



MIKE CAUSEY, INSURANCE COMMISSIONER & STATE FIRE MARSHAL
BRIAN TAYLOR, CHIEF STATE FIRE MARSHAL

March 17, 2020

Ben Burke
Burke Design Group, PA
3305-109 Durham Drive
Raleigh, NC 27603

**RE: 2018 NC Mechanical Code, Table 403.3.1.1 Minimum Ventilation Rates
"Pet Shops" from Table 403.3.1.1 Applicable to Animal Hospitals**

Mr. Burke:

This letter is in response to your request for formal interpretation dated March 4, 2020 that was received in NCDOI by email on March 5, 2020. In my words you are requesting:

Is the line item labelled "Pet Shops" in 2018 NC Mechanical Code, Table 403.3.1.1 limited to pet boarding areas or does it apply to all areas of an animal hospital where pets may be present?

Remarks:

All code section references are from the 2018 NC Mechanical Code unless noted otherwise in this letter.

Code Analysis:

It appears that the intent of term "Pet Shops" in Table 403.3.1.1 is to control the spread of odor and possible pathogens to areas that do not contain pets.

Conclusions:

All areas where pets are or may be present should be addressed as required by the line item labelled "Pet Shops" in Table 403.3.1.1. Per footnote b of Table 403.3.1.1 air from areas where pets are expected to be located such as exam rooms, treatment areas, waiting areas, and connecting hallways should not be recirculated into areas where pets are not expected such as private offices, storage rooms, and break rooms.

As a matter of reference, a copy of your letter of request for formal interpretation and attachments (Attachment A below) are included with this letter.

Please call if you have comments or questions.

Sincerely,



Carl Martin, RA
Chief Code Consultant

cc: File
Robbie Davis, Chairman – BCC
Keith Rogers, PE, Chairman Mechanical Code Standing Committee – BCC
David Rittlinger – NC DOI

ATTACHEMNT A



**APPENDIX E
APPEALS
NORTH CAROLINA
BUILDING CODE COUNCIL
325 North Salisbury Street, Room 5_44
Raleigh, North Carolina 27603
(919) 647-0095**

APPEAL TO NCDOI/NCBCC Hearing Date ____ / ____ / ____
GS 153A-374, GS 160A-434 | GS 143-140, GS 143-141
Formal Interpretation by NCDOI _____ | Appeal of Local Decision to NCBCC _____
Appeal of Local Decision to NCDOI _____ | Appeal of NCDOI Decision to NCBCC _____

**APPELLANT Ben Burke (Burke Design Group) PHONE (919) 618 - 0717 x _____
REPRESENTING Homestead Animal Hospital, Cary NC
ADDRESS 1720 Old Reedy Creek Road
CITY Cary STATE NC ZIP 27513
E-MAIL ben@bdg-nc.com CELL (919) 618 - 0717**

North Carolina State Building Code, Volume Mech - Section Table 403.3.1.1

REQUEST ONE: Formal Interpretation by NCDOI Appeal of Local Decision to NCBCC
 Appeal of Local Decision to NCDOI Appeal of NCDOI Decision to NCBCC

Type or print. Include all background information as required by the referenced General Statutes and the attached policies. Attach additional supporting information.

We request a formal interpretation from Table 403.3.1.1 for pet shops (animal Areas). See attached.

REASON:

Charles Ruffin, Mechanical Reviewer for the Town of Cary, turned downs this office's design due to table 403.3.1.1. After a request from David Rittlinger, NCDOI we received an informal interpretation. See attached.

Signature  DATE: 3/4/2020 APPEAL TO NCDOI/NCBCC FORM 3/14/17



BURKE DESIGN GROUP, PA
CONSULTING ENGINEERS

bdgengineers.com
(919) 771-1916
3305-109 Durham Drive
Raleigh, NC 27603

March 3, 2020

North Carolina Sept. Of Insurance
Formal Interpretation Request

We request a formal interpretation from Table 403.3.1.1 of the 2018 NC mech code for pet shop (animal areas). I am the PME engineer of record on this project. Mr. Ruffin, the head mechanical reviewer for the Town of Cary rejected our design stating that the waiting areas, hallways, etc. shall be considered animal areas since dogs will be transient occupants. I would like for you to review the design in reference to table 403.3.1.1 of the 2018 NCMC. My premise is that the occupancy classification of "pet shops (animal areas)" apply to animal boarding type areas with high odor potential. Mr. Ruffin and Mr. Rittlinger both feel that this classification applies to all areas in the building in which animals have access to. For an animal hospital, that would apply to almost the entire building. We design 4 or 5 animal facilities a year and have never been required to provide that level of ventilation. It would effectively mean that normal HVAC systems would be eliminated and we would have to exhaust the majority of the spaces and bring in 100% outdoor air due to the high exhaust and outdoor air requirements. Additionally, the subscript "b" for the table does not allow the recirculation of air to other spaces so the majority of the conditioned air must be exhausted. We always utilize ERV's (energy recovery ventilators) and DOAS (dedicated outdoor air systems) units for this type facility in the "animal areas".

Please review our design for compliance with code per the NCDOL interpretation protocol. I am available by email or cell phone to take any questions you might have.

Sincerely,
Ben Burke, PE
Email- ben@bdg-nc.com
Cell- (919) 618-0717

Ben,
Good afternoon.

I offer the following as an informal interpretation as it relates to the inquiry from you and Mr. Ruffin, the drawings provided and 2018 NCMC Section 403:

1. Recirculation of air to other spaces from animal areas is prohibited. The individual exhaust fans with switches used for the four exam rooms, surgery room, treatment room, ISO and ICU are being used to provide intermittent exhaust of an animal area occupancy. Recirculation of air via the returns of AHU-1 and 3 is prohibited from animal areas.
2. Given the nature of the facility type. The waiting area is considered an animal area as the transient occupancy of animals is tied directly to the use of the other animal areas in the building plus the transient flow of animals will be continuous during business hours.
3. The infinity canine area is classified as an animal area even if it is for intermittent use. Exhaust is required in this space. AHU-2 is recirculating air with only minimal ventilation.
4. Office Manager 101, Toilet 106, Dr. Office 108, Storage 114, Day Care Vestibule 115, Mop 117, Storage 118, Elect 119, Mop 121, Laundry/Food Prep 122, Break 123 and Toilet 124 can be classified as occupancies other than animal areas. All other spaces are considered animal areas as animals will be present in those spaces.

Please let me know if you have any other questions or require further assistance with this matter.

David B. Rittlinger, PE, LEED AP
Chief Mechanical & Fuel Gas Code Consultant
Engineering Division



N.C. Department of Insurance
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0008

david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes

[https://codes.iccsafe.org/category/North%20Carolina?year\[\]=Current+Adoption&page=1](https://codes.iccsafe.org/category/North%20Carolina?year[]=Current+Adoption&page=1)

From: Ben Burke <ben@bdg-nc.com>

Sent: Tuesday, February 4, 2020 6:35 PM

To: Rittlinger, David B <david.rittlinger@ncdoi.gov>

Cc: charles.ruffin@townofcary.org; 'Carl Winstead' <CarlW@clinedesignassoc.com>; 'Barry @ Burke Design' <barry@bdg-nc.com>

Subject: [External] Homestead Animal Hospital

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to report.spam@nc.gov

Mr. Rittlinger,

I have attached the requested drawings. I am the PME engineer of record on this project. Mr. Ruffin, the head mechanical reviewer for the Town of Cary, and I would like for you to review the design in reference to table 403.3.1.1 of the 2018 NCMC. My premise is that the occupancy classification of "pet shops (animal areas)" apply to animal boarding type areas with high odor potential. Mr. Ruffin feels that this classification applies to all areas in the building in which animals have access to. I understand his interpretation. But for an animal hospital, that would apply to almost the entire building. We design 4 or 5 animal facilities a year and have never been required to provide that level of ventilation. It would effectively mean that normal HVAC systems would be eliminated and we would have to exhaust the majority of the spaces and bring in 100% outdoor air due to the high exhaust and outdoor air requirements. Additionally, the subscript "b" for the table does not allow the recirculation of air to other spaces so the majority of the conditioned air must be exhausted. We always utilize ERV's (energy recovery ventilators) and DOAS (dedicated outdoor air systems) units for this type facility in the "animal areas".

Please review our design for compliance with code per the NCDOL interpretation. I'm sure you will want to contact Mr. Ruffin for his take on this issue. Both of us want to meet all relevant codes. I am available by email or cell phone to take any questions you might have.

Sincerely,
Ben Burke, PE

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(919) 618-0717 cell



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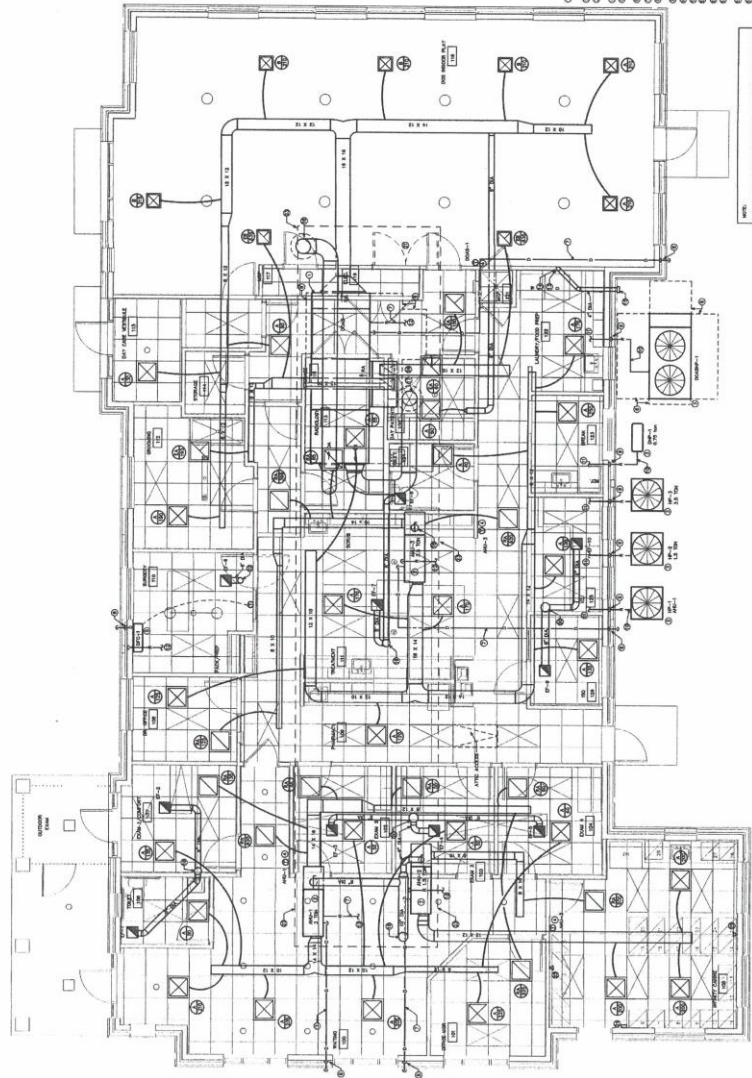
CARY, NC
HOMESTEAD ANIMAL HOSPITAL



DATE	
REVISION	
DESCRIPTION	
BY	
CHECKED	
DATE	

DESIGNED BY: [Name]
 CHECKED BY: [Name]
 HVAC PLAN

M2.01



NOTES:
 1. REFER TO ALL OTHER HVAC PLANS FOR COMPLETE SYSTEM INFORMATION.
 2. ALL REGISTER SIZES SHALL BE AS SHOWN UNLESS OTHERWISE NOTED.
 3. ALL REGISTER SIZES SHALL BE AS SHOWN UNLESS OTHERWISE NOTED.
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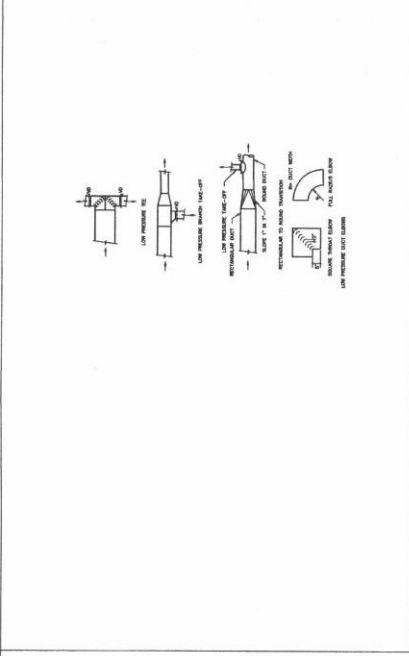
HVAC PLAN 1
 1/4" = 1'-0"



PROJECT NO.	1000000000
DATE	08/11/2010
DESIGNER	CLINE DESIGN
DATE	08/11/2010
PROJECT	HOMESTEAD ANIMAL HOSPITAL
DATE	08/11/2010
DESIGNER	CLINE DESIGN
DATE	08/11/2010

DESIGNED BY	ESB
CHECKED BY	ESB
DATE	08/11/2010
PROJECT	HOMESTEAD ANIMAL HOSPITAL
DATE	08/11/2010
DESIGNER	CLINE DESIGN
DATE	08/11/2010

M3.01



DUCT CONSTRUCTION DETAILS

3

1.1. DUCT MATERIALS AND CONSTRUCTION

A. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

B. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

C. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

D. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

E. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

F. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

G. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

H. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

I. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

J. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

K. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

L. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

M. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

N. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

O. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

P. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

Q. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

R. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

S. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

T. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

U. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

V. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

W. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

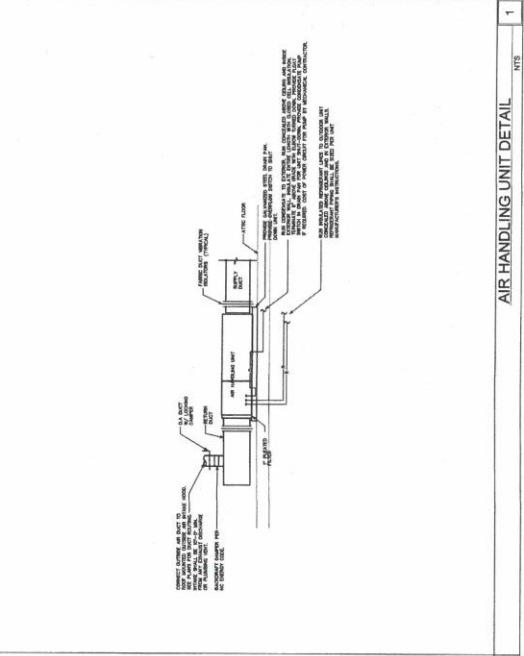
X. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

Y. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

Z. Duct shall be constructed of galvanized steel, minimum 16 gauge, unless otherwise specified.

DUCT CONSTRUCTION DETAILS

2



HVAC SPECIFICATIONS

1

AIR HANDLING UNIT DETAIL

M3.01



DATE: 12.23.15
 PROJECT: 15-000000
 SHEET: 12.23.15

DESIGNED BY: CYN
 CHECKED BY: CYN
 DATE: 12.23.15

G1.10

2015 APPROXIMATE BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
 (Except Low-Rise Single-Family and Two-Family Dwelling Units)

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MEASURE	UNIT	REQUIREMENT	ACTUAL	COMMENTS
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