

## **DESCRIPTIONS**

### **BUILDING COMPONENTS**

#### **FOUNDATION**

The foundation of a residence with conventional wood floor construction consists of the footings, foundation wall and interior piers. A solid perimeter foundation wall is generally constructed with 8" concrete blocks; brick-to-grade construction has 12" blocks. Interior piers are generally of the same materials as the foundation wall. Footings are poured concrete and must be a minimum of 8" deep and 3" wider (on each side) than the foundation wall.

With concrete slab floor construction, the floor, foundation walls, and footings are poured monolithically. In such case, there are no framing members for the floor structure. Obviously, the footings and lower levels of the foundation wall cannot be seen. Therefore, unless informed of structural weakness or see evidence of excessive settlement, one must assume the foundation has been properly constructed.

#### **EXTERIOR WALLS**

Exterior wall construction represents one of the most significant components of a residential building. It normally accounts for 25% to 35% of replacement cost new and consists of:

1. The Basic Structure – wood framed houses usually have 2" x 4" studs placed directly over floor joists on 16" centers – a 2" x 4" sole plate secures the studs at floor level and a 4" x 4" ceiling plate ties the studs together at the ceiling line.
2. Exterior Finish – consists of sheathing (the visible exterior wall cover), trim, and painting. The materials used in the basic structure and exterior wall finish will determine the type of construction, i.e., wood framed, brick veneer, etc.
3. Interior Facing & Finish - new construction is generally 112" to 518" drywall, taped & painted; older houses may have lath and plaster; 2" to 3 1/2" batt insulation is normally placed between the studs behind the drywall.
4. Window & Door Openings - the size and number of openings will have a significant influence on replacement cost.

#### **ROOF**

There are generally six types or styles of roof structures used in residential construction. The typical roof structure consists of 2" x 6" rafters placed on 16" centers and is secured at the peak by a 2" x 8" ridge board. Sheathing is typically 3/8" to 1/2" plywood covered with felt underlayment and 235 lb. composition shingles. Ceiling joists, which are often considered part of the composite roof, should be at least 2" x 6" on 16" centers with a maximum span of 14'.

The rafters and ceiling joists are attached to the 4" x 4" ceiling plates at the line of the exterior wall. The span of a roof is the distance between the outer edges of the ceiling plates, typically the width of the house. The rise of the roof is the distance from the level of the ceiling plates to the top of the ridge. The run of a rafter is the horizontal distance from the outside of the ceiling plate

to the right-angle intersection of the ridge. The slope of a roof is expressed in terms of the rise of the roof in inches per foot of run of the rafters. The slope of a roof is typically 5/12 but should not be less than 4/12. Generally better-quality construction will be reflected by steeper pitched roofs with more overhangs at the eaves. Pitch is the ratio of the rise of the roof to the span. Therefore, to find the rise of the roof in inches per foot of run of rafters (slope), multiply pitch by 24.

With exception of a trussed frame, 2" x 4" rafters do not meet Minimum Property Standards, and generally denote lower quality construction. With a residential truss roof, rafters and ceiling joists are placed on 24" centers and are constructed with 2" x 4" boards; however, the engineering design of the truss creates structural capacity similar to a conventionally framed roof and results in a savings in construction cost.

## **FLOOR STRUCTURE & FINISH**

Conventional wood floor construction consists of the sill plates, girders, floor joists, bridging, sub floor and finished flooring. The sill plate is the first wood member of a frame structure and is usually a horizontally laid 2" x 6" board secured to the foundation by 112" x 16" anchor bolts. A girder is the main horizontal interior supporting member of the floor structure. It may be steel or wood, but a 3-ply 2" x 10" frame girder is typical. Minimum Property Standards call for no less than 2" x 8" floor joists on 16" centers with a maximum span of 13.5', and 2" x 10" floor joists on 16" centers if span is between 13.5' and 16.' Better quality construction will have 1" x 3" cross bridging every 8' to 10' span. However, 2" x 6" or 2" x 8" block bridging is typical of fair and average quality construction. Also, diagonally laid 1" x 5" tongue & groove boards are found in some older homes and in high quality new construction. Basically, the finished flooring of a house will be either pine or hardwood. Generally, the kitchen will have an inlaid linoleum cover and the bath will have ceramic or vinyl tile. Wall to wall carpets may be laid over a hardwood finished floor or over 5/8" pressboard (particleboard).

## **INTERIOR FINISH**

Interior construction and finish as a whole can account for 10% to 30% of replacement cost new, depending on the elaborateness of trim, number and sizes of closets, kitchen cabinets, special wall finishes, etc.

Interior partitions are generally wood framed with 2" x 4" studs on 16" centers. The most common basic interior facing is 112" or 5/8" drywall, taped and painted. Older houses often have walls and ceilings finished with plaster on wood or gypsum lath. However, due to the wide use and acceptance of drywall in most quality levels, plaster does not necessarily increase value in proportion to cost. The exception occurs in the luxury or mansion type house where plaster is consistent in cost and quality with the entire structure.

The type and quality of materials available for finishing the interior of a house varies greatly. However, the basic wall and ceiling finish will generally conform to the grade of materials and

quality of workmanship evidenced by exterior wall finish and design. Special attention should be given to the amount and quality of kitchen cabinets, closets, and the finish of special areas such as the bath and den.

### **PLUMBING**

A standard complement of plumbing for an average quality house consists of two 3-fixture bathrooms (with shower over tub), - one flat rim kitchen sink with two compartments and one 40-gallon gas or 52-gallon electric water heater. Plumbing represents a relatively fixed cost in building construction. Some nominal additional cost for laterals would be incurred in the larger house, but this would be hardly noticeable in the overall price per square foot. It is pointed out that colored fixtures cost approximately 5% more than white fixtures. The kitchen sink and each bathroom should be vented with a metal stack extending through the roof. It is also important to determine whether waste is disposed of by public sewer or individual septic system.

### **ELECTRICAL**

In new construction, the typical electrical service consists of 120-240-volt, 3 wire, 200-amp circuit breaker systems for houses with electric heat and 150-amp services for houses with gas heat. Minimum Property Standards requires one wall switch per room with a minimum of 6' between convenience outlets. 220-volt service is required for electric ranges and clothes dryers, whereas 110-volt service is required for convenience outlets. The majority of residential wiring is done with Romex, a non-metallic sheathed cable. More expensive homes have BX or steel armored cable. Conduit wiring is seldom found in residential construction. Older homes may be wired with Knob & Tube or porcelain insulators. Houses with old style fuse boxes, Knob & Tube wiring, or 60-amp service are generally of low quality and will soon need rewiring.

### **HEATING**

The type and adequacy of the heating system is not only a cost-important factor, but also one which has a significant influence on the functional utility and value of a building. There are several types and variations of heating systems used depending on location and availability of fuel. The systems described here are those most frequently encountered.

**Floor Furnace** - may be oil or gas fired. This type heating system is normally found in lower quality one-story houses with crawl space. There is no ductwork, and circulation is by gravity. The unit is generally placed near the center of the house. Its capacity is rated from 30,000 to 50,000 BTU.

**Gravity Furnace** - This system is generally found in the basements of older houses, since it must be below the level of the rooms to be heated. Coal, either stoker or hand-fired, was the main source of fuel. However, many systems still in use have been converted to oil or gas. Heat is provided as the air comes in contact with heated surfaces in the furnace. The warm air rises and flows through inclined leader pipes to supply registers usually installed in the floor or baseboard adjacent to the outside walls of the various rooms. The cooler air is drawn down through large return-air-intakes located in the floor near an outside wall to the bottom of the

casing for re-heating. The ductwork for a gravity warm-air heating system is quite large and must be slanted in such a way as to permit the natural flow of warm and cool air. This significantly reduces the amount of usable headroom in the basement. The gravity warm-air heating system is relatively inexpensive and lacks functional utility when compared to more modern systems. The cost of this type system generally ranges from 15% to 20% less than a forced warm-air system with a comparable BTU rating.

**Forced Warm Air** - May be electric, oil, or gas fired. Air is warmed by heated surfaces in the furnace and then distributed to the various rooms through supply ducts by a blower (fan) in the furnace. The blower also draws the room air back to the furnace through return-air intakes, which are usually located at the baseboard of inside walls. Adjustable registers or diffusers for the warm air are generally located on the outside wall at the floor level (baseboard), preferably below windows. This system requires less space for the furnace and ducts than the gravity system, and it does not need to be centrally located or below the level of the heated area.

**Electric Radiant Ceiling** - Perhaps one of the most frequently encountered heating systems. Found in many fair to average quality homes. Each room is thermostatically controlled. The heating element (cable) is attached to the ceiling drywall, coated with a layer of plaster, and then laminated between a second layer of drywall. The wattage required for each room is determined by factoring ceiling height by 1.5 and multiplying that product times the square feet of floor area. For example, a 12' x 12' room with an 8' ceiling height would require 1728 watts of heating. ( $8' \times 1.5 = 12 \times 12 \times 12 = 1728$  watts).

**Electric Wall Heaters** - This system follows the same principle as electric ceiling heat but is substantially cheaper and concentrates all heat from one point in the room. Its size is also measured in wattage per coil or unit stack. The typical unit will range from 1500 watts up to 4000 watts.

**Electric Baseboard Heat** - This is merely a modification of the electric wall heater. However, it distributes the heat over a somewhat wider area and costs approximately 20% more than electric wall heaters of the same wattage.

**Hot Water (Gravity System)** - may be coal, oil or gas fired. In this system, hot water serves as the medium for carrying heat to all parts of the building. Circulation in a gravity system is created when the hot water ascends through the flow pipe and then flows down through return pipes, which pass successively through radiators on the various floors of the building. Since heat is released as the water passes through each radiator, the ones on the lower floors must be larger. The "two-pipe" system relieves this problem since each radiator has its own individual hot water feed. A hot water system for residential use is rather uncommon due to the cost of the system (which may run from 40% to 60% more than forced warm-air or radiant ceiling systems) and the bulkiness of the materials.

**Steam Heating** - may be coal, oil or gas fired. In this type system, water in the boiler is converted to steam which rises through the main distribution pipe. From this pipe, the steam moves into the radiators, gives off its heat and condenses. The condensed steam (water) then flows back to the boiler for reheating. In the "two-pipe" system, the steam and the condensate

flow in separate pipes. The steam always enters the radiators from the top and subsequently emerges as condensate from the bottom. If the return-flow pipe is situated below the water level of the boiler, it is described as a "wet" condensate return, whereas if it is above the water level, it is a "dry" condensate return. In a single pipe system, the steam and condensate flow in the same pipe and must enter the bottom of the radiator. As with the hot water system, steam heating is expensive and somewhat cumbersome.

## **MECHANICAL - CENTRAL AIR-CONDITIONING**

The majority of residential central air-conditioning is done with "split" refrigerated systems, ranging from one to five-ton capacity. The combination heating/cooling (or package) unit utilizes the same ductwork with gas heating and electric cooling. This is a central system for original construction and generally results in some savings (per system capacity) in construction costs.

The split system is usually added to an existing forced warm-air furnace. The fan coil is normally installed in the top of the furnace and the condensing unit (with compressor and condenser in the same cabinet) is located outside the house. The efficiency of this system is equal to that of the package system, although costs may be higher if it is added after original construction.

The heat pump is an electric-powered combination heating and cooling unit, which consists of a compressor, condenser, throttle valve and evaporator. It operates on the principle that fluids under high pressure evaporate at a higher temperature than fluids under low pressure. The heat transfer medium is heated under low pressure in the evaporator then transferred by the compressor to the high-pressure condenser where the heat is given off and blown through a duct system in the house. The cooling system is activated by thermostatically reversing a four-way valve which reverses the cycle of the unit. The heat pump is somewhat more expensive than the comparable gas-electric package unit described above, and generally requires electric resistance heaters to provide supplementary heat during periods when the temperature drops below 25°F.

The variation in models, sizes and capacities of central air-conditioning systems is virtually boundless. The only sure way to determine the type, size and capacity of a system is to note the model number and brand name and call the dealer. Generally speaking, however, the horsepower of the compressor motor is approximately equal to the ton capacity of the cooling unit. Using the same ductwork as the forced air heating system, central air-conditioning may run 20' to 30' more if separate ductwork is required.

## **DESIGN**

One of the most significant factors influencing quality classification and cost of construction is design. The design of a house relates not only to the degree of functional efficiency attained in layout, but also to its overall appearance. In this sense, appearance means the refinement of exterior elevations, interior, finish, and perimeter shape. The degree of refinement is usually evident in the complexity of foundation and roof outlines, plus the elaborateness of finishing materials and attention given to details.

Lower quality houses will generally be simple rectangular shaped structures with straight lines on all four walls, and a higher ratio of floor area per linear foot of exterior wall. Higher quality

structures will generally have an irregular foundation outline and a lower ratio of floor area per linear foot of exterior wall. In other words, the design of a higher quality house substitutes esthetics for efficiency (economy of construction) but does not sacrifice functional utility. In fact, the integration of areas to living, dining, food preparation, sleeping, hygiene and storage into a functional or logical whole can best be accomplished when design is not restricted by a rectangular or "boxed perimeter shape".

An irregular perimeter or foundation outline generally denotes higher quality construction because replacement cost is increased by a greater amount of exterior wall area plus special floor and roof framing.

## **DESCRIPTIONS OF MAIN STRUCTURES**

### **Residences**

**Apartments** are structures housing multiple dwelling units, typically of more than one floor, with kitchen facilities. Better qualities include high-end, owner-occupied condominiums and time-share facilities. Although some apartments built as condominiums are required by municipal codes to contain certain items not usually required for rental units, "condominium" is actually a type of ownership - not a category of construction - and the apartment costs are valid.

**Townhouses** are ground-level dwellings situated on a unique site and sharing a common wall with other row-type housing. This includes improvements built for rental or individual ownership (see the description for Apartments, above).

**Multiple residences**, often referred to as Duplex/Triplex, are buildings of three or fewer units, each having kitchen and bath utility, and which are designed for other than transient occupancy.

**Single-family residences** constitute a wide range of architectural styles, with insignificant cost variances noted for similar construction quality. The ranch, the rustic, the modern and the one-story conventional house are all variations of the same design, as are the Cape Cod, the Colonial, and the vast number of other variations, by whatever name they are called in each part of the country.

**Bed & Breakfast** are referred as B & B are often private family homes and typically have been four and eleven rooms, with six being the average. A Bed & Breakfast usually has the hosts living in the house.

**Guesthouses** are second residential living units on a single property, separate from the main residence, and generally of lesser quality.

**Manufactured homes** are factory-produced, residential structures built on steel undercarriages with necessary wheel assemblies to be transported to permanent sites. The wheel assembly may be removed after the unit is placed on a permanent foundation, but the steel undercarriages may remain intact if it is a necessary structural component.

**Group Care Homes** are typically smaller, special needs buildings that are more residential in character than convalescent hospitals and include intermediate-care facilities for the physically challenged or mentally handicapped, substance abusers, victims of domestic violence and other like groups. Therapy rooms, or lounges, and administrative rooms corresponding with the quality are included.

**Retirement (continuing care) community complexes** include a mixture of independent and assisted living facilities, including amenities for Alzheimer's or dementia patients, and skilled nursing units. Included fitness and care facilities correspond with the quality indicated.

**Bath Houses** are small changing or game room structures, usually supporting recreational improvements in a residential setting. The lowest quality is a simple cabana without plumbing, while the better quality includes the well-apportioned entertainment or guest facility.

### **Hotels, Motels & Clubs**

Limited service **Hotels** consist of multiple sleeping units and lobby, of two or more floors, without individual kitchen facilities. They provide little or no space for large groups or formal dining.

**Motels** are multiple sleeping units of two or fewer stories, with or without individual kitchen facilities, and are designed for transient occupancy.

**Lodges** are generally of rustic design with multiple sleeping units and common areas with some additional plumbing and kitchen facilities for additional guests.

**Dormitories** include college and boarding school residence halls, nurses' quarters, and armed services accommodations. They generally have a lounge and frequently have common dining facilities and built-ins not typically found in apartments.

**Fraternity Houses** or sorority facilities generally boast kitchen, dining, and lounge rooms, and are more residential in character than dormitories.

**Country Clubs** are specialized clubhouses designed primarily for entertainment and have few, if any, sleeping accommodations. Generally, the better clubs will have a ballroom, bar, banquet, and pro shop facilities, as well as locker and shower rooms.

### **Stores and Commercial Buildings**

**Restaurants** are constructed for the preparation and sale of food and/or beverages. Costs include necessary plumbing, built-in refrigerators and freezers, and electrical connections to provide for these services. Costs do not include fixtures, equipment or signs. **Cafeterias** feature large, open dining rooms for the self-service of large groups, and include commercial as well as institutional facilities. **Truck Stop Restaurants** are of multipurpose design, and include convenience store, food, shower and toilet, game and rest facilities for truckers. **Fast Food** or small, limited-menu restaurants contain limited or no seating in relation to preparation area, including drive-up

windows commensurate with the quality. Any site costs (including playground equipment) outside the building line are not included.

**Bakery Plants** are buildings that produces and sells flour-based food baked in an oven such as bread, cookies, cakes, pastries, and pies.

**Breweries** are buildings that makes and sells beer. A brewery is typically divided into distinct sections, with each section reserved for one part of the brewing process.

**Coffee Shops** are buildings that primarily serves coffee (of various types, i.e. espresso, latte, cappuccino). Some coffeehouses may serve cold drinks such as iced coffee and iced tea.

**Creameries** are buildings that are used as a place to buy milk products such as yogurt and ice cream.

**Markets** are typically smaller, retail food stores which often handle limited lines of other merchandise. The costs include built-in refrigerators and/or freezers, cold rooms and ancillary cooling equipment which are usually classified as real estate, but do not include display freezers and coolers or other equipment generally classified as personal property or trade fixtures.

**Supermarkets** are the larger, chain-type food stores. **Convenience Stores** are small food stores 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 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. **Florist Shops** are convenience stores for the sale of cut flowers, with the better shops containing finished display areas for other gift merchandise. **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 designed for the display, tasting and sale of the product directly from the vineyard.

**Drugstores** include both the smaller neighborhood pharmacy and the large chain discount type store with a variety of merchandise (including convenience foods). Costs include built in refrigerators, but do not include display freezers and coolers or other trade fixtures considered to be personal property.

**Discount Stores** are typically large, open shells with minor partitioning for offices and storage areas. Often referred to as 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.

**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 include stores occupied by secondary or junior department stores with limited merchandise lines, specialty shops, and commercial buildings designed for general occupancy.



**Department Stores** are buildings of two or more stories, typically found in larger 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 discount/big box store and the traditional full-line department store.

**Beauty / Barber Shop** 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. Good quality shops include more plumbing associated with numerous workstations.

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

**Laundry/ Dry Cleaning** stores are designed for full-service laundry cleaning, and usually include a typical retail storefront and laundry workspace commensurate with the quality level.

**Neighborhood Shopping Centers** are buildings designed for a group of commercial enterprises developed as a unit and are typically comprised of single lines of glazed storefronts with individual service entrances to the rear. These are normally small one-story projects with or without a major anchor. When present, typical anchors are priced separately, including supermarkets, discount stores, large drugstores, or bank buildings.

### **Industrials and Warehouses**

Industrial buildings are specifically designed for various levels of utility in support of manufacturing processes. An average amount of office space commensurate with the quality of the building is anticipated. Usually, this is between 4-12% of the total area, whether single-story or stacked. **Light industrials**, at better qualities (typical of industrial parks) may have 15-25% office area and emulate engineering buildings. **Heavy industrials** are characterized by their heavy frames, walls, and floors, which are typical of specialized manufacturing processes and power or utility service plants.

The industrial building costs include power leads to the building and industrial sewer and drainage lines, but do not include the power panel, wiring or industrial piping to the fixtures, or the equipment used within the manufacturing processes. **Research & Development** industrial buildings, which have a larger amount of divided and finished space (typically between 20-80%), are listed separately from manufacturing buildings even though they often contain some manufacturing or assembly utility. The best high-tech research & development and service center structures will approach good office buildings in cost, with many partitions, high-cost mechanical, and fine detail.

**Laboratories** include commercial and research facilities exclusive of lab equipment.

**Lofts** are industrial buildings usually designed for occupancy by multiple, relatively small space users. Because of display areas and extra partitioning and plumbing in the higher qualities, they

represent a transition between industrial and office construction. They can also be single tenancy structures with mixed functions under one roof.

**Broadcasting Facilities** costs listed here represent averages for radio and television stations and include all wiring and conduit necessary for operation, but not broadcasting equipment.

**Armories** are buildings designed for military training.

**Post Office** costs are derived from the costs of structures built under lease agreements with the U.S. Postal Service. Branch offices are small facilities, typically less than 10,000 square feet.

**Warehouses** are designed primarily for storage. An amount of office space corresponding with the quality of the building is included in the cost. Typically, this is between 3% -12% of the total area.

**Cold Storage** facilities are designed to keep stored commodities at various temperature levels. Some production or process areas are included in the better qualities.

**Mechanical Rooms** are rooms or space in a building dedicated to the mechanical equipment and its associated electrical equipment, as opposed to rooms intended for human occupancy or storage.

**Mini-warehouses** are warehouses subdivided into a mixture of cubicles of generally small size, designed primarily to be rented for small self-storage or noncommercial storage and may include some office/living space.

**Mini-warehouse climate control** are warehouse that use high quality HVAC systems (heating, ventilation and air conditioning), dehumidifiers, customizable thermostats and heavy-duty insulation to manage temperature and humidity.

**Shipping Docks** are roofed structures designed for temporary open storage and segregation and loading of freight.

**Hangars** are buildings designed for aircraft storage and repair maintenance, and normally will have offices and storage space commensurate with the quality and type of services they perform.

**Migrant Labor Housing** are facilities defined by law as a facility that is established, operated, or used for more than three days as living quarters for two or more seasonal, temporary, or migrant families or three or more seasonal, temporary, or migrant workers, whether rent is paid or reserved in connection with the use of the facility.

**Complete Auto Dealerships** include showroom, office, and parts/service facilities. Because of the wide range in mix of facilities (15% -55% showroom), and qualities, it is best to price each area individually, using the appropriate Showroom and service garage costs. **Showrooms** are vehicular salesrooms. Where a salesroom and service garage or warehouse constitutes one building, the cost for each portion should be modified by its area-perimeter multiplier,

considering the common wall as belonging to half of each of the portions. **Automotive service centers** are designed for repair parts sales and service and will have showroom-sales area, office, storage, and repair space commensurate with the quality.

**Mini-lube** buildings are very small garages designed for quick maintenance lube and oil changes and may have drive-thru bays.

**Service Garages** are buildings designed primarily for vehicular repair and maintenance.

**Auto Parts Stores** are buildings designed to carry a huge selection of auto parts and accessories.

### **Offices, Medical and Public Buildings**

**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 a store on the first floor, that portion should be priced using its appropriate base cost.

**Banks** 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 extra features. Branch banks tend to be a single-purpose, low-rise neighborhood facility. Mini-banks 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 include private and public clinics. Dental Clinics are small, standalone facilities and will generally have a greater amount of plumbing and partitions.

**General Hospital** costs include fixed equipment, but not equipment groups classified as personal property.

**Outpatient centers** are freestanding, specialty treatment centers for ambulatory outpatient or same day surgery facilities and include all clinical surgery, diagnostic, labs, administrative and public areas commensurate with the quality level. Operating rooms on average represent 2.5% of the total floor area. Costs include 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.

**Convalescent Homes** 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.

**Funeral Homes** or Mortuaries include chapels, stained glass, and laboratories commensurate with the general quality. Generally, the better funeral homes may include some living area.

**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.

**Government 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 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** are emergency service buildings designed primarily for engine storage, 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 included. 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. **Sally port** facilities commensurate with the quality are included. Costs do not include any service equipment for kitchen, laundry or recreation.

**Public libraries** or medial 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.

**Family Life Centers** are typically private not-for-profit social service organization providing no-cost services to individuals and families experiencing Domestic or Sexual Violence.

### **Churches and Auditoriums**

**Churches** are buildings designed primarily for worship, but in many churches, costs will include some kind of kitchen, social, meeting, and office facilities. The costs include special lighting and stained glass consistent with the overall quality of construction, but do not include seating, altars, pews, organs or bells. Fellowship halls are multipurpose structures for recreation and social gatherings and include gymnasium-type flooring, stages, kitchens, and other miscellaneous rooms commensurate with the quality.

**Auditoriums** are buildings designed for mass seating and visual and voice presentations. Costs include stage or arena, basic floor, and necessary lighting but not the special equipment considered personal property.

**Arcade** buildings are designed mainly for coin-operated game entertainment, while the better qualities will include limited food service and lounges typically found at fun centers, miniature golf complexes, etc. Costs exclude all game or food service equipment.

**Bowling centers** may include restaurant, bar, billiard, and miscellaneous rooms with necessary plumbing and electrical connections, but do not include any equipment or fixtures such as the alleys, ball returns, kitchen and bar equipment, or other trade fixtures.

**Fitness centers** are complete multisport, commercial, recreational complexes distinguished by large gymnasium/auditorium-type structures, typically 20,000 to 40,000 square feet, with private membership. **Community recreation centers** are large municipal multisport complexes. These multipurpose buildings will include gym-basketball, handball, and other sports courts, running tracks, as well as exercise, craft, game, and other social multipurpose rooms. The number of varied amenities and support facilities (locker room, saunas, snack bars, etc.) will vary with the quality level. Equipment and trade fixtures associated with these amenities are not included. Gymnasiums, small health clubs, and clubhouses do not belong in this category and are priced elsewhere.

**Pavilions** are averages of open and enclosed park shelters, gazebos, and bandstands.

### **Schools & Classrooms**

**Elementary schools** serve kindergarten/first grade through fifth or sixth grade. They are generally smaller in scope than the secondary schools, with fewer ancillary facilities, and comprise primarily general classrooms.

**Middle schools** or junior highs cover sixth or seventh grade through eighth or ninth grade, are generally larger and can have many varied facilities commensurate with the quality.

**High schools** will encompass ninth or tenth grade through twelfth grade. They are generally the largest of the secondary school plants, with the most varied support and assembly facilities.

**Alternative schools**, or continuation high schools, are small plants generally serving a limited number of secondary students with few support, assembly, or athletic facilities.

**Vocational schools**, including adult education facilities, emphasize trade and technical skills, with a greater proportion of shops and laboratories.

**Day Care Centers** are early childhood, handicapped, and adult or senior care or development centers and include so-called kindergartens, nurseries, or children's preschools. They have light kitchen facilities, activity rooms, and multiple restrooms, and are more residential style in

character than schools. Generally, the better centers may have reception, office, conference, lunch, shower and changing facilities, as well as general activity or classrooms.

**Classroom buildings** are buildings subdivided into teaching units and designed primarily for academic work. Costs include built-in bookshelves, cabinets, and blackboards commensurate with the quality, but not the movable equipment and furnishings. Costs also include plumbing, although many individually built classrooms will have common restrooms.

**Gymnasiums** include athletic, recreational, health and physical fitness occupancies where the design is of a gymnasium type with a basketball court as the focal point. Shower/dressing, exercise and conditioning rooms, and some offices/classrooms are included, commensurate with the quality.

**Restroom buildings** are generally of single-purpose design although the better qualities can include some storage and/or limited snack bar sales area.

**Maintenance buildings** are for the storage and light maintenance of miscellaneous school ground equipment.