

## 1.1 PREFACE

Your consideration of NUDURA Integrated Building Technology for your next design project is the right choice for today's complex design challenges. NUDURA's unique concrete form wall system sets it firmly apart from other Concrete Forming Products on the market. NUDURA is leading the way, showing designers, engineers, and contractors an advanced approach to both residential and commercial building design solutions. NUDURA's award winning technology and energy efficiency means a faster and more efficient building approach that outperforms most other conventional wall types.

NUDURA Inc. continues to demonstrate why it is at the forefront of the construction Industry through its competitive pricing and vast product distribution network. NUDURA handles its products exclusively through a dedicated network of regionally deployed building product distributors, who are prepared to advise you on every aspect of project execution.

## 1.2 TECHNICAL SUPPORT

Technical Support is available through your local distributor. The distributor is your first line of contact for assistance as they can best identify with your local applicable codes and conditions common to your region. To locate your local distributor please contact NUDURA Inc. at:

Email: [info@nudura.com](mailto:info@nudura.com)  
Phone: 866-468-6299 (Toll free within North America)  
Or: +705-726-9499 (Direct Dial from anywhere)

Phone service is available between 8:00 AM and 4:30 PM Eastern Time

## 1.3 NUDURA WEBSITE

[www.nudura.com](http://www.nudura.com)

The NUDURA website is a valuable tool for designers, engineers, and contractors. There you will find the most recent updates on our manuals, public access testing reports, evaluation reports, technical bulletins and current news. The construction professional section of the website is a great source of information for all of your construction questions. Should additional information be required, please contact your local distributor.

## 1.4 INTRODUCTION

### What is NUDURA Integrated Building Technology?

NUDURA Integrated Building Technology is a building product system that combines a comprehensive array of building products that are dedicated to enabling designers and builders alike to create one of the most flexible and energy efficient building envelope systems available on the market today. As outlined in the NUDURA Product Manual, The system includes:

The NUDURA Wall Form System (including all of its related accessory products)  
NUDURA Floor Technology and  
NUDURA Ceiling Technology

These products when used together in any building structure, enable the designer and builder to create building envelopes that when combined with a properly designed mechanical system, are statistically known to provide end users with living environments that can deliver substantial savings on annual energy costs over conventionally constructed frame or CMU constructed buildings.

# INTRODUCTION

If you are a designer or builder who has never worked with Insulated (or Insulating) Concrete Form Technology before, this manual (in combination with the NUDURA Installation DVD), will prove to be an invaluable guide in designing and working with NUDURA Forms. If you have never worked with Insulated Concrete Forms before, you will find many advantages over conventional building material design and construction.

## THE FORM

NUDURA Insulated Concrete Forms consist of two lightweight 2 5/8" (67 mm) uniform thickness expanded polystyrene (EPS) foam plastic panels manufactured to a nominal EPS foam density of 1.35 pcf (21.6 kg/m<sup>3</sup>). The EPS panels are connected together with either integrally molded foldable high-density polypropylene hinged web/fastening strips or injection molded high-density polystyrene fastening strips interlinked with high-density polypropylene insert webs. Additional features include full height fastening strips every 8" (203 mm).

The NUDURA wall system completes 6 building steps with one product providing:

1. The concrete form system
2. Wall structure (structural reinforced monolithic concrete)
3. Insulation
4. Air barrier
5. Vapor barrier
6. Interior and exterior finish anchorage

Having six wall elements in one product eliminates costly building steps, and allows the building project to be constructed faster and more efficiently.

For those of you that are perhaps familiar with insulated concrete form systems trying NUDURA for the first time, you will find several features that set NUDURA clearly apart from other insulated concrete form systems.

## DURAMAX TECHNOLOGY®

NUDURA forms are double the length of most other insulated form systems. While most systems feature forms at 4' (1.22 m) in length, NUDURA Forms are a full 8' long (2.44 m). In addition, the form height is set at 18" (457 mm) to optimize horizontal steel placement to it's maximum permitted extent under prescriptive design for 6" (152 mm) core walls. This means that every time an installer is placing a form, they are placing a full 12 ft<sup>2</sup> (or 1.115 m<sup>2</sup>) of formwork in one motion.

## 4-WAY REVERSIBLE SYSTEM

All of the NUDURA Form line-up feature top and bottom edges and are molded with a robust, continuous, fully reversible interlock. This means superb flexibility infield, automatically doubling form usage whenever a half height form may be required, enormously less waste when constructing gable end walls, since both halves of the cut form can be used and the best part – no left and right corners to have to worry about having on hand during construction.



FIGURE 1.03

## DURALOK TECHNOLOGY®

Besides the reversible interlock of the EPS panel edges, the embedded web/fastening strips run the full 18" (457 mm) height of each and every form, end cap and height adjuster accessory. Each fastening strip is embedded in the EPS at consistent 8" (203 mm) intervals and are recessed 5/8" (15.9 mm) from the surface. Each fastening strip is also fitted at the top and bottom edges with a patented reversible triple tooth interlock.



FIGURE 1.01



FIGURE 1.02

Combined together, these features enable every form to solidly lock together in field, preventing form separation during concrete pour and enabling easy stacking and interlocking of the form system. No longer are forms dependent on simply EPS to EPS foam contact for assembly. This minimizes separation of the EPS forms along the horizontal joints, and eliminates form compression during concrete placement, resulting in rapid, solid construction, less form support having to be installed, and in the end, straight and plumb walls. Further, no longer does form settlement have to be planned for at openings in the construction of the wall system.

The webs connecting to the fastening strips across the concrete core also have openings to permit concrete to pass through, and feature a variety of seat options for support and locking of horizontal steel reinforcing bars.

## DURAFOLD TECHNOLOGY®



FIGURE 1.06

One of the best features of all is NUDURA's patented hinge folding mechanism. This allows for efficient shipping, convenient packaging, and the forms arrive at the site flat for efficient on site storage. With a simple opening technique, they can be hinged open instantly for use. 4 steel hinge pins on each web are the secret, and these serve to solidly hold the form at its required shape once opened. The flat ship format enables the forms to be shrink wrapped and bundled with 3 forms to a package with a finished bundled weight of approximately 45 lbs (20.41 kg).

This means in one trip, and single handedly, an average worker can easily transport 36 ft<sup>2</sup> (3.32 m<sup>2</sup>) of wall form from the truck to the storage area. The flat format also means super efficient on site storage as well. In the same space it takes to store 2 skids of standard 8" (203 mm) concrete blocks (enough to construct 134 ft<sup>2</sup> (12.5 m<sup>2</sup>) of wall area) 10 bundles of NUDURA formwork can be stored for a total 360 ft<sup>2</sup> (33.4 m<sup>2</sup>) of wall area (almost 3 times as much). Even more amazing - the corner forms fold for shipping and storage as well, through use of NUDURA Insert Web Technology.

The same insert web technology provides even more flexibility to the NUDURA System as the system can be purchased as either fully assembled forms or as a knock-down system of panels and insert webs. BOTH technologies can be married to each other in-field to suit almost any building application (or in-field build problem) imaginable.

## OTHER FEATURES AND BENEFITS

NUDURA walls provide a fire resistance rating of up to 4 hours (ULC Listed, UL Classified), a Sound Attenuation of min. STC 50 (for 6" (152 mm) core and above), as well as an insulation value of R-23.59 (RSI 4.14). The EPS foam combined with the concrete mass, results in a potential for the wall assembly to perform equivalently to a low mass wall assembly insulated to a level of R- 50 (depending upon geographic location).

## COMPREHENSIVE FORM AND ACCESSORY SYSTEM

The NUDURA form system is among the most comprehensive form systems available on the market today enabling the construction of the following core cavity thicknesses of walls,

- 4 " (101 mm)
- 6 " (152 mm)
- 8 " (203 mm)
- 10 " (254 mm)
- 12 " (305 mm)

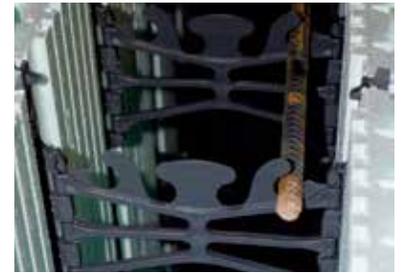


FIGURE 1.04



FIGURE 1.05



FIGURE 1.07

# INTRODUCTION



In ANY core thickness, the following form profiles are available for the construction of walls in any desired configuration:

- Standard (straight run wall) Form Units
- 90 degree Corner Form Units
- 45 degree Corner Form Units
- T-Form Units (enabling the construction of 25 possible combinations of thickness main wall and T wall intersection across the 5 core thicknesses of forms)
- Taper Top Form Units (enabling concrete to approach the exterior or interior (or both) edges of the form at its top edge)
- Brick Ledge Form Units (for creating corbelled ledges for support of brick or stone masonry veneers)
- Brick Ledge Extension Forms (enabling creation of brick ledges at ANY desired height or angle)
- End Caps (for capping end wall runs or window/door openings)
- Height Adjuster Forms (enabling the adjustment of form stacking to an incremental height difference of 3" (76 mm) or 12" (305 mm) if required to suit an application)
- Factory Cut Radius Forms (site assembled forms which are factory cut to suit any custom installation, enabling the construction of NUDURA forms for ANY desired plan radius formation)

In addition to the above core products, NUDURA Inc. also has over 30 accessory products to enhance the already state of-the-art form system. A list of these accessories is available in Chapter 5 of this manual.

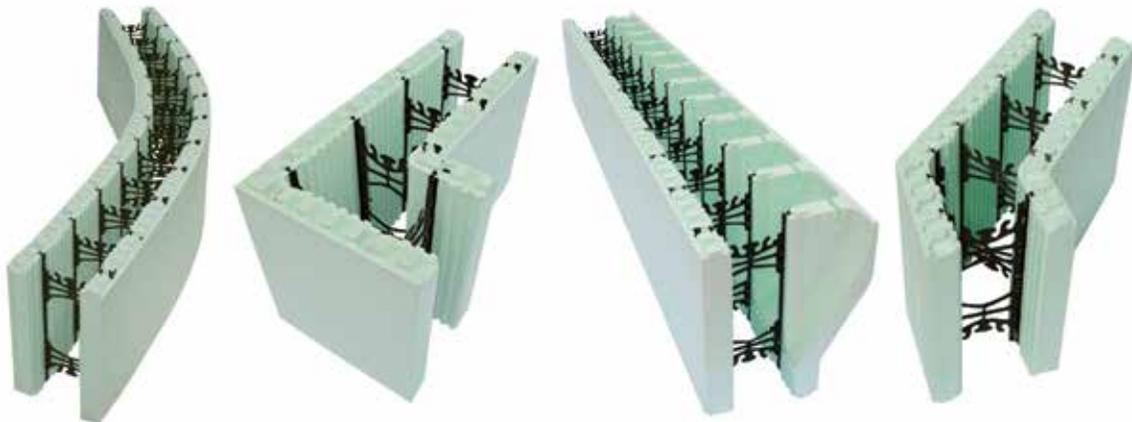


FIGURE 1.08

This manual covers off installation methods with NUDURAs ICF Series of products. NUDURA offers other innovative series (One Series, Plus Series and Integrated Series) that complement and enhance the NUDURA ICF Series. For more information on the above series visit [nudura.com](http://nudura.com).





## NUDURA ICF SERIES

The NUDURA ICF Series is the leader in insulated Concrete Form Innovation and Technology and offers users the ability to combine a variety of products during the building process. The NUDURA ICF Series offers unique advantages over other products currently on the market.

DURAMAX Technology®  
DURAFOLD Technology®  
DURALOK Technology®  
The 4-Way Reversible System



## ONE SERIES

The One Series is the industry's only multi-link form system that enables the creation of a fully exposed concrete surface that extends to the face of a standard NUDURA form panel. This offers builders and architects unmatched versatility for projects designed to use ICFs. At the core of this innovative line is our DURA MULTI-LINK™, a newly designed web that enables the builder to create custom multisided form combinations for a variety of commercial and residential building projects.



## PLUS SERIES

The Plus Series product line introduces an innovative way for designers and engineers to build their own R-value. Comprised of two new products, the Plus Form and the R-Value Plus+ Insert, this product line offers the ability to optimize R-Value with thermal mass to provide significant energy savings for building owners. The NUDURA Plus Series allows professionals the ability to meet new installation requirements with one product.



## INTEGRATED SERIES

The Integrated Series from NUDURA combines building envelope products that work in conjunction with our line of Insulated Concrete Forms to provide maximum energy efficiency. Each Integrated Series product has been manufactured to install quickly and efficiently and replaces many traditional forms of insulation products that are far more labor intensive.



To download the most up to date version of the NUDURA Product Guide go to [nudura.com/brochures](http://nudura.com/brochures).