BULLETIN

WINTER 2008 • VOLUME 63 • NUMBER 1

DONALD E. TANNER
Executive Director
RICHARD L. ALLISON
Assistant Executive Director – Administrative
GEORGE BYNOG
Assistant Executive Director – Technical
PAUL D. BRENNAN, APR
Director of Public Affairs
DAVID CULWELL
Publications Editor
BRANDON SOFSKY
Manager of Publications

BOARD OF TRUSTEES

DAVID A. DOUIN
Chairman
ROBERT J. ABEN JR.
First Vice Chairman
MARK MOONEY
Second Vice Chairman
DONALD E. TANNER
Secretary-Treasurer
JOEL T. AMATO
Member at Large
DONALD J. JENKINS
Member at Large
DANIEL C. PRICE
Member at Large

ADVISORY COMMITTEE

CHARLES G. SCHABER
Representing authorized inspection agencies (insurance companies)
GREG MCRAE
Representing pressure vessel manufacturers
BRIAN R. MORELOCK, P.E.
Representing boiler and pressure vessel users
EDWARD J. HOVEKE
Representing National Board certificate holders
GEORGE W. GALANES
Representing the welding industry
CHARLES E. PERRY
Representing boiler manufacturers
LAWRENCE J. MCMANAMON JR.
Representing organized labor

The National Board of Boiler and Pressure Vessel Inspectors was organized for the purpose of promoting greater safety by securing concerted action and maintaining uniformity in the construction, installation, inspection, and repair of boilers and other pressure vessels and their appurtenances, thereby assuring acceptance and interchangeability among jurisdictional authorities empowered to assure adherence to code construction and repair of boilers and pressure vessels.

The National Board *BULLETIN* is published three times a year by The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229-1183, 614.888.8320, *nationalboard.org*. Postage paid at Columbus, Ohio.

Points of view, ideas, products, or services featured in the National Board *BULLETIN* do not necessarily constitute endorsement by the National Board, which disclaims responsibility for authenticity or accuracy of information contained herein. Address all correspondence to the Public Affairs Department, The National Board of Boiler and Pressure Vessel Inspectors, at the above address.

© 2008 by The National Board of Boiler and Pressure Vessel Inspectors. All rights reserved. Printed in the USA. ISSN 0894-9611. CPN 4004-5415.

On the Cover: Model Rachel Dehn inside the Steam Plant Grill. *Read more on Page 10.*

Cover photograph by Alex Renner, Pegasus Media Group.

Cover Story

Features

Departments

Safety Delayed is

BY DONALD E. TANNER, EXECUTIVE DIRECTOR

It was British Statesman and Prime Minister (1868-1894) William Gladstone who observed: "Justice delayed is justice denied."

Reflecting upon that wise and wonderful quotation, one can easily look beyond the legal premise and reconfigure the same phrase to fit any of a number of important circumstances – by simply exchanging two words. And so we did.

Hence: *Safety* Delayed is *Safety* Denied.

We liked the sound of that slogan. As a matter of fact, we liked it so much we decided to adopt it as the theme for the April 21 - 25 General Meeting in Vancouver, British Columbia.

But there is more to creating a theme than mere adaptation of a great statesman's words. Past themes have concentrated on certain truths. This year is no different. With so much recent uncertainty in our industry, we decided to focus on decisions by some to relegate pressure equipment safety's priority status. It is an important message that needs to be *communicated* by an effective *communicator.*

While there are many such professionals to deliver our *Safety Delayed is Safety Denied* message, we elected this year to bring to our Opening Session the talents of someone who understands the communication process from a variety of different approaches. That person is the popular, multi-talented entertainer Jim Belushi.

If that got your attention, we accomplished our first goal. While oftentimes perceived as a comedian, the versatile Mr. Belushi has distinguished himself in a variety of creative endeavors, including dramatic acting, Broadway theatre, TV directing, music, and writing (see page 23). One thing is for certain: he will bring to the General Meeting a range of observations both humorous and serious that are sure to provide an energetic kickoff to our program.

If the presence of Mr. Belushi is not enough to prompt your attendance at this year's General Meeting, there's more . . . much more.

On Monday afternoon, we will again present an outstanding slate of technical speakers who will cover an array of subject matter especially developed for General Meeting participants. Headlining this year's group of experts will be Raymond Saunders, inventor and internationally renowned horologist (maker of timepieces). Those of you who saw last summer's *BULLETIN* article on Mr. Saunders will appreciate his unique achievement as designer and builder of steam clocks, the first of which is prominently displayed in Vancouver's Gastown Square (it's worth the visit!).

As for our guests, Monday afternoon will feature a wonderful motor coach tour of our beautiful host city, which is the official site of the 2010 Winter Olympics. For those of you who have never been to Vancouver – and even those who have – here's your chance to observe what makes this captivating city one of the world's premiere tourist destinations. Stanley Park, Chinatown, the Brockton Point Lighthouse, and Gastown are only a very few of the locations visited. On Tuesday, guests will be treated to one of the most unique tours ever assembled during a General Meeting. Each will receive the rare opportunity to visit the MGM sound stages of *Stargate Atlantis*, the popular sci-fi television series produced in Vancouver. If that isn't enough for one day, guests will also get an up-close and personal tour

Safety Denied

of Vancouver's Chinatown. This walking tour will allow guests to visit a variety of different shops. Highlight of the day will be a specially prepared dim sum luncheon.

From six to seven o'clock Monday evening, all General Meeting participants will be taken a short distance via motor coach to one of Vancouver's most scenic venues: Bridges landmark waterfront restaurant. As always, the traditional National Board Monday night reception will be one of many high points not to be missed.

This year's Wednesday outing will provide everyone a chance to visit a place most have never experienced: the renowned ski village of Whistler. Our trip by motor coach to this celebrated ski resort community (and site of many 2010 Winter Olympic outdoor events) will feature some of the most spectacular scenery in North America. Upon arrival, guests will be given an opportunity to explore one of the world's most popular tourist destinations featuring an intriguing mix of quaint shops and bistros. At around noontime, we'll enjoy a delicious lunch buffet specially prepared for General Meeting participants.

But the day is not over. Be sure to be on hand for the Wednesday Evening Banquet. In addition to our popular conference-in-review, banquet guests will be entertained by prolific recording artist Juice Newton. One of the music industry's most endearing performers, Ms. Newton has had 15 top ten pop and country hits, ten million records sold worldwide, a Grammy for "Best Pop Female Vocalist," four Grammy nominations, and the distinction of being a two-time "Billboard Album Artist of the Year" (see page 41).

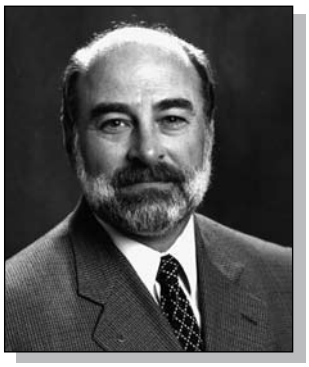
This year's General Meeting is designed to maximize enjoyment of the great outdoors and Vancouver's distinct geographic location. Consequently, we suggest all General Meeting attendees dress for the elements. That means bringing warm clothing for the Whistler trip and a jacket or coat for around town. April can be unpredictable with temperatures generally ranging in the 50s and weather that can be sometimes damp.

As some of you are aware, attendance at the past several meetings has resulted in our room block being overbooked. Therefore, we must advise everyone attending this year to *secure their General Meeting registration before making hotel reservations*. If necessary, the National Board may cancel the reservations of anyone in its room block *not pre-registered*.

In conclusion, permit me to thank all of you planning to attend the 77th General Meeting.

Additionally, I thank posthumously the honorable William Gladstone. While his quote may have been intended for the justice system, I don't think he would mind us modifying his words – particularly if those words help save lives. ✪

See you in Vancouver!



Inspector Dutie Some Assembly

BY JOHN HOH, SENIOR STAFF ENGINEER

Although the National Board strives to delineate the differences between inservice inspectors and Authorized Inspectors, they do have one major thing in common: both have a National Board commission. In short, their specific duties may differ, but public safety is the common theme.

With the responsibility of public safety comes the additional one of maintaining proficiency in inspection techniques and of constantly reviewing codes, rules, and jurisdictional requirements. If any inspectors believe they can coast after earning their National Board commission, they are destined for trouble.

An excellent place for inspectors to start their review of duties is NB-263, *National Board Rules for Commissioned Inspectors*. This document lists duties for both inservice inspections and new construction inspections. New construction duties are further reinforced by referencing ASME QAI-1 and the construction sections of the *ASME Boiler and Pressure Vessel Code.*

For example, ASME Section I, *Power Boilers*, paragraph PG-90 lists several duties for the Authorized Inspector (AI). Comparable lists are in the other construction sections, but the AI must review each list individually, as they are not all the same. For instance, PG-90.3 states the AI has the duty to review a selected number of design calculations to verify Section I compliance. I believe everyone would agree this means the AI has to break out the calculator and do some math. Section VIII, Div. 1, UG-90 (c)(1)(b) states the AI shall verify the applicable design calculations are available. Be careful with this one, as some people could interpret this to mean the AI only has to see that calculations were performed. The key word in the Section VIII requirement is "applicable." How does the AI know the design calculations are applicable without performing some basic math? The AI is not responsible for the accuracy of the calculations. There is a 1983 ASME interpretation that clearly states the manufacturer is responsible for the accuracy.

While the aforementioned lists are convenient, they are not all inclusive. There are additional AI duties in other parts of the code books. Some are very obvious, as they state, "It is the duty of the Inspector to…" or "The Inspector shall…." Others are very subtle and require the AI to develop inspection techniques to ensure code compliance.

For example, nowhere in PW-41.2.2 is the AI given an explicit duty to perform. If the boiler tube welds are not required to be radiographed due to diameter or thickness (see Table PW-11 for limitations), how does the AI verify complete weld penetration at the root? The paragraph goes on to state that it shall be demonstrated by the qualification of the procedure to be used. Some may say that is wishful thinking. When a procedure is being qualified, the test coupons are normally prepared to be as close to perfect as possible. This does not usually reflect real world welding conditions. Most welders will bevel the ends of the tubes before making the circumferential weld, and it is a fairly safe assumption they will achieve complete penetration at the root. There have been cases when a circumferential weld was attempted without beveling either end of the tube, and, as you can imagine, the weld did not have complete penetration. The weld looked great on the outside, but when the weld joint was sectioned, the otherwise hidden deficiency was exposed for all to see.

S: Required

NB-263 paragraph 9.2.4 was established to address this very issue. The AI should not assume the tube welds will have complete penetration simply because the procedure was qualified. At the very least, the AI should inspect the tube end preparation of several tubes to ensure the procedure is being followed. Unless the AI has x-ray vision or the inner surface of the weld is easily visible from another vantage point, the AI will have to be satisfied the code requirement is being met if the joint is prepared in accordance with the procedure and all other aspects of the procedure are followed.

The examples given above can also apply to repairs and alterations. *The National Board Inspection Code* (NBIC) references the original code of construction for detailed technical requirements. In the vast majority of repairs and alterations, this will be the ASME Code.

Concerning the NBIC, inspectors need to be prepared for the 2007 edition. It has been totally revised in regard to layout and paragraph designations. For those of us who have memorized specific references throughout the NBIC, the text and requirements are still there, but they have been grouped and numbered differently. This means we – all of us – will need to study the new format very closely to become comfortable with it. Inspectors working with "R" certificate holders should begin reviewing their quality system manuals for references to specific NBIC paragraphs. Many quality system manuals will require revision to address such passages as "Repair pressure tests shall be performed in accordance with RC-2051." It is the "R" certificate holders' responsibility to stay abreast of any changes to the NBIC and revise their quality system manual accordingly, but it is the inspector's duty – to quote NB-263 paragraph 8.2.3 – to "monitor the quality control system and verify the system is being implemented to the requirements of the NBIC." Simply put, changes to the NBIC can easily impact the content of the quality system manual, and the inspector must be prepared.

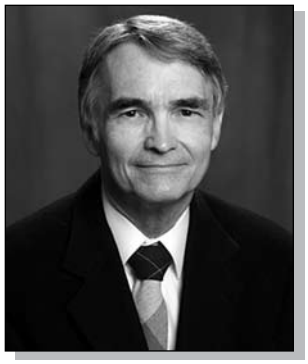
All of this may sound like a full-time job in addition to performing the actual inspections. It does not have to be, but it will occupy a significant amount of time if taken seriously. Maybe that is the key to the whole process – taking the job seriously and ensuring no details are left by the wayside. The unsuspecting public deserves nothing but the best effort by all inspectors. If they never experience a pressure-retaining item incident, this means the inspectors are doing their jobs. In other words, no news is good news.

Inspectors should be proud of their accomplishments and their contribution to pubic safety. However, they must remember their jobs are never truly finished. Inspections are ongoing and education is ongoing. Possibly the single most important inspector duty is to seek out ways to improve their skills and knowledge. ✪

"Do you know. . . John Hoh?"

See page 37 for a profile.

"Do You Know . . .?" is a BULLETIN *feature introducing readers to the dedicated men and women who comprise the National Board staff.*



Nonmetallic Pressure Vessels

BY FRANCIS BROWN, SENIOR STAFF ENGINEER

Nonmetallic pressure vessels, as the name implies, are pressure vessels fabricated from materials that are not metal (such as steel). They are used extensively in aggressive environments. Applications for nonmetallic vessels include heat exchangers, chemical storage vessels, mixing tanks, water treatment tanks, and absorbers. Typically nonmetallic vessels are not subject to the galvanic, aerobic pitting and intergranular types of corrosion common to metallic vessels.

The major pressure vessel structural elements – heads and shells – are fabricated from nonmetallic composite materials, often referred to as engineered materials. Composite materials are engineered to have properties that make them suitable for specific applications. They are encountered in everyday life in things such as fiberglass shower stalls and bathtubs, cultured marble counter tops, graphite-shaft golf clubs, and concrete roadways.

A composite material consists of two or more constituent materials with significantly different physical or chemical properties that, when combined, yield a material with unique properties. The typical composite is a mixture of a reinforcement material and a matrix material, also known as the binder or resin. It should be noted the materials in a composite do not blend or dissolve into each other, but are physically bonded together. For example, cultured marble is a mixture of resin and ground marble. Neither the resin nor the marble loses its identity in the mixture; however, when mixed, they yield an easily molded, durable material.

The composite materials currently used for pressure-vessel fabrication are impregnated graphites and fiber-reinforced plastics (FRP). Impregnated graphites and FRPs are not single materials, but families of materials. Although impregnated graphites and FRPs used for pressure vessel construction are distinct materials with very different properties, similar thermoset resins are used in the fabrication of both.

BULLETIN *photograph courtesy of SGL Carbon Technic LLC.*

Impregnated Graphite Heat Exchanger

Thermoset resins, unlike thermo plastics, do not soften with increasing temperature, that is, they do not eventually melt and become a fluid as the temperature increases. Although they do not melt, the mechanical properties do decline with increasing temperature.

FIGURE 1

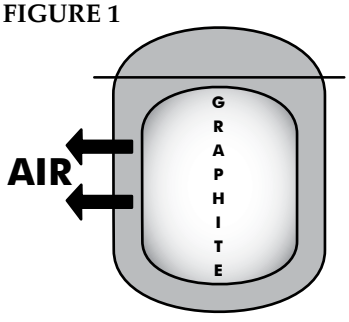


FIGURE 2

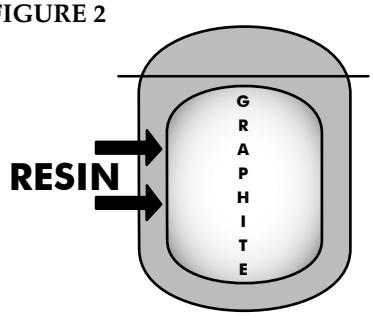
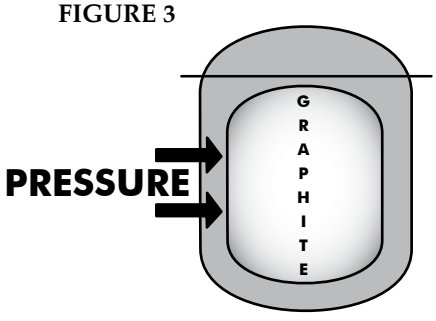


FIGURE 3



Impregnated graphite is a mixture of a fine-grain graphite and a thermosetting resin such as a phenolic, an epoxy, or a furan. Graphite has high thermal conductivity – at room temperature comparable to aluminum or brass – excellent resistance to corrosion, and is porous. For pressure vessel use, it must be impregnated with a thermosetting resin to retain pressure.

The fabrication of an impregnated graphite pressure vessel begins with a block of graphite that may or may not be machined to the final dimensions. The graphite is placed in an autoclave, and the air pumped out (Figure 1). After a sufficient length of time for the air to diffuse out of pores in the graphite, an appropriate resin is pumped into the autoclave, and pressure is applied to force the resin into the graphite pores (Figures 2 and 3). The resin is cured, and the impregnated graphite is machined to final dimensions, if required.

Impregnated graphite parts are joined together by cementing. The cement typically consists of the resin, powdered graphite, and a catalyst. Like all material-joining procedures, including fusion welding, appropriate joint design is essential for an effective bond.

Impregnated graphite, with its high thermal conductivity and excellent corrosion resistance, is used extensively for heat exchangers in corrosive fluids service. Currently, impregnated graphite vessels are manufactured to the manufacturer's standards. In the near future, rules for the manufacture of impregnated graphite pressure vessels will be added to Section VIII, Division 1 of the *ASME Boiler and Pressure Vessel Code.*

Unlike the fabrication of impregnated graphite pressure vessels, FRP pressure vessels are fabricated by making the material and the vessel simultaneously. The dimensions of an FRP vessel cannot be modified after the resin has cured. FRP pressure vessels are fabricated with high-strength reinforcing fibers embedded in a resin (plastic) such as a phenolic, an epoxy, a polyester/vinyl ester, or a furan. The reinforcing fiber, typically glass or carbon, provides the strength to retain the pressure and other loads on the pressure vessel wall.

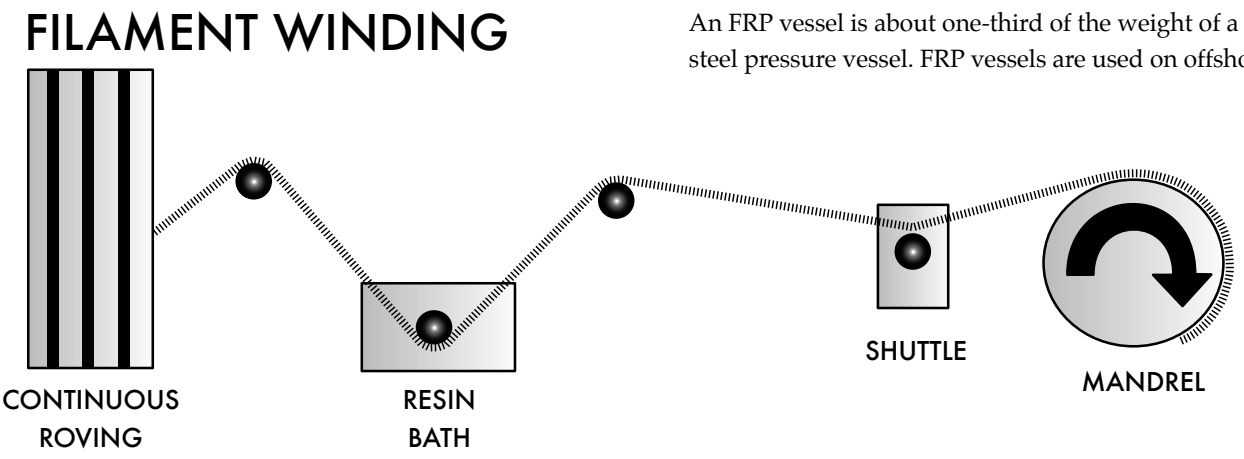
Methods used to fabricate FRP vessels include bag molding, centrifugal casting, contact molding, and filament winding. The most commonly used fabrication methods are contact molding and filament winding. For example, the fabrication of a cylindrical shell via the filament-winding process is accomplished by applying the appropriate resin to the glass or carbon fiber which is then wound onto a rotating mandrel (Figure 4). Upon achieving the required thickness, the resin is cured, and the mandrel removed.

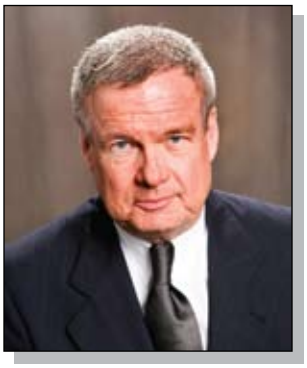
Vessel components are joined together by adhesive bonding or laminate overlay. Adhesive bonding and graphite cementing are similar processes and are a form of a glued joint.

An FRP vessel is about one-third of the weight of a similar steel pressure vessel. FRP vessels are used on offshore oil-drilling platforms, in chemical plants, in water treatment plants, for hot-water boiler expansion tanks, potable hot water storage tanks, etc. FRP pressure vessels are used wherever a lightweight and/or corrosion-resistant pressure vessel is needed. The manufacture of FRP pressure vessels is governed by Section X of the *ASME Boiler and Pressure Vessel Code.*

Nonmetallic pressure vessels are used in those environments where the unique properties of the composite materials from which they are constructed provide an advantage over metallic pressure vessels. In many cases nonmetallic pressure vessels may be lighter and/or more corrosion resistant than the equivalent metallic pressure vessels. ✪

FIGURE 4





Suddenly is Suddenly Not What it Seems

BY PAUL BRENNAN, DIRECTOR OF PUBLIC AFFAIRS

This past summer saw one of the worst accidents involving commuters caught up in rush hour traffic. At 6:05 p.m. on August 1, the main spans of Minneapolis' I-35W Mississippi River Bridge collapsed into the mighty waterway, taking numerous vehicles and occupants with it. Thirteen people perished and more than one hundred were injured.

Eyewitness accounts were numerous. Those lucky to survive provided vivid recollections of the experience. To a person, all echoed an almost identical refrain: ". . . it happened so suddenly!"

While these individuals were offering their humble observations, they innocently misunderstood the context of their message.

You see, the bridge failure was anything but "sudden."

Unpredictable? Perhaps.

Shocking? Without a doubt.

But sudden? No way.

Without parsing words, let's simply define "*suddenly*" as "without warning."

The demise of the I-35W bridge began years and most probably decades ago. To say it "suddenly" gave way is tantamount to saying an overweight heart attack victim "suddenly" experienced clogged arteries.

Some mechanical engineers suggest a piece of equipment starts to degrade the day it goes into service. That said, it is easy to conclude the bridge structure began deteriorating shortly after its completion in 1967.

Along the way, there were warning signs. For example: in 1990, the federal government gave the I-35W bridge a rating of "structurally deficient," citing significant bearing corrosion. Consequently, it made the list of 75,000 U.S. bridges also identified as "structurally deficient."

The gamble was – and continues to be – that nothing will occur between the time a problem is discovered and when it is finally resolved. And that, as we can now clearly observe, was a tragic miscalculation.

The unfortunate turn of events of August 1 dramatically underscore the importance of inspection in our everyday lives. But inspection means nothing unless action is undertaken to reconcile the situation. The effectiveness of a trained professional identifying a problem is only as good as the problem's resolution.

The same logic applies to the amusement industry where a number of high profile misfortunes in 2007 made for a long, hot summer. To say a ride "suddenly" goes awry suggests there were no preventative measures anyone could have taken.

This is why boiler inspection is critical.

Suitably maintained and inspected pressure equipment can be innocuous. But as we are all aware, any lengthy suspension of the inspection process contributes to accident risk. Knowledge of a problem that goes unresolved for any period of time significantly increases the odds of a highly volatile outcome.

What caused the I-35W bridge to collapse will be up to a panel of inquiry. And is oftentimes the case, we'll never know for sure whether it could have been averted.

Whereas the bridge incident was unpredictable and shocking, it was not without warning or – as noted – sudden. While the degree of risk was debatable, it should come as no surprise structure failure was inevitable.

And now about those 74,999 other bridges . . .

SYNOPSIZING THE SYNOPSIS

It is again time to review regulatory corrections made to the 2008 National Board *Synopsis of Boiler and Pressure Vessel Laws, Rules, and Regulations*. While there have been numerous modifications made in contact information (i.e., email addresses, mail addresses, and phone numbers), the information to follow reflects significant changes to jurisdiction regulations and/or laws. Jurisdictions reporting amendments are individually listed followed by the *Synopsis* sections in which the adjustment(s) occurred.

As always, *Synopsis* data is subject to change without notice. Consequently, users should directly consult appropriate jurisdiction officials regarding any actions having significant financial, legal, or safety ramifications.

All data on the National Board Web site has been updated to reflect changes in the following categories:

Alabama – *Rules for Construction and Stamping;* **Alaska** – *State Department, Date of Law Passage, Rules for Construction and Stamping, State Fees;* **Arizona** – *State Department;* **Arkansas** – *State Department, Date of Law Passage, Rules for Construction and Stamping, Miscellaneous;* **Colorado** – *Inspections Required;* **Connecticut** – *Date of Law Passage, Certificate of Operation, significant changes to State Fees;* **Delaware** – *Rules for Construction and Stamping;* **Florida** – *State Department, Objects subject to Rules for Construction and Stamping;* **Idaho** – *State Department, Objects Subject to Rules for Construction and Stamping;* **Iowa** – *State Department, Date of Law Passage, Rules for Construction and Stamping, Inspections Required, Certificate of Inspection, Miscellaneous;* **Kentucky** – *Insurance Inspection Requirements, State Fees, Miscellaneous;* **Louisiana** – *Date of Law Passage, Rules for Construction and Stamping, Objects Subject to Rules for Construction and Stamping, Miscellaneous;* **Maine** – *Minor change to State Fees;* **Michigan** – *Date of Law Passage, Rules for Construction and Stamping, Objects Subject to Rules for Construction and Stamping, significant changes to State Fees;* **Minnesota** – *Date of Law Passage, Rules for Construction and Stamping, Insurance Inspection Requirements, State Fees, Miscellaneous;* **Mississippi** – *State Department (major changes), Empowerment, Objects Subject to Rules for Construction and Stamping, Miscellaneous;* **Missouri** – *Date of Law Passage, Rules for Construction and Stamping, Objects Subject to Rules for Construction and Stamping, Insurance Inspection Requirements;* **Montana** – *State Department, Date of Law Passage, Rules for Construction and Stamping, Insurance Inspection Requirements, Miscellaneous;* **New York** – *Minor changes to State Department and Inspections Required;* **North Carolina** – *State Department, Empowerment, Date of Law Passage, Objects Subject to Rules for Construction and Stamping, State Fees, Miscellaneous;* **North Dakota** – *Date of Law Passage, Inspections Required, State Fees, Miscellaneous;* **Ohio** – *Rules for Construction and Stamping;* **Oklahoma** – *State Department, Objects Subject to Rules for Construction and Stamping, Inspections Required, Miscellaneous;* **Oregon** – *State Department, Date of Law Passage, Rules for Construction and Stamping, Inspections Required and minor change to State Fees;* **Pennsylvania** – *Minor changes to State Department and Rules for Construction and Stamping;* **South Carolina** – *State Department;* **South Dakota** – *Inspections Required, Certificate of Inspection, State Fees;* **Tennessee** – *State Department, Certificate of Inspection and Fees;* **Texas** – *State Department, Date of Law Passage, Rules for Construction and Stamping, Insurance Inspection Requirements, Miscellaneous;* **Utah** – *State Department, Date of Law Passage, Rules for Construction and Stamping, State Fees, Miscellaneous;* **Virginia** – *Date of Law Passage, Rules for Construction and Stamping;* **Washington** – *Minor changes to State Department, Date of Law Passage, Rules for Construction and Stamping; significant changes to State Fees;* **West Virginia** – *State Department, Rules for Construction and Stamping, Insurance Inspection Requirements, Miscellaneous;* **Chicago** – *Rules for Construction and Stamping;* **Omaha** – *Minor change to Rules for Construction and Stamping;* **Puerto Rico** – *Commonwealth Department, Date of Law Passage, Rules for Construction and Stamping (major changes), Inspections Required, Certificate of Inspection, Miscellaneous;* **Seattle** – *Municipal Department, major changes to Rules for Construction and Stamping and Municipal Fees;* **Spokane** – *Minor change to Rules for Construction and Stamping;* **Alberta** – *Provincial Department, Empowerment, Rules for Construction and Stamping, Objects Subject to Rules for Field Inspection, Certificate of Inspection, Provincial Fees;* **British Columbia** – *Rules for Construction and Stamping;* **Newfoundland and Labrador** – *Provincial Department (minor change); Rules for Construction and Stamping;* **Northwest Territories** – *Minor change to Territory Department;* **Nova Scotia** – *Provincial Department, Rules for Construction and Stamping, Objects Subject to Rules for Construction and Stamping, major changes to Provincial Fees;* **Ontario** – *Provincial Department, Rules for Construction and Stamping, Objects Subject to Rules for Construction and Stamping, Pressure Piping Fabrication and Installation, Insurance Inspection Requirements, Certificate of Inspection, Miscellaneous;* **Prince Edward Island** – *Provincial Department;* **Saskatchewan** – *completely rewritten, all categories affected;* **Quebec** – *Provincial Department, Provincial Fees.*

Denver *reports the State of Colorado has assumed responsibility for all boiler inspections in both the city and county as of May 1, 2007. The city will inspect all new installations and replacements. It will continue to follow all Rules for Construction and Stamping.*

No Changes Reported – **California, Hawaii, Illinois, Indiana, Kansas, Maryland, Massachusetts, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, Rhode Island, Vermont, Wisconsin, Wyoming, Manitoba, New Brunswick, Nunavut Territory, Yukon, Albuquerque, Buffalo, Los Angeles, Miami, Miami – Dade County, Milwaukee, New Orleans, New York City, St. Louis, and Washington, D.C.**

The *Synopsis* is accessible at no charge (registration required) on the National Board Web site at *nationalboard.org*.

BOILER CHIC

Steam Themes: Hot Spots of Old Now the Hot Spots of New

It is estimated there are over 300 bars, restaurants, and night clubs in North America named "The Boiler Room," or some variation thereof. Impressive as that may appear, precious few bear any legitimate ancestry to the world of steam-making.

Recently, however, there has evolved a handful of retired power stations reconstituted as public gathering areas catering to the socially engaged and those seeking a unique ambience for nourishment.

In these de rigueur enterprises, polite discourse is often exchanged over a latté, lunch, or perhaps a colorful libation. Here, clientele can take contented refuge within disemboweled boilers that once exceeded 2,000 degrees. The searing heat of an era when boiler rooms operated full throttle is now conditioned air. Where water converted to steam, martinis flow – olives a bob – providing inhibition-relaxing refreshment.

These venues are and were the real thing: gritty old steam plants. And now they are fashionable old steam plants: places of time immemorial featuring buffed hardwood, oriental rugs, polished concrete, generously stuffed sofas, plump ottomans, exposed brick walls, and glistening metal that juxtapositions agreeably with rusted metal motifs. Function has finally given way to form.

What have entrepreneurs done to our workspace?

To observe firsthand, the BULLETIN visited two of the West Coast's more popular utility-themed conversions: one an inviting, visually dynamic restaurant, the other a spirited, mystically stylish nightclub.

Forthwith, in photo and phrase, enlightenment:

WELCOME TO THE STEAM PLANT GRILL

You can tell Spencer Stromberg is uncommonly proud of the Steam Plant Grill in the Davenport District of Spokane, Washington. Whereas most restaurants have a life span of only a few years, his establishment is about to embark on an anniversary celebrating nearly a decade. And that may just be a benchmark for many more.

Contemporary cuisine and unique ambience make for a very successful enterprise, explains the restaurant co-owner. And there is no other endeavor in the Great Pacific Northwest more unique than the Steam Plant Grill, a visually appealing 270-seat eatery enveloped by a three-story . . . yes, steam plant. A favorite of locals, a must-see for out-of-towners, this unexampled historic venue is acknowledged as one of the city's most visited and beloved tourist attractions.

BULLETIN *photograph courtesy of Steam Plant Grill*

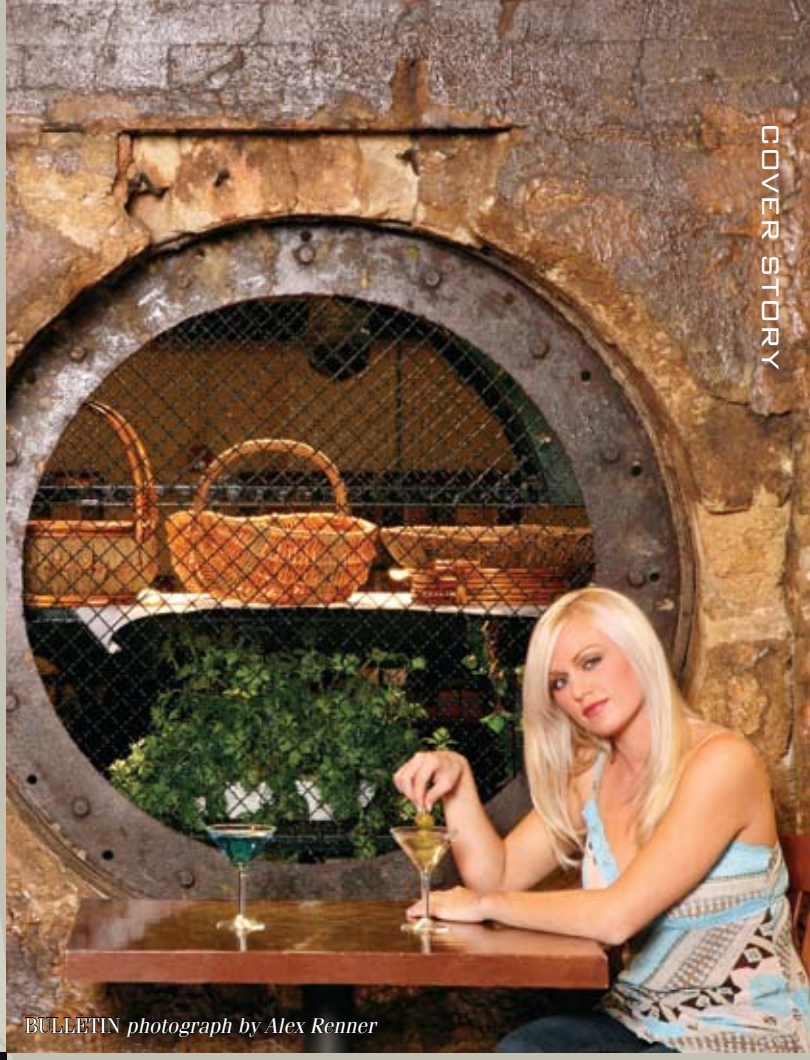
BULLETIN *photograph courtesy of Steam Plant Grill*

BULLETIN *photograph by Alex Renner*

Constructed toward the end of the Industrial Revolution in 1916, Washington Water Power's Central Steam Plant provided steam heat and electricity to more than 350 buildings in downtown Spokane for more than 70 years. During that time, it burned a variety of fuels including coal, natural gas, wood chips, and sawdust (the latter two being byproducts of the area's burgeoning lumber industry). Each day – twenty-four hours a day – the plant produced from 15,000 to 370,000 pounds of steam.

Imposing 225-foot twin smoke stacks cast a high shadow on the city in which Bing Crosby was raised and performed, under which once existed a connected web of underground steam tunnels and piping. By the mid-1970s, the cost of producing steam and repairing the plant's aging pipe system and mains had become excessive and thus economically unfeasible. It yielded its last pound of steam in 1986.

For a decade, the Central Steam Plant remained unoccupied. Internal parts intact, the plant became the subject of numerous discussions regarding its future utility, including the possibility of razing. In 1995, however, Avista Development, Inc. (formerly Washington Water Power) conferred with historic restoration specialists Wells & Company about converting the old Spokane landmark.



BULLETIN *photograph by Alex Renner*

BULLETIN *photograph courtesy of Steam Plant Grill*

According to Gage Stromberg, Wells construction manager for the project and Spencer's brother, Wells owners and renovation experts Ron and Julie Wells, advanced an idea of developing office space alongside a distinctive restaurant staged within the plant's austere viscera.

Project input arrived from a variety of sources including vendors, but Ron Wells – stepfather of the brothers Stromberg – had a vision: visitors to the steam plant should instantly realize they are in a steam plant. "He had definite ideas on how this would come together," adds Gage Stromberg. And come together it did.

Before a hastily assembled news conference in February of the following year, representatives from each of the involved companies scurried to make the plant (site of the news conference) presentable, or at least as presentable as a 70-year-old unoccupied industrial building could be. Priority was given to removing birds calling the plant home and the occasional frozen pigeons (also former residents).

Following the 1996 announcement, the companies set out to map the building. "Our first challenge was to create space for both the offices and restaurant," explains the project

manager. "With the plant, we inherited a lot of equipment – equipment that occupied much of the space we needed to make the project work."

There was an additional challenge, notes Gage Stromberg: "We wanted to balance the need to create leased space with the desire to preserve as much of the equipment as we could." And then there was the question of what to do with the equipment needing to be removed.

The answer: conditionally donating the various pieces of boilers, tubing, and miscellaneous parts to local artisans. That condition: the equipment had to be crafted into objets d'art for an auction to benefit the local artist district.

Much of the grill's seating area was compartmentalized within the plant's four boilers, each of which was partially divested of its steam tubing. "You know you are in an old boiler by the boiler tubes that have been retained either as decorative walls or ceilings," explains Wells architect Ron Wendle. The facility's lower level features a full bar (including Coeur d'Alene Brewing Company beers made on premise) with additional seating and a spectacular view of the plant's 80-foot ceilings.

A booth area located opposite the grill's main entrance housed the plant's original boiler. Constructed by Combustion Engineering, the S-type boiler at one time boasted 828 four-inch tubes designed to produce 250 pounds of working pressure. Able to burn only coal, it was deactivated in the 1960s as more efficient fuels became readily available. About the same time, the plant's most recent addition – a natural gas-fired unit constructed by Union Iron Works – went on line. With a heat surface of 10,165 square feet, the 250 psi boiler once housed 860 water walls tubes that generated as much as 120,000 pounds of steam per hour.

Wendle points out the plant interior and all equipment were power washed prior to adding finishing touches to the office/restaurant complex. Additionally, all piping was encapsulated in a marine sealer. "The sealer not only keeps dust to a minimum, it also assists in retaining pipe color," he adds.

Opened in December 1999, the 74,400-square-foot Steam Plant Square office/restaurant complex instantly became a regional curiosity with Spokanites. And with good reason.

For many, what they observed was unlike anything previously experienced. Yet there were the few – former

Glass Table at the Steam Plant Grill constructed in 1999 from historic pipe and steam wheel materials from 1916. Created by Eric Holt.

workers at the plant – who stopped by to revisit their old place of employment. Reaction of the retired Washington Water Power employees was one of both amusement and amazement.

Upon entering the grill, customers set foot upon a custom tile foyer that defines an adjoining glass wall exposing the insides of a boiler now reserved for small lunch and dinner gatherings. A three-sided glass elevator allows visitors to access two newly added floors above the restaurant where business offices are neatly arranged to have a high, spatial perspective on the doings below. Of special interest to visitors on the third level is flooring spanning the plant's old coal bunker. Measuring 80 feet in length and 20 feet in width, the 30-foot high concrete bunker held 1,200 tons of coal to fuel boilers during the plant's earliest period.

Need more space? One of the twin smokestacks has been converted to a conference room!

Another major challenge the renovators addressed involved adding creature comforts without compromising the

building's industrial décor. "A glass elevator and an HVAC system are not items easily disguised," comments Gage Stromberg. "Consequently, we had to create the illusion these items were all original to the plant." The facility also features the latest electronic fiber technology.

Several years ago, a national restaurant group discussed with Wells & Company the idea of using the grill as part of its franchise group.

"As most chains will do, they wanted to make considerable changes to the building's design, particularly the entranceway," explains Gage Stromberg. Compromises, especially replacing some of the grill's artifacts, did not impress Ron Wells, who quickly dispatched any notion of seeing his venture tainted by cookie-cutter creativity. (Wells & Company and Avista Development own Steam Plant Square, with the former also managing the property.)

Wells & Company – the project architect, developer and construction contractor – say they would welcome the opportunity to take on similar ventures involving steam plant conversion. The company estimates restoration construction cost savings of between 5 – 10 percent as opposed to launching a similar project from scratch.

In addition to cost savings, Gage Stromberg cites America's interest in "going green" as an integral reason for historic renovation.

BULLETIN *photograph courtesy of Steam Plant Grill*

"Back in 1996, talk of green was almost nonexistent," he muses. "Today, reuse of any entity is the ultimate application of the green philosophy."

While Steam Plant Square might have been Spokane's first foray into green, city fathers have also embraced its historical context and moved to officially recognize and preserve same. The award winning facility is now listed in the National Register of Historic Places, the Washington Register of Historic Places, and the Spokane Register of Historic Places. Recently, the venue received the prestigious National Honor Award from the National Trust for Historic Renovation.

Gage Stromberg and Wendle agree Steam Plant Square has been an exceptional boon to their city. "Avista should be commended for their dedication and commitment to Spokane," Wendle explains. "This exceptional influence on our community has been far reaching." Literally and figuratively.

Today, equipment from the old plant – now existing as newly constituted benches, chairs, tables, fountains, and wall hangings – can be found at a variety of homes and businesses throughout the downtown Spokane area. A number of the one-of-a-kind artifact creations can also be seen both in and outside the Steam Plant Square complex.

Gage Stromberg observes that should Spokanites ever overlook their local heritage, these art nouveau tributes to the Central Steam Plant will serve as a continual reminder: what was once old can now be new.

And what was once hot, can now be cool. Very cool.

NEXT ISSUE: The *BULLETIN* visits The Edison Bar in Los Angeles. ✪

R. Ron Wells, owner of Wells & Company, will deliver the presentation *Renovating a 1916 Historic Steam Plant to Promote Downtown Revitalization* at 3:15 p.m. during the 77th General Meeting General Session on Monday, April 21, in the Pavilion Ballroom of the Sheraton Vancouver Wall Centre.

RIGHT & MIDDLE BOTTOM: Christy Ammons, ODA Veterinary Pathology Assistant, inspects the tissue digester. MIDDLE TOP: A pathologist dissects animal tissue. FAR RIGHT: Clayton Steam Generator

STATE-OF-THE-ART DIGESTER

"The system is so easy to use," she says, "one person can operate it."

It is officially called an alkaline hydrolysis unit, but is better known as a tissue digester or, simply, a pressure vessel. The Ohio Department of Agriculture (ODA) uses it to dispose of dead animals tested for possible diseases. ODA bought it in 2005. Before that, it had to call a rendering facility to come pick up the animals.

ODA Communications Director Cindy Brown says, "The alkaline hydrolysis unit is a state-of-the-art piece of equipment that allows the department to dispose of animal carcasses in a cheaper, more environmentally friendly manner."

Alkaline hydrolysis is used by many institutions and laboratories throughout the U.S. It uses time, pressure, high temperature (300ºF or 150ºC), and alkali concentrations – water solutions of sodium hydroxide and potassium hydroxide – to break down biological material into a sterile solution released into a sanitary sewer. All traces of DNA and known pathogens are destroyed, including Staphylococcus aureus, a common cause of staph infection that can survive on domesticated animals. What remain in the pressure vessel basket are bones and teeth, about 3 percent of the original weight and volume of the material. They are sterile, brittle to the touch, and are thrown away or crushed into powder usable as a soil additive.

ODA bought the pressure vessel for just under a million dollars from Waste Reduction by Waste Reduction, Inc. (WR^2), which developed alkaline hydrolysis in 1992. (WR^2 is no longer in business.) The insulated, steam-jacketed, stainless-steel vessel is 5 feet 8 inches in height and 8 feet in diameter. It contains a retainer basket and has a hydraulically clamped lid. Capable of holding up to 7,000 pounds of material, it is the largest tissue digester in

BULLETIN *photographs by Greg Sailor*

SIMPLIFIES ANIMAL DISPOSAL

Ohio. Though pressure-rated to 100 psig, the vessel operates, according to ODA Veterinary Pathology Assistant Christy Ammons, at 55 psig to achieve a temperature of 300°F.

A mechanical pop-off pressure relief valve helps prevent overpressure, as do sensors that monitor real-time pressure data. Steam is produced by a Clayton Steam Generator – a watertube boiler that uses a helical coil heat exchanger – and can be generated in as little as 10 minutes. Ammons says ODA runs the vessel twice a week between October and April, the busiest time of year, and once every two weeks in summer. Dean Jagger, chief boiler inspector of the state of Ohio, says the vessel does not fall under the jurisdiction of Ohio's regulatory requirements but that the steam generator is inspected yearly.

Advantages of alkaline hydrolysis include the combining of sterilization and digestion, reduction of waste volume by as much as 97 percent, limited odor, and elimination of radioactively contaminated tissues. The estimated cost of disposal is $0.02 to $0.03 per pound of material or $40 to $60 per ton.

The process begins when dead animals – mostly farm animals such as cows and sheep – are brought by veterinarian's order to the 3,000-square-foot necropsy lab adjacent to the room containing the tissue digester. In the lab, pathologists try to determine whether an animal died of trauma, a tumor, or a disease such as bovine spongiform encephalopathy, or mad cow disease, which has yet to be found in Ohio.

After the examination, the animal is carried by hoist into the next room and loaded into the pressure vessel basket. At this point Ammons takes over without any help. "The system is so easy to use," she says, "one person can operate it."

The system she's referring to is the Siemens touch screen controller, which guides her through the start-up. The amount of alkali concentration and water needed to break down the material is automatically calculated. It is proportional to the material's weight, which is determined by built-in load cells in the vessel. The completed cycle takes 12 hours: six for cook time, four for fill and rinses, and two for cool down. There are no emissions and only a slight odor that Ammons says smells like ammonia. The result is a sterile, coffee-colored solution. This is released into a sanitary sewer at a pH and temperature meeting local and federal guidelines.

Before ODA bought the disgester, Ammons herself had to render the dead animals into smaller parts for disposal – a laborious process. "The digester has made my job less labor intensive," she says, "and saved my back for my golden years."

VANCOUVER: EXPERIENCE THE DIVERSITY

"To create a great city of communities, which cares about its people, its environment, and the opportunities to live, work and prosper"– this is Vancouver's mission statement.

Welcome to Vancouver: Site of the 77TH General Meeting

With more than half its residents speaking a first language other than English and with a multitude of cultures, Vancouver values its diversity and considers it a "source of strength, vitality, and prosperity."

Named after the British explorer George Vancouver, this budding metropolis has a population of about 600,000 people. If one includes the surrounding region, the population jumps to more than 2,000,000 (as of 2006), making it the largest metropolitan area in western Canada and the third largest in the country. The population is expected to reach 2.6 million by 2020.

The Vancouver area was settled in the 1860s in large part because of the Fraser Canyon Gold Rush. Scores of settlers came from the United States, mostly California, although many didn't remain after the rush ended. Officially incorporated on April 6, 1886, the city continued to develop, building around the small Hastings Lumber Mill after the arrival of a transcontinental railroad in 1887.

In 1920, after the completion of the Panama Canal, freight rates dropped significantly, and the Port of Vancouver became internationally important. Since then, the port has become the busiest in Canada and exports more cargo than any other port in North America.

Located between the Strait of Georgia and the Coast Mountains, Vancouver has traditionally relied on several natural resources, including forestry, mining, agriculture, and fishing. Over time, however, the Vancouver economy has diversified and now includes a growing tourist industry and art district; film production (it is called "Hollywood North"); several sports teams; and high-tech production. Residents look forward to hosting the XXI Winter Olympics in 2010, which will be held in both Vancouver and nearby Whistler.

What does all this mean for a visitor to the Vancouver area? A bursting schedule filled with arts, the outdoors, sporting events, restaurants, and more!

Vancouver: Everything One Desires in a City

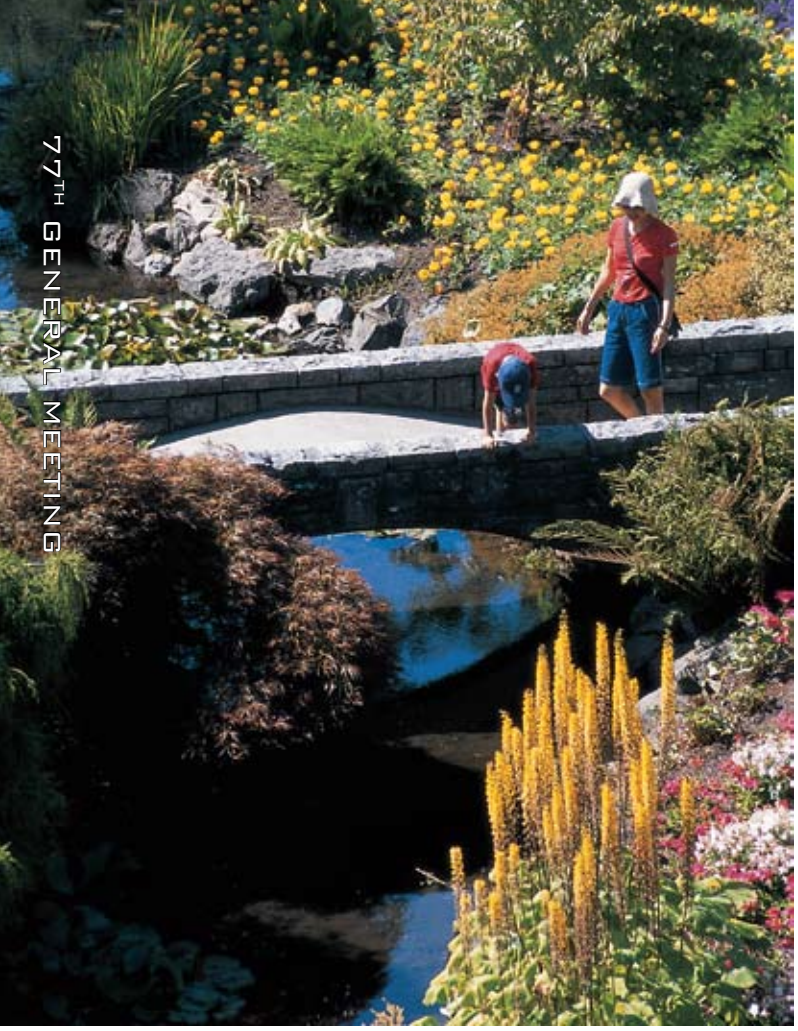
For those interested in theater and the arts, Vancouver's art district is considered a highlight of the city. The Queen Elizabeth Theater is home to the Vancouver Opera and Ballet. Built in 1959 with a 70-foot wide proscenium arch stage, it provides a perfect multipurpose venue for Broadway shows, concerts, opera, and dance, as well as award ceremonies and other productions.

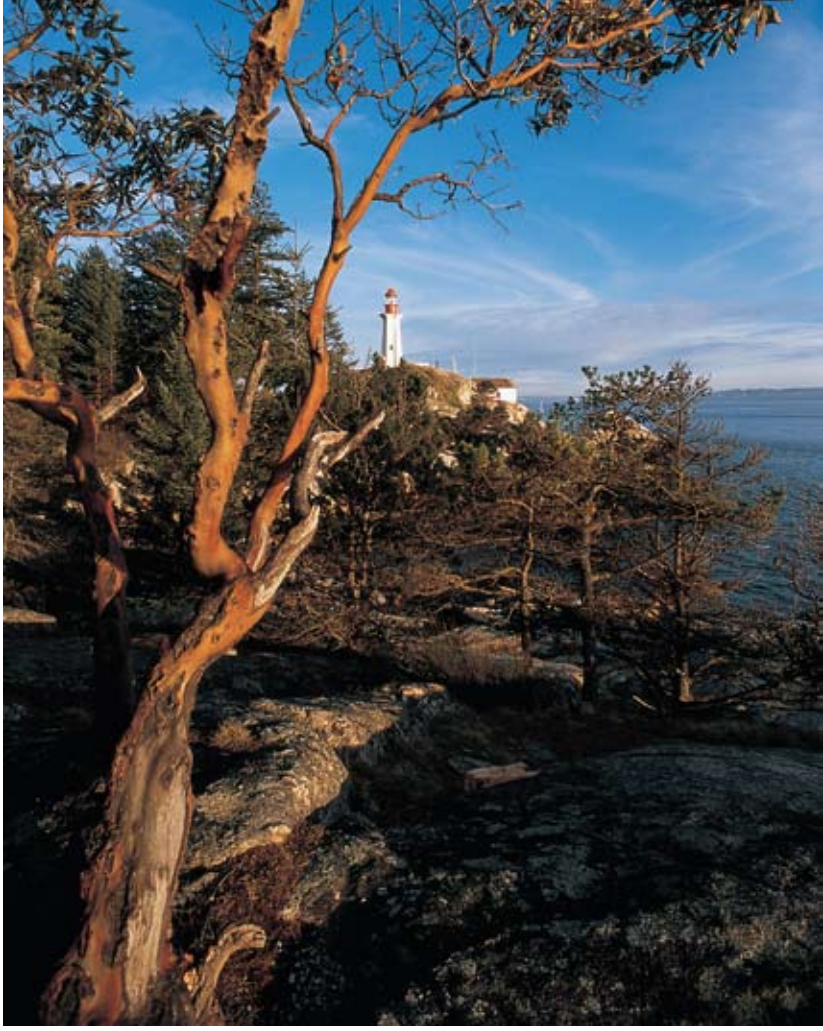
The Orpheum, which opened in 1927 as a vaudeville house, was the largest and most ornate theater on the Pacific Coast in its prime. The city purchased and restored the theater in 1974. It reopened in 1977 as the home of the Vancouver Symphony Orchestra. The renovated concert hall hosts pop, classical, choral, and chamber recitals.

Time magazine once described the Vancouver Art Gallery as "an institution that moves at the same speed as the cyclotron that is Vancouver's art scene." The gallery is in the center of a city known for artistic talent; through cutting-edge exhibitions, it displays the work of leading artists. Permanent holdings include more than 9,000 items.

Visitors more interested in science can head to the Vancouver Maritime Museum – the principal maritime museum on the Canadian Pacific Coast and in North America. Although it didn't become an independent entity until 1988, the museum has been a part of Canadian history since 1928. It is considered, "Greater Vancouver's link to maritime history, art, culture, and technology, relating the past to the present and looking to the future through its programs and exhibitions."

After you're done exploring oceans, the H.R. MacMillan Space Center awaits. The Space Center includes a planetarium with a 360-degree view of the heavens and a full-motion simulator combining the science and drama of space travel. There is also a multimedia theater with live action and audio-visual presentations highlighting





A Panorama of Nature at its Finest

Canada's role in space. These shows encourage audience participation, allowing each group to become personally involved in its visit to the center.

Vancouver boasts more than 180 city parks. The most prominent is Stanley Park, recognized around the world as a combination of natural forest and parklands. Measuring more than 1,000 acres, it is one of the city's main tourist attractions. The park's entire western coast is made of cedar, hemlock, and fir trees. Several different gardens in the park offer roses, ornamental plants, rhododendrons, and more.

Queen Elizabeth Park is home to the Bloedel Floral Conservatory. The Conservatory is open daily – no matter what the weather brings! Dedicated to the wonders of the natural world, there are more than 100 bird species within the dome.

If you like sports, the name of the game is hockey! The Vancouver Canucks call the General Motors Place arena home and invite you to come join them for a game or two during your stay in the great northwest. Called a "staple of downtown Vancouver," General Motors Place opened in 1995 and refers to itself as "one of the premier sports and entertainment facilities in all of North America." This fantastic site will also be the primary venue for ice hockey in the 2010 Winter Olympic Games.

If you want to get in some sports of your own – rock climbing, whale watching, scuba diving, or sea kayaking – Vancouver is the place to be! Because of its mountain location, the Vancouver area is ideal for rock climbers. For the master climber, one need look no further than just outside the city limits. For those with less experience, indoor climbing walls abound. Hiking is also an option for those who want a sport a little less dangerous. Surrounded by forests and mountains, Vancouver has no shortage of trails.

Vancouver's prime location on the Pacific Coast makes water activities an easy escape for those who love the great outdoors. Tour boats can be found ranging from high-speed to slower cruise ships. And although many people

think of the tropics when they hear "scuba," Vancouver has some of the best cold-water scuba diving in the world. Cates Park and Whytecliff Park are popular scuba sites to look up during your stay.

Interested in visiting several parts of the city in the same day? Sign up for one of the self-guided walking tours offered! Two of the most popular heritage tours include walks around Gastown and Chinatown, two unique sections of the city.

Gastown is considered the historic center of Vancouver, the place where the initial settlement was born. After the 1920s, however, Gastown took a backseat of sorts to the other more exciting parts of town and wasn't revitalized until the 1960s. Since then, the public has begun to truly appreciate its distinctive architecture and history. Popular highlights include antique shops, local fashion designers, the Harbour Centre, and, of course, the world's first steam clock (Inventor Raymond Saunders addresses the General Session at 1:30 p.m. Monday, April 21).

Chinatown is one of Vancouver's earliest commercial and residential districts, with a remarkable collection of buildings from the early twentieth century. Many of the residents emigrated from southern China after being recruited to work under contract in Canada. It wasn't until the 1970s that Chinatown was recognized as an historic district; in 1979, a streetscape improvement was sponsored. Today, sightseers will recognize the Chinese elements in place, such as the red-tiled street lamps.

A variety of restaurants and dining opportunities abounds in the city, so be sure to secure a reservation at some of the city's finest restaurants. At Stanley Park alone, there are four highly recommended spots. Scattered elsewhere throughout the city, an avid diner can find a range of food – Chinese, Italian, Continental and Seafood, Japanese, French, Thai, Indian, and Mexican.

With regard to getting around, there are no freeways into or through downtown Vancouver; however, there are extensive bus routes. Another option is the SkyTrain, the longest automated rail system in the world. A two-line urban elevated train system, it was built for the 1986 World Expo in Vancouver. It was expanded in 2002 with the Millennium Line, and future expansions are scheduled in conjunction with the 2010 Olympics.

Consistently ranked one of the "three most livable cities in the world," residents find their quality of living to be supreme.

Visitors will find it no different. ❁

Travel Reminder for 2008

With the 2008 General Meeting just around the corner, the National Board is reminding U.S. citizens to apply for passports as soon as possible if they plan on attending the April event in Vancouver, British Columbia.

New U.S. regulations went into effect January 8, 2007, requiring all air and sea travelers entering the United States to have passports. A requirement for land travelers to present passports to enter the U.S. has been delayed until 2009. The new regulations have caused a backlog in the passport application offices, delaying passport distribution for several months.

Those needing to apply for or renew a passport can access information through the U.S. Department of State Web site.

First time applicants for passports must apply in person at one of 7,000 passport acceptance centers located throughout the United States.

"We strongly recommend those American General Meeting attendees not having passports to secure them as soon as practicable," emphasizes National Board Executive Director Donald Tanner. ❁

Mail or Fax Registration Form

Name _____

Name on Badge _____

Title _____

Company/Affiliation _____

Telephone _____ Fax _____

Address _____

_____

Email _____

Guest Name _____

Guest Address _____

_____

Additional Guest* Name _____

Additional Guest Address _____

_____

*Additional guests (16 years of age or older) may register for a fee of $150.00.

Those requesting special or handicapped facilities are asked to contact the Public Affairs Department at 614.888.8320.

FEES

Only one registration fee will be charged for each attendee and one guest (guest program participant).

General Meeting Preregistration Fee ..... $ _____
(includes ONE banquet ticket)

Registration fee is $300.00 if received *on or before* March 31.
Registration fee is $350.00 if received *after* March 31.

Additional Guest Fee(s)
_____ Additional guests at $150.00 each ..... $ _____
(Each includes ONE banquet ticket)

Additional Banquet Ticket(s)
_____ Additional tickets at $40.00 each..... $ _____

AMOUNT ENCLOSED..... $ _____

To preregister by telephone or fax using your VISA, MasterCard, or American Express, contact the National Board at 614.431.3203, or fax 614.888.0750.

❑ VISA ❑ MasterCard ❑ American Express

Card # _____ Exp. Date _____

Cardholder's Name _____

Signature _____

All checks and money orders must be payable in US dollars to:
The National Board of Boiler and Pressure Vessel Inspectors

Preference for registration confirmation: ❑ Email ❑ Fax ❑ Mail

REGISTRATION DEADLINE: MARCH 31

Accounting Department Only: AMOUNT $ _____ DATE _____

Online Registration Form — NEW!

Online registrations are accepted using a secure Web site form accessible via *InfoLink*! at *nationalboard.org*.This allows General Meeting attendees to process payment, receive a receipt, and an email confirmation — all online at time of registration.

General Meeting Hotel Information

Hotel reservations are the responsibility of attendees and can be made through the Sheraton Vancouver Wall Centre by:

calling 604.893.7120
or
via email at reservations@wallcentre.com

To receive the $169 CDN nightly group room rate,* reference Group Name:

NATIONAL BOARD

Group rate reservations must be received by March 18
(RATES INCREASE BEGINNING MARCH 19)

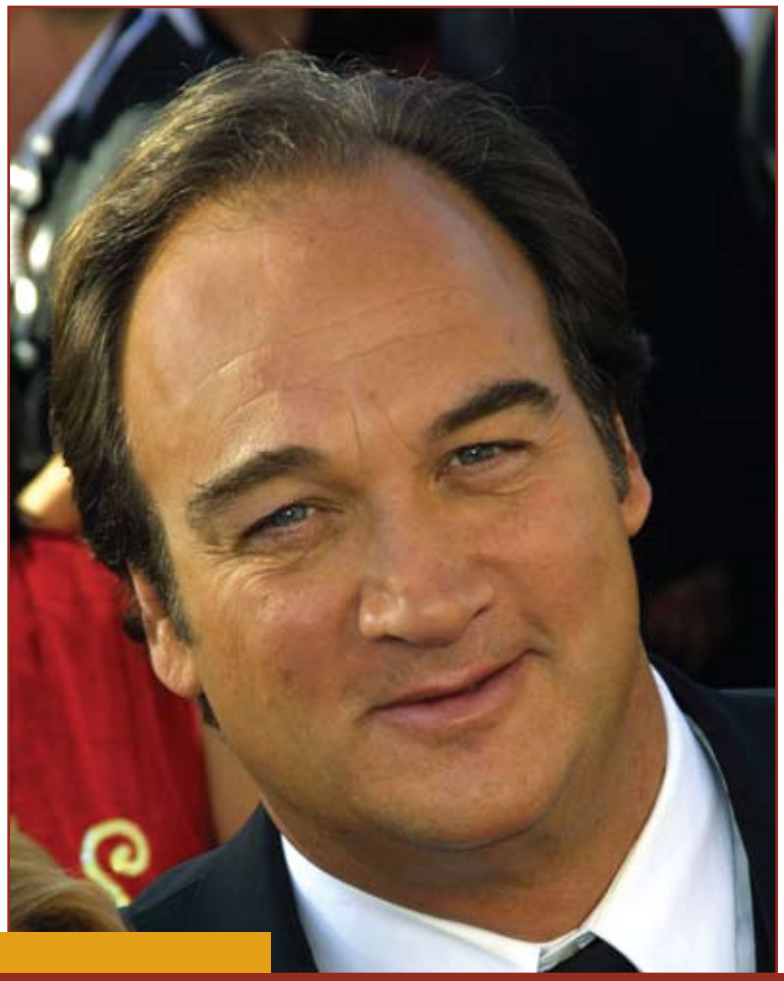
Room refunds only available with notification by 6 p.m. day of reservation.

** Group rate for General Meeting registrants only – plus GST & PST – payable in Canadian dollars.*

IMPORTANT NOTICE

While The National Board and the Sheraton Vancouver Wall Centre will do everything possible to accommodate all General Meeting visitors, registered participants will be given first priority for all discounted sleeping rooms. In the event of a sold-out hotel, the National Board reserves the right to cancel the reservations of anyone in its room block not preregistered for the General Meeting. It is therefore strongly recommended participants register for the General Meeting before securing room reservations. Additionally, it is suggested participants make their hotel arrangements early to ensure availability. Those seeking special room rates but failing to register for the National Board General Meeting will not be guaranteed the discounted $169 nightly rate.

JIM BELUSHI



General Meeting Featured Speaker

Jim Belushi has distinguished himself in a variety of creative endeavors, including dramatic acting, Broadway theatre, TV directing, music, and writing.

Following in the footsteps of his late brother John, Mr. Belushi became a resident member of the famed Second City theatre troupe prior to becoming nationally recognized. In 1983, the Chicago native became a cast member on *Saturday Night Live* (SNL) joining a talented ensemble group of performers that included upstarts Billy Crystal, Martin Short, Julia Louis-Dreyfus, and Harry Shearer.

Leaving SNL after two years, he again came to national attention in the critical movie hit *About Last Night* . Since 1981, he has appeared in over 40 movies, including *Trading Places, Salvador, The Principal, Who's Harry Crumb?, Curly Sue, Last Action Hero, Jingle All the Way, Red Heat, Thief, Only the Lonely,* and *Wag the Dog*. Additionally, he starred in a successful series of K-9 movies as a veteran cop partnered with a German Shepard police dog.

Mr. Belushi's acting background features voiceovers for various animated movies as well as work on the Broadway stage, where he appeared in productions of *Pirates of Penzance* and *Conversations With My Father.* His credits also include roles on HBO's *Larry Sanders Show* and the TV miniseries *Wild Palms*. In 2006 he authored his first book, *Real Men Don't Apologize.* Presently starring in the hit ABC sitcom *According to Jim*, Mr. Belushi is also a partner in the House of Blues restaurant chain, and performs with his band, the Sacred Hearts.

He is founder and member of the John Belushi Scholarship Fund, which supports college and college-prep students pursuing performance and visual arts education.

Sheraton

"Luxurious, elegant, and sophisticated"

– three words that describe the ambience of the Sheraton Vancouver Wall Centre Hotel. The décor, the attention to detail, the magnificent surroundings, and the spectacular views combine to make the Sheraton – recognized for its 36-foot high light tubes – one of the premier places to stay in Vancouver.

This Canadian city is the fastest-growing metropolis in the country with a flair for all things cosmopolitan; the Sheraton is no exception. Located in the heart of downtown among the finest shopping, dining, and cultural attractions, it is the best Vancouver has to offer. Only 25 minutes from the airport, the Sheraton is regularly visited by the Airport Express Shuttle.

When guests arrive, they find sanctuary in the midst of the grand courtyard, which offers gardens and water features – a stunning contrast to the architecture and glass design of the Sheraton Wall Centre.

From the beginning guests will be welcomed by friendly and knowledgeable staff at either the North or South Tower. The North Tower lobby features high ceilings and full-length windows through which guests can view the hotel's garden or fountains. And that's just the beginning!

With more than 700 guest rooms, the Sheraton has accommodations for everyone. Each room has windows opening up to sea breezes and breathtaking views. Hotel features include in-room Internet, in-room movies, and voicemail.

Vancouver Wall Centre Hotel

The Sheraton boasts a 12,000 square-foot health club and Vida Wellness Spa, featuring ancient holistic Ayurvedic treatments. The health club includes a 50-foot pool, two whirlpools, and steam/sauna rooms, as well as personal trainers, state-of-the-art exercise equipment, and the Sebastian One hair salon.

Another marvel adding to the Sheraton's grandeur is the Grand Ballroom with its multimedia hook-up. Two additional ballrooms and more than 30 meeting rooms contribute to the perfect meeting.

While staying at the hotel, guests will find a variety of places to eat, drink, and be merry! The Sheraton Bar One is a "chic city retreat that invites you to unwind in style" while the Indigo Bar offers a "tempting array of favourite malts and local brews." The hotel grounds also include Starbucks, Subway, Tokyo Joe's Sushi, Deli O's Café, and Sorrento Market.

Venturing outside the hotel is a must for any hotel guest. Nearby attractions include Stanley Park, the Vancouver Art Gallery, the planetarium, GM Place arena, and much more. Each of these attractions can only add to the enjoyment of any Vancouver visitor. For those wanting to shop, the Pacific Centre Mall is only minutes away.

Transportation won't be a problem, as city buses on a variety of routes stop outside the hotel, and the Skytrain is just three blocks away.

Monday, April 21

Sights & Sounds of Vancouver

1:00 p.m.–4:00 p.m.

All tours depart from hotel turnaround

Many people visit Vancouver for a week and still don't get to see all the sights and sounds this wonderful city has to offer. That is why guests will fully appreciate this accelerated tour.

Departing sharply at one o'clock, General Meeting visitors will proceed via deluxe motor coach to world-renowned Stanley Park, a 1,000-acre peninsula of rain forest only five minutes from city center. During this picturesque tour, guests will find themselves winding past the seawall toward yacht clubs and historic totem poles. Visitors will also stop at the Brockton Point Lighthouse with its outstanding view of the pulsating tidal waters of the inner harbor, the arch of the Lions Gate Bridge, and the snow-capped Lions Peak. The trip continues through the forest at Prospect Point, the tidal flats of English Bay, and the acclaimed Sunset Beach.

With something for everyone, the tour proceeds to the neighborhoods of Kitsilano and elite Shaughnessy Heights. Here, guests will stop at Queen Elizabeth Park, where they'll savor the floral beauty of a former rock quarry uniquely converted into sunken gardens.

The afternoon will conclude with motor tours through the bustling bazaar in the heart of Chinatown and the brick-paved streets of Gastown (the Vancouver of yesteryear). Guests will return to the hotel by way of Vancouver's exciting shopping and business districts.

This tour requires a minimal amount of walking.

NOTE: Registrants are not permitted to attend the Monday or Tuesday tours intended for designated guests. This policy is strictly enforced.

Tuesday, April 22

The Stargate Orient Express Tour

9:00 a.m.–4:00 p.m.

All tours depart from hotel turnaround

Get ready for a day you will never forget!

After dividing guests into several groups, motor coaches will board promptly at 9 a.m.

One group will proceed directly to Chinatown for a leisurely walking tour of the second largest Chinese city in North America. Among the many highlights is a guided tour of the world-renowned Dr. Sun Yat-Sen Classical Chinese Garden. This extraordinary place of peace and tranquility in the heart of the city was constructed by Chinese artisans for Expo '86. It is the first authentic classical Chinese garden built outside of China.

Following the garden tour, guests will then embark on a colorful guided walking tour of Chinatown. Not just a quick cruise of shop storefronts, this tour will allow for the group to periodically stop and examine interesting markets featuring fresh and dried seafood and mushrooms, inexpensive houseware, and traditional Chinese medicine.

Guests will also be treated to a quick lesson in the traditional art of Tai Chi on the square of the town's old cultural center.

The second group will take part in an equally exciting morning: a visit to the soundstage of the science fiction hit *Stargate Atlantis* (www.scifi.com/atlantis/), which is produced in Vancouver. Premise of the series focuses on the adventures of a human expedition to the lost city of Atlantis in the galaxy of Pegasus.

Those who follow this fascinating series describe it as one of the most interesting and imaginative programs on television. Extraordinary sets, original characters, and costuming add to the program's science fiction dimension. (Access to some set areas may be limited due to production.)

At noon, all guest groups will come together to enjoy an authentic dim sum luncheon served at one of Chinatown's most popular Chinese dining rooms.

Following lunch, the morning Chinatown group will proceed to the *Stargate Atlantis* set while the Stargate group visits Chinatown.

This tour requires a modest amount of walking.

NOTE: Registrants are not permitted to attend the Monday or Tuesday tours intended for designated guests. This policy is strictly enforced.

Wednesday, April 23

Whistler Day Trip

9:00 a.m.–4:00 p.m.

All tours depart from hotel turnaround

Many have never been to the world famous Whistler Ski Resort. For General Meeting participants, that is about to change.

Deluxe motor coaches will load promptly at 9 a.m. for one of the most scenic drives in North America: a two-hour visual feast of towering pines and plunging cliffs, boats bobbing in marinas, rich green isles, and majestic mountain peaks. Be forewarned: those not bringing cameras will be sorely disappointed.

BULLETIN *photograph by Coast Mountain Photography*

Traveling by the Sea to Sky corridor past Lions Bay, Porteau Cove, Howe Sound, the mining community of Britannia Beach, and the logging town of Squamish, guests will be treated to a veritable outdoor panorama of nature.

Proceeding in the great shadow of the rugged peaks of Tantalus Range, the motor coach will wind its way through the Cheakamus Canyon, past Daisy Lake, and Brandywine Falls to the alpine resort of Whistler.

Here, General Meeting participants will visit the quaint pedestrian village of Whistler, featuring more than 200 stores and unique shops along with 90 restaurants and cozy bistros. Guests will be immediately impressed with a community that has won numerous design awards as well as having been voted by major ski magazines a top North American destination for 15 straight years.

Whistler will host many of the 2010 Olympics alpine events, with some of the competitive venues well into construction. Known for its dramatic mountain views, the ski community draws more than two million visitors each year.

Following a morning of sightseeing and shopping, guests will convene at the centrally located Glacierview Room, where they will enjoy a wonderful lunch buffet next to a roaring fire.

The day ends with a trip back to Vancouver and an opportunity to observe the natural beauty guests missed en route to Whistler.

This outdoor tour requires appropriate clothing for potentially cooler temperatures. Modest amount of walking at guest's leisure. ✪

Preliminary Program

for the 77th General Meeting of The National Board of Boiler and Pressure Vessel Inspectors

Monday, April 21

Opening Session

10:15 a.m. Remarks by Jim Belushi*
Actor and Author

General Session

1:00 p.m. *The Efficient Boiler Program with Welding and Brazing*
Edgardo Joson, Manager,
Boiler Efficiency Program
TERASEN GAS, INC.

1:30 p.m. *Steam Clocks of the World*
Raymond Saunders, Horologist
LANDMARK CLOCKS INTERNATIONAL

2:00 p.m. *Trends in Kraft Recovery Boiler Operations*
Terry Adams, PhD., Consultant
T.N. ADAMS CONSULTING

2:30 p.m. Break

2:45 p.m. *TBA*

3:15 p.m. *Renovating a 1916 Historic Steam Plant to Promote Downtown Revitalization*
R. Ron Wells, Owner
WELLS & COMPANY

3:45 p.m. *The Quest for Pressure Equipment Efficiency*
Michael Burke, Director, Industrial Programs
NATURAL RESOURCES CANADA

4:15 p.m. *TBA*

* Autograph session with Mr. Belushi to follow Opening Session.

General Meeting Weather and Wardrobe:
Located in the southwest corner of Canada, Vancouver is right next to the Pacific Ocean and is surrounded by water on three sides. This city's climate is considered to be one of the mildest in Canada, with an average of 37°F (3°C) in January and 64°F (18°C) in July.

In the middle of April, however, guests should be prepared for almost any temperature, although the April median temperature is around 48°F (9.1°C). The daily high is usually around 54°F (12.3°C), and the low around 42°F (5.7°C). This should be very comfortable for guests as they peruse shops and restaurants, but jackets and sweaters might be necessary!

Guests should be especially prepared for much cooler temperatures on Wednesday, where the mountains can be much cooler.

General Meeting Dress:
Participants and guests are encouraged to dress in a business-casual style for all hotel events except the Wednesday banquet (where ties and jackets will be the evening attire).

Reminder:
General Meeting details can also be found on *InfoLink!* located on the National Board Web site at *nationalboard.org*.

To obtain a discount of $50, all preregistration forms and fees must be received by March 31.

On-Site Registration Desk Hours:

Sunday, April 20 . . . 9:00 a.m - 2:00 p.m.
Monday, April 21 . . . 8:00 a.m - 11:00 a.m.
Tuesday, April 22 . . . 8:00 a.m - 10:00 a.m.

Location: Parksville Room, Level Three

General Meeting Registration is required in order to receive the special $169 USD room rate at the Sheraton Vancouver Wall Centre.

Distribution of any and all literature, other than informational materials published by the National Board and ASME, is strictly prohibited at the General Meeting.

Howard Pfaff

Chief Boiler Inspector, State of South Dakota

BULLETIN *photograph by iZZon Photography*

If there is anyone who fully identifies with the phrase "home is where the heart is," it's South Dakota Chief Boiler Inspector Howard Pfaff.

After all, here's a 20-year Navy veteran who has circled the world on multiple occasions accumulating enough sea miles to rival Noah (the Ark guy). And now he makes his living crisscrossing the wide open expanse of the Mount Rushmore state – a jurisdiction covering more than 177,000 square miles.

When asked if he finds travel unsettling, Howard smiles and casually admits it's part of the job. The state official adds that even as a youth, he always seemed to be in transition.

"My dad was a part-time farmer and self-taught musician who played restaurants, weddings, reunions . . . anywhere he could get a job," he recalls in a tone just above a whisper. "That generally meant moving around more than some young people today would like."

Howard was born in Huntley, located in the southeast corner of Wyoming. One of five Pfaff children (four brothers and one sister), he experienced his first move in 1941 when the family relocated to Portland, Oregon. Several years later, the Pfaffs went back to Huntley for an additional two years before moving to Boise, Idaho. In 1946, the family returned to Wyoming and the community of Torrington.

Four moves in five years were not without good reason. "Life was tough back then," Howard emphasizes. "As a sharecropper, my dad did what he had to do to keep food on the table." And he did it with help from the Pfaff kids.

A typical day, the bespectacled chief inspector recollects, involved feeding the livestock, working the sugar beet fields, putting up hay, and harvesting crops.

Howard was 13 when his mother passed away. The family consequently moved to Van Nuys, California, where the South Dakota official would live for three years before taking a bus by himself back to Torrington.

Following high school and realizing he would soon be drafted by the Army, Howard visited a Navy recruiter. In April 1953, he officially joined the Navy and was dispatched to boot camp in San Diego.

Subsequently assigned to the USS *Princeton*, the chief inspector made known his desire to become a diesel engine repairman. The Navy's response: the route to diesel engine work went through the boiler room. "After three months I requested permission to join the diesel gang," he smiles. The Navy's response: Mr. Pfaff has too much boiler room experience. Transfer denied.

The Wyoming native agrees the Navy's intransigence disappointed but did not disgruntle. "I sort of liked working in the boiler room," he admits.

Before his four-year tour of duty expired, Howard reenlisted "because I still had no idea what I wanted to do career-wise." Aboard the *Princeton*, he advanced to Boiler Technician Second Class before attending Class B Boiler School. He was subsequently reassigned to the USS *Carter Hall* in San Diego.

It was on the *Carter Hall* he made Petty Officer First Class and received an intimate perspective of the Pacific Theater. "I traveled to Japan, Okinawa, Hong Kong, Philippines, Taipei, Korea, Singapore – as far away as Pakistan."

Having made the decision to become a career officer, the South Dakota chief inspector was back in San Diego when a friend introduced him to a young lady employed at the local drug store. "It was a blind date on Mother's Day 1961," Howard laughs. But no one was laughing when Edith married Howard Pfaff six months later.

Edith may not have realized it at the time, but her world was about to become as fluid as the ocean beneath her husband's ships. A move to San Francisco was followed by another to Long Beach, California. During the Bay of Pigs conflict, she temporarily moved back to her parents' home in Hull, Iowa.

From 1963 to 1969, Howard found himself on a seemingly endless number of roundtrip excursions to Vietnam. With Edith pregnant with the couple's second child in 1966, Howard returned to the southeast Asian country and was placed in charge of utilities in downtown Denang. Returning to the United States as a chief petty officer a year later, he was assigned to the small destroyer USS *Hanson* and dispatched, once again, to Vietnam.

The state chief inspector returned to the states in 1969 and spent the latter portion of his military career as a Navy instructor at the Great Lakes Training and Recruit Command in Great Lakes, Illinois.

Howard retired from the Navy in May of 1973 while still stationed at Great Lakes. Answering an ad in the *Navy Times* for a boiler inspector, he went to work for an insurance company a month later. The career Navy sailor not only found a job, he found himself on the road once again – this time traversing the Midwest plains.

Consequently transferring to Sioux Falls, Howard's nearly 14-year career in the insurance industry came to an abrupt end when a legal dispute arose involving a rendering plant accident report. "That court case took me six and a half years to resolve and clear my name," he laments. "During that time, I was limited to working as a maintenance man at a Sioux Falls hospital."

But the case was settled on Howard's behalf. "As trying as it was, that event was actually a blessing in disguise," he observes while running fingers through his gray hair. "It helped me get my life back together."

Howard subsequently worked nine years as a boiler operator at a steam plant. In 1992 he was approached by the late South Dakota Chief Boiler Inspector Jerry Anderson to do some part-time inspection work as a private contractor. Accepting the chief inspector's offer, Howard conducted inspections in eastern South Dakota until Jerry's death in 2000. "That's when the state approached me about taking over Jerry's responsibilities," the boiler official reveals.

Completing his seventh year as chief inspector, Howard says he remains a private contractor for the state, as does his deputy. "We have more than 8,500 boilers in South Dakota," he explains with a smile. "I have direct responsibility for about 2,400 of those."

Naturally, Howard still travels quite a bit in the course of his responsibilities. But he always finds time for his four grandsons, his antique steam engine collection, teaching responsibilities at a local vocational school, and camping in his 32-foot camper.

Following a career spanning 55 years, the South Dakota chief inspector says he's looking forward to getting away from the rigorous schedule that now consumes his life. He speculates retirement within the "next two years."

So what will occupy his newfound free time?

"The wife and I are looking to do a little traveling . . ."

Brian Morelock Elected to Advisory Committee

At the August Board of Trustees meeting, Ed Hoveke was reappointed to the National Board Advisory Committee representing stamp holders, and Lawrence McManamon Jr. was reappointed representing organized labor.

Brian R. Morelock was newly appointed to the Advisory Committee as the new member representing boiler and pressure vessel users. He has been an engineering associate for Eastman Chemical Company since 2000.

Mr. Morelock began working at E.I. DuPont de Nemours & Company, Inc., in Aiken, South Carolina, in 1985 as a maintenance engineer before becoming subcontract administrator. From 1988 to 1995 he worked for Holston Defense Corporation in Kingsport, Tennessee, as advanced mechanical engineer before acquiring his current position at Eastman.

Graduated from Tennessee Technological University with a degree in mechanical engineering, he passed the professional engineering exam in 1990.

Brian R. Morelock

Ed Hoveke

Lawrence McManamon Jr.

National Board Employee Walks to Help Find a Cure

National Board employee Donna Radcliff participated in a three-day, 60-mile walk in San Diego in November, raising over $3,000 to help support breast cancer research, education, screening, and treatment. The walk, which had about 5,000 participants and raised $12 million, was sponsored by Susan G. Komen for the Cure, the world's largest network of breast cancer survivors and activists.

Donna was part of a 45-member team, the Breast Defense League. They raised $120,000, the third-highest team amount. Starting as early as 6:30 a.m., they walked about 20 miles each day, cheered on by spectators. "The spectators were fabulous," she says. "They lined the streets, dressed in costumes, and honked their horns. It was like Mardi Gras." At night Donna and the other walkers showered in semitrucks and slept in tents. She walked in honor of three breast cancer survivors and in memory of Sue Brillhart, the mother of her closest friend. Sue lost her battle with breast cancer in January 2007.

Donna says she's planning to walk in San Diego again next year. "It was an amazing event. I really appreciate the overwhelming support I got from the National Board and from Mr. Tanner."

BULLETIN *photograph by Greg Sailor*

New National Board Members

Rick K. Sturm has been elected to the National Board representing Utah. He is chief boiler and pressure vessel inspector for the state.

Rick Sturm

Mr. Sturm worked for 10 years for the Utah Labor Commission as boiler and pressure vessel inspector before becoming chief inspector. Before joining the state, he worked for Northwest as a sheet-metal installer from 1989 to 1997.

He attended Universal Technical Institute and studied auto/diesel mechanics.

The Utah official resides in Roosevelt, Utah, with his wife Charlotte. They have three children, George, Jacob, and Riley.

He holds National Board Commission No. 12156 with an "A" endorsement.

Peter L. Vescio Jr. has joined the National Board representing New York. He is chief boiler inspector for the Department of Labor.

Peter Vescio

Mr. Vescio began his career in 1977 in the New York Department of Mental Hygiene. From 1979 to 1984 he was employed by the New York Department of Education as stationary engineer before joining the Department of Labor as boiler inspector. In 1991 he became senior boiler inspector and, in 2003, supervising boiler inspector.

The National Board member was graduated from Mohawk Valley Community College with a degree in individual studies. He served in the US Navy from 1971 to 1975 as boiler tech second class.

Residing in Rome, Mr. Vescio holds National Board Commission No. 11731. He and his wife Maureen have two children, Stacie and Patrick.

Christopher B. Cantrell has joined the National Board representing Nebraska. He is chief boiler inspector for the Department of Labor.

Chris Cantrell

Mr. Cantrell was employed by Hartford Steam Boiler from 1998 to 2007 as an authorized inspector and authorized nuclear inspector concentrating on shop and field construction. In 2007 he worked for Nebraska Public Power as a coal-fired plant operator.

The new National Board member was graduated from Nebraska Wesleyan University in Lincoln with a degree in business administration.

Mr. Cantrell served in the US Navy from 1992 to 1998 as a nuclear machinist's mate.

Residing in Lincoln, he holds National Board Commission No. 12136 with "A," "N," "I," and "B" endorsements. He and his wife Jenifer have two children, Abigail and Joshua.

Frank Forti Remembered

The National Board regrets to announce the November 4 passing of consultant Frank Forti. He was 78.

Mr. Forti began working as a consultant in April 1978. His duties included performing reviews as team leader and ASME surveys as team member representing the National Board.

From 1969 to 1978, he worked as supervising engineer for Royal Globe Insurance Companies, assisting organizations in preparing QC systems and QA programs and supervising authorized nuclear inspectors. From 1960 to 1969, he worked as supervising engineer for Commercial Union Insurance Group, where he was responsible for training all company candidates for the authorized inspector examination.

"For nearly 30 years, Frank provided the National Board with excellent counsel," explains National Board Executive Director Donald Tanner. "His experience in the areas of reviews and surveys was without equal. Regretfully, our industry has lost another key leader in the relentless effort to protect the public's well-being."

Mr. Forti, born in New York City, was graduated from Long Island Agricultural and Technical Institute in 1950 with a degree in industrial chemistry.

He is survived by his three children.

National Board Mourns Passing of Richard McGuire

It is with deep sadness the National Board reports the September 11 passing of National Board Manager of Training Richard McGuire. He was 62.

Born in Oklahoma and raised in Southern California, Mr. McGuire joined the US Navy at age 17. He was honorably discharged in 1970 as a first class petty officer and subsequently attended California Polytechnic State University. Inspired by his father's welding career, he earned a bachelor's degree in welding technology and was graduated cum laude.

Mr. McGuire joined the National Board in April 1987 as manager of training. He was previously employed by the American Society for Nondestructive Testing. In 1998 he coordinated and launched an expanded training curriculum at the newly constructed National Board Training and Conference Center.

"The loss of Richard McGuire leaves a significant void within the National Board family," says National Board Executive Director Donald Tanner. "Over the years, Richard was responsible for teaching and developing thousands of pressure equipment professionals. As such, he leaves a legacy that will endure for generations to come. We will miss his determined spirit and keen sense of humor."

In addition to serving as a member of the American Society for Nondestructive Testing, Mr. McGuire was a member of ASME, where he was active on a variety of committees and subcommittees.

He is survived by Pam, his wife of 45 years, two grown children, and two grandsons.

National Board Remembers Ernest Steen

The National Board was saddened to learn of the September 21 death of Ernest Steen, a recipient of this year's National Board Safety Medal. He was 79.

Mr. Steen grew up in Brooklyn, New York, and was graduated from Polytechnic Institute of Brooklyn with bachelor's and master's degrees in mechanical engineering. He was also graduated from Western New England College with a master of business administration.

During his early career, he worked as a mechanical engineer for the Nuclear Development Corporation of America. He later joined Foster Wheeler Equipment Division as staff engineer and went on to become senior NSSS engineer for the CE Nuclear Power System. He most recently served as a consulting engineer for US PPL (Combustion Engineering).

"We have lost a true giant in the pressure equipment industry," comments National Board Executive Director Donald Tanner. "Ernie was one of those rare professionals who always had a kind word and a smile for those around him. It is gratifying to know we were able to recognize his many contributions while he was with us earlier this year at our National Board General Meeting."

In addition to his service on the National Board Advisory Committee, Mr. Steen was a member of the *National Board Inspection Code* Committee and the Committee for "R" Accreditation. As a member of the National Board Examination Committee, he participated in the processes of developing and grading National Board commission examinations.

A long-time ASME member, he served on the ASME executive board as well as several code committees.

Mr. Steen is survived by his wife Betty, two adult children, two grandchildren, a brother, and a sister. ❂

In Memory of Vernon Harding

The National Board recently learned of the August 4 death of former Hawaii member Vernon A. Harding Jr.

Mr. Harding, who was 87 and living in Surprise, Arizona, became a National Board member in 1985 and retired from the state of Hawaii as chief boiler inspector in 1991. In 1994 he was elected an Honorary Member.

Born in Goshen, Indiana, he entered the US Merchant Marine Academy in 1942. During World War II and the Korean War, he served aboard ships and was awarded several medals, including the Merchant Marine Atlantic War Zone Medal and Korean Service Medal.

In 1971 he moved from Franklin, Massachusetts, to Hawaii to work as an engineer at the US Naval Air Station in Barking Sands, Kauai. He later worked as chief engineer for the Waialua Sugar Mill before joining the state of Hawaii.

Mr. Harding was preceded in death by his wife Jeannette, who died in 1998, and his son Timothy. He is survived by four other children, three grandchildren, and one great-grandchild. ❂

National Board Breaks Ground for Inspection Training Center

The National Board broke ground August 28 on a new advanced training facility to be located adjacent to its Training and Conference Center in Columbus, Ohio. Performing the excavation duties were National Board Executive Director Donald Tanner and Board Chairman David Douin.

Designated the Inspection Training Center, the newest National Board building has been developed to allow students a more comprehensive hands-on experience in the discipline of pressure equipment inspection, explains Mr. Tanner. Completion is scheduled for late spring.

The 20,000-square-foot center will feature ample space for students to experience working on and inspecting actual pressure equipment, including select internal components. Highlighting the work space will be internal side views of a sectioned boiler and pressure vessel revealing all functioning parts.

"The training process in our industry has evolved considerably over the past decade," Mr. Tanner points out. "Students want to actually touch equipment and gain a genuine familiarity. Our new center will not only permit the experience, it will encourage it."

Another unique aspect of the new training facility will be accessibility of instructors, many of whom will move from National Board headquarters to offices in the Inspection Training Center. "This will allow students to maximize their training course experience by having direct contact with many National Board technical experts," the executive director adds.

Mr. Tanner stresses the Inspection Training Center will perfectly complement the organization's Training and Conference Center, where classroom instruction is now featured. "As such, students will be able to move easily between the two buildings located in one convenient and attractive campus area," he explains. The new facility will accommodate approximately 100 students and significantly increase the 250 capacity at the Training and Conference Center.

In addition to providing hands-on training, the Inspection Training Center will feature the very latest Internet technology to enhance the learning process. "A new dimension to the National Board training program will be our new capability to Web-conference, or transmit our instructional courses to computers all over the globe," Mr. Tanner emphasizes. He adds the National Board's entry into Web-conferencing will become reality in the "not-so-distant future."

David Douin (left) and Donald Tanner perform groundbreaking duties.

The National Board official says that – like the organization's pressure relief device lab – the new center will be one of a kind. "When we combine this facility with our Training and Conference Center and online training, the National Board will offer the most comprehensive pressure equipment training curriculum in the world." Mr. Tanner explains National Board's expanded programs will require the addition of numerous new courses particularly needed to satisfy the boiler and pressure vessel industry's "new generations."

He concludes the new courses will be a considerable challenge to define and carefully prepare. "However, it is a challenge the National Board is proud and obligated to meet." ✪

For information on National Board training, visit the National Board Web site at* nationalboard.org *or call the Training Department at 614.888.8320.

John Hoh

Senior Staff Engineer

BULLETIN *photograph by Greg Sailor*

The white Honda Gold Wing motorcycle you see from time to time in the National Board parking lot belongs to Senior Staff Engineer John Hoh. It's the fifteenth motorcycle he's owned. The first was a Bridgestone 90cc, which he bought for 90 bucks after he got his driver's license at sixteen.

"It's really enjoyable out on the bike," he says. "The fresh, warm air. But I'm constantly on guard – I'm driving for myself and everyone else around me." The result has been a perfect safety record. Still, John is prepared as well as he can be if something should ever happen. "I always wear a helmet, jacket, gloves, boots, and long pants."

The former National Board member from Missouri, where he was chief boiler inspector for almost five years, began working for the Board in December 1991 as assistant director of inspections. Now, as senior staff engineer, he is mainly responsible for "R" accreditation, authorization to register, and conducting investigations. "One thing I like about working at the Board is educating people about the code. When they contact us with a question, we can point them in the right direction. That's really gratifying."

John and his wife Sheila, who works as an office manager for an engineering firm, live with their two cats – 13-year-old brothers named Calvin and Hobbes (yes, after the comic strip) – on 1 1/2 acres southwest of Delaware, Ohio. And how long have John and Sheila been married? "Too long," John first answers, then – the exact number of years eluding him – pulls out a calculator, enters the numbers, and says: "Thirty-three."

They met in high school in Illinois, the first semester of their senior year. Though they attended separate high schools, they attended the same vocational school in the afternoon, where John took a building trades class and Sheila, a horticulture class. In fact, they rode the same bus to get to their projects. After finding out from his cousin who she was, John showed up at her house on his motorcycle (by now he owned a Suzuki) and asked if she wanted to go for a ride. She said yes.

A few years later she said yes again – or rather, "OK, I guess so" – when John asked, over the phone, "Do you want to get married?" Maybe not the textbook example of a marriage proposal, but John clarifies: "We were separated by 25 miles of ice-covered roads."

John's almost lifelong passion for motorcycles eventually rubbed off on her. In 2002 they bought a small used motorcycle, a Honda Rebel, and she enrolled in a state-sponsored motorcycle safety course. Now she owns an 1100cc Yamaha and rides at John's side on day trips through Ohio.

When not riding their motorcycles, Sheila enjoys doing craftwork, and John, woodworking. In fact, he enjoys it so much that in 2000 he and Sheila built – that is, they themselves built – a barn 24 feet wide and 32 feet long. It took about a year to build, and approximately two-thirds of the space is dedicated to a woodworking shop. The vast majority of the woodworking equipment was purchased when it was on sale or at auction. "There are some really good deals on tools if you look hard enough," John says. Among the things he crafts and sometimes gives as gifts are items turned on the wood lathe. "I got hooked on the lathe because many projects can be completed in an hour or two."

Obviously John likes to watch things spin – whether it's wood on a lathe or wheels on a motorcycle. ✪

"Do You Know . . .?" is a BULLETIN *feature introducing readers to the dedicated men and women who comprise the National Board staff.*

The Future of Training

BY KIMBERLY MILLER, MANAGER OF TRAINING

In the past, the National Board Training Department has strived to not only meet the needs of the boiler and pressure vessel industry but surpass them.

And now, looking toward the future, training will continue to design courses that will not only introduce men and women to the world of boiler and pressure vessel inspection but will build upon the skills of those already actively working in the field.

The future of training at the National Board is very bright. Currently, the new National Board Inspection Training Center is under construction. This new facility will allow the National Board to implement hands-on training into the curriculum of introductory inspection courses. Those new to the field that may not have much "real-life" experience will now be introduced to conditions they may be faced with when inspecting inservice vessels. And those unfamiliar with repair methods for not only vessels but for safety relief valves will now be presented with an opportunity to become so.

The Inspection Training Center will also provide instructors for endorsement courses the chance to offer students a peek into new construction situations. In essence, students will be shown what to look for and how to look for it when inspecting pressure equipment.

But that's not all. With an increased interest in the area of Web-based training throughout the industry, the National Board is continuing to strive for excellence in this area. Within the next few months several newly designed online training courses will be unveiled. Beginning with the popular CSD-1 course, more visual elements and case studies will be incorporated to aid students in understanding not only the purpose of the code but how to correctly interpret and administer it when in the field.

"Within the next few months several newly designed online training courses will be unveiled."

Courses dedicated to the 2007 *National Board Inspection Code* will join CSD-1 in the updated menu of online training, and will also reflect the more interactive look found in CSD-1.

Within the new design, online training from the National Board will now offer students the flexibility to print a completion certificate while studying from home or office. Redesigned for ease of use, registration for training will be streamlined and allow students immediate access into course materials.

In an effort to make instructor-led training even more accessible, the National Board will continue to hold the *Repair of Pressure Relief Valves* (VR) and the *Boiler and Pressure Vessel Repair* (R) seminars offsite. Houston, Minneapolis, and Ontario are already on the schedule for 2008.

The National Board recognizes that, with the growing shortage of boiler and pressure vessel inspectors, training plays a vital role in the future of the industry. And providing a broad spectrum of courses and seminars while making them as accessible as possible to all, has been – and will continue to be – a high priority.

ENDORSEMENT COURSES

(A) Authorized Inspector Course —
TUITION: $2,500

March 3-14 June 9-20

(I) Authorized Nuclear Inservice Inspection Course —
TUITION: $1,250

April 7-11

(N) Authorized Nuclear Inspector Course —
TUITION: $1,250

March 31-April 4

CONTINUING EDUCATIONAL OPPORTUNITIES

(PEC) Pre-Commission Examination Course —
TUITION: $2,500 Full two-week course
$660 Self-Study (week 1) portion
(self-study materials sent upon payment)
$1,190 Week 2 of course

May 12-23

(R) Boiler and Pressure Vessel Repair Seminar —
TUITION: $400

March 3-4 April 15-16 (Minnesota)

March 18-19 (Houston)

(VR) Repair of Pressure Relief Valves Seminar —
TUITION: $1,250

April 14-18 April 28-May 2

(WPS) Welding Procedure Workshop —
TUITION: $670

March 5-7

(IBI) Introduction to Boiler Inspection Seminar —
TUITION: $2,500

APRIL 7-8

REGISTRATION FORM

Please circle the seminar/course(s) and date(s) you wish to attend. Please print.

☐ Mr. ☐ Ms. ☐ Mrs.

Name* _____

Title _____

Company _____

Address* _____

City* _____

State/Zip* _____

Telephone* _____

Fax _____

Email* _____

NB Commission No. _____

PAYMENT INFORMATION (CHECK ONE):

☐ Check/Money Order Enclosed
☐ P.O. # _____
☐ Payment by Wire Transfer
☐ VISA ☐ MasterCard ☐ American Express

Cardholder _____
Card # _____
Expiration Date _____
Signature* _____

***Required**

HOTEL RESERVATIONS

A list of hotels will be sent with each National Board registration confirmation.

All seminars and courses are held at the National Board Training and Conference Center in Columbus, Ohio, unless otherwise noted, and are subject to cancellation.

For additional information regarding seminars and courses, contact the National Board Training Department at 1055 Crupper Avenue, Columbus, Ohio, 43229-1183, 614.888.8320, or visit the National Board Web site at nationalboard.org.

Vintage 1910 Post Card from Laconia, NH

"Loss of Life Would Have Been Appalling" Laconia, New Hampshire

One dead, 10 injured. An entire building destroyed.

When the Laconia laundry boiler exploded on July 5, 1910, not only was the laundry demolished, so were several other businesses sharing the building: a grocery store, bakery, barber shop, and liquor store. One of the laundry owners stated the boiler was not used to generate power; instead it was used to supply steam for "various laundering processes."

For hundreds of feet in every direction lay broken pieces of glass. E.D. Began, the grocery store owner, was thrown through his front window into the street – a distance of more than 100 feet.

The explosion was just the start of the destruction. Because of the structure of the building, a heavy water tank on the third floor crashed down to the first level. If several beams had not created a "shield," more people would have probably died. Following the explosion, a section of the building went up in flames; however, the local fire department showed up quickly and extinguished the blaze.

Because the laundry was about to close for the day, so far fewer employees were in the building at the time of the explosion – only 12. If it had happened earlier, the "loss of life," the local paper reported, "would have been appalling."