

# BERGERON

TECHNICAL SERVICES LLC



Mr. David Lersch  
Building Inspector  
Town of Plainfield  
110 Main Street  
Plainfield NH 03781

P.O. Box 241  
North Conway, New Hampshire 03860

18 May 2023

Bureau of Building Safety & Construction  
Division of Fire Safety  
Office of the State Fire Marshal  
33 Hazen Drive  
Concord, NH 03305

Reference: Kilton and Welch Dormitory project – Kimball Union Academy

Dear Inspector Lersch and Office of NH State Fire Marshal,

Over the past few months Bergeron Technical has been working with Vermont Integrated Architecture as they have been developing permit level drawings for renovations and expansion of the Kilton and Welch Dormitories at Kimball Union Academy. As of this writing we have completed reviews of two versions of design drawings, helping the design team to make sure that code-related requirements have been implemented. Specifically, we have completed the review of the architectural drawings identified as “permit set 05/15/2023” for each building with the pertinent plan sheets being identified as follows:

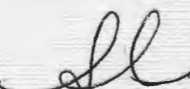
Kilton & Welch (both buildings combined)	Sheets A-0.0 through A-0.3 (four in total)
Kilton Dormitory	Sheets AK-0.4 through AK-10.6 (fifty sheets in total)
Welch Dormitory	Sheets AW-0.4 through AW-10.6 (forty-seven sheets in total)

Our review efforts have taken into consideration the relative Chapters from the 2018 editions of the International Existing Building Code (IEBC), the International Building Code (IBC), and Chapters 43 and 28 of the 2018 Life Safety Code. Additionally, we have reviewed and directed the design team to apply relative requirements of NFPA 1. It is our opinion that these plans represent a Code compliant project to the point where building permits could be issued. Bergeron Technical will continue to work with Vermont Integrated Architecture as their work continues towards project completion as we accept that additional information will develop and minor changes will likely be necessary as the project moves into and through the construction phase.

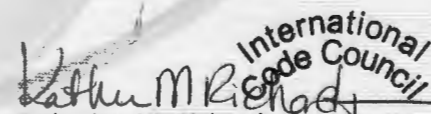
We look forward to working with you and to answering any questions that you may have.

Sincerely,

Bergeron Technical Services, LLC

  
Shawn G. Bergeron, Sr.  
Manager



  
Katherine M. Richardson  
Project Manager



ENCLOSURE – Initial Code Review Information dated 28 March 2023  
Second Code Review Information dated 11 May 2023

Cc: file





Stefan Richter, AIA, NCARB, CPHC  
Andrea K. Murray, AIA, NCARB, LEED AP  
Vermont Integrated Architecture  
Kimball Union Academy  
Kilton and Welch Buildings

P.O. Box 241  
North Conway, New Hampshire 03860

28 March 2023

Dear Stefan and Andrea,

You will find our seventy-percent code review for Kimball Union Academies Kilton and Welch Dormitories herein. The information in this report will address the more involved and essential items identified during our review of the International Existing Building Code (IEBC), International Building Code (IBC), NFPA 101 Life Safety Code (LSC) and NFPA 1. As your plans become closer to the permit set we will need another review to be sure the items identified to this point have been implemented and to review additional sections where information has not been provided to date. Please know that after our initial review of the plans dated March 10<sup>th</sup>, 2023 for each building we decided that where the two buildings are virtually the same in terms of occupancies and details – the major difference being building area - all noted items, with the exception of building height and area calculations, will apply to both buildings. The height and area calculations were done for Kilton only as this being the larger of the two, if the selected methods and materials are compliant for Kilton, they will also be compliant for Welch.

#### **GENERAL NOTES RELATED TO THE PROVIDED PLANS:**

**Sheet A-0.3** “Pedestrian Street” appears to be 20’ in pavement width at the rectangular areas, increasing in width at the “Plaza”. Our review has considered this to be vehicle assessable at all times, meaning that even during the winter months, snow and ice will be removed from Pedestrian Street and the Plaza so that emergency vehicles will be able to move through and service both buildings from this area.

#### **Sheet AK-0.4** Area Type Schedule notes:

1. Note that “Floor Area Allowances Per Occupant” are per IBC Table 1004.5
2. Note that Assembly areas are calculated as unconcentrated with tables and chairs at one occupant per 15 SF. R-3 areas (faculty residences) are calculated at one occupant per 200 SF and R-2 (dormitories) are calculated at one occupant per 50 SF.
3. Residential R-3, please indicate building areas (1140 SF) with an occupant load of 6 at the main level floor with the same area and number of occupants at the second floor level.
4. At “Basement – Dorms” the 1735 SF area should indicate 6 occupants and the 3834 SF area should indicate 13 occupants.
5. At “First Floor – Dorms” change Assembly A-2 to Assembly A-3, and when calculating the number of occupants per square foot (or vice versa), round up not down. Is this a big deal? Not really but we’ve been in trouble over this before.
6. Under “OCCUPANCY NOTES” Change Assembly A-2 to Assembly A-3 per IBC 303.4
7. In the line “Residential R-2” note per IBC 310.3
8. In the line “Residential R-3” note per IBC 310.4
9. Change “Storage” to “Accessory Storage” per IBC 311.1.1
10. Add “Laundry” (incidental) per IBC 509.2, 509.3 and Table 509

## **Bergeron Technical Notes and Observations Specifically Related to the International Building Code**

General Building Height and Area – allowances and calculations per Chapter 5

In order to determine the allowable type of construction materials, allowable building height, allowable building area and the allowable number of stories, all projects have to first be subjected to the requirements of this chapter. When doing so, our normal intent, as was the case in this effort, is to minimize the type of construction to the least restrictive that is allowed and, when possible and desired, eliminate the need for sprinkler protection. This study was performed based on the requirements of IBC 506.2.4, reviewed as an unseparated mixed occupancy. The occupancy classification chosen as the most restrictive is Assembly 3 (A-3) with our effort being towards the use of Type V-B, combustible unprotected construction.

- Table 504.3 - Allowable building height in feet above grade plane, Assembly occupancy, Type V-B construction, sprinkler protected – 60 feet above grade plane allowed.
- Table 504.4 - Allowable number of stories above grade plane for Type V-B. Sprinkler protected with NFPA 13 system - 2 stories allowed.
- Table 506.2 - Allowable area factor for a building that is sprinkler protected throughout with an NFPA 13 compliant sprinkler system, TypeV-B construction – 18,000 SF allowed.
- Note – per 506.1.3 the basement does not have to be included within the building area for this analysis.

Section 506.3 Frontage Increase Calculation IBC Equation 5-5

$$I_f = [F/P - 0.25]W/30$$

$$I_f = [(202/816) - 0.25]20/30$$

$$I_f = [0.25 - 0.25] \times .67$$

$$I_f = 0 \times .67$$

$$I_f = 0 \quad \text{There is no frontage increase allowance available in this case.}$$

Section 506.2.3 Allowable Building Area for a Single-Occupancy, multistory building. Most restrictive occupancy applied that being Assembly A-3. IBC Equation 5-2.

$$A_a = [A_t + (NS \times I_f)] \times S_a$$

$$A_a = [18,000 + (6,000 \times 0)] \times 2$$

$$A_a = 18,000 \times 2 = 36,000 \text{ SF}$$

Height and area Conclusion:

506.2.3 Single-occupancy, multistory building. Occupancy Classification Assembly A-3, NFPA 13 Sprinkler protected throughout.

Type (5) V-B construction, two stories above grade permissible, 36,000 SF total allowable building area however, no individual story can exceed 18,000 SF, maximum building height 60'. *As designed, both dormitories can be of Type V-B construction however the NFPA 13 sprinkler system is required – an NFPA 13R system will not be sufficient.*

**420.2 Separation walls.** Walls separating dwelling units in the same building, walls separating sleeping units in the same building and walls separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708.

**708.3 Fire-resistance rating.** Fire partitions shall have a fire-resistance rating of not less than 1 hour.

**Exceptions:**

1. Corridor walls permitted to have a 1/2-hour fire resistance rating by Table 1020.1.
2. Dwelling unit and sleeping unit separations in buildings of Types IIB, IIIB and VB construction shall have fire-resistance ratings of not less than 1/2 hour in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**420.3 Horizontal separation.** Floor assemblies separating dwelling units in the same buildings, floor assemblies separating sleeping units in the same building and floor assemblies separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as horizontal assemblies in accordance with Section 711.

**Exception:** In Group R-3 and R-4 facilities, floor assemblies within the dwelling units or sleeping units are not required to be constructed as horizontal assemblies.

**711.2.4.3 Dwelling units and sleeping units.** Horizontal assemblies serving as dwelling or sleeping unit separations in accordance with Section 420.3 shall be not less than 1-hour fire-resistance-rated construction.

**Exception:** Horizontal assemblies separating dwelling units and sleeping units shall be not less than 1/2-hour fire-resistance-rated construction in a building of Types IIB, IIIB and VB construction, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**420.5 Fire alarm systems and smoke alarms.** Fire alarm systems and smoke alarms shall be provided in Group R-2 occupancies in accordance with Sections 907.2.6, 907.2.8 and 907.2.9, respectively. Single - or multiple-station smoke alarms shall be provided in Group R-2 and R-3 with Section 907.2.10.

**420.10.1 Cooking appliances.** Where located in Group R-2 college dormitories, domestic cooking appliances for use by residents shall be in compliance with all of the following:

1. The types of domestic cooking appliances shall be limited to ovens, cooktops, ranges, warmers, coffee makers and microwaves.
2. Domestic cooking appliances shall be limited to approved locations.
3. Cooktops and ranges shall be protected in accordance with Section 904.13.
4. Cooktops and ranges shall be provided with a domestic cooking hood installed and constructed in accordance with Section 505 of the International Mechanical Code.

**904.13 Domestic cooking systems.** Cooktops and ranges installed in the following occupancies shall be protected in accordance with Section 904.13.1:

1. In Group R-2 college dormitories where domestic cooking facilities are installed in accordance with Section 420.10.

**904.13.1.1 Automatic fire-extinguishing system.** The domestic recirculating or exterior vented cooking hood provided over the cooktop or range shall be equipped with an approved automatic fire-extinguishing system complying with the following:

1. The automatic fire-extinguishing system shall be of a type recognized for protection of domestic cooking equipment. Pre-engineered automatic fire-extinguishing systems shall be listed and labeled in accordance with UL 300A and installed in accordance with the manufacturer's instructions.
2. Manual actuation of the fire-extinguishing system shall be provided in accordance with Section 904.12.1.
3. Interconnection of the fuel and electric power supply shall be in accordance with Section 904.12.2.

**906.1 Where required.** Portable fire extinguishers shall be installed in all of the following locations: In Group A and R-2 occupancies.

**Specific Requirements:**

1. In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1- A:10-B:C.

*Note – in this case, the dwelling units are the faculty residences only and so... fire extinguishers are required at the faculty residences.*

2. Within 30 feet distance of travel from commercial cooking equipment and from domestic cooking equipment in R-2 college dormitory occupancies.
3. In areas where flammable or combustible liquids are stored, used, or dispensed.
4. Where required by NFPA 1 – *Table 13.6.1.2 of NFPA 1: Assembly occupancies, therefore portable fire extinguishers are required in the Assembly areas of both dormitories. Dormitories as a general occupancy, so therefore portable fire extinguishers are required throughout the R-2 occupancy areas.*

**907.2.9 Group R-2.** Fire alarm systems and smoke alarms shall be installed in Group R-2 occupancies as required in Sections 907.2.9.1 through 907.2.9.3. *BERGERON TECHNICAL NOTE/EXPLANATION – This section of the Code is not clear so, some details: A full fire detection and occupant notification system is required throughout both buildings. The smoke alarms within the sleeping units and dwelling units (details coming later) can be a component within this system. Initiation devices will include the smoke/fire detection devices, activation of the fire suppression system in the kitchen hood and activation of water-flow devices within the sprinkler system. Because the building is sprinkler protected, manual pull stations are not required. Activation of any smoke or fire detection initiation device within a dwelling unit or sleeping unit shall (at first) only activate occupant notification within that unit. Activation of any initiation device outside of sleeping and dwelling units or activation of sprinkler water flow shall activate occupant notification throughout the building. See IBC 907.5 for specific occupant notification information.*

**907.2.10.2 Groups R-2, R-3, R-4, and I-1.** Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.
3. In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics.

**907.2.10.3 and 907.2.10.4 Installation near cooking appliances and restrooms.** Smoke alarms in the area of cooking appliances and restrooms shall be selected and installed (located) per the listing for the selected device, specifically per the restrictions/requirements for ionization type and/or photoelectric type, as selected.

**907.2.10.5 Interconnection.** Where more than one smoke alarm is required to be installed within an individual dwelling unit or sleeping unit in Group R occupancies, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

**907.2.10.6 Power source.** Required smoke alarms shall receive their primary power from the building wiring and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system in accordance with Section 2702. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

**Exception:** Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system that complies with Section 2702.

**907.2.10.7 Smoke detection system.** Smoke detectors listed in accordance with UL 268 and provided as part of the building fire alarm system shall be an acceptable alternative to single- and multiple-station smoke alarms and shall comply with the following:

1. The fire alarm system shall comply with all applicable requirements in Section 907 of the IBC.
2. Activation of a smoke detector in a dwelling unit or sleeping unit shall initiate alarm notification in the dwelling unit or sleeping unit in accordance with Section 907.5.2.

3. Activation of a smoke detector in a dwelling unit or sleeping unit shall not activate alarm notification appliances outside of the dwelling unit or sleeping unit, provided that a supervisory signal is generated and monitored in accordance with Section 907.6.6.

**907.5.2.3.3 Group R-2.** In Group R-2 occupancies each story that contains dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with Chapter 11 of ICC A117.1. Such capability shall accommodate wired or wireless equipment. The future capability shall include one of the following:

1. The interconnection of the building fire alarm system with the unit smoke alarms.
2. The replacement of audible appliances with combination audible/visible appliances.
3. The future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.

**907.6 Installation and monitoring.** The fire alarm system shall be installed and monitored in accordance with the 2016 edition of NFPA 72.

**912.1 Installation.** Fire department connections shall be installed in accordance with the requirements of NFPA 13. The location of the FDC and the site-specific requirements (such as size and type of hose threads) shall be coordinated with the local fire department.

**915.1 General.** Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the International Fire Code. *BERGERON TECHNICAL NOTE/EXPLANATION – The various Sections that follow, 915.1.1 through 915.6 all reference RESIDENTIAL and other occupancies where there fuel-burning equipment and/or vehicle storage. That said, so far we do not see the need for CO detection in these two dormitories but, that could change depending on what is installed for hot water heating equipment and equipment that is used to supplement the geo-thermal heating. Simple to address – change out appropriate smoke detectors in the alarm system to combination smoke/carbon monoxide detection.*

**1003.5 Elevation change.** Where changes in elevation of less than 12 inches exist in the means of egress, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal ramps complying with Section 1012 shall be used. Where the difference in elevation is 6 inches or less, the ramp shall be equipped with either handrails or floor finish materials that contrast with adjacent floor finish materials.

**Exception:**

1. A single step with a maximum riser height of 7 inches is permitted for buildings with occupancies in Groups R-2 and R-3 at exterior doors not required to be accessible by Chapter 11.
2. A stair with a single riser or with two risers and a tread is permitted at locations not required to be accessible by Chapter 11 where the risers and treads comply with Section 1011.5, the minimum depth of the tread is 13 inches and not less than one handrail complying with Section 1014 is provided within 30 inches of the centerline of the normal path of egress travel on the stair.

**1030.1 General.** In addition to the means of egress required by this chapter, emergency escape and rescue openings shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one exit or access to only one exit.
2. Group R-3 and R-4 occupancies.
3. Basements and sleeping rooms below the fourth story above grade plane shall have not fewer than one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.

*BERGERON TECHNICAL NOTE: In both dormitories the R-2 occupancy areas are provided two means of egress so EERO are not required. There is no exception provided for the R-3 occupancies however which means the faculty residence units are required to provide EERO and additionally and frankly intriguing, at least one EERO is required from the basement areas of both the R-2 and R-3 occupancies. We are researching this "basement thing" further as EERO openings from the basement level have more extensive requirements outside the buildings.*

**1208.2 Attic spaces.** An opening not less than 20 inches by 30 inches shall be provided to any attic area having a clear height of over 30 inches. Clear headroom of not less than 30 inches shall be provided in the attic space at or above the access opening.

**Bergeron Technical Notes and Observations Specifically Related to the International Existing Building Code**

**Kilton and Welch Dormitories** – Per IEBC 301.3 and 301.3.2, the review of the project documents to determine compliance with the New Hampshire State Building Code will be performed in accordance with the requirements of the Work Area Compliance Method per the requirements of Chapter 6 of the International Existing Building Code.

**603.1 Scope & 603.2 Application** - Level 2 alterations include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment. *We believe the alterations proposed in both dormitories are classified as Level 2 Alterations. Level 2 Alterations are required to comply with the requirements of Chapter 7 (Level 1 Alterations) as well as the requirements of Chapter 8.*

**701.4 Emergency escape and rescue openings (EERO).** Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates, or similar devices placed over emergency escape and rescue openings shall comply with the minimum net clear opening size required by the code that was in effect at the time of construction. Such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, grates or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings. Smoke alarms shall be installed in accordance with Section 907.2.10 of the International Building Code regardless of the valuation of the alteration. *Interestingly this Section, although not mentioned in the title, combines the requirements for smoke alarms in with the requirements of EERO. Because this project contains both R-2 and R-3 occupancies, the provisions of 907.2.9 of IBC apply and therefore, a fire alarm system and smoke alarms are required.*

*Specific details:*

- *Manual fire alarm initiating pull boxes are not required as the buildings will be protected throughout by an NFPA 13 compliant sprinkler system.*
- *Single and multiple station smoke alarms are required on the ceiling or wall outside of each sleeping area in the immediate vicinity of the sleeping rooms, in each sleeping room, on each story of the buildings including the basements.*
- *The location of smoke alarms shall comply with the requirements of NFPA 72, specifically regarding the relationship of device location in comparison to cooking appliances and bathrooms.*
- *Smoke alarms shall be powered by the buildings primary power (electrical) system and shall also be equipped with battery backup.*
- *Because the full fire alarm system is required, "system" smoke detection devices can be installed in place of single and multiple station smoke alarms referenced above.*



- *Initiation (activation) of a smoke detector inside a dormitory room or dwelling unit (faculty residence) shall (at first) activate occupant notification only within the initiating room or dwelling unit and shall provide a supervisory signal to a full-time monitored location.*

**702.1 and 702.2 Interior finishes and floor finishes.** Newly installed interior wall and ceiling finishes and/or newly installed floor finishes shall comply with Chapter 8 of the International Building Code. *New interior finish materials shall comply with all requirements for new materials as detailed within the IBC.*

**702.4 Window opening control devices on replacement windows.** In Group R-2 or R-3 buildings containing dwelling units, window opening control devices complying with ASTM F2090 *shall be installed where an existing window is replaced and where all of the following apply to the replacement window:*

1. The window is operable.
2. The window replacement includes replacement of the sash and the frame.
3. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter sphere when the window is in its largest opened position.
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches.

After operation to release the control device allowing the window to fully open, the window opening control device shall not reduce the minimum net clear opening area of the window unit to less than the required dimensions as follows:

- **1030.2 Minimum size.** Emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet except the minimum net clear opening for grade floor emergency escape and rescue openings shall be a minimum of 5 square feet.
- **1030.2.1 Minimum dimensions.** The minimum net clear opening height dimension shall be 24 inches. The minimum net clear opening width dimension shall be 20 inches. The net clear opening dimensions shall be the result of normal operation of the opening.
- **1030.3 Maximum height from floor.** Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches measured from the floor.

**702.5 Replacement window emergency escape and rescue openings.** *Where windows are required to provide emergency escape and rescue openings in EXISTING Group R-2 and R-3 occupancies replacement windows shall be exempt from the dimensional requirements detailed above provided that the replacement window meets the following conditions:*

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening.
2. The replacement window is not part of a change of occupancy.
3. Window opening control devices complying with ASTM F2090 shall be installed on replacement windows.

**702.6 Materials and methods.** New work shall comply with the materials and methods requirements in the International Building Code, International Energy Conservation Code, International Mechanical Code, International Plumbing Code, and the National Electric Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building. *While I don't think this will surprise anyone – I carried this forward as a "just in case."*

**703.1 General.** Alterations shall be done in a manner that maintains the level of fire protection provided. *Similar to the above – I carried this forward.*

**704.1 General.** Alterations shall be done in a manner that maintains the level of protection provided for the means of egress. *Similar to the above – I carried this forward.*

**705.1 General.** Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the International Building Code.

**705.2 Structural and construction loads.** Structural roof components shall be capable of supporting the roof-covering system and the material and equipment loads that will be encountered during installation of the system.

**705.3 Roof replacement.** Roof replacement shall include the removal of all existing layers of roof coverings down to the roof deck. *There is an exception – that being if there are existing adhered ice barrier materials. Those materials can remain however a new layer is required to be installed atop the existing.*

**705.3.1 Roof recover.** The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. The new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof panel systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, are installed.
3. Metal panel, metal shingle and concrete and clay tile roof coverings are installed over existing wood shake roofs in accordance with Section 705.4.
4. A new protective roof coating is applied over an existing protective roof coating, a metal roof panel, metal roof shingles, mineral-surfaced roll roofing, a built-up roof, modified bitumen roofing, thermoset and thermoplastic single-ply roofing or a spray polyurethane foam roofing system.

**705.6 Flashings.** Flashings shall be reconstructed in accordance with approved manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

**706.2 Addition or replacement of roofing or replacement of equipment.** Any existing gravity load-carrying structural element for which an alteration causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the International Building Code for new structures.

**Exceptions:**

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the International Building Code or the provisions of the International Residential Code.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot or less over an existing single layer of roof covering.

**706.3.2 Roof diaphragms resisting wind loads in high-wind regions.** Where the intended alteration requires a removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed, in accordance with Figure 1609.3(1) of the IBC, or in a special wind region as defined in Section 1609 of the IBC, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to wall connections shall be evaluated for the wind loads specified in the IBC, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code. *This may be relative for this project. The structural*

*design team will want to comment on this as Figure 1609.3(1) in IBC shows this area of New Hampshire to be close to a "special wind region". They may need to use elevated wind speeds for wind loading design at this project.*

**Bergeron Technical Notes and Observations Specifically Related to the NFPA 101 "Life Safety Code"**

**28.2.1.2** Means of escape within the guest room or guest suite shall comply with the provisions of Section 24.2 for one- and two-family dwellings.

**28.2.4.1** Means of egress shall comply with all of the following, except as otherwise permitted by 28.2.4.2 and **28.2.4.3**:

- (1) The number of means of egress shall be in accordance with Section 7.4.
- (2) Not less than two separate exits shall be provided on every story.
- (3) Not less than two separate exits shall be accessible from every part of every story

**7.4.1.1** The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions:

- (1) A single means of egress shall be permitted where permitted in Chapters 11 through 43.
- (2) A single means of egress shall be permitted for a mezzanine or balcony where the common path of travel limitations of Chapters 11 through 43 are met.

**42.2.4.1** The number of means of egress shall comply with any of the following:

- (1) In low hazard storage occupancies, a single means of egress shall be permitted from any story or section. *NOTE: This is not a low hazard storage occupancy – so not applicable.*
- (2) In ordinary hazard storage occupancies, a single means of egress shall be permitted from any story or section, provided that the exit can be reached within the distance permitted as a common path of travel. *NOTE: Table 42.2.5 tells us that for an "ordinary hazard storage occupancy" that is sprinkler protected, the common path of travel distance allowable is 100'.*

**28.2.8 Illumination of Means of Egress.** Means of egress shall be illuminated in accordance with Section 7.8

**7.8.1.2** Illumination of means of egress shall be continuous during the time that the conditions of occupancy require that the means of egress be available for use, unless otherwise provided in 7.8.1.2.2.

**7.8.1.2.1** Artificial lighting shall be employed at such locations and for such periods of time as are necessary to maintain the illumination to the minimum criteria values herein specified.

**7.8.1.2.2** Unless prohibited by Chapters 11 through 43, automatic lighting control devices shall be permitted to temporarily turn off the illumination within the means of egress, provided that each lighting control device complies with all of the following:

- (1) In new installations, the lighting control device is listed.
- (2) The lighting control device is equipped to automatically energize the controlled lights upon loss of normal power and is evaluated for this purpose.
- (3) Illumination timers are provided and are set for a minimum 15-minute duration.
- (4) The lighting control device is activated by any occupant movement in the area served by the lighting units.
- (5) In new installations, the lighting control device is activated by activation of the building fire alarm system, if provided.
- (6) The lighting control device does not turn off any lights relied upon for activation of photoluminescent exit signs or path markers.
- (7) The lighting control device does not turn off any battery equipped emergency luminaires, unit equipment, or exit signs.

**7.8.1.2.3** Energy-saving sensors, switches, timers, or controllers shall be approved and shall not compromise the continuity of illumination of the means of egress required by 7.8.1.2.

**7.9.1.1** Emergency lighting facilities for means of egress shall be provided in accordance with Section 7.9.

**7.9.2.1** Emergency illumination shall be provided for a minimum of 1 ½ hours in the event of failure of normal lighting.

**7.9.2.1.1** Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 ft-candle and, at any point, not less than 0.1 ft candle measured along the path of egress at floor level.

**28.2.10 Marking of Means of Egress.** Means of egress shall have illuminated EXIT signs and directional signage in accordance with Section 7.10.

**7.2.1.3.1** The elevation of the floor surfaces on both sides of a door opening shall not vary by more than ½ inch, unless otherwise permitted by 7.2.1.3.5, 7.2.1.3.6, or 7.2.1.3.7. *NOTE: none of the exceptions are applicable so therefore, this is more restrictive than the IBC requirements and therefore take precedence.*

**ELEVATOR NOTES** – Although both the International Building Code and the Life Safety Code have elevator related requirements, our past experience has shown that the New Hampshire Department of Labor, the group that permits, inspects and signs off on elevators in New Hampshire only care about their code and frankly, do not pay much (if any attention) to IBC and/or NFPA requirements and because they hold the licensing for elevators and lifts, no one argues their requirements. Our review of their website <https://www.nh.gov/labor/laws/index.htm> directed us to the ASME A17.1/CSA B44 – 2019 Safety Code for Elevators and Escalators. We cannot emphasize enough that you should contact this agency very early in the process to initiate the elevator permitting and plan review.

### **New Construction (Additions) International Building Code, 2018 Edition – Accessibility Requirements**

#### **Section 1009 Accessible Means of Egress**

**1009.1 Accessible Means of Egress Required.** Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress is required by Section 1006.2 or 1006.3 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

**1009.2 Continuity and components.** accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components:

1. Accessible routes complying with Section 1104
2. Interior exit stairways complying with 1009.3 or 1023.
3. Exit access stairways complying with 1009.3, 1019.3 or 1019.4.
4. Exterior exit access stairs complying with 1009.3 and 1027, serving levels other than the level of exit discharge.
5. Elevators complying with 1009.4.
6. Platform Lifts complying with 1009.5.
7. Horizontal exits complying with Section 1026
8. Ramps complying with Section 1012
9. Areas of Refuge complying with Section 1009.6
10. Exterior areas of assisted rescue complying with Section 1009.7

**1009.4 Elevators.** In order to be considered part of an accessible means of egress elevators shall:

**1009.4.1 Standby power:** The elevator shall meet emergency operation and signaling requirements of Section 2.27 of ASME A17.1.

**1009.7 Exterior areas for assisted rescue.** Exterior areas for assisted rescue shall be accessed by an accessible route from the area served. Where the exit discharge does not include an accessible route from an exit located on the LOED to a public way an EAAR shall be provided on the exterior landing

**1009.7.1 Size.** Exterior areas for assisted rescue shall be sized to accommodate wheelchair spaces in accordance with 1009.6.3.

**1009.7.2 Separation. Exception:** Fire resistance rating and opening protectives shall not be required in the exterior wall where building is equipped with a 13 or 13R system

**1009.7.3 Openess.** The exterior areas for assisted rescue shall be open to the outside air. The sides shall be no less than 50% open and the open area shall be distributed so as to minimize the accumulation of smoke.

**1009.8 Two-way communication.** A two-way communications system shall be provided on the landing serving each elevator on each accessible floor that is one or more stories above or below the LOED

**1009.8.1 System requirements.** shall provide communication between the required location and the fire command center or a central control point location approved by the fire department. The two-way communications system shall include both audible and visible signals.

**1009.8.2 Directions.** Directions to use the two-way communications system, instructions for summoning assistance via the TWCS and written identification of the system shall be posted adjacent to the TWCS, and signage shall comply with ICC A117.1.

*There does not appear to be two compliant accessible means of egress from either level of the Kilton or Welch additions. Chapter 11 items will address the main floor further. Please note since this is an R-2 occupancy, and the building is protected throughout by an automatic sprinkler system that areas of refuge are not required as it is assumed that the sleeping rooms will provide a space to shelter-in-place while awaiting assistance.*

*This section applies only to the new construction and does not apply to existing buildings as existing buildings are not required to be provided with accessible means of egress.*

## **Chapter 11 Accessibility**

**1104.5 Location.** Accessible routes shall coincide with or be located in the same general area as a general circulation path. Where the circulation path is interior, the accessible route shall be interior. Where only one accessible route is provided it shall not pass through kitchens, storage rooms, restrooms, closets or similar spaces. Exception: Kitchens in accessible, Type A or Type B dwelling units.

**NH Amended 1105.1 Public Entrances.** In addition to accessible entrances required in 1105.1.1 through 1105.1.9 at least 60 percent of all public entrances shall be accessible.

**NH Amended 1105.1.8 Automatic door openers.** At least one accessible public entrance in Group R-2 shall be equipped with either a full power-operated or low energy power-operated automatic door opener in compliance with A1171.1.

IBC Public Entrance Definition: An entrance that is not a service entrance or a restricted entrance. A door that serves as an entrance for residents with keys is considered a public entrance.

**1105.1.3 Restricted entrances.** Where restricted entrances are provided into a building, at least one restricted entrance shall be accessible.

*The buildings appear to have only one accessible entrance at the main entry to the dorms.*

**1105.1.7 Dwelling units and sleeping units.** At least one accessible entrance shall be provided to each dwelling unit and sleeping unit in a facility.

Exception: entrances to dwelling units not required to be Accessible, Type A or Type B units.

**1106.2 Groups I-1, R-1, R-2, R-3 and R-4.** In Group R-2 & R-3 at least 2 percent but not less than one of each type of parking spaces provided shall be accessible.

**1106.6 Location.** Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to the accessible building entrance.

**1107.2 Design.** Dwelling unit and sleeping units designed to be Accessible units, Type A units or Type B units shall comply with Chapter 10 of ICC A117.1.

**1107.3 Accessible Spaces.** Rooms and spaces available for use by residents and serving accessible units, Type A units and Type B units shall be accessible. Accessible spaces shall include kitchens, toilet and bathing rooms, living and dining areas, and any exterior spaces including patios, terraces, and balconies.

#### **ICC A117.1: 611 Washing Machines and Clothes Dryers.**

**611.2 Clear Floor Space.** A clear floor space complying with Section 305 (30x42) positioned for a parallel approach shall be provided. For top load machines the clear floor space shall be centered on the appliance, for front load machines the centerline of the clear floor space shall be offset 24 inches maximum from the centerline of the door opening.

**611.3 Operable Parts.** Operable parts including doors, lint screens, detergent and bleach compartments shall comply with Section 309.

**611.4 Height.** Top loading machines shall have the door to the laundry compartment 36 inches maximum above the floor. Front loading machines shall have the bottom of the opening to the laundry compartment 15 inches minimum and 36 inches maximum above the floor.

**1107.4 Accessible route.** Not fewer than one accessible route shall connect accessible building or facility entrances with the primary entrance of each accessible unit, Type A unit and Type B unit within the building and with those interior and exterior spaces and facilities serving those units.

**Exception 4:** In other than Group R-2 dormitory housing provided by places of education an accessible route is not required to stories or mezzanines where Accessible units, all common use areas serving Accessible units and all public use areas are on an accessible route.

*This exception to 1107.4 specifically requires school dormitories to provide an accessible route to all stories of the building, and requires all stories of the building to be accessible.*

**117.6.2.3 Group R-2 other than live/work units, apartment houses and convents.** Accessible and Type B units shall be provided in accordance with 1107.6.2.3.1 and 1107.6.2.3.2.

**1107.6.2.3.1 Accessible units.** Accessible units shall be provided in accordance with Table 1107.6.1.1.

#### **ICC A117.1 1002 Accessible Units**

**1002.2 Primary Entrance.** The accessible unit primary entrance shall be on an accessible route from public and common areas.

**1002.3.2 Turning Space.** All rooms served by an accessible route shall provide a turning space. Exception: turning spaces are not required in closets or pantries that are 48 inches maximum in depth.

**1002.9 Operable Parts.** Operable parts shall comply with Section 309.

**309.2 Clear Floor Space.** A clear floor space complying with Section 305 (30x42) shall be provided.

**309.3 Operable Parts.** operable parts shall be placed within one of the reach ranges specified in Section 308.

**308.2.1 Forward Reach, Unobstructed.** high reach shall be 48 inches max above floor, low reach shall be 15 inches minimum above floor.

**308.2.2 Forward Reach, Obstructed High.** High reach over an obstruction having a depth of 20 inches maximum shall be 48 inches above the floor, maximum. Where the reach depth exceeds 20 inches the high forward reach shall be 44 inches maximum above the floor and the reach depth shall be 25 inches maximum.

**308.3.1 Side Reach, Unobstructed.** High reach shall be 48 inches maximum, and the low reach shall be 15 inches minimum. (Up to 10 inches of reach depth permitted).

**308.3.2 Side Reach, Obstructed High.** obstruction depth of 24 inches maximum shall have a reach height of 34 inches maximum. Obstruction depth of 10 to 24 inches shall have a maximum reach height of 46 inches.

**309.4 Operation.** Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Maximum force required to activate operable parts shall be no greater than 5.0 pounds (22.2 N).

**1002.13 Windows.** Operable windows shall comply with Sections 309.2 and 309.3. Operable windows required to provide emergency escape and rescue opening shall comply with Section 309.2.

**1002.15 Beds.** A clear floor space complying with Section 305 (30x42) shall be provided on both sides of the bed. The clear floor space shall be positioned for a parallel approach to the side of the bed.

**1107.6.2.3.2 Type B units.** Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit shall be a Type B unit.

#### **ICC A117.1 1004 Type B Units**

**1004.2 Primary Entrance.** The accessible unit primary entrance shall be on an accessible route from public and common areas.

**1004.3 Accessible Route.** Accessible routes in Type B units shall connect all spaces and elements that are part of the unit. Accessible routes shall coincide with the general circulation path.

**1004.9 Operable Parts.** Operable parts shall comply with Section 309

**1107.6.3 Group R-3.** Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit shall be a Type B unit.

**1108.2 Assembly area seating.** Dining areas shall comply with Section 1108.2.9.

**1108.2.9 Dining and drinking areas.** In dining and drinking areas, all interior and exterior floor areas shall be accessible and be on an accessible route.

**1108.2.9.1 Dining surfaces.** At least 5%, but no less than 1 of dining surfaces provided for the consumption of food or drink shall be accessible and shall be distributed throughout the facility and located on a level accessed by an accessible route.

#### **ICC A117.1 902 Dining Surfaces and Work Surfaces**

**902.2 Clear Floor Space.** A clear floor space complying with Section 305, positioned for a forward approach shall be provided.

**902.3 Exposed Surfaces.** There shall be no sharp or abrasive surfaces under the exposed portions of the dining surfaces or work surfaces.

**902.4 Height.** Tops of dining surfaces and work surfaces shall be 28 inches minimum and 34 inches maximum in height above the floor.

**1108.3 Self storage facilities.** Self-storage facilities shall provide accessible individual self-storage spaces at a rate of at least 5%, but no less than 1.

#### **ICC A117.1 905 Storage Facilities**

**905.2 Clear Floor Space.** A clear floor space complying with Section 305 (30x42) shall be provided.

**905.3 Height.** Accessible storage elements shall comply with at least one of the reach ranges specified in Section 308.

**1109.3 Sinks.** Where sinks are provided at least 5 percent but no less than 1 provided in accessible spaces shall be accessible.

#### **ICC A117.1 606 Lavatories and Sinks**

**606.2 Clear Floor Space.** A clear floor space complying with Section 305, positioned for a forward approach shall be provided.

**606.3 Height.** The front of sinks shall be 34 inches maximum above the floor, measured to the higher of the rim or counter surface.

**606.4 Faucets.** Faucets shall comply with Section 309.

**1109.4 Kitchens and kitchenettes.** Where kitchens are provided in accessible spaces or rooms, they shall be accessible.

#### **ICC AA117.1 804 Kitchens and Kitchenettes**

**804.3 Work Surface.** At least one work surface shall be provided in accordance with Section 902.

**804.5.1 Clear Floor Space.** A clear floor space complying with Section 305 (30x42) shall be provided at each kitchen appliance.

**804.5.2 Operable Parts.** All appliance controls shall comply with Section 309. Exceptions: appliance doors shall not be required to comply with Section 309.4 & bottom hinged appliance doors shall not be required to comply with Section 309.3.



**804.5.3 Dishwasher.** Dishwasher clear floor space shall be located adjacent to the dishwasher door. Dishwasher door when open shall not obstruct the clear floor space for the dishwasher or adjacent sink.

**804.5.4 Cooktop.** A clear floor space positioned for a parallel or forward approach to the cooktop shall be provided. Forward approach shall provide knee-toe clearance and parallel approach shall have clear floor space centered on the appliance. The location of controls shall no require reaching across burners.

**804.5.5. Oven.** Ovens clear floor space shall not be obstructed when the oven door is in the open position. A work surface shall be provided positioned adjacent to one side of the door, specifically on the latch side for side-hinged doors. The location of controls shall no require reaching across burners.

**804.6 Refrigerator/Freezer.** Combination refrigerator/freezers shall have at least 50% of the freezer compartment shelves, 54 inches maximum above the floor when shelves are installed at the maximum heights possible in the compartment. The centerline of the clear floor space shall be offset 24 inches from the centerline of the appliance.

**1109.5 Drinking fountains.** Where drinking fountains are required not fewer that two drinking fountains shall be provided. One fountain shall comply with eh requirements for people who use a wheelchair, and one shall comply with requirements for standing persons. A single fountain with two spouts complying with these requirements shall be permitted to be substituted,

**1109.7 Elevators.** Passenger elevators on an accessible route shall be accessible and comply with Chapter 30.

**1109.9 Storage.** Where fixed or built-in storage elements such as cabinets, coat hooks, shelves, medicine cabinets, closets, and drawers are provided in required accessible spaces, at least 5 percent but not less than one of each type shall be accessible. Accessible facilities and spaces shall be provided with the same storage elements as provided in the similar non accessible facilities and spaces.

**1109.11 Seating at tables counters and work surfaces.** Where seating or standing space at fixed or built-in tables, counters or work surfaces is provided in accessible spaces, at least 5 percent bit not less than 1 shall be accessible.

**1109.13 Controls, operating mechanisms, and hardware.** Controls, operating mechanisms, and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets in accessible spaces shall be accessible.

## **Alterations (Existing Buildings) International Existing Building Code, 2018**

### **Section 305 Accessibility for Existing Buildings**

**IEBC 305.5 Additions.** Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with Section 305.7.

**IEBC 305.7 Alterations affecting an area containing a primary function.** The route to the primary function area shall be accessible. The accessible route to the primary function area shall include toilet facilities and drinking fountains serving the area of primary function. The accessible route to the primary function route shall include toilet facilities and drinking fountains serving the area of primary function.

**Exception 5:** This provision does not apply to altered areas limited to Type B dwelling or sleeping units.

*Primary Function: a primary function is a major activity for which the facility is intended.*

**IEBC 305.6 Alterations.** A facility that is altered shall comply with the applicable provisions of Chapter 11 of the International Building Code, unless technically infeasible. Where compliance is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

**Exception 4:** Type B dwelling or sleeping units required by Section 1107 of the International Building Code are not required to be provided in existing buildings and facilities undergoing alterations where the work area is 50 percent or less of the aggregate area of the building.

*Technically infeasible: an alteration of a facility 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 necessary to provide accessibility.*


### 305.8 Scoping for Alterations

**305.8.6 Accessible dwelling or sleeping units.** Where Group R-2 dwelling or sleeping units are being altered or added, the requirements of Section 1107 of the International Building Code for Accessible units apply only to the quantity of spaces being altered or added.

**305.8.8 Type B Units.** Where four or more Group R-2 or R-3 dwelling or sleeping units are being added, the requirements of Section 1107 of the International Building Code for Type B units shall apply only to the quantity of spaces being added. Where Group R-2 or R-3 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

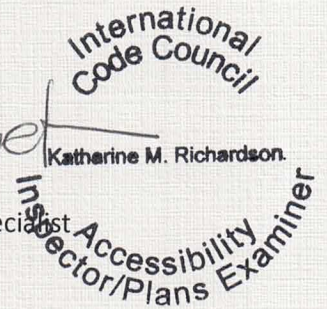
Stefan and Andrea, thank you for asking Bergeron Technical to work with you on this project. As you work through the information that we have provided, feel free to e-mail or call for clarifications and we will respond as quickly as we can. Also, when you think you have a permit-ready plan set, please send those along, along with any specifications, for a final review.

Sincerely,  
Bergeron Technical Services, LLC

  
Shawn G. Bergeron, Sr.  
Manager

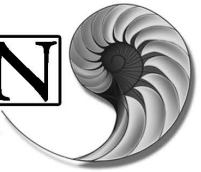


  
Katherine M. Richardson  
Project Manager/Accessibility Specialist



Cc: file





Mr. Stefan Richter, Project Architect  
Vermont Integrated Architecture  
Kimball Union Academy  
Kilton & Welch Buildings

P.O. Box 241  
North Conway, New Hampshire 03860

11 May 2023

Re: Code Review of May 08, 2023 Progress Permit Set

Stephan,

Please accept this letter as Bergeron Technical Services' review of the Progress Permit Set of the Kimball Union Academy Kilton and Welch Buildings, Issued May 08, 2023. Below are several general questions or requirements regarding the plan set, followed by sheet specific items found to be deficient or in need of clarification.

- *There doesn't appear to be a reference to the requirement for fire alarm systems noted on the plans. Will a fire alarm system plan or fire/life safety systems plan be provided with the permitting plan set?*
- *The requirements for the fire protection of the cooking ranges will need to be provided (Section 420.10.1, 904.13 & 904.13.1.1 on BTS Plan review report dated 28 March 2023.)*
- *The locations and requirements for the two-way communications systems required for accessible means of egress will need to be provided. (As noted in the BTS plan review report dated 28 March 2023)*

### **Sheet A-0.0**

*Under Primary State Adopted Codes replace all code references with*

#### **NH State Building Code**

- ICC International Building Code (IBC) 2018 w/NH Amendments
- ICC International Existing Building Code (IEBC) 2018 w/NH Amendments
- ICC A117.1-2009
- ICC International Plumbing Code (IPC) 2018 w/NH Amendments
- ICC International Mechanical Code (IMC) 2018 w/NH Amendments
- ICC International Energy Conservation Code (IECC) 2018 w/NH Amendments
- NFPA 70 National Electric Code 2020 w/NH Amendments

#### **NH State Fire Code**

- NFPA 1, Fire Code 2018
- NFPA 101, Life Safety Code 2018

### **Sheet A-0.2**

*Ensure all accessibility details are in compliance with A117.1-2009, remove references to ADA.*

1. Add 60" turning circle next to "T" turn space detail.
2. Under standard installation heights, the max. height above the floor for reach ranges is 48" – thermostat/temp control detail shown does not comply. Note: both lighting controls and temp.

11 May 2023

controls indicate the mounting height to the bottom of the control, but these should be to the center of the control.

3. Shower details are shown for a roll-in shower, but it appears that a transfer shower unit will be the only accessible type installed in either building. Please remove roll-in shower details and provide detail on this sheet for the transfer-type shower to be used.
4. Water closet/toilet details should also provide vertical details (elevation view) including vertical grab bar(s) and toilet paper dispenser requirements. Note: Toilet Compartment details show the rear grab bar required to be 2' min from the center of the water closet to the sidewall – this should be 1' or 12". – See ICC A117.1-2009 Figure 604.5.2. Are ambulatory water closets included in either building?
5. Under Maneuvering Clearances at Doors, the Hinge approach, push side with closer and latch detail is not correct (additional 12" clearance beyond latch side of door required) – See ICC A117.1-2009 Figure 404.2.3.2(e).

#### **Sheet AK-0.4**

1. Please note that items 1 and 3 through 10 on the BTS plan review report dated 28 March 2023 have not been revised/corrected on this sheet.
2. **ADDED:** Plan 2, First Floor: Corridor walls at Baths 110 & 109 and the JC need to be indicated as ½ hour rated.
3. **ADDED:** Also shaft behind closet in Room 104 needs ½ hr rating indication. Room 206 above is good.

#### **Sheet AK-0.5**

1. Floor Detail FC1, add spacing requirement for resilient channel as required per UL M502 (12"). UL M502 requires American Gypsum Co. ½" or 5/8" Type C gypsum, to be used.

#### **Sheet AK-0.6**

1. Wall Type 1XP, how is this wall type the same as 1P with a higher fire-resistance rating?

#### **Sheet AK-2.1**

1. Please confirm Basement laundry room complies with A117.1 Section 611 for room, including clear floor spaces and laundry appliances.

#### **Sheet AK-2.2**

1. Confirm entry vestibules meet the requirements of A117.1 Section 404.2.5, including min. 48" between door swings and a turning space of 60" diameter.
2. It is unclear if there are accessible showers on the first story. There must be an accessible bathing room on the first story if bathing rooms are provided on the first floor. (IBC 1109.2)
3. Confirm the kitchen has 60" between the island and the refrigerator/range (See A117.1 Section 804.2.2)
4. The room label "ADA Single" should really be "Accessible Single". This room is required to meet the IBC/A117.1 requirement for an accessible sleeping room, which exceeds the ADA Technical Standard requirements.

**Sheets AK3.1 through AK-3.3**

1. Will electrical engineering plans provide lighting fixture details, switching & receptacle locations?
2. **ADDED:** Attic hatch in New Faculty Residences?

**Sheets AK7.1 & AK-7.2**

1. Work surface is required where range is provided (cannot be removable cabinets where accessible common space) per A117.1 Sections 1002.12 & 804.3.
2. Please note that Refrigerator/Freezer must provide at least 50% of freezer shelving no higher than 54" above the floor per A117.1 Section 804.5.6.
3. **ADDED:** The sink in the kitchen needs to be accessible in accordance with A117.1 Section 606.

**Sheet AK-7.4**

1. Fixture elevations are missing dimensioning for height requirements.
2. Water closets require horizontal and vertical grab bars.
3. Again. At least one of the bathrooms on the first story must have all fixtures fully accessible including shower.

**Sheet AK-7.5**

1. Sidewall at water closet on Detail 5 is missing vertical grab bar, per A117.1 Section 604.5.1
2. Confirm that toilet paper dispenser dimensions shown on Detail 5 meets requirements of A117.1 Section 604.7

**Sheet AK-8.4**

1. Detail 1 shows "EQUAL RISES +/- xx" please provide approximate rise (IBC 1011.5.2 requires risers to be 4" min. to 7" max.)

**Sheet AK-10.4**

1. All doors within the ½ hour rated walls along the corridor must be 20 minutes rated. Examples: bathrooms (Doors 109, 100, 212, etc.) and janitors closets (Doors 111, 213). Doors also must be self-closing and latching.

**Sheet AK-10.6**

1. On both details, please fill in the Floor and Wall assembly detail that is being referenced on Sheet AK-0.5.

**Sheet AW-0.4**

1. See notes for Sheet AK-0.4.
2. Indicate ½" hour rating at shafts on Plan 1 at Room 204, Plan 2 at Rooms 101, 102 & 104.
3. Two-way Communication needs to be located on the landing serving the LULA on both the second story & basement levels per IBC 1009.8 (move from stairway on second story and add to basement) Also applies to Kilton.
4. Indicate fire extinguisher within 30 feet of dorm kitchen.

**Sheet AW-0.5**

1. Same note as Sheet AK-0.5.

**Sheet AW-2.2**

1. Confirm entry vestibules meet the requirements of A117.1 Section 404.2.5, including min. 48” between door swings and a turning space of 60” diameter.
2. Confirm the kitchen has 60” turning space clearance.
3. Same note re: “ADA” labels. “Accessible” would be more appropriate.

**Sheet AW-3.3**

1. Attic hatch in new Faculty Residence required? (Clear height of 30” or more above?)

**Sheet AW-6.3**

1. Detail 3 has an unreferenced wall detail (W??).

**Sheet AW-7.1, AW-7.2 AW-7.4, AW-7.5**

1. Kitchen must have a compliant work surface per A117.1 Section 804.3
2. The sink in the kitchen needs to be accessible in accordance with A117.1 Section 606.
3. Note that Sheet AW-7.1. Details 4 and 5 need to demonstrate 5% of shelving, hooks and other storage elements must be accessible per IBC Section 1109.9 and A117.1 Section 905.
4. Sheet AW-7.2 Details 5 & 7 are missing the required vertical grab bar at the water closet per A117.1 Section 604.5.1 (Also Details 6 & 7 Sheet AW-7.4 & Detail 5 Sheet AW-7.5)
5. Confirm that toilet paper dispenser dimensions shown on Detail 5 meets requirements of A117.1 Section 604.7 (Also Detail 7 Sheet AW-7.4)
6. Sheet AW-7.4 Detail 5, accessible shower clear space is overlapped by dark line extending from the wall. (May be a layering item with wall having been pulled back to accommodate the clearance during revisions??)
7. Ensure all dispensers in accessible bathrooms and restrooms meet reach range/operable parts requirements. (Dimension height above floor).

**Sheet AW-8.1 or 8.4**

1. Please note min tread depth and min/max riser height for stairs in dormitories somewhere on these sheets.

**Sheet AW-10.4**

1. See notes for Sheet AK10.4 regarding doors that are in a fire-rated corridor wall.

Please contact our office with any questions.

Sincerely,

  
Kate Richardson

Project Manager

