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To: All Canadian Reviewing Building Officials, Plans Examiners,
Engineers, Architects and Designers

**RE: REVIEW OF POWERS PROVIDED TO REVIEWING BUILDING OFFICIALS
REGARDING THE NUDURA® INTEGRATED BUILDING TECHNOLOGY
INSULATED CONCRETE FORMING SYSTEM UNDER CCMC REPORT No.
13063-R (AS ISSUED NOV. 02, 2010)**

This document is intended to accompany NUDURA Corporation's Installation Manual (dated February 2010) and represents the latest documentation available for use in reviewing, approving and inspecting walls constructed using the NUDURA® Insulated Concrete Form System. The Sections, Details and Tables contained at Appendices B,C,D and E have been developed and endorsed by Tacoma Engineers licensed for the province of Ontario (under their stamps) and thus (as per rulings of the Professional Engineers of Ontario) are valid for use with the system so long as the design of the building being considered for use of the product does not exceed the limits that have been established within the Table of Limitations noted within the enclosed CCMC Report issued effective November 02, 2010.

IMPORTANT NOTICE! The CCMC Report should NEVER be construed or used by a Building Official to limit the use of the NUDURA Wall System to Part 9 construction only whenever the building in question is being designed under Parts 3, 4, and 5 of the NBC under the design of a Registered Professional Engineer for the Province in which a Building is being reviewed.

Municipal reviewing Plans Examiners and Building Officials sometimes may MISTAKENLY view the limitations of the CCMC report as being applicable to the NUDURA Wall System in total regardless of the Type of Construction for which it is being examined, when in fact, the intended purpose of the CCMC report is to provide a means for innovative building materials (like ICFs) that are not yet covered by a Nationally Adopted manufacturing standard to be able to be confidently examined by the Building Official in the ABSENCE of professional engineering review by providing authoritative assurance that the system has been evaluated and approved for design to all applicable aspects of the Canadian Building Codes, and to enable plan review and inspection review of buildings (normally residential buildings) by the Building Official that have been designed Under the normal limits of Part 9 and the additional limits of design that are established by the CCMC Report. If an engineer, elects to use the system OUTSIDE of Part 9, the Engineer then is removing ANY Liability from the Municipality as to the NUDURA wall system's compliance with the appropriate Sections of Parts 3,4, and 5.

Note further under Section 3 Conditions and Limitations (Page 3) Bullet Point 1 of the Performance Section of the report which states:

"...When the product is used in structural applications outside the scope of the referenced design analysis, the engineering design analysis, related documents and drawings must bear the authorized seal of a registered professional engineer skilled in concrete structural design and licensed to practice under the appropriate provincial or territorial legislation."

The above noted clause would never have been included if the CCMC's intent was to limit the use of the NUDURA Wall System to Part 9 buildings only.

With the recent advent of the addition of Insulated (or Insulating) Concrete Form Systems within Part 9 of the 2005 National Building Code and any Provincial Building Codes issued after 2005, the Building Official may be asked to consider review and approval of plans for Insulating Concrete Form Systems with structural design specifications for steel reinforcement within the wall assemblies and lintel designs being based on one of 4 possible options:

- (i) Approval and Site Review by a licensed Professional Engineer under Part 3:

(Option 1) Per paragraph 3 of Section 5 (Performance) (Page 6) of the attached CCMC Report. **NOTE: This is required ONLY when design falls beyond the scope of applications covered under the design limitations and scope of analysis scenarios represented under Tables 1(a) through 2(c) of the manufacturer's CCMC Report or beyond the Scope of Limitations as Outlined under Part 9 for Insulated Concrete Form Systems.**

Most applicants for modestly sized residential ICF structures will STRIVE to ensure that design to this option a very last resort since the provisions for Prescriptive Specification of Reinforcement are now clearly entrenched within the Building Code and within any manufacturer's CCMC report.

- (ii) Approval and Site Review by the Building Official under Part 9 –

- a. When no other Stamped Documents are provided:

(Option 2) - Design specification in accordance with prescriptive tables as provided under Sections 9.15 and 9.17 of the 2005 NBC or Applicable Provincial Building Code issued after 2005. This option has severe limitations such as no allowance for 4 inch core ICF walls; walls must also be constant core flat wall form thickness from footing to roof (no allowance for variance in wall thickness).

(Option 3) - Approval and Review by CCMC Only (including all attached tables of the applicable manufacturer's CCMC Report). (This option ALSO does NOT allow for use of 4 inch thick walls. More importantly, the Building Official should take note that the tables listed within the CCMC report are severely over safety factored --- making no allowances for less than minimum reinforcement requirements for horizontal steel in limited size residential structures as permitted under Section 1 of CAN/CSA A23.3.

In addition, , it should be noted that **CONTRARY TO THE NBC**, the CCMC's Technical Guide for the evaluation of Insulating Concrete Form Systems in Canada forces below grade structural design of EVERY wall to the MAXIMUM dictates of Seismic Classification determined for the highest seismic oscillations in Canada AND even worse – demands below grade backfill pressures to nearly 4 times what is required under Table 9.15.4.2 of the NBC for traditionally poured in place walls. These 2 factors substantially account for the overtly safety factored design.

b. CCMC Report WITH Manufacturer's Stamped Tables Submitted for Approval:

(Option 4) This option is preferred by most applicants -Approval and Review in conformance with the Scope of Limitations of the CCMC Table Assumptions for Structural Design review and Site Review conducted per Stamped Engineering Tables and applicable data as found in the manufacturer's Installation or Design Manual (for NUDURA this would specifically be- Appendices B,C, D and E of the 2010 NUDURA Installation Manual). These tables are designed specifically in accordance with NUDURA's form geometry for maximum reinforcement efficiency yet, in full accordance with CAN/CSA A23.3 per the required safety factors imposed by the Concrete Design Standard. Per the analysis options afforded under Section 1 of CAN/CSA A23.3, the Engineers also include LIMITED options for reinforcement using 4 inch core thickness walls for ABOVE GRADE APPLICATIONS ONLY.

With the advent of Bill 124 in 2006, some building officials have expressed concerns in the past regarding the level of competency of installers who are handling the placement of reinforcing steel within the wall designs. Once again, the Building Official can look to the CCMC Report for guidance on this issue. Section 3 of Page 4, Bullet Point 2 of the report states as follows:

- The installation of the product must be in strict compliance with NUDURA Corporation installation instructions, without conflicting with the requirements stated in the NBC 2005 or in this report. Only installers trained and authorized by NUDURA Corporation shall be contracted to set up the wall system.

NUDURA Corporation maintains an active database of installers who have completed not only in class training of the basic installation methods of the product, but have also been inspected and verified by an authorized NUDURA Employee or Distributor Representative who is similarly qualified in the in-field installation of the system to have demonstrated the skill set necessary to supervise and execute a complete NUDURA installation from start to finish. Once the distributor has verified that the installer has effectively demonstrated these skills on a single or series of in-field builds, they then complete a "distributor sign-off (DSO) form" specific for that installer which is then forwarded to NUDURA Corporation for processing. Upon completion of this step, NUDURA then issues a wallet card to the installer that verifies that the installer has successfully demonstrated to the distributor that they possess the necessary skill set to manage proper installation of a NUDURA wall system from start to finish.

Although there is no implied or certified guarantee by either the NUDURA Distributor or NUDURA itself that the Installer will continue to apply these skills to the level demonstrated during the sign-off, the Building Official CAN look to the wallet card system to ascertain whether or not that the installer has been trained and authorized by NUDURA as being competent to properly install the system in compliance with the above noted clause of Section 4 of CCMC Report No. 13063-R.

CCMC has insisted on this measure to provide the assurance to the municipalities that a system of liability mitigation has been put in place to ensure that approval and review of installations can take place WITHOUT having to force engineering review of an installation that is compliant in all respects with Part 9 of the Code.

In closing, it is hoped that this document will alleviate in-field compliance issues for permit submissions with respect to residential structures specifying the NUDURA Wall System – be it a foundation only or as the whole wall solution for the building.

This of course assumes:

- (a) That the contractor/applicant is assuring the scope of design does not exceed the limitations set forth in NUDURA's CCMC Report and...
- (b) That the contractor/applicant is providing the Building Official full specification of the reinforcement on the drawings and drawing references to the applicable prescriptive design documents contained in the NUDURA Installation Manual Appendices.

Should you have any questions, or require further information, please feel free our technical staff at:

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or by phone at: 866-468-6299

regards,



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