


# Minnesota Attorney General: Administrative Rules Proceedings

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Version 3
August 20, 2018

ADMIN 103 (Rev. 1/78)

**OUR FILE NO. 466**

DEPARTMENT Attorney General

STATE OF MINNESOTA

Office Memorandum

TO : **Sheila S. Fishman**
**Special Assistant**
**Attorney General**

DATE: **September 25, 1978**

FROM : Lee E. Sheehy
Special Assistant
Attorney General

PHONE: 296-1288

SUBJECT: Rules as Approved ~~Department~~ **Department of Administration/Building Code Division, 1978 Edition of the National Electrical Code as approved by the American National Standards Institute (ANSI C1-1978)**

Enclosed herewith are the rules you have submitted for approval. These rules have been approved by this office and filed with the Secretary of State. Note that they have NOT been filed with the State Register; this must be done promptly by your agency.

Upon receipt and before transmittal to your agency, however, it is important that you recheck these rules as to:

1. Affixation of the stamps of the Attorney General and Secretary of State to the last page of the rules;

2. Coverage by these stamps of all rules submitted; and

3. Inclusion of all pages of the rules in the approved set.

Directly following the approved rules is a complete set of required documents and transcript which must be retained with the rules by you or your agency.

If you have any questions in this regard, please contact me.

LES/dw
Enclosure

cc: **Duane Harves**

#466 - Admin - Bldg. Code

RULES REVIEW CHECKLIST

DATE RULES RECEIVED 9-13-78 Temporary Rule _____

Resubmitted and Received _____

DUE DATE 10-3-78

a. Returned to Agency w/o filing w/Secy of State _____
b. Approved 9/25 Date Sent Back to Agency _____

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1. Rules as Adopted _____
2. Rules as Proposed ✓
3. Certificate of Board's Authorizing Resolution, where applicable N.A.
4. Order for Hearing ✓
5. Notice of Hearing ✓
   (i) Sufficiency ✓
6. Secretary of State's List ✓
7. Certificate of Acquisition of Secretary of State's List ✓
8. Affidavit of Mailing ✓
   (i) At least 30 days prior to hearing ✓
9. Statement of Need and Evidence ✓
10. Hearing Examiner's Report ✓
11. Agency's Findings of Fact ✓
12. Certificate of Board's Resolution Adopting Rules, where applicable N.A.
13. Order Adopting ✓
14. Report of Chief Hearing Examiner ✓
    (i) Finding of No Substantial Change ✓
    (ii) Permission to Incorporate by Reference, where applicable N.A.
15. Certificate of Compliance with Rulemaking Procedures ✓
16. Copy of Notice of Intent to Solicit Outside Opinion, where applicable N.A.
17. Petition by Public, where applicable N.A.

ADMIN 1000 (Rev. 1/78)

STATE OF MINNESOTA

DEPARTMENT Attorney General

# Office Memorandum

TO : Lee E. Sheehy
Special Assistant
Attorney General

DATE: September 12, 1978

FROM : Sheila S. Fishman
Special Assistant
Attorney General

PHONE: 296-6204

SUBJECT: Review of Rules - State Building Code - National Electrical Code Adoption by Reference

Attached please find the complete record of the June 22, 1978 hearing of the Building Code Division regarding the adoption by reference of the National Electrical Code. In addition, the manila folder contains the following documents:

(1) Statement of Compliance with rulemaking procedures;

(2) Rules as adopted;

(3) Proposed rule;

(4) Order for Hearing;

(5) Notice of Hearing;

(6) Certificate of Delivery of Secretary of State's List;

(7) Affidavit of Receipt (of Secretary of State's List);

(8) Affidavit of Mailing;

(9) Statement of Evidence and Names of Witnesses;

(10) Statement of Need;

(11) Report of Hearing Examiner;

(12) Report of Chief Hearing Examiner;

(13) Order Adopting Rules;

(14) Findings of Fact and Conclusions.

SSF:mb

Attachment

RECEIVED
AUG 24 1978
OFFICE OF HEARING EXAMINERS

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

BUILDING CODE DIVISION

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978)

ORDER ADOPTING RULES

The above-entitled matter came on for hearing before Hearing Examiner Peter C. Erickson of the State Hearing Examiners on the 22nd day of June, 1978, after proper notice required by Minn. Stat. Section 15.0412 (1977 Supp.) was served upon all persons, associations and other interested groups registered with the Secretary of State for that purpose.

After affording interested persons an opportunity to present written and oral data, statements and arguments, having considered all the evidence adduced and upon the records, files and proceedings herein, and applicable statutory standards or criteria, and having considered the findings of fact and recommendations of the Hearing Examiner,

NOW, THEREFORE, IT IS ORDERED that these rules identified as the adoption by reference of the 1978 Edition of the National Electrical Code as approved by the American National Standards Institute (ANSI C1-1978) and as amended as set forth in the findings of fact and conclusions attached herewith, are adopted this 24th day of August, 1978, pursuant to the authority vested in me by Minn. Stats. 16.86 (1976 and 1977 Supplement).

STATE OF MINNESOTA
DEPARTMENT OF ADMINISTRATION

Richard L. Brubacher
Commissioner

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

BUILDING CODE DIVISION

RECEIVED
AUG 24 1978
OFFICE OF HEARING
EXAMINERS

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978)

FINDINGS OF FACT, AND CONCLUSIONS

The above-entitled matter came on for hearing before Hearing Examiner Peter C. Erickson of the State Hearing Examiners Office on the 22nd day of June, 1978, after proper notice required by Minn. Stat. Section 15.0412 (1977 Supp.) was served upon all persons, associations and other interested groups registered with the Secretary of State for that purpose.

After affording interested persons an opportunity to present written and oral data, statements and arguments, having heard all of the testimony, having considered all the evidence adduced and upon the records, files and proceedings herein, the Hearing Examiner has made his findings, attached hereto. Upon review of the Hearing Examiner's findings and the evidence and statements submitted by interested parties, I find the following:

The Report of the Hearing Examiner is hereby adopted as the findings of fact, conclusions and decision of the Department of Administration, Building Code Division except as noted below.

Hearing Examiner's Finding 8(d) and Conclusion #4. The "hybrid" amendment should reflect the prohibition in other than sesmic zone "0" as stated in Findings 8(a) and 8(c). The additional language is necessary to avoid conflicts in case there are changes in seismic zones in portions of Minnesota. Thus NEC Section 700-6(b)(3) is amended to read as follows:

> "Prime movers may be solely dependent upon a public utility gas system for their fuel supply when the Building Official determines that there is low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company. Means shall be provided for automatically transferring from one fuel supply to another where dual fuel supplies are used. When such a public utility gas system is approved by the Building Official, the requirement for an on-site fuel supply of two hours is not required. A public utility gas system shall not be an approved fuel supply for prime movers in buildings which are located in a designated flood plain area or in areas designated other than sesmic zone "0"."

Hearing Examiner's Finding 9(a) and Conclusion #6. The amendment proposed in Finding 9(a) is not totally reasonable because it represents a substantial change and is not in accord with national codes. Hearing Examiner's Finding 9(c) is adopted by adding an Exception #2 to NEC Section 800-3(d). Adoption of Finding 9(c) is based upon:

1. Exception #2 is not applicable to new construction.

2. Exception #2 applies only to existing plenums in existing buildings.

3. Exception #2 is only permissable when the building official has determined that the installation does not constitute an increased hazard to life or property.

4. Exception #2 does not apply when listed conductors are available. To permit the use of unlisted conductors in environmental air plenums after "listed" conductors are available is not in keeping with national model code standards and may presume a degree of liability for the proponents of such a change.

5. "Values shall be as determined by the tables provided by the State Building Code Division", has been removed. The UBC clearly defines "value" and "valuation" in Chapter 4. Retention of this sentence is not proper code language.

6. Reference has been changed from "800-3(c)" to "800-3(d)". Apparently a typographical error by proponent.

Thus NEC Section 800-3(d) is amended to read as follows:

"(d) Location. Circuits and equipment installed in ducts and plenums shall also comply with Section 300-22 as to wiring methods.

"Exception #1: Conductors listed as having adequate fire-resistant and low-smoke producing characteristics shall be permitted for ducts, hollow spaces used as ducts, and plenums other than those described in Section 300-22(a)."

"Exception #2: In existing buildings of group A and B occupancies, communication circuits may be installed in existing suspended ceiling plenums used for environmental air if the construction of the affected floor or level of the building does not exceed 50% of the value of new construction of that floor or level within a twelve month period.

All such communication wiring shall be grouped and shall be independently supported from the structure. All such communication wiring when abandoned shall be removed. This exception shall not apply if the building official determines that such installation constitutes an increased hazard to life and/or property. This exception shall not apply when listed conductors are available."

"The conductors referred to in this section would ordinarily be insulated, but the kind of insulation is not specified as reliance is placed on the protective device to stop all dangerous voltages and currents."

STATE OF MINNESOTA
DEPARTMENT OF ADMINISTRATION

Richard L. Brubacher
Commissioner

8/24/78

STATEMENT OF COMPLIANCE WITH

RULEMAKING PROCEDURES

I, Special Assistant Attorney General Sheila S. Fishman, do hereby declare that I have examined the proposed rules and all related documents and that, based upon them and my personal familiarity with the applicable procedures, all rulemaking procedures have been followed.

Sheila S. Fishman
Special Assistant
Attorney General

Dated: SEP 12 1976

PROPOSED ADOPTION BY REFERENCE OF THE 1978 NATIONAL ELECTRICAL CODE AS APPROVED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI C1-1978)

SBC 8601 Electrical. Scope. All new electrical wiring, apparatus, and equipment for electric light, heat, and power shall comply with the regulations contained in the 1978 edition of the National Electrical Code (NEC) as approved by the American National Standards Committee (ANSI-CI-1978) and Minn. Stats. 326.243 and the State Building Code as promulgated by the commissioner of administration, namely:

| | | |
|---|---|---|
| 1. | U.B.C.[1] | Section 605 (circuit) |
| 2. | U.B.C. | Section 810 (fire alarms) |
| 3. | S.B.C.[2] | Section 201 Amending Chapter 5 of U.B.C. Section 512 (G.F.I. Roof Access) |
| 4. | S.B.C.[2] | Section 201 Amending Section 810 of U.B.C. (fire alarms) |
| 5. | S.B.C. | Section 201 Amending 909 of U.B.C. (fire alarms) |
| 6. | U.B.C. | Section 909 (fire alarms) |
| 7. | U.B.C. | Section 1302(b) (fire alarms) |
| 8. | U.B.C. | Section 1310 (fire detection) |
| 9. | U.B.C. | Section 1413 (fire warning system) |
| 10. | U.B.C. | Section 1807(j) (standby power) |
| 11. | U.B.C. | Section 3312 (exit signs and illumination) |
| 12. | U.B.C. | Section 4303b-6 (floor/ceiling system) |
| 13. | U.B.C. | Section 4305(b) (floor/ceiling-roof/ceiling) |
| 14. | S.B.C. | Section 8806-2(k) (standby power) |

[1]Uniform Building Code

[2]State Building Code

BCD #2

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

IN THE MATTER OF THE PROPOSED ADOPTION BY REFERENCE OF THE 1978 EDITION OF THE NATIONAL ELECTRICAL CODE AS APPROVED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI C1-1978).

ORDER FOR HEARING

IT IS HEREBY ORDERED that a public hearing on the above-captioned rules be held in Room 408, Metro Square Building, 7th and Robert Streets, St. Paul, Minnesota on June 22, 1978, commencing at 1:30 p.m. and continuing until all persons have had an opportunity to be heard.

IT IS FURTHER ORDERED that a Notice of Hearing be mailed to all persons or representatives of associations or other interested groups who have registered their names with the Secretary of State for that purpose.

IT IS FURTHER ORDERED that the Notice of Hearing and applicable proposed rules be published in the State Register.

Date:

Richard J Brubacher

Richard L. Brubacher
Commissioner of Administration

BCP #1

RECEIVED
MAY 30 1978
OFFICE OF HEARING
EXAMINERS

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

IN THE MATTER OF THE PROPOSED
ADOPTION BY REFERENCE OF THE
1978 EDITION OF THE NATIONAL
ELECTRICAL CODE AS APPROVED
BY THE AMERICAN NATIONAL
STANDARDS INSTITUTE (ANSI C1-1978).

NOTICE OF HEARING

Notice is hereby given that a public hearing in the above-entitled matter will be held in Room 408, Metro Square Building, 7th and Robert Streets, St. Paul, Minnesota on June 22, 1978, commencing at 1:30 p.m., and continuing until all persons have had an opportunity to be heard concerning adoption of the proposed rules captioned above. The agency's authority to promulgate the proposed rules is contained in Minn. Stats. 16.86 (1976 and 1977 Supplement).

All interested or affected persons or representatives of groups or organizations will have an opportunity to participate, by submitting either oral or written data, statements, or arguments. Written materials may be submitted by mail to Peter Erickson, Office of Hearing Examiners, 1745 University Avenue, St. Paul, Minnesota either before the hearing or within 5 to 20 days after the close of the hearing, as determined by the hearing examiner.

The commissioner proposes to adopt rules which would amend SBC 8601 by adopting the 1978 edition of the National Electrical Code (1978 NEC). With certain modifications, the proposed rules are essentially the same as the 1975 edition of the National Electrical Code which is presently a portion of the State Building Code.

A copy of the proposed rules (1978 NEC) is available and may be obtained by writing to the State Board of Electricity, 1954 University Avenue, St. Paul, Minnesota 55104, (612)645-7703, for $6.50; or may be reviewed at the Building Code Division offices, 408 Metro Square Building, 7th and Robert Streets, St. Paul, Minnesota. A copy of the "Preprint" of the Proposed Amendments for the 1978 NEC (NFPA No. 70-PR78) is available for review at the Building Code Division offices. The "1978 National Electrical Code Changes" are available upon written request from either the State Board of Electricity or the Building Code Division offices. Copies of all of the above-mentioned documents will be available for review at the time of hearing.

A Statement of Need explaining the need for and reasonableness of the proposed rules and a Statement of Evidence outlining the testimony the department will be introducing at the hearing will be filed with the Office of the Hearing Examiners at least 25 days prior to the hearing and will be available there for public inspection.

Please be advised that Minn. Stats., Chapter 10A, requires each lobbyist to register with the Ethical Practices Board within five days after he commences lobbying. Lobbying includes attempting to influence rulemaking by communication or urging others to communicate with public officials. A lobbyist is generally any individual who spends more than $250 per year for lobbying or any individual who is engaged for pay or authorized to spend money by another individual or association and who spends more than $250 per year or five hours per month at lobbying. The statute provides certain exceptions. Questions should be directed to the Ethical Practices Board, 41 State Office Building, St. Paul, Minnesota 55155, (612)296-5615.

Date: 5/15/78

Richard L. Brubacher
Commissioner of Administration

B&D #5

RECEIVED
MAY 30 1978
OFFICE OF HEARING
EXAMINERS

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978).

CERTIFICATE OF DELIVERY OF THE SECRETARY OF STATE LIST

I hereby certify that the attached 483 labels and 10 sheets constitute the complete list of persons, associations, and other interested groups who as of 9:00 o'clock A.M., this 10th day of May, 1978, have requested pursuant to Minn. Stats. 1974, Section 15.0412 that their names be placed on file with the Secretary of State for the purpose of receiving notice of public hearing on proposed rules on the subject captioned above.

SECRETARY OF STATE

Joan Anderson Growe

BY: Cheri L. Mattson

BCD #6

RECEIVED
MAY 30 1978
OFFICE OF HEARING EXAMINERS

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978).

AFFIDAVIT OF RECEIPT

Margaret Opalinski, being duly sworn on oath, deposes and says:

1. That she is an employee of the Building Code Division, Department of Administration, State of Minnesota;

2. That on the 10th day of May, 1978, she went to the Secretary of State's Office of the State of Minnesota and requested a current list of all representatives and associations or other interested groups or persons who had registered their names with the Secretary of State for the purpose of obtaining notices of public hearing relating to the promulgation of rules pursuant to Minn. Stat. 15.0412;

3. That on the 10th day of May, 1978, in response to the above request, the Secretary of State provided her with such a list.

Further affiant sayeth not.

CYNTHIA L. CLAASON
NOTARY PUBLIC - MINNESOTA
RAMSEY COUNTY
My Commission Expires Feb. 23, 1982

Margaret Opalinski
Margaret Opalinski
Building Code Division

Subscribed and sworn to before me this 10th day of May, 1978.

Cynthia A Claason

RECEIVED
AUG 24 1978
OFFICE OF HEARING EXAMINERS

STATE OF MINNESOTA
OFFICE OF HEARING EXAMINERS

FOR THE DEPARTMENT OF ADMINISTRATION
BUILDING CODE DIVISION

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978).

REPORT OF HEARING EXAMINER

The above-entitled matter came on for hearing before Hearing Examiner Peter C. Erickson of the State Office of Hearing Examiners at 1:30 p.m.on Thursday, June 22, 1978 in Room 408, Metro Square Building, St. Paul, Minnesota.

Shiela S. Fishman, Special Assistant Attorney General, appeared as counsel on behalf of the Building Code Division (BCD). Elroy Berdahl, BCD code consultant, testified in support of the proposed rules. The hearing continued until all interested groups or persons had had an opportunity to be heard concerning the adoption of the proposed rules.

Pursuant to Minn. Stat. § 15.0412, subd. 4, this Report shall be available for review to all affected individuals upon request for at least five days.

The BCD shall, if it proposes to adopt the rules as originally proposed or amended, submit the complete hearing record, including its Findings and Order, to the Chief Hearing Examiner no earlier than five days subsequent to the receipt of this Report. This submission shall clearly indicate any changes made to the rules as originally proposed, preferably in the format that will be submitted to the State Register for publication. The Chief Hearing Examiner shall complete his review and submit his report to the BCD on the issues of substantial changes in the rule and compliance with Minn. Stat. § 15.0412 within ten calendar days. Thereafter, the BCD shall be responsible for filing the rules with the Attorney General and for notifying persons who have indicated that they wish to be notified of such filing.

Based upon all the records and proceedings herein, the Examiner makes the following:

FINDINGS OF FACT

1. On May 24, 1978, the BCD filed the following documents with the Chief Hearing Examiner:

(a) A copy of the proposed rules;
(b) A proposed Order for Hearing;
(c) A proposed Notice of Hearing; and
(d) A Statement of the estimated length and number of people attending the hearing.

2. On May 22, 1978, a Notice of Hearing and a copy of the proposed rules were published at 2 State Register 2087.

3. On May 22, 1978, the BCD mailed the Notice of Hearing to all persons and associations who had registered their names with the Secretary of State for the purpose of receiving such notice.

4. On May 30, 1978, the BCD filed the following documents:

(a) The Order for Hearing;
(b) The Notice of Hearing as mailed;
(c) The Affidavit of Receipt of the Secretary of State's list;
(d) The Affidavit of Mailing;
(e) The Secretary of State's Certificate and list;
(f) The Statement of Need;
(g) The Statement of Evidence, including the names of witnesses to be called; and
(h) The names of Division personnel who will represent the agency.

The documents were available for inspection at the Office of Hearing Examiners from the date of filing to the date of the hearing.

5. The record remained open through July 12, 1978 for the receipt of written comments and statements.

6. Statutory authority to promulgate the proposed rules is contained in Minn. Stat. § 16.86 (1976 and 1977 Supp.).

7. The BCD contends that adoption of the 1978 National Electric Code is necessary:

To maintain the State Building Code current with national model codes as directed in Minn. Stat. § 16.85.

The 1978 National Electrical Code, as developed by the National Electrical Code Committee of the National Fire Protection Association under the auspices of the American National Standards Institute supersedes all previous editions of the National Electric Code, the most recent being the 1975 edition.

Inasmuchas the National Electrical Code is a national standard that is used by the entire electrical industry, it is imperative that the 1978 National Electrical Code (NEC) be adopted in the State of Minnesota. The electrical industry, manufacturers, distributors, suppliers, designers, contractors, electrical inspectors, and the electricians are presently involved with the changes that have occurred at the national level from the 1975 NEC to the 1978 NEC.

By maintaining current standards for electrical installations, it will enable the latest methods and materials of electrical construction to be utilized in the State of Minnesota. Such materials and methods of construction will provide the residents of the State of Minnesota with the most current nationally accepted electrical standards of life safety.

The electrical industry in Minnesota has historically utilized the most current edition of the National Electrical Code. The various organizations representing the Minnesota electrical industry and the State Board of Electricity have been actively engaged in educational programs on the 1978 NEC. These organizations also maintain themselves current on proposed code changes as well as offering input to the National Electrical Code Committee.

The 1978 National Electrical Code was adopted by the National Fire Protection Association at its annual meeting held May 16 through 19, 1977, and ratified by the American National Standards Institute on February 19, 1978.

Consistent with the Rules of Procedure for the National Electrical Code Committee, a "preprint" of the proposed amendments for the 1978 NEC was published by the National Fire Protection Association in July, 1976. This "Pre-

print" recorded the actions of the various code-making panels and the correlating committee of the National Electrical Code Committee on each proposal that had been made to revise the 1975 Code. Subsequently, the various code-making panels finalized their recommendations and their reports were processed through the Correlating Committee of the National Electrical Code Committee. This was preparatory to the formal presentation of the 1978 edition of the NEC in EC-TCR of the 1977 NFPA Technical Committee Reports. This latter publication was circulated to all members of the National Electrical Code Committee, to other interested NFPA members, and offered to the public through technical releases in the interested trade papers. The action of the 1977 NFPA annual meeting as to the adoption of the 1978 edition is recorded in the proceedings of that meeting published by the Association in the September, 1977 issue of Fire Journal.

Coincident with the above processing procedures, each of the code-making panels and the chairman of the Correlating Committee reported their recommendations to meetings of the Electrical Section at both the 1976 and 1977 NFPA annual meetings. The Electrical Section thus had opportunity to discuss and review the report of the National Electrical Code Committee prior to the adoption of this edition of the code by the Association.

The adoption of the 1978 NEC will require that the State Building Code Section 8601 be amended to read as follows:

> All new electrical wiring, apparatus, and equipment for electric light, heat, and power shall comply with the regulations contained in the 1978 edition of the National Electrical Code (NEC) as approved by the American National Standards Committee (ANSI-CI-1978) and Minn. Stat. § 326.243 and the State Building Code as promulgated by the commissioner of administration, namely:

| | | |
|---|---|---|
| 1. | UBC[1] | Section 605 (circuit) |
| 2. | UBC | Section 810 (fire alarms) |
| 3. | SBC[2] | Section 201 amending Chapter 5 of UBC<br>Section 512 (G.F.I. Roof Access) |
| 4. | SBC[2] | Section 201 amending Section 810 of the UBC (fire alarms) |
| 5. | SBC | Section 201 amending 909 of UBC (fire alarms) |
| 6. | UBC | Section 909 (fire alarms) |
| 7. | UBC | Section 1302(b) (fire alarms) |
| 8. | UBC | Section 1310 (fire detection) |
| 9. | UBC | Section 1413 (fire warning system) |
| 10. | UBC | Section 1807(u) (standby power) |
| 11. | UBC | Section 3312 (exit signs and illumination) |
| 12. | UBC | Section 4303(b)6 (floor/ceiling system) |
| 13. | UBC | Section 4305(b) (floor/ceiling - roof/ceiling) |
| 14. | SBC | Section 8806-2K (standby power) |
| 15. | SBC | Section 203 (Electrical Requirements within the Flood Plain) |

16. SBC Section 201, Chapter 55 (Electrical Requirements for the Physically handicapped)

17. SBC Sections 6001 through 6006 (Electrical Requirements for Energy Conservation)

[1] Uniform Building Code

[2] State Building Code

The 1978 NEC is an amended version of the 1975 NEC which is currently part of the State Building Code.

8.a. Sol J. Jacobs, Director of Inspections for the City of Minneapolis, proposed to amend s 700-6(b)(3) as follows:

> (3) Prime movers ~~shall not~~, may, upon specific approval of the Building Official, be solely dependent upon a public utility gas system for their fuel supply. Means shall be provided for automatically transferring from one fuel supply to another where dual fuel supplies are used.
>
> When such a public utility gas system is approved by the Building Official, the requirement for an on-site fuel supply of two hours is waived; however, a public utility gas system shall not be an approved fuel supply for prime movers in building which are located in a designated floor plain area.

Mr. Jacobs contends that:

> This amendment would reduce the cost of the installation of emergency generators in areas where the installation of other on-site fuel supplies are excessively expensive and difficult. This is particularly true in urban areas which have a high density of existing construction. Finding a location for fuel storage in these areas can lead to solutions which provide less reliability and present more hazards than a gas utility supply.
>
> The use of a utility gas supply would also eliminate the need for the frequent refueling of on-site supply tanks necessary to provide fuel for required periodic teting of emergency generation units. The refueling operation can introduce hazards in congested areas.
>
> The State Building Code classifies Minnesota as a seismic Zone "0", No Damage Area. The exposure to damage by earthquake to utility supplies should therefore be negligible relative to many other sections of the United States.
>
> It is the opinion of the proponent that this minor amendment to the National Electric Code should be aodpted as it will represent a substantial monetary savings and, in all likelihood, increase the reliability of the systems involved. I have found no opposition to this type of proposal from either the electrical industry or the fire services.

b. David B. Kerkow, Assistant Supervising Engineer at the University of Minnesota, and Glenn A. Erickson, Supervisor of Code Enforcement for the City of St. Paul, also expressed concerns regarding § 700-6(b)(3) and proposed that it be amended by adding the following exception:

> The prime mover fuel supply may be from a public utility gas system when there is a low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company. In this case, the utility gas system may be considered as equivalent to an "on-site" or "on-premise" fuel supply.

c. The BCD stated that the suggested amendments were "acceptable based upon Minnesota being classified as Seismic Zone '0' and further that such an installation shall not be permitted in a flood plain area."

d. The Examiner noted that the amendment proposed by Mr. Jacobs in paragraph a. above does not include any standards for the Building Official to approve a public utility gas system. A "hybrid" amendment is suggested by the Examiner to read as follows:

> (3) Prime movers may be solely dependent upon a public utility gas system for their fuel supply when the Building Official determines that there is low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company. Means shall be provided for automatically transferring from one fuel supply to another where dual fuel supplies are used. When such a public utility gas system is approved by the Building Official, the requirement for an on-site fuel supply of two hours is waived; however, a public utility gas system shall not be an approved fuel supply for prime movers in buildings which are located in a designated flood plain area.

9.a. Glen Erickson and Arthur W. Olofson, Executive Secretary of the Minneapolis Association of Building Owners and Managers, proposed to amend § 800-3(c) by adding the following language:

> Section 800-3(c) Exception: Where the air handling system is so designed that the spread of smoke and gases from one story or level to another will not occur, communication writing systems when installed in suspended ceiling plenums need not be placed in metallic raceways. Further, in existing buildings housing group A or B occupancies, communication circuits may be installed in suspended ceiling plenums used for environmental air if the construction on the affected floor or level of the building does not exceed 50% of the value of new construction of that floor or level within a 12-month period. Values shall be as determined by the tables provided by the State Building Code Division. All such communication wiring shall be grouped and shall be independently supported from the structure. All such communication wiring when abandoned shall be removed.

Mr. Erickson contends that:

> The proponents of this amendment believe there is no factual basis for placing this unreasonable restriction on communication writing when it is placed in an air-handling plenum. The amount of combustibles involved is infinitesimal when compared with other fuel loading allowed in the building, and only serves to work an extreme financial hardship on building owners, particularly those with existing buildings. The proponents believe the regulations pertaining to combustible materials and where they are located in the building are far better regulated by the Building Code with all its various requirements for ventilation and smoke control. The proponents believe that this minor amendment will make the provisions of the National Electrical Code reasonable and, thus, enforceable without losing any tangible safety benefits.

b. Mr. J. O. Kvalsten, Assistant Chapter Manager of the Minneapolis Chapter of the National Electrical Contractors Association, commented in opposition to the amendment stated above as follows:

> It is our feeling that the amending of the National Electrical Code to permit the installation of communication conductors or cables that are combustible or that produce products of combustion in suspended ceilings used as in air handling systems, is a hazard to Life and Property.

It is our understanding that the wire and cable manufacturers are currently attempting to resolve the problem and will attempt to produce an insulation that can become Listed as having fire resistant and low smoke producing characteristics. Therefore, it would seem that to amend the National Electric Code at this time and to remove the incentive of the manufacturer to produce a conductor and cable which would be in compliance and not be a hazard to Life and Property is not in the order of sound reasoning.

c. The BCD stated that the implementation of the proposed amendment regarding new construction would not be consistent with national codes; however, the BCD supported the amendment for application to existing buildings.

Based on the foregoing Findings of Fact, the Examiner makes the following:

## C O N C L U S I O N S

1. Due, timely and adequate legal notice of the hearing was properly served and filed by the Building Code Division, Department of Administration.

2. Pursuant to Minn. Stat. § 15.052, subd. 3 (1976), it is the duty of the Hearing Examiner to: ". . . (4) make a report on each proposed agency action. . . taking notice of the degree to which the agency has (i) documented its statutory authority to take the proposed action, (ii) fulfilled all relevant, substantive and procedural requirements of law or rule, and (iii) demonstrated the need for and reasonableness of its proposed action with an affirmative presentation of facts."

3. The Examiner concludes that the BCD has documented its statutory authority to promulgate the proposed rules.

4. Considering the fact that Minnesota is in a "0" Seismic Zone, the Examiner concludes that the need for proposed § 700-6(b)(2) has not been shown. The Examiner recommends that § 700-6(b) be amended as set out in Finding 8.d. to remedy the problem.

5. The Examiner concludes that the BCD has demonstrated the need for and reasonableness of the proposed rules, with the exception noted above, with an affirmative presentation of facts.

6. The Examiner concludes that the amendments proposed in Finding 9 by Mr. Erickson and Mr. Olofson are reasonable should the BCD decide to adopt them.

10. Although there is an overriding desire to leave the NEC intact without amendment, the Examiner has recommended one amendment to eliminate an unnecessarily restrictive provision in the Code. As with the UBC, Minnesota must make appropriate changes in model codes where they are not acceptable or not applicable. The benefits of this type of corrective legislation will far outweigh the hardship of having to look in more than one place for the governing rules.

11. The Examiner concludes that the amendment he is recommending does not constitute a substantial change.

Based upon the foregoing Conclusions, the Hearing Examiner makes the following:

## RECOMMENDATION

That the Building Code Division adopt the 1978 NEC as recommended to be amended in this Report.

Dated this 27 day of July, 1978.

Peter C. Erickson

PETER C. ERICKSON
Hearing Examiner

SBC 8601 Electrical Scope. All new electrical wiring, apparatus, and equipment for electric light, heat, and power shall comply with the regulations contained in the 1978 edition of the National Electrical Code (NEC) as approved by the American National Standards Committee (ANSI-CI-1978) and Minn. Stats. 326.243 and the State Building Code as promulgated by the commissioner of administration, namely:

| | | |
|---|---|---|
| 1. | U.B.C.[1] | Section 605 (circuit) |
| 2. | U.B.C. | Section 810 (fire alarms) |
| 3. | S.B.C.[2] | Section 201 Amending Chapter 5 of U.B.C. Section 512 (G.F.I. Roof Access) |
| 4. | S.B.C.[2] | Section 201 Amending Section 810 of U.B.C. (fire alarms) |
| 5. | S.B.C. | Section 201 Amending 909 of U.B.C. (fire alarms) |
| 6. | U.B.C. | Section 909 (fire alarms) |
| 7. | U.B.C. | Section 1302(b) (fire alarms) |
| 8. | U.B.C. | Section 1310 (fire detection) |
| 9. | U.B.C. | Section 1413 (fire warning system) |
| 10. | U.B.C. | Section 1807(j) (standby power) |
| 11. | U.B.C. | Section 3312 (exit signs and illumination) |
| 12. | U.B.C. | Section 4303b-6 (floor/ceiling system) |
| 13. | U.B.C. | Section 4305(b) (floor/ceiling-roof/ceiling) |
| 14. | S.B.C. | Section 8806-2(k) (standby power) |

[1]Uniform Building Code

[2]State Building Code

Amendments to the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978).

NEC Section 700-6(b)(3):

Prime movers may be solely dependent upon a public utility gas system for their fuel supply when the Building Official determines that there is low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company. Means shall be provided for automatically transferring from one fuel supply to another where dual fuel supplies are used. When such a public utility gas system is approved by the Building Official, the requirement for an on-site fuel supply of two hours is not required. A public utility gas system shall not be an approved fuel supply for prime movers in buildings which are located in a designated flood plain area or in areas designated other than sesmic zone "0".

NEC Section 800-3:

(d) Location. Circuits and equipment installed in ducts and plenums shall also comply with Section 300-22 as to wiring methods.

Exception #1: Conductors listed as having adequate fire-resistant and low-smoke producing characteristics shall be permitted for ducts, hollow spaces used as ducts, and plenums other than those described in Section 300-22(a).

Exception #2: In existing buildings of Group A and B occupancies, communication circuits may be installed in existing suspended ceiling plenums used for environmental air if the construction of the affected floor or level of the building does not exceed 50% of the value of new construction of that floor or level within a twelve month period.

All such communication wiring shall be grouped and shll be independently supported from the structure. All such communication wiring when abandoned shall be removed. This exception shall not apply if the building official determines that such installation constitutes an increased hazard to life and/or property. This exception shall not apply when listed conductors are available.

The conductors referred to in this section would ordinarily be insulated, but the kind of insulation is not specified as reliance is placed on the protective device to stop all dangerous voltages and currents.

APPROVED AS TO FORM AND LEGALITY

SEP. 25 1978 19

WARREN SPANNAUS, ATTORNEY GENERAL

BY Lee E. Shuby

SPECIAL ASSISTANT ATTORNEY GENERAL

STATE OF MINNESOTA
DEPARTMENT OF STATE
F I L E D
SEP 25 1978
Joan Anderson Growe
Secretary of State

1:15 P.M.

BCD.#7

RECEIVED
MAY 30 1978
OFFICE OF HEARING EXAMINERS

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978).

AFFIDAVIT OF MAILING

DarlaMae Hormann, being first duly sworn, deposes and says:

That on the 22nd day of May, 1978, at the City of St. Paul, County of Ramsey, State of Minnesota, she served the attached Notice of Hearing by depositing in the United States mail at said City of St. Paul, a true and correct copy thereof, properly enveloped, with postage prepaid, to all persons and associations at the addresses listed on the attached Certificate of the Secretary of State.

DarlaMae Hormann

DarlaMae Hormann
Building Code Division

Subscribed and sworn to before me
this 22nd day of May, 1978.

Cynthia Claason

CYNTHIA L. CLAASON
NOTARY PUBLIC - MINNESOTA
RAMSEY COUNTY
My Commission Expires Feb. 23, 1982

BCD#4

RECEIVED
MAY 30 1978
OFFICE OF HEARING
EXAMINERS

State of Minnesota

Department of Administration

In the Matter of the Proposed Adoption by Reference of the 1978 Edition of the National Electrical Code as Approved by the American National Standards Institute (ANSI C1-1978).

STATEMENT OF EVIDENCE AND NAMES OF WITNESSES

Elroy Berdahl, Code Consultant, of the Building Code Division, and Clarence B. Joriman, Executive Secretary, Minnesota State Board of Electricity will both appear on behalf of the Building Code Division at the hearing to be held on June 22, 1978. They will testify regarding the need for and reasonableness of the proposed rules. The substance of the testimony is set forth in the Statement of Need submitted herewith.

In support of the propsoed rules and amendments, the following will be submitted at the hearing: 1978 National Electrical Code, "Preprint" of the Proposed Amendments for the 1978 NEC (NFPA No. 70-PR78), and the 1978 National Electrical Code Changes.

Date:

Don Pates

Don Pates, Director
Building Code Division

BCD #3

RECEIVED
MAY 30 1978
OFFICE OF HEARING
EXAMINERS

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

IN THE MATTER OF THE PROPOSED
ADOPTION BY REFERENCE OF THE
1978 EDITION OF THE NATIONAL
ELECTRICAL CODE AS APPROVED BY
THE AMERICAN NATIONAL STANDARDS
INSTITUTE (ANSI C1-1978).

STATEMENT OF NEED

To maintain the State Building Code current with national model codes as directed in Minn. Stats. 16.85.

The 1978 National Electrical Code as developed by the National Electrical Code Committee of the National Fire Protection Association under the auspices of the American National Standards Institute supercedes all previous editions of the National Electrical Code, the most recent being the 1975 edition.

In as much as the National Electrical Code is a national standard that is used by the entire electrical industry, it is imperative that the 1978 National Electrical Code (NEC) be adopted in the State of Minnesota. The electrical industry, manufacturers, distributors, suppliers, designers, contractors, electrical inspectors, and the electricians are presently involved with the changes that have occurred at the national level from the 1975 NEC to the 1978 NEC.

By maintaining current standards for electrical installations, it will enable the latest methods and materials of electrical construction to be utilized in the State of Minnesota. Such materials and methods of construction will provide the residents of the State of Minnesota with the most current nationally accepted electrical standards of life safety.

The electrical industry in Minnesota has historically utilized the most current edition of the National Electrical Code. The various organizations representing the Minnesota electrical industry and the State Board of Electricity have been actively engaged in educational programs on the 1978 NEC.These organizations also maintain themselves current on proposed code changes as well as offering input to the National Electrical Code Committee.

The 1978 National Electrical Code was adopted by the National Fire Protection Association at its annual meeting held May 16 through 19, 1977, and ratified by the American National Standards Institute on February 19, 1978.

Consistent with the Rules of Procedure for the National Electrical Code Committee a "preprint" of the proposed amendments for the 1978 NEC was published by the National Fire Protection Association in July 1976. This "Preprint" recorded the actions of the various code-making panels and the correlating committee of the National Electrical Code Committee on each proposal that had been made to revise the 1975 Code. Subsequently, the various code-making panels finalized their recommendations and their reports were processed through the Correlating Committee of the National Electrical Code Committee. This was preparatory to the formal presentation of the 1978 edition of the NEC in EC-TCR of the 1977 NFPA Technical Committee Reports. This latter publication was circulated to all members of the National Electrical Code Committee, to other interested NFPA members, and offered to the public through technical releases in the interested trade papers. The action of the 1977 NFPA annual meeting as to the adoption of the 1978 edition is recorded in the proceedings of that meeting published by the association in the September 1977 issue of Fire Journal.

Coincident with the above processing procedures, each of the code-making panels and the chairman of the Correlating Committee reported their recommendations to meetings of the Electrical Section at both the 1976 and 1977 NFPA annual meetings. The Electrical Section thus had opportunity to discuss and review the report of the National Electrical Code Committee prior to the adoption of this edition of the code by the association.

The adoption of the 1978 NEC will require that the State Building Code Section 8601 be amended to read as follows:

> All new electrical wiring, apparatus, and equipment for electric light, heat, and power shall comply with the regulations contained in the 1978 edition of the National Electrical Code (NEC) as approved by the American National Standards Committee (ANSI-CI-1978) and Minn. Stats. 326.243 and the State Building Code as promulgated by the commissioner of administration, namely:
>
> 1. UBC[1] Section 605 (circuit)
> 2. UBC Section 810 (fire alarms)
> 3. SBC[2] Section 201 amending Chapter 5 of UBC
>
> Section 512 (G.F.I. Roof Access)
>
> 4. SBC[2] Section 201 amending Section 810 of the UBC (fire alarms)
> 5. SBC Section 201 amending 909 of UBC (fire alarms)
> 6. UBC Section 909 (fire alarms)
> 7. UBC Section 1302(b) (fire alarms)

| | | |
|---|---|---|
| 8. | UBC | Section 1310 (fire detection) |
| 9. | UBC | Section 1413 (fire warning system) |
| 10. | UBC | Section 1807(j) (standby power) |
| 11. | UBC | Section 3312 (exit signs and illumination) |
| 12. | UBC | Section 4303(b)6 (floor/ceiling system) |
| 13. | UBC | Section 4305(b) (floor/ceiling - roof/ceiling) |
| 14. | SBC | Section 8806-2K (standby power) |
| 15. | SBC | Section 203 (Electrical Requirements within the Flood Plain. |
| 16. | SBC | Section 201 Chapter 55 (Electrical Requirements for the Physically Handicapped) |
| 17. | SBC | Section 6001 through 6006 (Electrical Requirements for Energy Conservation) |

[1] Uniform Building Code
[2] State Building Code

Richard L. Brubacher
Commissioner of Administration

STATE OF MINNESOTA
STATE BOARD OF ELECTRICITY
1954 UNIVERSITY AVE. 645-7703
SAINT PAUL, MINN. 55104

OFFICE OF THE
EXECUTIVE SECRETARY

RECEIVED
MAY 30 1978
OFFICE OF HEARING
EXAMINERS

March 15, 1978

TO: ALL ELECTRICAL CONTRACTORS AND OTHER INTERESTED PARTIES DOING WORK IN THE STATE OF MINNESOTA

# IMPORTANT NOTICE

In accordance with past practice the Board of Electricity at a regularly scheduled meeting determined that JULY 1, 1978 would be the starting enforcement date of the 1978 NATIONAL ELECTRICAL CODE.

Code meetings on the 1978 National Electrical Code will be conducted by the State Board of Electricity at the locations on the attached sheet. You and your employees are cordially invited to attend. Please pass the word to your employees as they will not receive a notice of this meeting.

All meetings will start at 8:00 P.M.

The 1978 National Electrical Code books are for sale at our office for $6.50 per copy (tax and postage included). Books will also be available for purchase at the code meetings.

STATE BOARD OF ELECTRICITY

# AREA CODE MEETINGS ON 1978 CODE

| DATE | TOWN | LOCATION |
|---|---|---|
| 4/11/78 | Crookston | National Guard Armory, Highways 2 & 75 North |
| 4/11/78 | Marshall | Minnesota Electric Supply 609 So. 4th Street |
| 4/11/78 | Maple Plain | Maple Plain School - Library |
| 4/12/78 | Roseau | Roseau Electric Coop, 903 3rd St. N.E. |
| 4/12/78 | Madison | City Hall, Meeting Room, W. 4th ST. 7 6th Ave. |
| 4/12/78 | Anoka | City Hall, Community Room |
| 4/13/78 | Bemidji | Bemidji Fire Station |
| 4/13/78 | Willmar | Minnesota Electric Supply, East Highway 12 |
| 4/13/78 | St. Cloud | Area Vo-Tech School, Auditorium |
| 4/17/78 | Rosemount | City Hall, Co. Rd # 42 (2½ Miles East nf Highway #3) |
| 4/18/78 | Pine City | Area Vocational Technical School |
| 4/18/78 | Rushford | Tri-County Co-op, Main Street |
| 4/19/78 | Duluth | Minn. Power & Light, Arrowhead & Rice Lake Road |
| 4/19/78 | Rochester | Area Vocational Technical School, 1926 S.E. 2nd St. |
| 4/20/78 | Silver Bay | Silver BAy Lounge, Basement |
| 4/20/78 | Red Wing | Area Vocational Technical School, Hwy. 58 & Pioneer Road |
| 4/20/78 | Forest Lake | Flare Broiler, 1279 W. Broadway |
| 4/25/78 | Fairmont | Fensel Electric Supply, 925 East 10th |
| 4/25/78 | Long Prairie | Legion Club rooms |
| 4/25/78 | Stillwater | Labor Hall |
| 4/26/78 | Cambridge | City Hall, 139 1st Ave. |
| 4/26/78 | Sleepy Eye | REA Building, North Highway # 4 |
| 4/26/78 | Wadena | AREa Vocational Technical Institute |
| 4/27/78 | Worthington | Greely Gas Co. Bldg., 826 5th Ave. |
| 4/27/78 | Brainerd | Area Vocational Technical School |
| 5/9/78 | Detroit Lakes | Erie Jr. Cafe, Highway # 10 East |
| 5/9/78 | Faribault | Minnesota Electric Supply, Corner of Hwy #65 and # 3 |
| 5/9/78 | International FAlls | Union Hall, 509 3rd St. |
| 5/10/78 | Moorhead | AREa Vocational Technical School, 1900 28th Ave. S. |
| 5/10/78 | Albert Lea | AREa Vocational TEchnical School , North Bridge Street |
| 5/10/78 | Eveleth | Area Vocational Technical School, Hiway # 53 |
| 5/11/78 | Fergus Falls | Public Library, 125 Union Street |
| 5/11/78 | | |
| 5/16/78 | Grand Rapids | Dairyland Electric Co-op, Highway # 2 West |
| 5/17/78 | Mankato | Area Vocational Technical School, North Mankato |
| 5/17/78 | Morris | Ottertail Power Co., Auditorium |
| 5/18/78 | Jordan | Minnesota VAlley Electric Co-op, Highway 169 (2½ Miles So. of Jordan) |
| 5/18/78 | Alexandria | Runestone Electric Co-op |
| 5/23/78 | Hutchinson | Area Vocational Technical School |

STATE OF MINNESOTA
STATE BOARD OF ELECTRICITY
1954 UNIVERSITY AVE 645-7703
SAINT PAUL, MINN. 55104

OFFICE OF THE
EXECUTIVE SECRETARY

# 1978 NATIONAL ELECTRICAL CODE CHANGES

| Page | Section | Description |
|---|---|---|
| 2 | 90-4 | Revises 2nd paragraph to apply to all occupancies |
| 4 | Art.100 | Approved for the Purpose - Adds Fine Print Note |
| 5 | | Cabinet - Revises wording |
| 6 | | Conduit Body - 2nd paragraph excludes large cast and sheet metal boxes |
| 7 | | Copper-Clad Aluminum - New definition |
| 7 | | Dead Front - New definition |
| 8 | | Dwelling - Four New definitions |
| 9 | | Grounding Conductor,Equipment - Reworded |
| 9 | | Ground-Fault Circuit-Interrupter - Transferred from Art. 680 |
| 11 | | Overcurrent - New definition |
| 11 | | Overload - New definition |
| 12 | | Raceway - Revised |
| 17 | 110-3(a)(3) | Adds Wire bending and connection space |
| 17 | 110-9 | Revises wording to emphasize let-through current |
| 18 | 110-10 | Revised to add component short-circuit with-stand ratings |
| 19 | 110-16(a) | Revises table to change 2 1/2' spacing to 3' |
| 20 | 110-16(c) | Revises required access to large switchboards and control panels |
| 20 | 110-16(e) | Adds service equipment and panelboards and an Exception |
| 20 | 110-16(f) | Adds service equipment and panelboards and an Exception |
| 23 | 110-33(a) | Adds requirement of 30 inch rear working space where furnished |
| 25 | 200-6(a)&(b) | Revises identification requirements |
| 26 | 200-9 | Adds an Exception |
| 27 | 200-10(e) | Requires appliance terminal identification for 3 or more wire cords |
| 27 | 200-11 | Prohibits reversal of conductors having identified polarity |
| 28 | 210-4 | Revises Exception No. 1 to apply to utilization equipment<br>Requires all multiwire circuits to originate in some Panelboard |
| 29 | 210-5(a) | Adds Exception No. 2 |
| 29 | 210-5(b) | Revises Exception No. 1 to add appropriate cross-references |
| 29 | 210-6(a) | Makes minor change in wording-Allows switch contro where not accessible |
| 30 | 210-6(c) | Reworded to delete "portable" and define occupancy |
| 30 | 210-7(b) | Adds Exception for portable and vehicle-mounted generators |
| 30 | 210-7(d) | Revised Exception to use ungrounded receptacle where ground is not present |
| 31 | 210-7(e) | Reworded to delete "portable" |
| 31 | 210-7(g) | Requires CO/ALR marking on receptacles used with aluminum conductors |
| 31 | 210-8(a) | Adds dwelling garages for GFCI protected receptacl<br>Limits protection to outside receptacles having grade level access<br>Adds definition for bathroom |

| Page | Section | Description |
|---|---|---|
| 31 | 210-8(b) | Applies requirement to receptacles in use by employees and adds assured grounding as alternat to GFCI protection |
| 33 | 210-21(b) | Revised (2) and (4) to delete word "portable" |
| 34 | 210-22(a) | Substitutes "utilization equipment" for "portable and stationary appliances" |
| 35 | 210-23(a)(b)&(c) | Revised to replace words "portable" and "fixed" |
| 36 | 210-25(b) | Requires receptacle in basement and attached garage<br>Adds Exeption to recognize receptacle in baseboard heaters |
| 37 | 210-26(a) | Adds bathrooms and FPN to exclude vehicle doors |
| 38 | 215-2 | Allows smaller feeders as in Note 3 to Table 310-1 |
| 42 | 220-3(c) | Prohibits other outlets on laundry circuit |
| 43 | 220-13 | Adds Table giving Demand Factors for nondwelling receptacles |
| 44 | 220-17 | Applies demand factor to appliances fastened in place |
| 48 | 220-31 | Replaces words "portable", "stationary" and "fixed" |
| 49 | 220-32(c)(3) | Replaces words "fixed" and "stationary" |
| 50 | 220-33 | New optional calculations for two dwelling units |
| 50 | 220-34 | Revises application of requirements |
| 57 | 230-2 | Exception No.7 is new on connection of underground service conductors |
| 60 | 230-43 | Adds IMC and cable trays |
| 61 | 230-50 | Adds IMC |
| 64 | 230-72 | Adds Exception for service for water pump used for fire protection |
| 68 | 230-95(a) | Adds one second time delay for faults of 3000 amps or more<br>Adds Exception for continuous industrial processes |
| 68 | 230-95(b) | Revised wording in Fine Print Note |
| 68 | 230-95(c) | Requires performance testing and written record |
| 69 | 230-200 | Definition for service point for over 600 volts |
| 69 | 230-201 | Adds where inside building and in metal enclosed gear |
| 69 | 230-202(b) | Adds IMC and cable trays |
| 70 | 230-205 | Revised wording to recognize current limiting fuse |
| 74 | 240-3 | Revised Ex 5 to limit use of reflected protection for secondary conductors<br>Adds New Exceptions 6, 7 and 8 |
| 74 | 240-4 | Restatement of tap protection for fixture wire |
| 75 | 240-6 | Exception adds 1,3,6,10 and 601 as standard Ampere fuse ratings |
| 75 | 240-8 | Adds fuses to Exception |
| 75 | 240-12 | New requirement for elctrical system coordination in industrial locations |
| 80 | 240-61 | Expands Table - Adds recognition of fuses for use at voltages below their ratings - Adds two new Exceptions |
| 81 | 240-83(d) | Requires "SWD" marking for circuit breakers switching 120V fluorescent fixtures |
| 81 | 240-100 | Refers to service conductor protection and longtime trip |

| Page | Section | Description |
|---|---|---|
| 84 | 250-5 Ex.3 | Provides exception for control circuits |
| | Ex.4 | Provides exception for isolated circuits in hospit |
| 85 | 250-6(a) | Allows frame of portable generator to serve as grounding electrode |
| 85 | 250-6(a) | Allows frame of portable generator to serve as grounding electrode |
| 85 | 250-6(b)(3) | Requires equipment to be bonded to generator frame |
| 85 | 250-6(c) | Applies requirement where generator supplies separately derived system |
| 86 | 250-23 | Requires connection to be accessible and on load side of lateral or drop |
| 89 | 250-43(i) | Applies required grounding to lighting fixtures |
| 90 | 250-45(c)&(d) | Adds snow blowers and portable lamps |
| 90 | 250-45(d) | FPN - Adds limitation for use of tools and appliances in wet locations |
| 92 | 250-57(b) | Allows grounding conductor to be bare or covered |
| 92 | 250-57(b)Ex.3 | Provides means of identification under limited conditions |
| 92 | 250-58(a) | Prohibits building frame as equipment grounding conductor |
| 93 | 250-60 | Allows boxes supplying ranges and dryers to be bonded to neutral |
| 94 | 250-71(a) | Adds cable trays |
| 94 | 250-72(b)&(c) | Adds intermediate metal conduit |
| 96 | 250-79(c) | Reworded to cover combinations of copper and aluminum |
| 96 | 250-79(e) | Allows short bonding jumper to be outside of raceway |
| 96 | 250-81 | Requires bonding of all available electrodes |
| 97 | 250-81(a) | Requires supplement to water pipe electrode |
| 97 | 250-81(d) | Adds grounding ring electrode |
| 97 | 250-83 | Prohibts insulating coatings on made electrodes |
| 98 | 250-91(a) | Provides in Exception 2 for tapped conductors |
| 98 | 250-91(b) | Adds flexible metallic tubing to Exception No.1 |
| 99 | 250-91(b)Ex.2 | Limits total length of return path to six feet |
| 99 | 250-92(a) | Adds intermediate metal conduit |
| 99 | 250-92(b) | Adds cable trays |
| 102 | 250-95 | Table changes aluminum sizes for 2,500 and 5,000 Amps |
| 102 | 250-112 | Requires accessibility of connection except where in concrete or earth; or for driven electrode |
| 104 | 250-131 | Adds additional acceptable connection point |
| 108 | 250-132 | Correlates 1,000 volt limit |
| 109 | 300-1(a) | Exceptions apply only to those Sections referenced |
| 109 | 300-3(a)&(b) | Applies rules also to cable and raceway |
| 110 | 300-4(a)(1) | Reduces required spacing of holes to 1 1/4 inches |
| 110 | 300-5 Ex.2 | Exception for conductors under building |
| 110 | 300-5 Ex.8 | Exception for irrigation control circuits |
| 111 | 300-5 Table | Adds Intermediate Metal Conduit |
| 111 | 300-5(f) | Adds detailed methods of physical protection |
| 116 | 300-22(b) | Adds Type MC with impervious sheath and flexible metal tubing |
| 116 | 300-22(c) | Adds Types MC and AC cables |

| Page | Section | Description |
|---|---|---|
| 118 | 305-2(h) | Eliminates boxes for splices in cords and conductors |
| 118 | 305-2(j) | Requires physical protection of cord at pinch points |
| 119 | 310-4 | Adds Exception for elevator traveling cables |
| 121 | 310-10(a)Ex.5 | Exception for systems supervised by qualified persons |
| 121 | 310-10(b) | Allows bare or covered conductors |
| 121 | 310-10(b)Ex.1 | Requires permanent identification |
| | Ex.2 | Exception for systems supervised by qualified persons |
| 122 | 310-11(b)(1) | Adds power-limited tray cable |
| 122 | 310-11(b)(2)Ex.3 | Exception for Type MC cable |
| 123 | 310-11(b)(4) | Adds power-limited tray cable |
| 127 | 310-13 Table | Adds Types PFA and PFAH |
| 129 | 310-13 Table | Adds Types FEPW, Z and ZW |
| 132 | 310-16 to 19 Tables | Rearranged |
| 136 | 310-16 to 19 Notes to Tables | |
| | Note 3 | Adds feeders carrying total service current |
| | Note 11 | Exempts counting grounding conductor |
| 141 | 310-39 Table | Ampacity for single copper HV conductors in air |
| 141 | 310-40 Table | Ampacity for single aluminum HV conductors in air |
| 149 | 310-51 Table | Ampacity for signle copper conductor direct burial cable |
| 150 | 310-52 Table | Ampacity for single conductor aluminum direct burial cable |
| 151 | 310-53 Table | Ampacity for 3-Conductor copper direct burial cable |
| 152 | 310-54 Table | Ampacity for 3-Conductor Aluminum direct burial cable |
| 153 | 310-39 thru 54 Note 3 to Tables | Information on shields grounded at more than one point |
| 154 | 318-2 | Adds power-limited tray cable |
| 155 | 318-5(e)&(f) | Rewritten to clarify voltage limitations |
| 156 | 318-8 | Extends coverage to 2,000 volts |
| 158 | 318-9 | Extends coverage to 2,000 volts |
| 159 | 318-10 | Extends coverage to 2,000 volts |
| 160 | 318-11 & 12 | Covers Types MV and MC cables of 2,000 volts or less |
| 161 | 320-6 Ex.3 | Covers larger support spacings in industrial establishments |
| 165 | Art. 326 | New Article on Medium Voltage Cable |
| 166 | Art. 333 | Separates Type AC cable into new Article |
| 168 | Art. 334 | Combines Types MC, ALS, and CS into one Article |
| 171 | 336-3 | Provides definition of first floor of building |
| 171 | 336-3(a) | Prohibits use in adobe construction or finish |
| 171 | 336-3(c) | Adds Exception for hazardous locations |
| 172 | 336-6(b) | Adds intermediate metal conduit |
| 176 | 339-3(b) | Adds Exception for hazardous locations |
| 177 | 340-5 | Provides for direct burial cable approved for purpose |
| 179 | 345-3 | Reworded to clarify and recognize aluminum fittings |

| Page | Section | Description |
|---|---|---|
| 181 | 346-1 | Reworded to clarify and recognize aluminum fittings |
| 182 | 346-7(b) | Requires standard 3/4" taper die for field made threads |
| 185 | 347-3(a) | References general hazardous location use |
| 186 | 347-8 Table | Revises spacing values where conductors are over 60°C and for 1/2 - 3/4 size |
| 187 | 348-1 | Reworded to clarify and recognize aluminum fittings |
| 188 | 348-7 | Prohibits threads in EMT |
| 189 | Art. 349 | New Article on Flexible Metallic Tubing |
| 191 | 350-5 | Allows bonding jumper on outside of conduit |
| 191 | 350-5 Exception | Limits ground return path to 6 feet |
| 192 | 351-2 | Adds definition for liquid |
| 192 | 351-3 | Reference to other Articles |
| 193 | 351-8 | Exception No. 2 for flexibility |
| 193 | 351-10 | Restriction to four quarter bends in concealed space |
| 193 | 352-1 | Provides exception for use in hazardous locations |
| 193 | 352-4 | Provides exemption for derating under specific conditions |
| 194 | 352-22 | Provides exception for use in hazardous locations |
| 195 | 353-2 | Provides exception for use in hazardous locations |
| 195 | 354-2 | Provides exception for use in hazardous locations |
| 197 | 356-2 | Provides exception for use in hazardous locations |
| 199 | 358-2 | Provides exception for use in hazardous locations |
| 203 | 364-1 | Provides scope for Article |
| 203 | 364-2 | Definition of busway |
| 203 | 364-8 | Adds intermediate metal conduit |
| 210 | 370-3 | Limits size to 100 cubic inches and provides for use of metal raceway |
| 211 | 370-6(b) | Adds nonmetallic boxes |
| 212 | 370-6(c) | Provides conditions for splices in conduit bodies |
| 212 | 370-7(c) | Requires cable clamps for nonmetallic boxes other than single gang |
| 213 | 370-13 | Limits nails in boxes to back 1/4 inch space |
| 218 | 373-6(a) Table | Requires 1-1/2 inch space for No.8 Awg |
| 220 | 373-10(a) | Adds top limit of 600 volts |
| 222 | 380-3 | Requires wire bending space at terminals |
| 222 | 380-5 Ex.1 & 2 | Revised to provide protection from live parts |
| 223 | 380-6 | Provides mechanical lock to hold switches open |
| 223 | 380-9 | Requires faceplates to be mounted flush, cover openings |
| 224 | 380-14 | Requires CO/ALR marking on snap switches for aluminum conductors |
| 225 | 384-3(a) | Requires barriers to isolate service busbars in switchboards |
| 226 | 384-3(g) | Requires wire bending space |
| 226 | 384-7 Ex.2 | Exemption for totally enclosed switchboards |
| 228 | 384-16(a)Ex.2 | Deletes size limitation on circuit breakers in main |
| 228 | 384-16(e) | Prohibits delta breakers |
| 233 | 400-4 Table | Expands size range for SV and SJ types of flexible cord |

| Page | Section | Description |
|---|---|---|
| 235 | 400-4 Table | Deletes neoprene for HSO and SRD |
| 236 | 400-4 Table | Expands size range for elevator cable |
| 237 | 400-4 Table | Expands size range for elevator cable |
| 240 | 400-22(c) | Allows light blue identification of grounded conductor |
| 242 | 402-3 | Clarifies voltage rating |
| 242 | 402-5 Table | Ampacities for sizes 12 and 10 Awg |
| 243 | 402-5 Table | Adds fire alarm system use and equivalency for Nylon jacket throughout table |
| 246 | 402-5 Table | Adds New Types KF, HF, ZF, PAF, also with flexible stranding |
| 249 | 410-4(c) | Clarifies requirements for fixtures in ducts or hoods |
| 250 | 410-14 | Provides for use of cord connectors to supply fixtures |
| 252 | 410-25 | Adds types PAF, FAFF, ZF and ZFF fixture wire |
| 254 | 410-30(e) | Requires hard usage cord for adjustable fixtures |
| 254 | 410-31 | Clarifies Exceptions |
| 254 | 410-35(a) | Required marking for fixtures requiring conductors rated over 90°C |
| 255 | 410-42(a) | Requires polarized attachment plugs; grounded conductor to shell |
| 255 | 410-42(b) | Requires composition handle and grounded metallic lamp guards |
| 256 | 410-47 | Requires grounded conductor connected to lampholder screw shell |
| 257 | 410-56(b) | Requires metal faceplates to be grounded |
| 259 | 410-66 | Revised to clarify and delete 24 inch spacing requirement |
| 260 | 410-73(e) | Requires replacement ballasts to be thermally protected |
| 264 | 422-8(d) | Provides for cord connection of disposers and dish washers |
| 265 | 422-14(b) | The exception has been deleted |
| 266 | 422-21 | Adds Exception for unit switches |
| 267 | 422-24 | Requires "off" position for unit switches used for disconnecting means |
| 267 | 422-26 Exception | Allows switch out of sight |
| 268 | 422-27(f)Ex.No.2 | Provides exception for commercial cooking appliance |
| 268 | 422-27(f)Ex.No.3 | Provides exception for heaters and boilers |
| 271 | 424-19(a)&(b) | Reworded to clarify |
| 272 | 424-20 | Reworded to clarify |
| 273 | 424-22(e) | Covers conductor size for subdivided load |
| 273 | 424-34 | Adds heating panels |
| 274 | 424-37(b) | Applies requrement to wiring behind heating panels |
| 276 | 424-43(b) | Allows cutting nonheating leads |
| 276 | 424-44(e) | Adds intermediate metal conduit |
| 278 | 424-72(e) | Covers conductors for subdivided load |
| 279 | 424-80 | Limits coverage to 600 volts or less |
| 280 | 426-3 Exception | Allows individual circuit of any size |
| 282 | 426-5(b)&(d) | Adds intermediate metal conduit |
| 288 | 430-7(a)(2) | Adds multi-speed motors |

| Page | Section | Description |
|---|---|---|
| 288 | 430-7(a)(6) | Gives specific time ratings |
| 288 | 430-7(a)(7) | Adds multi-speed motors |
| 288 | 430-7(a)(8) | Adds omission of Code letter for poly-phase motors |
| 289 | 430-7(a)(11) | Exempts small DC Motors from marking requirements |
| 294 | 430-18 | Nominal voltage of rectifier system |
| 301 | 430-44 | Adds provision for orderly shutdown |
| 306 | 430-74(a)Ex.1 | Provides for remote location of disconnecting means |
| 306 | 430-74(a)Ex.2 | Provides exception for special conditions |
| 309 | 430-102 Ex.2 | Adds exception for continuous process |
| 310 | 430-109 Ex.4 | Exempts DC motors over 40 HP |
| 310 | 430-109 Ex.6 | Provides exception for torque motors |
| 312 | 430-113 Ex. | Add exception for motors having more than one source |
| 318 | 430-150 Table | Revises Voltages and Amperes for synchronous motors |
| 331 | 445-4(e) | Exception added for vital operation |
| 331 | 445-5 Ex. 1 & 2 | Exceptions for self-protection |
| 332 | 450-1 Ex. 8 | Exemption for research, development and testing |
| 333 | 450-3(a)(1) | Based on continuous current rating |
| 337 | 450-11 | Requires wire bending space at terminals |
| 338 | 450-23 | Covers use of non-fire-propogating liquids |
| 338 | 450-25 Ex. 5 | Provides exception for surface mining equipment |
| 339 | 450-42 Exception | Provides exception for automatic extinguishment systems |
| 339 | 450-43 Exception | Provides exception for automatic extinguishment systems |
| 341 | 460-7 Exception | Adds Exception for light duty service |
| 345 | 480-2 | Definitions for storage battery and sealed cell or battery |
| 345 | 480-5(d) | Requires metal battery enclosures to be insulated from ground |
| 347 | 500-1 | Covers all voltages and where dangerous mixture is present |
| 349 | 500-2(a) | Provides for use of general purpose equipment in Division 2 locations |
| 349 | 500-2(b) | Exception No. 3 for marking of equipment for Division 2 locations |
| 350 | 500-2 Table | Adds 18 chemicals to Groups B, C & D |
| 354 | 501-3 | Recognizes purged and pressurized enclosures |
| 355 | 501-4 | Adds threaded IMC to Divisions 1 and 2 locations and Types MV and PLTC Cable to Division 2 locations |
| 356 | 501-5(a)(1) | Clarifies types of conduit bodies accepted |
| 358 | 501-5(d)&(e) | Clarifies seals for cables |
| 361 | 501-8(b) | Adds motor overload and overtemperature devices |
| 364 | 501-16(b) | Allows external bonding jumper |
| 365 | 502-1 Table | Gives maximum surface temperatures |
| 366 | 502-4(a)&(b) | Adds IMC |
| 371 | 502-14 | Adds meters, instruments and relays |
| 372 | 502-14(a) | Recognizes oil immersion or tight enclosures |
| 372 | 502-14(b) | Ordinary enclosures for limited energy circuits |
| 374 | 503-3 | Adds IMC |

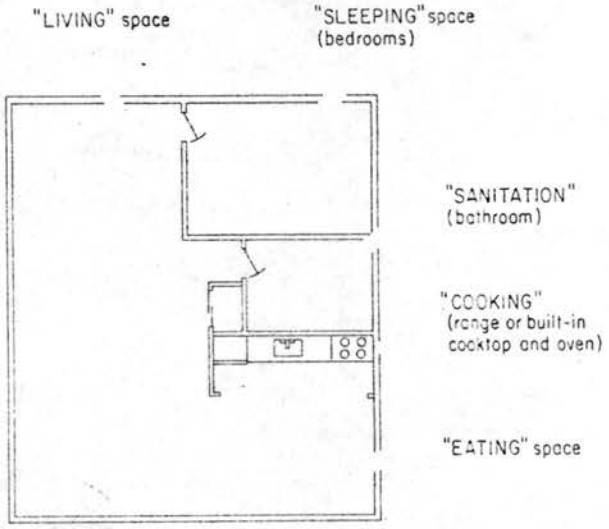
| Page | Section | Description |
|---|---|---|
| 385 | 514-8 | Adds IMC |
| 386 | 515-2(c)(2) | Extends radius to 15 feet |
| 387 | 515-5 | Adds IMC |
| 390 | 516-2(b)Fig.2&3 | Extends area on top of spray booth |
| 392 | 516-3(b) | Adds IMC |
| 396 | 517-1(b) | Covers medical x-ray equipment |
| 396 | 517-1(c) | Extends coverage to parts of building within scope |
| 397 | 517-2 | New Definitions for exposed conductive surface hazard current, hospital, isolated power system, isolation transformer, nursing home residential custodial care facility, therapeutic frequency diathermy equipment, and wet location, health care facility.<br>Revised definitions for anesthetizing location, flammable anesthetizing location, health care facilities, patient grounding point, patient vicinity. |
| 399 | 517-11(a) | Clarifies grounding of receptacles and fixed equipment |
| 399 | 517-11(b) | Provides for double insulation on cord-connected equipment |
| 400 | 517-30 & 31 | New Part C on Clinics, Medical and Dental Offices, Outcare |
| 400 | 517-40 thru -47 | New Part D on Nursing Homes and Residential Custodial Care |
| 401 | 517-42 Diag. (1) | For typical small nursing homes |
| 403 | 517-42 Diag. (2) | For typical large nursing home |
| 405 | 517-60 Diag. (1) | For typical small hospitals |
| 406 | 517-61(d) Ex. 3 | Applies to low voltage signal, communication and alarm circuits |
| 406 | 517-61(g) | Allows single transfer switch for small facility |
| 407 | 517-60 Diag. (2) | For typical large hospitals |
| 408 | 517-62(b) | Permits night transfer of corridor lighting |
| 409 | 517-64(e)(3) | Limitations for specific spaces having openable windows |
| 410 | 517-64(g) | Covers manual connection of fire pumps |
| 411 | 517-66(b) | Provides 15 minute delay in restoration of normal source |
| 412 | 517-80(b) | Deletes description of patient care areas |
| 413 | 517-81(b) | Assumes all critical care areas will be controlled |
| 413 | 517-83(b) Ex. | Exception added for portable x-ray outlets |
| 413 | 517-84(b) Ex. | Exception for special purpose receptacles |
| 414 | 517-84(f) Ex. | Exception for small conductive surfaces |
| 414 | 517-85 | Bonding for feeder conduit |
| 414 | 517-86 | Permits grounding conductor outside conduit where fault current is limited |
| 414 | 517-90(a) | Permits isolated circuits for critical care areas |
| 415 | 517-90(b) | Permits indicators for isolated circuit monitors at nurse's station |
| 417 | 517-103 | Covers wiring and receptacles in nonhazardous anesthetizing locations |
| 418 | 517-104(c) | Covers wiring extending into hazardous locations |
| 418 | 517-104(d) | Specifies colors for isolated circuit conductors |
| 418 | 517-104(e) | Prohibits alarm operation for currents less than 1.7 mils |
| 419 | 517-104(e) Ex. | Exception for alternate source |

| Page | Section | Description |
|---|---|---|
| 420 | 517-122 | Requirements for signal transmission between appliances |
| 421 | Part J | Requirements in Sections 517-130 thru -134 transferred from Article 665 |
| 421 | 517-140 | Provides additional grounding requirements for medical x-ray |
| 422 | Part K | Requirements in Sections 517-41 and -42 transferred from Article 660 |
| 422 | 517-142 | Requires medical therapy x-ray equipment calculated at 100 percent |
| 422 | 518-1 | Expands scope to cover additional places |
| 423 | 520-5 | Includes nonmetallic conduit |
| 429 | 530-1 | Includes electronic cameras |
| 430 | 530-12 | Applies to all cord, allows splices, prohibits fastening cord with staples |
| 433 | 540-2 | Adds applicable light sources |
| 434 | 540-11(b) Ex. 2 | Provides exceptions where safety films are used |
| 434 | 540-12 | Provides working space around projectors |
| 435 | 545-4(b) | Provision for wiring in closed construction |
| 436 | Article 547 | New Article on Agricultural Buildings |
| 438 | 550-1 | Requires all materials to be listed or labeled |
| 438 | 550-2 | Definition for portable appliance |
| 438 | 550-2 | Definition for laundry area |
| 439 | 550-3(a) | Requires integral molded cap where cord is used |
| 440 | 550-3(j) | Specifies construction for termination of cord |
| 440 | 550-3(k) | Protection of attachment cap, receptacle and cord assembly in transit |
| 441 | 550-4(a) | Prohibits panelboard in bathroom |
| 442 | 550-4(b) | Changes max. rating of appliance to 13.3 amps |
| 442 | 550-5(a) | Allows lighting circuit to supply gas ovens and disposals |
| 443 | 550-6(b) | Requires GFCI protection for receptacles in bathroom and outdoors |
| 443 | 550-6(d) | Adds four exceptions for specific conditions |
| 443 | 550-6(e) | Requires outdoor receptacle |
| 444 | 550-6(f) | Prohibits receptacles within reach of shower or tub |
| 445 | 550-8(j) | Specifies support for boxes, fittings & cabinets |
| 445 | 550-8(l) | Provides for use of connectors for components |
| 446 | 550-9 | Requires grounding conductor to be insulated |
| 447 | 550-10 | Requires electrical tests |
| 448 | 550-11(b)(2) | Provides for air-conditioning supply cord |
| 448 | 550-11(b)(6) | Provides 1500 watts for laundry |
| 449 | 550-12(b) | Covers grounding of expandable or double units |
| 450 | 550-22 Table | Provides values for watts per home site |
| 450 | 550-23(d) | Limits location of feeder entry |
| 450 | 550-23(e) | Requires grounding of service equipment as in Article 250 |
| 452 | 551-3(b) | States types of low voltage conductors and marking |
| 453 | 551-3(c)(4) | Specifies construction at ground terminals |

| Page | Section | Description |
|---|---|---|
| 454 | 551-3(e(4) | Protection within 18 inches |
| 454 | 551-3(h) | Cigarette lighter receptacles to be in noncombustible box |
| 455 | 551-4(b) | Basis for converter rating |
| 456 | 551-7(c) | Locations for GFCI protected receptacles |
| 458 | 551-9(a)(2) | Changes max. rating of appliance to 13.3 amps |
| 461 | 551-13(e) | Changes point of entrance to 15 feet |
| 462 | 551-13(e) Ex. | Deletes reference to gross weight and adds type of drain |
| 463 | 551-14(c) | Covers component interconnection |
| 465 | 551-23(b) | Prohibits use of aluminum or copper clad AL if exposed to corrosion |
| 466 | 551-41 | Adds four new definitions - changes "lot" to "site" |
| 467 | 551-42 | Specifies GFCI protection for 15- and 20-amp receptacles |
| 467 | 551-47 | Requires supply on left side of vehicle at specified location |
| 469 | 555-3 | Requires GFCI protection for receptacles other than shore power for boats |
| 470 | 555-5 | Extends values to over 100 receptacles |
| 470 | 555-6 | Adds corrosion resistant IMC and type MC cable |
| 473 | 600-6(b) | Provides exception for interior hallways |
| 474 | 600-9(b) | Adds types of cords |
| 474 | 600-21(a) | Adds nonmetallic conduit |
| 474 | 600-21(b) | Allows No. 20 Awg conductors for leads |
| 475 | 600-31(a) | Adds IMC and Type MC cable |
| 482 | 610-14(a) Table | Adds Types PFA, PFAH and Z |
| 485 | 610-32Ex. | Adds hand-propelled crane bridge |
| 486 | 610-53 | Protection changed to 300 percent |
| 486 | 610-53 Ex. | Limits protective device rating to 200 percent |
| 489 | 620-21 Ex. 1 | Allows low voltage cables between risers and signal fixtures |
| 491 | 620-41 | Deletes requirement for steel fillers in traveling cable exceeding 100 ft. |
| 499 | 640-10 | Provides details on type of circuit protection |
| 500 | 645-2(c)(2) | Adds IMC |
| 502 | 660-1 | Deletes medical x-ray from scope |
| 505 | 665-1 | Deletes medical or dental applications from scope |
| 507 | 665-44 Ex. 2 | Provides exception for coil in vacuum |
| 508 | 665-64 Ex. | Provides exception for grounded output circuit |
| 509 | Article 668 | New Sections 668-1 thru -40 for electrolytic cells |
| 515 | 675-7 | Adds physical protection for collector rings |
| 516 | 675-13 | Provides for use of connectors |
| 518 | 680-1 | Definition of storable pool |
| 519 | 680-5(b) | Requires GFCI to be self-contained units |
| 519 | 680-5(c) Ex. 2 | Allows wiring in same enclosure for receptacle type GFCI |
| 519 | 680-6(a) | Requires receptacle for existing dwellings |
| 519 | 680-6(a) Ex. | Provides spacing for cord and plug-connected fixed circulating pump |
| 520 | 680-8 Ex. | Allows service drop over pools under stated conditions |
| 520 | 680-9 | Requires subdivision of load for pool heaters |

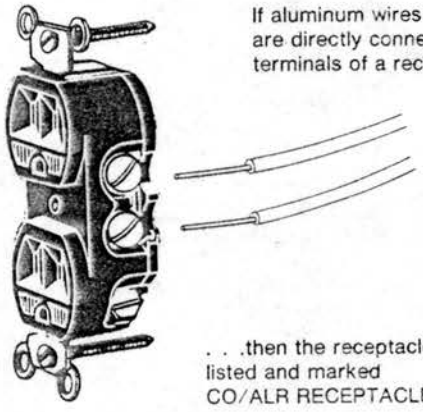
| Page | Section | Description |
|---|---|---|
| 521 | 680-20(a)(4) | Requires overheating protection for submersible fixtures |
| 521 | 680-20 (b)&(c) | Allow use of IMC approved for conditions |
| 523 | 680-22(a)(1) | Adds pool shell, coping stones and deck |
| 523 | 680-22(a)(6) Ex.3 | Exception for small isolated parts |
| 524 | 680-22(b)(2) | Adds bolted metal pools |
| 524 | 680-23 | Adds specific requirements for audio equipment |
| 525 | 680-25(a)(2) Ex.2 | Adds clock-operated switch enclosures |
| 525 | 680-25(d) Ex. 5 | Adds EMT where on or in buildings |
| 526 | 680-40 Ex. | Exempts small portable fountains |
| 533 | 710-2 | Adds cable trays, Type MV cable and IMC |
| 536 | 710-21 | Expands requirements on circuit breakers, fuses and cutouts |
| 539 | 710-24 | Covers metal-enclosed switchgear and industrial assemblies |
| 541 | 710-33 Table | Revises clearance valves |
| 544 | Part G | Sections 710-70 thru -74 cover electrode-type boilers |
| 548 | 725-15 | Limits conductors to those functionally associated |
| 548 | 725-17(c) | Covers Class 1 conductors in cable trays |
| 549 | 725-31 | Separates Tables for AC and DC |
| 549 | 725-37 Ex. | Allows No. 18 for leads |
| 553 | 725-40(a) Ex. | Covers cable trays and hazardous locations |
| 553 | 725-40(b)(3) | Adds recognition of type PLTC cable |
| 555 | 760-4(d) | Covers wiring in ducts or plenums |
| 557 | 760-18(c) | Covers wiring in cable trays |
| 557 | 760-21 | Separates Tables for AC and DC |
| 560 | 760-27 Ex. | Allows No. 18 for leads |
| 562 | 760-30(c) Ex. 2 | Allows other insulations approved for purpose |
| 565 | 800-3(d) Ex. | Conductors to have "adequate" fire resistance and be listed |
| 565 | 800-3(d) FPN | Adds explanation on conductor insulation |
| 567 | 800-31(b)(5) | Reworded to reflect changes in Article 250 |
| 575 | 820-14 | Reworded to conform to wording in Section 300-21 |
| 575 | 820-15 | New Section added on cable in ducts and plenums |

## "Dwelling Unit" must contain all required facilities




**NOTE:** Eating, living, and sleeping space could be one individual area, as in an efficiency apartment. But the unit must contain a "bathroom," defined in Section 210-8(a) as "an area including a basin with one or more of the following: a toilet, a tub, or a shower." And the unit must contain permanent cooking equipment.

## Section 210-7 (g). *Only* CO/ALR receptacles for aluminum wire



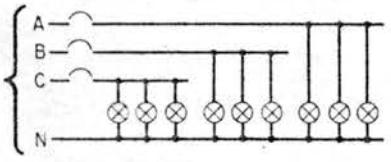
If aluminum wires are directly connected to terminals of a receptacle. . .

. . .then the receptacle must be listed and marked CO/ALR RECEPTACLE

## Section 210-4. Change in Exception No. 1 permits multiwire branch circuit with single-pole protective devices (fuses or CB poles) to supply any "single utilization equipment"

When using single-pole devices for branch-circuit protection (fuses or single-pole CBs). . .

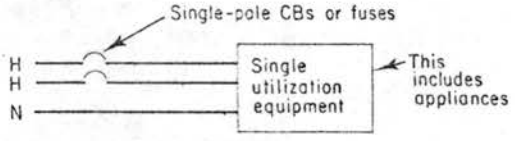
**This basic rule is not changed. . .**



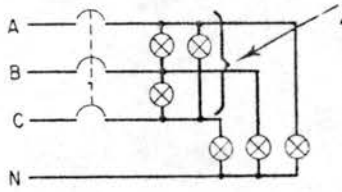

. . . multiwire branch circuits shall supply only line-to-neutral connected loads.

**. . . but the first of the following two exceptions has been expanded to recognize all utilization equipment.**

**No. 1.** A multiwire branch circuit may supply a single utilization equipment with line-to-line and line-to-neutral voltage using single-pole switching devices in branch-circuit protection.

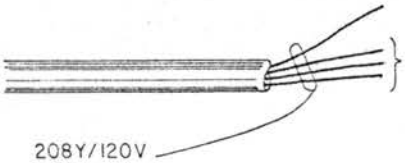



**No. 2.** If a multipole CB is used, loads may be connected line-to-line and/or line-to-neutral.



## Section 210-5. Color coding is no longer required for ungrounded (hot) conductors of multiwire branch circuits

Neutral must be white or gray. . .

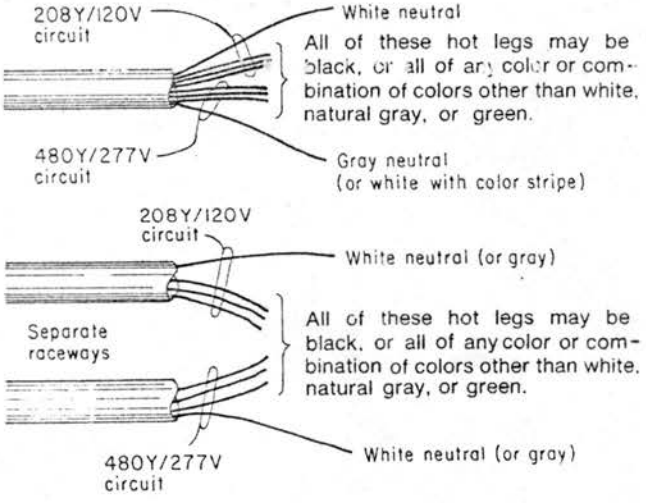


208Y/120V
or
480/277V
3-phase, 4-wire
circuit

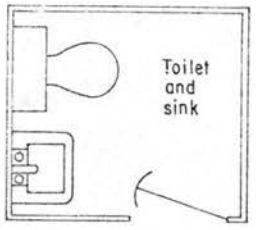
**BUT,** ungrounded conductors may be all black, all red, or all of any color or combination of colors other than white or green.

**NOTE:** Although color coding of hot conductors is not *required*, such practice certainly is acceptable to the NE Code where designers and/or installers find additional safety and more effective installation provided by color identification of each different phase of a system.

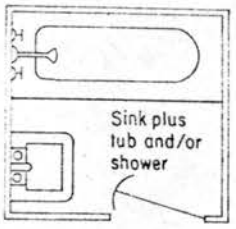
**IF THERE ARE TWO SYSTEM VOLTAGES:**




## Section 210-8(a). A "bathroom" is now defined for application of rule requiring GFCI protection of receptacles



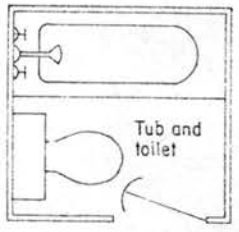

A BATHROOM!



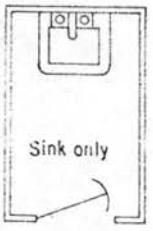

A BATHROOM!




NOT A BATHROOM!



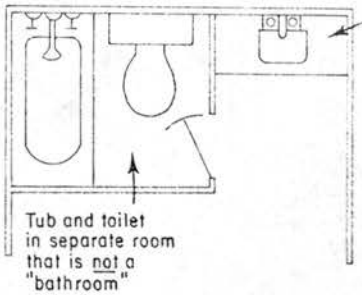

NOT A BATHROOM!




NOT A BATHROOM!

**NOTE:** If a room is not a bathroom according to the definition of Section 210-8(a), then the requirement of Section 210-25(b) for "at least one wall receptacle outlet . . . adjacent to the basin location" does not apply. If, however, a receptacle is installed in a room that is *not* a "bathroom"—such as the one above containing a basin *only*—GFCI protection is not required for the receptacle because it is not a bathroom receptacle.

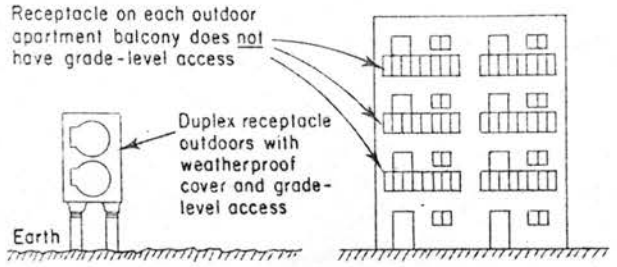
**AND WATCH THIS ONE!**




THIS IS A COMMON LAYOUT OF PLUMBING FIXTURES IN HOTEL AND MOTEL UNITS

Guest rooms in hotels and motels are required by Section 210-25(c) to have the same receptacle outlets required by Section 210-25(b) for "dwelling units." The requirement for a wall receptacle outlet at the "basin location" applies to bathrooms; and the anteroom area with only a basin is, by definition and code intent, a "bathroom." A receptacle at the basin would, therefore, be required by code. But, Section 210-8(a), which applies only to bathrooms in "dwelling units," does not apply in hotels and motels—and GFCI protection is not required for this receptacle.

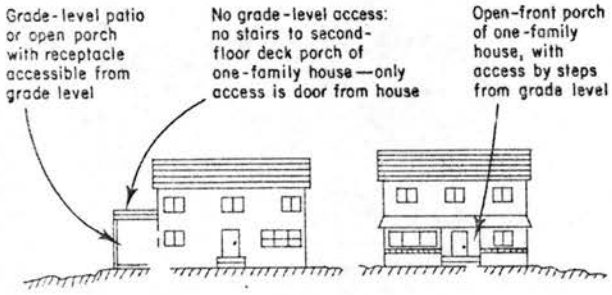
## Section 210-8(a)(2). For dwelling units, only outdoor receptacles with "direct grade level access" require GFCI protection




Receptacles fed out of ground *must be* GFCI-protected

Apartment balcony receptacles do *not* require GFCI protection

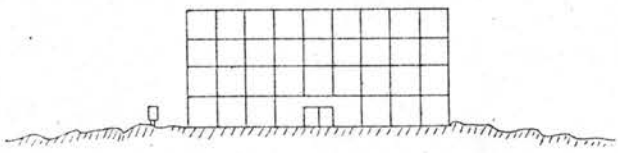
**NOTE:** In any case of an outdoor receptacle at a dwelling unit, GFCI protection is not required if there is no access to the receptacle from the grade-level of ground around the building.




Outdoor receptacle on second-floor deck porch would **not** require GFCI protection, but receptacle on porch below **would** need GFCI protection.

Outdoor receptacle on this porch might likely be used to connect appliance used on ground, and GFCI protection **would** seem to be required.

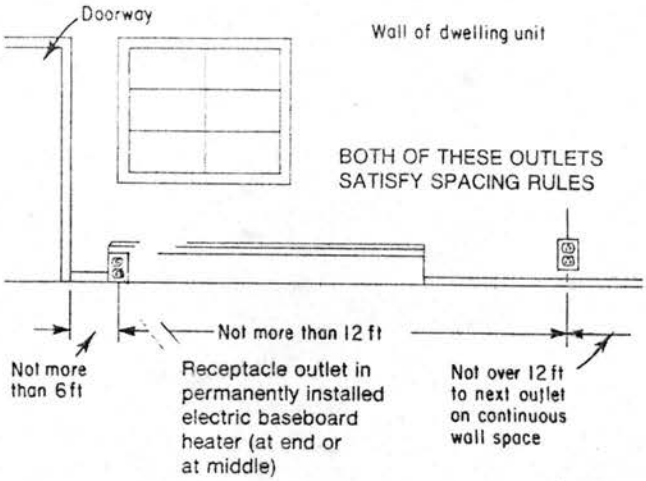
**IMPORTANT:** A hotel, motel or dormitory is *not* a "dwelling unit". . .



. . . and an outdoor receptacle does *not* require GFCI protection, even if it *does* have grade-level access.

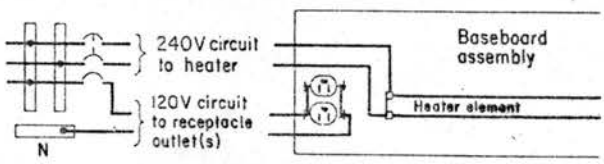
**NOTE:** It is important to understand that the code meaning of "bathroom" refers to the total "area" made up of the basin in the alcove *plus* the "room" that contains the tub and toilet. Although a receptacle is *not* required in the "room" with the tub and toilet, if one is installed in that room, it must be GFCI-protected because such a receptacle is technically "in the bathroom," just as the one at the basin location is "in the bathroom."

## Section 210-25(b). New exception permits receptacles in heaters as required spaced receptacles



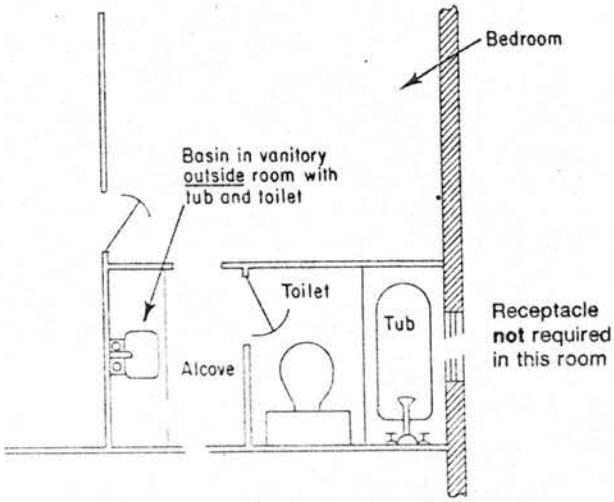

**NOTE:** This change in the new Exception of Section 210-25 (b) was made to eliminate the need for use of wall-mounted receptacles that might be required above a long baseboard heater to satisfy requirements on spaced receptacles. This was added because UL requires a warning on baseboard heaters that receptacles are not to be located above the heater units.

**BUT WATCH THIS!**
**Separate circuiting required for heater and receptacle.**



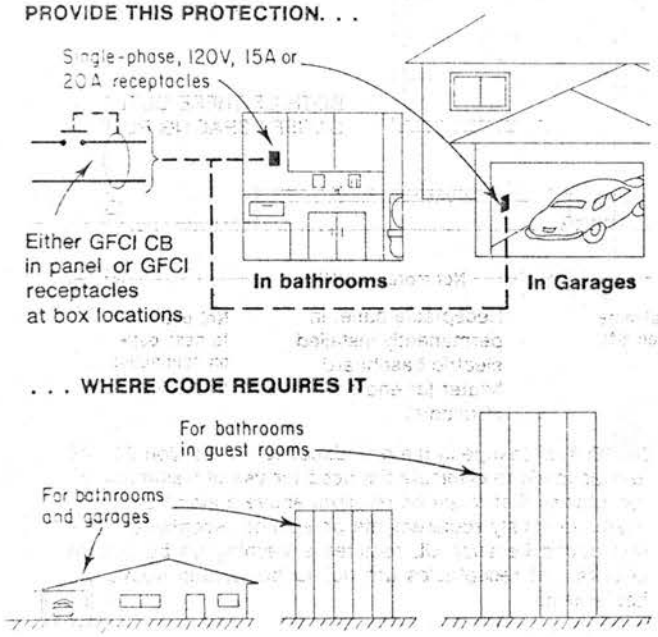

## Section 210-8(a). Intent of bathroom GFCI rule applies to an "area" (not a room) in *every* "dwelling unit"

TYPICAL BEDROOM SUITE IN ONE-FAMILY HOUSE OR APARTMENT UNIT




Although this **area** with basin is **outside** room with tub and toilet, the intent of Section 210-25(b) requires a receptacle at basin; and Section 210-8(a) requires that it be GFCI-protected.

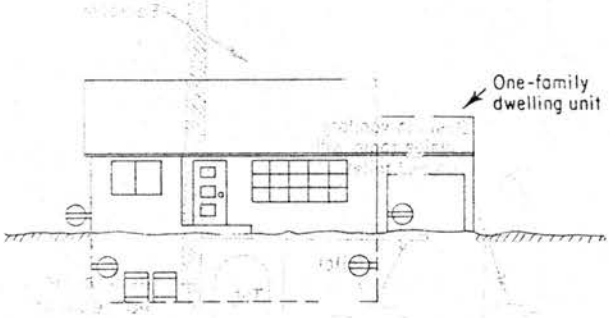
## Section 210-8(a)(1). GFCI protection is required for receptacles in garages as well as in bathrooms




## Section 210-25(b). Required receptacles for "laundry" and "basement" must be separate, individual receptacle "outlets"

At least one receptacle outdoors for one-family dwelling—with GFCI protection in receptacle or ahead of it

At least one receptacle in an *attached* garage—with GFCI protection

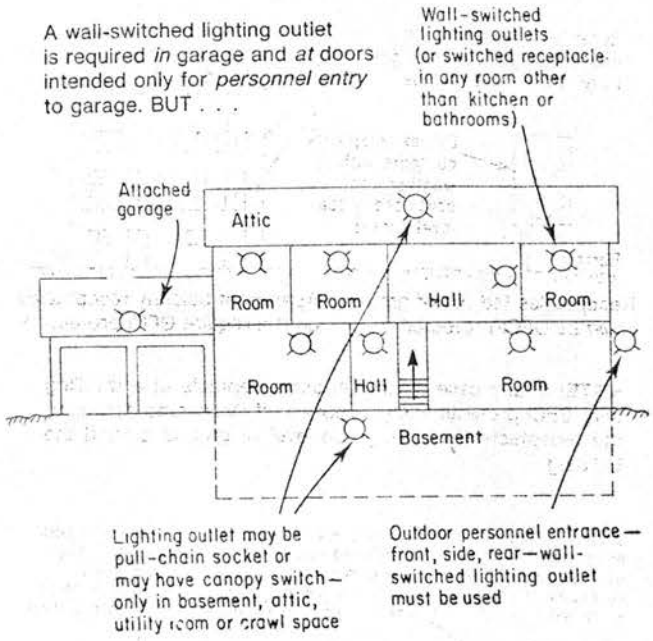



At least one receptacle in basement—for general use

At least one *additional* receptacle in basement—for a *laundry* area

## Section 210-26(a). Revised rule eliminates need for lighting outlet at garage "vehicle" door

A wall-switched lighting outlet is required *in* garage and *at* doors intended only for *personnel entry* to garage. BUT . . .

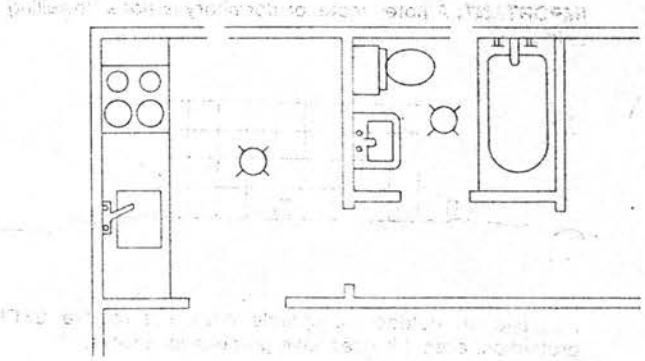



. . . a lighting outlet is *not* required at garage "vehicle" doors.

**NOTE:** A lighting outlet is required for attic, basement, crawl space, or utility room *only* when such spaces are used for storage or contain equipment that requires servicing.

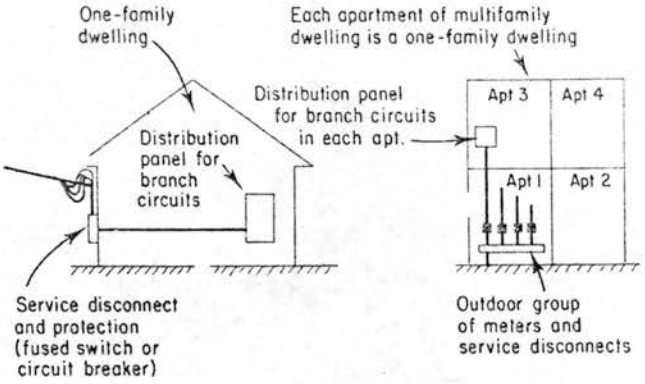
## Section 210-26(a), Exception No. 1. Change in wording does not change intent of rule

**Kitchen and all bathrooms—**
Each must have at least one lighting outlet that is **wall-switch-controlled** (not pullchain or switch in fixture or canopy)



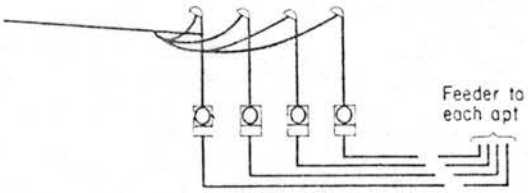
## Section 215-2. Feeder conductors need not be larger than service-entrance conductors when higher ampacity of Note 3, [redacted]le 310-16 is used

If Note 3 of Table 310-16 is used to assign higher ampacity to the service entrance conductors . . .




. . . then feeder conductors that carry the total current supplied by the service may also be assigned the higher ampacities of Note 3 (for instance, No. 2/0 copper THW is rated at 200 amps instead of 175 amps). (They do not have to be larger than the service conductors.)

**Or, a multifamily dwelling might be fed like this—**

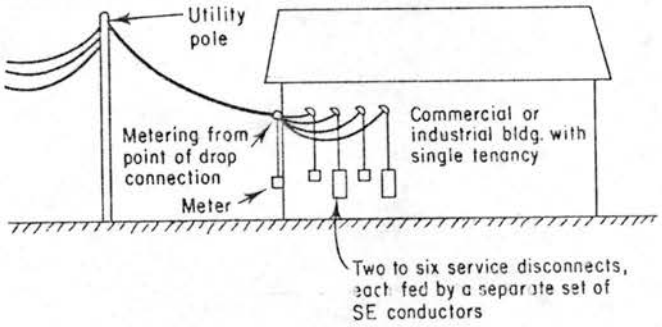



Each set of feeder conductors need not be larger than . . .

. . . the set of service-entrance conductors that supply it.

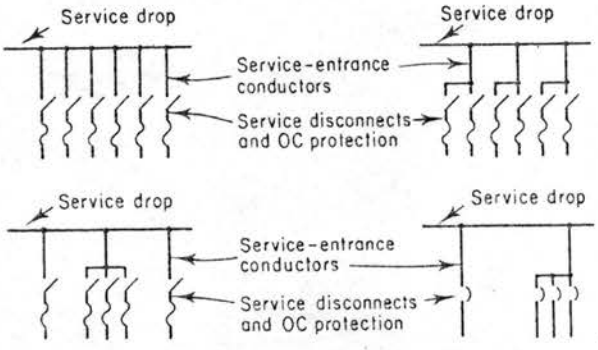
## Section 230-2, Exception No. 7. This clarifies application of Section 230-45 to underground services.

**Section 230-45 can be applied to overhead services, as shown here . . .**

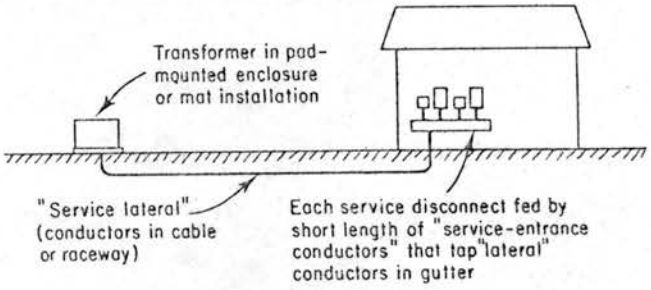



**FROM TWO TO SIX** separate sets of service-entrance conductors may be supplied by a single service drop for either single- or multiple-occupancy buildings. Disconnects can be of same or different ratings, and each set of service-entance conductors can be installed using any approved wiring method.

. . . or other layouts may be used to correspond to Section 230-45 wording of "service-entrance conductors" to supply "each or several" service equipment enclosures.

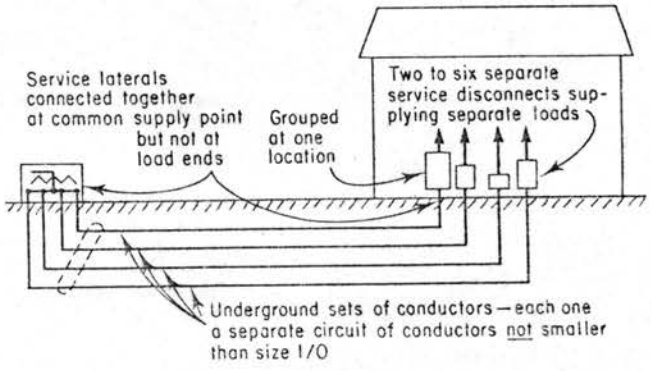



**But the 1975 NE code had this limitation on service laterals** (and this is still acceptable)—



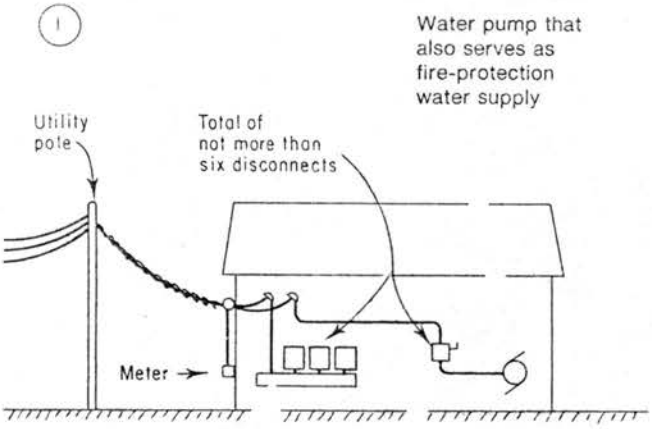

"Service lateral" conductors are **not** "service entrance" conductors and were, therefore, not applicable to the subdivision permission of Section 230-45. The requirement of Section 230-2 for "one set of service lateral conductors" demanded **one circuit** of single-conductor **or** parallel-conductor makeup.

**Now, Exception No. 7 considers this type of hookup to be "one set of service lateral conductors"—**



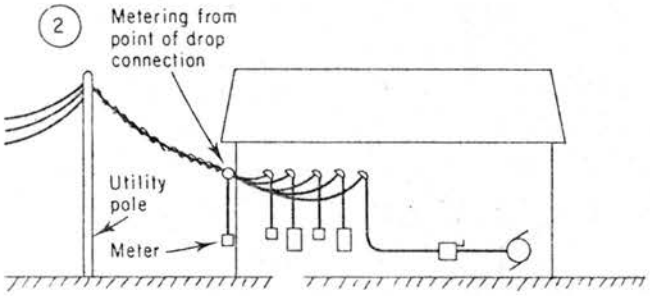

This is **one** service lateral, in the meaning of the basic rule of Section 230-2.

## Section 230-72 (a), Exception No. 2. Permits remote installation of one of two-to-six service disconnects to protect fire-pump circuits (typical layouts)

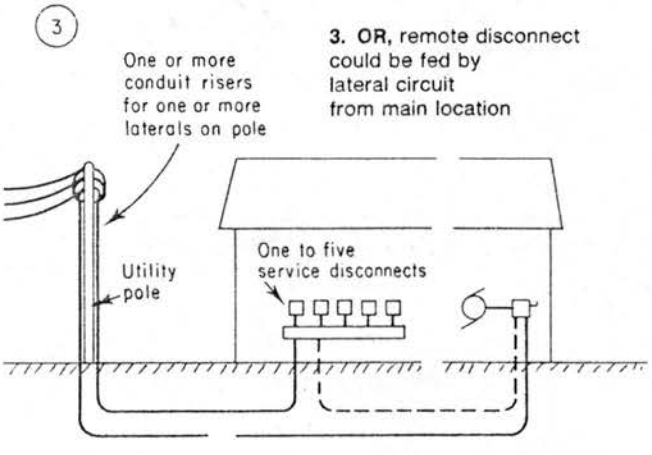



One to five normal service disconnects **grouped** at main service location or in common enclosure

Single normal service disconnect installed remote from main location




Two to five service disconnects, each fed by a separate set of SE conductors




1. One lateral to grouped disconnects or separate lateral to each disconnect

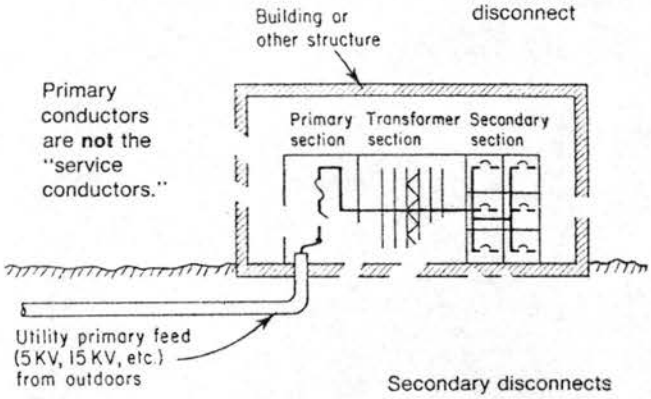
2. One lateral run directly to remote disconnect for water pump

**NOTE:** Many layouts are possible, depending upon capacity of circuits and type of metering required. Disconnects may be indoors or outdoors.

## Section 230-20(). The secondary is the "service" for *any* indoor transformer "in metal-enclosed gear" and fed by utility line.

Any loadcenter unit substation inside building: in open area accessible to unqualified persons or in unlocked room or in locked room

Secondary ground-fault protection as required by Section 230-95 for service disconnect

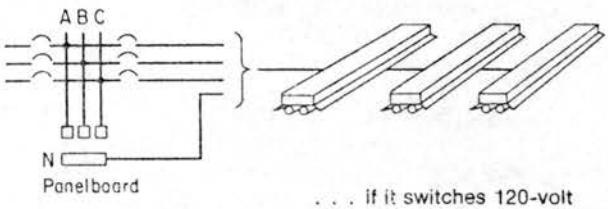



Secondary conductors **are** the service conductors to building

Secondary disconnects **are** service equipment: not more than 6 mains plus any number of feeder devices

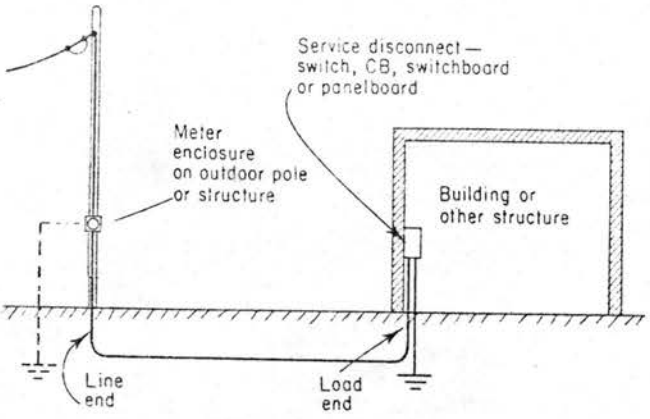
## Section 240-83(d). Circuit breakers used for switching lights must be "SWD" type.

Any CB used for ON-OFF control must be marked "SWD" . . .




. . . if it switches 120-volt fluorescent luminaires

## Section 250-23(a). New rule covers grounding when outdoor meter is distant from building service disconnect.

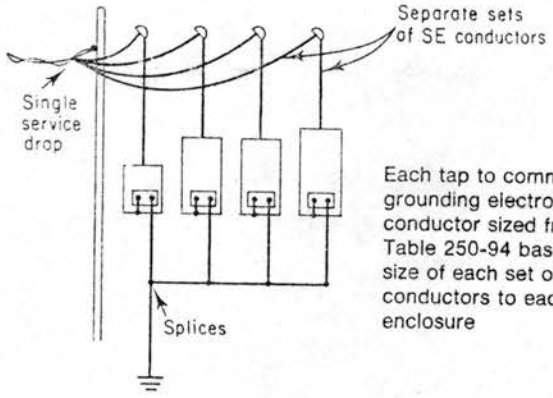



Service lateral supplying building

A grounding electrode conductor **may** be connected to the neutral at the meter, but this does **not** satisfy the new requirement of Section 250-23(a).

Grounding electrode conductor **must** be connected to bonded neutral at this end of lateral

## Section 250-91(a), Exception No. 2. New rule on sizing main and taps of grounding electrode conductor at multiple-disconnect services



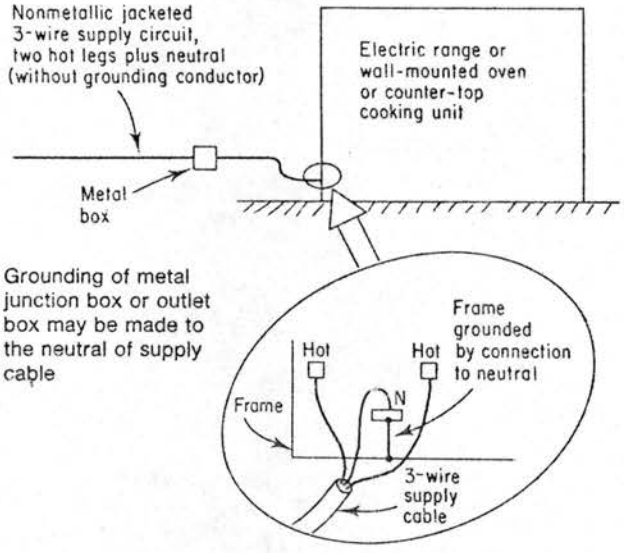

Each tap to common grounding electrode conductor sized from Table 250-94 based on size of each set of SE conductors to each enclosure

Single, common grounding electrode conductor, sized according to the size of a single set of SE conductors that would handle the demand load on the four disconnects or sized for the sum of the cross-sections of the total number of conductors fed by one hot leg of the drop

**Note:** The two-to-six service disconnects could be fed by individual sets of underground conductors, making up a "single" service lateral as permitted by new Exception No. 7 to Section 230-2.

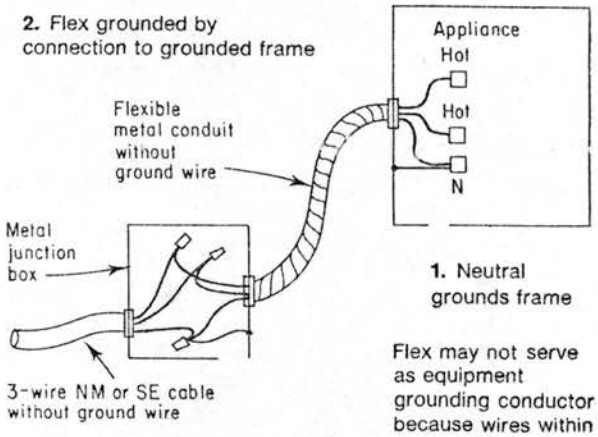
## Section 250-60. Neutral may be used to ground circuit box as well as appliance frame.

**This is now the basic rule**




Grounding of metal junction box or outlet box may be made to the neutral of supply cable

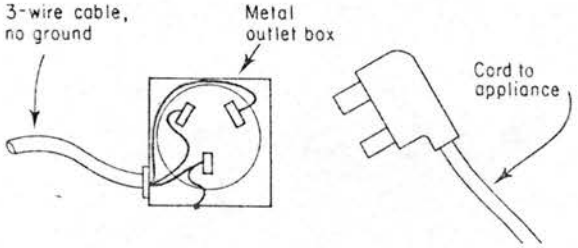
**Both of these are now O.K.**




**1.** Neutral grounds frame

Flex may not serve as equipment grounding conductor because wires within it are protected at more than 20 amps (Sec. 250-91, Exc. No. 1)

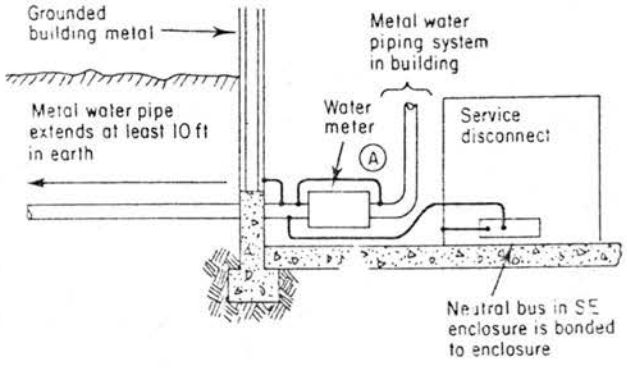
**3.** Metal box grounded by connection to neutral



## Section 250-81. New approach to system grounding provides variety of grounding electrode arrangements.

### In buildings with grounded structural steel

**Case 1** Section 250-81 requires building metal frame to be bonded to water pipe electrode by jumper sized from Section 250-79(c) and metal frame may serve as the additional required grounding electrode.

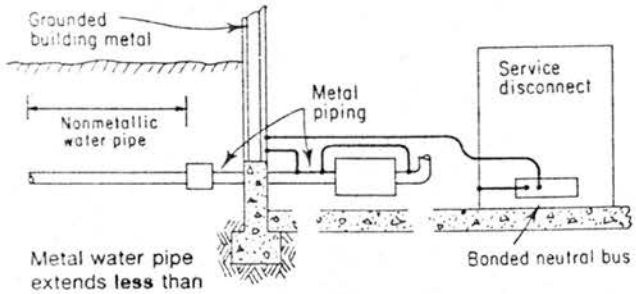



Water pipe **is** a grounding electrode but must **always** be supplemented by another electrode

Grounding conductor sized from Table 250-94 must connect bonded service neutral to ground clamp on water pipe

**Note:** At point "A," a bonding jumper **must** be used around the water meter and must be sized from Section 250-79(c).

**Case 2** Section 250-81(b) recognizes the grounded metal building frame as a suitable grounding electrode by itself, connected to bonded service neutral by conductor sized from Table 250-94.




Metal water pipe extends **less** than 10 feet in earth and, therefore, it is **not** a grounding electrode

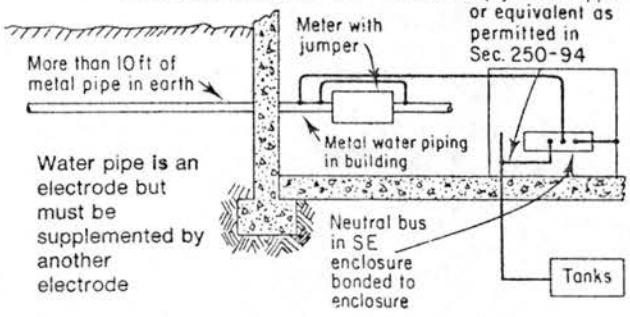
Required bond around water meter

Section 250-80(a) requires interior metal water piping to be bonded to service grounding, such as by bonding to the grounding electrode (the building frame in this case), with jumper sized from Table 250-94.

### In buildings without grounded metal frame

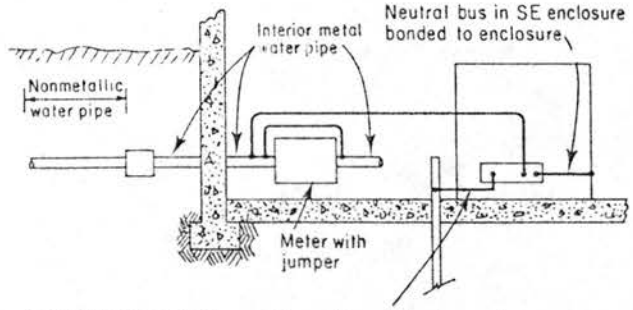
**Case 1** Grounding electrode conductor sized from Table 250-94 must connect bonded service neutral to clamp on water-pipe electrode.

Because the underground tanks are not a "made" electrode, this grounding electrode conductor must be sized from Table 250-94—and not simply No.6 copper or equivalent as permitted in Sec. 250-94




Because building does not have grounded metal frame or either of the electrodes described in Section 250-81(c) and (d), the last sentence of Section 250-81(a) requires that one of the electrodes of Section 250-83 be used to supplement the water pipe electrode—such as metal piping to underground metal tanks.

**Case 2** Section 250-80(a) requires interior metal water piping to be bonded to service grounding, such as by bonding to grounded neutral bus.



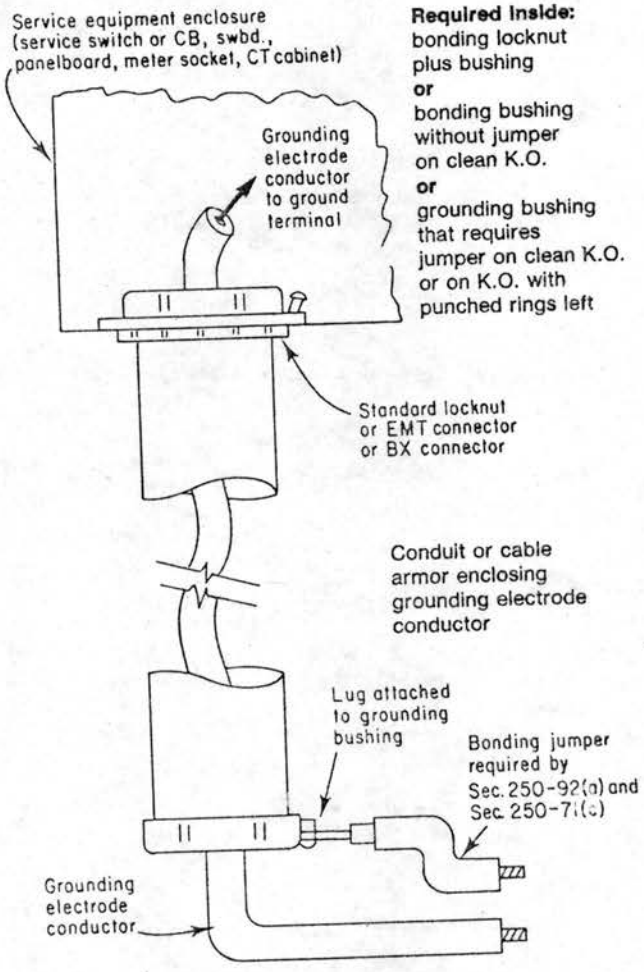

Metal water pipe is less than 10 feet in ground and does not qualify as electrode

Grounding electrode conductor connected to a made electrode need not be larger than No.6 copper or its equivalent ampacity

Because building does not have a grounded metal frame or either of the electrodes described in Section 250-81(c) and (d), Section 250-83 requires that at least one of the electrodes described in that Section be used—such as a ground rod.

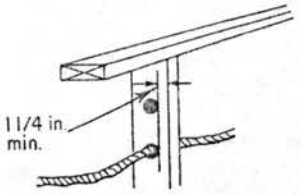
**Note:** These illustrations are only typical examples of the many specific ways in which the new rules on grounding electrodes may be applied.

## Section 250-71(c). Bonded terminals for conduit or armor of grounding electrode conductor



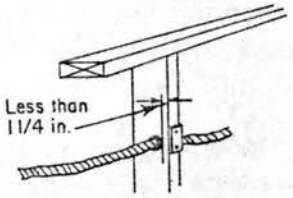

Both conductors to ground clamp(s) on grounding electrode see Section 250-115

## Section 300-4(a). New clearance for cable holes through wood studs




Edge of bored cable hole not less than 1¼ in. from nearest edge of stud

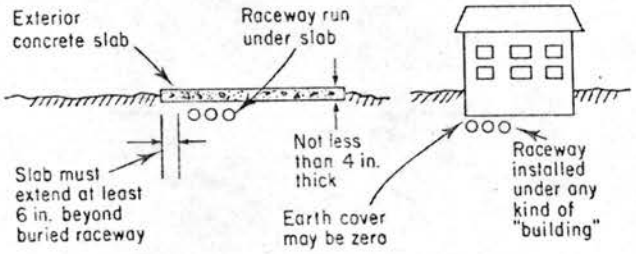
...OR...




If hole is less than 1¼ in. from nearest edge, a steel plate 1/16 in. thick must be used to protect cable against driven nails or screws.

**NOTE: This clearance used to be 1½ inches in the 1975 NE Code.**

## Section 300-5. New Exception No. 2 eliminates burial depth requirements for direct-buried "raceways" under specified conditions.



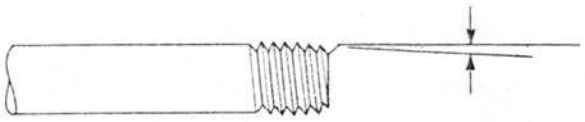

Burial-depth requirements of Table 300-5 do not apply to raceways installed like this.

**NOTE:** This new exception applies **only** to "conduits or other raceways" but **not** to direct-buried cables:

1. Any direct-burial cable run under a building **must** be installed in raceway, as required by Section 300-5 (c), and the raceway may be installed in the earth, immediately under the bottom of the building—without any earth cover.

2. Any direct-buried cable under a **slab** is subject to the 24-in. minimum burial-depth requirement of Table 300-5, but burial depth may be reduced as permitted by Exceptions No. 4, 5, 6, and 8. Application of Exception No. 1 to reduce cable burial-depth under a grade-level slab is questionable because that exception calls for "concrete-pad" protection to be "in the trench over the underground installation."

Section 346-7. Threading taper for rigid metal conduit is now mandatory.

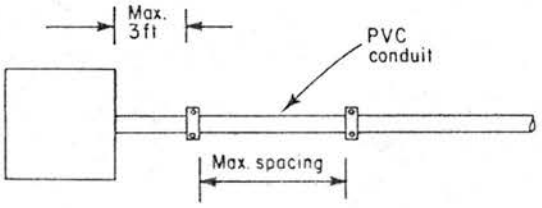


Taper of cutting die for rigid metal conduit *must* be ¾ in. per ft.

## Article 347—Rigid nonmetallic conduit

**Section 347-8. Supports.** In this section, Table 347-8, giving the maximum distance between supports for rigid nonmetallic conduit, has been revised to permit greater spacing. For each size of rigid nonmetallic conduit, a single maximum spacing between supports, in feet, is given for all temperature ratings of conductors used in rigid nonmetallic conduit raceways.

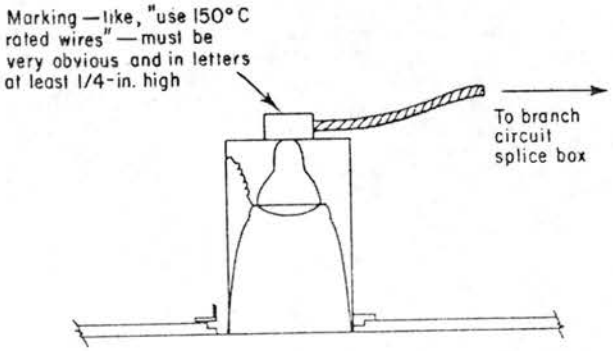
### Section 347-8. Change in support-spacing for rigid nonmetallic conduit




Clamp or other support must be within 3 ft of any box, cabinet or other conduit termination (this was 4 ft in 1975 NE Code).

1978 NE Code table on this spacing reduces number of support points for conductors of any temperature ratings.

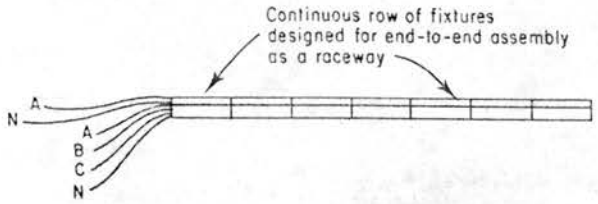
### Section 410-35(a). High-temperature wire rating must be marked on fixture, if needed.




If heat developed in fixture wiring box requires wire rated over 90C—the required temperature rating of supply wire must be marked in the fixture and on shipping carton.

Section 410-31. Expanded use of fixtures as raceways provides better control for conservation.

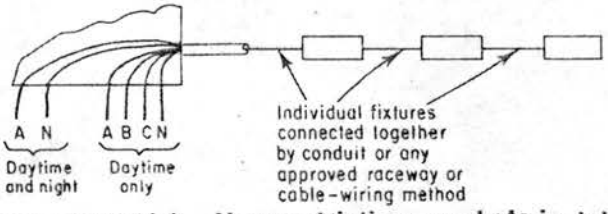
**This may now be done:**



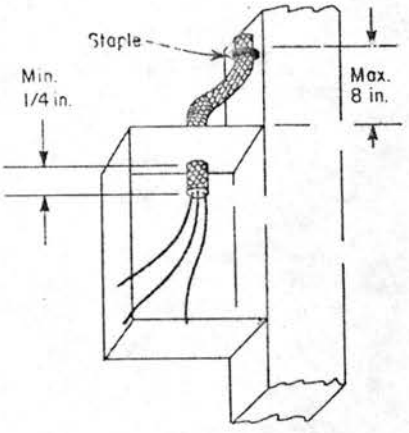

Only one 2-wire or multiwire branch circuit supplying only fixtures in the row was permitted to be run through the fixtures by the 1975 NE Code.

Now the code rule accepts one more circuit—only a **2-wire** circuit—run through the row. But this additional circuit **must** supply one or more of the fixtures in the row, such as night lighting by, say, every fifth fixture, to enable the others to be turned off for energy conservation.

**And the same permission applies in this case—**




### Section 370-7(c). New restrictions apply to installation and connection of NM cable in nonmetallic boxes.




NM cable—**including the sheath**—must extend at least ¼ in. into **every** box through a K.O. designed for NM.

**For single-gang boxes only:** If the cable is clamped to a stud within 8 in. of the box,

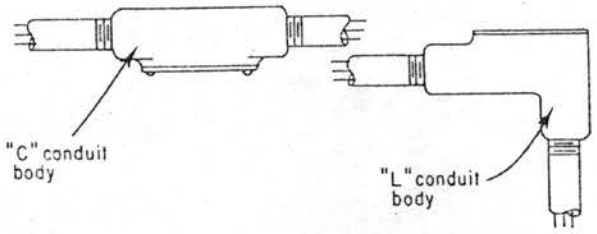
**then**

the cable does not have to be attached to the box by a clamp.

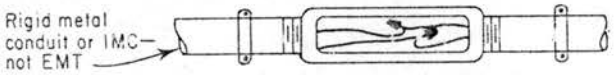
**NOTE:** For boxes or enclosures other than single-gang boxes, NM cable must always be clamped or connected to the box—and must always have its sheath ¼ in. into box.

## Section 370-6(c). Change in wording now recognizes splicing in "C" and "L" conduit bodies.

Although the basic rule still prohibits splicing and tapping in these fittings . . .




. . . .Permission is **now** given to splice in such fittings, if Section 370-6(b) is satisfied; that is, if—

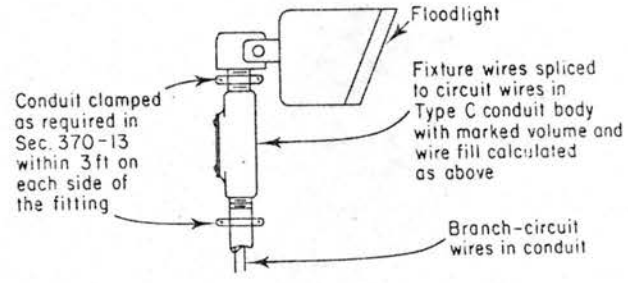



1. The fitting is marked with its cubic-inch volume . . .

2. The conductor-fill volume is calculated using the wire volumes of Table 370-6(b) and the wire-counting method of Section 370-6(a)—and that fill does not exceed the fitting's marked volume . . .

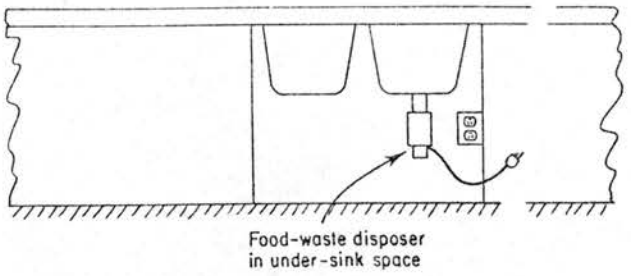
3. And the fitting is "supported in a rigid and secure manner"—such as by the "conduit," if the conduit is clamped on each side of the fitting as described in the next-to-last paragraph of Section 370-13.

. . .So the following kind of hookup would be made acceptable.—




## Section 422-8( ). New rules assure effective grounding for kitchen garbage disposers.

Receptacle must be accessible and located to avoid physical damage to the flexible cord



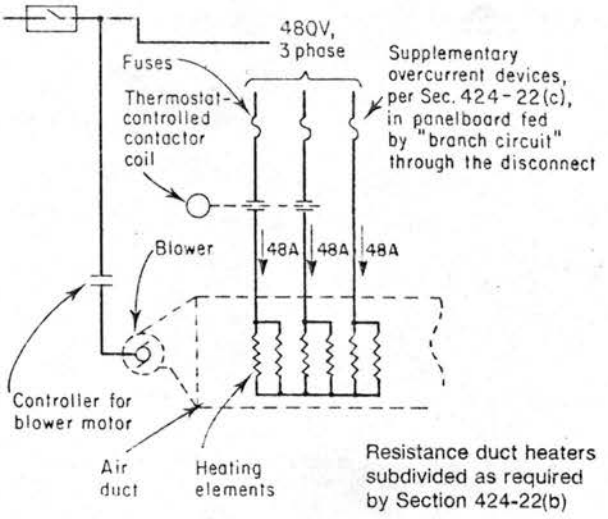

Cord must be Type S, SO, ST, STO, SJO, SJT, SJTO or SPT-3—3-conductor, terminated with a grounding-type plug. Cord must be between 18 and 36 in. long.

**NOTE:** Double-insulated disposers do not have to be grounded.

**Hookup of dishwashers and trash compactors is the same, except that the cord must be 3 to 4 ft long.**

## Section 424-19. Extensive revisions of rules on disconnects for heating equipment demand careful study for HVAC systems with duct heaters and supplementary overcurrent protective devices.

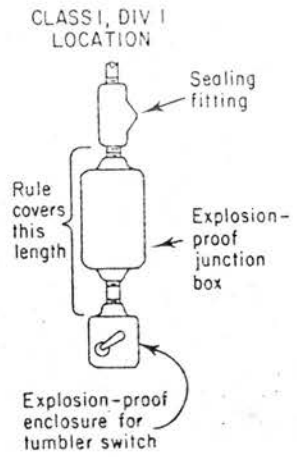
Required disconnect must disconnect heater, motor controller(s), and supplementary overcurrent devices.




**And . . .**

1. The disconnect must be within sight from the supplementary overcurrent panel.
2. The disconnect must also be within sight from the motor controller(s) and the heater, or may be locked in the open position.
3. The **single** disconnect may serve as disconnect for all equipment.

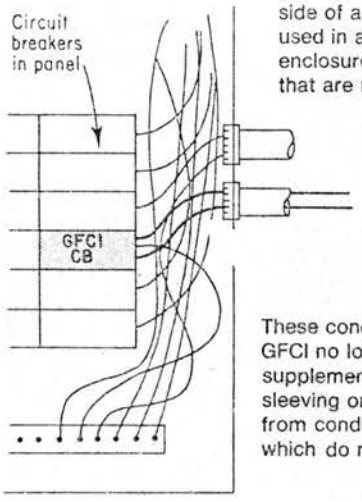
## Section 501-5(a)(1). Big clarification on use of boxes and fittings between seal and enclosure.




**VIOLATION!**—This box or any similar enclosure must not be used between the seal fitting and the switch enclosure

**BUT**—an explosionproof union, coupling, elbow, capped elbow, or a conduit body (like the "L," "T" and "cross" type) **may** be used in this position. But, a conduit body must not be larger than the conduit size.

## Section 680-5(c). New Exception No. 1 eliminates need to put insulating sleeving on GFCI conduit conductors run in panelboard gutter.

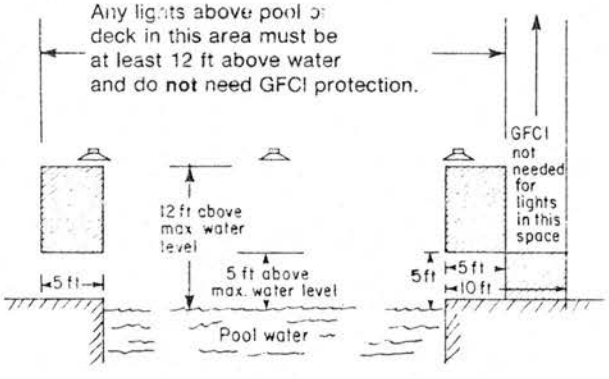



Aside from the panelboard gutter, conductors on the load side of a GFCI must not be used in any raceway or other enclosure containing conductors that are not GFCI-protected.

These conductors on load side of GFCI no longer require supplementary insulation (insulating sleeving or tubing) to isolate them from conductors of other circuits which do not have GFCI protection.

## Section 680-6. Revised rules set mounting heights for lighting fixtures or outlets in space around pools.

Lights in this space around pool **must** have GFCI protection and **must** be rigidly attached to structure.

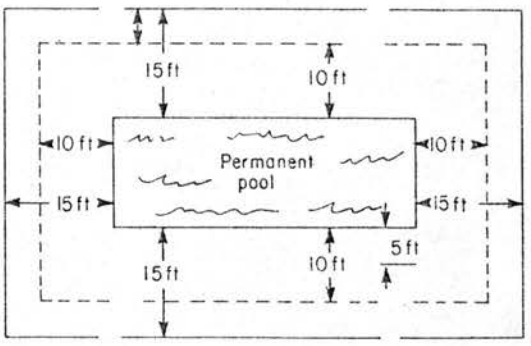



**Exception:**
Any **existing** lighting fixtures or lighting outlets are permitted in this space around the pool if rigidly attached to the **existing** structure and protected by a GFCI in the branch circuit supplying the fixtures. But new (not "existing") lights are not permitted in this space around a pool.

## Section 680-6(a). New rule and new Exception cover use of receptacles at pools.

**1.** All receptacles located between 10 and 15 ft of inside walls of pool *must* be protected by a ground-fault circuit interrupter.

**2.** No accessible receptacles permitted within 10 ft of the inside walls of the pool




**3.** For a pool installed at an existing dwelling, at least one receptacle must be installed within the 10-to-15-ft band around the pool and must be protected by a GFCI device.

**4.** A receptacle for the cord connection of the pool recirculating pump may be installed not less than **5 ft** from inside wall of the pool, but it **must** be a single locking and grounding-type device and it **must** be protected by a GFCI device.

STATE OF MINNESOTA
OFFICE OF HEARING EXAMINERS

FOR THE DEPARTMENT OF ADMINISTRATION
BUILDING CODE DIVISION

| | | |
|---|---|---|
| IN THE MATTER OF THE PROPOSED ADOPTION BY REFERENCE OF THE 1978 EDITION OF THE NATIONAL ELECTRICAL CODE AS APPROVED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI CI-1978) | ) | REPORT OF THE CHIEF HEARING EXAMINER |

WHEREAS, a hearing was held on June 22, 1978, before Peter C. Erickson, a Hearing Examiner of the State Office of Hearing Examiners, on the above-entitled matter in compliance with Minn. Stat. § 15.0412, Subd. 4; and

WHEREAS, the Report of Hearing Examiner made pursuant to Minn. Stat. § 15.052, Subd. 3, was issued to the Building Code Division on July 27, 1978; and

WHEREAS, the Building Code Division has now determined to adopt rules pursuant to Minn. Stat. § 15.0412, Subd. 4; and

WHEREAS, the Building Code Division has submitted said rules to the Chief Hearing Examiner for review pursuant to Minn. Stat. § 15.052, Subd. 4, and Rule HE 107; and

WHEREAS, the Chief Hearing Examiner finds that the final proposed rules are not substantially different from those proposed at the public hearing and that the Building Code Division has met all requirements of Minn. Stat. § 15.0412, Subd. 4.

NOW, THEREFORE, upon receipt of this Report, the Building Code Division has the responsibility of submitting the complete hearing record and the rules as adopted by the Division to the Attorney General and to publish in the State Register, all pursuant to Minn. Stat. § 15.0412, Subd. 4.

Dated this 22nd day
of August, 1978.

DUANE R. HARVES
Chief Hearing Examiner