

# Non-invasive architectural diagnosis

## ANALYSIS AND CAD REPORT OF AN ANCIENT STABLE

Rustic Court "La Faggiola", Piacenza (IT)



Fig.1: Surveyed site: "La Faggiola" Rustic Court



Fig.2: CAD redrawing and high-resolution colored orthophotos

### NEEDS AND GOALS

- Detailed survey of the external and internal environments of the building.
- Graphics rendering of the exact geometry of the building (plans, sections and elevations) and its material component.
- Future restoration and conservation interventions.

### JRC 3D RECONSTRUCTOR\_BENEFITS

- Precision of final results.
- Management of data coming from different laser scanners.
- Quick and precise processing of data.

“ The merging between the processed point clouds and the traditional topographic polygon inside JRC 3D Reconstructor completes the survey in any aspect.

**Marco Salvi**

Studio Tecnico Cottini | Engineer

### RESULTS

- 2D models
- 3D models
- High-Res orthophotos
- Plants, elevations and sections

*STUDIO TECNICO*  
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### Studio tecnico ing.i. Adriano Cottini

The Cottini engineering studio deals with topographic surveys, laser scanner surveys, data processing from point clouds, drafting of graphic drawings and planning for residential and civil construction works.

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Fig.3: Colorful 3D model - point cloud (general view)



Fig.4: Colorful 3D model - point cloud (partial view)



Fig.5: CAD redrawing with high-resolution colored orthophotos

The "Faggiola" Rustic Court is an ancient private residence (now public) dating back to the early twentieth century. Having been neglected for a long time, the client decided to check its status by relying on 3D surveying technologies, before proceeding with redevelopment works and refurbishment and restoration interventions.

During the days on the field, we worked with laser scanner instruments and it was possible to detect the geometry of the entire building: from the external areas to every single room, obtaining the highest precision necessary for the graphics redrawing.

The material components of the building have been of great importance: building and finishing materials, signs left over from the passage of time, have contributed to a greater understanding of the building's real conditions.

## TECHNICAL DETAILS

- SURVEYING SYSTEMS:
  - Terrestrial laser scanner
  - Total station
- SURVEYED AREA: 700 m<sup>2</sup>
- SURVEYING TIME: 2 days
- PROCESSING SOFTWARE:
  - JRC 3D Reconstructor
  - AutoCAD
- DATA PROCESSING TIME: 2 weeks

“ Thanks to the data collected during the laser scanner survey and the use of JRC 3D Reconstructor processing software, it was possible to obtain a thorough reading of the material components of the building, through the extraction of high resolution orthophotos, following applied to the CAD drawings.

**Elena Plebani**

Studio Tecnico Cottini | Architect

The methodology used, fast and non-invasive, is suitable for completing architectural diagnoses of buildings and defining the type of interventions to be carried out, be it demolition or restoration.