DOES FLOODING PUT YOUR HOME AT RISK?

SEE THE TRIODETIC SOLUTION!

www.triodetic.com - www.multipoint-foundations.com
TRIODETIC® FOUNDATION TECHNOLOGY
USED IN ALASKA FLOOD RELIEF OPERATION

FEMA¹ AND HUD² SELECT THE TRIODETIC FOUNDATION TO ELEVATE HOMES ABOVE THE FLOODPLAIN AND TO PROVIDE A NEW STRUCTURAL FOUNDATION TO THE EXISTING HOMES

¹ FEMA = Federal Emergency Management Agency       ² HUD = U.S. Department of Housing and Urban Development
Foundation embedded in 24 thousand lb concrete slap

FOUNDATION CRANE LIFT SHOWS STRENGTH OF SYSTEM
WHY AND HOW DOES THIS FOUNDATION SYSTEM WORK

- **BRIDGING STRENGTH**

- **HIGH SINGLE POINT CAPACITY**

  ALLOWABLE SAFE LOAD FOR EACH BASE SUPPORT

  30,000 lbs (133 kN)

- **HIGH BENDING CAPACITY**

  BENDING MOMENT AT ENDS OF ALL TUBING

- **TORSIONAL BRACING**

  FULLY BRACED SQUARE MODULES TO PROVIDE TORSIONAL STIFFNESS

  FRAME WILL DISTORT IF IT HAS NO TORSIONAL BRACING
FLOOD TERRAIN

and

UNSTABLE SOIL

MULTIPOINT® FOUNDATION FRAMES

System 1: **CONCRETE SLAB OPTION**

The tubular structural frame is supported by a number of support points and each point is embedded in a continuous concrete slab.

System 2: **BEARING PAD OPTION**

The tubular structural frame is supported by a number of support points and each point is connected to a timber or concrete patio type stone.

BEHAVIOURAL CHARACTERISTICS ARE IDENTICAL FOR BOTH SYSTEMS
FLOOD PLAIN APPLICATION

Building sites subject to flooding have limited options as to how to avoid total or partial devastation. Some of the options available are elevating the building on piles or blocking. Significant costs are related to installing piles and the piles have been shown to be susceptible to racking and vertical movement. In the case of timber piles, rotting or termite damage can also occur. Buildings are known to shift and crack when pile movement occurs.

TRIODETIC SOLUTION

The Triodetic foundation is a tubular frame which gives strength to the building and elevates the building above the flood plane. These structures are designed to resist wind forces in excess of a Category 5 hurricane (190mph)
COST EFFECTIVE

- Minimum site preparation
- No heavy equipment required
- Can be assembled with hand tools
- Use of local labor minimizes travel and lodging costs.
- No maintenance required on the frame.
- Structure gives strength to the building

The Triodetic foundation system has been successfully used in even the worst soil conditions. The Triodetic Multipoint Foundation can accommodate any building layout. The foundation consists of a galvanized steel frame which is torsionally stable and elevates the building above the flood plane from 3 feet to 8 feet. The tubular frame gives strength to the building and is adjustable to accommodate uneven terrain. Concrete slab structural frame and building become one uniform unit.
INSTALLATION DATA AND PROCEDURE

- The Triodetic Multipoint foundation 24’ x 30’ can be typically assembled by a crew of three. (for 24’x30’ house)

FOR THE CONCRETE SLAB OPTION

- Providing that the site is roughly leveled no grading is required
- Outline perimeter of foundation with formwork using 2” x 10” timbers
- Place concrete mesh, minimum 6” x 6” square mesh
- Layout base plates of tubular frame at rough intervals
- Assemble foundation frame in place
- Level threaded supports
- Ensure there is an allowance for a concrete thickness of at least 4”.
- Pour concrete
TRIODETIC® FOUNDATION TECHNOLOGY USED IN ALASKA FLOOD RELIEF OPERATION

THE KOYUKUK RIVER IN ALASKA FLOODS THE VILLAGES OF HUGHES AND ALLAKAKET

FEMA(1) AND HUD(2) SELECT THE TRIODETIC FOUNDATION TO ELEVATE HOMES ABOVE THE FLOODPLAIN AND TO PROVIDE A NEW STRUCTURAL FOUNDATION TO THE EXISTING HOMES

1 FEMA = Federal Emergency Management Agency  
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WHY AND HOW DOES THIS FOUNDATION SYSTEM WORK

- **Bridging Strength**

- **High Single Point Capacity**
  - Allowable safe load for each base support: 30,000 lbs (133 kN)

- **High Bending Capacity**
  - Bending moment at ends of all tubing

- **Torsional Bracing**
  - Fully braced square modules to provide torsional stiffness
  - Frame will distort if it has no torsional bracing
MAINTENANCE FREE

- A hot-dipped galvanized finish gives long life corrosion protection to tubing, base plates, saddle brackets and washers.

- With the foundation frames ability to bridge soft spots and move as a rigid slab under frost heave and thaw conditions, the structural integrity of the building is preserved.

- The main building is elevated above flood plain eliminating damage from flood waters.

PROVEN RELIABILITY RECORD

- The Triodetic method of connection, which involves the forming of the ends of round tubing with a ‘flattened thread’ to fit into matching slotted hubs, has an international reputation exceeding 35 years.

- Since 1985 the Triodetic system has been utilized in the construction of foundation frames in Alaska, Canada and Russia. Some 1,200 units have been built to date, all exhibiting perfect behavior.

- Extensive testing and field monitoring has confirmed the effectiveness of the frames in eliminating racking of buildings in even the most difficult soil conditions.

- The Triodetic Multipoint Foundation has been proven to be a perfect application for flood plains.
PERFORMANCE

- The Multipoint Foundation system’s performance has exceeded all expectations in areas of unstable soils and floodplains.
- The concrete slab provides resistance to overturning due to wind and also distributes the loads evenly over the existing soils.
- The Multipoint foundation frame increases the strength of a conventional concrete slab by 40 times.

FINANCIAL BENEFITS

- Foundations can be constructed year round using unskilled labor.
- Very little site preparation is required.
- Eliminates long term problems associated with differential settlement.
- Lending institutions remove risk of devaluation of buildings caused by foundation failures.
- Insurance underwriters minimize exposure as foundations can be relied upon to eliminate differential settlement and flood damage.
TYPICAL ADJUSTABLE BOTTOM JOINT FOR CONCRETE SLABS

1/4" DIA. HARDWARE (32mm DIA.)

WASHER

DIAGONAL TUBE

10" MAX. ADJUSTABLE BASE PLATE

BOTTOM CHORD TUBE

TRIODETIC CONNECTOR

10" x 10" x 1/2" ADJUSTABLE BASE PLATE (254 x 254 x 13mm)
TYPICAL ADJUSTABLE BOTTOM JOINT FOR SURFACE PADS

1/4" DIA. HARDWARE (32mm DIA.)
WASHER
DIAGONAL TUBE

10" MAX. ADJUSTABLE BASE PLATE

TRIODETTIC CONNECTOR

BOTTOM CHORD TUBE

10" x 10" x 1/2"
ADJUSTABLE BASE PLATE
(254 x 254 x 13mm)
TYPICAL TOP JOINT WITH SADDLE BRACKET

BEAM BY OTHERS

BEAM SADDLE TO SUIT

1/2" DIA. HARDWARE (13MM DIA.)

WASHER

TRIODETC CONNECTOR

WASHER

DIAGONAL
TYPICAL TOP JOINT WITH "C" CHANNEL
(NO BEAMS REQUIRED)

"C" CHANNEL

OPTIONAL ANGLE FOR WIDTH EXTENSION

HARDWARE

TRIODETTIC CONNECTOR

WASHER

DIAGONAL
SYSTEM 1: CONCRETE SLAB OPTION

A: BASE PLATE EMBEDDED IN CONCRETE SLAB.

B: BASE PLATE EMBEDDED IN CONCRETE SLAB ON GRANULAR FILL AND GEOSYNTHETIC LAYER OVER SOFT WET SOILS.

SYSTEM 2: BEARING PAD OPTION

A: ADJUSTABLE BASE PLATE TO ACCOMODATE UNEVENLY GRADED SITE. FOR NEW OR RETROFIT APPLICATIONS.

B: BASE PLATE BEARING ON TIMBER PAD ON SOFT SOIL.
PERIMETER SKIRT FRAMING

STANDARD FLOOR JOISTS
BY OTHERS

BEAM BY OTHERS

AESTHETIC
SKIRT MATERIAL

[Diagram of perimeter skirt framing with labeled parts]
CONTACT INFORMATION

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ADVANTAGES
- Minimum site preparation
- No heavy equipment required
- Multipoint® Foundations by Triodetic® have been in active use for over 20 years
- Can be assembled with simple hand tools
- Structure gives strength to the building

IDEAL FOR FLOODPLAIN APPLICATIONS
- Depth of frame to suit floodplain criteria
- Concrete slab (used in floodplain regions only), structural frame and building become one homogeneous unit
- Multipoint frame is designed to resist wind and seismic activity
- The Triodetic foundation enjoys an excellent reputation for permafrost applications in Alaska, Northern Canada and the Russian Arctic