1. About Middle East Respiratory Syndrome

The ever-increasing number of diagnoses of Middle East Respiratory Syndrome being confirmed in South Korea has caught the attention of the Taiwanese public, who remember SARS all too well. What is Middle East Respiratory Syndrome (MERS-CoV)? Why is it being called the new SARS? Why is the Center for Disease Control (CDC) telling travelers to the Middle East to stay away from camels? There’s so much to know, it’s scary! But don’t worry, you’ll understand once you finish reading the next few pages.

What is MERS-CoV?

MERS-CoV is a new type of virus that was recently discovered in 2012. The MERS-CoV virus has been identified as being very similar to the SARS virus, and was first discovered in September 2012 in a Qatari person who had recently visited Saudi Arabia. The World Health Organization released statistics in February this year showing that out of 983 confirmed cases since the virus’ initial discovery, 360 patients had died as a result of the virus. Cases continued to be confirmed in Saudi Arabia, Jordan, Qatar, the UK, Germany, France and other countries, and suspected cases of person-to-person transmission exist in some countries. (Source for Below Data: Center for Disease Control)
MERS-CoV Overseas

The CDC has issued a Second Level: Alert warning for travelers to Saudi Arabia, and a First Level: Watch warning for those visiting the UAE, Jordan, Qatar, Iran and Oman.

Travelers wishing to visit the Middle East or South Korea are advised to remain aware of their personal hygiene, work to keep their hands clean and to avoid crowded and poorly-ventilated areas and close contact with patients suffering from respiratory symptoms where possible. In addition, travelers are advised to avoid visiting local farms, touching camels and drinking camel and other animal’s milk to decrease the risks of infection.

New cases of MERS-CoV are being found in South Korea almost everyday. The South Korean health authorities have indicated that the pandemic is still limited to medical institutions; however, not all confirmed cases are linked to the institution where the patient sought treatment. On 2nd June hospitals in Seoul started implementing fever screening for patients attending the Emergency Room, and the CDC has determined that it is possible that community transmission of MERS-CoV has occurred in Seoul and raised the travel warning for Seoul to Level 2: Alert. Travelers to Seoul are advised to take increased preventative measures to ward off infection and avoid visiting healthcare facilities where possible. A Level 1: Watch warning is in effect for other areas of South Korea, where travelers should practice general disease prevention and be aware of their personal hygiene.

Travelers returning from the Middle East or South Korea must inform Port Quarantine staff if they have been suffering from fever or acute respiratory infection and comply with all directions to undergo testing, evaluation and treatment. Travelers who experience a fever or respiratory issues within 14 days of returning to Taiwan must wear a surgical mask to prevent transmission, immediately seek medical assistance and inform the CDC as soon as possible.

TAIPEI 101 Disease Prevention Measures

The array of disease prevention equipment available in TAIPEI 101 includes UV thermometers, ear/forehead thermometers, antibacterial
hand disinfectant dispensers, protective clothing, gloves, goggles, shoe covers, alcohol-based disinfectant, and masks. The use of hand disinfectant and UV and ear/forehead thermometers can screen out the majority of people suffering from fevers, and consumable items like disinfectant and surgical masks are always well-stocked to prevent availability being affected when the items are really needed.

Both tenants and visitors will be informed and subject to control measures if an infection be detected within the building. Control measures include the wearing surgical masks, disinfection and cleaning of public spaces, temperature screening at all entry and exit points, and increasing intake of fresh air into the air-conditioning system, among others. All tenants, visitors and contractors are asked to comply with these measures and tenants are asked to inform their companies and take responsibility for their personal health if they need to travel to any infected areas and to follow quarantine and observation procedures as determined by health authorities if they fall sick after returning to Taiwan.

2. Safety Recommendations for Interior Fit-out Materials

Urban residents spend over half of their time indoors, whether at home or in the office. However, few people pay attention to whether or not their indoor spaces are safe. What do we mean by safe? Indoor safety focuses on both evacuation and escape measures and indoor environmental measures, of which the selection of appropriate building materials is an important index. Consumers select safety when purchasing meat products and already know to select those products labeled with the CAS mark for a safe and healthy meal, and now consumers can know that they should select building materials marked as Green Building Materials if they want to be sure of their health and safety.

**Sick House**

Despite the long hours most people spend indoors, most people only consider budget restrictions, construction time, waterproofing, and aesthetics when selecting materials, and relatively few people consider the toxicity of materials and their effects on human health. It’s common for people to be affected by that ‘new house smell’ when moving into a new home or office and find themselves suffering from fatigue, persistent coughs, sore eyes, sore throats, sinus pain or other health issues that indicate that they may have moved into what is known as a ‘sick house’. Long-term inhalation and related health issues are difficult to avoid where materials containing VOC or TVOC have been used in renovation work.

Article 321 of the Design and Construction section of the Building Technical Regulations states that use of green building materials in interior renovation and flooring should be increased by at least 45%, and that all interior materials and flooring used in public spaces should be green building materials.

Carpets, wallpaper, partitions, paint, and storage cabinets are all commonly seen interior fit-out materials. As an example, solvents and dyes are major components of paint and solvents contain benzene, toluene, xylene and formaldehyde, all of which are volatile chemical substances. Benzene can irritate the
skin and eyes and is a known carcinogenic, while toluene and xylene give off neurotoxins. Look for the Green Materials mark when selecting paint to avoid these harmful chemicals, or search for a water-based environmentally-friendly paint such as those natural plant-based paints produced using tung oil already in use overseas. No toxins are given off when these paints are applied to walls, wooden furniture or other surfaces, making them a healthy alternative.

Formaldehyde is often present in the plywoods used to make wardrobes and bookcases and the glue used to install carpets, and long-term exposure to a low concentration of formaldehyde is enough to cause chronic respiratory issues, genetic mutations, chromosomal abnormalities and fetal abnormalities, and can cause brain tumors, nasopharyngeal cancer, colon cancer and more. It is best to select furniture that was built some time before its debut on the display floor, allowing any harmful chemicals time to finish breaking down. When selecting carpet glue consumers can consider using environmentally-friendly table to stick the carpet down at the four corners rather than spreading glue over the entire back surface of the carpet. Consumers should also select fire-resistent products when choosing carpets and wallpapers for their enhanced safety properties.

A simple whitewash and pre-assembled storage systems are the most recommended options for interior renovations. Another option is to use partitions that can be disassembled and reassembled and moveable furniture to avoid the need for a large amount of processing, gluing and painting work to take place in the room, reducing the amount of indoor air and environmental pollution and the costs involved in dealing with large amounts of waste once the work is finished. If some construction work is unavoidable, the public is advised to select products made from green, environmentally-friendly and fire-resistent materials. People often use dried pomelo skin, pineapples, coffee grounds, active carbon, coal, plants or other natural items to rid the room of smells after renovation work has finished, but these only remove odors from the air and can begin to attract fruit flies if left out in warm areas. The best option is to air the room out for 3-7 days after renovation has finished before moving in, and to adjust ventilation settings on closed air conditioning systems to avoid build-up of toxin residues.

TAIPEI 101 Safe Materials

TAIPEI 101 is an example of safe building practices. All carpeting in public areas is fire-resistent, and all ceilings and walls are made from fire-proof green building materials. We encourage our contractors to use environmental-friendly practices and offer a healthy and comfortable working space where all staff can enjoy a healthy working and interior environment. In 2011 our building received Leadership in Energy and Environmental Design (LEED) Platinum level certification in Existing Building: Operations & Maintenance from The US Green Building Council and became the world’s tallest green building. We are constantly enhancing and improving our environmentally-friendly procedures and plan to apply for recertification in 2016. We may not be the world’s tallest building, but we intend to always be the global...
3. TAIPEI 101’s Earthquake Response Procedures

With Nepal suffering two earthquakes measuring over 7 on the Richter scale in May and an 8.5 magnitude earthquake detected on the seafloor off Japan, strong earthquakes have been making the news over the past few months and reminded us all that we need to have effective measures in place to reduce the fear and damage that comes with sudden, strong earthquakes.

While earthquake prediction technology is still in its infancy, earthquake damage can be reduced effectively and economically by implementing anti-earthquake designs. Initial designs for TAIPEI 101 included earthquake prevention measures determined by calculating the maximum strength of previous earthquakes and the likelihood of earthquakes of that magnitude occurring in the future. Existing safety equipment and both hard and soft installations are combined with emergency evacuation crisis management training and evacuation compliance response measures to mitigate the damage caused by future earthquakes.

**Anti-Earthquake Engineering at TAIPEI 101 Meets Global Safety Requirements**

- **Conquering Soft Ground**: 380 piles driven into the bed rock at an average depth of 23.3m.
- **Strengthened Construction**: 8 giant pillars of reinforced concrete weighing 10,000 pounds and giant girders. Trusses extending to the building’s exterior are placed between the pillars every 8 floors, and a tough steel structure connects the pillars on every floor, keeping the structure of the building stable and safe.
- **Wind Damper Design**: Reducing horizontal displacement by over 40%, keeping the building’s occupants steady on their feet.
- **Anti-Earthquake Design**: Designed to withstand earthquakes stronger than magnitude 7, the kind that...
only happen every 2,500 years.

- **Anti-Wind Design**: Designed to withstand storms of a century, the structure can sustain sudden Level 17 winds.

### TAIPEI101 Earthquake Evacuation Response Training

Our advanced high-rise building disaster prevention response and emergency evacuation measures are graded on the strength of the earthquake as reported by the Central Weather Bureau – Light Earthquakes (Lv. 1-3 in Taipei Area), Medium Earthquakes (Lv. 4-5 in Taipei Area) and Strong Earthquakes (Lv. 6 or more in Taipei Area). Response measures are different for each level and staff training accommodates this.

1. New staff, tenants and fire safety officers participate in regular evacuation drills to improve the evacuation and guidance abilities of fire safety officers on each floor.
2. Emergency Response Procedure training for suppliers and new staff provided as needed to ensure all on-site personnel are aware of disaster-prevention and emergency evacuation measures.
3. Half-yearly fire drills are carried out to verify the reporting, fire-fighting and evacuation knowledge of fire safety officers.
4. All tenants participate in Emergency Response Procedure training before moving in (or within two weeks of move-in) to ensure compliance with emergency evacuations and other measures.

### Tenant Earthquake Response Measures

TAIPEI 101 Disaster Prevention Center will issue appropriate announcements to occupants depending on the severity of the earthquake.

1. Occupants indoors must immediately shut off all electrical power sources to avoid fire and stay where they are until the earthquake stops.
2. Stay away from windows, glass and large movable objects to avoid being cut or crushed and take shelter under (or beside) a low and stable piece of furniture to avoid injury by falling objects.
3. Do not take escalators or elevators. Those already inside elevators should crash on the floor, move towards the center of the cabin and press the button for the nearest floor while protecting the head and upper body from falling objects. Exit the elevator immediately when the doors open.
4. If the elevator shuts down, press the intercom button to make contact with the Central Control Room and await rescue.

### TAIPEI 101 Earthquake Response Measures

The Central Control Room will inform all responsible managers and departments to take emergency measures by SMS.
1. **Warning**: The Central Control Room is confirming the status of the earthquake.

2. **Disaster Prevention Alert**: Those in the building and commercial areas will be notified over the PA and managers will receive SMS notification.

3. **Damage Check**: Appropriate measures will be taken in response to any fires, power outages or personnel injury found in the building.

4. **Seek Refuge**: Refuge-seeking Guide for each floor. Pathways should be clear and unobstructed to ensure safe refuge; customer service staff must comfort and instruct tenants, visitors, event staff and tourists when seeking refuge.

5. **Evacuation**: An emergency evacuation will be ordered if the internal safety of TAIPEI 101 is thought to be at risk.
Upon receipt of evacuation orders tenants should follow the signs to the emergency stairs and evacuate to the ground floor; persons with impaired movement can move to the closest refuge room and take temporary refuge. Staff should follow emergency routes along Songzhi and Xinyi Roads to the gathering point.

6. **Return to Normal Operations:** Once the earthquake has stopped, building staff will carry out a damage check and reinstatement; access control measures at main entrances will be in effect to prevent any illegal action during evacuation.

**Conclusion**

TAIPEI 101 is located in a major commercial district in Xinyi and crowded with visitors every day. The building houses over 100 tenants and 12,000 occupants, and 2.8 million people visited the observation platform in 2014. Implementing appropriate emergency response procedures and emergency evacuation crisis management in a building with approximately 20,000 visitors a day can only be achieved with strict disaster-prevention training of building customer service staff and tenants. Improved crisis response ability is the only way to protect lives and assets.

**4. Outline of Server Room Safety Measures**

Tenants often install server rooms to meet their operating needs, and the equipment in these rooms store and process all important data. The below is an outline of the installation environment, warning and fire-extinguishing measures, use management and other aspects of these rooms, offering tenants more substantial information on the safe use and management of server rooms. Tenants can use the following information to conduct simple checks on their server rooms to ensure that all IT equipment is protected.

**Environmental Features of Server Rooms**

IT server rooms are much like general electric equipment rooms in that many constantly-operating
electrical machines are stored in the same space. Heat is produced as energy is consumed and the temperature and humidity of the server room is generally controlled via air conditioning system in order to maintain an optimal operating environment. Micro-Dust may also be controlled. The majority of server rooms installed by tenants are located in their offices in comparted areas separated by fire-resistant materials and fire doors. Server rooms often feature raised floors to accommodate wiring needs, and server room access is controlled by the tenant independently from the TAIPEI 101 system (cameras and locks).

**Server Room Automatic Fire Extinguishers**

Air conditioners in server rooms need greater access to ventilation than normal office air conditioners; when installing fire alarms and automatic detection devices the likelihood of early smoke being dissipated by the air-conditioning system must be taken into account and more sensitive systems purchased. Certain operators will be unable to tolerate any downtime due to fire and would invest in more expensive Very Early Smoke Detection (VESDA) systems to maintain the ability to detect and respond to fires as soon as they occur. When selecting automatic fire-extinguishing systems for server rooms gas extinguishers are often chosen to prevent water damage to equipment; choices include the Clean Agent Suppression System and many related types such as FM200, Novec, IG55, and IG541, all of which are widely available. Fire-extinguishing systems generally release over an entire area, extinguishing all fires in that area and covering all equipment; however, fire-extinguishing gases escape from cracks and openings in the area, affecting the ability of the gas to effectively cover the equipment. Generally, suppliers compensate for this issue by adding additional extinguishing gas to what is needed for the area size; however, we still recommend all tenants to test their server room for air-tightness to calculate the expected loss due to leakage. Tenants with less IT equipment can consider internal fire-extinguishing equipment installed within the machinery itself, as this is an effective cost-saving measure. Tenants are also reminded to evaluate their fire-extinguishing needs based on their server room use and management and the area of the ceiling and raised floor in the server room before installation.

**Server Room Management**

Both domestic and overseas investigations into causes of fires have found that server room access control is a basic fire-safety measure. Use of the server room space must be clearly regulated and the storage of inappropriate IT equipment or personal items must be banned from the room. Actual cases have shown that using the ceiling of the server room as storage space directly affects early fire detection, response times and automatic fire-extinguishing functions and is often determined to have been a major cause of the fire in post-disaster investigations. The air-conditioning system continuing to operate and supply air and stimulating air-flow in the site of the fire is a common reason for automatic extinguisher failure, so extra care must be taken in the design of continuously operating equipment in the server room so
that it can both continue operation during main power outages and be shut off when appropriate in case of fire. It was mentioned above that server rooms often feature raised flooring; loading and anti-vibration properties of this flooring must be taken into account during design, installation and regular inspections to ensure basic storage stability.

Server rooms should also have accommodations to prevent liquid damage; the provision of water drainage for the air conditioners and drinking water must be carefully planned as drips and leaks can cause a great deal of damage. The layout of pipes should be designed to avoid passing by critical areas where possible, and leak detectors can be installed where not possible. A final reminder: Your server room should have a set of environmental error reporting and response procedures, and your fire safety equipment must be regularly inspected and tests (at least once a year). If you are unable to prevent damage to your server room using the above recommendations we are happy to provide preliminary on-site examinations, recommendations and assist in finding a suitable insurer to protect your assets.