GATEWAY ENGINEERS
A FULL-SERVICE CIVIL ENGINEERING FIRM

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August 1, 2022
C-39980-0004

Neuvokas Corporation
3206 #6 Road
Ahmeek, MI 49901

RE: GatorBar® in Residential Foundations
In compliance with the 2012 International Residential Code
Adopted by the State of Arkansas

Dear Mr. Kero:

It is my professional opinion, as a registered professional engineer in the state of Arkansas, 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 2012 International Residential Code (IRC) adopted by Arkansas.

Horizontal Steel Reinforcement in Foundation Walls – The 2012 International Residential Code, Table R404.1.2(1) specifies the minimum required horizontal reinforcement in concrete foundation walls. That steel reinforcing is specified to be #4 steel bars at a certain spacing and locations, 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 2012 International Residential Code.

Longitudinal (Horizontal) Steel Reinforcement in Foundation Wall Strip Footings – The 2012 International Residential Code, 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 2012 International Residential Code.

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

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exceed the minimum required by the 2012 International Residential Code adopted by the State of Arkansas.

A sketch illustrating the discussed acceptable locations for GatorBar #3 reinforcement in lieu of standard steel reinforcement is shown below (in accordance with the 2012 International Residential Code).

The above is my professional opinion based on my understanding of the applicable sections of the 2012 International Residential Code and based on my review of the GatorBar product specifications and independent test results, provided by Neuvokas Corporation, with respect to the material properties of the GatorBar.

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

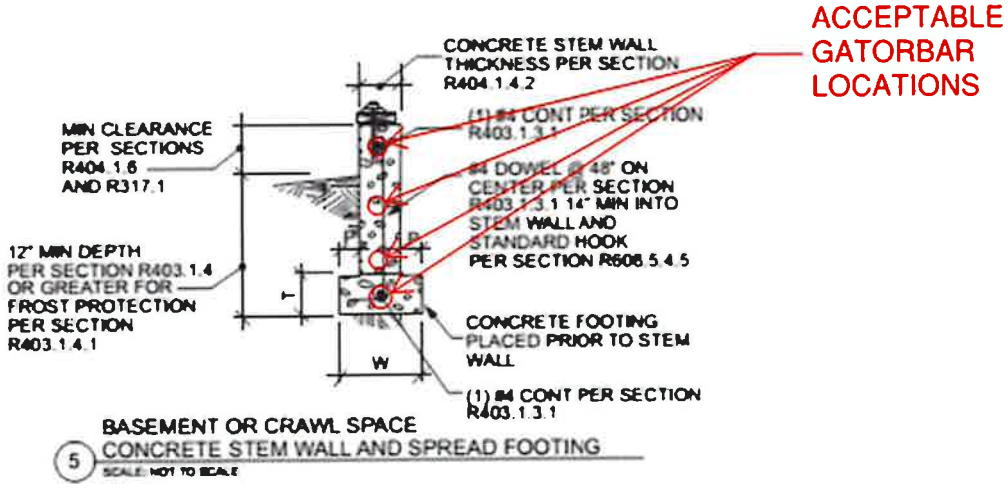
Thank you,

THE GATEWAY ENGINEERS, INC.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 21192
DANIEL P MESSMER

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

Engineer



SKETCH: ACCEPTABLE GATORBAR LOCATIONS