March 15, 2019

Dear Brian:

As requested, JVA evaluated the adequacy of the existing roof framing of the referenced building to support the weight of the proposed rooftop mechanical equipment. The proposed rooftop mechanical equipment is as follows:

<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Approximate Operating Weight</th>
<th>Approximate size</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAU-1 (replacement)</td>
<td>834 lbs</td>
<td>83”L x 33”W x 34”H</td>
</tr>
<tr>
<td>MAU-2 (new)</td>
<td>539 lbs</td>
<td>75”L x 25”W x 34”H</td>
</tr>
<tr>
<td>EF-1 (replacement)</td>
<td>431 lbs</td>
<td>51”L x 51”W x 64”H</td>
</tr>
<tr>
<td>EF-2 (new)</td>
<td>195 lbs</td>
<td>35”L x 35”W x 42”H</td>
</tr>
</tbody>
</table>

Based on our review of the existing building’s structural drawings, the proposed rooftop mechanical equipment will be supported on 1½” x 18 ga. steel roof deck on 44” deep LH-series steel open web joists spaced at roughly 4’-4” on center. The joists are spanning 78’ and are supported on 12” CMU walls at each end.

As indicated on the existing structural drawings, the roof joists were originally designed to support these loads:

- 25 psf uniform dead load (self-weight + additional superimposed dead load)
- 30 psf uniform snow load

Based on our review of the information provided and the subsequent analysis, we have determined that the existing roof system has adequate capacity for support of the loads associated with the proposed air handling unit with the following conditions met:

- There are limitations as to where the rooftop mechanical equipment may be installed. See the attached Sketch A for these limitations.
- New roof openings may be cut in the existing roof deck. These openings shall not be overcut. Under no circumstance shall the joists be cut or damaged while cutting the new roof openings. The cuts in the roof deck may not be closer than 4” to the centerline of the existing joist.
• Angle frames shall be installed at new roof openings per attached Sketch B.
• Angle frame shall be installed under all new exhaust fans similar to the angle frame shown in Sketch B. The angles shall be aligned with the exhaust fan curb.
• Install channel (per Sketch C) under makeup air unit curbs where the curb runs perpendicular to the existing joist.

The additional weight of the new equipment does not cause the joists to exceed the 5% overstress allowed for gravity loads by the International Existing Building Code.

Please contact us if you have questions or need any additional information.

Sincerely,

JVA, Inc.

By: ___________________________
    David Mier, P.E.
    Senior Project Manager
MIN 12'-0, MAX 30'-0

MAU-2 SUPPLY DUCT
TO BE PLACED IN
EAST BAY

(E) CMU WALL,
TYP

MAU-1 AND EF-1
TO BE PLACED
IN WEST BAY
MIN 10'-0 FROM
SUPPORTS

(E) EXHAUST FAN(S)
TYPICAL MISCELLANEOUS ROOF OPENING

CUT EXISTING ROOF DECK, CARE SHALL BE TAKEN NOTO CUT THE TOP FLANGE OF THE EXISTING JOISTS

EXISTING DECK (BEYOND) SHALL BEAR A MINIMUM OF 2" ON NEW ANGLE FRAME BELOW

L3x3x1/4 (A36) BETWEEN JOISTS. WELD TO UNDERSIDE OF JOIST TOP CHOIRD

INSTALL SHIM PLATE UNDER EACH DECK FLUTE TO SUPPORT DECK ABOVE. TACK WELD SHIMS IN PLACE.

CONTRACTOR OPTION TO PUSH ANGLE FRAME UP TIGHT AGAINST DECK AND COPE HORIZONTAL LEG AT JOIST TOP CHORD. THIS ELIMINATE THE NEED FOR SHIMS BELOW DECK FLUTES.

TYPICAL ANGLE TO ANGLE & ANGLE TO JOIST (E70 WELD)

L3x3x1/4 (A36) EACH SIDE OF OPENING

E) JOIST, BEYOND

E) DECK

SEE PLAN

Sketch B
JVA, Inc.
03/15/2019
STEEL SHIMS @ 2'-0 (NOT REQD IF TAPERED CURBS ARE PROVIDED, COORD W/ RTU SUPPLIER)

MECH UNIT CURB, SEE MECH DWGS. FASTEN MECH UNIT CURB TO CHANNEL W/ (5) HILTI #12-24 SELF DRILLING SCREWS (TYP EACH SIDE)

MC6x12 (A36) EACH END OF RTU CURB. LOCATE CHANNEL UNDER CURB AND EXTEND 4" MIN. PAST CENTERLINE OF EXISTING JOIST.

TYP AT EACH JOIST
(E70 WELD) 3/16

L1-1/2x1-1/2x3/16 (A36) EACH SIDE

USE CAUTION WHEN WELDING NOT TO DAMAGE JOIST

ANGLE REINF REQD WHEN GREATER THAN 6"

TYPICAL ROOFTOP MECH UNIT SUPPORTS

Sketch C
JVA, Inc.
03/15/2019