

NORTH CAROLINA REHABILITATION CODE

# 2009 NC Rehabilitation Code

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Cross referenced to the

**2009 NC State Building Code**

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## NORTH CAROLINA REHABILITATION CODE (NCRC) with references to the 2009 North Carolina State Building Code

### 1.1 Introduction Using This Code

- a. This section is a guide to the use of the North Carolina Rehabilitation Code (NCRC). It should not be interpreted as containing substantive requirements and it is not intended to be cited for enforcement purposes.
  1. When using the NCRC, the provisions of the other codes of the 2009 North Carolina State Building Code (NCSBC) do not apply to work in existing buildings, changing the use of an existing building or work in an existing building related to an addition unless the provisions of this code specifically reference them and make them applicable.
  2. The 2009 North Carolina State Building code has made the requirements that are applicable to new buildings also apply to buildings whose use is changed; applicable to buildings undergoing rehabilitation with the extent of the requirements depending on the amount of money being spent on the building; and to some extent applicable to existing buildings that have an addition.
  3. This code takes a new approach. The requirements that apply to a project are based upon the type of work being done rather than on the extent of the work. There is only one exception to this rule. In the case of reconstruction work, as the term reconstruction is defined in this code, there are some requirements which must be met when the project is a large one in floor area. There are no requirements in this code that are based on the cost of the work.
  4. In this code, work is classified into six categories. Each category has a separate section which describes the requirements for that category of work. The categories are repair, renovation, alteration, reconstruction, change of use and additions. These terms are defined in Section 1.3 of this code. The definitions are critical to understand the distinctions between these six categories of work. Where a project contains more than one category of work, each applicable category must be consulted for the requirements for that category of work.
- b. Repair Work: The requirements that apply to repair work are in Section 1.4 of this code. The requirements for repairs are brief due to the limited nature of the work. There is a short list of materials that may not be used for repair work due to their inherently hazardous nature and another list of materials which must be used in connection with repair work where applicable. These lists should be used when planning the repair components of any project.
  1. This code does not establish when a permit is required for a project. Those requirements are in the 2009 North Carolina Administrative Code and Policies. There is no limit to the amount of

repair work which may be undertaken. The decision to renovate rather than repair is made only by the owner.

- c. **Renovation Work:** The requirements that apply to renovation work are in Section 1.5 of this code. Renovation is defined in Section 1.3 of this code.
1. There are short lists of materials that may not be used and materials or practices which must be used, where applicable, when renovation work is undertaken. These lists should be used when planning a project which involves renovation work.
  2. The installation of smoke detectors is required in any building of Use Groups R-3/R-4 which undergoes a renovation.
  3. Renovation work must comply with Section 1.8, Materials and Methods. All materials used for the renovation work must meet the standards for those materials established by Section 1.8 and methods of installation must comply with Section 1.8. Section 1.8, Materials and Methods references and makes applicable to renovation work certain specified subsections of the other codes of the 2009 North Carolina State Building Code. Only those subsections specifically referenced in Section 1.8 apply to renovation work. All materials and methods used in renovation work must comply with the requirements of that section.
  4. This code never requires renovation. Any existing work may be repaired. The requirements for renovation apply only where the owner decides to renovate.
- d. **Alteration Work:** The requirements that apply to alteration work are in Section 1.6 of this code. Alteration is defined in Section 1.3 of this code.
1. Section 1.6, alteration work, contains short lists of materials that may not be used and materials or practices which must be used, where applicable, when alteration work is undertaken. These lists should be used when planning a project which includes alteration work.
  2. The installation of smoke detectors is required in any building of Use Group R-3/R-4 which undergoes an alteration.
  3. Alteration work must also comply with Materials and Methods that are set forth in Section 1.8.
  4. In alteration work, the configuration of the building is changed in some manner. The definition of “alteration” in Section 1.3 of this code provides the information needed to fully understand this term. Because improper alteration work could create a safety hazard in the building, this code contains specific requirements which define these hazards. These are the Basic Requirements of the code which can be found in Sections 1.10 through 1.30 of this code.
  5. The code includes Basic Requirements, listed by use group, with the exception of egress capacity, interior finish requirements, commercial cooking operations, and windowless stories

which apply to all use groups. Reference should be made to the list of basic requirements applicable to the particular use group in which the building being altered falls. Care should be taken to ensure that the alteration will not create a non-conformity with any of the basic requirements which did not exist before the alteration was undertaken.

6. Certain alterations create what are defined to be new building elements. There is a specific listing of those items which are to be treated as newly-created building element which can be found in Section 1.9 of this code. The elements on that list are required to conform to certain specific sections of the other codes of the 2009 North Carolina State Building Code. The sections with which each newly-constructed element must comply are listed in Section 1.9. Any alteration which creates one of the elements listed in Section 1.9 must comply with the specific requirements listed in Section 1.9.
  7. Improvements to the accessibility of buildings may be required when alteration work is undertaken. Those requirements are specified in Sections 1.6(e) and (i) of this code.
- e. Reconstruction Work: the requirements that apply to reconstruction work are in Section 1.7 of this code. Reconstruction is defined in Section 1.3 of this code. Unlike repair, renovation, and alteration, reconstruction is not a kind of work. A reconstruction may, as the definition of the term makes clear, include a combination of repair, renovation, and alteration work. It is the extent and nature of the work which makes a project a reconstruction. There are no quantitative criteria which determine whether a project is a reconstruction. A project becomes a reconstruction when the area where the project is taking place cannot be occupied while the work is in progress and when a new certificate of occupancy is required before the area can be re-occupied. Both criteria must be met.
1. This code requires that a reconstruction project have a delineated work area. This area is established by the permit applicant. The term “work area” is defined in Section 1.3 of the code. A reconstruction project must always involve an entire use, primary function space, or tenancy as those three terms are defined in Section 1.3. Projects which do not involve an entire use, primary function space, or tenancy are not reconstruction projects.
  2. Although a reconstruction project is comprised of repair, renovation and alteration work, all of the requirements that apply are found in Section 1.7. For ease of use, this section has been written to include all of the requirements applicable to reconstruction. The entire work area must conform to the Basic Requirements in Sections 1.10 through 1.30 of the code. These sections must be carefully reviewed when a reconstruction project is being planned.
  3. The Basic Requirements are organized by individual use groups in Sections 1.12 through 1.28. Only the sections relevant to the building’s use group must be consulted. Where a project involves mixed uses, then the special provisions of Section 1.29 should also be consulted. Basic Requirements that apply to all use groups are in Sections 1.11 and 1.30. Therefore, Sections 1.11, 1.30, and the specific use group section between 1.12 and 1.28 must be consulted for the Basic Requirements which apply to a project.

4. In addition to meeting the Basic Requirements, certain reconstruction projects must meet the Supplemental Requirements found in Sections 1.10 through 1.30. There is a specific section for each use group as is the case with the Basic Requirements. Supplemental Requirements that apply to all use groups are in Sections 1.11A and 1.30. The Supplemental Requirements apply only when the work area for a reconstruction project exceeds a certain size. Each Supplemental Requirement has its own threshold of applicability.
  5. The owner of a building in which a reconstruction project is planned must review the Supplemental Requirements applicable to the use of the project to determine if any of those requirements applies to the project. In addition to the specific use group section between 1.12A and 1.28A, Sections 1.11A and 1.30 should be consulted for the Supplemental Requirements that apply to a project.
- f. Applying the Code to a Project: The requirements of this code applicable to a project can be found as follows:
1. Separate the project into its component parts of repair, renovation, and alteration.
  2. Where a portion of the work is repair, consult the repair section of the code (Section 1.4) to ensure that prohibited materials are not being used and that any applicable required materials or practices are being used.
  3. Where a portion of the work is renovation:
    - i. Consult the renovation sections of this code (Section 1.5);
    - ii. Ensure that the renovation work does not use any prohibited materials and that any applicable required materials or practices are being used; and
    - iii. Ensure that renovation materials and the methods of their installation conform to the Materials and Methods section of this code (Section 1.8).
  4. Where a portion of the work is alteration work:
    - i. Consult the alteration section of this code (Section 1.6);
    - ii. Ensure that the alteration work does not use any prohibited materials and that any applicable required materials or practices are being used;
    - iii. Ensure that any materials and methods used for the alterations conform to the requirements of the Materials and Methods section of this code (Section 1.8);
    - iv. Ensure that alteration which creates a new building element listed in Section 1.9 of this code conforms to the requirements for new building elements that are specified in Section 1.9;

- v. Ensure that none of the alteration work creates a new condition which would create a violation of any of the Basic Requirements applicable to the use group that is specified in Sections 1.10 through 1.30.
5. Determine whether the project is a reconstruction project according to the definitions in Section 1.3 of the code. When the project is a reconstruction project:
    - i. Establish the work area of the project and show it on the plans or permit application;
    - ii. Ensure that the requirements applicable to the repair, renovation, and alteration portions of the project are followed;
    - iii. Ensure that the Basic Requirements for the particular use that are specified in the relevant section of this code between 1.12 and 1.28 are followed. Where the project work area includes more than one use group, then Section 1.29 should be consulted; and
    - iv. Review the size of the work area against the relevant provisions of the Supplemental Requirements in Sections 1.11A through 1.28A of this code. Where compliance with a supplemental requirement is necessary, then ensure that the plans and/or the permit application reflect compliance with the required section. Some Supplemental Requirements will require work outside the work area.
  - g. Changes of Use: The 2009 North Carolina State Building code divides all buildings into categories called uses. The Rehabilitation Code uses these same classifications.
    1. The different uses represent different hazards and different needs. Specific requirements apply to each use. Each of the other technical codes of the 2009 North Carolina State Building Code: Building, Fire, Plumbing, Electrical (2008 NC Electrical code), and Mechanical, defines these uses, each for its own purpose. The 2009 North Carolina State Building code requires any building or portion of a building where the use was changed to conform to the requirements of the code for a new building of that use. This code takes a different approach.
    2. A change of use in a building often, but not always, involves some construction work. Changes of use, in which the owner does not need any construction work to effect the new use, do happen. The different uses defined by the code reflect different levels of hazard and different safety requirements. Depending on the specific change, a new use may not affect the hazard; it could pose a lesser hazard; or it might pose a greater hazard or necessitate additional safety measures.
    3. This code allows changes of use when the new use is similar to or less demanding in terms of hazard or safety requirements than the present use. No modifications to the building are required by this code where such a change of use is planned.



4. This code uses the concept of Hazard Indexes in order to specify the requirements for a change of use. Separate hazard indexes are established for different aspects of building, health, and safety;
  - i. **Basic Requirements:** Changes of use specified in Section 1.31 (b) must comply with the Basic Requirements set forth in Section 1.10 through 1.30 of this code before the building can be occupied for the new use.
  - ii. **Means of Egress:** Certain changes of use specified in Section 1.31 (c) must comply with additional requirements for egress which are set forth in Section 1.31 before the building can be occupied for the new use.
  - iii. **Vertical Openings:** Stairways and other vertical openings located in a building or portion of a building where there is a change of use are required to meet certain closure requirements for the new use which are specified in Sections 1.12 through 1.28 of this code. These requirements must be met before the building may be occupied for the new use.
  - iv. **Height and Area Limits:** Changes of use are not allowed if the building will exceed the height and area limits specified in Section 1.31(e) for its type of construction. The types of construction are defined in the Building code of the 2009 North Carolina State Building code.
  - v. **Exterior Walls:** Changes of use as specified in Section 1.31 (f) of this code must have the fire resistance of exterior walls and any openings therein improved as specified in Section 1.31 (f) before the building can be occupied for the new use.
  - vi. **Fire Suppression:** Changes of use as specified in Section 1.31 (g) must have a fire suppression system installed in accordance with the requirements of Section 1.31 (g) before the building can be occupied for the new use.
  - vii. **Fire Alarms and Fire Detection Systems:** Changes of use as specified in Sections 1.31 (h), (i), and (j) must have fire alarms or fire detection installed in accordance with the requirements of Sections 1.31 9 (h), (i), and (j) before the building can be occupied for the new use.
  - viii. **Structural, Plumbing, Electrical, and Mechanical:** Some changes of use may necessitate changes to the structural, plumbing, electrical, or mechanical systems of a building. These requirements are set forth in Sections 1.31 (l), (m), (n), and (o) of this code. Only those requirements necessitated by the change and needed for health or safety in the new use as specified must be met.

- ix. **Accessibility Requirements:** Changes of use must conform to the accessibility requirements specified in Section 1.31 (p) before the building can be occupied for the new use.
  
- 5. Where the owner of a building undergoing a change of use decides to undertake work not required by Section 1.31 of this code, then that work must comply with the requirements for repair, renovation, alteration, and reconstruction, as the case may be, which are established by Sections 1.4, 1.5, 1.6, and 1.7 of this code.
  
- 6. Where the use of a building or portion of a building is changed, a new certificate of occupancy is required for the new use by the provisions of the 2009 Administrative Code and Policies of the 2009 North Carolina State Building Code. This does not mean that all changes of use are required to meet the requirements for Reconstruction. Only a project which meets the definition of Reconstruction set forth in Section 1.3 need comply with the provisions of Section 1.7, Reconstruction, of this code.
  
- h. **Additions:** Additions are required to comply with the provision of the other technical codes of the 2009 North Carolina State Building Code. Work in the existing building which is related to the addition must conform with the requirements of Section 1.32 of this code. Additionally, such work undertaken in the existing building must comply with the requirements for repair, renovation, alteration, and reconstruction as set forth in Sections 1.4, 1.5, 1.6, and 1.7 of this code.
  
- i. **Historical Buildings;** Section 1.33 of this code defines those buildings which are to be treated as historic and sets forth certain special requirements applicable to historic buildings which modify the provisions of this code when a building is historic. Section 1.33 should be reviewed to determine if a building is to be treated as historic under this code and for the special provisions applicable to the various types of historical buildings.
  
- j. **References:** Where the North Carolina Rehab Code references other codes of the North Carolina State Building Code (NCSBC), the specific designation shall be these editions and shall include all current amendments adopted by the North Carolina Building Code Council.
  - 2009 North Carolina State Building Code (NCSBC) refers to the entire family of codes
  - North Carolina Administrative Code and Policies, 2009 edition
  - North Carolina Building code, 2009 edition
  - North Carolina Plumbing Code, 2009 edition
  - North Carolina Mechanical Code, 2009 edition
  - North Carolina Electrical Code, 2008 edition (2008 NEC)
  - North Carolina Fire Prevention Code, 2009 edition
  - North Carolina Fuel Gas Code, 2009 edition

All references to accessibility in the NC Rehabilitation code shall mean the 2009 NC Building Code Chapter 11, Section 1007, Section 3409, Appendix E, and ICC/ANSI A117.1-2003 as applicable. Where differences occur between the NC Rehab Code and the NC Building Code, the provisions of the NC Building Code shall govern.

## **1.2 Applicability and Compliance**

- a. This code, entitled “Rehabilitation Code”, shall be known and may be cited throughout the regulations as NCRC, and when referred to herein may be cited as “this code”. Unless otherwise specifically provided, all references to article or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such article, section or provision of this code.
- b. Scope: Except as otherwise specified and when elected for a specific project, this code shall control all matters concerning the repair, renovation, alteration, reconstruction, change of use, and addition to all buildings and structures and their service equipment as defined herein and shall apply to any existing buildings and structures in the State of North Carolina.
  1. This code shall not be applied to any building or portion thereof that has never been occupied. In such buildings or spaces, the requirements of the other codes of the 2009 North Carolina State Building Code for new construction shall apply.
  2. All work shall be classified by the construction official, in consultation with the appropriate code official(s), as one or more of six categories: repair, renovation, alteration, reconstruction, change of use, and additions. Specific requirements are established for each work category.
    - i. If a structure is demolished except for a de minimis amount, the construction official shall designate the replacement structure as a new structure and apply the requirements of the 2009 North Carolina State Building code applicable to new construction.
  3. Work of more than one category may be part of a single work project.
    - i. Where a project includes repair, renovation or alteration work, then the work in each such category shall comply with the requirements for that category of work.
    - ii. Where a project is a reconstruction project which includes repair, renovation or alteration work, then the work in each such category shall comply with the requirements for that category of work.
    - iii. Where an alteration project results in a new building element, then each such new element shall comply with the requirements for new building elements.
    - iv. Where a project is a reconstruction project, then the entire work area shall comply with the basic requirements of this code. Where a reconstruction project in a building involves more than one work area, then each work area shall comply with the requirements of this code. Additionally, reconstruction projects shall comply with the supplemental requirements of this code where they exceed the size requirements specified by this code in the sections governing supplemental requirements.

- v. Where the use of a building or portion thereof is changed, then the building or portion thereof shall be made to conform to the requirements of this code for a change of use. Where work is required by Section 1.31 of this code for a change of use to be approved, then that work shall comply with the requirements of this code for changes of use. Where a project undertaken in connection with a change of use involves repairs, renovations or alterations which are not required by this code for the change of use, then the work in each such category shall comply with the requirements of this code for that category.
  - vi. Where the work project involves an addition to a building, then the addition shall comply with the requirements of the 2009 North Carolina State Building Code for new buildings. Any repair, renovation or alteration undertaken in an existing building in connection with an addition shall comply with the requirements of this code for such category of work.
- c. Compliance: The only requirements of the other codes of the 2009 NCSBC which apply are specifically set forth in this code. Compliance with the requirements of the other codes of the 2009 North Carolina State Building code is not required for work in existing buildings. However, building components already in compliance with the requirements of the other codes of the 2009 North Carolina State Building Code shall be replaced with components that comply. Where no year or edition is given for a standard referenced in this code, the year or edition shall be the one referenced in the other codes of the 2009 NCSBC.
- 1. Buildings in compliance with the current edition of the applicable code shall not be required to comply with any more restrictive requirement of this code.
  - 2. The repairs, renovations, alterations, reconstruction, and changes of use or additions, of any building or structure currently existing shall conform to the requirements of this code. Where compliance with the provisions of this code would result in practical difficulty, the owner may propose alternate methods to the local authority as outlined in the Administrative Code and Policies of the 2009 North Carolina State Building code and with respect to the intent of the code.
  - 3. Any variation previously issued in writing pursuant to the 2009 NCSBC shall remain in force and effect unless the work to be performed during the course of the rehabilitation project causes one of the conditions of the variation to be violated or would otherwise create a hazardous condition.
  - 4. As an alternative to compliance with the building and fire protection requirements of this code, a permit applicant shall be allowed to evaluate the building in accordance with Section 3410.6 of the North Carolina Building Code, incorporated herein by reference, and to bring the building into compliance with the standards contained therein.
- d. Permits: The requirements of this code shall apply to all rehabilitation work without regard to whether a permit is required for such work. Determinations as to whether a permit is required shall

be made in accordance with the administrative provisions of the Administrative Code and Policies of the 2009 NCSBC.

- e. **Enforcement Responsibilities:** Responsibility for the enforcement of the provisions of this code shall be as indicated in the Administrative Code and Policies of the 2009 NCSBC.
- f. **Pre-Existing Buildings:** Buildings or structures legally in existence at the time of the adoption or subsequent amendment of this code may continue in use and nothing herein shall be interpreted as requiring the repair, renovation, alteration or reconstruction of such building, except as provided in the 2009 NCSBC or the North Carolina General Statutes, as related to Unsafe Structures and Conditions.
- g. **Relationship of this code to other codes, rules, and ordinances shall be as follows:**
  - 1. It is the intent of this code to provide a uniform, Statewide, harmonious system of rehabilitation regulations applicable to any existing buildings and structures in the State. No code, ordinance, rule, regulation of any municipality, county, board, department, commission or agency thereof, shall establish any requirement for any matter covered by this code.
  - 2. It is the intent of this code to establish requirements for reconstruction projects which are at least as stringent as the requirements applicable to that area under the adopted minimum housing ordinances of the local jurisdiction. This code shall not be interpreted as establishing requirements less stringent than these ordinances.
  - 3. Certificates of occupancy issued for projects in compliance with the requirements of this code are specific to the work undertaken and shall not obviate the need for the building to be brought into compliance with the retrofit requirements of North Carolina Fire Prevention Code.
    - i. Notwithstanding the above, a variation issued in writing pursuant to the 2009 NCSBC in connection with a rehabilitation project shall remain in force and effect provided that all of the conditions of the variation continue to be met and shall be accepted for purposes of establishing compliance with North Carolina Fire Prevention Code for the portion of the building to which the variation applies.
  - 4. This code is not intended to establish minimum standards of habitability for housing. No provision of any State or municipal housing code or the equivalent which establishes minimum standards for natural light, natural ventilation, minimum habitable floor area per occupant, or requirements for heat shall be deemed to be affected or superseded by this code.
  - 5. The repair, renovation, alteration, reconstruction or change of use of health care facilities shall be in accordance with this code and with the requirements of the North Carolina Division of health Service Regulation. In the event of any conflict, the more restrictive code provision shall govern.

- h. Correction of Violations of Other Codes: Alterations or renovations mandated by any property, housing, or fire safety maintenance code or mandated by any licensing rule or ordinance adopted pursuant to law, shall conform only to the requirements of that code, rule, or ordinance and shall not be required to conform to this code unless the code requiring such alterations so provides.
- i. Variations: Building owners wishing to use an alternative to compliance with specific provisions of this code shall submit request(s) in writing in accordance with the Administrative Code and Policies of the 2009 NCSBC. For requests involving fire safety, the construction official shall consult with the fire code official.
- j. Asbestos hazard abatement projects and lead hazard abatement projects shall not be categorized as reconstruction projects in and of themselves despite the fact that occupancy of the work area is not permitted. However, all related construction work undertaken in connection with such projects and all replacement materials used shall comply with the applicable provisions of this code.

### **1.3 Definitions**

- a. The words and terms used in this code shall have the following meanings unless the context clearly indicates otherwise. Any term not defined herein which is defined in any of the other codes of the 2009 NCSBC shall have the meaning as defined in that code. Where a term is defined in this code and is also defined in another code, then the term shall have the meaning as defined herein wherever it is used in this code.

**Addition** means an increase in the footprint area of a building or an increase in the height and the number of stories of a building.

**Alteration** means the rearrangement of any space by the construction of walls or partitions or by a change in ceiling height, the addition or elimination of any door or window, the extension or rearrangement of any system, the installation of any additional equipment or fixtures and any work which reduces the load bearing capacity of or which imposes additional loads on a primary structural component.

**Approved** means acceptable to the Code Enforcement Official for compliance with the provisions of the applicable Code or referenced Standards.

**Change of Use** means a change from one use to another use in a building or tenancy or portion thereof.

**Equipment** or **Fixture** means plumbing, heating, electrical, ventilating, air conditioning, refrigerating and fire protection equipment, elevators devices, boilers, pressure vessels and other mechanical facilities in installations, which are related to building services and shall not include manufacturing, production or process equipment, but which shall include any connections from building services to process equipment.

**Listed** equipment, materials or services included in a list published by an organization acceptable to the Code Enforcement Official and concerned with evaluation of products or services that maintains periodic inspection or production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.

**Load Bearing Element** means any column, beam, joist, girder, wall, floor or roof sheathing which supports any load in addition to its own weight.

**New Building Element** means any one of the elements listed in Section 1.9 that did not exist previously.

**Primary Function Space** means a room or space housing a major activity for which the building or tenancy is intended including office area, auditorium, assembly space, dining room, bar or lounge, ware house, factory, dwelling, care, confinement, retail, and educational spaces,

but not including kitchens, bathrooms, storage rooms or other spaces supporting a primary function space; a building or tenancy may contain more than one primary function space.

**Primary Structural Component** means any component of the primary load bearing structure of a building including footings, piles, foundations, columns, girders, beams, joists, wind or seismic bracing but not including, for the purposes of this code, sheathing or subflooring.

**Reconstruction** means any project where the extent and nature of the work is such that the work area cannot be occupied while the work is in progress and where a new certificate of occupancy is required before the work area can be reoccupied. Reconstruction may include repair, renovation, alteration or any combination thereof. Reconstruction shall not include projects comprised only of floor finish replacement, painting or wallpapering, or the replacement of equipment or furnishings. Asbestos hazard abatement and lead hazard abatement projects shall not be classified as reconstruction solely because occupancy of the work area is not permitted.

**Registered Design Professional** means an individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed. Design by a Registered Design Professional is not required where exempt under the registration of licensure laws.

**Rehabilitation** means the repair, renovation, alteration or reconstruction of any building or structure.

**Renovation** means the removal and replacement or covering of existing interior or exterior finish, trim, doors, windows, or other materials with new materials that serve the same purpose and do not change the configuration of space. Renovation shall include the replacement of equipment or fixtures.

**Repair** means the restoration to a good or sound condition of materials, systems or components that are worn, deteriorated or broken using materials or components identical to or closely similar to the existing.

**Sewage Authority** means the agency that has the statutory authority to regulate the public sewer system.

**System** means the primary structural, mechanical, plumbing, electrical, fire protection, or occupant service components of a building including any equipment, fixtures, connections, conduits, wires, pipes, ducts, as well as any associated sensors, controls, distribution or safety elements.

**Technically Infeasible** means, in connecting with accessibility requirements, a change that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a load bearing member that is an essential part of the structural frame, or



because other existing physical or site constraints prohibit modification or addition of elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

**Tenancy** means an entire building or that portion of a building or story which is or is intended to be under the control of a single owner or tenant.

**Use** means that portion of a building or tenancy which is devoted to a single use group or special use or occupancy as defined in the NC building Code or as established by the provisions of any other code for the purpose of specifying special requirements applicable to that portion of a building or tenancy.

**Use Group** means the use group classification of the NC Building code.

**Work Area** means any entire use, primary function space, or tenancy comprising all or part of a reconstruction project as delineated on the approved permit application or plans.

### 1.4 Repairs

- a. Repairs, as defined in Section 1.3, shall comply with the requirements of this section. There is no limit to the amount of repair work which may be undertaken.
  1. The following work shall be considered renovation, alteration, or reconstruction, as appropriate, and not repair work:
    - i. The cutting away of any wall, partition, or portion thereof;
    - ii. The permanent, partial or complete removal of any primary structural component;
    - iii. The removal or rearrangement of any part of a required means of egress;
    - iv. Addition to, alteration or relocation of:
      - 1) Any fire protection system piping;
      - 2) Water supply, sewer, drainage, gas, oil, waste, vent, or similar piping;
      - 3) Electrical wiring, other than wiring for a low voltage communication system in a one or two family dwelling;
      - 4) Mechanical system components such as ductwork; or
      - 5) Elevator devices.
- b. All work shall be done in a workmanlike manner.
- c. The work shall not cause any diminution of existing structural strength, system capacity or mechanical ventilation below that which exists at the time of application for a permit or that which is required by the applicable codes of the 2009 North Carolina State Building Code, whichever is lower.
  1. Newly introduced fixed loads shall not exceed the uniformly distributed live loads or concentrated live load criteria of Table 1607.1 of the NC Building Code and shall not create deflection that exceeds the standards set forth below. As used in this section, fixed loads shall mean uniform or concentrated loads and shall include equipment, files, library stacks, or similar loading conditions. (Building)
    - i. For wood frame construction, deflection shall not exceed  $L/180$  for roofs with a slope of 3 in 12 or less or  $L/120$  for roofs with a slope of greater than 3 in 12 and for floors.

- ii. For Steel frame construction, deflection shall not exceed  $L/240$  for roofs with a slope of 3 in 12 or less or  $L/180$  for roofs with a slope of greater than 3 in 12 and for floors.
    - iii. For concrete construction, deflection shall not exceed  $L/180$  for roofs or  $L/240$  for floors.
  2. Existing fire alarm, fire suppression and standpipe systems shall not be removed without replacement and shall be maintained in operating condition. (Fire)
  3. No work shall be undertaken that diminishes accessibility below that which is required by the North Carolina Building Code section 3409. (Building)
- d. The following products and practices shall not be used:
  1. Wood paneling being used as an interior finish not in conformance with Table 2 of Section 1.11 of this code; (Building)
  2. Carpet used for floor covering that fails to meet the DOC FF-1 “Pill Test” (Consumer Product Safety Commission 16 CFR 1630);
  3. Electrical materials/supplies: Unlisted or unapproved electrical products. As stated in the 2008 NC Electrical Code (sections 90.7, 110.2, 110.3, and 100), only electrical products listed, labeled, approved, and identified are acceptable. Approval is to be based on tests and listings of accredited North Carolina Building Code Council Third Party Agencies.
  4. Plumbing materials and supplies: (Plumbing)
    - i. All purpose solvent cement;
    - ii. Clear PB (polybutylene) piping;
    - iii. Flexible traps and tailpieces;
    - iv. Sheet and tubular copper and brass trap and tailpiece fittings less than B&S (Brown & Sharpe) 17 gauge (.045 inch); and
    - v. Solder having more than 0.2 percent lead in the repair of potable water systems.
- e. The following products and practices shall be required, when applicable:
  1. Replacement glass shall comply with the “Safety Glazing: requirements of the NC Building Code and shall be installed in the “Specific Hazardous Locations: as specified by Section 2406.3 of the NC Building Code. (Building)

2. Existing electrical wiring and equipment undergoing repair or replacement shall be allowed to be replaced with listed, like material except for the following: (Electrical)
  - i. Replacement of electrical receptacles shall comply with the requirements contained in Section 406.3(D) of the electrical code;
  - ii. Plug fuses of the Edison-base type shall be used only for replacements where there is no evidence of over fusing or tampering per Section 240.51 (B) of the electrical code;
  - iii. For replacement of nongrounding type receptacles with a grounding type receptacles, the grounding conductor of a grounding type receptacle outlet shall be permitted, in accordance with Section 250.130 (c) of the electrical code, to be grounded to any accessible point on the grounding electrode system as described in Section 250.50 of the electrical code, or to any accessible point on the grounding electrode conductor;
  - iv. Non “hospital grade” receptacles in patient bed locations of health care facilities, Use Group I-2, shall be replaced with “hospital grade” receptacles; and
  - v. Frames of electric ranges, wall mounted ovens, counter mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the existing branch circuit for these appliances, except for mobile homes and recreational vehicles, shall be permitted to be grounded to the grounded circuit conductor if all the conditions of Section 250.140 of the electrical code are met.
3. When door hardware is replaced in buildings required by the North Carolina Building Code Chapter 11 to be accessible, replacement hardware shall comply with Section 404 of ICC/ANSI A117.1-2003. (Building)
4. Replacement handrails and guardrails shall comply with Sections 1012.2 through 1012.8 for stair handrails, 1012.2 through 1012.7 for ramp handrails and Section 1013 of the NC Building Code, respectively. Where 50 percent or more of a handrail or guardrail on a flight or on a level is replaced, then this shall be considered a complete replacement and shall comply with the referenced sections of the NC Building Code. The repair or replacement of less than 50 percent of a handrail or guardrail shall be permitted to match the existing handrail or guardrail. (Building)
5. When the refrigerant in existing equipment is replaced with a different refrigerant, the requirements of the mechanical code applicable to the new refrigerant, if any, shall be met.
6. In buildings of Use Groups R-3 and R-4 and in dwelling units of Use Group R-2, smoke detectors shall be installed and maintained on each level of the structure, outside each separate sleeping area in the immediate vicinity of the bedrooms, and located according to the manufacturer’s installation instructions. Battery-operated units shall be permitted. (Fire)

### 1.5 Renovations

- a. Renovations, as defined in Section 1.3, shall comply with the requirements of this section.
- b. All work shall be done in a workmanlike manner.
- c. The work shall not cause any diminution of existing structural strength, system capacity or mechanical ventilation below that which exists at the time of application for a permit or that which is required by the applicable codes of the 2009 North Carolina State Building Code, whichever is lower. The replacement or addition of fixtures, equipment or appliances shall not increase loads on these systems unless the system is upgraded in accordance with the applicable code of the 2009 North Carolina State Building Code to accommodate the increased load.
  1. Newly introduced fixed loads shall not exceed the uniformly distributed live loads or concentrated live load criteria of Table 1607.1 of the NC Building Code and shall not create deflection that exceeds the standards set forth below. As used in this section, fixed loads shall mean uniform or concentrated loads and shall include equipment, files, library stacks, or similar loading conditions. (Building)
    - i. For wood frame construction, deflection shall not exceed  $L/180$  for roofs with a slope of 3 in 12 or less or  $L/120$  for roofs with a slope of greater than 3 in 12 and for floors
    - ii. For steel frame construction, deflection shall not exceed  $L/240$  for roofs with a slope of 3 in 12 or less or  $L/180$  for roofs with a slope of greater than 3 in 12 and for floors.
    - iii. For concrete construction, deflection shall not exceed  $L/180$  for roofs or  $L/240$  for floors.
  2. Existing fire alarm, fire suppression and standpipe systems shall not be removed without replacement and shall be maintained in operating condition. (Fire)
  3. No work shall be undertaken that diminishes accessibility below that which is required by the North Carolina Building Code section 3409. (Building)
- d. The following products and practices shall not be used:
  1. Wood paneling being used as an interior finish not in conformance with Table 2 of Section 1.11 of this code; (Building)
  2. Carpet used for floor covering that fails to meet the DOC FF-1 "Pill Test" (Consumer Product Safety Commission 16 CFR 1630);
  3. Electrical materials/supplies: Unlisted or unapproved electrical products. As stated in the NC Electrical Code (sections 90-7, 110-2, 110-3, and 100), only electrical products listed, labeled,

approved, and identified are acceptable. Approval is to be based on tests and listings of accredited North Carolina Building Code Council Third Party Agencies.

4. Plumbing materials and supplies: (Plumbing)
  - i. All purpose solvent cement;
  - ii. Clear PB (polybutylene) piping;
  - iii. Flexible traps and tailpieces;
  - iv. Sheet and tubular copper and brass trap and tailpiece fittings less than B&S (Brown & Sharpe) 17 gauge (.045 inch); and
  - v. Solder having more than 0.2 percent lead in the repair of potable water systems.
5. Bars, grilles and screens shall not be placed over emergency escape windows or doors in Use Groups R or I-1 unless they are releasable or removable from the inside without the use of a key tool or force greater than that which is required for the normal operation of the window or door. (Building)
6. The following practices shall not be used on painted surfaces of Use Group R that were construction before 1978, Use Group E and Use Group I-2 building used as child-care facilities unless the painted surface has been tested and found to be free from lead-based paint;
  - i. Open flame burning or the use of high temperatures (in excess of 1100 degrees Fahrenheit) heat guns;
  - ii. Power sanding or sandblasting unless a special HEPA (high efficiency particulate air) filter equipped vacuum attached is used to contain dust;
  - iii. Uncontained water blasting or power washing; or
  - iv. Dry scraping or sanding more than two square feet per room.
- e. The following products and practices shall be required, when applicable:
  1. When any water closet is replaced, the replacement water closet shall require not more than 1.6 gallons of water per flush as required by the North Carolina Plumbing Code, Section 604.4 (Plumbing)
  2. In buildings required by the North Carolina Building Code Chapter 11 to be accessible, when bathrooms or toilet rooms are renovated, the following requirements for providing accessibility

shall apply unless the requirements of the North Carolina Building Code Chapter 11 have been met:

- i. When toilet partitions are moved or installed, but existing fixtures are not being moved, an accessible stall complying with Section 604.8 of ICC/ANSI A117.1-2003 shall be created provided that this can be accomplished without moving fixtures. (Building)
  - ii. When bathroom fixtures or hardware are replaced, the replacement fixtures or hardware shall comply with ICC/ANSI A117.1 section 603 through 610, as applicable, for nonresidential buildings or ICC/ANSI A117.1 section 1002.11 for residential buildings required by the North Carolina Building Code Chapter 11 to be accessible. (Plumbing)
  - iii. Where full compliance is technically infeasible, compliance shall be achieved to the maximum extent feasible. (Building)
3. Replacement doors shall comply with the following: (Building)
- i. When replacement doors are installed in buildings required by the North Carolina Building Code Chapter 11 to be accessible, replacement hardware shall comply with Section 404 of ICC/ANSI A117.1-2003.
  - ii. Replacement dwelling unit, guest room or rooming unit corridor doors in Use Groups I-1, R-1, or R-2 shall be 1 – ¾ inch solid core wood or approved equal with approved door closers and shall not have any glass panels, other than approved wire glass in metal frames.
    - 1) 1 3/8 inch solid core replacement doors shall be accepted if the existing frame is not being replaced and will accommodate only a 1 3/8 inch door.
4. Replacement glass shall comply with the “Safety Glazing” requirements of the NC Building Code and shall be installed in the “specific Hazardous Locations” as specified by Section 2406.3 of the NC Building Code. (Building)
5. Where a fireproofing material is removed that is integral to the rating of an existing fire-rated assembly, the material shall be replaced so that the rating is preserved. (Building)
6. Existing electrical wiring and equipment undergoing repair or replacement shall be allowed to be replaced with listed, like material except for the following: (Electrical)
- i. Replacement of electrical receptacles shall comply with the requirements contained in Section 406.3(D) of the electrical code;
  - ii. Plug fuses of the Edison-base type shall be used only for replacements where there is no evidence of over fusing or tampering per Section 240.51(B) of the electrical code;

- iii. For replacement of non-grounding type receptacles with grounding-type receptacles, the grounding conductor of a grounding type receptacle outlet shall be permitted, in accordance with Section 250.130(C) of the electrical code, to be grounded to any accessible point on the grounding electrode system as described in Section 250.50 of the electrical code, or to any accessible point on the grounding electrode conductor;
  - iv. Non “hospital grade” receptacles in patient bed locations of health care facilities, Use Group I-2, shall be replaced with “hospital grade” receptacles; and
  - v. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the existing branch circuit for these appliances, except for mobile homes and recreational vehicles, shall be permitted to be grounded to the grounded circuit conductor if all the conditions of Section 250.140 of the electrical code are met.
7. When a new refrigerant is introduced, the requirements of the mechanical code applicable to that refrigerant, if any, shall be met. This shall apply to the replacement or existing equipment with equipment using a different refrigerant or the replacement of the refrigerant in existing equipment with a different refrigerant. (Mechanical)
- f. In buildings of Use Groups R-3 and R-4 and in dwelling units of Use Group R-2, smoke detectors shall be installed and maintained on each level of the structure, outside each separate sleeping area in the immediate vicinity of the bedrooms, and located according to the manufacturer’s installation instructions. Battery operated units shall be permitted.
  - g. All materials and methods used shall comply with the building, plumbing, and fire protection, mechanical, electrical and North Carolina Building Code Chapter 11 as specified in 1.8, Materials and Methods, below:
    1. Exception: Windows may be replaced with windows like those existing without meeting the size requirements of the NC Building Code.
      - i. In sleeping rooms below the fourth story in occupancies of Use Groups R or I-1, where the size of window openings is being changed, at least one window shall:
        - 1) Be operable;
        - 2) Have a sill height of not more than 44 inches;
        - 3) Have a width of at least 20 inches, a height of at least 24 inches and a minimum total area of 5.7 square feet measured from head to sill and from side to side.
        - 4) New window openings in sleeping rooms shall not be required to meet these requirements in buildings where the sleeping room is provided with a door to a



corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.

- ii. Basement windows in buildings of Use Group R-2 shall comply with the requirements of Section 1.26(a)3 of this code where the window serves as the second means of egress from the dwelling unit.
2. Replacement handrails and guardrails shall comply with Section 1009.11 for stair handrails and 1009.11.2 for ramp handrails and Section 1012 of the building code, respectively. Where 50 percent or more of a handrail or guardrail on a flight or on a level is replaced, then this shall be considered a complete replacement and shall comply with the referenced sections of the NC Building Code. The repair or replacement of less than 50 percent of a handrail or guardrail shall be permitted to match the existing handrail or guardrail. (Building)

### 1.6 Alterations

- a. Alterations, as defined in Section 1.3, shall comply with the requirements of this section.
- b. All work shall be done in a workmanlike manner.
- c. The work shall not cause any diminution of existing structural strength, system capacity or mechanical ventilation below that which exists at the time of application for a permit or that which is required by the applicable codes of the 2009 North Carolina State building Code, whichever is lower. The replacement or addition of fixtures, equipment or appliances shall not increase loads on these systems unless the system is upgraded in accordance with the applicable code of the North Carolina Building Code to accommodate the increased load.
  1. Newly introduced fixed loads shall not exceed the uniformly distributed live loads or concentrated live load criteria of Table 1607.1 of the NC Building Code and shall not create deflection that exceeds the standards set forth below. As used in this section, fixed loads shall mean uniform or concentrated loads and shall include equipment, files, library stacks, or similar loading conditions. (Building)
    - i. For wood frame construction, deflection shall not exceed  $L/180$  for roofs with a slope of 3 in 12 or less or  $L/120$  for roofs with a slope of greater than 3 in 12 and for floors.
    - ii. For steel frame construction deflection shall not exceed  $L/240$  for roofs with a slope of 3 in 12 or less or  $L/180$  for roofs with a slope of greater than 3 in 12 and for floors.
    - iii. For concrete construction, deflection shall not exceed  $L/180$  for roofs or  $L/240$  for floors.
  2. Existing fire alarm, fire suppression and standpipe systems shall not be removed without replacement and shall be maintained in operating condition. (Fire)
  3. No work shall be undertaken that diminishes access accessibility below that which is required by the North Carolina Building Code section 3409. (Building)
- d. The following products and practices shall not be used:
  1. Wood paneling being used as an interior finish not in conformance with Table 2 of Section 1.11 of this code; (Building)
  2. Carpet used for floor covering that fails to meet the DOC FF-1 "Pill Test" (Consumer Product Safety commission 16 CFR 1630);
  3. Electrical materials/supplies: Unlisted or unapproved electrical products. As stated in the NC Electrical Code (sections 90.7, 110.2, 110.3 and 100), only electrical products listed, labeled,

approved, and identified are acceptable. Approval is to be based on tests and listings of accredited North Carolina Building Code Council Third Party Agencies.

4. Plumbing materials and supplies: (Plumbing)
  - i. All purpose solvent cement;
  - ii. Clear PB (polybutylene) piping;
  - iii. Flexible traps and tailpieces;
  - iv. Sheet and tubular copper and brass trap and tailpiece fittings less than B&S (Brown & Sharpe) 17 gauge (.045 inch); and
  - v. Solder having more than 0.2 percent lead in the repair of potable water systems.
5. Bars, grilles and screens shall not be placed over emergency escape windows or doors in Use Groups R or I-1 unless they are releasable or removable from the inside without the use of a key, tool or force greater than that which is required for the normal operation of the window or door. (Building)
6. The following practices shall not be used on painted surfaces of Use Group R that were constructed before 1978, Use Group E and Use Group I-2 building used as child-care facilities unless the painted surface has been tested and found to be free from lead-based paint;
  - i. Open flame burning or the use of high temperatures (in excess of 1100 degrees Fahrenheit) heat guns;
  - ii. Power sanding or sandblasting unless a special HEPA (high efficiency particulate air) filter equipped vacuum attachment is used to contain dust;
  - iii. Uncontained water blasting or power washing; or
  - iv. Dry scraping or sanding more than two square feet per room.
- e. The following products and practices shall be required, when applicable:
  1. When any water closet is replaced, the replacement water closet shall require not more than 1.6 gallons of water per flush as required by Section 604.4 of the North Carolina Plumbing Code. (Plumbing)
  2. In buildings required by the North Carolina Building Code Chapter 11 to be accessible, when bathrooms or toilet rooms are altered, the following requirements for providing accessibility

shall apply unless the requirements of the North Carolina Building Code Chapter 11 have been met:

- i. When toilet partitions are moved or installed, but existing fixtures are not being moved, an accessible stall complying with 604.8 of ICC/ANSI A117.1-2003 shall be created provided that this can be accomplished without moving fixtures. (Building)
  - ii. When bathroom fixtures or hardware are replaced, the replacement fixtures or hardware shall comply with ICC/ANSI A117.1 section 1002.11 for residential buildings required by the North Carolina Building Code Chapter 11 to be accessible.
  - iii. When space is reconfigured, the altered space shall comply with the North Carolina Building Code section 3409.6.
    - 1) Where full compliance is technically infeasible, compliance shall be achieved to the maximum extent feasible.
    - 2) Where full compliance is technically infeasible, a single fixture unisex accessible bathroom shall be permitted. This may be accomplished by providing two unisex bathrooms, one of which is accessible. (Building)
    - 3) Where it is technically infeasible to gain compliance within an altered bathroom, signage to the closest accessible bathroom (if any) shall be provided at the altered bathroom. (Building)
3. Replacement or new doors shall comply with the following: (Building)
- i. In buildings required by the North Carolina Building Code Chapter 11 to be accessible, when new door openings are created, existing door openings are enlarged or door assemblies are replaced and the required door width can be achieved within the existing opening, the new door shall comply with 404 of ICC/ANSI A117.1-2003.
    - 1) If the door being added enlarged or replaced is a building entrance and at least 50 percent of the entrance doors are accessible, then the door being added, enlarged or replaced is not required to comply with Section 404 of ICC/ANSI A117.1-2003.
  - ii. Replacement dwelling unit, guest room or rooming unit corridor doors in Use Groups I-1, R-1 or R-2 shall be 1-3/4 inch solid core wood or approved equal with approved doors closers and shall not have any glass panels, other than approved wire glass in metal frames.
    - 1) 1-3/8 inch solid core replacement doors shall be accepted if the existing frame is not being replaced and will accommodate only a 1-3/8 inch door.

4. In buildings required by the North Carolina Building Code Chapter 11 to be accessible, when entrance steps are being replaced, an accessible entrance shall be provided if this does not add more than 20 percent to the cost of replacing the steps. (Building)
  - i. If at least 50 percent of the other building entrances are accessible, then the installation of a ramp shall not be required.
5. When providing vertical access is part of the scope of work, a limited use limited application elevator or platform lift may be installed as permitted by North Carolina Building Code section 3409.8.3. (Building)
6. Replacement glass shall comply with the “Safety Glazing” requirements of the NC Building Code and shall be installed as permitted by North Carolina Building Code. (Building)
7. Where a fireproofing material is removed that is integral to the rating of an existing fire-rated assembly, the material shall be replaced so that the rating is preserved. (Building)
8. Existing electrical wiring and equipment undergoing repair or replacement shall be allowed to be replaced with listed, like material except for the following: (Electrical)
  - i. Replacement of electrical receptacles shall comply with the requirements contained in Section 406.39D) of the electrical code;
  - ii. Plug fuses of the Edison-base type shall be used only for replacements where there is no evidence of over fusing or tampering per Section 240.51(B) of the electrical code;
  - iii. For replacement of non-grounding type receptacles, the grounding conductor of a grounding type receptacle outlet shall be permitted, in accordance with Section 250.130(c) of the electrical code, to be grounded to any accessible point on the grounding electrode system as described in Section 250.50 of the electrical code, or to any accessible point on the grounding electrode conductor;
  - iv. Non “hospital grade” receptacles in patient bed locations of health care facilities, Use Group I-2, shall be replaced with “hospital grade” receptacles; and
  - v. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the existing branch circuit for these appliances, except for mobile homes and recreational vehicles, shall be permitted to be grounded to the grounded circuit conductor if all the conditions of Section 250.140 of the electrical code are met.
9. In buildings of Use Groups R or I-1, when the work being performed creates a bedroom, the following shall be provided:

- i. A hard-wired smoke detector shall be installed within each new bedroom and a second, hard-wired smoke detector shall be installed within the immediate vicinity of the bedroom in accordance with NFPA 72. (Fire)
  - ii. A bedroom window or exterior door that meets the requirements of Section 1.9 shall be provided when the bedroom created is below the fourth floor. (Building)
    - 1) This requirement shall not apply in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
10. In buildings of Use Group R-3 and R-4, when the work being performed creates living space over a private garage, the private garage shall comply with Section R309 of the North Carolina Residential Code for fire resistance rating.
11. In buildings of Use Group R-1, in at least one sleeping room or suite of every 25 or fewer that are part of the scope of work, the work being performed shall comply with the applicable provisions of North Carolina Building Code section 3409.8.7 unless the facility already provides the number of accessible sleeping rooms required by the North Carolina Building Code Chapter 11. In addition, at least one sleeping room or suite of every 25 or fewer that are part of the scope of work shall be equipped with a visual alarm and notification device for the hearing impaired unless the facility already provides the number required by the North Carolina Building Code Chapter 11. (Building)
12. In buildings of Use Groups R-1 and R-2, when habitable space is created in previously unoccupied space, the minimum clear ceiling height shall be seven feet. For rooms with a sloped ceiling, the minimum clear ceiling height shall be seven feet for at least 35 square feet of the floor area of the room. Any portion of the room measuring less than five feet from the finished floor to the finished ceiling shall not be considered usable floor area. (Building)
13. When a new refrigerant is introduced, the requirements of the mechanical code applicable to that refrigerant, if any, shall be met. This shall apply to the installation of new equipment, the replacement of existing equipment with equipment using a different refrigerant, or the replacement of the refrigerant in existing equipment with a different refrigerant. (Mechanical)
- f. In buildings of Use Groups R-3 and R-4 and in dwelling units of Use Group R-2, smoke detectors shall be installed and maintained on each level of the structure, outside each separate sleeping area in the immediate vicinity of the bedrooms, and located according to the manufacturer's installation instructions. Battery operated units shall be permitted. (Electrical/Fire)
  - g. The work shall not make the building less conforming with the Basic Requirements of this code than it was when the alteration was undertaken.

1. Where the building currently exceeds the basic requirements, the extent to which it exceeds shall not be reduced unless the building also exceeds the requirements of the corresponding codes of the 2009 North Carolina State Building Code. In this case, the extent of compliance with the basic requirements may be reduced, but not below the requirements of the corresponding codes of the 2009 North Carolina State Building Code.
- h. All materials and methods used shall comply with the requirements specified in Section 1.8, Materials and Methods.
  1. Exception: Windows may be replaced with windows like those existing without meeting the size requirements of the NC Building Code.
    - i. In sleeping rooms below the fourth story in occupancies of Use Groups R or I-1, where new window openings are being created or the size of window openings is being changed, at least one window shall;
      - 1) Be operable;
      - 2) Have a sill height of not more than 44 inches;
      - 3) Have a width of at least 20 inches, a height of at least 24 inches and a minimum total area of 5.7 square feet measured from head to sill and from side to side.
      - 4) New window openings in sleeping rooms shall not be required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
    - ii. Basement windows in buildings of Use Group R-2 shall comply with the requirements of Section 1.26.a.3 of this code where the window serves as the second means of egress from the dwelling unit.
  2. Replacement handrails and guardrails shall comply with Sections 1012.2 through 1012.8 for stair handrails and 1012.2 through 1012.7 for ramp handrails of the North Carolina Building Code and 1013 for guards of the NC Building Code, respectively. Where 50 percent or more of a handrail or guardrail on a flight or on a level is replaced, then this shall be considered a complete replacement and shall comply with the referenced sections of the NC Building Code. The repair or replacement of less than 50 percent of a handrail or guardrail shall be permitted to match the existing handrail or guardrail. (Building)
- i. All new building elements, as listed in Section 1.9 of this code, shall comply with the requirements of that section.

- j. In a building required by the North Carolina Building Code Chapter 11 to be accessible, where the space altered is a primary function space, an accessible path of travel to the altered space shall be provided up to the point at which the cost of providing accessibility is disproportionate to the cost of the overall alteration project; a cost is disproportionate if it exceeds 20 percent of the cost of the alteration. (Building)
1. The accessible path of travel shall include an accessible parking space, an accessible exterior route, an accessible building entrance, an accessible interior route to the altered area, accessible restrooms, accessible drinking fountains, and accessible telephones serving the altered primary function space. Priority shall be given to providing an accessible entrance or accessible restrooms where possible.
  2. In determining disproportionate cost, the following materials may be deducted from the overall cost of the project:
    - i. Windows, hardware, operating controls, electrical outlets and signage;
    - ii. Mechanical systems, electrical systems, installations or alterations of fire protection systems or abatement of hazardous materials; or
    - iii. The repair or installation of roofing, siding, or other exterior wall façade.
  3. Where the work consists solely of the alteration of materials or systems listed in 2 above, the path of travel requirements shall not apply.
  4. Where the alteration work is for the primary purpose of increasing the accessibility of the building or tenancy, the requirement to further improve the path of travel shall not apply.
  5. Where it is technically infeasible to comply with the technical standards in the North Carolina Building code Chapter 11, the work must comply to the maximum extent feasible.



### **1.7 Reconstruction**

- a. Reconstruction, as defined in Section 1.3, shall comply with the requirements of this section.
  1. If a project is less than the entire use, primary function space or tenancy by a de minimis amount, the construction official may designate the project a reconstruction project and require that the requirements of this section be met.
  2. If work performed or to be performed in phases is so extensive that the project would require a new certificate of occupancy if the work were performed at one time, the construction official may designate the project a reconstruction project and require that the requirements of this section be met.
- b. All work shall be done in a workmanlike manner.
- c. The work shall not cause any diminution of existing structural strength, system capacity or mechanical ventilation below that which exists at the time of application for a permit or that which is required by the applicable codes of the 2009 North Carolina State Building code, whichever is lower. The replacement or addition of fixtures, equipment or appliances shall not increase loads on these systems unless the system is upgraded in accordance with the applicable codes to accommodate the increased load.
  1. Newly introduced fixed loads shall not exceed the uniformly distributed live loads or concentrated live load criteria of Table 1607.1 of the NC Building Code and shall not create deflection that exceeds the standards set forth below. As used in this section, fixed loads shall mean uniform or concentrated loads and shall include equipment, files, library stacks, or similar loading conditions. (Building)
    - i. For wood frame construction, deflection shall not exceed  $L/180$  for roofs with a slope of 3 in 12 or less or  $L/120$  for roofs with a slope of greater than 2 in 12 and for floors.
    - ii. For steel frame construction, deflection shall not exceed  $L/240$  for roofs with a slope of 3 in 12 or less or  $L/180$  for roofs with a slope of greater than 3 in 12 and for floors.
    - iii. For concrete construction, deflection shall not exceed  $L/180$  for roofs or  $L/240$  for floors.
  2. Existing fire alarm, fire suppression and standpipe systems shall not be removed without replacement and shall be maintained in operating condition. (Fire)
  3. No work shall be undertaken that diminishes accessibility below that which is required by the North Carolina Building Code section 3409. (Building)
- d. The following products and practices shall not be used:

1. Carpet used for floor covering that fails to meet the DOC FF-1 “Pill Test” (Consumer Product Safety Commission 16 CFR 1630);
  2. Electrical materials/supplies: Unlisted or unapproved electrical products. As stated in the National Electric Code (sections 90.7, 110.2, 110.3, and 100), only electrical products listed, labeled, approved and identified are acceptable. Approval is to be based on tests and listings of accredited North Carolina Building Code Council Third Party Agencies.
  3. Plumbing materials and supplies: (Plumbing)
    - i. All purpose solvent cement;
    - ii. Clear PB (polybutylene) piping;
    - iii. Flexible traps and tailpieces;
    - iv. Sheet and tubular copper and brass trap and tailpiece fittings less than B&S (Brown & Sharpe) 17 gauge (.045 inch); and
    - v. Solder having more than 0.2 percent lead in the repair of potable water systems; and
  4. Bars, grilles and screens shall not be placed over emergency escape windows or doors in Use Groups R or I-1 unless they are releasable or removable from the inside without the use of a key, tool or force greater than that which is required for the normal operation of the window or door. (Building)
  5. The following practices shall not be used on painted surfaces of Use Group R that were constructed before 1978, Use Group E and Use Group I-2 building used as Child-care facilities unless the painted surface has been tested and found to be free from lead-based paint;
    - i. Open flame burning or the use of high temperatures (in excess of 1100 degrees Fahrenheit) heat guns;
    - ii. Power sanding or sandblasting unless a special HEPA (high efficiency particulate air) filter equipped vacuum attachment is used to contain dust;
    - iii. Uncontained water blasting or power washing; or
    - iv. Dry scraping or sanding more than two square feet per room.
- e. The following products and practices shall be required, when applicable:

1. When any water closet is replaced, the replacement water closet shall require not more than 1.6 gallons of water per flush as required by the North Carolina Plumbing Code, Section 604.4. (Plumbing)
2. In buildings required by the North Carolina Building Code chapter 11 to be accessible, when bathrooms or toilet rooms are altered, the following requirements for providing accessibility shall apply unless the requirements of the North Carolina Building Code Chapter 11 have been met:
  - i. When toilet partitions are moved or installed, but existing fixtures are not being moved, an accessible stall complying with Section 604.8 of ICC/ANSI A117.1-2003 shall be created provided that this can be accomplished without moving fixtures. (Building)
  - ii. When bathroom fixtures or hardware are replaced, the replacement fixtures or hardware shall comply with ICC/ANSI A117.1-2003 sections 603 through 610, as applicable, for nonresidential buildings or Sections ICC/ANSI A117.1 section 1002.11 for residential buildings required by the North Carolina Building Code Chapter 11 to be accessible. (Plumbing)
  - iii. When space is reconfigured, the space shall comply with the North Carolina Building Code Chapter 11. Where full compliance is technically infeasible, compliance shall be achieved to the maximum extent feasible.
    - a) Where full compliance is technically infeasible, a single fixture unisex accessible bathroom shall be permitted. This may be accomplished by providing two unisex bathrooms, one of which is accessible. (Building)
    - b) Where it is technically infeasible to gain compliance within a reconstructed bathroom, signage to the closest accessible bathroom (if any) shall be provided at the reconstructed bathroom. (Building)
3. Replacement or new doors shall comply with the following: (Building)
  - i. In buildings required by the North Carolina Building Code Chapter 11 to be accessible, when new door openings are created, existing door openings are enlarged or door assemblies are replaced and the required door width can be achieved within the existing opening, the new door shall comply with Section 404 of ICC/ANSI A117.1-2003.
    - 1) If the door being added enlarged or replaced is a building entrance and at least 50 percent of the entrance doors are accessible, then the door being added, enlarged or replaced is not required to be accessible.

- ii. Replacement dwelling unit, guest room or rooming unit corridor doors in Use Groups I-1, R-1 or R-2 shall be 1-3/4 inch solid core wood or approved equal with approved door closers and shall not have any glass panels, other than approved wire glass in metal frames.
  - 1) 1-3/8 inch solid core replacement doors shall be accepted if the existing frame is not being replaced and will accommodate only a 1-3/8 inch door.
- 4. In buildings required by the North Carolina Building Code Chapter 11 to be accessible, when entrance steps are being replaced, a ramp shall be installed provided that the installation of a ramp does not add more than 20 percent to the cost of replacing the steps. (Building)
  - i. If at least 50 percent of the other building entrances are accessible, then the installation of a ramp shall not be required.
- 5. When providing vertical access is part of the scope of work, a platform lift may be installed as permitted by the North Carolina Building Code section 3409.8.3. (Building)
- 6. Replacement glass shall comply with the “Safety Glazing” requirements of the NC Building Code and shall be installed in the “Specific Hazardous Locations” as specified by Section 2406.3 of the NC Building Code. (Building)
- 7. Where a fireproofing material is removed that is integral to the rating of an existing fire-rated assembly, the material shall be replaced so that the rating is preserved. (Building)
- 8. Existing electrical wiring and equipment undergoing repair or replacement shall be allowed to be replaced with listed, like material except for the following: (Electrical)
  - i. Replacement of electrical receptacles shall comply with the requirements contained in Section 406.3(D) of the electrical code;
  - ii. Plug fuses of the Edison-base type shall be used only for replacements where there is no evidence of over fusing or tampering per Section 240.51(B) of the electrical code;
  - iii. For replacement of non-grounding type receptacles with grounding type receptacles, the grounding conductor of a grounding type receptacle outlet shall be permitted, in accordance with Section 250.130 (C) of the electrical code, to be grounded to any accessible point on the grounding electrode system as described in Section 250.50 of the electrical code, or to any accessible point on the grounding electrode conductor;
  - iv. Non “hospital grade” receptacles in patient bed locations of health care facilities, Use Group I-2, shall be replaced with “hospital grade” receptacles; and
  - v. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the existing branch circuit for these

appliances, except for mobile homes and recreational vehicles, shall be permitted to be grounded to the grounded circuit conductor if all the conditions of Section 250.140 of the electrical code are met.

9. In buildings of Use Groups R-1 and R-2, when habitable space is created in previously unoccupied space, the minimum clear ceiling height shall be seven feet. For rooms with a sloped ceiling, the minimum clear ceiling height shall be seven feet for at least 35 square feet of the floor area of the room. Any portion of the room measuring less than five feet from the finished floor to the finished ceiling shall not be considered usable floor area. (Building)
  10. When a new refrigerant is introduced, the requirements of the mechanical code applicable to that refrigerant, if any, shall be met. This shall apply to the installation of new equipment, the replacement of existing equipment with equipment using a different refrigerant, or the replacement of the refrigerant in existing equipment with a different refrigerant. (Mechanical)
- f. All materials and methods used shall comply with the requirements specified in 1.8, Materials and Methods.
1. For repair work undertaken as part of a reconstruction project, materials like those existing may be used. There is no limit to the amount of repair work which may be undertaken.
  2. Exception: Windows may be replaced with windows like those existing without meeting the size requirements of the NC Building Code.
    - i. In sleeping rooms below the fourth story in occupancies of Use Groups R or I-1, where new window openings are being created or the size of window openings is being changed, at least one window shall:
      - 1) Be operable;
      - 2) Have a sill height of not more than 44 inches;
      - 3) Have a width of at least 20 inches, a height of at least 24 inches and a minimum total area of 5.7 square feet measured from head to sill and from side to side.
      - 4) New window openings in sleeping rooms shall not be required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
    - ii. Basement windows in buildings of Use Group R-2 shall comply with the requirements of Section 1.36(a)3 of this code where the window serves as the second means of egress from the dwelling unit.

3. Replacement handrails and guardrails shall comply with Sections 1012.2 through 1012.8 for stair handrails and 1012.2 through 1012.7 for ramp handrails and 1013 for guards of the building code, respectively. Where 50 percent or more of a handrail or guardrail on a flight or on a level is replaced, then this shall be considered a complete replacement and shall comply with the referenced sections of the NC Building Code. The repair or replacement of less than 50 percent of a handrail or guardrail shall be permitted to match the existing handrail or guardrail.  
(Building)
- g. All new building elements, as listed in Section 1.9 of this code, shall comply with the requirements of that section.
  - h. The Basic Requirements of this code for the applicable use group shall be met within the work area(s). Attendant work outside the work area(s) shall not make the building less conforming with the Basic Requirements than it was when the reconstruction was undertaken.
    1. Where the building currently exceeds the basic requirements, the extent to which it exceeds shall not be reduced unless the building also exceeds the requirements of the corresponding code of the 2009 North Carolina State Building Code. In this case, the extent of compliance with the basic requirements may be reduced, but not below the requirements of the corresponding code of the 2009 North Carolina State Building Code. Existing Fire Alarm, fire suppression and standpipe systems shall not be removed without replacement and shall be maintained in operating condition.
  - i. The Supplemental Requirements of this code for the applicable use group shall be met whenever the extent of the work is such that the trigger accompanying each requirement is met or exceeded.
  - j. In a building required by the North Carolina Building Code Chapter 11 to be accessible, where the space reconstructed is a primary function space, an accessible path of travel to the space shall be provided up to the point at which the cost of providing accessibility is disproportionate to the cost of the overall project; a cost is disproportionate if it exceeds 20 percent of the cost of the work.  
(Building)
    1. The accessible path of travel shall include an accessible parking space, an accessible exterior route, an accessible building entrance, an accessible interior route to the reconstructed area, accessible restrooms, accessible drinking fountains, and accessible telephones serving the reconstructed primary function space. Priority shall be given to providing an accessible entrance or accessible restrooms where possible.
    2. In determining disproportionate cost, the following materials may be deducted from the overall cost of the project:
      - i. Windows, hardware, operating controls, electrical outlets and signage;

- ii. Mechanical systems, electrical systems, installations or alterations of fire protection systems or abatement of hazardous materials; or
  - iii. The repair or installation of roofing, siding, or other exterior wall façade.
3. Where the work consists solely of the reconstruction of materials or systems listed in 2 above, the path of travel requirements shall not apply.
4. Where the work is for the primary purpose of increasing the accessibility of the building or tenancy, the requirement to further improve the path of travel shall not apply.
5. Where it is technically infeasible to comply with the technical standards of the North Carolina Building Code, Section 1109.6, the work must comply to the maximum extent feasible with the North Carolina Building Code section 3409.8.2. Note: Technical infeasibility may not be applicable in buildings regulated by ADA Title II.

### **1.8 Materials and Methods**

- a. The following requirements shall be met for materials and installation methods for all items that are part of the applicant's proposed project for all categories for work other than repair as defined in Section 1.3.
  1. Note: Where sections listed below reference other sections not listed below, those sections shall apply within that limited context.
- b. Building and Fire Protection Materials and Methods. The following sections of the 2009 North Carolina State Building code shall constitute the building and fire protection materials and methods requirements for this Rehabilitation Code.
  1. The following sections of Chapter 5, entitled "General Building Heights and Areas," shall be included.
    - i. Section 505 shall apply to newly constructed "Mezzanines".
  2. The following sections of Chapter 7, entitled "fire-Resistant-Rated Construction," shall be included:
    - i. Subsections 703.2, 703.3, and 703.4.
    - ii. Subsections 704.2.1, 704.2.2, 704.2.3, 704.4, 704.13, and 704.14.
    - iii. Subsections 705.3, 705.8, 705.9, 705.10, and 705.11
    - iv. Subsections 706.7, 706.8, 706.9, and 706.10.
    - v. Subsections 707.7, 707.8, 707.9, 707.10, and 707.13.2.
    - vi. Subsections 708.2, 708.6, 708.7, 708.8, and 708.9.
    - vii. Subsections 709.2, 709.5, 709.6, 709.7, and 709.8
    - viii. Subsections 710.2, 710.6, and 710.7.
    - ix. Section 712.
    - x. Section 713.
    - xi. Subsections 714.3.5, 714.3.6, 714.3.7, 714.3.8, and 714.3.9, 714.4.1, 715.4.4.2, 714.4.3, 714.4.4, 714.4.5, 714.4.6, 714.4.8, and 714.4.9.



- xii. Subsections 716.2, 716.3, 716.4, and 716.7
  - xiii. Subsections 717.2.1, and 717.3.1.
  - xiv. Subsections 718.2, 718.4, and 718.5.
  - xv. Section 719.
  - xvi. Section 720.
  - xvii. Section 721.
3. All of Chapter 8, entitled “Interior Finishes,” shall be included, except Section 802.
  4. All of Chapter 9, entitled “Fire Protection Systems,” shall be included, except 901, 902, 903.2, 904.2, 905.3, 908.1, 908.2, 910.2, and 911.
    - i. In buildings of Use Groups R and I-1, smoke detectors that are located closer than five feet to a kitchen or bathroom area shall be photoelectric type only.
  5. The following sections of Chapter 10, entitled “Means of Egress,” shall be included:
    - i. Subsections 1011.5.1, 1011.5.2, and 1011.5.3.
    - ii. Subsections 1013.2 and 1013.3.
    - iii. Subsections 1008.1.3.2, 1008.1.3.3, 1008.1.3.4, 1008.1.3.5, and 1008.1.8.3.
    - iv. Subsections 1010.12.2, 1010.12.8, 1010.12.3, 1010.12.4, 1010.12.5, and 1003.3.1.
  6. The following sections of Chapter 12, entitled “Interior Environment,” shall be included:
    - i. Section 1203.4.2 shall apply to new sources of contaminants.
    - ii. Section 1210.
  7. All of Chapter 14, entitled “Exterior Walls,” shall be included, except 1401, 1402, and 1403.2.
  8. All of Chapter 15 entitled “Roof Assemblies and rooftop Structures: shall be included, except sections 1501.1, 1502.0, 1503.4, and 1503.5.
  9. All of Chapter 16 entitled “Structural Design,” except 1601, 1604, 1608, 1609, 1610, 1611, 1612, and 1613, shall apply to new or replaced structural members. The referenced sections of

Chapter 16 shall not be used to analyze any existing structural members, except as otherwise provided by the Rehabilitation code.

10. All of Chapter 18, entitled, "Soil and Foundations," shall be included, except sections 1801, 1802, 1803, 1804, 1805, and 1807.
    - i. The following sections of 1807 shall be included as part of Material and Methods: 1807.2.1, 1807.2.2, 1807.3.1, 1807.3.2, 1807.3.3, 1807.4.1, 1807.4.2 and 1807.4.3.
  11. All of chapter 19, entitled "Concrete," shall be included, except sections 1901 and 1902.
  12. All of Chapter 20, entitled "Aluminum," shall be included.
  13. All of Chapter 21, entitled "Masonry," shall be included.
  14. All of Chapter 22, entitled "Steel," shall be included.
  15. All of Chapter 23, entitled "Wood" shall be included.
  16. All of Chapter 24, entitled "Glass and Glazing" shall be included.
  17. All of Chapter 25, entitled "Gypsum board and Plaster" shall be included.
  18. All of Chapter 26, entitled "Plastic," shall be included.
  19. For the applicability of Chapter 30, entitled "Elevators and Conveying Systems," refer to Section 1.8(h), Elevator Devices.
- c. Plumbing Materials and Methods. The following sections of the North Carolina State Plumbing Code shall constitute the plumbing materials and methods for this Rehabilitation Code.
1. All of Chapter 3, entitled "General Regulations," shall be included.
  2. All of Chapter 4, entitled "Fixtures, Faucets and Fixture Fittings," shall be included, except Section 403 and Table 403.1.
  3. All of Chapter 5, entitled "Water Heaters," shall be included.
  4. All of Chapter 6, entitled " Water Supply and distribution," shall be included, except Sections 602.1, 604.3, 604.4, 604.5, 604.7, 604.10, and 606.5.1 and Tables 604.3, 604.4, 604.5, and 604.10.1.
    - i. Water shall be supplied to ensure that fixtures within a building are provided with an adequate supply of water so that they are functional.

- ii. Section 604.7 shall apply; where there is not sufficient pressure for proper functioning of fixtures, a water pressure booster system shall be required.
  - iii. Section 604 shall apply for all newly installed or completely replaced water services and for sizing water distribution systems when the proposed work will impose additional loads on the system. Where the proposed work does not increase the load, or where it decreases the load on the existing system, no increase in size shall be required. All new piping associated with the installation of additional fixtures shall comply with the sizing requirements of Chapter 6.
5. All of Chapter 7 entitled “Sanitary Drainage,” except Sections 708.3.3, 709, 710, and 711 and Tables 709.1, 709.2, 710.1(1), and 710.1.(2).
  - i. Sections 709 and 710 for sizing drainage systems and sewer shall apply when the proposed work will impose additional loads on the system. Where the proposed work does not increase the load, or where it decreases the load on the existing system, no increase in size shall be required. All new piping associated with the installation of additional fixtures shall comply with the sizing requirements of Section 710.1.
  - ii. Section 711 for sizing offsets in drainage systems shall apply when the proposed work will impose additional loads on the system. Where the proposed work does not increase the load, or where it decreases the load on the existing system, no increase in size shall be required.
6. All of Chapter 8, entitled “Indirect Waste,” shall be included.
7. All of Chapter 9, entitled “Vents,” shall be included, except Sections 901, 903, 905.4, 905.5, 912.5, and 914.
  - i. Section 903 shall be included for locations where vent stacks are required and shall apply where new stacks are being installed.
  - ii. Section 916, size and length of vents, shall apply when new vents are being installed.
8. All of Chapter 10, entitled “Traps and Interceptors,” shall be included, except 1003.1, 1003.3, 1003.4, 1003.5, 1003.9, and 1003.10.
9. All of Chapter 11 entitled “Storm Drainage” shall be included, except 1101.2, 1103.3, 1106.1, 1106.3, 1107, and 1108.
  - i. When storm water drains are required, section 1101.2 shall apply only when new roofs, paved areas, yards, courts and courtyards are created.

- ii. Section 1106.1 and 1106.3 for sizing roof drains shall apply only where additional roof area is to be drained or where other circumstances increase the load on existing roof drains. Where the proposed work does not increase or decrease the load on the existing system, no increase in size shall be required.
- d. Electrical Materials and Methods. The following sections of the North Carolina Electrical Code shall constitute the electrical materials and methods requirements for this Rehabilitation Code:
- 1. Section 90.7, entitled “Examination of Equipment for Safety” of the Introduction, Article 90;
  - 2. All of Chapter 1, entitled “General,” except Sections 110.8, Wiring Methods, 110.26, Spaces about Electrical Equipment (600 Volts, Nominal, or Less), 110.27, Guarding of Live Parts (600 Volts, Nominal, or Less), 110.32, Work Space about Equipment (Over 600 Volts, Nominal), and 110.33, Entrance and Access to Work Space;
  - 3. All of chapter 2, entitled “Wiring and Protection,” except Sections 210.52, Dwelling Unit Receptacle Outlets, 210.60, Guest Rooms, 210.62, Show Windows, 210.63, Heating, Air Conditioning, and Refrigeration Equipment Outlet, 210.70, Lighting Outlets Required, and 210.11, Branch Circuits Required;
  - 4. All of Chapter 3, entitled “Wiring Methods and Materials,” except Section 404.8, Accessibility and Grouping (switches and Article 408 (Switchboards and Panelboards));
  - 5. All of Chapter 4, entitled “Equipment for General Use;”
  - 6. All of Chapter 5, entitled “Special Occupancies;”
  - 7. All of Chapter 6, entitled “Special Equipment;”
  - 8. All of Chapter 7, entitled “Special Conditions;” and
  - 9. All of Chapter 8 entitled “Communications Systems.”
  - 10. Existing working clearances, clear space, access and entrance dimensions to working spaces, illumination, headroom clearances, and location of over current protection devices shall be allowed to remain without modification.
- e. Mechanical Materials and Methods. The following sections of the North Carolina Mechanical Code shall constitute the mechanical materials and methods requirements for this Rehabilitation Code:
- 1. All of Chapter 3, entitled “General Regulations,” except 301.2, 301.7, 301.8, 301.13, 301.15, 303.5, 303.6, 303.7, 306, 307.2.3, 309, and 312.

2. All of Chapter 4 entitled “Ventilation,” except 402 and 403.
  3. All of Chapter 5 entitled “Exhaust Systems,” except 502, 509, 510, and 513.
    - i. Section 509 shall apply to newly installed or replaced commercial food heat-processing appliances and Type I hoods.
    - ii. Section 510 shall apply to newly introduced sources of hazardous exhaust.
  4. All of Chapter 6 entitled “Duct Systems,” except 602 and 604.
    - i. Section 602 shall apply to newly constructed plenums. Modifications to existing plenums, such as the installation of new building, electrical or plumbing materials inside the plenum, increasing air flow rate within the plenum shall not require the plenum to comply with the construction requirements for new plenums. However, newly installed materials within the plenum shall be consistent with the material requirements of 602.
  5. All of Chapter 7 entitled “Combustion Air”.
  6. All of Chapter 8 entitled “Chimneys and Vents”.
  7. All of Chapter 9, entitled “Specific Appliances, Fireplaces and Solid Fuel-Burning Equipment”
  8. All of Chapter 10 entitled “Boiler, Water Heaters and Pressure Vessels”.
  9. All of Chapter 11 entitled “Refrigeration”.
  10. All of chapter 12 entitled “Hydronic Piping,” except 1204.
  11. All of Chapter 13, entitled “Fuel Oil Piping and Storage”, except 1305.1, and
    - i. Section 1305.1 shall apply when the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
  12. All of Chapter 14 entitled “Solar Systems”.
- f. Gas Materials and Methods. The following sections of the 2009 North Carolina Fuel Gas Code shall constitute the Gas materials and methods requirements for this Rehabilitation Code:
1. All of Chapter 3 entitled “General Regulations,” except 301.2, 301.6, 301.11, 301.12, 303.7, and 306,

2. All of Chapter 4 entitled “Gas Piping Installations,” except 401.8 and 402.3,
  - i. Sections 401.8 and 402.3 shall apply when the work being performed increases the load on the system such as the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
3. All of Chapter 5 entitled “Chimneys and Vents,” and
4. All of Chapter 6 entitled “Specific Appliances.”
- g. Barrier Free Materials and Methods. The requirements of North Carolina Building code Chapter 11 shall constitute the barrier free materials and methods (accessibility) requirements for this Rehabilitation Code and shall apply to work projects in all buildings other than buildings of Use Group R-2, R-3 or R-4 containing fewer than four dwelling units or buildings of Use Group U.
  1. Exception: Where full compliance is technically infeasible, compliance shall be achieved to the maximum extent feasible.
  2. For toilet or bathing facilities, at least one of each type of fixture shall be accessible. Where six or more toilet stalls are provided, in addition to a wheelchair accessible stall, at least one ambulatory accessible stall shall be provided.
    - i. Exception: Nonpublic toilet rooms for individual use may be adaptable.
  3. Limited exceptions to the accessibility requirements for theatres and auditoriums are permitted as follows:
    - i. Where fixed seating is provided and it is technically infeasible to provide integrated accessible seating, accessible seating may be clustered.
    - ii. When a facility contains more than one performing area and it is technically infeasible to make all performing areas accessible, the provision of one accessible performing area shall be accepted as meeting the requirement for providing access to performing areas.
  4. In buildings of Use Group M, where fitting room partitions are installed or moved, five percent of the fitting rooms, but not less than one, shall comply.
- h. Elevator Devices Materials and Methods. The following sections of the elevator code shall constitute the elevator device materials and methods requirements for this subchapter:
  1. All of ASME A17.1-2007 Part 8.7.

2. Chapter 30 of the North Carolina Building Code.
  3. The requirements of ASME A17.1-2007 Rule 2.8.2.3.3, when an automatic fire suppression system is provided in an elevator hoist way, machine room or machinery space.
- i. Residential Materials and Methods. The following sections of the 2009 North Carolina Residential Code shall constitute the residential materials and methods requirements for this subchapter:
1. The following sections of Chapter 3, entitled “Building Planning”:
    - i. Section R307.2
    - ii. Section R308
    - iii. Section R311.5
    - iv. Section R312
    - v. Section R315
    - vi. Section R320
  2. The following sections of Chapter 4, entitled “Foundations”:
    - i. Section R402
    - ii. Section R407
  3. The following sections of Chapter 5, entitled “Floors”:
    - i. Sections R502.1, R502.8, R502.11, R502.12.1
    - ii. Sections R503.2.1, R503.2.3, R503.3.1, R503.3.3
    - iii. Sections R504.1, R504.3
    - iv. Sections R505.2.1, R505.2.2, R505.2.3, R505.2.4, R505.3.5, R505.3.6
  4. The following sections of Chapter 6, entitled “Wall Construction”:
    - i. Sections R602.1, R602.2, R602.6, R602.8.1
    - ii. Sections R603.2.1, R603.2.2, R603.2.3, R603.2.4, R603.3.5

- iii. Sections R604.1, R604.3
  - iv. Section R605
  - v. Section R606.1, R606.15
  - vi. Section R607.1
  - vii. Section R608.1
  - viii. Section R609.1
  - ix. Sections R610.1, R610.2, R610.3
  - x. Section R611.1
  - xi. Section R612.1
  - xii. Section R613.1
5. All of Chapter 7, entitled “Wall Covering”:
6. The following sections of Chapter 8, entitled “Roof-Ceiling Construction”:
- i. Section R802.1, R802.7, R802.10
  - ii. Section R803.2.1
  - iii. Sections R804.2.1, R804.2.2, R804.2.3, R804.2.4, R804.3.5, R804.3.6
  - iv. Section R805.1
7. The following sections of Chapter 9, entitled “Roof Assemblies”:
- i. Section R902.1
  - ii. Section R903.1
  - iii. Section R904
  - iv. Section R905
  - v. Section R906



vi. Section R907

8. All of Chapter 10 entitled “Chimneys and Fireplaces”:

### **1.9 New Building Elements**

- a. Where the rehabilitation of an existing building creates or includes any new building element of a type listed in this section, then the new element shall comply with the requirements for such an element established by this section.
  1. The installation of a floor system which did not previously exist shall be constructed utilizing the live load requirements as specified in Section 1607 of the North Carolina Building Code.
  2. When the number of stories in a building is increased without increasing the height of the building, the building shall comply with the story requirements of Table 503 of the NC Building Code.
  3. Newly created floor openings shall comply with the requirements of Section 707 of the NC Building Code.
  4. Newly created atriums shall comply with the requirements of Section 404 of the NC Building Code.
  5. Newly created door openings shall comply with Section 1008 of the NC Building Code. Additionally, newly created door openings in walls which are fire-resistance rated shall comply with Section 715 of the NC Building Code.
  6. Newly created openings in fire resistance rated assemblies shall be protected in accordance with Section 712 of the NC Building Code.
  7. Newly created exit discharge passageways used as exit elements shall comply with the requirements of Section 1021 of the NC Building Code. However, the fire resistance rating of the discharge passageway shall not be required to exceed the fire resistance rating of the exit element that discharges into the passageway.
  8. Newly created exit stairways shall comply with Section 1007.3, 1020, 1022, 1023 of the NC Building Code.
  9. Newly installed fire escapes shall be constructed in accordance with Section 3404 of the North Carolina Building Code. (Building)
  10. Newly installed elevator devices (not replacing an existing device) and other newly installed (not replacement) equipment within the scope of Chapter 30 shall conform to the requirements of Chapter 30 of the NC Building Code.
  11. Newly created corridors shall comply with Sections 1017.1, 1017.3, 1017.4, and 1017.5 of the NC Building Code.

12. Newly constructed mezzanines shall comply with Section 505 of the NC Building Code.
13. Newly created covered mall buildings shall comply with Section 402 of the NC Building Code.
14. Newly created motion picture projection rooms, screening rooms and sound stages shall comply with Section 409 of the NC Building Code.
15. Newly created stages and platforms shall comply with Section 410 of the NC Building Code.
16. At least one newly created window opening in sleeping rooms below the fourth story in occupancies in Use Groups R or I-1 shall: (Building)
  - i. Be operable.
  - ii. Have a sill height of not more than 44 inches.
  - iii. Have a width of at least 20 inches, a height of at least 24 inches and a minimum total area of 5.7 square feet measured from head to sill and from side to side.
  - iv. New window openings in sleeping rooms shall not be required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
  - v. Basement windows in buildings of Use Group R-2 shall comply with the requirements of Section 1.26.a.3 of this code where the window serves as the second means of egress from the dwelling unit.
17. Newly created specific occupancy areas shall comply with the following: (Plan Review – Building, Fire Inspection – Fire).
  - i. Paint shops in other than Use Group F which contain chemicals below the exempt amount for Use Group H, waste and soiled linen collection rooms and chute termination rooms shall be separated from other portions of the building by a one hour fire partition or provided with an automatic fire suppression system.
  - ii. Incinerator rooms in all use groups shall be separated from other portions of the building by a two hour fire separation assembly and provided with an automatic fire suppression system.
  - iii. In Use Groups I-2 and I-3, physical plant maintenance shops, laundries in excess of 100 square feet in area and padded cells shall be separated from other portions of the building by a one hour fire partition or provided with an automatic fire suppression system.

18. Newly installed electrical service equipment, switchboards, panelboards, motor control centers and other electrical equipment containing over current, switching or control devices likely to require examination, adjustment, servicing or maintenance while energized shall conform with the requirements specified in Section 1.8, Materials and Methods, and in addition, shall conform with Sections 110.26 (Working Space About Electrical Equipment – 600 Volts, Nominal or Less), 110.27 (Guarding of Live Parts – 600 Volts, Nominal or Less), 110.32 (Work Space about Equipment), 110.33 (Entrance and Access to Work Space), 404.8 (Accessibility and Grouping – Switches), Article 408 (Switchboards and Panelboards), as applicable, of the electrical code. (Electrical)
  
19. Newly created tenant separation assemblies shall comply with the requirements of Section 708 of the NC Building code based on the construction type of the existing building.

**1.10 Basic Requirements and Supplemental Requirements – General**

- a. The Basic Requirements, set forth in Section 1.11 for all use groups and for individual use groups in Sections 1.12 through 1.28, shall be met within or with regard to the work area in all reconstruction projects. (These requirements are in addition to the requirements contained in the materials and methods section of this code.)
- b. The Supplemental Requirements, set forth in Section 1.11A for all use groups and for individual use groups in the Sections 1.12A through 1.28A, shall be met in all buildings where there are reconstruction projects that meet or exceed the stated threshold for each requirement.
  1. All reconstruction work begun within a single twelve-month period shall be considered for determining the applicability of the Supplemental Requirement.
  2. If a project falls under the threshold for a Supplemental Requirement by a de minimis amount, the construction official may require that the Supplemental Requirement be met.
- c. Reconstruction projects contained in mixed-use buildings shall comply with the requirements of Section 1.29 below as applicable.
- d. Special technical specifications for windowless stories, the supervision of automatic fire suppression systems, suppression system risers, acceptances of existing alarm and suppression systems, smoke barriers, elevators and specific occupancy areas are established in Section 1.30. The windowless story, supervision of automatic fire suppression systems and smoke barrier special technical requirements shall apply only in those uses where specified by this code.

**1.11 Basic Requirements in All Use Groups**

- a. This section shall apply within the work area for all reconstruction projects.
- b. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be sufficient for the maximum permitted occupant load of the work area and any adjacent spaces served by that means of egress as calculated on a per floor basis. Means of egress shall be measured in units of exit width of 22 inches. (Plan Review – Building, Fire, Inspection – Building)
  - 1. The maximum permitted occupant load of a space shall be determined by the capacity of the means of egress serving the space as calculated in accordance with Table 1. Building owners shall have the option of establishing a reasonable restriction on the occupant load of the space based on the existing capacity of the means of egress or of providing additional egress capacity.

Table 1				
CAPACITY PER UNIT EGRESS WIDTH				
	Without fire suppression system		With fire suppression system	
	Number of occupants		Number of occupants	
Use Group	Stairways	Doors, Ramps and Corridors	Stairways	Doors, Ramps and Corridors
A	75	100	113	150
B	60	100	90	150
E	75	100	113	150
F	60	100	90	150
H	—	—	60	100
I-1	60	100	90	100
I-2	22	30	35	45
I-3	60	100	90	150
M	60	100	90	150
R	75	100	113	150
S	60	100	90	150
Note: The occupant load may be equal to the total number of occupants for which exit capacity is provided as determined by Table 1 above. For Use Group A occupancies, the resulting total occupant load shall not exceed one occupant per five square feet of net floor area over the entire use.				
Interpolation shall be allowed in determining capacity of egress width.				
<b>Unit of egress width = 22 inches</b>				

- c. Interior Finishes: Interior finishes within work areas shall comply with the following: (Plan Review – Building, Fire Inspection – Building)
  - 1. Existing interior finishes of walls and ceilings shall have a flame spread rating not greater than the class prescribed by Table 2 below. All existing interior finish materials which do not comply with the requirements of this section shall be removed or shall be treated with an approved fire

retardant coating in accordance with the manufacturer’s instructions to secure compliance with the requirements of this section. Exceptions are allowed as follows:

- i. The use of vinyl or paper wall coverings not exceeding 1/28<sup>th</sup> of an inch in thickness which is applied directly to a noncombustible or fire retardant treated wood substrate shall not be regulated by this section.
- ii. Interior trim which does not exceed 10 percent of the aggregate wall and ceiling area of any room or space shall not be regulated by this section.
- iii. When an approved automatic fire suppression system is provided, interior finish of Class II or III materials shall be permitted where Class I or II materials, respectively, are required by this section.
- iv. Exposed portions of structural members complying with the requirements for heavy timber construction in accordance with the North Carolina Building Code shall not be regulated by this section.

<b>Table 2</b>			
<b>Existing Interior Finish Requirements (a)</b>			
<b>Use Group</b>	<b>Exit Closures</b>	<b>Exit Access Enclosures</b>	<b>Room or Spaces</b>
A (b), E, I, R-1	I	II	III
All other Use Groups	I	II	No Minimum
(a) The Classification of interior finishes referred to herein corresponds to flame spread ratings determined by ASTM E84 as follows: Class I flame spread, 0-25; Class II flame spread, 26-75; Class III flame spread, 76-200. In all cases, the smoke developed rating determined by ASTM E84 shall not exceed 450.			
(b) See Use Group A-3 for amusement buildings.			

- d. Commercial cooking operations: An automatic fire suppression system shall be required for newly installed commercial cooking equipment producing grease-laden vapors, except within individual dwelling units in multiple family dwellings in Use Group R-2. No suppression system shall be required for completely enclosed ovens (with integral exhaust), steam tables or similar equipment. (Fire)
  - 1. Exception: Bed and breakfast home stay facilities, which are designed to accommodate five or fewer guests, shall not be required to comply with this provision.

**1.11A Supplemental Requirements in All Use Groups**

- a. This section shall apply to all reconstruction projects.
- b. Vertical Opening Protection: For purposes of applying the Supplemental Requirement for vertical opening protection below, a low hazard occupancy is an occupancy having contents of such low combustibility that no self-propagating fire can occur therein. A moderate hazard occupancy is an occupancy having contents that are likely to burn with moderate rapidity or to give off a considerable volume of smoke. (Plan Review- Building, Fire Inspection – Building)
- c. Windowless Stories: Any windowless basement or story located below the seventh story which is created by the work being performed or any existing windowless basement or story below the seventh story in which the work area exceeds 50 percent of the gross enclosed floor area of the windowless story, shall comply with the requirements listed in Section 1.30 of the code. (Fire)
- d. Underground structures: When the work area exceeds 50 percent of the gross enclosed floor area of an underground structure, the entire structure shall comply with Section 405 of the North Carolina Building Code.



**1.12 Basic Requirements – Use Group A-1**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be recognized for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  - 1. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  - 2. All required exit doors equipped with latching devices in buildings or spaces with an occupant load greater than 100 shall be equipped with approved panic hardware.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. Additionally, for buildings with an occupant load of 100 or more, a main entrance capable of serving as the main exit with an egress capacity for at least one half the total occupant load is required. The remaining exits shall be capable of providing one half of the total required exit capacity. This provision shall not apply in buildings with multiple main entrances. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the NC Building Code in effect at the time of its installation.
  - 2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the NC Building Code in effect at the time of its installation.
- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to NC Electrical code except that continued illumination shall be required to be

provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric, Inspection – Building)

1. In buildings used for motion pictures or other projections by means of directed light, the illumination of aisles may be reduced during periods of projection to not less than 0.2 foot candle. The switch requirements and location (s) for controlling egress lighting connected to the emergency electrical system shall be in conformance with NC Electrical Code.
- f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs where necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan review – Building, Fire Inspection – Building)
- h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exit conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.

2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required. Exceptions are as follows:
  - i. When connecting the main floor and mezzanines; or
  - ii. When all of the following conditions are met:
    - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic suppression system; and
    - 2) The lowest or next to the lowest level is a street floor; and
    - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
    - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
    - 5) Each floor level, considered separately, as at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
  - j. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the building code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
  - k. Plumbing Fixtures: Plumbing fixtures shall be provided as follows. Where the plumbing code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section (Plumbing)

Total Occupancy <sup>1</sup>	Water Closets		Lavatories	Drinking Water Facilities	Service Sinks
	Male	Female			
1-50	1 Unisex		1	1	1
51-100	1	1	1 per sex	1	1
101 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.					

1. Mechanical Requirements: all spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly-introduced devices, equipment or operations that produce airborne particles, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
- n. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation and/or protection. (Building)

- o. Fireblocking and Draftstopping: when the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.12A Supplemental Requirements – Use Group A-1**

- a. Automatic Fire Suppression System: An automatic fire suppression system shall be installed throughout the building when the work area is 12,000 square feet (gross enclosed floor area) or more. (Fire)
- b. Automatic Alarm System: When the work area exceeds 25 percent of the gross enclosed floor area of the building, an automatic fire alarm system that complies with NFPA 72 shall be installed in all storage, workshop, boiler or furnace rooms. (Fire)
- c. Manual Alarm System: For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 25 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two-hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one-hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30-minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic fire suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and

- 5) Each floor level, considered separately, has at least one half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communication floor level or be exposed to the smoke or fire spreading from another communicating floor level.
- e. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the NC Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.H. Elevator)

**1.13 Basic Requirements – Use Group A-2**

- a. Automatic Fire Suppression System: An automatic fire suppression system shall be required in buildings with an occupant load of 50 or more. (Fire)
  1. Exception: Suppression shall not be required for buildings with a permitted occupancy of fewer than 300 having all components of the required means of egress on the same level as the use and having all such exits discharging not more than five feet above, nor more than two feet below, the adjacent grade;
  2. Exception: Suppression shall not be required for buildings with a permitted occupancy of fewer than 200 having no portion of the required means of egress located more than one level above, or more than two feet below, the adjacent grade.
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
- c. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  2. All required exit doors equipped with latching devices in buildings or spaces with an occupant load greater than 100 shall be equipped with approved panic hardware.
  3. If there are more than two individual rooms which can be used for separate functions, each with an occupant load of more than 300, the required egress doors from such rooms shall lead directly outside or to an exit passageway. Exit passageways shall be completely enclosed by assemblies having a fire-resistant rating of at least two hours shall lead directly outside and shall not be used for any other purpose unless a horizontal exit is provided in accordance with the NC Building Code.
- d. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11b. Additionally, for buildings with an occupant load of 100 or more, a main entrance capable of serving as the main exit with an egress capacity for at least



one-half the total occupant load is required. The remaining exists shall be capable of providing one-half of the total required exit capacity. This provision shall not apply in buildings with multiple main entrances. (Plan Review – Building, Fire Inspection – Building)

- e. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. (Plan Review – Building, Fire Inspection – Building) Exceptions are allowed as follows:
  - 1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  - 2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  
- f. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric, Inspection – Building)
  - 1. In buildings used for motion pictures or other projections by means of directed light, the illumination of aisles may be reduced during periods of projection to not less than 0.2 foot candle. The switch requirements and location(s) for controlling egress lighting connected to the emergency electrical system shall be in conformance with NC Electrical Code.
  
- g. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
  - 1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  - 2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one

hour in the case of primary power loss. No emergency shall be required for approved self-luminous signs.

- h. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- i. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those in which the existing guards are in danger of collapsing when used under emergency exiting conditions shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- j. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies have a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  - 2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  - 3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required. Exceptions are as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and

- 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
  
- k. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the building code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
  
- l. Plumbing Fixtures: Plumbing fixtures shall be provided as follows: Where the plumbing code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under the section (Plumbing)

Total Occupancy <sup>1</sup>	Water Closets		Lavatories	Drinking Water Facilities	Service Sinks
	Male	Female			
1-25	1 Unisex		1	0	0
26 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.					

- m. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  - 2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per

person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.

3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- n. Interior finishes shall comply with 1.11.c (Plan Review – Building, Fire Inspection – Building)
- o. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
- p. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.13A Supplemental Requirements – Use Group A-2**

- a. Automatic Fire Suppression System: When the work area is 5,000 square feet (gross enclosed floor area) or more, an automatic fire suppression system shall be installed throughout the floor on which the A-2 Use is located and on all floors below. If the A-2 Use is below grade, then an automatic fire suppression system shall be installed throughout the floor on which the A-2 Use is located and on all floors above up to and including the level of exit discharge. (Fire)
- b. Automatic Alarm System: When the work area exceeds 25 percent of the gross enclosed floor area of the building, an automatic fire alarm system that complies with NFPA 72 shall be installed in all storage, workshop, boiler or furnace rooms. (Fire)
- c. Manual Alarm System: For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 25 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two-hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30-minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic fire suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and

- 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
  - 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level.
- e. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices. (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the top most floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the top most floor in all other buildings. (Where the standpipe terminates below the top most floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe,)
    - ii. Hose and hose cabinets shall not be required.

- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.14 Basic Requirements – Use Group A-3**

- a. Automatic Fire Suppression System: Fire suppression shall be required in spaces of the Use Group A-3 greater than 12,000 square feet. (Fire)
  1. Exceptions: Suppression shall not be required if the space is divided into fire areas of not more than 12,000 square feet by a 2 hour fire separation with 1 hour opening protectives or if the space is completely separated from any other uses by a 2 hour fire separation with 1 hour opening protectives.
  
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
  
- c. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  2. All required exit doors equipped with latching devices in buildings or spaces with an occupant load greater than 100 shall be equipped with approved panic hardware.
  3. If there are more than two individual rooms which can be used for separate functions, each with an occupant load of more than 300, the required egress doors from such room shall lead directly outside or to an exit passageway. Exit passageways shall be completely enclosed by assemblies



having a fire-resistance rating of at least two hours shall lead directly outside and shall not be used for any other purpose.

- d. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. Additionally, for buildings with an occupant load of 100 or more, a main entrance capable of serving as the main exit with an egress capacity for at least one-half the total occupant load is required. The remaining exits shall be capable of providing one-half of the total required exit capacity. This provision shall not apply in buildings with multiple main entrances. (Plan Review – Building, Fire Inspection – Building)
- e. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  - 2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- f. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electrical Inspection – Building)
  - 1. In buildings used for motion pictures or other projections by means of directed light, the illumination of aisles may be reduced during periods of projection to not less than 0.2 foot candle. The switch requirements and location(s) for controlling egress lighting connected to the emergency electrical system shall be in conformance with the NC Electrical Code.
- g. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are clearly identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
  - 1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that

the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.

2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. Now emergency power shall be required for approved self-luminous signs.
- h. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
  - i. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those in which the existing guards are in danger of collapsing when used under emergency exiting conditions shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
  - j. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
    1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
    2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
    3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required. Exceptions are as follows:
      - i. When connecting the main floor and mezzanines; or
      - ii. When all of the following conditions are met:
        - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic suppression system; and
        - 2) The lowest or next to the lowest level is a street floor; and

- 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
  - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
  - 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
- k. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)

1. Plumbing Fixtures: (Plumbing)

- 1. For auditoriums, museums, libraries, and similar facilities, plumbing fixtures shall be provided as follows: Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section.

Total Occupancy <sup>1</sup>	Water Closets		Lavatories	Drinking Water Facilities	Service Sinks
	Male	Female			
1-50	1 Unisex		1	1	1
51-100	1	1	1 per sex	1	1
101 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.					
Note <sup>2</sup> : Requirements for employees and customers may be met with a single set of restrooms. The required number of fixtures shall be the greater of the required number for employees or customers.					

- 2. For recreational facilities, passenger terminals and other buildings of Use Group A-3, Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or emissions shall also be permitted under this section.

- m. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- n. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
- o. Specific Occupancy Areas: Specify occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
- p. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.14A Supplemental Requirements – Use Group A-3**

- a. Automatic Fire Suppression System: For ballrooms, exhibit areas, and accessory spaces of Use Group A-3, an automatic fire suppression system shall be installed throughout the A-3 use when the work area is 12,000 square feet (gross enclosed floor area) or more. (Fire)
- b. Automatic Alarm System: When the work area exceeds 25 percent of the gross enclosed floor area of the building, an automatic fire alarm system that complies with NFPA 72 shall be installed in all storage, workshop, boiler or furnace rooms. (Fire)
- c. Manual Alarm System: For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 25 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30 minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic fire suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and

- 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
- e. Requirements for high-rise buildings: Any buildings or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina Building Code. The devices shall stop the fan(s) automatically and shall be the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the top most floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the top most floor in all other buildings. (Where the standpipe terminates below the top most floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

- g. Amusement Buildings: When any reconstruction project is undertaken in a building or portion thereof designed to disorient the occupant, reduce vision, present barriers or otherwise impede the flow of traffic, the following requirements shall be met throughout the building or portion thereof that constitutes the amusement use. (Plan Review – Building, Fire Inspection – Building)
1. Every such amusement facility shall be equipped throughout with an automatic fire suppression system installed in accordance with the North Carolina Building Code.
  2. The interior finish of all walls and ceilings shall in no case be less than a Class II material in accordance with this subchapter.
  3. Every such amusement facility shall be equipped with exit signs installed in accordance with this subchapter.
  4. Every such amusement facility shall be equipped throughout with an approved automatic fire alarm system installed in accordance with the North Carolina Building Code and in accordance with g.5 through g.8 below.
  5. The automatic alarm system shall activate a prerecorded message which can be heard throughout the entire facility instructing the patrons to proceed to the nearest exit. Any alarm signals used in conjunction with the prerecorded message shall produce a signal which is distinctive from all sounds used in the normal operation of the amusement facility.
  6. Every such amusement facility shall be equipped with emergency lighting equipment installed in accordance with the North Carolina State Building Code. The emergency lighting equipment shall automatically activate when:
    - i. The fire suppression system is activated;
    - ii. The fire alarm system is activated; or
    - iii. Loss of the primary power supply occurs.
  7. All audio and visual equipment such as horns, bells, flashing, or otherwise distracting stimuli and mechanized displays shall cease operation upon initiation of an alarm by the automatic fire alarm system or activation of the automatic fire suppression system.
  8. Activation of the automatic alarm system shall automatically shut down the air distribution system.

**1.15 Basic Requirements – Use Group A-4**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  - 1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  - 2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  - 2. All required exit doors equipped with latching devices in buildings or spaces with an occupant load greater than 100 shall be equipped with approved panic hardware.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. Additionally, for buildings with an occupant load of 100 or more, a main entrance capable of serving as the main exit and an egress capacity for at least one-half the total occupant load is required. The remaining exits shall be capable of providing one-half of the total required exit capacity. This provision shall not apply in buildings with multiple main entrances. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review- Building, Fire Inspection – Building)



1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electrical Inspection – Building)
1. In buildings used for motion pictures or other projections by means of directed light, the illumination of aisles may be reduced during periods of projection to not less than 0.2 foot candle. The switch requirements and location(s) for controlling egress lighting connected to the emergency electrical system shall be in conformance with the NC Electrical Code.
- f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that area identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire, Inspection – Building)
1. Red or green letters at least six inches high, minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full

width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)

- h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below is not provided with guards or those in which the existing guards are in danger of collapsing when used under emergency exiting conditions shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  - 2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  - 3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required. Exceptions are as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
      - 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communication floor level or be exposed to the smoke or fire spreading from another communicating floor level.
- j. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be

reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)

- k. **Plumbing Fixtures:** Plumbing fixtures shall be provided as follows. Where the North Carolina Plumbing Code allows for the substitution or omissions of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)

Total Occupancy <sup>1</sup>	Water Closets		Lavatories	Drinking Water Facilities	Service Sinks
	Male	Female			
1-50	1 Unisex		1	1	1
51-100	1	1	1 per sex	1	1
101 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.					

- l. **Mechanical Requirements:** All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  - 2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  - 3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan review – Building, Fire Inspection – Building)

- n. **Specific Occupancy Areas:** Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection.  
(Building)
- o. **Fireblocking and Draftstopping:** When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.15A Supplemental Requirements – Use Group A-4**

- a. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
1. A minimum two-hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30-minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic fire suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
      - 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
- b. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat

detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)

2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the top most floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the top most floor in all other buildings. (Where the standpipe terminates below the top most floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
- c. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.16 Basic Requirements – Use Group A-5**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  - 1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  - 2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving on occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  - 2. All required exit doors equipped with latching devices in buildings or spaces with an occupant load greater than 100 shall be equipped with approved panic hardware.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. Additionally, for buildings with an occupant load of 100 or more, a main entrance capable of serving as the main exit with an egress capacity for at least one-half the total occupant load is required. The remaining exits shall be capable of providing one-half of the total required exit capacity. This provision shall not apply in buildings with multiple main entrances. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)

1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric Inspection – Building)
1. In buildings used for motion pictures or other projections by means of directed light, the illumination of aisles may be reduced during periods of projection to not less than 0.2 foot candle. The switch requirements and location(s) for controlling egress lighting connected to the emergency electrical system shall be in conformance with the NC Electrical Code.
- f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke 3/4 inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernable when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 6 inches wide shall have handrails on both sides unless the full



width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)

- h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those in which the existing guards are in danger of collapsing when used under emergency exiting conditions shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: Stairways are not required to be enclosed where all portions of the means of egress are essentially open to the outside. (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  - 2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  - 3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required. Exceptions are as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupant; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
      - 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.

- j. **Structural Elements:** Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- k. **Plumbing Fixtures:** Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under the section. (Plumbing)
- l. **Mechanical Requirements:** All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  - 2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  - 3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
- n. **Specific Occupancy Areas:** Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)

- o. **Fireblocking and Draftstopping:** When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.16A Supplemental Requirements – Use Group A-5**

- a. Manual Alarm System: For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- b. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review- Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30 minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:
    - i. When connecting the main floor and mezzanines; or
    - ii. When all of the following conditions are met:
      - 1) The communicating area has a low hazard occupancy or has a moderate hazard occupancy which is protected throughout by an automatic fire suppression system; and
      - 2) The lowest or next to the lowest level is a street floor; and
      - 3) The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants; and
      - 4) Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity; and
      - 5) Each floor level, considered separately, has at least one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
      - 6) Exception: Stairways are not required to be enclosed where all portions of the means of egress are essentially open to the outside.

- c. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the top most floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the top most floor in all other buildings. (Where the standpipe terminates below the top most floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
- d. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.17 Basic Requirements – Use Group B**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  - 1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  - 2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
  - 3. A single exit shall be permitted in buildings of not more than two stories in height, with not more than 3,000 square feet per floor when the exit access travel distance does not exceed 75 feet and a minimum fire resistance rating of one hour is provided for the exit enclosure and the opening protection.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.

2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electrical Inspection – Building)
  - f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
    1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
    2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
  - g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
  - h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)

- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  - 2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  - 3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required, with the following exception:
    - i. No vertical opening protection shall be required for vertical openings of up to three stories in buildings not exceeding 3,000 square feet per floor or in buildings with suppression throughout.
- j. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- k. Plumbing Fixtures: Plumbing Fixtures shall be provided as follows: Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)



	Total Occupancy <sup>1,2</sup>	Water Closets		Lavatories	Drinking Water Facilities	Service Sinks
		Male	Female			
Employees	1-15	1 Unisex		1	1	1
	16 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
Customers	1-25	1	1	1 per sex	1	1
	26 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
<p>Note<sup>1</sup>: For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.</p>						
<p>Note<sup>2</sup>: Requirements for employees and customers may be met with a single set of restrooms. The required number of fixtures shall be the greater of the required number for employees or customers.</p>						
<p>Note<sup>3</sup>: Requirements for employees and customers may be met with a single set of restrooms. The required number of fixtures shall be the greater of the required number for employees or customers.</p>						

1. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)

- n. **Specific Occupancy Areas:** Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection.  
(Building)
- o. **Fireblocking and Draftstopping:** When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.17A Supplemental Requirements – Use Group B**

- a. Manual Alarm System: When the work area exceeds 50 percent of the gross enclosed floor area of the building, a fire alarm system shall be installed throughout the building. (Fire)
  1. Exception: Manual alarm systems are not required in buildings which do not have occupied floors which are two or more stories above the lowest level of exit discharge or floors two or more stories below the highest level of exit discharge.
- b. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30 minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: No vertical opening protection shall be required for buildings up to 3,000 square feet per floor or for buildings with an automatic fire suppression system throughout.
- c. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)

- i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
  - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe).
  - ii. Hose and hose cabinets shall not be required.
4. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, central control station and communication systems shall be provided as follows: (Fire)
  - i. An approved public address communication system consisting of loudspeakers in each corridor and in each room and tenant space exceeding 1,000 square feet, each elevator and elevator lobby and in each stair enclosure which shall be capable of being operated from the central control station;
  - ii. A two-way fire department communication system which shall operate between the central control and every elevator, elevator lobby and entry to enclosed exit stairways;
  - iii. A central control station for fire department operations shall be provided in a location approved by the fire department. It shall contain the public address panel, the fire department communications panel, fire detection and alarm system annunciator panels, status indicators and controls for air handling systems, sprinkler valve and water flow detector display panels, and status indicators and a telephone for fire department use with controlled access to the public telephone system.
5. Automatic Fire Suppression System: When the work area is an entire floor, an automatic fire suppression system shall be installed on that floor. When an automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the building. (Fire)

6. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)
  
7. Airport Traffic Control Towers: When the work area exceeds 50 percent of the gross enclosed floor area of an airport traffic control tower, the entire structure shall comply with the requirements of Section 412.1 of the North Carolina Building Code.

**1.18 Basic Requirements – Use Group E**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  - 1. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
    - i. A single exit shall not be permitted when a building is used as a child care center.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  - 2. A single means of egress shall be permitted in classrooms having a maximum occupant load of 75 in buildings equipped throughout with an automatic fire suppression system.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  - 2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be

required to be provided for not less than one hour in the case of primary power loss. (plan Review – Building, Fire, Electric Inspection - Building)

1. In buildings used for motion pictures or other projections by means of directed light, the illumination of aisles may be reduced during periods of projection to not less than 0.2 foot candle. The switch requirements and location(s) for controlling egress lighting connected to the emergency electrical system shall be in conformance with the North Carolina Electrical Code.
- f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.

2. For vertical openings connecting four to six floor levels, approved assemblies have a fire resistance rating of not less than one hour with approved opening protectives shall be required.
3. For vertical openings not exceeding three stories, a minimum one hour fire barrier shall be required, with the following exception:
  - i. No vertical opening protection shall be required for vertical openings of up to three stories in buildings with suppression throughout.
  - j. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
  - k. Plumbing Fixtures: Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)
  1. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. All Public school buildings shall be provided with mechanical ventilation. (Building)
    1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
    2. Mechanically ventilated spaces shall comply with the following:
      - i. Newly installed HVAC systems shall comply with ASHRAE 62.1-2007.
      - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHREA 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE62.1-2007 is followed and results in a lesser amount.



3. All newly introduced devices, equipment, or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke, or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
  - n. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
  - o. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.18A Supplemental Requirements – Use Group E**

- a. Automatic Fire Suppression System: In buildings three stories or more in height, with greater than 20,000 square feet per floor, when the work area exceeds 50 percent of the gross enclosed floor area of a floor, an automatic fire suppression system shall be installed throughout that floor. (Fire)
- b. Automatic Alarm System: When the work area exceeds 50 percent of the gross enclosed floor area of the building, an automatic fire alarm system shall be installed throughout the building as follows: (Fire)
  1. An approved system of automatic smoke detectors; or
  2. An approved automatic fire suppression system equipped with automatic fire alarm devices; or
  3. An approved system which combines the following elements that shall be acceptable when devices are located as indicated below:
    - i. Combination fixed temperature/rate-of-rise detectors in classrooms and ancillary spaces.
    - ii. Photoelectric or projected-beam smoke detectors in exit access corridors and at the top of the exit stair enclosures.
    - iii. Fixed temperature detectors shall be accepted in locations such as boiler rooms, garage areas and other spaces in which conditions render other detectors inappropriate.
  4. Existing fire detection systems, installed and maintained in accordance with the manufacturer's recommendations, and meeting the intent of current standards for automatic fire alarms, shall be acceptable, provided:
    - i. The existing system is certified as functional by an approved service agency.
    - ii. Where a portion of an existing system is not serviceable and cannot be repaired, the existing system shall be replaced in accordance with the above and the provisions of the North Carolina Building Code.
- c. Manual Alarm System: When the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarm boxes shall be provided throughout the building in compliance with Section 907.3 of the North Carolina Building Code and in accordance with the following: (Fire)
  1. Manual fire alarm boxes shall be provided in the natural path of escape from fire, near each exterior door from the corridor, kitchen, heater room and other exterior exits that are required to serve 50 or more persons. Additional fire alarm boxes shall be located in the main office, stage, at each stairway entrance from a corridor or place of assembly and near one exterior exit in each

section of a place of assembly. It shall not be necessary to traverse more than 200 feet of unobstructed horizontal distance on the same floor in order to reach a fire alarm box.

- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum one hour fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: Not vertical opening protection shall be required for buildings with an automatic fire suppression system throughout.
- e. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A18.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)

- i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 5 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
  - ii. Hose and hose cabinets shall not be required.
- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.19 Basic Requirements – Use Group F**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency existing conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.

- e. **Means of Egress Lighting:** Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire Electrical Inspection – Building)
- f. **Illuminated Exit Signs:** Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception; Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
  - 1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  - 2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- g. **Handrails:** Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- h. **Guards:** Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. **Vertical Opening Protection:** Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.

2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
3. For vertical openings not exceeding three stories, a minimum one hour fire barrier shall be required, with the following exceptions:
  - i. No vertical opening protection shall be required for vertical openings of up to three stories in special purpose manufacturing occupancies when necessary for manufacturing operations and when direct access is provided to at least one protected stairway; or
  - ii. In buildings with suppression throughout.
- j. **Structural Elements:** Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1) and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- k. **Plumbing Fixtures:** Plumbing fixtures shall be provided as follows. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under the section. (Plumbing)

	Total Occupancy <sup>1</sup>	Water Closets	Lavatories	Drinking Water Facilities	Service Sinks
Light Industrial	1-15	1 Unisex	1	1	1
	16 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.			
Heavy Industrial		Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.			
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.					

1. **Mechanical Requirements:** All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at

least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.

2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly- introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c (Plan Review – Building, Fire Inspection – Building)
  - n. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
  - o. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with the Section 717 of the North Carolina Building Code.



**1.19A Supplemental Requirements – Use Group F**

- a. Manual Alarm System: For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
  1. Exception: Manual alarm systems shall not be required in building equipped throughout with an automatic suppression system.
  
- b. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum one hour fire barrier required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: No vertical opening protection shall be required for special purpose occupancies when necessary for manufacturing operations and direct access is provided to at least one protected stairway or for buildings with an automatic fire suppression system throughout.
  
- c. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)

- i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
- d. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.20 Basic Requirements – Use Group H**

- a. Automatic Fire Suppression System: An approved automatic fire suppression system shall be required. When an automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the building. (Fire)
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. (Plan Review – Building, Fire Inspection – Building)
  1. For buildings of Use Group H-1, H-2 or H-3, a minimum of two exits shall be required from all mezzanines with an occupant load of greater than three or in which the travel distance exceeds 50 feet. For buildings of Use Group H-4, a minimum of two exits shall be required from all mezzanines with an occupant load of greater than 10 or in which the travel distance exceeds 75 feet.
  2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
  3. For buildings of Use Group H-1 or H-2, new slidescapes or safety chutes shall be permitted where constructed in accordance with the North Carolina Building Code.
- c. Egress Doorways: For buildings or spaces of Use Group H-1, H-2 or H-3, a minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than three or in which the travel distance exceeds 50 feet. For buildings or spaces of Use Group H-4, a minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 10 or in which the travel distance exceeds 75 feet. All egress doors shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
- d. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- e. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. (Plan Review – Building, Fire Inspection – Building)
- f. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electrical Inspection – Building)

- g. **Illuminated Exit Signs:** Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- h. **Handrails:** Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- i. **Guards:** Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency existing conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- j. **Vertical Opening Protection:** Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  3. For vertical openings not exceeding three stories, a minimum one hour fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories, with the following exception:

- i. No vertical opening protection shall be required for vertical openings of up to three stories when necessary for manufacturing operations in a building where every floor level has direct access to at least two remote enclosed stairways or other approved exits.
  
- k. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structure design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c., existing structural elements shall be permitted to remain. (Building)
  
- l. Plumbing Fixtures: Plumbing fixtures shall be provided as follows: Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)

	Total Occupancy <sup>1</sup>	Water Closets	Lavatories	Drinking Water Facilities	Service Sinks
Light Industrial	1-15	1 Unisex	1	1	1
	16 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.			
Heavy Industrial		Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.			
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.					

- m. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  - 2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is

lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.

3. All newly introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- n. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
  - o. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that a section for separation or protection. (Building)
  - p. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.20A Supplemental Requirements – Use Group H**

- a. Automatic Fire Suppression System: Automatic fire suppression system shall be installed throughout the work area. When an automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the building (Fire)
- b. Manual Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building or use, a manual fire alarm system shall be installed throughout the buildings or portions thereof of Use Group H-2, H-3 or H-4. (Fire)
- c. Automatic Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building or use, an automatic fire alarm system shall be installed throughout in buildings of Use Group H. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum one-hour fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: No vertical opening protection shall be required when the opening is necessary for manufacturing operations in a building where every floor level has direct access to at least two remote enclosed stairways or other approved exits.
- e. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)

2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
  - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.12004, Rule 211.3 through 211.8.
3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
  - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
  - ii. Hose and hose cabinets shall not be required.
- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)
- g. HPM Facilities: When the work area exceeds 50 percent of the gross enclosed floor area of an HPM facility, the entire building is required to comply with the requirements of Section 415.8 of the North Carolina Building Code. (Building)
- h. Hazardous Materials: When the work area exceeds 25 percent of the gross enclosed floor area of the Use Group H portion of a building, the entire building is required to comply with the requirements of Sections 414 and 415 of the North Carolina Building Code. (Building)



**1.21 Basic Requirements – Use Group I-1**

- a. Automatic Fire Suppression System: Fire suppression shall be required in buildings greater than two stories in height above grade with an occupant load greater than 20 excluding staff. (Fire)
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. A single exit shall not be permitted.
  2. Existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
    - ii. Ladders shall be prohibited on fire escapes used as a required means of egress.
    - iii. Window access to fire escapes shall be permitted from individual rooms.
  3. Existing slidescapes or safety chutes shall be permitted.
- c. Emergency Egress Windows: When the work being performed creates a bedroom below the fourth floor, at least one sleeping room window or exterior door shall:
  1. Be operable;
  2. Have a sill height of not more than 44 inches; and
  3. Have a width of at least 20 inches, a height of at least 24 inches, and a minimum total area of 5.7 square feet measured from head to sill and side to side; and
  4. Windows are not required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.

- d. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  2. All dwelling unit, guest room or rooming unit corridor doors shall be at least 1- 3/8 inch solid core wood or approved equal with approved door closers and shall not have any glass panels, other than approved wire glass in metal frames. Corridor doors shall not be constructed of hollow core wood shall not contain louvers and shall not be of panel construction. Doors shall fit both plumb and level in frames, and be reasonably tight fitting. All replacement doors shall be 1-3/4 inches solid core wood or approved equal, unless existing frame will accommodate only a 1-3/8 inch door. (Note: Existing doors meeting HUD Guidelines for a rating of 15 minutes or better shall be accepted.)
  3. In buildings with an automatic fire suppression system, doors are only required to provide a smoke barrier, to be free of louvers, to fit plumb and level and to be reasonably tight fitting.
  4. All doors opening onto a passageway at grade or onto an exit stair shall be self-closing or automatic closing by listed closing devices.
    - i. Exception: Group homes with a maximum of 15 occupants and an approved automatic fire detection system shall not be required to have self-closing doors.
- e. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- f. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review- Building, Fire Inspection – Building)
1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- g. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be

provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric Inspection – Building)

- h. **Illuminated Exit Signs:** Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the criteria contained in (h) 1. And 2. Below: (Plan Review – Building, Fire Inspection – Building)
  - 1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  - 2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
  - 3. Exceptions: Illuminated exit signs shall not be required for buildings with an occupant load, excluding staff, of 20 or less or when the second means of egress is a fire escape that is accessed directly from the individual sleeping room.
- i. **Handrails:** Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- j. **Guards:** Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those in which the existing guards are in danger of collapsing with used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- k. **Vertical Opening Protection:** Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.

2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
3. For vertical openings not exceeding three stories, a minimum one hour fire barrier shall be required, with the following exception:
  - i. Exception: Vertical opening protection shall not be required for either the top or bottom of a stairway connecting not more than two floor levels when such stairway does not serve as a required means of egress and the occupant load does not exceed 12, excluding staff.
- l. Boiler/Furnace Equipment Rooms: Boiler/furnace equipment rooms shall be enclosed by one hour fire-rated wall ceiling assemblies. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: Enclosure shall not be required for boiler/furnace equipment of low pressure type (operating at pressures of 15 psig or less for steam equipment or 160 psig or less for hot water equipment) when installed in accordance with manufacturer’s recommendations or for boiler/furnace equipment of residential, single-family type (200,000 BTU per hour input rating or less.)
  2. Exception: Enclosure shall not be required for boiler/furnace equipment rooms equipped with a limited area sprinkler system in accordance with Section 903.3.5.1.1 of the North Carolina Building Code
  3. For group homes and supervised transitional living homes heated with oil burning equipment, an emergency shutoff switch shall be required at the top of the stairs leading to the basement for equipment in the basement or outside of the room for equipment located in other enclosed rooms.
- m. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- n. Plumbing Fixtures: Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)
- o. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)

1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly Installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such qualities to be irritating or injurious to health shall be provided with local exhaust.
- p. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
- q. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
- r. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.21A Supplemental Requirements – Use Group I-1**

- a. Automatic Fire Suppression System: When the work area is more than two floors or when the work area will be occupied by more than 20 persons, excluding staff, an automatic fire suppression system shall be required throughout the work area. When an automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the entire building. (Fire)
- b. Automatic Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, a supervised automatic fire alarm system shall be required throughout the building. (Fire)
  1. Exception: Automatic alarm systems shall not be required in buildings, other than boarding homes, with an automatic fire suppression system and a manual fire alarm system and with single station smoke detectors in the vicinity of sleeping areas in accordance with NFPA 72.
- c. Manual Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floors levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum one hour fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: No vertical opening protection shall be required for either the top or bottom of a stairway connecting not more than two floor levels when such stairway does not serve as a required means of egress and the occupant load does not exceed 12, excluding staff.
- e. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The

devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)

2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the emergency control devices: (Elevator)
  - i. All automatic (non-designated attendant elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the NC Building Code, except as follows: (Fire)
  - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm or 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
  - ii. Hose and hose cabinets shall not be required.
- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.22 Basic Requirements – Use Group I-2**

- a. Automatic Fire Suppression System: Fire Suppression shall be required. (Fire)
1. Exception: Suppression shall not be required in buildings of Type 1 or Type 2A construction of any height or of Type 2B construction not over one story in height.
  2. Exception: Suppression shall not be required in day care centers with an occupant load of 100 or less where all the children under 2 years of age are cared for on the first floor and in which each child care room has an exit door directly to the exterior.
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
1. A single exit shall not be permitted.
- c. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  2. A minimum of two egress doorways shall be required for any patient sleeping room or suite of rooms greater than 1,000 square feet.
- d. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- e. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.



- f. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electrical Inspection – Building)
- g. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
  3. Exception: When the second means of egress is a fire escape that is accessed directly from the individual sleeping room, illuminated exit signs shall not be required above the means of egress serving the fire escape.
- h. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- i. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)

- j. **Vertical Opening Protection:** Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  3. For vertical openings not exceeding three stories, a minimum one hour fire barrier shall be required, with the following exception:
    - i. Exception: Vertical opening protection shall not be required for vertical openings connecting not more than two floor levels which are separated by a one hour fire barrier equipped with a self closing or automatically closing 20 minute door at the top or bottom of the stairway when such stairway does not serve as a required means of egress.
- k. **Boiler/Furnace Equipment Rooms:** Boiler/furnace equipment rooms shall be enclosed by one hour fire rated wall and ceiling assemblies for day nurseries, children shelter facilities, residential child care facilities and similar facilities with children below the age of 2 ½ years. (Plan Review – Building, Fire Inspection – Building)
1. Exception: Enclosure shall not be required for boiler/furnace equipment of low pressure type (operating at pressures of 15 psig or less for steam equipment or 160 psig or less for hot water equipment) when installed in accordance with manufacturer’s recommendations or for boiler/furnace equipment of residential, single-family type (200,000 BTU per hour input rating or less.)
  2. Exception: Enclosure shall not be required for boiler/furnace equipment rooms equipped with a limited area sprinkler system in accordance with Section 903.3.5.1.1 of the North Carolina Building Code.
  3. Where oil burning equipment is used, an emergency shutoff switch shall be required at the top of the stairs leading to the basement for equipment in the basement or outside of the room for equipment located in other enclosed rooms.
- l. **Smoke Barriers:** On every story used for sleeping purposes for more than 30 occupants and on stories which are usable, but unoccupied, when the work area exceeds 22,500 square feet on a floor, the work area shall be divided into not less than two compartments by smoke barrier walls complying with the technical requirements of section 1.30.e such that each compartment does not exceed 22,500 square feet and is no more than 150 feet in length and width. (Plan Review – Building, Fire Inspection – Building)

- m. **Structural elements:** Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- n. **Plumbing Fixtures:** Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the plumbing code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)
- o. **Mechanical Requirements:** All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- p. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
- q. **Specific Occupancy Areas:** Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)

- r. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.22A Supplemental Requirements – Use Group 1-2**

- a. Automatic Fire Suppression System: When the work area is 50 percent or more of the occupied floor area of the building, an automatic fire suppression system shall be required throughout the floor. When the automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the building. (Fire)
  1. Exception: No automatic fire suppression system shall be required for day care centers with an occupant load of 100 or less where all children below 2 years of age are cared for on the first floor
- b. Automatic Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, a supervised automatic fire alarm system shall be required throughout the building. (Fire)
  1. Exception: Automatic alarm systems shall not be required for buildings with an automatic fire suppression system and a manual fire alarm system and with single station smoke detectors in vicinity of sleeping areas in accordance with NFPA 72.
- c. Manual Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum one hour fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: No vertical opening protection shall be required for vertical openings connecting not more than two floor levels which are separated by a one-hour fire barrier equipped with a self-closing or automatically closing 20 minute door at the top or bottom of the stairway when such stairway does not serve as a required means of egress.
- e. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:

1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
  - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
  - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
  - ii. Hose and hose cabinets shall not be required.
- f. **Smoke Barriers:** When the work area exceeds 50 percent of the occupied enclosed floor area of a story used for sleeping purposes for more than 30 occupants or of a story which is usable, but unoccupied, the story shall be divided into two or more compartments by smoke barrier walls complying with the technical requirements of Section 1.30.e such that each compartment does not exceed 22,500 square feet and is no more than 150 feet in length and width. (Plan Review – Building, Fire Inspection – Building)
- g. **Elevator Devices:** When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.23 Basic Requirements – Use Group I-3**

- a. Automatic Fire Suppression System: Fire suppression shall be required in buildings with an occupant load of six or more. As an alternative, buildings shall be in compliance with all applicable provisions of Chapter 15 “Existing Detention and Correctional Occupancies” of the Life Safety Code, NFPA 101, 2003 edition. (Fire)
  1. In buildings not required to be equipped throughout with suppression, suppression shall be provided in all padded cells, boiler rooms, storage workshop rooms 24 square feet or larger, mechanical equipment rooms and similar rooms.
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. A single exit shall not be permitted.
- c. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  2. Buildings with remote power unlocking capability on more than 10 doors shall be provided with an emergency power source for such locks. Power shall be arranged to automatically operate upon failure of normal power within 10 seconds and for a duration of not less than one hour.
- d. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- e. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are as allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.

- f. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric Inspection – Building)
- g. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are clearly identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review- Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.006 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
  3. Exception: When the second means of egress is a fire escape that is accessed directly from the individual sleeping room, illuminated exit signs shall not be required above the means of egress serving the fire escape.
- h. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- i. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)



- j. Vertical Opening Protection: approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required for all vertical openings. The vertical opening protection may be omitted if either of the following conditions is met: (Plan Review – Building, Fire Inspection – Building)
  - 1. The building is in compliance with NFPA 101, Chapter 15, 2003 edition; or
  - 2. The building is equipped throughout with an automatic suppression system.
- k. Interior Finishes and Furnishings: Interior furnishings, drapes, curtains, carpeting, decorations, bedding, etc. shall be flame retardant. (Plan Review – Building, Fire Inspection – Building)
- l. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- m. Plumbing Fixtures: Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)
- n. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  - 2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.

3. All newly introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- o. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
  - p. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation and/or protection. (Building)
  - q. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.23A Supplemental Requirements – Use Group I-3**

- a. Automatic Fire Suppression System: When the work area exceeds 50 percent of the gross enclosed floor area of the building, an automatic fire suppression system or compliance with Chapter 15 “Existing Detention and Correctional Occupancies” of the Life Safety Code, NFPA 101, 2003 edition shall be required throughout the building when there is an occupant load of six or more. In buildings without an automatic fire suppression system, padded cells, boiler and mechanical equipment rooms, and storage and workshop rooms 25 square feet or larger must have an automatic fire suppression system. (Fire)
- b. Automatic Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, a supervised automatic fire alarm system shall be required throughout all resident housing areas in the building. Smoke detectors shall be arranged and positioned to prevent damage or tampering, provided that the function and speed of detecting a fire is equivalent to that provided by the spacing and arrangement requirements of NFPA 73 listed in Chapter 9 of the North Carolina Building Code. (Fire)
  1. Exception: An automatic fire alarm system shall not be required for buildings with an automatic fire suppression system and a manual fire alarm system and with single station smoke detectors in vicinity of sleeping areas in accordance with NFPA 72.
  2. Exception: Smoke detectors shall not be required in sleeping rooms with four or fewer occupants.
- c. Manual Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
- d. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided between floor levels of residential areas unless the building is equipped throughout with an automatic fire suppression or the building complies with NFPA 101, Chapter 15, 2003 edition. (Plan Review – Building, Fire Inspection – Building)
- e. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)

2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
  - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
  - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 54 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
  - ii. Hose and hose cabinets shall not be required.
- f. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.24 Basic Requirements – Use Group M**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.

- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric Inspection – Building)
- f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
- g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)
- h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  - 2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  - 3. For vertical openings not exceeding three stories, a minimum 30 minute fire barrier shall be required, with the following exceptions:
    - i. No vertical opening protection shall be required for openings connecting only two floor levels, such as between the street floor and mezzanine or second floor; or
    - ii. In buildings with suppression throughout.

- j. **Structural Elements:** Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- k. **Plumbing Fixtures:** Plumbing fixtures shall be provided as follows: Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)

	Total Occupancy <sup>1,2</sup>	Water Closets		Lavatories	Drinking Water Facilities	Service Sinks
		Male	Female			
Employees	1-15	1 Unisex		1	1	1
	16 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
Customers	1-25	1	1	1 per sex	1	1
	26 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.				
<p>Note<sup>1</sup>: For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.</p>						
<p>Note<sup>2</sup>: Requirements for employees and customers may be met with a single set of restrooms. The required number of fixtures shall be the greater of the required number for employees or customers.</p>						
<p>Note<sup>3</sup>: Requirements for employees and customers may be met with a single set of restrooms. The required number of fixtures shall be the greater of the required number for employees or customers.</p>						

- l. **Mechanical Requirements:** All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  - 2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.

- ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
  - n. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
  - o. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.



**1.24A Supplemental Requirements – Use Group M**

- a. Automatic Fire Suppression System: When the work area is 12,000 square feet or more, an automatic fire suppression system shall be installed throughout the entire fire area. (Fire)
- b. Manual Alarm System; For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
  1. Exception: Manual alarm systems shall not be required in buildings equipped throughout with an automatic suppression system.
- c. Vertical Opening Protection; When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30 minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories.
    - i. Exception: No vertical opening protection shall be required for openings connecting only two floor levels, such as between the street floor and mezzanine or second floor, or for buildings with an automatic fire suppression system throughout.
- d. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)

- i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1 2004, Rule 211.3 through 211.8.
3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
  - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
4. Automatic Fire Suppression System: When the work area is an entire floor, an automatic fire suppression system shall be installed on that floor. When an automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the building. (Fire)
- e. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.25 Basic Requirements – Use Group R-1**

- a. Smoke Detectors: Battery-powered, single station smoke detectors or smoke detectors complying with the North Carolina Building Code shall be required in individual guestrooms. (Fire)
- b. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
  1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
    - ii. Window access to fire escapes shall be permitted from individual guestrooms.
  2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
  3. Multilevel guest units do not require an exit from each level within the unit provided that the building is Type 1 or Type 2 construction, with travel distance within the dwelling unit not exceeding 75 feet or the building is not more than three stories and all third floor space is part of a dwelling unit located in part on the second floor and no habitable room has a travel distance of greater than 50 feet from the door of the room to the entrance of the dwelling unit.
  4. A single exit is permitted from floors that are not more than 16 feet above grade provided that each unit on such floors has an operable window with a sill height of not more than 44 inches.
  5. A single exit is permitted in buildings that are not more than two stories in height from floors that are not more than 16 feet above grade with not more than four dwelling units per floor and exit access travel distance not exceeding 50 feet and with a minimum fire resistance rating of one hour for the exit enclosure and opening protection and provided that each dwelling unit on such floors has an operable window with a sill height of not more than 44 inches.
- c. Emergency Egress Windows: When the work being performed creates a bedroom below the fourth floor, at least one sleeping room window or exterior door shall:

1. Be operable;
  2. Have a sill height of not more than 44 inches;
  3. Have a width of at least 20 inches, a height of at least 24 inches, and a minimum total area of 5.7 square feet measured from head to sill and side to side.
  4. Windows are not required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
- d. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
  2. All dwelling unit, guest room or rooming unit corridor doors shall be at least 1-3/8 inch solid core wood or approved equal with approved door closers and shall not have any glass panels, other than approved wire glass in metal frames. Corridor doors shall not be constructed of hollow core wood shall not contain louvers and shall not be of panel construction. Doors shall fit both plumb and level in frames, and be reasonably tight fitting. All replacement doors shall be 1-3/4 inch solid cord wood or approved equal, unless existing frame will accommodate only a 1-3/8 inch door. (Note: Existing doors meeting HUD Guidelines for a rating of 15 minutes or better shall be accepted.)
  3. In buildings with suppression, doors are only required to provide a smoke barrier, to be free of louvers, to fit plumb and level and to be reasonably tight fitting.
  4. All doors opening onto a passageway at grade or onto an exit stair shall be self closing or automatic closing by listed closing devices.
- e. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- f. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.

2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- g. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electrical Inspection – Building)
- h. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the criteria contained in (h) 1. And 2. Below; (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the North Carolina Electric Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
  3. Exception: When the second means of egress is a fire escape that is accessed directly from the individual sleeping room, illuminated exit signs shall not be required above the means of egress serving the fire escape.
- i. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)

- j. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- k. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  3. For vertical openings not exceeding three stories, a minimum one hour fire barrier shall be required, with the following exceptions:
    - i. Vertical opening protection shall not be required in buildings not exceeding three stories with suppression throughout; or
    - ii. In buildings with not more than 25 guests when the following conditions are met:
      - 1) Every sleeping room is provided with an operable window having a sill height not greater than 44 inches;
      - 2) Every sleeping room above the second floor is provided with direct access to a fire escape or other approved secondary exit;
      - 3) Any exit access corridor exceeding eight feet in length which serves two means of egress, at least one of which is an unprotected vertical opening, is separated from the vertical opening by a one hour fire barrier; and
      - 4) The building is protected throughout by a supervised, automatic fire alarm system, installed in accordance with the North Carolina Building Code.
- l. Transoms and Other Interior Openings: All transoms shall be either glazed with ¼ inch wire glass set in metal frames and permanently secured in the closed position or sealed with materials consistent with the corridor construction. Any other sash, grill or opening in a corridor, and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction. (Plan Review – Building, Fire Inspection – Building)
- m. Boiler/Furnace Equipment Rooms: boiler/furnace equipment rooms shall be enclosed by one hour fire rated wall and ceiling assemblies. (Plan Review – Building, Fire Inspection – Building)

1. Exception: Enclosure shall not be required for boiler/furnace equipment of low pressure type (operating at pressures of 15 psig or less for steam equipment or 160 psig or less for hot water equipment) when installed in accordance with manufacturer's recommendations or for boiler/furnace equipment of residential, single-family type (200,000 BTU per hour input rating or less.)
  2. Exception: Enclosure shall not be required for boiler/furnace equipment rooms equipped with a limited area sprinkler system in accordance with Section 903.3.5.1.1 of the North Carolina Building Code.
- n. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- o. Electrical Equipment and Wiring: Guestrooms shall be provided with one switch controlled ceiling or wall type outlet or equivalent to illuminate entrances and exits. Additionally, each guest bathroom shall be provided with at least one duplex receptacle outlet which is GFCI protected and at least one switch controlled lighting outlet.
- p. Plumbing Fixtures: Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)
- q. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
  2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower.

As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.

3. All newly introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- r. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
  - s. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation and/or protection. (Building)
    1. Exception: Specific occupancy areas within and serving a dwelling unit are not required to comply with this section.
  - t. Accessibility of Sleeping Rooms: At least one sleeping room or suite of every 25 or fewer that are part of the scope of work shall be made accessible unless the facility already provides the number of accessible sleeping rooms required by the North Carolina Building Code 1107.6.1. In addition, at least one sleeping room or suite of every 25 or fewer that are part of the scope of work shall be equipped with a visual alarm and notification device for the hearing impaired unless the facility already provides the number required by the North Carolina Building Code 1107.6.1. (Building)
  - u. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.



**1.25A Supplemental Requirements – Use Group R-1**

- a. Automatic Fire Suppression System: In buildings four or more stories in height (excluding basements), when the work area is an entire floor, an automatic fire suppression system shall be installed throughout the work area. (Fire)
- b. Automatic Alarm Systems: When the work area exceeds 25 percent of the gross enclosed floor area of the building, an automatic fire alarm system shall be required throughout the building. System smoke detectors are not required in guestrooms provided that the single station detectors required by Section 907.2.10.1.1 of the North Carolina Building Code are connected to the emergency electrical system and are annunciated by guestroom at a constantly attended location from which the fire alarm system is capable of being manually activated. (Fire)
  1. Exception: An automatic fire detection system is not required in buildings that do not have interior corridors serving guestrooms and where all guestrooms have a means of egress door opening directly to an exterior exit access which leads directly to the exits. (Note: Single station smoke detectors are still required in individual guestrooms in such buildings in accordance with Section 1.25.d or 1.25A.d, as applicable.)
- c. Manual Alarm System: When the work area exceeds 50 percent of the gross enclosed floor area of the building, a manual fire alarm system shall be required throughout the building. (Fire)
  1. No manual fire alarms shall be required for buildings with less than 25 occupants and less than 10 guestrooms.
- d. Smoke Detectors: When the work area exceeds 25 percent of the gross enclosed floor area of the building, smoke detectors within guestrooms that meet the specifications of the North Carolina Building Code shall be required throughout the building. The smoke detectors shall be installed in the locations indicated in the North Carolina Building Code and placed within those locations in accordance with NFPA 72. (Fire)
- e. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum one hour fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:

- i. For buildings with an automatic fire suppression system throughout;
- ii. For buildings with not more than 25 guests when the following conditions are met:
  - 1) Every sleeping room is provided with an approved, operable window having a sill height not greater than 44 inches;
  - 2) Every sleeping room above the second floor is provided with direct access to a fire escape or other approved secondary exit;
  - 3) Any exit access corridor exceeding eight feet in length which services two means of egress, at least one of which is an unprotected vertical opening, shall be separated from the vertical opening by a one-hour fire barrier; and
  - 4) The building is protected throughout by a supervised, automatic fire alarm system, installed in accordance with the North Carolina Building Code.
- f. Requirements for high-rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in

buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the Standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)

- ii. Hose and hose cabinets shall not be required.
4. When the work area is one entire floor or more, central control station and communication systems shall be provided as follows: (Fire)
- i. An approved public address communication system consisting of loudspeakers in each corridor and in each room and tenant space exceeding 1,000 square feet, each elevator and elevator lobby and in each stair enclosure which shall be capable of being operated from the central control station;
  - ii. A two-way fire department communication system which shall operate between the central control and every elevator, elevator lobby and entry to enclosed exit stairways;
  - iii. A central control station for fire department operations shall be provided in a location approved by the fire department. It shall contain the public address panel, the fire department communications panel, fire detection and alarm system annunciator panels, status indicators and controls for air handling systems, sprinkler valve and water flow detector display panels, and status indicators and a telephone for fire department use with controlled access to the public telephone system.
5. Automatic Fire Suppression System: When the work area is an entire floor, an automatic fire suppression system shall be installed on that floor. When an automatic sprinkler system is provided, the sprinkler riser shall be sized to serve the entire building, even if the system currently being installed serves only a portion of the building. (Fire)
- g. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)

**1.26 Basic Requirements – Use Group R-2**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 50 and with exit travel distance greater than 75 feet. (Plan Review – Building, Fire Inspection – Building)
1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
    - ii. Window access to fire escapes shall be permitted from individual units.
    - iii. For rooming houses, ladders shall be prohibited on fire escapes used as a required means of egress.
  2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet.
  3. Dwelling units in basements (stories below grade) shall have two means of egress unless the building has an automatic fire suppression system. (An operable window with a net clear opening of at least 5 square feet, a minimum net clear opening of 24 inches in height and 20 inches in width, and a sill height of not more than 44 inches above the finished floor is acceptable as one of the means of egress.)
  4. For rooming houses, a single exit shall be prohibited.
  5. Multilevel dwelling units do not require an exit from each level within the dwelling unit provided that the building is Type 1 or Type 2 construction, with travel distance within the dwelling unit not exceeding 75 feet or the building is not more than three stories and all third floor space is part of a dwelling unit located in part on the second floor and no habitable room has a travel distance of greater than 50 feet from the door of the room to the entrance of the dwelling unit.
  6. A single exit is permitted from floor(s) that are not more than 16 feet above grade provided that each dwelling unit on such floors has an operable window with a sill height of not more than 44

inches. (In community residences for person with developmental disabilities, the maximum occupant load, excluding staff, is 12.)

7. A single exit is permitted in buildings that are not more than two stories in height from floors that are not more than 16 feet above grade with not more than four dwelling units per floor and exit access travel distance not exceeding 50 feet and with a minimum fire resistance rating of one hour for the exit enclosure and opening protection provided that each dwelling unit on such floors has an operable window with a sill height of not more than 44 inches. (In community residences for persons with developmental disabilities, the maximum occupant load, excluding staff, is 12.)
  8. As used in this subsection, “rooming house” means any building and any part thereof, which contains two or more units of dwelling space which do not provide a private, secure dwelling space arranged for independent living and containing both full bath and kitchen facilities (exclusive of any such unit occupied by an owner or operator), including any residential hotel. The term does not include any hotel, motel or guest house in which a minimum of 85 percent of the units of dwelling space are offered on a temporary basis only, for periods lasting no more than 90 days, to guests who either maintain or intend to maintain a primary residence at a location other than the hotel, motel or guest house. The term also does not include one family residential dwellings made available for occupancy by not more than five roomers.
- b. Emergency Egress Windows: when the work being performed creates a bedroom below the fourth floor, at least one sleeping room window or exterior door shall:
1. Be operable;
  2. Have a sill height of not more than 44 inches;
  3. Have a width of at least 20 inches, a height of at least 24 inches, and a minimum total area of 5.7 square feet measured from head to sill and side to side.
  4. Windows are not required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system. For dwelling units in basements, one of the two remote exits may be as per 1.26.a.3 above.
- c. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.

2. All dwelling unit, guest room or rooming unit corridor doors shall be at least 1-3/8 inch solid core wood or approved equal with approved door closers and shall not have any glass panels, other than approved wire glass in metal frames. Corridor doors shall not be constructed of hollow core wood shall not contain louvers and shall not be of panel construction. Doors shall fit both plumb and level in frames, and reasonably tight fitting. All replacement doors shall be 1-3/4 inch solid core wood or approved equal, unless existing frame with accommodate only a 1-3/8 inch door. (Note: Existing doors meeting HUD Guidelines for a rating of 15 minutes or better shall be accepted.)
3. In buildings with an automatic fire suppression system, doors are only required to provide smoke barrier, to be free of louvers, to fit plumb and level and to be reasonably tight fitting.
4. All doors opening onto a passageway at grade or onto an exit stair shall be self closing or automatic closing by listed closing devices.
  - i. Exception: Group homes with a maximum of 15 occupants and an approved automatic detection system shall not be required to have self closing doors.
- d. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with Section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- e. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)
  1. Dead end corridors may be up to 50 in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- f. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire Inspection – Building)
- g. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit

signs that meet the criteria contained in (g) 1. And 2. Below: (Plan Review – Building, Fire Electrical Inspection – Building)

1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
  3. Exceptions: Illuminated exit signs shall not be required for buildings with an occupant load, excluding staff, of 20 or less when the second means of egress is a fire escape that is accessed directly from the individual sleeping room.
- h. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when used under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, fire Inspection – Building)
- i. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- j. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
  3. For vertical openings not exceeding three stories, a minimum 30-minute fire barrier shall be required, with the following exceptions:

- i. Buildings with an automatic fire suppression system throughout; or
- ii. When the vertical opening connects not more than two floor levels and not more than four dwelling units per floor provided that each dwelling unit has access to a fire escape or other approved secondary exit; or
- iii. Owner-occupied buildings with not more than four dwelling units per floor, and in which the following conditions are met:
  - 1) Every sleeping room is provided with an operable window having a sill height not greater than 44 inches.
  - 2) Every dwelling unit or sleeping room above the second floor is provided with direct access to a fire escape or other approved secondary exit; and
  - 3) The building is protected throughout by a supervised, automatic fire alarm system, installed in accordance with Section 907 of the North Carolina Building Code.
- k. Transoms and Other Interior Openings: All transoms shall be either glazed with ¼ inch wire glass set in metal frames and permanently secured in the closed position or sealed with materials consistent with the corridor construction. Any other sash, grill or opening in a corridor, and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction. (Plan Review – Building, Fire Inspection – Building)
- l. Boiler/Furnace Equipment Rooms: Boiler/furnace equipment rooms shall be enclosed by one hour fire rated wall and ceiling assemblies. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Enclosure shall not be required for boiler/furnace equipment of low pressure type (operating at pressures of 15 psig or less for steam equipment or 160 psig or less for hot water equipment) when installed in accordance with manufacturer’s recommendations or for boiler/furnace equipment of residential, single-family type (200,000 BTU per hour input rating or less.)
  - 2. Exception: Enclosure shall not be required for boiler/furnace equipment rooms equipped with a limited area sprinkler system in accordance with Section 903.3.5.1.1 of the North Carolina Building Code.
  - 3. For group homes and supervised transitional living homes heated by oil-burning equipment, an emergency shutoff switch is required at top of the stairs leading to the basement for equipment in the basement or outside of the room for equipment located in other enclosed rooms.
- m. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building



Code. Where structural elements are sound, there is not excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)

- n. Electrical Equipment and Wiring: (Electrical)
  - 1. All enclosed areas, other than kitchens, basements, garages, hallways, closets, laundry areas and bathrooms shall have a minimum of two duplex receptacle outlets.
  - 2. Kitchen areas shall have a minimum of two duplex receptacle outlets or equivalent and a switch controlled lighting outlet. At least one of the required duplex receptacles shall be provided to serve counter space.
  - 3. Laundry areas shall have a minimum of one duplex receptacle outlet or equivalent located near the laundry equipment and installed on an independent circuit.
  - 4. At least one switch controlled lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, detached garage with electric power, and to illuminate outdoor entrances and exits.
  - 5. At least one switch controlled lighting outlet shall be provided in utility rooms and basements where these spaces area used for storage or contain equipment requiring service.
  - 6. Electrical service equipment (over current devices) shall be located where they will not be subject to physical damage and shall not be located in the vicinity of easily ignitable material.
  - 7. All 125 volt, single phase, 15- and 20- ampere receptacles in locations specified in Section 210-8(a) of the North Carolina Electrical Code shall have ground-fault circuit protection for personnel.
- o. Plumbing Fixtures: Plumbing fixtures shall be provided as required by Table 403.1 of the North Carolina Plumbing Code. Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)
- p. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at

least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.

2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE 62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- q. Interior finishes shall comply with 1.11.c. (Plan Review – Building, Fire Inspection – Building)
  - r. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
    1. Exception: Specific occupancy areas within and serving a dwelling unit are not required to comply with this section.
  - s. Accessibility: Accessible features shall be provided for all items that are part of the scope of work in those buildings with four or more dwelling units that are required by the North Carolina Building Code 3409.8.7 to be accessible.
  - t. Communicating Attic Spaces: Where adjacent dwelling units have communicating space in the attic, a wall shall be constructed to provide a continuous one hour fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. All work shall be performed on the side of the wall of the dwelling unit that is undergoing reconstruction. (Plan Review – Building, Fire Inspection – Building)
  - u. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with the Section 717 of the North Carolina Building Code.

**1.26A Supplemental Requirements – Use Group R-2**

- a. Automatic Fire Suppression System: In buildings four or more stories in height (excluding basements), when the work area is an entire floor, an automatic fire suppression system shall be installed throughout the work area. (Fire)
- b. Manual Alarm Systems: When the work area exceeds 50 percent of the gross enclosed floor area of the building, a manual fire alarm system shall be required throughout the building. (Fire)
  1. Exception: No manual fire alarm system shall be required for buildings where all dwelling units are located fewer than three stories above the lowest level of exit discharge or one story or less below the highest level of exit discharge serving the dwelling unit(s).
- c. Smoke Detection Systems: When the work area exceeds 25 percent of the gross enclosed floor area of the building, approved smoke detection systems shall be located in all interior common areas. Such systems shall be powered by an alternating current (AC) constantly active electric circuit that cannot be deactivated by the operation of any interconnected switching device and shall comply with the NC Electrical Code requirements, except as otherwise provided in this section. Such systems shall be on circuitry that is connected into the building owner's electric meter. (Fire)
  1. In multiple dwellings six stories or more in height and having 30 or more dwelling units, such systems:
    - i. Shall be connected to a supervisory type listed control panel conforming to U.L. 864 requirements and NFPA72-90 standards, except as otherwise provided in this section;
    - ii. Shall be powered by an approved emergency power source as installed in conformance with the NC Electrical Code;
    - iii. Shall have a control panel of the multi-zoned type that will visually indicate the floor or zone from which the alarm is activated, which panel shall be located in accordance with NFPA 72-02 standards or as directed by the local fire code official.
  2. A pre-signal alarm feature is not permitted.
  3. The separate zoning of floors in high rise buildings for selective floor evacuation is permitted at the discretion of the fire code official in consultation with the fire department.
  4. Alarms shall be located so as to be effectively heard above all other sounds, by all the occupants, in every occupied space within the building not separated by fire walls having a fire-resistance rating of at least two hours.
  5. With the approval of the fire code official, fixed temperature heat detectors are permitted in those locations where frequent nuisance alarms would be likely to occur. Such building spaces

include garages, crawl spaces, uninhabitable attics, heater and boiler rooms, laundry rooms, kitchens, restaurant service areas, and other rooms where the ambient temperatures are below 40 degrees Fahrenheit or above 100 degrees Fahrenheit or have a relative humidity either below 20 percent or above 85 percent or where environmental conditions are likely to produce nuisance alarms.

- d. Smoke Detection within Dwelling Units: Smoke detectors shall be provided within dwelling units as follows: (Fire)
1. When the work area is an entire dwelling unit, smoke detectors that meet the specifications of the North Carolina Building Code shall be installed. The smoke detectors shall be installed in the locations indicated in the North Carolina Building Code and placed within those locations in accordance with NFPA 72.
  2. When any work is undertaken within a dwelling unit, single station smoke detectors shall be installed. (Battery-powered units shall be permitted.) The smoke detectors shall be installed in the locations indicated in the North Carolina Building Code and placed within those locations in accordance with NFPA 72.
- e. Vertical Opening Protection: when the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  3. A minimum 30 minute fire barrier shall be required for interior stairways and other vertical openings not exceeding three stories. Exceptions shall be permitted as follows:
    - i. Buildings with an automatic fire suppression system throughout; or
    - ii. When the vertical opening connects not more than two floor levels with not more than four dwelling units per floor and each dwelling unit has access to a fire escape or other approved secondary exit; or
    - iii. Owner-occupied buildings with not more than four dwelling units per floor, and in which the following conditions are met:
      - 1) Every sleeping room is provided with an approved, operable window having a sill height not greater than 44 inches;

- 2) Every dwelling unit or sleeping room above the second floor is provided with direct access to a fire escape or other approved secondary exit; and
  - 3) The building is protected throughout by a supervised, automatic fire alarm system, installed in accordance with Section 907 of the North Carolina Building Code.
- f. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which services the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)
    - i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
    - ii. Hose and hose cabinets shall not be required.
  4. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, central control station and communication systems shall be provided as follows: (Fire)

- i. An approved public address communication system consisting of loudspeakers in each common corridor, each elevator and elevator lobby and in each stair enclosure which shall be capable of being operated from the central control station.
  - ii. A two way fire department communication system which shall operate between the central control and every elevator, elevator lobby and entry to enclosed exit stairways.
  - iii. A central control station for fire department operations in a location approved by the fire department. It shall contain the public address panel, the fire department communications panel, fire detection and alarm system annunciator panels, status indicators and controls for air handling systems, sprinkler valve and water flow detector display panels, and status indicators and a telephone for fire department use with controlled access to the public telephone system.
- g. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)
1. Exception: Elevator devices wholly within individual dwelling units and not accessible to the general public shall not be required to comply.

**1.27 Basic Requirements – Use Groups R-3/R-4**

- a. Smoke Detection within Dwelling Units: Smoke detectors that meet the specifications of the North Carolina Building Code shall be installed. The smoke detectors shall be installed in the locations indicated in the North Carolina Building Code and placed within those locations in accordance with NFPA 72. (Fire)
- b. Egress Windows:
  1. When the building is used as a bed and breakfast, every sleeping room below the fourth story shall be provided with an operable window having a sill height of not more than 44 inches. (Plan Review – Building, Fire Inspection – Building)
    - i. Windows in sleeping rooms shall not be required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
  2. When the work being performed creates a bedroom below the fourth floor, at least one sleeping room window or exterior door shall:
    - i. Be operable;
    - ii. Have a sill height of not more than 44 inches;
    - iii. Have a width of at least 20 inches, a height of at least 24 inches, and a minimum total area of 5.7 square feet measured from head to sill and side to side.
    - iv. Windows are not required to meet these requirements in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits or in buildings equipped throughout with an automatic fire suppression system.
- c. When the work being performed creates living space over a private garage, the private garage shall comply with Section R309 of the North Carolina Residential Code for fire resistance rating.
- d. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- e. Electrical Equipment and Wiring: (Electrical)

1. All enclosed areas, other than kitchens, basements, garages, hallways, closets, laundry areas and bathrooms shall have a minimum of two duplex receptacle outlets.
  2. Kitchen areas shall have a minimum of two duplex receptacle outlets or equivalent and one switch-controlled lighting outlet. At least one of the required duplex receptacles shall be provided to serve counter space.
  3. Laundry areas shall have a minimum of one duplex receptacle outlet or equivalent located within 24 inches of the laundry equipment and installed on an independent circuit.
  4. At least one switch controlled lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, detached garage with electric power, and to illuminate outdoor entrances and exits.
  5. At least one switch controlled lighting outlet shall be provided in utility rooms and basements where these spaces are used for storage or contain equipment requiring service.
  6. Electrical service equipment (over current devices) shall be located where they will not be subject to physical damage and shall not be located in the vicinity of easily ignitable material.
  7. All 125 volt, single phase, 15- and 20- ampere receptacles in locations specified in Section 210-8(a) of the North Carolina Electrical Code shall have ground-fault circuit protection for personnel.
- f. Communicating Attic Spaces: Where adjacent dwelling units have communicating space in the attic, a wall shall be constructed to provide a continuous one hour fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. All work shall be performed on the side of the wall of the dwelling unit that is undergoing reconstruction. (Plan Review – Building, Fire Inspection – Building)
- g. Plumbing Fixtures: Each dwelling unit shall be provided with a minimum of one kitchen sink, one water closet, one lavatory, and one bathtub or shower or bathtub/shower combination.
- h. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.



**1.27A Supplemental Requirements – Use Groups R-3/R-4**

There are no supplemental requirements applicable to Use Group R-3/R-4.

**1.28 Basic Requirements – Use Group S**

- a. Exits: Two exits shall be required for stories with less than 500 occupants. Three exits shall be required for stories with 501 to 1,000 occupants. Four exits shall be required for stories with more than 1,000 occupants. Two means of egress are also required from all mezzanines with an occupant load greater than 30 and with exit travel distance greater than 100 feet. (Plan Review – Building, Fire Inspection – Building)
  - 1. When more than one exit is required, existing fire escapes shall be accepted as providing one of the required means of egress unless judged to be dangerous for use under emergency exiting conditions. For use of fire escapes, access shall be through a door except when serving an occupant load of 10 or fewer. All occupants shall have unobstructed access to fire escapes without having to pass through a room subject to locking.
    - i. When more than one exit is required and there is not sufficient space for an exterior stair within the lot line, a new fire escape shall be accepted as providing one of the required means of egress. Newly installed fire escapes shall comply with Section 3404 of the North Carolina Building Code.
  - 2. A single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 30 and the exit access travel distance does not exceed 100 feet.
  - 3. A single exit is permitted in open parking structures where vehicles are mechanically parked.
  - 4. A single exit is permitted in buildings of Use Group S-2 not more than two stories in height, with nor more than 3,000 square feet per floor when the exit access travel distance does not exceed 50 feet and a minimum fire resistance rating of one hour is provided for the exit enclosure and the opening protection.
- b. Egress Doorways: A minimum of two egress doorways shall be required for all rooms and spaces with an occupant load greater than 50 or in which the travel distance exceeds 75 feet. All egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel. (Plan Review – Building, Fire Inspection – Building)
  - 1. Exception: Storage rooms with a maximum occupant load of 10 shall not be required to have two egress doorways.
- c. Capacity of Means of Egress: The capacity of the means of egress in each work area shall be determined in accordance with section 1.11.b. (Plan Review – Building, Fire Inspection – Building)
- d. Dead End Corridors: Existing dead end corridors shall not exceed 35 feet in length. Exceptions are allowed as follows: (Plan Review – Building, Fire Inspection – Building)

1. Dead end corridors may be up to 50 feet in length in a building with an automatic alarm system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
  2. Dead end corridors may be up to 70 feet in length in a building with a suppression system installed in conformance with the North Carolina Building Code in effect at the time of its installation.
- e. Means of Egress Lighting: Artificial lighting with an intensity of not less than one foot candle at floor level shall be required during all times that the conditions of occupancy of the building require that the exits be available. In all buildings, rooms or spaces required to have more than one exit or exit access, means of egress lighting shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided for not less than one hour in the case of primary power loss. (Plan Review – Building, Fire, Electric Inspection – Building)
1. Exception: Lighting to illuminate the exit discharge shall not be required.
- f. Illuminated Exit Signs: Illuminated exit signs shall be provided for all required means of egress in all buildings, rooms or spaces required to have more than one exit or exit access. Exit signs shall be visible from the exit access and supplemented by directional signs when necessary. (Exception: Approved main exterior doors that are identifiable as exits are not required to have exit signs.) Exit signs shall meet the following criteria: (Plan Review – Building, Fire Inspection – Building)
1. Red or green letters at least six inches high; minimum width of each stroke  $\frac{3}{4}$  inch on a white background or in other approved distinguishable colors. Arrows, if provided, shall be such that the direction cannot readily be changed. The word “Exit” shall be discernible when the sign is not energized.
  2. Exit signs shall be illuminated at all times when the building is occupied by a source providing at least five foot candles at the illuminated surface or shall be approved self-luminous signs which provide evenly illuminated letters with a minimum luminance of 0.06 foot lamberts. Exit signs shall be connected to an emergency electrical system conforming to the NC Electrical Code except that continued illumination shall be required to be provided that not less than one hour in the case of primary power loss. No emergency power shall be required for approved self-luminous signs.
- g. Handrails: Every required exit stairway having three or more risers and not provided with handrails or in which the existing handrails are in danger of collapsing when under emergency exiting conditions, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways more than 66 inches wide shall have handrails on both sides unless the full width of the stairway is not needed to accommodate the design occupancy. (Plan Review – Building, Fire Inspection – Building)

- h. Guards: Every open portion of a stair, landing or balcony which is more than 30 inches above the floor or grade below and is not provided with guards or those, in which the existing guards are in danger of collapsing when used under emergency exiting conditions, shall be provided with guards. (Plan Review – Building, Fire Inspection – Building)
- i. Vertical Opening Protection: Vertical opening protection for interior stairways and other vertical openings shall be provided as follows: (Plan Review – Building, Fire Inspection – Building)
  - 1. For vertical openings connecting more than six floor levels, approved assemblies having a fire resistance rating of not less than two hours with approved opening protectives shall be required.
  - 2. For vertical openings connecting four to six floor levels, approved assemblies having a fire resistance rating of not less than one hour with approved opening protectives shall be required.
- j. Structural Elements: Structural elements which are uncovered during the course of the rehabilitation and which are found to be unsound or otherwise structurally deficient, shall be reinforced, supported or replaced in accordance with the applicable structural design criteria of the North Carolina Building Code. Where structural elements are sound, there is no excessive deflection (Defined as deflection in excess of the standards set forth in 1.7.c.1, and fixed loads are not changing in a way that will increase the stresses on existing structures beyond that which is permitted by 1.7.c, existing structural elements shall be permitted to remain. (Building)
- k. Plumbing Fixtures: Plumbing fixtures shall be provided as follows: Where the North Carolina Plumbing Code allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section. (Plumbing)

Total Occupancy <sup>1</sup>	Water Closets	Lavatories	Drinking Water Facilities	Service Sinks
1-15	1 Unisex	1	1	1
16 and over	Fixtures to be provided as per Table 403.1 of the North Carolina Plumbing Code.			
Note <sup>1</sup> : For purposes of determining the number of plumbing fixtures required, total occupancy shall be the anticipated occupancy of the building under normal use conditions. It is not necessarily the same as the total permitted occupant load based on egress capacity.				

- 1. Mechanical Requirements: All spaces intended for occupancy shall be provided with either natural or mechanical ventilation. (Building)
  - 1. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers, or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.

2. Mechanically ventilated spaces shall comply with the following:
    - i. Newly installed HVAC Systems shall comply with the requirements of ASHRAE 62.1-2007.
    - ii. Existing systems that are altered or extended shall not reduce the amount of outside air below the existing rate per person or the rate included in ASHRAE62.1-2007, whichever is lower. As a minimum, mechanically ventilated spaces shall be provided with 5 CFM per person of outdoor air and 15 CFM of ventilation air per person unless the indoor air quality procedure of ASHRAE 62.1-2007 is followed and results in a lesser amount.
  3. All newly-introduced devices, equipment or operations that produce airborne particulates, odors, fumes, sprays, vapors, smoke or gases in such quantities to be irritating or injurious to health shall be provided with local exhaust.
- m. Interior finishes shall comply with 1.11.c. (Plan Review – Building Fire Inspection – Building)
  - n. Specific Occupancy Areas: Specific occupancy areas within the work area, as listed in Section 1.30.h, shall comply with the requirements established in that section for separation or protection. (Building)
  - o. Fireblocking and Draftstopping: When the work being performed exposes the framing of any wall, floor, ceiling or roof, the exposed framing shall comply with Section 717 of the North Carolina Building Code.

**1.28A Supplemental Requirements – Use Group S**

- a. Manual Alarm System: For buildings greater than three stories in height with occupant loads over 25, when the work area exceeds 50 percent of the gross enclosed floor area of the building, manual fire alarms shall be required throughout the building. (Fire)
  1. Exception: Manual alarm systems shall not be required in buildings equipped throughout with an automatic suppression system.
  
- b. Vertical Opening Protection: When the work area exceeds 50 percent of the gross enclosed floor area of the building, vertical opening protection shall be provided throughout the building as follows: (Plan Review – Building, Fire Inspection – Building)
  1. A minimum two hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting more than six floor levels.
  2. A minimum one hour fire rated assembly with approved opening protectives shall be required for interior stairways and other vertical openings connecting four to six floor levels.
  
- c. Requirements for high rise buildings: Any building or structure having one or more floors used for human occupancy located either more than six stories or more than 75 feet above the lowest level accessible to a fire department vehicle, shall comply with the following:
  1. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area served by a recirculating air or exhaust system, the recirculating air or exhaust system which serves the work area shall be equipped with approved smoke and heat detection devices installed in accordance with the North Carolina State Building Code. The devices shall stop the fan(s) automatically and shall be of the manual reset type. Automatic fan shutdown is not required when the system is part of an approved smoke removal or smoke control system. (Building)
  2. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, all elevators in the building shall be equipped with the following emergency control devices: (Elevator)
    - i. All automatic (non-designated attendant) elevators having a travel distance of 25 feet or more above or below the designated level shall conform to ASME A17.1-2004, Rule 211.3 through 211.8.
  3. When the work area is one entire floor or more or when the work area is 20 percent or more of the occupied floor area of the building, standpipes shall be provided up to and including the highest floor that is part of the work area. The standpipes shall be located and installed in accordance with the North Carolina Building Code, except as follows: (Fire)

- i. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gpm at 65 psi to the topmost floor in buildings equipped throughout with an automatic fire suppression system or a minimum of 500 gpm at 65 psi to the topmost floor in all other buildings. (Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet these requirements (gpm/psi) for possible future extension of the standpipe.)
  - ii. Hose and hose cabinets shall not be required.
- d. Elevator Devices: When the work area exceeds 50 percent of the gross enclosed floor area of the building, all elevator devices serving any part of the work area shall comply with the requirements of Sections 1.30.h. (Elevator)
- e. Public Garages: When the work area exceeds 50 percent of the gross floor area of a public garage, the entire building is required to comply with Section 406 of the North Carolina Building Code.

**1.29 Mixed Use Builders**

- a. Each portion of a building shall be separately classified as to use. The requirements of this code shall apply to each portion of the building based on the use group of that portion, except that the most restrictive requirements of this code for fire suppression shall apply to the entire building. (Plan Review – Building, Fire Inspection – Building)
  1. Exception: An automatic fire suppression system shall not be required for uses that would not otherwise need suppression provided that there is a one hour fire separation between the use(s) requiring suppression and the other use(s) in the same building. A two hour fire separation assembly shall be required to apply this exception in any building where one or more of the uses are H.
- b. Separation: In any nonresidential use located below one or more dwelling units, when the work area exceeds 50 percent of the gross enclosed floor area of the nonresidential use, the nonresidential use shall be separated from the residential use by a one hour fire resistance rated ceiling assembly designed to protect the dwelling unit(s) above. (Plan Review – Building, Fire Inspection – Building)
- c. Alarms: In any nonresidential use located below one or more dwelling units (including single room occupancies), when the work area exceeds 50 percent of the gross enclosed floor area of the nonresidential use, single or multiple station smoke detectors shall be installed in the nonresidential portion(s) of the building in accordance with NFPA 72 and provided with an audible alarm located within each dwelling unit of the residential portion of the building. The detectors shall be AC powered with battery backup. Hard wired, interconnected smoke detectors installed throughout the building shall be accepted as meeting this requirement. (Fire)



**1.30 Special Technical Requirements – All Use Groups**

- a. The requirements of this section shall apply to reconstruction projects in all use groups except R-3 and R-4.
- b. When an automatic sprinkler system is required or provided, the sprinkler riser shall be sized to serve the entire building even if the system currently being installed serves only a portion of the building. (Fire)
  1. Exception: This requirement shall not apply to limited area sprinkler systems installed in accordance with Section 903.3.5.1.1 of the North Carolina Building Code.
- c. Windowless Stories: In all buildings, any windowless basement or story located below the seventh story which is created by the work being performed or any existing windowless basement or story located below the seventh story in which the work area exceeds 50 percent of the gross enclosed floor area of the windowless story, shall be equipped throughout with an automatic fire suppression system installed in accordance with Section 903.2.10.1 of the North Carolina Building Code. (Fire)
  1. Stories or basements shall not be considered windowless where there is provided on at least one side of such story or basement firefighter access through openings, such as windows, doors or access panels that are located entirely above the adjoining grade level.
  2. Such openings shall be at least:
    - i. 32 inches by 48 inches in size, spaced not more than 100 feet apart in each story or basement; or
    - ii. 22 inches by 42 inches in size, spaced not more than 30 feet apart in each story or basement.
  3. All openings for firefighter access shall conform to all the following:
    - i. Openings shall be unobstructed to allow fire fighting and rescue operations from the exterior; and
    - ii. Openings in stories at or above grade shall have a sill height of not more than 36 inches as measured from the finished floor level. Openings in basements shall have no sill height restrictions; and
    - iii. Openings shall be readily identifiable and openable from the outside.
  4. When openings in a story are provided on only one side and the opposite wall of such story is more than 75 feet from such openings, the story shall be considered windowless unless openings as specified above are provided on at least two sides of the exterior walls of the story.

5. If any portion of a basement is located more than 75 feet from openings as specified above, the basement shall be considered windowless.
6. Windowless basements not exceeding 3,000 square feet in area shall be exempt from this automatic fire suppression requirement, provided a supervised automatic fire alarm system shall be installed in accordance with Section 907 of the North Carolina Building Code.
7. In windowless basements greater than 3,000 square feet, but not exceeding 10,000 square feet in area, the required suppression system need not be connected to a water supply other than an existing domestic supply if the following conditions are met:
  - i. The suppression system shall be provided with a fire department connection, which shall be marked with a sign reading “Basement Area Sprinkler Water Supply” and
  - ii. A supervised automatic fire alarm system shall be installed in accordance with Section 907 of the North Carolina Building Code.
- d. Supervision of Automatic Fire Suppression Systems: When suppression systems are required by this code to be supervised, this shall be accomplished by one of the following methods as determined by the fire code official: (Fire)
  1. Approved central station system in accordance with NFPA 72;
  2. Approved proprietary system in accordance with NFPA 72;
  3. Approved remote station system of the jurisdiction in accordance with NFPA 72; or
  4. Approved local alarm service which will cause the sounding of an alarm in accordance with NFPA 72;
  5. The following are exceptions to 1.30.d above:
    - i. Underground gate valves with roadway boxes;
    - ii. Halogenated extinguishing systems;
    - iii. Carbon dioxide extinguishing systems;
    - iv. Dry chemical extinguishing systems; and
    - v. Limited area sprinkler systems.

- e. Technical Requirements for Smoke Barriers: Whenever smoke barriers are required by this subchapter, they shall be constructed in accordance with the following provisions: (Plan Review – Building, Fire Inspection – Building)
1. Smoke barriers shall have a fire resistance rating of not less than one half hour and shall form an effective membrane continuous from outside wall to outside wall and from floor slab to floor roof deck above, including continuity through all concealed spaces, such as those found above suspended ceilings, and including interstitial structural and mechanical spaces. Transfer grilles, whether equipped with fusible link-operated dampers or not, shall not be used in these partitions. Wire glass panels not exceeding 1,296 square inches in approved steel frames may be used in smoke barriers.
    - i. Exception to 1.30.e.1 above: Smoke barriers are not required in interstitial spaces when such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by smoke barriers.
  2. A means of egress shall be provided from each smoke compartment created by smoke barriers such that it is possible to reach an exit without re-entering the smoke compartment.
  3. Doors in smoke barriers shall have a fire-resistance rating of not less than 20 minutes when tested in accordance with ASTM E152 without the hose stream and labeled by an approved agency. Double egress corridor doors shall have vision panels of one-quarter inch thick labeled wire glass mounted in approved steel frames. Such panels may also be provided in other doors in smoke barriers. The glass area of the vision panels shall be limited to 1,296 square inches for each door. The doors shall close the openings with only the clearance necessary for proper operation under self-closing or automatic closing and shall be without undercuts, louvers or grilles. Rabbets or astragals are required at the meeting edges of double egress doors, and stops are required on the head and jambs of all doors in smoke barriers. Positive latching devices are not required on double egress corridors doors, and center mullions are prohibited.
    - i. Exception to 1.30.e.3 above: Protection at the meeting edges of doors and stops at the head and sides of door frames may be omitted in buildings equipped with an approved engineered smoke control system. The engineered smoke control system shall respond automatically, preventing the transfer of smoke across the barrier.
  4. Doors in smoke barriers shall be self-closing or shall be provided with approved door hold-open devices of the fail safe type which shall release the doors causing them to close upon the actuation of smoke detectors as well as upon the application of a maximum manual pull of 50 pounds against the hold open device.
  5. An approved damper designed to resist the passage of smoke shall be provided at each point a duct penetrates a smoke barrier. The damper shall close upon detection of smoke by an approved smoke detector located within the duct.

- i. In lieu of an approved smoke detector located within the duct, ducts which penetrate smoke barriers above doors are permitted to have the approved damper arranged to close upon detection of smoke on either side of the smoke barrier door opening.
  - ii. Dampers are not required in buildings equipped with an approved engineered smoke control system.
  - iii. Dampers are not required where the openings in ducts are limited to a single smoke compartment and the ducts are of steel construction.
- f. Existing alarm systems and suppression system shall be accepted provided that they meet the requirements of Section 1.8 (Materials and Methods) or the standards applicable at the time of their installation and provided that there is no increase in the hazard of the use or in the load. (Fire)
- g. Technical Requirements for Elevators Devices: Where elevator requirements are triggered by the supplemental requirements for each use group (Sections 1.12A through 1.28A), the following shall apply: (Elevator)
1. Passenger Elevators: Elevator devices accessible to the general public shall conform to:
    - i. ASME A17.3-2008 requirements for Hoist way Door Locking Devices, Parking Devices, and Access (Sections 2.7, 4.1); Hoist way Entrances (Sections 2.6, 4.1); Power Operation of Doors and Gates (Sections 2.8, 4.1); Floating Platforms (Sections 3.3.4); Car Doors and Gates (Section 3.4.2); Location of Car Doors and Gates (Section 3.4.3); Emergency Exits (Section 3.4.4); Car Illumination (Section 3.4.5) and Protection of Light Bulbs and Tubes (Section 3.4.6); Terminal Stopping Devices (Sections 3.9, 4.6); Operating Devices and Control Equipment (Section 3.10, 4.7 except 4.7.8); Car Emergency Signaling Devices (Sections 3.11.1 and 4.7.8); Stop Switch (Pits) (Sections 2.3.3, 4.1); Machine Rooms and Machinery Spaces: Lighting (Section 2.2.3) and Ventilation (Section 2.2.4); Check Valve (Hydraulic Elevators) (Section 4.4.2).
    - ii. ASME A17.1-2004 requirements for Supply Line Shutoff Valve (Rule 3.19.4.1) and Manual Lowering Valve (Rule 3.19.4.4).
  2. Freight elevators: Elevators which are allowed to carry passengers by the authority having jurisdiction shall conform to ASME A17.1-2004 Rule 2.16.4 and ASME A17.3-2008 requirements for Car Frames and Platforms (Section 3.3) and Location of Car Doors and Gates (Section 3.4.3).
  3. Elevators shall be equipped with emergency operation as required by ASME A.17.3-2008 Rules 211.3 through 211.8.

- i. When Phase II emergency operation is required, standby power shall be provided. The elevator powered by a standby power system shall be subject to the requirements of ANSI/ASME A17.1-2004 Rule 2.27.2.
4. Escalators shall conform to ASME A17.3-2008 for Operating and Safety Devices (Section 5.3), Anti-Slide Devices (5.1.4), Handrail Guards (5.1.6), Guards at Ceiling or Soffit Intersection (5.1.3), Lighting (5.4), Distinction between Comb and Step (5.5.2), Adjacent Floor Surfaces (5.5.3).
- h. Specific Occupancy Areas: Specific occupancy areas, as listed below, shall comply with the following: (Building)
    1. Paint shops in other than Use Group F which contain chemicals below the exempt amount for Use Group H, waste and soiled linen collection rooms and chute termination rooms shall be separated from other portions of the building by a one hour fire partition or provided with an automatic fire suppression system.
    2. Incinerator rooms in all use groups shall be separated from other portions of the building by a two hour fire separation assembly and provided with an automatic fire suppression system.
    3. In Use Groups I-2 and I-3, physical plant maintenance shops, laundries in excess of 100 square feet in area and padded cells shall be separated from other portions of the building by a one hour fire partition or provided with an automatic fire suppression system.

**1.31 Change of Use**

- a. General: The following are of general applicability to changes of use:
1. When the use of a building is changed, then the building must be brought into compliance with the requirements of this section. Each of the lettered subsections of this section establishes a specific type of requirement. This subsection establishes requirements for compliance with the basic requirements of this code, for means of egress, for enclosure of vertical openings, for height and area limitation, for exterior wall fire resistance, for fire suppression systems, for fire alarm systems, for fire detection systems, for structural soundness, for plumbing, electrical, and mechanical systems, and for accessibility.
    - i. Limit on new buildings undergoing a change of use: Buildings that have been occupied for their originally intended use for less than one year shall be required to comply with the requirements of the North Carolina State Building Code for new construction for the proposed use.
  2. The subsections governing compliance with the basic requirements, means of egress, height and area limitations, exterior wall fire resistance, and fire suppression incorporate Relative Use Group Hazard Index Tables. Compliance with the requirements of the subsection is required when the change of use will increase the relative hazard. Each of the subsections shall be applied separately to the proposed new use.
  3. This section may require an owner to undertake work in order to be permitted to change the use of a building or a portion of a building. Additionally, the owner of a building may wish to undertake other work not required by the section. That work must comply with the requirements for repair, renovation, alteration, or reconstruction applicable to the new use group in accordance with the provisions of this code.
  4. Existing fire alarm, fire suppression and standpipe systems shall not be removed without replacement and shall be maintained in operating condition. (Fire)
- b. Compliance with Basic Requirements: compliance with the basic requirements shall be required as follows: (Plan Review – Building, Fire Inspection – Building)

<b>TABLE B</b>	
<b>Relative Use Group Hazard</b>	
1 (highest)	H-1, H-2, H-3
2	A-1, A-2, H-4, F-1, I-3, M, S-1
3	A-3, A-5, B, F-2, I-2, R-1, S-2
4	A-4, E, I-1, R-2 more than two stories in height or more than four dwelling units.
5 (lowest)	R-2 two stories or fewer in height and four dwelling units or less, R-3, R-4, U

1. When the use of a building is changed to a higher relative use group hazard as shown in Table B, the building shall comply with the Basic Requirements of Sections 1.10 through 1.30 of this code applied throughout the building for the new use group unless otherwise provided. Where another letter subsection of this section establishes a requirement that differs from the Basic Requirement, the requirement contained in that other lettered subsection shall govern.
  - i. Where a portion of a building is changed to a higher relative use group hazard, the building shall comply with the Basic Requirements of Sections 1.10 through 1.30 of this code for fire suppression and fire detection or alarms applied throughout the building for the new use group unless the proposed use is separated from the existing use(s) by assemblies with the appropriate fire resistance rating in accordance with Table 302.3.2 of the North Carolina Building Code in which case only the portion changed shall comply. The portion of the building changed shall comply with all the other Basic Requirements of Sections 1.10 through 1.30 for the new use group.
2. When a change of use is made to an equal or lesser relative use group hazard as shown in Table B, the existing building is not required to comply with the Basic Requirements except where required in connection with alteration or reconstruction work by the sections of this code applicable to alteration or reconstruction work.
3. Where the character of use of an existing building or portion thereof is changed to one of the following special use or occupancy categories as defined in the North Carolina Building Code, the building or portion shall comply with the referenced section of the North Carolina Building Code specific to the special use or occupancy regardless of whether a change of use group is involved.
  - i. Covered Mall Building – Section 402;
  - ii. Atriums – Section 404;
  - iii. Underground Structures – Section 405;
  - iv. Motor Vehicle Related Occupancies – Section 406;
  - v. Public Garages – Section 406;
  - vi. Motion Picture Projection Rooms, Screening Rooms and Sound Stages – Section 409;
  - vii. Stages and Platforms – Section 410;
  - viii. Special Amusement Buildings – Section 411
  - ix. Aircraft Related Occupancies – Section 412;

- x. Hazardous Materials – Section 414
  - xi. Application of Flammable Finishes – Section 416;
  - xii. Drying Rooms – Section 417; and
  - xiii. Organic Coatings – Section 418
4. Any fire suppression or fire detection or alarm requirements applicable to the special use or occupancy shall be applied throughout the entire buildings unless the special use or occupancy is separated from the remainder of the building by fire separation assemblies having a rating of at least two hours. (Fire)
- c. Means of Egress: The following requirements apply to means of egress in a change of use: (Plan Review – Building, Fire Inspection – Building)

<b>TABLE C</b>	
<b>Hazard Categories and Classifications</b>	
<b>Means of Egress</b>	
Relative Hazard	Use Classification
1 (highest)	H-1, H-2, H-3
2	I-2, I-3
3	A, E, I-1, M, R-1, R-2
4	B, F-1, R-3, R-4, S-1, H-4
5 (lowest)	F-2, S-2

1. For any change of use, the occupant load of the space shall be calculated based on the capacity of the exits as per Section 1.11.b. The occupant load shall not exceed one occupant per 5 square feet floor area unless the building complies with Chapter 10 of the North Carolina Building Code in its entirety.
  - i. Where a portion of a building undergoes a change of use, the determination of the capacity of the exit(s) serving that portion shall include all spaces served by those exit(s).
2. When a change in use is made to a higher hazard category as shown in Table C, the entire building or portion thereof shall comply with the following requirements of the North Carolina Building Code or of this code as specified below:
  - i. Sections 1011, Exit signs, 1006, Means of Egress illumination, and 1017.4, Air movement in Corridors.
  - ii. Section 1008.1, Doors, except Sections 1008.1.1, Size of doors; apply the Basic Requirements (1.10 through 1.30) for door widths.



- iii. Section 1008.2, Gates.
  - iv. Section 1009, Stairways, except 1009.1, Stairway width, 1009.2, Headroom, 1009.3, Stair tread and riser, and 1009.10, Handrails; apply the Basic Requirements (1.10 through 1.30) for stair widths.
  - v. Section 1010, Ramps.
  - vi. Section 1008.3, Turnstiles.
  - vii. Section 1014, 1015, and 1016, (Exit access design requirements).
    - 1) Exception: The occupant load of the space may be restricted in order to comply with the requirements of this section:
  - viii. Section 1014.4, Aisles; 1017, Corridors, except 1017.2, Corridor width; apply the Basic Requirements (1.10 through 1.30) for corridor widths.
    - 1) Exception: The occupant load of the space may be restricted in order to comply with the requirements of these sections.
  - ix. Section 1018, Exit design requirements.
    - 1) Exception: The occupant load of the space may be restricted in order to comply with the requirements of these sections.
  - x. Sections 1018.2, Exterior exit doors, 1021, Exit passageways, and 1022, Horizontal exits.
  - xi. Section 1024 (Exit discharge).
  - xii. Section 1015.3, 1015.4, 1015.5, 1015.6 (Miscellaneous means of egress requirements).
    - 1) Cellulose nitrate film handling, 409.1 (NFPA 40)
  - xiii. Section 1025 (Assembly).
3. When a change of use is made to an equal or lesser hazard category as shown in Table C, the existing building is not required to comply with the requirements contained in 1.31.c.2 above except in areas where reconstruction work being performed in connection with the change of use triggers these requirements.

4. Vertical opening protection shall be provided for all stairs in accordance with section 1.10 through 1.30 when a change of use that also constitutes a change of use group is made and the proposed use group is a higher hazard category as shown in Table C above.
  - i. Where the use group of a portion of a building is changed to a higher hazard category, vertical opening protection shall be provided for all stairs serving the proposed use group from the floor(s) on which the proposed use group is located to the level of exit discharge.
5. Notwithstanding the relative hazard as determined by Table C above, where any change of use occurs to a single exit building, the building shall meet the requirements of Section 1019.2 (single exits) of the North Carolina Building Code for the proposed use.
6. When a change of use is made to any residential use group (R-1, R-2, R-3 or R-4) or to Use Group I-1, every sleeping room below the fourth story shall have at least one operable window or exterior door. Where windows are provided to comply with this requirement, the window shall have a sill height of not more than 44 inches, and have a width of at least 20 inches, a height of at least 24 inches and a minimum total area of 5.7 square feet measured from head to sill and from side to side.
  - i. An outside window or exterior door is not required in buildings where the sleeping room is provided with a door to a corridor having access to two remote exits.
  - ii. An outside window or exterior door is not required in buildings equipped throughout with an automatic fire suppression system.
  - iii. In a building that originally was in Use Group R-3 and is returning to Use Group R-3, the windows shall be permitted to remain as they were during the time when the building previously was in use as a residence.
- d. Enclosure of Vertical Openings: (Plan Review – Building, Fire Inspection – Building)
  1. For any change of use which also constitutes a change of use group, vertical openings other than stairs shall be protected as required by sections 1.10 through 1.30 for the proposed use within each space undergoing a change of use.
  2. Stairs shall be enclosed in accordance with sections 1.10 through 1.30 for the proposed use when a change of use that also constitutes a change of use group is made and the proposed use group is a higher hazard category as shown in Table C above.
  3. Atriums in compliance with Section 404 of the North Carolina Building Code are not required to be enclosed.
- e. Height and Area Limitations: The following height and area limitations apply in a change of use: (Plan Review – Building, Fire Inspection – Building)

<b>TABLE E</b>	
<b>Hazard Categories and Classifications</b>	
<b>Height and Area</b>	
<b>Relative Hazard</b>	<b>Use Classification</b>
1 (highest)	A-2, H-1, H-2, I-2, I-3
2	A-1, A-3, E, F-1, H-3, H-4, M, I-1, S-1
3	A-4, B, R-1, R-2
4 (lowest)	F-2, R-3, R-4, S-2, U

1. When a change of use is made to a higher hazard category as shown in Table E, the height and area of the building shall meet the limitations of Chapter 5 of the North Carolina Building Code for the proposed use group.
  - i. For the purpose of determining the construction type, the fire resistance rating of the following structural elements shall be considered: exterior load bearing walls, interior load bearing walls, columns, girders, trusses and framing, floor construction, including beams, and roof construction, including beams, trusses and framing, arches, and roof decks.
  - ii. Exception: One and two story buildings in use groups other than H may exceed the floor area permitting by Table 503 of the North Carolina Building Code by up to 25 percent of the existing floor area without providing fire separation.
  - iii. When a change of use is made to an equal or lesser hazard category as shown in Table E, the existing building may continue to exceed the maximum allowable height and area permitted for new buildings.
2. Where a change of use is made in a mixed use building or a single use building is changed to a mixed use building, and any of the proposed uses is a higher category as per Table E, the building shall comply with one or any combination of the following:
  - i. Non-Separated Use Groups: The maximum allowable height and area shall be determined by applying the more restrictive of the height and area limitations of each use group, as per Table 503 of the North Carolina Building Code, to the entire building.
    - 1) One and two story buildings of all use groups, except H, are permitted to exceed that allowable area by 25 percent.
    - 2) Occupancies of Use Group H shall not be permitted to be unseparated when located in the same building as Use Groups A, E, I, M, R, or non-accessory Use Group B.
    - 3) Accessory occupancies in compliance with Section 508.3.1 of the North Carolina Building Code are not required to comply with this requirement.

- 4) When a change of use is made such that any non-residential use is located below a residential use, a one hour fire separation shall be provided between the use groups. The exits from the residential floors shall be separately enclosed.
- ii. Separated Use Groups: Each portion of the building containing a use group shall be completely separated from adjacent use groups by fire separation assemblies and floor/ceiling Assemblies having a fire resistance determined in accordance with Table 508.3.3 of the North Carolina Building Code. For buildings equipped throughout with an automatic fire suppression system, the required fire resistance rating or use groups other than H is permitted to be reduced by one hour, but shall not be reduced to less than one hour. Each portion of the building shall comply with the height limitation of Table 503 of the North Carolina Building Code for that use group. In each story, the area shall be that the sum of the ratios of the floor area of each use group divided by the allowable area of Table 503 of the North Carolina Building Code for each use group shall not exceed 1.9 for buildings three or more stories in height, and 1.25, for one and two story buildings.
  - 1) Exception: Accessory occupancies in compliance with Section 508.3.1 of the North Carolina Building Code are not required to comply with this requirement.
- iii. Separate Buildings: If each use group is separated from other uses by fire walls that meet the requirements of Table 601 of the North Carolina Building Code, then each use shall be considered a separate building. Each building shall comply with the height and area limitation of Table 503 of the North Carolina Building Code. One and two story buildings of all use groups, except H, are permitted to exceed the allowable area of the new use group by 25 percent.
  - 1) Exception: Accessory occupancies in compliance with Section 508.3.1 of the North Carolina Building Code are not required to comply with this requirement.
3. Change of use of an unlimited area building shall comply with Section 508.3.1 of the North Carolina Building Code for the proposed use.
- f. Exterior Wall Fire Resistance Ratings and Maximum Area of Exterior Wall Openings: The following exterior wall fire resistance ratings and maximum area of exterior wall openings apply in changes of use: (Plan Review – Building, Fire Inspection – Building)

<b>TABLE F</b>	
<b>Hazard Categories and Classifications</b>	
<b>Exposure of Exterior Walls</b>	
<b>Relative Hazard</b>	<b>Use Classification</b>
1 (highest)	H
2	Buildings exceeding 12,000 sq. ft. of F-1, M or S-1
3	A, B, E, F-2, I, R-1, S-2
	Buildings 12,000 sq. ft. or less of F-1, M or S-1
4 (lowest)	R-2, R-3, R-4, U

1. Exterior Wall Protection: If the use group of a building is changed to a higher hazard classification in accordance with Table F, the requirements for exterior wall fire resistance rating in the table shall be met.

<b>Requirements for Exterior Wall Fire Resistance Rating</b>			
		<b>Building Use Group<sup>(b)</sup></b>	
<b>Fire Separation Distance</b>	<b>H-2</b>	<b>F-1, H-3, M, S-1</b>	<b>A, B, E, F-2, H-4, I, R-1, R-2, R-3, S-2</b>
0-5 feet	4	3	2 <sup>(a)</sup>
Over 5 - 10 feet	3	2 <sup>(a)</sup>	1
Over 10 - 15 feet	2	1	0
Over 15 - 30 feet	1	0	0
Over 30 feet	0	0	0
Note <sup>(a)</sup> : Existing 8-inch hollow or 6-inch solid masonry walls shall be accepted as a 2 hour rating in other than Use Group H-2 or H-3.			
Note <sup>(b)</sup> : When the use group of a building is changed to H-1, the building shall be located in accordance with Table 415.3.1 of the North Carolina Building Code.			

- i. The requirements for exterior wall fire resistance rating shall not apply to exterior walls which face buildings on the same lot where the buildings are such that, if combined into one structure, the resulting building would comply with the height and area limitations of Table 503 of the North Carolina Building Code.
- ii. Where a portion of a building is changed to a higher hazard classification, exterior walls and openings of the entire building shall comply with the provisions of this section. If the proposed use is separated from the rest of the building by walls with the appropriate fire resistance rating in accordance with Table 508.3.3 of the North Carolina Building Code, then only the portion changed must comply with the provisions of this section.

- iii. When a change of use is made to an equal or lesser hazard classification as shown in Table F, no change in the rating of existing exterior walls is required.
  - iv. In buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13, the fire resistance rating of non-load bearing exterior wall may be reduced by one hour with the following exceptions:
    - 1) Exception: where the fire separation distance is five feet or less, the fire resistance rating shall not be reduced to less than one hour.
    - 2) Exception: The rating of non-load bearing exterior walls shall not be reduced in buildings of Use Group H.
2. Exterior Wall Openings: If the use group of a building is changed to a higher hazard classification in accordance with Table F, the requirements for exterior wall openings in the table below shall be met.

Use Group	Exterior Wall Requirements
H	No opening permitted with a fire separation distance of 3 feet or less. Protected openings required with a fire separation distance of 20 feet or less.
A-1, A-2, A-3, A-4, B, E, F-1, I-1, I-2, I-3, M, S-1, R-1	No opening permitted with a fire separation distance of 3 feet or less. Protected openings required with a fire separation distance of 10 feet or less.
F-2, S-2	No opening permitted with a fire separation distance of 3 feet or less. Protected openings required with a fire separation distance of 5 feet or less.
Newly created openings in use Group R-2, R-3, and R-4 with a fire separation distance of 3 feet or less shall be provided with opening protectives.	

- i. If the building is provided with an automatic fire suppression system throughout, the amount of unprotected openings shall be permitted to be increased to the limit for protected openings.
  - ii. In all occupancies other than Use Group H, unlimited unprotected openings are permitted in the first story of exterior walls facing a street which has a fire separation distance of greater than 15 feet, or facing unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall not be less than 30 feet in width and shall have access from a street by a posted fire lane not less than 18 feet in width.
  - iii. When a change of use is made to an equal or lesser hazard classification as shown in Table F, no change in existing exterior wall openings is required.
- g. Fire Suppression Systems: The following fire suppression system requirements apply in changes of use: (Fire)

<b>TABLE G</b>	
<b>Hazard Categories and Classifications</b>	
<b>Fire Suppression</b>	
<b>Relative Hazard</b>	<b>Use Classification</b>
1 (highest)	H-1
2	A-2, R-1, R-2
3	A-1, A-3
4	F-1, M, S-1
5	A-4, E
6 (lowest)	B, F-2, R-3, R-4, S-2, U

1. When a change of use is made to a higher hazard category as shown in Table G, the building shall be provided with an automatic fire suppression system as required by the following sections of the North Carolina Building Code: Section 903.2.1 for Group A occupancies, 903.2.2 for Group E occupancies 903.2.3 for Group F-1 occupancies, 903.2.4 for Group H occupancies, 903.2.5 for Group I occupancies, 903.2.6 for Group M occupancies, 903.2.7 for Group R occupancies, 903.2.8 for Group S-1 occupancies, 903.2.9 for Group S-2 occupancies, and 903.2.10.1 for windowless stories. When this section requires a fire suppression system, compliance with Section 903.3 of the NC Building Code is also required.
  - i. When a portion of a building is changed to a higher hazard category and the proposed use is separated from the existing use(s) by assemblies that meet the applicable fire rating in Table 508.3.3 of the North Carolina Building Code, an automatic fire suppression system as required above shall be installed only in the portion changed.
2. When a change of use is made to an equal or lesser hazard category as shown in Table G, there is no requirement to install a suppression system except in areas where work being performed in connection with the change of use triggers a requirement for suppression and in windowless stories in accordance with Section 1.30(c) of this subchapter.
3. Notwithstanding the relative hazard as determined by Table G, when a change in the character of the use is made to a higher degree of hazard as defined by NFPA 13 (Light Hazard, Ordinary Hazard Group 1, Ordinary Hazard Group 2, Extra Hazard Group 1, Extra Hazard Group 2 and Special Occupancy Hazards), the sprinkler system shall be evaluated and, where required by NFPA 13, altered to conform to the required density and maximum sprinkler protection area per head for the proposed occupancy.
- h. Fire Alarm Systems: When a change of use is made to any of the following use groups, a fire alarm system shall be installed in accordance with Section 907 of the North Carolina Building Code. Where a portion of a building is changed to any of the following use groups, a fire alarm system shall be installed throughout the building in accordance with Section 907 of the North Carolina Building Code unless the proposed use is separated from the other use(s) in the building by assemblies with the appropriate fire resistance rating in accordance with Table 508.3.3 of the North

Carolina Building Code in which case only the portion changed shall comply. (For purposes of applying this section, horizontal separation shall not be considered.) (Fire)

1. Use Group A: A fire alarm system shall be installed and maintained as required by Section 907.2.1 of the North Carolina Building Code.
  2. Use Group B: A fire alarm system shall be installed and maintained as required by 907.2.2 of the North Carolina Building Code.
  3. Use Group E: A fire alarm system shall be installed and maintained as required by 907.2.3 of the North Carolina Building Code.
  4. Use Group F: A fire alarm system shall be installed and maintained as required by 907.2.4 of the North Carolina Building Code.
  5. Use Group H: A fire alarm system shall be installed and maintained as required by 907.2.5 of the North Carolina Building Code.
  6. Use Group I: A fire alarm system shall be installed and maintained as required by Section 907.2.6 of the North Carolina Building Code.
  7. Use Group M: A fire alarm system shall be installed and maintained as required by 907.2.7 of the North Carolina Building Code.
  8. Use Group R-1: A fire alarm system shall be installed and maintained as required by Section 907.2.8 of the North Carolina Building Code.
  9. Use Group R-2: A fire alarm system shall be installed and maintained as required by Section 907.2.9 of the North Carolina Building Code.
- i. Single and Multiple Station Smoke Detectors: When a change of use is made to any of the following use groups, single and multiple station smoke detectors shall be installed in accordance with Section 907.2.10 of the North Carolina Building Code. Smoke detectors that are located closer than five feet to a kitchen or bathroom area shall be of the photoelectric type only. (Fire)
1. Use Group R-1: Single or multiple station smoke detectors shall be installed and maintained as required by Section 907.2.10.1.1 of the North Carolina Building Code.
  2. Use Group R-2, R-3 and R-4, and I-1: Single or multiple station smoke detectors shall be installed and maintained as required by Sections 907.2.10.1.2 and 907.2.10.1.3 of the North Carolina Building Code.
  3. Where the use of a portion of a building is changed such that any nonresidential use is located below one or more dwelling units (including single room occupancies), single or multiple



station smoke detectors shall be installed in the nonresidential portion(s) of the building in accordance with NFPA 72 and provided with an audible alarm located within each dwelling unit of the residential portion of the building. The detectors shall be AC powered with battery back-up. Hard wired, interconnected smoke detectors installed throughout the building shall be accepted as meeting this requirement.

- j. Structural Requirements: The following structural requirements shall apply in changes of use: (Building)

<b>Table K</b>	
<b>Structural Load Categories</b>	
<b>Load Category</b>	<b>Use Classification</b>
1 (highest)	F-1, F-2, S-1, S-2, stack areas in libraries, stages and platforms, areas subject to vehicular loads, queuing areas
2	All loading conditions not listed in category 1 or 3
3 (lowest)	B, E, I-1, I-2, I-3, R-1, R-2, R-3, R-4

1. When the use or character of use of a building is changed to a higher load category as shown in Table K, then the structure shall be capable of supporting the load requirement for the new use or character of use as specified in Table 1607.1 of the North Carolina Building Code.
  - i. If the Building Code official determines that the number of occupants or the placement and weight of furniture and equipment can be controlled by the occupants, the areas designed for the reduced live load shall be posted with the approved live load. Placards stating the allowable live loads shall be posted. Placards may state loads in forms usable by the occupants, in addition to posting the allowable load in pounds per square foot. Such information shall be developed by a licensed design professional and be approved by the code official.
    - 1) Analysis and test methods for evaluation of existing structural members shall use methods specified in the code in effect at the time the building was originally constructed.
  - ii. The corridor and lobby loading requirements of Table 1607.1 shall be met only if the corridor exceeds six feet in width or if the lobby or corridor area is used for queuing purposes.
  
2. Where the use or character of use within an existing building is changed to an equal or lower load category as shown in Table K, then the existing structure may be used without modification, provided that the building is structurally sound and in good structural repair. When a change of use results in a building being reclassified as a Seismic Use Group III, the building shall comply with the seismic design requirements of Section 1613 of the North Carolina Building Code.

- k. **Plumbing Requirements:** When the character of the use of a building or portion of a building is change, the following plumbing provisions shall apply. (Plumbing)
1. The fixture requirements for the proposed new use shall comply with the Basic Requirements for that use.
  2. If the new use is a food handling establishment, all existing sanitary waste lines above the food or drink preparation or storage areas shall be panned or otherwise protected to prevent leaking pipes or condensation on pipes from contaminating food or drink. New drainage lines shall not be installed above such areas except where it is the only practical alternative. Where new lines are to be installed, they shall be protected in accordance with the North Carolina Plumbing Code.
  3. New uses that will produce grease or oil laden wastes shall be provided with interceptors as required in the North Carolina Plumbing Code.
  4. If the new use produces chemical wastes, the following shall apply:
    - i. If the existing piping is compatible with the chemical waste, no change to the existing piping material is required.
    - ii. If the existing piping is not compatible with the chemical waste, either the waste must be neutralized prior to entering the drainage system or the piping must be changed to a compatible material.
    - iii. No chemical waste shall discharge to a public sewer system without the approval of the sewage authority.
  5. Where a building's use is changed to a health care facility, the requirements of the 2009 North Carolina Plumbing Code shall apply.
- l. **Electrical Requirements:** The following electrical requirements shall apply in changes of use: (Electrical)
1. When the character of the use of a building or portion thereof is changed to one of the following special occupancies as described in Chapter 5 of the North Carolina Electrical Code, the electrical wiring and equipment of the building or portion thereof that contains the proposed use shall comply with all applicable requirements of the North Carolina Electrical Code regardless of whether a change of use group is involved:
    - i. Hazardous (classified) Locations;
    - ii. Commercial Garages, Repair and Storage;

- iii. Aircraft Hangars;
  - iv. Gasoline Dispensing and Service Stations;
  - v. Bulk Storage Plants;
  - vi. Spray Application, Dipping, and Coating Processes;
  - vii. Health Care Facilities;
  - viii. Places of Assembly;
  - ix. Theaters, Audience Areas of Motion Picture and Television Studios and Similar Locations;
  - x. Motion Picture and Television Studios and Similar Locations;
  - xi. Agricultural Buildings.
2. When the use of a building is changed to Use Group R-2, R-3 or R-4, the electrical wiring and equipment of the building shall comply with the Basic Requirements of this code for that use and shall have the electrical service (conductors and equipment) sized and rated in accordance with the North Carolina Electrical Code.
- m. Mechanical Requirements: When the character of the use of a building is changed, the following mechanical provisions shall apply:
- 1. All spaces intended for human occupancy shall be provided with natural or mechanical ventilation. A building intended to be used as public school shall be mechanically ventilated. (Building)
    - i. Spaces intended to be naturally ventilated shall be provided with openable doors, windows, louvers or other openings to the outdoors. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Where rooms without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.
    - ii. Spaces intended to be mechanically ventilated shall comply with the following:
      - 1) If the occupancy of a building is changed and the new occupancy would require the same or a lesser amount of outdoor air based on the equations below, no change to the mechanical ventilation system is required.

- 2) If the occupancy of a building is changed and the new occupancy would require a greater amount of outdoor air based on the equations below, the HVAC system shall be upgraded to satisfy the requirements of Table N for the new occupancy. As an alternative to providing the amount of outdoor air required by Table N, the indoor air quality procedure of ASHRAE 62.1-2007 can be used.
  - 3) Residential buildings that are intended to be mechanically ventilated shall be provided with the ventilation specified in the North Carolina Mechanical Code.
  - 4) When the use of a building is changed to a health care facility, mechanical ventilation shall be provided as required by the North Carolina Mechanical Code.
  - 5) When the use group of a building is changed to B or E and the building is a class one or class two building, a test and balance report shall be submitted prior to the issuance of a Certificate of Occupancy. (Building)
2. A commercial hood and an automatic fire suppression system that comply with the North Carolina Mechanical Code shall be required for commercial cooking equipment producing grease-laden vapors, except in Use Groups R-2, R-3 and R-4. No suppression system shall be required for completely enclosed ovens, steam tables or similar equipment. (Fire)
    - i. Exception: Bed and breakfast home stay facilities, which are designed to accommodate five or fewer guests, shall not be required to comply with this provision.

<b>TABLE N</b>					
<b>Outdoor Air Rates Based on Occupancy Type</b>					
<b>Occupancy</b>	<b>P/1000 sq.ft.</b>	<b>CFM/person</b>	<b>Occupancy</b>	<b>P/1000 sq.ft.</b>	<b>CFM/person</b>
<b>Storage Warehouses</b>	5	10			
<b>Correctional Facilities</b>			<b>Specialty Shops</b>		
Dining Halls Guard	100	15	Barber	25	15
Stations	40	15	Florists	8	15
			Hardware, drug, fabric	8	15
			Reducing Salons	20	15
			Supermarkets	8	15
<b>Dry Cleaners, Laundries</b>			<b>Theaters</b>		
Coin oper dry clean	20	15	Auditoriums	150	15
Coin oper laundries	20	15	Stages and Studios	70	15
<b>Education</b>			<b>Transportation</b>		
Auditoriums	150	15	Platforms	100	15
Classrooms	50	15	Vehicles	150	15
Libraries	20	15	Waiting Rooms	100	15
Music Rooms	50	15			
<b>Food &amp; Bev Service</b>			<b>Workrooms</b>		
Dining Rooms	70	15	Bank Vaults	5	15
Kitchens (cooking)	20	15	Meat Processing (a)	10	15
			Pharmacy	20	15
			Photo Studios	10	15
<b>Hospitals - Nursing &amp; Convalescent Homes</b>			<b>Sports and Amusement</b>		
Med Procedure Rms.	20	15	Spectator Areas	150	15
Physical Therapy	20	15			
Recovery and ICU	20	15			
<b>Hotels, Motels, Resorts, Dormitories</b>					
Assembly Rooms	120	15			
Dormitory Sleep Areas	20	15			
Lobbies	30	15			
<b>Correctional Facilities</b>			<b>Offices</b>		
Cells	20	20	Conference Rooms	50	20
			Office Spaces	7	20
			Reception Areas	60	20
			Telecommunication Centers / Data Entry	60	20
<b>Education</b>			<b>Theaters</b>		
Laboratories	50	20	Lobbies	150	20
Training Shops	30	20	Ticket Booths	60	20
<b>Food &amp; Beverage Service</b>			<b>Sports &amp; Amusement</b>		
Cafeteria, Fast Food	100	20	Playing Floors (gym)	30	20
<b>Hospitals - Nursing &amp; Convalescent Homes</b>			<b>Sports and Amusement</b>		
Med Procedure Rooms	20	15	Spectator Areas	150	15
Physical Therapy	20	15			
Recovery and ICU					

TABLE N					
Outdoor Air Rates Based on Occupancy Type					
Occupancy	P/1000 sq.ft.	CFM/person	Occupancy	P/1000 sq.ft.	CFM/person
<b>Hotels, Motels, Resorts, Dormitories</b>					
Assembly Rooms	120	15			
Dormitory Sleep Areas	20	15			
Lobbies	30	15			
<b>Correctional Facilities</b>			<b>Offices</b>		
Cells	20	20	Conference Rooms	50	20
			Office Spaces	7	20
			Reception Areas	60	20
			Telecommunication Centers / Data Entry	60	20
<b>Education</b>			<b>Theaters</b>		
Laboratories	50	20	Lobbies	150	20
Training Shops	30	20	Ticket Booths	60	20
<b>Food and Beverage Service</b>			<b>Sports/Amusement</b>		
Cafeteria, Fast Food	100	20	Playing Floors (gym)	30	20
<b>Hotels, Motels, Resorts, Dormitories</b>					
Conference Rooms	50	20			
<b>Dry Cleaners</b>			<b>Sports / Amusement</b>		
Commercial Laundry	10	25	Ballrooms and Discos	100	25
			Bowling Alleys (seating areas)	70	25
			Game Rooms	70	25
<b>Hospitals - Nursing &amp; Convalescent Homes</b>					
Patient Rooms	10	25			
<b>Specialty Shops</b>					
Beauty	25	25			
<b>Dry Cleaners, Laundries</b>			<b>Hospitals - Nursing &amp; Convalescent Homes</b>		
Comm. Dry Cleaner	30	30	Operating Rooms	20	30
<b>Food &amp; Beverage Service</b>			<b>Hotels, Motels, Resorts</b>		
Bars & Cocktail Lounges	100	30	<b>Dormitories</b>		
			Gambling Casinos	120	30
<b>Dry Cleaners, Laundries</b>					
Storage, Pick-up	30	35			
<b>Smoking Lounges</b>					
	70	60			
<b>Education</b>			<b>Specialty Shops</b>		
Corridors		0.1	Automotive Service		1.5
Locker Rooms		0.5	Clothes and Furniture		0.3
			Pet Shops		1
<b>Hospitals - Nursing &amp; Convalescent Homes</b>			<b>Sports and Amusement</b>		
Autopsy Rooms		0.5	Ice Arenas		0.5
			Swimming Pools (Pool & Deck Area)		0.5

TABLE N					
Outdoor Air Rates Based on Occupancy Type					
Occupancy	P/1000 sq.ft.	CFM/person	Occupancy	P/1000 sq.ft.	CFM/person
<b>Public Spaces</b>			<b>Storage</b>		
Corridors and Utilities		0.5	Repair Garages / Public		1.5
Elevators		1	Garages		
Locker & Dressing Rooms		0.5			
Public Restrooms		75 cfm per			
		water			
		closet or urinal			
<b>Retail Stores, Sales Floors and Showroom Floors</b>			<b>Workrooms</b>		
Basement and Street		0.3	Darkrooms		0.5
Dressing Rooms		0.2	Duplicating		0.5
Malls and Arcades		0.2			
Shipping and Receiving		0.15			
Storage Rooms		0.15			
Upper Floors		0.2			
Warehouses		0.05			
Note: P/1000 sq. ft. = persons per 1000 square feet of building area.					
Note (a): Spaces unheated or maintained below 50 degrees F are not covered by these requirements unless the occupancy is continuous.					
<b>Where the ventilation rates in Table N are based on CFM/ person</b>					
(1) $OL_n \times V_n$ is less than or equal to $OL_e \times V_e$				no upgrade	
(2) $OL_n \times V_n$ is greater than $OL_e \times V_e$				upgrade	
<b>Where the ventilation rates in Table N are based on CFM/ square footage</b>					
(3) $SF_n \times V_n$ is less than or equal to $SF_e \times V_e$				no upgrade	
(4) $SF_n \times V_n$ is greater than $SF_e \times V_e$				upgrade	
<b>Where the ventilation rates in Table N are based on CFM/ square footage and CFM/person</b>					
(5) $OL_n \times V_n$ is less than or equal to $SF_e \times V_e$				no upgrade	
(6) $OL_n \times V_n$ is greater than $SF_e \times V_e$				upgrade	
(7) $SF_n \times V_n$ is less than or equal to $OL_e \times V_e$				no upgrade	
(8) $SF_n \times V_n$ is greater than $OL_e \times V_e$				upgrade	
Where:					
$OL_n$ =	the occupant load of the proposed occupancy based on Table N. When accepted by the administrative authority this occupant load can be reduced.				
$OL_e$ =	the occupant load of the existing occupancy based on Table N.				
$SF_n$ =	the square footage of the proposed occupancy.				
$SF_e$ =	the square footage of the existing occupancy.				
$V_n$ =	the ventilation rate for the proposed occupancy based on Table N				
$V_e$ =	the ventilation rate for the existing occupancy based on Table N.				

- n. **Accessibility Requirements:** The following accessibility requirements shall apply in changes of use: (Building)
1. The change of use of a building of 10,000 square feet or more total gross enclosed floor area shall comply with all applicable provisions of the North Carolina Building Code Section 3409.
  2. The change of use of a building of less than 10,000 square feet total gross enclosed floor area shall be exempt from the provisions of the North Carolina Code Chapter 11, except as follows:
    - i. An alteration project undertaken in connection with the change of use of a small building shall provide accessibility as required by NC Building Code Section 3409.
    - ii. A reconstruction project undertaken in connection with the change of use of a small building shall provide accessibility as required by NC Building Code Section 3409.
  3. In a building of any size, where there is a change of use of an area of 10,000 square feet or more, the proposed new use shall comply with the requirements of the North Carolina Building Code Section 3409.
  4. In a building of any size, where there is a change of use of an area of less than 10,000 square feet, the proposed new use shall be exempt from the provisions of the North Carolina Building Code Chapter 11, except as follows:
    - i. A renovation project undertaken in connection with the change of use of a small building shall provide accessibility as required by NC Building Code Section 3409.
    - ii. An alteration project undertaken in connection with the change of use of a small building shall provide accessibility as required by NC Building Code Section 3409.
    - iii. A reconstruction project undertaken in connection with the change of use of a small building shall provide accessibility as required by NC Building Code Section 3409.



### 1.32 Additions

- a. Any addition to a building or structure shall comply with the requirements of the North Carolina State Building Code applicable to new construction.
  1. Any repair, renovation, alteration or reconstruction work undertaken within an existing building in connection with an addition shall comply with the requirements of this subchapter.
- b. No addition shall create or extend any non-conformity in the existing building to which the addition is constructed with regard to accessibility, structural strength, egress capacity, exit access travel distance of the capacity of mechanical, plumbing, electrical or fire protection system provisions of the Basic Requirements of this code.
- c. No addition shall increase the height of an existing building beyond that permitted under the applicable provisions of the North Carolina Building Code for a new building of the same use group: (Plan Review – Building, Fire Inspection – Building)
- d. No addition shall increase the area of an existing building beyond that which is permitted under the applicable provisions of the North Carolina Building Code unless a fire wall is provided in accordance with Section 705 of the North Carolina Building Code. (Plan Review – Building, Fire, Inspection – Building)
  1. Exception: Existing one and two story buildings may be expanded by up to 25 percent of the existing floor area or up to the area permitted by Table 503 of the North Carolina Building Code, whichever is greater, without providing fire separation. This exception may be applied only once in the life of the building or may be used in increments that total not more than 25 percent over the life of the building.
  2. In filling of floor openings, such as elevator and exit stair shafts, and the addition of mezzanines and equipment penthouses shall be permitted as allowed by the North Carolina Building Code.
- e. Where an addition increases or extends the size of an occupancy beyond that which is allowed by Section 903 of the North Carolina Building Code, suppression shall be provided throughout the occupancy unless the addition is separated from the existing building by a fire separation assembly in accordance with Table 508.3.3. (Fire)
  1. Exception: This requirement shall not apply to increases to the floor area of the building of less than five percent.
- f. Whenever an addition is made to a detached, single family dwelling of Use Group R-3 or R-4, smoke detectors shall be installed in accordance with the following: (Fire)

1. If the area of the addition is 25 percent or more of the floor area of the largest floor of the existing building, smoke detectors complying with the North Carolina Building Code shall be installed throughout the addition and the existing building.
  2. If the area of the addition is five percent or more, but less than 25 percent, of the floor area of the largest floor of the existing building, hardwired, interconnected smoke detectors with battery back-up meeting the requirements of NFPA 72, except as otherwise provided in the North Carolina Building Code or the North Carolina Fire Prevention Code, shall be installed and maintained in each story in the dwelling unit, including basements.
- g. All additions shall comply with the accessibility requirements of the North Carolina Building section 3409.5 Code, where applicable. (Building)
1. The addition shall include accessible entrance(s) in accordance with North Carolina Building Code 3409.8.1.
    - i. If the only accessible entrance to the addition is located in the existing building or facility, at least one interior accessible route shall provide access through the existing building to all rooms, elements, or spaces in the addition in accordance with North Carolina Building Code 3409.7.
  2. If there are not toilet rooms in the addition, accessible toilet facilities shall be provided in the existing building in accordance with North Carolina Building Code 3409.7.
- h. Structural Loads: (Building)
1. An addition shall not impose new loads which would cause the existing building to be subject to stresses exceeding those permitted by the North Carolina Building Code.
  2. An addition shall not increase the forces in any structural element of the existing building or structure by more than 5 percent, unless the increased forces on the element are still in compliance with the North Carolina Building Code for new structures.
  3. An addition shall not decrease the strength of any structural element of the existing building or structure unless the element still exceeds the strength required by the North Carolina Building Code for new structures.

### **1.33 Historic Buildings**

- a. Except as provided for herein, historic buildings shall comply with the provisions of this code relating to the repair, renovation, alteration, restoration, reconstruction, movement or change of use of structures.
  1. For purposes of applying this section, historic buildings shall include any building that meets one or more of the following criteria:
    - i. Buildings listed on the North Carolina or National Registers of Historic Places either individually or as a contributing building to a historic district.
    - ii. Buildings that have been issued a Determination of Eligibility by the Keeper of the national Register of Historic Places;
    - iii. Buildings identified as contributing buildings to Local Historic Districts which have been certified by the Keeper of the national Register as substantially meeting the National Register Criteria; or
    - iv. Buildings with a State historic Preservation Officer Opinion or Certification that the property is eligible to be listed on the National Register of Historic Places either individually or as a contributing building to a historic district.
  2. Variations: Building owners wishing to use an alternative to compliance with specific provisions of this code shall submit request(s) for variations in writing in accordance with Section 105 (alternate Material Design and Methods) of the North Carolina Administrative Code and Policies. Requests for variations shall identify all nonconformities with the requirements of this code shall include: a statement of the requirements of this code from which a variation is sought, a statement of the manner by which strict compliance with the provisions of this code would result in practical difficulties or would detract from the historic character of the building and a statement of feasible alternatives to the requirements of this code that would adequately protect the health, safety and welfare of the intended occupants and of the public generally.
    - i. The provisions of Section 105 (Alternate Material Design and Methods) of the North Carolina Administrative Code and Policies (Variations) notwithstanding, a variation may be granted where no feasible alternative to the strict requirements of the North Carolina Building Code exists, provided that the owner submits a finding by a registered design professional that the feature of the building which cannot be brought into strict compliance with the requirements of this code is essential to maintaining the historical value and character of the building. Any such finding submitted in support of a variation application shall be in writing and shall state the basis and reasons for the finding.

- ii. Variations to applicable accessibility requirements may be granted only if the historic character of the building would be threatened or destroyed as determined by the North Carolina Historic Preservation Office.
3. When a historic building is used as a historic museum, the building shall be classified as Use Group B provided that the following conditions are met: (Plan Review – Building, Fire Inspection – Building)
  - i. A limit on occupancy, not to exceed 50, is set by the construction official based on egress capacity and travel distance using the following parameters:
    - 1) For buildings with a single means of egress, occupancy shall be limited to the first and second floors, and the travel distance shall not exceed 75 feet;
    - 2) Two means of egress shall be required from all floors above the second floor where occupancy is permitted.
  - ii. There is supervision by a guide or other employee or volunteer knowledgeable in the emergency exiting procedures during all times that the building is occupied by visitors.
- b. Special Provisions – Historic buildings undergoing repair, renovation, alteration, restoration or reconstruction consistent with the U.S. Secretary of the Interior Standards for the Treatment of Historic Properties may comply with the following in lieu of compliance with the corresponding requirements of this code. (Plan Review – Building, Fire Inspection – Building)
  1. Materials and Methods – Original or replica materials and original methods of construction may be used, subject to the provisions of this section.
    - i. Exception: Components of building systems hidden from public view, including electrical equipment and wiring, plumbing equipment and piping and heating equipment, shall comply with Section 1.8 (Materials and Methods).
  2. Exterior Walls – Exterior walls shall not be required to be modified to meet the requirements for fire resistive wall construction.
  3. One Hour Fire Resistive Assemblies – Where one hour fire resistive construction is required by this code, it need not be provided regardless of construction or occupancy where the existing wall and ceiling finish is lath and plaster.
  4. Roof Covering – Historic buildings shall meet the intent of the performance requirements of Chapter 15 of the North Carolina Building Code, but shall not be required to meet the prescriptive requirements related to roof slope and underlayment unless required by the manufacturer’s installation specifications. The existing type of roof covering may be continued

or replaced with the same materials or the preexisting materials may be replaced or restored if the materials are documented to be historic. (Building)

5. Means of Egress – Existing door openings and corridor and stairway widths of less than that specified in Sections 1.10 through 1.30 of this code may be approved, provided that in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the exit. (Plan Review – Building, Fire Inspection – Building)
6. Doors – The existing front or main exit doors need not swing in the direction of exit travel when serving fewer than 50 people or when other approved exits having sufficient capacity to serve the total occupant load are provided. (Plan Review – Building, Fire Inspection – Building)
  - i. Door Hardware – Existing or replica hardware shall be permitted provided that no life safety hazard is created and that the hardware meets the intent of the Barrier Free Subcode if applicable (i.e. operable without pinching, grasping or twisting.) Existing or replica hardware may be fixed in place or modified to meet the intent of the North Carolina Building Code section 3409.6 and ANSI A117.1-2003 section 404.2.6.
7. Transoms – Existing transoms in corridors and other fire rated walls may be retained in accordance with this code. (Plan Review- Building, Fire Inspection – Building)
8. Interior Finishes – The existing finishes or replacement finishes on corridor walls and ceilings may be accepted where it is demonstrated that it is the historic finish. (Plan Review – Building, Fire Inspection – Building)
  - i. In buildings other than Use Group R-3, finishes in exit ways shall have a flame-spread classification of Class III or better. Existing non conforming materials shall be surfaced with an approved fire-retardant paint or finish unless the building is equipped throughout with an automatic fire suppression system installed in accordance with the North Carolina Building Code.
9. Stairways – Stairways shall comply with the following: (Plan Review – Building, Fire Inspection – Building)
  - i. Enclosure – Stairway enclosures may be omitted in a historic building for that portion of the stair serving the first and second floor. This provision shall be applied to only one stair per building.
    - 1) In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight fitting doors and solid elements. Such elements shall not require a fire resistance rating.
  - ii. Riser height and tread width – When stairs are replaced or repaired, the existing or original riser height and tread width shall be permitted to remain.

10. Railings – Railings shall comply with the following: (Plan Review – Building, Fire Inspection – Building)
    - i. Handrails – Existing handrails may remain or may be replaced with handrails matching the original handrails.
    - ii. Guardrails – For vertical drops of between 30 inches and 38 inches, a rail height of at least 30 inches shall be accepted and the existing or original baluster spacing shall be permitted to remain.
      - 1) Exception: Replacement guardrails in buildings of Use Group E or R-1 shall comply with Section 1013.2 and 1013.3 of the North Carolina Building Code.
  11. Exit Signs – The fire protection code official may accept alternate exit sign design or location where strict compliance would damage the historic character of the building. Alternative signs shall identify the exits and exit path. (Plan Review – Building, Fire Inspection – Building)
  12. Ceiling Height – Existing ceiling heights shall be permitted to remain. (Building)
- c. Relocated Historic Buildings
1. Foundations of relocated historic buildings and structures shall comply with the North Carolina Building Code. (Building)
  2. Relocated historic buildings shall be so sited that exterior walls and openings comply with the requirements of the North Carolina Building Code. (Plan Review – Building, Fire Inspection – Building)
- d. Special Change of Use Provisions – Compliance with the following and with the provisions of 1.33.b above shall be permitted for any change of use of a historic building provided that the restoration of the building is being performed consistent with the U.S. Secretary of the Interior Standards of the Treatment of Historic Properties. (Plan Review – Building, Fire Inspection – Building)
1. Building Area – The floor area for historic buildings undergoing a change of use to a higher hazard category as per Table E of Section 1.30 may exceed the allowable areas specified in the North Carolina Building Code for the proposed use group by fifty percent.