



July 03, 2018

ABI Corporation  
1271 NE Delta School Road  
Lee's Summit, MO 64063-1732

Re: Helix Micro Rebar Shop Drawings  
1709 SW Merryman Dr  
Lot 47, The Manor  
Lee's Summit Permit #2018-1780

Apex Engineers, Inc. observed the plans for the proposed house at the address referenced above. The plans were evaluated for substituting Helix micro rebar for the foundation reinforcing steel. The recommendations and attached detail sheets shall be considered shop drawings for an alternative reinforcement design.

Helix Micro Rebar may be substituted per the attached Alternate Reinforcement Design/Helix Micro Rebar Details, and per the following:

- Detail 1/H1.0 - Foundation walls, once completed, shall be laterally braced at the top by the first floor deck and at the bottom by the basement slab.
- Detail 2/H1.0 - Daylight foundation walls are concrete walls not directly connected to the floor joists via the sill plate. Daylight foundation walls shall comply with the following layout restrictions:
  - Daylight walls greater than 4'-0" tall shall be bookended by corners, offsets greater than 2'-0", and/or return walls at a maximum spacing of 16'-0" on center. Return walls shall be placed per 3/H2.0
  - Daylight walls greater than 6'-0" tall shall not exceed 6'-0" in length.
  - Daylight walls 4'-0" tall and less do not require return walls.
- Detail 3/H2.0 - Return walls shall be installed per plan. Additional return walls may be required to comply with the specifications above.
- Details 4/H2.0 & 5/H2.0 - Install corner reinforcing and column pads reinforcing per the attached details.

Please call if Apex Engineers, Inc. can be of further assistance.

#### LIMITATIONS

The scope of our services includes only those items specifically addressed herein. This report is intended for the confidential and exclusive use of Apex Engineers, Inc.'s client. No other person or company is authorized to use this report for any purpose without Apex Engineers, Inc.'s client permission.

Best Regards,  
Apex Engineers, Inc.

Clayton J. Hess, P.E.  
Principal

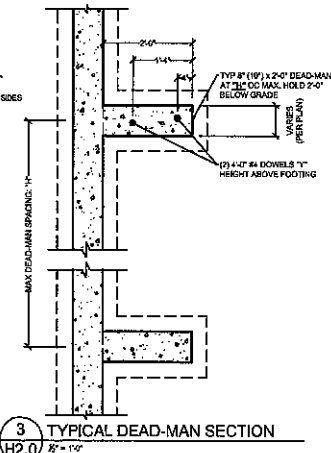
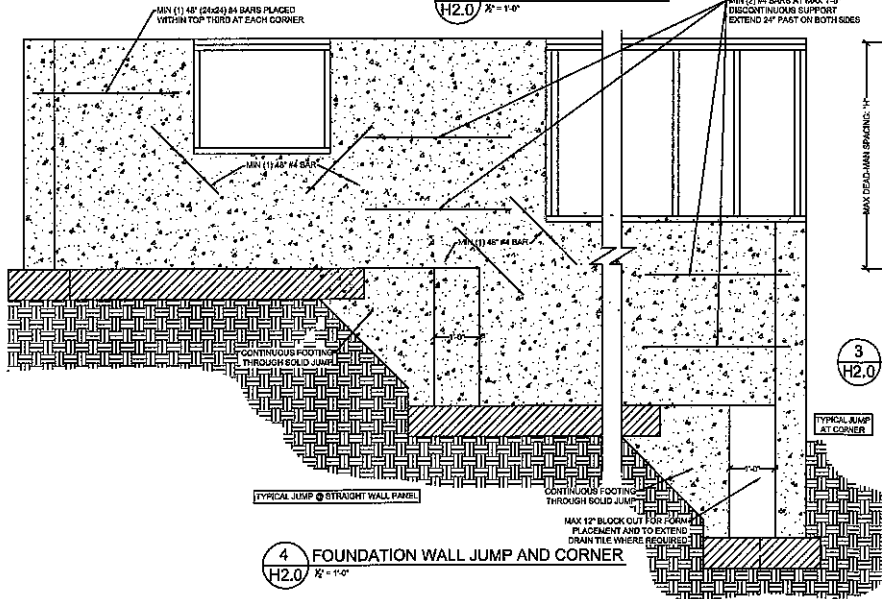
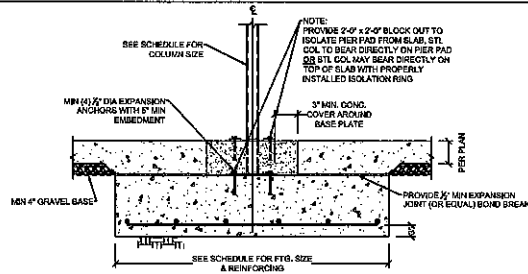


SHEET #  
**H1.0**

# ALTERNATE REINFORCEMENT DESIGN/HELIX MICRO REBAR

| COLUMN & PIER PAD SCHEDULE |                   |                        |
|----------------------------|-------------------|------------------------|
| PAD SIZE                   | REINFORCEMENT     | HELIX DOSAGE           |
| 30" x 30" x 12"            | (6) #4 BARS E.W.  | 9.0 LB/YD <sup>3</sup> |
| 36" x 36" x 12"            | (8) #4 BARS E.W.  | 9.0 LB/YD <sup>3</sup> |
| 42" x 42" x 12"            | (10) #4 BARS E.W. | 9.0 LB/YD <sup>3</sup> |
| 48" x 48" x 12"            | (12) #4 BARS E.W. | 9.0 LB/YD <sup>3</sup> |
| 54" x 54" x 12"            | (14) #4 BARS E.W. | 9.0 LB/YD <sup>3</sup> |
| 60" x 60" x 12"            | (16) #4 BARS E.W. | 9.0 LB/YD <sup>3</sup> |

1. COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0". REQUIRES SEPARATE ENG'D DESIGN IF GREATER THAN 10'-0" TALL.
2. COLUMN & PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY PER PLAN.



STRUCTURAL DESIGN REVIEW  
KANSAS ENGINEERING LICENSE: 892  
MISSOURI ENGINEERING LICENSE: 200034613

PROJECT: 1709 SW Merriam Dr  
Lot 47, The Manor  
Lee's Summit Permit #2016-1780  
CLIENT: ABI

PROJECT #  
DRAWING NAME  
HELIX DETAILS  
DATE: 08/18/17  
COMMENTS:  
DRAWN BY: APEX  
CHECKED BY: —

SHEET #  
H2.0