ADMINISTRATIVE BULLETIN

NO. AB-019 :

DATE : September 18, 2002 (Updated 01/01/14 for code references.)

SUBJECT : Fire and Life Safety

TITLE : **Local Equivalency for Approval of Fire Escapes as a Required Means of Egress**

PURPOSE : The purpose of this Administrative Bulletin is to provide standards and procedures for the application and case-by-case review of requests for a modification based on a local equivalency to allow fire escapes to serve as required means of egress where such means of egress do not strictly comply with the provisions of Section 1011 the 2013 San Francisco Building Code (SFBC).

This bulletin permits the continuing application of code provisions of former editions of the SFBC allowing fire escapes to be used as required means of egress. In conformance with current State law, requests for approval of such fire escapes will be considered on a case-by-case basis when reasonably equivalency is proposed.

REFERENCES : 2013 San Francisco Building Code

- Section 104A.2.7, Modifications
- Section 104A.2.8, Alternate materials, alternate design and methods of construction
- Chapter 10, Means of Egress
- 2013 California Building Code, Section 3406, Fire Escapes

DBI Administrative Bulletin AB-005, Procedures for Approval of Local Equivalencies

DISCUSSION : Project sponsors may request the application of this local equivalency allowing fire escapes when such means of egress do not meet the specific provisions of SFBC Chapter 10, Means of Egress, when it can be demonstrated on a case-by-case basis that there are practical difficulties in meeting the provisions of the SFBC, that the modification is in conformance with the intent and purpose of the SFBC, and that reasonable equivalency is provided in fire-protection and structural integrity.

Such proposed modification may be approved by the Department of Building Inspection and the Fire Department if it conforms with the below listed standard provisions. The Department of Building Inspection (DBI) and other City departments may impose additional requirements, in addition to those listed below, in the approval of any request for a code modification or alternate based upon individual building and property conditions. The Planning Department and other agencies may also review such case-by-case requests.

If a project sponsor wishes to propose fire escapes or other means of egress that differ from those listed below, proposals for the use of alternate materials, designs, or methods of construction may be submitted for review in the same manner as for this Local Equivalency. The Department of Building Inspection may require that additional substantiation be provided supporting any claims made for such proposals.

Procedure for Application of Local Equivalencies

Project sponsors wishing to apply local equivalencies must fill out and submit the Request for Approval of Local Equivalency form (Attachment A). Fees to be paid and scheduling of review of requests are as noted on that form. Following DBI review, each request will either be approved, approved with conditions, disapproved, or placed on "Hold" pending submittal of additional information.

Further details of procedures for the review of local equivalencies and appeal of departmental determinations may be found in Administrative Bulletin AB-005, Procedures for Approval of Local Equivalencies.

Conditions of Local Equivalency

Fire escapes as means of required egress may be permitted on a case-by-case basis when the following provisions or approved equivalent provisions are met and the permit applicant provides documentation of the practical difficulties involved in carrying out the provisions of the regular code.

For the local equivalency of fire escapes, code requirements for stairways may be met by fire escapes conforming to the requirements detailed below. This local equivalency shall not apply to new buildings which are under the jurisdiction of the San Francisco Fire Department.

The standard provisions for this local equivalency include:

1.0. A fire escape may be installed to serve as one of the required means of egress for existing buildings of Groups B, F-1, M, R-1, R-2. R-3, S-1, and S-2 Occupancies when all of the following conditions are met:

1.1. The building may not exceed four stories in height; and

1.2 The building has only one street frontage, and such street front is not more than 37 1/2 feet in width. A Group R building may have a second frontage, provided neither frontage exceeds 37 1/2 feet in width; and

1.3 The total occupant load above the first floor does not exceed 50. Occupant load calculations shall be provided with submittal documents.

2.0. Newly installed fire escapes for existing buildings shall conform to the following requirements:

2.1 General. All fire escapes shall have an access to the roof, an inclined ladder connecting all balconies, and an approved means of access to the ground.

2.2 Design. For design loads for fire escapes, see San Francisco Building Code, Tables 1607.1, Uniform and Concentrated Loads, and 1607.8.1, Special Loads.

2.2.1 Each fire escape balcony shall be supported independently and shall be designed to carry all dead and live loads of the balcony, ladders or stairs supported by it.

2.2.2 In wood or light steel framed buildings, adequate provisions shall be made for carrying the load to the building frame. Bolting to blocking between studs or joists is not permitted.

2.3 Construction. Fire escapes shall be constructed entirely of hot-dipped galvanized steel or reinforced concrete. All welding, drilling, punching and riveting of the assemblies shall be done before galvanizing.

2.3.1 Screws and lag screws shall not be used in construction and erection of fire escapes.

2.3.2 Unless otherwise approved, slotted holes are allowed only for connecting balcony handrails to buildings. Length of slotted holes shall not exceed 2.5 times the bolt diameter.

2.4 Openings. In buildings with fire-resistive exterior walls, where fire escapes are permitted, access openings to such fire escapes shall be protected by an approved self-closing 3/4-hour fire-resistive assembly.

2.5 Access to fire escapes.

2.5.1 Access shall be from a public hallway or corridor except for R-3 occupancies where access to a fire escape may be from a room.

2.5.2 The opening to the fire escape shall be of a size as to permit the installation of a door not less than 3 feet in width and not less than 6 feet 8 inches in height; the door shall be equipped with panic hardware and open outward.

EXCEPTION: In buildings housing Group R Occupancies, where access to the fire escape balcony is from a single apartment or room, access may be provided by a window which, when open, provides clear dimensions of not less than 29 inches in width and not less than 59 inches in height. The sill of such window opening shall be not more than 24 inches above the floor.

2.5.3 Exit doors and windows shall be openable from the inside without the use of a key or any special knowledge or effort.

2.5.4 Manually operated edge- or surface-mounted flush bolts and surface bolts are prohibited.

2.5.5 No sash, shutter, door or window shall be so fitted into the wall that its operation will reduce the required effective width or the required vertical clearance of landing runway, platform, ladder or stairs of a fire escape.

2.5.6 In existing buildings, door openings to fire escapes shall be cut as near to the floor level as structural conditions will permit.

2.6 Height and Clearance of Fire Escapes.

2.6.1 There shall be a vertical clearance of not less than 10 feet underneath any fire escape balcony overhanging an area accessible to the public. This requirement shall apply to both fixed and movable sections.

2.6.2 No part of a fire escape shall be less than 14 feet above a sidewalk, roadway, or public easement used as a roadway when any part of the fire escape overhangs the roadway or is within 2 feet of the outer edge of the sidewalk or curb.

2.6.3 Fire escapes, when installed over streets or alleys, may project beyond the property line not more than 54 inches.

2.7 Ladder or Stair to Ground. All fire escapes shall continue to the ground level. All fire escapes shall lead to exit courts, passageways or other means of egress which open to streets or alleys.

Courts and passageways into which fire escapes lead shall be kept clear of obstructions at all times. Means of reaching the ground level from the lowest balcony of the fire escape shall be provided by one of the following methods:

2.7.1 A permanent inclined ladder or stair is required between balconies.

2.7.2 A swinging counter-balanced inclined stair or ladder constructed as required herein. Each such stair or ladder shall be counter-balanced about a pivot by the use of weights securely fixed to a lever arm. The arrangement of the swing section, pivot and counterweights shall be such that:

2.7.2.1 A live load weight of 150 pounds, placed one step from the pivot, will not start the section downward.

2.7.2.2 A live load weight of 150 pounds, placed one-fourth of the length of the swing section from the pivot, will positively cause it to swing down to grade.

2.7.3 Each such stair or ladder shall have unobstructed width at least equal to the unobstructed width of the stationary ladder or stairs above it. Its enclosure and railings shall be so arranged as to make remote as possible any probability of injury to persons at its head or on the landing or platform adjacent thereto when the section swings downward.

2.7.4 All ladders or stairs shall be provided with substantial handrail supported with intermediate posts spaced as required.

2.7.5 The clearance between parts of the ladder or stair where the hands might be caught shall be at least 4 inches. Approved "KEEP CLEAR" signs shall be provided in buildings below fire escapes.

2.7.6 Permanent inclined ladders, swinging counter-balanced inclined ladders, stairs, or other devices when installed on any fire escape balcony, shall not be installed as to obstruct doorways, passageways, or other exits or means of egress. The terminal portion of such ladders or stairs shall end on a level surface of a size equivalent to a stair landing.

2.7.7 The above ladders, stairs or devices shall not be installed so as to interfere with the use of dry standpipes, sprinkler inlet connections, flush valves for refrigerants or any other similar devices.

2.8 Access to Roof. The fire escape shall extend to the roof of buildings having roofs with a slope of less than 4 in 12.

EXCEPTION: Group R Occupancies when serving only one dwelling unit.

2.8.1 A gooseneck ladder not exceeding 12 feet in height shall extend vertically from the balcony to and above the roof of the building. The sides of the ladder shall extend 3 feet above the fire wall or roof and shall be returned and connected to the roof behind the parapet or edge of roof.

2.8.2 The gooseneck ladder shall be securely braced and fastened to the outside wall and to the top of the parapet or roof. It shall not be placed in front of any opening in the wall of the building and shall have at least 8 inches' clearance from the wall.

2.8.3 Openings in architectural projections, such as cornices, etc., for the passage of fire escape ladders shall be not less than 24 inches in width and 40 inches at right angles to the ladder.

2.9 Balcony Requirements.

2.9.1 Fire escape balcony platforms shall be not more than 8 inches below the door sill or 18 inches below the windowsill giving access to the fire escape.

2.9.2 Every fire escape balcony shall be not less than 44 inches in width and not less than 10 feet in length inclusive of railings.

EXCEPTIONS:

1. On existing buildings where the existing construction will not permit a balcony 10 feet in length, special balconies may be installed subject to the approval of the Director.

2. Balconies of 30 inches by 60 inches may be permitted when serving emergency escape or rescue windows or when serving ladders to the roof.

2.9.3 Ladder or stair openings in standard fire escape balcony floors shall be not less than 22 inches by 48 inches, and shall be at least 20 inches from the end railings.

2.9.4 A passageway not less than 20 inches wide shall be provided next to the building.

2.9.5 The height of balcony balustrades shall conform to Section 1013.2.

2.9.6 The area between the top rail and the floor of the balcony shall be protected by balusters, gratings, grills, solid panels or some similar noncombustible filling, except that material of less than 12 gauge expanded metal or wire mesh shall not be used.

2.9.7 Balusters, gratings, grills, and approved panels or fillings shall meet design load requirements. The balusters and intermediate rails shall be placed so that a 4-inch diameter ball cannot pass through the balustrade.

2.10 Ladder Requirements.

2.10.1 Where ladders are permitted they shall be not less than 18 inches wide, and the distance between rungs shall be not more than 12 inches.

2.10.2 Ladders between landings shall be not less than 18 inches in width.

2.10.3 No vertical ladder shall be less than 8 inches from the wall of the building.

2.10.4 No part of any inclined ladder shall be less than 21 inches from the building.

2.10.5 Ladders shall have an inclination of not less than 4 inches measured horizontally to each 12 inches of vertical height, except for new fire escapes serving R-1 and R-2 Occupancies, the inclination shall be no greater than 60 degrees from horizontal.

2.10.6 Treads shall be at least 4 inches in width and not more than 12 inches apart.

2.10.7 Treads shall be checkered plate, carborundum impregnated steel or other nonslip material, except that treads on existing fire escapes may be replaced in kind.

2.11.1 Balconies and Platforms. Platform grating bars for all balconies shall be not less than 1 1/2 × 5/16 inch and shall be placed not more than 1 inch apart. Grating bars shall be tied together with at least two intermediate crossbars, not less than 1 1/2 × 3/8 inch in cross section. Grating bars on platforms shall be placed flat and shall be securely bolted to the supporting members with ½-inch diameter galvanized machine bolts.

2.11.1.1 The outside frames carrying the gratings shall be not less than 2 × 2 × 1/4 inch angles which shall extend all around the platform and be securely bolted to the channel iron outriggers or bearing beams with not less than 1/2-inch diameter galvanized machine bolts.

2.11.1.2 The top rail of all balconies shall be not less than 2 inches by 3/8 inch. Splices are not permitted in rails unless approved by the Director. At outside corners, the intersection of top rails shall be made with a 2-inch minimum radius curve by grinding or other means.

2.11.1.3 In platforms more than 10 feet in length, the rails shall be reinforced with intermediate brackets.

2.11.1.4 The horizontal rails shall be connected by means of a 6-inch channel or 3/8-inch hot bent plate, at the building, and anchored into same with 5/8-inch diameter galvanized through-bolts with the nuts on the outside of the wall.

2.11.1.5 The balusters, where used, shall be not less than 3/4 × 1/4 inch in cross-section.

2.11.1.6 The finish on the balconies shall not extend outside the rail.

2.11.2 Balcony Supports.

2.11.2.1 Masonry Buildings.

2.11.2.1.1 Cantilever supports for masonry buildings shall be spaced not more than 5 feet apart.

2.11.2.1.2 Cantilevers carrying the ends of balconies shall be of not less than 4 C 5.4 channels, and the intermediate cantilevers shall be not less than 4 I 7.7 beams.

2.11.2.1.3 Unless otherwise approved by the Director, all cantilevers shall go through the wall and have two 3 × 3 × 1/4 inch angle clips at the inside line of wall, and the allowable compression stresses of the masonry shall not be exceeded.

2.11.2.1.4 Cantilevers may be bolted or welded to the steel frame of the building.

2.11.2.2 Wood Frame Buildings.

2.11.2.2.1 Bracket supports for wood frame buildings shall be spaced not more than 5 feet apart.

2.11.2.2.2 The horizontal members shall be installed with a minimum pitch of ¼ inch per foot away from the building.

2.11.2.2.3 Penetrations through weather-resistive barriers shall be thoroughly flashed and sealed.

2.11.2.2.4 The horizontal member of the intermediate brackets shall be not less than 5 C 6.7 channel placed flat, or 2 1/2 × 2 1/2 × 1/4 inch angle, and the diagonal strut shall be not less than 2 1/2 × 2 1/2 × 1/4 inch angle. The end brackets may be constructed from 3 C 4.1 channel for the horizontal member and 2 1/2 × 2 × 1/4 inch angle for the diagonal.

2.11.2.2.5 The connecting angle for the horizontal member on all brackets to the building shall not be less than 4 x 4 x 3/8 inch angle with 7/8-inch diameter galvanized bolts through the outer wall to heavy timber beams or joists of balconies.

2.11.2.2.6 The diagonal strut shall be secured to the building with 5/8-inch diameter galvanized bolts.

2.11.2.2.7 All bolts extending through the wall of heavy timber beams or joists shall have washers at the outside of the wall and shall be placed so that the thread and nuts will show on the outside face of the wall.

2.11.2.2.8 Penetrations through weather-resistive barriers shall be thoroughly flashed and sealed.

2.11.2.2.9 All studs receiving the brackets shall be not less than 4 inches by 4 inches nominal size.

2.11.2.2.10 Alternative support methods may be used, provided the design is in accordance with other design provisions of this code.

2.11.3 Inclined ladders.

2.11.3.1 Inclined ladder stringers and treads shall be not less than 4 × 1/4 inch plates.

2.11.3.2 Treads shall be riveted or welded to stringers. A continuous fillet weld on all sides and edges of the treads shall be provided when welding is used.

2.11.3.3 All inclined ladders shall be provided with substantial railings of not less than 15/16 inches outside diameter galvanized pipe, supported by not less than 1 1/4 x1/4 inch intermediate standards spaced as required and adequately bolted to the ladder rails.

2.11.4 Vertical Ladders.

2.11.4.1 Ladders shall be constructed with not less than 2 1/2 × 3/8 inch side rails with a maximum space of 8 feet and with 3/4-inch diameter rungs placed 12 inches apart.

2.11.4.2 Where vertical ladders join they shall be connected with not less than four 1/2-inch diameter galvanized machine bolts on each side.

2.11.4.3 Square corners will not be permitted on roof ladders. All roof ladder railings extending above and over the parapet wall or roof shall be rounded to a radius of not less than 3 inches.

2.12 Exit Lighting. Exterior illumination of one foot-candle (10.76 lx) of lighting to shall be provided in accordance with Section 1006 on the walking surface of the fire escape.

3.0. Any fire escape shall lead to a complying means of egress.

4.0. A permit application and related submittal documents shall detail all construction which is approved as a result of this request for local equivalency. No work to install fire escapes as a required means of egress on existing buildings shall be done prior to approval of such permit application and issuance of a permit.

Originally Signed By:

Frank Y. Chiu, Director
October 3, 2002

Gary Massetani, Fire Marshal
October 9, 2002

Approved by the Building Inspection Commission on September 18, 2002

Attachment A: Request for Approval of Local Equivalency

ATTACHMENT A

DEPARTMENT OF BUILDING INSPECTION
City & County of San Francisco
1660 Mission Street, San Francisco, California 94103-2414

REQUEST FOR APPROVAL OF LOCAL EQUIVALENCY FOR MODIFICATION OR ALTERNATE MATERIALS, DESIGN OR METHODS OF CONSTRUCTION

DATE SUBMITTED_____ [Note: This form shall be recorded as part of the permanent construction records of the property]

If no permit application has been filed, a Preapplication Review Fee is required for review of a request for local equivalency or modification, per SFBC Table 1A-B, Item 5. Additional fees may be required by Fire Department and other City review agencies.

If a permit application has been filed, no additional fees are required for this review.

Permit Application #_____

Property Address: _____

Block and Lot: _____/_____ Occupancy Group: _____ Type of Construction: _____ No. of Stories:_____

Describe Use of Building _____

_____

Under the authority of the 2013 San Francisco Building Code, Sections 104A.2.7 and 104A.2.8; the 2013 San Francisco Mechanical Code, Section 103.0; the 2013 San Francisco Electrical Code, Section 89.117; and the 2013 San Francisco Plumbing Code, Section 301.2; the undersigned requests modifications of the provisions of these codes and/or approval of alternate materials, designs or methods of construction. Two copies of supporting documents, including plans showing the proposed modifications or alternate materials, design or methods of construction, are attached.

Regular Code Requirement (specify Code and Sections)

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Proposed Modification or Alternate

Case-by-Case Basis of Request - Describe the practical difficulties presented in meeting the specific conditions of the code and how the proposed modification or alternate meets the intent of the code. A separate form should be filled for each requested modification or alternate. Attach copies of any Administrative Bulletin, Code Ruling, reference, test reports, expert opinions, etc., which support this request. The Department may require that an approved consultant be hired by the applicant to perform tests or analysis and to submit an evaluation report to the Department for consideration.

Requested by:	PROJECT SPONSOR	ARCHITECT/ENGINEER	
Print Name:	_____	_____	
Signature:	_____	_____	[PROFESSIONAL STAMP HERE]
Telephone:	_____	_____	

PLAN REVIEWER COMMENTS:

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RECOMMENDATIONS: [signed off/dated by:]	Approve	Approve with conditions	Disapprove
Plan Reviewer:	_____	_____	_____
Division Manager:	_____	_____	_____
for Director of Bldg. Inspection	_____	_____	_____
for Fire Marshal:	_____	_____	_____

CONDITIONS OF APPROVAL or OTHER COMMENTS

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