TachyCAD Building Survey
Leave the site with a finished plan

FARO®

A TachyCAD surveyed floor plan. Physical data to each individual room, such as floor area and volume are automatically calculated. Recorded attribute data can be assigned to the individual rooms.

Benefits
- Leave the site with a finished drawing
- Missing and inconsistent measurements are immediately noticeable
- Reworking of the drawing in the office is kept to a minimum
- The complete range of AutoCAD's functionality is always available.
- Time is saved by the simultaneous measurement, construction and recording of the attribute data
- Free choice of equipment and instruments
- Free choice and combination of the methods of measurement: Measuring tape, folding rule, hand held laser, total station
- Automated practice oriented solutions for typically met tasks
- Free support

Areas of application
TachyCAD Building Survey can be used in all situations where building plans have to be created or where CAD based objects have to be combined with attribute data. The creation of 3D drawings is also very easily possible. Areas of application can include:
- Data acquisition and planning for use in existing buildings
- Room schedules for Facility Management
- Building condition survey for heritage conservation and building research

The AutoCAD application TachyCAD is a CAD based inventory data capture solution. The observed data from all commonly available surveying instruments are immediately converted into geometry. Depending on the requirements, if it's floor plans, sections, elevations or 3D objects, they are all created on site in an AutoCAD drawing. TachyCAD is available in two sector specific versions: TachyCAD Building Survey and TachyCAD Archaeology.

The total station becomes your cursor
TachyCAD enables the wireless transmission of the observed total station data to a notebook. When an observation is recorded the observed data are automatically transferred to the notebook. TachyCAD calculates from this data the 3D coordinates of the observed point. These are then immediately available for drawing and construction purposes in AutoCAD, just as if one had used the mouse or entered the data manually. Also, distances measured by a Bluetooth enabled hand held laser can be transferred wirelessly to AutoCAD.

Workflows optimized into the smallest detail
A specially developed and extensive command palette for building surveys complements the existing AutoCAD functionality. The basic principle of all of the commands is always, with the minimum of input and measurements, to create the final detail.

Structured room schedules
Parallel to creating the CAD drawing a list of floor areas can also be simultaneously created.
The required bounding polygon can be quickly and comfortably created. The room floor areas, together with additional extra information, such as types of surfaces and use, are displayed in a clear and customizable tree structure. The room information block and visualization (for example different hatch patterns depending on type of use) can be created at the click of a button. The data can be easily exported into a database.

References
TachyCAD is used worldwide, for example by
- English Heritage
- Jerry MacNeil Architects
- Krueger International
- Measure Masters
- Pace Compumetrics
- University of Mary Washington
- ETH Zürich
- ... and many others!

Technical Requirements

Platform	▪ AutoCAD and AutoCAD LT as well as the associated vertical products such as Civil 3D, Architecture or Map 3D subsequent to the 2013 versions. Should you be using older Autodesk products please check with your FARO 3D Software distributor.
Operating system	▪ Dependent on the version of AutoCAD being used (for more details please request a copy of the compatibility list).
Hardware requirements	▪ A notebook with properties making it suitable for being used on site, especially with a good battery performance and where possible with Bluetooth. Performance parameters should meet the recommendations from Autodesk for the appropriate AutoCAD version.
Required measuring instrumentation	▪ A commercially available total station from one of the common manufactures such as Leica, Trimble, Topcon, Sokkia, Nikon, Pentax, Zeiss or others. To clarify the suitability of your total station for use with TachyCAD please contact FARO 3D Software. Optional: Laser distance meter with Bluetooth interface. Leica, Hilti, Bosch are supported.

Important features

3D coordinates from total station observations
▪ Interfaces to all common types of total stations
▪ immediately available coordinates for use in CAD
▪ Define, observe and navigate to control points
▪ Determine station position with statistical adjustments, various geodetic positioning methods

Measurement and construction tools for building plans
▪ Measuring and drawing of building elements: Doors, windows, stairs, ceiling grid, alcoves, constrained perpendicular walls
▪ Universal detailing tools: round or rectangular pillars, steps, curves, alcoves,pipes,ceiling grids
▪ Construction tools: Plumb an observed point onto a line, dimensions from lines, extend 2D or horizontal lines, extend/trim 3D lines
▪ Determine tie distances
▪ Automatic scanning of profiles
▪ Commands to define a vertical or inclined UCS allow the user to draw in any aligned plane (sections, elevations, iso's)
▪ Construction planes to determine inaccessible corners and edges
▪ Survey level datums: Absolute and relative level reference systems
▪ Create TINs for the creation of irregularly shaped surfaces (e.g. vaulted ceilings), create section and profile lines

Manual measurements
▪ Bluetooth interface to hand held laser distance meter
▪ The measured distances are available in CAD at once
▪ The 'Hand Laser Box' is a stack list where all measured distances are stored and can be further accessed
▪ Choose whether to initiate the distance measurement from the hand held laser or from the notebook

Special commands for manually taken measurements supports transposition in the graphic window:
▪ Measure rectangular rooms with residual error adjustments
▪ Measure any room (by using the diagonals)
▪ Control distances
▪ Determine a point's position using bilateration (can be optionally used as a transparent command from within other AutoCAD commands)
▪ Fix points on a line

Commands for completing plans and adding details
▪ Plan analysis: Find small gaps, line remnants and double lines
▪ Flatten the drawing: Reduction of the 3D measured data to a pure 2D plan
▪ Dimensioning tools: Doors, windows, stairs, beams, fold down vertical arcs into horizontal arcs
▪ Insert a coordinate grid, North arrow

Surface data management
▪ Record supplementary database suitable attribute data
▪ Predefined form of the data to be recorded and saved in a structured template

▪ Intelligent methods of recognising bounding polygons to rooms
▪ Automatic calculation of floor areas, taking into account island polygons such as supports, pillars, etc.
▪ Data in a tree structure, linked with the surfaces in the drawing
▪ Various export functions: Excel spreadsheets, ASCII tables, XML, HTML, AutoCAD blocks, CAFM suitable polygons
▪ Drawing visualization relevant to the selected object attributes (e.g. coloured hatching for rooms depending on the type of use)
▪ Safe and efficient data capture methods: Pre-definable pick lists, completion control, definition of default values, bulk editing

TachyCAD Programming interface
▪ Full access to measurement functions by third party applications

Geodetic methods
▪ Surveying made simple: Also for non-surveyors using understandable, pre-prepared methods of measurement and calculation
▪ The on-site setting out of points in the drawing
▪ Total station as laser pointer to simplify installation work: navigate to points with intelligent error correction
▪ Network adjustments for a high degree of accuracy in large scale projects
▪ Helmert transformation for the subsequent alignment of plan segments
▪ Alternative methods of measurement for situations with adverse measuring conditions: Line intersections, plane intersections, hidden points

Miscellaneous
▪ Import coordinates from and export coordinates to ASCII labels
▪ Detailed manual with tutorials
▪ Various licensing models
▪ Flexible customization of all symbols used (blocks), text styles and labels

Free trial!
TachyCAD programs can be tested free of charge and without obligation. Visit www.FARO-3D-Software.com to send in a request form or simply call by phone.

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