

EVACUATION DIFFICULTY INDEX

1988 EDITION

Chapter 5 A Procedure for Determining Evacuation Capability

This Chapter is part of an NFPA manual and is therefore not mandatory. The term "shall" in this Chapter is used to indicate that if one chooses to use the Chapter, then, within the system described, the item is mandatory.

Chapter 21 of NFPA 101, *Life Safety Code* defines three levels of evacuation capabilities of the residents as a group (with staff assistance): (a) prompt; (b) slow; and (c) impractical. Chapter 21 (NFPA 101) also prescribes the fire safety protection requirements for each level of evacuation capability. This Chapter describes a method for determining evacuation capability.

Separate subsystems are provided for:

(a) Rating the evacuation capabilities of individual residents. (Step 1)

(b) Computing the relative level of evacuation difficulty faced by the occupants of a given facility. This includes rating the Promptness of Response for the staff, introducing an adjustment for number of floors, and calculating an Evacuation Difficulty Score.

Subsection 21-1.3 (NFPA 101) defines three evacuation capability levels in terms of evacuation difficulty scores

Procedure for Determining Evacuation Capability.

STEP 1. For each resident, complete one copy of Worksheet 5-1, Worksheet for Rating Residents. Follow the instructions on the Worksheet. Use the Instruction Manual for Rating Residents for further guidance and for definitions of terms.

STEP 2. For each facility complete one copy of Worksheet 5-2, Worksheet for Calculating Evacuation Difficulty Score (E-Score). Follow the instructions on the Worksheet. Use the Instruction Manual for Calculating Evacuation Difficulty Score for further guidance and for definitions of terms.

STEP 3. Determine evacuation difficulty using the E-Score from Step 2 and the criteria of 21-1.3 (NFPA 101).

Instruction Manual for Rating Residents (Worksheet 5-1).

Base ratings on commonly observed examples of poor performance.

The Evacuation Difficulty Score has been designed to minimize speculation about how residents might perform in an actual fire emergency by basing ratings on already observed performance. Instead of speculating, raters who are not familiar enough with a resident to confidently provide ratings should consult with someone who has observed the resident on a daily basis.

Due to the stress of a real fire emergency, some residents are not likely to perform as well as they are

capable of doing. Therefore, ratings based on commonly observed examples of poor performance provide the best readily available indication of behavior that may be degraded due to the unusually stressful conditions of an actual fire. All persons naturally tend to be less capable on some days, and the ratings should be based on examples of resident performance on a typically "bad" day. Ratings should not be based on rare instances of poor performance.

Risk Factors (refer to Worksheet 5-1, side 2).

I. Risk of Resistance.

This means that there is a reasonable possibility that, during an emergency evacuation, the resident may resist leaving the group home.

Unless there is specific evidence that resistance may occur, the resident should be rated as "minimal risk."

Specific evidence of resistance means that staff have been required to use some physical force in the past. However, an episode of resistance should not be counted if it resulted from a situation that was different enough from a real fire emergency so that the incident probably does not predict behavior in a real fire emergency. For example, an incident when a resident refused to leave his bedroom to visit his parents would probably not predict behavior in a real fire emergency and would not be counted as specific evidence. Resistance may be active (for example, the resident may have struck a staff member or attempted to run away) or passive (the resident may have "gone limp" or hid from staff members). Mere complaining or arguing is not considered resistance.

(a) *Minimal Risk.* This means that there is no specific evidence to suggest that the resident may resist an evacuation.

(b) *Risk of Mild Resistance.* This means that there is specific evidence that the resident may mildly resist leaving the group residence.

Examples of specific evidence that a resident should be rated in this category are as follows:

1. The resident has mildly resisted instructions from staff. Further, the resistance was brief or easily overcome by one staff member, and occurred in a situation similar enough to a fire emergency to predict that the behavior could recur during a fire emergency, or

2. The resident has hidden from the staff in a situation similar enough to a fire emergency to predict that the behavior could recur during a real fire emergency. However, once found, the resident offered no further resistance.

(c) *Risk of Strong Resistance.* This means that the resident may offer resistance that requires the full attention of one or more staff members.

Examples of specific evidence that suggest that a resident should be rated in this category are as follows:

1. The resident has struggled vigorously in a situation similar enough to a fire emergency to predict that

the behavior could recur during a fire emergency , or

2. The resident has totally refused to cooperate in a situation that is similar enough to a fire emergency to predict that the behavior could recur during a real fire emergency, or

3. The resident has hidden in a situation that is similar enough to a fire emergency to predict that the behavior could recur during a real fire emergency. Moreover, once found, the resident continued to offer resistance.

II. *Impaired Mobility.*

This means that the resident is physically limited in his or her ability to leave the home. The rating should reflect the present physical environment in the building where the resident lives and should be based on the resident lying awake on his/her bed. The resident is rated according to how easily he or she can leave, given the presence of a physical barriers that hinder movement (such as stairs), the resident's ability to get out of bed or chairs he or she normally uses, and so forth. The resident should be given credit for being able to use devices that aid movement (for example, wheelchairs, walkers, crutches, and leg braces). However, the rater may give credit for such devices only if they are always available for an emergency evacuation.

The resident should be rated on his or her ability to use the most accessible route out of the home. For example, a resident who is "self-starting" when he uses the back door, but who "needs limited assistance" to get out the front door would be rated as "self-starting." The rater should test the resident when he/she is under the influence of any routine medication that slows the resident's movement.

When the resident needs physical assistance to make a timely evacuation, the amount of assistance required is based on the categories defined below. Physical assistance means that the staff member must use some strength to assist the resident. Guiding or directing the resident by giving gentle pushes or leading by the hand is not considered physical assistance.

(a) *Self-Starting.* This means that the resident is physically able to start and complete an evacuation without physical assistance.

(b) *Slow.* This means that the resident prepares him- or herself to leave and travels to the exit (or an area of refuge) at a speed significantly slower than normal. Specifically, the resident is rated "slow" if he/she cannot prepare him- or herself to leave, and then travel from his/her bedroom to the exit (or area of refuge) within a period of 90 seconds.

© *Needs Limited Assistance.* This means that the resident may require some initial or brief intermittent assistance, but can accomplish most of the evacuation without assistance. (The total time required to physically assist the resident should not exceed the amount of time typically required in the examples listed below.)

The following are a few examples of capabilities that fall within this category:

The resident would be physically able to start and complete an evacuation, except that:

1. The resident needs help to get into a wheelchair, or

2. The resident needs help to descend stairs in the building, or

3. The resident needs help to get out of bed, or

4. The resident needs help to open a door.

(d) *Needs Full Assistance or Very Slow.* This means that the resident needs "full assistance" or is "very slow" as defined in this section.

Needs full assistance. The resident needs full assistance if either (1) the resident may require physical assistance from a staff member during most of the resident's evacuation or (2) the total time required to physically assist the resident is equal to or greater than the time required in the examples below.

The following are a few examples of capabilities that fall within this category:

1. The resident may need to be carried from the building.

2. The resident needs help to get into a wheelchair and must be wheeled out of the building.

3. The resident needs help to get into leg braces and to descend steps.

Very slow. The resident is rated very slow if the time necessary for the resident to prepare him- or herself to leave, and then travel from his/her bedroom to the exit, is so long that the staff cannot permit the resident to evacuate unassisted. Specifically, the resident is rated very slow if he/she cannot prepare him- or herself to leave, and then travel to the exit (or area of refuge), in 150 seconds.

III. *Impaired Consciousness.*

This means that the resident could experience a partial or total loss of consciousness in a fire emergency.

Unless there is specific evidence that loss of consciousness may occur during a fire emergency, the resident should be rated as "no significant risk."

Specific evidence means that the resident has experienced some temporary impairment of consciousness of short duration (seconds or minutes) six or more times during the three months preceding the rating of the resident. Regardless of frequency, if there is specific evidence that loss of consciousness may be caused by the stress of a fire emergency, the resident should be rated as having impaired consciousness. An episode of partial loss of consciousness should be counted only if the impairment was severe enough to significantly interfere with the resident's ability to protect him- or herself. Do not count episodes where the loss of consciousness was the result of a temporary medical problem (e.g., a severe infection).

(a) *No Significant Risk.* This means that the resident is not subject to loss of consciousness or that the resident has

had fewer than six episodes of consciousness loss (partial and total) during the three months preceding the ratings.

(b) *Partially Impaired*. This means that the resident has had at least six episodes of consciousness loss in the last three months, and that the most severe of these episodes was only a partial loss of consciousness; that is, the resident would still be able to participate somewhat in his or her own evacuation.

Examples of specific evidence that a resident should be rated in this category include loss of consciousness resulting from mild (partial or petit mal) seizures, dizzy spells, intoxication, or any other partially incapacitating impairment of consciousness.

© *Totally Impaired*. This means that the resident has had at least six episodes of consciousness loss in the last three months, and that the most severe of these episodes was a total or severely incapacitating loss of consciousness; that is, the resident would require the full assistance of at least one staff member to get out of the building.

Examples of specific evidence that a resident should be rated in this category include losses of consciousness resulting from severe (generalized or grand mal) seizures, fainting spells, intoxication, or other total or severely incapacitating loss of consciousness.

IV. *Need for Extra Help.*

This means that there is specific evidence that more than one staff member may be needed to evacuate the resident.

Specific evidence means that two or more persons have been previously needed to assist the resident, and that the resident could require assistance from two persons in a real fire emergency.

When rating the resident on whether there is a need for additional assistance, the rater should disregard the presence of staff members who appear unusually strong or weak. (For example, a staff member who is exceptionally strong or an unusually small staff member would be disregarded when rating the resident on Need for Extra Help.)

(a) *Needs One Staff Member*. This means that there is no specific evidence that the resident might need help from two or more persons in a fire emergency.

(b) *Needs Limited Assistance from Two Staff Members*. This means that the resident might require some initial or brief intermittent assistance from two persons, but will otherwise need help from no more than one person.

The following are a few examples of capabilities that fall within this category.

The resident would require help from no more than one person except that:

1. The resident needs two persons to get into a wheelchair.
2. The resident needs two persons to descend stairs that are present in the building.

© *Needs Full Assistance from Two Staff Members*. This means that the resident might require assistance from two persons during most of the resident's evacuation from the building.

The following are a few examples of capabilities that fall within this category:

1. The resident may need to be carried from the building and this would require two persons, or
2. The resident would need two persons to get into a wheelchair and to get the wheelchair down a flight of stairs, or

V. *Response to Instructions (Staff-Directed Evacuation).*

This means the resident's ability to receive, comprehend and follow through with simple instructions.

Residents often do not respond equally well to all staff members. Therefore, residents should be rated on their responses to staff members whose directions they are least likely to follow.

(a) *Follows Instructions*. This means that the resident can usually be depended on to receive, comprehend, remember and follow simple instructions.

(b) *Requires Supervision*. This means that the resident is generally capable of following instructions, but is not dependable. Therefore, the resident may need to be guided, reminded, reassured or otherwise accompanied during his or her evacuation, but will not require the exclusive attention of a staff member. (For example, a staff member can simultaneously lead two or more residents who fit this classification.)

This category includes elderly persons who sometimes show early signs of senile dementia or cerebral arteriosclerosis (for example, confusion, disorientation, frequent "misplacement" of possessions) and young children who cannot be depended on to follow through with instructions.

Some examples of resident capabilities that fall within this category are as follows.

The resident is generally capable of following instructions except that:

1. The resident is deaf or hearing impaired and sometimes misinterprets communications from staff using sign language. Or
2. The resident sometimes forgets instructions after a brief period of time, or
3. The resident is sometimes distracted or confused and fails to follow through with instructions. Or
4. The resident is sometimes groggy and may fail to listen carefully or follow through with instructions. Or
5. The resident is sometimes uncooperative without apparent good reason, or

6. The resident is elderly and sometimes becomes "lost" in a familiar place, or

7. The resident is a young child who may become frightened and not follow through with instructions.

(c) *Requires Considerable Attention or May Not Respond.* This means that the resident may fail to receive, understand or follow through with instructions; that is, the resident may not respond to instructions or general guidance. Therefore, the resident may require most of the attention of a staff member during his or her evacuation.

Some examples of resident capabilities that fall within this category are as follows:

1. The resident sometimes does not understand simple instructions, or

2. The resident may not respond to instructions from a particular staff member, or

3. The resident is sometimes emotionally upset and is therefore unwilling to follow instructions, or

4. The resident is deaf or hearing impaired and the staff cannot communicate reliably with the resident, or

5. The resident is very forgetful, easily confused or easily distracted.

VI. *Waking Response to Alarm.*

This means that the fire alarm may fail to awaken the resident.

Residents should be rated as "response probable" unless any of the following four conditions is true:

(a) The building does not have an alarm system meeting the requirements of Chapter 21 (NFPA 101) or the alarm is not very loud where the resident sleeps (doors should be closed and barriers kept in place when testing the loudness of the fire alarm), or

(b) Medication taken by the resident before retiring differs in type or amount (increased) from the medication taken for waking hours, or

(c) The resident has a readily apparent hearing impairment or the resident removes his or her hearing aid when sleeping, or

(d) There is some specific evidence that the resident may be an exceptionally sound sleeper. (Examples of specific evidence are: the resident did not wake up during

some particularly loud clamor or racket and staff members have had to vigorously shake the resident to awaken him or her.)

When any of the four conditions is true, then the resident should be rated as "response not probable" unless the resident's ability to wake up has been demonstrated. The demonstration of the resident's ability to wake up to the fire alarm should be conducted after the first half hour of sleep and during the first three hours of sleep. Also, the resident's ability to wake up to the alarm should be demonstrated on two different nights under usual conditions (for example, without hearing aid, under usual medications, and so forth). Also, the resident should be

alert enough to follow simple instructions within one minute of waking up. In order to avoid awakening other residents, a device that makes a sound that is similar to but not louder than the fire alarm may be used (for example, an alarm clock can be used instead of a bell alarm).

(a) *Response Probable.* This means that none of the four conditions is true for the resident or, when any of the conditions is true, the resident's ability to wake up has been demonstrated.

(b) *Response not Probable.* This means that one or more of the conditions is true for the resident, and that either the resident has not been tested for his or her ability to wake up to the fire alarm, or the resident failed to demonstrate his or her ability to wake up to the alarm.

VII. *Response to Fire Drills (Self-Directed Evacuation).*

This relates to the resident's ability to leave the building as demonstrated by the resident's performance during fire drills.

It covers his or her ability to make decisions but does not relate to mobility, which is covered in a separate factor. For example, a resident may need assistance only in transferring from bed to wheelchair but otherwise can promptly initiate and complete an evacuation. Such a resident would get a "yes" for "Initiates and Completes Evacuation Promptly" (0 points) and would be rated "Needs Limited Assistance" on the "Impaired Mobility" factor (6 points).

Components of a Self-Directed Evacuation. There are three basic tasks that a resident must perform reliably and without instructions or supervision in order to receive the most favorable rating on this factor:

(a) *Initiates and Completes Evacuation Promptly.* The resident must have demonstrated a proper response to an alarm or warning of a fire by starting and completing the evacuation without unnecessary delay.

(b) *Chooses and Completes Back-up Strategy.* The resident must have demonstrated the ability to select an alternative means of escape or take other appropriate action if the primary escape route is blocked.

(c) *Stays at Designated Location.* The resident must have demonstrated that he/she will stay at a designated safe location during fire drills- (The whereabouts of already evacuated residents needs to be confirmed to avoid dangerous return trips to look for residents who may have returned to buildings.)

The resident shall be credited with being able to perform a task only when the resident has been specifically trained or instructed in the desired task and has demonstrated the desired response in at least three of the last four fire drills for which the skill was tested.

When the skill has not been tested in four fire drills, the resident shall be credited only when the resident has demonstrated the desired response during the last two opportunities to test the skill.

Ratings must be based on the resident's demonstrated performance. Any resident who has not been trained using fire drills must be given the higher scores.

Residents must be rated assuming that a fire might find them in a common situation where they are least likely to respond well to an emergency. For most residents, this will be their evacuation ability after being awakened at night. The rating should not include difficulties in actually awakening the resident because of the large differences in how easy it is to wake up the same individual at various times of the night.

(a) *Initiates and Completes Evacuation Promptly.* Some examples of resident capabilities that score "no" for this item are:

1. The resident may not react to the alarm until alerted by a staff member.

2. The resident spends an excessive amount of time preparing to leave (for example, getting dressed, seeing what everyone else is doing).

3. The resident has a hearing impairment and therefore must be alerted by a staff member.

4. The resident is sometimes upset or confused and therefore may seek out a staff member before evacuating.

5. The resident will reliably start an evacuation, but is easily distracted and requires some supervision.

(b) *Chooses and Completes Backup Strategy.* Residents that score "no" on this item will be those unlikely to select a good course of action if the primary escape route cannot be used; that is, they have not been trained to find alternative escape routes, find an area of refuge, or perform other appropriate action. An example of resident capabilities that score "no" for this item is:

The resident lacks the conceptual ability to understand about fire hazards and blocked escape routes, and therefore needs supervision.

(c) *Staying at a Designated Location in a Safe Area.* Some examples of a resident's capabilities that score "yes" for this item are:

1. The resident has been specifically trained to remain at a designated location in a safe area, and has demonstrated this ability without the presence of staff members in three of the last four fire drills.

2. The resident is physically immobile, and therefore cannot leave the designated location.

3. The group home uses a motor vehicle (for example, a van or bus) or a building that is detached and remote from the home (for example, another house or a remote garage) as the designated location, and the resident has demonstrated in three of the last four fire drills that he or she will remain there without the presence of a staff member.

4. The resident may tend to wander, but a reliable resident has been assigned to keep the "wandering" resident at the designated location without using any force coercion. Further, this arrangement has been demonstrated as effective in at least three of the last four fire drills.

Some examples of residents that score "no" for this item are:

1. The resident has not been trained to stay at a designated location without any staff supervision.

2. The resident has been trained to stay without staff supervision at a designated location, but has failed to demonstrate this capability in three of the last four fire drills.

Instruction Manual for Calculating Evacuation Difficulty Score (E-Score) (Worksheet 5-2).

Requirements for Using the Evacuation Difficulty Score (E-Score)

While the use of the Evacuation Difficulty Score allows determination of the level of fire safety need for a variety of staff and resident combinations, the system is valid only when the following underlying requisites are satisfied.

(a) *Has a Protection Plan Been Developed and Written and Have All Staff Members Counted in the Calculation of E-Scores Been Trained in its Implementation?*

Regardless of the staffs everyday competencies, they cannot be relied on to innovate effective life safety actions under the extreme stress and time limitations of an actual fire emergency. Regardless of the building's protection features, staff must have a valid and practiced plan of action that can be immediately put into effect in an emergency. The protection plan should include the following features: (a) a description of all available evacuation, escape and rescue routes and the procedures and techniques needed to evacuate all the residents using the various routes, and (b) the fundamental knowledge about fire growth, containment and extinguishment needed to make reasonable judgments about action priorities and viable egress routes.

(b) *Is the Total Available Staff at any Given Time Able to Handle the Individual Evacuation Needs of Each Resident Who May Be in the Board and Care Home?*

In a well-protected building, it would be possible to have an E-Score that is passing in relation to the rating values for the fire protection features of the building, and still not have the total situation acceptable under this system. This would be the case when a resident requires assistance from two staff members, but only one staff member is present. Thus, a facility must not only have a passing E-Score, but the situation must be such that every resident can be evacuated by available staff.

Exception: This requirement is waived when the following conditions are true:

(1) The building meets the criteria for impractical level of evacuation difficulty; and

(2) For any time when the question is answered "no":

(a) The resident whose evacuation needs cannot be handled is in a bedroom or other room that provides adequate refuge from fire outside the room, and

(b) There is at least one staff member present who can close the door to the room.

Example: A very heavy resident is in a building meeting the criteria for impractical level of evacuation difficulty with one staff member who cannot transfer the resident from his bed to his wheelchair. Although the staff member cannot meet all the resident's evacuation assistance needs, the problem arises only when the resident is in his bedroom; however, the bedroom provides adequate refuge.

(c) *Can Every Staff Member Counted in the Calculation of E-Scores Participate Meaningfully in the Evacuation of Every Resident?*

For example, a staff member, due to his or her own disability, may be unable to assist one or more physically disabled residents and, therefore, cannot be included in the calculation of the E-Score. However, if a staff member's disability does not limit his or her ability to assist the residents, then the staff member may be included.

(d) *Are All Staff Members Counted in the Calculation of E-Scores Required to Remain in the Dwelling Unit with Only the Exceptions Listed in the Instruction Manual?*

The procedure described in this Chapter for calculating an Evacuation Difficulty Score is based upon the assumption that the facility is always staffed when residents are in the building except as described below. Unstaffed buildings, not covered by these Exceptions, may be assigned an evacuation capability level based on the demonstrated ability of the residents to meet the criteria of 21-1.3 (NFP A 101) without staff assistance.

The Exceptions are as follows:

(1) Residents who receive only the most favorable ratings on the Worksheet for Rating Residents may be present in the dwelling unit without the presence of staff members.

(2) A staff member may be at a location outside of the dwelling unit when his/her ability to respond to a fire emergency from the location is roughly equivalent to his/her response ability from within the dwelling unit. In determining equivalency, the regulatory authority should consider: (1) whether the alarm meets the minimum loudness criteria (see the Instruction Manual for Calculating Evacuation Difficulty Score) at the locations outside the dwelling unit or whether another staff member who is required to remain in the dwelling unit can immediately notify the outside staff member of a fire emergency; (2) travel time to the dwelling unit; (3) detection of fire cues (e.g., smoke, noises) from the locations outside the dwelling unit; and (4) whether the staff member will be immediately notified about which area has the fire emergency, if the outside staff member is required to report to fire emergencies in more than one dwelling unit or fire zone.

The authority having jurisdiction can grant partial credit (not to exceed the Delay of Response score that the

staff member would receive when required to remain in the dwelling unit) for staff members who are permitted to be at locations outside the dwelling unit, but who have an ability to respond promptly.

(e) *Were at Least Twelve Fire Drills Conducted in the Last Year?*

Any home in operation for less than one year should have had as many fire drills as months of operation to meet the requirement for proper number of fire drills. (Requirement is for 12 drills per year.)

Worksheet for Calculating the Evacuation Difficulty Score (E-Score) (Worksheet 5-2).

I. *Areas of Application of Evacuation Difficulty Score.*

(a) Small Facilities (housing not greater than 16 residents). The evacuation difficulty score is based on all of the housed residents and the available staff measured in accordance with the criteria for evaluating residents and staff in this instruction manual.

(b) Large Facilities (housing greater than 16 residents). The evacuation difficulty score may be calculated on the basis of the entire building as with small dwelling units or on the basis of individual fire/smoke zones. The procedure providing the better (i.e., lower), evacuation difficulty score may be used. A fire/smoke zone is a portion of the building separated from all other portions of the building by building construction having a t least 1-hour fire resistance and/or smoke barrier con

forming to the requirement of Section 6-3 of NFP A 101, *Life Safety Code* for smoke barriers of at least 20-minute fire resistance. Zoning of the facility is also permitted in non fire-resistive sprinklered buildings provided the construction separating one zone from another is sound and smoke resistant.

If a building is zoned, each zone shall be separately evaluated. Its evacuation difficulty score is based on the residents of that zone and the staff that is available to that zone in accordance with the staff availability criteria in this instruction manual.

When the area of application is by zone, a separate evaluation is to be made of zones that include common use spaces where the residents of more than one zone congregate for meals, recreation, or other purposes. In such cases, adjust the resident evacuation assistance scores as appropriate to reflect the needs residents would have under such conditions.

II. *Finding Staff Shift Score (Worksheet 5-2B).*

If it is not obvious which time period has the highest E- Value, complete a separate worksheet for all candidate time periods and use the one having the highest E- Value.

Alarm Effectiveness. This factor concerns whether smoke detector-activated alarm devices are loud enough to dependably alert staff to a fire emergency.

(a) *Assured.* To be rated "assured," the alarm shall be "easily noticeable" in all locations where staff are allowed to go, regardless of their ratings on the promptness of

response factor. To be "easily noticeable," the alarm shall be a minimum of 55 dBA measured at ear level. However, in order to be "easily noticeable," the authority having jurisdiction may require the alarm to be louder than 55 dBA where background noise interferes with alarm audibility. For example, the alarm may need to be more than 55 dBA in order to be heard over the noise of a washing machine in the laundry, a television in the living room, and so forth.

In addition, if there are staff who are allowed to sleep, the alarm shall be a minimum of 70 dBA measured at "pillow" level in any area where they may be asleep.

The alarm must be activated by one or both of the following

1. Smoke detectors.
2. Sprinkler system.

If the facility has smoke detectors meeting the requirements of Chapter 21 (NFP A 101), the smoke detectors must activate the alarm. If the facility has a sprinkler system whose fire safety properties are considered in the fire safety evaluation of the building, activation of the sprinkler system must activate the alarm.

(b) *Not Assured.* The alarm does not satisfy the conditions specified under "Assured."

The loudness of the alarms is determined with doors, normally closed during the time period being rated, being closed, and with any other barriers that reduce the loudness of the alarms in place.

Staff Availability. This factor concerns whether there are circumstances when staff may be less able to respond appropriately or may be delayed in their response to a fire emergency.

Staff members shall be included in the ratings only if they are required to remain within the residence, * if they sleep less than 100 ft (30 m) from all locations in the portion of the facility being evaluated, and/or their travel time to any location in the portion of the facility being evaluated does not exceed 1 minute.

(a) *Standby or Asleep.* This means that the staff member does not have specific duties that assure an immediate response to the alarm, but that the staff member is otherwise available to assist in a timely manner. This category includes live-in staff who may be asleep, showering, or otherwise unable to respond immediately.

(b) *Immediately Available.* This means that the staff member is required to be available to offer immediate assistance, but is not required to remain in close proximity to the residents. For example, the staff member would be allowed to wash clothes or do bookkeeping.

(c) *Immediately Available and Closeby.* This means that the staff member, in addition to satisfying the requirement for immediately available, is also required to

*Exceptions to this requirement are listed in the Requirements for using the Evacuation Difficulty Index.

remain in close proximity to the residents except for brief periods of time.

If the home is a large facility and has multiple fire/smoke zones, some staff may have responsibilities for residents outside the fire/smoke zone being evaluated. If their duties include rescue of residents in the fire zone being evaluated, they may be assigned partial or full promptness of response scores. The authority having jurisdiction shall assign the points based on the proximity of the staff members to the zone and the nature of their duties in a fire emergency. This credit will be given only if there is a smoke detection system that will alert the staff member and a system or procedure for promptly informing the staff member of the general location of the fire

Residents may be assigned responsibilities similar to staff in assisting other residents during fire emergencies. The authority having jurisdiction may assign these residents up to 8 Promptness of Response points based on their capabilities and responsibilities.

III. Finding the Home's Evacuation Difficulty Score (Worksheet 5-2C).

Vertical Distance from Bedrooms to Exits. This factor concerns the increased risk resulting from resident bedrooms that are located where residents must travel through another floor in order to get outside of the small dwelling.

Certain critical terms are defined as follows:

Direct Exit. This means that there is no more than one step between the inside of the dwelling and either (1) ground level outside or (2) a level area outside the dwelling that is at least 32 sq ft (3.0 sq m). This level area might be a porch or a stairway landing. When the vertical distance is greater than one step, a ramp may be used to satisfy this criterion.

Vertical Distance. This refers to the greatest number of floors that separate any resident bedroom from its nearest direct exit.

(a) *All Bedrooms on Floors with Direct Exits.* This means that every room where residents sleep is on a floor with at least one direct exit.

Some examples of buildings that fall within this category follow:

1. A one-story house without bedrooms in the basement, or
2. A two-story house without bedrooms on the second floor, or
3. A split-level house with direct exits at each level, or
4. A two-story house with bedrooms on the second floor that has an exterior stairway from the second floor with a landing at the second floor that is greater than 32 sq ft (3.0 sq m).

(b) *Any Bedroom One Floor from Exit.* This means that there is at least one room where residents sleep in

which the shortest vertical distance to a direct exit is one floor.

Some examples of buildings that fall within this category follow:

- 1. A two-story building with bedrooms on the second floor and/or in the basement, or
- 2. A one-story house where all the exits have stairs that lead to grade, without a landing, or porch of 32 sq ft (3.0 sq m).

(c) Any Bedroom Two or More Floors from Exit. This means that there is at least one room where residents sleep in which the shortest vertical distance to a direct exit is two or more floors.

Some examples of buildings that fall within this

category follow:

- 1. A three-story house with bedrooms on the third floor and no exterior fire escape, or
- 2. A three-story house with bedrooms on the third floor and a fire escape, but the landing to the fire escape is less than 32 sq ft (3.0 sq m).

If the board and care home is located in an apartment house and the unit containing the group home requires ascending or descending stairs to go from any bedroom to the exit to the corridor, assign a score of 1.2 for Vertical Distance from Bedrooms to Exits. Note: This special scoring of this rare type of apartment is not noted on the Worksheet. In all other apartments, the score for Vertical Distance from Bedrooms to Exits equals 1.

5-1 SIDE 1

Worksheet for Rating Residents

Complete one Worksheet for each resident.
Read Instruction Manual before filling out this form.
Base ratings on commonly observed examples of poor performance.

Resident's Name _____ Rater _____

Facility _____ Date _____

WRITE ANY EXPLANATORY REMARKS YOU MAY WISH TO MAKE HERE:

5-1 SIDE 2

Worksheet for Rating Residents

Read Instruction Manual before filling out this form.
Base ratings on commonly observed examples of poor performance.

5-1A Rating the Resident on the Risk Factors

Rate the resident on each of the factors below by checking the one circle in each risk factor that best describes the resident. For the first six factors, write the scores for the circles you checked in the appropriate score boxes in the far right column. For "response to fire drills." write the three checked scores in the large circles. Write the sum of the 3 scores in the large box on the right.

| | | | | | SCORE BOXES |
|---|--|---|---|--|---|
| I. Risk of Resistance (Check only one) | Minimal Risk <input type="radio"/> score=0 | Risk of Mild Resistance <input type="radio"/> score=6 | Risk of Strong Resistance <input type="radio"/> score=20 | | <input style="width: 60px; height: 30px;" type="text"/> |
| II. Impaired Mobility (Check only One) | Self-Starting <input type="radio"/> score=0 | Slow <input type="radio"/> score=3 | Needs Limited Assistance <input type="radio"/> score=6 | Needs Full Assistance or Very Slow <input type="radio"/> score=20 | <input style="width: 60px; height: 30px;" type="text"/> |
| III. Impaired Consciousness (Check only one) | No Significant Risk <input type="radio"/> score=0 | Partially Impaired <input type="radio"/> score=6 | Totally Impaired <input type="radio"/> score=20 | | <input style="width: 60px; height: 30px;" type="text"/> |
| IV. Need for Extra Help (Check only one) | Needs at Most One Staff <input type="radio"/> score=0 | Needs Limited Assistance from 2 Staff <input type="radio"/> score=30 | Needs Full Assistance From 2 Staff <input type="radio"/> score=40 | | <input style="width: 60px; height: 30px;" type="text"/> |
| V. Response to Instruction (Check only one) | Follows Instructions <input type="radio"/> score=1 | Requires Supervision <input type="radio"/> score=3 | Requires Considerable Attention/May Not Respond <input type="radio"/> score=10 | | <input style="width: 60px; height: 30px;" type="text"/> |
| VI. Waking Response to Alarm (Check only one) | Response Probable <input type="radio"/> score=0 | Response Not Probable <input type="radio"/> score=6 | | | <input style="width: 60px; height: 30px;" type="text"/> |
| VII. Response to Fire Drills (Without Guidance or Advice from Staff) | Initiates and Completes Evacuation Promptly | Yes <input type="radio"/> score=0 | No <input type="radio"/> score=8 | + | SUM OF THESE THREE ITEMS |
| | Chooses and Completes Back-up Strategy | Yes <input type="radio"/> score=0 | No <input type="radio"/> score=4 | | |
| | Stays at Designated Location | Yes <input type="radio"/> score=0 | No <input type="radio"/> score=6 | + | |

5-1B FINDING THE RESIDENT'S OVERALL NEED FOR ASSISTANCE

Compare the numbers in the 7 score boxes you have filled in. Take the one *highest* score from the score boxes and write it in this box:

EVACUATION ASSISTANCE SCORE

5-2

**Worksheet for Calculating Evacuation Difficulty Score
(E-Score)**

BEFORE FILLING OUT THIS WORKSHEET:

- Please read the Instruction Manual.
- Make sure you have the completed "Worksheets for Rating Residents" (Step I).
- Determine whether the requirements for using the Evacuation Difficulty Index have been satisfied by checking the one box to the left of each question below that shows whether the answer to the question is "YES" or "NO."

| | | | | |
|--------------------------|-----|--------------------------|----|---|
| <input type="checkbox"/> | YES | <input type="checkbox"/> | NO | 1. Has a protection plan been developed and written and have all staff members counted in the calculation of E-Scores been trained in its implementation? |
| <input type="checkbox"/> | YES | <input type="checkbox"/> | NO | 2. Is the total available staff at any given time able to handle the individual evacuation needs of each resident who may be in the residence? |
| <input type="checkbox"/> | YES | <input type="checkbox"/> | NO | 3. Can every staff member counted in the calculation of E-Score meaningfully participate in the evacuation of every resident? |
| <input type="checkbox"/> | YES | <input type="checkbox"/> | NO | 4. Are all staff members counted in the calculation of E-Scores <i>required</i> to remain in the residence with only the exceptions listed in the Instruction Manual? |
| <input type="checkbox"/> | YES | <input type="checkbox"/> | NO | 5. Were at last 12 fire drills conducted during the last year? |

When the answers to all the above questions are "YES," the requirements for using the Evacuation Difficulty Index are satisfied.

THIS WORKSHEET IS FILLED OUT FOR THE STAFF "SHIFT"

FROM _____ TO _____

(You must fill out this worksheet for the time of day, week, etc. when the ratings for the combination of staff and residents yields the highest E-Score. This period of time will usually be late at night. When it is not obvious which time period has the highest E-Score, complete a separate worksheet for all candidate time periods and use the one having the highest E-Score.)

EVALUATOR _____ DATE _____

FACILITY _____

5-2C Finding the Home's Evacuation Difficulty Score

1. Rate the home on the factor below by checking the circle that best describes the home.

| | Vertical Distance from Bedrooms to Exits | | |
|-----------------------------|--|----------------------------|-------------------------------------|
| | All BR on floors with direct exits | Any BR one floor from exit | Any BR two or more floors from exit |
| Small Dwelling | 0 score=0.8 | 0 score= 1.0 | 0 score = 1.2 |
| Large Facility or Apartment | 0 score= 1.0 | | |

Note: Small dwellings have 16 or fewer residents.

2. Write the score for the category you checked in the appropriate box in Scoresheet 5-2C below.

3. Compute the E-Score as shown in Scoresheet 5-2C:

- a. Multiply *the Resident Score Total* by the score for *Vertical Distance from Bedrooms to Exits*.
- b. Divide the answer by the *Staff Shift Score Total* to find the Evacuation Difficulty Score (E-Score).

| Scoresheet 5-2C | | CALULATIONS OF E-SCORE | |
|---|---|--|--|
| Resident Score Total | X | Vertical Distance From Bedrooms To Exits | |
| <input style="width: 80px; height: 25px;" type="text"/> | | <input style="width: 110px; height: 25px;" type="text"/> | |
| | | = | E-SCORE |
| Staff Shift Score Total | | / | <input style="width: 110px; height: 35px;" type="text"/> |
| <input style="width: 80px; height: 35px;" type="text"/> | | | |

4. Determine and record Level of Evacuation Difficulty appropriate to the calculated E-Score; use Scoresheet 5-2D.

Scoresheet 5-2D

| E-SCORE | LEVEL OF EVACUATION DIFFICULTY |
|------------------------------|--------------------------------|
| < 1.5 > 1.5 < 5.0 >5.0 | Prompt Slow Impractical |

LEVEL OF
EVACUATION DIFFICULTY