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<b>DATE</b>	MAR 19 2008
<b>RECD.</b>	MAR 20 2008

**From:** "Dan Stevens" <sendan@nsatel.net>  
**To:** <cgekas@energy.state.ca.us>  
**CC:** "Jon Jungers" <akduct@msn.com>, "Jeff Prickel" <jprickel@cdcei.net>  
**Date:** 3/19/2008 6:54 AM  
**Subject:** Fw: 2008 draft rules

Thank you for your quick response and I'm sorry that I have not replied sooner. I was in Wisconsin over the last two weeks and my laptop decided it would receive e-mails...but would not send them...so I am using my personal computer at home.

I have looked at the proposed rule changes for HVAC underground air ducts and I think you need to include a subdivision for performance based standards. Correct me if I'm wrong, but from what I see everything is a prescriptive standard in the code and that may not give the results that the State of California wants. Example; Please go to our website [www.blueduct.com](http://www.blueduct.com) and in the upper right hand quadrant you will find all of the testing we have done on the AKDUCT system.

Check out the; **TEMPERATURE PERFORMANCE TEST OF AKDUCT vs PVC DUCTING** from June 28th, 2007 and this test compares results from our product to PVC insulated with R-10. The prescriptive standard is only R-5 in most building codes for underground ducts, but we wanted to show the regulatory community how much better performance the AKDUCT system actually delivers. Please keep in mind that even though it shows time elapsed in "mins." that the Cooling Test lasted 4 hours and 25 minutes & the Heating Test lasted 2 hours.

To summarize quickly....the 10" PVC/R-10 never once posted a better temperature reading than the 10" AKDUCT (which did not have any external insulation around our pipe) for either Cooling or Heating. In fact, we are in the process of having an independent engineering firm calculating the seasonal energy efficiency from the data in this test and it is estimated at 93% for heating and I will pass on the report to you when I receive it.

Please keep me posted with any notices and I have subscribed to the proper sites. Thank you for your consideration.

Sincerely,

Dan Stevens  
Director of Regulatory Affairs  
Former MN State Senator  
1993-2002  
Cell #: 612-390-0250

**From:** "Dan Stevens" <sendan@nsatel.net>  
**To:** <cgekas@energy.state.ca.us>  
**CC:** <sendan@nsatel.net>, "Jeff Prickel" <jprickel@cdcei.net>, "Jon Jungers" ...  
**Date:** 3/20/2008 7:59 AM  
**Subject:** Suggested technical amendments to 2008 CA Energy Code

Hi Chris:

I realize that we are late in this process, however we had not been made aware of the proposed code changes until just a couple of weeks ago, and with extremely critical decisions on the line for energy-efficiency in California I strongly urge your technical people to look at energy code language from several other states that incorporate performance based designs into their codes. Therefore, I am attaching codes from MN & WI. MN is simple, direct and just one page which allows for alternative designs and products if they meet or exceed the performance requirements equivalent to the prescribed code standards. The WI code is a PDF file so I forwarded the entire code, however, the important language can be found in section 22.17 sub. 4 (b), which includes exception language from the prescriptive code based upon energy requirements of the building.

It is my opinion that the language is intended to enable building inspectors to accept new technology to the extent the technology is technically & economically feasible without going through the cumbersome process of a lengthy rulemaking change to the code. I certainly do not need to tell you how important energy efficiency is to California and the rest of the country with a barrel of oil at \$110.00!!!

Chris may I ask you favor? Would you please ask Mr. Bill Pennington (or whomever the technical person responsible for the HVAC duct systems) to forward to me the sections of the 2008 Energy Code proposed language pertaining to HVAC ducts? Are there any other sections within the code for which alternative methods, designs or products can be accepted and apply to the entire 2008 Energy Code? If so, would they please forward those sections as well? You may already have performance based language include within a section of the California code for designs and products that I may have missed.

Thank you very much for your consideration.

Sincerely,

Dan Stevens  
Director of Regulatory Affairs  
CDC Enterprises, Inc  
Former MN State Senator  
1993-2002  
Cell # : 612-390-0250

# Alternate Material Request for use of AKDUCT Form

Minnesota Rule 1300.0110 subd.13

## 1300.0110 DUTIES AND POWERS OF BUILDING OFFICIAL.

Subp. 13. **Alternative materials, design, and methods of construction and equipment.** The code is not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by the code, provided that any alternative has been approved. An alternative material, design, or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the code, and that the material, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed in the code in quality, strength, effectiveness, fire resistance, durability, and safety. The details of any action granting approval of an alternate shall be recorded and entered in the files of the code enforcement agency.

Minnesota Rules 603.7.6 require R-5 insulation to be placed around underground ductwork to insure that heat loss is not excessive, and to allow sufficient heat to reach it's intended usage point. The reason given for disapproval or requiring additional insulation for use is based on a prescriptive code provision that is not based on tested performance of a system. AKDuct has tested the system to twice the stated code provision and the terminal performance EXCEEDS the code system at that level as documented by Twin Cities Stork testing report number 30160 07-86256 dated June 22, 2007 for both heating and cooling modes.

Minnesota Rules 603.7.5 require drain tile to be placed under underground ductwork to prevent the duct from the possibility of ground water leaking into the duct. This system is not in place to protect the building itself from high water tables and this approval is not intended to replace or supersede normal drain tile systems in place due to IRC Building Code provisions. This approval is for the State amendments section MN Rules 603.7.5 only. AKDuct is a complete watertight manometer testable system and is manufactured specifically to withstand a 2 inch manometer test procedure, TWICE that which is required for a final plumbing test.

The above documentation and the attached Stork Twin Cities Testing report are requested to be entered in the jurisdiction files as required to show meeting the intent of Minnesota Rules for alternate approvals. A copy of this approval will be submitted with each subsequent permit application for proper documentation purposes unless waived.

Approved for use in \_\_\_\_\_ (City, Town, County, State)

By: \_\_\_\_\_ Building Official: Dated: \_\_\_\_/\_\_\_\_/\_\_\_\_

Certification Number \_\_\_\_\_

Waiver for each subsequent permit application alternate approval is granted: Initials \_\_\_\_\_

Unofficial Text (See Printed Volume). Current through date and Register shown on Title Page.

## Chapter Comm 22

### ENERGY CONSERVATION

#### Subchapter I — Scope and Application

Comm 22.01 Scope.

Comm 22.02 Application.

#### Subchapter II — Materials and Equipment

Comm 22.03 Materials, equipment and systems installation.

Comm 22.04 Protection of insulation.

Comm 22.05 Fenestration product rating certification and labeling.

#### Subchapter III — Definitions

Comm 22.06 Definitions.

#### Subchapter IV — Design Criteria

Comm 22.07 Indoor and outdoor temperatures.

Comm 22.08 Ventilation and moisture control.

#### Subchapter V — Heating and Air Conditioning Equipment and Systems

Comm 22.09 Scope.

Comm 22.10 Calculating heating and cooling loads.

Comm 22.11 Calculation procedures.

Comm 22.12 Selection of equipment.

Comm 22.13 Supplementary heater for heat pumps.

Comm 22.14 Mechanical ventilation.

Comm 22.15 Temperature control.

Comm 22.16 Humidity control.

Comm 22.17 Duct system insulation.

Comm 22.18 Duct and plenum sealing.

Comm 22.19 Pipe insulation.

#### Subchapter VI — Dwelling Envelope Design

Comm 22.20 General.

Comm 22.21 Envelope requirements.

Comm 22.22 Vapor retarders.

Comm 22.23 Walls.

Comm 22.24 Roof and ceiling.

Comm 22.25 Floors over unheated spaces.

Comm 22.26 Slab-on-grade floors.

Comm 22.27 Crawl space walls.

Comm 22.28 Basement walls.

Comm 22.29 Masonry veneer.

Comm 22.30 Air leakage.

Comm 22.31 Calculations.

Comm 22.32 Recessed lighting fixtures.

#### Subchapter VII — Design By Systems Analysis and Design of Dwellings Utilizing Renewable Energy Sources

Comm 22.33 General.

Comm 22.335 Definitions.

Comm 22.34 Energy analysis.

Comm 22.35 Input values.

Comm 22.36 Design.

Comm 22.37 Analysis procedure.

Comm 22.38 Calculation procedure.

Comm 22.39 Use of approved calculation tool.

Comm 22.40 Documentation.

Comm 22.41 Renewable energy source analysis.

Comm 22.42 Documentation.

**Note:** Chapter Ind 22 was renumbered to be chapter ILHR 22, Register, February, 1985, No. 350, eff. 3-1-85. Chapter ILHR 22 was repealed and recreated to be chapter Comm 22, Register, January, 1999, No. 517, eff. 2-1-99.

## **Subchapter V — Heating and Air Conditioning Equipment and Systems**

**Comm 22.17 Duct system insulation. (1)** Except as provided in sub. (4), all heating and cooling duct systems, or portions thereof, that are located in unheated or uncooled spaces respectively, shall be provided with insulation with a thermal resistance of at least R-5.

**Note:** Where control of condensation is required for compliance with s. Comm 22.22, additional insulation, vapor retarders, or both, may need to be provided to limit vapor transmission and condensation.

**(2)** Where exterior walls are used as plenum walls, wall insulation shall be as required by the most restrictive condition of this section or s. Comm 22.21.

**(3)** Insulation resistance shall be measured on a horizontal plane in accordance with ASTM standard C 518 at a mean temperature of 75°F at the installed thickness.

**(4)** Duct insulation, except as required to prevent condensation, is not required on any of the following ducts:

- (a) Supply-air or return-air ducts that are installed in basements, cellars or unventilated crawl spaces having insulated walls.
- (b) Ducts for which heat gain or loss, without insulation, will not increase the energy requirements of the building.
- (c) Ducts located within HVAC equipment.
- (d) Exhaust air ducts.

**History:** Cr. Register, January, 1999, No. 517, eff. 2-1-99; am. (1), Register, March, 2001, No. 543, eff. 4-1-01.