



August 14, 2015

Lee's Summit Missouri, Codes Administration
Attn: Joe Frogge
220 SE Green Street
Lee's Summit, Missouri 64063

Permit No: PRCOM20141214
Project Title: ABUNDANT LIFE BAPTIST CHURCH AUDITORIUM AND EDUCATION FACILITIES
Project Address: 1302 SW JEFFERSON ST, LEES SUMMIT, MO 640811304 SW JEFFERSON ST, LEES SUMMIT, MO 640811306 SW JEFFERSON ST, LEES SUMMIT, MO 640811308 SW JEFFERSON ST, LEES SUMMIT, MO 64081302 SW PERSELS RD, LEES SUMMIT, MO 64081320 SW PERSELS RD, LEES SUMMIT, MO 64081304 SW PERSELS RD, LEES SUMMIT, MO 64081
Parcel Number: 6144009250000000061440093201000000614400932020000006144009240000 0000 614400943000000006144009440000000061440092100000000
Location: CLEARVIEW ACRES RES LOT 2
Type of Work: NEW COMMERCIAL
Occupancy Group: ASSEMBLY FOR WORSHIP, RECREATION OR AMUSEMENT
Description: AUDITORIUM AND EDUCATION FACILITIES FOR CHURCH Mike Weisenborn
05/22/2014 11:19
AM - WATER SERVICE AND BUILDING SEWER INSPECTIONS PERFORMED BY PUBLIC WORKS

Dear Joe,

Please accept this Code Determination Request letter regarding the catwalk head height/obstruction conversation we recently conducted at in your office.

As you are aware, we have several locations in the catwalk area of the main Auditorium that have "obstructions" as low as 5'-2" above the catwalk walking surface. We are formally requesting your determination as it relates to code conformance of these conditions.

We submit that the language in the attached document (which include excerpts from the 2006 IBC and the 2012 International Building Code Commentary) demonstrate the following:

- 2006 IBC, Section 410.3.2 Galleries, gridirons, catwalks and pinrails..."These areas shall not be considered to be floors, stories, mezzanines or levels applying to this code." The building code measures head height obstructions from floors. Therefore, we understand if the catwalk level is not considered a floor, there can be no head height obstruction.
- 2006 IBC, Section 1015.6.1 Gallery, gridiron and catwalk means of egress...this section appears to describe requirements and exceptions for means of egress "from" lighting and access catwalks. We are unable to find means of egress requirements in the code that apply to the catwalks themselves. Therefore, we understand that catwalks are not part of a means of egress and are not subject to the code requirements of a means of egress described in other sections of the code.
- 2012 International Building Code Commentary, Section 410.6.3.5...this section treats technical production areas not serving the public differently than paths of



egress travel serving public areas. We consider the catwalks to be technical production areas not open to the public that will be used by church staff for occasional maintenance and lighting adjustment. This section goes on to describe acceptable reductions in requirements for paths of egress travel in technical production areas but excludes any reference to head height/obstruction requirements. We submit that this section offers further evidence that the head height/obstruction requirements outlined in other sections of the code do not apply to catwalk areas.

We intend to provide padding for all components within 6'-8" above catwalk walking surfaces as an added measure of safety. The church will also provide safety instruction for all staff accessing the catwalk area to ensure they are well aware of the environmental conditions they will encounter in catwalk areas.

Thanks again for your help with this project. We look forward to your response.

Sincerely,

A handwritten signature in blue ink, appearing to read "Skyler Phelps", with a stylized flourish at the end.

Skyler Phelps, AIA
Vice President

CEILING HEIGHTS & OBSTRUCTIONS (VERTICAL) DO NOT APPLY TO AREAS NOT CONSIDERED FLOORS, MEZZANINES OR LEVELS.

410.3.1.1 Stage height and area. Stage areas shall be measured to include the entire performance area and adjacent backstage and support areas not separated from the performance area by fire-resistance-rated construction. Stage height shall be measured from the lowest point on the stage floor to the highest point of the roof or floor deck above the stage.

410.3.2 Galleries, gridirons, catwalks and pinrails. Beams designed only for the attachment of portable or fixed theater equipment, gridirons, galleries and catwalks shall be constructed of approved materials consistent with the requirements for the type of construction of the building; and a fire-resistance rating shall not be required. These areas shall not be considered to be floors, stories, mezzanines or levels in applying this code.

Exception: Floors of fly galleries and catwalks shall be constructed of any approved material.

410.3.3 Exterior stage doors. Where protection of openings is required, exterior exit doors shall be protected with fire door assemblies that comply with Section 715. Exterior openings that are located on the stage for means of egress or loading and unloading purposes, and that are likely to be open during occupancy of the theater, shall be constructed with vestibules to prevent air drafts into the auditorium.

410.3.4 Proscenium wall. Where the stage height is greater than 50 feet (15 240 mm), all portions of the stage shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending continuously from the foundation to the roof.

410.3.5 Proscenium curtain. Where a proscenium wall is required to have a fire-resistance rating, the stage opening shall be provided with a fire curtain of approved material or an approved water curtain complying with Section 903.3.1.1. The fire curtain shall be designed and installed to intercept hot gases, flames and smoke and to prevent a glow from a severe fire on the stage from showing on the auditorium side for a period of 20 minutes. The closing of the fire curtain from the full open position shall be accomplished in less than 30 seconds, with the last 8 feet (2438 mm) of travel requiring 5 or more seconds for full closure.

410.3.5.1 Activation. The curtain shall be activated by rate-of-rise heat detection installed in accordance with Section 907.10 operating at a rate of temperature rise of 15 to 20°F per minute (8 to 11°C per minute), and by an auxiliary manual control.

410.3.5.2 Fire test. A sample curtain with a minimum of two vertical seams shall be subjected to the standard fire test specified in ASTM E 119 for a period of 30 minutes. The curtain shall overlap the furnace edges by an amount that is appropriate to seal the top and sides. The curtain shall have a bottom pocket containing a minimum of 4 pounds per linear foot (5.9 kg/m) of batten. The exposed surface of the curtain shall not glow, and flame or smoke shall not penetrate the curtain during the test period. Unexposed surface temperature and hose stream test requirements are not applicable to the proscenium fire safety curtain test.

410.3.5.3 Smoke test. Curtain fabrics shall have a smoke-developed rating of 25 or less when tested in accordance with ASTM E 84.

410.3.5.4 Tests. The completed proscenium curtain shall be subjected to operating tests prior to the issuance of a certificate of occupancy.

410.3.6 Scenery. Combustible materials used in sets and scenery shall meet the fire propagation performance criteria of NFPA 701, in accordance with Section 805 and the *International Fire Code*. Foam plastics and materials containing foam plastics shall comply with Section 2603 and the *International Fire Code*.

410.3.7 Stage ventilation. Emergency ventilation shall be provided for stages larger than 1,000 square feet (93 m²) in floor area, or with a stage height greater than 50 feet (15 240 mm). Such ventilation shall comply with Section 410.3.7.1 or 410.3.7.2.

410.3.7.1 Roof vents. Two or more vents constructed to open automatically by approved heat-activated devices and with an aggregate clear opening area of not less than 5 percent of the area of the stage shall be located near the center and above the highest part of the stage area. Supplemental means shall be provided for manual operation of the ventilator. Curbs shall be provided as required for skylights in Section 2610.2. Vents shall be labeled.

[F] 410.3.7.2 Smoke control. Smoke control in accordance with Section 909 shall be provided to maintain the smoke layer interface not less than 6 feet (1829 mm) above the highest level of the assembly seating or above the top of the proscenium opening where a proscenium wall is provided in compliance with Section 410.3.4.

410.4 Platform construction. Permanent platforms shall be constructed of materials as required for the type of construction of the building in which the permanent platform is located. Permanent platforms are permitted to be constructed of fire-retardant-treated wood for Type I, II, and IV construction where the platforms are not more than 30 inches (762 mm) above the main floor, and not more than one-third of the room floor area and not more than 3,000 square feet (279 m²) in area. Where the space beneath the permanent platform is used for storage or any other purpose other than equipment, wiring or plumbing, the floor construction shall not be less than 1-hour fire-resistance-rated construction. Where the space beneath the permanent platform is used only for equipment, wiring or plumbing, the underside of the permanent platform need not be protected.

410.4.1 Temporary platforms. Platforms installed for a period of not more than 30 days are permitted to be constructed of any materials permitted by the code. The space between the floor and the platform above shall only be used for plumbing and electrical wiring to platform equipment.

410.5 Dressing and appurtenant rooms. Dressing and appurtenant rooms shall comply with Sections 410.5.1 through 410.5.3.

410.5.1 Separation from stage. Where the stage height is greater than 50 feet (15 240 mm), the stage shall be separated from dressing rooms, scene docks, property rooms, workshops, storerooms and compartments appurtenant to

sprinkler system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the *International Mechanical Code*.

1015.6 Stage means of egress. Where two means of egress are required, based on the stage size or occupant load, one means of egress shall be provided on each side of the stage.

1015.6.1 Gallery, gridiron and catwalk means of egress.

The means of egress from lighting and access catwalks, galleries and gridirons shall meet the requirements for occupancies in Group F-2.

Exceptions:

1. A minimum width of 22 inches (559 mm) is permitted for lighting and access catwalks.
2. Spiral stairs are permitted in the means of egress.
3. Stairways required by this subsection need not be enclosed.
4. Stairways with a minimum width of 22 inches (559 mm), ladders, or spiral stairs are permitted in the means of egress.
5. A second means of egress is not required from these areas where a means of escape to a floor or to a roof is provided. Ladders, alternating tread devices or spiral stairs are permitted in the means of escape.
6. Ladders are permitted in the means of egress.

SECTION 1016 EXIT ACCESS TRAVEL DISTANCE

1016.1 Travel distance limitations. Exits shall be so located on each story such that the maximum length of exit access travel, measured from the most remote point within a story to the entrance to an exit along the natural and unobstructed path of egress travel, shall not exceed the distances given in Table 1016.1.

Where the path of exit access includes unenclosed stairways or ramps within the exit access or includes unenclosed exit ramps or stairways as permitted in Section 1020.1, the distance of travel on such means of egress components shall also be included in the travel distance measurement. The measurement along stairways shall be made on a plane parallel and tangent to the stair tread nosings in the center of the stairway.

Exceptions:

1. Travel distance in open parking garages is permitted to be measured to the closest riser of open stairs.
2. In outdoor facilities with open exit access components and open exterior stairs or ramps, travel distance is permitted to be measured to the closest riser of a stair or the closest slope of the ramp.
3. Where an exit stair is permitted to be unenclosed in accordance with Exception 8 or 9 of Section 1020.1, the travel distance shall be measured from the most remote point within a building to an exit discharge.

CATWALKS ARE MAINTENANCE/WORK AREAS NOT PART OF A MEANS OF EGRESS SYSTEM.

TABLE 1016.1
EXIT ACCESS TRAVEL DISTANCE^a

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, I-1, M, R, S-1	200	250 ^b
B	200	300 ^c
F-2, S-2, U	300	400 ^c
H-1	Not Permitted	75 ^c
H-2	Not Permitted	100 ^c
H-3	Not Permitted	150 ^c
H-4	Not Permitted	175 ^c
H-5	Not Permitted	200 ^c
I-2, I-3, I-4	150	200 ^c

For SI: 1 foot = 304.8 mm.

- a. See the following sections for modifications to exit access travel distance requirements:
Section 402: For the distance limitation in malls.
Section 404: For the distance limitation through an atrium space.
Section 1016.2 For increased limitations in Groups F-1 and S-1.
Section 1025.7: For increased limitation in assembly seating.
Section 1025.7: For increased limitation for assembly open-air seating.
Section 1019.2: For buildings with one exit.
Chapter 31: For the limitation in temporary structures.
- b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems in accordance with Section 903.3.1.2 are permitted.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

1016.2 Roof vent increase. In buildings that are one story in height, equipped with automatic heat and smoke roof vents complying with Section 910 and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the maximum exit access travel distance shall be 400 feet (122 m) for occupancies in Group F-1 or S-1.

1016.3 Exterior egress balcony increase. Travel distances specified in Section 1016.1 shall be increased up to an additional 100 feet (30 480 mm) provided the last portion of the exit access leading to the exit occurs on an exterior egress balcony constructed in accordance with Section 1014.5. The length of such balcony shall not be less than the amount of the increase taken.

SECTION 1017 CORRIDORS

1017.1 Construction. Corridors shall be fire-resistance rated in accordance with Table 1017.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.

Exceptions:

1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has at least one door directly to the exterior and rooms for assembly purposes have at least one-half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.

resistance-rated fire barrier and horizontal assemblies. Rooms appurtenant to the stage often have very high fuel loads (i.e., property rooms and activities with a history of fire incidents, such as scenery workshops). This additional level of fire containment is intended to minimize fire growth and limit fires in these areas to the room of origin.

410.6 Means of egress. Except as modified or as provided for in this section, the provisions of Chapter 10 shall apply.

- ❖ The general means of egress requirements in Chapter 10 are applicable to stages, platforms and technical production areas except where modified by this section. The modifications provided in this section provide adjustments to the Chapter 10 general egress provisions because of the uniqueness of stage areas.

410.6.1 Arrangement. Where two or more *exits* or *exit access doorways* from the *stage* are required in accordance with Section 1015.1, no fewer than one *exit* or *exit access doorway* shall be provided on each side of a *stage*.

- ❖ Because of the relative fire hazards associated with stages, this section requires that a minimum of one approved means of egress be provided from each side of the stage if at least two means of egress are required based on the provisions of Section 1015.1. This is intended to provide the occupants of a stage ready access to evacuate the stage area in the event of a fire. Where the occupant load of the stage is such that only one means of egress is required by Section 1015.1, then it is not necessary to provide an exit or exit access doorway on both sides of the stage.

410.6.2 Stairway and ramp enclosure. *Exit access stairways* and *ramps* serving a *stage* or *platform* are not required to be enclosed. *Exit access stairways* serving *technical production areas* are not required to be enclosed.

- ❖ Exit access stairways that serve a stage, platform or technical production areas do not require enclosure due to the nature of the activities involved.

410.6.3 Technical production areas. *Technical production areas* shall be provided with means of egress and means of escape in accordance with Sections 410.6.3.1 through 410.6.3.5.

- ❖ A variety of special means of egress provisions are provided for technical production areas that take into account the unique characteristics of such areas. Defined in Section 202, technical production areas include all technical support areas regardless of their traditional name (fly gallery, gridiron). The provisions of Section 410.6.3 reflect the special allowances for minimum number of means of egress, maximum travel distance, allowable exit access components and minimum travel path width. It should be noted that these provisions are also applicable to those "technical production areas" that are not necessarily associated with a stage or platform, such as those that are present at a sports arena or stadium.

410.6.3.1 Means of egress. No fewer than one *means of egress* shall be provided from *technical production areas*.

- ❖ Fly galleries, gridirons and other technical production areas are ordinarily occupied by a few persons at any one time who are likely to be very familiar with the stage operations. As such, these areas need only be provided with one approved means of egress.

410.6.3.2 Travel distance. The length of *exit access* travel shall be not greater than 300 feet (91 440 mm) for buildings without a sprinkler system and 400 feet (121 900 mm) for buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

- ❖ The travel distance limitations reflect the limited hazard presented by technical production areas, the limited number of persons affected, and the necessary extent of such areas that would cause such distances to be reasonable.

410.6.3.3 Two means of egress. Where two *means of egress* are required, the *common path of travel* shall be not greater than 100 feet (30 480 mm).

Exception: A means of escape to a roof in place of a second *means of egress* is permitted.

- ❖ In those cases where a second means of egress from a technical production area is required, typically where the travel distance limits of Section 410.6.3.2 cannot be met, it is necessary to limit the common path of travel to 100 feet (30 480). This ensures that limited occupant travel will be necessary before the occupants have a choice of two paths that lead to the two required means of egress. The exception permits one of the means of egress to lead to the roof where at least two means of egress are provided.

410.6.3.4 Path of egress travel. The following *exit access* components are permitted where serving *technical production areas*:

1. *Stairways*.
2. *Ramps*.
3. *Spiral stairways*.
4. *Catwalks*.
5. *Alternating tread devices*.
6. *Permanent ladders*.

- ❖ Due to the reduced hazards previously described, a variety of exit access components may be utilized throughout the means of egress serving technical production areas. In addition to stairways and ramps, the egress path may include spiral stairways as addressed in Section 1009.12, alternating tread devices as described in Section 1009.13, and permanent ladders.

410.6.3.5 Width. The path of egress travel within and from technical support areas shall be not less than 22 inches (559 mm).

- ❖ Since the means of egress from a technical production area will not be used by the public nor will it serve

a significant occupant load, it is considered acceptable that a reduced egress width be provided. The required minimum width of 22 inches (559 mm) is applicable to all of the exit access components serving only the technical production areas, including stairways, ramps, spiral stairways, alternating tread devices and permanent ladders, where provided.

[F] 410.7 Automatic sprinkler system. *Stages* shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1. Sprinklers shall be installed under the roof and gridiron and under all catwalks and galleries over the *stage*. Sprinklers shall be installed in dressing rooms, performer lounges, shops and storerooms accessory to such *stages*.

Exceptions:

1. Sprinklers are not required under *stage* areas less than 4 feet (1219 mm) in clear height that are utilized exclusively for storage of tables and chairs, provided the concealed space is separated from the adjacent spaces by not Type X gypsum board not less than $\frac{5}{8}$ -inch (15.9 mm) in thickness.
 2. Sprinklers are not required for *stages* 1,000 square feet (93 m²) or less in area and 50 feet (15 240 mm) or less in height where curtains, scenery or other combustible hangings are not retractable vertically. Combustible hangings shall be limited to a single main curtain, borders, legs and a single backdrop.
 3. Sprinklers are not required within portable orchestra enclosures on *stages*.
- ❖ *Stages* contain significant quantities of combustible materials stored in, around and above the stage that are located in close proximity to large quantities of lighting equipment (i.e., scenery and lighting above the stage). There also is scenery on the sides and rear of the stage; shops located along the back and sides of the stage, and storage, props, trap doors and lifts under the stage floor. This combination of fuel load and ignition sources increases the potential for a fire. As such, stages and technical production areas, such as dressing rooms, workshops and storerooms, are required to be protected with an automatic sprinkler system.

The references to Chapter 9 indicate that the sprinkler system may be designed in accordance with NFPA 13 and Section 903.3.1.1 or, if not more than 20 sprinklers are required on any single connection, a limited area sprinkler system may be used (see Section 903.3.5.1.1).

Exception 1 applies to areas less than 4 feet (1219 mm) in clear height under stages that are used only for the storage of tables and chairs. Because of the limited fuel load present, such areas are not required to be protected with sprinklers, provided that the concealed space is separated from all adjacent spaces by no less than $\frac{5}{8}$ -inch (15.9 mm) Type X gypsum board. This level of separation is intended to provide fire containment in the absence of sprinkler protec-

tion. This arrangement is often found in educational buildings where the room is used as a multipurpose room.

Exception 2 recognizes that stages 1,000 square feet (93 m²) or less in area and 50 feet (15 240 mm) or less in height represent a limited potential for combustibles that does not warrant the requirements for an automatic sprinkler system. The code further limits the amounts of combustible materials by not allowing any vertical retractable curtains, hangings and similar scenery elements. It should be noted, however, that although sprinkler protection is not required, the requirements of Section 410.5 still apply.

Exception 3 acknowledges the limited hazards associated with portable orchestra enclosures. These elements are temporary in nature and are intended to improve the acoustics of the stage performances. These temporary enclosures do not lend themselves to temporary sprinkler heads; therefore, none are required.

[F] 410.8 Standpipes. Standpipe systems shall be provided in accordance with Section 905.

- ❖ Because of the potentially large fuel load and three-dimensional aspect of the fire hazard associated with stages greater than 1,000 square feet (93 m²) in area, a Class III wet standpipe system is required on each side of such stages. The standpipes are required to be equipped with both a $1\frac{1}{2}$ -inch (38 mm) and $2\frac{1}{2}$ -inch (64 mm) hose connection. The required design criteria for the standpipe system, including hoses and cabinets, is specified in Section 905.3.4.

SECTION 411 SPECIAL AMUSEMENT BUILDINGS

411.1 General. Special *amusement buildings* having an *occupant load* of 50 or more shall comply with the requirements for the appropriate Group A occupancy and Sections 411.1 through 411.8. Amusement buildings having an *occupant load* of less than 50 shall comply with the requirements for a Group B occupancy and Sections 411.1 through 411.8.

Exception: Amusement buildings or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable *decorative materials*, see the *International Fire Code*.

- ❖ A special amusement building is one in which the egress is not readily apparent, is intentionally confounded or is not readily available (see Section 411.2). This section addresses the hazards associated with such use by requiring automatic fire detection (see Section 411.3), automatic sprinkler protection (see Section 411.4), alarm requirements (see Section 411.5), an emergency voice/alarm communication system (see Section 411.6) and specific means of egress lighting and marking (see Section 411.7). Additionally, only interior finish materials that