Northwest Power and Conservation Council

November 1, 2006

MEMORANDUM

TO: Council Members

FROM: Charlie Grist

SUBJECT: Decision on implementing Model Conservation Standards for new commercial buildings

At its last meeting the Council released for public comment specifications that would implement the Model Conservation Standards (MCS) for new commercial buildings adopted in the Fifth Power Plan.

Close of comment is November 7, 2006. So far, we have not received any comments, but staff has fielded several questions. Before the November Council meeting, staff will analyze any comments received and at the meeting will discuss a course of action for responding, if necessary, with the intention of recommending the Council adopt the specifications at the November meeting. However, if comments warrant significant revision or further development of the specifications, the Council could decide to defer approval of the specifications to its December meeting.

Northwest Power and Conservation Council

November 8, 2006

DECISION MEMORANDUM

TO: Council members

FROM: Charlie Grist

SUBJECT: Council decision on implementation of Model Conservation Standards for new commercial buildings

STAFF RECOMMENDATION

Staff recommends the Council adopt the attached implementation specifications for model conservation standards for new commercial buildings.

SIGNIFICANCE

If adopted by the Council as implementation of the model conservation standards (MCS) for new commercial buildings, the proposed specifications would be helpful in ongoing local code adoption processes and in the design of energy conservation programs offered by utilities. The Council would also be following through with its intent in the Fifth Power Plan to consult with regional parties to determine the specific provisions of the MCS for new commercial buildings.

BUDGETARY/ECONOMIC IMPACTS

There is no impact on the Council budget.

BACKGROUND

The Act requires the Council to adopt model conservation standards (MCS) as part of each power plan. In Appendix F of the Fifth Power Plan, the Council set out the model standard for new commercial buildings. That standard is described conceptually as the better of ASHRAE 90.1-2001 or the most efficient provisions of existing commercial building energy standards promulgated by the states of Idaho, Montana, Oregon and Washington.[1] The

[1] New commercial buildings and existing commercial buildings that undergo major remodels or renovations are to be constructed to capture savings equivalent to those achievable through constructing buildings to the better of 1) . . . ASHRAE Standard 90.1-2001 . . . and addenda a through [m] or . . . 2) the most efficient provisions of existing commercial building energy standards promulgated by the states of Idaho, Montana, Oregon and Washington so long as those provisions reflect geographic and climatic differences within the region, other appropriate

underlying rationale of this MCS is that each of the existing codes used in the region contains some leading-edge elements and some that could be improved. A consolidation of the best elements of ASHRAE and each jurisdiction's code yields a model standard better than any of the existing codes. Furthermore, since each of the codes from which provisions would be drawn are already adopted, they meet one of the Regional Act requirements for MCS, that the model standard be economically feasible for consumers. The Fifth Power Plan also said that the Council would assist in determining which specific provisions of existing codes make up the non-residential MCS.

ANALYSIS

To develop these specifications, a contractor reviewed the most widely enforced regional codes to develop a composite document that includes the best standard for each component. The codes consulted including the Washington and Oregon state energy codes, the Seattle Energy Code, the International Energy and Conservation Code adopted in the states of Idaho and Montana and the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2001. A technical working group provided input into the development of these specifications in an effort to provide a consensus approach to determining the best elements of existing energy codes. The specifications were released for public comment at the October 2006 Council meeting.

The contractor and the technical working group considered several factors in determining which provisions from ASHRAE and the codes of the Northwest states to select for the specifications. The magnitude of savings in commercial buildings was the most important factor for inclusion. Both efficiency level and breadth of scope were considered. But for some elements of the specifications, the clarity of the language or ease of implementation was favored over energy savings. Where there was uncertainty about which state provision was the best, the majority opinion in the technical working group held sway. ASHRAE was used for equipment efficiency levels that fall under federal jurisdiction. In addition, some ASHRAE provisions have been adopted by the states and therefore appear in the specifications.

The improvements made by compiling this set of specifications are significant and have modest energy savings. About one-third of the provisions evaluated are identical among the states so there is no effective change in efficiency levels between existing state standards and the composite model standard. In the lighting provisions, compiling the most stringent lighting power density requirements from existing codes results in modest (5 to 30 percent) reductions of maximum allowed connected lighting power for some occupancy categories in some jurisdictions. But for the most common occupancy categories, differences are zero or relatively small. Perhaps more importantly, the number of occupancy categories in the lighting tables is reduced thus simplifying the specifications. For mechanical provisions the compilation of the best provisions results in changes that primarily extend the scope of existing efficiency or control provisions to more systems or buildings. The same is true for lighting controls provisions. With regard to envelope insulation levels, Washington standards are generally the most stringent and form the bulk of the specifications. For glazing the Oregon and Seattle standards prevail. For the performance path, Washington's standard with Seattle amendments is the model provision.

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considerations, and are designed to produce power savings that are cost-effective for the region and economically feasible for [consumers] taking into account financial assistance made available from Bonneville. Fifth Power Plan, Appendix F, page F-8

In addition, the many different climate zone definitions used in ASHRAE, IECC and the state codes were simplified to a two-zone system. If adopted by the states, the specifications would also provide greater consistency among state codes making them easier to comply with for architects and engineers that work in all four Northwest states.

As a result of releasing the proposed specifications for public comment, the Council received one letter of support from the Northwest Energy Coalition. Staff also received a phone call from Craig Conner who identified an error in the duct insulation table. That error has been corrected and the table was simplified as a result.

ALTERNATIVES

The Council could choose to not adopt the specifications. Absent specifications of efficiency levels for the best-of-region provisions, the MCS has limited guidance for local or national code processes. It would leave the interpretation of what levels of efficiency are "best", cost-effective, and economically feasible for the consumer to the local jurisdictions that promulgate the codes. Council staff could work with local jurisdictions during code adoption processes to specify efficiency levels based on specifications. Such an approach, however, would lack the Council's "seal of approval."

ATTACHMENTS

- Letter from Northwest Energy Coalition
- Specifications for Implementation of Fifth Power Plan Model Conservation Standards for New Commercial Buildings

Summary of Components of the "Best of the Region" Standard for New Non-Residential Buildings

Adapted from:

Northwest Energy NWBest Project Summary of Components of the "Best of the Region" Standard

Prepared by: Ecotope July 2005

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1. Introduction

In the summer of 2005, the Northwest Energy Efficiency Alliance ("Alliance") contracted with Ecotope to identify the provisions to be included in a voluntary standard that would serve to provide the region with a developed strategy to increase the most demanding provisions of existing energy codes by at least 15 percent. This strategy was divided into two primary goals:

- Phase I: Develop a "Best of Region" voluntary standard in the format of an energy code to serve as the evaluation baseline for the NWBest voluntary standard. This standard is designed to capture the most stringent regional requirements for each component.

- Phase II: Develop a NWBest standard that extends the Best of Region standard to achieve at least 15% more efficiency.

A group of regional code experts from all four states, the NWBest Technical Working Group (TWG), was convened to provide input to the development of the model standards using a consensus approach. The recommendations and alterations agreed to by the TWG have been included in this report. Appendix A lists the members of this TWG.

This interim report summarizes the components of the "Best of Region" base standard as developed by Ecotope and approved by the TWG. To develop this standard, Ecotope reviewed the most widely enforced regional codes, including the Washington and Oregon State Energy Codes (WSEC and OSEC), the Seattle Energy Code (SEC), and the International Energy & Conservation Code (IECC) that is used in Montana and Idaho. These existing codes, plus some provisions from ASHRAE Standard 90, were used to develop a composite document that sets forth the best regional standard for each component of the code. The composite best-of-region model standard has been assembled in the format of IECC 2004 including similar section numbers, organization, and much of the same administrative language. The model code language is the companion document titled "Proposed Specifications for Implementation of Fifth Power Plan Model Conservation Standards for New Commercial Buildings." This paper summarizes the major elements of the best-of-region model code and identifies the source for each.

2. Non-Residential

Our review of the non-residential provisions of the region's enforced codes indicates that there is general consensus in many aspects of the code regulations. The most significant differences often reside in the exceptions and exemptions. While the City of Seattle and State of Oregon energy codes regulate aspects of buildings not regulated in the other codes, each regional code has areas where it is most stringent. Although the ASHRAE standard was not specifically included in this comparison, it has informed the development of much of the nation's energy code development, and includes particularly

well written language in some areas. Where appropriate (especially in terms of equipment type), the basic ASHRAE structure has been used for this analysis.

2.1. Non-Residential Lighting

The following provisions constitute the Best of Region lighting standard:

2.1.1. Standard Lighting Provisions

Total connected interior lighting power. The total connected interior lighting power (Watts) shall be the sum of the watts of all interior lighting equipment as defined below.

Screw lamp holders. The wattage shall be the maximum labelled wattage of the luminaire.

Other luminaires. The wattage of all other lighting equipment shall be the wattage of the lighting equipment verified through data furnished by the manufacturer or other approved sources.

Low-voltage lighting. The wattage shall be the specified wattage of the transformer supplying the system.

Line-voltage lighting track and plug-in busway. The wattage shall be the greater of the wattage of the planned/installed luminaires or 50 W/linear foot.

Exceptions to Non-Residential Lighting provisions:

The connected power associated with the following lighting equipment is not included in calculating total connected lighting power.

- Specialized medical, dental and research lighting.
- Professional sports arena playing field lighting.
- Display lighting for exhibits in galleries, museums and monuments.
- Guestroom lighting in hotels, motels, boarding houses or similar buildings.
- Emergency lighting automatically off during normal building operation.
- Lighting for theatrical/television productions, and stage lighting in entertainment facilities.
- Non-permanent task lighting.
- Lighting installed within display cases that moves with cases.

Table 2.1-1. Non-Residential Interior Lighting Requirements

Item	Source Code	Source Code Stringency or Provision
Lighting Controls		
Local Switching	All	Required in space.
Maximum control zone size	WA	Enclosed spaces plus 80% of 20 amps or 5% of total floor area if>100000sf
Occupancy Sensor	OR	Required in ALL classrooms, meeting and conference rooms and offices <300sf
Sweep/automated (occ)	SEA/OR	Required in all buildings >5000sf and all office occupancies>2000sf
Max Sweep Zone size	SEC	20 amps or 5% of total floor area
Max Sweep Override Zone size	WA	5000sf or 5% of total floor are which ever is greater
Max Override Time	All	2
Daylight Zone Circuit	WA	Required near perimeter and overhead glazing.
Holiday Scheduling	IECC2003	Requires "automatic holiday scheduling feature that turns off all loads for at least 24 hours"
Continuous Dimming	OR	Required in classrooms if there is overhead glazing or if vertical glazing is >50% of the wall
Stepped Dimming	SEC	Required for all perimeter within minimum (15',F-C) of exterior wall or areas under skylights. (min 50% step)
Bi-level switching	IECC2003	Required unless occupant sensor.
Guestroom lighting		
LPD Exemptions/Adjustments[1]		
Retail - Display Case	OR or SEC	Exempt if lighting moves with display
Retail - Display Window	OR or SEC	Exempt if within 2' of display window if separated from space
Retail - Building Showcase	OR or SEC	Not exempt
Retail - Display Luminaires	OR or SEC	Up to 1.5 w/ft2 allowed above maximum LPD for ceiling mounted, bi-directionally adjustable fixtures (unless 2-point track attachment), with LED, tungsten halogen, fluorescent, or HID lamps installed.
Display/Museum Accent/Gallery	All	Exempt
Other Non-Retail Display	OR or SEC	Exempt only in lobbies
Decorative Fixtures	SEC/WA/ OR	Not exempt
Task Lighting LPD	All	Exempt

Item	Source Code	Source Code Stringency or Provision
VDT Lighting Allowance	SEC/WA/ OR	0.00 w/sf
Production Lighting (Media,Theater)	All	Exempt
Food Prep	All but WA	Not exempt
Miscellaneous Lighting		
Line Voltage Track Lighting	SEC	50 watt/lineal foot
Low Voltage Track Lighting	SEC or OR	37.5w/lf or circuit capacity
Dual Lighting Systems	All but IECC	If lockout control then highest watt system only
Tandem Wiring (minimum 2 lamps/ballast)	IECC 2003	Yes if not EB and if available pair is within 10' for recessed or 1' if surface or pendant.
Airtight Can Lights	IECC 2003	Required
Ceiling Height	WA or OR	None
Commissioning	WA or None	Controls will be tested and calibrated.
Electric Motor Efficiency	All	>1 hp & not part of equipment
Electrical		
Transformers	SEC/OR	NEMA TP-1 1996
Wire Sizing	None	

Table 2.1-2. Non-Residential Exterior Lighting Requirements

Building or Space Use	Source Code	Base Level
Open Parking	SEC	0.15 W/ft^2
Outdoor Area	SEC	0.15 W/ft^2
Façade Area	SEC	0.15 W/ft^2 (use illuminated area only)
Perimeter	SEC	7.50 W/ft^2 (use illuminated perimeter only)
Covered Parking	SEC	0.20 W/ft^2 (or 0.30 W/ft^2 if paint reflective)
Non-Sales Canopy	SEC	No special allotment
Sales Canopy (service station)	SEC	1.00 W/ft^2
Exterior Lighting Controls	All	Automatic time switching or photocell.

Table 2.1-3. Non-Residential Interior Lighting Power Density

Building Area Type	(W/ft2)	Source
Automotive Facility	0.9	OR
Convention Center	1.2	IECC
Court House	1.2	IECC
Dining: Cafeteria/Fast Food	1.4	OR
Dining: All Other	1.0	WA
Dormitory	1.0	IECC
Exercise Center	1.0	WA
Gymnasium/Auditorium	1.0	WA
Healthcare-Clinic	1.0	OR
Hospital/Nursing Home	1.2	OR
Hotel, Common	1.0	IECC
Library	1.3	OR
Manufacturing (<20' height)	1.2	IECC
Manufacturing (>20' height)	1.5	WA
Motel	1.0	OR
Motion Picture Theater	1.0	WA
Multi-Family, Common Area	0.7	WA
Museum	1.1	IECC
Office	1.0	All
Penitentiary	1.0	IECC
Performing Arts Theater	1.0	WA
Police Station	1.0	All
Fire Station	0.8	OR
Post Office	1.1	OR
Religious Building	1.0	WA
Retail	1.5+1.5	WA,OR
School/University	1.1	OR
Sports Arena	1.0	WA
Transportation Terminals	1.0	IECC
Warehouse	0.8	OR
Workshop	1.4	OR

2.2. Non-Residential Opaque Envelope Provisions

For the envelope provisions, the Best of the Region standard divides the Northwest into two zones using a 6000 heating degree day guideline. All spaces shall be considered conditioned spaces, and shall comply with the requirements in Table 2.2-1~~Table 2.2-1~~~~Table 2.2-1~~ unless they meet the following criteria for semi-heated spaces:

- The installed heating equipment output, in Climate Zone 1, shall be 3 Btu/(h • ft^2) or greater but not greater than 8 Btu/(h • ft^2) and in Climate Zone 2, shall be 5 Btu/(h • ft^2) or greater but not greater than 12 Btu/(h • ft^2).
- Heating shall be controlled by a thermostat mounted not lower than the heating unit and capable of preventing heating above 44°F space temperature. Semi-heated spaces shall be exempt from the exterior wall insulation requirements.

Table 2.2-1. Non-Residential Opaque Envelope Requirements

Component	Source Code	Zone One	Zone Two
Roof/Ceiling			
Attic Nom Ins	WA	R30	R38
Attic U-value	WA	0.036	0.031
Roof Nom Ins	IECC/WA	R21	R25
Roof U-value	WA	0.046	0.039
Roof Deck R-value	WA	R21	R25
Roof Deck U-value	WA	0.046	0.039
Metal Roof Nom Ins	IECC2003	R30 with thermal block[1]	R30 with thermal block[1]
Metal Roof U-value	WA	0.046	0.039
Walls			
Wall Nom Ins	WA	R19	R24
Wall U-value	WA	0.062	0.044
Metal Frame Wall Nom Ins	SCL	R13+R3.8ci	R13+R3.8ci
Metal Frame Wall U-value	WA	0.084	0.084
BG Wall Nom Ins	SCL	R12	R12
BG Wall U-value	WA	0.061	0.061
Metal Wall Nom Ins	WA	R13+R13	R13+R13
Metal Wall U-value	WA		
Mass Criteria	OR	Individual walls > 45lbs/sf	Individual walls > 45lbs/sf
Mass Wall Nom Ins	WA	R5.7ci[2]	R7.6ci[2]
Mass Wall U-value	WA	0.07	0.07

Component	Source Code	Zone One	Zone Two
Mass Wall Interior Nom R		AG[4] Wall values	AG Wall values
CMU integral R	IECC	Filled cores +R5continuous or R11 framed	Filled cores +R5 continuous or R11 framed
CMU integral U			
Doors			
Door U-value	WA	Hinged <4' wide U0.6 , all other U0.2	Hinged <4' wide U0.6 , all other U0.2
Door (rollup) U-value	OR	0.2	0.2
Floors			
Floor Nom Insulation	IECC	R19	R25
Floor U-value[1]	IECC	0.045	0.035
Slab Nom Insulation	WA	R10 for 2'	R10 for 2'
Slab F value		0.54	0.54
Mass Floor ext insulation	WA	R19	R25
Heated Slab	WA	R10 for 3'	R10 for 3'
Semi-Heated			
Criteria	OR	None	None
Treatment	OR	No special treatment	No special treatment

1. Not including buffer effects from adjacent unheated spaces.
2. Thermal blocks are a minimum R-5 of rigid insulation, which extends 1" beyond the width of the purlin on each side, perpendicular to the purlin.
3. R-5.7 ci may be substituted with concrete block walls complying with A5TM C90, ungrouted or partially grouted at 32 in. or less on center vertically and 48 in. or less on center horizontally, with ungrouted cores filled with material having a maximum thermal conductivity of 0.44 Btu-in./h-f F.
4. Above Grade

2.3. Non-Residential Glazing Provisions

The glazing requirements for non-residential construction are presented in the following table:

Table 2.3-1. Non-Residential Glazing Requirements

Component	Zone One		Zone Two	
	U Value	SHGC	U Value	SHGC
Site- or Factory-Built Windows (OR)				
0-25%	0.54	0.5	0.5	0.5
25%-30%	0.54	0.5	0.37	0.5
30%-40%	0.37	0.4	0.37	0.4

2.4. Non-Residential Mechanical System Equipment Provisions

Simple systems may be used if all of the following conditions are met. Otherwise, the complex system requirements should be followed.

Simple System Requirements:

Building is:
- less than 3 stories
- less than 25000sf

Equipment:
- Is single zone split or package
- Has air- or evaporatively-cooled condensers
- has minimum OA of less than 3000 cfm
- has less than 70% min OA or heat recovery

Table 2.4-1. Non-Residential Mechanical System Requirements

Item	Source Code	Base Level
Economizer		
Maximum DX Capacity Without Economizer	SEC2004	20 kBtuH, unless equipment is not near exterior, then 54 kBtuH
Total Capacity of Units Without Economizer	SEC2004	240 kBtuH or 10%
Important Exceptions to Economizer requirement.	IECC2004	None
DX-Economizer Integration	All Codes	Required where economizer required.
Waterside Economizer	IECC2004	100% at 50Fdb/45Fwb
HP Loop Economizer	IECC2004	Not mentioned separately. Economizer Required.
Ducts		
Duct sealing – Exterior	OR	All joints, seams, and connections
Duct sealing - Vented	OR	All joints, seams, and connections
Duct sealing – Unconditioned	OR	All joints, seams, and connections
Duct sealing – Conditioned	OR	All joints, seams, and connections
Leak Testing	IECC2004	Required if sp>3"
Duct Insulation – Exterior	WA2004	Supply/Return R7
Duct Insulation – Vented	WA2004	Supply/Return R7
Duct Insulation – unconditioned	WA2004	Supply/Return R7
Duct Insulation – Conditioned	WA2004	Supply/Return R3.3
Duct Insulation – in concrete, in ground	IECC2004	Supply, Return, Outside air intake R5.3

Item	Source Code	Base Level
System Documentation		
Commissioning Report	WA/SEC	Preliminary commissioning report required for occupancy
Commissioning Tests Delineated	WA/SEC	"All modes as described in the sequence of operation"
Ongoing trending		None
Equipment Efficiency		
DX Cooling	Oregon	ASHRAE Oct 2001 thru 2007, then better
Chillers	SEC	different structure but partload ~5% better than ASHRAE
Furnace	All	ASHRAE Oct 2001
Unit Heater	All	ASHRAE Oct 2001
Boiler	ASHRAE	ASHRAE Oct 2001
Furnace control	ASHRAE	ASHRAE Oct 2001
Boiler control	IECC2004	Modulating or staged if cap>500kbtu
Variable Speed Drives		
VSD - fan motors	SEC/OR/WA	Required on motors>=10hp with variable loads.
VSD - pump motors	OR/IECC2004	All motors on hydronic heating loops over 10hp and all 10hp motors with variable loads
VSD or Two speed on cooling tower	OR	Required
ECM Motors	SEC	Required in VAV series terminals
Controls		
Basic Thermostat Capabilities		7 day programmable, battery backed, manual override
Heat pumps	All	Thermostat must minimize auxiliary heat on startup
Humidity Controls		
DDC Required		Not specified
Sensor Specifications		Not specified
Supply Air Temp Reset	WA/OR	Required in multi-zone systems
Supply Water Temp Reset	WA/OR	Required if capacity>300kBtu
Pressure Reset	WA/OR	Required if DDC fan powered boxes
Optimum Start	WA/OR	Required for systems >10000cfm
Maximum Control Zone Size	WA/SEC	1 floor or 1 system, whichever is smaller
Minimum Dead Band	All	5F
0% OA in Unoccupied/Warm-Up etc	OR	Yes
CO^2 Control	OR	If OA >1500cfm and occupant density>100 per 1000sf

Item	Source Code	Base Level
Cooling Tower		
Cooling Tower Approach	WA	86F condensate return
Cooling Tower Efficiency – Air	All	176000 Btu/h-hp
Cooling Tower Efficiency - Axial Fan	WA	Not specified
Cooling Tower Efficiency - Cent Fan	WA	Not specified
System Requirements		
Fume Hood VAV/HR/ or compensating	All	If OA>70%: Fume hood systems<15000cfm or labs systems with VAV or compensating hoods
Kitchen Hood	IECC2004	If OA>70%: HR or 75% compensating if >5000cfm
Fan System Efficiency	OR	Complex system path requires VAV with BHP<0.00145hp/cfm, and CV BHP <0.00104hp/cfm if total fan power is greater than 7.5HP. Complex system is any VAV system, or split CV equipment >54 kBtuH. It does not include constant volume package equipment of any size.
Motor Efficiency	All	ASHRAE table
Constant Volume VSD	OR	Systems >15000 cfm required to have two-speed operation
Air System Heat Recovery (except labs with VAV systems & kitchen hoods)	WA	Any system >5000cfm with >70%OA
Condenser Heat Recovery	WA/IECC	If 24hr facility, reject capacity is >6 million Btu, and h2o cap>1 million Btu.
Motorized air inlet, outlet, and relief dampers	WA/OR	Required in buildings over 2 stories
Elevator/Stairwell smoke relief openings	WA/OR	Normally open dampers required
HP Loop unit valves	OR	Required if total circulating pump power >10hp
HP Loop tower bypass	OR	Required
Heat pump required	WA/SEC	If package or split system electric heat/cool unit with DX capacity >20kBtuh
Three-pipe systems	IECC2004	Not allowed.
Two-pipe change over control requirements	IECC	Controls must allow 15F OAT deadband for changeover, have minimum 4 hour operation before changeover, and allow maximum 30F heating water to cooling water differential.
Heat pump loop control requirements	IECC	Controls must allow min 20F deadband for circulating water
Pump isolation on multiple chiller systems	IECC	Required

2.5. Non-Residential Performance Standard

All regional non-residential energy codes include a performance-based standard as an alternative to the prescriptive and component standards outlined in sections 2.1 through 2.4 above. The composite best-of-region standard uses the Washington reference standard RS 29, with the Seattle amendments, as the source code for the performance-based standard. This language was selected as the best in the region because it is based on energy rather than energy cost, has more specificity in the energy modeling assumptions and methodologies, and is simpler than the performance-based standards in the existing codes of Idaho, Oregon, and Montana or from ASHRAE.

APPENDIX A: Technical Advisory Group Member Roster

Name	Organization
Ken Baker	Baker Energy
David Cohen	Northwest Energy Efficiency Alliance
Pam Cole	Pacific Northwest National Lab
Craig Conner	Building Quality
Charlie Grist	Northwest Power Planning Council
Jeff Harris	Northwest Energy Efficiency Alliance
John Hogan	Seattle Energy Code Council
Michael Lane	Lighting Design Lab
Eric Makela	Britt/Makela Group
Chuck Murray	WSU Cooperative Extension Energy Program
Stan Price	Washington Energy Code Council
Michael Rosenberg	Oregon Department of Energy
Alan Seymour	Oregon Department of Energy
Diana Shankle	Pacific Northwest National Lab
Todd Taylor	Pacific Northwest National Lab
Paul Tschida	Montana State Energy Office

APPENDIX B: Non-Residential Prescriptive Lighting Examples

Prescriptive Path fluorescent lamp requirements (only for spaces with maximum code LPD levels greater than 0.8w/sf)	WA or None	1 or 2 lamp, non-lensed fluorescent, reflector, T1-T8, hard-wired electronic dimming ballast with controls
Prescriptive metal halide lamp requirements (only for spaces with maximum code LPD levels greater than 0.8w/sf)	WA or None	Must have reflector/louver fitted with <150 watt ceramic metal halide with electronic ballast. All other MH are limited, along with other ballasted fixtures, to 5% of the total fixture count.

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Changes made to Specifications for Implementation of Fifth Power Plan Model Conservation Standards for New Commercial Buildings

The following changes were made to Table 803.2.7 which appears in Chapter 8, page 27 of the specifications.

TABLE 803.2.7
MINIMUM DUCT INSULATION

Duct Type	Duct Location	Insulation R-Value	
Supply, Return	Not within conditioned space: On exterior of building, on roof, in attic, in enclosed ceiling space, in walls, in garage, in crawl spaces		
		R-7	
Outside Air Intake	Within conditioned space	R-7	
Supply, Return, Outside air intake	Not within conditioned space: in concrete, in ground	R-5.3	
Supply with supply air temperature <55°F or >105°F	Within conditioned space	R-3.3	

NW Energy Coalition

for a clean and affordable energy future

November 7, 2006

Charlie Grist
Senior Analyst
Northwest Power and Conservation Council
851 SW Sixth Ave., Suite 1100
Portland, OR 97204

Re: Proposed Specifications for Model Conservation Standards for New Commercial Buildings

Dear Charlie,

The NW Energy Coalition supports the proposed specifications for new commercial buildings and urges the Council to work with each state to ensure consistent and timely adoption of these "best of region" standards.

Our support, however, is tempered by the modest overall energy savings these standards would produce. It is imperative that the Council moves quickly to develop a Model Conservation Standard that will result in energy savings of at least 15 percent over existing commercial energy codes. We encourage the Council to go beyond prescriptive requirements and extend the MCS to building design improvements that capture design synergies take lead to the next quantum leap in energy savings.

That said, the Coalition applauds the Council's ongoing efforts to improve state construction standards. Properly designed non-residential energy codes promote innovation and technological advance, and help lock in energy efficiency at the time of construction – when the energy and cost savings are greatest for businesses and building owners.

These proposed code changes, in addition to creating modest energy savings, will simplify and bring consistency to the commercial energy code. They will provide cost-effective electricity savings and help the region achieve the conservation savings goals outlined in the Council's 5th Power Plan. Capturing all the reliable long-term energy savings for the power system is a vital component of meeting our energy demand. These Model Conservation Standards are an economic win-win-win for businesses, consumers and utilities in each state. Businesses and consumers win with lower utility bills;

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utilities win through reduced purchases or development of new power resources.

As the Council knows, energy efficiency measures also reduce environmental impacts. In the power sector, energy efficiency is the simplest, most effective way to curb global-warming emissions. With that in mind, we challenge the Council to take the next step and develop a strategy to "extend the Best of Region standard to achieve at least 15% more efficiency" (NPCC 2006-20a, page 1). In November 2004, as part of the West Coast Governors' Global Warming Initiative, the governors of Washington, Oregon and California approved a series of recommendations including incorporation of "aggressive energy efficiency measures into updates of state building energy codes, with a goal of achieving at least 15 percent cumulative savings by 2015 in each state."

Finally, we expect the Council to follow this set of recommendations for new commercial buildings with an even stronger set of recommendations for the five other Model Conservation Standards recommended in the 5th Power Plan. The Council was right on target in explaining the critical role of energy codes in securing cost-effective savings for the region. The Energy Coalition believes that aggressive Model Conservation Standards should be applied as broadly as possible to all building stocks and utility programs. We anxiously await the next round of proposed specifications for the five remaining Model Conservation Standards.

Thank you for this opportunity to support the proposed Model Conservation Standards for New Commercial Buildings.

Sincerely,

Nancy Hirsh
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