

## SECTION 20 ROPES

*Live Fire Training Prerequisite – There are no objectives required for this certification level.*

### *Firefighter I*

20-I.01 Trainee, when given name, picture, or actual knot used by the AHJ, shall identify it and describe the purpose for which it would be used:

**NFPA 1001 4.3.20.A**

- |                        |                                |
|------------------------|--------------------------------|
| A. Becket (sheet) bend | E. half hitch                  |
| B. bowline             | F. figure-eight                |
| C. clove hitch         | G. figure-eight on a bight     |
| D. bowline on a bight  | H. figure-eight follow through |

20-I.02 Trainee shall identify rope safety procedures.

**NFPA 1001 4.1.2**

20-I.03 Trainee shall identify and/or demonstrate the terms used when tying a knot or hitch used by the AHJ:

**NFPA 1001 4.1.2, 4.3.20.A**

- A. standing part when tying a knot or hitch
- B. running part when tying a knot or hitch
- C. a bight when tying a knot or hitch
- D. a loop when tying a knot or hitch
- E. a round turn when tying a knot or hitch
- F. half hitch when tying a knot or hitch

20-I.04 Trainee shall identify the construction characteristics and appropriate uses of both natural and synthetic fiber ropes:

**NFPA 1001 4.1.2, 4.3.20.A**

- A. Characteristics of natural fiber (manila) ropes for utility use only:
  - 1. moisture retention
  - 2. floatability
  - 3. resistance to rot, mildew and attack by marine organisms
  - 4. resistance to surface abrasion
  - 5. resistance to acids, alkalis and solvents
  - 6. safe working strength of new rope: 3/8" manila, 1/2" manila, 5/8" manila, 3/4" manila
- B. Characteristics of synthetic ropes:
  - 1. moisture retention
  - 2. floatability
  - 3. resistance to rot, mildew and attack by marine organisms
  - 4. resistance to surface abrasion
  - 5. resistance to acids, alkalis and solvents
  - 6. safe working strength of new rope of:
    - a. 1/2" nylon, Dacron, polypropylene, braided nylon cover with nylon core;
    - b. 5/8" nylon, Dacron, polypropylene, braided nylon cover with nylon core;
    - c. 3/4" nylon, Dacron, polypropylene, braided nylon cover with nylon core
- C. Uses of ropes:
  - 1. hoisting tools and equipment
  - 2. securing tools and equipment to immovable objects

3. rescue

20-I.05 Define a life safety rope and one and two-person life safety rope including:

**NFPA 1001 4.1.2, 4.3.20.A**

- A. maximum working load
- B. safety factor
- C. minimum breaking strength

20-I.06 Trainee, when given the proper size and amount of rope, shall demonstrate tying the following knots used by the AHJ:

**NFPA 1001 4.1.2, 4.3.20.A**

- A. Becket (sheet) bend
- B. bowline
- C. clove hitch
- D. bowline on a bight
- E. half hitch
- F. figure-eight
- G. figure-eight on a bight
- H. figure-eight follow through

20-I.07 Trainee, using an approved knot, shall hoist any selected forcible entry tool, ground ladder, or appliance to a height of at least 20':

**NFPA 1001 4.1.2; 4.3.20.A**

- A. a 1½" or 1¾" dry hose with nozzle attached
- B. a 2½" or 3" dry hose with nozzle attached
- C. a 1½" or 1¾" charged hose
- D. an axe
- E. a 6' or 8' pike pole
- F. a single 14' or 16' (wall) ladder
- G. a 10' collapsible ladder
- H. a 14' combination ladder
- I. working as a member of a team, a 24' extension ladder
- J. a 15 lb. CO<sub>2</sub> fire extinguisher
- K. a 20 lb. dry chemical fire extinguisher
- L. an electric smoke ejector
- M. a pair of bolt cutters

20-I.08 Trainee shall demonstrate the technique of inspection, cleaning, maintaining, storage, safety procedures, and reasons for placing a rope out of service.

**NFPA 1001 4.1.1, 4.3.20.A**

20-I.09 Trainee shall use a rope to tie ladders, hose, and other equipment so as to secure them to immovable objects as follows:

**NFPA 1001 4.1.1; 4.3.20.A**

- A. secure a ladder tip to a building,
- B. secure a 1½" or larger charged line to a ladder
- C. secure a hose roller

20-I.10 Trainee shall select and tie a rope between two objects at least 15' (4.6m) apart, which will support the weight of a firefighter on the rope.

**NFPA 1001 4.3.20.A**

20-I.11 Trainee, given 20' tubular webbing, shall demonstrate the proper tying of a Swiss seat.

**NFPA 1001 4.3.20**

20-I.12 Trainee, given the proper information, shall list the equipment needed to complete rappelling procedure.

**NFPA 1001 4.3.20**

*Firefighter II - There are no objectives required for this certification level.*