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<small>Department of Business and Professional Regulation</small>	
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File #	

Petition for Declaratory Statement before the Florida Building Code Commission

Date: October 27, 2014
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Petitioner's Attorney or Representative: None

Statute(s), Agency Rule(s), Agency Order(s) and/or Florida Building Code Section(s) on which this Declaratory Statement is sought:

Florida Building Code -2010: FBC 423.15.5 Educational Facilities, Florida Mechanical Code-2010: FMC: 403

FBC 423.15.5: *"Ventilation Air Makeup for HVAC Systems: Where peak occupancies of less than 3 hours duration occur, the outside airflow may be determined on the basis of average occupancy for school buildings for the duration of operation of the air conditioning system, provided that the occupancy used is not less than one-half the maximum."*

Background: FBC 423.15.5 is based on ASHRAE 62-1999 and earlier editions for a Variable and Intermittent Use Occupancies. An Educational Facility is a Constant and Continuous Use Occupancy, and FBC 423.15.5 should not be considered applicable. **ASHRAE 62.1-2001 and later editions were revised to remove the wording of FBC 423.15.5 because it was being used incorrectly to reduce the Ventilation (Outside) air make-up below the requirements of ASHRAE 62.1 Ventilation (Outside) Air Tables, FMC 403.3 and FMC Table 403.3. The wording of FBC 423.15.5 was included in FMC-2001-403.3.** The Florida Building Code caught up with ASHRAE 62.1 and removed the wording of FBC 423.15.5 from 403.3 in the 2004 and subsequent Editions. The wording of FBC 423.15.5 was added in FBC 2007 (in 2007 it was FBC 423.15.6) even though this same wording was removed from FMC 403.3-2004 and subsequent Editions. Due to revisions of ASHRAE 62.1 and FMC 403.3, FBC 423.15.5 no longer has any basis of support.

For an Example of the misuse of FBC 423.15.5, please see the attached Outside Air Ventilation Rates Table from a specific Florida School District Construction Standards Section 15100.

In addition, the wording of FBC 423.15.5 which states in part "...for the duration of operation of the air conditioning system..." is requiring the operation of the Ventilation (Outside) Air Systems and associated Exhaust Systems even when spaces are unoccupied. For a large School District the operating cost of Ventilation (Outside) Air Systems and associated Exhaust Systems is approximately \$500,000 per hour per year District wide.

Affectation: I am a Florida Licensed Professional Engineer, Designer and Engineer-of-Record for Educational Facility Projects, and I need this information for current and future projects.

Declaratory Statement(s) sought:

1. Does FMC 403 supersede FBC 423.15.5?
2. The School District is using FBC 423.15.5 to comply with FMC 403.2-Exception. Since the wording of FBC 423.15.5 was removed from ASHRAE 62.1, FMC 403.3-2004, FMC 403.3-2007 and FMC 403.3-2010, FBC 423.15.5 has no basis of support and it does not make sense that FBC 423.15.5 should be allowed for compliance with FMC 403.2-Exception. **Can FBC 423.15.5 be used to comply with FMC 403.2-Exception?**

- 3. FMC 403.4-2007 states "ASHRAE 62 Alternative. In lieu of compliance with Section 403.1 through Section 403.3, mechanical ventilation may be implemented in compliance with ASHRAE 62 including approved addenda". FMC 403.4-2007 was removed in FMC 403-2010. In addition, FMC 403.2-Exception was added in FMC 403-2007 and FMC 403-2010 and with no basis of compliance. **Does the Analysis and/or Demonstration required for compliance with FBC 403.2-Exception have to have an ASHRAE 62.1 basis?**
- 4. FMC 403.5-2010 states "The minimum airflow rate of Outside Air that the Ventilation System must be capable of supplying during its operation shall be permitted to be based on the rate per-person indicated in Table 403.3 and the actual number of occupants present". FMC 403.3-2001, 403.3-2004, FMC 403.3-2007 all state in part "Ventilations Systems shall be designed to supply the minimum outdoor air flow rate determined in accordance with Table 403.3 based on the occupancy of the space and the occupant load or other parameter stated therein." For a large School District the operating cost of Ventilation (Outside) Air Systems and associated Exhaust Systems is approximately \$500,000 per hour per year District wide. Basing the design of Ventilation (Outside) Air Systems on the first column of Table 403.3 (similar to FMC 403.3-2001, FMC 403.3-2004 and FMC 403.3-2007) will minimize the operating costs of the Outside Air Systems and associated Exhaust Systems and minimize the Outside Air and associated Exhaust Equipment size and cost. Based on 30 years of experience, Ventilation (Outside) Air Systems designed based on the air flow rates or other parameter listed in the first column of Table 403.3 will provide adequate outside air for the space. **Based on the above, is the minimum acceptable design for a Ventilation (Outside) Air System based on the air flow rate determined in accordance with Table 403.3 based on the occupancy of the space and the occupant load or other parameter listed in the first column of Table 403.3?**
- 5. FMC 403.3-2010 states in part: "...the Ventilation (Outside) Air System shall be designed to supply the required rate of Ventilation (Outside) Air continuously for the period the building is occupied..."

FBC 423.15.5 states in part "...for the duration of operation of the air conditioning system..."

The intent of FMC 403 and FBC 423.15.5 is for all occupied spaces to be supplied with Ventilation (Outside) Air.

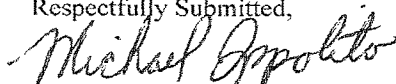
In order to reduce operating cost and comply with FMC 403 and/or FBC 423.15.5, if the Building and Space Air Conditioning Systems are required to run as well as Outside (Ventilation) Air and Exhaust Systems for spaces that are occupied., is it acceptable to turn off the respective Ventilation (Outside) Air Systems (Units) and associated Exhaust Systems (Fans) that serve unoccupied spaces?

- 6. **With regard to the specific issues of FBC 423.15.5 and FMC 403, does the "Authority Having Jurisdiction" (in this case the School District) have a legal obligation to enforce the Florida Building Codes correctly and in accordance with the Florida Building Code Commission Declaratory Statement pursuant to this Declaratory Petition?**

It is imperative that a clear and concise interpretation by the Florida Building Code Commission be made as to the intent and application of the codes. Petitioner appreciates the due diligence of the Florida Building Code Commission and fully understands the extensive work of the Florida Building Code Commission in developing the Codes for the greater safety and improvement of the consumer. Likewise, it would seem reasonable to ensure the Codes are uniformly interpreted. Section 533.775(1) Florida Statutes states: "It is the intent of the Legislature that the Florida Building Code be interpreted by the Building Officials, Local Enforcement Agencies and the Florida Building Code Commission in a manner that protects the public safety and welfare at the most reasonable cost to the consumer by ensuring uniform interpretations throughout the State by providing processes for resolving disputes regarding interpretations of the Florida Building Code that are just and expeditious."

Thank you for your time and consideration.

Respectfully Submitted,


Michael Ippolito, PE

School District Criteria

1. Administrative, media, classrooms, cafeteria, multipurpose rm, gym & auditorium-76°F / 50% RH
 2. Kitchen-85°F
 3. Locker rooms - 85°F
 4. Kiln rooms - 110°F
 5. Total air conditioned area - _____ square feet.
- b. Outdoor Condition
1. 91°FDB / 80° FWB
4. WINTER DESIGN CONDITION (placed on the drawings)
- a. Indoor Condition
 1. Administrative, media, classrooms, cafeteria, multipurpose rm, gym & auditorium - 70°FDB.
 - b. Outdoor Condition
 1. 39° FDB
5. Fresh air ventilation criteria (No less than 7.5 cfm per occupant)
As permitted in the SREF section of the FBC, the ventilation rate of fresh air cfm for air conditioning systems, to be calculated by multiplying the number of occupants (students and staff) intended for the space, times the "HCPS Design cfm / person" listed in the table below.
6. For design occupancies, refer to the following:
- a. High School Prototype Educational Specifications, the "Schedule of Spaces".
 - b. Middle School Prototype Education Specifications, the "Schedule of Spaces"
 - c. Elementary School Prototype Educational Specifications, the "Schedule of Spaces".

2010
FMC 403.3
Table 403.3
Requirements

FACILITY		UTILIZATION			VENTILATION			
GRADE LEVEL	SPACE	Type (1)	Student	A/C	Occupancy	FBC-MECH	Occupancy	HCPS
			Occupancy ÷ hrs / day	Operation = hrs / day	Adjustment Factor (2)	Table 403.3 × cfm / person	Adjustment = Factor (2)	Design cfm / person
ELEMENTARY (K - 5) Student Schedule: 8:00AM - 2:15PM A/C Schedule: 6:00AM - 4:30PM	Classroom	I	5.25	+ 10.50	= 0.50	15	× 0.50	= 7.5
	Cafeteria	C	3.50	+ 10.50	= 0.33 (use 1.00) (3), (4)	20	× 0.50 (4)	= 20
	Multipurpose	I	5.00	+ 10.50	= 0.48 (use 0.50)	15	× 0.50	= 7.5
	Music	I	3.50	+ 10.50	= 0.33 (use 0.50)	15	× 0.50	= 7.5
	Media Center	I	3.50	+ 10.50	= 0.33 (use 0.50)	15	× 0.50	= 7.5
	Administration	C	6.75	+ 10.50	= 0.64 (use 1.00) (3)	20	× 1.00	= 20
MIDDLE (6 - 8) Student Schedule: 9:00AM - 3:45PM A/C Schedule: 6:00AM - 4:30PM	Classroom	I	4.75	+ 10.50	= 0.45 (use 0.50)	15	× 0.50	= 7.5
	Cafeteria	C	3.50	+ 10.50	= 0.33 (use 1.00) (3), (4)	20	× 0.50 (4)	= 20
	Multipurpose	I	4.75	+ 10.50	= 0.45 (use 0.50)	15	× 0.50	= 7.5
	Music	I	4.00	+ 10.50	= 0.38 (use 0.50)	15	× 0.50	= 7.5
	Media Center	I	4.00	+ 10.50	= 0.38 (use 0.50)	15	× 0.50	= 7.5
	Administration	C	6.75	+ 10.50	= 0.64 (use 1.00) (3)	20	× 1.00	= 20
HIGH (9 - 12) Student Schedule: 7:30AM - 2:50PM A/C Schedule: 6:00AM - 4:30PM	Classroom	I	6.25	+ 10.50	= 0.60	15	× 0.60	= 9
	Cafeteria	C	3.50	+ 10.50	= 0.33 (use 1.00) (3), (4)	20	× 0.50 (4)	= 20
	Auditorium	I	4.50	+ 10.50	= 0.43 (use 0.50)	15	× 0.50	= 7.5
	Music	I	5.00	+ 10.50	= 0.48 (use 0.50)	15	× 0.50	= 7.5
	Media Center	I	5.00	+ 10.50	= 0.48 (use 0.50)	15	× 0.50	= 7.5
	Administration	C	6.75	+ 10.50	= 0.64 (use 1.00) (3)	20	× 1.00	= 20
Gymnasium	I	3.00	+ 10.50	= 0.29 (use 0.50)	15	× 0.50	= 7.5	

NOTES:
 (1) C = continuous occupancy; I = intermittent occupancy
 (2) Minimum allowable occupancy adjustment factor = 0.50.
 (3) Use of occupancy adjustment factor not allowed for spaces having continuous occupancy 3 hours or more.
 (4) Owner may identify specific sites where continuous occupancy is less than 3 hours. In such cases, FBC 423.15.6 (SREF) allows use of an occupancy adjustment factor.

Handwritten notes on the right side of the table:
 - 10 W
 - 7.5
 - 7.5
 - 7.5
 - 10
 - 10
 - 5
 - 10
 - 7.5
 - 7.5
 - 10
 - 10
 - 5
 - 0.3 CFM/ft²

D. Duct Design:

1. **Variable Air Volume boxes** to be installed with a straight section of round duct approximately 4 foot long on the inlet. This round duct size is to be 2" larger than the duct connection on the box; then use a