The Benefit of 3D-Scanning for the BIM Process

Dipl.-Ing. Johannes Rechenbach
Architekt BDA

Laser Scanning Architecture
Hanover, Germany
Laser Scanning Architecture

Laserscanning since 2010 - 280 Projects - 14.000 Scans

- innovative Technology
- Lower Prices since introduction of the Faro Focus 120
- New Autodesk pcg Format in 2010
- Much more Restoration of existing Buildings
- Powerful Hardware: Clients use Point Clouds

LSA Scan Neues Rathaus Hannover
Laser Scanning Architecture

Homepage www.lsa3d.com

• More Info
• More Examples
• More Use Cases
Restoration Projects

No Plans? Necessity for precise Building Documents

• Mostly just analog drawings
• Changes not documented
• Wrong area determination
• Longing for 3D Data
• More and more BIM cases
Restoration Projects

Up to 70% of all building activities in Germany by now

- Less and less vacant building sites
- Conversions
- Energetic Modernisation
- Restoration of Facades
- Construction good, Isolation not
Restoration Projects

Good Reasons for 3D-Scanning

• Deformation-true Survey

• Comprehensive Datasets: Panoramic View to Point Cloud

• Many possible Extractions: 2D-Orthophotos for 2D CAD 3D-Point Cloud for the BIM-Model

• Visualisations + Videoanimations

• Share Data online (Webshare)
Laserscanner FARO Focus

Up to 1 Mio. 3D-Coordinates per Second

- 360° panoramic view of each single scan
- Grey values or color
- 3-10 minutes at each position
- 80 – 130 m distance
- Hundreds of scans for 1 model
Projects

- Commercial
- Residential
- Heritage
- Industrial

Examples!
Former Department Store

Not used, conversion to Hotel planned

- 230 scans in 2 days with 2 laserscanners
- Revit 3D-Model
Former Department Store
Not used, conversion to Hotel planned

- 230 Scans in 2 Tagen
- Erstellung Revit 3D-Modell
Former Department Store

Not used, conversion to Hotel planned

- Base helpful from planning stage to
- Facility management
Retail Documentation

More than 2,000 stores in Europe

- biggest scan-project in Europe
- LSA Partner IT Chain
- Going on since 2010
Retail Documentation

More than 2,000 stores in Europe

- Scanning 3 stages: shell structure, completed building, furbished store
- Pointcloud to Autocad Arch + revit
- Precise information: shelves, lighting, installations
Luxury Hotel near Frankfurt

Documentation before Remodeling

- ReCap to Revit
Conversion of Office Space

- 500 scans plus
- ReCap to Revit
- Precise geometry
Capture of Industrial Factory

Location Grown in Centuries

- Fa. Brüggen, Lübeck
- 1,500 scans of all areas
- ReCap to Revit
Capture of Food Factory

Location Grown in Centuries

- Fa. Brüggen, Lübeck
- 1,500 scans of all areas
- ReCap to Revit
Controlling of technical Installations

New Construction HafenCity Hamburg

- 600 scans in 3 days with 2 Laserscanners
- 2D-Orthophotos for Autocad
Controlling of technical Installations

New Construction Hotel in Osnabrück

• 80 scans in 2 hours with 3 Laserscanners
• ReCap/ 2D-Orthophotos
Controlling of Elevator Shaft

3D-Survey for Geometrical Analysis

• Law Suit of Contractor and Owner
• Months without building progress
• Check in CAD
Controlling of Elevator Shaft
Controlling of Flatness

3D-Scanning to check Heights and Evenness

- Directly in the panoramic view
- Exact to the millimeter
- Fast and easy
3D Scan to BIM
3D Scan to BIM
3D Scan to BIM
3D Scan to BIM
Thanks for Listening!

LSA - Laser Scanning Architecture
Lüerstraße 16
30175 Hannover

Fon +49 511 814060

mail@LSA3D.com
www.LSA3D.com