

New Device for Checking Steels in Façade

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> To be a competent site engineer / inspector, I always bring along a good set of checking devices in my backpack to sites, one of them is an electronic angle-measuring device, shown in picture (1). Besides being able to measure horizontal & vertical angles very precisely (down to a scale of 0.01 degrees); it has magnets at 4 corners, so it can stick strongly to steel frames members, either horizontally or vertically if I bring it within 5 cm of the targets.

> Once, after I checked the façade at the front sides of a new building and they seemed okay, I then went to the back staircases; there were windows, too. I put this device near the windows, only intended to verify verticality. To my surprises, it stuck to any window members there. I immediately realized that all frame members were made of steels. Shouldn't window frame members be made of aluminium alloys for much longer service-lifespans (typically 75 years)? It's because, in oxidized states, aluminium forms a protective surface layer while steel forms detrimental rusts.

> There are often much cheating acts going on in the construction industries, aluminium products are usually three times the costs of steel products. If a contractor cuts corners to profit more from the jobs. He may use steels instead of aluminium products which are specified in designs.

> I intend to develop a multipurpose device which can check steel bar concrete covers, and it can be switched to a different mode to check presence of steels. It can be positioned close to the targets with a long, assisting, extensible pole.



Picture (2)



Picture (1)

For now, I bring small magnets, picture (2), for any uncertainly, throw them at the targets. The costs is only HK\$50 each. Worth it.