March 15, 2019

Brian Ehle
PCD Engineering
323 3rd Avenue, #100
Longmont, CO 80501

Re: Weld County Health Building – 1555 N 17th Avenue, Greeley, Colorado
Evaluation of Roof Framing for the Proposed Air Handling Unit
JVA Job #19628

Dear Brian:

As requested, JVA evaluated the adequacy of the existing roof framing of the referenced building to support the weight of the proposed air handling unit. The proposed air handling unit is as follows:

<table>
<thead>
<tr>
<th>Equipment Name (replacement)</th>
<th>Approximate Operating Weight</th>
<th>Approximate size</th>
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<tbody>
<tr>
<td>AHU-1</td>
<td>3000 lbs</td>
<td>122”L x 85”W x 66”H</td>
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The proposed air handling unit will replace the existing air handling unit (2000 lbs) in approximately the same location. Based on our review of the existing building’s structural drawings, the new unit will be supported on 1½” x 20 ga. steel roof deck on 16” deep K-series steel open web joists spaced at roughly 5’-0” on center. The joists are spanning 25’ and are supported on steel post and beam framing 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 unit 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.
- Install channel (per Sketch C) under air handling unit curbs where the curb runs perpendicular to the existing joist.
The additional weight of the new air handling unit does not cause the joists or the supporting girders 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
JOISTS @ 5'-0

MIN 18'-0, MAX 24'-0

W24x55 RUNS CONTINUOUS OVER COLUMN

RTU DUCTS TO BE PLACED BETWEEN 1ST AND 2ND JOISTS WEST OF COLUMN

Sketch A
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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 CHORD

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

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

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

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

STEEL SHIMS @ 2'-0 (NOT REQD IF TAPERED CURBS ARE PROVIDED, COORD W/ RTU SUPPLIER)

TYP AT EACH JOIST (E70 WELD) 3/16

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

USE CAUTION WHEN WELDING NOT TO DAMAGE JOIST

ANGLE REINF REQD WHEN GREATER THAN 6"

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

TYPICAL ROOFTOP MECH UNIT SUPPORTS

Sketch C
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