On 5 February 2014, it was business as usual in the Carrefour Lingostière shopping center in the French city of Nice. The local shopkeepers were serving their customers and hundreds of visitors were going in and out of the shopping mall. Then, suddenly, at 5.05 pm local time, the roof over one of the two main entrances collapsed. Fortunately, no one was seriously hurt.
very day they received the request from Garelli, Mammoet engineers devised a plan to lift and remove the roof in one piece and scrap it elsewhere. This approach would require the area around the entrance to be closed for only three weeks instead of six.

Good preparations
One of the main technical challenges was to maintain the structural integrity of the 25 by 25 meters wide and 500 ton concrete roof, while supporting it and moving it in one piece. To execute this task in a safe and careful way, the roof had to be reinforced with grout (liquid mortar). A steel frame was fabricated to support the roof during reinforcement, lifting and transportation. This ensured that the complete roof section was held in place as it was maneuvered away from the commercial center. To realize this plan in a safe way, the engineers proposed a technical solution that involved a jack-up system on SPMTs. The jack-up system could safely hold the roof in place

In one piece
The conventional method for removing a suspended concrete roof would have involved taking the heavy roof apart piece by piece, onsite. This would have resulted in a delay in re-opening the area around the entrance. So the engineers searched for a more efficient alternative. On the
while it was detached from the building. Then, the SPMTs could move the roof, supported by the jack-up system, from the entrance area to a nearby storage area.

All in position
Mammoet engineers created detailed engineering instructions to determine the positioning of the SPMTs, the type of jack-up system required, and the concrete supports needed to carry the roof once it was moved to the storage area. On 22 February, the team positioned the SPMTs, the jack-up system and the frame beneath the concrete roof. After only a few days of intensive engineering, Mammoet and Garelli were ready to start executing the project, enabling the area around the entrance to be re-opened.

Improvising to save the day
After the SPMTs with the jack-up system were positioned under the roof, some of the grout that was used to reinforce the concrete roof structure – making it ready for removal – dripped onto parts of the jack-up system, where it quickly dried up and hardened. As a result, parts of the jack-up system were jammed. This would prevent the jack-up system from lowering the roof to the level of the concrete stands in the storage area. The issue was swiftly solved by raising the supports up to roof level and then lowering the SPMTs using their own hydraulic system. The SPMTs and jacking system were removed and the roof was scrapped. With these final adjustments, Mammoet managed to execute the project within the agreed time schedule.

Creative approach saves time
The project was completed before the end of February, exactly according to plan, and three weeks earlier than the conventional method. Ultimately, the creative approach and flexible execution of the project significantly limited the time that the area around the entrance was out of action.
The engineers proposed a jack-up system on SPMTs.

MAMMOET METHOD (THREE WEEKS):
- The jack-up system is maneuvered in on SPMTs to support the roof (A). The pillar is cut and the SPMTs raise the roof (B).
- SPMTs move the raised roof to the demolition area (A). The roof is lowered onto supports to rest (B). The jack-up system is taken away on SMPTs. (C)
- The roof is demolished.

TRADITIONAL METHOD (SIX WEEKS):
- The ground is cleared in preparation for the roof’s removal.
- Heavy scaffolding is erected.
- The scaffolding supports the entire weight of the roof.
- Roof is dismantled piece by piece.
- Construction engineers work at height to take the roof apart.
- The roof and its supporting pillar are demolished.