

Preparing for a shaky future

Pics: Qassim Rahmatullah / Kammatty VP

Experts want new specifications for high-rise buildings to improve their resistance to earthquakes

BY SATISH KANADY

DOHA: Recent earthquakes in Iran and subsequent tremors in Qatar have shattered the general belief that Qatar is immune to quakes. The tremors served as a stark warning that structures of any kind in the country would be susceptible should there be a strong quake in Iran or elsewhere in the region. They are a wake-up call for the country, which has lined up multi-billion-dollar construction projects for the next five to ten years.

Although aftershocks of the tremors in Iran did not cause damage here, they have shaken the country's construction sector and unnerved people. Leading construction companies are busy responding to calls from worried clients. Two leading builders told *The Peninsula* they

were flooded with calls from clients requesting them to inspect their properties to make sure they were safe.

"My team is running crazy, taking photos and making assessments. Our clients want to make sure their towers are resistant to any possible future shocks. Some of them have suddenly detected minor cracks on their property. They want to make sure those cracks were not developed after the tremors", Ibrahim M Jaidah, CEO and Chief Architect of Arab Engineering Bureau, said.

"We have designed and developed more than a dozen towers in West Bay. We received calls from most of them asking us to assess the safety of the building. Different teams led by our structural engineers are now on the task", a top executive of another leading builder said.

Structural engineers say most high-rise buildings in Qatar were designed according to minimal seismic zone classifications as dictated by the Uniform Building Code or the International Building Code. But most low-rise buildings are vulnerable as they were not designed using any standard code.

Buildings whose walls are made of bricks cannot withstand earthquakes measuring more than five on the Richter scale as they cannot bear the horizontal force exerted by the quakes, they say.

The Qatari Society of Engineers was the first to go on record saying that Qatar should have a building code like that of Egypt, Saudi Arabia and Syria, which, according to them, would result in earthquake-resistant buildings.

Structures built according to such a code will resist minor and moderate earthquakes without significant structural damage, and resist severe earthquakes without collapse, they said.

The Central Municipal Council (CMC) has urged the authorities to prepare new guidelines for the construction sector in view of the aftershocks of the earthquakes in Iran.

In fact, the CMC had discussed



Ibrahim M Jaidah



V P M Basheer

the issue five years ago and submitted proposals to the Ministry of Municipality and Urban Planning.

There should be new standards and specifications for high-rise buildings to improve their resistance against natural calamities, especially earthquakes. This should be made part of the Qatar Construction Code, the Council's vice chairman, Jassim bin Abdullah Al Malki, said. He says skyscrapers in West Bay should be given special attention while preparing the new guidelines.

V P M Basheer, Service Group Manager (Structures) of reputed engineering consultants GHD,



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feels Qatar's high-rise buildings are strong enough to resist the kind of tremors experienced in the past two weeks.

Basheer was involved in the designing of more than 20 towers in Doha and more than a dozen in the United Arab Emirates.

"Though Qatar lies in a seismic zone zero, while designing 20-plus floor towers in Qatar, we cover the zone one guidelines, which are capable of sustaining any possible quakes of up to 4.5 magnitude. In UAE, we cover the zone one against a possible 5.5 Richter scale impact. According to me, the problem is not with the towers but with the huge horizontal structures, where the seismic effect will not be covered vis-a-vis the wind load aspect," he said.

In view of the recent tremors, Basheer feels Qatar buildings must be designed in line with zone one guidelines. "Authorities must conduct studies and fix the appropriate zone suitable for Qatar. In Qatar, towers of more than 20 storeys designed for a wind load of 160km per hour are capable of sustaining the minor tremors that Qatar experienced recently."

The message from the aftershocks of the Iran quakes is that Qatar needs to upgrade its building code.

"We must realise that the globe is changing; the weather pattern is undergoing a change. Hence we need to calibrate our plans

and designs accordingly. For the taller buildings, there should be a code. The code should be scaled up from the existing zero to one", says Ibrahim M Jaidah.

Despite Qatar's seismic zone zero status, Arab Engineering Bureau uses zone one guidelines while designing its high-rises. Some of its towers are designed so that the top floors can sway a few metres to absorb any possible shocks.

On concerns about booming waterfront constructions and its environment impact, Ibrahim Jaidah said Qatar's Environmental Impact Assessment (EIA) guidelines were strict and foolproof.

"The ministry (of environment) has gone a long way in the last five to ten years. EIA was a not a big issue during the early stages of waterfront constructions. But for the last five to ten years, the Ministry of Environment is really doing a good job. They have a veto power to stop any project should they feel that the guidelines are not met 100 percent, no matter who owns the project or what the land use is", he said.

Dredging for the upcoming Doha International Port would have cost a lot less had the port authorities not strictly abided by the guidelines set by the Ministry of Environment. The MoE is competent to stop any project; we have faced such a situation when we were developing a shopping mall", he added. **THE PENINSULA**

Coping with the aftershocks

Mohammed Sada is a journalist-turned-media relations officer with a leading construction company in Qatar. He was on the 24th floor of his office building when Qatar felt the first tremors from an earthquake in Iran earlier this month. He still feels the dizziness.

"The first and second tremors occurred on a Tuesday. Today is the third Tuesday. I am afraid of going to office today and decided to stay away from office", he told *The Peninsula*.

He said he knew many friends and colleagues who had similar fears.

Qatar Foundation may be the only organisation that has reached out to people to deal with the emotional

aftershocks of the tremors. It has launched a door-to-door campaign in West Bay, distributing pamphlets explaining how to duck and take cover during an earthquake. The Qatar Foundation volunteers tell people about the safest places at the workplace and home where one can shelter during a quake.

- When in a high-rise building, move against an interior wall if you are not near a desk or table. Protect your head and neck with your arms. After the tremor stops, occupiers should evacuate in a controlled manner. Do not use elevators. Internal communication systems and procedures should be used.
- When outdoors, move to a clear

area away from trees, signs, buildings or downed electrical wires and poles.

- When on a sidewalk near buildings, duck into a doorway to protect yourself from falling bricks, glass, plaster and other debris.
- When driving, pull over to the side of the road and stop. Avoid overpasses and power lines. Stay inside your vehicle until the shaking stops.
- When in a crowded store or other public places, move away from display shelves containing objects that could fall. Do not rush for the exit.
- When in a stadium or theatre, stay in your seat, get below the level of the back of the seat and cover your head and neck with your arms.

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