Wil-Spec

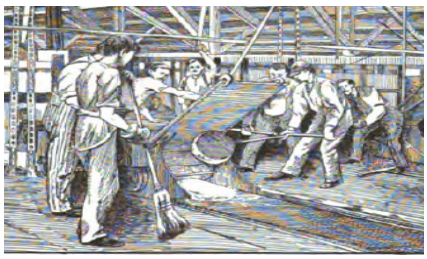
News Note

June 2009

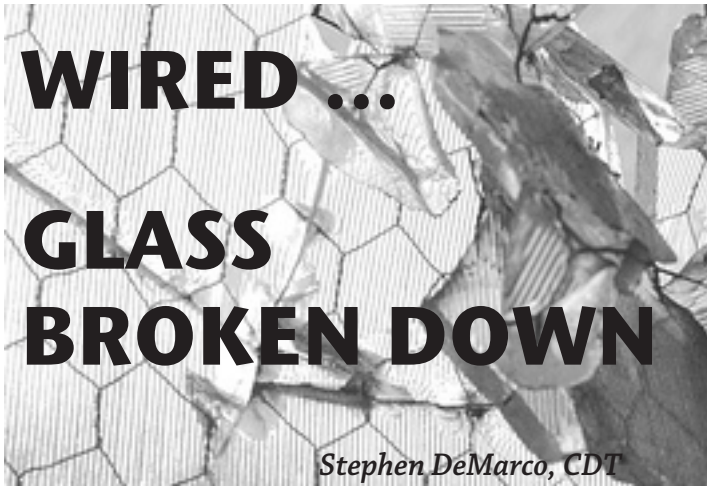
Since 1990, Wil-Spec has remained faithful to our service commitment to our clients. We continue to provide our clients with unparalleled service. We will integrate with the design team and provide project specific resources, knowledge and focus regarding product selection, sustainability and technical coordination. We will collaborate with our clients to produce high quality, accurate and complete specifications while consistently meeting required scheduling goals. We will effectively perpetuate our standards of excellence utilizing ethical decision making and exemplary quality assurance. We shall continue to expand our knowledge of construction practices and product development through ongoing professional education and research.

Robb Wilkinson, RA, CCS, LEED AP, SCIP

In 1892



Frank Shuman patented a process of making wire glass that was commercially practical. His process involved a series of 4 rollers which laid hot wire into melted glass, The wealthy Philadelphian WL Elkins Jr., became interested in Shuman's work and financed the American Wire Glass Manufacturing Company in Taconey. PA. By 1895 the Mississippi Glass Company of St. Louis MO also became engaged in the manufacturer of wire glass. Wire glass has been a major architectural element since.



WIRED ... GLASS BROKEN DOWN

Stephen DeMarco, CDT

Wire glass had been the flagship product for fire-resistance rated glazing for more than the last century. Based on standardized independent laboratory testing, this product has been able to achieve ratings of up to 90 minutes. With increased public safety concerns and revisions in building codes, the applicable use of wire glass is heavily restricted. This age-old standard for glazing is becoming obsolete.

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Say Goodbye.... to Alkyd Paints

Rob Levine

"Ozone Transport Commission" (OTC) effectively banned the use of alkyd paints in Massachusetts early this year, followed by a Rhode Island ban this summer. This OTC ban is now in place for all New England states except Vermont. The mechanism for this ban is to limit volatile organic compounds (VOCs) to an amount that is not possible with most alkyd paint formulas used today.

Some fans of alkyd paint will lament that only alkyds offer high durability, as well as a coat as smooth as Cashmir. But don't believe it: the new acrylic paints have superb performance and gloss, and do not hurt our environment.

There are exceptions to the new OTC regulations, however. First, alkyd paints specifically labeled for use as "maintenance" or "rust prevention" coatings are allowed somewhat higher VOCs, and those products are available now. Second, existing stocks of alkyd paints may be exhausted.
But for those with an uncontrollable craving for alkyds, some (but not all) coatings manufacturers have recently developed "waterborne alkyds" using cross-linked chemical technology resulting in low VOCs.

HIGH PERFORMING SCHOOLS FACILITIES ACT

May 14, 2009: US House of Representatives passed the 21ST Century Green, High Performing Schools Facilities Act that will invest 6.4 Billion dollars for school repair and renovations, and modernization during the fiscal year 2010.

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WIRED GLASS continued....

Historically the use of fire rated glazing and the need for impact resistant safety glazing have overlapped in many applications. Doors and sidelights are a common example. In 1977 the Consumer Product Safety Commission (CPSC) issued regulations intended to address concerns regarding injuries resulting from glass used in doors. This resulted in the implementation of 16 CFR §1201 – Safety Standard for Architectural Glazing Materials. Under Section §1201.1(c) (1) however, was the following language:

> "(c) Exemptions. The following products, materials and uses are exempt from this part 1201:
> (1) Wired glass used in doors or other assemblies to retard the passage of fire, where such door or assembly is required by a federal, state, local, or municipal fire ordinance."

The wired glass safety exemption was intended to expire in 1980, based on 2 assumptions by the CPSC. First, wired glass was the only available option for fire rated glazing. The second assumption was that the allotted time period was deemed adequate for the industry to develop a rated safety glass to replace traditional wired glass. At this time wire glass had already been deemed limited regarding impact resistance. As the glazing industry was ultimately unable bring such a product to the market and the CPSC was lobbied heavily by wired glass manufacturers, the exemption was extended indefinitely. It remained in place without modification until 2003.

Ultimately the 2003 IBC restricted the use of wired glass in educational use groups, day care facilities and athletic facilities to vision panels in doors only. The underlying basis for this and subsequent revisions to the IBC was that ANSI Z97.1, (the voluntary standard in place at the time), required impact resistance of only 100 foot-pounds. The CPSC standard for Category I glass was 150 foot-pounds and Category II glass was 400 foot-pounds. Category I glass it should be noted includes "Doors that contain no single piece of glazing material greater than 9 square feet in surface area…" effectively including all fire rated glazing conditions served by traditional wired glass.

By 2006 the IBC was further modified to clarify the requirements for safety glazing by incorporating CFR 16 §1201 standards. Additionally it included a substantive summary of locations where safety glazing was required including doors and sidelights. This has effectively eliminated the use of traditional wired glass at these and other locations. In response the industry has developed "reinforced" wired glass. This enhancement involves the introduction of a glazing film capable of giving the glass impact resistance up to 400 foot-pounds and compliance with CPSC 16 CFR 1201 (Categories I and II) while retaining the fire safety features of traditional wired glass.

Additionally, there are specialty tempered glass products available which will meet codes for both the impact and fire resistance requirements for certain locations. Most of these tempered products are limited to 20-minute rated applications as they will not pass the hose stream test required to achieve higher hourly ratings.

Where no impact resistance is required the traditional wired glass will suffice. Where impact resistance and fire rating is required by code and the hourly rating exceeds 20 minutes the only choice is the reinforced wired glass or ceramic glazing. Ceramic glazing presents the advantage of eliminating the wired reinforcement of traditional wired glass, and has greater allowable glazing areas. Ceramic glazing is still considered prohibitively expensive for many project budgets.

It is CFR 16 §1201 upon which the requirements of Section 24 – Safety Glazing of the 2006 IBC are based. And it is this part of the code that Architects must carefully consider when making decisions regarding glazing applications.

In conjunction with this Article: A list of wired and tempered fire-rated glass products is on our web-site.

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POISON IN THE WALLS – DEFECTIVE CHINESE DRYWALL

Robb Wilkinson

Due to shortages of US manufactured drywall; starting in 2004 builders mostly in the southeast and southwest began using imported Drywall from China. The destruction of Hurricane Katrina in 2005 prompted widespread rebuilding, and contributed to the gypsum wallboard demand, and greater shortages of US-manufactured products. The result has been ongoing wiring, piping and air conditioning problems (metal corrosion), and odors. Health issues reported include respiratory problems, nosebleeds, irritated eyes and headaches. Reports are that the drywall is emitting excessive amounts of hydrogen-sulfide fumes. Consumers from more than 10 states and the District of Columbia have reported problems. The Consumer Product Safety Commission, working with the EPA and the CDC are investigating the problem. By end of this Month (June '09) the CDC and EPA is expected to produce indoor air testing protocols to evaluate health implications of the defective drywall.

In May 2009, the EPA performed initial sample analysis of both paper and gypsum for both suspect defective Chinese-manufactured drywall, and US-manufactured drywall.

Initial test results discovered the gypsum contained:

	Chinese-drywall	US drywall
Sulfur:	83 to 119 PPM*	0 PPM*
Strontium **	2570 to 2670 PPM*	244 to 1130 PPM*
Iron	1390 to 1630 PPM*	841 to 3210 PPM*

*PPM = Parts per Million.

**Strontium is a natural radioactive commonly found element, however can be hazard for children when in dust form, or dissolved in water. Excess strontium causes problems with bone growth, and unusual high levels have shown increases in cancer, specifically leukemia.

Additionally, Chinese drywall samples included concentrations of propanoic acid, (methyl-, dimethyl-, and hydrox-)-propyl ester and various compounds found in acrylic paints.

EPA performed initial optical testing for fly-ash, but no evidence was found.

The release of chemicals from the defective drywall has affected copper-containing materials. These include corrosion of electrical wiring, plumbing piping, and air conditioning components. Corrosion of copper-containing materials further leads to release of chlorofluorocarbons and other natural gases.

Not all Chinese-manufactured board has been found defective. The center of controversy is board manufactured by Knauf Plasterboard Tianjin Co., Ltd., (KPT) a German company that manufacturers board in China. Numbers vary, but business news agencies report that nearly 68 million pounds (or approximately 29 million square feet) has been imported from KPT since 2006.

Gypsum has been used as a building material since the construction of the ancient Egyptian pyramids. Over the past 3,500 years or so, it has become one of the most important minerals used in manufacturing construction materials and many other products.

Natural gypsum is a benign rock formed as calcium sulfate during the dinosaur era through precipitation in vast inland seas throughout the world. "Synthetic" gypsum is a byproduct generated primarily through the desulphurization of flue gasses in fossil-fueled power plants, as well as the manufacture of titanium dioxide used in paint and other products. US-manufactured synthetic gypsum is obtained after the 'scrubbing' of flue gasses, thus removing noxious chemicals.

Sources: US CDC, US EPA, Gypsum Association, South Florida Business Journal

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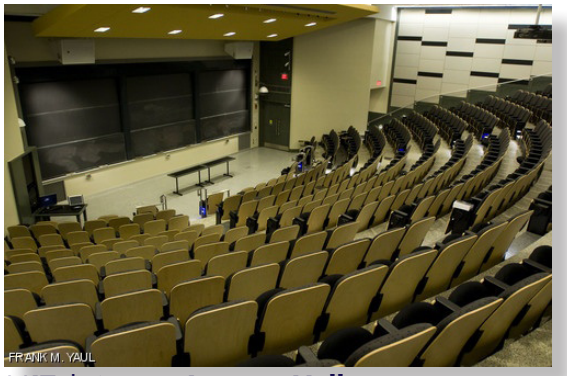
A few RECENT PROJECTS

To All Of Our Clients ***THANK YOU !***

- **Fitchburg State College - Mara Village**
  CBT / Childs Bertman Tseckares Inc.
  Boston MA.
- **Needham Public Services Administration Building**
  Winter Street Architects, Inc., Salem MA.
- **Nathon Bishop Middle School**
  Ai3 / Architecture Involution, Inc., Wayland MA.
- **UMass Lowell, Fox Hall Renovation**
  Add Inc., Cambridge MA.



- **MIT | 10-250 Lecture Hall**
  DAIQ / D'Agostino Izzo Quirk Architects, Inc.
  Somerville MA.
- **WCTV | Wilmington Community Television**
  Scott and Scott, Wakefield MA.
- **National Cathedral School for Girls**
  Hartman-Cox Associates, Washington DC
- **Digital Realty Trust, Loudoun Suites**
  id Group, Boston, MA

HAPPY JULY 4TH

IN PURSUIT OF SPECIFICATIONS

by Rob Levine, PE, CCS

As the specification writers and allied professionals at ***Wil-Spec*** prepare to celebrate the 233rd anniversary of the founding of our nation, we also reflect on our past, and we are grateful for the opportunity to help so many clients. In business for almost 20 years, ***Wil-Spec*** has now contributed to projects in each of the original 13 colonies – except Delaware. We have produced project manuals for an amazing variety of projects in 25 of the United States, one United States Territory, 10 foreign lands, and even a different planet (but the Air Force will not let us talk about that one).

If you, or someone you know, needs expert personal service handling project manual needs for a new project in Delaware - or anywhere – please call me today.

Wil-Spec has stayed on the cutting edge of material technology, understanding trends, cost implications and environmental issues. With each project, we advise and freely share our knowledge with you. We are open to questions, and will research answers to your specific project concerns. NEWSNOTE is for architects, designers and all of our clients. It is our hope that our writings will serve as a catalyst for further discussions, and investigations in your own office.

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