When you think communication what do you think of? A telephone? Text messaging? Emails? Memos? Posters? Notice boards? How effective are these modes of communication? Send – Receive. In organization design and organization development in which structures and processes influence worker behavior and motivation. When you view an manufacturing environment there are basically three levels of communication; there are the workers out on the shop floor, supervisors and middle managers close by the manufacturing shop floor and then the top managers or leaders of the organization. How do you pass up and pass down information effectively through these levels or 'tiers' so that messages of understanding are understood.
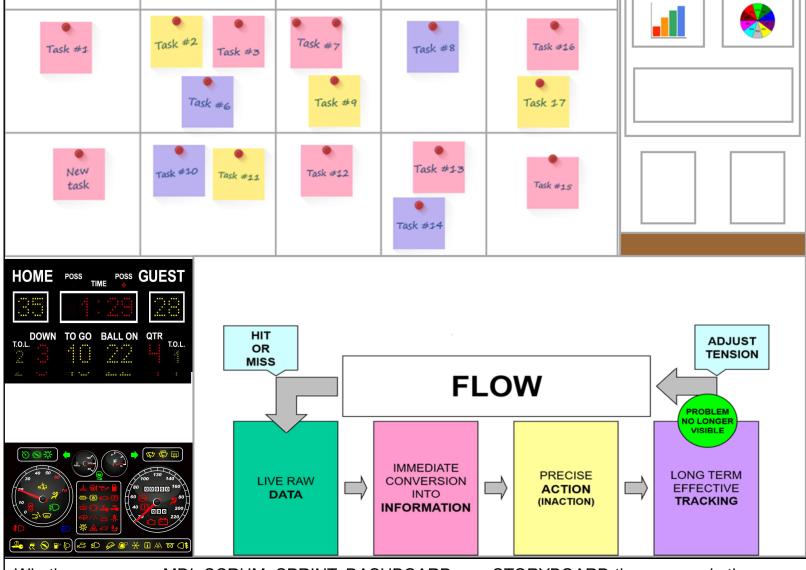
You can make the boards however you want, what did here was designed the metrics print out on plotter sized 48" long X 36" wide placed against the wall and held in place by a same size toughened glass retainer.

MDI stands for two things Managing Daily Improvements and Multiple Display indicators. This is an internationally recognized best practice best companies in the world use. A good example of a Multiple Display Indicator is a vehicle dashboard or a baseball scoreboard. Combine these together and you have layered or tiered communication conduits to effectively talk to everyone with interactive information. The above pictures show the installation of a three tiered daily meetings. Tier I is conducted daily at the end and beginning of the shift and is closest to the workers shift to shift reviewing the last 12 hours of production results. The ideal place to have these meetings is out on the shop floor is noise level will allow attendees to be heard.

Storyboards can be used which I have gave mention to in other areas of my website. Tier II is conducted daily. It may or may not be in the same place. This is where supervisors and cross-function supporting managers convene to review the last 24 hours of production results. Tier III is also conducted daily and is usually the top management leadership.

Each level or tier has there own MDI review boards. The boards are interactive, meaning you write using dry erase markers on the Lexan plastic your updates. By the way, this is standing meetings – no sitting down. We are all tired of those boring production meetings that drone on and on…

Whether you use a MDI, SCRUM, SPRINT, DASHBOARD or a STORYBOARD the purpose is the same and is to act as a communication and information radiator.
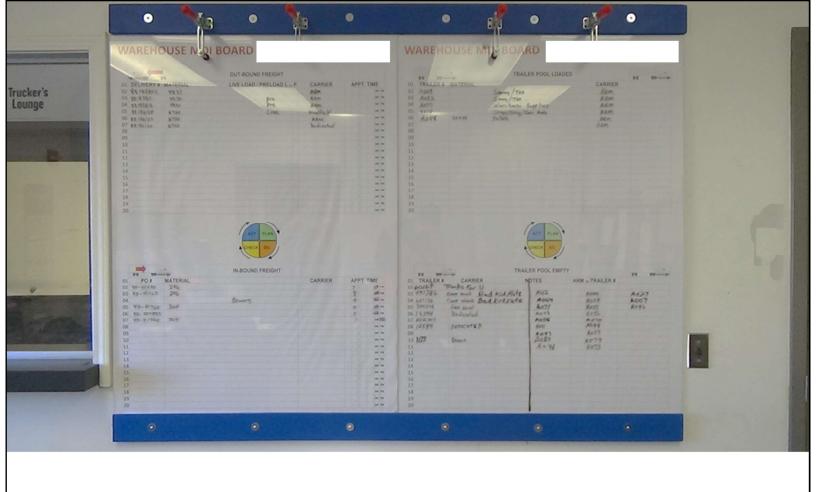
- What do I work on?
- Where do I get my work from?
- How long should it take me?
- Where do I send it?
- When do I send it?

You can have all the fancy gizmos in the world, big 10/80 P panel monitors, but if nobody is looking at it, using to communicate with others, it's a White Elephant. When designing your boards make it as interactive as possible, meaning people go to it and look see meet there with team members and enter or adjust data or information on it manually and regularly with either a pencil or dry erase. Remember this: 'Visual management without management standard work is wallpaper and management standard work without visual management is social tourism'.

If money is no object for you then IoT (Internet of Things) is great if you can have an andon board that communicates directly to your WMS and ERP systems in real-time. Ask: Does your communication information board complete the P.D.C.A cycle? Who is going to do what? By when? Follow up.

MDI board for the warehouse shipping department. Inbound outbound schedules…

WHY STANDING TIERED MEETINGS?

- PROMOTES COMMUNICATION BETWEEN DEPARTMENTAL FUNCTIONS – NO SILOS
- SHARED INFORMATION – NO SECRETS
- LIVE INTERACTION WITH DATA AND METRICS – DRY ERASE PEN ON PLASTIC OR GLASS
- CONSULTATION – FREE AND SAFE DIALOGUE
- PROBLEM SOLVING – TEAM ORIENTED PROBLEM SOLVING (OFF-LINE)
- DECISION MAKING AND DIRECTION – COLLECTIVE MINDS
- ACCOUNTABILITY – THROUGH VISUAL REPRESENTATION MANAGEMENT
- PASS UP – PASS DOWN
- VOICE OF THE PROCESS – THE MDI BOARDS DO THE TALKING
- JUST IN TIME INFORMATION
- NO BORING SIT DOWN MEETINGS!
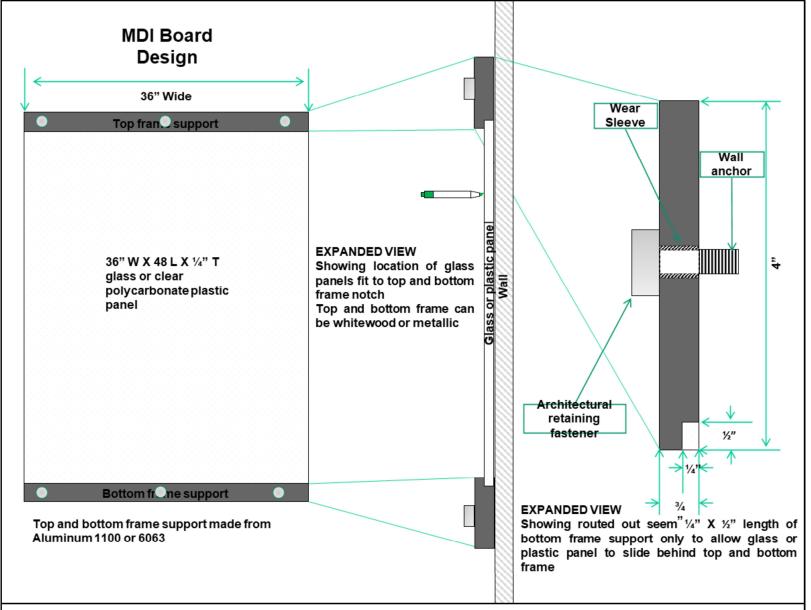
- **Tier I** – Shift to shift (front line workers and supervisors)
- **Tier II** – Day to day (middle management supervisors)
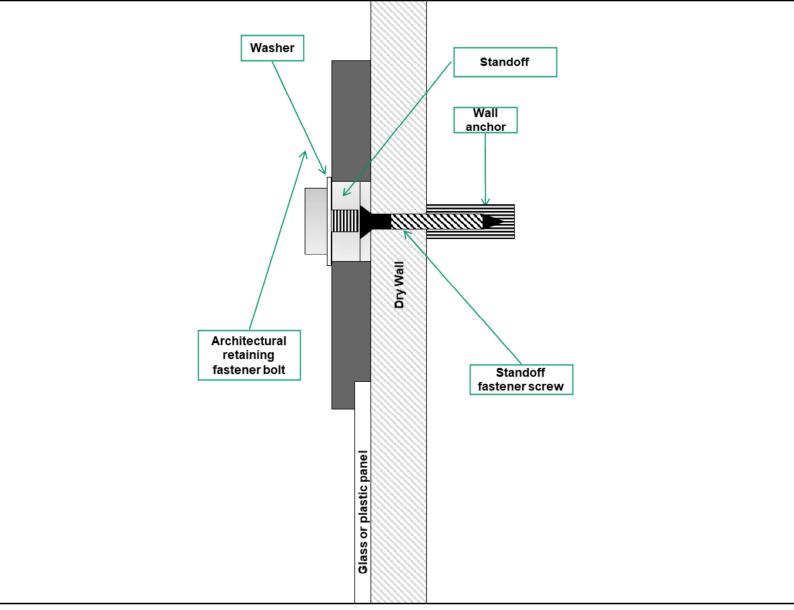- **Tier III** – Week to week (top managements middle management)
- **Tier IV** – Quarterly (plant communication meeting top leadership)
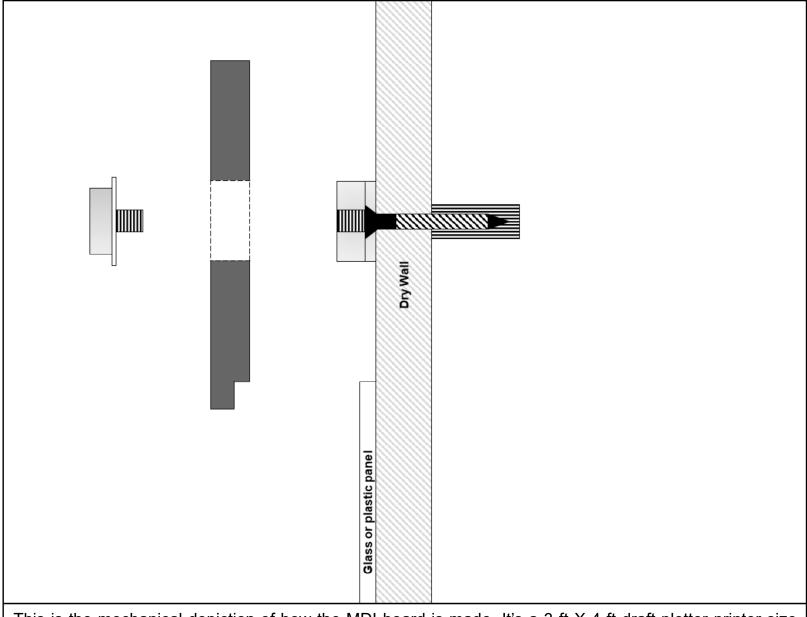
I began with the tier 2 level. This is a good place to start as it involves the link between the shop floor and middle management.

MDI Board Design

36" Wide

Top frame support

36" W X 48 L X ¼" T glass or clear polycarbonate plastic panel

Bottom frame support

Top and bottom frame support made from Aluminum 1100 or 6063

Glass or plastic panel

Wall

EXPANDED VIEW
Showing location of glass panels fit to top and bottom frame notch
Top and bottom frame can be whitewood or metallic

Wear Sleeve

Wall anchor

4"

Architectural retaining fastener

½"

¼"

¾

EXPANDED VIEW
Showing routed out seem" ¼" X ½" length of bottom frame support only to allow glass or plastic panel to slide behind top and bottom frame

This is the mechanical depiction of how the MDI board is made. It's a 3 ft X 4 ft draft plotter printer size paper with large 1" fonts which a plexiglass panel is placed over and held in position by a top and bottom frame support.

The MDI owner updates his or her MDI board using a dry erase marker pen which can be easily erased for new updated information to be entered.

This is a very important part of the MDI board standing meeting process and that is to interact with the live action based information.

Diagram labels: Washer, Standoff, Wall anchor, Architectural retaining fastener bolt, Standoff fastener screw, Dry Wall, Glass or plastic panel

This is the mechanical depiction of how the MDI board is made. It's a 3 ft X 4 ft draft plotter printer size paper with large 1" fonts which a plexiglass panel is placed over and held in position by a top and bottom frame support.
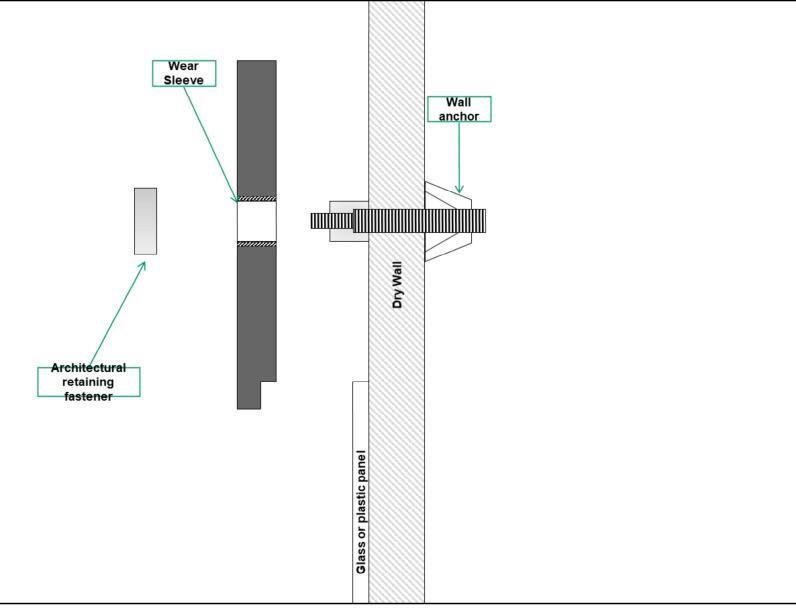
The MDI owner updates his or her MDI board using a dry erase marker pen which can be easily erased for new updated information to be entered.

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This is the mechanical depiction of how the MDI board is made. It's a 3 ft X 4 ft draft plotter printer size paper with large 1" fonts which a plexiglass panel is placed over and held in position by a top and bottom frame support.

The MDI owner updates his or her MDI board using a dry erase marker pen which can be easily erased for new updated information to be entered.

This is a very important part of the MDI board standing meeting process and that is to interact with the live action based information.

Wear Sleeve

Wall anchor

Architectural retaining fastener

Dry Wall

Glass or plastic panel

This is the mechanical depiction of how the MDI board is made. It's a 3 ft X 4 ft draft plotter printer size paper with large 1" fonts which a plexiglass panel is placed over and held in position by a top and bottom frame support.

The MDI owner updates his or her MDI board using a dry erase marker pen which can be easily erased for new updated information to be entered.
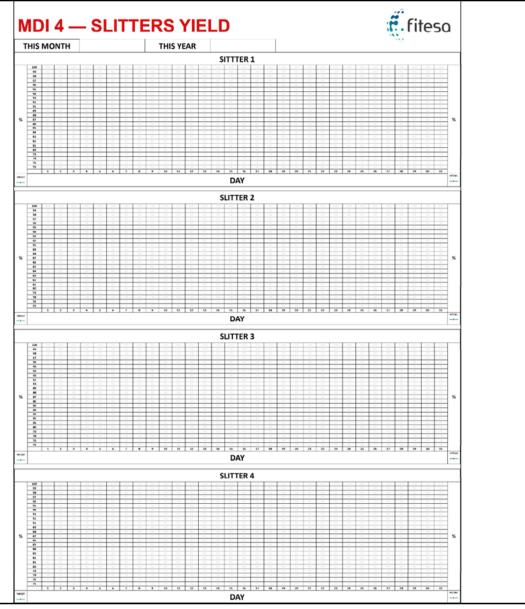
This is a very important part of the MDI board standing meeting process and that is to interact with the live action based information.

SAFETY — TIER 2 ▶

| THIS MONTH | | THIS YEAR | |

MONTHLY SAFETY CROSS

☑ SAFESTART

ACCIDENT FREE DAY	🟩
FIRST AID ACCIDENT	🟨
RECORDABLE ACCIDENT	🟥

| SCHDULE |
| COMPLETION RATE % | |

| | SIGNIFICANT ASPECTS OF | |
| COMPLETED | | NOT COMPLETED |

STATES

| COMPLACEY |
| FATIQUE |
| FRUSTRATION |
| RUSHING |

CRITICAL ERRORS

| EYES NOT ON TASK |
| MIND NOT ON TASK |
| LINE-OF-FIRE |
| BALANCE/TRACTION/GRIP |
| OTHER |

CONTRIBUTING FACTORS

| PPE |
| LOTO |
| SOP |
| TOOLS |
| EQUIPMENT |

1	2	3
4	5	6

7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
		28	29	30		
		31				

SAFESTART ANALYSIS BY CATEGORY

DATE	
__/__/__	
__/__/__	
__/__/__	
__/__/__	
__/__/__	

OVER DUE 🟥

SAFESTART ACTION ITEM	RESPONSIBLE	DUE DATE
		__/__/__
		__/__/__
		__/__/__
		__/__/__
		__/__/__

DAILY NEAR MISS REPORTS

NUMBER OF NEAR MISS

DAY MONTH

OVER DUE 🟥

#	ACTION ITEM	RESPONSIBLE	DUE DATE
01			__/__/__
02			__/__/__
03			__/__/__
04			__/__/__
05			__/__/__

All meetings begin with safety and process from there. Next quality, in all of its metrics and critical record keeping and score cards. You can add paper document holders, but I caution to keep these at a minimum otherwise it will start looking like a street lamp post that has dozens and dozens of flyers stuck to it.

When designing a MDI Board, does it complete the PDCA cycle?

MDI 4 — SLITTERS YIELD

fitesa

THIS MONTH		THIS YEAR	

SITTTER 1

DAY

SLITTER 2

DAY

SLITTER 3

DAY

SLITTER 4

DAY

Production and operations. How do you measure that?

MATERIALS — LOGISTICS — TIER 2

fitesa

THIS MONTH		THIS YEAR	

ON-HAND RESIN SILO INVENTORY

DATE / MAT	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	NOTES
PP MT						
PE MT						
MB MT						
MET MT						
BULK TRUCK?	Y N	Y N	Y N	Y N	Y N	
TRAIN COMING?	Y N	Y N	Y N	Y N	Y N	

SILO SHEET	CRITICAL MATERIAL DELIVERIES	DEBAG KPI SHEET
11 X 8.5 L/S SILO SHEEET ATTACHEMENT	TRIAL MATERIAL ON-HAND	11 X 8.5 L/S SILO SHEEET ATTACHEMENT

SC1 PRODUCTION	SC3 PRODUCTION

SC2 PRODUCTION	OTIF

Logistics MDI Board.

GENERAL COMMUNICATIONS — TIER 2

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THIS MONTH		THIS YEAR	

DATE CREATED	GENERAL COMMUNICATION TTIALS ITEM	GPL INIT	
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D
___/___/___	_____	A	B
		C	D

A Gemba survey that I carried out once was asking people what would they like to 'see' when it comes to communication at the shop floor level and one of them was up-coming trials…

Q11 REWORK DATA CHECK SHEET

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THIS MONTH		THIS YEAR	

Diagram labels:
- 1. (29) R6
- 2. (RD) ROLL DIAMETER Ø
- 3. (PW) PACKAGE WEIGHT
- 4. (SW)(RW) NO SLIT WIDTH — MM ? MM
- 5. (RC) ROLL CONTAMINATION
- 6. (CR) CUTOMER RETURN
- 7. (PH) PACKAGE HEADERS
- 8. (DC) DROP CUT
- 9. (NL) NO LABEL
- 10. (ML) MISS LABELLED
- 11. (PS) PACKAGING - STRETCH WRAP
- 12. (DP) ROLL HANDLING DAMAGE
- 13. (OCMC)
- 14. (OCMD)
- 15. (DM)
- 16. (HO)
- 17. (RH)
- 18. (DP)

DEFECT	SHIFT								TOTALS
	A		B		C		D		
	S1	S2	S1	S2	S1	S2	S1	S2	
1. (R6)	S3	S4	S3	S4	S3	S4	S3	S4	
2. (RD)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
3. (PW)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
4. (SW) (RW)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
5. (RC)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
6. (CR)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
7. (PH)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
8. (DC)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
9. (NL)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
10. (ML)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
11. (PS)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
12. (DP)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
13. (OCMD)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
14. (OCMD)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
15. (DM)	S1	S2	S1	S2	S1	S2	S1	S2	
	S3	S4	S3	S4	S3	S4	S3	S4	
TOTALS									

This was a purpose designed MDI Board for a quality rework problem that I was working on. What I did was using a Check Sheet to populate the occurrences of packaging defects to build defect patterns of (How) in elements of (Where) in to period of (When and How) that characterize their occurrence. This is populated manually. I printed this out on 36" X 48" plotted paper and put it on a big easel right next to the rework area.

MAINTENANCE — TIER 2 ▶

fitesa

THIS MONTH		THIS YEAR	

			CORRECTIVE ACTIONS			OVER DUE	
#	DATE CREATED	CREATED BY	ACTION ITEM	RESPONSIBLE	DUE DATE	
01	___/___/___				___/___/___	
02	___/___/___				___/___/___	
03	___/___/___				___/___/___	
04	___/___/___				___/___/___	
05	___/___/___				___/___/___	

Maintenance MDI board. Quite possibly one of the most important metrics for a maintenance department is knowing your work order backlog.

QUALITY — TIER 2 ▶

fitesa

THIS MONTH		THIS YEAR	

CUSTOMER COMPLAINT		PICTURES	
FCOM #	PROBLEM		
DATE		11 X 8.5 L/S PICTURES ATTACHEMENT	11 X 8.5 L/S PICTURES ATTACHEMENT
___/___/___			
CUSTOMER			
CREDIT			
$			
STYLE			

Charts (left axis labels top to bottom):
- Q4 ROLLS
- Q13 PACKAGES
- UNPACKED ROLLS
- Q6 PACKAGES

TOTAL METRIC TONS ▶

QUALITY ALERTS	
01	
02	
03	
04	
05	

11 X 8.5 L/S PICTURES ATTACHEMENT   11 X 8.5 L/S PICTURES ATTACHEMENT

OLA

PLANT SCORE	
AUDIT COMPLETION RATE	

CORRECTIVE ACTIONS			OVER DUE
#	ACTION	RESPONSIBLE	DUE DATE
01			___/___/___
02			___/___/___
03			___/___/___

Quality MDI Board.

WAREHOUSE — TIER 2 ▶

fitesa

THIS MONTH		THIS YEAR	

DATE: ___/___/___

ON-HAND RESIN INVENTORY

(SILO INVENTORY + RAILYARD ACCESSIBLE)

PP	LBS			
PE	LBS			
MB	LBS			
MET	LBS			

CRITICAL DELIVERIES

MAT \ DATE	__/__/__ __/__/__	__/__/__ __/__/__	__/__/__ __/__/__	__/__/__ __/__/__
	MONDAY	TUESDAY	WENESDAY	THURSDAY	FRIDAY	SATUREDAY	SUNDAY

	SUPPLIER CORRECTIVE ACTIONS			OVER DUE	
#	DATE CREATED	CREATED BY	ACTION ITEM	RESPONSIBLE	DUE DATE	
01	___/___/___				___/___/___	
02	___/___/___				___/___/___	
03	___/___/___				___/___/___	
04	___/___/___				___/___/___	
05	___/___/___				___/___/___	

Warehouse MDI Board.

					CORRECTIVE ACTIONS			OVER DUE	
#	DATE CREATED		CREATED BY		ACTION ITEM	RESPONSIBLE	DUE DATE		
01	___/___/___						___/___/___		
02	___/___/___						___/___/___		
03	___/___/___						___/___/___		
04	___/___/___						___/___/___		
05	___/___/___						___/___/___		

Warehouse finished goods MDI Board.

MDI 4 — PROCESS YIELD

fitesa

THIS MONTH	THIS YEAR

SITTTER 1

DAY

SLITTER 2

DAY

SLITTER 3

DAY

SLITTER 4

DAY

Process engineering MDI Board.

TIER 2 — TIER 1 PASS DOWN ▼
WHO IS GOING TO DO WHAT BY WHEN AND FOLLOW UP

f. fitesa

OVER DUE

#	DATE CREATED	TEAM	ACTION ITEM	CREATED BY	DUE DATE	
01	__/__/__				__/__/__	
02	__/__/__				__/__/__	
03	__/__/__				__/__/__	
04	__/__/__				__/__/__	
05	__/__/__				__/__/__	
06	__/__/__				__/__/__	
08	__/__/__				__/__/__	
08	__/__/__				__/__/__	
09	__/__/__				__/__/__	
11	__/__/__				__/__/__	
10	__/__/__				__/__/__	
12	__/__/__				__/__/__	

ACT PLAN
CHECK DO

#	RESPONSIBLE	ACTION ITEM FOLLOW UP
01		
02		
03		
04		
05		
06		
08		
08		
09		
11		
10		
12		

Tier 2 Tier 1 Pass Down MDI Board.

TIER 2 — TIER 3 PASS UP ▲
WHO IS GOING TO DO WHAT BY WHEN AND FOLLOW UP

fitesa

					OVER DUE	
#	DATE CREATED	TEAM	ACTION ITEM	CREATED BY	DUE DATE	
01	__/__/__				__/__/__	
02	__/__/__				__/__/__	
03	__/__/__				__/__/__	
04	__/__/__				__/__/__	
05	__/__/__				__/__/__	
06	__/__/__				__/__/__	
08	__/__/__				__/__/__	
08	__/__/__				__/__/__	
09	__/__/__				__/__/__	
11	__/__/__				__/__/__	
10	__/__/__				__/__/__	
12	__/__/__				__/__/__	

ACT | PLAN | CHECK | DO

#	RESPONSIBLE	ACTION ITEM FOLLOW UP
01		
02		
03		
04		
05		
06		
08		
08		
09		
11		
10		
12		

Tier 2 Tier 3 Pass Up MDI Board.

TIER 3 — TIER 2 PASS DOWN ▼
WHO IS GOING TO DO WHAT BY WHEN AND FOLLOW UP

fitesa

OVER DUE ■

#	DATE CREATED	TEAM	ACTION ITEM	CREATED BY	DUE DATE	
01	__/__/__				__/__/__	
02	__/__/__				__/__/__	
03	__/__/__				__/__/__	
04	__/__/__				__/__/__	
05	__/__/__				__/__/__	
06	__/__/__				__/__/__	
08	__/__/__				__/__/__	
08	__/__/__				__/__/__	
09	__/__/__				__/__/__	
11	__/__/__				__/__/__	
10	__/__/__				__/__/__	
12	__/__/__				__/__/__	

ACT PLAN CHECK DO

#	RESPONSIBLE	ACTION ITEM FOLLOW UP
01		
02		
03		
04		
05		
06		
08		
08		
09		
11		
10		
12		

Tier 2 Tier 3 Pass Up MDI Board.

TIER 3 — TIER 2 PASS DOWN ▼
WHO IS GOING TO DO WHAT BY WHEN AND FOLLOW UP

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SCRAP — TIER 2 ▶

fitesa

		CORRECTIVE ACTIONS		OVER DUE	
#	DATE CREATED	CREATED BY	ACTION ITEM	RESPONSIBLE	DUE DATE
01	__/__/__				__/__/__
02	__/__/__				
03	__/__/__				__/__/__
04	__/__/__				__/__/__
05	__/__/__				__/__/__

Waste MDI Board.

MATERIALS LOGISTICS — TIER 2 ▶

fitesa

THIS MONTH		THIS YEAR	

DATE: ____/____/____

ON-HAND RESIN INVENTORY

PP	LBS				
PE	LBS				
MB	LBS				
MET	LBS				

CRITICAL DELIVERIES

MAT \ DATE	__/__/__ __/__/__	__/__/__ __/__/__	__/__/__ __/__/__	__/__/__ __/__/__
	MONDAY TUESDAY	WENESDAY THURSDAY	FRIDAY	SATUREDAY SUNDAY

SUPPLIER CORRECTIVE ACTIONS · OVER DUE 🟥

#	DATE CREATED	CREATED BY	ACTION ITEM	RESPONSIBLE	DUE DATE	
01	____/____/____				____/____/____	
02	____/____/____				____/____/____	
03	____/____/____				____/____/____	
04	____/____/____				____/____/____	
05	____/____/____				____/____/____	

Raw materials MDI Board.

CALENDAR — TIER 2 ▶

fitesa

THIS MONTH		THIS YEAR	
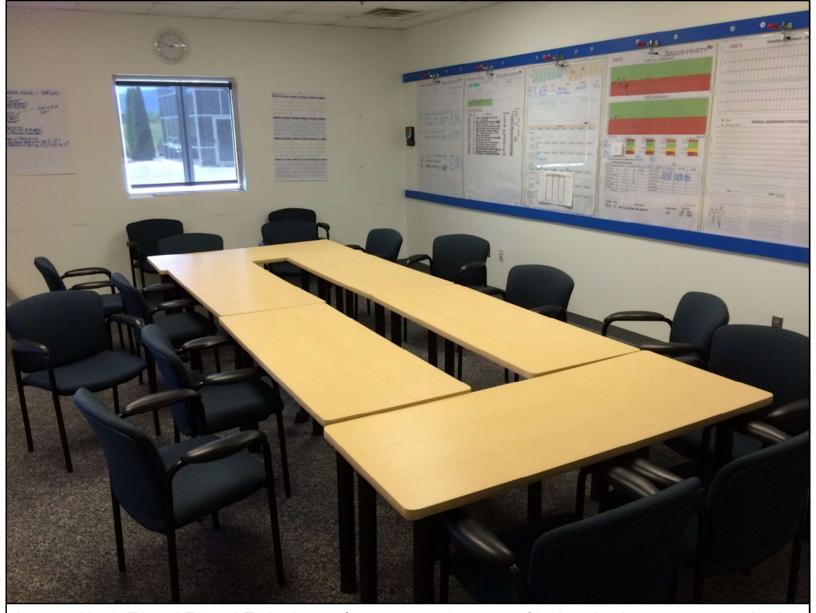
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

CORRECTIVE ACTIONS
OVER DUE ■

#	DATE CREATED	CREATED BY	ACTION ITEM	RESPONSIBLE	DUE DATE	
01	___/___/___				___/___/___	
02	___/___/___				___/___/___	
03	___/___/___				___/___/___	
04	___/___/___				___/___/___	
05	___/___/___				___/___/___	

General calendar of upcoming events MDI Board.

I began at the T2 (tier 2) level in a conference room close to the production floor. This was under development at the time I took this picture.

I merged both T1 and T2 and T3 in the conference room because of its location between two production lines.
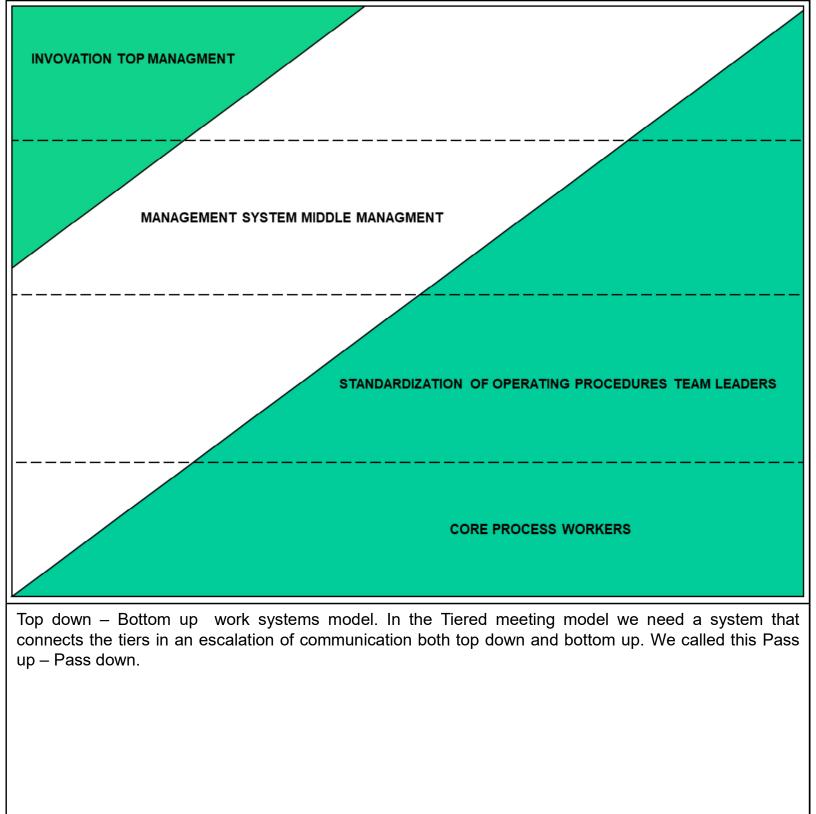
MDI Boards installed. The idea is standing meetings and review of the last 12 hours, 24 hours and week in review at the T1, T2 and T3 levels.
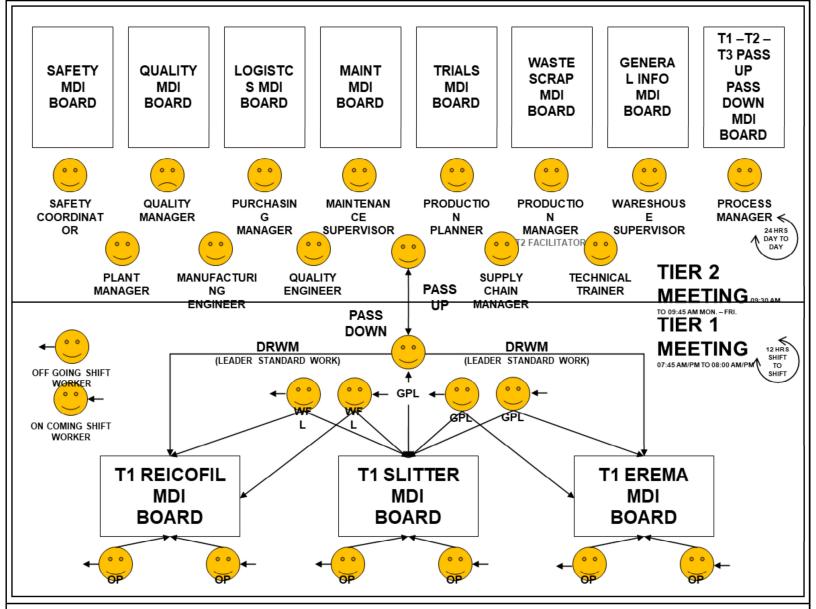
COMMUNICATIONS LINE 5

- Safety
  - Incidents
  - Near Misses
  - Safety Audits

- Quality
  - Yield
  - Scrap
  - Rework

- Production
  - Schedule Attainment
  - Unplanned Downtime
  - Upcoming Changeovers

- Warehouse Finished Goods / Raw Materials
  - Packaging Integrity
  - Rework
  - Raw Stocking

- MDI Board Review
  - Pass Up Tier 1 - 2 - 3 Pass Down Tier 3 - 2 - 1
  - Action Items Review
  - Round Room

Tier 1. I started basic at first. How do you know that you have had a good day? This was production line 1.

Tier 1. I started basic at first. How do you know that you have had a good day? This was production line 2.

INVOVATION TOP MANAGMENT

MANAGEMENT SYSTEM MIDDLE MANAGMENT

STANDARDIZATION OF OPERATING PROCEDURES TEAM LEADERS

CORE PROCESS WORKERS

Top down – Bottom up work systems model. In the Tiered meeting model we need a system that connects the tiers in an escalation of communication both top down and bottom up. We called this Pass up – Pass down.

| SAFETY MDI BOARD | QUALITY MDI BOARD | LOGISTCS MDI BOARD | MAINT MDI BOARD | TRIALS MDI BOARD | WASTE SCRAP MDI BOARD | GENERAL INFO MDI BOARD | T1 –T2 – T3 PASS UP PASS DOWN MDI BOARD |

SAFETY COORDINATOR · QUALITY MANAGER · PURCHASING MANAGER · MAINTENANCE SUPERVISOR · PRODUCTION PLANNER · PRODUCTION MANAGER · WARESHOUSE SUPERVISOR · PROCESS MANAGER

PLANT MANAGER · MANUFACTURING ENGINEER · QUALITY ENGINEER · SUPPLY CHAIN MANAGER · TECHNICAL TRAINER

T2 FACILITATOR

PASS UP

TIER 2 MEETING 09:30 AM TO 09:45 AM MON. – FRI.

24 HRS DAY TO DAY

PASS DOWN

DRWM (LEADER STANDARD WORK)   DRWM (LEADER STANDARD WORK)

TIER 1 MEETING 07:45 AM/PM TO 08:00 AM/PM

12 HRS SHIFT TO SHIFT

OFF GOING SHIFT WORKER

ON COMING SHIFT WORKER

WFL   WFL   GPL   GPL   GPL

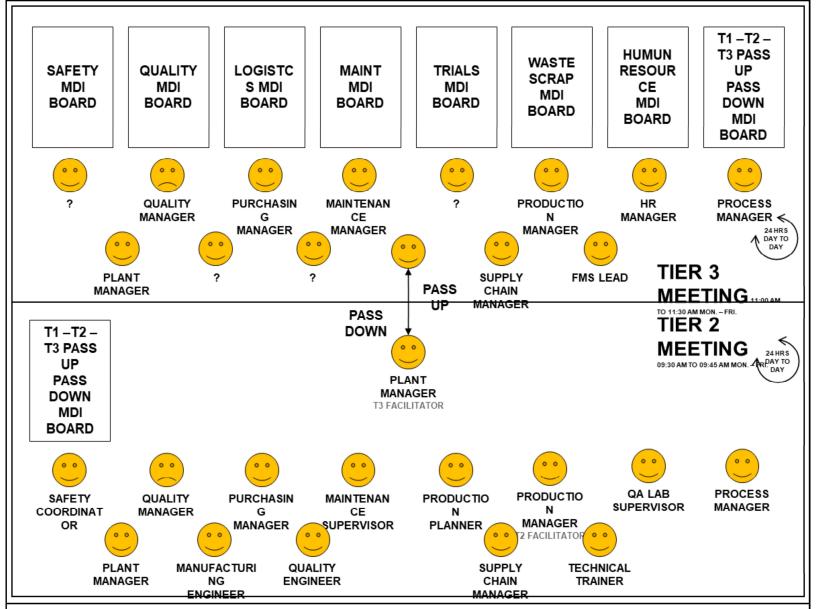| T1 REICOFIL MDI BOARD | T1 SLITTER MDI BOARD | T1 EREMA MDI BOARD |

OP · OP · OP · OP · OP · OP

T2 basics:- Safety, Quality, Delivery and scrap waste. This is a model showing how to cross the communication links between the tiers.

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Depiction of MDI boards in main production floor offices. I completely installed these MDI boards on both sides of the room. Why or why did I not take pictures?