

FILE NO. 051443

ORDINANCE NO. 32-06

1 [Amending the Electrical Code regarding headroom requirements for panelboards, entrances  
2 for 1200 amp rated equipment, use of non-metallic sheathed cable in multifamily dwellings,  
3 and making clerical changes.]

4 **Ordinance amending Articles 89, 100, 110, 210, 215, 220, 230, 250, 300, 333, 334, 336,**  
5 **340, 348, 350, 352, 351, 348, 378, 331, 362, 384, 410, 411, 645, 700, 760, and 800 of the**  
6 **Electrical Code to make minor clerical changes for greater clarity, to extend the general**  
7 **requirement for headroom about panelboards to residential panelboards rated not**  
8 **more than 200 amps, to provide that equipment rated 1200 amps or more, regardless of**  
9 **width, requires an entrance to each end of the working space, to allow for non-metallic**  
10 **sheathed cable to be installed in multifamily dwellings with Type III, IV and V**  
11 **construction up to 4 stories in height, and to make findings in accordance with**  
12 **California Health and Safety Code Section 17958.5 as to the local climatic, topological**  
13 **and geological reasons for amending the State Building Code.**

14 Note: Additions are single-underline italics Times New Roman;  
15 deletions are ~~strikethrough italics Times New Roman~~.  
16 Board amendment additions are double underlined.  
17 Board amendment deletions are ~~strikethrough normal~~.

18 Be it ordained by the People of the City and County of San Francisco:

19 Section 1. The Board of Supervisors hereby finds, as required by California Code of  
20 Health and Safety Code Section 17958.5, that the following amendments to the Electrical  
21 Code are necessary for the specific climatic, topological, and geological reasons listed below:

22 Additional fire, structural and other protection is required due to high building density  
23 and crowded occupancy: Sections 230.43, 300.3, 300.4, 320.108, 330.108, 334.10, 334.12,  
24 340.19, 352.10, 356.10, 356.12, 362.10, 378.12, 388.12, 700.12, 700.16, 760.25, 760.52,  
25 760.72, and 800.6.

1 Certain buildings/occupancies in San Francisco are at increased risk for earthquake-  
2 induced structural failure and consequent fire due to local hazardous microzones, slide areas,  
3 and local liquefaction hazards: Sections 210.5, 215.8, 230.71, 300.3, 300.4, 362.10, 352.10,  
4 350.10, 356.10, 356.12, 362.10, 378.12, 388.12, 645.5, and 700.12.

5 Topography of San Francisco has led to development of a high density of buildings on  
6 small lots, necessitating special provisions for exiting, fire separation, or fire-resistive  
7 construction: Section 110.26.

8 Many buildings are built on steep hills and narrow streets, requiring special safety  
9 considerations: Section 110.16.

10 Additional fire, structural and other protection is required due to high building density  
11 and crowded occupancy: Sections 110.26, 210.5, 215.8, 300.3, 300.4, 362.10, 358.10, 411.4,  
12 and 700.16.

13 San Francisco has narrow, crowded sidewalks due to building and population density  
14 and unusual topography: Section 230.71.

15 Moist, corrosive atmosphere of salt-laden fog in San Francisco necessitates additional  
16 requirements: Sections 230.43, 250.50, 250.64, and 358.10.

17 Not a building standard; no local findings required: Sections 89.1, 89.3, ~~89.4~~, 89.12,  
18 89.13, 89.14, 89.15, 89.16, 89.17, 89.18, 89.19, 89.20, 89.21, 89.22, 89.23, 89.24, 89.25,  
19 89.26, 100, 220.35, 330.12, and 410.6.

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21 Section 2. The San Francisco Building Code is hereby amended by amending Article  
22 89 to read as follows:

23 **ARTICLE ~~089~~ 89 – ADMINISTRATION**  
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1 ~~089-1.~~ 89.1. **Revise this section as follows:**

2 ~~089-1.~~ 89.1. **Title.** The provisions contained in this code shall be known as the "~~2001~~ 2004 **San**  
3 **Francisco** Electrical Code and may be cited as such and will be referred to as "this code."  
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5 ~~089-3.~~ 89.3. **Revise this section as follows:**

6 ~~089-3.~~ 89.3. **Scope.** **This code** shall apply to the construction, alteration, moving, demolition,  
7 repair and use of all electrical equipment, wiring and systems in or on any building or structure  
8 or outdoors on any premise or property, except such electrical equipment, wiring and systems  
9 which are expressly exempted by Section ~~089-4~~ 89.4. **Electrical equipment, wiring and**  
10 **systems in or on any building or structure moved into or within the City and County of**  
11 **San Francisco shall conform to the requirements of this code.**  
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13 ~~89.4.(D).~~ *Revise this section as follows:*

14 89.4.(D). *Exempted from this Code. This Code does not cover:*

15 (D) Installation of communication equipment under the exclusive control of communication  
16 utilities, located outdoors or in building spaces used exclusively for such installations.

17 *Electrical power supplies, distribution, regulation and control equipment, and associated wiring*  
18 *systems that supply communication equipment are not exempted from this code.*  
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20 ~~089-12.~~ 89.12. **Add the following new section:**

21 ~~089-12.~~ 89.12. **Supersession.** **This code shall supersede all previous Electrical Codes**  
22 **and ordinances in the City and County of San Francisco. Nothing herein shall require**  
23 **the revision of electrical installation plans submitted prior to the adoption date of this**  
24 **code. Electrical permits obtained prior to the effective date of this code shall comply**  
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1 with the provisions of the Electrical Code, ordinances, regulations and rulings in effect  
2 when the permit was granted.

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4 ~~089-13.~~ 89.13. Add the following new section:

5 ~~089-13.~~ 89.13. Maintenance. All electrical equipment, wiring and systems and  
6 installations shall be maintained in a safe operating and code-complying condition. The  
7 owner or the owner's designated agent, or both, shall be legally responsible for the  
8 maintenance of all electrical wiring systems and installations.

9 Nothing contained in this code shall be construed to require any existing  
10 electrical equipment, wiring or systems regulated by this code, to be altered,  
11 reconstructed, removed or demolished providing such existing electrical equipment,  
12 wiring or system was installed and maintained in accordance with the adopted code in  
13 effect at the time of installation or subsequent alteration.

14 Unused conductors and cables shall be either removed or suitably identified and  
15 terminated in an approved manner.

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17 ~~089-14.~~ 89.14. Add the following new section:

18 ~~089-14.~~ 89.14. Alternate Materials, Design and Methods of Construction.

19 ~~(a)~~ (A) Alternates Require Approval: The provisions of this code are not intended to  
20 prevent the use of a product or method of construction not specifically prescribed by  
21 this code, provided any such alternate has been approved and the use authorized by  
22 the Director.

23 ~~(b)~~ (B) Equivalency of Alternates. The Director may authorize an alternate, provided the  
24 Director finds the proposed design is satisfactory for the intended use and complies  
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1 with the provisions of this code and that the product, method or work offered is, for the  
2 purpose intended, at least equivalent to that prescribed by this code in suitability,  
3 strength, effectiveness, fire ~~resistance~~ resistivity, durability and safety.

4 ~~(e)~~ (C) Evidence Required. The Director shall require sufficient evidence or proof be  
5 submitted to substantiate any claims made regarding the use of alternates. The details  
6 if any action granting approval of an alternate shall be recorded and shall  
7 be entered in the files of the Department of Building Inspection.

8 ~~(d)~~ (D) Conditions and Fees. See Building Code Section 104.2.8 for conditions and  
9 Section 110, Table I-J -- Miscellaneous Fees -- for applicable fees.

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11 ~~089-15.~~ 89.15. Add the following new section:

12 ~~089-15.~~ 89.15. Change in Occupancy. Electrical equipment, wiring and systems which  
13 are part of any building or structure, or portion thereof, undergoing a change in  
14 occupancy or use, as defined in the Building Code , shall comply *to with* all  
15 requirements of this code which may be applicable to the new occupancy or use.

16 Exception: The provisions of this section shall not require the change of existing  
17 electrical equipment, wiring and systems where such electrical equipment,  
18 wiring and systems are deemed adequate for the new occupancy involved.

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20 ~~089-16.~~ 89.16. Add the following new section:

21 ~~089-16.~~ 89.16. Modifications. When there are practical difficulties involved in carrying  
22 out the provisions of this Code, the Director may grant modifications for individual  
23 cases. The Director shall first find that a special individual reason makes the strict  
24 letter of this Code impractical and that the modification is in conformance with the  
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1 intent and purpose of this Code and that such modification does not lessen health, life-  
2 safety and ~~fire-safe~~ fire-safety requirements. The details of any action granting  
3 modifications shall be recorded and entered in the files of the Department of Building  
4 Inspection.

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6 ~~089-17.~~ 89.17. Add the following new section:

7 ~~089-17.~~ 89.17. Permits Required.

8 ~~(a)~~(A) General. It shall be unlawful for any person to install, construct, alter, move, add  
9 to or replace any electrical installation regulated by this Code, except as permitted in  
10 Section ~~089-18~~ 89.18 without first obtaining a permit from the Department of Building  
11 Inspection.

12 ~~(b)~~(B) Nonliability of City and County of San Francisco. Permits issued under the  
13 provisions of this Code shall contain or be construed to contain an agreement by the  
14 owner of the building, structure or premises, or the owner's authorized agent to save  
15 City and County of San Francisco officials and employees harmless from all costs,  
16 liability and damages resulting, whether directly or indirectly, from anything in  
17 connection with the work included in the permit, including equipment, methods of  
18 construction, inspections and approvals.

19 ~~(c)~~(C) Application For Permit. Permit applicants shall file with the Department of  
20 Building Inspection an application form furnished for that purpose. The permit  
21 application shall show a complete itemization of the proposed electrical installation  
22 and the correct address of the job site. Electrical permits may be issued to duly  
23 licensed contractors who have registered with the Central Permit Bureau by having  
24 their State Contractor's License verified by the Department of Building Inspection, or  
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1 issued to a homeowner subject to Section ~~089-17(e)~~ 89.17(E). A separate permit shall be  
2 obtained for each separate building or structure. See Section 110, Table 1-E - Electrical  
3 Permit Fees - of the Building Code for the applicable fees.

4 ~~(d)~~(D) Illegal Use of Permit. No person, firm, corporation, or State licensed contractor  
5 shall file an application for a permit to install any electrical wiring system unless such  
6 person, firm corporation, or State licensed contractor shall perform such work. The  
7 Director or the Director's authorized representative, shall have the authority to cancel  
8 any permit upon finding that it is contrary to this section. The permittee shall be  
9 responsible for all work performed.

10 ~~(e)~~(E) Homeowner's Permit. A permit for an electrical installation work in or  
11 about a single-family dwelling may be issued by the Director to a homeowner, provided  
12 ~~the work to be done~~ such work will be performed by the homeowner. If the electrical work  
13 performed under ~~the~~ a homeowner's permit does not comply with the requirements of  
14 this Code and if the corrections are not made as required by the Department of  
15 Building Inspection, then the ~~work~~ deficiencies shall be corrected by a State licensed  
16 electrical contractor under a separate permit.

17 ~~(f)~~(F) Emergency Work. Emergency electrical work for the protection of persons or  
18 property shall have a permit obtained within one business day of commencing such  
19 work.

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21 ~~089-18.~~ 89.18. Add the following new section:

22 ~~089-18.~~ 89.18. Work Exempt From Permits. Electrical permits and fees shall  
23 not be required for the following:

24 ~~(a)~~ (A) Repair or replacement of a luminaire ~~an electrical lighting fixture weighing~~

1 ~~50 pounds (22.68 Kg)~~ 22.68 Kg (50 pounds) or less where no change in existing wiring is  
2 involved.

3 ~~(b)~~ (B) Replacement of fuses, ~~receptacles~~, controls, motors of less than 2 horsepower,  
4 ~~and~~ switches and receptacles of not more than 20 amperes rating, where no change in  
5 existing wiring is involved.

6 ~~(c)~~ (C) Replacement of circuit breakers, externally operated switches and fuse  
7 holders of the same type and rating as the ~~part they replace~~ defective unit or  
8 component, if not rated in excess of 100 amperes.

9 Exception: Replacement of main service disconnecting means are subject to permit  
10 and inspection regardless of rating.

11 ~~(d)~~ (D) Wiring for temporary theater stages and platforms, motion picture and television  
12 studio sets supplied from fixed electrical outlets installed for the purpose.

13 ~~(e)~~ (E) Replacement of component parts for electric signs or gas-tube lighting systems  
14 of the same size and rating.

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16 ~~089-19. 89.19.~~ 89.19. Add the following new section:

17 ~~089-19. 89.19.~~ 89.19. Permit Issuance.

18 ~~(a)~~ (A) General. An issued permit entitles the permittee to proceed with the installation  
19 described therein. Work done in excess of that shown on the application will be subject  
20 to Extra Permit Fees as set forth in Section 110, Table 1-F - Specialty Permit Fees - of  
21 the Building Code . The issuance of a permit does not constitute an approval or an  
22 authorization of the work specified therein. Neither the issuance of a permit, nor the  
23 approval by the Director of any document, shall constitute an approval of a violation of  
24 any provision of this Code or any law or ordinance. A permit or other document  
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1 purporting to give authority to violate any code, law or ordinance shall not be valid with  
2 respect thereto. Permits shall not be transferable. Proposed electrical installations  
3 delineated on a permit application shall be performed only by the permittee or bona  
4 fide employee thereof in accordance with the California Code of Regulations, Title 8, Chapter 2,  
5 Part IV. The permit shall be posted on the job site where the work is to be done.

6 ~~(b)~~ (B) Expiration of Permit. Electrical permits expire after 90 days from date of issue,  
7 or date of last recorded inspection, unless an extension of time is granted by the  
8 Director. Only one 90-day extension may be granted. Permit extension and  
9 cancellation requests shall be made in writing to the Director by the permit holder.  
10 Permit fees may be refunded if cancellation request is made prior to commencement of  
11 the permitted work and within 90-days of the issue date, otherwise, the permit fees  
12 shall be retained by the Department of Building Inspection. See Section 110, Table 1-R  
13 - Refunds - of the Building Code for refund.

14 ~~(c)~~ (C) Commencement of Work on Permit Expired Due to Work Not Started. Before  
15 work may be commenced on an expired permit on which no work was performed, a  
16 new permit shall be obtained.

17 ~~(d)~~ (D) Recommencement of Work on Permit Expired Due to Work Not Completed. The  
18 applicant shall secure a new permit for the work not completed. The permit fee shall be  
19 based upon items or work remaining to be done.

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21 ~~(e)~~ (E) Cancellation of Permit. Permits may be canceled by the Director:

- 22 (1) If, after inspection, it is judged by a senior inspector that the permit  
23 holder is unable or unwilling to correct an unsafe condition or code violations.  
24 (2) If the permit was obtained fraudulently or under false pretenses.

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2 ~~089-20.~~ 89.20. Add the following new section:

3 ~~089-20.~~ 89.20. Fees

4 ~~(a)~~ (A) General. Permit and inspection fees, as set forth in Section 110, Table 1-E --  
5 Electrical Permit Fees -- of the Building Code, shall be paid prior to permit issuance.  
6 When additional permit or inspection fees are due, they shall be payable prior to  
7 issuance of Permission to Connect Current, Certificate of Occupancy, or Declaration of  
8 Inspection.

9 ~~(b)~~ (B) Other Fees. A standard hourly inspection fee shall be charged for services  
10 provided by Electrical Inspection Division personnel which are not otherwise detailed.  
11 See Section 110, Table 1-G - Inspections, Surveys and Reports - of the Building Code.

12 ~~(c)~~ (C) Work Without Permit - Investigation Fee. If the Director finds that a person,  
13 company or entity has performed electrical installation work for which a permit is  
14 required, without first obtaining an electrical permit and payment of fees, the Director  
15 shall require the payment of an investigative fee in addition to the prescribed permit  
16 fee. See Section 110, Table 1-K - Penalties, Hearings, Code Enforcement Assessments  
17 - of the Building Code for the applicable fees. The payment of such investigation fee  
18 shall not exempt any person from compliance with all other provisions of this Code,  
19 nor from any penalty prescribed by law. The Director may reduce the investigation fee  
20 to two times the amount of the permit fee as called for in Section 110, Table 1-E -  
21 Electrical Permit Fees - of the Building Code for work that was constructed prior to the  
22 current building ownership if the owner files with the Director a notarized affidavit  
23 together with documents substantiating such dates of work.

1 Appeal of such investigative fee may be filed with the Board of Appeals in the  
2 manner provided in Part III of the San Francisco Municipal Code. Such filing shall be  
3 subject to the fees and rules of the Board of Appeals. The Board of Appeals, in  
4 reviewing the appeal, may reduce the appealed amount to not less than two times the  
5 permit fee as set forth in Section 110, Table 1-E -- Electrical Permit Fees -- of the  
6 Building Code.

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8 ~~089-21, 89.21.~~ Add the following new section:

9 ~~089-21, 89.21.~~ Powers and Duties of Director.

10 ~~(a)~~ (A) General. The Director is hereby authorized and directed to enforce all the  
11 provisions of this code. For such purposes, the Director shall have the powers of a law  
12 enforcement officer. The Director, when necessary, may call upon the Police  
13 Department and other city agencies for aid or assistance in carrying out or enforcing  
14 any of the provisions of this code.

15 ~~(b)~~ (B) Right of Entry. When it is necessary to make an inspection to enforce the  
16 provisions of this code or other codes or ordinances, or when the Director has  
17 reasonable cause to believe that there exists in a building or upon a premises a  
18 condition that is contrary to, or in violation of, this code or other codes or ordinances  
19 that makes the building or premises unsafe, dangerous or hazardous, the Director may  
20 enter the building or premises at reasonable times to inspect or to perform the duties  
21 imposed by this code or other codes or ordinances, provided that if such building or  
22 premises be occupied that credentials be presented to the occupant and entry  
23 requested. If such building or premises be unoccupied, the Director shall first make a  
24 reasonable effort to locate the owner or other person having charge or control of the  
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1 building or premises and request entry. If entry is refused, the Director shall have  
2 recourse to the remedies provided by law to secure entry.

3 ~~(c)~~ **(C) Stop Orders.** Whenever any work is being done contrary to the provisions of this  
4 code, or other pertinent laws or ordinances implemented through the enforcement of  
5 this code, the Director may order the work stopped by notice in writing served on any  
6 persons engaged in the doing or causing such work to be done, and any such persons  
7 shall forthwith stop such work until authorized by the Director to proceed with the  
8 work.

9 ~~(d)~~ **(D) Temporary Use of Electrical Energy.** The Director may permit the temporary use  
10 of electrical energy by any person, firm or corporation in cases where it does not  
11 create a hazard to life or property.

12 ~~(e)~~ **(E) The** Director may adopt rules and regulations. The Director shall have the power  
13 to render interpretations of this code and to adopt and enforce rules and supplemental  
14 regulations to clarify the application of its provisions. Such interpretations, rules and  
15 regulations shall be in conformance with the intent and purpose of this code. Such  
16 rules and regulations, commonly referred to as "Code Rulings" and "Administrative  
17 Bulletins," supplemental to this code, shall not take effect until approved by the  
18 Building Inspection Commission and signed by the Director except in unusual  
19 circumstances where the Director has determined there is an immediate need to  
20 protect the public health and safety. When the Director finds that such circumstances  
21 exist, the Director may order immediate enforcement of a particular rule or regulation.  
22 The Director shall arrange for a subscription service to such rules and regulations, the  
23 entire cost of which is to be borne by the subscribers.

24 ~~(f)~~ **(F) Code Revisions.** The Director shall transmit to the Building Inspection  
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1 Commission, at intervals not exceeding three years, recommendations for changes to  
2 this code, based on studies of the following:

- 3 1. Requests of the Board of Examiners for variances from this code, and for  
4 approvals of alternate materials, alternate designs and methods of construction.
- 5 2. Code changes recommended by the Board of Examiners.
- 6 3. Code changes recommended by the Code Advisory Committee or other  
7 bodies subordinate to the Building Inspection Commission.
- 8 4. Results obtained and problems encountered from legal actions taken to  
9 correct code violations.
- 10 5. Changes or improvements in materials, methods of construction or design  
11 and changes proposed by interested persons.
- 12 6. Investigations of fire and structural damage to buildings, and of  
13 complaints of unsatisfactory electrical system performance.
- 14 7. Periodic changes to the California Electrical Code and other State  
15 regulations which may affect this code.
- 16 8. Administrative Bulletins and Code Rulings currently in effect.
- 17 9. Violations of this code found on inspections and investigations.

18 ~~(g)~~ (G) Disconnection of Electric Service due to Serious and Imminent Hazards.

19 The Director shall have the authority to disconnect electric service to a building,  
20 structure, property or equipment regulated by this code when it is necessary to abate a  
21 serious and imminent hazard to the life, health or safety of the occupant or other  
22 persons, or such building, structure or property. See Section 102 of the Building Code.  
23 Persons shall not reconnect such electrical supply until authorized in writing by the  
24 Director.

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~~089-22.~~ 89.22. Add the following new section:

~~089-22.~~ 89.22. Violation.

Any person, the owner or the owner's authorized agent, who violates, disobeys, omits, neglects, or refuses to comply with, or resists or opposes the execution of any of the provisions of this code, shall be liable for a civil penalty, not to exceed \$500 for each day such violation is committed or permitted to continue, which penalty shall be assessed and recovered in a civil action brought in the name of the people of the City and County of San Francisco by the City Attorney in any court of competent jurisdiction. Any penalty assessed and recovered in an action brought pursuant to this paragraph shall be paid to the City Treasurer and credited to the Department of Building Inspection's Special Fund.

Any person, the owner or the owner's authorized agent, who violates, disobeys, omits, neglects, or refuses to comply with, or who resists or opposes the execution of any of the provisions of this code, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding \$500, or by imprisonment not exceeding six months, or by both such fine and imprisonment, unless otherwise provided in this code, and shall be deemed guilty of a separate offense for every day such violation, disobedience, omission, neglect or refusal shall continue. Any person who shall do any work in violation of any of the provisions of this code, and any person having charge of such work who shall permit it to be done, shall be liable for the penalty provided.

1           It shall be unlawful for any person to interfere with the posting of any notice  
2 provided for in this code, or to tear down or mutilate any such notice so posted by the  
3 Department of Building Inspection.  
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5 ~~089-23.~~ 89.23. Add the following new section:

6 ~~089-23.~~ 89.23. **Unsafe Buildings or Structures.** Any buildings, structures, or parts  
7 thereof, shall be considered unsafe when any of the following conditions are present:

8           **(a) (A)** Electrical equipment, wiring and systems deemed hazardous to human life  
9 or structure safety;

10           **(b) (B)** Electrical equipment, wiring and systems that are in violation of the code  
11 that was in effect at the time of construction or installation or such work was  
12 performed without permit or approval;

13           **(c) (C)** Change in occupancy without complying with the provision of  
14 Section ~~089-15~~ 89.15 of this code.

15           Such unsafe building, structure, property or portion shall be vacated, repaired,  
16 altered or demolished in accordance with Section 102 of the Building Code.  
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18 ~~089-24.~~ 89.24. Add the following new section:

19 ~~089-24.~~ 89.24. **Inspection.**

20 **(a) (A) General.** All electrical equipment, wiring and systems, regulated by this  
21 code and for which a permit is required shall be subject to inspection to insure  
22 compliance with this code. Upon the completion and final approval of the permitted  
23 installation and payment of all permit and inspection fees, a Declaration of Inspection  
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1 shall be issued. Said declaration shall indicate in concise terms the electrical  
2 installation thus approved and the date of approval.

3 ~~(b)~~ **(B) Unlawful Use of Electrical Energy.** It shall be unlawful to energize an electrical  
4 installation in, on or about any building, structure or property ~~in the City and County of~~  
5 ~~San Francisco~~ unless a ~~Certificate to Connect Current~~ **"Approval to Energize Service"** (green  
6 tag) has been issued. The certificate to connect current authorizes the owner of the  
7 structure to energize the permitted installation.

8 *New branch circuit wiring may be energized before a Certificate of Occupancy is issued when the*  
9 *electrical installation and construction site conditions are judged to be safe by the Director. Failure*  
10 *to maintain electrical safety will result in the issuance of a Notice of Violation or a Stop Work Order.*

11 ~~(c)~~ **(C) Inspection Requests.** It shall be the responsibility of the permit holder to notify  
12 the Electrical Inspection Division orally or in writing when the permitted installation  
13 will be ready for inspection. Such notification shall be given at least 24 hours before  
14 any inspection is desired. Inspections may be performed outside of normal inspection  
15 hours by prior arrangement and prepayment. See Section 110, Table 1-G - Off hours  
16 Inspections -of the Building Code for the applicable fees.

17 ~~(d)~~ **(D) Required Inspections.** Required inspections shall include:

18 (1) **Precover Inspection.** Electrical equipment, wiring and systems  
19 authorized by permit shall be inspected for code compliance prior to covering or  
20 concealing.

21 (2) **Final Inspection.** Final inspection and demonstration of satisfactory  
22 operation shall be made after the installation authorized by permit has been completed.

23 (3) **Other Inspection.** As may be required to insure compliance with  
24 the provisions of this code.



1 ~~(e)~~ **(E) Electrical Wiring or Installation Unlawful to Conceal.** It shall be unlawful to  
2 conceal, cover, or put into use electrical wiring, installations, or parts thereof, until  
3 such has been inspected and accepted as prescribed in this code. Whenever such  
4 work is concealed or covered before first having been inspected and approved, or  
5 whenever electrical wiring or systems are installed and concealed or covered without a  
6 permit, the Director may require, by written notice to the responsible person(s) that  
7 such wiring or installation be exposed for inspection. The work of exposing and  
8 reconstructing portions of a structure for such work shall not entail expense to the City  
9 and County of San Francisco or any of its officials or employees.

10 ~~(F)~~ **(F) Reinspections.** Reinspections shall be required when any of the following  
11 conditions occurs:

12 (1) When the portion of the work for which inspection is requested is  
13 incomplete or not code complying.

14 (2) When previously identified deficiencies in the work are not properly  
15 corrected.

16 (3) When the approved construction documents are not available to the  
17 inspector.

18 (4) When access is not provided on the date and time of the inspection  
19 appointment.

20 (5) When there are deviations from the approved construction documents.

21 The first reinspection for failure to comply with code requirements shall not be  
22 assessed an reinspection fee. All subsequent reinspections on a job for the same or  
23 subsequent errors or omissions shall be charged with a reinspection fee. A certificate  
24 of final completion and occupancy or final approval shall not be granted until the  
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1 required fees are paid. See Section 110, Table 1-G - Inspections, Surveys and Reports -  
2 of the Building Code for applicable reinspection fees.

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4 ~~089-25.~~ 89.25. Add the following new section:

5 ~~089-25.~~ 89.25. Survey. An electrical survey may be requested when an electrical  
6 inspector's assistance is desired to establish code compliance of existing or proposed  
7 electrical equipment, wiring and installations. See Section 110, Table 1-G of the  
8 Building Code for applicable fees.

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10 ~~089-26.~~ 89.26. Add the following new section:

11 ~~089-26.~~ 89.26. Board of Examiners. Application may be made to the Board of Examiners  
12 for approval of alternate materials, methods and types of construction and for  
13 variances from the provisions of this code. See Building Code, Section 105.1.

14  
15 Section 3. The San Francisco Building Code is hereby amended by amending Article  
16 100 to read as follows:

#### 17 ARTICLE 100 – DEFINITIONS

18 **Scope.** Add the following as the third paragraph of this section:

19  
20 Where terms, phrases and words are not defined, they shall have the same meaning as  
21 provided in the Building Code or shall have their ordinary accepted meanings within  
22 the context with which they are used. Webster's Third New International Dictionary of  
23 the English Language, Unabridged, copyright 1986, shall be considered as providing  
24 ordinarily accepted meanings.

1                    ~~A. I.~~ I. General.

2        Add the following new definitions:

3                    **Building Official:** The Director of the Department of Building Inspection, or the  
4        Director's duly authorized representative. The Director is the authorized representative  
5        of the Building Inspection Commission charged with the administration and  
6        enforcement of this code.

7                    **Building Code:** The San Francisco Building Code.

8                    **Construction Documents, Approved:** Includes construction documents, permit  
9        applications, other required documents and data which comprise the permit approved  
10       by the Director.

11                   **Different System:** A system which derives its supply from a different source,  
12       such as from different sets of service entrance conductors, separate utility metered  
13       conductors, individual transformers, or banks of transformers which do not have their  
14       secondary windings interconnected.

15                   **Director:** The Director of the Department of Building Inspection and is the  
16       Building Official.

17                   **Opening:** An opening is:

- 18                   (1) An electrical outlet supplying current to switches, controllers, convenience  
19                   receptacles, lighting fixtures, fixed appliances, motors, or other utilization  
20                   equipment;
- 21                   (2) A power source including utility company service entrances, a generator or  
22                   battery system; or
- 23                   (3) An item of distribution equipment including a switchboard, panelboard, motor  
24                   control center, or transformer.

1 Subject to Physical Damage: Wiring installed within ~~8 feet (2.44 m)~~ 2.44 m (8 feet) of  
2 a walking surface or finished floor is considered subject to physical damage.

3 *Revise the following definition:*

4 ~~*Qualified Person. One who has skills and knowledge related to the construction and*~~  
5 ~~*operation of the equipment and has received safety training on the hazards involved.*~~

7 Section 4. The San Francisco Building Code is hereby amended by amending Article  
8 110 to read as follows:

9 **ARTICLE 110 – REQUIREMENTS FOR**  
10 **ELECTRICAL INSTALLATIONS**

11 110.15. Revise the following section:

12 110.15. High-Leg Marking. On a 4-wire delta connected system where the midpoint of  
13 one phase winding is grounded to supply lighting and similar loads, the conductor or busbar having  
14 the higher phase voltage to ground shall be durably and permanently marked by an outer finish that  
15 is purple in color, or by other effective means.

17 ~~110-26(a).~~ 110.26(A). Revise this section as follows:

18 ~~(a) (A)~~ **(A) Working Space.** Working space for equipment operation at 600 volts,  
19 nominal, or less to ground and likely to require examination, adjustment, servicing, or  
20 maintenance while energized shall **be level and** comply with the dimensions of (1), (2) and (3)  
21 or as required or permitted elsewhere in this code.

23 ~~110-26(b).~~ 110.26(B). Revise this section as follows:

24 ~~(b) (B)~~ **(B) Clear Spaces.** Working space required by this section shall not be used

1 for storage. When normally enclosed live parts are exposed for inspection or servicing, the  
2 working space, if in a passageway or general open space, shall be suitably guarded. **The**  
3 **standing area of the workspace shall be level.**

4  
5 ~~110-26(e), 110.26(C)~~. **Revise this section as follows:**

6 ~~(e)~~ **(C) Access and Entrance to Working Space.**

7 ~~At least one entrance of sufficient area shall be provided to give access to the working space about~~  
8 ~~electric equipment.~~

9 **(2) Large Equipment.** For equipment rated 1200 amperes or more ~~and over 6 feet (1.83 m) wide~~  
10 that contains overcurrent devices, switching devices, or control devices, there shall be one  
11 entrance not less than ~~24 inches (610 mm)~~ 610 mm (24 inches) wide and ~~6½ feet (1.98 m)~~ 1.98 m  
12 ~~(6½ feet)~~ high at each end of the working space. **Where the entrance has a personnel door**  
13 **(s), the door(s) shall open in the direction of egress and equipped with panic bars,**  
14 **pressure plates, or other devices that are normally latched but open under simple**  
15 **pressure.**

16  
17 ~~110-26(e), 110.26(E)~~. **Revise the following section:**

18 ~~(e)~~ **(E) Headroom.** The minimum headroom of working spaces **required** about service  
19 equipment, switchboards, panelboards or motor control centers shall be ~~6½ ft (1.98 m)~~ 1.98m  
20 ~~(6½ ft)~~. Where the electrical equipment exceeds 1.98m (6½ ft) ~~6½ ft (1.98 m)~~ in height, the  
21 minimum headroom shall not be less than the height of the equipment.

22  
23 ~~Exception: Service equipment or panelboards that do not exceed 200~~

1 *Amperes may be installed in spaces with a minimum of 6 feet headroom in existing dwelling*  
2 *units.*

3 *(FPN): For higher voltages see Article 710.*

4  
5 **110-33.(a) Revise this section as follows:**

6  
7 ~~*(a) Entrance. At least one entrance of sufficient area shall be provided to give access to the working*~~  
8 ~~*space about electric equipment. Where the entrance has a personnel door (s), the door(s) shall open*~~  
9 ~~*in the direction of egress and equipped with panic bars, pressure plates, or other devices that are*~~  
10 ~~*normally latched but open under simple pressure.*~~

11  
12 Section 5. The San Francisco Building Code is hereby amended by amending Article  
13 210 to read as follows:

14 **ARTICLE 210 – BRANCH CIRCUITS**

15  
16 ~~210-5(e).~~ **210.5(C).** Add the following new section:

17 ~~(e)~~ **(C)** Ungrounded Conductors. Ungrounded conductor insulation shall be color coded  
18 as follows:

19 **See Section 200.7 for limitations on re-identification of white or gray conductors.**

- 20 **(1) 120/240 volt ~~One hundred twenty/two hundred forty-volt~~ 3-wire circuits - "A" phase**  
21 **black, "B" phase red; 120/208 volt 4-wire 3-phase wye circuits - "A" phase**  
22 **black, "B" phase red, "C" phase blue; 120/240 volt 3-phase delta circuits - "A"**  
23 **phase black, "B" (high leg) phase purple, "C" phase red; 277/480 volt 4-wire 3-**  
24 **phase wye circuits - "A" phase brown, "B" phase orange, "C" phase yellow;**  
25

1 ungrounded conductors for other voltages shall be identified by different color coding,  
2 marking tape, tagging, or other approved means.

3 (2) Conductors for switch legs may be of a different color than the ungrounded  
4 circuit phase conductor other than green, white or grey when suitably identified at  
5 pull, junction and outlet boxes with marking tape, tagging, or other equally  
6 effective means. The color green, white or grey shall not be used for identification

7 (3) Conductor insulation shall contain the applicable color pigment for circuit  
8 wire #14 AWG through #10 AWG. Ungrounded conductors #8 AWG and larger and  
9 ungrounded conductors of any size in cable assemblies may be ~~pigmented colors other~~  
10 ~~than green, provided they are~~ suitably identified at pull, junction and outlet boxes with  
11 marking tape, tagging, or other equally effective means.

12 ~~(FPN): See Section 200-7 for limitations on the use of white and natural grey colors.~~

13 Exception: Extensions of existing non-color-coded wiring systems need not be  
14 color coded.

15 Section 6. The San Francisco Building Code is hereby amended by amending Article  
16 215 to read as follows:

## 17 ARTICLE 215 – FEEDERS

18  
19 ~~215-8.~~ 215.8 Revise this section as follows:

20 ~~215-8.~~ 215.8 Means of Identifying Conductor with Higher Voltage to Ground.

21 On a four-wire, delta-connected secondary where the midpoint of one phase winding is  
22 grounded to supply lighting and similar loads, the phase conductor having the higher voltage  
23 to ground shall be identified by an outer finish that is **purple** in color or by tagging or other  
24 effective means. Such identification shall be placed at each point where a connection is made  
25

1 if the grounded conductor is also present. **Identification of ungrounded feeder conductors**  
2 **shall comply with Section ~~210-5(e)~~ 210.5(C).**

3  
4 Section 7. The San Francisco Building Code is hereby amended by amending Article  
5 220 to read as follows:

6 **ARTICLE 220 · BRANCH-CIRUIT, FEEDER**  
7 **AND SERVICE CALCULATIONS**

8 ~~220-35(1).~~ 220.35(1). **Revise the exception as follows:**

9 Exception: If maximum demand data for a one-year period is not available,  
10 the calculated load shall be permitted to be based on the maximum demand (measure of  
11 average power demand over a fifteen-minute period) continuously recorded over a minimum  
12 thirty day period using recording ammeter or power meter connected to the highest load  
13 phase of the feeder or service, based on the initial loading at the start of the recording. The  
14 recording shall reflect the true maximum demand of the feeder or service by being taken when  
15 the building or space is occupied and shall include by measurement or calculation the larger  
16 of the heating or cooling equipment load, and other loads that may be periodic in nature due  
17 to seasonal or similar conditions. **The method of recording and the demand conditions**  
18 **shall be approved by the department prior to implementation.**

19  
20 Section 8. The San Francisco Building Code is hereby amended by amending Article  
21 230 to read as follows:

22 **ARTICLE 230 – SERVICES**

23 ~~230-40. Revise this section as follows:~~



1 ~~230-40. Number of Service-Entrance Conductor Sets. Each service drop or lateral shall supply only~~  
2 ~~one set of service entrance conductors.~~

3 ~~Exception: A single family dwelling unit and a separate structure shall be permitted~~  
4 ~~to have one set of service entrance conductors run to each from a single service drop~~  
5 ~~or lateral.~~

6  
7 ~~230-43. 230.43. Revise this section as follows:~~

8  
9 ~~230-43. 230.43. Wiring Methods for 600 Volts Nominal, or Less.~~

10 ~~(a) (A) General.~~ Service-entrance conductors shall be installed in accordance with the  
11 applicable requirements of this code covering the type of wiring method used and limited to  
12 the following methods: (1) (reserved); (2) (reserved); (3) rigid metal conduit; (4) intermediate  
13 metal conduit; (5-8) (reserved); (9) busways; (10) auxiliary gutters; ~~or~~  
14 (11) rigid nonmetallic conduit; (12-13) (reserved); (14) mineral-insulated, metal-sheathed  
15 cable; (15-16) (reserved).

16 ~~(b) (B) Raceway Size. Minimum raceway size shall comply with the following:~~

17 (1) Except as provided in Section ~~230-43(b)~~230.43(B) (2) and (3), the minimum size  
18 raceway installed for service entrance conductors shall be 1 1/4 inch (31.8 mm).

19 (2) Raceways for service entrance conductors for sign or billboard lighting shall  
20 not be smaller than 3/4 inch (19.1 mm) conduit.

21 (3) Installations consisting of not more than two 2-wire branch circuits may be  
22 supplied by No. 8 conductors in 3/4 inch (19.1 mm) conduit. Exception: New service  
23 entrance conductors may be repulped in previously approved service raceways,  
24  
25

1 provided the installation complies with the requirements of Section ~~089-13~~ 89.13 and  
2 Chapters 1, 2 and 3.

3 (FPN): Refer to electric utility server requirements for raceway sizes.

4 ~~230-56.~~ 230.56. Revise this section as follows:

6 ~~230-56.~~ 230.56. **Service Conductor with the Higher Voltage to Ground.**

8 On a four-wire delta connected service where the midpoint of one phase winding  
9 is grounded, the service conductor having the higher phase voltage to ground shall  
10 be durably and permanently marked by an outer finish that is **purple** in color or  
11 by other effective means, at each termination or junction point.

13 ~~230-71.(a).~~ 230.71(A). Revise this section as follows:

15 230.71(A). ***Maximum Number of Disconnects.***

17 ~~(a)~~(A) **General.** The service disconnecting means for each service permitted by Section  
18 ~~230-2~~ 230.2, or for each set of service entrance conductors permitted by Section ~~230-40~~ 230.40,  
19 Exception No. 1 or 3, shall consist of a **single circuit breaker or switch and set of fuses.**  
20 For the purpose of this section, disconnecting means used solely for the control circuit of the  
21 ground-fault protection system, installed as part of the listed equipment, shall not be  
22 considered a service disconnecting means.

23 **Exception No.1: In buildings with only residential occupancies not more than six**  
24 **switches or six circuit breakers mounted in a single enclosure, in a group of**  
25 **separate enclosures, or in or on a switchboard shall be allowed. A *single***



1           (a) **(A) Aluminum or Copper-Clad Aluminum**

2 **Conductors.** Insulated or bare aluminum or copper-clad aluminum grounding conductors  
3 shall not be used where in direct contact with masonry or the earth or where subject to  
4 corrosive conditions. Aluminum or copper-clad aluminum grounding conductors shall not be  
5 **installed on the outside of a building or structure or ~~8 in. (457mm)~~ 457 mm (8 in.)** of the  
6 earth.

7  
8 **~~250-64(b).~~ 250.64(B).** Revise this section as follows:

9 **~~(b)~~ (B) Grounding Electrode Conductor.** A grounding electrode conductor or its enclosure  
10 shall be securely fastened to the surface on which it is carried. A No. 4, copper or aluminum,  
11 or larger conductor shall be protected if exposed to severe physical damage. A No. 6  
12 grounding conductor that is free from exposure to physical damage shall be permitted to be  
13 run along the surface of the building construction without metal covering or protection where it  
14 is securely fastened to the construction; otherwise, it shall be in rigid metal conduit,  
15 intermediate metal conduit, rigid nonmetallic conduit, electrical metallic tubing, or cable armor.  
16 Grounding conductors smaller than No. 6 shall be in rigid metal conduit, intermediate metal  
17 conduit, rigid nonmetallic conduit, electrical metallic tubing, or cable armor. **Cable armor shall**  
18 **not be installed on the outside of a building or structure.**

19  
20           Section 10. The San Francisco Building Code is hereby amended by amending Article  
21 89 to read as follows:

22   **ARTICLE 300 – WIRING METHODS**

23  
24 **~~300-3(c)(1)~~ Revise this section as follows:**

1 ***(e) Conductors of Different Systems.***

2 ~~*(1) 600 Volts, Nominal, or Less. Conductors of circuits rated 600 volts, nominal, or less,*~~  
3 ~~*alternating current circuits, and direct current circuits shall be permitted to occupy the same*~~  
4 ~~*equipment wiring enclosure, cable, or raceway. All conductors shall have an insulation rating equal to*~~  
5 ~~*at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway.*~~

6 ~~*Exception No. 1: For solar photovoltaic systems in accordance with Section 690.4(b).*~~

7 ~~*Exception No. 2: For (1) separate services, or (2) separately derived systems, conductors shall not be*~~  
8 ~~*installed within the same enclosure, cable, or raceway unless installed in accordance with Section*~~  
9 ~~*700.9 or Article 725.*~~

10 ~~*Exception No. 3: Utility metered conductors shall not be installed within the same enclosure, cable,*~~  
11 ~~*or raceway as unmetered conductors after they leave the meter enclosure.*~~

12 ~~*Exception No. 4: Conductors supplied from different utility meters shall not be installed within the*~~  
13 ~~*same enclosure, cable, or raceway after they leave the meter enclosure.*~~

14 ~~*(FPN): See Section 725.54(a)(1) for Class 2 and Class 3 circuit conductors.*~~

15  
16 **300.3(C)(1) Revise this section as follows:**

17 **(C) Conductors of Different Systems.**

18 **(1) 600 Volts, Nominal, or Less.**

19 **Conductors from separately derived systems, from separate services, or from separate**  
20 **utility meters shall not be permitted to occupy the same equipment wiring enclosure, cable,**

21 **or raceway with conductors from other systems, services, or meters. Exception No. 1:**

22 **For solar photovoltaic systems in accordance with Section ~~690.4(b)~~ 690.4(B).**

23 **Exception No. 2: Conductors installed in accordance with Section 700.9.**

24 **Exception No. 3: Class 1, 2, or 3 conductors installed in accordance with Article 725.**

1 Exception No. 4: Conductors in auxiliary gutters connected to the separately derived systems,  
2 service equipment, or meter bank.

3 (FPN): See Section 725.55(A) for Class 2 and Class 3 circuit conductors.

4  
5 ~~300-4(g)~~, 300.4(G). Add a definition as follows:

6  
7 ~~(g)~~ (G) Subject to Physical Damage.

8 Premises wiring systems installed less than ~~8 feet (2.44 m)~~ 2.44m (8 feet) above a walking  
9 surface or finished floor are considered subject to physical damage.

10  
11 Section 11. The San Francisco Building Code is hereby amended by amending Article  
12 333 to read as follows:

13 **ARTICLE ~~333~~ 320 – ARMORED CABLE: TYPE AC**

14  
15 ~~333-21~~, 320.108 Revise this section as follows:

16  
17 ~~333-21~~, 320.108 **Grounding.** Type AC cable shall provide an adequate path for equipment  
18 grounding as required by Section ~~250-2(d)~~ 250.2(D). **An equipment grounding conductor,**  
19 **sized as required by Table ~~250-95~~ 250.122, shall be provided within the cable assembly.**

20  
21 Section 12. The San Francisco Building Code is hereby amended by amending Article  
22 334 to read as follows:

23 **ARTICLE ~~334~~ 330 – ARMORED CABLE: TYPE MC**

1 ~~334-4. 330.12.~~ **Revise this section as follows:**

2  
3 ~~334-4. 330.12.~~ **Uses Not Permitted.** Type MC cable shall not be used where exposed to the  
4 following destructive corrosive conditions, ~~such as wet locations, direct burial in the earth, in~~  
5 ~~concrete, or where exposed to cinder fills, strong chlorides, caustic alkalis, or vapors of chlorine or of~~  
6 ~~hydrochloric acids~~ , unless the metallic sheath is suitable for the conditions or is protected by  
7 material suitable for the conditions:

8 ~~(1) Direct burial in the earth, (2) In concrete, (3) Where exposed in cinder fills, strong chlorides,~~  
9 ~~caustic alkalis, or vapors of chlorine or of hydrochloric acids, (4) Wet locations.~~

10  
11 ~~334-10(b)~~ *Revise this section as follows:*

12  
13 ~~334-10(b) Unsupported Cables.~~ *Type MC cable shall not be required to be supported and secured*  
14 *where the cable is fished between access points, or where used in lengths not more than 6 feet (2.44 m)*  
15 *from an outlet for connections within an accessible ceiling to lightning fixture(s) or equipment.*

16  
17 ~~334-12. 330.40~~ **Revise this section as follows:**

18 ~~334-12. 330.40~~ **Fittings.** Fittings used for connecting Type MC cable to boxes, cabinets, or  
19 other equipment shall be listed and identified for such use. ~~Where single conductor cables enter~~  
20 ~~ferrous metal boxes or cabinets, the installation shall comply with Section 300-20 to prevent inductive~~  
21 ~~heating.~~ **An approved insulating bushing shall be installed between the conductors and**  
22 **the metallic sheath.**

1 ~~334-23.~~ 330.108 Revise this section as follows:

2  
3 ~~334-23.~~ 330.108 **Grounding.** Type MC cable shall provide an adequate path for equipment  
4 grounding as required by Article 250. **An equipment grounding conductor, sized as**  
5 **required by Table ~~250-122~~ 250.122 shall be provided within the cable assembly.**

6  
7 Section 13. The San Francisco Building Code is hereby amended by amending Article  
8 336 to read as follows:

9 **ARTICLE ~~336~~ 334 – NONMETALLIC-SHEATHED CABLE**

10  
11 ~~336-5 (a)(10) Add new section as follows:~~

12 ~~336-5 (a)(10) Uses Not Permitted:~~

13 ~~(10) in any nonresidential structure or occupancy~~

14 ~~336-6(b) Add the following to the end of this section:~~

15 ~~(FPN): See San Francisco Electrical Code Section 300-4(g)~~

16  
17 334.10. Revise this section as follows:

18  
19 334.10 Uses Permitted. Type NM, Type NMC, and Type NMS cables shall be  
20 Permitted to be used in the following

21 (1) One- and two-family dwellings,

22 (2) Multifamily dwellings permitted to be of Types III, IV, and V construction

23 up to 4 stories in height except as prohibited by 334.12.

24 (3) Other structures permitted to be of Types III, IV, and V construction except as  
25



1 ~~Prohibited in 334.12. Cables shall be concealed within walls, floors, or ceilings that~~  
2 ~~Provide a thermal barrier of material that has at least a 15 minute finish rating as identified in listings~~  
3 ~~of fire-rated assemblies.~~

4  
5 334.12(11). Add a new section as follows:

6 (11) In any nonresidential structure or occupancy.

7  
8 Section 14. The San Francisco Building Code is hereby amended by deleting Article  
9 336 to read as follows:

10 ~~**ARTICLE 336 – NONMETALLIC SHEATHED CABLE**~~

11  
12 Section 336-5(a) Add a new section as follows:

13 (10) In any nonresidential structure or occupancy.

14  
15 Section 336-6(b) Add the following to the end of this section:

16 (FPN): See San Francisco Electrical Code Section 300-4(g)

17  
18 Section 15. The San Francisco Building Code is hereby amended by amending Article  
19 340 to read as follows:

20 ~~**ARTICLE 340 – UNDERGROUND FEEDER AND BRANCH**~~

21 ~~**CIRCUIT CABLE: TYPE UF**~~

22  
23 340.10(1). Revise this section as follows:

1 (1) for use underground in systems not exceeding 50 volts, including direct burial in the earth. For  
2 underground requirements see 300.5.

3  
4 Section 16. The San Francisco Building Code is hereby amended by amending Article  
5 348 to read as follows:

6 **ARTICLE 348 – ~~ELECTRICAL METALLIC TUBING~~ FLEXIBLE METAL**  
7 **CONDUIT: TYPE FMC**

8  
9 ~~348-5(6) Add the following new section.~~

10 ~~348-5(6) In concrete slabs on grade.~~

11 ~~348-6 Add a second paragraph as follows:~~

12 ~~Where EMT emerges from concrete in a damp or wet location, it shall be protected against corrosion~~  
13 ~~at the point of emergence by a wrapping of PVC tape, or by other approved means.~~

14  
15 348.10(10). Revise this section as follows:

16  
17 348.10(10). Uses Permitted. FMC shall be permitted to be used in concealed locations and where  
18 necessary for flexibility in lengths not to exceed 1.829 m (6 feet).

19  
20 348.12). Revise this section as follows:

21 (1) In wet locations.

22  
23 Section 17. The San Francisco Building Code is hereby amended by amending Article  
24 350 to read as follows:

1                                   **ARTICLE 350 – FLEXIBLE METAL CONDUIT LIQUIDTIGHT**

2   **FLEXIBLE METAL CONDUIT: TYPE LFMC**

3  
4 ***350-4. Revise this section as follows:***

5  
6 ***350-4. Uses Permitted.*** ~~Flexible metal conduit shall be listed and shall be permitted to~~  
7 ~~be used in concealed locations and where necessary for flexibility in lengths not to exceed 6 feet~~  
8 ~~(1.829 m).~~

9  
10 ***350-5(1). Revise this section as follows:***

11                   ***(1) In wet locations.***

12  
13 **350.10. Revise this section as follows:**

14 **350.10. Uses Permitted. LFMC shall be permitted to be used either in concealed**  
15 **locations or in exposed locations in lengths not to exceed 1.829 m (6 feet), as follows:**

16  
17                   Section 18. The San Francisco Building Code is hereby amended by amending Article  
18 347 to read as follows:

19                                   **ARTICLE ~~347~~ 352 – RIGID NONMETALLIC CONDUIT**

20  
21 **~~347-2. 352.10~~ Revise this section as follows:**

22  
23 **~~347-2. 352.10~~ Uses Permitted.** The use of listed rigid nonmetallic conduit and fittings shall be  
24 permitted under the following conditions:  
25

1 (FPN) Extreme cold may cause some nonmetallic conduits to become brittle and therefore  
2 more susceptible to damage from physical contact.

3  
4 ~~(a) (A)~~ Concealed. **Embedded** in concrete walls, floors, and ceilings. **Metallic raceways shall**  
5 **be used when emerging from the concrete.**

6 ~~(b) Corrosive Influences. In locations subject to severe corrosive influences as covered in Section 300-~~  
7 ~~6 and where subject to chemicals for which the materials are specifically approved.~~

8 ~~(c) Cinders. In cinder fill.~~

9 ~~(d) Wet Locations. In portions of dairies, laundries, canneries, or other wet locations and in locations~~  
10 ~~where walls are frequently washed, the entire conduit system including boxes and fittings used~~  
11 ~~therewith shall be so installed and equipped as to prevent water from entering the conduit. All~~  
12 ~~supports, bolts, straps, screws, etc., shall be of corrosion-resistant materials or be protected against~~  
13 ~~corrosion by approved corrosion-resistant materials.~~

14 **(e) (Reserved)**

15 **(f) (Reserved)**

16 ~~(g) Underground Installations. For underground installations, See Sections 300-5~~  
17 ~~and 300-50~~

18 ~~(h) Support of Conduit Bodies. Rigid nonmetallic conduit shall be permitted to support nonmetallic~~  
19 ~~conduit bodies not larger than the largest trade size of an entering raceway. The conduit bodies shall~~  
20 ~~not contain devices or support fixtures or other equipment.~~

21  
22 Section 19. The San Francisco Building Code is hereby amended by amending Article  
23 351 to read as follows:

24 **ARTICLE ~~351~~ 356 – LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND**  
25

1                                   **LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT: TYPE LFNC**

2  
3    Revise the first sentence of this section as follows:

4    ~~351-23.(a)~~ **356.10 Uses Permitted.** LFNC shall be permitted to be used in exposed  
5    or concealed locations for systems not exceeding 50 volts for the following purposes:

6  
7    ~~(a) Permitted. Listed liquidtight flexible nonmetallic conduit shall be permitted to be used in exposed~~  
8    ~~or concealed locations in systems not exceeding 30 volts:~~

9    ~~(FPN): Extreme cold may cause some types of nonmetallic conduits to become brittle and therefore~~  
10   ~~more susceptible to damage from physical contact.~~

11    ~~(1) Where flexibility is required for installation, operation, or maintenance;~~

12    ~~(2) Where protection of the contained conductors is required from vapors, liquids, or solids;~~

13    ~~(3) For outdoor locations where listed and marked as suitable for the purpose;~~

14       ~~(FPN): For marking requirements, see Section 110-21.~~

15    ~~(4) Reserved~~

16    ~~(5) Liquidtight flexible nonmetallic conduit as defined in Section 351-22(2) shall be permitted to be~~  
17    ~~installed in lengths longer than 6 feet (1.829 m) where secured in accordance with Section 351-27.~~

18    (6) As a listed manufactured prewired assembly, ½ inch (12.7 mm) through 1 inch (15.4 mm)  
19    conduit, as defined in Section 351-22(2).

20  
21    ~~351-23.(b)~~ **356.12(4)** **Revise item 4 of this section as follows:**

22    (4) Where voltage of the contained conductors is in excess of 50 volts, nominal.  
23  
24  
25

1 Section 20. The San Francisco Building Code is hereby amended by amending Article  
2 348 to read as follows:

3 **ARTICLE ~~348~~ 358 – ELECTRICAL METALLIC TUBING: TYPE EMT**

4  
5 **358.10(B). Add a second paragraph as follows:**

6 **Where EMT emerges from concrete in a damp or wet location, it shall be protected against corrosion**  
7 **at the point of emergence by a wrapping of PVC tape, or by other approved means.**

8  
9 **358.12(7). Add the following new section:**

10 **(7) In concrete slabs on grade.**

11  
12 Section 21. The San Francisco Building Code is hereby amended by amending Article  
13 352 to read as follows:

14 **ARTICLE ~~352~~ 378 – ~~SURFACE METAL RACEWAYS AND SURFACE~~**  
15 **~~NONMETALLIC RACEWAYS~~ NONMETALLIC WIREWAYS**

16  
17 **~~352-22(b)(3) Revise this section as follows:~~**

18 **~~(3) Where the voltage is 50 volts or more between conductors;~~**

19  
20 **378.12(6). Add new subsection 6 as follows:**

21 **(6) Where the voltage of the contained conductors is in excess of 50 volts.**

22  
23 Section 22. The San Francisco Building Code is hereby amended by amending Article  
24 331 to read as follows:

1                    **ARTICLE ~~331~~ 362 – METAL WIREWAYS AND NONMETALLIC WIREWAYS**

2    **ELECTRICAL NONMETALLIC TUBING**

3  
4                    ~~362-16. Add item 6 to this section as follows:~~

5                    (6) ~~Where the voltage is 50 volts or more between conductors.~~

6  
7                    ~~331-3. Revise this section as follows:~~

8                    ~~331-3. 362.10. Revise this section as follows:~~

9  
10                    ~~331-3. 362.10. Uses Permitted. The use of electrical nonmetallic tubing and fittings~~  
11                    ~~shall be permitted in the following:~~

12                    (1) **(Reserved)**

13                    (2) **(Reserved)**

14                    (3) In locations subject to severe corrosive influences as covered in Section ~~300-6~~ 300.6  
15                    and where subject to chemicals for which the materials are specifically approved.

16                    (4) **(Reserved)**

17                    (5) **(Reserved)**

18                    (6) Encased in poured concrete, or embedded in a concrete slab on grade where  
19                    ENT is placed on sand or approved screenings, provided fittings identified  
20                    for this purpose are used for connections. **Metal raceways shall be provided**  
21                    **when emerging from the concrete.**

22                    (7) **(Reserved)**

23                    (8) **(Reserved)**

1 (FPN): Extreme cold may cause some types of nonmetallic conduits to become brittle and,  
2 therefore, more susceptible to damage from physical contact.

3  
4 Section 23. The San Francisco Building Code is hereby amended by amending Article  
5 362 to read as follows:

6 **ARTICLE ~~362~~ 388 – METAL WIREWAYS AND NONMETALLIC**  
7 **WIREWAYS SURFACE NONMETALLIC RACEWAYS**

8  
9 ~~362-16~~ 388.12(3) Add item 6 to this section as follows:

10  
11 ~~(6)~~ (3) Where the voltage is 50 volts or more between conductors.

12 Section 24. The San Francisco Building Code is hereby amended by deleting Article  
13 384 to read as follows:

14 **~~ARTICLE 384 – SWITCHBOARDS AND PANELBOARDS~~**

15  
16 ~~384 3(e) High-Leg Marking. On a switchboard or panelboard supplied from a four-wire, delta-~~  
17 ~~connected system, where the midpoint of one phase winding is grounded,~~  
18 ~~that phase busbar or conductor having the higher voltage to ground shall be durably~~  
19 ~~and permanently marked by an outer finish that is purple in color, or by other effective means.~~

20  
21 Section 25. The San Francisco Building Code is hereby amended by amending Article  
22 410 to read as follows:

23 **ARTICLE 410 – LUMINAIRES (LIGHTING FIXTURES),**  
24 **LAMP HOLDERS, AND LAMPS ~~AND RECEPTACLE~~**



1  
2 ~~410-16.(e)~~ 410.16 (C) Revise this section as follows:

3 ~~(e)~~ (C) **Suspended Ceilings.** Framing members of suspended ceiling systems used to  
4 support luminaires (fixtures) ~~fixtures~~ shall be securely fastened to each other and shall be  
5 securely attached to the building structure at appropriate intervals. ~~Fixtures~~ Luminaires  
6 (fixtures) shall be securely fastened to the ceiling framing member by mechanical means,  
7 such as bolts, screws, or rivets. Listed clips identified for use with the type of ceiling framing  
8 member(s) and luminaries [fixture(s)] shall also be permitted. ~~All~~  
9 ~~lighting fixtures or lighting fixture outlets supported by suspended ceiling systems shall have~~  
10 ~~supplemental support wires (minimum #12 gauge) connected from the fixture housing or fixture~~  
11 ~~support bracket to the structure above. Recessed lighting fixtures measuring 2 feet (610 mm)~~  
12 ~~nominal or larger in any dimension shall have two (minimum #12 gauge) wires. See Uniform~~  
13 ~~Building Code Standard 25-2. All luminaires (fixtures) or luminaire outlets supported by suspended~~  
14 ~~ceiling systems shall have supplemental support wires (minimum #12 gauge) connected from the~~  
15 ~~fixture housing or fixture support bracket to the structure above. Recessed lighting fixtures~~  
16 ~~measuring 610 mm (2 feet) nominal or larger in any dimension shall have two (minimum #12 gauge)~~  
17 ~~support wires. See Uniform Building Code Standard 25-2.~~

18  
19 Section 26. The San Francisco Building Code is hereby amended by amending Article  
20 411 to read as follows:

21  
22 **ARTICLE 411 – LIGHTING SYSTEMS OPERATING AT 30 VOLTS OR LESS**

23 ~~411-4.~~ 411.4 Revise this section as follows:  
24  
25

1 ~~411-4.411.4~~ **Locations Not Permitted.** Lighting systems operating at 30 volts or less shall  
2 not be installed (1) where concealed or extended through a building wall, **floor, ceiling or**  
3 **suspended ceiling**, unless using a wiring method specified in Chapter 3; or (2) within  
4 ~~10 feet (3.05 m)~~ 3.05 m (10 feet) of pools, spas, fountains, or similar locations, except as  
5 permitted by Article 680.

6  
7 Section 27. The San Francisco Building Code is hereby amended by amending Article  
8 645 to read as follows:

9 **ARTICLE 645 – INFORMATION TECHNOLOGY EQUIPMENT**

10  
11 ~~645-5(b).~~ *Revise this section as follows:*

12 ~~(b) **Connecting Cables.** The data processing system shall be permitted to be connected to a branch~~  
13 ~~circuit by any of the following means listed for the purpose:~~

14 ~~(1) Computer/data processing cable and attachment plug cap.~~

15 ~~(2) Flexible cord and attachment plug cap.~~

16 ~~(3) Cord set assembly. Where run on the surface of the floor, they shall be protected against~~  
17 ~~physical damage.~~

18 ~~(FPN): See NFPA 75~~

19  
20 ~~645-5.(d)~~ 645.5(D) **Revise item 2 of this section as follows:**

21 **(2)** The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid  
22 metal conduit, intermediate metal conduit, electrical metallic tubing, metal wireway, surface  
23 metal raceway with metal cover, flexible metal conduit, liquidtight flexible metal conduit, Type  
24  
25

1 MI cable, Type MC cable, or Type AC cable. These supply conductors shall be installed in  
2 accordance with the requirements of Section ~~300-11~~ 300.11.

3  
4 Section 28. The San Francisco Building Code is hereby amended by amending Article  
5 700 to read as follows:

### 6 ARTICLE 700 – EMERGENCY SYSTEMS

7  
8 ~~700-12.(e)~~ 700.12(E)(4). **Revise the third paragraph of this section as follows:**

9  
10 Unit equipment shall be permanently fixed in place (i.e., not portable) and shall have all  
11 wiring to each unit installed in accordance with the requirements of wiring methods in Chapter  
12 3. Flexible cord and plug connection shall **not** be permitted.

13 The branch circuit feeding the unit equipment shall be the same branch circuit as that serving  
14 the normal lighting in the area and connected ahead of any local switches.

15 The branch circuit that feeds unit equipment shall be clearly identified at the distribution panel.  
16 Emergency illumination fixtures that obtain power from a unit equipment and  
17 are not part of the unit equipment shall be wired to the unit equipment as required by  
18 Section ~~700-9~~ 700.9 and by one of the wiring methods of Chapter 3.

19  
20 ~~700-16.~~ 700.16. **Revise the first paragraph of this section as follows:**

21  
22 ~~700-16.~~ 700.16. **Emergency Illumination.** Emergency illumination shall include all required  
23 means of egress lighting, illuminated exit signs, and all other lights specified  
24  
25

1 as necessary to provide required illumination. **Emergency illumination lighting shall be**  
2 **provided at the location of for emergency power system supply transfer switches, switchboards and**  
3 **panelboards that supply emergency and legally required stand-by loads. ~~rooms, central fire control~~**  
4 **stations, and mechanical rooms containing required smoke control system equipment.**

5  
6 Section 29. The San Francisco Building Code is hereby amended by amending Article  
7 760 to read as follows:

8 **ARTICLE 760 – FIRE ALARM SYSTEMS**

9  
10 ~~760-25.~~ **760.25. Revise this section the first paragraph of this section as follows:**

11  
12 ~~760-25.~~ **760.25. NPLFA Circuit Wiring Methods.** Installations of nonpower-limited fire alarm  
13 circuits shall be in accordance with Sections ~~110-3(b), 300-11(a), 300-15(b) 300-17,~~ 110.3(B),  
14 300.11(A), 300.15(B), 300.17 and other appropriate articles of  
15 Chapter 3 ~~and with this section.~~ **Conductors shall be installed in metallic**  
16 **raceways or concrete encased nonmetallic raceways**

17 Exception No. 1: As provided in Sections ~~760-26~~ 760.26 through ~~760-28~~ 760.28.

18  
19 ~~760-52.(a)~~ **760.52.(A) Revise this section as follows:**

20  
21 **(a)(A) NPLFA Wiring Methods and Materials.** Installation shall be in  
22 accordance with Section ~~760-25~~ 760.25, and conductors shall be solid or  
23 stranded copper.

1 Exception No. 1: The derating factors given in Section ~~310-15(b)(2)(a)~~ 310.15(B)(2)(a) shall not  
2 apply.

3 Exception No. 2: Conductors and multiconductor cables described in and installed in  
4 accordance with Sections ~~760-27~~ 760.27 shall be permitted.

5 Exception No. 3: Power limited circuits shall be permitted to be reclassified and installed as  
6 nonpower-limited circuits if the power-limited fire alarm circuit markings required by Section  
7 ~~760-42~~ 760.42 are eliminated and the entire circuit is installed using the wiring methods and  
8 materials in accordance with Part B, Nonpower-Limited Fire Alarm Circuits.

9 FPN: Power-limited circuits reclassified and installed as nonpower-limited circuits are  
10 no longer power-limited circuits, regardless of the continued connection to a power -limited  
11 source.

12  
13 ~~760-52.(b)~~ 760.52.(B) **Revise this section as follows:**

14  
15 ~~(b)~~ (B) **PLFA Wiring Methods and Materials.** Power-limited fire alarm conductors and  
16 cables described in Section ~~760-71~~ 760.71 shall be installed in metallic raceway  
17 in accordance with Section ~~760-25~~ 760.25. Devices shall be installed in accordance  
18 with Sections ~~110-3(b), 300-11(a), and 300-15~~ 110.3(B), 300.11(A), and 300.15.

19  
20 760.72. Add the following new section:

21  
22 760.72 System Requirements.

23 (A) Supervising Station Fire Alarm Systems. Supervising station fire alarm system wiring  
24 installed within or on buildings shall be installed in metallic raceways. Exception:

1 Communication conductors installed entirely within a dedicated telephone equipment room,  
2 switchboard area, or fire control room.

3 (B) Source of Power. The circuit supplying the fire warning system may be connected to either  
4 the line or load side of the service disconnect means. Circuits shall be protected by means of  
5 an externally operated fused safety switch or a circuit breaker either in a separate enclosure  
6 or within a switchboard entirely separate from other circuit breakers. The switch and/or  
7 circuit breaker shall be clearly labeled and locked in the on position. Exception. When  
8 connected to a circuit supplied by an emergency generator, or when monitored by a required  
9 24-hour agency, a fire warning system equipped with a standby battery may be provided.

10 (FPN): ~~See NFPA 72 (1999).~~

11  
12 ~~770-8 Revise this section as follows:~~

13 ~~770-8. Mechanical Execution of Work. Optical fiber cables shall be installed in a neat and~~  
14 ~~workmanlike manner. Cables shall be supported by the building structure in such a manner that the~~  
15 ~~cable will not be damaged by normal building use. Optical fiber cable raceway shall be secured and~~  
16 ~~supported in accordance with Section 300-11 and Article 331 Part B.~~

17  
18 Section 30. The San Francisco Building Code is hereby amended by amending Article  
19 800 to read as follows:

20 **ARTICLE 800 – COMMUNICATION SYSTEMS**

21  
22 ~~800-6.800.6.~~ Revise this section as follows:

23 ~~800-6.800.6.~~ **Mechanical Execution of Work.** Communications circuits and equipment shall  
24 be installed in a neat and workmanlike manner. Cables shall be supported by the building

1 structure in such a manner that the cable will not be damaged by normal building use. Such  
2 cables shall be attached to structural components by straps, hangers, or similar fittings designed and  
3 installed so as not to damage the cable. **Where communications cables or conductors are**  
4 **installed ~~in~~ using recognized wiring methods permitted in Chapter 3, the wiring shall be**  
5 **secured and supported in accordance with Section ~~300-11~~ 300.11 and requirements of**  
6 **the applicable raceway Article shall apply.**

7  
8 APPROVED AS TO FORM:  
9 DENNIS J. HERRERA, City Attorney

10 By:

  
11 JUDITH A. BOYAJIAN  
12 Deputy City Attorney  
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# City and County of San Francisco

City Hall  
1 Dr. Carlton B. Goodlett Place  
San Francisco, CA 94102-4689

## Tails Ordinance

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**File Number:** 051443

**Date Passed:**

Ordinance amending Articles 89, 100, 110, 210, 215, 220, 230, 250, 300, 333, 334, 336, 340, 348, 350, 352, 351, 348, 378, 331, 362, 384, 410, 411, 645, 700, 760, and 800 of the Electrical Code to make minor clerical changes for greater clarity, to extend the general requirement for headroom about panelboards to residential panelboards rated not more than 200 amps, to provide that equipment rated 1200 amps or more, regardless of width, requires an entrance to each end of the working space, to allow for non-metallic sheathed cable to be installed in multifamily dwellings with Type III, IV and V construction up to 4 stories in height, and to make findings in accordance with California Health and Safety Code Section 17958.5 as to the local climatic, topological and geological reasons for amending the State Building Code.

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February 7, 2006 Board of Supervisors — PASSED ON FIRST READING

Ayes: 11 - Alioto-Pier, Ammiano, Daly, Dufty, Elsbernd, Ma, Maxwell,  
McGoldrick, Mirkarimi, Peskin, Sandoval

February 14, 2006 Board of Supervisors — FINALLY PASSED

Ayes: 11 - Alioto-Pier, Ammiano, Daly, Dufty, Elsbernd, Ma, Maxwell,  
McGoldrick, Mirkarimi, Peskin, Sandoval



File No. 051443

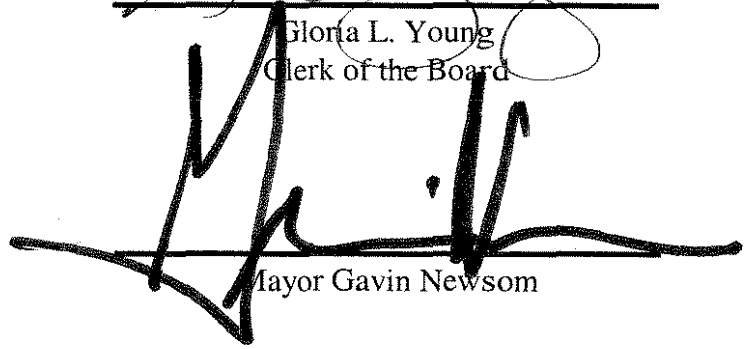
I hereby certify that the foregoing Ordinance  
was FINALLY PASSED on February 14,  
2006 by the Board of Supervisors of the City  
and County of San Francisco.



Gloria L. Young  
Clerk of the Board

2.23.06

Date Approved



Mayor Gavin Newsom