



**MINNESOTA DEPARTMENT OF PUBLIC SAFETY
State Fire Marshal Division**

STATEMENT of POLICY

Policy #: FP-05 (2007)	Subject of Interpretation: Sprinkler Protection of Residential/Commercial Mixed-Use Occupancies		
Reviewed and Approved By: Jerry Rosendahl	Title: State Fire Marshal	Effective Date: July 10, 2007	Revision Date: July 10, 2007

APPLIES TO:

All Inspection Personnel, All Sprinkler Inspectors and Plan Reviewers, All Fire Protection Specialists, All Inspection Supervisors.

PURPOSE:

This interpretation outlines the requirements for automatic sprinkler systems in residential buildings, especially small or nontraditional facilities. Guidance is also provided on the selection of sprinkler installation standards when mixed occupancies occur as a result of residential dwelling units constructed in conjunction with a commercial building.

Residential type buildings with mixed use occupancies must be protected entirely using either NFPA 13 or NFPA 13R, but not both. When incidental occupancies are used solely by the residential occupants of the building, the use of NFPA 13R throughout the entire building is allowed. When the incidental occupancies are used by the residential occupants of the building and the general public, the use of NFPA 13 throughout the entire building is required.

RATIONALE:

NFPA 13R (2002 edition) A.1.1 states that if it is appropriate to use NFPA 13R, that it be used throughout the entire building. Portions of residential buildings can contain an occupancy that is incidental to the operations of the residential occupancy. Such incidental occupancies are considered to be part of the predominant (residential) occupancy and therefore subject to the provisions of the predominant (residential) occupancy. Use of NFPA 13R throughout the entire building in these scenarios is allowed.

Example #1: A three-story wood frame building with wood floor and attic trusses. The first floor is a parking garage and the upper two floors are residential condo units. The parking garage is limited to use by the residential tenants only.

Since the first floor is limited to use by the residential tenants only, the occupancy of this level is considered incidental. The entire building may be protected with an NFPA 13R system, which permits all combustible concealed spaces, including those over the parking garage, to be un-sprinkled. If the parking garage is not limited to use by the residential tenants only, the entire building shall be protected with an NFPA 13 system, which requires all combustible concealed spaces to be sprinkled.

Example #2: A three-story wood frame building with wood floor and attic trusses. The first floor is a mercantile area and the upper two floors are residential condo units. The businesses in the mercantile area depend on and derive their income from the general public.

Since the first floor businesses depend on and derive their income from the general public, the occupancy of this level is not considered incidental. The entire building shall be protected with an NFPA 13 system, which requires all combustibles concealed spaces to be sprinkled. If the first floor businesses depend on and derive their income from the residential tenants only, the entire building may be protected with an NFPA 13R system, which permits all combustibles concealed spaces, including those over the mercantile area, to be un-sprinkled.

NFPA 13R (02) A.1.1 further states that where a structure of mixed use can be totally separated so that the residential portion is considered a separate building under the local code, NFPA 13R can be used in the residential portion, while NFPA 13 is used in the remainder of the building. The building codes allow a single structure to be divided into and treated as separate buildings. This requires vertical separation as found in NFPA 5000:8.3 and in IBC: 705.1. They state that each portion or part of a building separated by one or more fire walls shall be permitted to be considered a separate building. Where buildings of mixed use can be separated by a vertical fire wall so that the residential portion is considered a separate building under the local code, then a NFPA 13R system can be used in the residential portion (which really isn't a portion since it is a separate building) and a NFPA 13 system can be used in the other building. With one exception horizontal separations are not allowed to define the boundary of separate buildings. The only allowance of a building being permitted to be considered as horizontally separated is found in IBC: 508.2 and NFPA 5000:7.4.3.6.5. These sections will allow a first-story parking garage to be considered as a separate and distinct building from the stories above if separated by a 3-hour horizontal fire barrier assembly. This type of separation is limited only to parking garages.

HOSE STREAMS: There is **no inside/outside hose stream** requirement for any part of a building protected primarily under the premise of NFPA 13R. For "areas outside the dwelling unit," the only four design criteria from NFPA 13 that are applicable are: design discharge, number of sprinklers in the design area, sprinkler coverage, and position of sprinklers. [**NFPA 13R (2002 edition) 6.7.2.1**]
Additionally, in a building that has been classified primarily as a light hazard occupancy but has incidental-use areas that may otherwise be classified as ordinary hazard (i.e., a wrestling room or kitchen in a high school) any and all hydraulic calculations within that building, regardless of the density required for the incidental-use space, need only include the hose demand for a light hazard occupancy. This rationale would likewise apply to an ordinary hazard repair garage with a high hazard, incidental-use paint booth inside.