Mechanical Engineering Consultants

May 30, 2018

Aten: David I Lee, BTech, Project Coordinator
Building Review Branch | Development, Buildings, & Licensing
City of Vancouver

Re: BP-2018-01319 446 W 8th Ave - Commercial Kitchen Review

Dear David,

In our opinion the 800 cfm ventilation rate which is recommended by ventless hood manufacturer is sufficient to provide the space with proper ventilation as per the followings illustration:

1. The estimated heat radiated from the two boilers under hood is around 30% of their maximum capacity or 3 kw heat (10,239 BTU/H). Taking in consideration the diversity factor for the two broilers, the number heating elements of each broiler, as well as the heat required and absorbed during the cooking operation.

2. The space estimated cooling load is around 8,400 BTU/H (without the heat generated from the cooking equipment).

3. Total maximum cooling load (space and cooking equipment radiation) is: 10,239 BTU/H +8,400 BTU/H = 18,639 BTU/H.

4. The space existing AC unit capacity is 1.5 ton (or 18,000 BTU/H) which is slightly less than the estimated total space cooling load. The space has been designed with 800 cfm for continuous exhaust air during the kitchen operation. Since the exhaust duct inlet is terminated near the hood fan outlet, this will allow cooking heat to be exhausted to the outdoor before reaching the space.

Therefore, we are in the opinion that the provided 800 cfm ventilation rate c/w the 1.5 ton AC unit in the space are sufficient to provide the space with an acceptable indoor temperature and indoor air quality.

Should you have any questions, please don't hesitate to contact with me.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
B. SABEEH AL-MAHAMEED
32157

RECEIVED
CITY OF VANCOUVER
JUN 11 2018
DEVELOPMENT
BUILDINGS & LICENSING

You're truly,
BSA Engineering Consultants Inc.

Bassam Sabeeh P.Eng, MBA

Lee, David (BRB)

From: Bassam Sabeeh P.Eng. <bassam@bsaengineering.ca>
Sent: Sunday, May 20, 2018 2:54 PM
To: Lee, David (BRB); ziadabbasi@yahoo.com
Subject: RE: BP-2018-01319 446 W 8th Ave - Commercial Kitchen Ventilation and Fire Suppression Review

Hi David,

As discussed here is the email – in our opinion the 800 cfm ventilation rate which is recommended by hood supplier is enough to provide the space with proper ventilation for the followings illustration:

1. The estimated heat radiated from the two boilers under hood is around 30% of their maximum capacity or 3 kw heat (10,239 BTU/H) taking in consideration the diversity factor for the two broilers and their heating elements as well as the heat required for the food cooking.

2. The space estimated cooling load is 0.7 ton or 8,400 BTU/H (without the heat generated from the cooking equipment).

3. Total maximum cooling load (space and cooking equipment radiation) is 10,239 BTU/H +8,400 BTU/H = 18,639 BTU/H.

4. Total cooling load available from the space fan-coil unit is 1.5 ton or 18,000 BTU/H which is slightly less than the estimated total space cooling load. The space has been designed with 800 cfm continuous exhaust air – the exhaust duct is terminated near the hood fan which will allow to exhaust most of the cooking heat to the outdoor.

Therefore, we are in the opinion that the provided 800 cfm ventilation rate c/w the 1.5 ton AC unit in the space is sufficient to provide the space with an acceptable indoor temperature and indoor air quality.

Please let me know if this is ok that we can send you the revised drawings for the other items.

Regards,
Bassam Sabeeh P.Eng., MBA | Director
BSA Engineering Consultants Inc.
Unit 115 – 14914 104 Ave.,
Surrey V3R 1M7
Office: (604) 589-5879
Cell: (604) 818-5879
Mechanical Engineering Consultants
www.bsaengineering.ca

From: Lee, David (BRB) [mailto:David.Lee3@vancouver.ca]
Sent: May 10, 2018 12:12 PM
To: Bassam Sabeeh P.Eng. <bassam@bsaengineering.ca>; ziadabbasi@yahoo.com
Subject: RE: BP-2018-01319 446 W 8th Ave - Commercial Kitchen Ventilation and Fire Suppression Review

Hi Bassam,

Please see comments below in **Green**.

Regards

David I Lee, BTech, AScT
Project Coordinator | Building Review Branch | Development, Buildings, & Licensing | City of Vancouver
D: 604-871-6260 | F: 604-873-7100 | E: david.lee3@vancouver.ca

Information on the new requirements are addressed in Bulletin 2016-007-BU/SP can be found on the City of Vancouver's Web Site: http://bulletins.vancouver.ca//2016/2016-007.pdf http://vancouver.ca/home-property-development/fire-sprinkler-permit.aspx

Formatted Insert Pages for the 2014 Vancouver Building Bylaw (up to January 1, 2018 requirements): http://vancouver.ca/your-government/vancouver-building-bylaw.aspx

Energy for New Homes 1 to 6 storeys www.vancouver.ca/homeenergy

Energy requirements for single family renovations www.vancouver.ca/home-renovations

---

From: Bassam Sabeeh P.Eng. [mailto:bassam@bsaengineering.ca]
Sent: Monday, May 07, 2018 4:20 PM
To: Lee, David (BRB); ziadabbasi@yahoo.com
Subject: RE: BP-2018-01319 446 W 8th Ave - Commercial Kitchen Ventilation and Fire Suppression Review

Hi David,

Please see the responses below item by item to narrow the comments . Once cleared we will send you the updated drawings and revised K-2 to make sure we covered all your comments.

Regards,
Bassam Sabeeh P.Eng., MBA | Director
BSA Engineering Consultants Inc.
Unit 115 – 14914 104 Ave.,
Surrey V3R 1M7
Office: (604) 589-5879
Mechanical Engineering Consultants
www.bsaengineering.ca

From: Lee, David (BRB) [mailto:David.Lee3@vancouver.ca]
Sent: May 4, 2018 12:12 PM
To: ziadabbasi@yahoo.com
Cc: Bassam Sabeeh P.Eng. <bassam@bsaengineering.ca>
Subject: BP-2018-01319 446 W 8th Ave - Commercial Kitchen Ventilation and Fire Suppression Review

The following comments are to identify any issues that do not comply with Vancouver Building By-law #10908 as amended (VBBL 2014) and to request clarification of information in the submitted documentation and drawings. All items must be addressed before the issuance of the permit. Please note that this is not a review of the permit application. We have the following comments

1. Drawings reference 2012 BC Building Code and NFPA 96, 2008. The applicable code is the 2014 VBBL, and the applicable edition of NFPA 96 is the 2011 edition. Review and revise reference accordingly. Yes this will be corrected to address the City of Vancouver code not BCBC.

   CoV: Noted. We look forward to receiving the updated drawings.

2. There are several boxes on the submitted K-2 form that indicate "N/A" that are applicable to Recirculating systems (e.g. Boxes 23, 24, 29 to 35). See Chapter 13 of NFPA 96. Applicant to initial signifying compliance. Review and revise accordingly. For items 23 and 24 our understanding these of the grease duct AP which they is not any, but we can check them for the hood if meant for the hood as well.

   CoV: It is our understanding that the "Recirculating hood" is provided with access panels to allow for the proper inspection, testing, and maintenance of the hood and it's integral systems. Boxes 23 and 24 would be applicable.

   For items 29 to 30 – our understating from past jobs, these are N/A for circulation hood. The air provided for space is not make up air for the hood. it's for space ventilation as recommended by hood manufacturer. Chapter 13 of NFPA 96 which refers back to chapter 8 for air movement is talking about the hood exhaust rate of the hood not the space ventilation rate. Please advise.

   CoV: Per the manufactures data sheets air is still required to be exhausted out of the space to prevent the building up of heat and steam.

3. Work appears to include the installation of new vertical broilers? Applicant to clarify. These spec for the existing broilers.

   CoV: Please clarify. The previously accepted permit for this space indicates 1 vertical broiler. If new equipment is being added it should be indicated as such.

4. The K2 form appears to contain information that varies from the drawings:
   a. Box 8 – Has been marked N/A. Building contains a Strata. Applicant to initial signifying compliance. Yes this will be checked in, we will check the owner to provide the letter from strata.

      CoV: Noted.

   b. Box 17 – Note on the drawings indicate the layout for the fire suppression system is an example and may be different based on the final equipment location. Applicant to coordinate and provide "accurate" drawings for the wet chemical fire suppression system as it pertains to the final equipment location. This is generic notes from other jobs should not be applied. The fire suppression provided is for the actual cooking equipment. In fact, the fire suppression system is overlapped type and it shall remain as in order to keep its UL300 listing. The note will be deleted with the updated drawings.

      CoV: Noted. As previously indicated provided kitchen hood/equipment wet chemical fire suppression drawings that are representative of the actual installation.

   c. Box 18 – Note location of the manual activation switch on the drawings. Yes this will be shown on the new plan.

      CoV: Noted. We look forward to receiving the updated drawings.

d. Box 21 – Applicant to clarify and note on the drawings the sequence of operation under non-fire conditions. Operation under non-fire conditions as follows:

1. The power supply of the cooking equipment under hood shall be interlocked with hood power supply that the cooking equipment and hood to operate together.

2. Ventilation fan SF-1 is interlocked with EF-1 both fans and they shall be controlled by 24/7 timer to allow the fans to operate continuously during space business hours and to shut off after hours. We can added these notes to the drawings if there is no further comments.

CoV: Noted. As previously indicated add information to the drawings. Please note, the City will continue to ask for this information on the drawings.

e. Box 27 – The exhaust flow rate on the K2 form varies from the drawings. Applicant to clarify and revise documents accordingly. The hood exhaust rate is 1500 cfm as shown in the hood shop drawings – the 800 cfm air shown on the drawing is for space ventilation. Please refer to hood shop's drawings on drawing #M3 of 4 for clarification.

CoV: As noted, the manufactures data sheets indicates typical flows through the hood are 1500 CFM. The space ventilation system would be required to provide general ventilation for the space (800 cfm based on your input above) plus the required ventilation for the hood (1500 cfm). Please provide air balancing report for the space.

Please indicate the address and permit number in the subject line or transmittal of all your correspondence and submissions to the City; hard copy submissions should be addressed to the attention of the Project Coordinator. All resubmitted documents and drawings must include the correct address and/or legal description. The review of your resubmission will be prioritized based on the date it is received. Please ensure full resubmissions are made as partial resubmissions will cause delays in review times. To aid in complete resubmissions please provide a response letter to the deficient items identified.

Please notes for ASHRAE 90.1, 2010 forms, all fans in the project is less than 1 hp, and AC unit is existing, therefore, none of the ASHRE 2010 forms will be applicable. Please let me know.

Do not hesitate to contact the City if you have any questions or require any additional information.

Regards

CITY OF VANCOUVER

David I Lee, BTech, AScT
Project Coordinator | Building Review Branch | Development, Buildings, & Licensing | City of Vancouver
D: 604-871-6260 | F: 604-873-7100 | E: david.lee3@vancouver.ca

Information on the new requirements are addressed in Bulletin 2016-007-BU/SP can be found on the City of Vancouver's Web Site: http://bulletins.vancouver.ca//2016/2016-007.pdf http://vancouver.ca/home-property-development/fire-sprinkler-permit.aspx

Formatted Insert Pages for the 2014 Vancouver Building Bylaw (up to January 1, 2018 requirements): http://vancouver.ca/your-government/vancouver-building-bylaw.aspx

Energy for New Homes 1 to 6 storeys www.vancouver.ca/homeenergy

Energy requirements for single family renovations www.vancouver.ca/home-renovations