

Note to Commission

Amendments to Madison General Ordinances regarding solar and wind apparatus

Several changes are proposed to the Landmarks ordinance regarding solar and wind power because of a state law that restricts a municipality's ability to regulate such systems. The sections of the proposed amendments pertinent to the Landmarks Commission are items #23-28 of the attached document.

I recommend that the Commission advise the Plan Commission that it supports the proposed amendments.

K. H. Rankin

7-2-08

**CITY OF MADISON
OFFICE OF THE CITY ATTORNEY
Room 401, CCB
266-4511**

Date: May 29, 2008

MEMORANDUM

TO: Jeanne Hoffman, Facilities and Sustainability Manager

FROM: Katherine C. Noonan, Assistant City Attorney

RE: Amendments to Madison General Ordinances Relating to Solar and Wind Energy Systems

Wi. Stat. §66.0401 addresses the authority of municipalities to regulate solar and wind energy systems. It limits the usual reach of the City's authority to regulate for the health, safety, and public welfare by specifying three situations where regulation is allowed - when the regulation is to preserve or protect public health or safety, when it does not significantly impact the efficiency or cost of the solar or wind energy system, or when an alternative system of comparable cost and efficiency is available. Several existing provisions of the City's zoning code need to be amended to be consistent with state law and there also are other City ordinances that are proposed for amendment to better reflect current solar and wind energy technology.

The proposed zoning amendments will treat solar and wind energy systems as permitted accessory uses in all districts, subject to the approval of the Director of the Department of Planning and Community and Economic Development. The Director will be limited in denying or modifying a proposed solar or wind energy system to the allowed regulation under Wi. Stat. §66.0401. An applicant will be asked to provide a placement plan for the system that shows the location of the building(s), the system design and other information that may be relevant to the Director's determination. In addition to this change to the general treatment of solar and wind energy systems in the Zoning Code, several provisions in the Landmarks ordinance that restrict such systems in some historic districts are proposed to be repealed.

Chapter 30 of the Madison General Ordinances is the HVAC portion of the specific building provisions. It is based on the Wisconsin Administrative Code. A number of changes are being proposed relating to the details of installation, materials used, and the design of solar and wind energy systems. These changes reflect changes in technology or knowledge about solar and wind energy systems since the ordinance was adopted or last amended.

CITY OF MADISON, WISCONSIN

AN ORDINANCE _____

PRESENTED July 1, 2008
REFERRED Plan Commission; Sustainable
Design and Energy Committee; UDC;
Landmarks

RULES SUSPENSION
PUBLIC HEARING PC 7/21/08
CC 8/05/08

Amending Sec. 28.03(2), creating Sec. 28.04(18)(e); repealing Secs 28.08(2)(c)16., 28.08(9)(c)5., 28.08(11)(c)9., 28.12(13)(a)10.d.; renumbering current Secs. 28.12(13)(a)10.e. through g. to Secs. 28.12(13)(a)10.d. through f., respectively; amending Secs. 30.01(3)(b)5., 30.01(5)(b); repealing Secs. 30.01(9)(c)9. and 11.; renumbering current Sec. 30.01(9)(c)10. to Sec. 30.01(9)(c)9.; amending Sec. 30.05(2); repealing Sec. 30.05(5); renumbering current Secs. 30.05(6) through (17) to Secs. 30.05(5) through (16), respectively; amending Sec. 30.05(9); repealing 30.05(11)(e); creating new Sec. 30.05(13)(d); renumbering current Secs. 30.05(13)(d) through (f) to Secs. 30.05(13)(e) through (g); creating new Secs. 30.05(13)(h), 30.05(15)(b), 30.05(15)(c); renumbering current Secs. 30.05(15)(b) and (c) to Secs. 30.05(15)(d) and (e); and repealing Sec. 33.19(12)(d)3.; renumbering Sec. 33.19(12)(d)4. through 11. to 3. to 10.; repealing Sec. 33.19(12)(f)1.f.; renumbering Sec. 33.19(12)(f)1.g. to f.; repealing 33.19(13)(d)8. and renumbering Sec. 33.19(13)(d)9. through 13. to 8. through 12., respectively of the Madison General Ordinances to update provisions relating to solar/wind systems.

Drafted by: Katherine Noonan

Date: June 19, 2008

SPONSORS: Aids. Rhodes-Conway, Compton, Solomon, Rummel

DRAFTER'S ANALYSIS: These proposed amendments update a number of provisions on the Madison General Ordinances that deal with solar or wind energy systems so that they are consistent with Wis. Stat. § 66.0401 or reflect changes that make the existing provisions more inline with current technologies or practices. The second item proposed is the one that states the limits on the City's authority to regulated solar and wind energy systems under Wis. Stat. §66.0401, and makes unenforceable all restrictions, covenants, etc., that prohibit the installation of such systems.

The Common Council of the City of Madison do hereby ordain as follows:

1. Subsection (2) entitled "Definitions" of Section 28.03 entitled "Rules and Definitions" of the Madison General Ordinances is amended by amending or adding therein the following:

"Solar Energy System means equipment that directly converts and then transfers or stores solar energy into usable forms of thermal or electrical energy.

Wind Energy System means equipment that converts and then stores or transfers energy from the wind into usable forms of energy."

Approved as to form:

2. Subdivision (e) of Subsection (18) entitled "Exemptions" of Section 28.04 entitled "General Provisions" of the Madison General Ordinances is created to read as follows:

"(e) 1. Solar and wind energy systems are permitted accessory uses in all districts provided that the Director of the Department of Planning and Community and Economic Development has approved a placement plan showing the location of the solar or wind energy system on the lot and the design of the solar or wind energy system. The placement plan also shall include the location of improvements on adjoining lots as well as landscaping on the lot and adjoining lots that impacts the location of the solar or wind energy system. Additional materials may be required as determined by the Director of the Department of Planning and Community and Economic Development. Any conditions or restrictions imposed by the Director of the Department of Planning and Community and Economic Development shall be limited to those that serve to preserve or protect the public health and safety, or do not significantly increase the cost of the system or significantly decrease its efficiency, or allow for an alternative system of comparable cost and efficiency.

2. In furtherance of public health and welfare concerns, all restrictive covenants, including covenants in deeds, and covenants or provisions in condominium owner's agreements, homeowner's association agreements, leases, and all other private agreements, to the extent such covenants or provisions apply to the storage, placement, location or use of solar and/or wind energy systems, as defined in Sec. 28.03(2), are set aside and declared unenforceable as against public policy. This subsection applies to all such covenants and provisions, including those created prior to the enactment of this ordinance."

3. Paragraph 16. of Subdivision (c) entitled "Conditional Uses" of Subsection (2) entitled "R1 Single-Family Residence District" of Section 28.08 entitled "Residence Districts" of the Madison General Ordinances is hereby repealed.

4. Paragraph 5. of Subdivision (c) entitled "Conditional Uses" of Subsection (9) entitled "R4L Limited General Residence District" of Section 28.08 entitled "Residence Districts" of the Madison General Ordinances is hereby repealed.

5. Paragraph 9. of Subdivision (c) entitled "Conditional Uses" of Subsection (11) entitled "R4A Limited General Residence District" of Section 28.08 entitled "Residence Districts" of the Madison General Ordinances is hereby repealed.

6. Subparagraph d. of Paragraph 10. of Subdivision (a) entitled "Amendments, Conditional Uses and Area Exceptions" of Subsection (13) entitled "Fees" of Section 28.12 entitled "Administration and Enforcement" of the Madison General Ordinances is hereby repealed.

7. Current Subparagraphs e., f., and g. of Paragraph 10. of Subdivision (a) entitled "Amendments, Conditional Uses and Area Exceptions" of Subsection (13) entitled "Fees" of Section 28.12 entitled "Administration and Enforcement" of the Madison General Ordinances are renumbered to Subparagraphs d., e., and f.

8. Paragraph 5. of Subdivision (b) of Subsection (3) entitled "Classes of Licenses" of Section 30.01 entitled "Administration" of the Madison General Ordinances is amended to read as follows:

"5. Class A-4 license shall be issued to a person desiring to enter into the business of installing, altering or repairing active solar heating equipment. This license is not required if the person has a North American Board of Certified Energy Practitioners (NABCEP) certification."

9. Subdivision (b) of Subsection (5) entitled "Licenses-How Obtained" of Section 30.01 entitled "Administration" of the Madison General Ordinances is amended to read as follows:

"(b) An application shall be filed with the Heating, Ventilating and Air Conditioning Inspector thirty (30) days prior to the date on which an examination is to be held. An application fee of sixty dollars (\$60) shall accompany application for Class B, Class A-3 and Class A-4 licenses. An application fee of one hundred twenty-five dollars (\$125) shall accompany application for Class A-1 and A-2 licenses. Application shall be made on forms furnished by the Neighborhood Preservation and Inspection Division of the Department of Planning and Community and Economic Development, City of Madison, Municipal Building, Madison, Wisconsin.

Persons who are engaged in solar system installation shall hold an A-4 license or an NABCEP certification for solar thermal installers. The applicant must furnish evidence that s/he is engaged in such installation. Upon finding that the applicant is engaged in the solar system installations, if the applicant is not

NABCEP certified, an A-4 license will be issued after the appropriate fee is paid and the bond has been furnished.”

10. Paragraphs 9. and 11. of Subdivision (c) entitled “Data Required as Part of the Permit Application” of Subsection (9) entitled “Permits, Plans, Specifications and Data” of Section 30.01 entitled “Administration” of the Madison General Ordinances are hereby repealed.

11. Current Paragraph 10. of Subdivision (c) entitled “Data Required as Part of the Permit Application” of Subsection (9) entitled “Permits, Plans, Specifications and Data” of Section 30.01 entitled “Administration” of the Madison General Ordinances is renumbered to Paragraph 9.

12. Subsection (2) entitled “Shading of Solar Collectors” of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances is amended to read as follows:

“(2) Shading of Solar Collectors. No more than five ~~fifteen~~ percent (~~515%~~) of the area of the solar path shading diagram shall be obstructed ~~There shall be a solar window between 7:00:00 a.m. and 3:00 p.m.~~”

13. Subsection (5) entitled “Use of Wood in Solar Collection Systems” of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances is hereby repealed.

14. Current Subsections (6) through (17) of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances are renumbered to Subsections (5) through (16).

15. Renumbered Subsection (7) entitled “Liquid Systems - Piping and Penetration” of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances is amended to read as follows:

“(87) Liquid Systems - Piping and Penetration.

- (a) When three (3) or more collectors are installed in any one system, a ~~Z-flow~~reverse flow piping configuration shall be used unless an alternate flow configuration is recommended by the manufacturer.
- ~~(b) Piping shall be installed so the system can be completely drained.~~
- ~~(eb)~~ No permanent piping shall connect the solar system with potable water.
- ~~(dc)~~ All piping used in the solar loop supply and return and within ten (10) feet of the collector shall be made and assembled of materials that will not distort or deteriorate from fluids, temperatures, pressure, or exposure can withstand antifreeze solution at temperatures of up to 350°F. The remaining solar loop piping shall be made and assembled of materials that can withstand antifreeze solution of 200° F.
Note: CPVC Piping has performed poorly in certain installations.
- ~~(ed)~~ All solar loop building penetrations shall be made using weatherproof devices which will allow for expansion and contraction. All penetrations into the building shall be weatherproofed to prevent leaks, insects and drafts from entering the building.
- ~~(fe)~~ All of the components of a closed loop solar collector system shall be sized to provide adequate flow to the collectors.
- ~~(f)~~ The solar loop shall incorporate a check valve downstream of the heat exchanger if collectors are mounted above the storage tank.
- ~~(g)~~ Automatic air vents shall be disconnected from the solar loop by a ball valve.”

16. Renumbered Subsection (9) entitled “Liquid Systems – Pipe Insulation” of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances is amended to read as follows:

“(409) Liquid Systems - Pipe Insulation.

- (a) All pipe insulation in the solar collection system shall be at least R-~~35~~ in insulating value. ~~Pipes of nominal size of one and one-half inch or larger shall be insulated with at least R-45 insulation.~~
- (b) Exterior pipe insulation shall resist ultraviolet and environmental degradation and shall be covered by material providing weather resistance, UV protection and mechanical abuse protection. Exterior insulation joints, seams and connections shall be sealed to prevent entry of moisture. Fiberglass and Elastomer insulation shall not be used for exterior solar application.
- (c) Solar supply loop shall be insulated with three hundred degree (300°F) rated insulation approved for solar applications.

Note: One-inch thickness of urethane, fiberglass and phenolic foam, with appropriate cover will meet the requirements of Subsection (b) above."

17. New Subdivision (d) of Renumbered Subsection (13) entitled "Storage Tanks - Liquid Systems" of Section 30.05 entitled "Active Solar Collector Systems" of the Madison General Ordinances is created to read as follows:

"(d) Heat traps shall be included on all supply and discharge lines for the storage tank."

18. Current Subdivisions (d) through (f) of Renumbered Subsection (13) entitled "Storage Tanks - Liquid Systems" of Section 30.05 entitled "Active Solar Collector Systems" of the Madison General Ordinances are renumbered to Subdivisions (e) through (g), respectively.

19. Subdivision (h) of Renumbered Subsection (13) entitled "Storage Tanks - Liquid Systems" of Section 30.05 entitled "Active Solar Collector Systems" of the Madison General Ordinances is created to read as follows:

"(h) Storage tanks shall have a tempering valve adjustable to 120°F downstream from the regular water heater and heat trap."

20. New Subdivision (b) of Renumbered Subsection (15) entitled "Monitoring and Manuals" of Section 30.05 entitled "Active Solar Collector Systems" of the Madison General Ordinances is created to read as follows:

"(b) A pressure gauge shall be installed in the solar loop."

21. New Subdivision (c) of Renumbered Subsection (15) entitled "Monitoring and Manuals" of Section 30.05 entitled "Active Solar Collector Systems" of the Madison General Ordinances is created to read as follows:

"(c) The solar loop supply and return and the discharge line of the tempering valve shall have thermometers."

22. Current Subdivisions (b) and (c) of Renumbered Subsection (15) entitled "Monitoring and Manuals" of Section 30.05 entitled "Active Solar Collector Systems" of the Madison General Ordinances are renumbered to Subdivisions (d) and (e), respectively.

23. Paragraph 3. entitled "Solar Apparatus" of Subdivision (d) entitled "Criteria for the Review of Additions, Exterior Alterations and Repairs in R2 and R4A Zoning Districts" of Subsection (12) entitled "University Heights Historic District" of Section 33.19 entitled "Landmarks Commission" of the Madison General Ordinances is hereby repealed.

24. Current Paragraphs 4. through 11. of Subdivision (d) entitled "Criteria for the Review of Additions, Exterior Alterations and Repairs in R2 and R4A Zoning Districts" of Subsection (12) entitled "University Heights Historic District" of Section 33.19 entitled "Landmarks Commission" of the Madison General Ordinances are renumbered to Paragraphs 3. through 10.

25. Subparagraph f. entitled "Solar Panels" of Paragraph 1. entitled "Principal Buildings" of Subdivision (f) entitled "Criteria for the Review of New Construction in the R2, R4, R4A, R5, R6, C1, C2 and OR Zoning Districts" of Subsection (12) entitled "University Heights Historic District" of Section 33.19 entitled "Landmarks Commission" of the Madison General Ordinances is hereby repealed.

26. Current Subparagraph g. entitled "Parking Lots" of Paragraph 1. entitled "Principal Buildings" of Subdivision (f) entitled "Criteria for the Review of New Construction in the R2, R4, R4A, R5, R6, C1, C2 and OR Zoning Districts" of Subsection (12) entitled "University Heights Historic District" of Section 33.19 entitled "Landmarks Commission" of the Madison General Ordinances is renumbered to Subparagraph f.

27. Paragraph 8. entitled "Solar Apparatus" of Subdivision (d) entitled "Criteria for the Review of Additions, Exterior Alterations and Repairs" of Subsection (13) entitled "Marquette Bungalows Historic District" of Section 33.19 entitled "Landmarks Commission" of the Madison General Ordinances is hereby repealed.

28. Current Paragraphs 9. through 13. of Subdivision (d) entitled "Criteria for the Review of Additions, Exterior Alterations and Repairs" of Subsection (13) entitled "Marquette Bungalows Historic District" of Section 33.19 entitled "Landmarks Commission" of the Madison General Ordinances are renumbered to Paragraphs 8. through 12.

EDITOR'S NOTE:

1. Section 28.08(2)(c)16. currently reads:
 - "16. Solar heat collection apparatus that:
 - a. In rear yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)3.l.;
 - b. In side yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)4.e.; or
 - c. In front yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)2.e."
2. Section 28.08(9)(c)5. currently reads:
 - "5. Solar heat collection apparatus that:
 - a. In rear yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)3.l.;
 - b. In side yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)4.e.; or
 - c. In front yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)2.e."
3. Section 28.08(11)(c)9. currently reads:
 - "9. Solar heat collection apparatus that:
 - a. In rear yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)3.l.;
 - b. In side yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)4.e.; or
 - c. In front yards, are not a permitted obstruction pursuant to Sec. 28.04(6)(e)2.e."
4. Section 28.12(13)(a)10.d. currently reads:
 - "d. Solar heat collection apparatuses;"
5. Section 30.01(9)(c)9. currently reads:
 - "9. For solar systems, furnish a plot plan showing the proposed location of solar collector and any tree and/or structure that presently casts a shadow within twenty (20) feet of the proposed collector location."
6. Section 30.01(9)(c)11. currently reads:
 - "11. For solar systems, furnish detailed drawings of all piping, pumps, blowers, wiring, storage vessels, ductwork, dampers, valves, insulation and all other material that will be required to install the system."
7. Section 30.05(5) currently reads:
 - "(5) Use of Wood in Solar Collection Systems. All wood components used in collector mounting which are exposed to the weather shall be pressure treated wood, meeting Interim Federal Specifications TT-W-571J-Rev. 1974, as amended or revised. Wood used in collector frames or housing shall be protected against pyrolysis."
8. Renumbered Section 30.05(11)(e) currently reads:
 - "(e) The heat transfer fluid used in the collectors shall be isolated from the potable water supply through the use of an approved double wall heat exchanger."
9. Section 33.19(12)(d)3. currently reads:
 - "3. Solar Apparatus. Passive and active solar apparatus are prohibited unless the Landmarks Commission determines that they are as unobtrusive as possible and that their use does not detract from the architectural integrity of the building provided, however, that solar apparatus will not be permitted where the device hides from street view significant architectural features of the building or neighboring buildings, where its installation requires the loss of significant architectural features or where the device is of such a large scale that it becomes a major feature of the design."
10. Section 33.19(12)(f)1.f. currently reads:

- "f. Solar Panels. Solar panels are permitted on new buildings or structures, including front facades, except when such devices hide from street view significant architectural features of neighboring buildings or if they are of such a large scale that they become a major feature of the design."
- 11. Section 33.19(13)(d)8. currently reads:
- "8. Solar Apparatus. Solar apparatus is not compatible with the historic character of the district and is prohibited."