

# FEATURE: WG23-ITA WORKING GROUP ON SHAFT DESIGN AND CONSTRUCTION by Alan Auld (MTDBM)

International Tunnelling and Underground Space Association (ITA). WG23-Working Group on Design and Construction of Shafts

The length of shafts constructed in the world is much less than tunnels, however, shaft construction is much more challenging and riskier than tunnels. The ability to construct shafts more efficiently can surely improve the use of underground spaces and make them more effective in almost all applications. This has led to the proposal of establishing a specialized work group on this subject to the International Tunnelling and Underground Space Association (ITA) which was supported by several member nations.

The ITA General Assembly approved the proposal for establishing Work Group 23 on "Design and Construction of Shafts" in May 2019 at the World Tunnelling Congress in Naples, Italy. At the first meeting of WG23 in Naples 16 members attended from Iran, Brazil, Switzerland, Japan, Turkey, USA, Thailand and Italy.

WG23 is co-ordinated via the Animateur (Chairman), Siamak Hashemi (Iran), The Vice-Animateur, Joe Luxford (Australia) and the Tutor, Tarcisio Celestino (Brazil).

The objectives of WG23 are set out below:

1. To establish the correct terminology and nomenclature for shaft design and construction.
2. To classify the shafts for a more uniform understanding of the design and construction implications
3. To produce literature on shaft design and construction to meet the needs and demands of members
4. To hold technical webinars and offer short courses and workshops for design and construction of shafts.
5. To provide a group to coordinate related sessions at ITA meetings
6. To expand the number of interested members in the group
7. To keep in touch with members via group email and social media by sending updates of activities
8. To prepare relevant technical documents



The following webinars have been held:

1. "Mechanised Shaft and Raise Excavation" by Patrick Rennkamp of the Herrenknecht company, Germany, on 22 January 2020
2. "Design and Construction of Deep Shaft Concrete Linings in the UK" by Alan Auld, Consultant at Golder Associates (UK) Ltd Shafts and Tunnels, on 12 February 2020
3. "Urban Shafts for Metro Construction" by Tarcisio Celestino, Professor in the Department of Geotechnics at the University of Sao Paulo, Brazil, on 5 August 2020
4. "Jacked Pre-cast Caisson Shaft Construction" by Joe Anderson, Structural/Tunnel Engineer at Golder Associates, Saskatoon, Canada, on 2 September 2020

A "Shaft-Photo-Gallery" has been setup into which members may submit their photos relevant to shaft construction (individuals submitting photos confirm thereby that they own the copyright and give the ITA and its members and public the permission to use the photo). The link to access the Shaft-Photo-Gallery is as follows: <https://www.dropbox.com/sh/ybdd5hyqpwk7pd7/AADXb0Eob-OCM1Z8lq2m1jcea?dl=0>

Relevant technical documents currently in preparation are:

1. Terminology and Classification of Shafts
2. Method Selection for Shaft Construction
3. Site Investigation for Shafts

Many engineers around the world were confronted with challenges related to shaft design and construction and have gained some experience in various mining and civil engineering projects. It is certain that many individuals would be interested to join this group and it is expected that engineers around the world where shafts present challenges to their respective industries would benefit from the shared knowledge base to address their issues in this work group.



WG23 Group Photo, Naples 2019

Interested parties may email their Name, Affiliation, and Email address to the following email address to be added to the WG discussion groups mailing list: Siamak Hashemi (Animateur of WG23) : [Siamak\\_Hashemi@yahoo.com](mailto:Siamak_Hashemi@yahoo.com)