



Technology, a game changer in making substandard housing safer

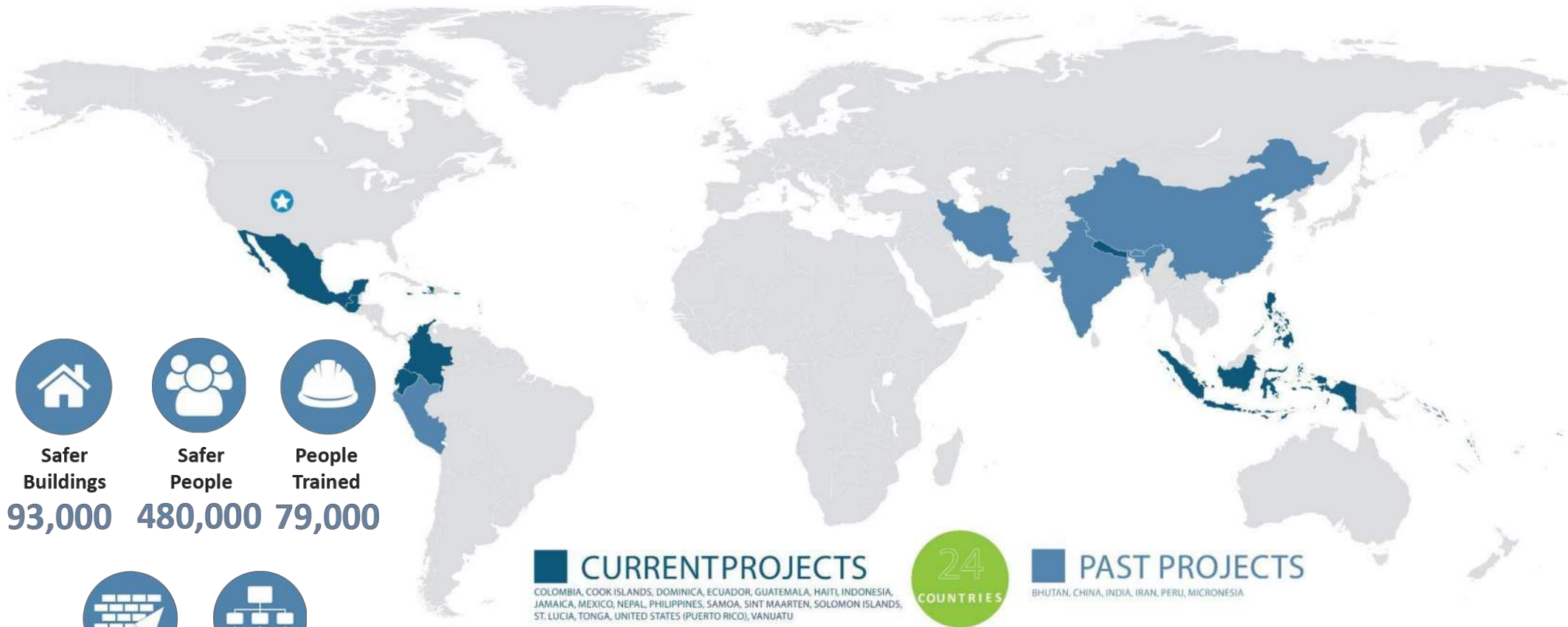
Stefano Pompei – Build Change

Technology, a game changer in making substandard housing safer

Build Change



ABOUT BUILD CHANGE



Safer
Buildings

93,000



Safer
People

480,000



People
Trained

79,000



Jobs
Created

40,000



Orgs
Changed

220

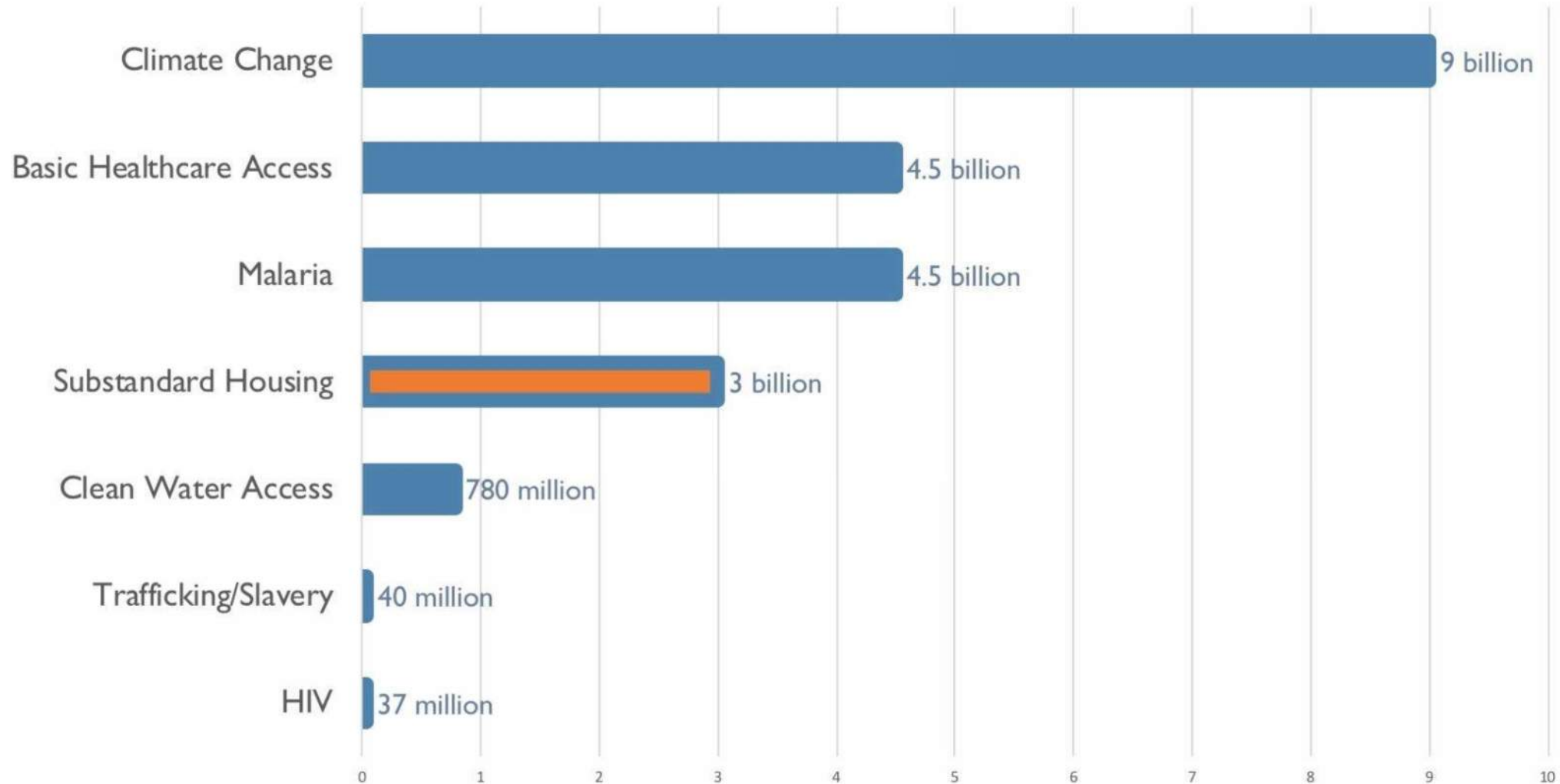


**BUILD
CHANGE**

An aerial photograph of a dense, informal housing settlement. The buildings are constructed from red brick and feature corrugated metal roofs. The structures are tightly packed, with a central courtyard area. A dog is visible in the courtyard. The text "Substandard Housing" is overlaid in the center.

Substandard Housing

GLOBAL CHALLENGE



by affected population (2030)



FOCUS ON COLOMBIA



- High seismic risk across the country.
- Population of 50 million people, 77% of which live in urban areas.
- Major cities are expanding beyond capacity, creating informal neighborhoods.
- Low-income families are building without technical guidelines or permits.



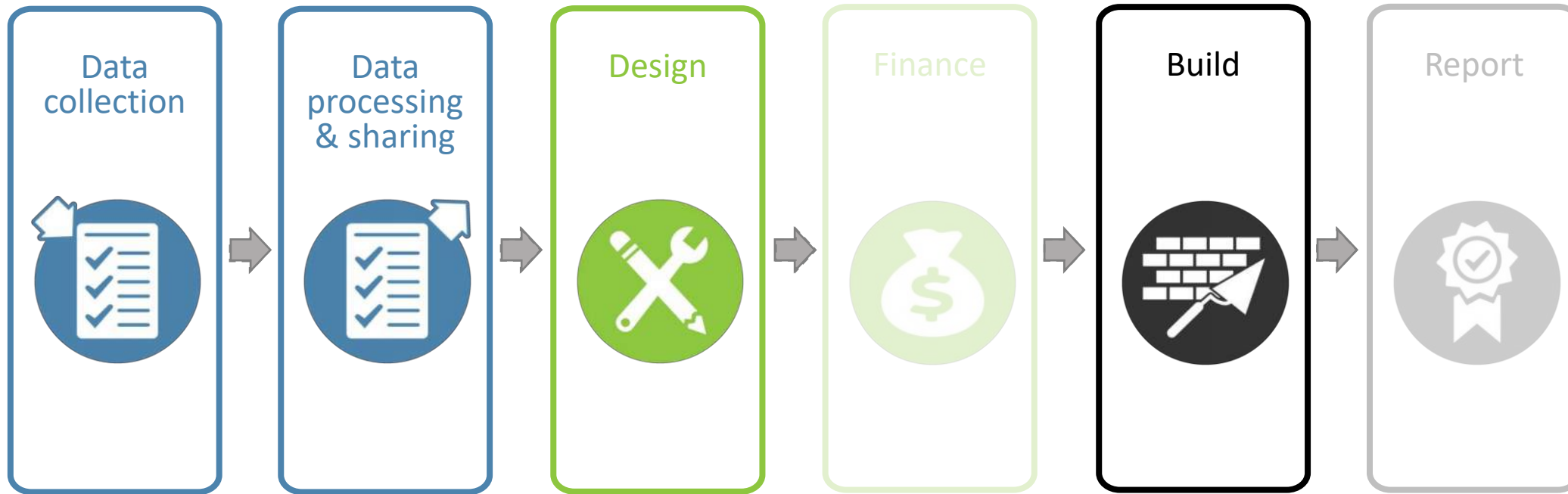
A construction worker wearing a yellow hard hat and brown work gloves is pouring concrete from a red bucket into a wooden formwork. The worker is positioned on a construction site with various buildings and materials in the background. The formwork is made of light-colored wood and is reinforced with metal rods. The concrete is being poured into a cavity within the formwork. The background shows a dense urban environment with buildings made of concrete blocks and corrugated metal roofs. The overall scene depicts a construction project aimed at improving a substandard house.

Improving a Substandard House

WHAT DOES IT MEAN?



SIX STEP VALUE CHAIN



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Technology

DATA COLLECTION - Qualitative & quantitative data

Before

LIS KONTWOL

KONTWOL POU VALIDASYON TRANCH NIMEWO:

(Tcheke tout etap ki te fet nan tranche sa)

NOUVO POTO
RETROFIT

DS.1 CH. V. VERT. AUX ANGLES
DS.2 CH. V. VERT. EN INTERSECTION MURS
DS.8 CH. V. EXTREMITES DES MURS

DS.9 CH. V. EXTREMITES DES PORTES
DS.10 CH. V. EXTREMITES DES FENETRES
DS.4 (LIASON AU PLANCHER

DS.5 LIASON AUX FONDATIONS
DS.6 ELEVATION TYPE
DS.7 LIASON ENTRE COLONNE ET FONDATIONS EXISTANTES

MATERYO METOD AK KALITE KI KOREK

FERAYAJ

GRADE 40

KRENELE

LYEN AVEK

MI POT FENET

BA LONJIT. (4) #4 (2) #4 (1) #4 ou (2) #3

FEMEN OUVRE

ETRIYE #2 #2 #2

Kwache 135 deg., 4cm

Ø15 cm nan long poto

Anwobaj 2.5cm

Anwobaj 8cm nan kote beton an nan kontak direkt avèk sol

SEMELE

(4) #4 45cm

Anwobaj 7.5cm

EN PLAN

EN COUPE

KOFRAJ

KALITE

Bon kalite

Pis pover

Pis gote

GIWOSE

pi piti 2.5cm

KOTE

Chak 3-4 etriye

Mare ak fe

aligne

Verrite ke kofraj

pout yo a nivo

KONSTRIKSYON ETAP YO POU BON PRATIK

NAN TRANCHE SA?

ENPLANTASYON ak TRAVAY PREPARASYON

Make aks (axe) mi an

Eteye

Mete yon planch anba dal la pou anpech moso beton tonbe andedan kay la

Fe twou nan dal la ki laje 15cm nan tet poto a

Kase bo mi yo ki nan alantou nouvo poto a pou ke beton an ka rantr ant poto ak mi

NAN TRANCHE SA?

KONEKSYON AVEK FONDASYON

SI GEN CHENAJ ENFERYE

Kase beton nan chenaj enferye pou ke nou ka fe antre amati

Fouye nan fondasyon laje ki korek

Mete amati lonjitidinal, antre 40cm anba wote tet makadam la

POTO AK SEMEL

Fouye twou ki gen 60cm laje ak 60cm profonde nan baz poto a. Poto a dwe tonbe nan mitan twou a.

Fe ferayaj semel yo ak fe #4. (4) ba fe ki gen long 45cm nan chak direksyon

Kite kouch beton epese 7.5cm ant amati ak woch nan fon

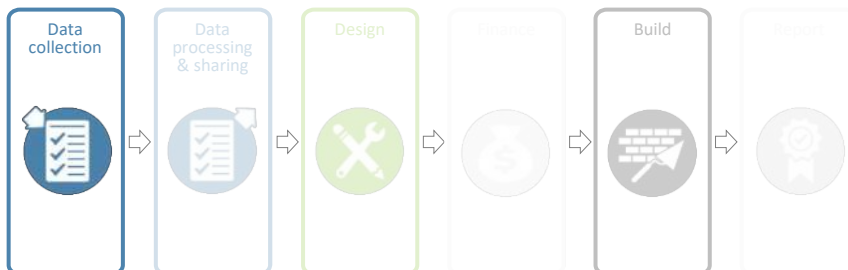
Veye pou we si anwobaj sou kote poto a ap fe 2.5 cm

Nan fondasyon an, sevi ak gwo woch epi vide beton pou ka plen twou a. Ant poto a ak woch yo, kite yon distans 2.5cm pou pi piti

W1 NON W1 NON

W1 NON W1 NON

After

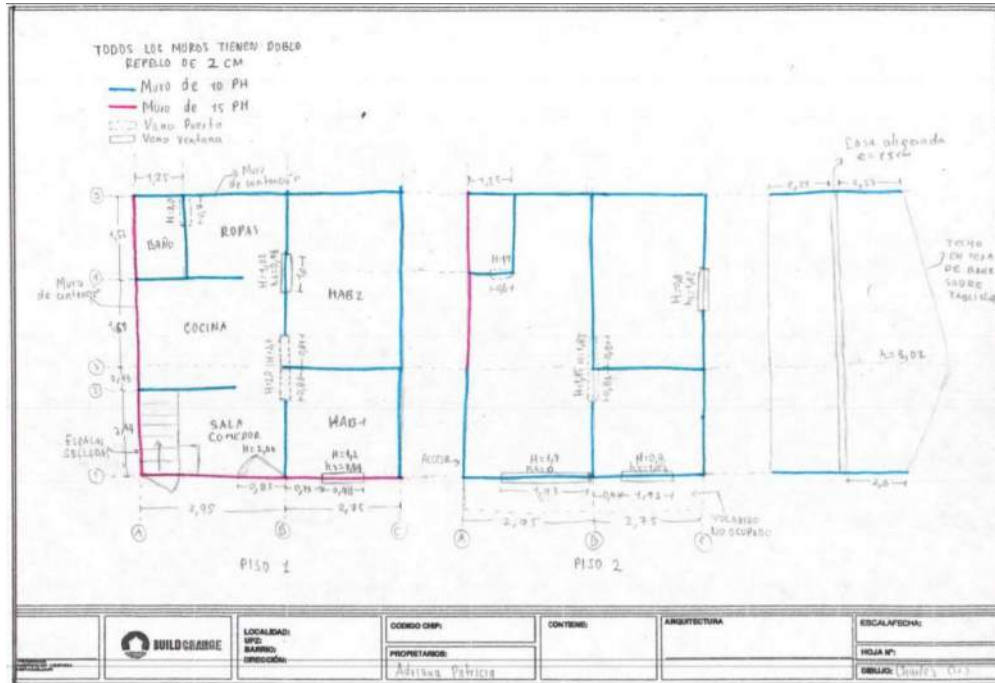


Our work is easier, more efficient and we interact in almost real-time with people in the field.

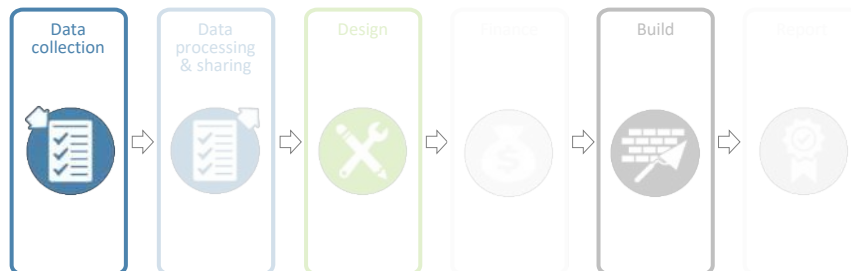
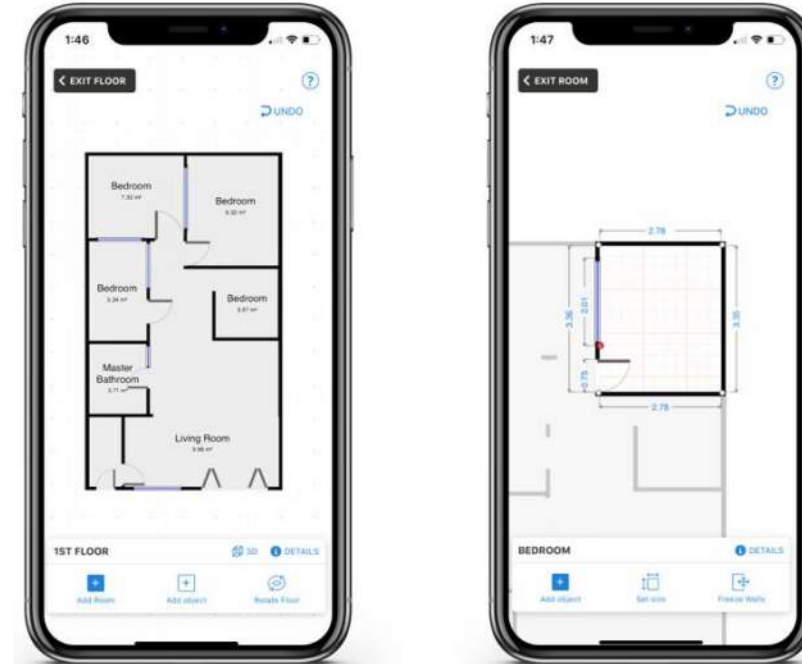


DATA COLLECTION - Geometric data

Before



After



m^p magicplan

More accuracy in the measurements,
immediate availability of the information
and less stress.

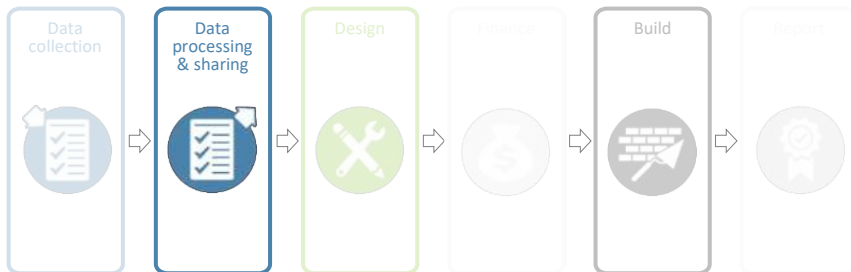


DATA PROCESSING - Real-time, in the field

Before

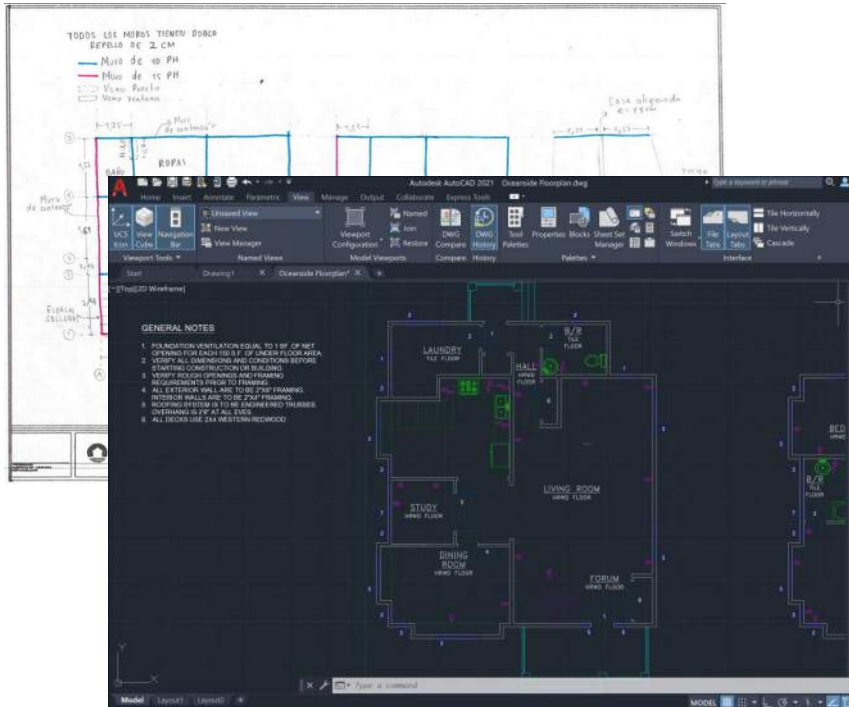


After



DESIGN - Digital models

Before



After



magicplan®

+

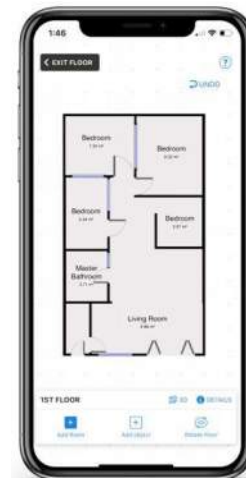


Dynamo®

+



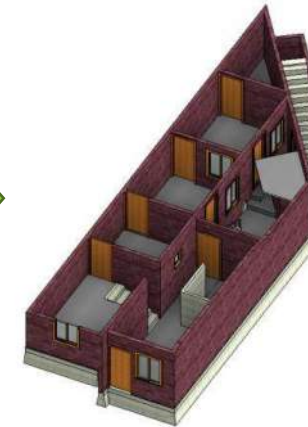
Autodesk Revit®



```
class wall_line:
    def __init__(self, g_line, w_h, w_type, ds_w):
        pass
    def createElements(self, level):
        pass
    def get_all_points(self):
        pass
    def divide_by_openings(self, min_w_width):
        pass
    def compareByBox(self, w_line):
        pass
    def addDoor(self, w_door):
        pass
    def checkAngle(self):
        pass
    def correct_points(self, x_snaps, y_snaps):
        pass

class Window_Door:
    def __init__(self, x, y, h, w, h_p, dw_type, op):
        pass
    def createElements(self, level, host):
        pass
    def correct_points(self, x_snaps, y_snaps):
        pass
    def compare(self, window_door):
        pass
    def get_all_points(self):
        pass

class floor_curves:
    def __init__(self, polycurve, floortype, op):
        pass
    def createElements(self, level):
        pass
```



The house plan created in magicplan® is imported in Revit® through a Dynamo® script and the 3D model is automatically generated.



DESIGN - Automatic generation of house 3D model

For more information:



<https://www.youtube.com/watch?v=khogHRpLVMY>

