Towards automated checking of BIM-Based Building Permit

RAVA3

P R O

## RAVA3Pro Municipalities:



R A V A 3













































## Collaborating:















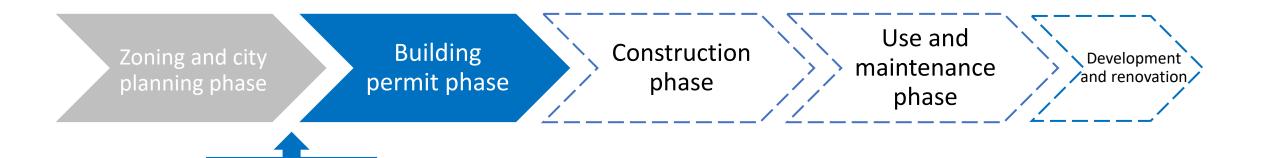
Zoning and city planning phase

Building permit phase

Construction phase

Use and maintenance phase

Development / and renovation /

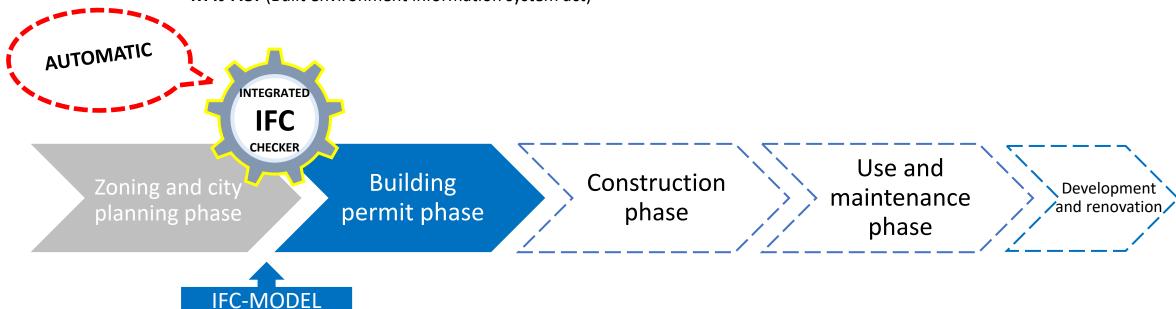


SUBMITTING BUILDING PERMIT APPLICATION AND IFC-MODEL (BIM) INTO WEB-BASED SERVICE SYSTEM

IFC-MODEL ARCHITECTS PLANS

MODEL CHECKING INTEGRATED IN WEB-BASED SERVICE SYSTEM (CLOUD)

CHECKING BASED ON PROPERTY- AND RULESETS GENERATED ACCORDING TO THE **BUILDING ACT**, - REGULATIONS AND **RYTJ-ACT** (Built environment information system act)



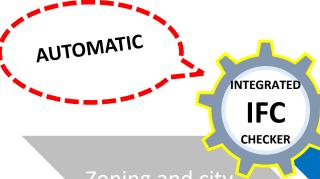
SUBMITTING BUILDING PERMIT APPLICATION AND IFC-MODEL (BIM) INTO WEB-BASED SERVICE SYSTEM

**ARCHITECTS PLANS** 

MODEL CHECKING INTEGRATED IN WEB-BASED SERVICE SYSTEM (CLOUD)

CHECKING BASED ON PROPERTY- AND RULESETS GENERATED ACCORDING TO THE BUILDING ACT, - REGULATIONS AND

RYTJ-ACT (Built environment information system act) (NEXT STAGE DEVELOPMENT: ZONING PLAN IFC (BIM) ECT.)



#### **CHECK POINTS:**

- Registry data (properties: address, site codes, flat identifications, areas, volumes, features: heating type etc..)
- Coordinates (model situated on correct site)
- Properties of the building: area, volume, room properties; windows min.10%, height, construction materials (CO2)
- Building code specifications: Accessability, Safety; firesafety, stairs (treads/risers), Railings h,

National checking criteria defined by aplicable legistlation to each building type

Zoning and city planning phase

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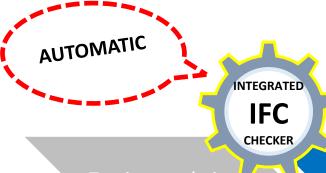
SUBMITTING BUILDING PERMIT APPLICATION AND IFC-MODEL (BIM) INTO WEB-BASED SERVICE SYSTEM

### BIM MODEL BASED BUILDING PERMIT PROCESS

#### MODEL CHECKING INTEGRATED IN WEB-BASED SERVICE SYSTEM (CLOUD)

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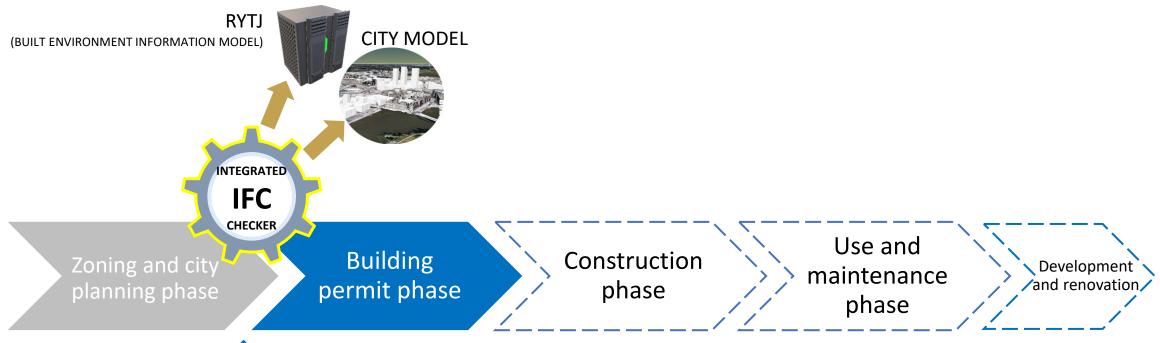
Use and maintenance phase

Development and renovation



#### **ACCEPTING IFC MODEL CHECK**

- NO DEVIATIONS -> FORWARDS
- DEVIATIONS  $\rightarrow$  CHECKED ACCORDING TO THE PROCESS  $\rightarrow$  FIX/ACCEPTANCE  $\rightarrow$  FORWARDS

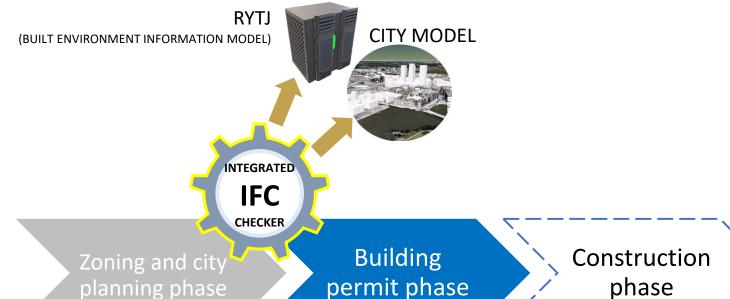




#### **IFC MODEL CHECK ACCEPTED**

→ AUTOMATED TRANSMISSION OF MODEL INFORMATION TO RYTJ AND CITY MODEL

## BIM MODEL BASED BUILDING PERMIT PROCESS



phase

Use and maintenance phase

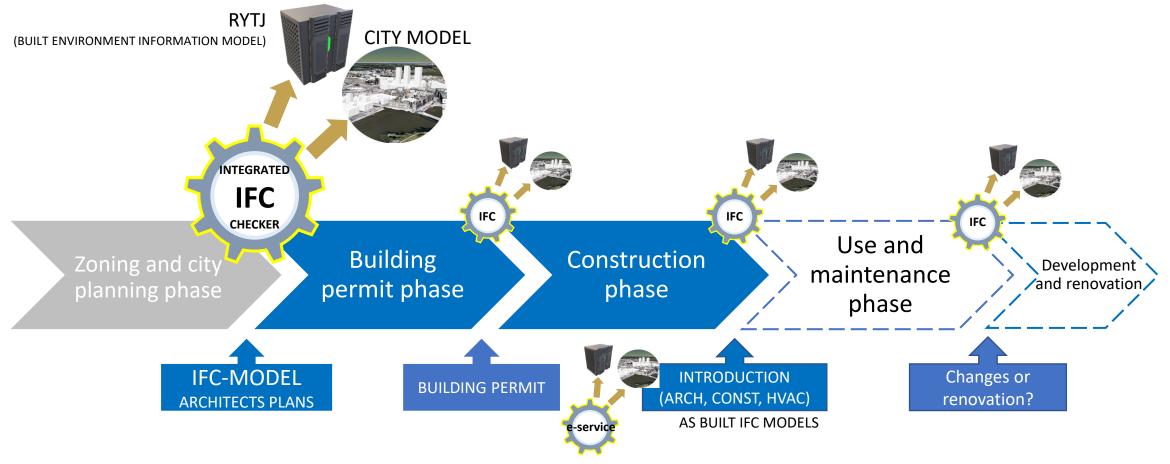
Development /and renovation/



planning phase

- EVALUATING THE CITY SCAPE
- INTERACTION ENHANCING
- NEIGHBOUR HEARING
  - → IFC-DESIGN MODEL SITUATED IN CITY 3D MODEL
  - → POSSIBILITY TO ENRICH CITY MODEL PHOTOREALISTICALLY BY DRONE IMAGE MATERIAL
  - → IFC MODEL ENHANCED BY SURFACE TEXTURES (IFC4 SUPPORTED IN NEW NATIVE MODEL PROGRAM VERSIONS)

## BIM MODEL BASED BUILDING PERMIT PROCESS



#### DATA COLLECTED FROM CONSTRUCTION PHASE

- CONSTRUCTION WORK STARTING ANNOUNCEMENT
- RESPONSIBLE WORK LEADER NAMING / CHANGES
- WORK PHASE REVIEWS (MEASURED TO THE PLACE, GEOLOGICAL, FRAMEWORK ...)

### AS BUILT MODELS AS PREQIOSITIES FOR INTRODUCTION / USE

- ARCHITECTURAL-, CONSTRUCTION- AND HVAC-MODELS
- AUTOMATED CHECK ACCORDING TO THE PROPERTYSETS, ENTITIES AND USE CASES DEFINED

## OWNERS RESPONSABILITY TO MAINTAIN INFORMATION MODEL UPDATED

ISSUES WITH NO NEED FOR A PERMIT PROCESS

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