



Acciona executes a Hospital Marking Drywall Track 6 Times Faster compared to conventional layout processes



Project background

- 10 floor building
- Hospital Central do Alentejo in Évora, Portugal
- Drywall track
- Layout scope - 1,951 meters of drywall track
- Project size - 8,437m² printed floor area



Francisco Romero, Project Director

Highlights



6x faster
with more information
on the slab.
Compared to manual



Layout accuracy of
better than 3mm



**12x more
productive**
with only one layout professional
compared to manual

Acciona is a global group dedicated to investing in sustainable projects since 1948, with a long history of providing extensive healthcare infrastructure solutions. They frequently use the latest technology in robotics to meet a variety of health and sustainability goals while taking on multiple projects across different countries.

When Acciona accepted a project to construct the Hospital Central do Alentejo in Évora, Portugal, they needed a fast and accurate solution for marking drywall track for what is currently the biggest construction project in the country. After assessing the project, a ten-floor building with a 400-bed capacity and all essential functional units, the team decided to use the HP SitePrint construction layout robot to develop the layout.

Initially, as a test, The Hospital Central do Alentejo project necessitated the marking of 1,951 meters of drywall track on an 8,437m² area. Utilizing HP SitePrint enabled the team to achieve the layout process faster.

The Challenges of Traditional Processes for Marking Drywall Track

The Hospital Central do Alentejo is the most important construction project in Portugal. The goal is to construct a modern hospital unit with inpatient units, technical care units, outpatient care units, care support units, general support units, and training. The 10-story main building will have a capacity of 400 beds.

Initially, the task involves marking and installing 1951 meters of drywall track. In a traditional layout process, the initial marking of control points or gridlines is performed, typically utilizing a Robotic Total Station. Subsequently, the layout crew manually measures offsets from these reference points to precisely identify the corners of the walls. Once the wall corners are accurately marked on the floor, a chalk line is employed to connect the designated points.



“ The project is based on a region with limited labor resources. This was one of the reasons why we looked for unconventional alternatives. HP SitePrint has really been a discovery for us to solve that labor shortage challenge. - Francisco Romero, Project Director

Implementing this task with a two-person layout crew employing manual conventional layout techniques yields an average productivity rate of approximately 40m²/hour. Accounting for the time invested in locating corners and snapping chalk lines, the estimated total time required to accomplish the 8,437m² job is 211 hours.

The Results with HP SitePrint

HP SitePrint efficiently completed the entire layout in just 37.4 hours, demonstrating an impressive productivity rate of 225 m²/hour. This task was effectively managed by a single operator on site who supervised the robot and another technician who spent approximately 1 hour and a quarter preparing documentation, for an average area of 1250m².

HP SitePrint productivity rate of 225 m²/hour vs. conventional layout productivity rate of 40m²/hour.

“ We were planning a traditional process with a layout crew, but we saw we couldn't meet the requirements to execute on time. - Francisco Romero, Project Director.

The implementation of HP SitePrint yielded remarkable outcomes, including a substantial reduction of days from the expected timeframe associated with traditional manual processes.





Based on our experience, HP SitePrint has helped to improve our layout efficiency by around six times compared to a traditional manual method. - José María Méndez Barragán, Hospital Technical Office Director



Additional Value-Added Benefits

While it's easy to see how the HP SitePrint dramatically cuts time requirements for marking drywall track, converting the time savings into value in the construction process paints a clear picture of the advantages. Acciona successfully reduced the layout activity compared to the traditional manual mode. This enabled workers to commence wall installation much earlier in the construction schedule, ultimately resulting in the project's completion ahead of the deadline.

Leveraging the HP SitePrint robot presents additional advantages beyond expediting processes, potentially leading to significant reductions in overall project costs and fostering an improved working environment.







HP SitePrint has reached our quality standards giving better than 3mm accuracy with an easy to use solution. - Daniel Oliveira, surveyor

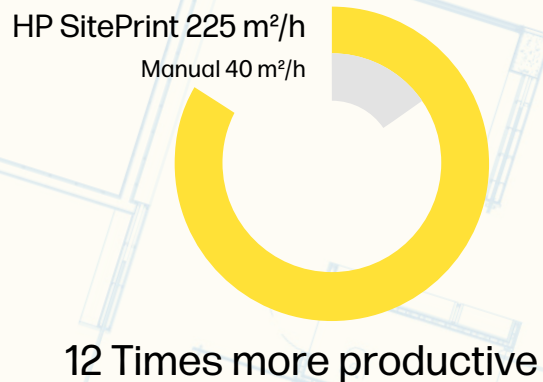
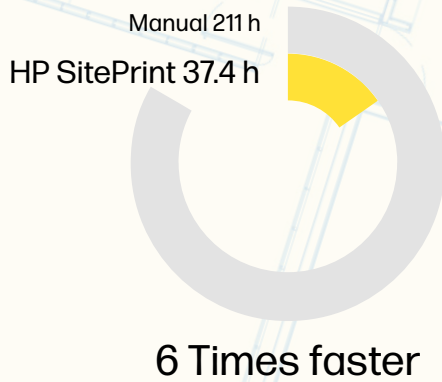
These inherent advantages encompass:

- Enhanced accuracy for error reduction: HP SitePrint consistently delivers a better than 3mm accuracy, mitigating mistakes and ensuring confidence that construction won't be hindered by marking errors.
- Ability to generate precise layouts: By directly printing from the BIM model, HP SitePrint enhances communication across all stakeholders with the transmission of comprehensive information from the model to the job site.
- Enhanced Health and Safety: The practice of bending down on knees to mark points or snap chalk lines can have a substantial long-term impact on back health. HP SitePrint significantly enhances layout ergonomics, as operators only need to hold a tablet.

Comparative Analysis

Consider this full breakdown of the savings and productivity gains possible when using HP SitePrint.

				
		Manual ¹	HP SitePrint ²	In January 2024, HP unveiled a software upgrade designed to elevate productivity by optimizing printing speed and navigation efficiency. Extensive testing revealed that the deployment of the upgrade leads to a substantial average productivity increase of 25% ³ within Interior Walls layouts compared to previous software versions. Using it, would have increased productivity 14x compared to manual layout.
Acciona at the Hospital Central do Alentejo				
Job Data	Printed Floor Area (m ²)	8,437 m ²		
	Meters of drywall installed (m)	1,951 m		
Time and Productivity	Total Time (h)	211 h	37.4 h	
	Productivity (m ² /h)	40 m ² /h	225 m ² /h (in this case)	
	Layout professionals			



HP Site Print is 12x more productive performing layout 6x times faster with only one layout professional

Learn More About Efficiently Marking Drywall Track with HP SitePrint

The technology of HP SitePrint not only offers a fast layout process for a variety of construction jobs, but it also helps reduce the costs of operation during the layout process. The Acciona team can continue to use the HP SitePrint across all jobs to achieve similar results, substantially cutting the time and cost requirements for marking drywall track. Contact HP to learn more about how the HP SitePrint can improve speed and efficiency in a variety of construction layout processes.

¹ Time and cost computation is derived from the aggregate time needed for locating wall corners and snapping chalk lines to replicate the same drawing printed with SitePrint that consisted of 2,889 segments. The following assumptions were considered: 1) Three corners are necessary for every two segments. 2) Three minutes are required for the measurements needed to locate one corner of a wall. 3) Two

minutes are required to snap the chalk lines connecting the corners. ² Data in the SitePrint scenario is gathered through robot telemetry. ³ HP SitePrint 2.0 increased productivity 25% compared to HP SitePrint 1.4.3 for Interior Wall layouts. Testing was performed with sample CAD files, meeting average industry conditions in terms of wall density per square meter.

Learn more at www.hp.com/siteprint

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c08991310 March 2024

