9Wood is the only company in the U.S. that exclusively fabricates custom wood ceilings. Their award winning projects can be seen in many of the most iconic and luxury venues throughout North America. Learn how this engineer to order company has embraced a full Demand Driven Operating Model (DDOM) to completely change the game and win big in this difficult project environment. Craig Jolly, Operations Manager, will present.
Evolution of a Flow-Based Operating Model

Craig Jolly
Production Operations Manager
Custom Suspended Wood Ceilings
[Specialty] Construction:

- Unique customer requirements
  - Species, size, shape, spacing, color, etc.
- Long lead times
- Schedule uncertainty
- Low on-time performance
Our Difference:

On Time In Full

Industry Average: ~75%
Demand Driven:

Engineer-To-Order: 15%

Design-To-Order: 85%

Make-To-Stock: 0%
Challenges:

- Volume: +/- 30% month-to-month
- 2018: +23%
- 2019: +7%
- Low automation

Reliability (with lowest system expense)
Strategic Decoupling:

Options:

a) Build Inventory
b) Extend lead times
c) Be faster

Benefits:

✓ Shorten planning horizon
✓ Dampen variability
X Compress LT

Customer tolerance: 8-10 weeks

- Materials: 5-6 weeks
- Production: 3-4 weeks

Opportunity: 1-2 weeks
Pre-2018 Flow:

Synchronizing Operation (Drum)

System:
- Manual (crew-paced)
- Air dry (slow)
- Multiple passes
- Support operations

Result:
- Low Buffer visibility
- High variability
- Reliability issues

9WOOD PLANT
Current Flow:

Synchronizing Operation (Drum)
Capacity Buffers:

Schedule
• 2 shifts / day (20 hrs total)
• 4 days / week

Skills
• Production workers
9Wood Operating Model
Flow-Based Metrics:

Operational (Daily):

- Schedule execution – Reliability
  1) On Time to Shipping Buffer
  2) On Time to Drum Buffers
- Identify & prioritize obstacles to Flow
- Relevant information
- Alignment
Flow-Based Metrics:

Tactical/Strategic (Monthly/Quarterly):
- On Time Adjusted for Claims
- Flow Rate: Volume/Shop Hour
- Inventory

Supplier Quote:
“We didn’t understand what you guys were doing. It didn’t make sense to us, but we can see the effect. Your materials move through our system better than other products we sell”
(Strategic) Market Opportunity:

• 2015: Nothing better than 8-10 weeks
  “We lose too many projects due to lead time”
• Many finished products use common materials
  Stock Buffers
  5-6 weeks → 1 week
• Reserved Capacity
  3-4 weeks → 2 weeks

3-week lead time
Market Opportunity:

• 2016: **FASTTRACK**
  Most popular, but **Simplest** products
  **Custom** to the customer, but easy for us
• 2017: Expanded available products
  (100+ combinations)
• 2018: On Time Shipment Guarantee

5% refund per business day late
Results:

- Visibility ↑
- Variability ↓
- Flow ↑
  - Quality
  - Inventory
  - Capacity (20-30% excess)
  - Cost (-25% headcount)
- Reliability ↑
- Resilience

2019: 97%

+29% vs 2018

-27% vs 2017
What’s Next:

• Implement DDMRP Software (Phase I - 11/1)
  o Production Buffer → Stock Buffer
  o 3 week lead time → 1 week

• Automate Upstream Drum (-3% headcount)

Shift Focus

• Price & Sell based on Flow:
  o Contribution/Shop Hour (Flow Rate)
  o Operational capability

Value: +19%
Thank You
Case Study

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