The Canadian Society of Iranian Engineers and Architects Magazine

MOHANDES

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Sunset over the Caspian Sea

On the cover:

Sunset Over the Caspian Sea

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Mission:

Highlights of the MOHANDES mission are as follows:

a. To attract, organize, inform, devise and support members and the Iranian Canadian Engineering Community at large to achieve their desired standing in the Engineering and business community in Canada.
b. To ensure that the full cycle of Immigration/Integration of Iranian engineers to Canada is well understood, observed, monitored and measured and remedial action is taken on timely basis.
c. To encourage members to pursue higher level of formal and informal education, promote professional activities through seminars, workshops, events and volunteer work.
d. To provide networking opportunities in order to promote professional and cultural relations with other professional individuals and organizations and promote business opportunities.
e. To encourage and support students of engineering disciplines, encourage and promote innovations and new engineering frontiers and recognize outstanding academics, engineers, students and entrepreneurs.
f. To maintain and promote higher moral, ethical and professional standards, encouraging volunteer and humanitarian activities by promoting Iranian cultural, engineering and architectural history and to participate and host cultural, recreational and sports activities
g. To establish mechanisms for acquiring budget and fundraising to enable MOHANDES to deliver its desired services.
h. To expand activities of MOHANDES by establishment of local chapters, subsidiaries and confederation with similar organizations.

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In This Edition:

Editorial

International Turmoil Warrant Change

Much has happened over the past few months. In our powerful neighboring country, the political landscape shifted with the inauguration of a new president. This transition sent ripples across the globe—including Canada. As a result, the political appetite of Canadians changed almost overnight, culminating in the election of a new liberal prime minister, seemingly positioned to counterbalance the new U.S. leadership.

Since then, diplomatic relations have been marked by tension: back-and-forth negotiations, sharp rhetoric, and repeated threats. These dramatic exchanges have become so frequent that they've faded into background noise—something many now choose to ignore.

It's safe to say that our long-standing commercial and trade relationship with our closest ally has taken a hit, and it may never return to what it once was.

While each province has experienced these disruptions in its own way, a national consensus has begun to emerge: Canadians must rely on each other more than ever before. This calls for stronger interprovincial economic and trade cooperation and fewer regulatory barriers to the exchange of goods and services across provincial lines.

Now that this "change" is widely accepted, one thing is certain—things will not go back to the way they were. What remains to be seen is just how deep this transformation will go—and whether we can find a new balance in this shifting global landscape.

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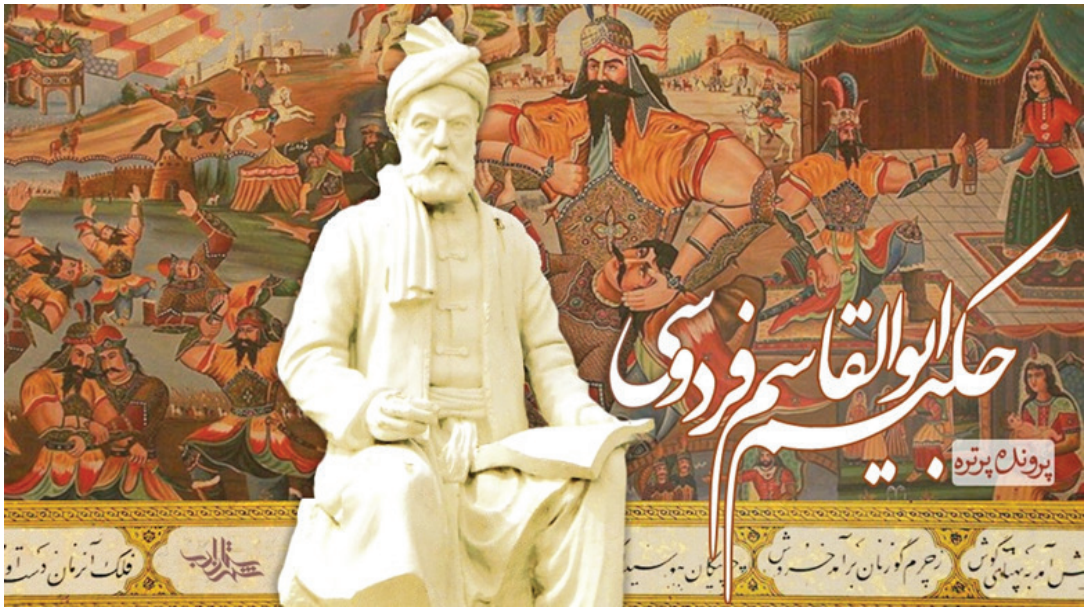
Iran: An Extraordinary Country

Fact or Fiction

By: Afshin Khodabandeh



Ferdowsi the creator of the famous book of Shahnameh

Iran is my homeland and I am proud to have been born and raised there. I tried to do a detailed evaluation of different aspects of Iranian existence in a series of articles. I did my best to remain objective and unbiased; however, I must acknowledge that the task is easier said than done. I hope this will be of interest to the respected readers. Part one and part two of this article were presented in previous issues of our magazine. Here is part three, final part of the article.

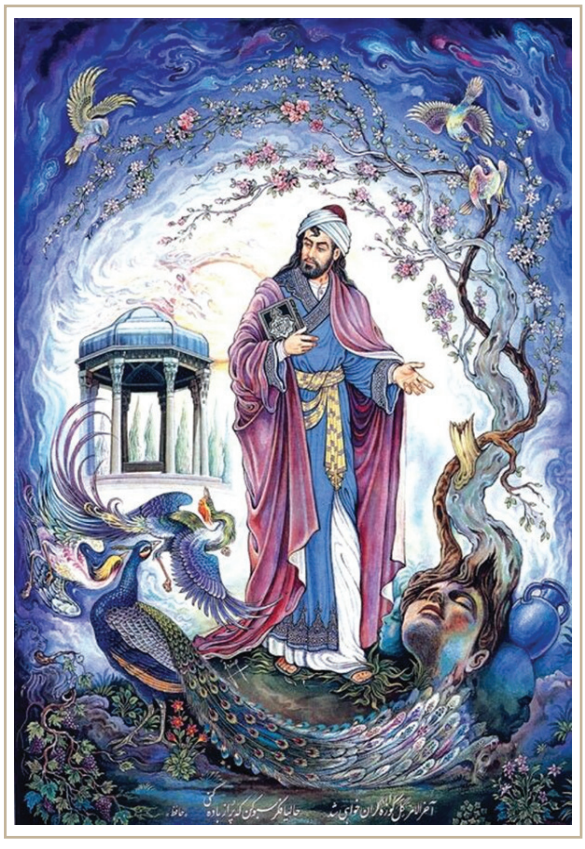
Literacy & Culture

Iran is rightfully known as one of the cultural centers of the ancient world. Maybe its geographical position—neighbouring Hellenic (Greek) and Egyptian civilizations on the west, Indian civilization on the east, and cultural conquests of nomadic tribes from the south—is the main reason for such a reputation.

As a result of such geographical positioning, our Aryan ancestors, who originally were hunter-gatherers in northern Eurasia, exchanged cultural traits in the past several thousand years with Mediterranean and Sami civilizations as well as their Indian cousins.
In Iran, one fundamental cultural attribute that has always remained constant in the past

couple Millennia is tolerance and acceptance of new ideas. In the beginning, when Aryans defeated former residents of the Iranian plateau some 3500 years ago, they learned customs, culture and scientific advancements of the overpowered cultures. As Ferdowsi in the famous book of Shahnameh describes, Aryans learned weaving fabrics, writing and more advanced concepts of religion from them.

The next major clash of civilizations happened at the end of the Achaemenid Dynasty when Alexander, King of Macedonia, invaded Iran. During the proceeding 150 years that Greek Generals ruled in different parts of Iran, a lot of exchanges between Iranian-Indian culture and Greek-Egyptian culture happened and this exchange was even stronger in the realm of science and technology.



Shams ol-din Mohammad Hafez, Famous Iranian Poet

After this era of occupation, during the next dynasty (Parthian) which lasted for more than four centuries, a lot of beliefs and traditions of the Hellenic-Mediterranean cultures were amalgamated into the ancient Iranian way of life.

It is also noteworthy that during all ancient eras and different dynasties, cultural exchanges with Indian civilizations and translations of prominent Sanskrit texts used to be a common practice.

After the invasion of the Arabs on 651 AD and the establishment of Islam as the dominant religion in Iran, some elements of Jewish-Islamic culture were introduced to the Iranian society and this kind of mixing, giving and receiving cultural values has continued up until today.

Iran has always produced important world class thinkers and scholars. Focusing on the last 10 centuries, one can mention a number of writers and poets that are still relevant and have played a conspicuous role in the development of Iranian culture.

Mosleh ol-din Saadi Shirazi was a thinker, writer, and poet. His two well-known books, Boostan (Verse) and Golestan (Script), are perfect examples of concise and precise writing in Persian language, which is still taught in high schools.

Shams ol-din Mohammad Hafez, whose book of Ghazal is a perfect description of people's day to day life and concerns. He is a master of ambiguity and metaphor and explores important issues in his poems.

Omar Khayyam, who was not only a mathematician, astronomer, and philosopher, but also an expert on, for he lack of a better word, meditation.

A lot of people in the world know his quatrains, and he was among the first to talk about "Mindfulness" and "living in the here and now". His small book of poems has been translated into more than 45 languages so far.

In Iranian Culture, Men and Women are Equals, Even in War

Abolghasem Ferdowsi, who has created the famous "Shahnameh", a book of some 30,000 lines of poem. His masterpiece had several objectives. He not only made the most comprehensive history book as an amalgamation of Iranian ancient mythology with more recent documented history, but also made the biggest encyclopedia of ancient Persian names, verbs, and traditions. Without Shahnameh, which is still a source for naming newly invented words of science and technology, no one knows what could have happened to our native language. He also mixed valuable words of wisdom with a flawless technique of poetry.

Jalal-Din Mohammad Rumi was an extraordinary genius who put together thousands of lines of poems, containing profound philosophical points. His masterpiece is the book called "Masnavi" in which he describes delicate philosophical issues embedded in beautiful stories.

In the field of philosophy Iran has introduced some world class thinkers like Avicenna, Farabi, Molla Sadra, and Mir Damad. In the field of science and technology Iran has also had notable scientists like Zakarya-ye Razi, Kharazmi, Abureyhan Birooni, Ologh beik, and Sheykh Bahaei.

Reading contemporary writings of Iranian intellectuals, one can still see the effects of those prominent scholars embedded in today's creations.

Modern Era

During the past century, beginning with the adoption of Iran's first constitution in 1906, Iran rapidly changed to a modern country. Today, Iran has more than 125,000 km of paved roads, 2400 km of freeways, 8500 km of railways, and 173 passenger airports.

A couple of Iranian universities are among the 500 best in the world and Iranian scientists in the fields of genetics and nanotechnology do world class research. Iranian scholars publish a lot of scientific research papers every year.

Key Strategic Elements

Based on what was illustrated before, Iran is probably one of the strongest countries from a strategic point of view. Let's analyze a little bit further these strategic elements:

- **Geo-Strategy:**

Iran's geographic location is right in the middle of the area that connects Asia, Europe and Africa, which by itself is an important strategic attribute. Any disruption in Iran's integrity or it's hypothetical disintegration into several smaller countries, will have adverse effects on cost and safety of the East-West transportation.

Ancient Silk Road (top) versus the Modern Silk Road (bottom)

This attribute has been well known for millennia, from the days of the Silk road to the era of India being colonized by Britain and the importance of Iran as a key element of security of India, to the second world war where Iran became the main logistic route for support of the USSR by Western countries.

Iran's long shores (1770 km in the south and 650 km in the north) that provide it access to the global sea routes, has made Iran's embargo practically impossible. In the main land, the two mountain ranges of Alborz and Zagros have always served as natural barriers against invaders.

Another strategic attribute of Iran is its vast area, which has always provided ample strategic depth. For example, during the two centuries rein of Arabs, Iranian language (Parsi Dari) and other Persian customs and traditions continued their life in the north-eastern parts of the greater Khorasan area.

Also during the rein of the Mongolian rulers, north-western parts of the greater Iran, which today are called Armenia and Gorgias, stayed out of harm's way. I dare to conclude that the strategic position of Iran is unique among countries in the Middle East.

- **Strategic Factors of Demography:**

Iran is the most populated country of the Middle East. Only Pakistan has more population than Iran; however, it is considered outside of the conventional Middle Eastearn zone. This population is very well educated (currently, one out of every three Iranian has higher education) consequently it has a lot of potential to develop, invade other countries, defend against invaders, and to propagate the Iranian culture and traditions all around the world.

One key element for resistance of the Iranian people against brutal invasions by nomadic and savage people has always been its population. After losing a lot of men in wars and post-war executions, Iran has always had enough people left to overcome those invaders.

Nowadays, the total population, diversity of the ethnic groups inside the Iranian family, and also its level of education, are important parameters that are considered in any strategic plan at the regional or even global level.

- **Strategic Endurance:**

Any country, should be able to withstand a condition similar to the classical siege. Although nowadays the historical type of siege, like what Athens did to Troy, is not feasible, certain level of embargo or sanction can hurt a nation so bad that the quality of life decreases substantially.

The first requirement of a nation is access to fresh water and food. Although Iran is located in the semi-arid climate zone and its long term average yearly precipitation is less than 600 mm, and regardless of the drastic changes to the climatological patterns which resulted from global warming and has elongated intensity and duration of the dry season, Iran still has fresh water resources, several times its agricultural and industrial needs. Under a sound water management regime, there should be no problem for basic fresh water needs of Iran.

Total area of lands suitable for cultivation of Iran's basic agricultural needs is several times more than enough. Implementing modern and scientific methods of farming and hand use will produce enough agricultural commodities to suffice Iran's basic needs to feed its human population as well as the livestock, cattle, and poultry.

Iran's diverse mineral deposits is also enough to produce required raw material for decades. Iran also has one of the richest fossil fuel deposits in the world, while its vast area and ample sunlight makes it a good candidate for strong solar energy industries.

And finally, the number and composition of the population, especially the percentage of educated men and women, enables any government to find suitable candidates for all levels of management.

Two proposed North-South corridors

- **Control Over Sources of Energy:**

The Persian Gulf, which is located on southern shores of Iran, holds a huge percentage of the world's fossil fuels composed of oil and gas. Average estimates in recent years show 65% of world's oil reserves and 35% of the world's gas reserves are in countries around the Persian Gulf. Most of the oil and gas produced go to consumer markets via the strait of Hormuz (At least 25% of the oil traded in the world).

On the other hand, the strait of Hormuz is only 40 km wide and its maximum depth is around 80 meters. Although it hasn't happened yet, the possibility of partial or total closure of this waterway has been used as a bargaining chip by Iranian governments.

In case of a hypothetical military conflict, enemy war ships would be stranded in the Persian Gulf, so a capable commander shall keep its navy out of the strait of Hormuz. This would keep a good portion of Western and Central Iran hard to reach.

- **Cultural Mosaic:**

The Greater Iran Area is a cultural mosaic composed of several tribes, most of them descendants of Aryans who have been living side by side for thousands of years. These ethnic groups vary in physical attributes, slang, and even sometimes subscribe to different religions, nevertheless they have all learned to live in a colourful tapestry and respect their differences.

Nowadays, there are theories about transnationalism and some mention Canada and the European Union as examples of transnationalism. In a sense, the Greater Iran is an older model of transnationalism.

This capacity of acceptance and tolerance has been one of the major denominators of keeping Iran as one nation during historical ups and downs. In national days of celebration like Nowruz, the colourful cultural mosaic becomes more pronounced than ever.

- **Strategic Capacity of Metropolitans:**

In the greater Iran there are a number of metropolitan areas, most of them thousands of years old, with populations of more than 1 million and having their own universities, hospitals, and basic infrastructure. This produces a notable capacity to cope with hardships.
Location of these metropolitans are strategically scattered around the nation and most of them have a history of being the Capital of Iran for some time. Some of the most significant metropolitan areas, other than the Greater Tehran Area, are Isfahan, Shiraz, Tabriz, Ahvaz and Mashhad

Metropolitan Cities of Iran

In case of a hypothetical military conflict, enemy war ships would be stranded in the Persian Gulf, so a capable commander shall keep its navy out of the strait of Hormuz. This would keep a good portion of Western and Central Iran hard to reach.

35-year-old Fatima of the Bakhtiari tribes

Conclusion

In this three-part article, I believe I have demonstrated the following:

1- Iran is located in a strategic location between Asia, Africa, and Europe
2- Iran has ample access to global waterways
3- Iran has two main mountain ranges, Alborz and Zagros, acting as natural defence lines
4- Iran has several climatological zones
5- Iran has a considerable number of well educated, capable people
6- Iran is rich in minerals
7- Iran is very rich in the matters of fossil fuels and renewable energy
8- Iran is a cultural mosaic of Aryan tribes
9- Iran has been ruled by one central government since Cyrus (530 BC)
10- Iran has absorbed most of its invaders in its ancient culture
11- Iran has always had cultural exchanges with its historical neighbors
12- Iran has enough land and water to feed its population

Whether Iran is a truly extraordinary nation is still open to discussion, but one thing is for sure: it is one of the most important nations in the world.

Review of Multi-Dwelling Development Policies in Toronto

By: Hamid Kashani, Architect (OAA, MRAIC, TSA)

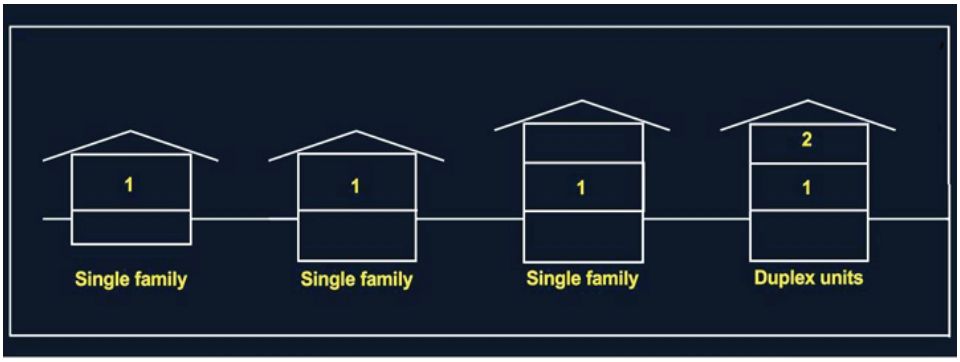
Overview:

The Government of Ontario, in order to facilitate housing in the province, passed Bill 23 (More Homes Built Faster Act) and Bill 109 (More Homes for Everyone Act) in 2022. Since then, while Toronto's housing landscape is undergoing a period of dynamic transformation, our economy is also experiencing unprecedented challenges.

Population growth, driven by both domestic and immigratory factors, has finally shifted the century-old municipal zoning regulation policies towards allowing "multi-dwellings" in Toronto, mainly to address affordability, increase housing supply, and promote sustainable urban densification. In other words, it has opened pathways for innovations in multi-dwelling design and construction.

The development of the two tiers of the federal system in Ontario (provincial and municipal) has further implemented changes in the Ontario Building Code (OBC) to allow taller buildings in wood frame construction, which can potentially create significant changes in the industry. However, current approvals are confined to traditional duplexes and triplexes, as well as more complex structures such as fourplexes and the emerging concept of sixplexes.

These noted changes are also accompanied by frameworks for regulated multi-tenant (rooming) houses in Toronto. To further facilitate rental unit construction in the province, it is now allowed to construct rental buildings with fewer than 60 units without parking and waste collection requirements to speed up the approval process. All these activities have led to robust engagement from stakeholders such as the Ontario Association of Architects (OAA), Toronto zoning and planning authorities, the health and safety board, and CMHC.

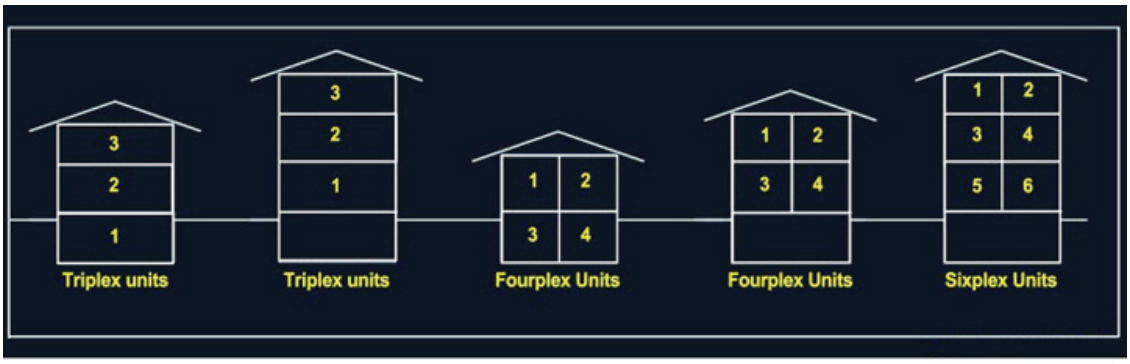


Houses less than 3 units - (Courtesy of HK architects)

Evolving Regulatory Landscape / Expansion of Permissible Multiplexes:

Defining a Dwelling Unit:

A dwelling unit is typically defined as a self-contained living space with its own kitchen, bathroom, and sleeping areas. This definition has been pivotal in determining how many units can legally exist within one building / one property; and alternatively how many independent privately owned units can exist within one property.



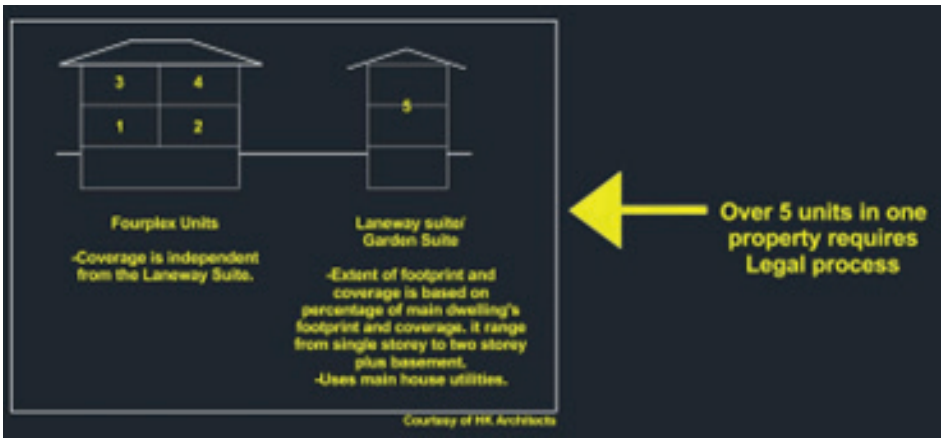
Houses 3 units or more (Courtesy of HK architects)

Citywide Legalization:

In a significant policy change, Toronto City Council approved amendments to the Official Plan and Zoning By-law that now permits multiplex housing—including duplexes, triplexes, and fourplexes—across all residential zones (May 10- 2023). This initiative effectively ends single-family-only zoning in many neighborhoods, paving the way for gentle densification that can better utilize existing infrastructure of the urban setting.

Secondary Suites:

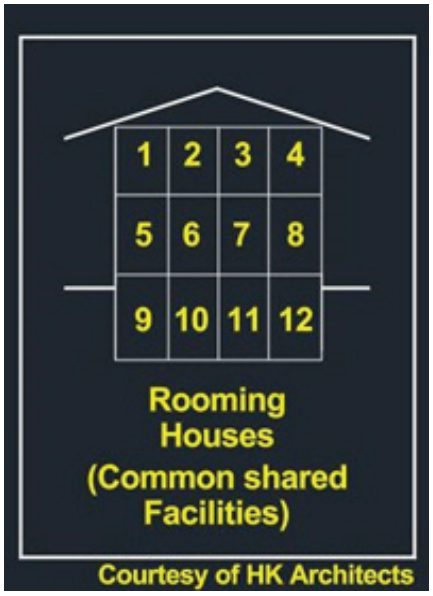
Alongside multiplexes, homeowners have the opportunity to build secondary units such as “laneway suites” and “ Garden suites” . These units, now allowed as-of-right and often exempt from development charges, help contribute to the overall housing supply and provide more affordable options within established communities.



Regulatory Framework for Multi-Tenant Houses (Rooming Houses):

A new regulatory framework introduced as of March 31, 2024, aims to standardize the conditions for multi-tenant (rooming) houses. These properties, which rent out individual rooms to separate tenants while sharing common facilities like kitchens and bathrooms, must now meet specific safety and habitability standards.

The rooming framework is designed not only to ensure tenant safety but also to address neighborhood concerns, thereby balancing the need for more housing with community livability.



Current Zoning permits Fourplex Units:

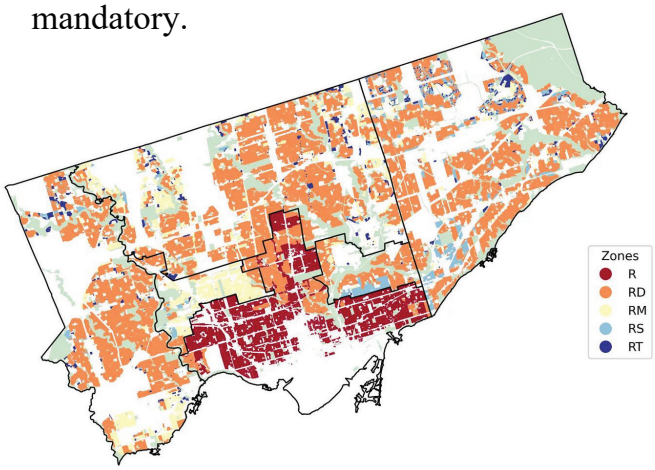
Under the current zoning by-laws (e.g., Zoning By-law 569-2013), fourplexes are permitted in many residential zones by right. This means that homeowners can convert single-family properties into structures containing up to four distinct living units without the need for discretionary approvals.

Exploring the Concept of Sixplexes:

Pilot Projects and Innovations
While the city's current regulations do not automatically allow for more than four units by right, innovative pilot projects—such as those in Scarborough North (Ward 23)—are experimenting with permitting five- and six-unit configurations. These pilots are important steps toward potentially broader policy changes across the city.

Basement Conversions:

One commonly asked question is whether a finished basement in a fourplex structure can be counted as an additional dwelling unit. Technically, while a legally finished basement might qualify as a self-contained space, it would move the overall unit count beyond the by-law's "fourplex" definition. To convert a fourplex into a structure with five or six units, property owners would have to secure additional approvals through either a discretionary process (such as a minor variance via the Committee of Adjustment) or operate under one of the pilot initiatives. Compliance with the Ontario Building Code—ensuring proper egress, fire separation, and other requirements—is mandatory.



City wide multi housing map

Professional and Industry Perspectives

a. Ontario Association of Architects (OAA) Reaction (Support and concerns):

The OAA has actively engaged in discussions on recent housing legislation. In response to measures such as Bill 23 (More Homes Built Faster Act) and Bill 109 (More Homes for Everyone Act), the association has shown support for initiatives that increase housing supply through intensification. However, the OAA remains cautious about the potential implications for environmental sustainability and quality of urban design.

- Advocacy for Balanced Development
The OAA's submissions and commentary emphasize that while expanding permissible housing units is critical to address affordability, it must be balanced with safeguards on green spaces, architectural quality, and overall community livability.

b. Industry's Best Practices

- Navigating Approvals

For developers and homeowners interested in converting or expanding existing properties, understanding the interplay between zoning by-law provisions and building code requirements is paramount.

Engaging with city planning departments early on and seeking professional advice from architects experienced in these systems can make the difference between a successful project and one that faces significant regulatory hurdles.

- Long-term Urban Strategy

The ongoing dialogues among policymakers, industry experts, and community stakeholders reflect a broader commitment to not only increasing the number of available housing units but also to ensuring that new developments contribute positively to urban resilience and sustainability.

Development Considerations and Practical Implications

a. Approval Processes:

- Minor Variances and Committee of Adjustment

Where properties exceed the fourplex standard—whether by design or through basement conversions—property owners may need to apply for a minor variance. This process involves demonstrating that the proposed changes will not negatively impact the surrounding community.

- Site Plan Control and Building Permits

All projects that aim to convert or develop multi-dwelling units must undergo site plan approval and comply with stringent building standards. Critical safety measures, such as emergency exits and soundproofing, remain non-negotiable.

b. Future Directions

- Policy Evolution

A study on sixplex conversions and new multi-unit policies is expected to be presented

to Toronto City Council as part of the city's continuing efforts to adapt to housing demands. This study could pave the way for more expansive and flexible housing policies in the near future.

- Implications for Urban Density

Increasing the permissible unit count—from fourplexes to potential sixplex configurations—reflects a broader urban strategy aimed at maximizing space, reducing sprawl, and promoting efficient, mixed-use neighborhoods.

Conclusion

Toronto's evolving approach to multi-dwelling housing represents a crucial response to growing urban challenges.

Through legislative changes, pilot projects, and active professional advocacy, the city is pioneering new methods to balance density, sustainability, and community well-being.

Whether it's through the regulated transformation of single-family homes into multiplexes or the exploration of innovative models like sixplexes, these efforts underscore a commitment to creating a resilient and inclusive urban fabric.

Developers, homeowners, and policymakers are collectively shaping a future where adaptable and thoughtfully designed housing meets the needs of a diverse modern population.

Understanding Explosion Proof EX Standards

Ensuring Safety in Hazardous Environments

By: Mohammad Kamyab, BSc, MBA

In industries where volatile substances are handled, safety is paramount. The risk of explosions in such environments necessitates stringent safety measures and standards. One critical standard that governs safety in hazardous areas is the Explosion Proof EX standard. This article delves into what the EX standard entails, its importance, and how it ensures the safety of personnel and equipment in potentially explosive atmospheres.

Schematics of a Perfect Explosion

What is the Explosion Proof EX Standard?

The Explosion Proof or EX standard refers to a set of regulations and guidelines designed to prevent the ignition of explosive atmospheres. These standards are critical in industries such as oil and gas, chemical processing, mining, and any other sector where flammable gases, vapors, or dust are present. The EX-standard is part of the broader set of safety standards developed by the International Electrotechnical Commission (IEC) and other regional bodies to ensure the safe design, installation, and maintenance of electrical equipment in hazardous locations.

Key Components of the EX-Standard

1. Classification of Hazardous Areas: The EX-standard classifies hazardous areas into different zones based on the frequency and duration of the presence of explosive atmospheres. These classifications help in determining the level of protection required for equipment used in these zones.

- **Zone 0:** An area where explosive gas atmospheres are present continuously or for long periods.
- **Zone 1:** An area where explosive gas atmospheres are likely to occur in normal operation.
- **Zone 2:** An area where explosive gas atmospheres are not likely to occur in normal operation, and if they do, it will be for a short period.

2. Equipment Protection Levels (EPLs): EPLs are designations that indicate the protection level provided by equipment used in hazardous areas. The EPLs are categorized as:

o Ga, Gb, Gc: For gas atmospheres.
o Da, Db, Dc: For dust atmospheres.
o Ma, Mb: For mining applications.

Protective Gear

3. **Types of Protection:** Various protection methods are employed to ensure that equipment does not ignite explosive atmospheres. Some common types of protection include:

o Intrinsic Safety (Ex i):
Limits the energy available for ignition.

o Flameproof Enclosure (Ex d):
Contains any explosion within the enclosure.

o Increased Safety (Ex e):
Enhances safety measures to prevent sparks or hot surfaces.

o Pressurized Enclosure (Ex p):
Maintains a protective gas within the enclosure to prevent the ingress of explosive gases.

Importance of Compliance with EX Standards

Compliance with the EX-standard is crucial for several reasons:

1. Safety: The primary purpose of the EX-standard is to protect workers and facilities from the dangers of explosions. By adhering to these standards, companies can significantly reduce the risk of accidents and ensure a safe working environment.

2. Legal and Regulatory Requirements: Many countries have strict regulations that mandate compliance with EX standards for operating in hazardous environments. Non-compliance can result in legal penalties, fines, and operational shutdowns.

3. Operational Continuity: Ensuring that equipment meets EX standards minimizes the risk of explosions, which can lead to costly downtime and damage to infrastructure. By preventing such incidents, companies can maintain smooth and uninterrupted operations.

4. Reputation and Trust: Companies that prioritize safety by adhering to EX standards build a reputation for reliability and responsibility. This trust can be crucial for securing contracts and partnerships in industries where safety is a top priority.

Implementing EX Standards in Industrial Settings

To effectively implement EX standards, companies should follow these steps:

1. Risk Assessment: Conduct a thorough assessment of the work environment to identify

potential hazards and classify hazardous areas according to the EX-standard.

2. Equipment Selection: Choose appropriate equipment that complies with the required protection levels and types of protection for the classified zones.

3. Installation and Maintenance: Ensure proper installation and regular maintenance of equipment to maintain compliance with EX standards. This includes routine inspections, testing, and certification renewals.

4. Training and Awareness: Provide training for personnel on the importance of EX standards and safe practices in hazardous areas. This knowledge empowers employees to recognize and mitigate risks effectively.

5. Documentation and Compliance: Maintain detailed records of equipment specifications, inspection reports, and compliance certificates. This documentation is essential for audits and regulatory inspections.

Conclusion

The Explosion Proof EX standard plays a vital role in safeguarding industries that operate in hazardous environments. By classifying hazardous areas, defining protection levels, and specifying protection methods, the EX-standard provides a comprehensive framework for ensuring safety. Compliance with these standards not only protects lives and assets but also helps companies meet legal requirements and maintain operational efficiency. As industries continue to evolve, adherence to EX standards remains a cornerstone of safety in hazardous environments.

Masal - Gilan

SUDOKU ANSWER KEY

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6	7	8	3	5	2	1	4	9
5	9	4	1	6	8	7	2	3
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8		9	7	2	3	6	5	4
4	5	7	8	9	6	3	1	2
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9	2	5	6	7	1	4	3	8
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3	1	7	4	6	5	2	8	9
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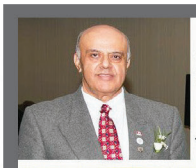

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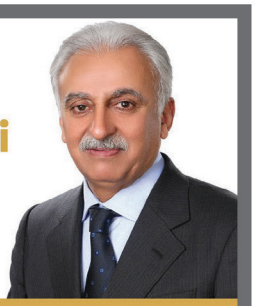

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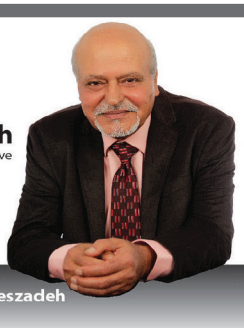

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Newcomers and Mentorship Committee

By: Samira Ghasempour

At full speed, the MOHANDES Newcomer Committee keeps up its activity. This year, it offers the same dynamic and engaging courses and networks as in years past. Besides, the Newcomer Committee added another session of the workshop on Saturday mornings. Therefore, in addition to the regular Saturday afternoon workshops, this committee hosts newcomers for Saturday morning training sessions, including P.Eng. workshop, Excel training and AutoCAD sessions.

By offering vital courses and events, activities, and a warm welcome that may facilitate newcomers' transition and acknowledge the value they add to our communities, MOHANDES's Newcomers Committee acts as a crucial entry point for new members. The following are the activities of the Newcomers Committee for first half of the year.

•Job Finding Through LinkedIn:

Improving LinkedIn profile is crucial for professional advancement. A professional image. Credibility is increased by careful networking, obtaining endorsements, and regularly interacting with industry content.
In these sessions, maintaining profile regularly guarantees exposure, enhances professional brand, and creates new chances.

•A Guide to Construction Project Management

This six-session course teaches the principles of managing construction projects from commencement to project close out. The focus is on current industry practices related to the procurement of design services and contractors, contract methods, and construction contract process management.

•Construction Project Coordinator Roles and Responsibilities

This event aims to explore the essential duties of coordinators in construction projects. It covers project planning, scheduling, budgeting, communication, and regulatory compliance. Attendees gain practical insights into supporting project execution, coordinating teams, managing documentation, and ensuring smooth collaboration among stakeholders for project success.

•Job Search and Networking Events

In the MOHANDES Newcomers Committee, we recognize the importance of job search and networking events. These events provide a platform to address various topics related to successful resume writing, proper job search methods, and detailed responses to attendees' questions.

•Resume workshop/ Mentorships:

Our resume workshops and mentorship programs provide invaluable insights into crafting standout resumes. The Newcomers Committee aims to empower individuals to present their skills and experiences with confidence and help them prepare their resumes properly according to job descriptions.

•Mock Interview Workshop:

Additionally, our mock interview workshops simulate real-world scenarios, helping participants sharpen their interview skills and refine their responses, preparing them to excel in job interviews.

•How to Apply for Professional Engineering License in Ontario (PEO):

Earning P. Eng. designation in Ontario unlocks a world of exciting opportunities. We help applicants with our informative seminars and show them how to take major steps towards obtaining the license.

•Excel Training:

This course, which has been recently added to Newcomer Committee's activities, held on Saturday mornings. It aims to introduce to excel & basic concepts and it has 4 sessions as a first phase.

•Outdoor Activities:

In our committee, we also recognize the importance of balance and camaraderie outside professional pursuits. Our outdoor activities, such as picnics and walking excursions, allow members to unwind, socialize, and build meaningful connections in a relaxed setting. These events foster community and well-being among our members, promoting a healthy work-life balance essential for personal and professional fulfillment.

TO GROW YOU WILL FAIL

By: Payam Zahedi, Ph.D.

"Failure should be our teacher, not our undertaker. Failure is delay, not defeat. It is a temporary detour, not a dead end."- Denis Waitley

We treat failure as the ultimate low point. It's looked at as taboo. We think with each failure productivity, creativity, and excellence decrease. And we're wrong.

Irrespective of the perceived magnitude of failure, from missing a deadline to hiring a disruptive team member to putting out a poorly crafted message, its ok for things not to work out as planned. There is so much hidden information and important learnings in each of our failures. By embracing these moments, as a leader, as a team, as an individual, we grow exponentially. Failure adds chaos to our work, it allows for pivoting, for reflecting, for inventiveness. In fact, I would say we shouldn't even use the word failure. That frames it in a negative light.

Calling it learning opportunities makes more sense to me.

Perception

A central ethos of failure is how one interprets it. To some, missing a deadline is the end of the world, for others it's not. It's critical to understand this, especially as a leader; you and your team will have different tolerances for failure. You need to embrace it, not shoot it down.

Openness

As a leader, a part of your job is creating an environment where failure is a positive. Be the first to admit to it, the first to roll up your sleeves and forge a new path. Make it a rule that it is wonderful to fail, and unacceptable not to learn from the information those failures provide. This tells the team that they are safe to take ownership of a mistake. It invites everyone to be open to the gifts of failure.

Reflection

Once it's out in the open, talk about it freely, holding back is a barrier to learning. This should not be about blaming a person or a group. Ever. Never ever. It's about understanding your process, your people, yourself and how to evolve and learn from the situation. It's about teaching everyone in the room what you've learned from this particular failure. Others have failed in similar situations, remember that. It's not an anomaly, and you're no different. The differentiator is who comes out of failures with a positive mindset. And maybe a new skill or process.

Action

Simply identifying and owning the event is not enough. You have to input tangible actions and systems based on what you've learned. Too often we learn from a mistake, a failure, a low point and leave it at that. Maybe because we put such a negative light on these occurrences, and are too emotionally and mentally drained to set ourselves and our teams up for growth.

Making failure positive will help. Being open will help. Taking action will help the most.

We are obsessed with succeeding, being perfect, going up and up. This is insane. Seeking perfection is a paralytic disguising deep insecurity. Instead look for better next time and failure is our best tool to get there. We all fail, we all fall, we all make mistakes. That's the beauty of it. Taking these moments as learning opportunities is important. Only then can we elevate ourselves and our team's successes. Only then can we create a positive, risk-taking, creative and confident work environment. As Edison once said "I have not failed. I've just found 10,000 ways that won't work".

Women in Engineering
Breaking Barriers and Driving Innovation

By: Mozhdeh Gilandoust, MS. CE.

Introduction

Engineering is one of the main pillars of Canada's economic and social progress. Within this field, women engineers have made remarkable contributions across industries and academic spheres. Their participation is not simply a matter of numbers, but rather a meaningful and transformative presence that enriches the profession. By driving innovation, promoting sustainability, and inspiring the next generation. Women engineers in Canada stand at the forefront of building a more inclusive and prosperous future.

Achievements and Professional Impact

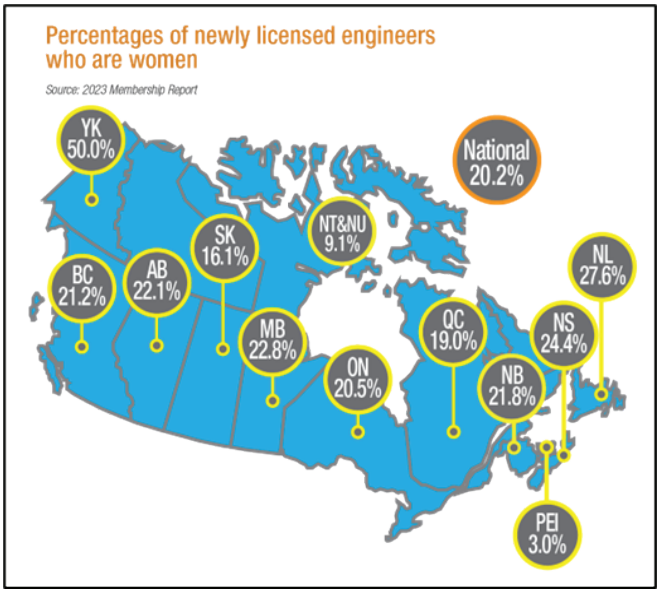
Women engineers in Canada have established themselves as leaders in diverse branches of engineering: from civil and mechanical to electrical, environmental, software, and emerging fields such as artificial intelligence and renewable energy. Their expertise has shaped major infrastructure projects, technological innovations, and urban development initiatives across the country.

Beyond individual accomplishments, women engineers bring unique perspectives and creativity to problem-solving. Research consistently shows that diverse engineering teams are more innovative and deliver higher-quality outcomes. Thus, the growing presence of women in engineering is not only about representation, but also about fostering excellence and resilience within Canada's engineering profession.

Inspiring Future Generations

Another important dimension of women engineers' contribution lies in education and mentorship. Across Canada, women engineers actively participate in outreach programs, mentorship networks, and university initiatives to encourage more young people—especially girls—to pursue careers in science, technology, engineering, and mathematics (STEM).

Programs such as Engineers Canada's "30 by 30" initiative demonstrate the commitment to expanding women's representation within the



profession. By sharing their career experiences and achievements. Women engineers inspire confidence in younger generations and challenge outdated stereotypes about who can succeed in engineering.

Driving Sustainable Development

Women engineers also play a central role in advancing Canada's environmental and sustainability goals. Many of them are directly involved in projects on renewable energy, sustainable urban design, environmental protection, and climate adaptation. Their leadership ensures that technical solutions are not only effective but also socially responsible and future-oriented. In this sense, women engineers are key contributors to building a sustainable and resilient Canada for generations to come.

Conclusion

The story of women engineers in Canada is one of leadership, creativity, and impact. They are not defined by comparison with others, but by their own achievements and the positive transformations they bring to society.

By combining technical expertise with vision, women engineers are shaping industries, guiding innovation, and inspiring cultural change.

In today's Canada, engineering has become more diverse, forward-looking, and innovative thanks to the presence of women who continue to break barriers and redefine what is possible. Their role is not only vital for the engineering profession, but also for the social and economic future of the nation.

Special Interest Committee (SIC) - Report of Activities

By: Sina Forouzi, Chair of SIC

What a journey it has been so far, with Mohandes Special Interest Committees (SICs) weekly seminars and webinars. 2025 began with amazing series of speeches and events that set the tone for an exciting and innovative year to come. After a very productive year of 2024, with a record number of activities, thanks to our dedicated SIC group leaders, the first half of the 2025, brought fresh energies and ideas, hardworking, dedication, teamwork, collaborations, and contributions.

Civil Engineering Group

On March 2025, there was a change of leadership in this group. After two productive years of activity Ms. Maryam Saadatinejad resigned and Mr. Alireza ZahediRad took over as lead of the group.

Ever since, there has been three events, all in person seminars, namely "Soil Improvement & Advanced Engineering Solutions" by Morteza M. Ardakani, MS. CE, P. Eng., "Concrete Placement & Jointing" by Alireza Zahedi Rad and "CCDC Contracts" by Mehran Namakian, P.Eng.

Civil group also conducted a site visit to a cold formed steel factory (EBS) in Barrie. About 20 members of the civil group participated in this full day event.

We also had the "Land development and Surveying" webinar by Fereidoon Khosravirad, MSc, OLS, OLIP on the online platform of ZOOM.

AI/IT Group

Joint leadership of Faranak Shojaei and Sina Forouzi have been an advantage to this group.

Highlights of its activities have been "Applications of AI in Marketing …" by Mohamad Nadi, Sharif Yazdani and Mehdi Shokoohi.

Other events were "AI based tools" by Mani Shabrang, then "Beyond the AI boom, Revolutionizing Efficient Industrial Automation", by Amir Harandi and after that "Can Machine Learning Reduce Admin burden in Healthcare?" by Hesam Dadafarin, then "The Role of AI in Academia: from Teaching to Conducting Research" by Alidad Amirfazli.

Agricultural and Natural Resources Group

In this speciality, two veteran members with

decades of volunteer work with Mohandes, Mr. Ebrahim Zahedi and Mr. Abdullah Hamidi lead the group. Some of the activities of this group in the first half of this year are: “A Glance at Solar Energy in Iran & Australia”, By Hossain Riazi, “Silk Production & its Role on World Textile & Carpet Industry” By Nabi Nematy.

Mechanical Engineering Group

Koorosh Mirkhani leads the Mechanical engineering group. Activities of this group have been “Is Knowledge of Road Friction critical for autonomy?” by Saied Taheri and “A Novel Framework for Modeling Reconfigurable Dynamic System” by Behzad Hamedi.

Most of our posters are designed by Simin Sepehri. To reach SIC groups for ideas, seminar proposals, suggestions, or inquiries, please contact professional groups or the SIC program lead: Sina Forouzi

Here are the leads of other SIC Committee groups:

- Mehran Mohaghegh:
  - Electrical
- Faranak Shojaei, Flour Behrouzshad:
  - Chemical & Mining
- Lobat Makhol, Ahmad Kashfi:
  - Construction Management
- Simin Sepehri:
  - Architectural

You may reach us by email :

kanoon@mohandes.com
www.Mohandes.com

We are also present in:

- **Linkedin**
- **Instagram**
- **Telegram**
- **Facebook**
- **YouTube**

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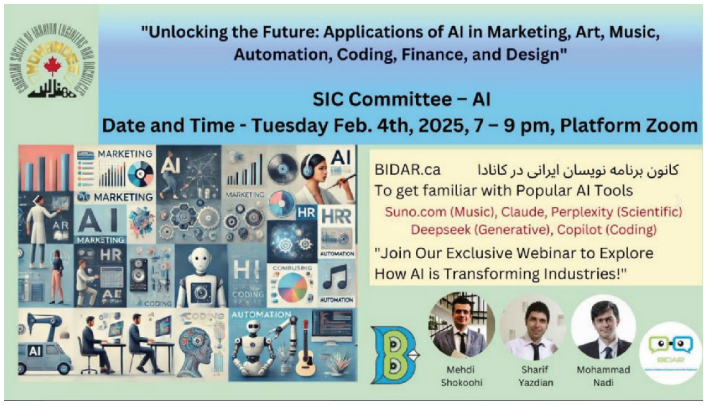
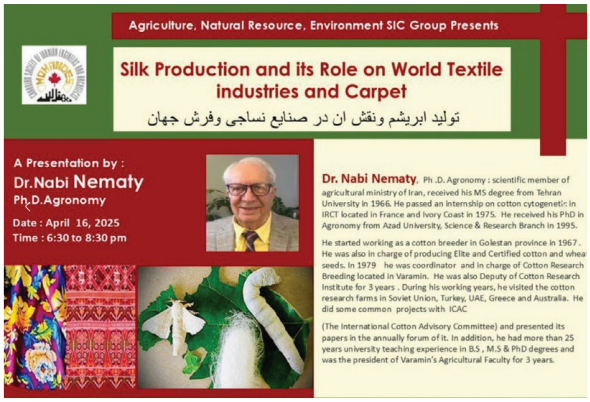
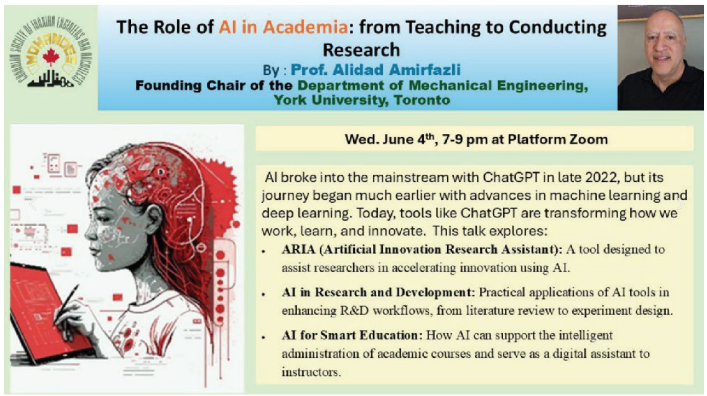
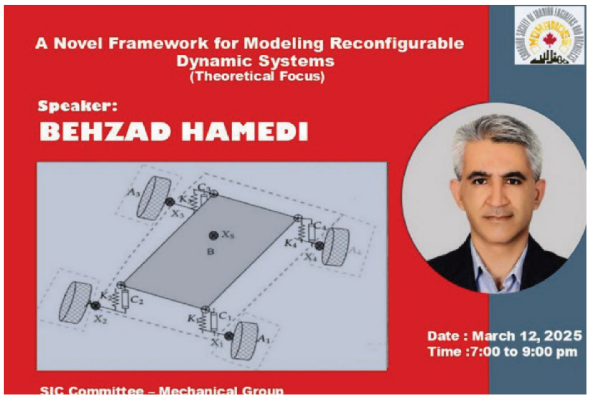
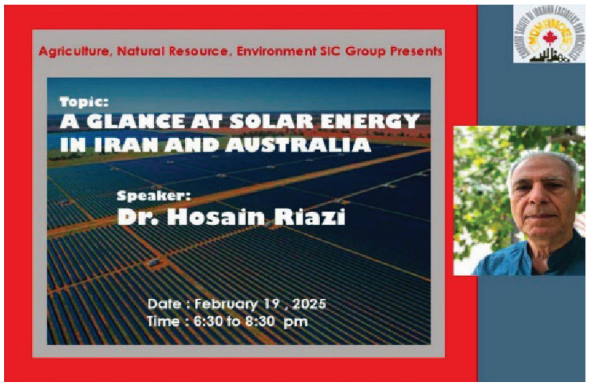

"Unlocking the Future: Applications of AI in Marketing, Art, Music, Automation, Coding, Finance, and Design"
SIC Committee – AI
Date and Time - Tuesday Feb. 4th, 2025, 7 – 9 pm, Platform Zoom
BIDAR.ca کانون برنامه نویسان ایرانی در کانادا
To get familiar with Popular AI Tools
Suno.com (Music), Claude, Perplexity (Scientific)
Deepseek (Generative), Copilot (Coding)
"Join Our Exclusive Webinar to Explore How AI is Transforming Industries!"
Mehdi Shokoohi
Sharif Yazdian
Mohammad Nadi

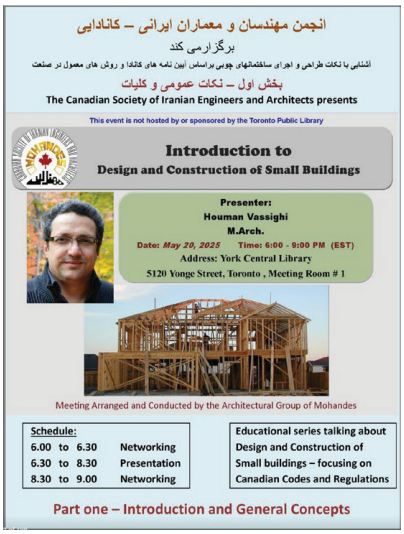

Agriculture, Natural Resource, Environment SIC Group Presents
Silk Production and its Role on World Textile industries and Carpet
تولید ابریشم ونقش ان در صنایع نساجی وفرش جهان
A Presentation by :
Dr.Nabi Nematy
Ph.D.Agronomy
Date : April 16, 2025
Time : 6:30 to 8:30 pm
Dr. Nabi Nematy, Ph .D. Agronomy : scientific member of agricultural ministry of Iran, received his MS degree from Tehran University in 1966. He passed an Internship on cotton cytogenetic in IRCT located in France and Ivory Coast in 1975. He received his PhD in Agronomy from Azad University, Science & Research Branch in 1995.
He started working as a cotton breeder in Golestan province in 1967. He was also in charge of producing Elite and Certified cotton and wheat seeds. In 1979 he was coordinator and in charge of Cotton Research Breeding located in Varamin. He was also Deputy of Cotton Research Institute for 3 years. During his working years, he visited the cotton research farms in Soviet Union, Turkey, UAE, Greece and Australia. He did some common projects with ICAC
(The International Cotton Advisory Committee) and presented its papers in the annually forum of it. In addition, he had more than 25 years university teaching experience in B.S , M.S & PhD degrees and was the president of Varamin's Agricultural Faculty for 3 years.


The Role of AI in Academia: from Teaching to Conducting Research
By : Prof. Alidad Amirfazli
Founding Chair of the Department of Mechanical Engineering, York University, Toronto
Wed. June 4th, 7-9 pm at Platform Zoom
AI broke into the mainstream with ChatGPT in late 2022, but its journey began much earlier with advances in machine learning and deep learning. Today, tools like ChatGPT are transforming how we work, learn, and innovate. This talk explores:
ARIA (Artificial Innovation Research Assistant): A tool designed to assist researchers in accelerating innovation using AI.
AI in Research and Development: Practical applications of AI tools in enhancing R&D workflows, from literature review to experiment design.
AI for Smart Education: How AI can support the intelligent administration of academic courses and serve as a digital assistant to instructors.


A Novel Framework for Modeling Reconfigurable Dynamic Systems
(Theoretical Focus)
Speaker:
BEHZAD HAMEDI
Date : March 12, 2025
Time :7:00 to 9:00 pm
SIC Committee – Mechanical Group

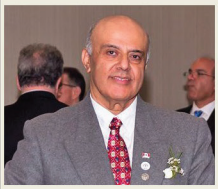

Canadian Society of Iranian Engineers and Architects
Land development and Surveying
Fereidoon Khosravirad
MSc, OLS, OLIP
Date:
February 26, 2025
Time:
7:00 - 9:00 PM (EST)
On Zoom Platform
Monthly Meeting Arranged and Conducted by the Civil Group
ورود برای عموم آزاد است


Agriculture, Natural Resource, Environment SIC Group Presents
Topic:
A GLANCE AT SOLAR ENERGY IN IRAN AND AUSTRALIA
Speaker:
Dr. Hosain Riazi
Date : February 19 , 2025
Time : 6:30 to 8:30 pm


انجمن مهندسان و معماران ایرانی – کانادایی
برگزار می کند
اشنایی با نکات طراحی و اجرای ساختمانهای چوبی براساس این نامه های کانادا و روش های معمول در صنعت
بخش اول – نکات عمومی و کلیات
The Canadian Society of Iranian Engineers and Architects presents
This event is not hosted by or sponsored by the Toronto Public Library
Introduction to
Design and Construction of Small Buildings
Presenter:
Houman Vassighi
M.Arch.
Date: May 20, 2025 Time: 6:00 - 9:00 PM (EST)
Address: York Central Library
5120 Yonge Street, Toronto , Meeting Room # 1
Meeting Arranged and Conducted by the Architectural Group of Mohandes
Schedule:
6.00 to 6.30 Networking
6.30 to 8.30 Presentation
8.30 to 9.00 Networking
Educational series talking about Design and Construction of Small buildings – focusing on Canadian Codes and Regulations
Part one – Introduction and General Concepts


The Canadian Society of Iranian Engineers and Architects
کانون مهندسان و معماران ایرانی – کانادایی
برگزار می کند
بازدید از واحد صنعتی ساخت قطعات فولادی سبک
قابل استفاده درانواع سازه ها خصوصا واحد های کوچک قابل حمل
شنبه ۱۴ ژوئن ساعت ۱۰ صبح الی ۲ بعد از ظهر- منطقه شهر بری
برای رزرو جا لطفا در لینک زیر ثبت نام کنید
https://forms.gle/CyzyPiL9HQMEqmxK6
Site Visit
Cold Formed structural steel production plant
June 14th - 10 am to 2.0 pm – Barrie area
Signup link : https://forms.gle/CyzyPiL9HQMEqmxK6


انجمن مهندسان و معماران ایرانی – کانادایی
با همکاری
انجمن سازندگان ایرانی – کانادایی
برگزار می کند
The Canadian Society of Iranian Engineers and Architects in cooperation with ICBUILDERS present
Soil Improvement
Advanced Engineering Solutions
Morteza M. Ardakani
MS.CE, P.Eng
Date: April 15, 2025
Time: 7:00 - 9:00 PM (EST)
Address: World on Yonge
7191 Yonge Street
Unit 1001, Markham
ICBA
Monthly Meeting Arranged and Conducted by the Civil Group of Mohandes
ورود برای عموم مهندسان و آرشیتکتها آزاد است
مهندسانی که در زمینه های مرتبط کار می کنند
می توانند این سمینار را به عنوان آموزش (PEAK) منظور کنند



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- Inspect every item of construction
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با توجه به عرض زیاد رودخانه ، سیستم سازه ای خرپای فولادی با طره آزاد از دو طرف رودخانه و یک پل وسطی برای اتصال دو بخش طره ای، طراحی شد. این پل به دلیل شکل ویژه و در عین حال با صلابت آن ، به سرعت به عنوان یکی از نقاط دید نی اسکاتلند معروف شد.

نمای عمومی پل – به تغییر مقطع عرضی توجه کنید

مشخصات فنی

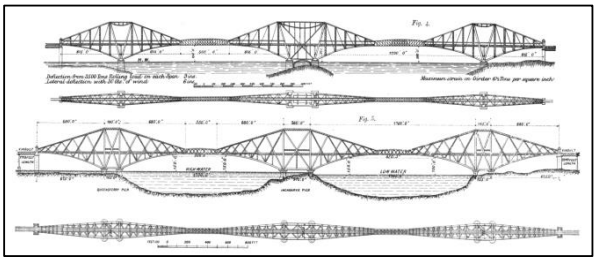
طول پل در حدود 2467 متر است که دهانه وسطی آن به طول 518.16 متر متشکل از دو بخش طره ای چپ و راست هر یک به طول 207.30 متر و یک بخش اتصال میانه دهانه به طول 106.70 متر است.

ساخت پل از سال 1882 آغاز و در سال 1890 به پایان رسید. در این پل بیش از 51 هزار تن فولاد به کار رفته و برای اتصال قطعات سازه ای آن مجموعاً از 6.5 میلیون پرچ استفاده شده است.

طراحی عناصر فشاری به شکل ستونهای خرپایی با کمک پرچ

سیستم فونداسیون پایه ها شامل چهار عدد کیسون به قطر 21 متر برای هر پایه است که در زیر آب و به عمق حداکثر 28 متر ساخته شده است. برای ساخت این فونداسیون ها از سیستم صندوقه هوای فشرده استفاده شد.

ارتفاع عرشه پل از سطح آب 45.70 متر و ارتفاع برجهای پایه 110 متر است.



طراحی های اولیه برای تعیین آرایش بهینه سازه ها و دهانه ها

باید توجه داشت با توجه به صعوبت کار در زیر آب و همچنین کار در ارتفاع و پایین بودن سطح تکنولوژی، در عملیات ساخت و نصب این پل جمعاً 73 نفر جان خود را از دست دادند.

پل فورث که لوتیان غربی را به فایف متصل می کند به عنوان بخشی از تاریخ پل سازی جهان و نمادی از اسکاتلند در فهرست میراث جهانی یونسکو ثبت شده است.

نحوه قرارگیری ستونهای پایه و تغییرات مقطع عرضی پل

اخبار گروه

ما مهندسین عمران یکی از گروه های اصلی تشکیل دهنده کانون مهندس هستیم. فعالیت این گروه همواره از نظر کمی و کیفی چشمگیر بوده و ما علاوه بر انتشار این نشریه که هر دو ماه یکبار منتشر می شود ، در شبکه های اجتماعی نیز فعال هستیم. گروه تلگرامی گروه عمران در حال حاضر دارای بیش از ۵۶۰ نفر عضو است. همچنین گروه ما در لینکداین با رشد چشمگیری رو برو است و هم اکنون بیش از ۴۵۵ نفر عضو آن هستند. فعالیت صفحه گروه در فیسبوک هم چشمگیر است .

در تاریخ ششم ماه دسامبر جلسه وبینار ماهیانه گروه در محیط زوم و به صورت آنلاین برگزار شد. در این جلسه آقای مهندس **افشین خدابنده** در زمینه **"تعمیر و بهسازی پلها"** مطالبی عرضه کردند.

در این جلسه جمعی از صاحب نظران شرکت و در انتهای سخنرانی سوالاتی مطرح کردند که این پرسش و پاسخ به گرمی جلسه افزود.

در اینجا یکبار دیگر متذکر می شویم که کانون مهندسین و آرشیتکتهای ایرانی (مهندس) یک تشکیلات غیر انتفاعی است که قریب به چهل سال از تاسیس و خدمت رسانی آن به ایرانیان مقیم اونتاریو می گذرد.

لطفاً برای ملاحظه فعالیت های این کانون و درخواست عضویت به وبسایت ما به آ درس mohandes.com مراجعه و برای مکاتبه از ایمیل kanoon@mohandes.com استفاده فرمایید.

جمعی از شرکت کنندگان در جلسه ششم دسامبر

مقاله

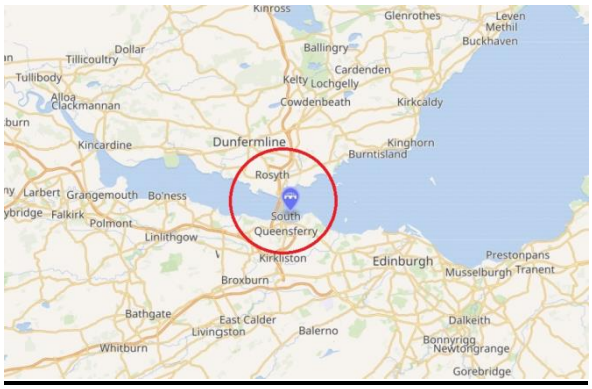
پل شاخص و تاریخی فورث

نام رسمی این پل The Forth Rail Bridge است که در منطقه اسکاتلند در کشور بریتانیا قرار دارد. این پل که در سال 1890 میلادی افتتاح شد ، در زمان خود با یک طرح ویژه نوآورانه ساخته و از نظر طول دهانه اصلی ، بعد از پل رودخانه هودسن در کبک ، تا مدتها دومین پل بزرگ با سیستم طره آزاد در جهان به شمار می رفت.

تاریخچه

تا قبل از ساخت این پل ، رفت آمد دو سوی رودخانه فورث که ارتباط منطقه کوئینز فری شمالی را به ساحل جنوبی برقرار می کرد ، از طریق قایق ها انجام می شد.

در اواسط قرن نوزدهم ، با افزایش ترافیک ، ایجاد یک راه ارتباطی پر ظرفیت مد نظر قرار گرفت.



موقعیت پل بزرگ در رودخانه فورث

طراحی مفهومی

برای طراحی و ساخت این پل دو سر مهندس به نامهای جان فاولر و بنجامین بیکر انتخاب شدند که هر دو به لقب شوالیه مفتخر شدند.

ابتدا تصمیم گیری در مورد نوع ارتباط انجام شد و این مسیر به عنوان بخشی از راه آهن ابردین به ادینبرو در نظر گرفته شد. سپس دو گزینه عبور از زیر رودخانه (تونل) و عبور از روی رودخانه (پل) بررسی شدند و در نهایت گزینه تونل به دلیل صعوبت کار و هزینه زیاد منتفی و طراحی و ساخت پل در دستور کار قرار گرفت.

فلور بهروزشاد

مشاور رسمی خرید و فروش
ملک های مسکونی، تجاری،
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این سه محل باید با دقت زیادي بر روي جواهر صورت پذیرد، چگونه شما مي توانید در یک نسبت به ماشین دیگر تنظیمات گوناگوني و قسمتهاي مختلف آن را اعمال کنید همچنین اینکه همه ماشین ها با اصول مشابهي کار مي کنند و فقط گوناگوني هاي ظریفي براي کار در این موارد وجود دارد.

در زماني که یک جواهر برش مي خورد طرح ساختمان به شما فهرست و ضلع براي هر فست کاري را نشان مي دهد هیچ حدس زدني وجود ندارد.

اگر فست هاي شما با یکدیگر جفت نشوند نیازي نیست که آنها را عمیق تر ببرید، اگر شما آنها را بسیار عمیق ببرید برش فست به طور صحیح به برش دوباره مراحل قبلي براي عمق جدید نیاز دارد. بنابراین باید بگوییم کم ببرید و زیاد نگاه کنید.

استارلایت – نمونه ای از تراش فنسی

کنترل عمق:

این موضوع به ارتفاع موسوم است اما هدف آن تعیین این موضوع است که چگونه هرفست عمقي برش بخورد. در زماني که این گوناگونیها وجود دارد موضوع این است که چگونه این کاربا ماشین هایمختلف در حال انجام پذیري است و اصول چگونه باید مشابه هم کار کنند . تنظیم سایش مکان شما را دقیق تحت نظر دارد و سپس کنترل نهایي مکان و هدف نهایي را ایجاد مي کند.

ضریب :

به موجب وجود گوناگوني هاي ظریف در تجهیزات شما ، برخي اوقات فست ست برروي دامنه صیقل کاري صاف نباشد. کنترل مجازي ظرافت و تنظیمات کنار به کنار را ایجاد مي کند. نسبت به تعداد این مجازها کمتر است.

روغن کاري :

آب اغلب شبیه به روغن کاري مي کند. هر ماشین روشي براي مرطوب کردن دامنه برشکاري دارد. عمومي ترین شکل آن استفاده از مخزن آب است.
روش کار آن ساده ترین روش است و به آساني بر روي والفي قرار دارد و هر دو ثانیه باز مي شود و قطره اي را روي سطح کار مي چکاند. شما فقط مي خواهید که سطح کارتان نمناک نگه داشته شود و بدون هیچ آلودگي این کار انجام پذیرد.

کنترل سرعت:

هر ماشیني براي خود در قطعات مختلف آن روشي براي کنترل سرعت دارد. همچنین بسیاري از آنها به شما اجازه مي دهند تا مسیر و پیچش و چرخش را معکوس کنید. طبق قانون ، استفاده از سرعتهاي بالاتر با برش سایشي صورت مي گیرد و سرعتهاي کمتر در زمان صیقل کاري اعمال مي شود.

صفحات:

صفحات با دیسکهایي با سایشگرهاي متعدد در روي سطح هستند. اغلب آنها فلزي اند و با الماس تیز مي شوند اما از مواد دیگر و ساینده هاي دیگر نیز براي این کار استفاده مي شود. آنها به اندازه سطح و به مقدار نیاز حرکت مي کنند. برش کاري و صیقل کاري با مراحلي همراه است. این اعمال با حرکت مواد حاضر و با صفحات ساینده شروع به کار مي کنند. سپس ساینده ها با صفحات عالي و مطلوب شروع به ساییدن مي کنند. سرانجام صفحه صیقل کاري براي پایان کار بر روي ماشین نصب مي شود .

اين روش در مقايسه با روشهاي ديگر بيشتر صيقل مي دهد و مواد بيشتري را تحت تاثير قرار مي دهند. كوارتز به اكسيد سديم بهترين پاسخ را مي دهد كه براي سيليكات نيز بسيار خوب است. شما بايد درباره گرمايي كه به سيليكات مي دهيد بسيار دقت كنيد. سنگها گرما را به سرعت مي گيرند و در زمان صيقل كاري انواع گرما مي تواند سيليكات را خراب كند به عبارت ديگر يشم سبز نيز براي صيقل كاري به مقدار گرما و اصطكاك نياز دارد.

از اكسيد كروم بر روي چرم يا نمد استفاده كنيد الماس مي تواند بر روي چرم يا صفات ديگر مورد استفاده قرار گيرد همچنين هرگز عموميتي با كابوشن ها كسب نكردند كه با فست داشته اند قيمت آن از قيمت اكسيد آلومينيوم بيشتر است و هيچ پيشرفتي را به طور آشكار به جز بر روي ياقوت كبود پيشنهاد نمي شوند وبا يد چگونگي آن را ياد بگيريم و مواد خام را پيدا كنيم و آن را تعيين كنيم و سر انجام جواهر را برش دهيم وقتي كه شما سنگ زيبائي را با جلاي آئينه مي بينيد احساس شادماني مي كنيد .

ارزيابي كار:

زماني كه تراش را مورد ارزيابي قرار مي دهيد بايد صيقل كاري را نيز مورد ارزيابي قرار دهيد به دنبال هر خراش يا فرو رفتگي كه مقدار نور منعكس شده از سطح را كاهش مي دهد بگرديد.چيز بعدي كه بايد به دنبال آن گشت اين است كه چه ميزان هزينه بر بوده است كابوشن بايد در سطحش حتي يک خميده گي داشته باشد به كب از انتها و هر دو طرف نگاه كنيد شكل بايد تصويري آئينه اي از اين طرف به آن طرف داشته باشد. هيچ ناحيه اي نيايد ضخيم تر از مقابل آن باشد و نبايد باد كند.

دومين راه براي ارزيابي شكل نگه داشتن جواهر در نوري كه از آن صاتع مي شود است جواهر را حركت دهيد تا نور از نوک آن بگذرد اگر سطح به شايستگي برش خورده باشد شما مي توانيد دسته اي از پرتوهاي نوري را كه حتي بر روي سطح قرار دارند را ببينيد، اگر هر بي نظمي وجود داشته باشد نور شروع به مارپيچ خوردن مي كند نوک هاي جواهر جائي است كه شما بيشترين مشكلات را در آنجا مي بينيد اغلب يک ناحيه كوچک تا اندازه اي مي تواند صاف شده باشد.

ديدن اين مسئله در زماني كه از كنار نگاه مي كنيم دشوار است اما نور آشكاري از آن عبور مي كند حقيقت اين است كه نور به طور صاف نمي تواند از اين ناحيه عبور كند چرا كه دومين بخش كار به شمار مي رود همچنين اگر شما به دقت نگاه كنيد آن ناحيه نيز شايد خوب برش نخورده باشد.

دو نمونه از عقيق رنگ شده (اگات)

١٤- مراحل كار تراش فست

فست آميختن شگفت انگيز مهندسي و هنر است. در سراسر فرايند هاي ماشين كاري فستهاي برش خورده بر روي يک قطعه كريستال جواهرات آميزشي خلق مي شوند. به طور نا آشنائي فست كاري طوري ظاهر مي شود كه اوج پيچيده گي است اما حالتي خاص نمي باشد. فست كاري نواحي پيچيده مختص به خود دارد مثل برش رقابتي و طرح رقابتي اما نياز نيست كه شخص به اين نواحي وارد شود ياد گيري برش استاندارد مرحله اي است كه هر شخص به آن دست پيدا مي كند . نيازهاي اوليه براي دستيابي به آموزش و ياد گيري لازم است كه به دست آيند كه توانائي پيروي از دستور العمل ها نيز الزامي است براي جلوگيري از نكات مشكوک در فست فرآيند برش واقعي را برايتان توصيف خواهم كرد مواد مهم نيستند روشها براي ياقوت ارغواني ، زمرد و يا هر موادي از اين قبيل يكسان است. چندين مرحله وجود دارد اما هيچ كدام از آنها به طور مجزا به اتمام نمي رسد زماني كه شما بفهميد كه چقدر اين كار راحت است مي فهميد كه مي توانيد آن را خودتان انجا م دهيد.

كنترل هاي اصلي:

براي ترتيب دادن فست ها بر روي يک سنگ جواهر سه عنصر اصلي وجود دارد آنها عبارتند از:

- زاويه برش
- تابش جواهر
- عمق برش

اکنون ما مي خواهيم خودمان شروع کنيم. پس بايد بسيار دقت به خرج دهيم زماني که شما جواهر را شکل مي دهيد تکه هاي کوچک و نواحي عمودي را در لبه ها قبل از اينکه آنها شروع به ضربه زدن کنيد جدا کنيد. همچمنين ممکن است شما بخواهيد قطعات بسيار کوچک را روي لبه ي پايييني کمر بند تان جا بزنيد. اين کار به وسيله مرحله جا زدن جالبي به انجام مي رسد. اريب از شکستن و همچنين ترک نواحي کوچک براي لحيم کاري جلوگيري مي کند .کب ها معمولاً در مکان نگين دان جاي مي گيرند. نگين دان نوار باريکي از فلز است که به قطعه اصلي لحيم زده مي شود. بنابراين شما به اتاق کوچکي براي لحيم کاري نياز داريد.

براي نگه داشتن جواهر با امنيت کامل به بطني خميده بر روي انحناي سنگ نياز است. نواحي عمودي در لبه براي محافظت مورد استفاده قرار مي گيرند و بدون خميدگي نگين دان اين کار را انجام مي دهند. در زماني که کار اتمام يافت بيشتر تمايل داريد که سنگ را ببينيد. شما نمي خواهيد نگين دان بر روي لجه هايي که بر روي جواهر منحرف شده است جا گيرد .

اين مراحل با سنگ سيليس شکننده بسيار مهم هستند اگر شما به لبه رويي کمربند تير را برداريد سنگ در زماني که براي لحيم کاري نگه داشته شده است ممکن است بشکند يا ترک بخورد شيب لبه ها از جواهر محافظت بيشتري مي کند البته اين کار انجام پذيرفتني است .

چند نمونه برش در زمرد سبز

۱۲- صاف کردن

زماني فرا مي رسد که شما از شکل جواهر تان احساس رضايت مي کنيد. اين زمان زماني است که خراش خشن و اعمال مر بوط شروع شده باشد. اگر شما از الماس استفاده مي کنيد مراحل گوناگون راباید طي کنيد. همانطور که قبلاً مي ديديد به دنبال تقارن کامل باشيد، همچنين کنترل کنيد که شما همه خراشنده ها را از مرحله قبلي حرکت داده ايد. اين امر بسيار مهم است .

اگر شما هر يک از اين مراحل را قبل از مرحله بعدي به کار نبرديد مي توانيد بر گرديد و آن مرحله را دوباره به انجام برسانيد. با اتمام با کيفيت پايين را رفع کنيد. جواهر نياز است که براي اينکه شما پيشرفت را ببينيد خشک باشد. اين کار در محيط مر طوب بسيار با چالش همراه است. اگر امکان دارد اطاق را قبل از شروع به کار گرم کنيد. اگر قادر نيستيد اتاق را گرم کنيد حداقل از آب گرم استفاده کنيد، از حوله هاي خشک استفاده کنيد و دستا نتان را قبل از شروع به انجام کار خشک کنيد. اگر شما از کربيد سيليکون استفاده مي کنيد به ٦٠٠ سنگ ريزه نياز داريد. اين سنگ ريزه ها سريع پوشش مي دهند و براي شما کار پيش جلا را انجام مي دهند. متاسفانه اين ماده کاربرد محدودي دارد. شما مي توانيد از ٢ کمربند ٦٠٠ تايي استفاده کنيد يکي براي شکل گيري و ديگري براي پيش جلا .

کيفيت پيش جلا ي شما سايش نهايي جايي را القا مي کند. اين يکي از مهمترين عناصر در بدست آوردن جلا بسيار زياد است. سطح بايد بسيار صاف باشد و هيچ برآمدگي قابل مشاهده اي در کل آن ديده نشود . هر زماني که خودتان صيقلي بودن زياد فلزات بوديد به مرحله پيش جلا برگرديد . مواد نرم سنگ و سيليکات با الماس اين کار را انجام دهند ١٢٠٠ الماس با پيش جلا ي خوب براي عقيق مناسب هستند اما شما به چيزي با جذابيت بيشتري نياز داريد مثل ٣٠٠٠ يا ٨٠٠٠ براي جواهرات نرمتر.

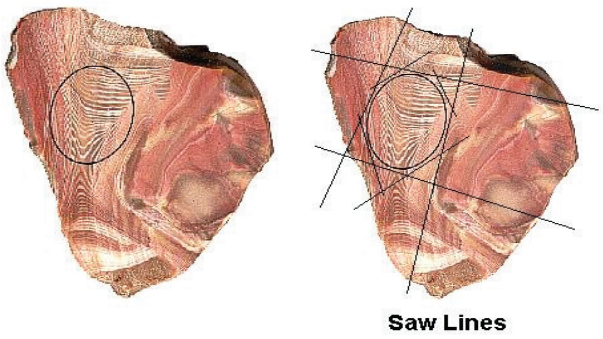
۱۳- صيقل کاري

صدها روش براي صيقل کاري وجود دارد که براي يک مبتدي بسيار گيج کننده هستند. اگر شما ماشين جديد بخريد احتمالاً با سيستم صيقل کاري همراه است اين براي شروع کار خوب است يک فن قديمي جواهر شناسي استفاده از اکسيد آلومينيوم بر روي جير و لايه است اين فرا گيرترين روش صيقل کاري در حال حاضر است.

اکنون که شما مواردي را در مورد برشکاري مي دانيد و کب را نيز علامت کرده ايد از اره استفاده کنيد و شروع به برشکاري کنيد تا به ماده دسترسي پيدا کنيد تا زماني که شما شروع به استفاده از اين فرايند بکنيد ترسيم خطوط راهنما به وسيله قلم و خط کش آلومينيومي بسيار سودمند است. اگر شما با يک تکه جواهر بزرگ کار بکنيد مراحل طاقت فرسا يي را پيش رو داريد. سنگ هاي کوچکتر بايد روغنکاري شوند تا انگشتان شما را از کارها و اعمال غير ضروري حفظ کنند.

۱۱- ايجاد شکل

اکنون زمان شروع برشکاري است اگر کار با برخي اشيا سخت مثل يک قطعه عقيق باشد از چرخ خشن استفاده کنيد اگر کار با برخي اشيا نرم باشد مثل يک قطعه از سيليس يا فيروزه يا برخي قطعات کوچک از چرخ صاف استفاده کنيد .



شکل شماره ۱۱- (نحوه علامت گداري اوليه روي سنگ براي تراش کابوشن)

اگر برش کاري بسيار آهسته باشد هميشه مي توانيد از چرخ خشن استفاده کنيد اما قبل از شروع به کارهمه ي موارد ايمني و اطلاعات را فراهم کنيد براي اينکه سرعت ماشين کاري را افزايش دهيد قبل از شروع به برش کل چرخ را مرطوب کنيد. استفاده از آب و ذخيره ي آب به دو منظور به کار مي رود آب شبيه به روغن عمل مي کند و از اصطکاک جلوگيري ميکند و گرما را کاهش مي دهد. همچنين آب سايش را نيز کاهش مي دهد که از کند شدن چرخ ها جلوگيري مي کند.

اکثر کارخانجات سازنده توصيه مي کنند که شما از روغن هاي مازاد استفاده کنيد مگر اينکه ماشين شما از جنس فولاد باشد که شما به زندگي با خصوصيات بازدارندگي نياز داريد در زمان آبياري کردن استفاده از ربع چرخ بسيار مهم است.

اگر شما سعي کنيد که از مرکز به بالاي چرخ استفاده کنيدتغييري ايجاد شود که منجر مي شود قطعه کار از دست شما خارج شود.

خارج شدن موضوعي است که در برخي موارد روي مي دهد جواهر به طور خشن از دستان شما خارج مي شود و به داخل مغازه تان مي پرد. اگر هم آنرا پيدا کنيد حتماً شکسته خواهد شد. به وسيله آسياب کردن مواد بدست آمده نسبت به مقاديري که شما تعيين کرده ايد کمتر خواهد بود. از ۲ کوليس ورنيه استفاده کنيد تا پيشرفتتان را اندازه گيري کنيد. الگوها براي اشکالي بزرگ هستند اما اقطار آنها مناسب نيستند. خودتان اتاق را براي انجام مراحل باقي ترک کنيد. شما تمايل داريد که نيم ميلي متر يا بيشتر با در نظر گرفتن اندازه کب تان خارج کنيد. اين مقصود با بدست آوردن تجربه و اشنايي با مقادير گوناگوني از مواد و سختي آنها اندازه جواهر محقق مي شود.

يک زمان شما شکلي را مي خواهيد که علامت گذاري شده است. زمان شروع فرايند به صداي سيب مرسوم است . آسياب آسياب کردن اريبي در همه ي اظلاع و اطراف جواهر در حدود ٤٥ درجه است و از ۲/۳ تا ۳/٤ نسبت به انتها شروع مي شود. سپس آسياب کردن اريب ديگر شروع مي شود و دوباره دهنه ي اطراف سنگ حدود ٦٠ درجه مي چرخد و برخي از نمونه ها ي برش را از بين مي برد . صداي سيب را انجام دهيد و اريب را در اضلاع شيب دار به طور تصاعدي تا زماني که آنها به مرکز برسند برش دهيد. اين ناحيه ناحيه اي است که موجب مي شود که در ابتدا سخت و وحشتناک به نظر برسد .

به نظر مي رسد که ۳ برش به طور کامل سنگ را پوشش مي دهد به جز براي نواحي کوچک در سمت راست مرکز اين کافي نيست. اگر شما ناحيه اي کوچک داشته باشيد که بسيار صاف باشد و به طور کامل تاريک باشد نبايد آنرا صاف و صيقلي کنيد. براي اينکه مطالب و اجسام خراب نشوند بايد بسيار بسيار دقت کرد. بايد صبور باشيد و ياد بگيريد تا چگونه حتي سنگهاي تيره را برش دهيد.

به سنگ از دو انتها و دو طرف نگاه کنيد. انحنا بايد حتي در هر مسير و همه ي راه ها تا مرکز باشد شما بايد اين بازرسي را در هر مرحله انجام دهيد. علي الخصوص در اولين مرحله سايش هر بينظمي اکنون قابل جبران است و بعداً در صورت عدم توجه غيرقابل حل مي شود.

آشنایی با بعضی از دستگاههای متداول در صنعت تراش سنگ های قیمتی و نیمه قیمتی

نویسنده: رضا حسین نژاد، دکتر در مهندسی معدن

بخش سوم

سهم عمده ای از اقتصاد کشورها بر پایه معاملات و داد و ستد گوهرها است. در حال حاضر ۷۰ درصد از انواع سنگهاي نيمه قيمتي جهان در ايران وجود دارد. بخش اول و دوم این مقاله در شماره های قبلی مجله مهندس به چاپ رسید. اینک شما را به ملاحظه ادامه مطلب دعوت می کنیم.

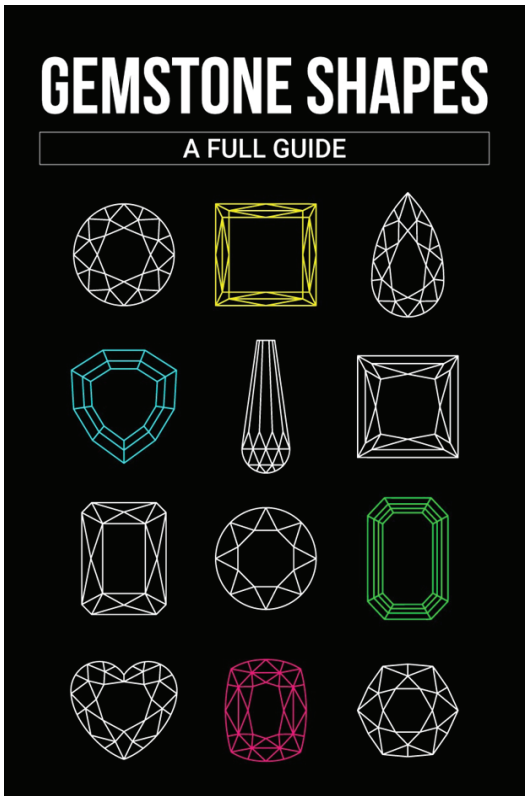
۱۰ - تکنیک ها

د ر اين بخش به چگونگي برش يک کابوشن مي پردازيم اين روش عمومي ترين شکل براي کب هاست و اشکال ديگر فقط به تعديل و تنظيم کمتري در تکنيک ها نياز دارد.

اکثر برش ها با تيغه انجام مي پذيرد بنابراين به اره نياز داريم برخي از قطعات بدون تيغه بريده مي شوند اما بيشتر آنها بايد به اندازه ۱/٤۰ اينچ تا ۳/۸ اينچ بريده شوند و به قطعات کوچکتر تبديل گردند. اگر ماده شما رنگ جامد دارد، شما با بزرگترين قطعه روبرو هستيد تا آنرا برش دهيد. اگر آن داراي الگويي باشد شما در جستجوي شکل و اندازه اي هستيد که به ظاهر در چشم مطابقت داشته باشد . اين يک طرف قضيه است و الگو در زمان بسيار حساس تغيير مي کند .

به هر دو طرف تيغه نگاه کنيد تا بفهميد که چگونه آنرا تغيير مي دهند. هميشه نياز نيست که از الگو استفاده کنيم. برخي از مواد گرانبها و بسياري از سنگ سيليس ها قابل ملاحظه اغلب از بيشترين مقدار ابقا وزني مبدا همچنين در مورد اغلب مواد شما تمايل داريد که شکل و اندازه مورد نظر خود برسيد و دليلش نيز اين است که از قبل شرايطي را براي نيل به اين هدف مهيا کرده ايد.

اين موضوع تاثير بسزايي براي ذخيره کردن مقدار کمي از وزن کب ها ندارد و ممکن است ساعت وقت و يا صدها دلار براي انجام اين کار صرف شود زماني که شما جاي خود را انتخاب کرديد آنرا براي برشکاري در نظرمي گيريد. يک قلم آلومينيومي براي اين منظور ايده آل است زماني که يا اين قلم علامتي را ايجاد مي کنيد. اين علامت با شستن پاک نمي شود و از بين نمي رود و اين يکي از مزاياي استفاده از قلم آلومينيومي به جاي مداد است. بسيار ي از مواد جوهر مايع را جذب مي کنند که مسير برشکاري را با مشکل رو به رومي سازند. ا



انواع برش در سنگهای قیمتی

جشن آغاز سال نو ایرانی (نوروز) در هتل شرایتون ریچموند هیل

امسال نیز همچون سا لیان گذشته ، جشن آغاز سال نو خورشیدی ، این فرخنده نوروز باستانی ، با حضور چند صد نفر از مهندسان و آرشیتکتهای ایرانی و همراهان ، در سالن بزرگ هتل شرایتون ریچموند هیل ، برگزار شد.
دعوت کنندگان به این مراسم باشکوه و صمیمی ، کانون مهندسان و آرشیتکتهای ایرانی (مهندس) ، کانون فارغ التحصیلان دانشکده فنی دانشگاه تهران (فنی اونتاریو) و کانون فارغ التحصیلان دانشگاه شریف (سوتا) بودند.
شما را به دیدن چند عکس نمونه از این مراسم و عکس دسته جمعی کمیته برگزاری دعوت می کنیم.

The Iranian New Year (Nowruz) was celebrated in Sheraton Hotel of Richmond Hill.
Three Iranian engineering organizations including Mohandes, Fanni Ontario and Suta conducted the joint reception.

سرمقاله

هرج و مرج جهانی تغییر را اجتناب ناپذیر می کند

در چند ماه گذشته جهان شاهد تغییرات زیادی بوده است. در همسایه قدرتمندمان ، با روی کارآمدن رئیس جمهور جدید ، آرایش سیاسی بکلی عوض شد. این دست به دست شدن قدرت ، امواج متلاطمی را به سراسر جهان ازجمله کانادا فرستاد. این امر باعث تغییرفوری ذائقه سیاسی کانادایی ها شد به نحوی که در انتخابات کانادا ، یک رهبر جدید لیبرال ، با برنامه مشخص مقابله با رهبران جدید آمریکا ، به نخست وزیری رسید.

در این چند ماهه روابط دیپلماتیک پر تنش ، عقب و جلو رفتن در مذاکرات ، اظهارات تند و تیز و گاهی همراه با تهدید بوده است. این تبادل اظهارات هیجان زده آنقدر تکرار شده که مردم تصمیم گرفته اند آنها را در حد سرو صدای مزاحم ، نادیده بگیرند.

با اطمینان می توان گفت که روابط تاریخی اقتصادی و تجاری ما با نزدیکترین متحدمان صدمه خورده و ممکن است هیچوقت به وضعیت سابق برنگردد.

در حالیکه وضعیت در هر استانی متفاوت است ، کم کم یک اصل اساسی مورد توافق قرار گرفت و آن اتکای بیش از پیش به توانایی های داخلی است. برای رسیدن به این هدف باید همکاری های اقتصادی و تجاری مابین استانها بیش از پیش تقویت شود و مقررات مانع از تبادل آزادانه تولیدات و خدمات مابین استانها ، تخفیف یابد.

حالا که اصل "تغییر" توسط اکثریت مردم پذیرفته شده ، بدون تردید اوضاع هیچوقت به وضعیت قبل باز نخواهد گشت. باید صبر کرد و دید این تغییرات چقدر عمیق خواهند بود و آیا می شود در این چشم انداز مغشوش جهانی ، به حالت تعادل جدیدی رسید ؟

ای ایران ای مرز پرگهر
دور از تو اندیشه بدان
ای دشمن ار تو سنگ خاره ای، من آهنم
مهر تو چون شد پیشه ام
در راه تو کی ارزشی دارد این جان ما؟
سنگ کوهت دّر و گوهر است
مهرت از دل کی برون کنم؟
تا گردش جهان و دور آسمان به پاست
مهر تو چون شد پیشه ام
در راه تو کی ارزشی دارد این جان ما؟
ایران ای خّرم بهشت من
گر آتش بارد به پیکرم
از آب و خاک و مهر تو سرشته شد گلم
مهر تو چون شد پیشه ام
در راه تو کی ارزشی دارد این جان ما؟

ای خاکت سرچشمه هنر
پاینده مانی تو جاودان
جان من فدای خاک پاک میهنم
دور از تو نیست اندیشه ام
پاینده باد خاک ایران ما
خاک دشتت بهتر از زر است
برگو، بیمهر تو چون کنم؟
نور ایزدی همیشه رهنمای ماست
دور از تو نیست اندیشه ام
پاینده باد خاک ایران ما
روشن از تو سرنوشت من
جز مهرتو در دل نپرورم
مهر اگر برون رود، گلی شود دلم
دور از تو نیست اندیشه ام
پاینده باد خاک ایران ما


حسین گل گلاب، شاعر


روح‌الله خالقی، آهنگساز


غلامحسین بنان، خواننده

ای ایران ، سرودی به طول و عرض یک قرن

سال ۱۳۲۳ خورشیدی، در حالی که هنوز جنگ خانمانسوز جهانی دوم در جریان و ایران تحت اشغال سربازان متفقین بود ، سرودی متولد شد که نزدیک به صد سال است ، علی رغم کوشش بد خواهان ، همچنان به روز ودر تمام این دوران وصف الحال باقی مانده است.

در شرایطی که چند سال بود نواحی جنوبی ایران تحت اشغال نیروهای انگلیسی و هندی و بخش شمالی ایران تحت اشغال ارتش سرخ شوروی بود و کسی را جرات اعتراض نبود ، هنرمندان این سرزمین به یاری مردم آمدند و این سرود ، که همواره به عنوان سرود غیر رسمی ملی ایران در بین مردم رواج داشته ، متولد شد.

نقل شده که روزی حسین گل گلاب ، شاعر ، در خیابان شاهد دعوای یک نظامی ایرانی با یک نظامی انگلیسی بوده و مشاهده می کند سرباز انگلیسی با درجه پایین تر، به سرباز ایرانی با درجه بالاتر سیلی می زند. گل گلاب با چشمانی اشکبار به دیدار دوست آهنگسازش روح الله خالقی می رود و ضمن نقل ماجرا می گوید یا آرزو می کند که " شعری خواهم گفت در مدح ایران و روح ایرانی".

طبیعتا خالقی هم ساخت آهنگ آنرا عهده دار می شود و پس از آماده شدن شعر و آهنگ ، غلامحسین بنان هم آنرا اجرا می کند. نخستین اجرای این سرود در شب ۲۷ مهرماه سال ۱۳۲۳ در تالار دبستان نظامی ، وابسته به دانشکده افسری واقع در خیابان اسلامبول ، با صدای غلامحسین بنان و رهبری روح الله خالقی ، انجام شد.

سرود "ای ایران" آنقدر با تشویق مردم روبرو شد که مجبور شدند در همان شب ، سه بار آنرا اجرا کنند و شب بعد هم برنامه تکرار شد. وزیر فرهنگ وقت هم از ارکستر دعوت کرد که این آهنگ را یک بار دیگ ردر استودیو رادیو بخوانند و از آن صفحه ای درست شده ، مکرر در رادیو پخش کنند.

اجرای بعدی هم مربوط به سال های ۱۳۳۷ الی ۱۳۴۲ است که در برنامه "گلها" پخش می شد. در سال ۱۳۵۰ یک اجرا به رهبری فرهاد فخرالدینی ، با همکاری ارکستر بزرگ رادیو تلویزیون ملی ایران و خوانندگی اسفندیار قره باغی انجام شد. از این آهنگ دو اجرای دیگر هم یکی با صدای حسین سرشار و دیگری با صدای رشید وطن دوست (هر دو خوانندگان اپرا) موجود است.

این سرودی است که تمام واژگانش به زبان پارسی است ، در این ۸۱ سال همچنان به روز است و با چندین نسل از مردمان این سرزمین ارتباط برقرار می کند.

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