GATEWAY ENGINEERS
A FULL-SERVICE CIVIL ENGINEERING FIRM

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April 6, 2021
C-39980-0002

Neuvokas Corporation
3206 #6 Road
Ahmeek, MI 49901

RE: GatorBar® in Residential Foundations
subject to the 2019 Residential Code of Ohio

Dear Mr. Kero:

It is my professional opinion, as a registered professional engineer in the state of Ohio, that #3 GatorBar® as manufactured by Neuvokas Corporation may be substituted for traditional #4 steel rebar in the conditions described below for a one- or two-family residential construction which is subject to the requirements of the 2019 Residential Code of Ohio.

Horizontal Steel Reinforcement in Foundation Walls – The 2019 Residential Code of Ohio, Table R404.1.2(1) specifies the minimum required horizontal reinforcement in concrete foundation walls (subject to compliance with Table R608.3). That steel reinforcing is specified to be #4 steel bars at a certain spacing and location and a minimum yield strength of 40,000 psi using concrete with a minimum compressive strength of 2,500 psi. The tensile capacity of the #3 GatorBar (Guaranteed Tensile Strength = 145 ksi, in accordance with ASTM 7205) exceeds the tensile capacity of the required minimum rebar (40 ksi, minimum) and therefore, in my opinion, would exceed the minimum required by the 2019 Residential Code of Ohio.

Longitudinal (Horizontal) Steel Reinforcement in Foundation Wall Strip Footings – The 2019 Residential Code of Ohio, Section R403.1 specifies concrete footings shall be designed and constructed in accordance with the provisions in ACI 332 and ACI 332.1R. No further reinforcement provisions for concrete footings are specifically referenced in the 2019 Residential Code of Ohio.

ACI 332.1R-18 Sections 4.3.7.1 and 4.3.8.2 specify minimum 2,500 psi concrete and standard steel Number 4 or Number 5 reinforcement bars of Grade 40 or Grade 60 for footings and stem walls, respectively. ACI 332.1R-18 Section 5.4 – "Reinforcement" further directs reinforcement requirements be dictated by ACI 332-14. Per ACI 332-14 Section 7.2.7.1, continuous footings with stem walls located in Seismic Design Categories D, E, or F require minimum of two longitudinal #4 bars (one top and one bottom)(40 ksi minimum, in accordance with ACI 332-14 Section 4.2.1). The tensile capacity of the #3 GatorBar (Guaranteed Tensile Strength = 145 ksi, in accordance with ASTM 7205) exceeds the tensile capacity of the required minimum footing longitudinal steel requirements specified in ACI 332-14 and ACI 332.1R-18, and therefore, in my opinion, would exceed the minimum required by the 2019 Residential Code of Ohio.

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A sketch illustrating the discussed acceptable locations for GatorBar #3 reinforcement in lieu of standard steel reinforcement is shown below (in accordance with the 2019 Residential Code of Ohio)

The above is my professional opinion based on my understanding of the applicable sections of the 2019 Residential Code of Ohio and based on my review of the GatorBar by Neuvokas Corporation material properties.

Please let us know if you have any questions or concerns.

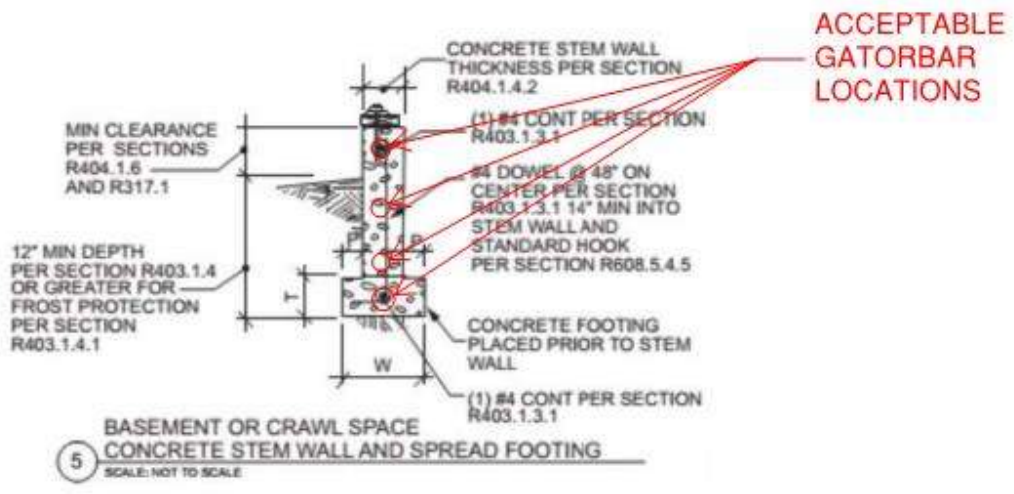
Thank you,

THE GATEWAY ENGINEERS, INC.

STATE OF OHIO
DANIEL P. MESSMER
E-59196
REGISTERED PROFESSIONAL ENGINEER

Daniel P. Messmer, P.E., D. GE

Engineer



SKETCH: ACCEPTABLE GATORBAR LOCATIONS