FIG WORKING WEEK 2025
AND Locate25 THE NATIONAL GEOSPATIAL CONFERENCE
Collaboration, Innovation and Resilience: Championing a Digital Generation
FIG Geospatial Council of Australia
Brisbane, Australia 6–10 April

Advanced Surveying Techniques for High-Rise Construction: Enhancing Precision and Sustainability

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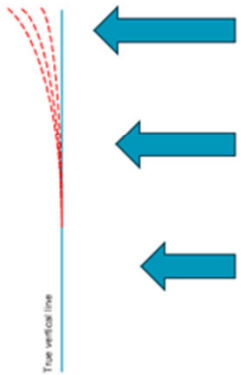
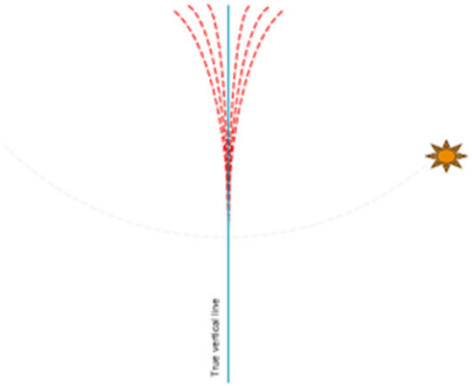
PLATINUM SPONSORS Australian Government CHCNAV esri THE SCIENCE OF WHERE Leica Geosystems HydroMeter Surveyors Australia

Complexities of vertical construction

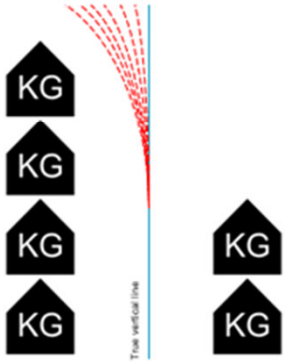
Wind Loading



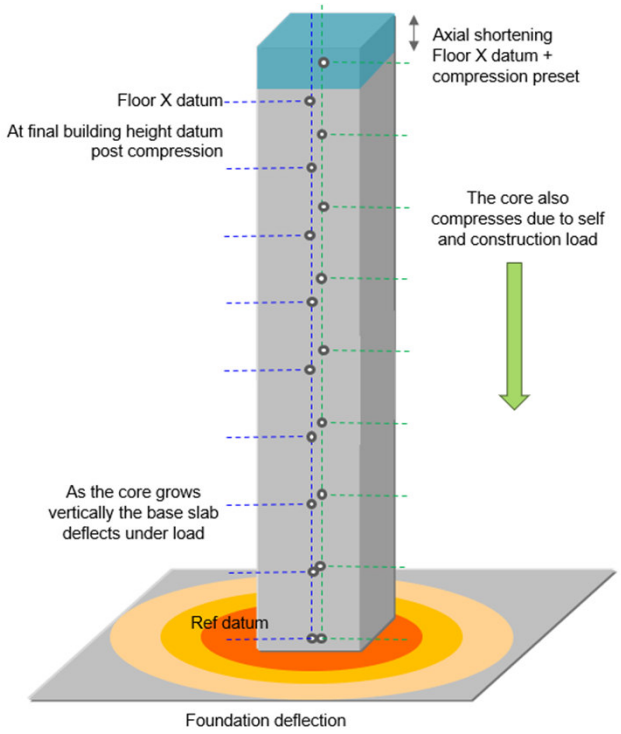
Solar radiation & thermal expansion



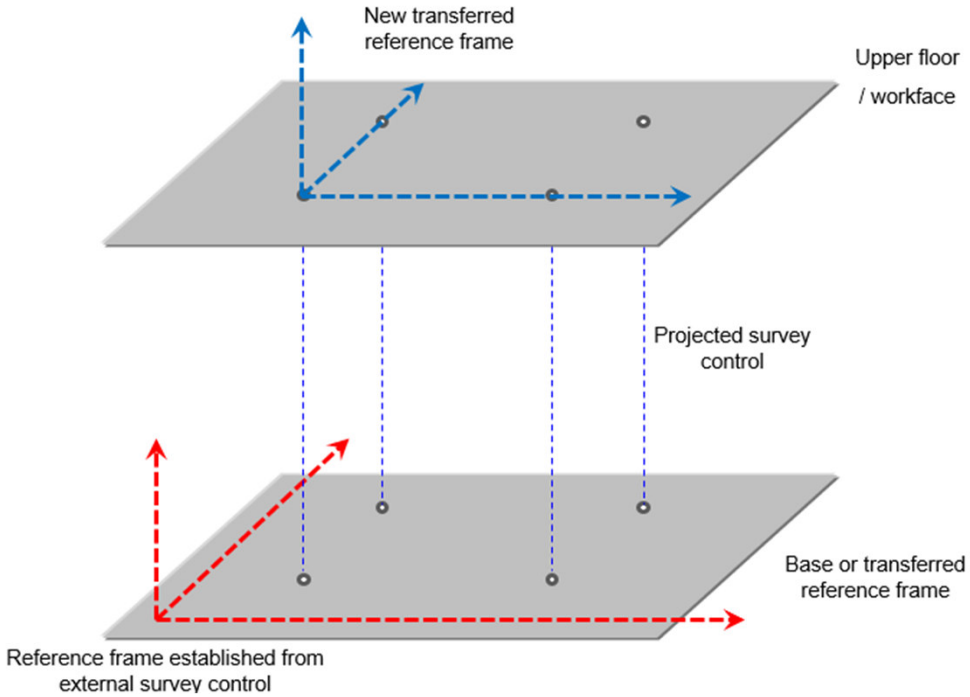
Live load from construction

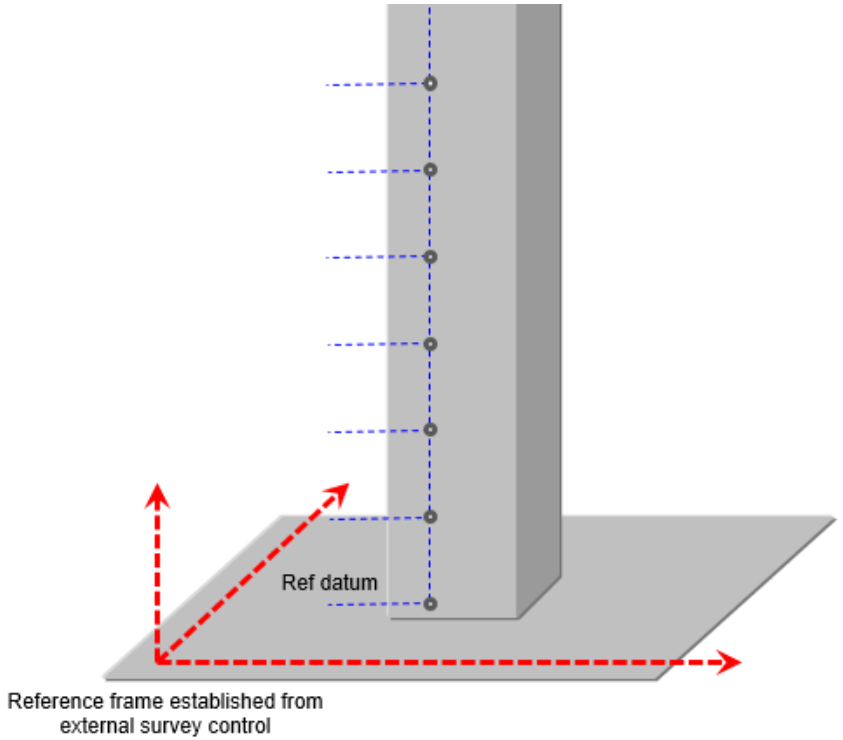


Axial shortening

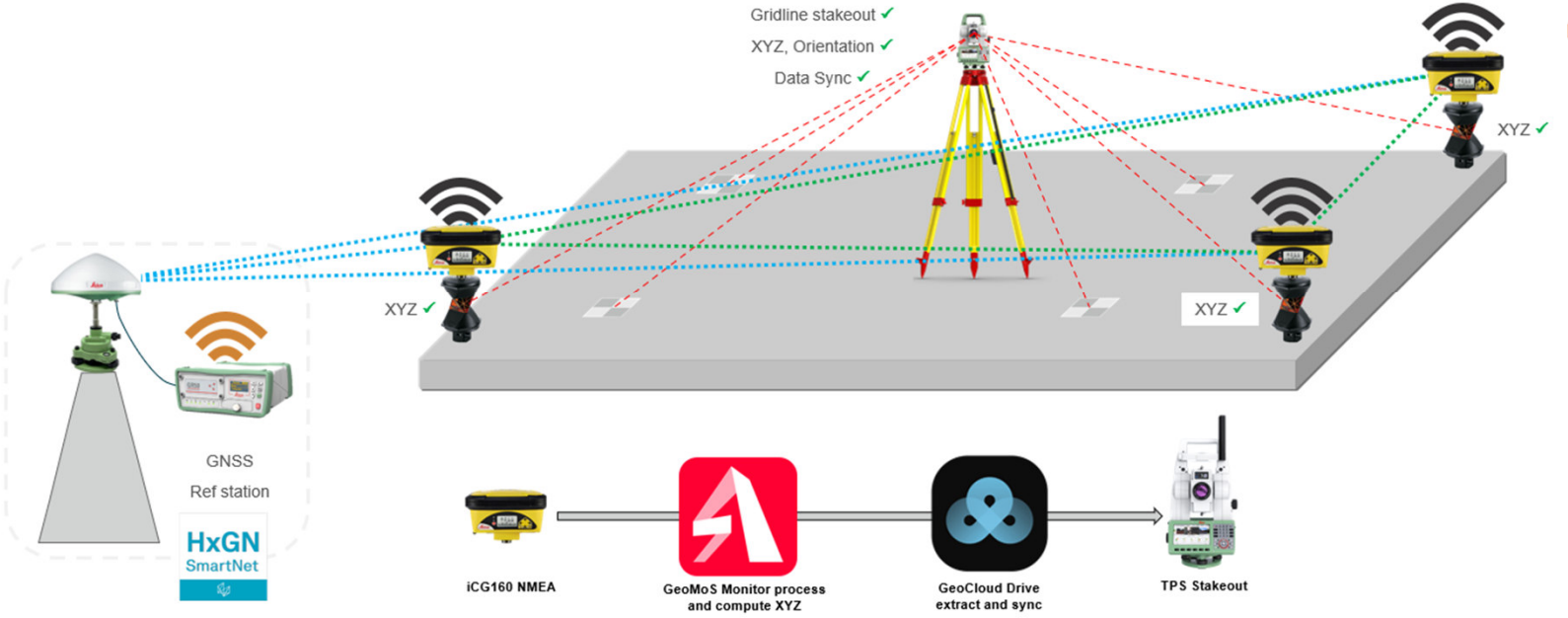


Transfer of the building's reference frame





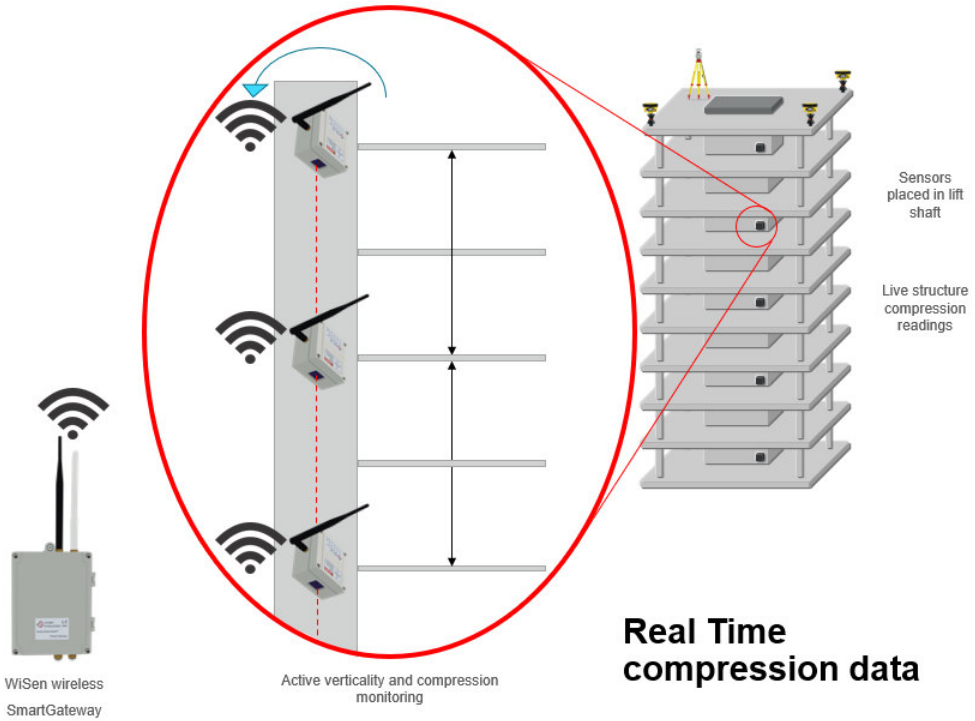
Core Wall Control System by Leica Geosystems



Core components:

- GNSS smart antennas collocated with prisms
- Refence station / HxGN SmartNet
- GeoMoS software
- GeoCloud Drive
- Total station

Real-time axial shortening measurement



Real Time compression data

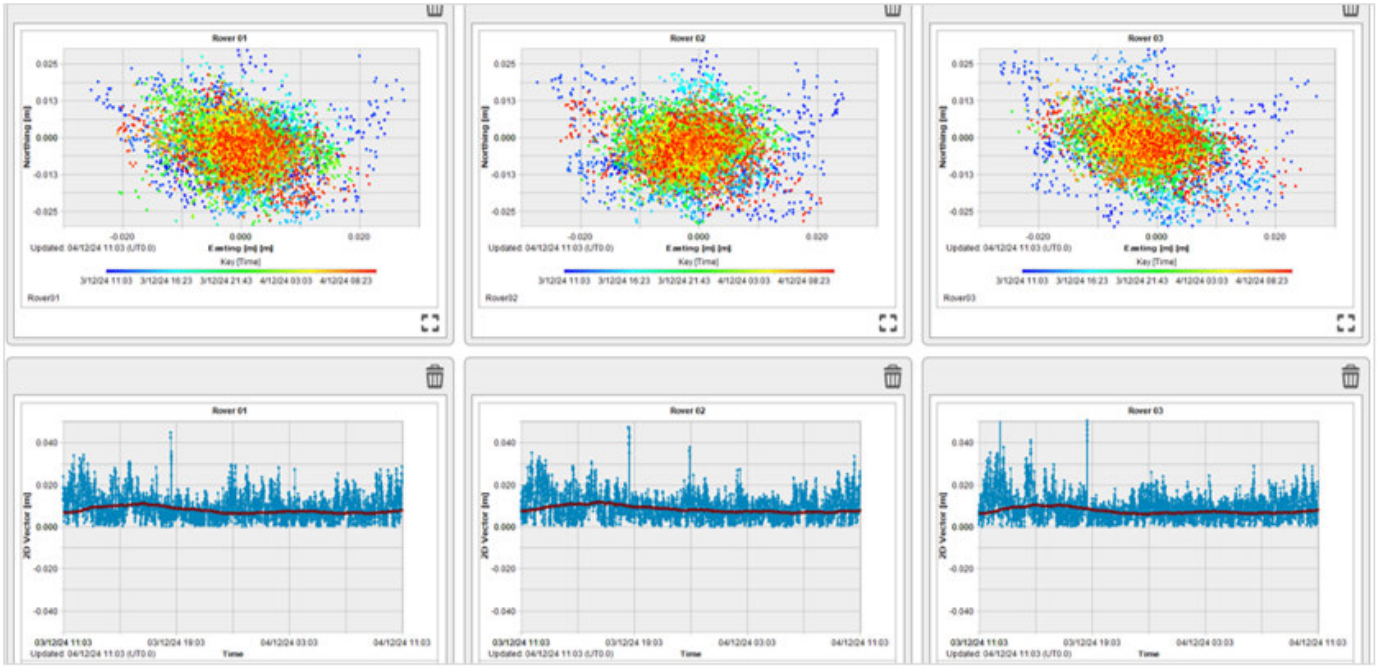
WiSenMeshWAN® solution:

- IoT Omni-tilt + distance
- GeoMoS software

GNSS data

RTK 30s* epoch RAW data

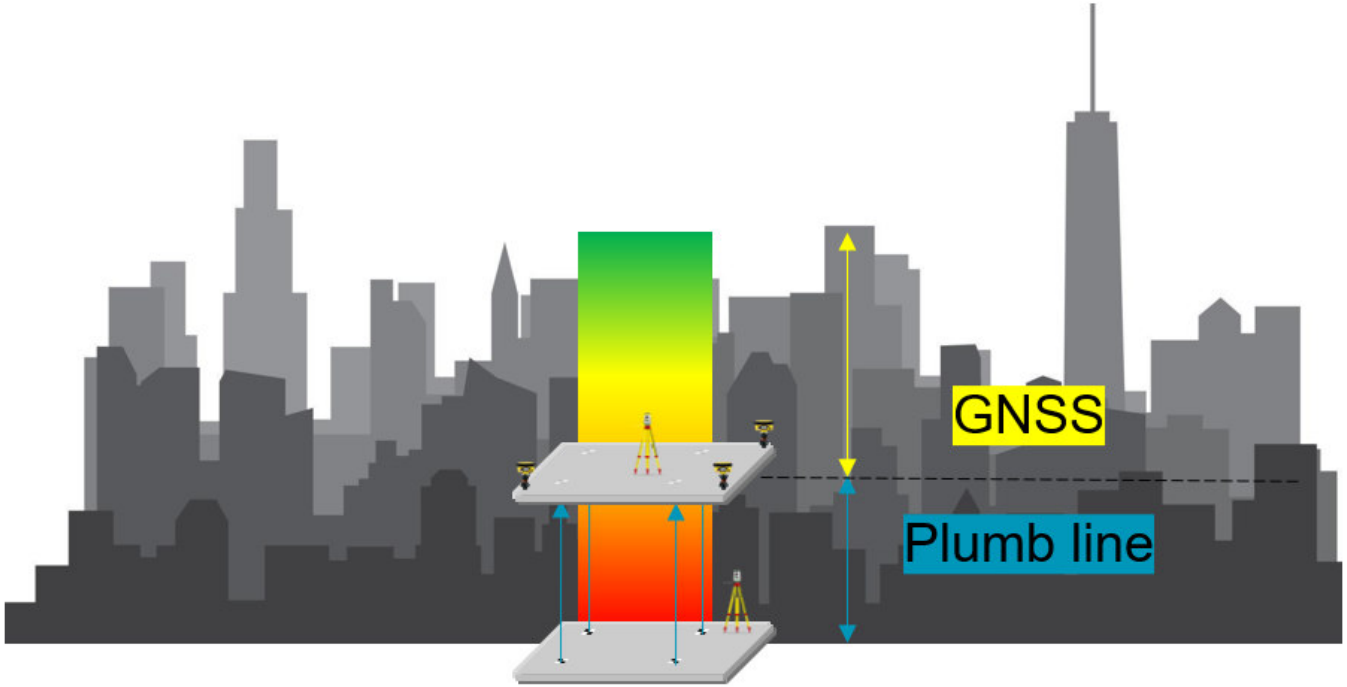
RAW & averaged 6hr* data



Raw and averaged RTK GNSS positioning data:

- Real-time accuracy of around ± 3cm
- Averaged accuracy of ±5mm, with typical repeatability of ±2~3mm within 1~2 hours

Positioning solutions for lower and higher levels



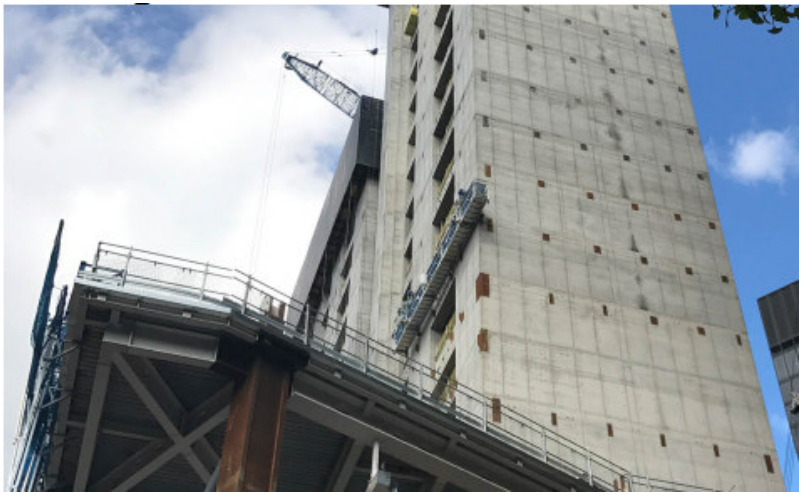
Passive vs Active survey control:

- Lower levels: traditional (passive) methods (e.g. plumb line)
- Higher levels: active positioning (GNSS) + monitoring
- Switch: 100-200m above ground

Case studies and real-world examples

432 Park Avenue, NY

22 Bishopsgate, London



The Central Park Tower, NY

The most relevant SDGs related to the presentation and theme of this session

1st relevant SDG

2nd relevant SDG

3rd relevant SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals

STEP 1: SELECT HERE THE THREE MOST RELEVANT SDGs
STEP 2: COPY THE SDG INTO PREVIOUS SLIDE