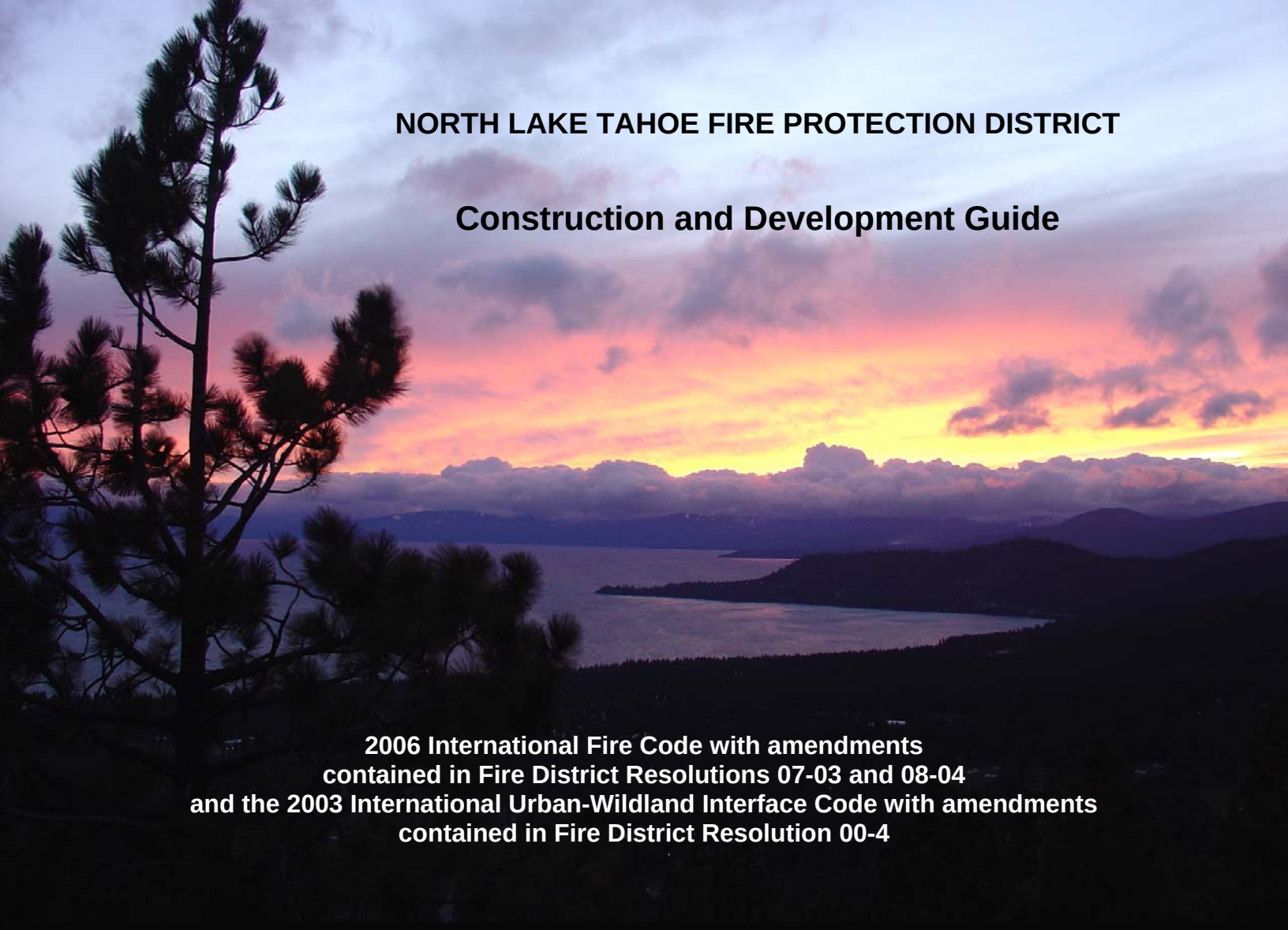

NORTH LAKE TAHOE FIRE PROTECTION DISTRICT

Construction and Development Guide

2006 International Fire Code with amendments
contained in Fire District Resolutions 07-03 and 08-04
and the 2003 International Urban-Wildland Interface Code with amendments
contained in Fire District Resolution 00-4

North Lake Tahoe Fire Protection District
866 Oriole Way
Incline Village, NV 89451

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+1 (775) 831-2072 *facsimile*

on the web at www.nltfpd.net

The North Lake Tahoe Fire Protection District serves the communities of Incline Village and Crystal Bay, Nevada

The Fire District protects Life and Property through efficient delivery of quality community services

Updated August 2008

How to contact us:

- **Our address:**

  866 Oriole Way
  Incline Village, NV 89451

- **Our telephone numbers:**

  Main office and general information
  (775) 831-0351

  Fire Marshal Tom Smith
  (775) 831-0351, ext. 8105

  Assistant Fire Marshal Peter Mulvihill, P.E.
  (775) 831-0351, ext. 8107

  Fire District facsimile
  (775) 831-2072

This brochure contains a brief summary of the key fire and life safety points for construction projects in our Fire District. The actual requirements and detailed supplemental information for each item can be found in the referenced Codes and Standards and in the Resolutions adopted by the Fire District's Board of Directors.

Copies of the Fire District's adopted Resolutions are available at the Fire District's office in Incline Village or on the Fire Prevention pages at our website, www.nltfpd.net.

Before You Build

Pre-submittal conferences between Owners and their Builders/Professional Designers and the Fire Prevention Division are welcomed and encouraged, especially for large, complex or difficult projects.

Information that is helpful at pre-submittal conferences includes a scaled site plan, floor plans and cross-sections of proposed construction.

Permit Submittal Process

The Fire District participates in Washoe County's "One-Stop Shoppe" for all permits. Permits for all construction activities are submitted through the Washoe County Building and Safety Department's Incline Village branch office at 855 Alder Avenue, telephone (775) 832-4140. *Please note that the Incline Village branch office may offer only limited service hours. We recommend calling the office in advance to determine operating hours.*

Permit applications may also be submitted through the Washoe County Building and Safety Department's main office at 1001 East Ninth Street in Reno. Please allow an additional four to five business days review time for plan routing and transit between the Reno and Incline Village offices.

The Fire District will review and provide approval status and comments, if any, back to the applicant through Washoe County Building and Safety Department's automated "fax-back" system. Allow sufficient time for Fire District review of permit applications. In cases of incomplete submittals or large, complex projects, additional time may be required.

Codes in Effect *(effective January 1, 2008, continuing until superseded, Washoe County adoptions effective March 10, 2008)*

2006 International Fire Code (IFC)

2003 International Urban-Wildland Interface Code (IUWIC)

2006 International Building Code (IBC) *(Washoe County adoption)*

2006 International Residential Code (IRC) *(Washoe County adoption)*

2006 Uniform Mechanical Code (UMC) *(Washoe County adoption)*

2006 Uniform Plumbing Code (UPC) *(Washoe County adoption)*

Plan Submittal Requirements

The following information should be provided in all permit application documents. Incomplete or missing information may cause a delay in the review and approval of an application:

- A statement of the **Scope of Work** for the intended project.
- **Design Criteria** identifying, among other items, the Type of Construction; Occupancy Group(s); number of stories; total floor area, including existing floor area if this is an addition to an existing building; if automatic sprinklers are existing or will be installed throughout; and whether a monitored fire alarm system exists or will be provided.
- A scaled **Site Plan** showing the building footprint, public or private streets, driveways, fire hydrants and topographic information.
- Floor plans, elevation views, building sections and reflected ceiling plans.
- Compliance with a mandatory **Defensible Space Evaluation** as described further in this brochure is necessary for all new construction and all additions that add at least 360-square feet to a building's floor area.
- For **Additions** to existing structures, provide a site plan and floor plans showing the existing structure with demolition areas highlighted in addition to floor plans showing the new construction areas.
- For **Remodel Activity** within an existing structure where no new floor area is being added, only floor plans and section views as applicable are necessary.

To assist with the Fire District's emergency response planning, all projects except single-family dwellings are requested to provide a site plan in electronic format for internal use in developing a pre-fire response plan. A "dwg" file should be provided on a CD in AutoCAD. Other file formats and versions may be provided, check with the Fire District prior to submittal.

Inspection Points

The Fire District will provide inspections at certain points in all construction activities. Please contact the Fire Prevention Division at the earliest possible time to schedule an inspection. Just as construction activities vary seasonally, our inspection workload also varies following the peaks and valleys. It helps to block inspection dates and times as soon as construction schedules are known.

Inspections are provided at these points in your construction project:

- **Rough Framing**—inspection of fire alarm wiring installation, hydrostatic tests of automatic sprinkler system piping and flushing of underground sprinkler piping are done at this time.
- **Final Inspection**—verification of Knox Box keys, fire alarm system functional testing, flow test at automatic sprinkler system riser and a complete walk-through of the project are done at this point.
- **Business License** sign-off—For commercial projects involving the issuance of a new or revised business license, the Fire District will approve the business license at the time of a successful Final Inspection.

TRPA Pre-Submittal Reviews

The Tahoe Regional Planning Agency (TRPA) requires some development plans submitted for TRPA permits to be pre-approved by the local fire districts in the Tahoe Basin.

Activities requiring TRPA review are listed in Chapter 4 of the TRPA Code of Ordinances. As of June 20, 2008, permit applications that TRPA requires fire agency pre-approval include:

- All Single and Multi-Family Residential Additions/Modifications and New Construction
- All Commercial Additions/Modifications and New Construction
- Qualified Exempt activities that involve construction
- Baseline Scenic Assessments
- Public Service projects involving construction
- Recreation projects involving construction

Check TRPA's website (www.trpa.org) for changes and the most current TRPA requirements.

Pre-approval drawing requirements

The following guidelines are to be used for all drawing submittals to the Fire District for the Defensible Space Landscape plans and Fire Apparatus Access Plans for Fire District pre-approval.

Information for Defensible Space and Fire Department access may be combined on the same sheet(s).

Defensible Space Drawing:

- Minimum 18" x 24" sheet size
- No greater than 2' contour interval lines
- Indicate all current and proposed structures on the property
- Show all property boundaries
- Indicate scale
- North arrow required
- Show all trees and vegetation taller than 3 feet in height regardless of diameter
- Show all individual plant or brush fields 20 square feet or larger in area
- Show all tree drip lines
- Show all roads (public or private) and driveways in and abutting the property

Fire Apparatus Access Drawing:

- Minimum 18” x 24” sheet size
- No greater than 2’ contour interval lines
- Indicate all current and proposed structures on the property
- Show all property boundaries
- Indicate scale
- North arrow required
- Show all roads (public or private) and driveways in and abutting the property
- Indicate slope gradient on all roads and driveways inside the property boundary
- Show all current and proposed fire hydrants on or adjacent to the property

Provide a contact name and phone number if any questions come up. Complex projects or those requiring a site visit may require additional time for review. ***Reviews of projects with snow covered property may not be possible until later in the season.***

Wildland-Urban Interface Defensible Space

The Fire District has adopted portions of the 2003 International Urban-Wildland Interface Code (IUWIC) with amendments in District Resolution 00-4.

A **Defensible Space Evaluation** is required for all new construction and additions of 360-square feet in floor area within the Fire District. Completion of all deficiencies noted in the DSE is required prior to Fire District approval at the Final Inspection of a project. *(IFC 304.1.2 and IUWIC 106.4)*

Fuel Modification within the Defensible Space around a structure is required. Guidelines for Defensible Space Distances are detailed below and in the IUWIC.

Trees are allowed within the Defensible Space. Horizontal distances between trees are determined by a Fire District forester or by the fire code official based on fire risk.

Similarly, **ornamental vegetative fuels or cultivated ground cover is allowed** to be within the designated Defensible Space, provided they do not form a means of transmitting fire from the native growth to any structure.

Vegetation parameters to accomplish defensible space

The following parameters are to assist owners, designers, developers and builders in determining Defensible Space needs for their projects. This information is also the basis for Fire District pre-approval of project applications prior to submittal to TRPA:

- All dead vegetation, including trees, brush and other vegetation, must be removed.
- All residual trees will be limbed to a height of **ten-feet (10')** above the ground on the high side. Removal of lower branched should not exceed **one-third** of the total tree height. If more than one-third of the live crown must be removed to accomplish this limbing, then use the horizontal spacing guidelines listed for brush below. Please see spacing guidelines below for steep slopes.
- All residual trees will be limbed to achieve a **ten-foot (10')** clearance from any part of the house to the branches of the tree. If less than **60%** of the live crown would be left after limbing, the tree should be removed.
- All brush, trees and flammable materials must be removed from under the drip line of residual trees or tree groupings.
- **Within five-feet (5')** of the foundation or support posts of any part of the structure or an outbuilding, remove all flammable vegetation and materials.
- **Within the five-foot (5') to thirty-foot (30') zone,** tree canopies will be spaced at least **ten-feet (10')** apart. If trees are grouped close enough together as to act as one unit, then all other requirements must be met. Within the **thirty (30') to one-hundred-foot (100') zone,** stands of large trees do not have to be removed so long as the vegetation underneath them is removed. Please see spacing guidelines below for steeper slopes.
- **Within the five-foot (5') to thirty-foot (30') zone,** brush fields must be spaced horizontally a minimum distance equal to or greater than **twice** the height of the brush. Individual brush plants cannot exceed **100-square feet (100 sq. ft.)** in area and **three-feet (3')** in height. Please see spacing guidelines below for steeper slopes.

For sloping properties, use the following standards for the above requirements:

	Slope	**Spacing**
Trees	0 – 20%	10-feet between edges of crowns
	20 – 40%	20-feet between edges of crowns
	above 40%	30-feet between edges of crowns
Brush	0 – 20%	2 times the height of residual brush
	20 – 40%	4 times the height of residual brush
	above 40%	6 times the height of residual brush

Any final approval of Defensible Space will be made in the field, after snow has melted sufficiently to determine compliance with the IWUIC.

Defensible Space Evaluations

A **Defensible Space Evaluation** by a qualified forester can be arranged through the Fire District by contacting our Fuels Management Division at (775) 831-0351, extension 8118.

Evaluations are only conducted seasonally after all snow cover has melted and prior to the onset of winter.

Hazardous vegetation identified in the survey must be removed within a specified time frame following the survey.

For more information, see the publication *"Wildfire in Your Backyard"* produced by the North Lake Tahoe Fire Protection District and created with funding from the Nevada Division of Forestry through the United States Forest Service and the National Fire Plan. Copies are available in the Fire District's office.

Please also refer to Living with Fire's *"Guidelines for Creating Defensible Space"* at www.livingwithfire.info/tahoe

This information does not represent an interpretation of any TRPA code or ordinance.

Maintenance of defensible space

Vegetation will continue to grow, even when cut back to safe levels. The Fire District strongly recommends routine maintenance of wildland interface vegetation areas at least every three years.

A new Defensible Space Evaluation should be conducted every three to four years. Fire District evaluations older than 36 months will not be honored for new construction permit activities.

Changes in Use or Occupancy Classification of an Existing Building

Changes in the Ownership of a Commercial Building and the Use or Occupancy Classification of an existing building can be made following an inspection by the Fire District.

The inspection will examine the use and hazards in the building for compliance with the current Fire Code and the Building Code under which the building was legally constructed.

Upgrades to the currently adopted Building Code may be required if the Occupancy Classification is changed or if the building is not in compliance with the Building Code in effect when it was constructed.

Address Identification

Residential addresses are a minimum of 6-inches in height with at least a 3/4-inch stroke. *(IFC 505.1, per District Resolution 07-3)*

Commercial property addresses are a minimum of 12-inches in height with at least a 1-1/2-inch stroke. *(IFC 505.1, per District Resolution 07-3)*

Address numbers or letters of a color that contrasts with their background, readily visible from the street are essential for prompt emergency response.

Address numbers should also be at a sufficient height and location such that snow accumulations and vegetation will not block their view from the street.

Key Box Access

For buildings protected by an automatic sprinkler system, a monitored fire alarm system or for building access blocked by automatic or locked gates, an approved key box, key switch or padlock is necessary.

Applications for these items must be authorized by the Fire District and are available in the District's offices. *(IFC 503.6, 506.1 and 506.1.1)*

Building keys are required to be provided in the key box at the time of the final inspection.

Similarly, key switch override of any gate operation is required to be functional and must be successfully tested at the time of the final inspection.

If a building is re-keyed later at any time, please contact the Fire District for us to meet you at the box to replace the old keys.

Fire Apparatus and Emergency Vehicle Access

Access from public streets or fire and emergency vehicle access roadways to any grade level point on the exterior of all buildings is required with a maximum travel distance of **150-feet**. Travel is measured along an established walking pathway that is maintained clear at all times. *(IFC 503.1.1)*

Due to building location issues, topography or winter weather conditions, it may not be possible for structures to comply with the 150-foot maximum travel distance. In these cases, the Fire District can still approve the construction, if automatic sprinkler protection is provided throughout the structure. *(IFC 503.1.1)*

Fire Apparatus Access Roadways are not less than **20-feet** in width, unless they serve only one or two single family dwellings, in which case they may be no less than **12-feet** in width. *(IFC 503.2.1)*

Vehicle Turnarounds are necessary when the dead-end length of an access roadway exceeds **150-feet**. *(IFC 503.2.5, per District Resolution 07-3)*

When an access roadway is less than 20-feet in width and is longer than 200-feet, **Road Turnouts** in addition to turnarounds are required. *(IFC 503.2.5, per District Resolution 07-3)*

The minimum outside **Turning Radius** for access roadways is **45-feet** with the minimum inside turning radius being **30-feet**. *(IFC 503.2.4, per District Resolution 07-3)*

The minimum clear height for all access roadways and driveways intended for emergency access is **13-feet, 6-inches**. *(IFC 503.2.1)*

Detailed **Turnaround, Turnout** and **Fire Hydrant Clearance** diagrams can be found on the following two pages. *(Fire District Resolution 07-3)*

Fire Apparatus Access Drawings

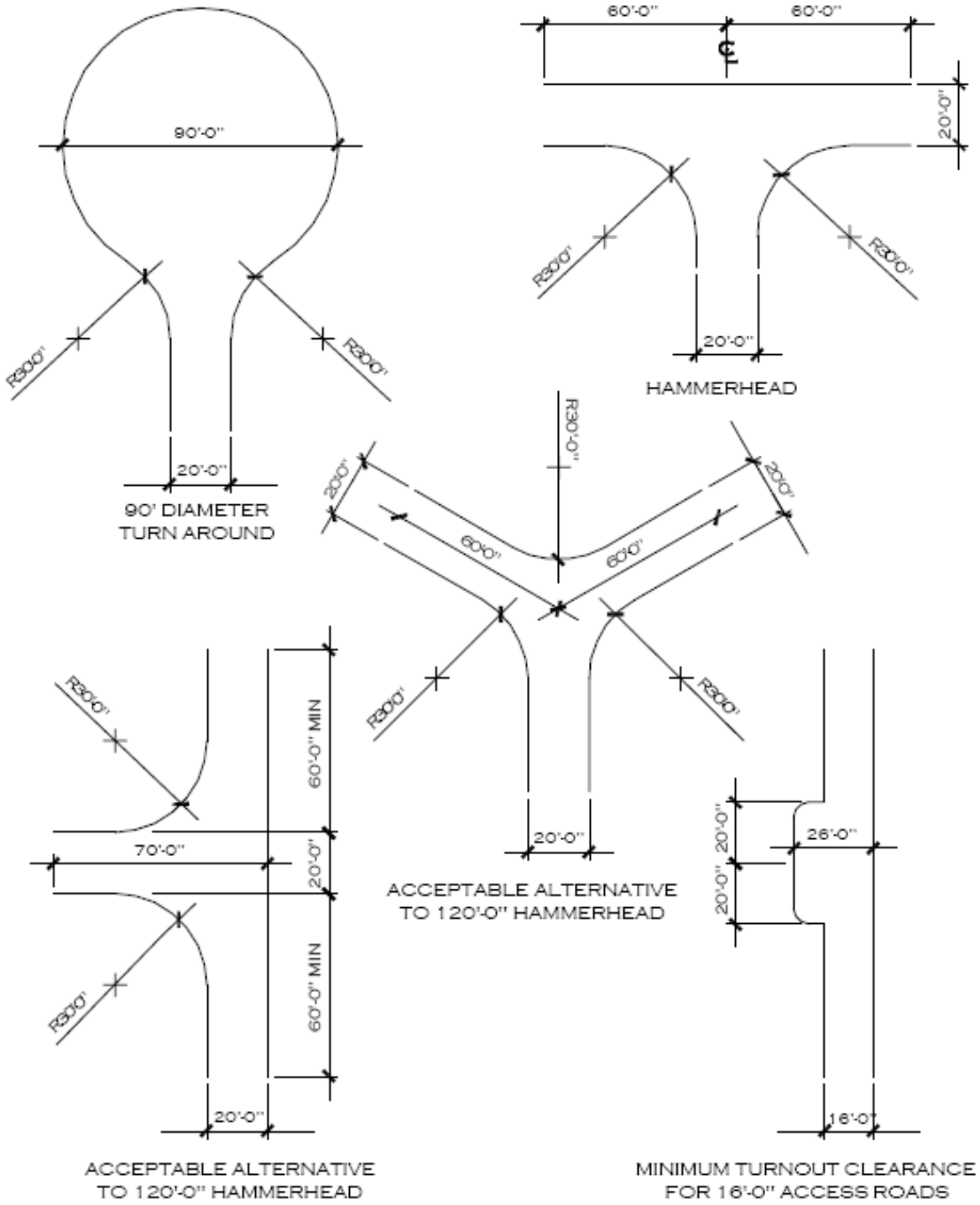

Figure 503-A - 20-foot Fire Apparatus Access Roadway Details

Fire Apparatus Access Drawings

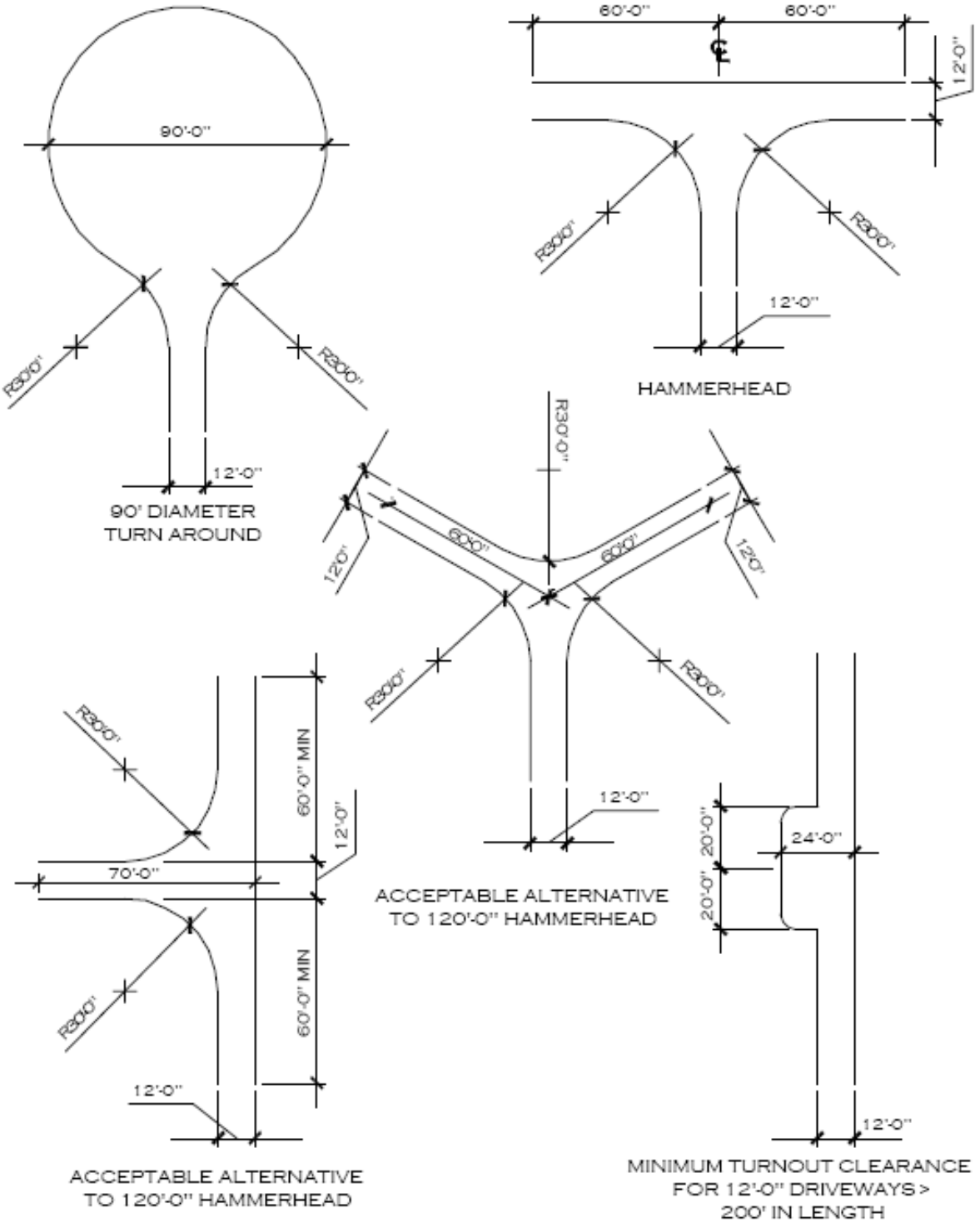

Figure 503-B - 12-Foot Driveway Access Details serving not more than two (2) Single-Family Dwellings

Fire Flow Requirements

The **Fire Flow** is evaluated for each individual building. The **"Fire Area"** of the building includes the total floor area of all levels of the building. Only a four-hour rated wall with no openings may subdivide a building into separate "Fire Areas" for the purpose of determining Fire Flow.

The Fire Flow is determined by using IFC Table B105.1. The "Fire Area" is found under the appropriate Type of Construction column and reading to the right. This initial Fire Flow may be adjusted further by applying a 50% credit if the building is fully sprinklered, but in no case can it be less than 1,000-gpm for one- and two-family dwellings no larger than 3,600 square feet or 1,500-gpm for all other structures. *(IFC Appendix B, sections B105.1 and B105.2, per District Resolution 07-3)*

Fire Hydrants

Buildings constructed in the Fire District, including single-family dwellings, are required to have fire hydrants providing the required fire flow, spaced in accordance with IFC Table C105.1. *(IFC Appendix C)*

For construction projects that do not meet the above requirement, consultation with the Fire District is necessary.

Minimum clearances around all fire hydrants are required as follows:

- 7-1/2-feet side to side when viewed from the street.
- 4-feet to the rear of the fire hydrant.
- 15-feet to the front (street side) of the hydrant.
- Outlets are at least 18-inches above the surrounding ground.

See Figure 508-A below for illustration. *(IFC 508.5.5 and Figure 508-A, per District Resolution 07-3)*

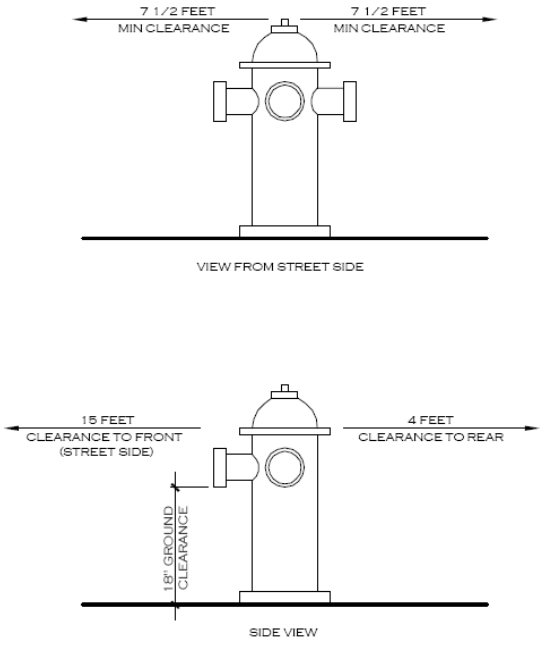

Figure 508-A – Fire hydrant clearance details

Automatic Sprinkler Systems

An automatic sprinkler system for the control and containment of a fire in a structure, including single family dwellings, is required in new construction meeting any one of the following:

- The building is **5,000-square feet** or larger for a new structure or if an addition causes the total area of the structure to increase above this amount. For the purpose of determining the area of a structure, enclosed garages are included. *(IFC 903.2, per District Resolution 07-3)*

- The building is **two stories with a basement** or **three or more stories** in height. The number of stories is determined by the Washoe County Building and Safety Department. *(IFC 903.2, per District Resolution 07-3 and NAC 477.283.1.h)*

- There is a **deficient fire flow** available at the site and no improvements to correct the deficiency in the water supply system are included in the proposed construction project. *(IFC 903.2, per District Resolution 07-3)*

- Fire apparatus **access exceeds 150-feet** to the furthest point at grade around the exterior of the building. *(IFC 503.1.1 and 901.4.3)*

- Occupancy requirements in the Building Code and the Fire Code. *(IBC 903 and IFC 903.2)*

- Note that all "R" occupancies built under the IBC require sprinkler protection regardless of size. Single-family dwellings (R-3 occupancies) built under the IRC only require sprinkler protection when **5,000-square feet** or larger or when the number of stories meets or exceeds the limits noted above.

Automatic Sprinkler System Design Criteria

Design criteria for automatic sprinkler systems can be found in the 2007 editions of National Fire Protection Association (NFPA) Standard 13 and NFPA Standard 13R with amendments. NFPA 13D is not permitted for new construction. *(IFC 903.3.1.3 was deleted by District Resolution 07-3)*

- All single-family dwellings larger than 10,000 square feet or more than four (4) stories in height must conform to the design requirements in NFPA 13. *(IFC 903.3.1.1 per District Resolution 07-3)*

- All multi-family dwellings (such as apartments, condominiums, townhouses, hotels, etc.) greater than two (2) stories in height must conform to the design requirements in NFPA 13. *(NAC 477.283.1.g)*

- NFPA 13R design may be used in "R" occupancies not requiring NFPA 13 design noted above. *(IFC 903.3.1.2)*

A minimum 10-psi margin between the available water supply and the system demand point (including any required inside hose stream allowance) is required by NAC 477.465. (Customary margin allowance of only 10-percent common in other regions is not allowed by this Nevada state fire marshal regulation.)

Exterior balconies, decks and ground floor patios of dwelling units where the building is of Type "V" construction (such as wood frame buildings) require automatic sprinkler protection. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within one (1) inch to six (6) inches below the structural members and a maximum distance of 14 inches below the deck of the exterior balconies and decks that are constructed of open wood joist construction. *(IFC 903.3.1.2.1)*

Balconies, decks and eaves of dwellings where the building is of other than Type "V" construction require automatic sprinkler protection only when the overhang exceeds four (4) feet per NFPA 13. Exceptions to this coverage will not be permitted over occupied areas, including storage spaces.

Backflow prevention must satisfy Incline Village General Improvement District (IVGID) requirements. Contact IVGID Public Utilities at (775) 832-1209 for information and details.

Drains must be provided and sized to accommodate the full discharge of the backflow device. Contact the backflow manufacturer for information on adequate drainage facilities.

Pressure reducing valves are not encouraged by the Fire District and are accepted only in high-rise construction requiring high pressure pumping systems and in exceptional construction situations. A pressure relief valve safely discharging to atmosphere is required downstream of a pressure reducing valve per applicable NFPA standards. ***Project specific approval of the Fire District is required for all pressure reducing valve installations.***

Fire Sprinkler Riser Locations

Sprinkler risers must be located in a heated room. Residential garages are not acceptable locations for exposed sprinkler risers due to past experience of an increased potential for damage from freezing.

Antifreeze Protection in Residences

Due to the severe winter weather conditions that occur in the Fire District, all single-family residential sprinkler systems are to be filled with an acceptable anti-freeze solution. Minimum anti-freeze protection to **-40°F** (-40°C) is required in all systems with the solution tested and the results recorded on the system riser tag following installation and any subsequent system inspection or servicing.

Audible Sprinkler Waterflow Alarm

An exterior bell independent of a fire alarm system is required for all buildings with an automatic sprinkler system.

All residential occupancies all require audible notification in all sleeping rooms of a sprinkler waterflow alarm.

Automatic Sprinkler Requirements in Non-Residential Facilities

Casinos are classified by NAC 477.283.1.f as “drinking establishments” and require an Ordinary Hazard, Group 2 design.

Automotive and woodworking shops in sprinklered high schools are required by NAC 477.283.2.h to be protected by at least an Ordinary Hazard, Group 1 design.

Maintenance of Automatic Sprinkler Systems

Written agreement for the maintenance of an automatic sprinkler system must be provided at the time of the acceptance test/final inspection. The agreement must be maintained at all times during the life of the structure. *(NAC 477.465.2)*

The solution in all anti-freeze “loops” are to be tested at least annually with the results (in degrees F) recorded on the service tag affixed to the anti-freeze loop control valve. Anti-freeze systems must be capable of withstanding exposure to at least **-40°F** (-40°C).

Fire Department Connection Caps

Approved locking caps are required on all new automatic sprinkler and standpipe installations, except for 1-1/2-inch fire department connections on an R-3 occupancy (single-family dwelling).

Existing standpipe and automatic sprinkler connections require approved locking caps installed following the next five (5) year inspection and test. *(IFC 903.3.7.1 per District Resolution 07-3)*

Order forms for these products are available at the Fire District’s Administration Office at 866 Oriole Way.

Monitored Fire Alarm Systems

A monitored fire alarm system is required in all buildings equipped with an automatic sprinkler system. *(IFC 903.4, an exception for single-family dwellings applies)*

Fire Alarm Systems

All fire alarm systems installed in the Fire District are required to comply with NFPA 72 without exception. Deviations from NFPA 72 are not acceptable. Contact the Fire District for additional information.

All fire alarm installation contractors are required to be licensed by both the Nevada State Contractor’s Board and the Nevada State Fire Marshal Division (F-license).

Residential Smoke Detectors

Interconnected smoke detectors are required in all single family dwellings in the following areas:

- In each room used for sleeping purposes.
- Outside each separate sleeping area in the immediate vicinity of the bedrooms(s).
- In each story within a dwelling unit, including basements but **not** including crawl spaces, uninhabitable attics and garages.

The **Power Supply** to the smoke detectors are required to be provided by the house wiring system and provided with a battery back-up. Smoke detectors that are a part of a fire alarm system complying with NFPA 72 are also acceptable. *(IBC 907.2.10 or IRC R313; and IFC 907.3.2)*

For existing dwellings without hard-wired or interconnected smoke detectors, single-station smoke detectors placed in the locations listed above are acceptable. These detectors are required to be provided with **10-year life** lithium batteries or an equivalent long-life power source. *(NFPA 72; IFC 907.3.2.2, exceptions 1 and 2; and IFC 907.3.2.3, exception)*

Fireplace and Flue Shaft Construction

The interior of any firewood-burning fire place enclosure and the flue shaft needs to be lined with fire-taped, listed Type “X” drywall applied to combustible framing. *(IFC 705.1, per District Resolution 07-3)*

Roofing and Siding Materials

A residential or commercial building shall not be constructed, altered, changed or repaired if the construction uses roofing materials other than a listed Class “A” fire retardant roof covering or assembly. Roof coverings consisting of shakes or shingles made of wood are not approved as fire retardant roofing materials. *[IFC 703.5 per District Resolution 07-3, also reference NRS Sections 472.040(1)(d) and (1)(e) and 472.100(1) and (2); and NAC Sections 472.020 and 472.030 (2)].*

Wood shake or shingle siding is required to be a Class “B” or better material. Existing wood shingle siding can only be repaired with Class “B” or better materials. *(IUWIC A109 and IFC 703.6, per District Resolution 07-3)*

Blasting and Pyrotechnics

A permit is required for any blasting or other pyrotechnic-related activity in the Fire District.

The “blaster” or “shooter” must present a Nevada State Fire Marshal Division license and current proof of insurance in person to the Fire District’s Administration Office located at 866 Oriole Way, Incline Village, Nevada. The North Lake Tahoe Fire Protection District must be listed as an additional insured. At least $1,000,000 liability coverage must be provided.

Permits must be obtained prior to the arrival of explosive materials within the Fire District’s boundary.

Blasting permits may be issued for one-time events or continuing activities at the discretion of the Fire District. Fireworks permits are issued only for a single performance.

Fireworks may only be fired from an approved off-shore platform directed over Lake Tahoe. The platform must be located a distance away from the shore as required by NFPA 1123, Table 5.1.3.1. No reduction in the minimum separation distances and no other water or ground fired location will be approved due to the severe fire hazard conditions that exist in the Tahoe Basin.