1. INTRODUCTION

1.1 Private dwelling fires challenge the expertise of firefighting forces and require a coordinated team operation. A significant number of all fire deaths occur in private dwellings.

1.2 For the purpose of this bulletin, we are assuming the fire building to be a 2½ story 20'x40' wood frame dwelling, with a cellar and attic.

1.3 Assumptions: There is a light to medium fire situation in a private dwelling with one or more rooms involved.

1.4 This bulletin will address operations in various types of private dwellings including peaked roof, flat roof, as well as those constructed using newer lightweight materials. The basic assignments of engine and ladder companies will be covered and should be considered a general guide for operations in private dwellings due to the many different styles of homes. Units officers must be prepared to adapt tactics as necessary dependent upon conditions encountered and communicate decisions to the Incident Commander.

1.5 Due to the size of these structures, crowding of stairs may become a major problem. Stairs must be kept clear. The number of firefighters inside the fire building should be kept to a minimum to safely carry out operations.

1.6 All members shall comply with the provisions of Firefighting Procedures, Volume 4, Book 1, Chapter 1 titled Safety Team. When giving assignments, the officer on duty shall ensure members are reminded of their designations as safety team members. These members must be aware that this designation is based on their unit’s order of arrival at the box and will change as additional units arrive.
2. GENERAL DESCRIPTION

2.1 Originally built for one or two family occupancy, these structures are usually one to three stories in height. It is not unusual to find more than two families living in these types of structures. They may be attached, semi-attached or detached. The interior of split level homes however, may have as many as five levels within a three-story building. An open and unenclosed stairway is the major weakness from a firefighting and fire protection standpoint.

2.2 Private Dwellings are generally rectangular in shape although alterations and extensions are common. They average approximately 20’x40’. These can be of Class 4 (Frame) construction with exterior walls of wood covered with brick veneer, stucco, asbestos shingles, vinyl or aluminum siding. They can also be of Class 3 (NFP) construction with brick exterior walls. Fire stopping is limited depending on the type of construction. Newer construction is commonly found to be of lightweight materials in both Class 3 and Class 4 construction.

2.3 Peaked roofs are designated according to construction features including mansard, gable, hip, shed, or gambrel types. Roof covering may be asphalt, asphalt roll roofing, asbestos shingles, slate or Spanish tile. Flat roofs or roofs of low pitch may have a scuttle and/or skylight.

2.4 Two entrances are most common. The main entrance is usually located in the front, but sometimes is located on the side as seen from the street. Secondary entrances can be located on the front, side and/or rear. In structures more than one story, the interior stairs to the cellar will usually be located under the main stair. With semi-attached structures or those with minimal space on one side, the inside cellar stair will usually be found near the side or rear entrance.

Throughout the city there have been many renovations to private dwellings. As part of these renovations, the interior stairway may have been moved or sealed off. It is common to find a closet in the area where the stairs were once located.

2.5 Complicating fire operations, units should expect obstacles such as hilly terrain, set-backs, overhead wires, fences, trees, shrubbery, diverse architectural features, solar panels, and numerous floor plans. Dwellings built on sloped terrain can cause communication and operational problems. A dwelling which has 2 or 3 stories in the front may be 3 or 4 stories in the rear. (Photos 1.1, 1.2) The top floor may be used as a point of reference as the difference in floor levels may not always be apparent from the front. The outside team should make this a part of their size-up. Coordination between members operating inside and outside is necessary.
3. SPECIFIC DESCRIPTIONS

The buildings listed are a few types of Private Dwellings found in New York City. The general description is included to assist with understanding building construction for these structures.

3.1 Straight Line Colonial (Figure 1.1 & Photos 1.3 & 1.4)

These dwellings are typically 2½ to 3 stories and 20’x40’. Balloon frame construction is commonly found. The side door generally gives access to the kitchen and to the cellar stairway. The utilities are found in the cellar. The 1st floor has a front porch area, a living room with an open stairway to the 2nd floor, a dining room, and a kitchen in the rear. The kitchen contains the stairway leading to the side door and cellar. The 2nd floor has 2 or 3 bedrooms, a bathroom, and access to the attic. This access space can be as large as a normal stairway or as small as a hatch in a closet. Due to the limited ventilation of the attic/3rd floor, conditions in this area will be extremely punishing. The roof of the front porch allows for easy access to upper floor bedrooms.

3.2 Cape Style Houses (Photos 1.5 & 1.6)

Cape houses usually come in two different styles. One is called an A frame cape and the other a wide line cape. The A frame cape has a front entrance and usually a side entrance with a stoop. The wide line cape will have a rear entrance and may have two window dormers that are normally found facing the street. The presence of dormers usually increases the likelihood of 2nd floor bedrooms. Portable laddering of these dormers can be very difficult. The easiest exterior access to these rooms, via portable ladders, is through windows that are found on the exposure 2 & 4 sides of the house. These homes may have a full sized second floor or a dormer on the rear only.

3.3 Queen Anne (Photos 1.7 & 1.8)

The overall size of these structures range from 2½ to 3½ stories in height, 25 to 30 feet in width, and 30 to 50 feet in depth. Construction is wood frame with exteriors of wood siding, asphalt shingles, brick veneer, or stucco. The roofs have many peaks, dormers, overhanging eaves and possibly a cupola. (A cupola/turret is a tower-like room with a round or dome shaped roof). The roof coverings are roof tile, slate, or layers of asphalt shingles over the original wood shingles. Multiple variations in size and number of dormers and gables create a maze of peaks and valleys at roof level. Balloon construction is most common and early attempts at built-in fire stopping are negated by poor workmanship, open holes for house service lines, etc. Large open stairs in the living room connect the 1st and 2nd floors. A narrow rear or side stair connects the 1st, 2nd and 3rd floors, or a stair may lead directly to the 3rd floor from the 1st floor. Vertical arteries supplied by old hot air ducts, dumbwaiter shafts, boxed in space around fireplaces and pipe recesses, contribute to undetected and fast upward fire travel. There are hidden voids in attics around hips, valleys, dormers, ridges, etc. They may have a fire escape or a sprinklered stairway. The fire escape will be attached to a combustible wall. Careful consideration should be given to its use due to age, or if that wall is exposed to or involved in fire.
3.4 **Flat Roof Private Dwellings** (Photos 1.9 & 1.10)

In most cases, it is readily apparent from street level that these structures have flat roofs. However, in some areas of the city, flat roof structures have a decorative peak in the front. (Photos 1.11 & 1.12) The absence of a window in this peak may be an indication of a flat roof. Once it is confirmed that the structure has a flat roof, all members must be informed. Flat roof dwellings may be found isolated, attached in pairs, or attached in a row occupying an entire block. These structures may have a skylight and/or scuttle. Many attached dwellings were built with firewalls that cannot be relied on. Exposures must be monitored.

3.5 **Ranch** (Photo 1.13)

These are asymmetrical, single story structures with simple floor plans. Common shapes include rectangular, L-shaped or U-shaped design. The kitchen, living room and bedrooms are located on the first floor. There is a basement/cellar where all the utilities are located. It is also possible to find living quarters in the basement/cellar.

3.6 **Split Level** (Photo 1.14)

A sidesplit is a split level home configuration where the multiple levels are visible from the front elevation. Typically, the garage is on one side of the house and there is a floor above the garage housing the bedrooms. The other half of the house is the main living area, half a story above the garage level and half a story below the bedroom level. Grading or steps connect the exterior street to the front door on the main level. Each floor is separated by a half flight of stairs. Most have a crawlspace that is half the size of the house. Others may have a split foundation with a full basement below the lower main living area.

3.7 **Semi Attached Private Dwellings** (Photo 1.15)

Semi-attached housing consists of pairs of houses built side by side as units sharing a common wall. Each house's layout is a mirror image of its twin.

3.8 **Private Dwellings Constructed Using Newer Lightweight Materials** (Photos 1.16, 1.17 and 1.18)

Many newly constructed dwellings are incorporating wooden I beams, metal "C" joists and lightweight wooden trusses into their construction. These lightweight construction systems are used in place of both conventional floor joists and/or roof rafters. Floor collapse can be as serious a threat as a roof collapse. When fire extends from the building contents to the structure, early collapse can be expected. Any building with lightweight construction must be entered into the CIDS program.

**Note:** See Chapter 6 for a full description of lightweight construction and tactics.
4. **SPECIAL CONSIDERATIONS**

The following features are common in private dwellings and create special fire safety and firefighting problems: (Figure 1.2)

- Cellar areas used as living quarters with no secondary means of egress.
- Cellar areas may have an unfinished cellar ceiling. Open joist construction combined with heavy fire and an overloaded first floor, may cause an early collapse of the first floor. This can either be a local or a complete collapse.
- Lack of a secondary means of egress from upper floors. Interior stairs are often narrow and sometimes winding. Landings are small; thus restricting movement of the operating forces and making an interior attack more difficult. **CONTROL AND MANAGEMENT OF THE INTERIOR STAIRS IS CRITICAL TO A SUCCESSFUL OPERATION.**
- In some dwellings the stairs to the attic or third floor are found behind a small door resembling a closet door. Access may also be found in a bedroom closet with no ladder provided. In other homes, access to the attic is via a pull down type stairs with a rope attached for ease of use. These are lightweight stairs and should not be used for attic access or line advancement. A portable ladder should be used.
- Many private dwellings are found with multiple secondary entrances. These entrances may be found on all types of private dwellings, and on all sides of the building. Sometimes they are on two different sides of the building (Exposure 2 and 4, Exposure 2 and 3, …) and sometimes they are found on the same side of the building.
- When multiple secondary entrances (one with a stoop, and one at ground level) are found adjacent to each other on the same side (exposure 2 or 4) of the building, this indicates most likely that; One secondary entrance at ground level will have a few steps leading to the kitchen and also a half flight of stairs leading to the cellar. The other secondary entrance with the stoop typically has a staircase that runs to the second floor, and may be the only access to that level.
- The presence of a stoop at a secondary entrance on the exposure 2 or 4 side of the building may indicate that the entrance leads to a second floor stairway. This is especially pertinent when there are multiple secondary entrances and only one or two offset windows are seen from the exterior on the same side of the dwelling as the stoop entrance. These offset windows are at the top and/or bottom of the second floor staircase and should not be used for VEIS (see Chapter 1--Photo 1.4. and Chapter 2--Photos 2.1 and 2.2)
- When it is obvious that the dwelling has two or more families (separate entrances, multiple mailboxes or doorbells, etc.) bedrooms can be found on all floors.
- Attached and built-in garages may have a door that opens directly into the house which can be avenues for fire extension. Storage of automobiles, flammable liquids, propane and lawn or pool chemicals may be found. Some attached garages may also be converted to living spaces.
- Alterations and repairs may use sub-standard materials and/or faulty workmanship.
- Fires involving the electrical service may energize the aluminum siding. A ground is completed when an aluminum ladder is placed against, or a firefighter makes contact with the siding.
Use extreme caution when operating with aluminum ladders in proximity to overhead electrical service. Power lines may burn through when exposed to heavy fire conditions causing live wires to fall to the ground. If these wires fall on a chain link fence, the entire fence may become energized.

Thoroughly examine areas under windows (especially when found in the open position), and porch roofs, as victims may have jumped prior to the arrival of units. These victims may be easily overlooked if trees and bushes surround the house.

Central air conditioning systems may spread smoke and toxic gases throughout the building. Dual heat and air-conditioning units will be in operation throughout the year.
Photos 1.1 and 1.2
These photos show the difference in height from the front (2 stories) and rear (3 stories) of attached homes. If no garage is located in the front, then a community driveway may be present in the rear providing for easy access. With attached homes it is not always apparent from the front what conditions may be in the rear.

Figure 1.1
Typical first floor layout of a Straight Line Colonial
Photo 1.3
Straight Line Colonial

Photo 1.4
Straight Line Colonial Showing Side Entrance

Note: Single offset window on 2nd floor indicating the top of the interior stairs leading to the second floor.
Photo 1.5
An “A” Frame Cape with side entrance stoop

Photo 1.6
Wide Line Cape with window dormers
Photo 1.7
Queen Anne

Photo 1.8
Queen Anne with Cupola
Photos 1.9 and 1.10
These photos show the front and rear of attached Flat Roof Private Dwellings. The main entrance is located at the top of the stoop. It is not apparent from the front what conditions may be in the rear. Note the complications in gaining access to the rear (fencing, shrubbery, pools, etc.) making ladder maneuverability difficult.

Photos 1.11 and 1.12
Flat Roofs may not be apparent from the front
Photo 1.13
Ranch Style House

Photo 1.14
Split Level Type House
Photo 1.15
Semi-Attached Private Dwelling
1. **STAIRS** - May or may not exist.
2. **WINDOW** - Uncontrolled venting of this window can extend fire to eaves.
3. **EAVES** - Eaves (not fire stopped) extend fire to attic.
4. & 5. **WINDOWS** – Control, communicate, and coordinate ventilation of these windows when ordered by the Ladder Company Officer operating in this area.
7. **BOXES** - Possible storage of combustibles.
8. **CEILINGS** - Attic may be finished (all or part) concealing fire.
9. **INSULATION** - Insulation with combustible covering may exist.