

IFLA 2011 Satellite Meeting -- Buildings & Equipment / IT

Integrating
Automation Plans into
Facilities Planning –
Implications and
Synergies



Tom Pinkin
Sales & Business Development
mk Sorting Systems, Inc.

The Goal

- Provide better skills for planning and accommodating present or future automation
- Expand your perspective regarding the inter-relationship between patron self service and streamlined circulation workflow
- Increase the chances of a cost effective and productive solution

Why Automate?

- Accuracy
- Less injury – lifting/repetitive motion
- 24/7 availability
- Compress touches
- Faster turnaround
- Ability to handle volume fluctuation/growth without staff increase

Why self service?

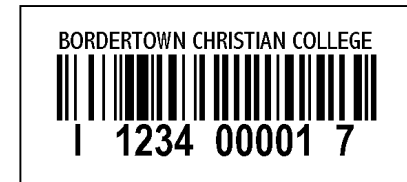
- Patrons already adapted to model
- Privacy
- Faster turnaround
- Adapts to diverse population
- Frees up skilled staff to consult one-on-one
- Can be portable, adapts to shifts

Library Workflow

- Access control/Authentication
- Asset tagging and Identification
- Materials Tracking
- Returns
- ILL/Transit
- Check-out / Check-in
- Sorting
- Technical Services / New materials
- Supply Chain Management

Material Identification

- Barcode
 - Electromagnetic (EM) security
 - RF tag security
- RFID
 - Tag only combined ID/Security
 - EM security combination



Self Checks

- Check-out
- Check-in
- Adapted
- Built-In
- Pedestal



Staff Workstations

- Check-in
- Check-out
- Patron Administration
- Material Management (ILS)
- Tagging
- Backroom Processing
- Adapted
- Built In

Security Gates

- Proximity to adjacent equipment
 - Min. 2-3' (1 meter) separation, over creates dead zones
- Proximity to complete loop frames
 - Antenna interference
- Proximity to door swing and ADA access
 - Allow clear wheelchair access as well as clear door swing

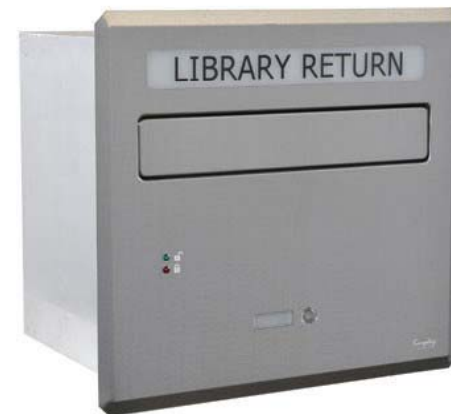
Security Gates

- EM
- RF
- RFID
- Hybrid



Material Return

- Conventional Bookdrop
- RFID Smart Bookdrop



Sorting

- Manual
- Minimal
- Automated
 - Sweep
 - Pop-up
 - Roller Transfer



Dispensing

- Vending
- Robotic
- Mini-load



Transport

- Conveyors
- Inclines/declines
- Elevators
- Lifts
- Monorail



Storage/Archival

- Automate storage & retrieval system (AS/RS) – long term high density storage of reserve, archival or rare collections



Design Planning

- Time invested up front in planning reaps greater returns in the outcome
- Outcome is equal to or greater than the expectations
- The Library understands all of the determinants

Traffic Considerations

- Mapping material flow
 - Material entering library
 - Movement during workflow process
 - Movement leaving the library
- Mapping patron flow
 - Entering/leaving
 - Drive-by/drop-off

Space Considerations

- Structural
 - Floor loading
 - Interferences/restrictions
- Utility access connections
 - Power / Data
- Access/Egress
- Proximity
 - RFID/RF/EM interferences

Building Considerations

- Structural
- Fire – National, local
- ADA – access, vision, hearing
- Utilities
- Aesthetics

Installation Considerations

- Delivery Points
 - Truck / materials / packaging
- Access
 - Floor to floor
 - Hallway / entry
 - Work areas

Sizing / Configuration

- General Rules
- Self Checks
- Sorting Systems
- Dispensing Systems

Sizing - General Rules

- Analyze material, patron & staff traffic patterns
 - Interior and exterior
 - Transit materials
 - Proximity of self-service to staff
 - Choke points
- Determine people & material volumes
- Allow for serviceability

Self Checks

- Determine amount of self service
- Determine locations
 - Proximity to staff
 - Use and location proximity
- Consideration of patron privacy
 - Proximity & orientation
- Allowances for task circumstances

Self Checks

- Balancing queues
 - Centralized location
 - Distributed location
 - Over/under utilization
 - 1 self check per 50-75K circulation average
- Patron staging provisions
 - Check-in & check-out

Self Checks

- Determine type
 - Custom built into millwork
 - Built into wall
 - Free-standing kiosk
- Typical sizing 2'x2' (600 x 600 mm) to 3'x2' (900 x 600 mm) dependant upon counter provisions and accessories

Sorting Systems

- Determine inputs and volumes
 - Place automation closest to greatest input
 - Minimize transport when possible
- Define adjacent space requirements
 - Workroom needs
 - Staging needs
- Meeting fire code requirements
 - Fire suppression
 - Fire restriction

Sorting Systems

- Determine current and future capacity needs
 - Systems will last 10-15+ years
- Approximate system sizing
 - May vary by vendor
 - As many sort points as library can afford or fit
 - Enough inputs to prevent excess wait lines
 - Single side vs. double side sort
 - Widths from 4' to 8' (1200-1800 mm) overall

Sorting Systems

- Visibility to patrons – creating visual identity and patron buy-in, point of interest



Sorting Systems

- Typical sizes by library circulation
 - 100 - 300K 1-5 bins
 - 301 - 500K 5-9 bins
 - 501 - 800K 7-11 bins
 - 801K – 1MM 9-15 bins
- Depends on collection container
 - Bin, Tote, stacking cart

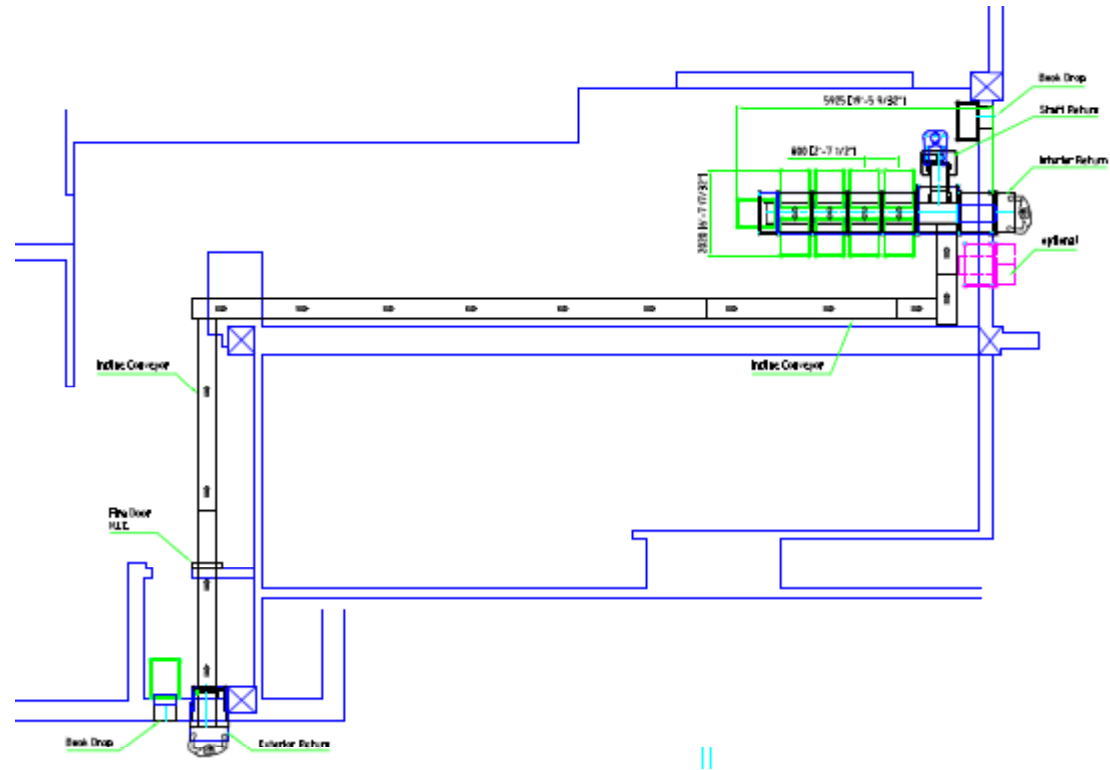


Sorting Systems

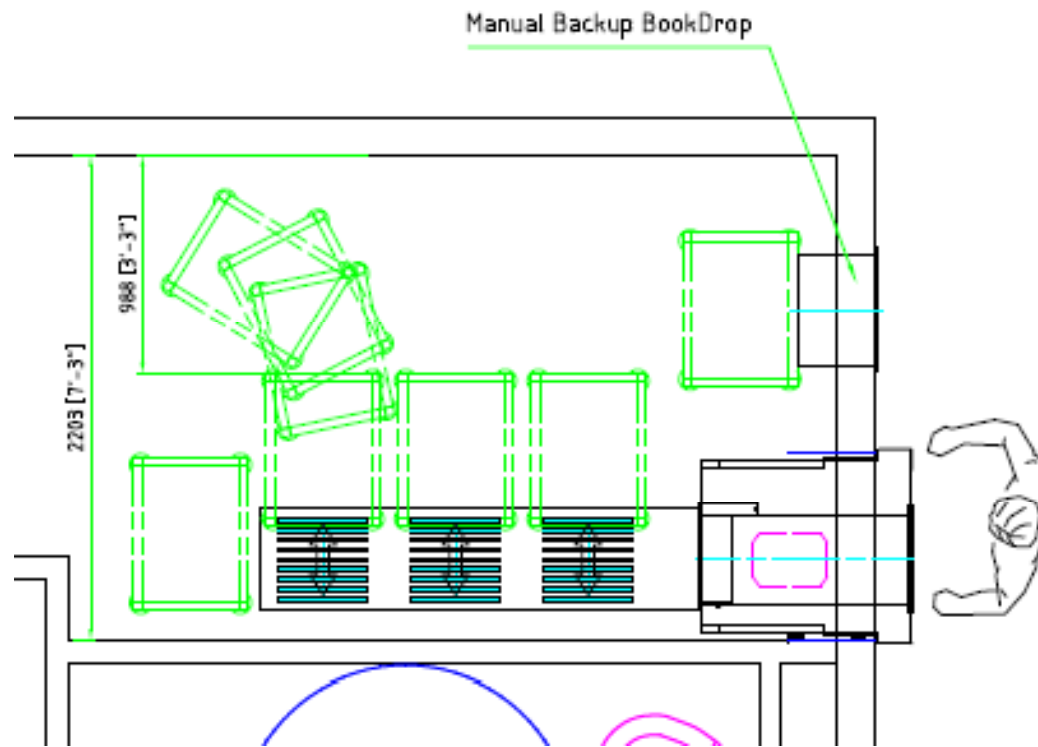
- Front end sizing affected by configuration
 - Merges
 - EM or multiple ID requirements
 - Staff return
 - Singulating
- Collector sizing
 - Larger vs. smaller collectors
 - Room for changeover



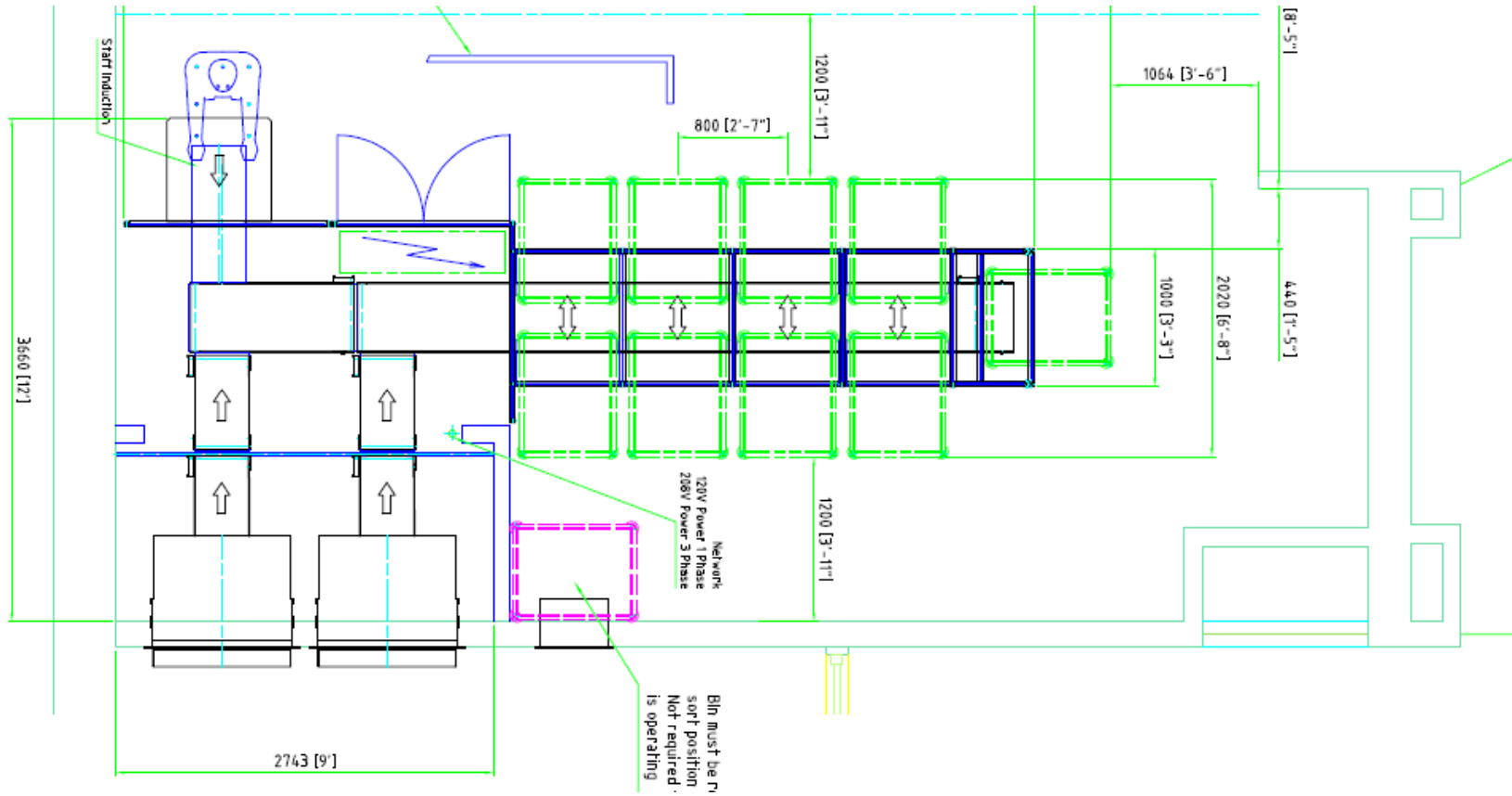
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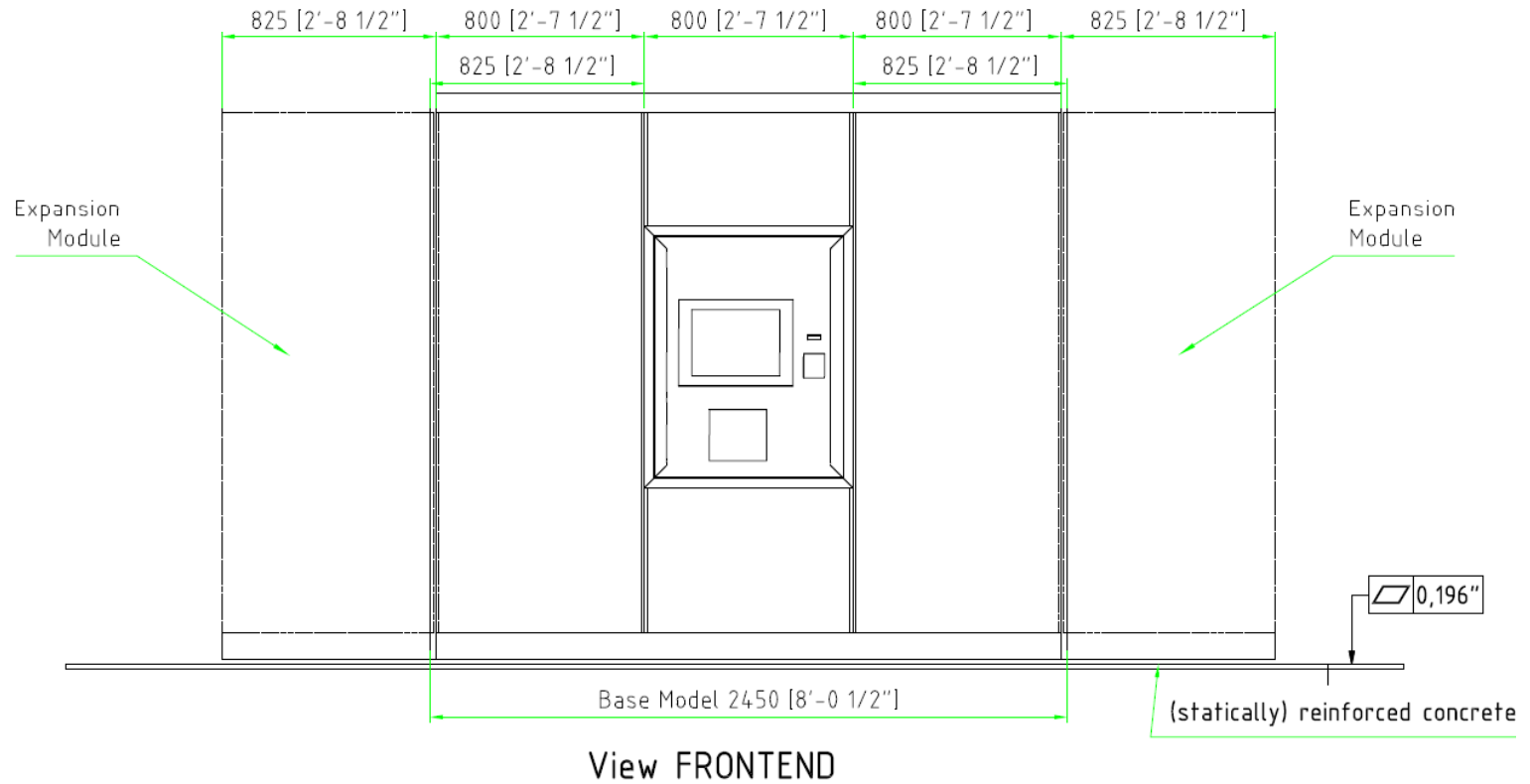
Dispensing Systems

- Sizing dependent upon use
 - Only dispense
 - Dispense & return
- Sizing dependent upon contents
 - Type/size of lending materials
- Sizing dependent upon staging method
 - Storage container
 - Tray

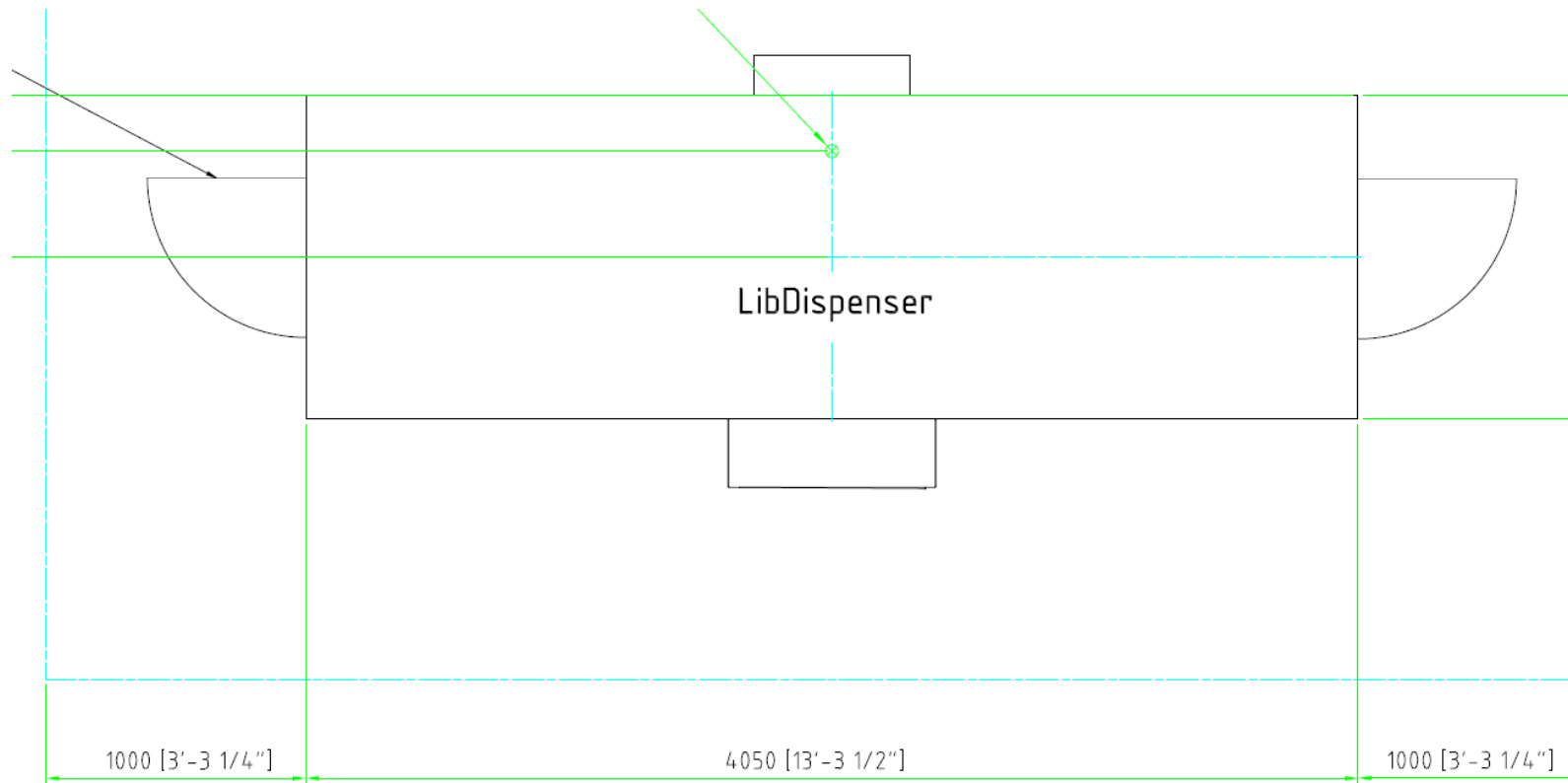
Dispensing Systems

- Allowance for access
 - Installation
 - Replenishment
 - Service
- Load requirements with dead loads
- Utility access

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Design recommendations

- Work closely with vendors in sizing system
- Look at library's longer term needs
- Consider impact on entire workflow