

# Warehouse-in-a-Box™



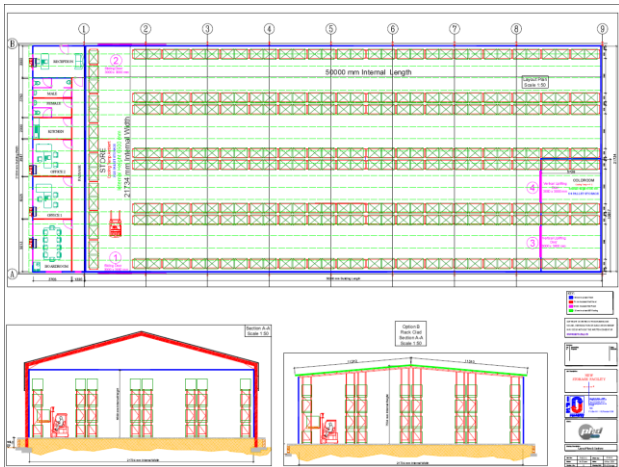
**Rapid full function:** Warehouse-in-a-Box™ enables the rapid installation and commissioning of a pharmaceutical warehouse. While the solution has been developed to complement rural settings, the standards and operational benchmarks are aligned with international Supply Chain principles.

**Modular Components:** The Warehouse-in-a-Box™ model delivers an appropriate 500m<sup>2</sup> to 3000m<sup>2</sup> pharmaceuticals warehouse including receiving, despatch, storage and office areas pertinent to your supply chain needs. Configuration of the internal structure to align with fundamental process flows rather than extensive customisation is planned upfront. Long term scalability is made possible through the modular design, which is readily adjustable to encompass future growth demands.



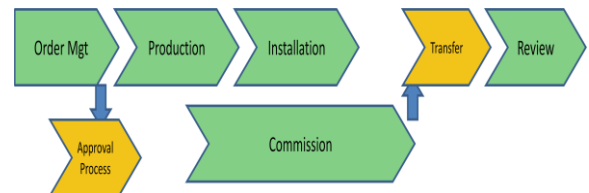
**Industry component Standards:** Each of the components from the base plate, the steel frame to the insulated panels are produced to technical specification in controlled environments overseen by engineering experts. The innovative composite materials used in the production provide insulated, rust-resistant and light weight easy to assemble structures, irrespective of the remoteness of locations and ensure longer term low maintenance effort.

**Sustainability:** The Warehouse-in-a-Box™ solution delivers pharmaceutical standard warehousing infrastructure, equipment and through a detailed skills transfer program builds local capacity, to create the foundation for effective delivery at rural levels.



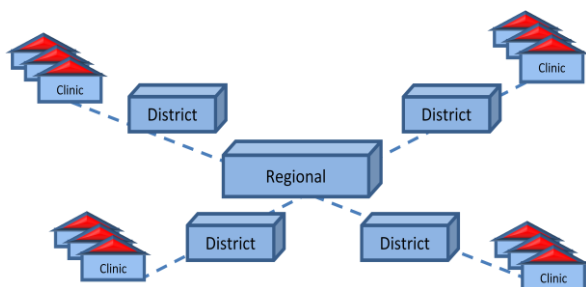
**Delivered to Site:** This turnkey solution delivers the infrastructure, equipment and support services to establish a fully functional warehouse at the identified locations in the field. The pre-engineered framework, panels, doors and windows to be assembled are transported inside containers for installation at the chosen site.

The site needs to have been pre-equipped with the necessary water, electricity and sewage points; comply with ground specifications and have access roads, prior to the delivery of the warehouse components.



**Capacity Building:** The assembly is followed by a 1-3 month intensive commissioning program to prepare the local team to manage the warehouse to established operating procedures and quality assurance standards. The roles and responsibilities together with Key Performance Indicators (KPI) are instituted for the delivery of service by the Warehouse resources. Benchmarking will give a clear indication of compliance to regulations, quality, effectiveness of operations and ad hoc audits will be done to measure the performance levels.

**Warehouse-in-a-Box™ is an innovative turnkey solution that creates sustainable warehouse facilities and skills in urban or rural sectors**





# Case Study: 500m<sup>2</sup> District Warehouse

## Challenge:

Multiple rural Clinics provide Primary Healthcare services to patients from the surrounding area. These Clinics are rudimentary structures and do not have storage capacity to secure sufficient stock. The Clinics rely on deliveries from the District or Regional Warehouse but these are often irregular and lead to stock out situations. Thus the Clinics will refer patients to the regional Clinics or hospitals putting further strain on these institutions.

## Recommendation:

Establish a 500m<sup>2</sup> District Warehouse which provides secure, pharmaceutical compliant storage and operational service closer to the points of care. Enable the District Warehouse to manage the quality and quantity of commodities to effectively manage the Supply Chain needs for the district and support a stronger quantification program.

### Phase 1: Order Management (3-4 weeks)

PHD Project Manager and the District Team review:

- Proposed location for warehouse
- Detailed storage & distribution requirements such as:
  - Regional warehouse or direct receiving cycle
  - Despatch cycle to clinics
  - Capacity requirements

The output is a **functional warehouse design specification** according to the supply chain needs and process flows. The **plan** is documented together with a quote for **approval**.

Post approval the District Team will manage the process of plan submission & civil works to ready the site (1mth)

### Phase 2: Production (2-4 weeks)

PHD Project Manager works with the supply partners to:

- Prepare and deploy the base plate at site
- Manufacture the steel frame
- Produce the panels
- Order the identified equipment

All relevant **compliance certificates** are provided to the District Team to close out this phase

After site civil work & base plate completion, the components are road/ocean freighted to site (2-4wks)

### Phase 3: Installation (2-4 weeks)

The team of installers, engineers, and technicians experienced in rapid panelling assemble the structure, under the guidance of the PHD Project Manager. The District Warehouse is then equipped per the technical specification and the relevant security components installed.

On completions of the installation phase the **specified checklist** from Phase 1 is reviewed and signed off.

### Phase 4: Commissioning (2-3 months)

During the production, transport & installation stages the PHD and District teams will work together to start the skills transfer and training program:

- Job descriptions detailing roles & responsibilities
- Key Performance Indicators and benchmarks
- Quality Systems Management program
- Warehouse Operations Training
- Standards Operating Procedures customisation

District Warehouse Team resources are selected and ready for training

The District Warehouse is **transferred** to the local team who will manage against the established quality standards.

The District Warehouse is fully functional and resourced.

### Ad Hoc Audits

6 monthly and annual audits of the District Warehouse will perform a security risk assessment, audit the processes and procedures per set standards, and provide refresher training as required.

The sustainable coaching and support through the **audits** enables long term sustainability

*Timeframes are estimates only, dependent on preparation readiness, availability of resources, seasonal impacts, regulatory & contracting processes. and transportation times.*



# Warehouse-in-a-Box™ Specification Sheet



| <i>Equipment &amp; Services specification sheet for Warehouse-in-a-Box™</i>   |                                |                                     |   |   |   |
|---|--------------------------------|-------------------------------------|---|---|---|
| <b>Commissioning of Warehouse</b>   | <b>Training</b>                | <b>Audits</b>                       | <b>Option 1:</b>                              | <b>Option 2:</b>                              | <b>Option 3:</b>                                    |
| <b>Included</b>   | <b>Included for 6-8 people</b> | <b>2 audits post implementation</b> | <b>21x25x6m, 500m<sup>2</sup></b>             | <b>21x50x6m, 1000m<sup>2</sup></b>            | <b>(21x50x6m), x 2, 2000m<sup>2</sup></b>           |
| <b>Air conditioning unit</b>  |                                |                                     |   |   |   |
| For warehouse location only. Condensing unit/s with four matched evaporators and all ancillary refrigeration and electrical controls for a complete working solution. |                                |                                     | 1<br>40 KvA, 380V, cooling capacity = 62.4 KW | 2<br>70 KvA, 380V, cooling capacity = 98.4 KW | 4<br>(70 KvA, 380V, cooling capacity = 98.4 KW) x 2 |
| Condensing unit/s   |                                |                                     | 2   | 4   | 8   |
| Evaporators   |                                |                                     | 4   | 8   | 16  |
| <b>Steel Pallet racking</b>   |                                |                                     |   |   |   |
| Height frame – 5100mm x 900mm   |                                |                                     | 64  | 128   | 256   |
| Beams – 2700mm UDL 2300KG per level<br>3 beam levels, 4 stacking levels per bay   |                                |                                     | 336   | 672   | 1344  |
| Rows – 8  |                                |                                     | 8   | 8   | 8 x 2   |
| Bays – 2700mm wide  |                                |                                     | 56  | 112   | 224   |
| Pallet Slots – approx. (Euro Pallet 800x1200)   |                                |                                     | Approx. 760 pallet                            | Approx. 1500 pallet                           | Approx.3000 pallet                                  |
| <b>Generator</b>  |                                |                                     |   |   |   |
| <i>Lovol Perkins, 3 phase, 1500 RPM, 50 Hertz, 400V, Sound proof box, powder coated, AMF autostart panel, Warning gauges, battery charger</i>                         |                                |                                     | 1 x 64KW/80 KvA<br>115 Amp standby power      | 1 x 120KW/150 KvA<br>215 Amp standby power    | 1 x 160KW/250KvA<br>Amp standby power               |
| <b>UPS (Uninterrupted power supply for PC shut down)</b>  |                                |                                     |   |   |   |
| <i>4 KvA (12AMPs, 230V, 50 Hz), single phase input and output, 20 minutes battery autonomy rated at full load</i>   |                                |                                     | 1   | 1   | 1   |
| <b>CCTV</b>   |                                |                                     |   |   |   |
| Cameras   |                                |                                     | 4   | 4   | 8   |
| DVR unit for recording and play back  |                                |                                     | 1 x 500 gig storage capacity                  | 1 x terabyte storage                          | 2 x terabyte storage                                |



# Warehouse-in-a-Box™ Specification Sheet



| <b>Materials Handling Equipment (MHE)</b>   |    |    |    |
|---|----|----|----|
| 1.6. Ton pedestrian Stacker – lift height 5400mm, battery charger single phase 220V | 1  | 2  | 3  |
| 2.5 ton hand pallet jack  | 1  | 2  | 2  |
| <b>Fire equipment</b>   |    |    |    |
| 30m PVC hose reel complete with CP valve  | 1  | 2  | 4  |
| 9kg STP fire extinguisher and bracket.  | 6  | 8  | 12 |
| (190 x 190mm) symbolic signs  | 3  | 4  | 6  |
| Rear fire escape door   | 1  | 1  | 2  |
| <b>Plumbing installation</b>  |    |    |    |
| 150L hot water geyser with pressure control valve and relief valves                 | 1  | 1  | 1  |
| <b>Offices and other rooms</b>  |    |    |    |
| Offices   | 2  | 4  | 6  |
| Boardroom   | 1  | 1  | 1  |
| Reception area  | 1  | 1  | 1  |
| Male WC   | 1  | 2  | 2  |
| Female WC   | 1  | 2  | 2  |
| Wash hand basins  | 2  | 4  | 4  |
| 450 x 600 x 4 mm thick mirror above each wash hand basin                            | 2  | 2  | 2  |
| Kitchen Unit  | 1  | 1  | 1  |
| <b>Office furniture</b>   |    |    |    |
| Wooden desks for offices and reception  | 3  | 5  | 7  |
| Chairs swivel   | 3  | 5  | 7  |
| Standing filing cupboards (6ft. Steel cabinet)                                      | 2  | 4  | 6  |
| Visitors chairs   | 6  | 10 | 14 |
| <b>Pest Control</b>   |    |    |    |
| Rodent bait station bait traps  | 10 | 16 | 20 |
| Insect electrocutors  | 2  | 2  | 4  |
| Chemical/bait for rodents x 10 kg   | 1  | 2  | 2  |
| MSD file and control file   | 1  | 1  | 1  |

Note: Freight requirements will be determined once the location of the warehouse is known