DISMOUNTABLE HOUSING OPTIONS FOR AUROVILLE

PROJECT 1:
AUROVILLE TRANSIT LOUNGE @ COURAGE

Friday 15th April 2011- T.H. Conference hall 5pm
When do you need a home?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>29.2%</td>
<td>40</td>
</tr>
<tr>
<td>Within a year</td>
<td>41.6%</td>
<td>57</td>
</tr>
<tr>
<td>2 years</td>
<td>13.9%</td>
<td>19</td>
</tr>
<tr>
<td>3 years</td>
<td>2.9%</td>
<td>4</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>12.4%</td>
<td>17</td>
</tr>
</tbody>
</table>

Answered question 137

Housing for

<table>
<thead>
<tr>
<th>Housing for</th>
<th>Count %</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>32.31%</td>
<td>42</td>
</tr>
<tr>
<td>Couple</td>
<td>27.69%</td>
<td>36</td>
</tr>
<tr>
<td>Single parent with kids</td>
<td>3.85%</td>
<td>5</td>
</tr>
<tr>
<td>Single</td>
<td>36.15%</td>
<td>47</td>
</tr>
</tbody>
</table>

Answered question 130

Housing needs

- Immediately: 29.2%
- Within a year: 41.6%
- 2 years: 13.9%
- 3 years: 2.9%
- Other (please specify): 12.4%
## Auroville Housing Survey

### What room allocation do you need?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>one room - bedsit/studio type</td>
<td>14.1%</td>
<td>18</td>
</tr>
<tr>
<td>two rooms</td>
<td>40.6%</td>
<td>52</td>
</tr>
<tr>
<td>three rooms</td>
<td>35.9%</td>
<td>46</td>
</tr>
<tr>
<td>four rooms</td>
<td>7.8%</td>
<td>10</td>
</tr>
<tr>
<td>other</td>
<td>1.6%</td>
<td>2</td>
</tr>
</tbody>
</table>

*answered question: 128*

### Which of the following do you need or are willing to share in your household?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>need to have</th>
<th>willing to share</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>kitchenette</td>
<td>45</td>
<td>9</td>
<td>68</td>
</tr>
<tr>
<td>kitchen</td>
<td>82</td>
<td>22</td>
<td>107</td>
</tr>
<tr>
<td>verandah/balcony</td>
<td>44</td>
<td>12</td>
<td>99</td>
</tr>
<tr>
<td>toilet/bath/shower</td>
<td>114</td>
<td>12</td>
<td>124</td>
</tr>
<tr>
<td>living space</td>
<td>99</td>
<td>13</td>
<td>115</td>
</tr>
<tr>
<td>sleeping spaces</td>
<td>113</td>
<td>1</td>
<td>119</td>
</tr>
<tr>
<td>study space</td>
<td>32</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>storage space</td>
<td>42</td>
<td>44</td>
<td>101</td>
</tr>
<tr>
<td>studio/office space</td>
<td>17</td>
<td>25</td>
<td>65</td>
</tr>
<tr>
<td>covered parking space</td>
<td>16</td>
<td>74</td>
<td>99</td>
</tr>
</tbody>
</table>

*answered question: 128*
**Auroville Housing Survey**

**Which of the following resources can you contribute?**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial capital</td>
<td>47.5%</td>
<td>58</td>
</tr>
<tr>
<td>Financial capital to sponsor another Aurovilian</td>
<td>3.3%</td>
<td>4</td>
</tr>
<tr>
<td>Rental Income</td>
<td>41.0%</td>
<td>50</td>
</tr>
<tr>
<td>Skills</td>
<td>59.8%</td>
<td>73</td>
</tr>
</tbody>
</table>

**How much capital can you contribute?**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs 1 lakh or less</td>
<td>10.0%</td>
<td>6</td>
</tr>
<tr>
<td>Rs 2 to 5 lakh</td>
<td>25.0%</td>
<td>15</td>
</tr>
<tr>
<td>Rs 5 to 10 lakh</td>
<td>23.3%</td>
<td>14</td>
</tr>
<tr>
<td>Rs 10 to 20 lakh</td>
<td>23.3%</td>
<td>14</td>
</tr>
<tr>
<td>Rs 20 to 30 lakh</td>
<td>1.7%</td>
<td>1</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>16.7%</td>
<td>10</td>
</tr>
</tbody>
</table>
APPROVED HOUSING DEVELOPMENTS
APPROVED DEVELOPMENTS
Auroville Transit Lounge project parameters

**Site life:** 10 years

**Transit site:** For all Newcomers or Aurovilians written into a permanent housing project.

**Viable numbers:** need 15 housing units for project to go ahead

**Finance:** Housing units will be prepaid by the resident with a monthly rental towards infrastructure which would be fully paid for by Auroville. Capital will roll over to the residents' next housing arrangement in Auroville less the standard depreciation rate as set by housing of 0.4%

**Feedback on project:** Feedback on residents participation needed by August 15th 2011
Site overview
**Infrastructure details**

**Common (shared) infrastructure:** There will be shared kitchens in a common building that will function as dining space, common recreational area with internet, lounge space and other facilities.

- § Kitchen/Dining
- § Recreation
- § Lounge
- § Shower/ Compost Toilets
- § Parking
- § Greywater treatment/ Resource Recovery Station
- § Laundry
- § Storeroom

Auroville would bear the initial infrastructure costs for the common facilities and residents would pay a monthly contribution towards expenses/maintenance of the same.
Situated around this common building will be the bathrooms / showers and Compost Toilets.

The exact location of further Toilets and maybe bathrooms will be worked out once the number of units and people is clear. The possibility of personal compost toilets could be offered.

Parking will be near the entrance - making it a traffic free community.

The possibility for wind-solar electricity is being explored.
Johnny - Fertile
Designers name: Johnny          phone: 2622390          mail id: johnnyauroville@gmail.com

Interior size: 12 sq metres

Amenities: one room with terrace

Cost: 1 lak, 50,000rs for materials, 50,000rs for labour          Cost per sq metres: 8,333 sqrs

Time frame to complete: one day to erect once all materials are present

Materials used: galvanised iron pipes, Wood, Bison board for structure.
Wood louvres and mosquito mesh on sides. Structure off ground on concrete pillars and plates

Other:

Julia's house, 70 sq metres was 6 lak. Wattle and 2-3 layers mud, eucalyptus and split bamboo.
Julia's house could be made on a base of 6 * 4 metres if want to be dismountable.
Johnny - Fertile
Designers name: Alok – Auroshilpam  phone: 2622341
mail id: alok@auroville.org.in

Interior size: 17sq m

Costs: less than 1 lak  Cost per sq m: 6,000rs per sq m

Alok and Sathyavan are working on a dismountable prototype based on Johnny's design with angle iron, plywood, keet, cement legs and mesh.

Alok has a site for six housing models with water and electrics close by.

He would like to attract people who are interested in working on housing and have this site as a living research centre
Alok Auroshilpam

Site available – six houses:
**Designers name:** Eric  
**phone:** 94433-62291  
**mail id:** reboul@auroville.org.in

**Interior size:** available a variety of sizes, for example, single =18sqm, Family = 54 sqm

**Amenities:** As its modular, size and amenities can be added to residence choice

**Costs:** 2.7lak to 7 lakrs  
**Cost per meter sq m** 10,000-15,000rs

**Time frame to complete:** 2-3 weeks, family unit 1 month. Can produce 15 family units in a year.

**Materials used:** Durable, dismantleable, light-weight, thermal properties:

- Exposed precast concrete frame and foundations: long life, low maintenance
- Floor: Kadapa stones (dry fixed)
- Walls: ready made interlocking insulated panels
- Ceiling and overhang panels: calcium silicate board (lightweight panels, waterproof)
- Mounting parts, clamps, lintels: Galvanized steel
- Roofs: White corrugated steel sheet (Zinc aluminum coated)
**Dismountable**: yes, all materials but heavy needs crane.

**Advantages** - off ground so good ventilation, less humidity & insects

- Fast, safe and the cost. The production 3 to 4 times faster than standard housing. One house of 3 modules for a couple with bathroom and kitchen can be built in 2 to 3 weeks. The fabrication takes time (4 modules/72 m2 per month at the moment).

- We are about to introduce a 1st floor, which will give more dynamics to the architecture, increase the density and reduce the costs.
Auzolan Constructions - Eric
Rolf/ Balu  Bamboo Design
Designers: Rolf Kalabhumii, 0413- 2623690, Balu: 9943646822 , 0413 2623193
Email: aurovillebamboocentre@auroville.org.in ,rolfartist@auroville.org.in

Size interior : 12 sq m

Amenities: one room

Cost overall: 1.2Lakh

Cost per sq meter 10,000

Time Frame to complete: 3 weeks (two units can be completed in 1 month)

Materials used: Bamboo, Bolts, nylon canvas (roofing), Can also do model in mud brick and bamboo.

Dismountable? Yes Can be carried and assembled on the spot

What support do you need? Orders for the product

Other: Existing unit in Verite (Guest house opp Bhavana’s) Bamboo is treated so that it will not deteriorate. The feeling of the space is wonderful and light. Bamboo is highly sustainable. Bamboo absorbs 28% more CO2 than other plants.
Rolf/ Balu  bamboo design
CONTAINER HOMES

The floor is made from coconut wood planks on corten steel base and the walls have styrofoam concrete insulation. The glass is double paned to slow heat transfer. The Ecopod can be used as a stand alone unit or with other structures. It is designed to minimize environmental impact. A nylon canvas roof would be put on steel frames on top.
**Designers name:** Several Chennai based Companies & EartHauz- Auroville

**Ph:** 94888830338/ 9884070167

**mail id:** info@earthauz.net / imreenterprises10@gmail.com

**Interior size:** modular: 20ft or 40 ft long, 8.5 or 9 ft high and 8ft wide

**Cos 40 ft:** 2.6 to 3.8.lak  

**Cost per meter** 2 9500 to 12,800sq metre

**Price includes:** 6 windows and grills, 1 door. Styrofoam Concrete OR pvc inner coat, flooring, fans, lights, plug & phone points. Fully painted.

**Time frame to complete:** 2 weeks from order

**Materials used:** Shipping container

**Dismountable:** yes
CONTAINER HOMES

Advantages:
- Fast movable option,
- Very versatile secure multiple floors can be stacked 10 high and take 28 tonnes of weight
- Corten steel is non-corrosive and 75% stronger than normal steel.
- Earthquake resistant.
- Can buy with minimum finishing. Successfully implemented in many cities such as London, Amsterdam, Cove Park Scotland.
- Manu, architect living International House could help source and bring to Auroville.

Disadvantage:
- Needs added insulation (styrofoam concrete) and a heat barrier (creeper wall) due to its potential to heat up.
Container homes
Living in a box

They're cheap and compact, but can life in a shipping container really be much fun?

This year, according to the UN, the planet's urban population outnumbered people living in rural areas for the first time in human history. In the last decade, a plethora of firms have sprung up worldwide offering shipping container accommodation from beach huts to (small) family dwellings. Keretwomen in Watergraafsmeer, Amsterdam, is Europe's largest container city, with 700 units of student accommodation, while in USA, the Nomadic Museum was built from 112 shipping containers in 2001, and has moved from New York to California, Tokyo and Mexico City.

Containers can be run off mains power, solar, a generator or gas cylinder.

Optional porches for ventilation.

One necessity is a connection to a central sewage system. The alternative is a personal septic tank.

Many container homes make use of a window along one side, with a door that can be closed for security, or lowered and used as a terrace.

Price

A standard steel shipping container costs around £5,000. A fully converted container home costs around £20,000, or £800 per square metre. The average selling price of apartments in Amsterdam is £4,000 per square metre.

Size

According to figures from Japan's 2006 Housing and Land Survey, the average size of an owner-occupied housing unit in the country was 35 square metres. A standard steel shipping container is 30 square metres.

INFO GRAPHIC / HOME

Little house on the prairie

If the idea of living in 30 square metres sounds unnecessarily spacious, or you fancy a more traditional looking than conscripted steel, there's always the tumbleweed Tiny House Company. Projects begin at a positively blinding six square metres.

The brainchild of Jay Shafer, these tiny houses were inspired partly by his concerns about the environmental impact of modern living. The smallest property he produces, the XS-house, costs around $26,000, or $1,000 per square metre. If you choose to put it together yourself, it has a double bed (on the left) kitchen, office/lounge, shower unit and composting toilet, and is completely portable. Shaler lived in one for a year before upgrading to a relatively luxurious it square meters. The biggest pad he has - the B-15 - is a three-bedroom house squeezed into 11 square metres, the parts for which will set you back around $50,000. For more info, see tumbleweedhouses.com.
Name: Satprem Maïni/ Tesia  phone: 262 3064 / 262 3330
Email: earthinstitute@auroville.org.in

Interior size: 30m² caretaker unit
Amenities: toilet and bathroom, bedroom, platform in a corner for a kitchenette wastewater system
Total Cost: 2,08, 908 Rs. with a solar system + wastewater system, now costs 3.5lak
Cost per meter²: 6,964 Rs./m² in February 2008
Time frame to complete: 3-4 weeks for precasting and 64 hours to built it with about 6 masons
Materials used: CSEB for the walls and ferrocement roof
Dismountable: Yes

Other details:
- Time frame on realisation = started july 2009 have produced 5 houses to date. 7 extra apartments will be complete by July 2011. Therefore it has taken 2 years for 12 units.
| **FOUNDATIONS** | Not dug but done with precast composite beams (U shape CSEB and reinforced concrete) laid with earth mortar |
| **WALLS** | Dry interlocking CSEB 300 with 5% cement, grouted with earth concrete (without cement) |
| **WALL REINFORCEMENTS** | Pakamaran wood split (Local wood in Tamil Nadu similar to Palmyra tree) |
| **COLUMN** | Round block 290 laid with earth glue and reinforced with GI pipes, which were screwed at the top |
| **BEAMS** | Composite beams and lintels (U shape CSEB and reinforced concrete) |
| **ROOF STRUCTURE** | U shape ferrocement channels of 6 m long |
| **ROOF COVER** | Ferrocement panels, 2.5 cm thick to cover the ferrocement channels and create a ventilated cavity |
| **BATHROOM ITEMS** | Toilet floor, shower pan and partition panel were precast with ferrocement |
| **SEWAGE SYSTEM** | Baffle reactor with 3 chambers and planted filter and polishing pond |
Sigi – Conceptual Study
Sigi – Conceptual Study

Name: Sigi  phone: 262 2938  Mail: sigi@auoville.org.in

Interior size: Total 24sqm.  Unit = 14 sqm  Terrace + roof = 10 sqm

Total Cost: 95,000 Rs.  Without bathroom and infrastructure
Cost per sqm: 4,000rs

Time frame to complete: 3 months if crew and organisation is good.

Materials used: timber, reapers, roof/wall sheets, Gibson board, brick floor, glass, mesh

Roof: sheet metal plus insulation – false ceiling therefore no need for ventilation

Base: concrete beams screwed together filled with sand and cadupa stone on top

Walls: Bison board inside, sheet metal or mud panels outside. Another alternative is wall panels of reinforced red soil.

Can also make in precast or prefabricated.

Dismountable: Yes

Support: funding to complete a model house. Sigi and Volker would like to build a model.
Sigi – Conceptual Study
Beyond Johnny - A maha capsule – Peter A-
Conceptual Study
Beyond Johnny - A maha capsule – Peter A-
Conceptual Study

Designers: Peter A, Luminosity
Phone: 2622656M : 94884-83348
Email: peter@auroville.org.in

Size interior : 15 sq m
Amenities: one room

Cost overall: 1Lakh approx. Cost per sq meter 7,000 sq m

Time Frame to complete: one month once prototype is established

Materials used: Structural system allows for many materials to be used.
Frame: Steel or timber frame
Walls: Bison board or light wt mud
Roof: metal sheet or fibre glass
Floor: bison board, bamboo
Extras: mesh and glass louvers.

Also: light weight, prefab, modular structure, allows for many applications depending on finance and manpower.
Interested Users for the Auroville Transit Lounge project would be invited to

1) A group site-visit to the proposed site followed by a visit to existing prototypes.
2) A 1 day co-design workshop to fine-tune the layout and facilities in each living unit
3) A group design session to detail the site plan and the common infrastructure facilities.

- Kindly fill up the Feedback Form at the foyer and the housing survey in case you've not filled it online
- Contact us at avenircp@auroville.org.in