



MK5 PRE-ENGINEERED
FOUNDATIONS

INSTRUCTION MANUAL



**DYWIDAG-SYSTEMS
INTERNATIONAL**

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SITE PREPARATION



EXCAVATE TO UNDISTURBED INORGANIC NATURAL SOIL– REMOVE ANY SOFT OR ORGANIC MATERIAL AND REPLACE WITH FREE DRAINAGE GRADE “A” GRANULAR FILL FOR A MINIMUM 8” THICK SUBGRADE FINISHING APPROX 2” ABOVE EXISTING GRADE, COMPACT THEN LAZER LEVEL TO 3/4” EXTENDING AT LEAST 3’ BEYOND THE FOOTPRINT OF THE FOUNDATION FOR EPS FROST PROTECTION INSULATION AS PER YOUR ENGINEERED DRAWINGS.



THE COMPACT GRAVEL BASE ABOVE EXISTING GRADE WILL PROVIDE FULL DRAINAGE AND WILL ELIMINATE ANY POSSIBILITY OF STANDING WATER OR INSTALL EPS RIGID INSULATION UNDER SLAB AS THE BOTTOM OF THE FORM. INCREASE THE DEPTH OF THE SUB-BASE AND HEIGHT OF THE BASE ABOVE EXISTING GRADE IN HIGH STATIC WATER LEVEL CONDITIONS.

DRAINS-WATER-ELECTRICAL



TWO MAJOR COMPONENTS



PRE-FABRICATED DIMENSIONALLY STABLE EXTERIOR FORM CHANNELS WITH PRE-DRILLED PERIMETER BEAM BAR AND SLAB GRID BAR SLOTS



MK5 SERIES FOUNDATIONS ARE DESIGNED AS A SUSPENDED SLAB, INVERTED, USING 150 GRADE HIGH-YIELD POST TENSION BAR UNDER COLUMN AND IN A STRUCTURAL SLAB GRID CREATING A 2-WAY REINFORCED CONCRETE AS A STRUCTURAL FOUNDATION SUPPORTING SUPER-STRUCTURE LOADS, ON GROUND.

MINOR COMPONENTS



**STRAIGHT-LINE ANGLES BOLT TO 3 CORNERS OF THE FORM AND PROVIDE A STABLE AND ACCURATE CHALK LINE SUPPORT
ANCHOR BOLT LOCATION TEMPLATES SUPPORT THE POURED IN PLACE ANCHOR BOLTS, TEK SCREWS AND SOCKET SUPPLIED.**



WIRE-TIE SLAB GRID BARS AT EACH INTERSECTION.

SPLICE PLATES CONNECT THE EXTERIOR CHANNELS, USE 4 SERRATED BOLTS THROUGH THE CHANNEL BACK AND 2 BOLTS THROUGH THE BOTTOM FLANGE

BAR CONNECTORS, CHAIRS AND STIRRUPS



THE ULTIMATE FLEXURAL STRENGTH: CONTINUOUS BAR VIA END -TO- END EXTREME STRESS CONNECTORS THAT EXCEED THE YEILD STRENGTH OF THE BAR THEY REPRESENT. BE SURE THE BAR IS FULLY THREADED TO THE BAR STOP IN THE MIDDLE OF THE CONNECTOR, SPRAY OIL IS FASTER.



THREAD THE BEAM BARS THROUGH THE STIRRUP HOLE LOCATION AS PER THE ENGINEERED DRAWINGS. USE THE SLAB GRID BARS TO SECURE THE STIRRUP ANGLES TO THE EXTERIOR CHANNELS USING THE LOCK NUTS. USE THE TWO-TIER CHAIRS FOR THE BEAM BARS AND BE SURE NO BARS TOUCH THE GROUND.

CORNER FORM CHANNEL INSTALLATION



ASSEMBLE CORNERS FIRST

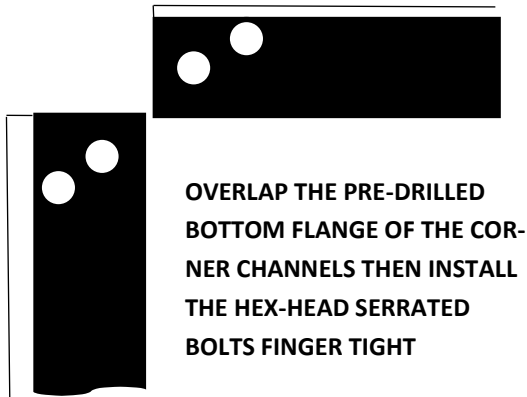
CORNER CHANNELS HAVE A SERIES OF PRE-DRILLED SLOTS IN STRATEGIC LOCATIONS. REFER TO SECTION 'A' AND 'B' ON YOUR ENGINEERED DRAWINGS FOR BAR SIZE AND LOCATION.



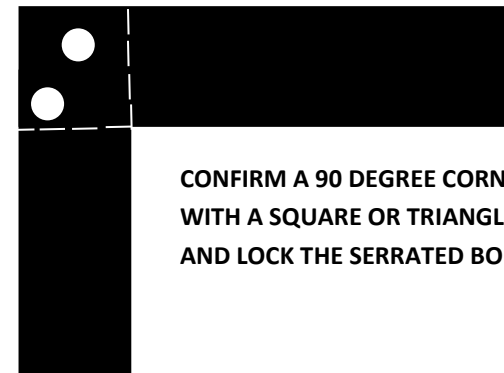
PERFECT 90 DEGREE CORNERS

OVERLAP THE CORNERS AND INSTALL THE SERRATED BOLTS THROUGH THE BOTTOM FLANGE HOLES. USE A TRIANGLE OR SQUARE TO CONFIRM THE CORNER SQUARE AND LOCK THE NUTS

CORNER CHANNELS



OVERLAP THE PRE-DRILLED BOTTOM FLANGE OF THE CORNER CHANNELS THEN INSTALL THE HEX-HEAD SERRATED BOLTS FINGER TIGHT



CONFIRM A 90 DEGREE CORNER WITH A SQUARE OR TRIANGLE AND LOCK THE SERRATED BOLTS

BEAM BAR CORNER NUTS AND EXTENSIONS



INTERIOR LOCKNUTS ON THE BEAM BARS ARE NOT REQUIRED ON EVERY BAR, 2-3 OUT OF 5 IS SUFFICIENT. TIGHTEN ALL EXTERIOR BEAM BAR NUTS



ADJUSTABLE FORM CHANNEL EXTENSIONS ARE USED ON LUMBER AND STEEL ARCH TYPE BUILDINGS FOR FRACTIONAL FORM DIMENSIONS

ASSEMBLE FORM



SPLICE PLATES WITH (6) SERRATED FLANGE BOLTS, 4 BOLTS THROUGH THE BACK AND 2 BOLTS THROUGH THE BOTTOM FLANGE. SOCKET WRENCH TIGHT



SPLICE EXTERIOR CHANNELS PARALLEL TO EACH OTHER FROM ONE CORNER TO THE OTHER, DO NOT SPLICE THE CHANNELS STARTING FROM BOTH CORNERS MEETING IN THE MIDDLE. LEVEL THE TWO CHANNELS WHILE BOLTING FOR A PERFECT SPLICE.

DO-IT-YOURSELF STRAIGHT EDGE

PERFECTLY STRAIGHT

BOLT THE STRAIGHT-LINE ANGLES TO 3 OF THE FORM CORNERS

PULL THE LINE EXTREME TIGHT IN LENGTH AND WIDTH, TIE IT OFF.

LINE UP THE CHANNELS TO PERFECTLY STRAIGHT, AS YOU INSTALL THE SLAB GRID BARS LOCK THE STRAIGHT SIDE FIRST, ONCE YOU LOCK THE OTHER SIDE OF THE FORM THEY WILL ALIGN WITH EACH OTHER, PERFECTLY STRAIGHT



POST TENSION BAR INSTALL SEQUENCE



THERE ARE 5 LAYERS OF POST TENSION BAR IN THE MK5 STRUCTURAL FOUNDATION

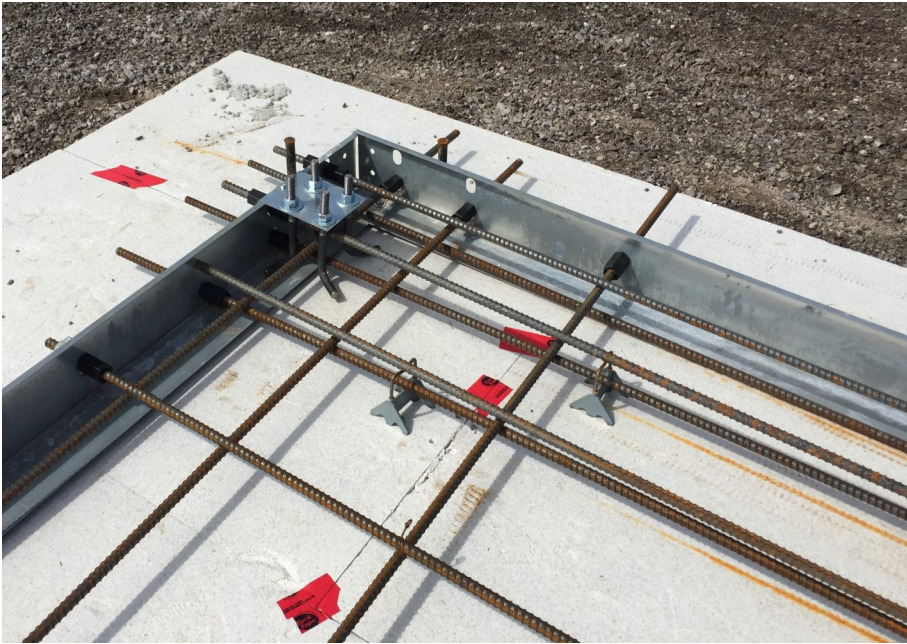
THE SLAB STRENGTH IS GOVERNED BY THE STRENGTH OF THE BARS AND THEIR POSITION IN THE SLAB, ELIMINATING THE NEED FOR A THICKENED EDGE

#1- BOTTOM BEAM BARS: INSTALL IN LENGTH THRU THE STIRRUP ANGLES (SEE P.ENG DRAWINGS SECTION "A" HOLE LOCATIONS)

#2- BOTTOM BEAM BARS: INSTALL IN WIDTH THRU THE STIRRUP ANGLES (SEE P.ENG DRAWINGS SECTION "B" HOLE LOCATIONS)

FASTEN THE STIRRUP ANGLE TO THE EXTERIOR CHANNEL USING THE SLAB GRID BAR WITH THE INTERIOR AND EXTERIOR LOCK NUTS

POST TENSION BAR INSTALL SEQUENCE



#3- SLAB GRID BARS:

INSTALL IN WIDTH STARTING FROM THE STRAIGHT-LINE SIDE CONNECTING THE STIRRUPS TO THE EXTERIOR CHANNEL

#4- SLAB GRID BARS:

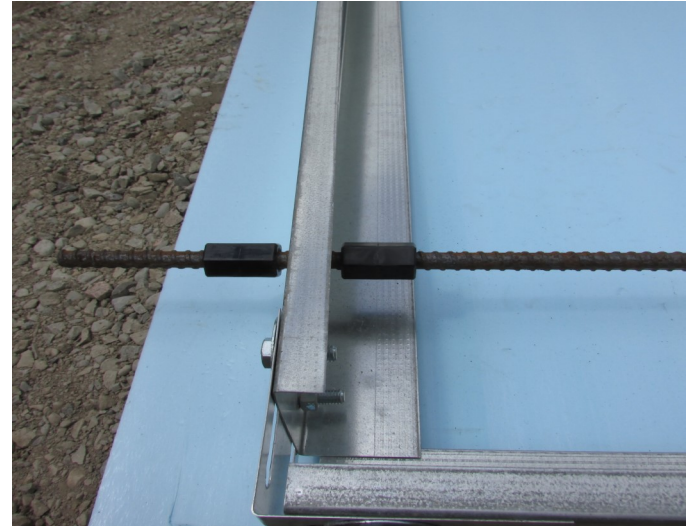
INSTALL IN LENGTH STARTING FROM THE STRAIGHT-LINE SIDE CONNECTING THE STIRRUPS TO THE EXTERIOR CHANNEL

#5- UPPER LEVEL BEAM BARS;

FEED THROUGH THE STIRRUPS AS PER THE ENGINEERED DRAWINGS OR SUPPORTED BY THE 2 TIER BEAM CHAIRS (3RD ROW)

DO NOT ALLOW THE BARS TO REST ON THE BASE, USE THE 1" BAR CHAIRS IF REQUIRED

INSTALL AND LOCK SLAB AND BEAM BARS



SLAB GRID BARS HAVE LOCK NUTS INSIDE AND OUTSIDE THE FORM CHANNELS. START FROM THE STRAIGHT-LINE SIDE. TEK SCREW THE TAPE MEASURE TO THE CHANNEL AND ADJUST THE FAR CHANNEL CLAMPING A WRENCH TO THE BAR AND ADJUSTING THE EXTERIOR NUT

DO-IT-YOURSELF ANCHOR BOLT LOCATION TEMPLATES



**FIND ANCHOR BOLT TEMPLATE LOCATIONS IN THE STRUCTURAL BUILDING DRAWINGS, ANCHOR BOLT PLAN AND ANCHOR BOLT DETAIL DRAWINGS
MEASURE AND FASTEN LOCATION TEMPLATES TO EXTERIOR CHANNEL WITH THE SELF TAPPING TEK SCREWS, THE TOP PILOT HOLE IS THE CENTRE-LINE**



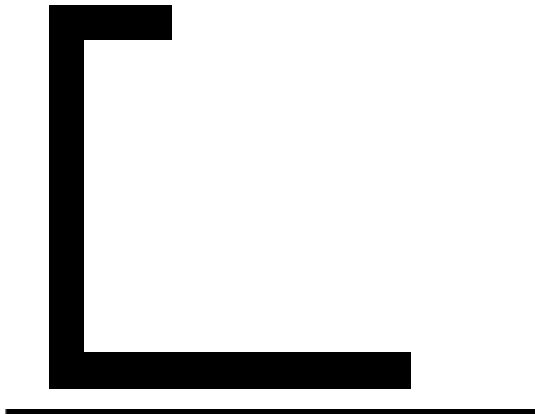
DRY INSTALL THE ANCHORS AND SET THE NUT SO THERE ARE 1-1/2" OF THREAD ABOVE THE WASHER AND NUT SITTING ON THE PLATE, ENSURE THE ANCHOR SITS STRAIGHT AND 90 DEGREES TO THE PLATE, TAPE THE ANCHOR THREADS ABOVE THE NUT AND WASHER

DO-IT-YOURSELF POURED IN PLACE ANCHORS



**TAPE THE THREADS, LIFT THE PLATE AND HAND FINISH UNDER THE TEMPLATE, LEVEL THE PLATE WITH A 6" LEVEL
TWIST THE ANCHORS TO SET THE "j" HOOK UNDER THE BEAM BAR IF POSSIBLE, BE SURE THE ANCHORS ARE STRAIGHT**

WARNING! PROPER LEVEL PROCEEDURE

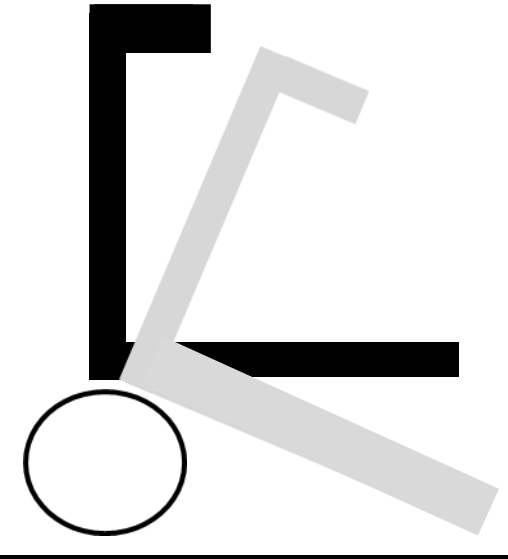


CARE SHOULD BE TAKEN TO ENSURE A LEVEL BASE

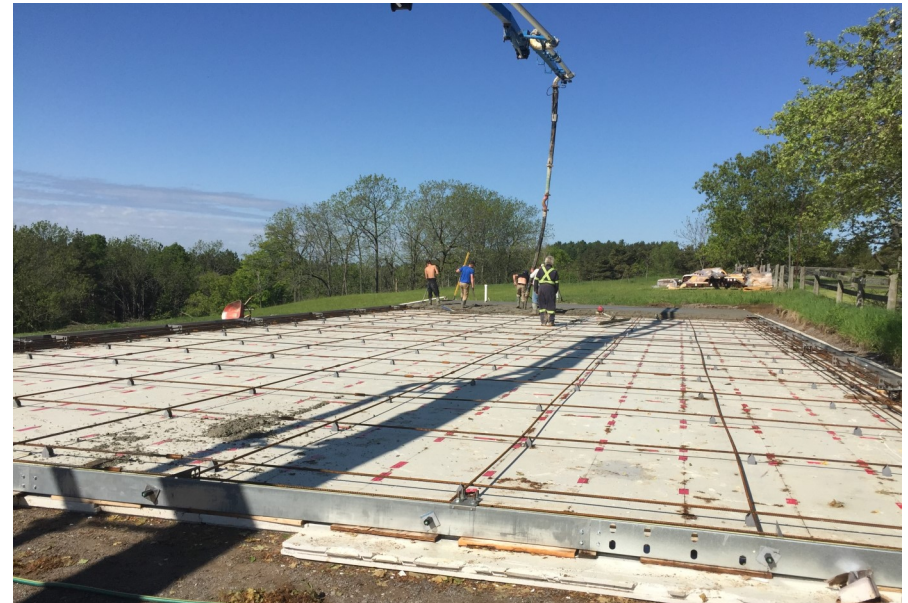


EPS OR DIMENSIONAL LUMBER

A GRAVEL BASE OUT OF LEVEL BY 3/4" CAN BE CORRECTED BY SHIMMING UNDER THE CHANNEL FORM THE WIDTH OF THE BOTTON FLANGE. BE AWARE THE SLAB THICKNESS WILL INCREASE BY THE DEPTH OF THE SHIMS. THE INCREASED SLAB THICKNESS LAYS FLAT TO THE BASE SO THE STRENGTH AND POSITION OF THE EDGE BAR AND GRID BAR CARRY THE CANTILEVER AS A SUSPENDED SLAB



DO NOT ADJUST THE CHANNEL LEVEL USING ROCKS OR PARTIAL BLOCKING, CONCRETE WEIGHT WILL TIP AND DEFORM THE CHANNEL



POUR AND FINISH - INSTALL FROST PROTECTION - BACKFILL



32 MPA CONCRETE

WITH FIBREMESH

DO NOT CUT THE SLAB

FROST PROTECTION

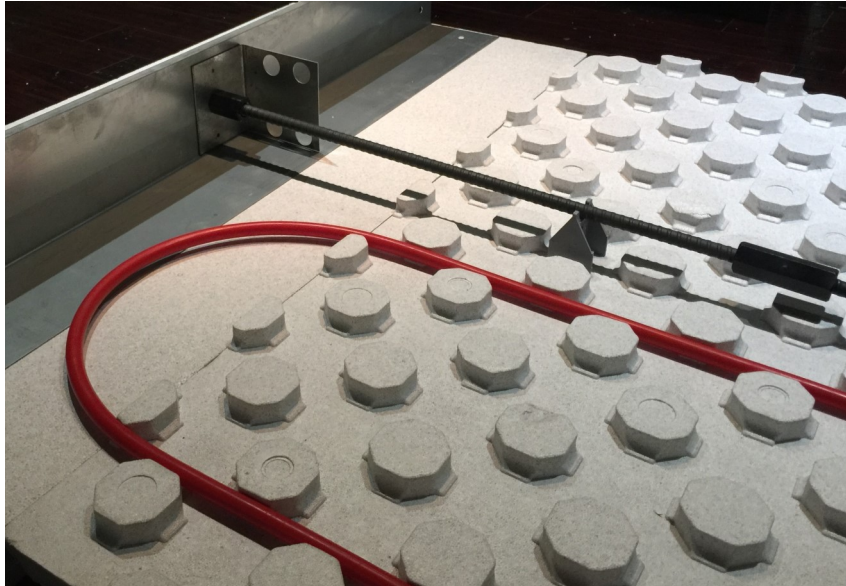


_INSTALL EPS RIGID INSULATION UNDER SLAB AND/OR AS FROST PROTECTION EXTENDING ON FLAT AROUND THE PERIMETER OF THE FORM. EPS IS VERY RESISTANT TO THE PASSAGE OF WATER, IS UNAFFECTED BY FREEZE THAW CYCLES AND WILL NOT ROT OR MOULD. BACKFILL WITH GRAVEL OR TOP SOIL



HIGH DENSITY "UNDER SLAB" RIGID INSULATION TYPE III EPS, DENSITY 30 psi 2- 1/2" THICK R 10.5 (2" THICK MINIMUM) EXTENDING BEYOND THE FOOTPRINT OF THE SLAB AS PER THE P.ENG DRAWINGS, GLUE EPS TO THE FACE OF THE FORM AROUND THE PERIMETER

DO-IT-YOURSELF RADIANT HEAT STRUCTURAL SLAB FOUNDATION



5 1/2" NOMINAL SLAB THICKNESS WITH 6" X 36" PERIMETER BEAM



POURED IN PLACE ANCHOR BOLTS, ELIMINATE DRILLING THE SLAB



DO-IT-YOURSELF PREFABRICATED IN-FLOOR RADIANT HEAT SYSTEMS DESIGNED AND BUILT BY OUR CIPH CERTIFIED HYDRONIC DESIGNERS

PREFABRICATED BOILER-BOARDS, EPS RIGID PEX BOARD & EXTERIOR FROST PROTECTION, PEX TUBE, MANIFOLDS, GLYCOL PUMPING SYSTEM, NON-TOXIC ANTI-FREEZE, 2-4 ZONE THERMOSTATS, DOMESTIC HOT WATER, LOOP DRAWINGS, TEST KITS, GAS OR ELECTRIC SYSTEMS READY TO INSTALL

25 YEAR PEX TUBE WARRANTY, 10 YEAR BOILER WARRANTY

Made in CANADA

MK56 PREFABRICATED D-I-Y HEAT SLAB FOUNDATION KIT

Made in CANADA

MK56 HEAT SLABS

