



CCLD REVIEW

CONSTRUCTION CODES AND LICENSING DIVISION

SUMMER 2007

State Building and Fire Code adoption delayed

On Monday, July 2, 2007, a notice of adoption will be published in the State Register with an effective date of July 10, 2007.

While the division's goal was an adoption on May 31, 2007, an unexpected delay occurred in the rule process.

A memo that explains the delay and includes an updated schedule of code adoption is online at www.doli.state.mn.us/pdf/cclid_code_delay_0507.pdf.

Proclamation reminds all to build smarter for future



Building safety representatives gathered to note Governor Tim Pawlenty's proclamation for Building Safety Week, May 6-12, 2007. The theme, "Building Smarter ... for Disasters and Everyday Life," reminds all about the importance of building safety codes and disaster preparedness planning. Pictured above are: Scott Brener, DLI commissioner; Tom Joachim, DLI assistant commissioner, Safety Codes and Services Division; and Michael Campion, commissioner, Department of Public Safety. **Back row:** Tom Anderson, CCLD executive director; and Barry Greive, CCLD building code representative.

When disaster strikes, municipal building officials perform vital roles

On average, 24 tornadoes strike Minnesota each year. Some years, the number is much higher. In 2001, a record-high 74 tornadoes were recorded across the state.

When tornadoes strike buildings, damage ranges from minor shingle loss to extensive destruction like the March 29, 1998, storms that struck in the south central area of the state, including major damage in St. Peter, Minn.

Equally devastating are major floods that periodically inundate river communities throughout Minnesota.

When a disaster strikes a community and causes structural damage, building departments work closely with citizens

whose lives have been put in turmoil. The building official's role typically includes *damage assessment* to inspect damage inflicted on each structure and *damage recovery* to assist the community through the process of rebuilding. Building departments must effectively communicate the actions they initiate and inform citizens what they must do to repair and reoccupy their homes and businesses.



More than 75 percent of all tornadoes in Minnesota have occurred in May (16 percent), June (33 percent) and July (27 percent). (State Climatology Office, 2007)

A local jurisdiction may have an Emergency Management Plan that describes the building official's role. However, a duty list rarely provides specific instructions and often assumes the building official has the experience, expertise and resources to quickly manage emergencies such as natural disasters.

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CCLD celebrates achievements; focuses on future goals

A second anniversary update from Tom Anderson, executive director, CCLD

May 2007 is the second anniversary of CCLD's consolidation as part of the Governor's Drive to Excellence reorganization order.

Since the last physical move to the Department of Labor and Industry more than a year ago, CCLD reorganized its functional areas and has shifted its leadership structure. Some of CCLD's projects have been accomplished and are noted in the column on the right. Now, the work to reap the consolidation benefits and synergies has begun. During the coming months, CCLD hopes to maximize efficiency through the use of technology resources.

The department code bill, currently working its way through the legislature, contains two key components. The first is the uniform enforcement tools. This provision, would allow CCLD enforcement to streamline and speed up its enforcement process to the benefit of consumers, licensees and other industry stakeholders. (See "**Uniformity identified as the first goal toward successful construction code enforcement,**" *CCLD Review*, 2007 Spring, page 3.)

The bill's second component would establish a single "special revenue" code fund. Currently, CCLD is funded through five funding sources. Two of these funds are appropriations from the general fund, two are dedicated "special revenue" and one is a dedicated, appropriated fund. Adoption of the single code fund will allow the division to move forward as a fee-for-service operation. It asks CCLD to complete a fee study to standardize fees for licensing, inspection and other agency services and tie them directly to provided services.

ACCOMPLISHMENTS

- **Online municipal surcharge reporting and payments reduces processing time.** Online reporting was used by 61 percent of reporting municipalities for the December 2006 reports. About 12 percent of payments were processed online. The number of reporting errors dramatically decreased and manual processing time was reduced.
- **The consolidation improved code inquiry and complaint response time and quality.** Because of the daily interaction of staff, stakeholder concerns are now addressed faster. For example, a manufactured housing rule violation used to involve three different agencies. Now, when a violation is received, a meeting is quickly arranged and all the customer's issues can be addressed at one meeting.
- **Five different licensing units were consolidated into one unit.** CCLD licensing staff processes more than 102,000 applications for 23 different licenses. Reorganization goals began with staff cross training and continue with the development of standardized forms and procedures. The next step is a technology upgrade to process licenses faster.

Check out the recent additions to the CCLD Web site
www.doli.state.mn.us/cclid.html



- [Rule adoption update memo from Tom Anderson](#)
- [Rulemaking proceedings:](#)
 - [Notice of withdrawal for Chapter 1305, 1341 and 7511](#)
 - [Notice of adoption for Chapter 1300, 1303 and 1309](#)
- [Licensed high-pressure piping business \(contractor\) list](#)
- [Links of multiple units have been consolidated and updated on the DLI links page.](#)
- [2007 building valuation data](#)
- [A new municipal request for state plan review application](#)
- [Municipal Manufactured Structures:](#) Licensing forms have been converted to pdf fill-in forms that allow customers to type information and save the document.
- [Residential Building Contractor enforcements](#)

Tips for installation of emergency eyewashes and showers

CCLD Plumbing Plan Review and Inspections frequently receives requests for clarification about the installation of emergency eyewashes and showers. The construction, installation and location of these safety fixtures is regulated by Occupational Safety and Health Administration (OSHA). It requires an emergency eyewash or eyewash and shower be provided whenever employees are exposed to corrosive materials. OSHA Standard 29 CFR 1910.151(c) applies to all general industry situations with other OSHA standards being applied for specific hazards. Eyewashes and showers should be in compliance with ANSI Z358.1-2004.*

ANSI Z358.1-2004 requirements from the Minnesota OSHA handout about Emergency Eyewash and Showers:

1. Requirements that apply to both eyewash units and shower units:
 - a. If shower is needed, a separate eyewash is required (combination unit is acceptable).
 - b. Water temperature must be tepid or lukewarm (between 60 degrees and 100 degrees). Temperatures outside this range are likely to discourage use of the equipment. For showers, there is the additional concern that shock may occur. Temperatures greater than 100 degrees have been shown to be harmful to the eyes and can enhance chemical interaction.
 - c. Sewer connection or drain not required unless special hazards noted.
2. Requirements for eyewashes only:
 - a. Installed so that nozzles are 33 to 45 inches from floor.
 - b. Pressure reduced divergent flow of flushing fluid.
 - c. Minimum of 0.4 gallons a minute of a potable water or commercial flush for 15 minutes.
 - d. Drench hoses used only in conjunction with eyewashes unless at open surface tanks.
3. Requirements for showers only:
 - a. Overhead mounted with head height 82 to 96 inches from floor or platform.
 - b. Minimum of 20 gallons a minute flow of flushing fluid dispersed throughout pattern.
 - c. Valve actuator location less than or equal to 69 inches above the floor or platform.

Requirements for the installation of emergency eyewashes and showers to comply with the Minnesota Plumbing Code (MPC):

1. It is standard practice not to allow potable water supply piping to be installed inside any waste or soil piping. For emergency equipment manufactured with this type of design, MPC currently allows it to be installed in such a manner only if the equipment discharges onto the ground or indirectly to the drainage system through a floor drain or stand pipe that is trapped and individually vented.

Emergency equipment may only be installed directly to the drainage system if the associated emergency equipment is manufactured with code approved pipe and fittings and the potable water supply piping is not located inside the waste piping of the equipment. This equipment must be trapped and individually vented accordingly.

Only potable water supply shall be provided to emergency eyewashes and showers.

2. The water supply line to a spray or rinse hose on an emergency eyewash and drench hose unit, shall be protected against backflow by the use of an approved backflow preventer (Minnesota Rules, part 4715.2110).
3. Showers shall be equipped with antiscald-type control valves. These valves must be of the thermostatic or pressure balance type in accordance with ANSI/ASSE Standard 1016-96 (Minnesota Rules, part 4715.1380, subpart 5). This requirement includes emergency showers.

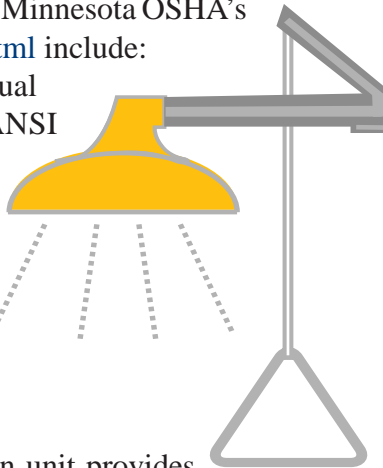
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* ANSI standards become mandatory OSHA standards only when and if they are adopted by OSHA; ANSI Z358.1 was not adopted by OSHA. In comparison with the OSHA standard at 29 CFR 1910.151(c); however, ANSI Z358.1 provides detailed information regarding the installation and operation of emergency eyewash and shower equipment. OSHA, therefore, has often referred employers to ANSI Z358.1 as a recognized source of guidance for protecting employees who are exposed to injurious corrosive materials. (www.osha.gov)

Eyewash and showers continued from page 4

Handouts and safety information available on Minnesota OSHA's Web site at www.doli.state.mn.us/oshainfo.html include:

- An *Emergency Eyewash and Showers* manual that includes a checklist of the ANSI and MNOSHA eyewash or shower requirements is online at www.doli.state.mn.us/pdf/eyewash.pdf.
- An *Emergency Eyewash and Showers* presentation is online at www.doli.state.mn.us/pdf/wsc_emerg_eyewash_showers_june06.pdf.



Also, the DLI Workplace Safety Consultation unit provides consultation services, on request, to help employers prevent accidents and diseases, through several employer-assistance programs at www.doli.state.mn.us/wsc.html.

The Minnesota Plumbing Code is online at www.doli.state.mn.us/pe_code.html.

Improper installation of non-elevator equipment causes damage, increases passenger risk

CCLD's Elevator Safety unit has seen an increase in attempts to install water, waste, gas and other non-elevator related equipment in elevator equipment rooms and spaces.

The 1996 ASME A17.1 rule 102.2 and the recently adopted 2004 ASME A17.1 2.8.2 both note that "other pipes or ducts conveying gases, vapors, or liquid and not used in connection with the operation of the elevator shall not be installed in any hoistway, machine room, or machinery space."

Enclosing piping or ductwork installed above elevator equipment does not meet the intent of the code. Gypsum board and other sheathing material will not prevent water and other fluids from leaking on elevator drives or controls. Hidden pipes, traps and drains have caused thousands of dollars in damage to elevator equipment and put elevator passengers at risk by causing elevators to operate with doors open and stopping between floors, causing brake slippage, and creating entrapment and other hazards.

The National Electrical Code also specifically prohibits electrical wiring systems and equipment not directly connected with elevators to be installed in any hoistway, machine room or control room.

Designers, planners and installers are encouraged to take note of these requirements to avoid costly corrections.

Building official designation

Congratulations to the state's recently designated municipal Building Officials:

- Phillip T. Drotning
City of Hinkley
City of Pine City
- Daniel M. Girtz
City of Motley
- Steven J. Hagman
City of St. Augusta
- Darin Haslip
City of Winthrop
- Jerold A. Sweeney
City of Lindstrom
- Douglas Kevin Whitney
City of Coon Rapids



What's up with retaining walls?

CCLD has received several questions regarding retaining walls and new requirements in the 2006 International Residential Code (2006 IRC). The questions pertain to building permits requirements for retaining walls exceeding 24 inches in height and professional engineering requirements for those walls.



Minnesota Rules, Chapter 1300.0120, subp. 4, addresses work exempt from permit requirements. The current language will remain unchanged when the 2007 Minnesota State Building Code is adopted. This rule indicates “retaining walls that are not over four feet (1,219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II, or III-A liquids.” Thus, retaining walls less than four feet in height will remain exempt from building permits.

The 2006 International Residential Code, Section R404.5, requires retaining walls (not building foundations) that are not laterally supported at the top and retain in excess of 24 inches (610 mm) of unbalanced fill to be “designed” to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. It also requires retaining walls to be designed with a safety factor of 1.5 against lateral sliding and overturning.

The language, as written, does not specifically require professional engineering for retaining walls that retain in excess of 24 inches of unbalanced fill. Many retaining wall system manufacturers have designed their products using sound engineering practices and

provide product manuals and specific installation instructions based on wall height, soil conditions and reinforcement requirements. These design manuals and installation instructions have been available in the past and CCLD anticipates they will continue to be available for retaining wall systems not over four feet in height.

The Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design Rules, Chapter 1800.5400, provides additional direction. This rule indicates the responsible building official may require plans and specifications to be designed and prepared by a licensed architect or engineer if the official finds a hazard to life, health, safety or welfare due to unusual circumstances of the building or structure or an unusually large number of potential occupants in relation to square footage for a particular use. The CCLD opinion is retaining walls of less than four feet in height will not usually constitute a hazard to life, health, safety or welfare to occupants.

2006 IRC, Section R404.5, does not effectively change the current intent of the building code and is not intended to apply to building foundations.

451 individuals take March plumbing exams, next test dates in September

March 2007 test results		
	TESTED	PASSED
Journeyman	326	75%
Master	106	92%
Water Installer	16	59%
Water Contractor	3	67%
Total	451	

Fall test dates

Sept. 18 — Hibbing, Detroit Lakes and Mankato

Sept. 22 — St. Paul

Applications for the September exam will be accepted after July 1, but no later than Aug. 15. A completed application must be received with a \$50 nonrefundable fee postmarked on or before the application deadline.

The test application forms are online at www.doli.state.mn.us/pe_license.html or call (651) 284-5067, for more information.

Inspectors ride the line to learn for the future

CCLD's Electrical Area Representatives visited the Hiawatha Line Rail Operations and Maintenance Facility in Minneapolis as part of an April training meeting. Michael Conlon, Metro Transit, director of rail and bus safety, provided the staff with a safety presentation and a behind-the-scenes tour of the Rail Control Center, where dispatchers monitor and control the entire rail system, similar to air-traffic controllers at airports.

"The engineering, complexity, timely train schedules and enhanced safety procedures for the light-rail system were very impressive," said John Williamson, CCLD, electrical inspections supervisor.

The tour included one of 15 traction electrification substations, where 13,800-volt alternating current power from Xcel Energy is transformed, rectified and inverted into 750-volt direct current power for the overhead contact system (OCS) for the electric train cars. From the OCS, the pantograph on top of the train car delivers electricity to large traction motors nestled in the "power trucks" at each end of the articulated train cars.

In the maintenance facility, the staff viewed elevated rails, where all train maintenance can be performed in under-floor-work areas, floor-level-work areas and overhead platforms. The facility also features an area for body work, spray painting and applying the colorful "wraps" that highlight train cars for special events. The train cars are kept sparkling clean with ongoing interior cleaning and a drive-through automated train car wash.

Previous work by department staff on the Hiawatha Line, combined with information from this tour, will help prepare them for electrical inspections of future commuter rail or light rail projects such as the Northstar Commuter Rail project and the Central Corridor Light Rail Transit project.



The CCLD Electrical Area Representatives toured the Hiawatha Line Rail Operations Facility in Minneapolis including the rail control center and the maintenance facility. The tour ended with a ride on the Hiawatha Line.

Have an electrical complaint?

Report electrical complaints in a proactive manner by recording violations in the form of a formal complaint. View all disciplinary actions, revocations, suspensions and the tenant complaint information listed on the Web site at www.electricity.state.mn.us/Complain/index.html.

Building Official, Building Official Limited and Accessibility Specialist classes

Applicants for "Certified Building Official Limited" and "Certified Accessibility Specialist" must attend a course before the certification exam. Additional information and registration forms for the June 5 – 8 and Sept. 4 – 7 seminars are online at www.doli.state.mn.us/bc_certification.html.

Sign up to receive rulemaking updates

DLI rulemaking information for CCLD is online at www.doli.state.mn.us/rulemaking_activity.html.

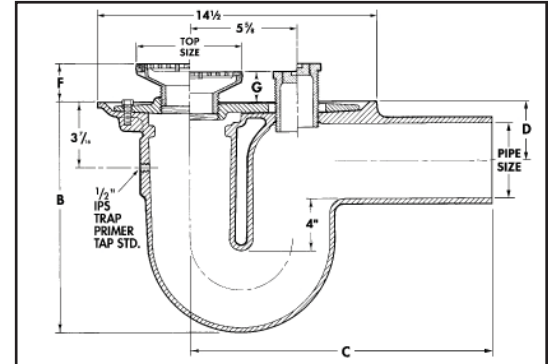
To receive notices of agency rule proceedings register at www.doli.state.mn.us/docs/rules_reqnotices.doc or print the Word document from the Web site, complete it and mail it as directed.

Changes being considered for drain cleanout requirements

Minnesota Rules, Section 4715.1000, requires that each horizontal branch drain be provided with a cleanout at its upper terminal. All floor-set fixture drains (e.g. floor drains, shower drains, trench drains, floor sinks, mop sinks with traps that are not accessible) must be provided with a clean-out. However, fixture traps and fixtures with integral traps that are readily removable, may be accepted as cleanout equivalent for this purpose. The intent of this requirement is to provide adequate numbers of cleanouts to ensure that all horizontal branch fixture drains can be properly cleaned and maintained.



Industry representatives have informed DLI this requirement may not be necessary, nor cost effective, in all types of plumbing installation. Therefore, requirements for floor-set fixtures with concealed traps will be discussed at the Plumbing Code Advisory Committee (PCAC) meeting in June. Subsequent code adoption proposals will be considered during the rulemaking process.



Information regarding PCAC is online at www.doli.state.mn.us/pe_committee.html.



Bleacher certifications expire this year

During the coming months, renewal notices will be sent out to individuals and organizations with bleachers certified before Jan. 1, 2003, because their certification will expire at the end of this year.

The [Minnesota Bleacher Safety Act](#) (passed in 2000 and modified in 2001) states, “bleacher footboards and guardrails must be reinspected at least every five years ... inspections may be completed in the same manner as provided in Subdivision 4.” No changes in the law have occurred since 2000.

Anyone may inspect and write a report about the bleachers. But only “state licensed design professionals” and certified building officials can actually sign to certify the bleachers are in compliance with the act. The exception is when a school district or nonpublic school owns the bleacher, the person responsible for buildings and grounds can be designated to sign the certification.

A [Certificate of Compliance](#) form will be included with the renewal notice that must be completed and returned to CCLD. However, renewals can be submitted prior to receiving a renewal notice. The Certificate of Compliance form is online at www.doli.state.mn.us/bc_bleacher_safety.html. For more information, contact CCLD at (651) 284-5847.



Did you know?

Space considerations for electrical equipment safety

The National Electrical Code (NEC) contains several pages of prescriptive rules related to spaces around electrical equipment. In the interest of personnel safety, it is imperative that sufficient access and working space be provided and maintained around all electrical equipment. Such spaces are required to permit ready access, safe operation and maintenance, and a path for a speedy and safe retreat in case of an electrical accident. Electrical inspectors will not compromise, negotiate or allow shortcuts when it comes to required work spaces and personnel safety. Unfortunately, despite the best efforts of electrical workers, they are often constrained by minimal, small spaces, the intrusion of foreign equipment systems, or forced to work in dedicated electrical spaces that, over time, have become cluttered storage areas.

In general, most people take energized electrical equipment for granted and do not realize the potential danger. Even skilled and knowledgeable electrical industry workers occasionally let their guard down and are seriously injured or killed. Even though the NEC requires warnings on electrical equipment as to the potential arc flash hazard, and electrical safety standards require personal protection equipment in many work situations, insufficient or minimal work spaces and clutter around electrical equipment unnecessarily puts everyone at risk.

A catastrophic electric arc flash may involve one or more explosions within milliseconds - there is no time to escape. Temperatures can reach over 5,000 F. The blinding light, the deafening noise and the hot gases and vapors may instantly cause serious injury to anything in harm's way. The high velocity shrapnel, molten metal, tools, equipment parts and other objects may be traveling at speeds up to several hundred miles an hour. According to John Lane, an electrical safety engineer at AVO Training Institute in Dallas, Texas, "A 10,000 ampere arc (flash) at 480 volts is equivalent to ... approximately eight sticks of dynamite." In addition to personal injury or death, such accidents cost millions of dollars due to fire damage, structural damage, property losses, reduced productivity, liability and litigation.

The NEC contains detailed rules in the following categories: working space, depth of working space, width of working space, height of working space, clear spaces (required spaces shall not be used for storage), entrance to working space, illumination, headroom, and dedicated equipment space (foreign systems such as ductwork, plumbing and similar equipment are not allowed). Please refer to the NEC for more detailed information or send an e-mail message to dli.electricity@state.mn.us.

Architects, engineers and designers are encouraged to use the NEC to assist in designing generous spaces for electrical equipment with personnel safety in mind. Small, cramped, minimal spaces are accidents waiting to happen. Non-electrical construction trades and crafts need to steer clear of dedicated electrical spaces. Building owners and managers are encouraged to keep dedicated electrical spaces free of storage materials. Electrical workers need to pay special attention when working around energized electrical equipment and wear the appropriate protection equipment. Everyone needs to respect the powerful forces of electricity, because electricity does not care who it hurts.

