

June 08, 2018

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

Re: Helix Micro Rebar Shop Drawings

> #4430 SW Amethyst Dr Lot 70. The Manor

Lee's Summit Permit #2018-1678

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 flowing 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





GENERAL NOTES:
THESE HEILEN MICHO REBAR SHOP ORAMINOS VERE DESIGNED AS AN
EQUIPALENT RESINORECEMENT SPECIFICATION PER THE IMPHO
UNIFICADE AS REPORT WORN, 2012 INTERNATIONAL RESIDENTIAL CODE.
AND ACC 323-10

- DARFORD ESPERIOR WAYS, AND ENTERNATIONAL RESIDENTIAL CODE.

 AND NO 333-10

 AND NO

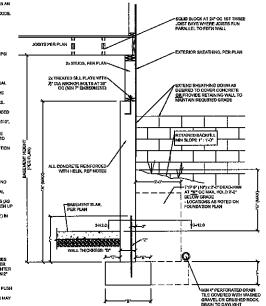
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- 5.15 VERIFED USING PROCEDIES HI SR 279 APPENDIX A.

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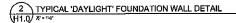
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PREVENT SUMPACE EEORECATION OF THE CEMENT AND FINES FROM
THE AGDREGATE AND HEILUS SLUMP SKOULD BE WASHERD ON THE
SITUAL LOAD AND ACLUSTMENTS MADE WITH A WATER REDUCER OR
PLASTICIZER NOT WATER.

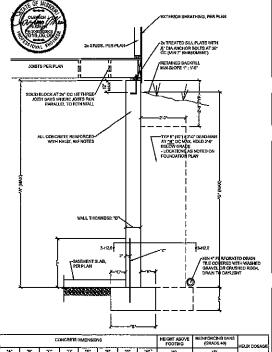
PUMPING HELIX HELIX ARE 1' LONG AND PRESENT MONTAL PUMPING RESISTANCE. A MINIMUM 3' LINE SHOULD BE USED TO PUMP HELIX REINFORCED



Γ	CONCRETE DIMENSIONS								HEIGHT ABOVE FOOTING	REINFORCING BARS (GRADE 40)	HELIX DOSAGE	
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Γ	4'-0"	1'4"	4"	8	4	8.	3-X	18-0	3-0.	#4 BARS AT 24" O.C.	9.0 LGAAD ₂	
Γ	8-0	1'4"	4"	8-	4"	8		16-0	5-0	14 BARS AT 24" O.C.	9.0 L8/YD ³	

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8'-0"	1'-4"	4"	ĝ.	4"	8.	7-6"	N/A	2-0*	84 BARS AT 24" O.C.	9.0 LB/YD ³	
9'-0"	141	4"	8	Ť	8*	8-6*	N/A	2-0*	#4 BARS AT 24" O.C.	9.0 L8/YD ³	

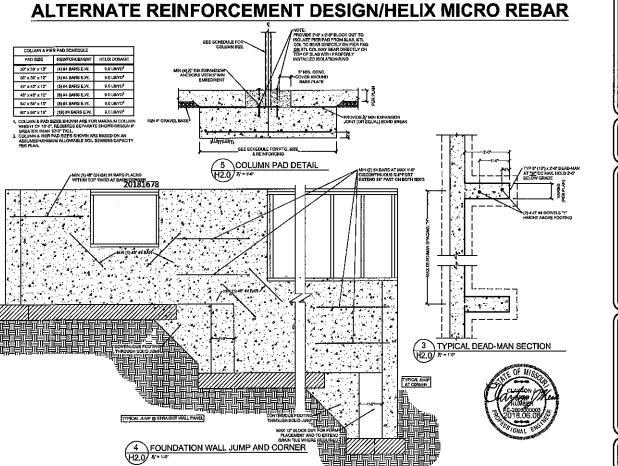
- LIMENSION SHOWN (S FOR MAXIMAN UNINTERRUPTEO WALL PANEL LENGTH BEFORE A DEAD-MAN SPALL BE RISTALLED. NOTE: A MINIMAY 22° RETURN OR OFFER IN THE FOUNDATION WALL SHALL SUBSTITUTE AS DEAD-MAN MAXORIFEAN IN THE WALL PANEL LENGTH. DAY WALL WILL NOT ACHIEVE FULL STRENGTH LINTIL FIRST FLOOR OECK AND BASEMENT SLAB HAVE BE PLACED.

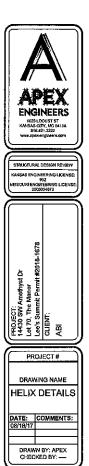




CHECKED BY: --

SHEET#





H2.0