

BRB KIAN

The first manufacturer of Buckling restrained Braces in Iran



BRB KIAN



Technical Documents

BRB KIAN

In recent years, seismic design philosophy has advanced remarkably. The traditional approach—focused primarily on providing sufficient stiffness and strength—has evolved toward a modern performance-based methodology, where energy absorption and dissipation are key to ensuring structural resilience during earthquakes.

Building upon this modern framework, the dedicated research and engineering team at **Bana Rad Brace Kian Company (BRB Kian)** has achieved a major milestone in Iran's construction industry. Through extensive research, design optimization, and precision manufacturing, BRB Kian successfully developed and produced the country's first Buckling-Restrained Brace (BRBF) system. This system has been validated and approved through rigorous testing at multiple earthquake simulation laboratories across Iran, confirming its performance, reliability, and compliance with seismic safety standards.

About BRB Kian

Founded in 2015, BRB Kian stands as the pioneer and leading manufacturer of Buckling-Restrained Braces (BRBs) in Iran. With a strong focus on innovation, quality, and research-driven engineering, the company has played a vital role in advancing earthquake-resistant structural solutions across the country.

Key Milestones:

- 2015 – Company founded, initiating dedicated research on BRB technology.
- 2016 – Successfully manufactured the first BRB in Iran.
- 2017 – Achieved laboratory testing and official technical approval from the Housing and Urban Development Research Center.
- 2018 – Completion of Iran's first BRB-equipped project.
- 2023 – Production of the 1,000th BRB unit.
- 2025 – Production milestone of the 2,000th BRB unit.

Today, BRB Kian has proudly supplied more than 2,000 BRBs for over 70 projects across Iran, serving a wide range of sectors including residential, educational, industrial, and healthcare facilities. Our systems are implemented both in new constructions and in seismic rehabilitation projects, ensuring safety, resilience, and long-term reliability.

Products and Capabilities

At BRB Kian, we specialize in the design and manufacturing of high-performance Buckling-Restrained Braces (BRBs) tailored to meet diverse structural and project requirements. Our production process combines advanced engineering, precise fabrication, and strict quality control to ensure consistent reliability and performance under seismic loading.

Our capabilities include:

- **Versatile Connection Types:** Production of BRBs with various connection configurations, including welded, bolted, and pinned systems.
- **Wide Range of Lengths:** Manufacturing BRBs from under 2.5 meters to over 9.0 meters, adaptable to different structural layouts and architectural constraints.
- **High Load Capacities:** Production range from 100 kN up to more than 3 MN, meeting the demands of both light and heavy structural applications.
- **Efficient Production:** A daily manufacturing capacity exceeding 20 BRBs, ensuring rapid delivery while maintaining stringent quality assurance standards.

Every BRB Kian product is engineered, fabricated, and tested to align with the highest national and international standards, providing dependable solutions for both new construction and seismic retrofitting projects.

Our achievements

Manufactured and tested prototype and full-scale Buckling-Restrained Brace (BRB) specimens with various capacities and connection configurations at Iran's most advanced facility — the Structural Laboratory of the Housing and Urban Development Research Center





Product manufacturing carried out under the direct supervision and technical oversight of the Housing and Urban Development Research Center, ensuring full compliance with national quality and performance standards.



Islamic Republic of Iran

Ministry of Roads and Urban Development

Road, Housing and Urban Development Research Center

Number: 4567-9-96 Date: 21/05/2017

Dear Mr. Engineer Attar

CEO of BRB Kian

1 - The buckling restrained bracing system is introduced as a suitable seismic system in the 2800 standard, fourth edition, and a Response Modification Factor $R = 7$ is provided for its seismic performance.

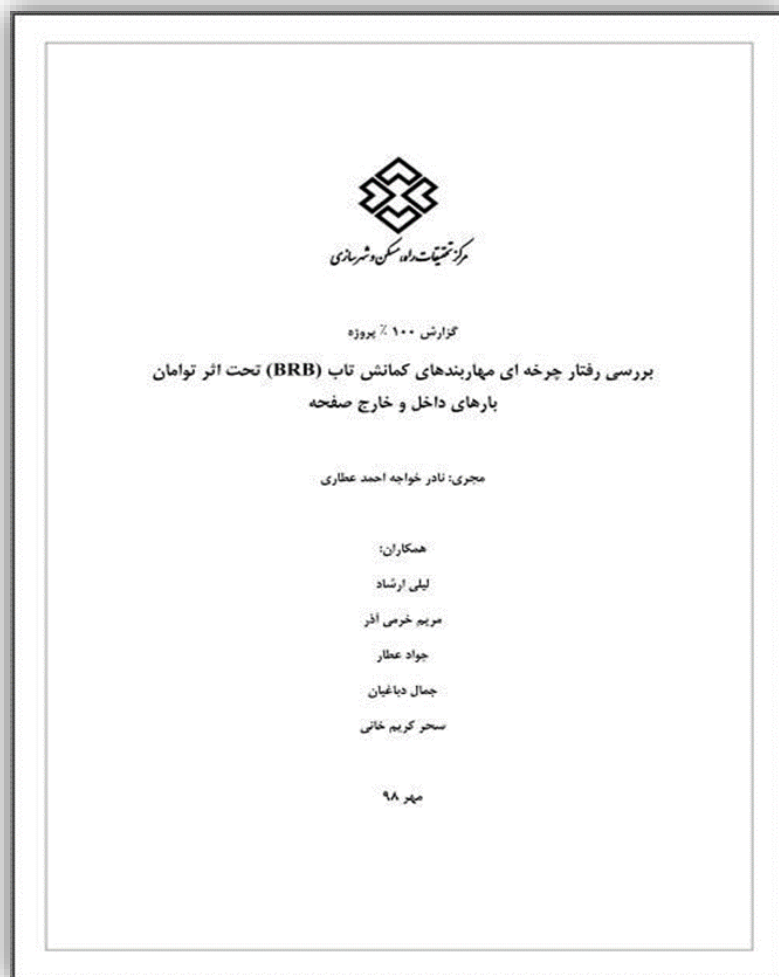
2 Currently, the development of guidelines for the design and implementation of this system in the structural section of the Housing and Urban Development Research Center is being carried out by Dr. Attari, a member of the faculty of the center, in collaboration with experts from BRB KIAN Company.

The Structural Department of the Research Center, according to the signed contract, supervises the design and construction of that company's products until the publication of the aforementioned instructions.

Mahmoud Safarzadeh

Vice President of Research and Technology

Recognized as the only industry member of the expert committee responsible for developing the executive regulations for Buckling-Restrained Braces (BRBs) at the Housing and Urban Development Research Center.



Road, Housing and Urban Development Research Center

Final Report

Investigation of the cyclic behavior of buckling braces (BRB) under the simultaneous action of in-plane and out-of-plane loads

Supervised by Nader Khajeh Ahmad Attari

Colleagues:

Lily Ershad

Maryam Khorami Azar

Javad Attar (BRB Kian CEO)

Jamal Dabaghian (BRB Kian Chairman)

Sahar Karimkhani

October 2019

Achieved the first-ever technical approval for Buckling-Restrained Braces in Iran, issued by the Housing and Urban Development Research Center. The design criteria were officially published based on the results of extensive laboratory tests conducted on braces manufactured by BRB Kian

(Technical Approval No. 1).

 www.brbkian.ir
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جمهوری اسلامی ایران
وزارت راه و شهرسازی
مرکز تحقیقات راه، مسکن و شهرسازی
مدیریت خدمات مهندسی و آزمایشگاهی



تاریخ صدور: ۱۳۹۸/۰۷/۲۱
تاریخ اعتبار: ۱۴۰۰/۰۱/۲۱

گزارش فنی شماره 98-5-SE108 / زیرمجموعه سازه و سیستم‌های ساختمانی / www.bhrc.ac.ir

گزارش ارزیابی و الزامات

مهاربندهای کمانش تاب BRB

کاربرد مورد بررسی: مهاربندهای کمانش تاب BRB

متقاضیان: شرکت بناراد بريس کيان (BRB KIAN)

رده مورد بررسی: سیستم‌های سازه‌ای

ویژگی‌های مورد بررسی:

مصالح (اجزا تشکیل دهنده و ویژگی‌ها)

سازه (کفایت عملکرد سازه‌ای و جزئیات اتصال)

* تولید و اجرا، مسئولیت نظارت عالی و کنترل کیفی بر عهده شرکت بنا راد بريس کيان می‌باشد.

* این نظریه صرفاً در برگیرنده شرایط طراحی و استفاده از محصول است و بر کیفیت تولید و اجرای محصول دلالت ندارد.

* این نظریه بر اساس پرونده نظریه فنی به شماره ۱۵۸۲۷ در سامانه خدمات الکترونیک صادر شده است.

* این نظریه بر اساس آزمایشات انجام شده بر روی نمونه‌های مختلف مهاربند ساخته شده توسط شرکت بنا راد بريس کيان در مرکز تدوین شده است.

* این نظریه بر اساس نامه شماره ۱۴۶۱۶-۳۱-۹۸ مورخ ۱۳۹۸/۰۷/۲۱ صادر شده است.

Islamic Republic of Iran

Ministry of Roads and Urban Development

Road, Housing and Urban Development Research Center

Management of engineering and laboratory services

Date of issue: 12/11/2019

Validity date: 10/04/2021

Technical Report No. SEI08-98-5 / Sub-category of Structures and Building Systems / www.bhrc.ac.ir

Assessment report and requirements

BRB buckling braces

Case study application of BRB buckling braces

Applicants: Bana Rad Brace Company (BRB KIAN)

Category under consideration: Structural systems

Features under review:

- Materials (constituents and properties)
- Structural performance and connection details

* Production and implementation, responsibility for high supervision and quality control is the responsibility of Bana Rad Brace Kian Company.

* This report only covers the design and use conditions of the product.

* This report was issued based on technical report file number 15827 in the electronic services system.

* This report was developed based on tests conducted on various brace samples manufactured by Bana Rad Brace Kian Company at the center.

* This opinion was issued based on letter number 14616-31-98 dated 12/11/2019.

Received the second technical approval from the Housing and Urban Development Research Center, following additional laboratory testing of BRBs manufactured by BRB Kian. The results led to the publication of updated design criteria, reinforcing the company's role in advancing national seismic safety standards.



جمهوری اسلامی ایران
وزارت راه و شهرسازی
مرکز تحقیقات راه، مسکن و شهرسازی
مدیریت خدمات مهندسی و آزمایشگاهی

تاریخ صدور: ۱۴۰۰/۰۷/۲۰
تاریخ اعتبار: ۱۴۰۲/۰۱/۲۰

گزارش فنی شماره SEI41-60-00 / زیرمجموعه سازه و سیستم‌های ساختمانی / www.bhrc.ac.ir

گزارش ارزیابی و الزامات

مهاربند کمانش تاب BRB با نام تجاری BRB KIAN

کاربرد مورد بررسی: مهاربندهای کمانش تاب BRB (Buckling Restrained Brace)

متقاضیان: شرکت بناراد بريس كيان (BRB KIAN)

رده مورد بررسی: سیستم‌های سازه‌ای

ویژگی‌های مورد بررسی:

مصالح (اجزاء تشکیل دهنده و ویژگی‌ها)

سازه (مبانی طراحی، کفایت عملکرد سازه‌ای و جزئیات اتصالات)

* تولید و اجرا، مسئولیت نظارت عالی و کنترل کیفی بر عهده شرکت بنا راد بريس كيان می‌باشد.

* این نظریه صرفاً در برگیرنده شرایط طراحی و استفاده از محصول است و بر کیفیت تولید و اجرای محصول دلالت ندارد.

* این نظریه بر اساس سه آزمایش (تمام مقیاس) انجام شده بر روی نمونه‌های مهاربند ساخته شده توسط شرکت بناراد بريس كيان، در مرکز تدوین شده است.

* این نظریه بر اساس پرونده نظریه فنی به شماره ۱۸۵۶۱ در سامانه خدمات الکترونیک صادر شده است.

* این نظریه بر اساس نامه شماره ۱۱۹۴۷-۳۱-۰۰ مورخ ۱۴۰۰/۰۷/۲۰ صادر شده است.

تهران - بزرگراه شیخ فضل‌الله نوری - بین شهرک قدس و فرهنگیان - صندوق پستی: ۱۶۹۶-۱۳۱۴۵ - تلفن: ۶-۸۸۲۵۵۹۴۲

Islamic Republic of Iran

Ministry of Roads and Urban Development

Road, Housing and Urban Development Research Center

Management of engineering and laboratory services

Date of issue: 12/10/2021

Validity date: 09/04/2023

Technical Report No. SEI08-98-5 / Sub-category of Structures and Building Systems / www.bhrc.ac.ir

Assessment report and requirements

BRB buckling braces

Case study application of BRB buckling braces

Applicants: Bana Rad Brace Company (BRB KIAN)

Category under consideration: Structural systems

Features under review:

- Materials (constituents and properties)
- Structural performance and connection details

* Production and implementation, responsibility for high supervision and quality control is the responsibility of Bana Rad Brace Kian Company.

* This report only covers the design and use conditions of the product.

* This report was issued based on technical report file number 18561 in the electronic services system.

* This report is based on three (full-scale) tests conducted on brace specimens.

* This opinion was issued based on letter number 11947-31-00 dated 12/10/2021.

Obtained official technical approval confirming that the performance and behavior of BRB Kian's braces are in full compliance with international seismic design and testing standards.

بسمه تعالی

جمهوری اسلامی ایران
وزارت راه و شهرسازی
مرکز تحقیقات راه، مسکن و شهرسازی



شماره: ۹۷-۹-۳۴۳، تاریخ: ۹۷/۲/۸ پیوست: ندارد

جناب آقای مهندس عطار
مدیر عامل محترم شرکت بناراد بریس کیان

با سلام و احترام؛ پیرو قرارداد شماره ۹۶-۱۰۰ مورخ ۱۳۹۶/۰۲/۱۴ مابین آن شرکت و مرکز تحقیقات به اطلاع می‌رساند که مهاربند کمانش تاب تولیدی آن شرکت با ظرفیت ۵۰ تن به صورت تمام مقیاس در قباب سازه‌ای مورد آزمایش رفت و برگشتی طبق الگوی بارگذاری آیین نامه AISC۳۴۱-۱۶ قرار گرفت. نتایج بدست آمده از آزمایش نشان می‌دهد که مهاربند کمانش تاب تولیدی آن شرکت دارای چرخه‌های یکسان فشار و کششی بوده و سایر معیارهای آیین نامه AISC۳۴۱-۱۶ را نیز تامین می‌کند، همچنین ضریب سخت شدگی کرنشی (W) آن برابر با ۱/۱۰ در کرنش ۲/۵٪ و ضریب اصلاح مقاومت فشاری آن B برابر با ۱/۱۰ بوده است. در راستای اطمینان توصیه می‌شود که ضریب سخت شدگی کرنشی در طراحی‌ها بین ۱/۱۰ تا ۱/۱۰ در نظر گرفته شود.

سید مجتبی
معاون تحقیقات و فناوری



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تهران - بزرگراه شیخ فضل ا... نوری، بین شهرک قدس و فرهنگیان صندوق پستی: ۱۶۹۶-۱۳۱۴۵ / تلفن: ۰۲۱-۸۸۲۵۵۹۴۲-۶ / شماره: ۸۸۲۵۵۹۴۱
صفحه الکترونیک: www.bhrc.ac.ir / پست الکترونیک: info@bhrc.ac.ir

Islamic Republic of Iran

Ministry of Roads and Urban Development

Road, Housing and Urban Development Research Center

Number: 3430-9-97

Date: 08/05/2018

Dear Mr. Engineer Attar

CEO of Bana Rad Brace Kian Company

With regards, Pursuant to the contract number 96-100 dated 04/05/2017 between that company and the research center, it is hereby informed that the buckling restrained brace manufactured by that company with a capacity of 50 tons was placed in the frames subjected to the reciprocating test according to the loading pattern of AISC 16-341. The results obtained from the test show that the brace manufactured by that company has the same compression and tension cycles and meets the other criteria of AISC 16-341. Also, its strain hardening coefficient (ω) at the 2.5% strain is equal to 1.1 and its compressive strength correction factor (β) is equal to 1.05

It is recommended that the strain hardening coefficient to be considered in designs between 1,15 and 1,2.

Saeed Bakhtiari

Vice President of Research and Technology

Road, Housing and Urban Development Research Center

Approved as a technology-based company by Khorasan Razavi Science and Technology Park, specializing in the design and manufacture of buckling-restrained braces (BRBs).

تستیالی

تاریخ: ۹۶/۰۵/۰۸
شماره: ۹۶۰۰۶/۱



وزارت علم، فناوری و نوآوری
پارک علم و فناوری خراسان

مجوز واحد فناور

تلاش برای دستیابی به آرمان توسعه‌ی علم و فناوری فضیلتی گرانبهاست.
با هدف تامین تداوم فعالیت های فناورانه و به استناد مصوبه‌ی
شماره ۹۶۰۰۶ مورخ ۹۶/۰۵/۰۸ به

شرکت بناراد بریس کیان (شماره ثبت ۵۸۷۰۵)

اجازه داده می‌شود از تاریخ ۹۶/۰۵/۰۸ لغایت ۹۶/۱۲/۲۹ در زمینه
تخصصی

فناوری های نوین ساختمان

و ایده محوری

طراحی و ساخت مهاربند های کمانش ناپذیر

بعنوان واحد فناور در پارک علم و فناوری خراسان فعالیت نماید.

دکتر سید حسن علم الهدایی
رئیس پارک علم و فناوری خراسان

ضروری است در خصوص استفاده از مزایای این مجوز از پارک علم و فناوری خراسان رضوی استعلام گردد.

Khorasan Science & Technology Park
Member of
IASP
International Association
of Science Parks

نشانی: مشهد ۴۷ کیلومتر ۲۷ بزرگراه قوچان
ص/ب ۹۱۱۳۵-۱۳۹
تلفن ۰۵۱۱۰۵۰۴۳۳۳۳
فکس ۰۵۱۰۲۰۵۰۴۳۴۵۵
Km 12, Ghopchian Highway, Mashhad, IRAN
P.O.Box: 91735.139, Fax: 498 511 5003455
Tel: +98 511 5003333 Info@kasp.ir

Date: 27/10/2017 No: 1/96006

Technology-based company license

Ministry of Science, Research and Technology

Khorasan Science and Technology Park

Striving to achieve the ideal of developing science and technology is a precious virtue.

With the aim of ensuring the continuity of technological activities and pursuant to Resolution No. 96006 dated 05/08/96,

Bana Rad Brace Kian Company Registration Number 1705

Permission is granted from 27/10/2017 to 20/03/2018 in the field of

Specialized New construction technologies

and central idea of

Design and manufacture of buckling-restrained Brace

Operate as a technology unit in the Khorasan Science and Technology Park.

Dr. Seyed Hossein Alam El-Hodai

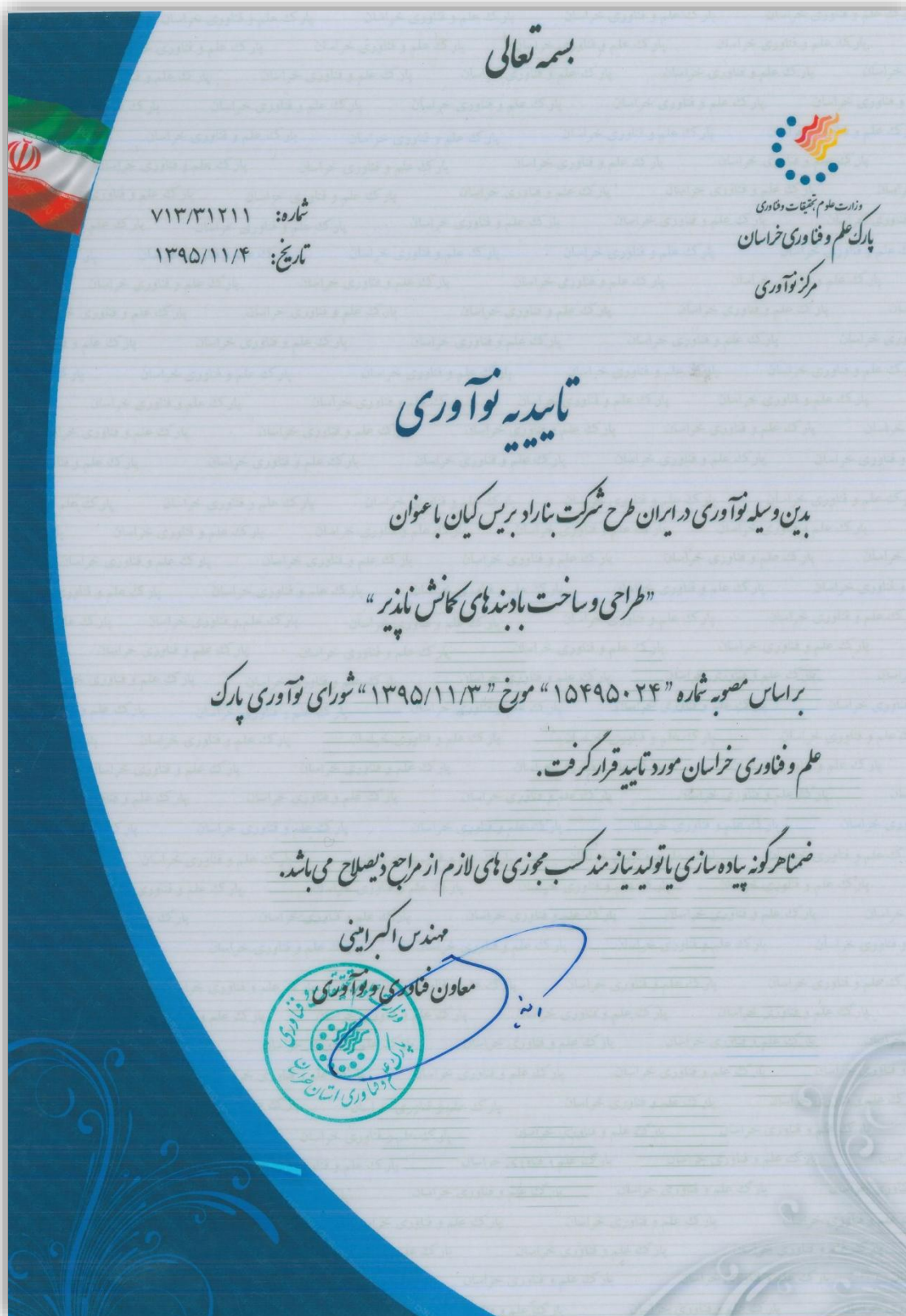
Head of Khorasan Science and Technology Park

Khorasan Science & Technology Park

Member of IASP International Association of Science Parks

Address: Mashhad, 17th km., Quchan Highway

Awarded an innovation certificate by Khorasan Razavi Science and Technology Park in recognition of our research, design, and production of advanced buckling-restrained braces.



Date: 23/01/2017 Number 713/31211

Ministry of Science, Research and Technology

Khorasan Science and Technology Park

Innovation Center

Innovation approval

Hereby, innovation in Iran is the project of Bena Rad Brace Kian Company entitled

"Design and manufacture of buckling-resistant braces"

Based on resolution No. 15495024 dated 22/01/2017, the Innovation Council of Khorasan Science and Technology Park was approved.

The basis for any production process is a combination of necessary permits from authorities.

Engineer Akbar Amini

Deputy of Technology and Innovation

The first BRB project in Iran (2018)

Educational complex with 1300 square meters and 16 pieces of BRB



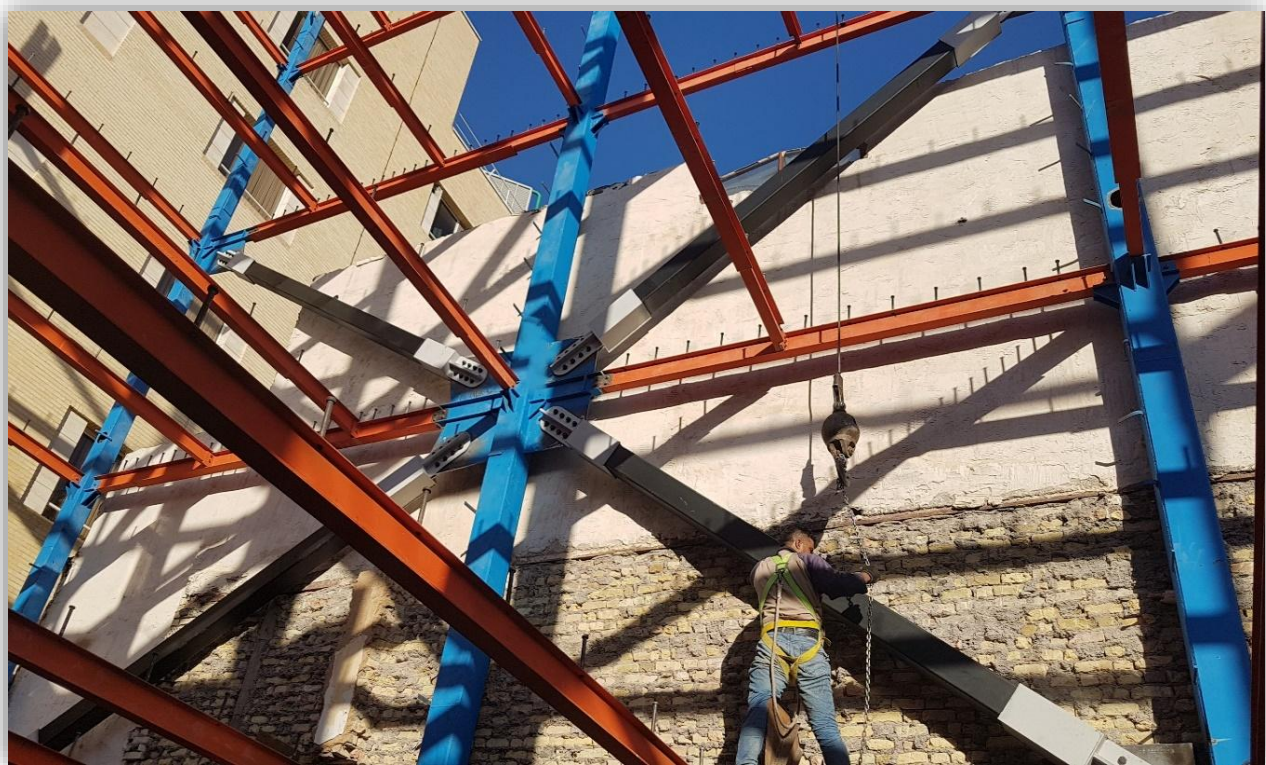
First BRB project with bolted connection in Iran (2019)

8 Story residential building with 2200 square meters and 40 BRB pieces



Second BRB project with bolted connection in Iran (2019)

8 Story residential building with 2200 square meters and 34 BRB pieces



First BRB project with bolted connection in Iran (2020)

8 Story residential building with 3000 square meters and 42 BRB pieces



Third BRB project with bolted connection in Iran (2022)

8 Story residential building with 2200 square meters and 34 BRB pieces



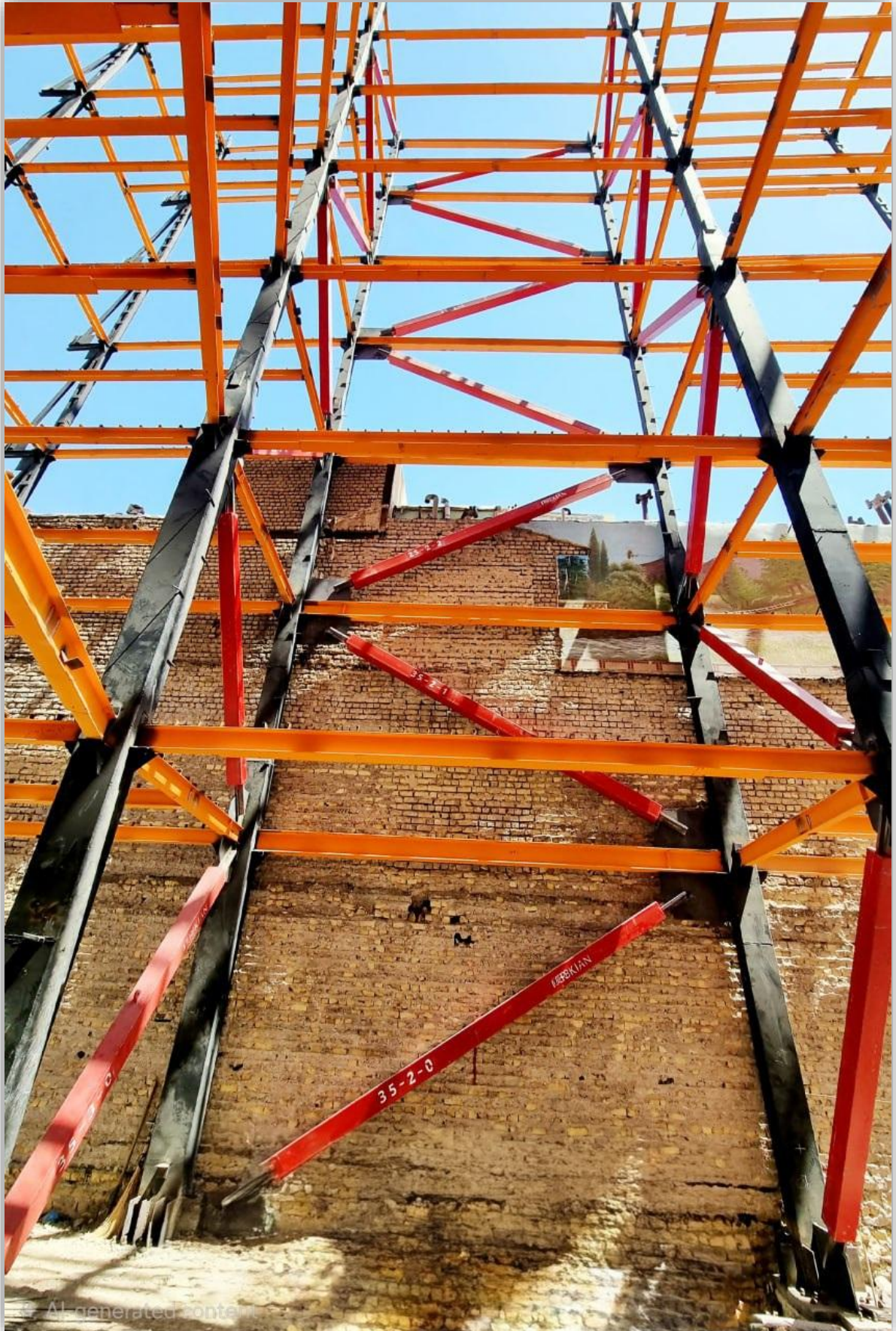




1000th BRB manufactured by BRB Kian























Factory visit by various Engineers and news agencies on the company's success in producing buckling braces for the first time in Iran in 2018

