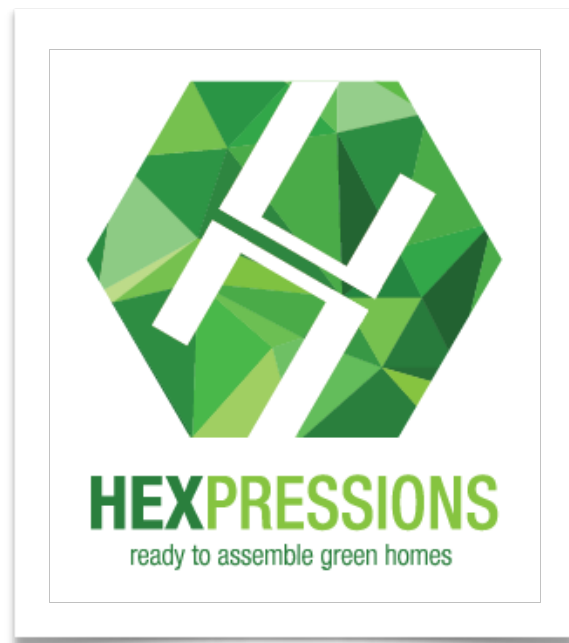


# ACTION RESEARCH REPORT



**From:**

**Abhimanyu Singh**  
**Hexpressions & Flhexible**  
**( Jan 20 - March. 21 )**

**Q1. Describe your organisation along with a detailed study of the sector you are working in. (Describe your model, your beneficiaries, highlight any relevant data w.r.t your organisation i.e. secondary research, geography, etc.)**

Hexpressions started 2 year ago as a social impact venture to create disruptive change in society through innovative design ideas. We believe that disruptive design ideas can bring a significant revolution in society. We are a team of designers and when we got to know about the scheme of "Housing for all" by 2022 announced by the honourable prime minister of India, and we felt to do something about it. We thought to be Architects and Designers we understand the market potential, opportunities and threats too. Our past work experience will also help us to evaluate the market very well in terms of design requirements and opportunities. So it is not only a project but our duty towards society to make housing affordable and sustainable for not only communities but also for the planet. We want to scale this startup globally where we aim to eradicate homelessness and housing affordability crisis.

Team's unique capabilities:

Being Architects and Designers we understand the market potential, opportunities and threats too. Our past work experience will also help us to evaluate the market very well in terms of design requirements and opportunities. It is not only a project but our duty towards society to make housing affordable and sustainable for not only communities but also for planet.

Ecosystem ( Indian & Global ):

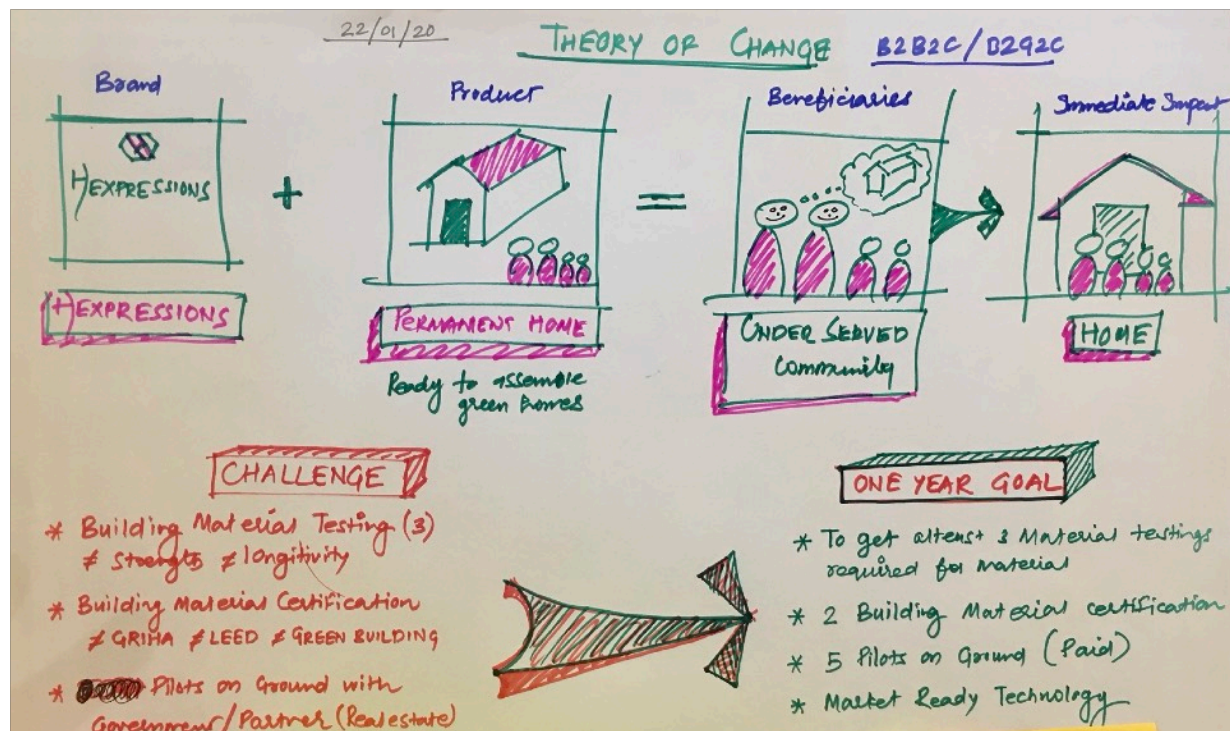
Globally over 1 billion people are suffering from housing affordability crisis and this number would go up to 1.6 billion by 2025. In India, the Potential market is 19 Million households and our government is trying to address this huge demand. If we want to achieve this huge target to provide a permanent shelter we have to move towards fast and sustainable construction methods and technologies.

In the global ecosystem, Europe alone has a potential market of affordable housing which is 219 million households today. Globally it is 330 million and it is expected to go up to 440 million households by 2025. In the Indian context, the year 2019-20 has been declared as "Construction Technology year" by India Government and We strongly believe that a permanent shelter helps the community to live a dignified life.

**Q2. As per your Theory of Change, what assumptions did you begin with and how did you validate those assumptions?**

I started with the assumption of building a market ready solution by end of year and a couple of projects under my belt. Due to COVID 19 outbreak mostly half of the year we were stand still as a company but post lockdown period we came strongly and tried to catch up. We signed 3 projects with SELCO foundation and 2 of those are ready. We also signed a paid pilot opportunity with Mahindra lifespaces ( Real estate company ) for their upcoming affordable housing project and hopefully we will clear it by end of this year. We also managed to get one building certification for our material.

Overall the goals I set for this year almost got complete with some minor challenges and tweaks.



**Q3. To prove your model, what are the different activities you undertook?**

(During Covid-19, if you had to pivot or evolve your model, please elaborate)

We took various sector specific activities before lockdown and during the COVID 19 outbreak we pivoted our model and did some new things to develop a new revenue stream. Some of the activities we did are as follows:

1. Awareness campaign for Architects and real estate developers ( Online & Offline )
2. Material Samples for Architects & real estate developers.
3. Collaboration with new key partners for manufacturing, pilots, testing & certifications
4. During COVID 19 outbreak we designed ready to assemble isolation beds and coffins boxes.
5. Post lockdown signed 2 projects and sent material for testing & certification.

**Pivot ( During COVID 19 outbreak )**

**Context:**

The pandemic has pushed the healthcare sector in search of quick, affordable, and sustainable solutions. The use of our products go beyond the current crisis. It can be used by hospitals to house patients with other infectious or contagious diseases, rent them for temporary use to health camps or meet the need for hospital beds in rural or densely-populated urban areas. Rural geographies and undeveloped regions that need affordable healthcare infrastructure can leverage 'Hexpressions' designs to build the much-needed medical facilities at a low-cost. The possibilities are endless.

**Abstract:**

COVID-19 is a global crisis, the infectious nature of the COVID-19 has put a tremendous burden on world's healthcare system; be it a rural primary healthcare centre or the biggest urban hospital. The struggle for isolation wards is rising along with the daily surge of COVID-19 cases across the country. On the other hand, worldwide dead bodies are being stockpiled in temporary morgues and funerals delayed, causing further misery for relatives of those who have lost their lives to the virus. This desperate shortage of isolation beds & coffins has prompted us to design simple ready to assemble isolation cabins & coffin boxes to meet the demand of coronavirus victims across the world.

Hexpressions is working on a product-service innovation providing eco-friendly, fast, modular, and ready to assemble Isolation cabins & coffin boxes for COVID-19 patients by using paper honeycomb panels and cardboard. The COVID-19 virus can stay on Paper honeycomb and cardboards only for 24 hours, making it ideal for use. Paper honeycomb is water-resistant and coated with disinfectant silver nano coating which makes it safe for hospital usage. These knock down products can be assembled within 5 mins without any additional hardwares or tools required.

**Goal:**

The current COVID-19 situation caused not only a negative impact to the health and livelihood of many but also to the spendings and plans of our government for the economy. As a team advocating for recycling paper, we thought of using this material to innovate on products that can be helpful in preventing the wide spread of the disease. We would like to take part in solving the crisis while continuously contributing to the healing of the earth.

The goal of this project is to provide low-cost, eco-friendly, and quality products that can be used in combating the pandemic. The first product is an isolation bed to isolate COVID-19 positive patients and prevent massive transmission. It can be arranged. to save space in small quarantine facilities and maximum social distancing. The other product is envisioned to provide a means to quickly transfer dead bodies and conduct a dignified funeral for those who lost their lives.

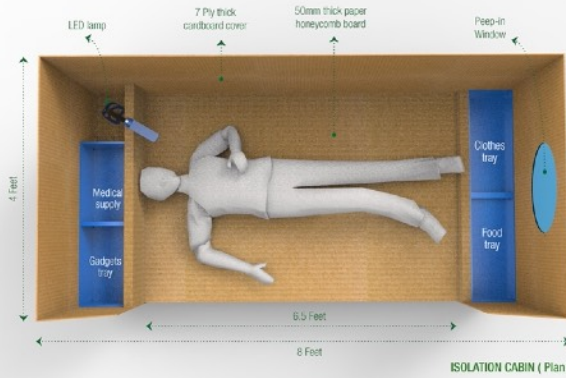
Usual hospital beds and coffins are heavy and hard to clean. The products make use of recycled paper to produce paper honeycomb material that is lightweight and durable. They are also made from materials that harm the environment. Our products are made of recycled paper with silver nano coating to ensure that proper sanitation can be done and the further spread of the virus is prevented.



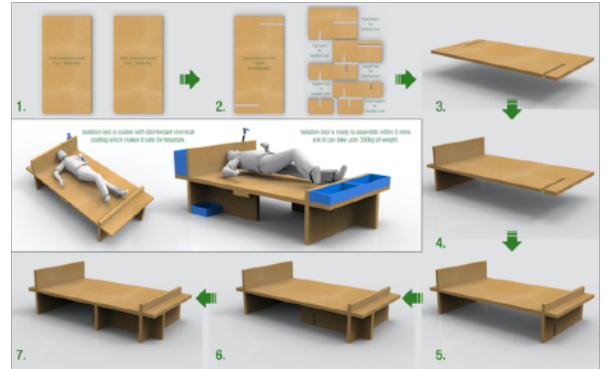
The best way to contain the COVID-19 virus is social distancing & isolation. Our newly designed isolation cabin perfectly fulfills both. Isolation Cabin is equipped with mobile charging port, LED lamp, medical supply tray, food tray, gadgets tray and shoe tray.

**Salient features:**

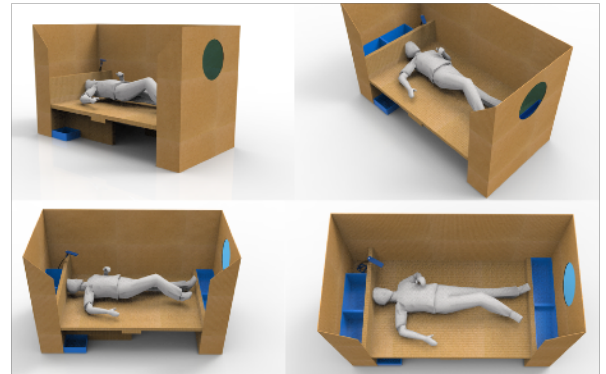
- 1. Ready to assemble within 5 mins
- 2. Super light weight
- 3. Made of honeycomb panels
- 4. Can take upto 300 kgs load
- 5. Knock down, modular design
- 6. Water resistant
- 7. Social distancing
- 8. Storage trays, plug points, LED lamp



Isolation Cabin is equipped with Mobile charging port, LED lamp, Medical supply box, Storage for books and shoe box.



Isolation cabins are arranged keeping social distancing in mind and space for medical equipment, door walls.





Abhimanyu Singh, +919414962227  
Shilpi Dub, +919460873403

www.hexpressions.org contact@heexpressions.org



**HEXPRESSIONS**  
green construction technique

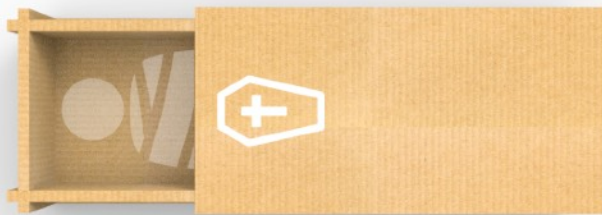
Worldwide dead bodies are being stockpiled in temporary morgues and funerals delayed, causing further misery for relatives of those who have lost their lives to the virus. This desperate shortage of coffins has prompted us to design a simple ready to assemble coffin box to meet the demand for funerals of coronavirus victims.

Salient features:

- |                                |                                    |
|--------------------------------|------------------------------------|
| 1. Ready to assemble in 5 mins | 5. Knock down, modular design      |
| 2. Super light weight          | 6. Water resistant                 |
| 3. Made of honeycomb panels    | 7. Coated with silver nano coating |
| 4. Can take upto 300 kgs load  | 8. Affordable price & sustainable  |

Ready to assemble  
paper honeycomb

**COFFIN  
BOX**



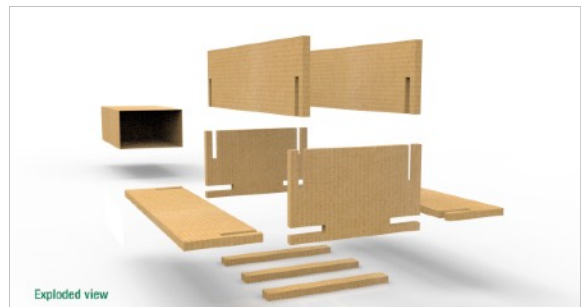
Top view



Front view



**COFFIN BOX**



Exploded view



**COFFIN BOX**



**COFFIN BOX**

Perspective view



**1. WFH low height table modules**  
 Two side modules with central groove for interlocking. These acts as table legs.

Ready to assemble paper honeycomb  
**WFH low height table**



Table top with 2 grooves for interlocking.

**2. WFH low height table**  
 Table is installed within a minute just by interlocking 3 panels together.



**3. WFH low height table with enclosure**  
 Enclosure at the back is provided for the safety and privacy, while working on the table.

Life is changing at the lightning speed, and so should our innovations. In the era of COVID 19 most of the offices are shifted from off-line to online mode, classrooms have been squeezed into laptop's and tablet's and the world is moving towards digitalisation very fast. Keeping this in mind we have came up with a smart sustainable solution for today's work from home scenario and is called as 'Trendy Table'.

Ready to assemble paper honeycomb  
**TRENDY TABLE**



#### Q4. What have been your achievements?

(Elaborate your outputs, outcomes, impact, awards/recognition, any new donors/investors, partnerships, geographical expansion)

It has been an unpredictable yet productive year and as an organisation we have achieved a lot of milestones. Some of those are as follows:

1. Hexpressions became part of Unltd India family.
2. Hexpressions got selected as one of the top 10 startups to be included in ASHA- India for Global housing technology summit in Jan. 20. The housing ministry has identified as future potential housing technology start-up for affordable housing program.
3. We have launched our flagship honeycomb furniture & products brand : FLHEXIBLE
4. During COVID 19 outbreak we designed ready to assemble isolation beds and coffins for patients and got extensive media coverage nationally and internationally.
5. Received Engineering X Pandemic preparedness grant from Royal academy of London for our ready to assemble isolation beds.
6. We won competition from IDEO U for designing low cost isolation beds. Hexpressions is one of the top 5 winners.
7. Extensive media coverage about hexpressions and our social impact project throughout the year.
8. Partnership with SELCO foundation for upcoming projects has been a real progress for us.
9. Collaboration with Salto network ( Singapore ), Royal academy and Mahindra lifespaces.
10. Covered by History india channel for showcase in the upcoming TV series.





**UnLtd India** 4 mins · 🌐

**#PeoplewithPurpose**

Meet Abhimanyu Singh who founded Hexexpressions that is providing ready-to-assemble green homes to the rural communities. Homes that are affordable, fast, modular and sustainable to all sections of society using new-age construction material 'Composite Paper Honeycomb Panel'. This new age wonder material has the capacity to replace traditional construction materials thus reducing the carbon footprint on the planet.

**#Jan2020Cohort #Housing #Changemakers #Environment #SocEnts #Innovation**



United India

🏠 👤 🏠 👤 🔔 ☰

**Venkatraman Venkitachalam** · Following  
 Founder Chairman, The EvXprts Foundation  
 2h · 🌐

Fireproof and waterproof Paper Homes using recycled paper!! Hexexpressions, Jaipur build houses using walls made of recycled paper in 2 weeks. The houses are built using composite honeycomb sandwich panels. 1 sq. ft of panels can withstand up to 100 kgs of load. Each of the panels is constructed using strips of sturdy recycled paper which are folded in a hexagonal shape and arranged like cells. The hexagonal-shaped cells are then sandwiched between two panels made from plywood or cement fiberboard. To maintain shape and structure, galvanized iron channels are used on the four edges of the panels. By using recycled paper, the carbon footprint of structures is 80% less than that of conventional ones. Already 6 homes are built using the sustainable technology. It is an affordable housing solution with new age sustainable raw material. Great. Join with me to congratulate Abhimanyu Singh and Shilpi Dua and wish them all success. Watch [https://lnkd.in/dM2ZK\\_b](https://lnkd.in/dM2ZK_b)



👍 🌟 186 17 comments

👍 Like 💬 Comment ➦ Share

**sbilifeinsurance** · Follow

Real Life Real Stories



IRDAI Regd No. 111  
 CIN: L99999MH2000PLC129113 CLRLRS.Cr5.06-20 SM ENG

👍 💬 📌

281 likes


sbilifeinsurance "I am an architect by profession and offer sustainable and affordable housing solutions. My wife and I are self-employed and so our... more

🏠 📺 ➕ ❤️ 👤

**designimpactindia**

**DESIGN IMPACT))))))**  
**)))))) IDEATHON 2020**  
**REIMAGINING A POST**  
**PANDEMIC WORLD )))**

**ISOLATION CABIN**  
 Rapid isolation cabin consisting of an eco-friendly way to isolate COVID-19 patients



#COVIDInnovations

Abhimanyu Singh

👍 💬 📌

Liked by dua.shilpi and 22 others

designimpactindia The Design Impact Ideathon is centred around ideating innovative products that provide solutions for the pandemic and a post-

🏠 📺 ➕ ❤️ 👤



## **Q5. What were your organisational learnings?**

(Elaborate on what worked or didn't, and what change would be required to grow)

Some of the key organisational learnings are

1. Be agile.
2. Be ready to adapt to the situation and pivot.
3. Always look for new opportunities.
4. Talk to customers.
5. Test your product.
6. Whatever happens happens for good.

One of the biggest learning has been the importance of team building , We are still not able to get some fresh legs in our team and we hope to fill this gap soon. Also we are working hard to tweak our communication strategy to make our value proposition more practical and efficient.

## **Q6. Explain how viable is your model for social change and if it can be replicated.**

Additionally, highlight what will it take to become replicable if currently not.

We are aiming to impact the lives of underserved communities, homeless people & refugees by providing affordable, fast, modular & sustainable homes. Absence of a permanent shelter keeps the user virtually excluded from society. Most cities struggle with the dual challenges of housing their poorest citizens & providing housing at a reasonable cost for low & middle-income populations. By providing affordable housing solution to the society we will not only help the community financially but will also enhance social cohesion & bring back social integration. The solution will empower people by providing training and skill development to build their own homes & live a dignified life.

Our growth strategy would be to collaborate with PMAY and construct demo houses in rural areas to create awareness. We will also run skill development and training program for unskilled labor to become skilled masons and help us in the construction of houses.

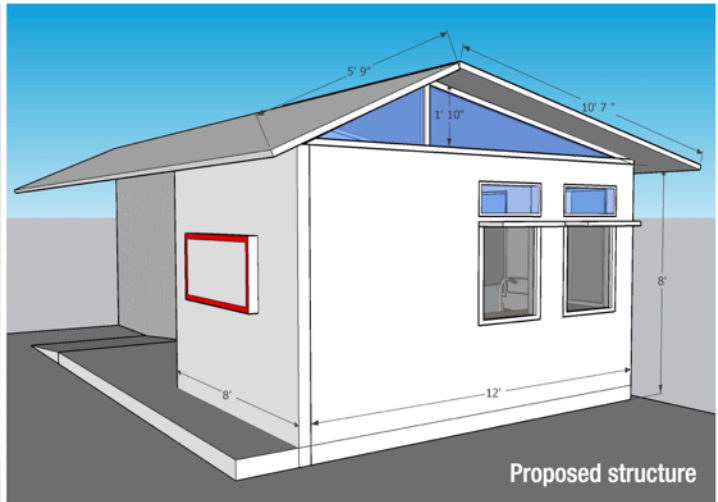
Key assumptions:

1. Collaboration with the Government.
2. financial Support to bear the skill development program at local gram panchayat under the allocated fund of 5% of administrative cost.
3. Meeting the demand of the supply as per our production capacity.

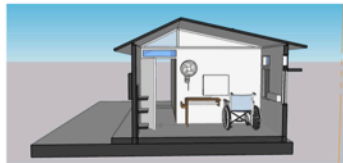
## Appendix

### Beneficiaries:

#### Beneficiary story



Owner: Savitha  
Location : Bijapur, Karnataka  
Function : Tailoring unit  
Size: 12ft x 8ft  
Existing floor: Kadappa stone  
Walls & Roof: Hexpressions composite panels



#### Beneficiary story



Owner: Veeresh  
Location : Bellary , Karnataka  
Function : Xerand Mobile servicing area  
Size: 10ft x 10 ft  
Existing floor: Kadappa stone  
Walls & Roof: Hexpression composite panels





## Appendix

### Isolation bed technical information

Packed Dimensions: 8'x 3'x 1'

Bed Dimensions: 6'6"x 2'- 6" ( without cabin )

6'6" x 3'- 6" ( with outer cabin )

Overall weight: 12kg

Material: Paper honeycomb board ( 100% recyclable )

Coating: Silver nano coating ( Additional for disinfecting)

Outdoor friendly : Yes

Life: >5 years

Load bearing capacity: Upto 300 kgs ( 3-4 people)

### Financial terms:

Retail Price: 2499 INR ( Isolation bed )

3499 INR ( isolation cabin )

Bulk price: 1999 INR ( Isolation bed )

2999 INR ( Isolation cabin )

For bulk prices MOQ is 100 ( min.)

GST: 18%

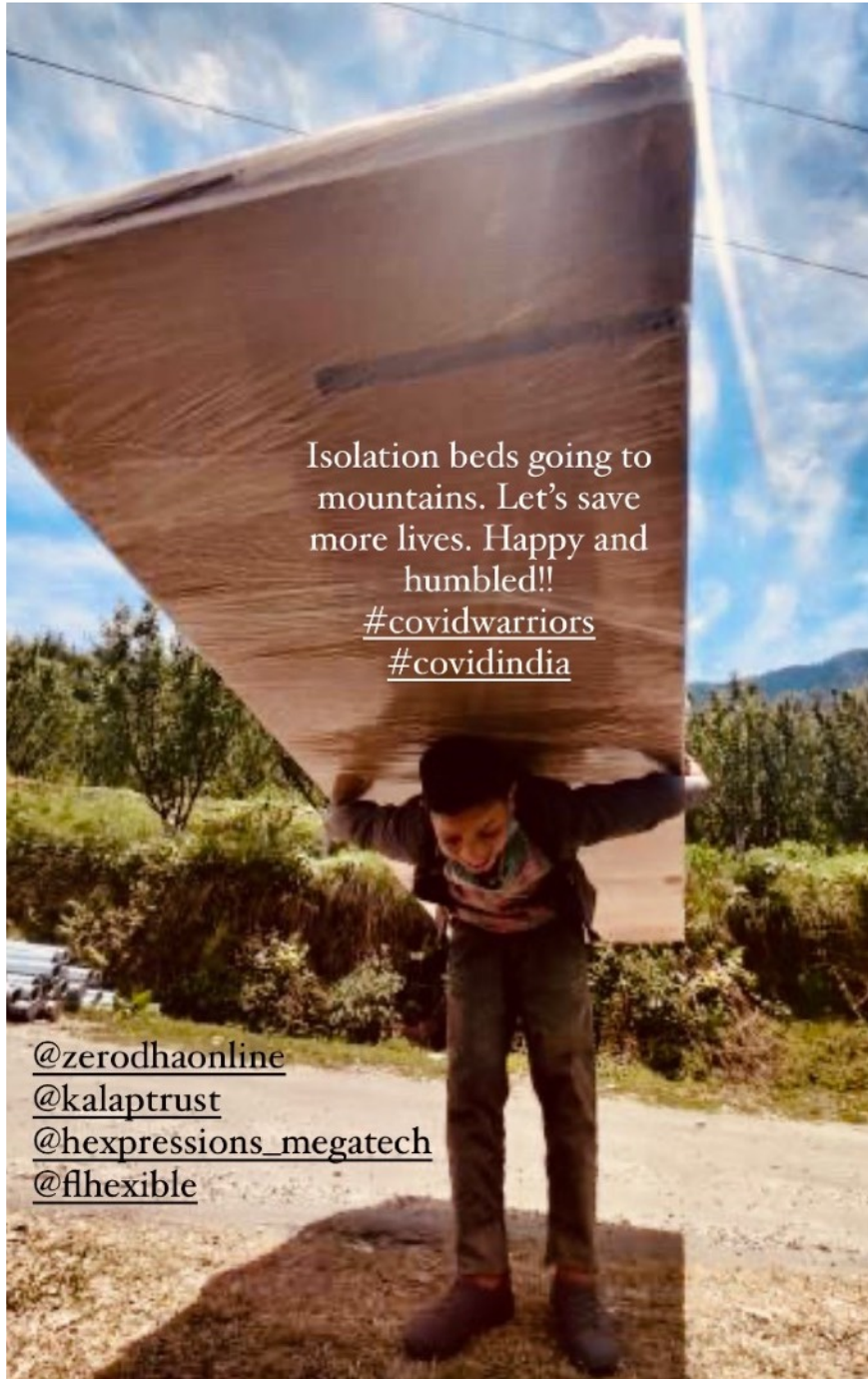
Transfer cost: As per the location

Lead time: 30 days for ( 500 beds )

Payments terms: 100% advance

Warranty: 1 year against manufacturing defects





Isolation beds going to mountains. Let's save more lives. Happy and humbled!!

#covidwarriors

#covidindia

@zerodhaonline

@kalaptrust

@hexpressions\_megatech

@flhexible



**HEXPRESSIONS**  
ready to assemble green homes

Hexpressions Megatech Private Limited

A-10,ii floor, vinay apartment, nityanand nagar, queens road, Jaipur - 302021, Rajasthan, INDIA

+91 9414962227

contact@hexpressions.org