GENERAL CRITERIA:

1. THIS DESIGN MAY BE USED AS A STAND ALONE PACKAGE OR AS PART OF A LARGER DRAWING PACKAGE. ENGINEERING REVIEW AND APPROVAL SHALL BE OBTAINED FOR SITE-SPECIFIC CONDITIONS.
2. PLAN AND SECTIONS ARE SHOWN ON SHEETS ST-D5020-3-2 AND ST-D5020-3-3.
3. ANY DISCREPANCIES SHALL BE REPORTED TO THE RESPONSIBLE ENGINEER PRIOR TO CONSTRUCTION.
4. DO NOT SCALE DRAWINGS TO DETERMINE DIMENSIONS.
5. NEW CONSTRUCTION SHALL BE COORDINATED WITH EXISTING SITE CONDITIONS.
6. THE PROJECT SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND PROTECT CONCEALED CONDUITS, PLUMBING, OR OTHER UTILITIES.
7. WHERE DIMENSIONS OR SPACING SHOWN ON SHEETS ST-D5020-3-2 AND ST-D5020-3-3 ARE NOT SPECIFIED, SUCH AS ANCHORAGE OF HOUSEKEEPING PADS, SUBCONTRACTOR SHALL MAKE NECESSARY FIELD MEASUREMENTS AND PROVIDE REQUIRED DIMENSIONS.
8. SHEET NUMBERING AND CALL-OUT REFERENCING WILL NEED TO BE UPDATED TO FOLLOW LANL STANDARDS AND INTEGRATE INTO DRAWING PACKAGES.
9. THIS STANDARD IS NOT APPLICABLE TO MCC'S THAT DO NOT MEET ALL THE CRITERIA, DIMENSIONS, ETC. CONTAINED IN THESE DRAWINGS.
10. IT IS ASSUMED HEREIN THAT MOTOR CONTROL CENTERS (MCC) ARE INSTALLED ON A HOUSEKEEPING PAD THAT IS EITHER NEW OR EXISTING, AND THAT THE PAD IS SUPPORTED BY AN EXISTING CONCRETE SLAB IN A DRY INTERIOR LOCATION. NEW PADS MUST BE ANCHORED TO EXISTING SLAB AS INDICATED HEREIN. TO USE EXISTING PADS, VERIFICATION OF PAD TO SLAB ANCHORAGE MUST BE ESTABLISHED.
11. ICC ESR-3814 SECTION 5.21 STATES THAT HILTI HIT-RE 500 V3 ADHESIVE ANCHORS AND POST-INSTALLED REINFORCING BARS MAY BE USED TO RESIST TENSION AND SHEAR FORCES IN FLOORS ONLY IF INSTALLATION IS INTO CONCRETE WITH A TEMPERATURE BETWEEN 23°F AND 104°F.

DESIGN CRITERIA:

1. APPLICABLE CODES AND STANDARDS:
   - A. INTERNATIONAL BUILDING CODE (IBC) 2015
   - B. AMERICAN SOCIETY OF CIVIL ENGINEERS - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES 2010 (ASCE 7-10).
   - C. AMERICAN CONCRETE INSTITUTE - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14).
   - D. LANL ENGINEERING STANDARDS MANUAL STD-342-100.
2. THIS DESIGN IS FOR ML-4. FOR ML-1, ML-2 AND ML-3 ADDITIONAL REQUIREMENTS MAY BE REQUIRED.
3. RISK CATEGORY: RC IV
4. CALCULATIONS:
   - A. CALC-12-00-000-000-0016-S-R-1
5. DESIGN LOADS:
   - A. DEAD LOADS: SELF WEIGHT OF MCC
   - B. SEISMIC DESIGN BASED ON LANL ESM CHAPTER 5 SECTION II REV 10. SEISMIC DESIGN PARAMETERS:

     S_{DS} = 0.75g
     I_P = 1.5
     Ω_O = 2.5

MATERIAL CRITERIA:

1. CONCRETE (EXISTING SLAB AND HOUSEKEEPING PAD):
   - A. CONCRETE WORK PER LANL MASTER SPEC FOR REINFORCED CONCRETE.
   - B. CONCRETE CONDITIONS FOR ANCHORAGE SHALL BE DRY OR WATER SATURATED AT TEMP. RANGE A PER ICC ESR 3814.
   - C. EXISTING PAD/SLAB:
     1. CONCRETE COMPRESSIVE STRENGTH (28 DAY): f'c = 2500 PSI.
     2. EXISTING CONCRETE WITH A MINIMUM OF 4" THICKNESS.
   - D. NEW HOUSEKEEPING PAD:
     1. STRENGTH AND THICKNESS PER C.1 AND C.2
     2. THE CONCRETE SHALL HAVE CURED FOR AT LEAST SEVEN (7) DAYS PRIOR TO ANCHOR INSTALLATION, AND SHALL HAVE ATTAINED ITS MINIMUM DESIGN STRENGTH PRIOR TO LOADING OF THE ANCHORS (UNLESS OTHERWISE INDICATED IN MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS [MPII]).
2. POST-INSTALLED ANCHORS:
   - A. POST-INSTALLED ANCHORS PER LANL MASTER SPEC FOR NORMAL CONFIDENCE POST-INSTALLED ANCHORS.
   - B. POST-INSTALLED ANCHORS SHALL BE INSTALLED PER MPII AND ICC-ESR 3814 IN HOLES MADE USING HAMMER DRILL AND CARBIDE BIT OR HILTI HOLLOW CARBIDE DRILL BIT.
   - C. EMBEDMENT DEPTHS SHOWN ON THE DRAWINGS ARE MINIMUM.
   - D. POST-INSTALLED ANCHORS SHALL NOT CONFLICT WITH OR DAMAGE CONCRETE REBAR.
3. MOTOR CONTROL CENTER:
   - A. WEIGHT OF EACH MCC UNIT AND BUS BARS MAY NOT EXCEED 650 LBS.
   - B. MCC WILL BE MOUNTED ON THE SLAB-ON-GRADE (UNLESS A PROJECT-SPECIFIC STRUCTURAL ANALYSIS INDICATES AN ELEVATED CONCRETE SLAB IS ADEQUATE FOR THE NEW LOAD).
   - C. INSTALL PER MPII USING ADDITIONAL HARDWARE RECOMMENDED BY MANUFACTURER.

NOTES FOR EOR:
(DO NOT INCLUDE ON CONSTRUCTION DRAWING)

1. EDIT TO BE PROJECT SPECIFIC.
2. COMPLY WITH CURRENT EDITION OF LANL CAD STANDARDS MANUAL.
3. ASSIGN AN APPROPRIATE SHEET & DRAWING NUMBER PER THE CURRENT LANL CAD STANDARDS MANUAL.
4. ADHESIVE ANCHORS PER LANL MASTER SPEC(S) FOR NORMAL CONFIDENCE POST-INSTALLED ANCHORS.
5. ADHESIVE ANCHORS SHALL BE INSTALLED IN COMPLIANCE WITH THE MPII AND ICC-ESR 3814.

00% REVIEW
NOT FOR CONSTRUCTION

NO	DATE	CLASS REV	DC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	03/08/18	UNCLASS		UPDATED CALCS & DRAWINGS TO IBC 2015 & TO CAD STDS MANUAL REV 5. CHANGED SHEET # FROM S-0001.	BW	BW	GP	GP	TO

ENGINEERING STANDARDS

STRUCTURAL

MOTOR CONTROL CENTER ANCHORAGE GENERAL NOTES

TA-XX BLDG XXXX

DRAWN	S. THOMSON
DESIGN	S. THOMSON
CHECKED	S. KOTHARI
DATE	1/2/2013

SUBMITTED
DISCIPLINE POC: DOUGLAS VOLKMAN

APPROVED FOR RELEASE
STANDARDS MANAGER: TOBIN ORUCH

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET 1 OF 1 3

D.C.: UNCLASSIFIED | REVIEWER: E.J.SEAWALT | DATE: 1/2/2013

PROJECT ID: CHAPTER 5
DRAWING NO: ST-D5020-3
REV: 1