DIVISION OF BUILDING SAFETY

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD VIDEOCONFERENCE MEETING

JULY 20, 2011

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 01 **Agenda**

PRESENTER: Dan Brizee, Chairman

OBJECTIVE: Approve the agenda for the July 20, 2011 Idaho HVAC Board Videoconference meeting

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ACTION: Consent

BACKGROUND:

PROCEDURAL HISTORY:

ATTACHMENTS: July 20, 2011 Idaho HVAC Board meeting tentative Agenda

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TENTATIVE AGENDA

NOTICE OF PUBLIC MEETING

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD VIDEOCONFERENCE MEETING

Division of Building Safety
1090 East Watertower Street, Suite 150, Meridian, Idaho
1250 Ironwood Drive, Suite 220, Coeur d'Alene, Idaho
2055 Garrett Way, Building 2, Suite 7, Pocatello, Idaho
dbs.idaho.gov – (208) 332-7137

Wednesday, July 20, 2011
9:30 a.m. – 3:30 p.m. (MT)

(Note: Meeting Time is 8:30 a.m. PT)

9:30 a.m. **CALL TO ORDER** – Dan Brizee, Chairman

- Roll Call & Introductions
- Open Forum

CONSENT AGENDA

1. Approval of the July 20, 2011 Agenda
2. Approval of the May 18, 2011 Board Meeting Minutes

ACTION AGENDA

3. Administrative Appeals Hearing – Jerry Peterson
   a. Brady Rowser – NOV HVC1104-0006
   b. Rod Law – NOV HVC1104-0004
4. Wood Stove Installation-Statute Change – Jerry Peterson
5. Gas Meters-Rule Changes – Jerry Peterson
   a. 1 Inch Minimum Stub Outs – 07.07.01.005.01(f)
   b. Snow and Ice Protection – 07.07.01.005.01(e)
6. Housekeeping-Rule Changes – Jerry Peterson

INFORMATIONAL AGENDA

7. HVAC Curriculum Review – Chris Miller, CWI
8. Dual Apprenticeship Required Schooling – Ted Sermon

9. International Green Construction Code (IGCC) – Shawn Martin, Director of ICC Industry Relations

10. Manual J and D Requirements – Jerry Peterson

11. Continuing Education – Jerry Peterson

12. Energy Code Update – Jerry Peterson

Noon - 1:00 p.m. **LUNCH BREAK** *(If needed)*

13. HVAC Program Manager Report – Jerry Peterson

14. Operational Report – Steve Keys

15. Administrator Report
    a. Financial Report – C. Kelly Pearce and Kirk Weiskircher
    b. Administrator – C. Kelly Pearce

NEW/OLD BUSINESS

EXECUTIVE SESSION *(If needed)*

3:30 p.m. **ADJOURN**

All times, other than beginning, are approximate and are scheduled according to Mountain Time (MT), unless otherwise noted. Agenda items may shift depending on Board preference. 07/12/11r

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 02 **Minutes**

PRESENTER: Dan Brizee, Chairman

OBJECTIVE: Approve the minutes from the May 18, 2011 Idaho HVAC Board meeting

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ACTION: Consent

BACKGROUND:

PROCEDURAL HISTORY:

ATTACHMENTS: May 18, 2011 Idaho HVAC Board meeting draft minutes

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IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD
VIDEOCONFERENCE MEETING

Wednesday – May 18, 2011 – 9:30 a.m. (MT)

Division of Building Safety
1090 East Watertower Street, Suite 150, Meridian, Idaho
1250 Ironwood Drive, Suite 220, Coeur d'Alene, Idaho
2055 Garrett Way, Building 2, Suite 7, Pocatello, Idaho

*DRAFT MINUTES OF THE MAY 18, 2011 MEETING

NOTE: The following report is not intended to be a verbatim transcript of the discussions at the meeting, but is intended to record the significant features of those discussions.

Chairman Dan Brizee called the meeting to order at 9:33 a.m. (MT).

Board Members Present:
Dan Brizee, Chairman
Ted Sermon
Bruce Graham
Jon Laux
Tim LaMott
Russ Goyen

Board Members Absent:
Bill Carter

DBS Staff Members Present:
C. Kelly Pearce, Administrator
Steve Keys, Deputy Administrator, Operations
Janice Foster, Deputy Administrator, Administration
Patrick Grace, Deputy Attorney General
Jerry Peterson, HVAC Program Manager
Kirk Weiskircher, Financial Specialist, Principal
Chris Jensen, Regional Manager, Eastern Idaho
Rod Freligh, Plumbing/HVAC Supervisor, North Idaho
Renee Bryant, Administrative Assistant 2/Board Secretary

- **Open Forum**
  No items or concerns were brought forth.

- **Approval of May 18, 2011 Agenda**
  Rosie Rosco, College of Western Idaho (CWI), stated she would address the topic "Curriculum Review" under item three "Pre-Apprenticeship Course".

  MOTION: Ted Sermon made a motion to approve the May 18, 2011 Agenda as presented. Tim LaMott seconded. All in favor, motion carried.

- **Approval of February 16, 2011 Board Meeting Minutes**
  For clarification, on page six under the topic "HVAC Code Reference Guide", the Division purchased and provided to the Board the *DeWalt HVAC Code Reference Guide*.

  MOTION: Bruce Graham made a motion to approve the February 16, 2011 Board Meeting Minutes with the correction. Jon Laux seconded. All in favor, motion carried.

- **Pre-Apprenticeship Course**
  CWI will offer a pre-apprenticeship course in the fall of 2011. The one semester two-night a week course will allow individuals an opportunity to learn the basics of the Electrical, HVAC and Plumbing trades. A fee and materials will be required. A course outline was included in the board packet.

Hybrid Classes – Due to costs, CWI will offer hybrid classes, half online/half classroom, in the fall of 2011. The class format will allow apprentices additional lab time.

Curriculum Review Process – In 2010, Irene Vogel with Professional-Technical Education (PTE) offered to assemble a committee to review the current curriculum of the Electrical, HVAC and Plumbing apprenticeship programs for changes/updates. PTE recently turned over this project for CWI to manage. CWI will provide an updated curriculum, to include additional details, objectives, and minimum number of required hours, to the committee for comment.

Chris Miller offered, and board members accepted, for CWI to note on the curriculum the areas that would apply to the other trades.

ACTION: On the curriculum, CWI will note the topics that apply to the other trades.

- **Apprenticeship Programs and Grants**

The U.S. Department of Labor provides grants to registered apprenticeship programs. Associations, unions, and state apprenticeship councils are the only entities approved to register with the Bureau of Apprenticeship Training (BAT). Therefore, the six accredited colleges under PTE do not qualify for the funding.

If a state apprenticeship council is established in the state of Idaho, it will be mandatory for all apprentices and employers to be registered with BAT.

- **Waste Oil Heating-Venting Restrictions**

With the explanation on the limitations of the HVAC Fuel Gas Piping Specialty Journeyman and the company's primary functions, Lynden Mower with Watts Hydraulic and Repair requested the Board make an exception and allow them to install waste oil heater vents.

After a lengthy discussion, and for future consideration, Dan Brizee suggested Mr. Mower speak with the waste oil heating industry and, as a whole, bring back information to verify all manufacturers' programs address the venting requirement.

- **2010 Green Plumbing and Mechanical Code Supplement and Uniform Solar Energy Code**

2010 Green Plumbing and Mechanical Code Supplement – Pete Crow, International Association of Plumbing and Mechanical Officials (IAPMO), provided a handout that explains the development, as well as highlights what is in the 2010 Green Plumbing and Mechanical Code Supplement. The supplement is voluntary and designed to work with all codes; thus giving the blueprint to achieve better water and energy efficiency.

The International Code Council (ICC) has the same type of supplement and code provisions in the International Green Construction Code (IGCC). Russ Goyen suggested the Board review the IGCC.

Uniform Solar Energy Code – Pete Crow provided the background and provisions of the Uniform Solar Energy Code. This is an actual code, not a supplement.

With the lack of a code reference, leading-edge products are not able to be sold because product approvers; i.e., Underwriters Laboratories (UL), are not aware of the additions in the code.

Dan Brizee stated the topic "Uniform Solar Energy Code" will be brought back for further discussion at the July meeting.

ACTION: For the July meeting, the topic "Solar Energy Code" will be placed on the agenda as an informational item.

- **Exemption to Install Vents (Dryer, Exhaust Fan, and Range Hood)**

  As a point of clarification, Chris Miller with CWI stated the code specifies a vent for fuel gas as "any vent for a category one through four appliance" and an exhaust system as "anything for an appliance such as an oven, hood, range or dryer".

  Jerry Peterson reviewed a 64-page document from the Weatherization Community Action Partnership Association of Idaho. Training to install exhaust systems was not addressed, nor was there a clear set of directions. Mr. Peterson could not support the exemption to allow Weatherization Assistance Program (WAP) installers to permit and install dryer vents, exhaust fan vents and range hood vents without the required license. However, it was recommended, and the Board supported, the industry come back to the Board with a different perspective to include training.

- **Wood Stove Installations**

  To cover the enforcement aspect of the installation of wood stoves, the following change was recommended to Idaho Code §54-5003(3): Solid fuel burning "furnaces" changed to solid fuel burning "appliances". With the support of the Board, the item "Wood Stove Installations" will be placed on the July 2011 Agenda as an action item.

  ACTION: For the July meeting, the topic "Wood Stove Installation" will be placed on the agenda as an action item.

- **NFPA 211-Wood Burning and Oil Appliances into Masonry Chimney**

  The question originally asked was when, if any, a liner is required to be installed in a masonry chimney. Upon extensive research, Jerry Peterson recommended, and the Board supported, liners should always be required. In the event a contractor disagrees with an assessment, a certified chimney inspector would need to be hired to perform a level I or II inspection as specified in NFPA 211.

  ACTION: Jerry Peterson will send a notice to inspectors that liners are required in masonry chimneys.

- **CSST and Fuel Gas Pipe Bonding Requirements**

  Jerry Peterson was informed the Electrical Board does not object to the gas pipe industry bonding CSST. The existing statute also has sufficient language to allow them that ability. A special bonding requirement is in the CSST installation guide. With the Board's support, DBS was asked to place an announcement in their newsletter and/or website of that change.

  ACTION: DBS will place a notice on the website that authorizes the gas piping industry the ability to provide bonding of CSST tubing.

- **Gas Meters**

  1 Inch Minimum Stub Out – Jerry Peterson brought forth a proposed rule change to remove IDAPA 07.07.01.005.01(f) "405.2. Point of Termination". The existing rule states it is under the adoption and incorporation by reference of the International Fuel Gas Code (IFGC), 2009 edition; however, there is nothing in the IFGC with regard to termination.

With the support of the Board, the item "1 Inch Minimum Stub Out" will be placed on the July 2011 Agenda as an action item.

ACTION: For the July meeting, the topic "Gas Meters-Rule Changes - 1 Inch Minimum Stub Outs" will be placed on the agenda as an action item.

Snow and Ice Protection – A proposed rule change was brought forth to remove IDAPA 07.07.01.005.01(e) "405.1. Installation in Areas of Heavy Snowfall" as it is invalid and irrelevant. Meter and meter protection are the jurisdiction of the utility companies. Thus, the Board and DBS should not try to interpret something on a multijurisdictional level that is not clearly defined and not under their jurisdiction.

With the support of the Board, the item "Snow and Ice Protection" will be placed on the July 2011 Agenda as an action item.

ACTION: For the July meeting, the topic "Gas Meters-Rule Changes-Snow and Ice Protection" will be placed on the agenda as an action item.

- **Energy Code Requirements and Implementation Dates**
  DBS is working with a group called "Code Collaborative" to come together in a cohesive cooperative effort to implement the required 2009 energy codes.

  An 11-week, 33-hour course on Manual J and D has been provided to the Division's HVAC inspectors and representatives from six local jurisdictions.

- **Board Packets**
  With the downturn of the economy, and the time/money spent to create/mail board packets, the majority of the board members opted to have the packet sent electronically.

- **HVAC Program Manager Report**
  Training – Jerry Peterson provided the Board a training booklet titled *Moving Forward*. DBS, in partnership with the Association of Idaho Cities and Office of Energy Resources, developed and provided in ten locations throughout the state of Idaho a one-day course on the best practices in energy efficiency and codes for the HVAC industry.

  DBS and Chris Miller, CWI, are in the process of developing a shorter class on the overview of Manual J and D. If approved, training should begin by the end of the summer season. The goal is to develop one set of instructional material online for the industry, and a condensed version for inspector training. All interested parties are welcome to participate in the training through videoconferencing.

  Continuing Education – The Plumbing program recently modeled their continuing education program after the Electrical program. Jerry Peterson would like to see an effort made to have an avenue that would provide consistent, ongoing training, i.e., blending code update, code-related training, and specific factory training, at low to no cost. Chairman Brizee expressed interest in having legislation go before the 2012 legislative session.

  At the suggestion of Jerry Peterson, Russ Goyen agreed to inform local building officials and associations that the topic "continuing education" will be addressed at the July 20th HVAC Board meeting, and input would be greatly welcomed.

ACTION: The topic "Continuing Education" will be placed on the July 20th HVAC Board Meeting Agenda as an informational item.

- **Operational Report**

HVAC Program Manager – Jerry Peterson continues to do a great job for DBS; bringing a good mix of experience along with practicality and the ability to work with people.

HVAC Program – The HVAC program continues to struggle financially, as does the Division as a whole.

- **Administrator Report**

Board Chairs Meeting – On Friday, April 22nd, Kelly Pearce met with the chairmen of each Board to explain the anticipated layoff process.

Personnel – In 2007, the DBS was authorized 152 full-time positions. As of today, there are 111 full-time employees. It is anticipated additional layoffs will be implemented the first of July 2011.

Building Rental – The Department of Labor has subleased from DBS 43% of the Meridian office space. Over the next ten years, the Division will save approximately $1.5 million in rent.

Financial Report – Kirk Weiskircher reviewed the HVAC Board Fund Fiscal Year 2011 Financial Statements as of March 31, 2011.

Compliance – To ensure the necessary Electrical, HVAC and Plumbing permits have been paid and issued, the Division has taken under consideration the use of one clerical personnel to view *Craig's List* ads, gather building permit data from local jurisdictions, audit commercial permits for correct contract values, etc.

- **New/Old Business**

There was no new/old business to discuss.

- **Executive Session**

An Executive Session was not required.

MOTION: Ted Sermon made a motion to adjourn the meeting. Chairman Brizee so moved. The meeting adjourned at 12:55 p.m. (MT).

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DAN BRIZEE, CHAIRMAN HEATING, VENTILATION AND AIR CONDITIONING BOARD	C. KELLY PEARCE, ADMINISTRATOR DIVISION OF BUILDING SAFETY
_____	_____
DATE	DATE

***These DRAFT minutes are subject to possible correction and final approval by the Idaho HVAC Board. 06/30/11rb**

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 03a **Brady Rowser-NOV HVC1104-0006**

PRESENTER: Jerry Peterson

OBJECTIVE: Administer a ruling on Brady Rowser's appeal - NOV HVC1104-0006

ACTION: Affirm, reject, decrease or increase the imposed penalties

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BACKGROUND: NOV HVC1104-0006 was issued based upon a proposed violation to IDAPA 07.07.01.070.03, "Certification or Registration".

PROCEDURAL HISTORY:

ATTACHMENTS: Documentation from Brady Rowser and DBS

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 03b **Rod Law-NOV HVC1104-0004**

PRESENTER: Jerry Peterson

OBJECTIVE: Administer a ruling on Rod Law's appeal - NOV HVC1104-0004

ACTION: Affirm, reject, decrease or increase the imposed penalties

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BACKGROUND: NOV HVC1104-0004 was issued based upon the following proposed violations to IDAPA 07.07.01.070:

01 – Heating, Ventilation and Air Conditioning Contractor or Specialty Contractors;
03 – Certification or Registration;
06 – Fees and Permits

PROCEDURAL HISTORY:

ATTACHMENTS: Documentation from Rod Law and DBS

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 04 **Wood Stove Installation-Statute Change**

PRESENTER: Jerry Peterson

OBJECTIVE: To define wood stoves as appliances in statute

ACTION: Vote to accept, reject, or modify the proposed statute change

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BACKGROUND: The HVAC Board felt solid fuel stoves and fireplaces should be inspected for life safety reasons; however, have not adopted statutes or rules for enforcement.

At the February 2011 Board meeting, Jerry Peterson explained a wood stove is defined in the 2006 and 2009 International Mechanical Code (IMC) is an appliance; however, there is no provision in the IMC for unlisted or unlabeled stoves. Although the definition of appliance is clear in the IMC; solid fuel stoves and fireplaces are not currently referenced in statute or rule for regulation under the HVAC Program. A simple change in statute, "solid fuel burning furnaces" to "solid fuel burning appliances", would cover the enforcement aspect.

To cover the enforcement aspect of the installation of wood stoves, the following change was recommended to Idaho Code §54-5003(3): Solid fuel burning "furnaces" changed to solid fuel burning "appliances".

PROCEDURAL HISTORY:

ATTACHMENTS: Idaho Code §54-5003

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§ 54-5003. Definitions

As used in this chapter:

(1) "Heating, ventilation and air conditioning (HVAC)" means and includes the business, trade, practice or work, materials and fixtures used in the design, construction, installation, improvement, extension and alteration of all piping, venting, ductwork, appliances and appurtenances in connection with any heating, ventilation or air conditioning system or subsystems of such.

(2) "Heating, ventilation and air conditioning apprentice" means any person who, as his principal occupation, is engaged in learning and assisting in installation, improvement, extension, alteration or repair of HVAC systems. An apprentice shall perform HVAC work under the supervision of an HVAC journeyman or HVAC contractor.

(3) "Heating, ventilation and air conditioning contractor" means any person who fabricates, installs, maintains, services and repairs warm air heating and water heating systems, heat pumps, complete with warm air appliances including, but not limited to, boilers, pool heaters, space heaters, decorative gas and solid-fuel burning ~~furnaces~~ appliances, and gas, propane, electric or oil-fired water heaters; ventilating systems complete with blowers and plenum chambers; air conditioning systems complete with air conditioning unit and the ducts, registers, flues, humidity and thermostatic controls of air, liquid or gas temperatures below fifty (50) degrees fahrenheit or ten (10) degrees celsius, and air filters in connection with any of these systems.

(4) "Heating, ventilation and air conditioning journeyman" means any person who, as his principal occupation, is engaged in the installation, improvement, extension, alteration or repair of HVAC systems and who is familiar with the provisions of this chapter and who works in the employ and under direction of an HVAC contractor.

(5) "Heating, ventilation and air conditioning specialty apprentice including specialty limited heating apprentice" means any person who, as his principal occupation, is engaged in learning and assisting in a specific aspect of installation, improvement, extension, alteration or repair of HVAC systems that includes, but is not limited to, such aspects as gas piping, gas appliances and installation, or decorative gas-fired appliances. A specialty apprentice shall perform HVAC work under the supervision of an HVAC journeyman, HVAC specialty journeyman, HVAC contractor or an HVAC specialty contractor.

(6) "Heating, ventilation and air conditioning specialty contractor including specialty limited heating contractor" means any person who, as his principal occupation, is engaged in a specific aspect of the heating, ventilation and air conditioning trade that includes, but is not limited to, such aspects as gas piping, gas appliances and installation, or decorative gas-fired appliances.

(7) "Heating, ventilation and air conditioning specialty journeyman including specialty limited heating journeyman" means any person who, as his principal occupation, is engaged in a specific aspect of installation, improvement, extension, alteration or repairing of HVAC systems that includes, but is not limited to, such aspects as gas piping, gas appliances and installation, or decorative gas-fired appliances. A specialty journeyman is familiar with the

provisions of this chapter and works in the employ and under direction of an HVAC contractor or an HVAC specialty contractor.

(8) "Heating, ventilation and air conditioning system" means any heating, ventilation or air conditioning system in a residential, private, public or semipublic building or structure including, but not limited to, any mechanical means of heating or air conditioning and to gas piping, venting, ductwork and controls.

(9) "Local government" means any incorporated city or any county in the state.

(10) "Specialty limited heating" as it applies to the definitions of "heating, ventilation and air conditioning specialty apprentice," "heating, ventilation and air conditioning specialty contractor" and "heating, ventilation and air conditioning specialty journeyman" means any person who installs, maintains, services and repairs LP gas fired appliances, LP fuel gas piping and related exhaust venting. This definition of specialty limited heating shall exclude boilers, hydronic systems, ducted forced air systems, ventilating and air conditioning systems, systems with a BTU input rating over three hundred thousand (300,000), solid fuel and electric fueled systems. A "specialty limited heating journeyman" is required to meet the experience requirement and either the education or examination requirement set forth in this section to receive a certificate of competency. The education of a "specialty limited heating journeyman" shall include one hundred twenty (120) hours of instruction approved by the board of professional-technical education in LP gas specialty education. The experience requirement of a "specialty limited heating journeyman" shall be two (2) years' experience working in the trade, in compliance with the requirements of the state in which the applicant received his supervision or as a registered HVAC apprentice or registered HVAC specialty apprentice making HVAC installation on the job under the supervision of a qualified HVAC journeyman or qualified HVAC specialty journeyman. The examination required in this section shall be developed by the board of professional-technical education and approved by the Idaho heating, ventilation and air conditioning board.

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 05a Gas Meters-1" Minimum Stub Outs-IDAPA 07.07.01.005.01(f)

PRESENTER: Jerry Peterson

OBJECTIVE: Remove section 405.2 from IDAPA 07.07.01.005 "Adoption and Incorporation by Reference of the International Fuel Gas Code, 2009 Edition".

ACTION: Vote to accept, reject, or modify the proposed rule change

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BACKGROUND: In early 2011, Jerry Peterson met with interested parties to determine the best practices to install CSST. It was the consensus at the Ketchum meeting, and at the February 2011 HVAC Board meeting, to require a 1" minimum metallic pipe be stubbed out from the house or building to the meter.

Currently, IDAPA 07.07.01.005.01(f) "405.2 Point of Termination" is not valid or relevant as there is nothing in the International Fuel Gas Code (IFGC) in regards to termination. Plumbers reference the Uniform Plumbing Code (UPC) to install fuel piping. Since plumbers are covered by the UPC and HVAC installers are not covered under the IFGC, the solution would be to delete the existing reference to code and add similar language to the UPC requiring a minimum of 1" rigid piping.

At the May 2011 meeting, Jerry Peterson brought forth a proposed rule change to remove IDAPA 07.07.01.005.01(f) "405.2. Point of Termination". The existing rule states it is under the adoption and incorporation by reference of the International Fuel Gas Code (IFGC), 2009 edition; however, there is nothing in the IFGC with regard to termination.

ATTACHMENTS: IDAPA 07.07.01.005.01(f)

IDAPA 07

TITLE 07

CHAPTER 01

005. ADOPTION AND INCORPORATION BY REFERENCE OF THE INTERNATIONAL FUEL GAS CODE, 2009 EDITION.

01. International Fuel Gas Code. The 2009 Edition, including appendixes "A, B, C, and D," (herein IFGC) is adopted and incorporated by reference with the following amendments: (4-7-11)

a. Where differences occur between the IFGC and Title 54, Chapter 50, Idaho Code and IDAPA 07, Title 07, the provisions in Idaho Code and IDAPA rules shall apply. (4-11-06)

b. All references to the International Plumbing Code (IPC) shall be construed as referring to the Uniform Plumbing Code (UPC) as adopted and amended by the Idaho State Plumbing Board. (4-11-06)

c. All references to the International Code Council Electrical Code (ICC EC) shall be construed as referring to the National Electrical Code (NEC) as adopted and amended by the Idaho State Electrical Board. (4-11-06)

d. Section 109. Delete. (7-1-10)

~~**e.** 405.1. Installation in Areas of Heavy Snowfall. In areas where heavy snowfall is anticipated, piping, regulators, meters, and other equipment installed in the piping system shall be protected from physical damage, including falling, moving, or migrating snow and ice. If an added structure is used for protection, it must provide access for service and comply with local building codes. (7-1-10)~~

~~**f.** 405.2. Point of Termination. Gas piping stubbed out for a meter or regulator connection shall be a minimum of three (3) feet horizontally from any building opening, and not less than five (5) feet horizontally from any source of ignition, opening to direct vent (sealed combustion system) appliance, or mechanical ventilation air intakes. (7-1-10)~~

~~**g**~~**e.** Section 406.4. Change the last sentence to: Mechanical gauges used to measure test pressure shall have a range such that the highest end of the scale is not greater than two (2) times the test pressure nor lower than one and one-half (1.5) times the test pressure. (4-11-06)

~~**h**~~**f.** Section 406.4.1. Test Pressure. Not less than twenty (20) psig (140kPa gauge) test pressure shall be required for systems with a maximum working pressure up to ten (10) inches water column. For systems with a maximum working pressure between ten (10) inches water column and ten (10) psig (70kPa gauge); not less than sixty (60) psig (420kPa gauge) test pressure shall be required. For systems over ten (10) psig (70kPa gauge) working pressure, minimum test pressure shall be no less than six (6) times working pressure. (4-11-06)

~~**i**~~**g.** Section 406.4.2. The test duration shall not be less than twenty (20) minutes. (4-11-06)

~~j~~**h.** Section 408.4. Sediment Trap. Delete the last sentence and replace it with the following: Illuminating appliances, ranges, clothes dryers, outdoor grills, decorative vented appliances for installation in vented fireplaces, and gas fireplaces need not be so equipped. (4-7-11)

~~k~~**i.** Section 505.1.1. Addition. An interlock between the cooking appliance and the exhaust hood system shall not be required for appliances that are of the manually operated type and are factory equipped with standing pilot burner ignition systems. (4-11-06)

02. Availability of the International Fuel Gas Code. The 2009 Edition is available at the Division of Building Safety offices located at 1090 E. Watertower St., Meridian, Idaho 83642, 1250 Ironwood Dr., Ste. 220, Coeur d'Alene, Idaho 83814, and 2055 Garrett Way, Ste. 7, Pocatello, Idaho 83201. (4-7-11)

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 05b Gas Meters-Snow & Ice Protection-07.07.01.005.01(e)

PRESENTER: Jerry Peterson

OBJECTIVE: Remove section 405.1 from IDAPA 07.07.01.005 "Adoption and Incorporation by Reference of the International Fuel Gas Code, 2009 Edition".

ACTION: Vote to accept, reject, or modify the proposed rule change

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BACKGROUND: At the May 2011 meeting, Jerry Peterson presented a proposed rule change to remove IDAPA 07.07.01.005.01(e) "405.1. Installation in Areas of Heavy Snowfall" as it is invalid and irrelevant. Meter and meter protection are the jurisdiction of the utility companies. Thus, the Board and DBS should not try to interpret something on a multijurisdictional level that is not clearly defined and not under their jurisdiction.

PROCEDURAL HISTORY:

ATTACHMENTS: IDAPA 07.07.01.005.01(e)

IDAPA 07

TITLE 07

CHAPTER 01

005. ADOPTION AND INCORPORATION BY REFERENCE OF THE INTERNATIONAL FUEL GAS CODE, 2009 EDITION.

01. International Fuel Gas Code. The 2009 Edition, including appendixes "A, B, C, and D," (herein IFGC) is adopted and incorporated by reference with the following amendments: (4-7-11)

a. Where differences occur between the IFGC and Title 54, Chapter 50, Idaho Code and IDAPA 07, Title 07, the provisions in Idaho Code and IDAPA rules shall apply. (4-11-06)

b. All references to the International Plumbing Code (IPC) shall be construed as referring to the Uniform Plumbing Code (UPC) as adopted and amended by the Idaho State Plumbing Board. (4-11-06)

c. All references to the International Code Council Electrical Code (ICC EC) shall be construed as referring to the National Electrical Code (NEC) as adopted and amended by the Idaho State Electrical Board. (4-11-06)

d. Section 109. Delete. (7-1-10)

~~**e.** 405.1. Installation in Areas of Heavy Snowfall. In areas where heavy snowfall is anticipated, piping, regulators, meters, and other equipment installed in the piping system shall be protected from physical damage, including falling, moving, or migrating snow and ice. If an added structure is used for protection, it must provide access for service and comply with local building codes. (7-1-10)~~

~~**f.** 405.2. Point of Termination. Gas piping stubbed out for a meter or regulator connection shall be a minimum of three (3) feet horizontally from any building opening, and not less than five (5) feet horizontally from any source of ignition, opening to direct vent (sealed combustion system) appliance, or mechanical ventilation air intakes. (7-1-10)~~

~~**g**~~**e.** Section 406.4. Change the last sentence to: Mechanical gauges used to measure test pressure shall have a range such that the highest end of the scale is not greater than two (2) times the test pressure nor lower than one and one-half (1.5) times the test pressure. (4-11-06)

~~**h**~~**f.** Section 406.4.1. Test Pressure. Not less than twenty (20) psig (140kPa gauge) test pressure shall be required for systems with a maximum working pressure up to ten (10) inches water column. For systems with a maximum working pressure between ten (10) inches water column and ten (10) psig (70kPa gauge); not less than sixty (60) psig (420kPa gauge) test pressure shall be required. For systems over ten (10) psig (70kPa gauge) working pressure, minimum test pressure shall be no less than six (6) times working pressure. (4-11-06)

~~**i**~~**g.** Section 406.4.2. The test duration shall not be less than twenty (20) minutes. (4-11-06)

~~j~~**h.** Section 408.4. Sediment Trap. Delete the last sentence and replace it with the following: Illuminating appliances, ranges, clothes dryers, outdoor grills, decorative vented appliances for installation in vented fireplaces, and gas fireplaces need not be so equipped. (4-7-11)

~~k~~**i.** Section 505.1.1. Addition. An interlock between the cooking appliance and the exhaust hood system shall not be required for appliances that are of the manually operated type and are factory equipped with standing pilot burner ignition systems. (4-11-06)

02. Availability of the International Fuel Gas Code. The 2009 Edition is available at the Division of Building Safety offices located at 1090 E. Watertower St., Meridian, Idaho 83642, 1250 Ironwood Dr., Ste. 220, Coeur d'Alene, Idaho 83814, and 2055 Garrett Way, Ste. 7, Pocatello, Idaho 83201. (4-7-11)

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 06 **Housekeeping –Rule Changes**

PRESENTER: Jerry Peterson

OBJECTIVE: Review and approve housekeeping changes addressed in IDAPA 07.07.01 "Rules Governing Installation of Heating, Ventilation, and Air Conditioning Systems, Division of Building Safety".

ACTION: Vote to accept, reject, or modify the proposed and rule changes

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BACKGROUND: DBS staff has diligently been working to update IDAPA 07.07.01

PROCEDURAL HISTORY:

ATTACHMENTS: 07.07.01.02.b "Inspection Tags for Unacceptable HVAC Installations"
07.07.01.021.01 and 07.07.01.022.01 "Bond"

IDAPA 07

TITLE 07

CHAPTER 01

07.07.01 - RULES GOVERNING INSTALLATION OF HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS, DIVISION OF BUILDING SAFETY

000. LEGAL AUTHORITY.
This chapter is adopted in accordance with Sections 54-5001 and 54-5005(2), Idaho Code. (4-11-06)

[OMMITTED RULE TEXT]

060. REQUIRED INSPECTIONS. All work performed under a HVAC permit shall be inspected by a designated, qualified, properly identified agent of the authority having jurisdiction to ensure compliance with Title 54, Chapter 50, Idaho Code, and IDAPA 07.07.01. (3-16-04)

01. Request for Division of Building Safety Inspection. (3-16-04)

a. Inspection. Each permit holder shall notify the Division at least one (1) day prior to the desired inspection, Sundays and holidays excluded, that the project is ready for inspection. (3-16-04)

b. Reinspection. If a reinspection is required after the final inspection, due to a failure to meet requirements of Title 54, Chapter 50, Idaho Code, and/or these rules, the permit holder will be charged a fee not to exceed the actual cost of each reinspection. (3-16-04)

02. Inspection Tags. Inspectors certify to the permit holder that an inspection has been done by securely attaching the inspection tag in a prominent location. (5-8-09)

a. Final Inspection Tags. An inspection tag indicating that a final inspection has been performed is attached when the HVAC installation as specified on the permit is complete and conforms to the requirements of the code and rules. (5-8-09)

b. Inspection Tags for Unacceptable HVAC Installations. ~~Red colored "unacceptable"~~ "Notice of Correction" inspection tags are attached to indicate that the HVAC installation is not acceptable and that corrections are required. (3-16-04)

c. Work-in-Progress Tag. An inspection tag indicating that a work-in-progress inspection has been performed is attached following inspection of ground work, rough-in work, or any portion of the installation that is to be covered or otherwise concealed before completion of the entire HVAC installation as specified on the permit. (5-8-09)

061. -- 069. (RESERVED).

[ADDITIONAL RULE TEXT FOLLOWS]

IDAPA 07

TITLE 07

CHAPTER 01

07.07.01 - RULES GOVERNING INSTALLATION OF HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS, DIVISION OF BUILDING SAFETY

000. LEGAL AUTHORITY.
This chapter is adopted in accordance with Sections 54-5001 and 54-5005(2), Idaho Code. (4-11-06)

[OMMITTED RULE TEXT]

020. HVAC CONTRACTOR AND HVAC JOURNEYMAN APPLICATIONS FOR EXAMINATION AND CERTIFICATES OF COMPETENCY, AND REGISTRATION OF APPRENTICES. Application forms for HVAC contractor, HVAC specialty contractor, HVAC journeyman, and HVAC specialty journeyman examinations or certificates of competency and for HVAC apprentice or HVAC specialty apprentice registrations, shall be printed and made available by the administrator. (4-11-06)

01. Application Forms. All applications for certificates and all applications for registration shall be submitted on forms provided by the administrator and shall be properly completed, giving all pertinent information, and all signatures shall be notarized. (3-16-04)

02. Application, Renewal, and Registration Fees. Fees for applications for examination, certificates of competency, renewal of certificates, and fees for apprentice registration shall be as set forth in Section 54-5012, Idaho Code. (3-16-04)

03. Application Submission. All applications shall be submitted to the board and shall be approved by an administrator before any examination may be taken and before any certificate of competency is issued. (3-16-04)

021. HVAC CONTRACTOR CERTIFICATE OF COMPETENCY - REQUIREMENTS.

01. Bond. Applicants shall provide a ~~performance~~ compliance bond in the amount of two thousand dollars ($2,000). Any such bond is required to be effective for the duration of the licensing period. (3-16-04)

02. Qualification. Applicants shall provide proof, satisfactory to the board, of having legally acted as an HVAC journeyman for a period of not less than twenty-four (24) months. (3-16-04)

03. Examination. Applicants for certification as HVAC contractors must successfully complete the examination designated by the board. (3-16-04)

022. HVAC SPECIALTY CONTRACTOR CERTIFICATE OF COMPETENCY - REQUIREMENTS.

01. Bond. Applicants shall provide a ~~performance~~ compliance bond in the amount of two thousand dollars ($2,000). Any such bond is required to be effective for the duration of the licensing period. (3-16-04)

02. Qualification. Applicants shall provide proof, satisfactory to the board, of having legally acted as an HVAC specialty journeyman for a period of not less than twenty four (24) months. (3-16-04)

03. Examination. Applicants for certification as HVAC specialty contractors must successfully complete the examination designated by the board. (3-16-04)

[ADDITIONAL RULE TEXT FOLLOWS]

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 07 **HVAC Curriculum Review**

PRESENTER: Chris Miller, CWI

OBJECTIVE: To approve the proposed HVAC apprenticeship curriculum revised in June 2011

ACTION: Informational

BACKGROUND: In 2005, PTE organized a group to create the new HVAC curriculum for the state of Idaho. The committee included HVAC teachers and program managers from the PTE schools & private schools from around the state, HVAC & Sheet Metal industry representatives, Sheet Metal Union representatives, and agency personnel. A curriculum outline was created and approved by the HVAC Board. After piloting the program for one year, the curriculum outline was changed and again approved by the HVAC Board. All schools have agreed to deliver the subject areas and minimum hours on the curriculum; however, not necessarily in the order written.

The proposed curriculum was written by Chris Miller with CWI and includes objectives. The originally approved subject areas or hours have not changed.

PROCEDURAL HISTORY:

ATTACHMENTS: Existing and Proposed HVAC Apprenticeship Curriculums

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Heating, Ventilation, Air Conditioning Apprenticeship Program (HVAC)
State of Idaho PTE
Developed June, 2005

REQUEST TO HVAC BOARD
FOR CURRICULUM REVISION APPROVAL
November 30, 2007
May 27, 2008

HVAC Year One
Total Minimum Hours – 144

- Basic math – Module 1
  12 hours
  - Whole numbers
  - Addition and subtraction
  - Fractions
  - Decimals
  - Measurement of
    - Lines
    - Area
    - Volume
    - Weights
    - Angles
    - Pressure
    - Vacuum
    - Temperature
  - Trade related math – 6 hours

- Basic safety, hand and power tools – Module 2
  18 hours
  - Ladders and stairs
  - Fall protection
  - Electrical – lockout-tagout
  - Tools
    - Hand
    - Power
  - Materials
    - Use
    - Handling
    - Storage
  - Cranes
  - Scaffolds
  - Trenching / excavation
  - Personal protective equipment
  - Performance of basic construction tasks safely
  - What to do in case of an accident
  - Confined spaces
  - Basic rigging
  - MSDS
  - Basic hand and power tools
  - Purpose and use of
    - Wrenches
    - Saws
    - Hammers

        - Drills
        - Measuring instruments
        - Instructions on safe use and maintenance
        - Oxy acetylene torches

- Fuel piping and venting – Module 3
  60 hours
    - Installation of fuel piping according to code and industry standards
    - Installation of venting according to code and industry standards
    - Installation of combustion air according to code and industry standards
    - Installation of make up air according to code and industry standards
    - IFGC
    - Solid fuels
    - Gas
    - Oil

- Energy sources – Module 4
  9 hours
    - Principles of different fuel sources
    - Electric
    - Oil
    - Gas / LP
    - Hydro / water / geothermal

- Basic systems overview – Module 5
  12 hours
    - Drives and connections
    - Types of ducts
    - Types of returns
    - HVAC components
    - Types of equipment

- Introduction to code – Module 6
  9 hours
    - How to access information related to HVAC industry
    - (International Fuel Gas Code will be covered in the Fuel Gas Module)
    - International Mechanical Code
    - National Electrical Code
    - International Residential Code

- Intro to applied science – Module 7
  24 hours
    - Properties and characteristic of magnetism and pressure and their measurement
    - Theory of atoms
    - Pressure
    - Vacuum
    - Basic elements
    - Applied math – 6 hours

- Customer Service – Module 8
  3 hours
    - Cleanliness
        - Site
        - Personal
    - Industry paperwork

- Professional appearance
- Timeliness
- Work ethic
- Communication skills

HVAC Year Two
Total Minimum Hours – 144

- Appliance installation – Module 1
  24 hours
  - Installation of fuel source heating appliances
  - Lighting
  - Electrical
  - Clearances
  - Access
  - Reading manufacturers' engineering specifications
  - Water heaters

- Introduction to blueprints and specifications – Module 2
  24 hours
  - Introduction of how plans represent finished building
  - Parts of blueprints
    - Symbols
    - Gridlines
  - Submittals
  - Construction basics
  - Blueprints specific to HVAC

- Basic electricity – Module 3
  60 hours
  - Power generation and distribution
  - Applied math – 9 hours integrated throughout topic
  - Electrical components
  - DC circuits
  - AC circuits
  - Branch circuits
  - Series and parallel circuits
  - Current flow
  - Electrical safety
  - Engineering notation
  - Motors
  - Metric system conversion
  - Fusing / disconnects
  - Wire sizing and types
  - Meter use
  - Ohm's law
  - Identification of common electrical components

- Indoor air quality – Module 4
  15 hours
  - Introduction to indoor air quality, effects on health and comfort
  - Guideline for IAW survey
  - Equipment and methods for testing and achieving good indoor air quality
  - Ventless heaters

- UV lighting

- Residential Load Calculations – Module 5
  21 hours
  - Calculation to determine heat gain / loss

HVAC Year Three
Total Minimum Hours – 144

- Basic controls – Module 1
  30 hours
  - Circuit diagram analysis for electrical and microprocessor-based controls
  - Electro-mechanical
  - Schematic fundamentals
  - Control theory
  - Solid state components

- System air flow and duct sizing – Module 2
  30 hours
  - Calculate air flow / distribution
  - Calculate load
  - Duct sizing
  - Equipment sizing

- Basic air condition and refrigeration – Module 3
  30 hours
  - Heat transfer
  - Refrigeration
  - Pressure / temperature relationship
  - Description of air conditioning components and accessories
  - HVAC specific tools
  - Basic refrigeration cycle
  - Refrigerant recovery
  - Types and characteristics of refrigerants
  - Basic components
  - Equipment efficiencies (relating to new standards)
  - Refrigeration welding

- Introduction to Hydronics – Module 4
  6 hours
  - Operating principles
  - Piping systems
  - Preventative maintenance
  - Components
  - System overview

- Basic sheet metal – Module 5
  39 hours
  - Sheet metal ducting layout and design
  - Basic duct work fabrication
  - SMACNA standards
  - Introduction to sheet metal process
  - Build fittings
  - Principles of layout

- Soldering / welding

- Introduction to service – Module 6
  9 hours
  - System evaluation
    - Superheat
    - Subcool
  - Lubrication
  - Changing filters
  - Cleaning coils
  - Cleaning blowers
  - Cleaning condensate drains
  - Heating and cooling equipment maintenance

HVAC Year Four
Total Minimum Hours – 144

- Introduction to testing and air balance – Module 1
  12 hours
  - Air properties, psychrometric principles and charts
  - Air balance tools, instruments and testing methods

- Introduction to HVAC control strategies – Module 2
  6 hours
  - Introduction to pneumatic controls
  - Introduction to direct digital controls

- Advanced air conditioning and heat pumps – Module 3
  39 hours
  - Heat pumps
  - Commercial cooling components and operation
  - Evaporative coolers
  - DX systems
  - Chillers

- Advanced service – Module 4
  24 hours
  - Troubleshooting
    - Instrumentation
    - Air side
    - Hydronic
    - Electrical
    - Combustion
    - Refrigeration
    - Controls
  - Heating and cooling advanced service and repair (from original list)
  - Overview of industry certifications (that apprentices are prepared to take at this time)

- System integration and design (Project format) – Module 5
  12 hours
  - Compilation of all HVAC installation instruction (from original list)
  - Design
  - Installation
  - Operation

- Code review – Module 6
  42 hours
  - Review of current codes

- Project management – Module 7
  9 hours
  - Personnel management
  - Communication skills
  - Materials management
  - Resource scheduling
  - Cost management awareness
  - Inter-trade relations
  - Work ethics

HVAC Apprenticeship Curriculum

Revised June 2011
College of Western Idaho
in cooperation with
Idaho State Division of Professional Technical Education

HVAC Year One
Total Hours: Minimum = **144**
CWI = **165**

- Basic math – Module 1
  Minimum: 12 hours, CWI: 30 hours
  - Whole numbers
  - Addition and subtraction
  - Fractions
  - Decimals
  - Measurement of
    - Lines
    - Area
    - Volume
    - Weights
    - Angles
    - Pressure
    - Vacuum
    - Temperature
  - Trade related math

  Objectives:
  Perform addition, subtraction, multiplication, and division calculations of whole numbers
  Perform addition and subtraction calculations of common fractions
  Perform multiplication and division calculations of common fractions
  Perform addition, subtraction, multiplication, and division calculations of decimal fractions
  Perform ratio and proportion calculations
  Perform percent, percentage, and discount calculations
  Perform angular, length, and converted temperature measure calculations
  Perform area calculations
  Perform volume calculations
  Perform estimates and billing calculations

- Basic Safety Hand and Power Tools – Module 2
  Minimum: 18 hours, CWI: 18 hours
  - OSHA 10 hour construction training
  - Tools
    - Basic hand and power tools
    - Soldering and brazing

  Objectives:
  Describe potential excavation site hazards (1hr)
  Explain proper personal protective equipment use (1hr)
  Describe proper material handling, storage, use, and disposal
  Describe ladder, stairway and scaffold hazards and proper use
  Describe jobsite electrical hazards and proper lockout/tagout use
  Describe proper refrigerant and pressure vessel usage and storage
  Identify MSDS properties for refrigerants (1hr)
  Describe proper hand and power tool use

Describes soldering and brazing methods

- Fuel gas piping and venting – Module 3
  Minimum: 60 hours, CWI: 60 hours
  - Installation of fuel piping according to code and industry standards
  - Installation of venting according to code and industry standards
  - Installation of combustion air according to code and industry standards
  - Installation of make- up air according to code and industry standards
  - IFGC requirements

  Objectives:
  Identify International Code administrative and enforcement rules
  Define key terms as applied to the IFGC
  Describe the building structural safety requirements for fuel gas equipment installation
  Examine fuel gas equipment combustion, ventilation and dilution air requirements
  Identify fuel gas equipment location, access and service space requirements
  Describe proper appliance condensate disposal and clearance reduction methods
  Perform gas pipe sizing exercises
  Identify proper gas pipe installation methods
  Describe proper gas pipe inspection, testing and purging procedures
  Describe chimney and vent types and construction
  Examine chimney installation requirements
  Examine gas vent installation requirements
  Describe gas appliance category I, II, III and IV characteristics
  Identify proper gas vent connector installation requirements
  Describe category I venting principals
  Perform single appliance category I vent sizing exercises
  Perform multiple appliance category I vent sizing exercises
  Determine capacity penalties for offsets in common vent and vent connectors
  Examine specific fuel gas appliance installation requirements
  Describe mechanical equipment location, access and service space requirements

- Introduction to code – Module 4
  Minimum: 6 hours, CWI: 9 hours
  How to access information related to HVAC industry
  - Idaho Code and Administrative rules
  - International Mechanical Code

  Objectives:
  Describe Idaho HVAC code and Administrative Rules requirements
  Identify International Mechanical Code general chapter requirements
  List International Mechanical Code HVAC specific equipment sections

- Energy sources – Module 5
  Minimum: 9 hours, CWI: 9 hours
  - Principles of different fuel sources
  - Fuel Oil
  - Electric
  - Gas / LP
  - Hydro / geothermal*
  - Wind / solar*

  Objectives:
  Explain natural, LP gas, and fuel oil combustion characteristics
  Describe the development and application of geothermal heat pump systems
  Describe the development and application of renewable energy systems

- Basic systems overview – Module 6
  Minimum: 12 hours, CWI: 12 hours
  - Warm air furnaces
  - Split system air conditioners
  - Commercial air conditioning systems
  - Forced air duct systems

  Objectives:
  Describe mid-efficiency and high efficiency furnace operation
  Describe the typical configuration of residential split air conditioning systems
  List the various types of commercial air conditioning systems and their application
  Describe the configuration of four common duct systems

- Intro to applied science – Module 7
  Minimum: 24 hours, CWI: 24 hours
  - History of HVAC/R
  - Temperature measurement and conversion
  - Thermodynamics
  - Pressure / vacuum
  - Refrigeration cycle and components
  - Basic elements of matter
  - *Applied math* – 6 hours

  Objectives:
  Describe a brief modern history of HVAC
  Describe energy types and their properties
  Perform energy conversion calculations
  Perform sensible, latent and total heat calculations
  Differentiate between saturated, superheated, and subcooled refrigerant
  Explain atmospheric, absolute, and gauge pressure relationship
  Convert gauge pressure, absolute pressure and vacuum
  Diagram a basic refrigeration cycle identifying pressure, temperature and state of refrigerant
  List the type and function of the four major refrigeration components

- Customer Service – Module 8
  Minimum: 3 hours, CWI: 3 hours
  - Cleanliness
    - Site
    - Personal
  - Professional appearance
  - Timeliness
  - Work ethic
  - Communication skills

  Objectives:
  Describe good customer communication procedures

HVAC Year Two
Total Hours: Minimum = **144**
CWI = **156**

- Appliance installation – Module 1
  Minimum hours: 24, CWI hours: 24
  - Oil and fuel gas appliance installation

- Split and packaged air conditioning system installation
- Forced-air system installation
- NEC – electrical code as applied to HVAC installation
- IFGC, IMC, IRC code requirements for HVAC installation

Objectives:

Explain HVAC electrical branch circuit sizing and installation factors
Interpret HVAC manufacturer electrical name plate data
Explain combustion air and venting requirements for Category I, III and IV appliances
Describe gas appliance installation, start-up and checkout procedures
Describe oil appliance installation, start-up and checkout procedures
Describe sheet metal, fiberglass and flex duct installation procedures
Identify split and packaged air conditioning unit components
Explain split and packaged air conditioning unit installation guidelines

- Introduction to blueprints and specifications – Module 2

Minimum hours: 24, CWI hours: 24

- Site plans, floor plans and elevation drawings
- Mechanical, plumbing and electrical drawings
- Specifications
- Shop drawings and submittals
- Takeoff procedures
- As-built drawings

Objectives:

Read blueprints and architect plans
Interpret mechanical, plumbing and electrical drawings
Interpret specification documents and apply to plans
Interpret shop drawings and apply to plans and specifications
Describe a submittal and its derivation, routing and makeup
Develop cut lists for duct runs from shop drawings
Interpret as-built modifications on HVAC mechanical plans
Perform an HVAC equipment and material takeoff

- Basic electricity – Module 3

Minimum hours: 60, CWI hours: 60

- Basic electrical theory
- Electrical safety
- Series and parallel circuits
- AC and DC theory
- HVAC electrical control devices
- HVAC electrical load devices
- HVAC electrical schematic diagrams
- Power generation and distribution
- HVAC branch circuits
- Applied math – 9 hours integrated
  - Ohm's Law
  - Engineering notation
- Single-phase, three-phase and ECM Motors
- Single-phase motor starting components

Objectives:

Examine basic electrical theory
Explain series circuit characteristics
Explain parallel circuit characteristics
Calculate electrical circuit values

Analyze series/parallel circuits
Describe electrical meter operation
Measure electrical circuit values
Identify electrical symbols
Draw basic HVAC electrical circuit diagrams
Interpret basic HVAC schematic diagrams
Interpret advanced HVAC schematic diagrams
Explain AC circuit characteristics
Describe power distribution transformer systems
Calculate HVAC branch circuit conductor, breaker and disconnect sizes
Examine basic motor theory
Draw single phase motor diagrams
Explain single-phase motor starting relay operation
Calculate motor capacitor replacement values
Explain three-phase motor operation
Explain ECM motor operation

- Indoor air quality – Module 4
  Minimum hours: 15, CWI hours: 15
  - Pollutants and pollutant pathways
  - Prevention, control and remediation strategy
  - Tools and testing
  - Energy recovery ventilation systems*
  - Filters and humidifiers*
  - IAQ checklists
  - Home energy/IAQ evaluation*

  Objectives:
  Describe indoor air quality factors as related to HVAC
  Identify various indoor air quality pollutant and pollutant pathways
  Describe indoor air quality evaluation and measurement tools
  Explain appropriate prevention, control and resolution strategies for IAQ issues
  Determine guidelines for involving professionals in IAQ issues

- Residential load calculation – Module 5
  Minimum hours: 21, CWI hours: 33 hours
  - Calculations to determine residential heat gain / loss*

  Objectives:
  Examine importance of heat load calculation in building design
  Differentiate sensible, latent and total heat gain/loss
  Determine U values and R values for various building construction components
  Calculate Btu gain/loss values using HTM and temperature difference factors
  Determine heating and cooling load temperature difference and daily range values
  Explain the relationship between house orientation and solar heat gain
  Perform building component area and volume calculations from blueprints
  Perform winter/summer infiltration calculations using Manual J procedures
  Perform heat gain calculations using Manual J procedures
  Perform heat loss calculations using Manual J procedures
  Determine sensible, latent and total heat house block and room values

HVAC Year Three
Total Hours: Minimum = **144**
CWI = **168**

- Basic controls – Module 1
  Minimum: 30 hours, CWI: 39 hours
  - Basic electro-mechanical control devices
  - Gas, oil, electric and hydronic heating controls
  - Manufacturer wiring diagram analysis
  - Troubleshooting electric control devices
  - Residential air conditioning control systems
  - Commercial and industrial air conditioning control systems
  - Electronic control devices
  - Electronic control module troubleshooting procedures

  Objectives:
  Explain contactor, relay and overload operation
  Explain thermostat, pressure switch and transformer operation
  Describe standing pilot gas burner control systems
  Describe intermittent and direct ignition gas burner control systems
  Examine gas furnace manufacturer wiring diagrams
  Explain oil furnace primary control operation
  Describe electric furnace operating sequence
  Describe hydronic heating system controls
  Perform gas, oil and electric heating control system troubleshooting procedures
  Describe motor circuit troubleshooting procedures
  Examine packaged and split air conditioning systems wiring diagrams
  Identify commercial and industrial air conditioning system control methods
  Describe basic electronic control system troubleshooting procedures

- System air flow and duct sizing – Module 2
  Minimum: 30 hours, CWI: 30 hours
  - Basic principles of air flow
  - Air distribution system components
  - Air distribution system application and configuration
  - Air flow calculation
  - Primary equipment selection using Manual J and Manual S*
  - Secondary equipment selection using manufacturer tables
  - Basic duct system layout from floor plans
  - Duct system sizing using Manual D*

  Objectives:
  Describe basic air flow characteristics
  Explain duct system pressures
  Calculate duct system air flow
  Determine proper air flow requirements
  Describe air distribution system configurations
  Select primary heating/cooling equipment using Manual J and Manual S data
  Determine air-side component pressure drops from manufacturer tables
  Sketch a residential duct system layout using a home floor plan and Manual D tables
  Complete Manual D effective length, friction rate and duct sizing worksheets
  Perform Manual D duct sizing exercises
- Basic air conditioning and refrigeration – Module 3
  Minimum: 30 hours, CWI: 39 hours
  - Thermodynamics and heat transfer principals
  - Refrigeration cycle operating principals
  - Pressure / temperature relationship
  - Refrigeration system components and operation
  - Refrigerant properties and characteristics

- Refrigerant oils – types and application
- Refrigeration system access tools and procedures
- Refrigerant management- EPA Section 608*
- Refrigeration system recovery, evacuation and charging procedures

Objectives:

Explain latent, sensible and total heat differences
Diagram refrigeration cycle conditions and components
Explain pressure-enthalpy diagrams
Examine compressor design and efficiency
Explain water/air-cooled condenser operation and performance
Examine metering device design and operation
Describe evaporator types
Identify proper refrigerant line sizing and installation practices
Explain various refrigerant physical and chemical properties
Explain refrigerant oil properties and application
Describe proper refrigeration system access procedures
Differentiate between recovered, recycled and reclaimed refrigerant
Explain proper refrigerant recovery, evacuation and charging procedures

- Introduction to Hydronics – Module 4

Minimum: 6 hours, CWI: 12 hours

- Operating principles
- Piping systems
- Preventative maintenance
- Components
- System overview

Objectives:

Identify hydronic piping system types
Describe hydronic heating system components
Explain hydronic heating systems drain and fill procedures
Diagram basic hydronic heating system control circuits

- Basic sheet metal – Module 5

Minimum: 39 hours, CWI: 33 hours

- Sheet metal layout and processes
- Parallel line development and fabrication
- Radial line development and fabrication
- Triangulation development and fabrication
- Layout and fabricate various duct fittings

Objectives:

Define basic sheet metal layout terms
Explain three methods of sheet metal layout development
Explain parallel line development procedures
Layout and fabricate the following sheet metal fittings: Pittsburgh seam and square elbow
Layout and fabricate the following sheet metal fitting: 90 degree elbow and transition
Explain radial line development procedures
Layout and fabricate the following sheet metal fitting: symmetrical tapered duct
Layout and fabricate the following sheet metal fitting: square to square tapered duct
Explain triangulation development procedures
Layout and fabricate the following sheet metal fitting: two-way offset transition
Layout and fabricate the following sheet metal fitting: tapered duct section

- Introduction to service – Module 6

Minimum: 9 hours, CWI: 15 hours
- Air conditioning mechanical, electrical and refrigeration system analysis
- Gas heating system mechanical, electrical and combustion analysis
- Oil heating system mechanical, electrical and combustion analysis
- Electric heating system mechanical and electrical analysis
- Heating and cooling equipment maintenance procedures*

Objectives:

Describe air conditioning system problems and prescribe corrections
Describe gas heating system problems and prescribe corrections
Describe oil heating system problems and prescribe corrections
Describe electric heating system problems and prescribe corrections
List gas, oil and electric heating and air conditioning maintenance procedures

HVAC Year Four

Total Hours: Minimum = **144**
CWI = **162**

- Introduction to Testing and Balancing – Module 1

  Minimum: 12 hours, CWI: 12 hours
  - Psychrometrics – Fundamentals of the Properties of Air
  - Psychrometrics – Calculating the Performance of HVAC Equipment
  - Testing and Balancing Tools*
  - Basic Air & Water Testing and Balancing Procedures*

  Objectives:

  Explain psychrometric properties
  Diagram psychrometric conditions
  Describe air flow and water flow measuring devices
  Explain basic air flow and water flow balancing procedures

- Introduction to HVAC Control Strategies – Module 2

  Minimum: 6 hours, CWI: 6 hours
  - HVAC Systems & Control Basics
  - Electric Control Systems
  - Pneumatic & DDC Control Systems

  Objectives:

  Describe basic HVAC control principals
  Interpret basic HVAC pneumatic control diagrams
  Explain DDC control system basic operation

- Advanced Air Conditioning and Heat Pump Systems – Module 3

  Minimum: 39 hours, CWI: 42 hours
  - Commercial Air Conditioning Systems
  - Packaged Unit Air Handling Systems
  - Water Chillers
  - Cooling Towers
  - Basic Heat Pump Theory
  - Heat Pump Components
  - Heat Pump Charging Procedures
  - Heat Pump Electrical Systems
  - Heat Pump Defrost Systems
  - Heat Pump Service Procedures
  - Heat Pump Troubleshooting Procedures

- Water Source Heat Pump Design*
- Water Source Heat Pump Components
- Water Source Heat Pump Troubleshooting Procedures

Objectives:

Explain commercial fan coil unit operation
Examine package unit building system configurations
Describe building chilled water system operation
Describe induced and forced draft cooling tower operation
Explain heat pump heating and cooling cycles
Describe the purpose and operation of various heat pump components
Prescribe heat pump charging procedures
Examine heat pump manufacturer electrical wiring diagrams
Differentiate heat pump time/temperature and demand defrost control systems
Explain heat pump service checklist readings
Interpret air source heat pump diagnostics
Explain geothermal heat pump system applications
Describe water-to-air and water-to-water heat pump operation
Interpret water source heat pump diagnostics

- Advanced Service – Module 4

Minimum: 24 hours, CWI: 39 hours

- Air Conditioning Air Side Troubleshooting Procedures
- Air Conditioning Refrigeration Side Troubleshooting Procedures
- Air Conditioning Service Diagnostics
- Air Conditioning Electrical Schematics & Troubleshooting Procedures
- Gas Furnace Electrical Schematics & Troubleshooting Procedures
- Gas Furnace Service Diagnostics
- Electric Furnace Service Diagnostics
- Oil Furnace Service Diagnostics

Objectives:

Prescribe air flow troubleshooting procedures
Explain standard and high efficiency air conditioner operation
Explain service checklist readings
Determine variable load air conditioning operating conditions
Prescribe refrigeration side troubleshooting procedures
Troubleshoot residential and commercial control systems
Interpret air conditioning manufacturer electrical wiring diagrams
Perform interactive air conditioning technician service calls
Prescribe gas furnace troubleshooting procedures
Perform interactive gas furnace technician service calls
Prescribe electric furnace troubleshooting procedures
Prescribe oil furnace troubleshooting procedures

- System Integration and Design (Project format) – Module 5

Minimum: 12 hours, CWI: 12 hours

- Residential Comfort and Design Standards*
- Primary Equipment Selection and Sizing*
- Primary Equipment Installation and Operation*
- System Replacement and Retrofit*

Objectives:

Describe residential comfort and design standards
Examine residential equipment selection and sizing requirements
List residential equipment installation and startup procedures

Prescribe residential equipment retrofit procedures

Code review – Module 6
Minimum: 42 hours, CWI: 42 hours
- Review of International Fuel Gas Code (27 hrs)
- Review of International Mechanical Code* (9 hrs)
- Review of National Electrical Code (6 hrs)

Objectives:
Identify International Code administrative and enforcement rules
Describe the building structural safety requirements for fuel gas equipment installation
Examine fuel gas equipment combustion, ventilation and dilution air requirements
Identify fuel gas equipment location, access and service space requirements
Perform gas pipe sizing exercises
Identify proper gas pipe installation methods
Examine chimney and gas vent installation requirements
Perform single and multiple category I vent sizing exercises
Examine specific fuel gas appliance installation requirements
Describe mechanical equipment location, access and service space requirements
Identify proper supply, return and exhaust air system installation methods
Examine specific mechanical equipment installation requirements
Identify proper HVAC equipment branch circuit installation methods
Perform HVAC equipment branch circuit sizing exercises

- Project Management – Module 7
Minimum: 9 hours, CWI: 9 hours
  - Personnel Management
  - Communication Skills
  - Project Control
  - Inter-Trade Relations
  - Work Ethics

Objectives:
Perform problem solving and decision making exercises
Perform active communication exercises
Describe proper project control methods

* Denotes curriculum areas that cover energy efficiency, environmental impact and green construction.

Performance objectives are divided into 3 hour blocks of classroom instruction unless otherwise noted.

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 08 Dual Apprenticeship Required Schooling

PRESENTER: Ted Sermon

OBJECTIVE: Reduce the length of schooling required for dual apprenticeship

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ACTION: Informational

BACKGROUND: There are shops throughout Idaho with employees skilled in both the HVAC and Electrical trades. Rather than have individuals attend eight years of apprenticeship schooling, 4-years HVAC and 4-years Electrical, it was suggested the Board review the first and second years of the HVAC and Electrical apprenticeship programs to see if there are any commonalities; thus eliminating redundancy and school time.

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 09 International Green Construction Code (IGCC)

PRESENTER: Shawn Martin, Director of ICC Industry Relations

OBJECTIVE: Provide an overview of the scope of the IGCC

ACTION: Informational

BACKGROUND: At the May 2011 HVAC Board meeting, Russ Goyen suggested the Board review the IGCC since it has the same type of supplement and code provisions as the ICC.

PROCEDURAL HISTORY:

ATTACHMENTS: Letter from Kraig Stevenson to HVAC Chairman Brizee

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INTERNATIONAL CODE COUNCIL

International Code Council
500 New Jersey Avenue, NW
Sixth Floor
Washington, DC 20001
tel: 888.icc.safe (422.7233)
fax: 202.783.2348
www.iccsafe.org

May 13, 2011

Dan Brizee, Chairman
Idaho HVAC Board
Kelly Pearce, Administrator
Division of Building Safety
1090 East Watertower Street
Suite 150
Meridian, Idaho 83642

RE: Idaho HVAC Board Agenda July 20, 2011

Dear Chairman Brizee and Administrator Pearce:

Green and sustainable construction is a current topic that is being discussed by state agencies, construction trade boards, state and local officials, the design and construction professions and many advocacy groups from across our nation. The International Code Council (ICC) launched the International Green Construction Code (IGCC) initiative in 2009 because state and local officials and many others desired to have a set of model green, sustainable, safe and sensible construction requirements that dovetail well with the other model codes they currently use.

I request for your consideration to have an item placed on the July 20, 2011 Idaho HVAC Board's agenda that will allow ICC's representative, Mr. Shawn Martin, Director of Industry Relations, approximately 20 minutes to cover the related mechanical/HVAC technical requirements contained in the IGCC. I believe this will be of great informational value and provide background for the board.

I am having 7 copies of the IGCC Public Version 2.0 sent to the attention of Renee Bryant at DBS so she can distribute them to the board.

Thank you for your consideration.

Best Regards,

Kraig Stevenson, CBO
ICC Government Relations
2122 112th Ave. NE Suite B-100
Bellevue, WA 98004
kstevenson@iccsafe.org
888-422-7233 Ex 7603

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 10 **Manual J and D Requirements**

PRESENTER: Jerry Peterson

OBJECTIVE: Discuss Implementation Date

ACTION: Informational

BACKGROUND: Manual J and D requirements/training has been addressed at prior HVAC Board meetings under the topic "Energy Code Updates".

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 11 **Continuing Education**

PRESENTER: Jerry Peterson

OBJECTIVE: Create a continuing education program for the HVAC trade

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ACTION: Informational

BACKGROUND: As addressed at the May 2011 HVAC Board meeting, the Plumbing program recently modeled their continuing education program after the Electrical program. Jerry Peterson would like to see an effort made to have an avenue that would provide consistent, ongoing training, i.e., blending code update, code-related training, and specific factory training, at low to no cost. Chairman Brizee expressed interest in having legislation go before the 2012 legislative session.

At the suggestion of Jerry Peterson, Russ Goyen agreed to inform local building officials and associations that the topic "continuing education" will be addressed at the July 20th HVAC Board meeting, and input would be greatly welcomed.

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 12 **Energy Code Update**

PRESENTER: Jerry Peterson

OBJECTIVE: Inform the Board on current implementation dates and documentation as it pertains to the state's enforcement procedures on the new energy code.

ACTION: Informational

BACKGROUND: Until further notice from the HVAC Board Chairman, this topic will be addressed at all regularly scheduled Idaho HVAC Board meetings.

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 13 **HVAC Program Manager Report**

PRESENTER: Jerry Peterson

OBJECTIVE: Report the recent activities of the HVAC Program

ACTION: Informational

BACKGROUND: This topic is addressed at all regularly scheduled Idaho HVAC Board meetings.

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 14 **Operational Report**

PRESENTER: Steve Keys

OBJECTIVE: Provide an overview of the daily operations of the HVAC Program and DBS

ACTION: Informational

BACKGROUND: This topic is addressed at all regularly scheduled Idaho HVAC Board meetings.

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 15a **Financial Report**

PRESENTER: C. Kelly Pearce and Kirk Weiskircher

OBJECTIVE: Review the Idaho Heating, Ventilation and Air Conditioning Board's Financial Report

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ACTION: Informational

BACKGROUND: This topic is addressed at all regularly scheduled Idaho HVAC Board meetings.

PROCEDURAL HISTORY:

ATTACHMENTS: HVAC Board's Financial Report

Division of Building Safety

IDAHO HVAC BOARD FUND

Fiscal Year 2011 Financial Statements

As of 5/31/2011

Statement of Revenues and Expenditures

Class	Budget	Fiscal Year To Date	YTD as a % of Budget *	Remaining Budet	Projected for Remainder of Year	Projected Year End Totals	Projected Total as a % of Budget
Revenues:	800,000	785,896	98.2%	14,104	70,000	855,896	107.0%
Expenditures							
Personnel:	670,000	670,730	100.1%	(730)	54,900	725,630	108.3%
Operating:	180,000	213,709	118.7%	(33,709)	16,000	229,709	127.6%
Capital:	15,000	12,076	80.5%	2,924	10,000	22,076	147.2%
Total Expenditures	865,000	896,515	103.6%	(31,515)	80,900	977,415	113.0%
Net for FY 2011	(65,000)	(110,619)			(10,900)	(121,519)	

Statement of Cash Balance

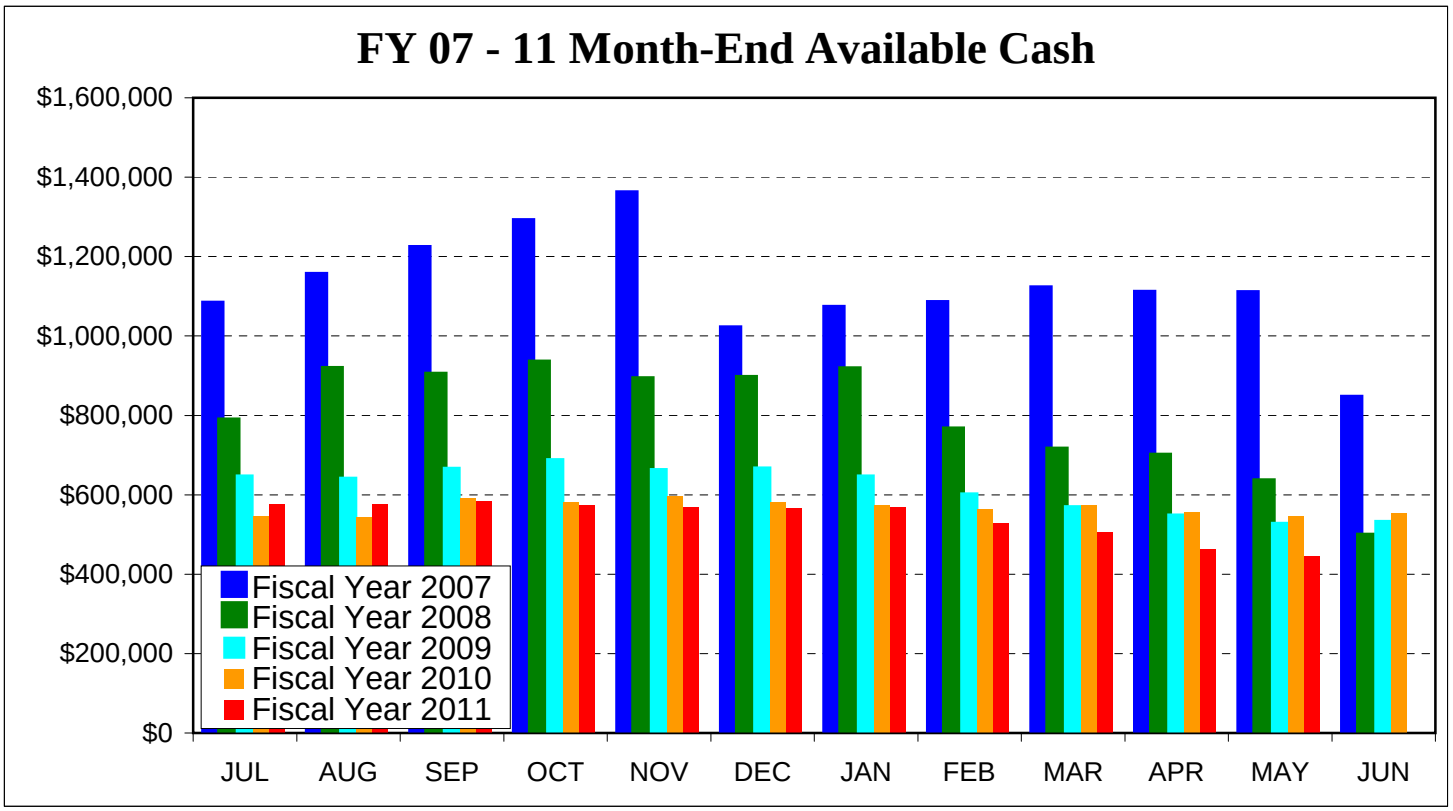
Beginning Cash Available	Revenues	Expenditures and Encumbrances	Other Changes in Cash	Available Cash	Projected Change in Cash for Remainder of Year	Projected Year End Available Cash
553,387	785,896	(896,515)	2,066	444,834	(10,900)	433,934

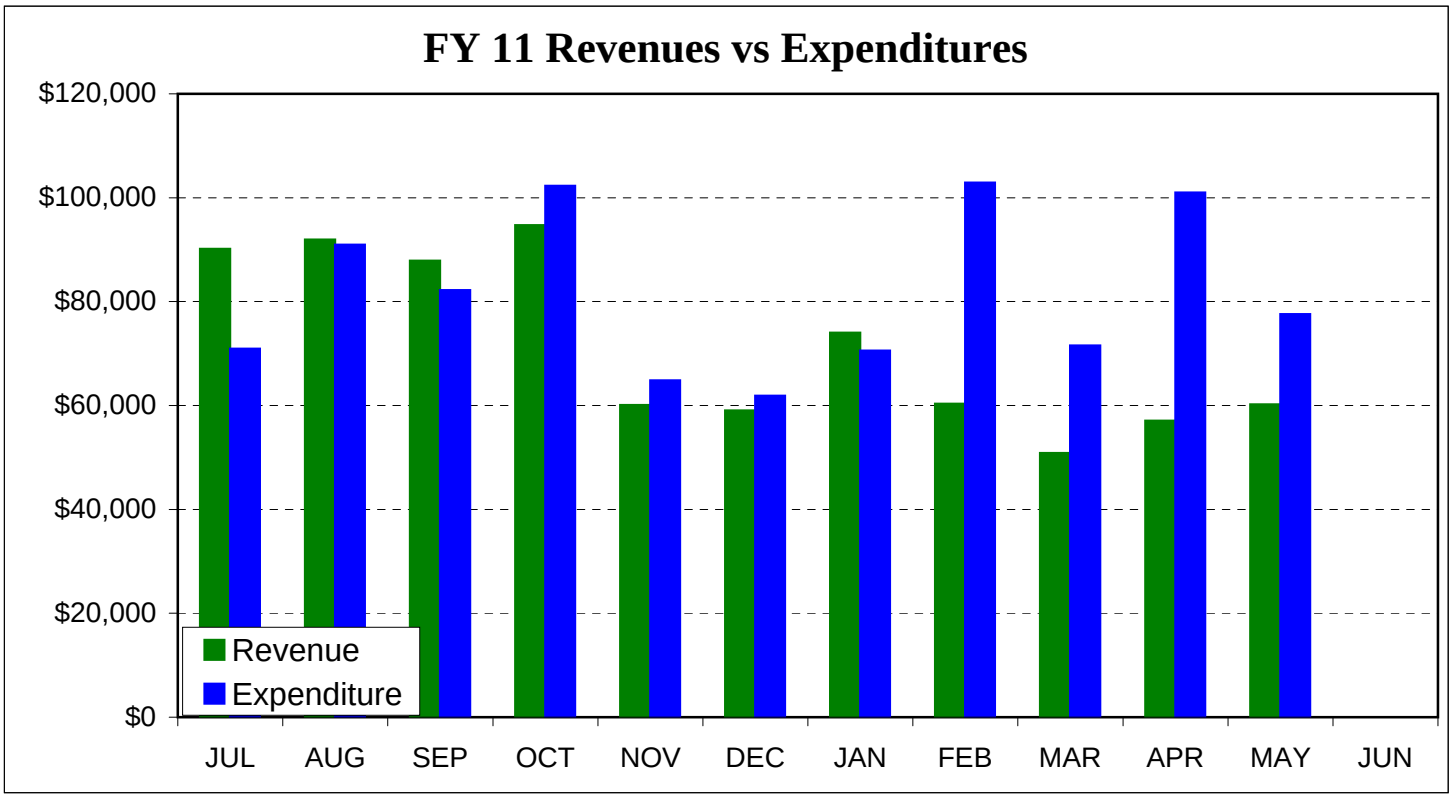
* Percent of Fiscal Year Completed 91.7%

Percent of Pay Periods Completed 92.3%

Date Prepared: 7/5/2011

IDAHO HVAC BOARD FUND

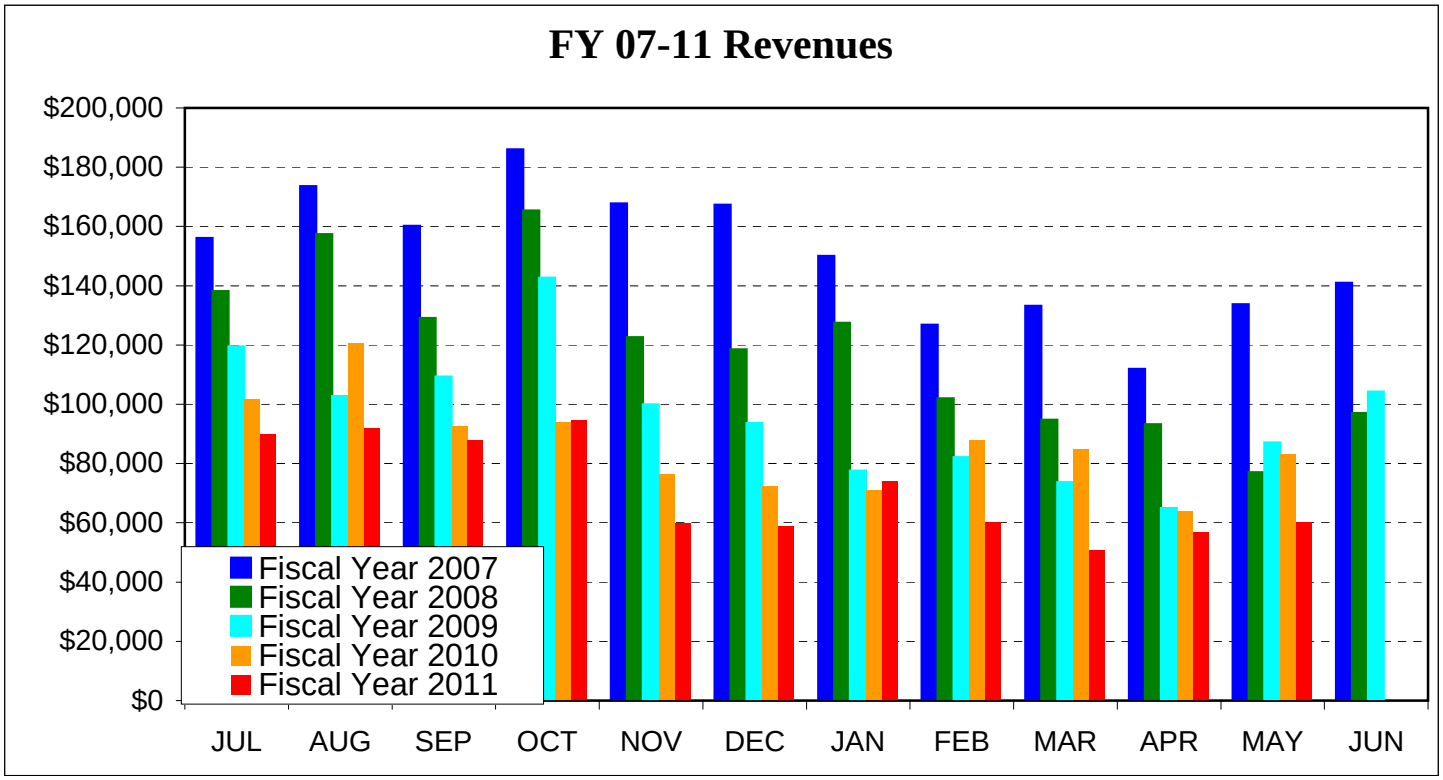


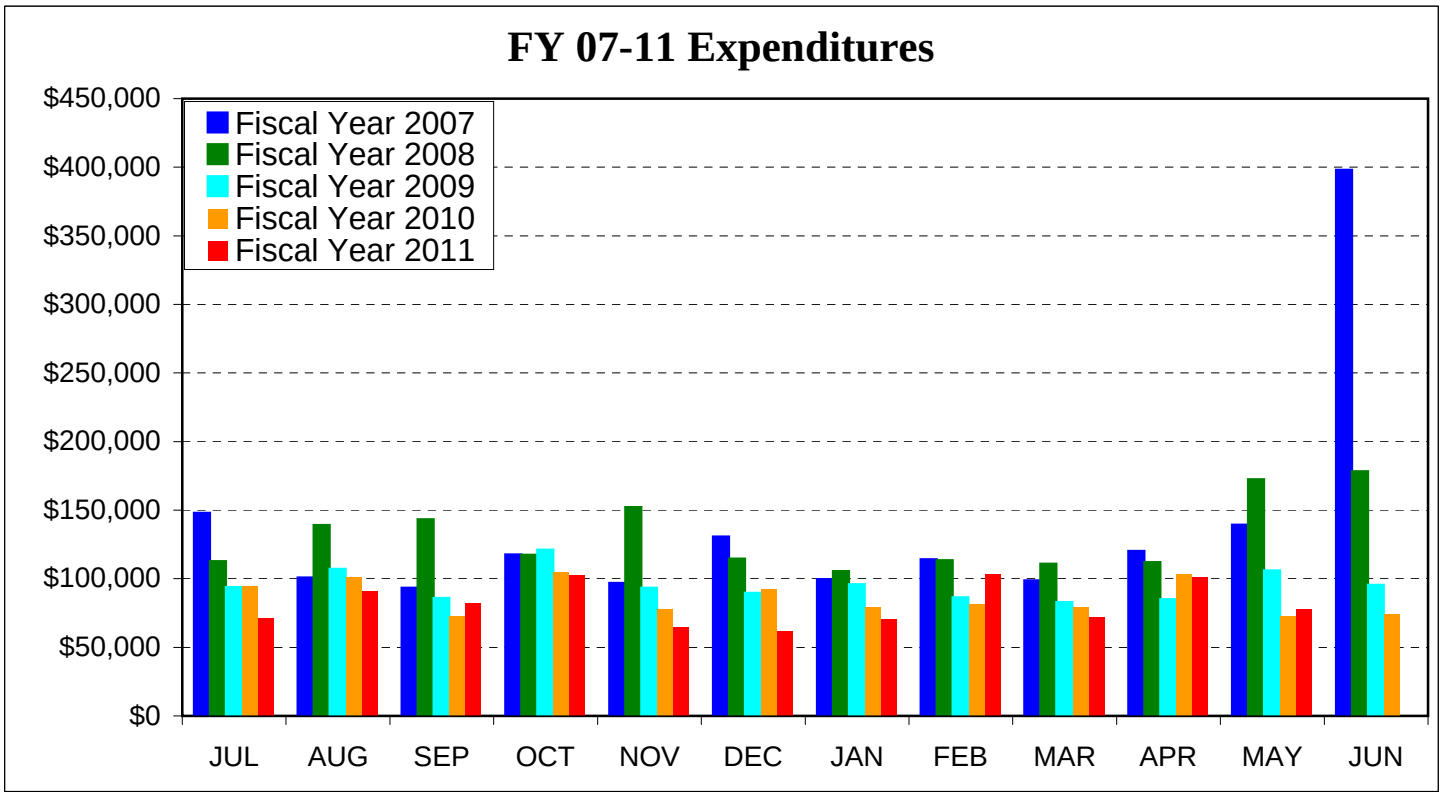


FUND 2298 As of May 31, 2011

Date Prepared: 7/5/2011

IDAHO HVAC BOARD FUND





FUND **2298** As of May 31, 2011

IDAHO HEATING, VENTILATION AND AIR CONDITIONING BOARD

Agenda Item No. 15b **Administrator**

PRESENTER: C. Kelly Pearce

OBJECTIVE: Provide an overview of the Division's current activities

ACTION: Informational

BACKGROUND: This topic is addressed at all regularly scheduled Idaho HVAC Board meetings.

PROCEDURAL HISTORY:

ATTACHMENTS: No documentation