

Skidding and Lifting Molienda Building Roof, Pascua Lama

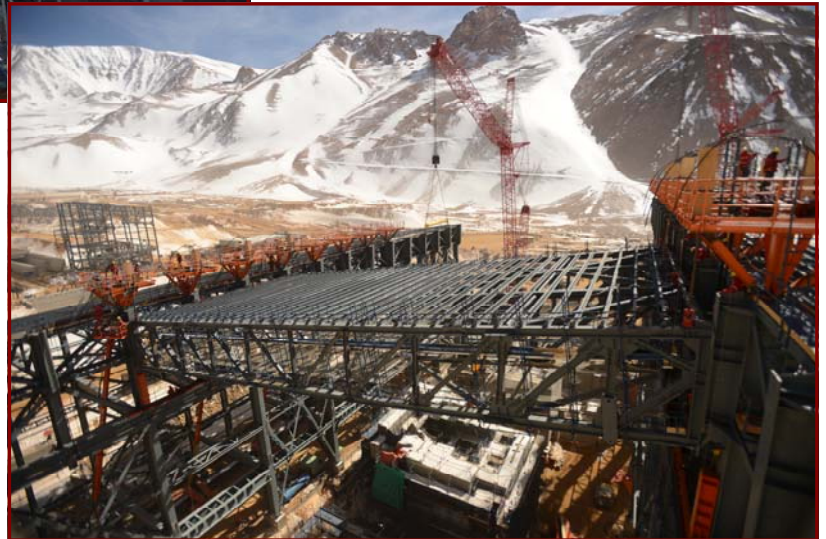
ALE has successfully performed the skidding and lifting of all the sections of the Molienda building roof, located in the Pascua Lama mine, in the border between Chile and the Province of San Juan, Argentina.



ALE was contracted to perform the skidding and lifting of 4 structural sections corresponding to the Molienda building roof, which measured 71m long by 36m wide and weighted up to 600te.

The 4 sections were skidded using eight 150te capacity skid beams and two 16te push-pull units. Liftings were performed using 12 70te lifting units, eight of them to lift the load and 4 to counterbalance the load.

Two cranes were utilized to position each section onto the skidding system located over the rail beams of the overhead crane. Once the section has been placed on the skid beams, the section was skidded longitudinally towards the corresponding position using the hydraulic skidding system. Upon reaching the desired position, it was then lifted with the strand jacks onto its final position. This process was completed within one day.



Project:	Pascua Lama
Location:	Pascua Lama Mine. Argentina-Chile.
Equipment:	Twelve 70te hydraulic units, sixteen 150te skid beams, two 16te strandjacks.
Weight:	Two 165t sections and two 135t sections.

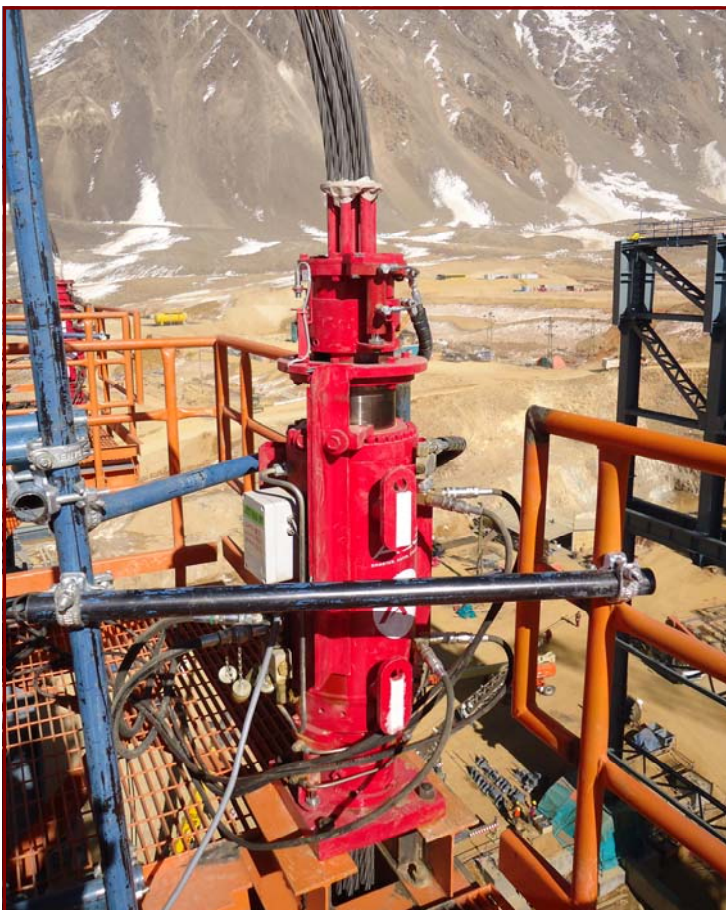
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Adopted Solution

The adopted solution for carrying out the assembly of each structural frame consisted of skidding over skid lanes mounted over the existing rail beams of the overhead crane, followed by lifting. The client concluded each assembly by fastening the bolts in each connection.

For skidding, each structural frame was connected to 8 skid beams with a capacity of 150t each, 2 connection beams and 8 detachable connectors. The skidding was carried out by two jacks of 16t of capacity each.

The lifting system consisted of 8 strandjacks connected to the lifted frame using connection lugs, whose role was to take the load and lift it up, while other 4 strandjacks connected to the next frame had the role of counterweighing, thus avoiding undesired efforts in the central columns of the structure.



Picture1. SLS700 strandjack.



Picture 2. Structural frame, detachable connectors, connection beam, skids, jack.



Picture 3. Frame number 2, skidded to its lifting position.

The strandjacks were mounted on 12 structural auxiliary consoles provided by the client. Between maneuvers the strandjacks were re-positioned to their next lifting positions.



Picture 4. Anchorage and strands connected to the lifting lug.

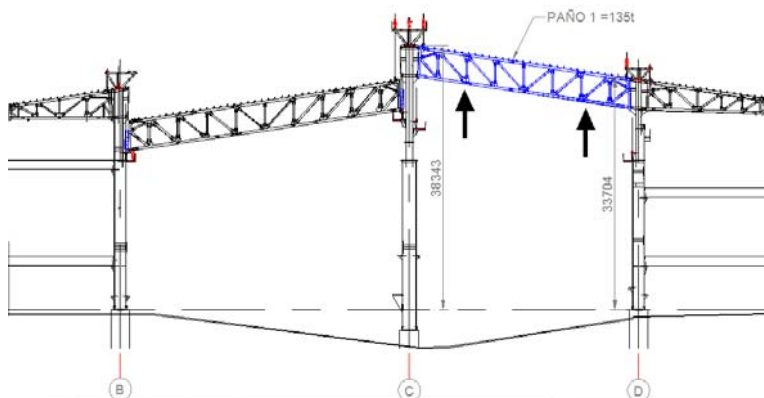
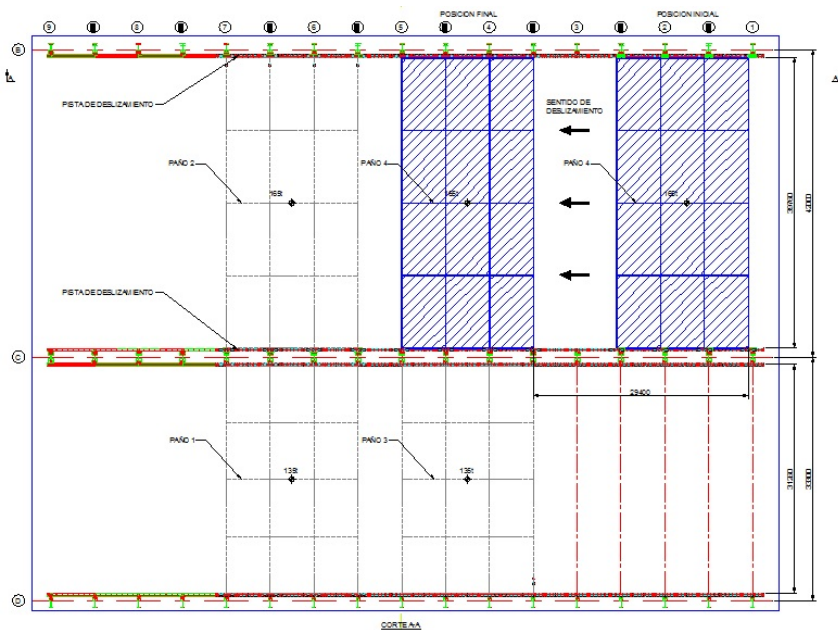


Picture 5. Strandjack in consoles, anchorages in frame number 2.



Maneuver

The roof sections were installed by the client over the skid lanes using two cranes, for their subsequent skidding with SS150 skidding system towards their corresponding positions. Sections 1 and 2 were skidded 54m, section 3 and 4 were skidded 29m. Subsequently, 12 anchorages of hydraulic units were connected to their corresponding connection lugs. The total load of each section was taken, increasing the load until separation from the skidding lane. Then the client proceeded to dismantle and remove all detachable pieces, connection beams and skid beams. Once this task was finished, each section was lifted until its coincidence with connection flanges. The client then fastened all connections by bolts while the structure was sustained by the units. Afterwards, the load was removed from the hydraulic units, their anchorages were dismantled and moved to the required position for the next maneuver.



Picture 6. Installation of section 1 over skidding lanes.

The total lifting distance was 6 meters approximately. In the last lifting centimeters, adjustments in the loads of each hydraulic unit were made to coincide with each connection flange.

The lifting maneuver sequence was the following:

- Skidding sections 1 and 2
- Lifting sections 1 and 2
- Skidding 3 and 4
- Lifting sections 3 and 4

Each maneuver was completed within one day on average.

The used of this method allowed the civil works at ground level to continue.

Advantages for the Client



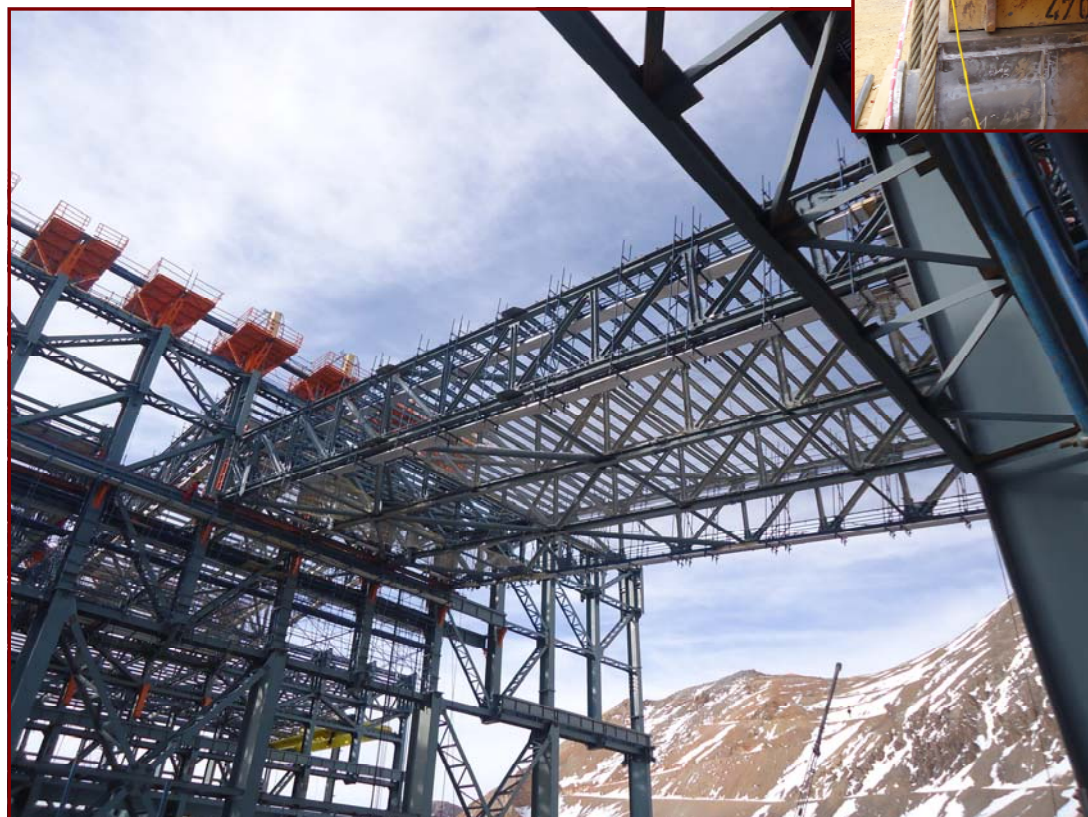
Picture 7. Client jobs over structural sections.

The main advantages for the client were the following :

- Installation and assembly of each section at ground level, with all safety advantages this involves, less hours of work at height and reduction of total working hours.
- Installation using lower capacity cranes.
- Possibility to continue with civil works in the building.



Picture 8. Operation of the lifting system within the maneuver.



Picture 9. Structural section prior to lifting.



Picture 10. Molienda Building with its 4 central sections in their final position.