THE ISOLATOR
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THE ISOLATOR

As September arrives, the rhythm of work returns for many, marking the end of leisurely holidays. It's a time when people rejuvenated by their breaks re-immerse themselves in their professional routines, bringing renewed energy to the tasks ahead. This transition ushers in a season of renewed focus and productivity, as workplaces buzz with the enthusiasm of those returning from their well-deserved respites.

Greetings and a warm welcome to the September 2023 edition of "The Isolator," Kinetics Middle East LLC's newest monthly newsletter. We bring to you projects within the UAE and Saudi Arabia, where Kinetics' engineering solutions play a pivotal role in shaping these remarkable endeavors.

This month's edition we discuss comparison between UBC & IBC Code and dive in on Seismic V Loops & U Loops.

And as usual, in our YouTube channel we will be discussing our extensive range of Flexible Connectors and how it tackles the common issues in noise and vibrations into your pumping systems.

KINETICS MIDDLE EAST LLC CELEBRATING 30 YEARS ANNIVERSARY 30 YEARS OF EXCELLENCE

KINETICS Middle East LLC

ABU DHABI POLICE GENERAL HEADQUARTERS BUILDING, ABU DHABI, UAE

Kinetics Middle East LLC took part in project of significant prestige, collaborating with the Main and MEP Contractor M/s Silver Coast Construction. Kinetics is the Acoustic, Seismic & Pipe Stress Analysis consultant for the project. Kinetics have also designed and supplied Floating floors, Vibration Isolators, Flexible connectors and Seismic restraints for the project.

The project involves the construction of landmark Abu Dhabi Police General Headquarters building.

Source https://www.bncnetwork.net/

HAMPTON BY HILTON - NEOM

The project involves the construction of a 200-key hotel located within NEOM. The project spans an area of 8,200 square meters. The hotel's design and construction will focus on sustainability and will utilize highly energy-efficient systems.

The project is located in NEOM Economic Zone, Tabuk, Saudi Arabia.

Kinetics Middle East along with its partner in Saudi Arabia Arwada Trading are making inroads in Neom having assisted on solutions for Vibration Isolators, Flexible connectors and Acoustic lagging to Beijing Emirates International Construction.

Source https://www.bncnetwork.net/

TECHNICAL DISCUSSION:

COMPARISON BETWEEN UBC & IBC SEISMIC CODE

IBC (International Building Code) and UBC (Uniform Building Code) are both widely used building codes in the United States for regulating the design and construction of buildings, including seismic considerations. However, it's important to note that the UBC has been largely replaced by the IBC in most jurisdictions, and the latest version of the IBC includes seismic provisions that have evolved from those in the UBC.

Here's a comparison of how the IBC and UBC address seismic considerations in the context of MEP (Mechanical, Electrical, and Plumbing) systems:

1. Seismic Design Philosophy
    - UBC: The UBC had a prescriptive approach to seismic design, often providing specific equations and design methodologies for various components of the building, including MEP systems.
    - IBC: The IBC also provides prescriptive design requirements but emphasizes performance-based design and incorporates concepts such as the seismic design category and the seismic design spectral response acceleration. Performance-based design allows engineers more flexibility in designing systems that achieve a desired level of seismic performance.
2. Seismic Design Categories
    - Both codes categorize buildings into different seismic design categories (SDC) based on the expected level of ground shaking at the site. The SDC dictates the level of seismic design requirements.
3. Seismic Loads
    - UBC: The UBC used a static force-based approach to determine seismic loads on the building, including MEP systems. It provided formulas for calculating these loads.
    - IBC: The IBC also provides static force-based methods but also introduces the concept of response spectrum analysis, which considers the dynamic response of the building to different frequencies of ground motion. This is especially relevant when designing MEP systems for sensitive equipment that may have resonance with specific frequencies.
4. Anchorage and Restraint of Equipment
    - UBC: The UBC typically provided prescriptive requirements for anchorage and restraint of equipment and systems to prevent them from becoming hazards during an earthquake
    - IBC: The IBC includes provisions for anchoring and restraining MEP systems and equipment. However, it might also allow engineers to use engineering judgment to determine the appropriate methods based on the performance goals.
5. Code Evolution
    - UBC: The UBC was widely used until it was largely replaced by the IBC in the early 2000s.
    - IBC: The IBC has evolved through multiple editions, incorporating advancements in seismic engineering and reflecting lessons learned from past earthquakes.

When considering MEP seismic design, it's important to use the latest version of the IBC, as it incorporates the most current seismic design provisions. Always consult the relevant local building code and involve experienced structural and MEP engineers to ensure compliance and optimal seismic performance.

Below is crisp summary of the comparison in tabular form:

Aspect	IBC	UBC
Seismic Design Philosophy	Performance-based design emphasized.	Prescriptive design approach.
Seismic Design Categories	Categorizes buildings into SDCs.	Categorizes buildings into zones.
Seismic Loads	Uses static force and response spectrum.	Primarily uses static force approach.
Anchorage and Restraint of Equipment	Provisions for anchorage and restraint.	Prescriptive requirements for equipment anchorage.
Flexibility and Ductility	Emphasizes ductility and flexibility.	Emphasizes flexible and ductile systems.
Code Evolution	Evolved through multiple editions.	Replaced by IBC in most jurisdictions.

PRODUCT HIGHLIGHT:

SEISMIC V-LOOPS AND U-LOOPS

Seismic V-loops and U-Loops solve the problems of pipe motion caused by thermal pipe growth and the movements associated with seismic activity. Benefits of the seismic V-loops include limited amount of space required for installation and the ability to hold in heat compared to traditional large pipe loops. Another benefit is V-Loops do not introduce thrust loads on the piping systems whereas metal bellows and rubber expansion joints impose significant anchor loads due to the effects of static pressure thrust.

Construction of both V- and U-loops is unique in the fact that it creates a flexible product that does not expand when pressurized. They can be designed in nested configurations with relatively tight centering. Standard installation is in horizontal pipe runs with the V-loop elbow pointing straight down. The use of an eyelet can be used for installations outside of the standard installation. Construction of the V- and U-Loop can be manufactured with a variety of end fitting and also copper or stainless steel braided material.

Source: www.kineticsmiddleeast.ae

Kinetics YouTube –

Kinetics Middle East LLC: Kinflex Flexible Connector

Engineered for Success: Kinetics Middle East LLC Expertise in Vibration Control for your Equipment.

Learn more as we tackle one of our core products, Vibration Isolator and how it will benefit with your project.

https://youtu.be/XJPgRUqox28

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