	<p>QUALITY MANAGEMENT SYSTEM ISO 9001:2015</p>	Document No.:
		Issue Date:
		Revision No.:
		Page No.:
		Approved by:
<p>Document Title: MANUFACTURING DEPARTMENT BUSINESS PROCESS FLOW</p>		

## 1. PURPOSE

To ensure accurate and timely production using **Odoo Manufacturing** by properly managing Bill of Materials, Work Centers, and Manufacturing Orders

## 2. SCOPE

Odoo Manufacturing covers the end-to-end production process, including Bills of Materials (BoM), manufacturing orders, work centers, inventory, production planning, quality control, maintenance and costing.

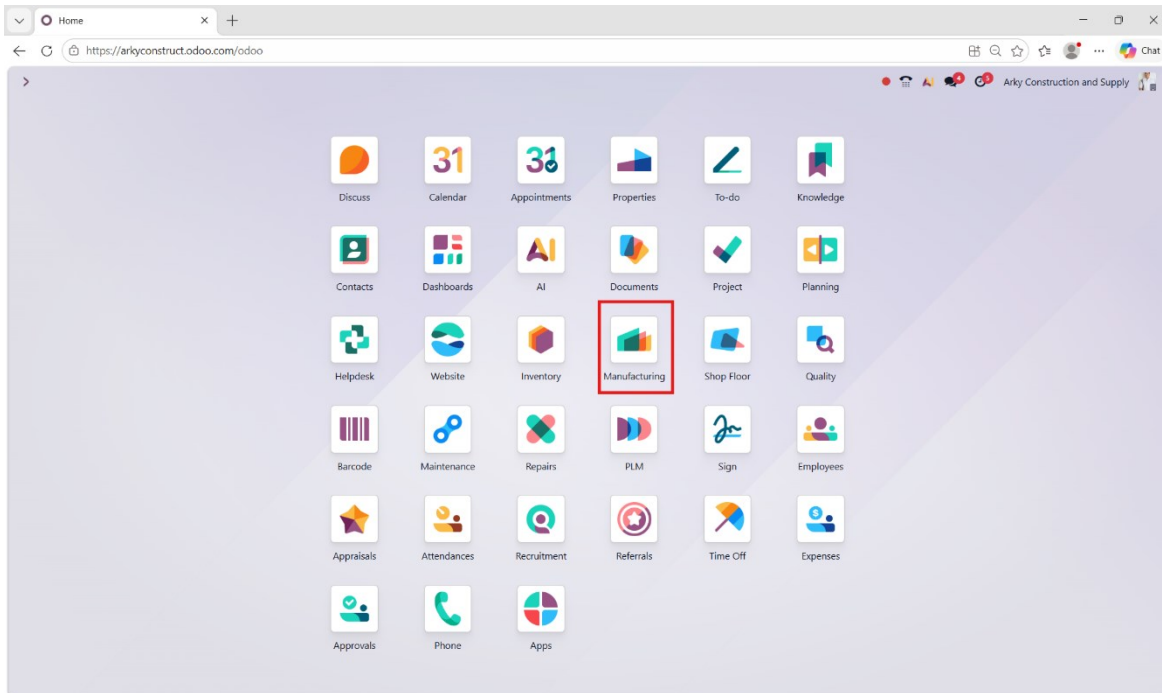
## 3. RESPONSIBILITIES

Role	Responsibility
Civil Engineer	Planning, supervising, ensuring quality, safety and efficient production.
Plant Head Operator	Ensuring all plants used for production are fully operational to meet quality standards.
Foreman	Assist in daily production process.
Labor/s	Assist to Foreman for daily production process.

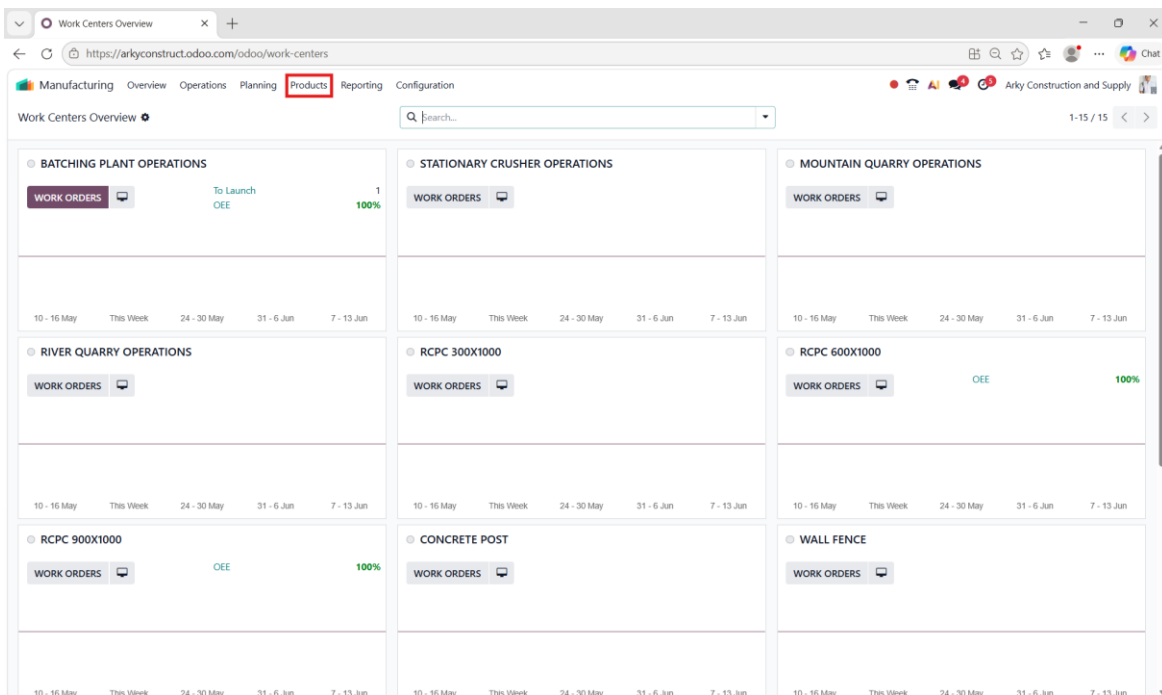
## 4. PROCEDURES

Step-by-step:

1. Go to odoo app then select **Manufacturing**.



2. Go to **Products** then select **Bill of Materials**.



The screenshot shows the 'Bills of Materials' page in Odoo. A dropdown menu is open under 'Products', with 'Bills of Materials' highlighted. The main table lists various products and their associated components.

Product	Reference	BoM Type	Company
RCPC PIPES (Reinforced Concrete Pipe Culvert)	(Ternary Quartz)	Manufacture this product	Arky Construction and Supply
RCPC PIPES (Reinforced Concrete Pipe Culvert)	[RCPC-600X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (600mm x 1.0m)	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	PRECAST PRODUCTION BLACK SAND	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Black Sand, Gravel G1 (crushed) 3K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Black Sand, Gravel G3/4 (crushed) 3K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Quartz Sand, Gravel G3/4 (crushed) 3K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Quartz, Gravel G3/4 (crushed) 4K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Black Sand, Gravel G1 (crushed) 4K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Quartz, Gravel G3/4 (crushed) 4K	Manufacture this product	Arky Construction and Supply
[WLPNC] Wall Fence	Wall Fence	Manufacture this product	Arky Construction and Supply
[MTN-QRQV] Mountain Quarry	Mountain Quarry	Manufacture this product	Arky Construction and Supply
RCPC PIPES (Reinforced Concrete Pipe Culvert)	[RCPC-900X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	Manufacture this product	Arky Construction and Supply
Concrete Post	Concrete Post	Manufacture this product	Arky Construction and Supply
Concrete Post	Concrete Fence Post	Manufacture this product	Arky Construction and Supply
Gravel	GRAVEL G1 (CRUSHED)	Manufacture this product	Arky Construction and Supply
Gravel	GRAVEL G3/8 (CRUSHED)	Manufacture this product	Arky Construction and Supply
Gravel	GRAVEL G3/4 (CRUSHED)	Manufacture this product	Arky Construction and Supply
Sand	SAND (BLACK)	Manufacture this product	Arky Construction and Supply
[FILL-MAT] Filling Material		Manufacture this product	Arky Construction and Supply
[ASH-MIX] Asphalt Mix Pavement Surface	Asphalt Hot Mix	Manufacture this product	Arky Construction and Supply
Base Course	Base Course	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Ready Mix Concrete 3K PSI (3)	Manufacture this product	Arky Construction and Supply
Boulders		Manufacture this product	Arky Construction and Supply
[ARMRCK] Armour Rock		Manufacture this product	Arky Construction and Supply

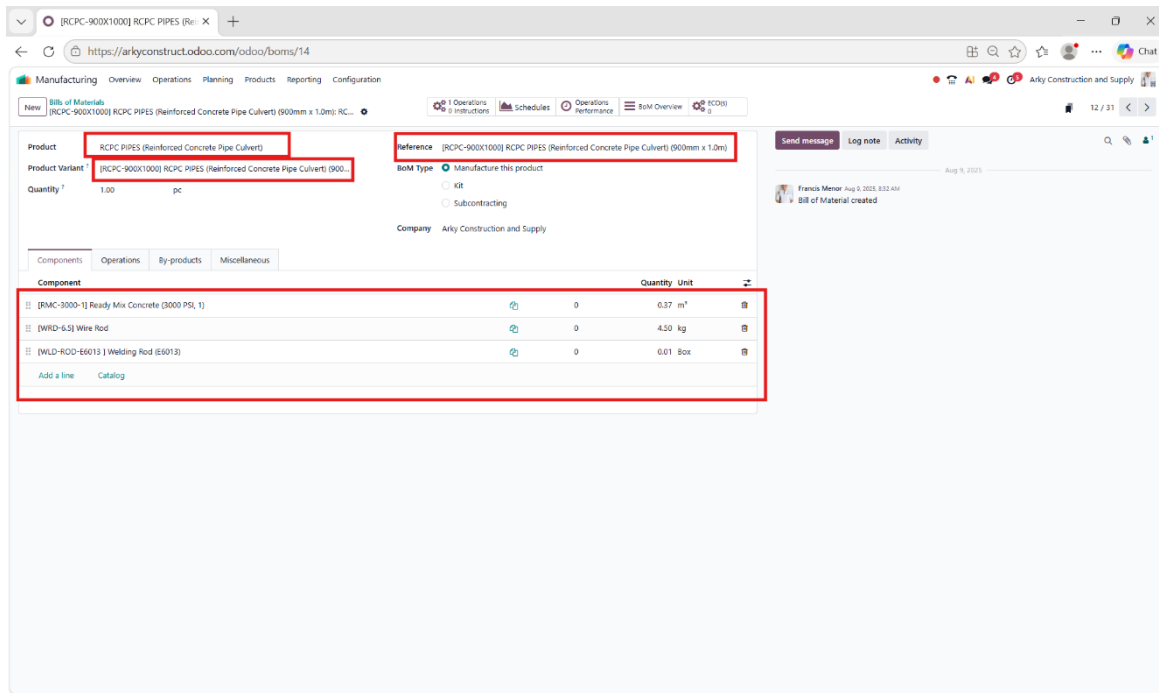
Select **New** to create a **Bill of Materials (BOM)** for the product (e.g., **RCPC 900mm x 1000mm**). In the **Product** line, select **Reinforced Concrete Pipe Culvert (RCPC)**, then choose the appropriate product variant (e.g., **RCPC 900 x 1000**).

Enter all the required components needed to manufacture the product based on the approved requirements and computations.

Provide a reference for each Bill of Materials corresponding to each product, then click **Save**.

The screenshot shows the 'Bills of Materials' page in Odoo. The 'New' button is highlighted with a red box. The table below is identical to the one in the previous screenshot.

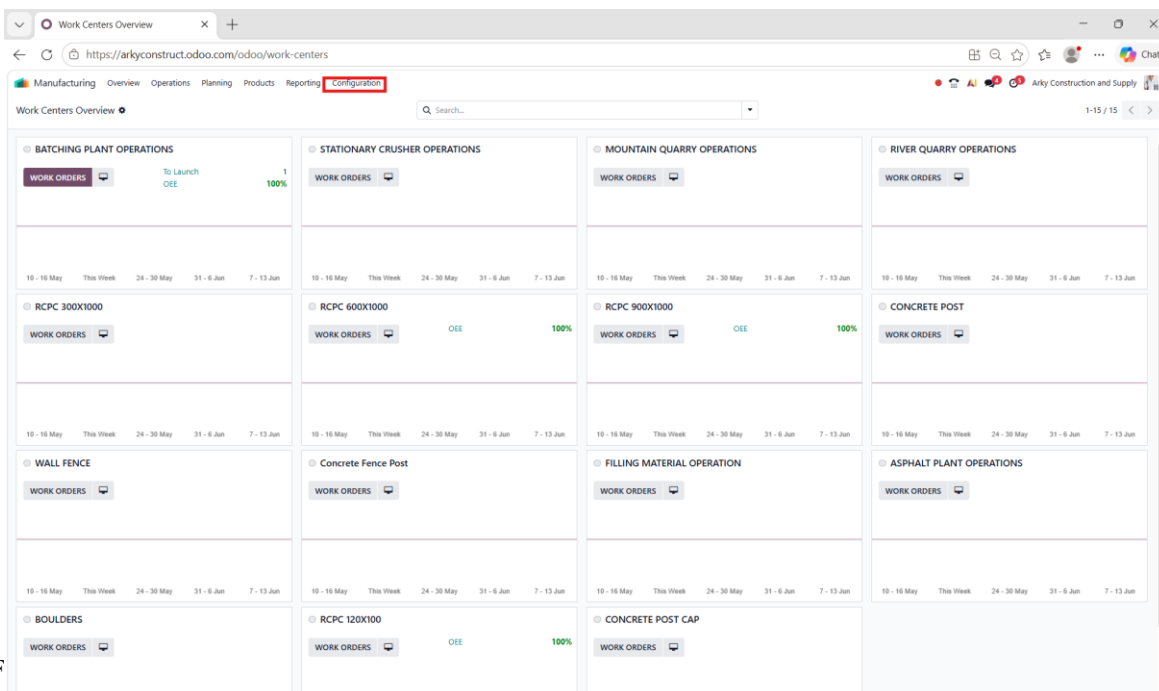
Product	Reference	BoM Type	Company
RCPC PIPES (Reinforced Concrete Pipe Culvert)	(Ternary Quartz)	Manufacture this product	Arky Construction and Supply
RCPC PIPES (Reinforced Concrete Pipe Culvert)	[RCPC-600X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (600mm x 1.0m)	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	PRECAST PRODUCTION BLACK SAND	Manufacture this product	Arky Construction and Supply
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Ready Mix Concrete	Quartz Sand, Gravel G3/4 (crushed) 3K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Quartz, Gravel G3/4 (crushed) 4K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Black Sand, Gravel G1 (crushed) 4K	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Quartz, Gravel G3/4 (crushed) 4K	Manufacture this product	Arky Construction and Supply
[WLPNC] Wall Fence	Wall Fence	Manufacture this product	Arky Construction and Supply
[MTN-QRQV] Mountain Quarry	Mountain Quarry	Manufacture this product	Arky Construction and Supply
RCPC PIPES (Reinforced Concrete Pipe Culvert)	[RCPC-900X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	Manufacture this product	Arky Construction and Supply
Concrete Post	Concrete Post	Manufacture this product	Arky Construction and Supply
Concrete Post	Concrete Fence Post	Manufacture this product	Arky Construction and Supply
Gravel	GRAVEL G1 (CRUSHED)	Manufacture this product	Arky Construction and Supply
Gravel	GRAVEL G3/8 (CRUSHED)	Manufacture this product	Arky Construction and Supply
Gravel	GRAVEL G3/4 (CRUSHED)	Manufacture this product	Arky Construction and Supply
Sand	SAND (BLACK)	Manufacture this product	Arky Construction and Supply
[FILL-MAT] Filling Material		Manufacture this product	Arky Construction and Supply
[ASH-MIX] Asphalt Mix Pavement Surface	Asphalt Hot Mix	Manufacture this product	Arky Construction and Supply
Base Course	Base Course	Manufacture this product	Arky Construction and Supply
Ready Mix Concrete	Ready Mix Concrete 3K PSI (3)	Manufacture this product	Arky Construction and Supply
Boulders		Manufacture this product	Arky Construction and Supply
[ARMRCK] Armour Rock		Manufacture this product	Arky Construction and Supply



After creating the **Bill of Materials (BOM)**, go to the **Manufacturing** view, select **Configuration**, then choose **Work Center**.

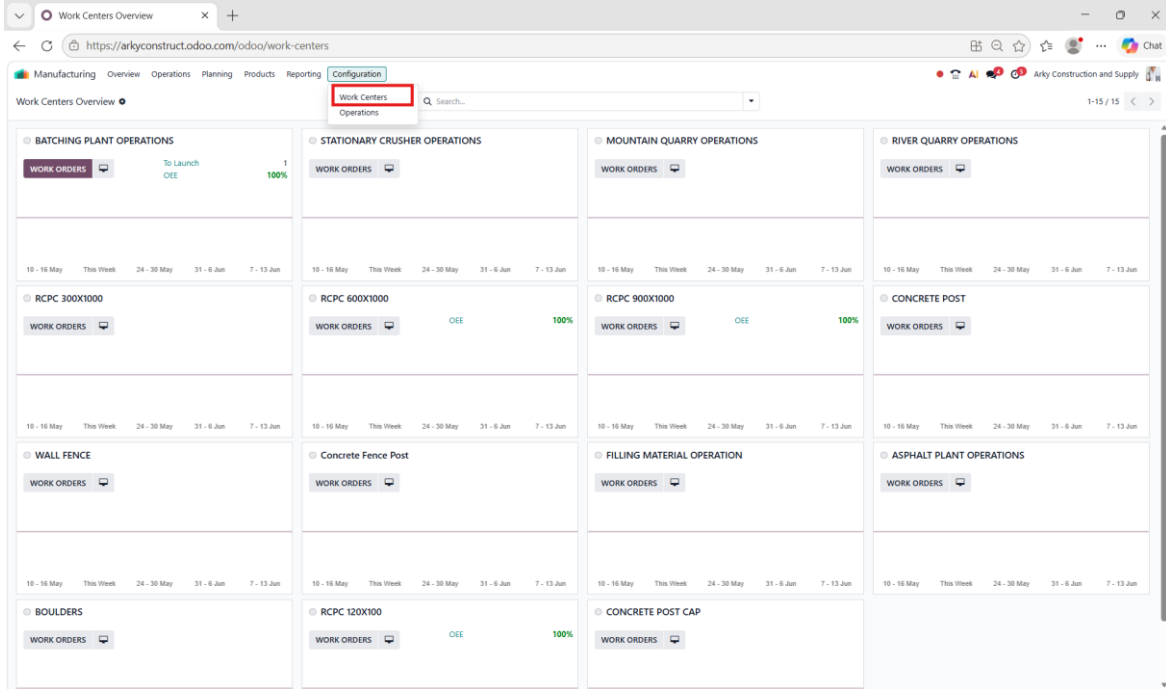
The **Work Center** is where operational costs are charged in addition to the component costs defined in the Bill of Materials. These operational costs may include labor, equipment rental, steel form rental, and other related manufacturing expenses.

The **Cost per Hour** represents the actual operational cost of producing the product. This cost must be properly linked to accounting by assigning the appropriate **Expense Account** under **Manufacturing Expense**.



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Work Center	Code	Tag	Alternative Workcenters	Cost per hour	Time Efficiency	OEE Target
BATCHING PLANT OPERATIONS	BATCHING PLANT OPERATIONS	BATCHING PLANT OPERATIONS		18,052.80	100.00	90.00
STATIONARY CRUSHER OPERATIONS	STATIONARY CRUSHER OPERATIONS	CRUSHER OPERATIONS		4,374.00	100.00	90.00
MOUNTAIN QUARRY OPERATIONS	MOUNTAIN QUARRY OPERATIONS	QUARRY OPERATIONS		300.00	100.00	90.00
RIVER QUARRY OPERATIONS	RIVER QUARRY OPERATIONS	QUARRY OPERATIONS		150.00	100.00	90.00
RCPC 300X1000	RCPC 300X1000	RCPC PRODUCTION		179.02	100.00	90.00
RCPC 600X1000	RCPC 600X1000	RCPC PRODUCTION		362.81	100.00	90.00
RCPC 900X1000	RCPC 900X1000	RCPC PRODUCTION		583.84	100.00	90.00
CONCRETE POST	CONCRETE POST	PRECAST OPERATIONS		950.00	100.00	90.00
WALL FENCE	WALL FENCE	PRECAST OPERATIONS		570.00	100.00	90.00
Concrete Fence Post	Concrete Fence Post	Concrete Fence Post		179.02	100.00	90.00
FILLING MATERIAL OPERATION	FILLING MATERIAL OPERATION	FILLING MATERIAL		100.00	100.00	90.00
ASPHALT PLANT OPERATIONS	ASPHALT PLANT OPERATIONS	ASPHALT PLANT OPERATIONS		2,815.10	100.00	90.00
BOULDERS	BOULDERS	QUARRY OPERATIONS		250.00	100.00	90.00
RCPC 120X100	RCPC (120X100)	PRECAST OPERATIONS		0.00	100.00	90.00
CONCRETE POST CAP	CONCRETE POST CAP	PRECAST OPERATIONS		150.00	100.00	90.00

For the work center, you may either create a new one or use an existing work center that has already been set up. For this reference, select **New**. Enter the work center name and specify the percentage of time efficiency in performing the operation for this product.

For the **OEE (Overall Equipment Efficiency)**, input the operating efficiency percentage based on the condition and performance status of the equipment or machine being used.

The **Cost per Hour** represents the total operational cost of the product. This includes equipment rental, steel form rental, labor costs, and any additional expenses not included in the Bill of Materials (BOM). The **Expense Account** is very important because it transfers day-to-day manufacturing operation data to the accounting records.

**Work Center Name** [ ] **Code** [ ]

**Tag** [ ] **Working Hours** 43 hours/week

**Alternative Workcenters** [ ] **Company** Arky Construction and Supply

General Information | **Equipment** | Maintenance | IoT Triggers

PRODUCTION INFORMATION		COSTING INFORMATION	
Time Efficiency	100.00	% Cost per hour	0.00 per workcenter
OEE Target	90.00	%	0.00 per employee
Setup Time	0m 0s	Expense Account	[ ]
Cleanup Time	0m 0s	Analytic Distribution	[ ]

**OPERATIONS**

Allowed Employees [ ]

**DESCRIPTION**

Description of the work center...

**Work Center Name** RCPC 900X1000 **Code** RCPC 900X1000

**Tag** RCPC-PRODUCTION-X **Working Hours** Working Hours 48 hours/week

**Alternative Workcenters** [ ] **Company** Arky Construction and Supply

General Information | **Equipment** | Maintenance | IoT Triggers

PRODUCTION INFORMATION		COSTING INFORMATION	
Time Efficiency	100.00	% Cost per hour	583.84 per workcenter
OEE Target	90.00	%	0.00 per employee
Setup Time	30m 0s	Expense Account	Manufacturing Expense
Cleanup Time	30m 0s	Analytic Distribution	[ ]

**OPERATIONS**

Allowed Employees [ ]

**DESCRIPTION**

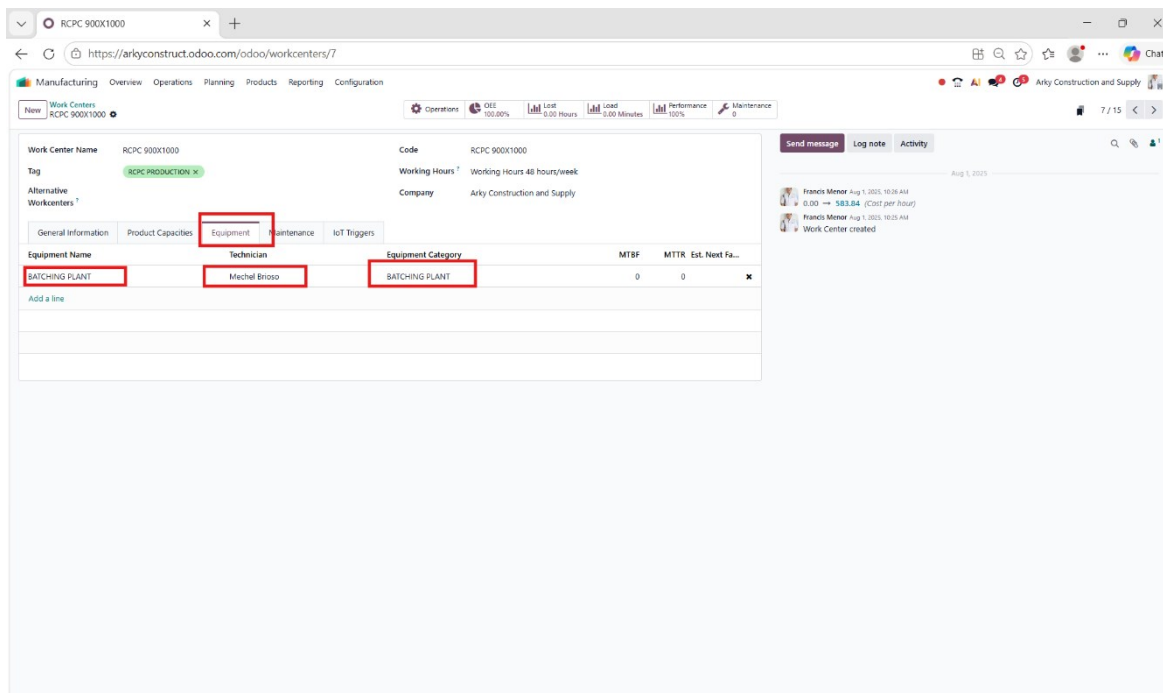
Description of the work center...

Always verify that the **Work Center cost** matches the approved computations to avoid technical and accounting errors in the future. Ensure that the **Cost per Hour**, labor costs, equipment rental, steel form rental, and other operational expenses are accurately reflected before proceeding with manufacturing transactions.

RCPC 90CMX100CM		BILL OF MATERIALS			
ITEM	Description	QTY.	UNIT	Unit Cost	Amount
1	Ready Mix Concrete 3000psi @ 28 days	0.37	cu.m.	4,232.20	1,565.91
2	Wire Rod	4.5	kg/s	43.5	195.75
3	Welding Rod	0.15	kg/s	70	10.5
				<b>TOTAL MATERIAL COST</b>	<b>1,772.16</b>
OPERATION COST					
6	Molds Rental	1	lot	224	224
7	Labor cost	1	l.s	359.84	359.84
				<b>TOTAL OPERATION COST</b>	<b>583.84</b>
				<b>TOTAL COST</b>	<b>2,356.00</b>

You may also select the equipment that will be used for the entire operation, as well as assign the **Maintenance In-Charge** responsible for the equipment.

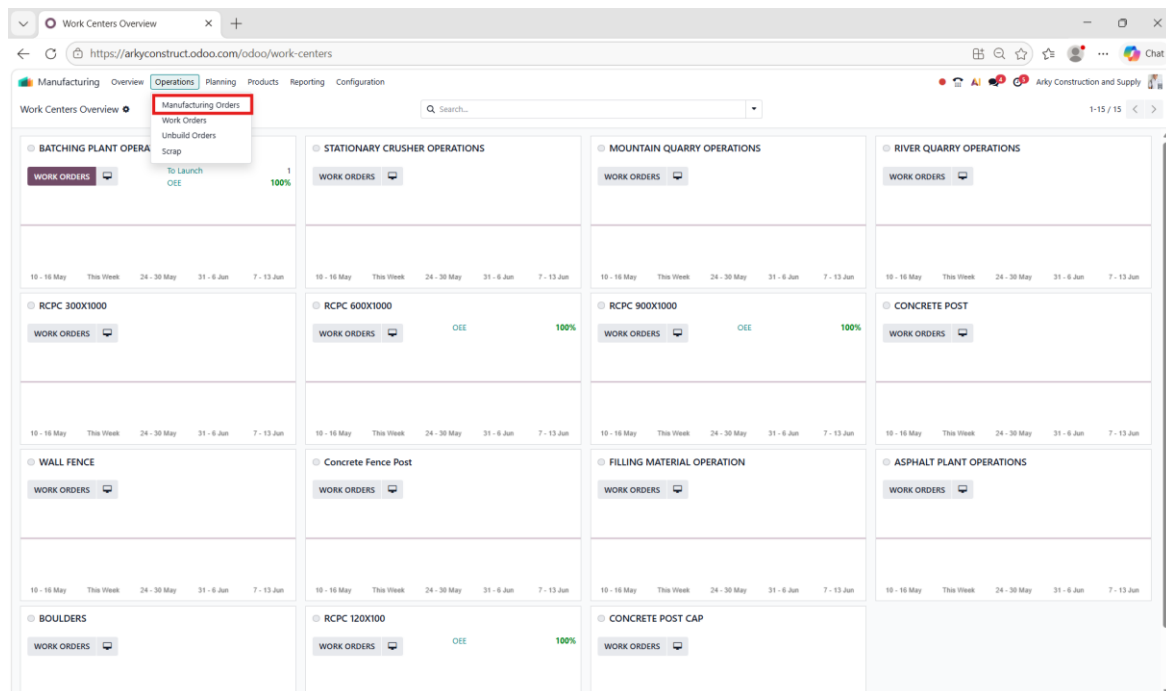
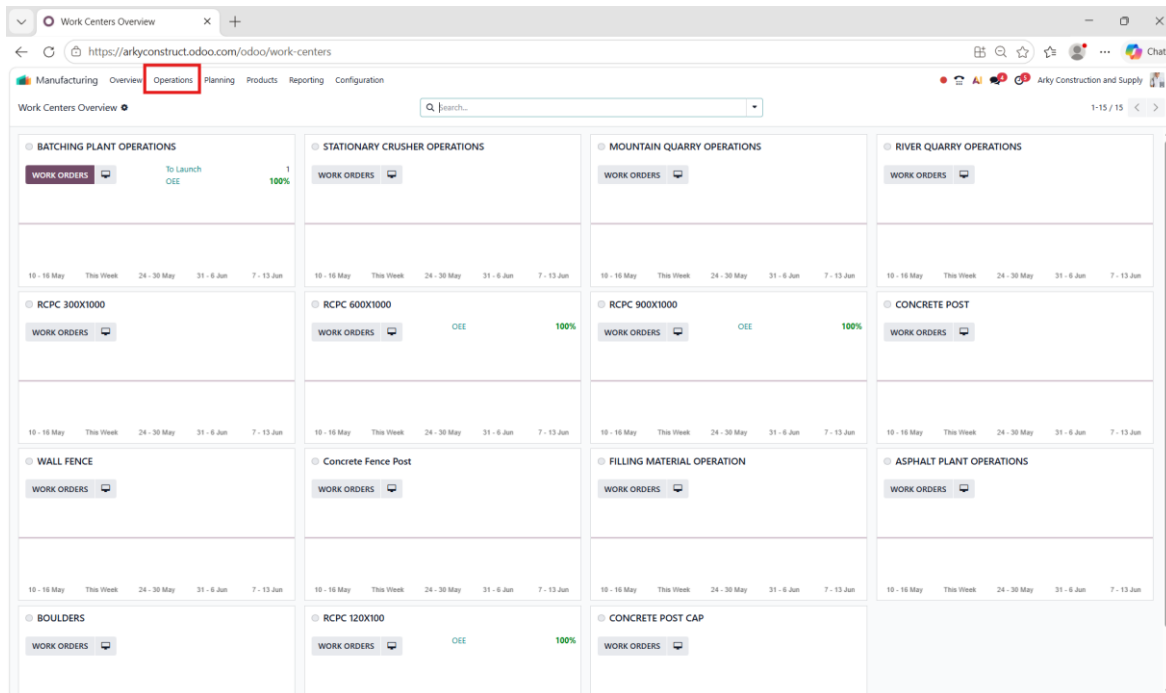
After creating the **Work Center**, click **Save** to manually save the configuration.



To manufacture a product, go to the **Manufacturing** view, select **Operations**, then click **Manufacturing Orders** and select **New**.

Choose the product to be manufactured and make sure that both the **Source Location** and **Destination Location** are assigned to **PROD/STOCK** before confirming the manufacturing order.

After confirming the order, check the availability of the required components. If some components are unavailable, coordinate with the **Warehouse Production In-Charge** to verify the stock availability of the missing items.



Select **New**, then choose the product you want to manufacture (e.g., **RCPC 900 x 1000**). Enter the number of pieces to be manufactured in the **Quantity** field. The system will automatically link the product to the corresponding **Bill of Materials (BOM)** that was previously created.

If some components appear as unavailable, click the **Miscellaneous** tab and change the **Source Location and Destined Location** to **PROD/STOCK**, then return to the **Components** tab to recheck the availability.

If the components are still unavailable, coordinate with the **Warehouse Production In-Charge** to verify the stock availability of the required materials.

Once all required components show as available, click **Confirm** to proceed with the manufacturing order.

The image displays two screenshots of the Arky Construction & Supply web application interface for creating a manufacturing order.

**Top Screenshot (New Manufacturing Order):**

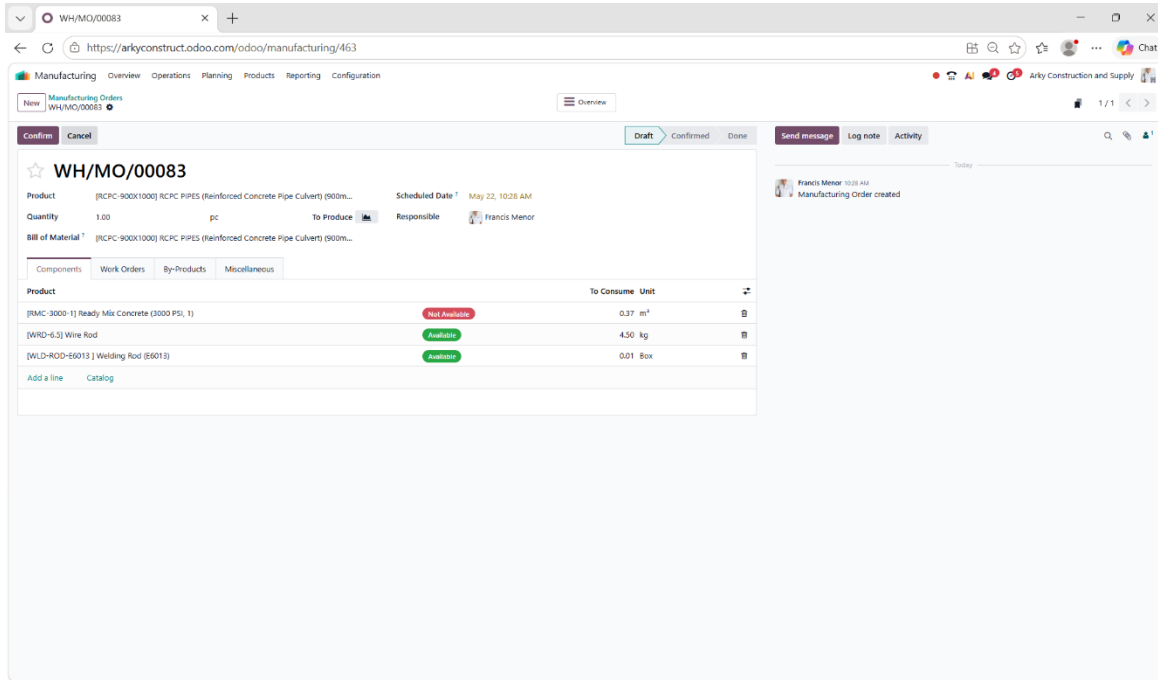
- Product:** RCPC-900X1000 RCPC PIPES (Reinforced Concrete Pipe Culvert) (900m...)
- Quantity:** 1.00 pc
- Scheduled Date:** May 22, 10:28 AM
- Bill of Material:** RCPC-900X1000 RCPC PIPES (Reinforced Concrete Pipe Culvert) (900m...)
- Components Table:**

Product	To Consume	Unit	Availability
RMAC-3000-1) Ready Mix Concrete (3000 PSI, 1)	0.37	m <sup>3</sup>	Available
WRD-6-5) Wire Rod	4.50	kg	Not Available
WLD-RDD-E6013 J Welding Rod (E6013)	0.01	Box	Not Available

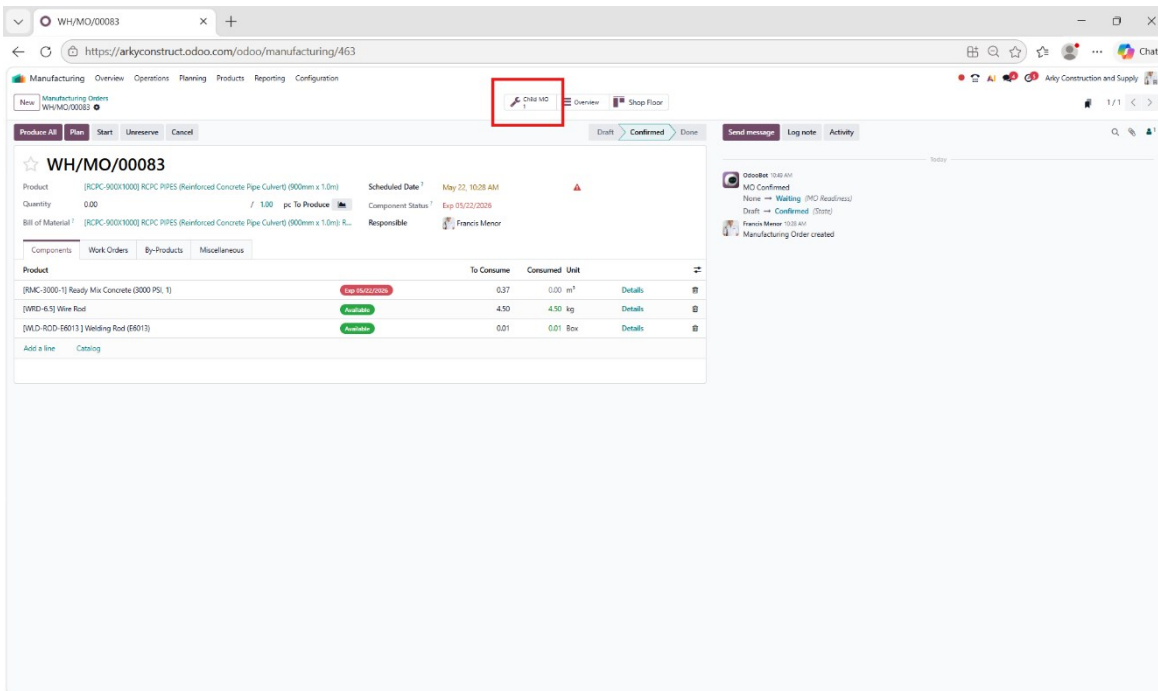
**Bottom Screenshot (WH/MO/00083 Manufacturing Order):**

- Product:** RCPC-900X1000 RCPC PIPES (Reinforced Concrete Pipe Culvert) (900m...)
- Quantity:** 1.00 pc
- Scheduled Date:** May 22, 10:28 AM
- Bill of Material:** RCPC-900X1000 RCPC PIPES (Reinforced Concrete Pipe Culvert) (900m...)
- Operation Type:** Warehouse Production: Manufacturing
- Components Location:** Prod/Stock
- Finished Products Location:** Prod/Stock
- Source:** (Empty)
- Deadline:** (Empty)
- Project:** (Empty)
- Company:** Arky Construction and Supply

After changing the source and destined location, Click Confirm.



*Note: If Ready Mix Concrete is still unavailable, it means that it still needs to be produced. The system will automatically generate it as a Child Manufacturing Order (Child MO), while the RCPC 900 x 1000 manufacturing order will serve as the Source Manufacturing Order (Source MO).*



If a **Bill of Materials (BOM)** and **Work Center** have already been created for **Ready Mix Concrete 3000 PSI**, proceed first with the production of the ready-mix concrete before manufacturing the final product. Go to **Work Orders**, then input the appropriate production time required to manufacture the specified quantity of ready-mix concrete.

For example:

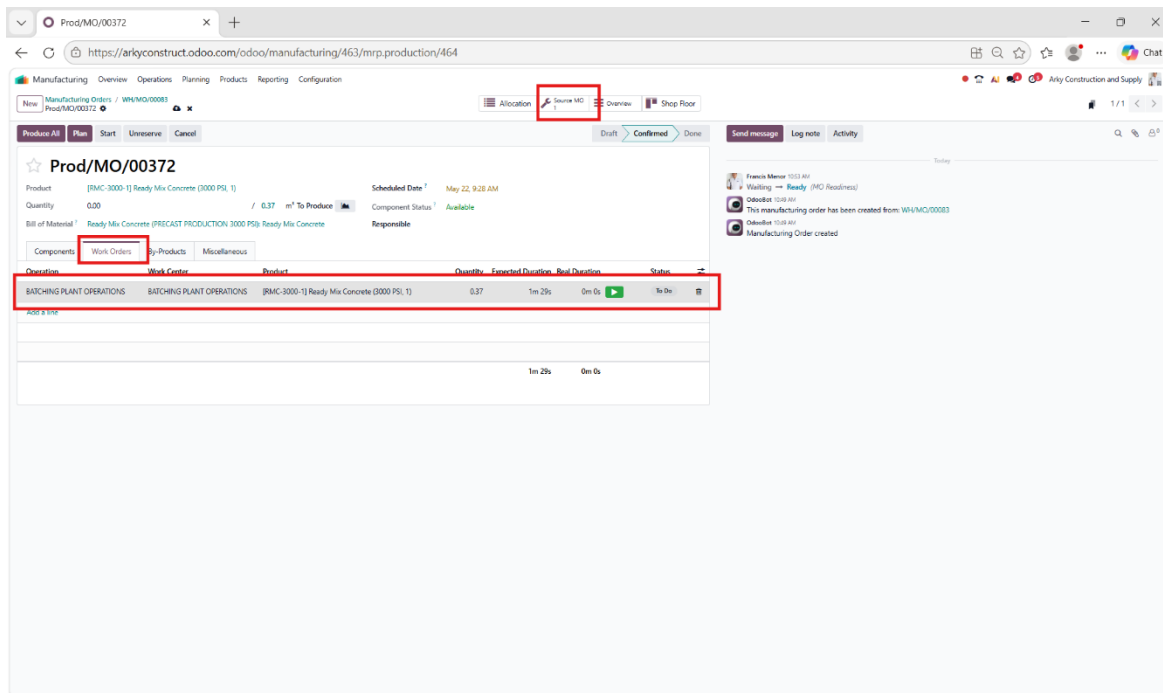
- **4 minutes** are required to produce **1 cubic meter** of concrete.
- One piece of **RCPC 900 x 1000** requires only **0.37 cubic meter** of ready-mix concrete.

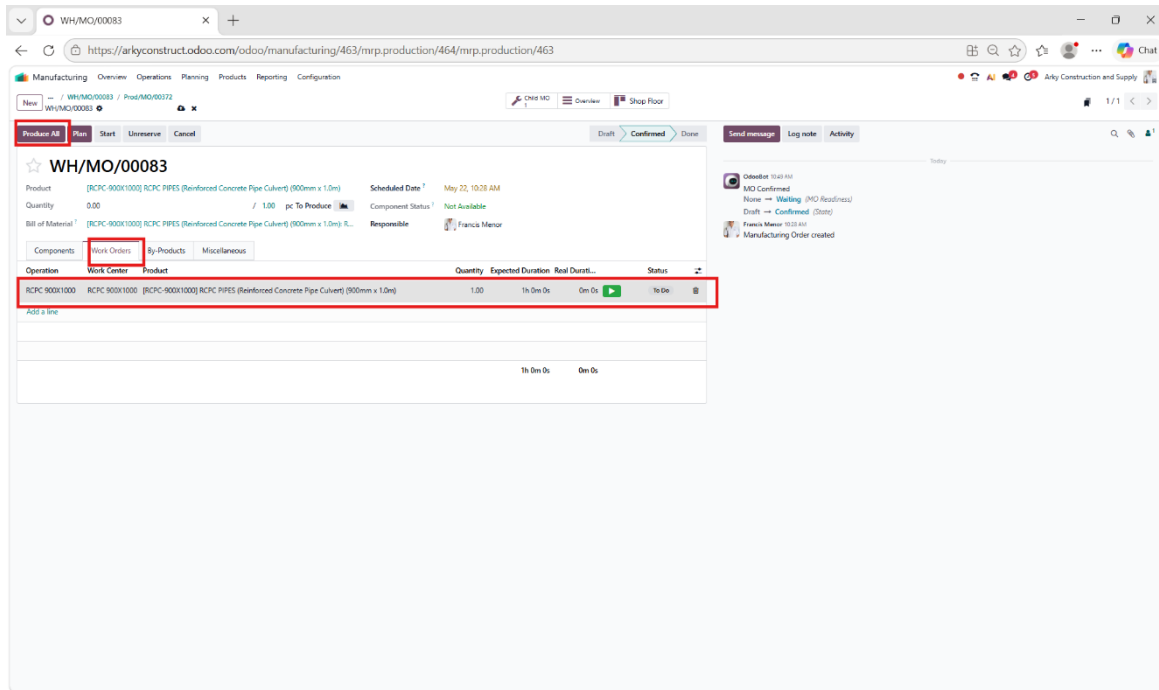
Therefore, the total operation time required is approximately **1 minute and 29 seconds**.

After updating the work order time, click **Produce All** to manufacture the ready-mix concrete.

Once completed, return to the **Source Manufacturing Order (Source MO)** for **RCPC 900 x 1000** and repeat the same process:

1. Go to **Work Orders**.
2. Input the required production time for the product.
3. Click **Produce All** to complete the manufacturing process.



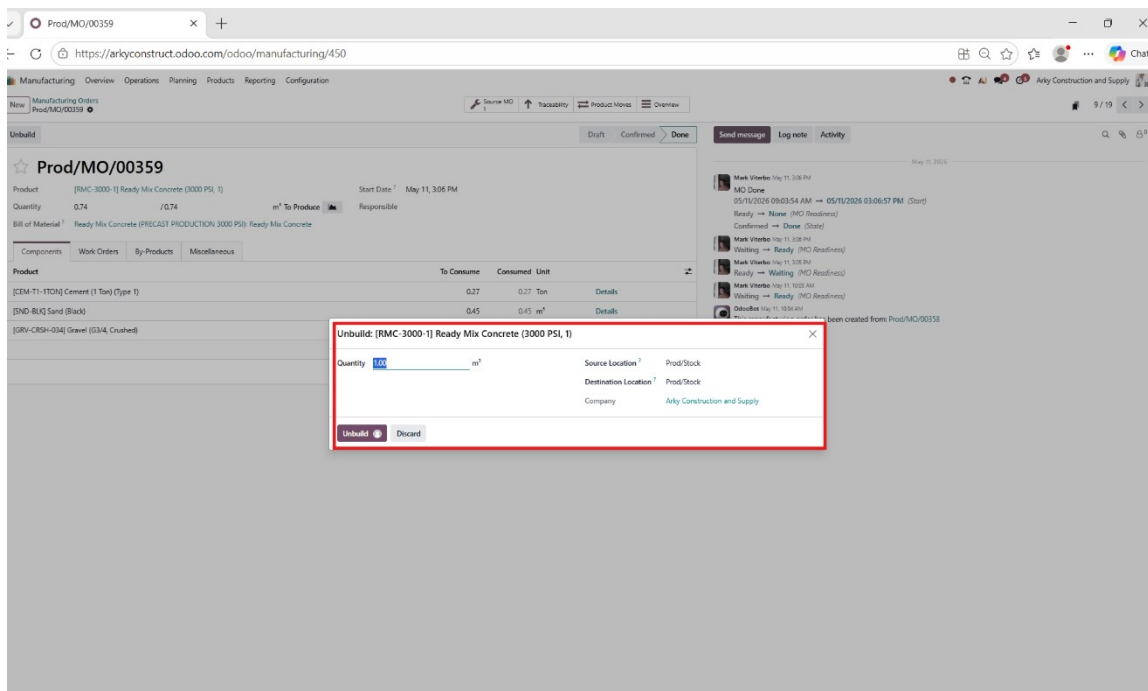
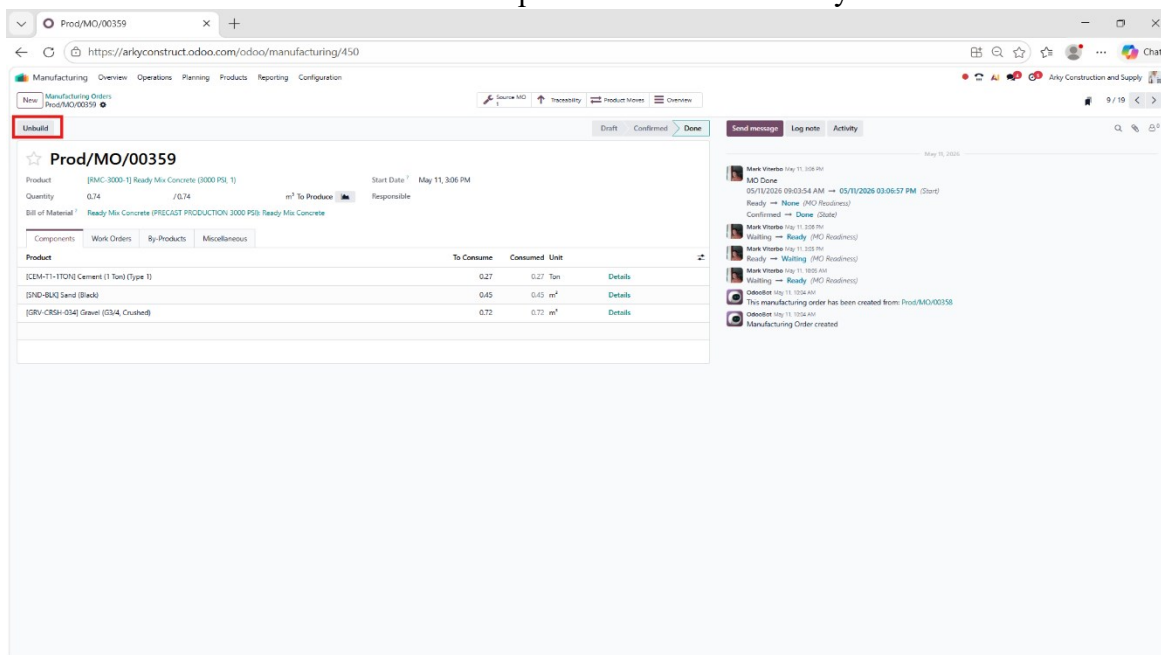


**Note:** Once a product is manufactured, all required components are automatically deducted from the inventory, and the finished manufactured product is added to the inventory accordingly.

If a product is mistakenly manufactured without proper verification, you can use the **Unbuild** function to reverse the manufacturing process. This will return all consumed components to their respective stock locations and deduct the manufactured product from the inventory.

To unbuild a product:

1. Go to the manufactured product that was mistakenly produced.
2. Select the product.
3. Click **Unbuild**.
4. Enter the quantity that needs to be unbuild.
5. Confirm the transaction to return the components back to inventory.



In addition, since the system is integrated across all applications, any demand coming from **Sales Orders** will automatically reflect in the **Manufacturing** view. This means the system will indicate when a product needs to be manufactured based on existing sales demand.

Because of this integration, you do not need to repeat the entire setup process. You only need to verify the availability of materials, then proceed by clicking **Produce All** to complete the manufacturing process.

Reference	Start	Product	Next Activity	Source	Component Status	Quantity	Unit	Company	State
Prod/MO/00132	Nov 24, 2025	[RCPC-900X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00130	Nov 24, 2025	[RCPC-1200X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00134	Nov 24, 2025	[RCPC-600X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (600mm x 1.0m)	○			6.00	pc	Arky Construction and Supply	Done
Prod/MO/00137	Nov 28, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00136		0.41	m³	Arky Construction and Supply	Done
Prod/MO/00136	Nov 28, 2025	[RCPC-1200X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00139	Nov 28, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00138		1.50	m³	Arky Construction and Supply	Done
Prod/MO/00138	Nov 28, 2025	[RCPC-600X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (600mm x 1.0m)	○			6.00	pc	Arky Construction and Supply	Done
Prod/MO/00141	Nov 28, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00140		0.74	m³	Arky Construction and Supply	Done
Prod/MO/00140	Nov 28, 2025	[RCPC-900X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Crush/MO/00034	Dec 9, 2025	[GRV-CRSH-034] Gravel (G3/4, Crushed)	○			19.32	m³	Arky Construction and Supply	Done
Prod/MO/00142	Dec 10, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	S00272		32.00	m³	Arky Construction and Supply	Done
Crush/MO/00035	Dec 16, 2025	[GRV-CRSH-034] Gravel (G3/4, Crushed)	○			19.32	m³	Arky Construction and Supply	Done
Prod/MO/00144	Dec 16, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00143		1.50	m³	Arky Construction and Supply	Done
Prod/MO/00143	Dec 16, 2025	[RCPC-600X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (600mm x 1.0m)	○			6.00	pc	Arky Construction and Supply	Done
Prod/MO/00146	Dec 16, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00145		0.74	m³	Arky Construction and Supply	Done
Prod/MO/00145	Dec 16, 2025	[RCPC-900X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00148	Dec 16, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00147		0.41	m³	Arky Construction and Supply	Done
Prod/MO/00147	Dec 16, 2025	[RCPC-1200X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00150	Dec 16, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00149		1.05	m³	Arky Construction and Supply	Done
Prod/MO/00149	Dec 16, 2025	[CPST-WLL] Concrete Post (Wall)	○			3.00	pc	Arky Construction and Supply	Done
Prod/MO/00152	Dec 16, 2025	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00151		3.15	m³	Arky Construction and Supply	Done
Prod/MO/00151	Dec 16, 2025	[WLFNC] Wall Fence	○			15.00	pc	Arky Construction and Supply	Done
Prod/MO/00154	Jan 14	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00153		3.15	m³	Arky Construction and Supply	Done
Prod/MO/00153	Jan 14	[WLFNC] Wall Fence	○			15.00	pc	Arky Construction and Supply	Done
Prod/MO/00156	Jan 14	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00155		0.41	m³	Arky Construction and Supply	Done
Prod/MO/00155	Jan 14	[RCPC-1200X1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00158	Jan 14	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00157		0.74	m³	Arky Construction and Supply	Done

**Note:** All sources that start with **SO** followed by numbers refer to **Sales Orders**. These are part of the system integration that links **Sales** to **Manufacturing**, creating demand that triggers production requirements. Manufacturing is then responsible for supplying the required products based on these sales-driven demands.

## 5. RECORDS

Records can be viewed through the **Manufacturing** app by navigating to **Operations** → **Manufacturing**. From this view, you can access and review all manufactured items, from the earliest records up to the most recent transactions.

Reference	Start	Product	Next Activity	Source	Component Status	Quantity	Unit	Company	State
Prod/MO/00214	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	WH/MO/00054		0.70	m³	Arky Construction and Supply	Done
Prod/MO/00215	3 months ago	Concrete Post Cap	○			45.00	pc	Arky Construction and Supply	Done
Prod/MO/00213	3 months ago	[CPST-WL] Concrete Post (Wall)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00217	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00216		0.41	m³	Arky Construction and Supply	Done
Prod/MO/00216	3 months ago	[RCPC-1200x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00219	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00218		0.74	m³	Arky Construction and Supply	Done
Prod/MO/00218	3 months ago	[RCPC-900x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00222	3 months ago	Concrete Post Cap	○			5.00	pc	Arky Construction and Supply	Done
Prod/MO/00221	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00220		3.15	m³	Arky Construction and Supply	Done
Prod/MO/00220	3 months ago	[WLN/NC] Wall Fence	○			15.00	pc	Arky Construction and Supply	Done
Prod/MO/00224	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00223		0.74	m³	Arky Construction and Supply	Done
Prod/MO/00223	3 months ago	[RCPC-900x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00226	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00225		0.41	m³	Arky Construction and Supply	Done
Prod/MO/00225	3 months ago	[RCPC-1200x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00228	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00227		0.70	m³	Arky Construction and Supply	Done
Prod/MO/00227	3 months ago	[CPST-WL] Concrete Post (Wall)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00230	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00229		3.15	m³	Arky Construction and Supply	Done
Prod/MO/00229	3 months ago	[WLN/NC] Wall Fence	○			15.00	pc	Arky Construction and Supply	Done
Prod/MO/00231	3 months ago	Concrete Post Cap	○			5.00	pc	Arky Construction and Supply	Done
Prod/MO/00233	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00232		0.41	m³	Arky Construction and Supply	Done
Prod/MO/00232	3 months ago	[RCPC-1200x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (1200mm x 1.0m)	○			1.00	pc	Arky Construction and Supply	Done
Prod/MO/00235	3 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00234		0.74	m³	Arky Construction and Supply	Done
Prod/MO/00234	3 months ago	[RCPC-900x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00291	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	S00432	Not Available	154.00	m³	Arky Construction and Supply	Confirmed
Prod/MO/00236	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	S00432		53.00	m³	Arky Construction and Supply	Done
Prod/MO/00340	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	S00432		53.00	m³	Arky Construction and Supply	Done
Prod/MO/00238	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00237		3.15	m³	Arky Construction and Supply	Done
Prod/MO/00237	2 months ago	[WLN/NC] Wall Fence	○			15.00	pc	Arky Construction and Supply	Done
Prod/MO/00239	2 months ago	Concrete Post Cap	○			5.00	pc	Arky Construction and Supply	Done
Prod/MO/00245	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	S00429		103.00	m³	Arky Construction and Supply	Done
Prod/MO/00246	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○			17.00	m³	Arky Construction and Supply	Done
Prod/MO/00247	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○			3.00	m³	Arky Construction and Supply	Done
Prod/MO/00242	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00241		0.74	m³	Arky Construction and Supply	Done
Prod/MO/00241	2 months ago	[RCPC-900x1000] RCPC PIPES (Reinforced Concrete Pipe Culvert) (900mm x 1.0m)	○			2.00	pc	Arky Construction and Supply	Done
Prod/MO/00244	2 months ago	[RMC-3000-1] Ready Mix Concrete (3000 PSI, 1)	○	Prod/MO/00243		0.41	m³	Arky Construction and Supply	Done

## 3. RISKS & CONTROLS

RISK	EFFECT	HOW TO CONTROL
Incorrect Bill of Materials (BoM)	Wrong quantity of materials consumed	Double-checking by engineering/production head
Incorrect Work Center Costing	Wrong product cost calculation	Proper setup of cost per hour in system
Improper Production Execution	Quality defects	Standard operating procedures (SOPs)
Poor Coordination Between Departments	Delayed production	Regular production planning meetings
Inaccurate Inventory or Stock Availability	Production delays due to missing materials	Real-time inventory monitoring system

In relation to the manufacturing process, the following manufacturing plants are responsible for producing aggregates and related products such as (Ready-Mix Concrete, Asphalt Hot Mix).

## 1. Concrete Batching Plant



A **concrete batching plant** is a facility designed to accurately proportion, mix, and produce high-quality concrete under controlled conditions. It ensures consistency, strength, durability, and uniformity by combining cement, aggregates, water, and admixtures according to approved mix designs required for various construction projects.

The batching process is carefully controlled through automated weighing and measurement systems to ensure that each material is properly proportioned before mixing. This helps maintain consistent quality for every batch produced and supports compliance with engineering specifications and standards.

The plant produces **ready-mix concrete** used for a wide range of applications, including precast products such as reinforced concrete pipes (RCPCs) and concrete posts manufactured within the facility. It is also used for construction works such as pouring Portland Cement Concrete Pavement (PCCP) for roads, as well as structural elements like footings, slabs, beams, and other reinforced concrete components.

## 2. Asphalt Batching Plant



An **asphalt batching plant** is a specialized facility designed for the production of asphalt mixtures used in road construction and pavement works. It functions by carefully processing and combining heated aggregates, bitumen, filler materials, and other additives in precise proportions based on approved mix designs. The production process is carried out under strict temperature and quality control to ensure that the final asphalt mix meets the required standards for strength, durability, workability, and long-term performance.

The plant is equipped with systems for drying and heating aggregates, accurate weighing and batching of materials, and controlled mixing to achieve uniform consistency. Each component is carefully measured and blended to produce a high-quality hot mix asphalt suitable for various construction applications.

The resulting hot mix asphalt is widely used in the construction of new roads, highways, and airport runways, as well as in pavement rehabilitation works such as overlays for existing roads and bridges. It is also utilized for asphalt surfacing applications that require smooth, durable, and weather-resistant pavement layers.

### 3. Stationary Crusher Plant



A **stationary crusher plant** is a permanently installed facility designed to process large rocks, boulders, and raw stone materials into smaller, graded construction aggregates. Unlike mobile crushing units, it is fixed in one location and operates as a continuous production system to supply consistent volumes of processed materials for various construction needs.

The plant works by feeding raw materials into crushing equipment where they are broken down into different sizes through stages of crushing and screening. These materials are then separated and classified into specific aggregate types based on required specifications.

It produces essential construction aggregates such as **sand, gravel G3/8, gravel G3/4, and gravel G1**, which are widely used in concrete production, road base and sub-base layers, asphalt works, and other infrastructure applications. By ensuring a steady and controlled supply of high-quality aggregates, the stationary crusher plant plays a critical role in supporting construction and manufacturing activities.

## 4. Mobile Crusher Plant



A **mobile crusher plant** is a portable crushing plant used for processing raw materials into construction aggregates. Unlike a stationary crusher, it is not permanently installed and can be relocated to different sites depending on project requirements, making it more flexible for field operations.

It is primarily used to produce aggregates such as **gravel G3/4, gravel G3/8, and sand**. However, its production of gravel G1 is limited due to the absence of a secondary jaw crusher that would normally further reduce oversized materials into the required G1 size. Additionally, the vibrating screen installed in the unit has a slightly wider mesh opening than the standard specification for G1, resulting in some oversized materials that do not fully meet the required grading.

Despite this limitation, the mobile crusher remains useful for producing basic aggregate requirements on-site, especially for projects that require faster deployment and flexible crushing operations.