



BIOTEK

INSTALLATION MANUAL

1

WALL PANEL INSTALATION

STARTING WITH A WELL-LEVELLED
AND FULLY CURED FLOOR SLAB,
WE MEASURE AND MARK THE
MAIN GRID LINES WITH A CHALK
LINE ON THE SLAB:



WITH THE GRID LINES CLEARLY MARKED ON THE SLAB, WE START PLACING THE PANELS, PREFERABLY BEGINNING WITH A CORNER PANEL.

GRID LINES ARE ALWAYS IN LINE WITH THE INSIDE FACES OF THE WALL PANELS...



TO ATTACH PANELS TO ONE ANOTHER
WE BEGIN BY APPLYING ADHESIVE
SEALANT TO ONE OF THE TWO
SURFACES...



WE THEN ALIGN THE PANELS TOGETHER
AND BEGIN FIXING THEM IN POSITION
WITH VISE-GRIP PLIERS.



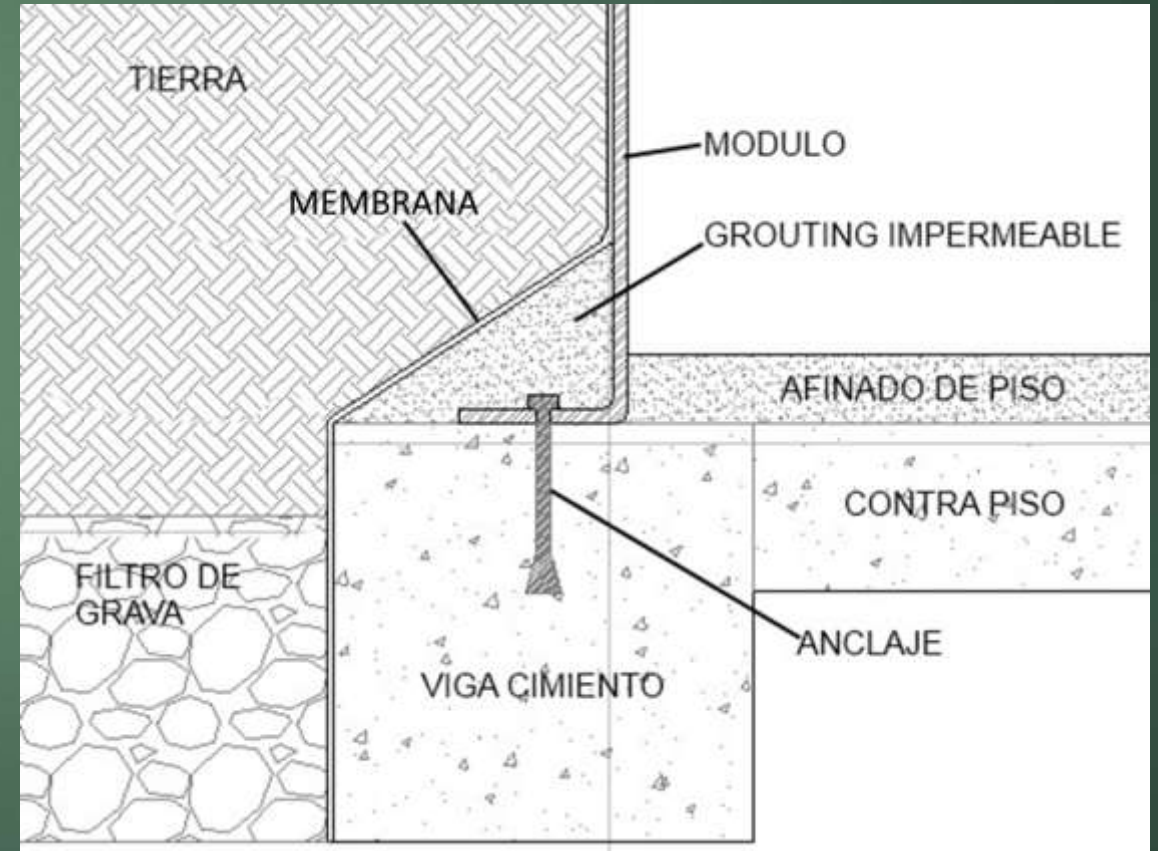
TO ACHIEVE THE RIGHT ALIGNMENT AND POSITIONING BETWEEN PANELS YOU NEED THREE PEOPLE WORKING. ONE PERSON CHECKS ALIGNMENT FROM THE INSIDE WHILE THE OTHER TWO WORK ON THE OUTSIDE CLAMPING, DRILLING AND BOLTING THE PANELS TOGETHER. THE PERSON ON THE INSIDE CHECKS FOR ALIGNMENT USING A SHORT LENGTH OF 2 X 4, RUNNING IT ACROSS THE SEAM TO VERIFY AND USING IT TO PUSH PANELS INTO ALIGNMENT.



ONCE THE PANELS ARE ALIGNED AND CLAMPED TOGETHER, WE CAN START DRILLING AND FASTENING NUTS AND BOLTS... BOLTS ARE DISTRIBUTED MAXIMUM 20 CENTIMETERS ON CENTER, BEGINNING WITH THE CORNER BOLTS. ALL BOLTS MUST BE PLACED ON THE FLANGES AT MAXIMUM 3 CENTIMETERS FROM THE PANEL BODY. APPLY A BIT OF ADHESIVE IN THE HOLES IF YOU CANT SEE ANY GLUE IN THEM TO ENSURE A GOOD SEAL.



WITH SEVERAL MODULES CONNECTED TO EACH OTHER, WE CAN BEGIN FIXING THE MODULES TO THE CONCRETE... FOR THIS IT IS VERY IMPORTANT TO ALIGN AND LEVEL EACH MODULE BEFORE AND AFTER FIXING THEM TO THE FLOOR. DO NOT TIGHTEN THESE SCREWS THOROUGHLY UNTIL THE ENTIRE DOME IS ASSEMBLED. IT IS ADVISABLE TO PLACE SOME DIAGONAL BRACING TO KEEP EVERYTHING VERTICAL UNTIL THE ENTIRE SHELL IS ASSEMBLED..





2

ROOF PANEL AND OPENING EXTENSIONS INSTALLATION

ONCE ALL THE WALL PANELS ARE IN PLACE, WE CAN BEGIN LIFTING AND PLACING ROOF PANELS., THE SAME PROCEDURE APPLIES, BUT MORE PEOPLE AND SCAFFOLDING WILL BE NEEDED... THE LARGEST ROOF PANEL WEIGHS ABOUT 300 POUNDS.



YOU CAN ALSO USE MECHANICAL HELPERS TO REDUCE THE NUMBER OF PEOPLE NEEDED IN THIS STAGE:



WHEN WALL AND ROOF PANELS ARE ALL IN PLACE WE CAN
INSTALL WINDOW AND DOOR EXTENSIONS.



GLUING AND BOLTING EACH ELEMENT ACCORDING TO
INDIVIDUAL SPECIFICATIONS...







3

ELECTRICAL AND OTHER INSTALLATIONS THROUGH THE SHELL

ELECTRICAL AND OTHER INSTALLATIONS THAT WILL GO THROUGH THE SHELL MUST ALWAYS BEGIN AT FLOOR LEVEL TO REDUCE THE POSSIBILITY OF WATER ENTERING THE DUCTS.



CONDUIT AND ELECTRICAL BOXES ARE COVERED ON THE OUTSIDE OF THE PANELS WITH THE DUCT COVERS THAT COME WITH THE KIT. THESE ARE GLUED TO THE MODULES WITH THE SAME ADHESIVE SEALANT USED THROUGHOUT THE ASSEMBLY. →

OPENINGS FOR ELECTRICAL BOXES AND LAMPS
ARE MADE WITH A 4 " GRINDER AND METAL
CUTTING DISC.



4

SEALING AND FINISHING THE SHELL

ONCE THE SHELL WITH ALL THE INSTALLATIONS AND ACCESSORIES HAS BEEN ASSEMBLED, THE NEXT STEP IS TO SEAL THE JOINTS WITH SEVERAL LAYERS OF PROTECTION TO PREVENT MOISTURE LEAKS OVER TIME. THE FIRST LAYER IS THE ADHESIVE SEALANT THAT MUST BE CAREFULLY CHECKED ON THE OUTSIDE OF THE SHELL,



THE SECOND LAYER OF PROTECTION IS FORMED BY COVERING ALL JOINTS AND BOLTS WITH SELF ADHESIVE SEALANT TAPE, AS WELL AS FLASHING AGAINST THE SLAB.

ALL WATER COLLECTING AGAINST THE SHELL MUST BE LED
DOWNWARDS PAST THE JOINT BETWEEN THE SLAB AND PANELS, TO BE
COLLECTED BY THE GRAVEL FILTERS...



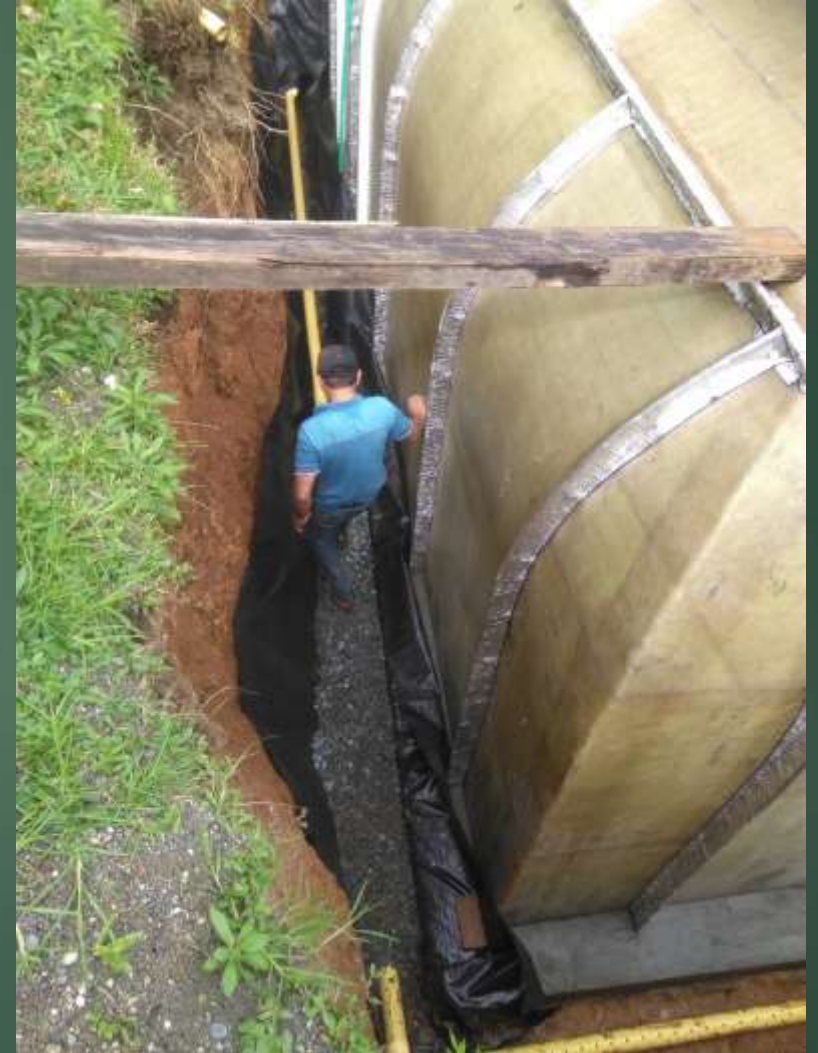
ONCE ALL INSTALLATIONS ARE FINISHED AND JOINTS SEALED, WE PROCEED TO THE FINAL SEALING OF THE DOME, ACCORDING TO THE METHOD CHOSEN, EITHER WITH EXPANDED POLYURETHANE INSULATION, A LIQUID MEMBRANE, OR OTHERS (SEE NOTES) ... IN ANY CASE, THE FINAL WATERPROOFING MUST CONTINUE BEYOND THE SLAB – PANELS JOINT.



5

GRAVEL FILTERS AND EARTHWORKS

GRAVEL FILTERS (FRENCH DRAINS) ALONG THE PERIMETER OF THE SLAB ARE ESSENTIAL TO PREVENT WATER FROM ACCUMULATING AT THE BASE OF THE BUILDING, ESPECIALLY IN AREAS THAT ARE BURIED ABOVE THE LEVEL OF THE SLAB.



ONCE THE FILTERS ARE FINISHED AND THE SHELL IS SEALED, WE CAN BEGIN TO FILL IN WITH EARTH WHERE NECESSARY AND STRUCTURE THE BERMS OR EARTH WALLS. FOR BERMS THAT HAVE MORE THAN 45 DEGREES OF INCLINATION AND ARE ABOVE GROUND LEVEL, WE RECOMMEND THE BAG SYSTEM DESIGNED BY BIOTEKT. THESE BAGS ARE MADE OF A POLYPROPYLENE MESH WITH UV PROTECTION AND ALLOW THE GROWTH OF VEGETATION THROUGH THE WEAVE...



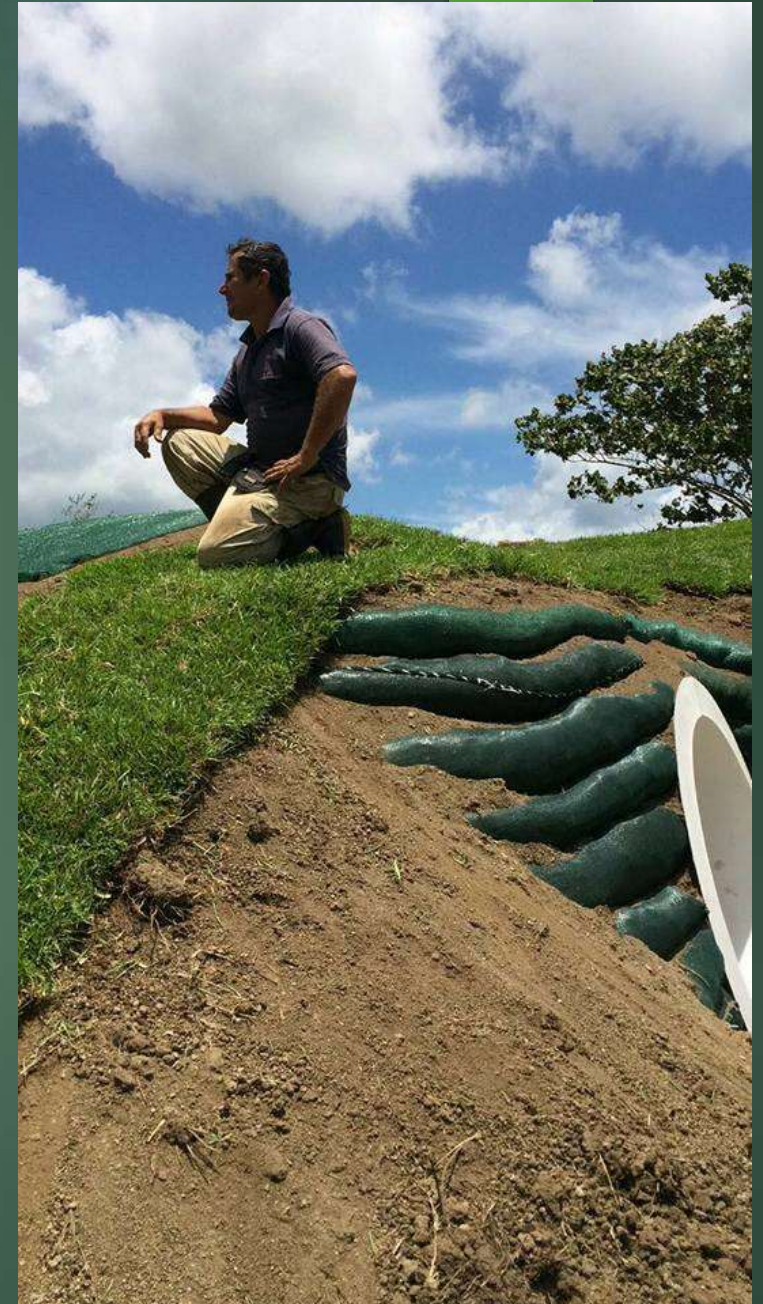
THE BAGS SHOULD BE FILLED WITH A SOIL MIXTURE THAT MUST CONTAIN 30% TOPSOIL TO FACILITATE THE GROWTH OF VEGETATION ... AT THE BASE OF THESE AND FOR SOME DISTANCE UPWARDS IT IS NECESSARY TO FILL WITH LOOSE SOIL BETWEEN THE BAGS AND THE DOME . FOR THIS YOU CAN USE THE EARTH FROM THE EXCAVATION OR OTHERS THAT ALLOW MANUAL COMPACTION WITH A HAND TAMPER.

IT IS VERY IMPORTANT THAT STRUCTURED BERMS REST ON A SOLID BASE, BE IT A COMPACTED GRANULAR FILL OR THE ORIGINAL UNDISTURBED GRADE.





STRUCTURED BERMS SHOULD GO ALL THE WAY UP TO THE JUNCTION BETWEEN THE WALL AND ROOF PANELS. ABOVE THESE WE PLACE LOOSE SOIL. THIS MUST ALSO HAVE A MINIMUM OF 30% TOPSOIL, AND AN APPROXIMATE THICKNESS OF 30 CENTIMETERS WITHOUT COMPACTING.



6

INTERIOR WALLS AND FINISHINGS

THE INTERIOR OF THE SHELL IS DESIGNED TO BE PAINTED , FOR MOST USES WITH ACRYLIC HOUSE PAINT OR OTHER TYPES OF PAINT THAT WILL BOND WELL TO A POLYESTER BASE SURFACE . WHITE BASE SHOULD BE LIGHTLY SANDED WITH 150 GRIT SANDPAPER TO REMOVE THE SHINY FINISH FROM THE MOLD, AND JOINTS BETWEEN PANELS DETAILED BEFORE PAINTING. WE DO NOT RECOMMEND TRYING TO SMOOTH THE JOINTS WITH PUTTY, DUE TO THE FLEXIBILITY OF THE MATERIAL. THE JOINTS HAVE ROUNDED EDGES DESIGNED TO HIDE SMALL ALIGNMENT DIFFERENCES BETWEEN THE PANELS, AND ARE AN INTEGRAL PART OF THE DESIGN ... INTERIOR PARTITIONS ARE USUALLY DONE IN A DRY SYSTEM SUCH AS DRYWALL OR SHEETROCK. THE CHANNELS AND STUDS FOR FRAMING CAN BE SCREWED DIRECTLY TO THE PANELS WITH DRYWALL OR SHEET METAL SCREWS UP TO 3/4" LONG, WITHOUT PERFORATING THE OUTSIDE SURFACE OF THE PANELS.





IN THIS SAME WAY WE CAN ATTACH WINDOWS, DOORS, AND ANY OTHER FIXTURES TO THE PANELS .



PARTITIONS CAN BE MADE IN MANY OTHER MATERIALS AS WELL...





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