MODULE 5

System Design and Flow Layout

Conveyor Solutions Engineering | Professional Training Program

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SECTION 1: INTRODUCTION

There is a mistake almost every new solutions engineer makes the first time they sit down with a floor plan and a project brief. They start placing equipment. They see a dock door and think about an induction belt. They see open floor and start drawing conveyor runs. They see the pack stations and route a takeaway toward them. By the time they are done they have a layout. What they do not have is a design.

The discipline that produces a design rather than a layout is flow design. Flow design starts before any equipment is selected and before AutoCAD is opened. It starts with a process story: where does material enter the building, what happens to it at each stage, where does it leave, where are decisions made, where does flow split and where does it combine. That story is mapped as simple blocks and arrows first. It is described out loud before it is drawn. If it cannot be explained clearly in plain language, it is not ready to become a drawing.

This module teaches that discipline from the ground up. It teaches the process flow diagram, the layered development method that turns a concept into a design map, the role of volume and people in layout decisions, how to treat different material flows as separate design problems, and how to stress test a flow concept before a single piece of equipment is committed. The calculator assigned to this module is the Product Specs Calculator, authored by Michael Collins. From a single set of carton inputs it produces the outputs that govern layout decisions: minimum curve width, tumble angle, skew conveyor length, gap produced, theoretical rate, and pitch. Those outputs refine the design after the flow is established. They do not replace flow thinking.

SECTION 2: LEARNING OBJECTIVES

By the end of this module you will be able to:

1	Build a process flow diagram from blocks and arrows before any equipment is selected and explain why this sequence produces better designs than starting with equipment placement.
2	Apply the layered flow diagram method to develop a flow concept into a design map by adding volume, rate, delay, assumptions, and buffer requirements in successive rounds.
3	Define the volume design target for a system explicitly and explain the consequences of designing only to average throughput.
4	Account for people in a layout by designing maintenance access, operator clearance, and safety paths as primary requirements rather than afterthoughts.

5	Identify where different material flows, including outbound, replenishment, returns, and exceptions, must be treated as separate design problems.
6	Stress test a flow concept before AutoCAD work begins and identify where a flow that fails conceptually will not be fixed by adding equipment.
7	Product Specs calculators in the context of specific layout decisions and explain what each output means, and when each applies.

SECTION 3: PREREQUISITES

Required Prior Knowledge

Module 1: The Warehouse Ecosystem and Customer Discovery. The requirements document, the six discovery categories, and the facility walk outputs are the primary inputs to flow design. A flow diagram built without those inputs is a guess about the customer's operation.

Module 2: Product and Package Analysis. The product envelope and Package Calcs outputs feed the layout calculators introduced in this module. Box Tumbling requires package height and length. Curve Formula requires package diagonal and inside radius. Run your product analysis before applying these tools.

Modules 3 and 4: Conveyor Fundamentals and Technology Selection. The transportation versus accumulation distinction and zone control architecture are referenced throughout layout decisions. Where material may need to wait is a flow design question. What conveyor handles that wait is a technology selection question. Both must be understood to make good layout decisions.

Basic AutoCAD proficiency is assumed. This module teaches AutoCAD as it applies to conveyor system layout, not from the beginning.

SECTION 4: THE THREE W'S

The Three W's in this module apply to the flow design process and to each layout calculator. These are distinct tools and each deserves its own treatment.

The Process Flow Diagram

WHY	A process flow diagram is the thinking tool that forces an engineer to understand the operation before drawing equipment. An engineer who can describe the full material journey in plain language, from dock door to dispatch, with every split, merge, decision point, and potential wait location, has already made better design decisions than one who opened AutoCAD first. The diagram is also the first thing shared with the customer. Agreement on the flow before equipment is drawn means the customer confirms you understood their process before you designed anything around it.
WHEN	Before any equipment is selected and before any AutoCAD work begins. Flow comes first. Equipment is placed to support the flow, not the other way around. If

	the flow is wrong, every layout built on top of it is wrong, and equipment cannot correct a flow problem after the fact.
WHERE	The process flow diagram is the first deliverable in every system design engagement. It precedes the equipment schedule, the AutoCAD layout, the rate calculations, and the technology selections. Every module after Module 5 references decisions that trace back to the flow diagram.

The Layered Flow Diagram

WHY	A flow diagram that shows only blocks and arrows is the starting point, not the finished tool. The layered method develops the same diagram in rounds, adding volume and rate at each stage, then delays and assumptions, then buffer requirements at every wait point. By the time all layers are on the diagram, it carries enough information to drive conveyor selection, accumulation sizing, speed calculations, sensor placement, and controls architecture. It is the map the engineer uses through every downstream module.
WHEN	After the process flow is confirmed with the customer. Layering begins once the blocks and arrows are agreed on. Each layer adds specificity that was implicit in the discovery and makes it measurable. The diagram grows from a concept into a specification without ever changing format.
WHERE	The layered diagram is used throughout the design phase. Engineers who maintain it as a living document through the project have a reference that explains the system to the customer, to the controls team, and to the installation crew. It does not get replaced by AutoCAD. It sits alongside it.

The Layout Calculators

WHY	The Product Specs Calculator answers the specific questions that the flow diagram cannot. The flow diagram identifies that a curve exists. The calculator determines whether the package makes that curve without overhanging the guard. The flow diagram identifies that an incline exists. The calculator determines whether the package tips at that angle. The flow diagram identifies that product needs orientation before a scan tunnel. The calculator determines the skew geometry to achieve it. The flow diagram identifies a sensor location. The calculator determines the detection angle and timing. None of those outputs create the flow. All of them validate and refine it.
WHEN	After the flow is established and AutoCAD layout work has begun. These are precision tools for specific decisions during layout development, not general design tools. Reaching for them before the flow is set produces answers to questions the design has not yet asked.
WHERE	These calculators are introduced here because Module 5 is where layout decisions first require them. They continue to be used in Modules 6, 7, and 9 as speed calculations, sortation design, and controls architecture are developed.

SECTION 5: CORE CONTENT

5.1 Why Equipment-First Thinking Produces Weak Designs

When a new engineer looks at a floor plan, the instinct is to start placing things. The dock is there, so an induction belt goes here. The pack stations are over there, so a takeaway conveyor runs along that wall. The sorter fits in the middle. The result is a layout that accounts for all the obvious equipment but has not thought through the process.

Equipment-first thinking fails for several reasons. It designs around the hardware that comes to mind first rather than around the flow the operation actually requires. It optimizes for available space rather than for logical material movement. It skips the question of where material may need to wait, because equipment-first thinking is about placing moving equipment, not about planning capacity. Most importantly, it produces designs that work when everything is calm and fail when conditions stress the system.

Systems fail during spikes, wave releases, downstream congestion, and sudden surges. If the layout was only designed for average conditions, those events are not design problems. They are failures. A design built around the flow handles stress because the flow accounts for it. A layout built around equipment handles the equipment and discovers stress after go-live.

FIELD INSIGHT | MICHAEL COLLINS

The mistake is almost never technical. A new engineer who starts with equipment is not making a calculation error. They are making a conceptual error. They are asking where this equipment goes instead of how material should move through this building. Those two questions produce completely different starting points, and the starting point determines everything.

I have seen layouts where the conveyor fits perfectly in the space, hits all the rate targets on paper, and falls apart the first time a wave releases because nobody designed for what happens when a large number of cartons hit the induction simultaneously. The equipment may be right. The process flow was wrong. Equipment cannot fix a flow problem after the fact.

Design rate is one of the first decisions made on any project, and it has to be made deliberately. Some operations require the system to handle full peak throughput mechanically. Others are designed to a percentage of peak because the customer can supplement with temporary labor during spikes. Either approach is valid. What is not valid is leaving it unresolved. Spikes are not exceptions in distribution. If the design rate was not explicitly agreed with the customer early in the process, the system will eventually be asked to do something it was never sized to handle.

5.2 The Process Flow Diagram: Blocks and Arrows Before Equipment

Before AutoCAD is opened, the flow is mapped as simple blocks and arrows. Each block is a process step or functional area. Each arrow is a movement of material. The diagram does not show equipment. It shows what happens and in what order.

A block might be labeled receiving, quality check, bulk storage, replenishment staging, pick face, induction, sortation, pack, consolidation, or dispatch. The arrows show how material moves between those stages. Where flow splits, the diagram branches. Where flow combines, the diagram merges. Where a decision happens, a decision point is marked.

The test for whether the diagram is complete is whether it can be read out loud as a coherent story without gaps. Material arrives at the dock. It goes through a quality check. It moves to bulk storage. When an order is released, product is pulled from bulk storage and moved to the pick face. From the pick face it travels to induction. From induction it moves to sortation. From sortation it goes to a pack station. Consolidated orders move to the dispatch dock. If that story has unexplained transitions or missing stages, the diagram has gaps that will become problems in the layout.

Process Flow Diagram Checklist

Every entry point for material is shown: dock doors, returns, replenishment from bulk, manual induction points.

Every exit point is shown: dispatch docks, returns processing, exception handling, manual divert lanes.

Every decision point is marked: scan-based routing, weight-based rejection, manual inspection.

Every split and every merge is shown with all branches accounted for.

Every place where material may need to wait is marked before any conveyor type is selected.

Replenishment and returns are shown as distinct flows with their own paths, not as footnotes to the outbound flow.

The diagram can be read out loud as a complete, unambiguous story.

5.3 The Layered Flow Diagram: From Concept to Design Map

Once the process flow is confirmed with the customer, the same diagram is developed in layers. Each layer adds information that was gathered in discovery and makes it specific and measurable. This is the bridge between the discovery phase and the engineering phase.

FIELD INSIGHT | MICHAEL COLLINS

Once I build the flow diagram and get buy-in from the customer, the next step I take is to add details to that same flow diagram. Volume and rates, delays, assumptions, and notes. On a line in the diagram from a throw-on area at the dock to the storage area I might have a note that says partial accumulation needs five minutes of buffer. As I add layers to the diagram it becomes the map for the conveyor design. Every accumulation section, every speed decision, every sensor placement I make later traces back to a note on that diagram.

THE FOUR LAYERS OF A FLOW DIAGRAM

Layer	What Is Added	Why It Matters
Layer 1: Process	Blocks and arrows showing every step, split, merge, and decision point	Confirms the process is understood and agreed before engineering begins
Layer 2: Volume and Rate	Cartons per hour at each stage, peak conditions, seasonal notes	Reveals where the system must work hardest and where capacity must be reserved
Layer 3: Delays and Assumptions	Dwell times, manual process speeds, scan rates, known constraints	Makes implicit assumptions explicit so they can be challenged before becoming design errors

Layer 4: Buffer Notes	Where material may wait, how long, what feeds that wait, what drains it	Defines accumulation requirements before any accumulation conveyor is selected

By the time Layer 4 is complete, the diagram carries enough information to drive conveyor selection, accumulation sizing, speed calculations, sensor placement, and controls architecture. It is not a finished engineering document. It is the thinking tool that makes every engineering document that follows more accurate and more defensible.

5.4 Volume, People, and the Two Questions That Define Every Layout

Every system design is governed by two questions that must be answered before any line is drawn. What volume does this system need to handle and where do the people go.

Volume defines the design target. The decision of whether to design for average throughput, ninety percent of peak, or full peak is a judgment call that must be made explicitly and documented. Systems designed only for average throughput will struggle every time a wave releases, a surge hits, or downstream congestion builds a queue. The right target depends on the operation, the customer's tolerance for delay at peak, and the cost of the additional capacity that designing to peak requires. Make the decision. Write it down. Do not leave it implicit in the layout.

People define the human dimension of the layout. Maintenance technicians need access to every drive, motor, belt take-up, and zone controller without removing product from the system or working in a live traffic path. Operators need clear paths between stations, enough room to work without crowding, and sight lines that let them see what is arriving and what they are sending. Safety requires that emergency stops are reachable, pinch points are guarded, and walking paths are separated from moving equipment. A layout that ignores these requirements looks clean on paper and creates daily friction in practice. It also guarantees that maintenance gets deferred, and deferred maintenance becomes system failure.

THE TWO QUESTIONS APPLIED TO EVERY LAYOUT SECTION

What volume does this section handle at peak? Is the conveyor speed, the accumulation capacity, and the merge or divert logic sized for that volume or only for average conditions? If the answer is average, the layout may have a design gap that will show up as a performance problem.

If this is the agreed upon path, then how the surge volume will be handled should be documented.

Where do the people go? Is there physical access to every maintenance point? Are operator workstations positioned so the operator can see what they are receiving and what they are sending downstream? Are safety paths clear and separated from the conveyor footprint? If any answer is no, the layout has a safety and serviceability problem that equipment placement cannot resolve.

5.5 Separating Flow Types: Outbound, Replenishment, Returns, and Exceptions

One of the most important things a flow diagram does is make each material flow visible as a separate path. Outbound cases, returns processing, replenishment from bulk storage to the pick face, and exception handling all have different origins and different destinations. They may also have different handling requirements. Drawing each flow separately surfaces the volume, rate, and package characteristics of each one. That information is what drives the decision about whether the flows belong on a combined path or separate paths in the design.

Replenishment from bulk storage to the pick face needs to be drawn as its own flow. If it is never drawn, its volume and rate never get evaluated and it never factors into the design.

Returns need the same treatment. Volume, rate, and package condition all need to be understood and drawn before any design decisions are made.

Exception handling is the flow most likely to be left undefined. Exceptions need a defined path to a staffed station and a defined path back into flow after resolution. Without that, the diagram has a gap that will become a real problem later.

5.6 Stress Testing the Flow Before AutoCAD

A flow concept that has passed through all four layers of the diagram is ready for stress testing. Stress testing is a structured what-if exercise applied to the flow before any equipment is finalized. It does not require calculation. It requires tracing the flow under conditions that differ from the baseline and asking whether the design holds.

Five Stress Test Questions for Every Flow

What happens when a wave releases? Every accumulation zone fills simultaneously. The sorter induction receives product at maximum rate. Pack stations receive orders at once. Does each section have enough capacity to absorb the surge without backing up into upstream equipment?

What happens when a downstream station slows? A pack operator falls behind, a sorter lane fills, a scan tunnel jams. Does the upstream accumulation absorb the backup without stopping the upstream feed? Or does the backup propagate all the way to induction?

What happens when volume grows twenty or thirty percent above the design target? Does the system have any headroom or is it fully saturated at the design point? A system with no headroom fails the first time actual volume exceeds the projection.

If combined , what happens when replenishment and outbound both peak at the same time? Is there a conflict? If yes, the flow has a structural design conflict that equipment cannot resolve.

What happens when an exception must be handled manually? Is there a defined path for exception product that does not block the main flow? An exception with nowhere to go except the main conveyor creates a jam every time it occurs.

5.7 The Layout Calculators: What They Answer and When to Use Them

The flow diagram establishes the system architecture. The layout calculators validate and refine specific transitions, geometries, and placements within that architecture. Each answers a question that arises during layout development.

Box Tumbling Calculator

When a package travels up an incline, two failure modes are possible: sliding back down the belt or tipping. The Box Tumbling calculator takes the package height, length, and incline angle and determines the angle at which the package will tip. The layout must stay below this number.

Skewed Roller Calculator

Skewed rollers orient product on a conveyor, pushing it toward one side or centering it before a scan tunnel or print and apply station. The Skewed Roller calculator determines the skew angle and distance relationship needed to achieve a specific lateral movement. Use it any time the layout includes a product orientation or centering requirement. The flow diagram identifies that orientation is needed. The calculator determines how to achieve it.

Curve Formula Calculator

When a conveyor changes direction, the package must navigate the curve without jamming. The Curve Formula calculator takes the inside radius of the curve and the package dimensions and determines the minimum belt width required. This calculation often produces a wider belt requirement than the straight-run sections. The layout must account for that width at every curve.

PhotoEye Angle Calculator

A photoeye mounted at the wrong angle will miss products of certain heights, generate false triggers from reflective surfaces, or detect the wrong product entirely. The PhotoEye Angle Calculator takes the mounting height, conveyor width, and package height range and determines the correct mounting angle and position to ensure reliable detection across the full product mix. Use it whenever a sensor is placed at a transition, a scan point, an accumulation zone boundary, or any location where detection reliability is critical.

Never use an angled photoeye for product registration. The angle of the eye combined with the position of the package across the face of the conveyor will produce inconsistent trigger points, and the system will behave as though product is in a different position than it actually is.

LAYOUT CALCULATOR QUICK REFERENCE

Calculator	Question It Answers	When to Use It
Box Tumbling	At what angle will this package tip on an incline?	Any time the layout includes an incline
Skewed Roller	What skew angle and speed achieves the required lateral movement?	Any time product justification is required
Curve Formula	What belt width is needed to allow the product to pass though	Any time the layout includes a curve
PhotoEye Angle	Where should the sensor be mounted for reliable detection?	Any time a sensor is placed at a critical detection point

SECTION 6: TIPS AND TRICKS

TIPS AND TRICKS | MICHAEL COLLINS

Build the flow diagram on paper or a whiteboard before opening AutoCAD. The thinking that happens when you draw slowly is different from the thinking that happens when you click and drag. AutoCAD is where the design is documented, not where it is created.

Get customer buy-in on the flow diagram before adding any detail. A customer who agrees to the blocks and arrows has confirmed you understand their process. A customer who disagrees at that stage has just saved you from designing the wrong system. That conversation is cheap before AutoCAD work starts and expensive after.

When you add buffer notes to Layer 4, write them as explicit requirements: needs five minutes of buffer, must absorb this many cartons at peak, cannot back up into upstream equipment. Vague buffer notes produce vague accumulation designs. Specific notes produce specific requirements that can be engineered to.

Separate outbound, replenishment, and returns on the diagram before you are tempted to combine any of them. Draw each flow independently first. Once each is fully defined you may find that combining two of them makes sense, and adding a branch to bring flows together is straightforward. Undoing a combined flow that was never properly separated is much harder.

Run the stress test out loud with a colleague before finalizing the flow. Describe what happens during a wave release. Describe what happens when a pack station falls behind. If your colleague asks a question you cannot answer, the flow has a gap. Find it now.

Know the difference between safe assumptions and unsafe ones. A safe assumption is one where being wrong is easy and cheap to correct. An unsafe assumption is one where being wrong produces a redesign. Label your assumptions by type and verify the unsafe ones before committing to a design.

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SECTION 7: NOTES AND INSIGHTS

NOTES AND INSIGHTS

The Mecalux Technical Warehouse Manual classifies warehouses by flow complexity: simple, medium, and complex. That classification is not about building size or SKU count. It is about how many times material changes state, changes direction, or waits in queue before reaching its destination. A flow design that does not account for that complexity produces a layout that handles simple conditions and breaks under complex ones.

The Total Guide to Warehouse Automation makes the point that thinking about all four walls of the warehouse, not just one isolated process, is essential to operational efficiency. The flow diagram is the tool that operationalizes that principle for a solutions engineer. A flow diagram that covers only the conveyor sections and ignores receiving, storage, replenishment, and dispatch is a diagram of a subsystem, not a system.

The distinction between safe and unsafe assumptions is one of the highest-leverage judgment skills in this program. The flow diagram is built on assumptions. The engineer who can identify which ones carry risk and which do not is the engineer who knows where to spend time verifying before committing. That judgment develops with experience but it starts with the habit of labeling assumptions explicitly every time they appear in the diagram.

The four layout calculators introduced in this module are used throughout the rest of the program. Box Tumbling and Curve Formula reappear in Module 6 when rate and speed calculations are refined against real layout geometry. Skewed Roller and PhotoEye Angle reappear in Module 9 when sensor placement and controls architecture are specified. The introduction here establishes their purpose. Depth comes from applying them to real layout problems in the modules that follow.

SECTION 8: EXPERT CALLOUT

EXPERT CALLOUT

Placeholder for expert insight on flow design and the consequences of equipment-first thinking. Reviewer to share a specific example of a system where the layout was built before the flow was designed, what failed and when, and what the correct sequence of design decisions would have been.

[Reviewer Name, Title, Company]

SECTION 9: PITFALLS

- ! Starting with equipment placement before the flow is designed. A layout built before the flow is understood may fit the floor plan and miss the process entirely. The floor plan is a constraint. The process is the requirement. Design to the requirement first, then fit it into the constraint.
- ! Designing for average volume and treating that as a complete design. A system that handles average throughput smoothly but fails during a wave release, a volume spike, or a downstream backup is sized, not designed. Design for the conditions the system will actually face.
- ! Treating replenishment and returns as footnotes. These flows have their own volumes, their own timing, and their own paths. When they may share infrastructure with the main outbound flow without being explicitly designed for, they create conflicts that cannot be resolved without a redesign. Map them as distinct flows from the beginning. Combine later if needed
- ! Skipping the stress test because the flow looks clean at average conditions. A flow that is never tested against peak demand, downstream backup, and volume growth has not been validated. It has been assumed. Assumptions that are not tested become problems after installation.
- ! Ignoring people in the layout. Maintenance access, operator clearance, safety paths, and equipment serviceability are operational requirements. A layout that makes maintenance difficult guarantees that maintenance will be deferred. Deferred maintenance produces system failures.

! Not distinguishing between safe and unsafe assumptions. Some assumptions carry real design risk: peak volume projections, product dimensions from the customer. Others are low risk and easy to correct. Know which is which. Verify the unsafe ones before committing to a design.

SECTION 10: FOREST THROUGH THE TREES

How System Design and Flow Layout Connects to Everything That Follows

Module 5 is the module where the program shifts from understanding individual components to designing complete systems. Modules 1 through 4 built the foundation: the customer, the product, conveyor types, and zone control architecture. Module 5 is where those pieces are assembled into a system concept.

The layered flow diagram becomes the reference document for every module that follows. Module 6 uses the rates and volume notes from the flow diagram as the primary inputs to speed and capacity calculations. Module 7 uses the sortation points and divert locations identified in the flow diagram to specify sorter types and speeds. Module 9 uses the decision points and sensor locations marked in the diagram to design the controls architecture. The flow diagram does not get replaced by AutoCAD or by an equipment schedule. It travels alongside them and becomes more detailed as the design develops.

The layout calculators introduced here are the first precision tools in the program applied to geometry and placement. The discipline they establish, use the right calculator for the specific question it answers, do not substitute judgment for calculation and do not substitute calculation for judgment, carries through every module from here forward.

The stress testing habit introduced in this module is the practical expression of every system thinking principle taught from Module 1 forward. It is the moment where the engineer stops designing for the ideal case and starts designing for the real one. That habit applied consistently across every project is what separates a junior engineer from a practitioner.

SECTION 11: KEY TAKEAWAYS

KEY TAKEAWAYS | MODULE 5

Equipment placement is not system design. A layout is equipment on a floor plan. A design is controlled, logical movement of material through a building. Build the flow before drawing the equipment.

The process flow diagram starts with blocks and arrows and is confirmed with the customer before any detail is added. Agreement on the flow before AutoCAD work begins saves redesign time and protects the design from being built on a misunderstood process.

The layered flow diagram adds volume, rate, delays, assumptions, and buffer requirements to the same diagram in rounds. By the time all four layers are complete, it is the design map for the conveyor system.

The volume design target must be set explicitly. Average throughput is not a design target. Design for ninety percent of peak or peak itself depending on the operation. A system sized only for average conditions will fail every time conditions exceed it. This decision should be agreed upon

People are a design input, not an afterthought. Maintenance access, operator clearance, and safety paths belong on the layout from the beginning. A layout that makes maintenance difficult guarantees deferred maintenance and eventual system failure.

Replenishment, returns, and exceptions are separate flows. Design them separately. When they share paths with the outbound flow without being planned for, they create conflicts that cannot be resolved after the system is installed.

Stress test the flow before AutoCAD work begins. A flow that fails the five stress test questions conceptually will fail them operationally. The stress test takes twenty minutes. A redesign takes weeks.

SECTION 12: MODULE ASSESSMENT

Knowledge Check

Q1

Explain the difference between a layout and a design as defined in this module. Give one specific example of a decision that a layout approach produces and explain why a flow-first approach would produce a different and better outcome.

Q2

Describe the four layers of the flow diagram method. For each layer, state what is added and identify one specific engineering decision that layer enables.

Q3

A new engineer is designing a system for a distribution center that handles outbound cases, processes returns, and replenishes pick faces from bulk storage. They have completed a full AutoCAD layout. What is the most likely design problem they have and why is it a structural problem that equipment cannot fix?

Flow Diagram Exercise

Q1

A regional apparel distributor receives product on pallets, breaks down cases to individual units, picks to order, consolidates orders, and ships via parcel carrier. They also process returns from retail customers. Peak volume is sixty percent higher than daily average. Build a four-layer flow diagram for this operation: Layer 1 as blocks and arrows, Layer 2 with volume and rate at each stage, Layer 3 with at least three specific delay or assumption notes, Layer 4 identifying every wait point with an explicit buffer requirement. Then apply the five stress test questions and identify any gaps the stress test reveals.

END OF MODULE 5

Next: Module 6 | Rate, Speed and Capacity Calculations

Before continuing, complete the flow diagram exercise in writing. A flow diagram you cannot draw is a flow diagram you do not understand. The four-layer method must be practiced before Module 6, which uses rate and volume from the flow diagram as its primary inputs.

Keep the completed flow diagram for the apparel distributor scenario. It will be used as a reference in Module 6 when rate and speed calculations are applied to the same system.

The layout calculators introduced here will be used again in Modules 6, 7, and 9. This module establishes their purpose and context. Mastery comes from applying them to real layout problems in the modules that follow.