

APPENDIX D

Focus Groups

Focus groups were conducted for the following people with intimate experience related to restrooms in airport terminals:

- Typical Travelers
- Travelers with Disabilities
- Product Developers
- Operations Managers
- Day Cleaners
- Third-shift Cleaners

Product developers were included because a key component of a passenger's experience is their interaction with the fixtures—toilets, paper towel dispensers, door knobs, etc. The experience and research of the team has shown that while most commercial restroom products are indeed designed

for public restrooms, they fall short in accommodating the intense, sometimes around-the-clock surges of traffic in airport restrooms. It is important for architects and designers, as well as airport managers, to understand the process for modifying or creating products to suit their airport's needs, including not always apparent limitations.

As can be seen in the sections on the two focus groups for cleaners, the night owls provided invaluable insights into the workings, durability, and ease of maintenance for the physical components of airport restrooms.

The outcomes of the focus groups are detailed in the following pages.

Typical Travelers Focus Group



Overview

The Focus Group for Typical Travelers met on April 23, 2013 at Architectural Alliance in Minneapolis, MN to provide input about airport restrooms including personal experiences and suggestions for improvements.

Participants

Nineteen people participated in the discussion. Several were retirees. Others represented a variety of organizations, including 3M, the University of Minnesota, a software company, a nonprofit organization, a structural engineering firm, and Target. Rose Agnew, a member of the ACRP Project 07-12 research team, facilitated. Research team members Jens Rothausen-Vange and Sharry Cooper also took part, providing information about the MSP restroom prototype describing details helpful to those responsible for planning and design.

Feedback and Brainstorming

The focus group talked about what they saw and their airport restroom experiences in general. They considered these questions:

1. What do you really like about airport restrooms?
2. What about airport restrooms do you find inconvenient or frustrating?
3. What innovations / social media tools have you seen leveraged to improve restroom customer service?

The group specifically commented on these restroom design categories:

- Comfort (ease of maneuvering, privacy/dignity, sensory experience);
- Fixtures and accessories (toilets, urinals, sinks, dispensers, waste, conveniences);
- Demographic needs (gender, age, companion);
- Systems (lighting, ventilation, temperature, wayfinding, emergency);
- Aesthetics (colors, contrasts, textures); and
- Maintenance (clean, sturdy, in working order).

Focus Group Themes

Several themes emerged from the discussion. They included:

- Cleanliness
- Room to Maneuver
- Family Rooms
- Overall Environment

Typical Travelers Focus Group

The following are a summary of the comments through the session:

Comfort (ease of maneuvering, privacy/dignity, sensory experience)

Likes

- No entry door
- Urinals and stalls that are larger spaces, e.g. at Target stores
- Certain level of masking/white noise inside toilet

Dislikes

- Galley bathroom - aisles are so narrow; almost like one-way traffic.
- Restrooms close to gate have capacity problems. Spouse or companion often has to wait.
- Men's room odors. Air exchange/quality.
- Taking granddaughter into Men's room.
- Restroom design - when you can see directly inside
- Feel exposed if you can see through cracks in stall walls/door.

Innovations

- Want restroom with wide shelf deep enough to put purse.

- Why not hang toilet walls from ceiling so that dirt cannot collect where the floor meets the wall? Mopping is easier/faster.
- Toddler seat in stall. Seat that flips down from wall. Refer to Kowalski's store in Woodbury, MN.
- Innovative art. Bright. Cheery. Flowers.
- Warm, lovely lighting. LED lighting? Florescent lighting is harsh.

Comments/Brainstorming

- Like views from restroom at John Hancock Building in Chicago. Also natural light is good.
- Likes circular entry to restroom.
- Guthrie Theater - have to fish hand inside to work dryer.
- Clearly define the safe rooms in terminal/ severe weather shelter.
- Bathroom design needs to be well thought out to work.
- Appropriate cleaning staff levels.

Fixture and Accessories (toilets, urinals, sinks, dispensers, waste, conveniences)

Likes

- Full-length mirrors
- Disposable covers on toilet seats, e.g. O'Hare
- Screens at urinals
- Fitting room against the wall - at least two sides
- Every stall is an ambulatory stall
- Niches for luggage/space for belongings
- Shelf with sink
- Lots of hooks
- Urinals separate from toilets
- Bottle-filling stations
- Place to put purse under sink (Note: contrarily, travelers with disabilities saw this as a difficulty)

Dislikes

- Frustrated with soap dispensers that do not work and/or cannot reach.
- Cannot stand automatic toilets and germs they might be spurting. You breathe this stuff in. Automatic sensor toilets keep flushing while occupying the stall.
- Hand dryers seen as germ spreaders.

- Hard to wash hands with large handbag on arm - need hooks.
- Yellow mesh screen in urinals makes them look like they did not flush.
- Even if there is a sink in stall, you are still touching door latch to exit.
- Wetness/puddles at urinals.
- Difficult to wash face with some faucet sizes.
- Toilet paper that dispenses as a continuous roll. Do not like single-ply either.
- Narrow doors - backpacks conflict.
- No place to put coffee cup in stall.
- No place for carry-ons at sinks.

Innovations

- Island sinks accommodate more.
- Screens at urinals - discussion of fly sticker used in some restrooms to improve aim. Mosquito planned for MSP.
- In University of Minnesota dorms, kids can download an app to see if washers/dryers are available. Would be good to have something.

Typical Travelers Focus Group

similar to show which restrooms are closed and how long the queue is.

- Waterless urinals - technology not quite there yet. San Diego tried but it did not work.
- Option for shutting off toilet flush if you are changing.
- Sensor facing up on toilets with a sign pointing it out. Responds to heat from hand.
- Separate stalls from sinks.
- Notification to maintenance toilet paper is low.

Comments/Brainstorming

- If wearing black, faucets may not sense your presence
- Cannot have too many hooks

- People think ADA stalls are a luxury. Sixteen people in this focus group take advantage of them when no one is using them. There's a difference between exclusive and accessible. Equal opportunity or preferential treatment?
- International flights - people wash faces and brush teeth.
- Travelers use restroom for other than the toilet - change clothes, etc. Need shelf. Do not want to be splashed when putting on clean clothes.
- Women's rooms appear to be better equipped than Men's, e.g. hooks and baby changing tables.
- Kids that are not restrained often crawl under stall open spaces - provide a seat with a belt.

Demographic Needs (gender, age, companion)

Likes

- Large disposal unit for adult underwear in both Men and Women stalls

Dislikes

- Fear of leaving a child anywhere
- Navigating a small stall with a child, particularly if there is no way to restrain the child while you are using the facilities

Innovations

- Accommodate the aging population.

- Children need to be able to reach faucets and paper towels
- Small children are fidgety and often are afraid of things like loud hand dryers and automatic toilets

Comments/Brainstorming

- Need lots of restroom locations, particularly when a large group deplanes an arriving flight
- Most fitness centers and hospitals have a family bathroom. Good for kids and spouses that needs assistance.

Systems (lighting, ventilation, temperature, wayfinding, emergency)

Likes

- Large/obvious well-marked signage, e.g. "Women" written down the side of wall
- Signage clues outside of restroom

Dislikes

- Make sure signs link to actual restroom in that location
- Power outages

Innovations

- Engineering - can automatic toilets be made not to splash?
- Emergency back-up for when electricity does not work

Aesthetics (colors, contrasts, textures)

Likes

- Like natural light
- Bright cheery ambiance. Flowers.

Dislikes

- Gray tiles are dreary

Maintenance (clean, sturdy, in working order)

Likes

- Cleanliness above all

Dislikes

- Trash cans too full/need to manage (Seen as indicative of airport's overall safety philosophy)
- Doors that do not close or lock
- Water seems to be everywhere, e.g. floors and countertops at sinks
- Automatic faucets not working
- Missing hooks

Comments/Brainstorming

- Amazing experience in Japan - technology remarkable in actual toilet stall. Immaculate.
- Personal experience at biggest rest stop in Iowa. Ice storm - doors wide open. Dark. All the toilets plugged. No electricity and no back-up generator. No flush.
- Faucets all seem to go down at once.

What Would Make This Guidebook Useful?

- | | |
|--|--|
| <ul style="list-style-type: none"> • Clear title and table of contents • Tabs • More enticing cover • Okay to repeat information • Graphics make it fast, easy to use | <ul style="list-style-type: none"> • Show chart with code minimums. • Show lifecycle analysis charts compared to initial costs. Restrooms are expensive. • Aging, growing population references. • Cost for options - prioritize. Maintenance costs. |
|--|--|

What One Thing - Gut Reaction - is the Number One Priority for Airport Restrooms?

- | | |
|--|---|
| <ul style="list-style-type: none"> • More space (2) • Bigger stalls (4) • Out-swinging doors • Traffic pattern in restroom • Hooks • No-door at entry. One less thing to have to touch. Maneuvering. | <ul style="list-style-type: none"> • Options available for restroom budgeting • Wide stall /long depth • Ease of access • Dryers • Place to lay stuff / traveling items. MSP has eight-inch wide shelving behind the sink area. Shelf behind sinks may be difficult for some to reach. |
|--|---|

Travelers with Disabilities Focus Group



Overview

The Focus Group for Travelers with Disabilities met on April 19, 2013 at the Minneapolis - St. Paul (MSP) International Airport to provide input about airport restrooms including personal experiences and suggestions for improvements.

Participants

Twenty-one people, most with disabilities, participated in the lively discussion. They represented a variety of organizations including the Center for Independent Living, Northwest Airline Disabilities Advisory Board, Minnesota Council on Disabilities, Minnesota Department of Transportation, and the University of Minnesota. Rose Agnew, a member of the ACRP Project 07-12 research team, facilitated the discussion. Research team members Jens Rothausen-Vange and Sharry Cooper also took part, providing background about the MSP restroom prototype and drawing out details helpful to those responsible for planning and design.

Feedback and Brainstorming

The focus group first toured a new restroom prototype on Concourse F and then adjourned to the Airport Commission's Conference Center to talk about what they saw and their airport restroom experiences in general. They considered these questions:

1. What do you really like about airport restrooms?
2. What about airport restrooms do you find inconvenient or frustrating?
3. What innovations / social media tools have you seen leveraged to improve restroom customer service?

The group gave specific feedback on these design categories:

- Comfort (ease of maneuvering, privacy/dignity, sensory experience)
- Fixtures and accessories (toilets, urinals, sinks, dispensers, waste, conveniences)
- Demographic needs (gender, age, companion)
- Systems (lighting, ventilation, temperature, wayfinding, emergency)
- Aesthetics (colors, contrasts, textures)
- Maintenance (clean, sturdy, in working order) *See chart on pages 3-4.*

Travelers with Disabilities Focus Group

Focus Group Themes

Several themes emerged from the discussion. They included:

- **Need for Universal Design:** The lack of uniform restroom standards is a major concern for those with disabilities. Variations from airport to airport make usage challenging. For example, focus group participants said they never know how stall doors might operate, where hooks may be located in and outside of stalls, if they can retrieve items that drop to the floor, and if stalls will be equipped with handrails in appropriate places. In addition, they often can't reach recessed toilet paper holders and paper towels by sinks, access emergency call buttons, and read signage easily.
- **Room to Maneuver:** Getting around in a restroom with a minimum of difficulty involves entry ingress and egress, unimpeded access to appropriately sized stalls, and easy sink usage. Participants noted that all stalls need to be deep enough to accommodate wheelchairs as the preferred larger stalls are often occupied. Some differed on how high and where handrails should be located. Inside stalls, for example, people with leg bags cannot maneuver onto toilets with guard rails at standard heights. One participant recommended railings that can flip up and down as needed to allow side transfers. Another suggested providing enough companion space to accommodate a parent or a caretaker. In the sink area, some recommended separating paper towel dispensers and air dryers so that those with disabilities do not block access for other users. Plus, sight impairments often make it difficult to know where they are if the restroom has a two-way entrance and exit.
- **Hook Locations:** The group also differed about where hooks should be located in airport restrooms. Some said that hooks are best located away from the entry of the family room and close to the stall area. Others said putting hooks away from the entry will increase the likelihood they will forget items as they leave. For accessibility reasons, particularly for those using wheelchairs, others said that hooks should not be located under the sink as they had concerns about picking up items that might fall underneath.
- **Visual and Auditory Concerns:** Those with visual impairments said they needed to be able to see where walls meet the floor and suggested using contrasting colors. Restroom stall "Occupancy" signage should consider those who are color blind and include Braille lettering in the design. They also noted that airport announcements are difficult to hear in restrooms and suggested that restroom clocks be added to help travelers keep track of flight times.

The following are a summary of the comments through the session:

Restrooms in General

Aesthetics/Navigation

- Like natural light as opposed to fluorescent.
- Like well-lit spaces.
- Like lighted mirror above sink.
- Check lighting for glare.
- It's a source of anxiety if floors look slippery.

Cleanliness

- Like a touch-free environment.
- Stall door handles are still not touch free. Who has touched them last?
- Biohazard disposal used as trash.
- Could use phone number to call if toilet is over flowing and need maintenance.

Faucets/Sinks/Soap Dispensers

- Not all sinks are accessible.
- Faucets and soap dispensers too similar.

Hand Dryers/Towels

- Noisy hand dryers.
- Hard-to-reach towels.

Hooks

- No place to put purse/small bags/other belongings.

Travelers with Disabilities Focus Group

Benches/Changing Area

- Need to lay flat to change adult underwear.
- Nowhere to just change clothes.
- Not safe to have changing tables in places other than a stall.

Toilets/Stalls

- Having toilet paper at lowest point is an issue for people who have to use arms. Utterly useless.
- No space for a companion in stall. May need to help a child with a disability, for example.
- Seat height of toilet. Need it to be higher if older person.

- Often there are no grab bars by toilet.
- Don't want railing interference if helping someone with a leg bag.
- If accessible stall is in use, need other stalls to be long enough to accommodate wheelchairs.
- Urinals need larger privacy screens.

Other

- Family bathrooms are important.
- Airport announcements hard to hear in restrooms. Need to keep track of flight times.

MSP's New Restroom Prototype

Aesthetics/Navigation

- Beautiful. Loved mosaic.
- Many features exquisite.
- Walls need to be brighter. Need contrast with signs. Not enough color contrast anywhere.
- Sunlight—reflection from mirror.
- Navigation was good.
- Install blade sign perpendicular to path of travel on concourse.
- Women's restroom has two "halves" each with an accessible stall, so that one side can be closed at a time for cleaning.
- Don't like two-way entries because you don't know where to go if you have a sight disability. Hard to find way out.

Faucets/Sinks/Soap Dispensers

- Can't see recessed locations at the sink at an angle.
- Counters are six inches shallower than standard -- improves reach to faucets/soap.

Hand Dryers/Towels

- Stacking of dryer and hand towels – too hard to reach and to see. Pull towel recess out four inches to make it more accessible, but prefer to have them separate.
- Air dryer is next to paper dryer. When multiple people are in the bathroom, they will be lining / stacking up to get access.
- Towels are hard to reach if you're coming in at an angle.

Hooks

- Location of hooks is an issue. Better by Family Room door.
- Coat hooks too close to toilets. Separate between stall and rest of room. Other side of partition. Likelihood of forgetting stuff is greater.
- Hooks great in family room. Near toilet, could use a third hook that's adjacent and not too close to it.
- Hooks by sink not very accessible from wheelchair. If something falls how do you get down to get it?

Toilets/Stalls

- No sidebars in accessible stall by toilet. People in wheelchairs and elderly need them.
- Having a railing is good. It could stand out a bit more. It's pretty flush with wall.
- Recessed toilet paper holders are too low.
- Prefer rolls of toilet paper to be perforated.
- Toilet paper dispenser should be outward-facing. Hand angle is issue.
- Handicapped stall measurements - some are off.
- If you need to transfer to toilet seat from a wheelchair this restroom is no different from any other.
- Red and Green light needs to be bigger for unlock/lock.
- Accessible stall auto door doesn't stay open long enough. Passengers are always carrying baggage.
- Need accessible stall push-plate. Big red button is confusing. Is it for an emergency?
- Depths of stalls are good.

Travelers with Disabilities Focus Group

Benches/Changing Area

- Baby changing table sign. Picture miscues because it's above the trash and looks like a pull-down baby changing station.
- Need a spot to sit – maybe a bench outside stalls.

Other

- Mirror is 1/4" too high from floor.

Brainstorming Ideas and Recommendations

Aesthetics/Navigation

- Need autism spectrum disorder accommodations.
- Use small tiles with joints. Helps people to hear others.
- Strive for uniformity in all restrooms so it's the same airport to airport.
- Need contrasting wall and floor finishes. People with low vision need cues. Nice blue with gray, for example. Something that doesn't blend.
- Should be able to see colored Braille if you look closely at wall. Need to know where wall starts.
- Integrate signage into finishes.

Cleanliness

- Post a phone number for maintenance for things like an over-flowing toilet.
- Need automatic opening/locking/unlocking doors.

Hand Dryers/Towels

- Need more intuitiveness for hand drying with towels and blowers. Also on opening/closing doors.
- Position paper towels and hand dryer next to sink to avoid dripping and slippery conditions.

Hooks

- Add third hook adjacent and not too close to others in accessible stall.
- Add coat and bag hooks.
- Need place to hang cane.

Toilets/Stalls

- Abbott Northwestern Hospital has a railing that flips up and down.
- If you fall or have another emergency, make it easy to call for help. An accessible stall push-plate or Apple's Siri technology that already exists on phone. What about speech differences/accents?
- Consider color blindness in "stall closed" sign.
- Place grab bars behind toilet.
- Add baby seats in stalls. Kowalski's in Woodbury, MN has them.

- Accessible stalls need a large, identifiable icon.
- Doors need to stay open long enough so you can get into the stall properly and are not hit.
- Add Braille to indicate if accessible stall is "in use" or "available."
- Doors need partial self-closure. May not want to close door completely.
- Some people need grab bars on both sides for maneuvering. Some need one side of the toilet open with no grab bar for transferring.
- Add clocks in restrooms to keep track of time, this is a partial answer to audible public address system for people with hearing loss.

Benches/Changing Area

- Need companion restroom – room for people to assist.
- Strongly support having a dressing table or bench in all unisex restrooms.
- Have a stall just for changing to keep people out of handicapped stall. Maybe a bench in it. Something to put things on.
- Have a physical therapy type table that you can clean easily and is adjustable to different heights. We have one where I work (U of MN).
- Provide accessible baby changing station.
- Include adult-size changing tables in restrooms. Some people are unable to use toilets.

Other

- Prevent travelers without disabilities from using the accessible stalls. Use statistics and guilt.
- Cite injuries in bathrooms and cost of noncompliance. Legal responsibility to follow ADA.
- How about clocks in restrooms to keep track of time? Partial answer to public address systems that can't be heard.

Travelers with Disabilities Focus Group

Guidebook Recommendations

- Throughout guidebook, treat travelers with disabilities as typical travelers.
 - Include things we're talking about.
 - Say something about vetting and universal design.
 - Sell importance of accessibility right up front. "If you do these things, the guide will work for everyone."
 - Users want to read as little copy as possible. Prefer graphics, lists, etc.
 - Provide illustrations showing measurements.
 - Give statistics. Cost of fixtures, etc.
 - Share any opportunities for airport operators to get matching grants.
 - Include section for engineers/designers to locate resources.
 - No jargon. Use active English.
 - Employ someone who knows how to write.
 - Say this: "With significant input from people with disabilities."
- Can you physically tab sections in the handbook?
Recommend tabs for quick reference.

Product Development Focus Group

Overview

The Focus Group for Product Development met on April 24, 2013 via GoToMeeting to provide input about the process for modifying existing products or developing new products that may be unique to the needs of airport terminal restrooms.

Participants

Representatives from three product manufacturers that worked with Architectural Alliance and Michaud Cooley Erickson to develop or modify products for the recent restroom remodeling at Minneapolis-St. Paul International Airport participated in the discussion. They were:

Bradley Corporation: Developed new toilet dispenser/waste disposal combination unit for toilet stalls, new biohazard disposal receptacle, and modified their Verge sink.

Jason Renner - Senior Product Manager
 Mark Meyer - Product Engineer
 Jon Villwock - Product Manager
 Jeff Rudy - Product Manager

Forms + Surfaces: Developed new fingerprint-resistant pattern/texture for stainless steel toilet stall doors and door frames.

John Wafford - Regional Sales Manager for Central U.S.
 Mike Konieczny - Minnesota and Dakotas Territory Manager

Electric Mirror: Developed new clerestory light boxes for lavatory and stall areas and modified lighted mirrors.

Mike Montgomery - Chief Operating Officer
 Patrick Erickson - Lead Designer

Rose Agnew, a member of the ACRP Project 07-12 research team, facilitated the discussion. Research team members Jens Rothausen-Vange and Sharry Cooper also took part, providing background about the MSP restroom prototype and drawing out details helpful to those responsible for planning and design.

The following are a summary of the comments through the session:

What are Your Hot Buttons for Airport Restrooms in General?

- Having an internal learning process on how to do this best
- Focus on comfortable, resort-oriented, warm, friendly for cleaning
- Bright is important - no florescent lights
- Cleanable, e.g. stainless finishes
- Timeless design
- Think through long term coating implications
- A big thing: touch free - including entry doors
- How well a product cleans is key
- Odor in the restroom – need air exchangers
- Privacy and space in stalls
- Design and overall feel
- Large stalls – especially for large guy

Product Development Focus Group

What is Your Process for Developing New Products vs. Modifying Existing Products?

Electric Mirror

- 3-D modeling - preliminary models
- Build a prototype
- Review and get feedback - go back and forth with the owner on requirements

Bradley

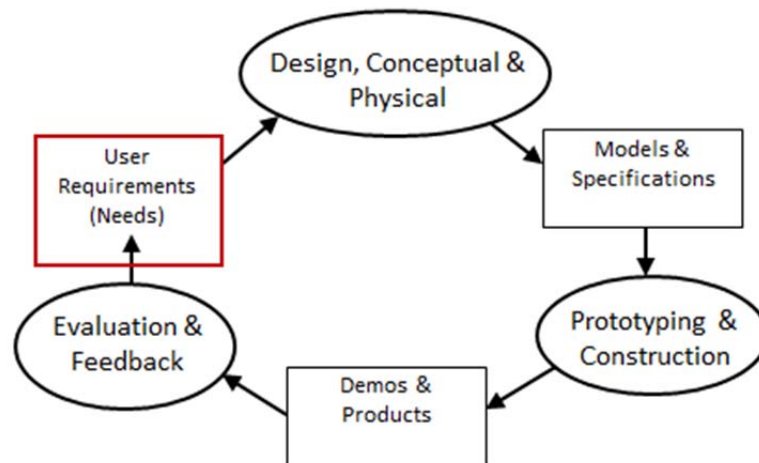
- Similar steps as above
- Shorter time due to product types
- Begin with a product specification

Forms + Surfaces

- Work is custom, therefore more requirements
- Generally new products - try to stay consistent with the manufacture
- 3-D modeling very effective
- Important to do rigorous requirements and get feedback followed by cost analyses and maintenance evaluations

What is Recommended Duration for Design, Prototypes, Evaluation, and Installation?

- Depends on product and if any items are outsourced, which has impacts especially if only one supplier
- Bradley – general we modify existing product vs. brand new product design
- Generally 4-6 week process



What are Minimum Quantities?

- Minimum quantities are going to vary
- Custom model typically on demand
- Based on Return on Investment
- Usually a special charge for a one-off design

Who Bears the Development Cost? (Related to Quantities)

- Client bears the development cost - typically built in
- Depends on if manufacturer is doing their own tooling

Product Development Focus Group

Describe Your Recommendations on Meeting Maintenance Goals/Metrics?

- Review preliminary prototype studies
- Electric Mirror – source high performance vendors
- Analyze lifecycle cost
- Bradley – have own custom profile for maintenance (somewhat proprietary)
- How are replacement parts handled?

Many Airports Have Sustainability Goals – Can You Provide Recommendations?

- Sustainability is all about making economic decisions
- Consider the Return on Investment and cost savings
- Consider the airport
- It depend on the product and the scenario where is installed, e.g. high traffic gate

Tools and Checklist for Guidebook

The following highlights the importance of new or modified products for various stakeholders. More dots equal higher importance.

	PERFORMANCE	COST	EASE OF USE	RELIABILITY MAINTENANCE	SAFETY
USERS	••••		••••	••••	••••
BUYERS (OUTSOURCE)	•••	•••	•	••••	••••
RETAILERS	••	••	••	•	•
PROCUREMENT					•••
MANAGEMENT	•	•••	•	•	••
AIRPORT MARKETING	•••	••••	••	•••	••

Airport Operations Managers Focus Group

Overview

The Focus Group for Airport Operations Managers at General Mitchell International Airport (MKE) met on July 2, 2013 at the airport to provide input related to business drivers and planning criteria associated with airport restroom remodeling and new construction. The Operations Managers at General Mitchell were chosen as the airport is currently in the process of remodeling the baggage claim restrooms and has completed a series of refurbishment of restrooms over the last 10 years.

Participants

Eight people from the airport staff participated including:

- Marketing and Public Relations Manager
- Two plumbers
- Facilities Supervisor
- Maintenance
- Project Manager
- Deputy Airport Director
- Airport Director

Rose Agnew, a member of the ACRP Project 07-12 research team, facilitated. Research team members Jens Rothausen-Vange and Sharry Cooper also took part, providing information about the MSP restroom prototype describing details helpful to those responsible for planning and design

Feedback and Brainstorming

The focus group mapped ideas related to the following two areas of discussion:

1. What were the business drivers for a new remodel and/new construction of a restroom? This discussion involved:
 - a. General Mitchell's Restroom Vision and Intent related to:
 - New construction or renovation
 - Customer service requirements / metrics
 - Safety and security audit
 - Disability / access audit
 - Maintenance / sustainability standards / metrics
 - a. General Mitchell's Business Model – Operations / Management (Logistics)
 - Existing conditions assessment
 - Hours of operation
 - Feasibility study
 - Number of toilets required by airport square footage or passenger number or service level
 - Future demand assessment
 - Assess future impacts on passenger /capacity
 - Practical maintenance and cleaning requirements and schedule / solutions
 - Cost benefit analysis (number of restrooms)
 - Information and communication (e.g. way finding, signage, etc.)
2. Planning criteria discussion primarily associated with:
 - a. Comfort (ease of maneuvering, privacy / dignity, sensory experience)
 - b. Fixtures and Accessories (toilets, urinals, sinks, dispensers, waste, conveniences)
 - c. Demographic Needs (gender, age, companion)
 - d. Systems (lighting, ventilation, temperature, wayfinding, emergency)
 - e. Aesthetics (colors, contrasts, textures)
 - f. Maintenance (clean, sturdy, in working order)

Airport Operations Managers Focus Group

Focus Group Themes

Two main themes emerged from the discussion. They included:

1. Consider flow, volume, maintenance, and safety issues before considering aesthetics.
2. Design bathrooms for rigorous use. Look to prisons for planning and design ideas. The sheer volume and general abuse make it necessary to design for rigorous impact.

Planning Criteria / Business Drivers

Recommended Design Considerations:

- Passenger flow, volume, and peak periods
- Passenger lines and throughput
- How many stalls will fit in a restroom
- Requirements to work within the footprint
- Customer service issues (e.g. parent / child, child height sink [male and female], changing table, family room, luggage space)
- Balance of the needs and requirements of all stakeholders (e.g. solicit input from the different airport departments and functions as well as maintenance and plumbers - consider workforce demographics when it comes to maintenance)
- Consider technical advancements
- Look for “blind spots” as you enter restroom
- Anticipate all safety issues (e.g. water on the floor or electrical cords that can trip passengers)

Aesthetics

- Ensure proper ventilation to avoid unpleasant smells

Demographics:

- Consider gender mix and when to time restroom cleaning shutdowns

Systems:

- Pipe Chase should ideally be 36 inches
- Choose all automatic or all manual toilet flushing (customer expectations of all being the same)

Fixture and Accessories

- Recommend fixtures similar to those used in prisons; function before aesthetics
- Put all accessories on one side (hinge side of stall)
- Paper towel dispenser considerations:
 - Lever operation
 - Specify paper type to the vendors
 - MKE has to replace a dispenser every day (365 dispensers per year)
 - Batteries vs. hard wire

Maintenance

- Rigor / Abuse impacts: Need to make airport restroom more like prison restroom for the rigor of use (e.g. accidents, vandalism).
- Look for incentives (e.g. many vendors provide incentives with buying products like towel paper).
- Develop cleaning metrics.
- Do not use stainless steel dividers, as it is too hard to keep clean.
- Flooring: Consider larger tiles versus smaller ones (thinner grout joints). Ideal is terrazzo flooring for ease of cleaning. Avoid floor that needs to be polished.
- Avoid hardware products that are cheaply made.

Day Cleaners Focus Group

Overview

The focus group for cleaners during the day shifts met on May 30, 2013 at Minneapolis-St. Paul International Airport to provide input about the cleaning of airport restrooms including personal experiences and suggestions for improvements. The first- and second-shift cleaning crews provide numerous “touch-up” cleaning visits to the restrooms throughout the day as well as empty trash and restock paper products.

Participants

Six people from ABM, an international building maintenance and facility services company that provides services for 80 U.S. airports participated in the discussion including one manager, two supervisors, and three cleaners. Rose Agnew, a member of the ACRP Project 07-12 research team, facilitated. Research team members Jens Rothausen-Vange and Sharry Cooper also took part, providing information about the MSP restroom prototype describing details helpful to those responsible for planning and design.

Feedback and Brainstorming

The focus group talked about what they encounter and their restroom experiences in general. They considered these questions:

1. What are current obstacles to servicing restrooms at MSP?
2. What aspects at MSP make servicing the restrooms more efficient?
3. Which initiatives in the new restrooms at MSP have improved ABM’s ability to meet the airport’s expectations of cleanliness? Which have not?
4. What initiatives at other public (non-airport) facilities has ABM found beneficial for your work?

Focus Group Themes

The discussion focused on several aspects of the cleaning process. The following summarizes the group’s comments:

Cleaning Strategies

- Like most airports, there are three daily cleaning shifts as well as periodic specialized cleaning. Cleaning does not track with plane departures/arrivals/cancellations. Deplanement surges are too hard to follow. Restrooms are cleaned six-seven times per day shift.
 1. First shift: 6:00 a.m. - 2:30 p.m. – maintenance
 2. Second shift: 2:00 p.m. – 10:00 p.m. – maintenance
 3. Third shift: 9:30 p.m. - 5:30 a.m. – thorough cleaning of entire restroom
 4. Detailing occurs once per month and includes pressure washing the walls and stall partitions as well as deep cleaning of the floors.
- Allocation of Maintenance Time:
 1. 1/3 mopping floor and sweeping
 2. 1/3 restocking items
 3. 1/3 wiping counters down, emptying trash
- Maintenance work schedule/order of sequence:
 1. Check stock
 2. Work from toilets out
 3. Clean vanity
 4. Sweep and mop floor last
- Text messages from passengers are used to monitor conditions at restrooms status. They go to shift manager.
- The biggest issue during daily shifts is that you can’t open restroom until the floor is dry so no one slips. It takes 10 minutes for a wet floor to dry.
- Suggest doing time studies for location and size of area being cleaned to improve efficiency and determine frequency.
-

Day Cleaners Focus Group

- During winter flight cancellations, people sleep and clean more (brush teeth, etc.) and get frustrated. The cleaning crew gets pulled away from cleaning to pull out and re-store sleeping mats.

Materials

- New quartz wall panels and terrazzo floor are easy to clean. With less or no joints, they squeegee easier.
- Bottom of metal stall and urinal panels rust in old restrooms due to splashing urine.

Sink Area

- If paper towel sensors are used too frequently, they don't reset in the battery versions
- Mirrors should be above/back from sink so water doesn't splash up on it
- Trash openings often too small – get clogged
- New recessed biohazard disposal is sometimes used as trash because it is not red
- People sometimes use hand dryers as trash because it's below paper towel dispenser

Toilet Stalls

- Toilet paper dispenser is too low (meets ADA) – hard to reach by users and hard to replace toilet paper because you have to slide rolls up from underneath
- New grab bar texture is okay for cleaning

Plumbing

- Water moves away from some floor drains in older restrooms
- Urinals not deep enough – they splash and overflow
- Urinals are dirty underneath - common texted complaint
- Low flow toilets need more flushes to empty
- Auto-flushes are unreliable
- If toilet and urinal sensors are used too frequently, they don't reset in the battery versions
- Suggest a sign when not an auto flusher
- Water seems too hot for young children
- One thing to change:
- The rubber bottle base is hard to clean in the drinking fountain bottle-filling stations. There is mold build-up because it isn't removable.

HVAC

- There is poor air ventilation in old restrooms. Bad for cleaning chemical smells.
- Like air circulating low in new restrooms, it dries floor quickly - always clean.

Lighting

- More lighting is needed for cleaning.

Technology

- Texting number for comments works great. Get 1100 texts/year.
- Trouble with new badge reader in signs triggering increase in exhaust during cleaning.
- The badge-activated "CLOSED" sign doesn't work at new double-sided Women's restrooms. There are two sides but only one card reader.
- Motion detector in entry is not reporting the traffic data to the facilities monitoring system, so cleaners are not able to monitor passenger counts.

Day Cleaners Focus Group

Storage

- Janitor's Closet/Storage should be near restrooms – not centrally located. Too much travel time.
- ABM does not use pipe chases for their storage because supplies disappear. Would prefer a caged area or separate closet.
- Access doors should be outside of restrooms so any gender can use them.

Observations

The cleaning staff is in many ways the eyes and ears of the airport. Immersed in the daily flow of restroom travelers, they “see it all.” Some of their thoughts:

- Most restrooms are too small
- Restrooms should be planned so you never have to shut down the entire room (have two sides)
- When chase doors swing out into the concourse, they sometimes hit passers by
- If everything is touch free, it creates the perception that the space is clean
- Some foreigner travelers don't know how to use Western restrooms. Activities like these occur daily. Staff is trained to expect these behaviors as it is difficult to educate travelers who are just passing through.
 1. Stand or squat on toilets
 2. Don't use toilet paper – wipe hands on walls
 3. Climb on sinks to cleanse
- Vandalism and graffiti typically comes from angry travelers, occasionally airport staff.
- Spring break kids often stuff toilet seat covers, shoes, hats, etc. into toilets.
- The translucent glass film in the new restrooms shows shadows of people changing in the accessible stalls because of the location of the lights. This is visible to the planes parked at the nearby gates.

Third-shift Cleaners Focus Group



Overview

The focus group for third-shift cleaners during met on July 11, 2013 at Minneapolis-St. Paul International Airport to provide input about the cleaning of airport restrooms including personal experiences and suggestions for improvements. The third-shift cleaning crew provides thorough cleaning of the restrooms each night as well as deeper cleaning on a monthly basis. There are 70 cleaners on the third shift compared to 20 staff for each of the two day shifts.

Participants

Three people from ABM, an international building maintenance and facility services company that provides services for 80 U.S. airports participated in the discussion including one manager, one assistant manager, and one supervisor. Rose Agnew, a member of the ACRP Project 07-12 research team, facilitated. Research team members Jens Rothausen-Vange and Sharry Cooper also took part, providing information about the MSP restroom prototype describing details helpful to those responsible for planning and design

Feedback and Brainstorming

The focus group talked about what they encounter and their restroom experiences in general. They considered these questions:

1. What are current obstacles to servicing restrooms at MSP?
2. What aspects at MSP make servicing the restrooms more efficient?
3. Which initiatives in the new restrooms at MSP have improved ABM's ability to meet the airport's expectations of cleanliness? Which have not?
4. What initiatives at other public (non-airport) facilities has ABM found beneficial for your work?

Focus Group Themes

In the course of the focus group for day cleaners, it was repeated that we should talk with the night shift. "They do the primary cleaning." Several weeks later we conducted this session during their work shift. Many of their comments compared the new restroom prototypes at MSP with the other restrooms of varied vintage. They encouraged all designers to spend a few hours cleaning before they design a restroom or at least ensure that a cleaner from the third shift attend all planning meetings.

Third-shift Cleaners Focus Group

The format for the day cleaners' focus group is followed here to summarize the group's comments:

Cleaning Strategies

- Electrical devices (hand dryers , etc.) have to be covered when pressure washed - time consuming
- A crew can detail-clean 5-6 older restrooms per night, but one new restroom takes 6 hours because they're larger, have lots of stainless steel, and more corners at the floor to work around (each 9-1/2" thick stall partition sits on the floor at three spots), and since they're new, the crew has more pride in keeping them look nice and so spend more time. As a result, dusting is not done in the new restrooms. The message was that newer. State-of-the art restrooms will require large cleaning crews
- With all the new products, the Standard Operating Procedures and job descriptions are being updated
- Green products are typically used, but they're not as effective so more has to be used
- Don't like going out of restroom into the chase to collect the trash. Would prefer access to trash from the front, inside the restroom.

Materials

- The monolithic terrazzo floor and quartz wall panels in new restrooms is easier to clean than the tile and grout in the previous restrooms
- Smooth stainless steel is easier to clean than the new patterned stainless steel stall doors.

Sink Area

- New quartz trough-sinks are easy to clean, than old sinks set counters
- Older hand dryers get gunk and mold in drain reveals and the bottoms corrode
- Touchless paper towels work fine

Toilet Stalls

- The toilet flush doesn't flush in time so people end up pressing it a number of times. Urinal flushes are similar.
- The new toilet paper dispenser is too low to stock.
- The recessed shelf in the stalls is a dust collector.

Plumbing

- The floor drains work well. Stay away from trench drains with cleanouts.

HVAC

- The ventilation is better in new restrooms.

Technology

The card reader system isn't up and running yet, so cleaning needs and passenger flow is not being monitored.