

CITY OF MADISON, WISCONSIN

A SUBSTITUTE 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); amending Sec. 30.05(1)(d); repealing 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.

DRAFT

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Date: September 29, 2008
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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 on solar and/or wind energy systems.

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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:

- "Small Wind Energy System means a wind energy system that has a total height of no more than one hundred seventy (170) feet, measured from the ground level to the top of a wind generator blade at its highest point and that has a net maximum energy output, as described by the manufacturer, of no more than one hundred (100) kilowatts.
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. Some development that includes solar or wind energy systems may also require approval under other ordinances, including but not limited to Planned Unit Development approval by the Plan Commission, Urban Design Commission, and Common Council; some construction in Urban Design Districts; and Certificate of Appropriateness Approval by the Landmarks Commission.
- a. A small wind energy system shall be located at a distance no less than its total height from:
- i. any public right of way, unless written permission is granted by the government entity with jurisdiction over the public right of way;
  - ii. any overhead utility lines, unless written permission is granted by the affected utility; and
  - iii. all property lines, unless written permission is granted from the affected land owner.
2. All restrictions on platted land that prevent or unduly restrict the construction and operation of solar and/or wind energy systems as defined in Sec. 28.03(2), MGO, are void. This subsection applies to all such restrictions, 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. Subdivision (d) of Subsection (1) entitled “Orientation Guidelines” of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances is amended to read as follows:

“(d) Any variations from the orientation guidelines above ~~and the shading percentage of the solar collector required in Sec. 30.05(2) below~~, must be consented to and acknowledged by the owner in writing prior to installation of the solar system.”

13. Subsection (2) entitled “Shading of Solar Collectors” of Section 30.05 entitled “Active Solar Collector Systems” of the Madison General Ordinances is hereby repealed.

14. 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.

15. 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).

16. 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.”

17. 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.”

18. 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.”

19. 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.

20. 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.”

21. 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.”

22. 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.”

23. 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.

24. 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.

25. 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.

26. 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.

27. 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.

28. 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.

29. 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(2) currently reads:

“(2) Shading of Solar Collectors. No more than five percent (5%) of the area of the solar path shading diagram shall be obstructed.”

8. 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.”

9. 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.”

10. 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.”

11. 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.”

12. 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.”