.11
	Average	Brick, concrete or metal and glass panels, little trim	Average partitions, acoustic tile, vinyl composition, some extras	*Average intensity fluorescent lighting, average restrooms	Warm and cool air (zoned)	1,696.19	13.13	157.58
	Low cost	Minimum-cost walls and fenestration, little trim	Drywall, acoustic ceilings, asphalt tile, few partitions	*Minimum office lighting and plumbing	Warm and cool air (zoned)	1,351.53	10.46	125.56
B	Excellent	Best metal or stone, brick or block backup, tinted glass	Plaster, best veneers, vinyl wall coverings, vinyl tile, terrazzo	*Luminous ceilings, many outlets, many private restrooms	Hot and chilled water (zoned)	2,762.15	21.38	256.61
	Good	Good metal and solar glass, face brick, precast concrete panels	Drywall/plaster, some wall cover, acoustic tile, vinyl tile, carpet	*Good fluorescent, high intensity lighting, good restrooms	Hot and chilled water (zoned)	2,173.79	16.83	201.95
	Average	Brick, concrete or metal and glass panels, little trim	Average partitions, acoustic tile, vinyl composition, some extras	*Average intensity fluorescent lighting, average restrooms	Warm and cool air (zoned)	1,624.93	12.58	150.96
	Low cost	Minimum-cost walls and fenestration, little trim	Drywall, acoustic ceilings, asphalt tile, few partitions	*Minimum office lighting and plumbing	Warm and cool air (zoned)	1,287.37	9.97	119.60
C	Excellent	Steel frame, masonry and glass, stone ornamentation, top quality	Plaster, paneling, carpet and terrazzo, suspended ceilings	*Best fluorescent ceiling panels, tiled restrooms, good fixtures	Warm and cool air (zoned)	2,372.06	18.36	220.37
	Good	Steel frame or bearing walls, brick/ conc. panels, some ornamentation	Plaster or drywall, good partitions, acoustic tile, carpet and vinyl	*Good fluorescent lighting, good restrooms and fixtures	Package A.C.	1,657.98	12.84	154.03
	Average	Steel or concrete frame, or bearing walls, some trim	Paint, drywall partitions, acoustic tile, vinyl composition	*Fluorescent lighting, adequate outlets and plumbing	Forced air	1,176.07	9.11	109.26
	Low cost	Masonry bearing walls, light rafters, very plain	Paint, few low-cost partitions, acoustic tile, asphalt tile	Minimum office lighting and plumbing	Wall furnace	793.20	6.14	73.69
D	Excellent	Studs or steel columns, bar or web joists, brick or stone veneer, EIFS	Best plaster, paneling, carpet and vinyl tile	*Fluorescent panels, many outlets, good tiled restrooms	Warm and cool air (zoned)	2,254.74	17.46	209.47
	Good	Best stucco on good frame, brick or stone trim, good front	Plaster or drywall, good partitions, acoustic tile, carpet and vinyl	*Good fluorescent lighting, good restrooms and fixtures	Package A.C.	1,571.33	12.17	145.98
	Average	Stucco or wood siding on wood or steel studs, some trim	Drywall, acoustic tile, low-cost carpet or vinyl composition	*Adequate lighting and plumbing	Forced air	1,112.03	8.61	103.31
	Low cost	Light stucco or siding on wood or steel studs, very plain	Drywall, few partitions, acoustic tile, asphalt tile	Minimum lighting and plumbing	Wall furnace	745.84	5.77	69.29
DPOLE	Good	Good metal panels, fenestration, some brick or stone trim	Plaster or drywall, good partitions, acoustic tile, carpet and vinyl	*Good fluorescent lighting, good restrooms and fixtures	Package A.C.	1,442.81	11.17	134.04
	Average	Pole frame, insulated metal panels, some ornamentation	Drywall, acoustic tile, low-cost carpet or vinyl composition	Adequate lighting and plumbing	Forced air	986.84	7.64	91.68
	Low cost	Pole frame, finished interior, some insulation	Drywall, few partitions, acoustic tile, asphalt tile	Minimum lighting and plumbing	Wall furnace	666.51	5.16	61.92
S	Good	Good sandwich panels and fenestration, some brick or stone	Plaster or drywall, good partitions, acoustic tile, carpet and vinyl	*Good fluorescent lighting, good restrooms and fixtures	Package A.C.	1,474.24	11.41	136.96
	Average	Insulated wall or sandwich panels, adequate fenestration	Drywall, acoustic tile, low-cost carpet or vinyl composition	Adequate lighting and plumbing	Forced air	1,012.03	7.84	94.02
	Low cost	Steel or aluminum on light frame, finished interior, some insulation	Drywall, few partitions, acoustic tile, asphalt tile	Minimum lighting and plumbing	Wall furnace	685.88	5.31	63.72

MULTISTORY BUILDINGS – Add .5% (1/2%) for each story, over three, above ground, to all base costs, including basements but excluding mezzanines, up to 30 stories; over 30 add .4% (4/10%) for each additional story.

SPRINKLERS – Systems are not included. Costs should be added from Page 37.

BALCONIES – Exterior balconies see Page 37, or they may be computed from the Segregated Costs.

CANOPIES – For large entrance marquees or carport canopies, see Page 37.

***ELEVATORS** – Base costs of buildings marked with an asterisk (*) include elevator costs. If the subject building has no elevators, deduct the following from the base costs for buildings on this page. See Notes on Page 19.

		Sq. M.	Sq. Ft.
Classes A & B	Excellent	$127.02	$11.80
	Good	86.87	8.07
	Average	59.42	5.52
	Low cost	40.69	3.78
Classes C/D/S	Excellent	$64.26	$5.97
	Good	38.75	3.60
	Average	$23.25	$2.16

BASEMENTS – OFFICE BUILDINGS

CLASS	TYPE	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING, PLUMBING AND MECHANICAL	HEAT	COST Sq. M.	COST Cu. Ft.	COST Sq. Ft.
A-B	Office	Plaster interior	Average office finish, acoustic tile, vinyl composition	Adequate office lighting and plumbing	Warm and cool air (zoned)	$1,268.54	$9.82	$117.85
	Parking	Unfinished interior	Concrete with hardener, lines and stops, small service area	Exposed lighting, drains	Ventilation	643.79	4.98	59.81
	Unfinished storage	Painted interior	Unfinished storage and utility, few partitions	Minimum lighting, drains	Space heaters	590.94	4.58	54.90
CDS†	Office	Plaster or drywall interior	Average office finish, acoustic tile, vinyl composition	Typical office lighting and plumbing	Forced air	826.89	6.40	76.82
	Parking	Unfinished interior	Finished ceiling, concrete floor with hardener	Exposed lighting, adequate drains	Ventilation	432.61	3.35	40.19
	Unfinished storage	Painted interior	Unfinished storage and utility, few partitions	Minimum lighting, drains	None	360.16	2.79	33.46

†For fire-resistant Type I basements, with concrete slab separation under Class C, D or S units, add $5.88 per square foot ($63.29 per square meter). Where utilized as courtyard deck on topside, add $12.75 per square foot ($137.24 per square meter).

MEZZANINES

A-B	Office	Not included	Enclosed, average office finish, plaster soffit	Average office lighting and plumbing	In building cost	$867.15	-----	$80.56
	Open	Not included	Carpet and vinyl composition, plaster soffit	Average lighting and plumbing	In building cost	491.70	-----	45.68
	Good storage/ mechanical	Not included	Metal grating on steel structure	Adequate lighting, no plumbing	In building cost	591.16	-----	54.92
	Average storage	Not included	Painted soffit, light storage, unfinished floor	Minimum, exposed lighting	In building cost	330.13	-----	30.67
	Low storage/ mechanical	Not included	Interstitial space, walk-on platform ceiling assembly, unfinished interior	Minimum lighting, drains	In building cost	143.48	-----	13.33
CDS	Office	Not included	Enclosed, average office finish, acoustic tile soffit	Average office lighting and plumbing	In building cost	644.44	-----	59.87
	Open	Not included	Open, finished floors and soffit	Average lighting, no plumbing	In building cost	355.86	-----	33.06
	Average storage	Not included	Drywall soffit, wood floor, light storage	Minimum lighting, no plumbing	In building cost	239.28	-----	22.23

MECHANICAL PENTHOUSES (585)

A-B	Excellent (Full floor)	Louvers, best curtain wall panels, matching spandrel	Intermediate full mechanical floor, utility space, some storage	Adequate lighting, utility outlets and drains	None	$964.02	$7.46	$89.56
	Good	Good curtain panels, masonry, louvers, concrete roof	Mechanical and storage, some finish and partitions	Adequate lighting, utility outlets and drains	None	869.41	6.73	80.77
	Average	Curtain panels or masonry, steel roof deck	Unfinished equipment and storage, few partitions	Exposed lighting, adequate drains	None	615.49	4.77	57.18
	Low cost	Low-cost panels, masonry, very plain	Unfinished interior, roof access only	Minimum lighting, floor drains	None	435.83	3.37	40.49
CDS	Average	Frame or bearing walls, good panels, louvers or masonry, trim	Unfinished equipment and storage, few partitions	Exposed lighting, adequate drains	None	479.86	3.72	44.58
	Low cost	Light frame or stud single wall, low-cost metal, stucco or siding	Unfinished interior	Minimum lighting, floor drains	None	335.41	2.60	31.16

MULTISTORY BUILDINGS – Add .5% (1/2%) for each story, over three, above ground, to all base costs, excluding mezzanines, up to 30 stories; over 30 add .4% (4/10%) for each additional story.

MEZZANINES – Do not use story height or area/perimeter multipliers with mezzanine costs.

SPRINKLERS – Systems are not included. Costs should be added from Page 37.

ELEVATORS – Basement, mezzanine and equipment penthouse stops are not included. Costs should be added from Page 36.

NOTES: Care must be exercised when using square foot elevator costs. Small commercial buildings may have only one elevator and/or handicap lift regardless of size, where a normal range or area served is not feasible for low- to mid-rise applications. Costs should be added

TYPICAL BUILDING LIVES

OCCUPANCY CLASS	A	B	C	D	S
SECTIONS 12 & 42, RESIDENCES, MULTIPLES (GARDEN APTS.) AND MOTELS (Continued)					
Single-family, historical residences, excellent	—	—	70	65	—
good and very good	—	—	65	60	—
low cost, fair and average	—	—	60	55	—
Town and row houses, excellent	—	—	60	55	—
good	—	—	55	50	50
average	—	—	55	50	50
low cost and fair	—	—	50	45	—
Tropical houses, good	—	—	55	—	—
average	—	—	50	—	—
low cost	—	—	45	—	—
Yurts, good	—	—	—	30	—
average	—	—	—	20	—
low cost	—	—	—	15	—
SECTIONS 13 & 43, STORES AND COMMERCIAL BUILDINGS					
Banquet halls, excellent	—	—	50	45	—
good	—	—	45	40	40
average	—	—	40	35	35
low cost	—	—	35	30	30
Barber and beauty shops, good	45	45	40	35	35
low cost and average	40	40	35	30	30
Bars and taverns, good	—	—	45	40	—
average	45	45	40	40	40
low cost	—	—	40	35	35
Cafeterias, excellent	—	—	45	40	—
good	45	45	35	35	35
low cost and average	40	40	35	30	30
Cocktail lounges, good and excellent	45	45	40	40	40
average	40	40	40	35	35
low cost	—	—	35	35	35
Convenience stores, excellent	—	—	45	40	40
average and good	45	45	40	35	35
low cost	—	—	35	30	30
Mini-marts, good and excellent	—	—	40	35	30
low cost and average	—	—	35	30	25
Dairy sales buildings, average	—	—	35	30	30
Department stores, good and excellent	55	55	50	—	—
low cost and average	50	50	45	—	—
mall anchor stores, average and good	50	50	45	40	—
low cost	45	45	40	35	35
Dining atriums and playrooms, good to excellent	—	—	35	35	35
low cost and average	—	—	30	30	30
cheap	—	—	—	—	10
Discount stores, good	—	—	40	35	35
low cost and average	40	40	35	30	30
Drug stores, excellent	—	—	45	40	—
average and good	45	45	40	35	—
low cost	—	—	35	30	30
Fast-food restaurants, very good and excellent	40	40	35	35	35
low cost, average and good	35	35	30	30	30
Florist shops, excellent	—	—	45	40	40
average and good	50	50	40	35	35
low cost	—	—	35	30	30
Kiosks, miscellaneous stands					

OCCUPANCY CLASS	A	B	C	D	S
SECTIONS 13 & 43, STORES AND COMMERCIAL BUILDINGS (Continued)					
Laundry/dry cleaning, good	—	—	45	40	40
average	—	—	40	35	35
Laundromats, average	—	—	35	30	30
Luxury boutiques, good	60	60	55	50	—
low cost and average	55	55	50	45	—
Markets and supermarkets, excellent	—	—	45	40	40
average and good	40	40	40	35	35
low cost	—	—	35	30	30
Modular, resturants excellent	—	—	—	—	35
low cost, average and good	—	—	—	—	30
Restaurants, very good and excellent	45	45	40	40	40
average and good	40	40	35	35	35
low cost	—	—	30	30	30
Retail stores, good and excellent	55	55	50	45	45
average	50	50	45	40	40
low cost	45	45	40	40	40
Roadside markets, excellent	—	—	40	35	35
good	—	—	35	30	30
average	—	—	30	25	25
low cost	—	—	—	20	20
cheap	—	—	—	15	—
Shopping centers, neighborhood, good	—	—	45	40	—
average	—	—	40	35	35
low cost	—	—	35	30	30
community, good and excellent	—	—	50	45	45
average	—	—	45	40	40
regional, good and excellent	55	55	55	50	—
average	—	—	50	45	45
regional discount, good	50	50	50	45	—
average	45	45	45	40	40
mixed retail centers with office/residential units, good	—	—	50	45	—
low cost and average	—	—	45	40	—
Snack bars, excellent	—	—	35	35	—
good	—	—	35	30	—
average	—	—	30	25	25
low cost	—	—	25	20	20
cheap	—	—	20	15	15
Truck stop restaurants, good	—	—	35	35	35
average	—	—	30	30	30
Warehouse discount stores, good	—	—	35	30	30
low cost and average	—	—	30	30	30
mega discount, average and good	—	—	35	—	30
low cost	—	—	30	—	30
food, good	—	—	40	35	35
average	—	—	35	30	30
low cost	—	—	30	30	30
showroom, good	—	—	40	35	35
low cost and average	—	—	35	30	30
Winery shops, excellent	—	—	50	45	—
good	—	—	45	40	—
average	—	—	40	35	35

LIFE EXPECTANCY GUIDELINES

TYPICAL BUILDING LIVES

OCCUPANCY CLASS	A	B	C	D	S
SECTIONS 15 & 45, BANKS, OFFICES AND PUBLIC BUILDINGS					
Atriums, good and excellent	60	60	55	50	50
average	55	55	50	45	45
Banks, branch and central, good and excellent	60	60	55	50	50
average	55	55	50	45	45
low cost	50	50	45	40	40
mini, drive-up, good and excellent	55	55	50	45	45
low cost and average	50	50	45	40	40
Convalescent hospitals, good and excellent	50	50	45	40	-----
low cost and average	45	45	40	35	35
Dispensaries and urgent care, good	50	50	40	35	35
average	45	45	35	30	30
Fire stations, staffed, good, very good and excellent	50	50	45	40	40
low cost and average	45	45	40	35	35
volunteer, good	-----	-----	40	35	35
low cost and average	40	40	35	30	30
General hospitals, good and excellent	50	50	45	40	-----
low cost and average	45	45	40	35	35
Governmental buildings, good and excellent	60	60	55	50	-----
low cost and average	55	55	50	40	40
Community service buildings, excellent	-----	-----	55	50	-----
average and good	55	55	50	40	40
low cost	50	50	45	35	35
Jails, correctional facilities, good and excellent	55	55	45	40	-----
low cost and average	50	50	40	35	35
Police stations, good and excellent	55	55	50	45	-----
average	50	50	45	40	-----
low cost	45	45	40	-----	-----
Kennels, very good and excellent	-----	-----	45	40	-----
average and good	-----	-----	40	35	35
low cost	-----	-----	35	30	30
cheap	-----	-----	25	20	20
Medical offices, good and excellent	50	50	45	40	40
low cost and average	45	45	40	35	35
Dental clinics, good and excellent	-----	-----	45	40	40
low cost and average	-----	-----	40	35	35
Offices, good and excellent	60	60	55	50	50
average	55	55	50	45	45
low cost	50	50	45	40	40
Outpatient (surgical) centers, good and excellent	50	50	45	40	-----
low cost and average	45	45	40	35	35
Parking levels, excellent	60	60	-----	-----	-----
good	55	55	50	50	50
average	50	50	45	45	45
low cost	30	30	25	25	25
cheap	25	25	20	20	20
Public libraries, good, very good and excellent	60	60	55	50	50
average	55	55	50	45	45
low cost	-----	-----	45	40	40
Veterinary hospitals, excellent	-----	-----	45	40	-----
average and good	45	45	40	35	35
low cost	-----	-----	35	30	30
Misc. buildings: firing ranges, good and excellent	-----	-----	45	40	40
low cost and average	-----	-----	40	35	35

OCCUPANCY CLASS	A	B	C	D	S
SECTIONS 16 & 46, CHURCHES, THEATERS AND AUDITORIUMS					
Arcade buildings, good and excellent	-----	-----	45	40	-----
average	-----	-----	40	35	35
low cost	-----	-----	35	30	30
Auditoriums, excellent	55	55	50	45	-----
average and good	50	50	45	40	40
low cost	-----	-----	40	35	35
Bowling centers, good and excellent	-----	-----	40	35	35
low cost and average	-----	-----	35	30	30
Casinos, very good	-----	-----	50	-----	-----
good	-----	-----	45	40	-----
average	-----	-----	40	35	35
low cost	-----	-----	35	30	30
Churches, sanctuaries, narthexes, classrooms, excellent	60	60	60	50	-----
good	60	60	50	45	45
average	50	50	45	40	40
cheap and low cost	-----	-----	40	35	35
Community recreation centers, good and excellent	50	50	45	40	40
low cost and average	45	45	40	35	35
Convention centers, good and excellent	55	55	50	45	-----
average	50	50	45	40	40
low cost	45	45	40	35	35
Fellowship halls, good and excellent	50	50	45	40	40
low cost and average	45	45	40	35	35
cheap	-----	-----	-----	30	30
Fitness centers, good and excellent	50	50	45	40	40
average	45	45	40	35	35
Fraternal buildings, excellent	55	55	50	45	-----
good	50	50	45	40	-----
average	45	45	40	35	35
low cost	-----	-----	35	30	30
Handball/racquetball clubs, good	-----	-----	45	40	40
average	-----	-----	40	35	35
Indoor tennis clubs, good	-----	-----	45	40	40
average	-----	-----	40	35	35
low cost	-----	-----	35	30	30
Museums, good and excellent	60	60	55	50	-----
average	55	55	50	45	-----
low cost	-----	-----	40	35	35
Pavillions, excellent	-----	-----	50	45	-----
very good	-----	-----	45	40	-----
good	-----	-----	40	35	-----
fair and averge	-----	-----	35	30	30
low cost	-----	-----	30	25	25
cheap	-----	-----	25	20	20
Skating rinks, good and excellent	50	50	45	40	40
average	45	45	40	35	35
low cost	-----	-----	35	30	30
Theaters, live-stage presentation, good and excellent	50	50	45	40	-----
fair and average	45	45	45	40	40
low cost	-----	-----	40	35	35
Motion picture/cinema, very good and excellent	50	50	45	40	-----
average and good	45	45	40	35	35
low cost and fair	-----	-----	35	30	30
Visitor centers, good and excellent	55	55	50	45	-----
average	50	50	45	40	40
low cost	-----	-----	40	35	35

CURRENT COST MULTIPLIERS

These multipliers bring costs from preceding pages up to date. Also apply Local Multipliers, Section 99, Pages 5 through 10.

CALCULATOR COST SECTIONS

(Effective Date of Cost Pages)		11 (11/14)	12 (8/16)	13 (5/16)	14 (2/16)	15 (11/15)	16 (8/15)	17 (5/15)	18 (2/15)
EASTERN	A	1.05	1.03	1.03	1.01	1.02	1.02	1.03	1.04
	B	1.06	1.05	1.02	1.04	1.02	1.03	1.04	1.06
	C	1.05	1.02	1.04	1.03	1.04	1.04	1.05	1.02
	D	1.04	1.03	1.03	1.01	1.01	1.02	1.02	1.02
	S	1.07	1.05	1.04	1.03	1.04	1.02	1.02	1.05
CENTRAL	A	.99	.97	.97	.97	.97	.98	.97	.97
	B	1.00	.98	.97	.98	.99	.98	.98	.98
	C	1.00	.98	.99	.97	.98	.97	.98	.98
	D	.99	.99	.98	.98	1.00	.99	.97	.98
	S	.97	.98	.96	.98	.97	.96	.98	.97
WESTERN	A	.99	1.00	1.01	1.01	1.00	.99	.99	.97
	B	.99	.98	1.02	1.00	1.01	1.02	1.01	.99
	C	1.00	1.01	.99	1.01	1.00	1.01	1.00	1.01
	D	1.02	1.00	1.00	1.01	.99	.98	1.02	1.00
	S	.99	.98	1.01	1.00	.99	1.02	1.00	.97

SEGREGATED COST SECTIONS

(Effective Date of Cost Pages)		41 (12/14)	42 (9/16)	43 (6/16)	44 (3/16)	45 (12/15)	46 (9/15)	47 (6/15)	48 (3/15)
EASTERN	A	1.05	1.03	1.03	1.01	1.02	1.02	1.03	1.04
	B	1.06	1.05	1.02	1.04	1.02	1.03	1.04	1.06
	C	1.05	1.02	1.04	1.03	1.04	1.04	1.05	1.02
	D	1.04	1.03	1.03	1.01	1.01	1.02	1.02	1.02
	S	1.07	1.05	1.04	1.03	1.04	1.02	1.02	1.05
CENTRAL	A	.99	.97	.97	.97	.97	.98	.97	.97
	B	1.00	.98	.97	.98	.99	.98	.98	.98
	C	1.00	.98	.99	.97	.98	.97	.98	.98
	D	.99	.99	.98	.98	1.00	.99	.97	.98
	S	.97	.98	.96	.98	.97	.96	.98	.97
WESTERN	A	.99	1.00	1.01	1.01	1.00	.99	.99	.97
	B	.99	.98	1.02	1.00	1.01	1.02	1.01	.99
	C	1.00	1.01	.99	1.01	1.00	1.01	1.00	1.01
	D	1.02	1.00	1.00	1.01	.99	.98	1.02	1.00
	S	.99	.98	1.01	1.00	.99	1.02	1.00	.97

UNIT-IN-PLACE COST SECTIONS (51 – 70)

LOCAL MULTIPLIERS

Apply to costs brought up-to-date from preceding pages. Do not apply to Section 98 or any other indexes.

UNITED STATES

CLASS	A	B	C	D	S
KENTUCKY	.98	.96	.97	.98	.98
Ashland	1.04	1.04	1.04	1.07	1.06
Bowling Green	.95	.93	.93	.93	.95
Covington	.97	.96	.97	.97	.97
Frankfort	.96	.95	.96	.97	.96
Lexington	.97	.96	.96	.97	.96
Louisville	.97	.96	.96	.98	.96
Newport	.97	.96	.97	.97	.97
Owensboro	1.00	.99	.99	.97	1.02
Paducah	.95	.92	.94	.95	.94
LOUISIANA	.87	.87	.88	.88	.87
Alexandria	.85	.87	.89	.88	.87
Baton Rouge	.85	.85	.87	.88	.86
Lafayette	.87	.87	.88	.89	.84
Lake Charles	.89	.87	.87	.84	.87
Monroe	.87	.88	.88	.88	.87
New Orleans	.89	.88	.89	.90	.87
Shreveport	.90	.90	.91	.89	.89
MAINE	1.04	1.01	1.04	1.03	1.02
Auburn	1.07	1.05	1.07	1.06	1.04
Augusta	1.08	1.06	1.09	1.07	1.08
Bangor	1.02	1.00	1.04	1.02	1.02
Biddeford	1.08	1.04	1.08	1.07	1.04
Caribou	.97	.95	.96	.97	.97
Lewiston	1.07	1.05	1.07	1.06	1.04
Portland	1.07	1.02	1.06	1.05	1.06
Presque Isle	.97	.95	.96	.97	.97
Waterville	.99	.99	1.00	.99	.99
MARYLAND	1.05	1.04	1.04	1.03	1.04
Anne Arundel County	1.04	1.05	1.01	1.02	1.06
Baltimore	1.01	1.01	1.02	1.02	1.03
Bethesda	1.07	1.09	1.05	1.03	1.04
Cumberland	1.05	1.02	1.05	1.03	1.05
Eastern Shore Area	.99	.96	.97	.98	.99
Hagerstown	1.04	1.01	1.03	1.03	1.04
Silver Spring	1.07	1.09	1.05	1.03	1.05
MASSACHUSETTS	1.19	1.18	1.19	1.20	1.17
Boston	1.31	1.31	1.33	1.33	1.30
Cape Cod	1.20	1.20	1.21	1.22	1.18
Fall River	1.18	1.18	1.20	1.18	1.16
Holyoke	1.12	1.12	1.13	1.12	1.10
Lawrence	1.19	1.19	1.21	1.21	1.16
Lowell	1.20	1.19	1.20	1.20	1.17
Lynn	1.24	1.24	1.24	1.24	1.22
Methuen	1.20	1.17	1.20	1.22	1.17
Natick	1.22	1.22	1.23	1.25	1.21
New Bedford	1.19	1.20	1.20	1.19	1.17
Pittsfield	1.08	1.09	1.09	1.11	1.08
Springfield	1.16	1.17	1.17	1.18	1.16

CLASS	A	B	C	D	S
MICHIGAN	1.05	1.05	1.04	1.04	1.05
Adrian	1.06	1.06	1.06	1.06	1.07
Alpena	1.03	1.01	.99	.98	1.02
Ann Arbor	1.11	1.11	1.11	1.11	1.12
Battle Creek	1.03	1.03	1.03	1.01	1.02
Bay City	1.08	1.06	1.04	1.04	1.07
Detroit	1.10	1.11	1.12	1.13	1.12
Escanaba	.97	.97	.98	.97	.97
Flint	1.10	1.09	1.07	1.05	1.09
Grand Rapids	1.00	.99	1.00	.99	.99
Ishpeming	.98	.99	1.00	.99	.99
Jackson	1.06	1.05	1.05	1.04	1.06
Kalamazoo	1.05	1.04	1.04	1.03	1.04
Lansing	1.04	1.04	1.02	1.01	1.04
Marquette	.98	.99	1.00	.99	.98
Monroe	1.07	1.07	1.07	1.07	1.08
Muskegon	1.01	1.01	1.01	1.00	1.00
Niles	1.04	1.04	1.05	1.04	1.05
Pontiac	1.11	1.11	1.12	1.11	1.12
Port Huron	1.05	1.08	1.07	1.09	1.08
Saginaw	1.05	1.03	1.02	1.02	1.04
Sault Ste. Marie	1.00	1.00	.99	.98	1.00
Traverse City	1.00	1.01	1.01	.99	1.01
Ypsilanti	1.11	1.11	1.11	1.11	1.12
MINNESOTA	1.10	1.09	1.08	1.07	1.10
Austin	1.07	1.07	1.05	1.05	1.08
Brainerd	1.06	1.06	1.07	1.06	1.07
Duluth	1.11	1.10	1.09	1.06	1.10
Hibbing	1.10	1.07	1.06	1.02	1.07
Mankato	1.07	1.05	1.06	1.04	1.08
Minneapolis	1.14	1.16	1.15	1.15	1.15
Moorhead	1.07	1.05	1.03	1.01	1.07
Rochester	1.10	1.09	1.08	1.05	1.11
St. Cloud	1.08	1.08	1.08	1.07	1.09
St. Paul	1.15	1.15	1.14	1.15	1.15
MISSISSIPPI	.88	.88	.88	.89	.88
Biloxi	.87	.89	.88	.89	.87
Columbus	.86	.87	.88	.90	.88
Greenville	.89	.88	.90	.92	.89
Gulfport	.86	.87	.88	.89	.88
Hattiesburg	.88	.87	.87	.88	.88
Jackson	.89	.90	.90	.91	.88
Laurel	.91	.91	.89	.90	.90
Meridian	.89	.90	.90	.91	.91
Natchez	.86	.86	.86	.87	.86

CLASS	A	B	C	D	S
MISSOURI	1.01	1.01	1.01	1.01	1.01
Cape Girardeau	.93	.91	.93	.92	.91
Columbia	1.07	1.05	1.03	1.03	1.08
Independence	1.07	1.09	1.09	1.10	1.08
Jefferson City	1.00	.98	.98	1.01	.99
Joplin	.93	.91	.94	.92	.94
Kansas City	1.09	1.10	1.09	1.10	1.10
Rolla	.90	.89	.91	.90	.88
Springfield	1.02	1.00	1.02	1.01	1.02
St. Joseph	1.03	1.05	1.04	1.05	1.03
St. Louis	1.08	1.07	1.10	1.10	1.08
MONTANA	.95	.93	.96	.94	.96
Billings	.97	.94	.99	.96	.98
Bozeman	.96	.94	.96	.96	.98
Butte	.94	.94	.97	.94	.96
Great Falls	.94	.94	.95	.92	.97
Helena	.92	.90	.94	.93	.94
Lewistown	.93	.91	.93	.93	.92
Missoula	.98	.97	.98	.96	.99
NEBRASKA	.95	.95	.95	.94	.95
Grand Island	.92	.91	.92	.93	.92
Lincoln	.96	.94	.92	.91	.94
Norfolk	.97	.97	1.00	.98	.98
North Platte	.96	.96	.97	.96	.95
Omaha	.95	.95	.94	.93	.95
NEVADA	1.11	1.08	1.09	1.08	1.11
Carson City	1.08	1.06	1.06	1.06	1.10
Elko	1.12	1.11	1.11	1.09	1.12
Fallon	1.02	.98	1.00	.99	1.02
Las Vegas	1.13	1.11	1.12	1.14	1.14
Lincoln County	1.02	1.02	1.04	1.04	1.02
Nye County	.95	.92	.91	.88	.95
Reno	1.11	1.06	1.05	1.04	1.10
Sparks	1.11	1.06	1.06	1.04	1.10
Tahoe Area	1.20	1.19	1.21	1.21	1.22
NEW HAMPSHIRE	1.05	1.06	1.06	1.05	1.05
Concord	.99	1.01	.99	.99	.99
Dover	1.09	1.11	1.11	1.11	1.09
Keene	1.00	1.01	1.00	1.00	1.00
Laconia	.97	.99	.98	.98	.98
Littleton	.98	.97	.97	.96	.99
Manchester	1.04	1.05	1.06	1.05	1.04
Nashua	1.18	1.19	1.18	1.16	1.15
Portsmouth	1.06	1.07	1.08	1.07	1.06

THE COST APPROACH		
Client	***Town of Hopkinton***	
Property Address	***77 Main Street***	
Date of Valuation	***1-Jan-16***	
Occupancy	Retail and Office	
Building Class/Quality	Class C - Good Quality	
Exterior Walls	Brick/Steel Frame	
Number of Stories	3	story
Total Floor Area	43,488	square feet
Basement Area	14,136	square feet
Building Perimeter	530	feet
Condition/Effective Age	Good/Ten Years	
Base Square Foot Cost - Three Floors	$137.94	per square foot
HVAC Adjustment	$0.00	
Sprinkler Adjustment	$3.29	
Miscellaneous Adjustment	$0.00	
Total Adjustments	$3.29	per square foot
Number of Stories Multiplier	1.000	
Height/Story Multiplier	1.000	
Floor Area/Perimeter Multiplier	1.000	
Combined Refinements	1.000	
Refined Square Foot Cost - Three Floors	$141.23	per square foot
Current Multiplier	1.04	
Local Multiplier	1.19	
Final Square Foot Cost	$174.79	per square foot
Building Area	43,488	square feet
Building Area x Final Square Foot Cost	$7,601,104	

Base Square Foot Cost - Basement		$33.46	per square foot
Current Multiplier		1.01	
Local Multiplier		1.19	
Final Square Foot Cost		$40.22	per square foot
Building Area		14,136	square feet
Building Area x Final Square Foot Cost		$568,487	
Total Building Cost		$8,169,592	
Lump Sum Additions - Paving, Landscaping, Lighting,Signs		$175,000	
Reproduction Cost New		$8,344,592	
Depreciation			
Physical - Effective age	10		
Economic life	50	1,668,918	
Functional		$0	
External - Market Conditions		$0	
Depreciated Reproduction Cost		$6,675,673	
Site Value		$794,800	
Total Value By Cost Approach		$7,470,473	

THE COST APPROACH			
Client		*Town of Hopkinton*	
Property Address		***77 Main Street***	
Date of Valuation		***1-Jan-16***	
Occupancy		Retail and Office	
Building Class/Quality		Class C - Good Quality	
Exterior Walls		Brick/Steel Frame	
Number of Stories		3	story
Total Floor Area		43,488	square feet
Basement Area		14,136	square feet
Building Perimeter		530	feet
Condition/Effective Age		Good/Ten Years	
Base Square Foot Cost - Three Floors		$137.94	per square foot
HVAC Adjustment		$0.00	
Sprinkler Adjustment		$3.29	
Miscellaneous Adjustment		$0.00	
Total Adjustments		$3.29	per square foot
Number of Stories Multiplier		1.000	
Height/Story Multiplier		1.000	
Floor Area/Perimeter Multiplier		1.000	
Combined Refinements		1.000	
Refined Square Foot Cost - Three Floors		$141.23	per square foot
Current Multiplier		1.04	
Local Multiplier		1.19	
Final Square Foot Cost		$174.79	per square foot
Building Area		43,488	square feet
Building Area x Final Square Foot Cost		$7,601,104	
Base Square Foot Cost - Basement		$33.48	per square foot
Current Multiplier		1.01	
Local Multiplier		1.19	
Final Square Foot Cost		$40.22	per square foot
Building Area		14,136	square feet
Building Area x Final Square Foot Cost		$568,487	
Total Building Cost		$8,169,592	
Lump Sum Additions - Paving, Landscaping, Lighting,Signs		$175,000	
Reproduction Cost New		$8,344,592	
Depreciation			
Physical - Effective age	10		
Economic life	50	1,668,918	
Functional		$0	
External - Market Conditions		$0	
Depreciated Reproduction Cost		$6,675,673	
Site Value		$794,800	
Total Value By Cost Approach		$7,470,473	

Marshall and Swift Value at $7,500,000

Patriot CAMA System Value at $6,200,000

WHAT!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

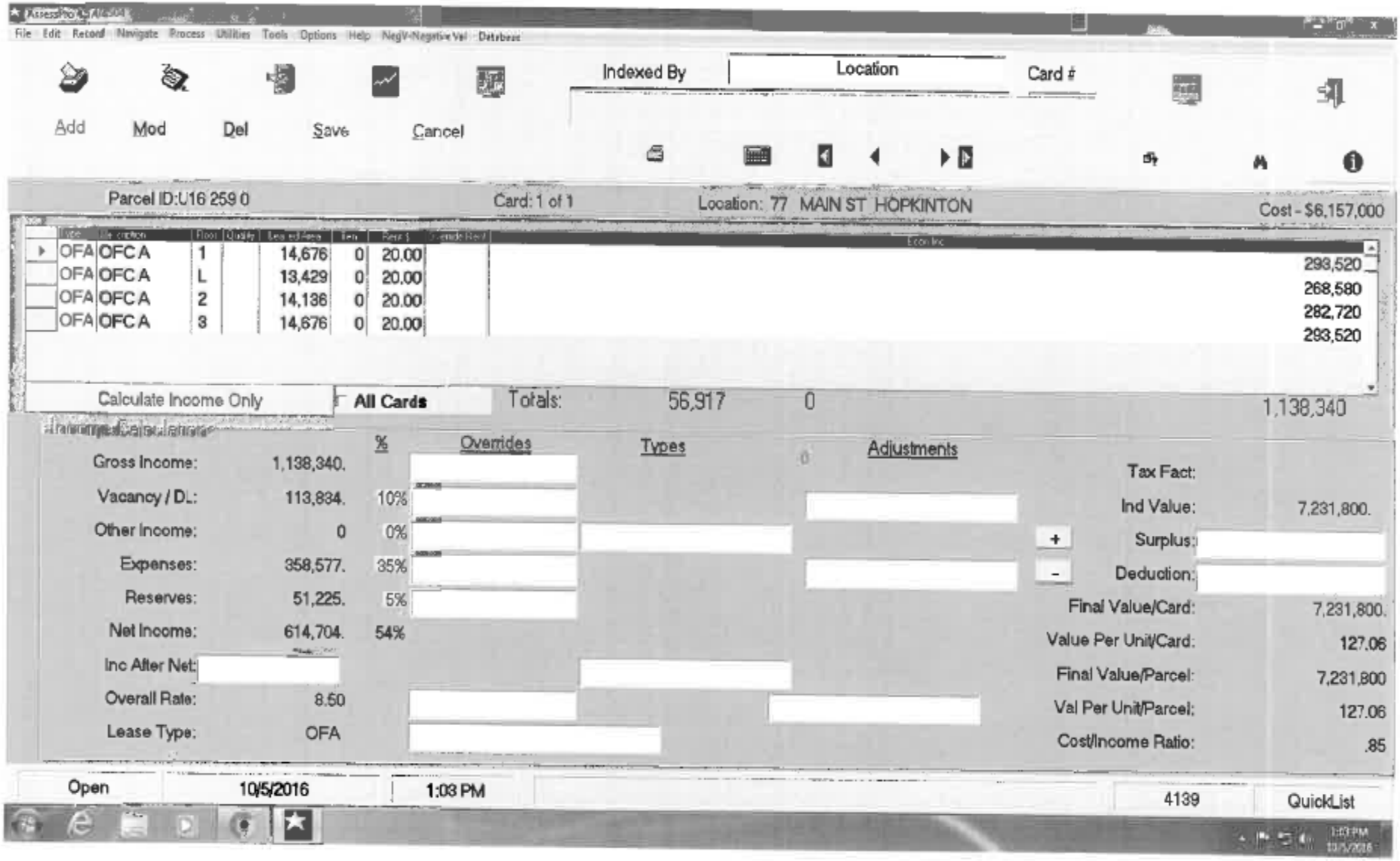
Do We Have A Problem???????????

Let’s Look at Income Analysis in Patriot CAMA System

Income Approach

The income approach is used primarily to value investment properties. Since this approach is intended to model the expectations and/or behaviors of a typical investor it is considered to be the most applicable valuation methodology for income producing properties.

For certification purposes, a second independent approach to value must be developed and applied to all properties bought and sold on investor' expectations. The two approaches to value should correlate within 15%.

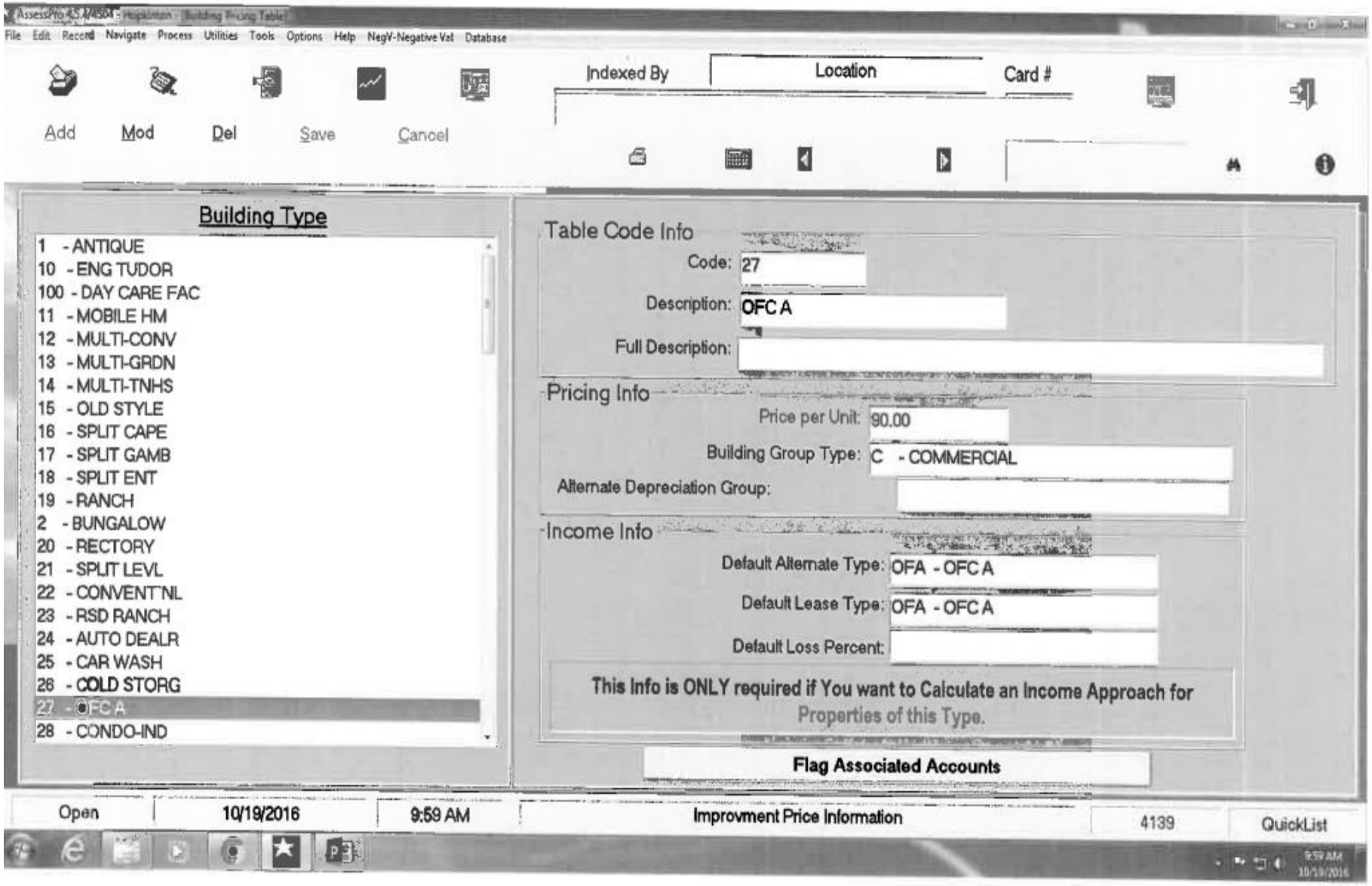

File Edit Record Navigate Process Utilities Tools Options Help NegV-Negative Val Database
Indexed By
Location
Card #
Add
Mod
Del
Save
Cancel
Parcel ID:U16 259 0
Card: 1 of 1
Location: 77 MAIN ST HOPKINTON
Cost - $6,157,000
OFA OFC A 1 14,676 0 20.00 293,520
OFA OFC A L 13,429 0 20.00 268,580
OFA OFC A 2 14,136 0 20.00 282,720
OFA OFC A 3 14,676 0 20.00 293,520
Calculate Income Only
All Cards
Totals: 56,917 0 1,138,340
Gross Income: 1,138,340.
Vacancy / DL: 113,834. 10%
Other Income: 0 0%
Expenses: 358,577. 35%
Reserves: 51,225. 5%
Net Income: 614,704. 54%
Inc After Net:
Overall Rate: 8.50
Lease Type: OFA
%
Overrides
Types
Adjustments
Tax Fact:
Ind Value: 7,231,800.
Surplus:
Deduction:
Final Value/Card: 7,231,800.
Value Per Unit/Card: 127.06
Final Value/Parcel: 7,231,800
Val Per Unit/Parcel: 127.06
Cost/Income Ratio: .85
Open
10/5/2016
1:03 PM
4139
QuickList

Patriot CAMA System Value at $6,157,000 by Market Adjusted Cost

Patriot CAMA System Value at $7,231,800 by Income

The two approaches to value should correlate to within 15%

$6,157,000/$7,231,800 = 85%


File Edit Record Navigate Process Utilities Tools Options Help NegV-Negative Val Database
Add
Mod
Del
Save
Cancel
Indexed By
Location
Card #
Building Type
1 - ANTIQUE
10 - ENG TUDOR
100 - DAY CARE FAC
11 - MOBILE HM
12 - MULTI-CONV
13 - MULTI-GRDN
14 - MULTI-TNHS
15 - OLD STYLE
16 - SPLIT CAPE
17 - SPLIT GAMB
18 - SPLIT ENT
19 - RANCH
2 - BUNGALOW
20 - RECTORY
21 - SPLIT LEVL
22 - CONVENT NL
23 - RSD RANCH
24 - AUTO DEALR
25 - CAR WASH
26 - COLD STORG
27 - OFC A
28 - CONDO-IND
Table Code Info
Code: 27
Description: OFC A
Full Description:
Pricing Info
Price per Unit: 90.00
Building Group Type: C - COMMERCIAL
Alternate Depreciation Group:
Income Info
Default Alternate Type: OFA - OFC A
Default Lease Type: OFA - OFC A
Default Loss Percent:
This Info is ONLY required if You want to Calculate an Income Approach for Properties of this Type.
Flag Associated Accounts
Open
10/19/2016
9:59 AM
Improvment Price Information
4139
QuickList

Goodbye!

Enjoy Lunch and the Land Residual Program!