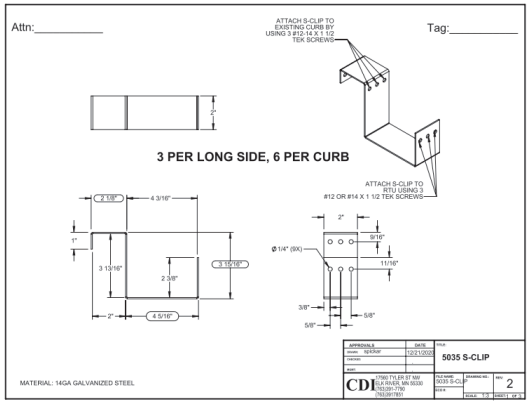
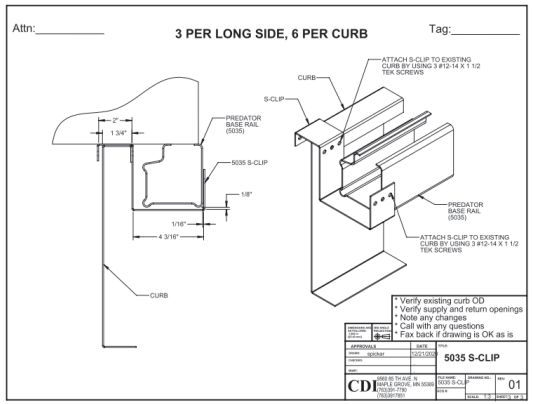
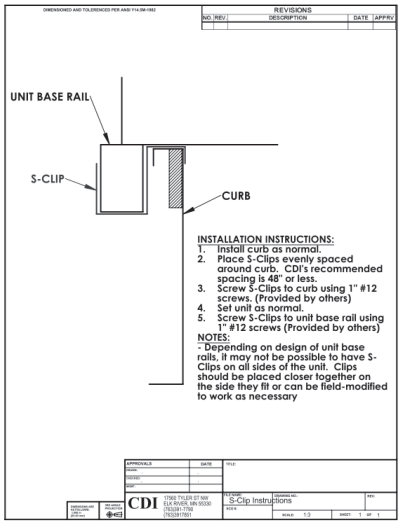


1 **WIND CLIP DETAIL**
NTS



2 **WIND CLIP/CURB ASSEMBLY DETAIL**
NTS



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M E M O

TO: Steve Pickar, CDI Curbs
FROM: Sam Gardner P.E., VAK Engineering
PROJECT: 5035 Stock Curb
RE: C2-0K0XX/00XX-5035 Straight & Knockdown Curb Design

Job # 20-001FG
DATE: 8/25/2020

As requested we have reviewed the stock straight and knockdown curb for the 9229 unit and the attachments to support seismic and wind design loads. Operating weights of the unit ranged between **860lb** and **1535lb.** The roof itself and the weight of ductwork were not included in this analysis.

A_P = **2.5**
R_P = **2.0**
I_e = **1.5**

Building Height: **60'0"**
Site Soil Class: **D**
S_{DS}: **1.33g**

Building Category: **IV**
Exposure: **C**
Basic Wind Speed: **185mph**

Based on the wind and seismic analyses we determined the governing load conditions for vertical loading and shear. Here are our findings from the analysis of the curb supporting the rooftop unit.

Reactions Summary	Long Side (x) (lb.)	Short Side (y) (lb.)
Per Side of Curb		
Unit to Curb Connection		
Maximum Tension	3829	2894
Maximum Compression	7455	6662
Maximum Shear	2388	2874
Curb to Surface Connection		
Maximum Tension	5624	3640
Maximum Compression	9155	7170
Maximum Shear	3014	3902

Therefore, based on the design criteria provided, we have applied both wind and seismic reactions to the unit and curb to determine the fastening requirements. During our analysis, we determined that (10) ¼ #14 TEK screws will be required per each long side of the curb through the unit boxed rail to the unit with (8) per short side for a total of (36).

We checked the adequacy of the connection of the curbs to the structure, and the curb itself. The flange at the top and bottom of the curb were checked in bending, and the corners of the curb were assumed to carry the compression in the curb wall as 2.0x2.0 angles with the same thickness as the curb wall. The bottom flange requires the addition of hemming the flange over on itself.

Filename: 20 001FG LTR01 08 28 2020 **Page 1 of**

VAK MEMO ***8/25/2020***

Connection of the curb to the roof requires fasteners on both sides of the curb. Without knowing which fasteners to be used, 0.5" Ø A307 bolts into steel, ¼" SDS Wood Screws into wood, and 3/8" Simpson Strong Bolts with 1.875" effective embedment into concrete were checked. From our analysis, we recommend one of the following:

- (8) 0.5" Ø A307 Bolts per long side of the curb with (6) per short side for a total of (28) bolts.
- (8) 1/4" SDS Wood Screws with 3.5" embedment per long side of the curb with (8) per short side for a total of (32) screws.
- (8) 3/8" Simpson Strong Bolts with 1.875" of effective embedment per long side of curb with (6) per short side for a total of (28) concrete anchors.

If concrete is used, at least 4" of depth is necessary. For each fastener, install per manufacturer specifications and located 5/8" away from the curb wall. Anchors shall be placed such that there is a fastener on the long edge at least 6" from the short end of the curb.

Please feel free to contact us should anything further be required or if questions arise.

Best Regards,
Sam Gardner, P.E.

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08/27/2020

Filename: 20 001FG LTR01 08 28 2020 **Page 2 of**

3 **WIND CLIP/CURB CALCULATIONS**
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CONDITIONS OF ISSUE

JAMES F. TURNER LICENSE NO. 73441 STATE OF FLORIDA PROFESSIONAL ENGINEER
2022-10-07

ISSUE

TCCA HIGH SCHOOL BUILDING
1400 SE COVE RD
STUART FLORIDA 34997

SHEET ISSUE:

NO.	DATE	DESCRIPTION	BY
A	8.5.22	50 Set	

PRINCIPAL IN CHARGE: Approved
PROJECT ARCHITECT: NPP
DRAWN BY: DBS

SHEET TITLE:
MECHANICAL DETAILS

SHEET NO. M502
PROJ. NO. 022004

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