U.S. General Services Administration

leading by example

a demonstration toolkit for creating
a GSA world class workplace

2005

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foreword

As we help other Federal agencies to develop and implement effective workplace strategies to support their missions, it is imperative that we, as an agency, lead by example. Our own workplace is not only critical to our mission, but it provides leading-edge solutions to support GSA associates in reaching their goals. In addition, a GSA World Class Workplace communicates to our internal and external customers that the well-designed workplace provides strategic value by creating efficiencies through the reduction of churn and energy costs and supports efforts to improve the use of human capital by attracting and retaining a superior workforce.

The attached Toolkit, *"Leading By Example: A Demonstration Toolkit for Creating a GSA World Class Workplace,"* illustrates how the principles and hallmarks that collectively represent the GSA brand may be applied in a variety of organizational settings. The Toolkit will be of great help to GSA's World Class Workplace advocates and the agency's senior managers as they strive to link workplaces with strategic outcomes. In particular, the Toolkit's demonstration section, outlining key steps with sample workplace plans and physical elements, will prove invaluable to those just getting started in the planning process. Those further along will find the related case studies and resources section of interest in choosing best practices.

The Toolkit is a living document that encompasses the work of many talented GSA associates and programs. It will be up-dated on a regular basis with new research, lessons learned, and examples of new GSA World Class Workplace projects. I encourage all of you to lead by example and use the Toolkit in current, planned, and future GSA workplace projects as we continue to move forward in achieving our vision of a World Class Workplace.

If you have any questions about this tremendous resource, please contact Fran Mazarella, Workplace Program Expert, Office of Applied Science, Public Buildings Service, at (202) 208-2341.

David L. Bibb

Acting Adminstrator
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executive summary

This Toolkit, *"Leading by Example"* serves two purposes:

1. It supports GSA project design teams with principles and best practices that respond to the agency's decision to adopt the "Hallmarks of the Productive Workplace" when a GSA organization requires workspace for itself.
2. It will aid associates involved in space delivery by presenting an illustrated process to help them think more creatively and holistically about GSA's own workspace as a strategic tool.

This Toolkit is a living document. It offers guidance on creating cost-effective, superior workplaces for our associates in GSA-occupied space that express our mission, goals, and values. Its purpose is not only to show our associates and customers what we can do, but also to enhance GSA's work in support of other Federal agencies -- thus, "Leading by Example." As our knowledge in this arena continues to expand, GSA will publish updates to this Toolkit.

The Toolkit also describes the Rapid Engagement Process. This Rapid Engagement is derived from lessons learned from the PBS WorkPlace 20·20 Program. The Rapid Engagement, like WorkPlace 20·20, emphasizes the connection between ***organizational*** drivers and spatial design, stressing the need to understand the organization and its work ***before*** design begins. Rapid Engagement is a process designed to achieve this in a particularly expeditious manner. It is supported by tools and methods developed in concert with GSA's academic and private sector partners.

Though not intended to endorse a "standard solution," the Toolkit illustrates ways of building a workplace in accord with the seven Hallmarks of the Productive Workplace identified in GSA's "Integrated Workplace" publication. It does this by providing prototypical examples of principles, physical elements, design plans, and strategies that exemplify the seven hallmarks.

"Leading By Example" is designed to help GSA design, construct, occupy, and maintain workplaces for its associates in a manner that is optimal for the nature of the organization's work, that fosters its business strategy, and that expresses the agency's mission, values, and culture. It is hoped that the Toolkit will be useful, especially for those involved in the workplace delivery process, either those representing the workplace users whose space is being modified or those whose mission is to select or modify space. In addition, it is intended to serve building managers and real estate personnel by clearly illustrating the type of space envisioned for optimal agency performance. In today's environment, it is clear that we need to think outside the box (or the cubicle!), and it is obvious that GSA cannot have a World Class Workforce if it does not commit to creating a World Class Workplace.

acknowledgements

We want to thank our leaders and associates who have shared their vision, passion and knowledge in the pursuit of implementing World Class Workplaces for GSA occupied space.

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1 introduction

introduction

Leading By Example: A Toolkit For GSA-Occupied World Class Workplaces

Purpose

In recent years, GSA has created initiatives that promise to make workspace a strategic tool and a competitive advantage. The Integrated Workplace initiative laid out seven hallmarks or principles the workplace should embody to maximize GSA associates' potential.

The World Class Workplace Toolkit adapts these innovative workplace initiatives in order to support GSA project design teams with principles and best practices that respond to the agency's decision to adopt the "Hallmarks of the Productive Workplace" in GSA-occupied workplaces. This toolkit has been designed to aid associates involved in space delivery by presenting an illustrated process to help them think more creatively and holistically about the agency's workspace as a strategic tool. Although the Toolkit is not intended to create a standard solution, it is intended to help achieve consistent and supportive workplaces for all associates. In this way GSA will design, construct, occupy, and maintain workplaces for its associates in a manner that is optimal for the nature of the work performed, that fosters the business strategy of the individual organization, and that expresses GSA's mission, values, and culture.

The World Class Workplace can be achieved within the cost parameters of conventional space projects. It doesn't cost any more to make smart decisions than to make dumb ones.

Project Process Overview

The process used to create World Class Workplaces employs WorkPlace 20•20's "Rapid Engagement". GSA has developed the Rapid Engagement based on tools developed on more than a dozen WorkPlace 20•20 pilot projects. The Rapid Engagement involves the following five key steps

Let's Start. The Rapid Engagement starts by gathering information, both quantitative (space, people, equipment) and qualitative (values, goals and business strategies) that support the mission of a specific organization.

Deep Dive. The next step is a rapid and intensive series of consultant-facilitated exercises designed to "dive in" to the organization and develop a quick understanding of organizational issues through interviewing observing and synthesizing information. An optimal solution for the specific organization is developed and objective ways to evaluate an architectural design solution against measurable performance criteria established.

Do It. Following the Deep Dive, the Rapid Engagement consultant facilitates an intensive one-day workshop or "charette" with GSA and its design team. The charette ensures a "handshake" between the consultant –facilitated solution and the design team's development of the working documents required to procure and construct the space. Then: construct, fit-up, and move in.

How Did We Do? After move-in, the Rapid Engagement provides a series of tools to evaluate the project's success in meeting measurable performance criteria established during the Deep Dive. This post-occupancy evaluation is scheduled approximately 6 to 12 months after occupancy.

Occupy, Maintain, and Improve. A key outcome of the Rapid Engagement is a living document that enables the end user to continuously maintain—and adapt—the space in a manner that grows out of the original design and specifications.

Demonstrate

This Toolkit provides specific prototypical layout examples and approaches as a means to demonstrate possible solutions to hypothetical situations. These examples are not meant to dictate "standard" solutions. The examples address the seven hallmarks and physical interior elements. They are intended to inspire project teams to think outside the box in support of their specific project and customer. Moreover, experience shows that developing multiple options in concert with the end user generates the best solution for implementation.

Benefits

Benefits are closely tied to the specific nature of the work being performed and specific design solutions. There can be significant human capital and real estate benefits for the agency, its associates, and taxpayers when GSA follows the project process, complies with the spirit of the seven hallmarks, and achieves excellent interior design. Multiple studies (see Case Studies, p. 8.1) show evidence that the kind of workplace endorsed by this Toolkit can produce a high return on investment because it can

- Increase the occupants' well-being and productivity as well as organizational effectiveness;
- Enhance utilization through sharing, hoteling, or telework opportunities, resulting in less occupied space;
- Reduce churn costs, including associates' downtime for moves or business change;

Reference within this document to specific manufacturers, product lines and/or products are for illustrative purposes only, and should not be seen as an endorsement by GSA with respect to any specific product.

- Cut absenteeism;
- Trim energy costs;
- Enhance the attraction and retention of a GSA World Class Workforce;
- Improve task performance and knowledge-sharing opportunities;
- Model sound environmental stewardship; and
- Enhance associates' loyalty, pride, and identity with GSA.

How to Use the Toolkit

The designer must consider the Seven Hallmarks of a GSA World Class Workplace. The design will be evaluated to determine how successfully the Hallmarks have been applied and tailored to reflect the specific site, resources, and organization's information obtained during the project process. Therefore, using the Hallmarks requires balancing competing objectives to develop win-win, innovative solutions. The output of each major step in the space delivery and life-cycle process (site selection, pre-design, design, contract documents, construction, initial occupancy, tenant improvements, and maintenance) should be checked against the business strategy, nature of work, and Hallmarks to verify that the project is meeting the goals intended.

The Toolkit demonstrates how the Hallmarks have been interpreted in a workplace plan and how the physical elements (site, furniture, lighting, etc.) can contribute to a successful solution. The Toolkit is a working tool and will be updated periodically.

Summary

The benefits that can accrue to GSA from "Leading by Example" include the following:

- Our workplace becomes a strong supportive tool for delivering products and services to our customers.
- Our workplace embodies the programs we support.
- Our workplace expresses the GSA mission, values, and cultures in today's complex real estate environment.
- Our workplace impresses our customers because we "Lead by Example."

Our challenge: To implement a World Class Workplace to support a World Class Workforce.

Guiding Principles

The following guiding principles—the Seven Hallmarks of a GSA World Class Workplace—for every GSA occupied workspace, are adapted from the Integrated Workplace "Hallmarks of the Productive Workplace."

1. Spatial Fairness: Meet the functional needs of users and their work, and provide individual access to daylight, privacy, outside views, and aesthetics.
2. Healthfulness: Create a clean, environmentally sustainable, healthy workplace with good acoustics, air quality, and light; meet the requirements of LEED for Commercial Interiors.
3. Flexibility: Choose workplace configurations and components that occupants can move themselves to accommodate change.
4. Comfort: Provide workplace services, systems, and components that allow occupants to adjust thermal, lighting, acoustic, and furniture systems to meet personal and group comfort levels.
5. Technological Connectivity: Enable full communication and simultaneous access to data among distributed co-workers both on- and off-site, including hoteling and telework space.
6. Reliability: Support the workplace with efficient, low-maintenance, state-of-the art heating, air conditioning, lighting, power, security, and telecommunications systems/equipment and backup capabilities.
7. Sense of Place: Endow the workplace with a GSA character, image, and business identity that creates a sense of pride, purpose, and dedication.

2 business case

the business case for world class workplace

Why should GSA create a World Class Workplace for GSA associates?

The key benefit of implementing World Class Workplaces is deriving full value from our most costly resource: our associates. World Class Workplaces are essential to support the people, work, and technology in today's dynamic business arena. And yet, implementing a GSA World Class Workplace typically costs no more than implementing a more traditional approach and solution. More importantly, when viewed from a life-cycle basis, creating a World Class Workplace provides GSA with a significantly greater return on investment (ROI).

The benefits of a GSA World Class Workplace fall into two major categories: human capital and real estate ROI.

Regarding human capital, a GSA World Class Workplace:

- Communicates a unified message that connects GSA associates with the organization;
- Demonstrates the programs GSA endorses by living them;
- Creates national GSA loyalty, identity, and pride;
- Uses real estate and technology as strategic tools to support associates and the way they work;
- Attracts and retains a superior workforce;
- Reduces absenteeism;
- Increases productivity; and
- Fosters innovative and creative solutions through a workplace that encourages knowledge sharing, collaboration, and individual work.

Regarding real estate ROI, a GSA World Class Workplace:

- Reduces churn costs (both physical costs and employee downtime),
- Reduces maintenance and energy costs, and
- Increases the value of physical assets.

GSA Mission

We help Federal agencies better serve the public by offering, at best value, superior workplaces, expert solutions, acquisition services and management policies.

GSA Values

- Ethics and integrity in everything we do
- Respect for fellow associates
- Teamwork
- Results orientation
- Professionalism

GSA Strategic Goals

- Provide best value for customer agencies and taxpayers
- Achieve responsible asset management
- Operate efficiently and effectively
- Ensure financial accountability
- Maintain a World Class Workforce and a World Class Workplace
- Carry out social, environmental and other responsibilities as a Federal agency.

Isn't the new project process slower and more expensive?

No. The World Class Workplace process requires more upfront planning. The World Class Workplace takes this approach because, as Chart 1 shows, the flexibility to make substantial changes that enable a design to best fit an organization's requirements is greatest, and the costs of making such changes are lowest, during a project's initial phases. Moreover, both private sector and GSA studies show that when viewed on a life-cycle cost basis, projects built following processes similar to that of the World Class Workplace yield substantial savings.

Savings begin with an improved definition of the types of workspace that support the actual occupants' needs, which can result in fewer enclosed workstations, less furniture, the use of flexible furniture, or the elimination of electrified panels (which by themselves account for 30% of the cost of workstations). During construction, studies show that savings from improved upfront project definition continue to yield savings by resulting in fewer change orders and improved on-time project delivery.

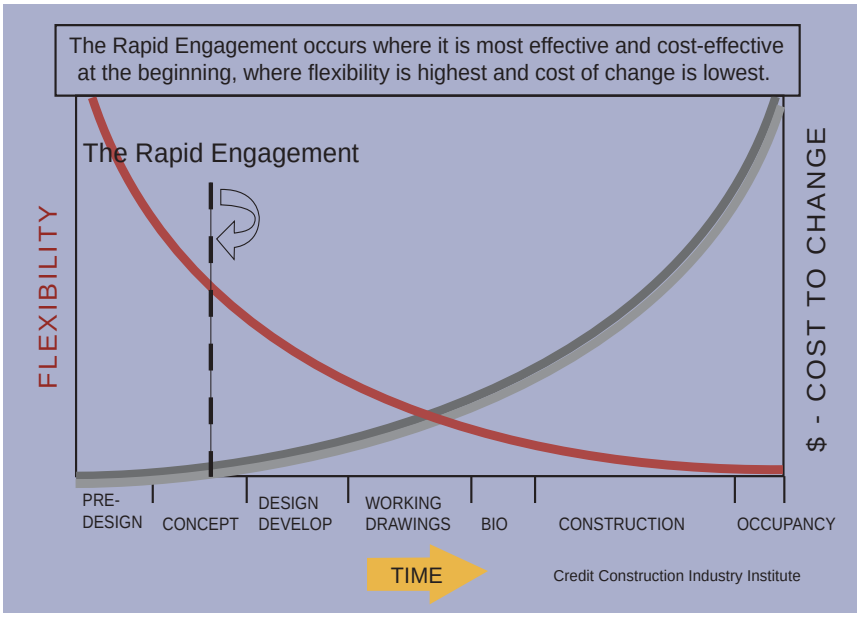
Benefits continue during move-in. GSA's WorkPlace 20•20 program has found that the flexibility to accommodate individual work styles and future organizational change is one of the most important elements of any workspace. While the benefits of such flexibility extend throughout the life-cycle of the project, savings begin immediately. For example, the Office of Governmentwide Policy estimates that flexibility can reduce physical move costs by 80%. This does not include the cost of associates' downtime for packing and unpacking, which interrupt their work and concentration.

But most importantly, over the 10-year life cycle of the typical tenant improvement, the dividends from the World Class Workplace process increase dramatically. Costs associated with fit-out account for only a modest amount of the life-cycle cost associated with a workspace. The vast majority of costs are associated with employee compensation and benefits as well as utilities and maintenance over the life cycle of the space. For this reason, even relatively small improvements in employee productivity resulting from better matching the workplace design to the organization's work will yield substantial dividends. Although "knowledge worker" productivity can be difficult to measure, several well-controlled studies have documented the effect of improved work environments on productivity. For example, several studies have correlated access to daylight and views with productivity improvements of up to 20% compared to workers without these amenities. Other studies have linked improvements in lighting, ventilation, or acoustics to improving attention,

Consider why people want to get together in one place. Often, this may be for meetings or collaboration, rather than individually focused work.

concentration, and other factors and reducing absenteeism. Additional detail on these studies is provided in the Resources section of this guide.

Chart 1. Rapid Engagement Diagram



Can GSA World Class Workplaces support the strategic management of human capital?

Yes. Defining and implementing GSA World Class Workplaces complements and facilitates the strategic management of human capital and furthers the direction indicated by the Administrator in his memo of July 31, 2002, and its implementation plan. The memo states, “Every GSA Region, Staff Office and Service will examine its strategic goals, work processes, culture, and workplaces (both virtual and real) and develop solutions that will accommodate current needs, readily adapt to change and optimize operational expenses. All new and renovated GSA associates’ space will be developed using the World Class Workplace approach and concepts.”

The GSA World Class Workplace aligns the real estate value of the organization with the strategic management of human capital and technology. Additionally, it helps GSA managers and associates demonstrate an understanding of the business of our associates and their work processes. It recognizes that today’s work environment is constantly changing to meet the demands of a dynamic business arena and that the workplace is a strategic tool resulting in greater user satisfaction and productivity and the attraction and retention of superior employees.

"No longer associated with retail spaces, branded workplace environments present a distinct identity and crucial link between the experience of a space and its use, for clients, customers, employees and visitors."

(Jack Morton, Internal Branding: Tactics to Build Employee Brand Loyalty, March 20, 2002).

Thus, we provide greater value to our customers and taxpayers by linking strategic business objectives and the nature of work with the real estate.

Does the GSA World Class Workplace brand the GSA workplace?

Yes. Branding is more than establishing a "look": It is the physical expression of the core beliefs of an organization. The workplace is the medium for communicating this message. Far from being a "standard," it is what the space communicates. It connects GSA nationally by demonstrating the same guiding principles, the Hallmarks.

The physical elements of the design, such as the architecture, lighting, color, and furniture, interpret the principles and contribute to the success of the work performed and user satisfaction. A branded workplace for GSA creates a national consistency of message and value-added services to our associates and customers.

Why create a World Class Workplace?

In summary, the benefits of providing a GSA World Class Workplace are

- Increased productivity, reduced absenteeism, and the attraction and retention of a superior workforce; and
- Responsible asset management and best value to customers and taxpayers.

3 process

Hoachlander Davis

overview: world class workplace process

The complete project process from startup through move-in varies with each project depending on size, complexity, and the amount of organizational change that is required. The process diagram shown in this section shows the steps and phases that are necessary for any World Class Workplace implementation.

The World Class Workplace Process includes the Rapid Engagment, Design, and Implementation. Each is described below.

Phase I: Rapid Engagement

The process for developing a GSA World Class Workplace for our associates begins with a series of consulting tools that rapidly engages the organization to gain an understanding of its strategic objectives, including its vision, values, and goals.

These tools and activities include

⇨ **Initiate project**

- Form partnership with End-user,
- Data gathering,
- Web-based surveys,

⇨ **Deep Dive Schedule**

- Vision sessions,
- Field observations,
- Interviews with senior management,
- Focus groups with middle management and associates, and
- Systematic methods of observing work patterns and space use.

Depending upon size and complexity, a change management/ communication plan may be developed to assist associates' understanding and acceptance of the new workplace.

Rapid Engagement: Keys to Success

- Get your project team on board early—key stakeholders, end-user contact, and project manager.
- Include a GSA workplace advocate and workplace expert on your team.
- Contract with a professional interior design firm.

The intent of Rapid Engagement is to provide an understanding of the organizational context and business goals as the basis for design. Results are summarized in a Strategic Brief that sets the direction for the design and implementation of the GSA World Class Workplace.

Phase II: Design

The Design phase begins with a one-day charette with the design team, the Rapid Engagement consultant, and the GSA organization. The outcome of this charette will be the basis for design development through contract documents. The project team should include a LEED-accredited professional (AP) familiar with LEED for Commercial Interiors (LEED-CI). The goal of all World Class Workplace projects is to follow the spirit of LEED-CI. However, projects over 30,000 square feet should be certified for LEED-CI-Silver. The LEED-CI checklist is outlined in the Resource Section of the Toolkit and further information can be obtained from the U.S. Green Building Council Web site (http://www.usgbc.org).

Design: Keys to Success

- Include the end users in the design process.
- Obtain the endorsement of key decision makers and the team.
- Add a LEED AP to team (mandatory for projects over 30,000 square feet).
- Use the Strategic Brief to ensure that the design continues the intent of the Rapid Engagement process.

Phase III: Implementation

During the contract document preparation, progress should be reviewed as appropriate by the project team, including the Rapid Engagement consultant, the GSA regional advocate, and the Applied Science workplace expert.

The goal of the contract documentation phase is to coordinate and document the approved design in such a manner that it can be firmly priced, bid, contracted, built, and most importantly, maintained.

The Construction Administration Phase monitors construction and the contractor's implementation of the design intent. The primary goals during construction administration are ensuring that the contractor builds what the design documents require within the stipulated timeframe and that the vendors install products to specification.

Hoachlander Davis

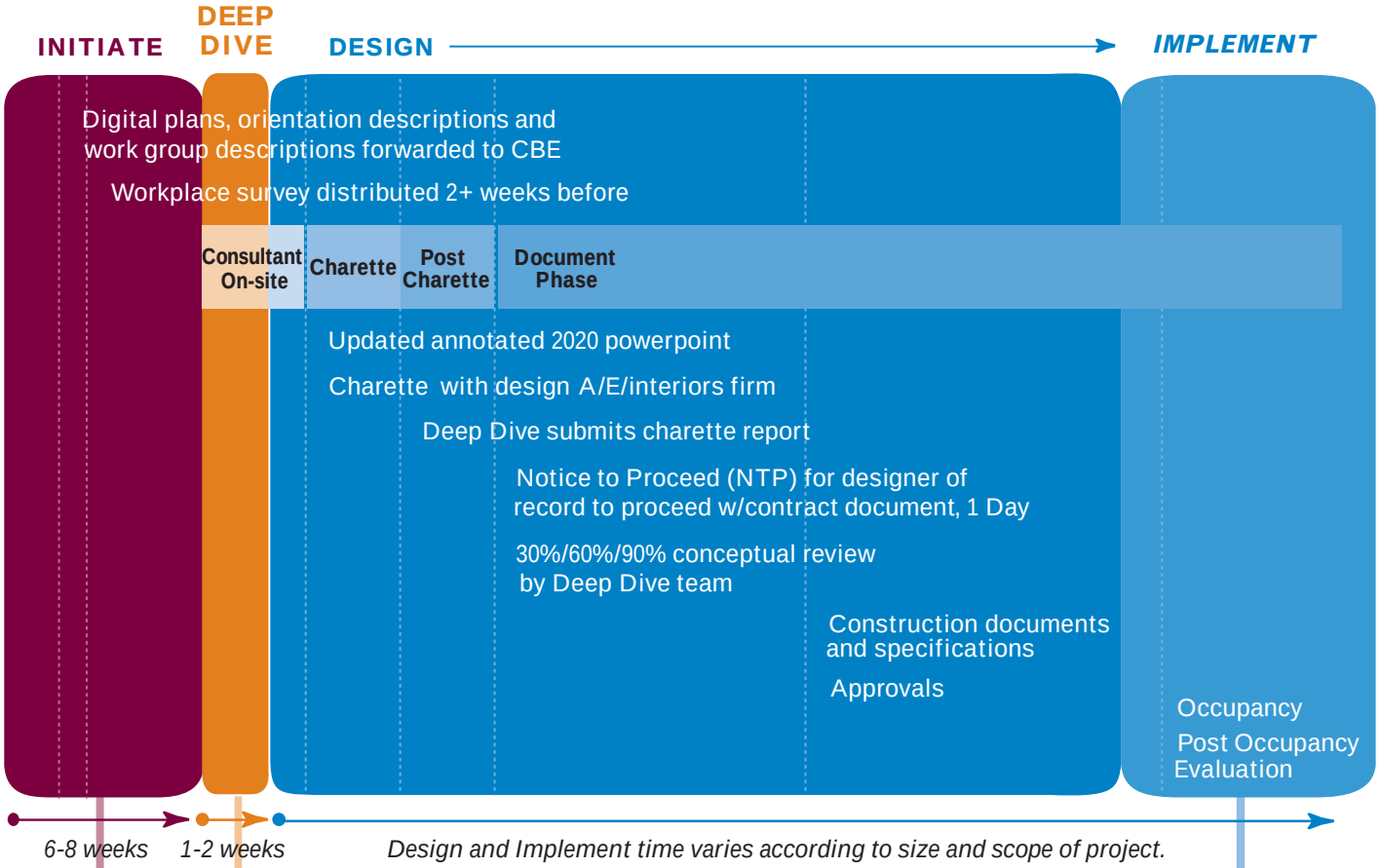
During the project closeout step, you should organize and gather data and lessons learned. In addition, conduct a post-occupancy evaluation between 6 and 12 months after occupancy using measurement tools provided by the Rapid Engagement consultants. This aspect of the process focuses on ensuring that the occupant's needs are met within the constraints agreed upon in the Strategic Brief; that contractual issues are resolved and closed out properly; that the space can be maintained; and that office protocols have been agreed upon and documented.

A case study should be developed that records the project in a meaningful way for benchmarking and information sharing with others involved in similar projects and to benefit future projects.

Implementation: Keys to Success

- Create well-documented plans and specifications and make sure the Rapid Engagement consultant reviews for compliance with the intent of the Strategic Brief.
- Keep the facility manager engaged throughout the project.
- Work with a LEED AP. This is mandatory for projects over 30,000 square feet.
- Contract with a LEED-knowledgeable construction firm, especially for projects over 30,000 square feet.

the rapid engagement process



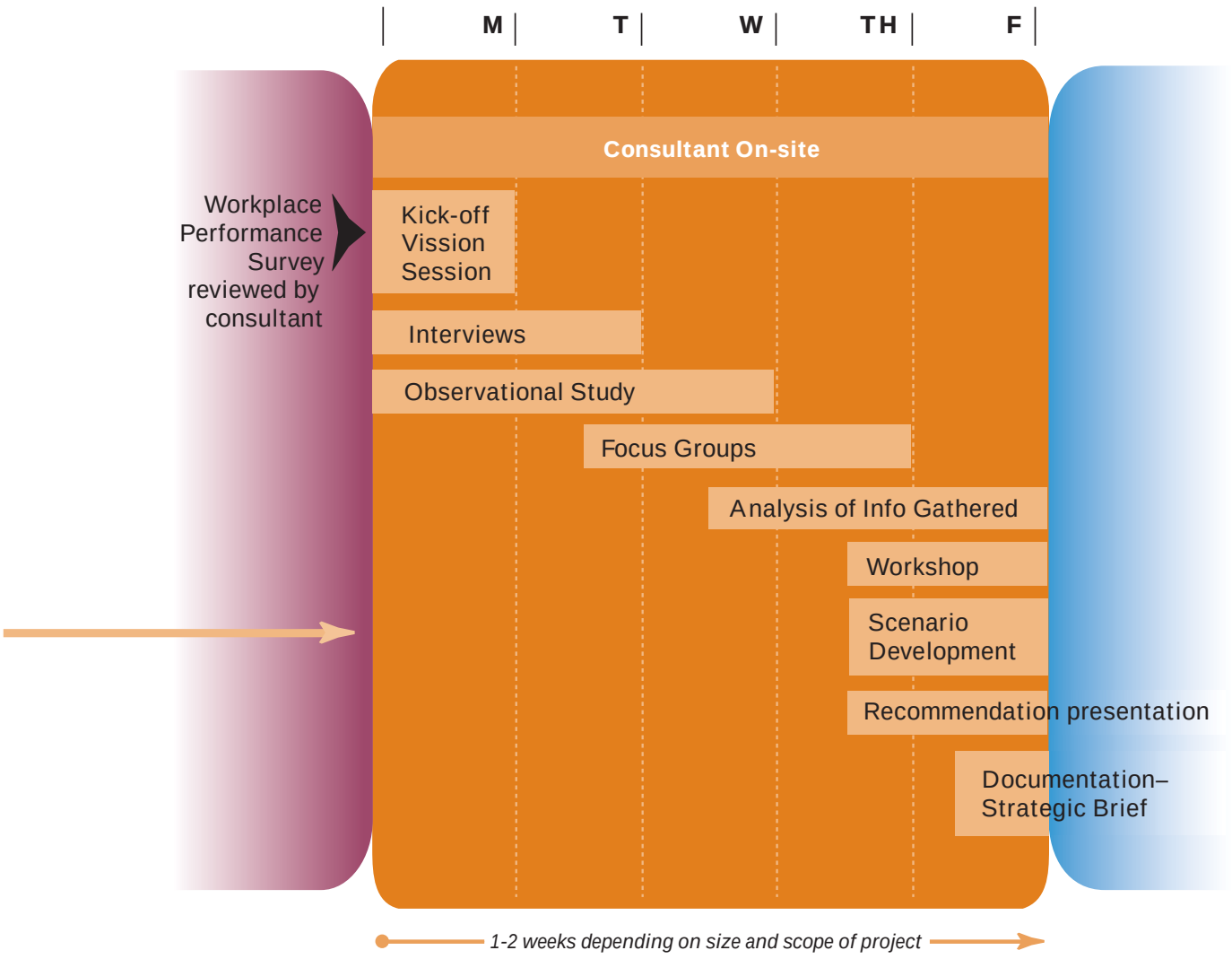
INITIATE

- Team Identity, Roles & Responsibilities
- Define Project Scope
- Collect Data
  1. Floor Plans/Furniture Plans
  2. Building
  3. Orientation by division in building
  4. Floors
  5. Department listing
  6. Staff count by division, title, level
  7. Organization charts
  8. Organization mission & facts
- Preparation for CBE Survey (Center for Built Environment)
  1. Review data and send to CBE
  2. Send out Survey to customer
  3. Gather results and analyze

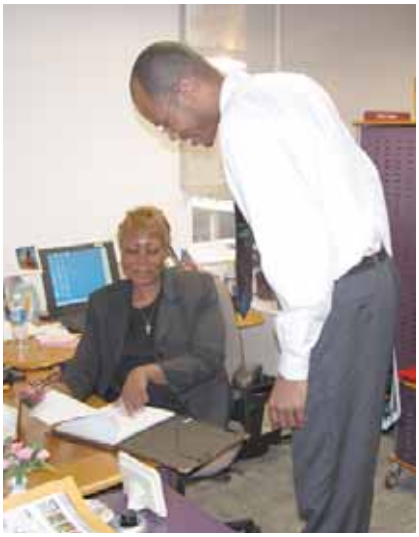
IMPLEMENT

- NTP to contractors: bidding, award, procure, construction and furniture, finishes and equipment
- Move In
- Maintenance Manual
- Project Close Out
- Post Occupancy Evaluation 6-12 months after occupancy

"DEEP DIVE" SCHEDULE *



** Sample schedule for small organization.*
Larger organization would double time for more observation



considerations

The project team sets a course of action for the project. This process has a great influence on a project's development and success. A World Class Workplace goes beyond space planning and aesthetics to become a strategic business tool. Providing the appropriate timeframes, activities for goal definition, discovery, analysis, and exploration of alternatives will help increase innovation, resulting in the successful incorporation of the GSA World Class Workplace Hallmarks. The following considerations can be useful when forming our approach to the process.

Team

The team ultimately assembled to consider all aspects of a World Class Workplace is expanded from the traditional delivery process. The team for a World Class process might include the following representatives or consultants:

- Key decision maker
- End-user contact manager
- GSA senior-level workplace advocate or expert
- Project manager
- Contract Officer
- Design team (see appendix for qualifications)
- Reality specialist
- Facilities manager
- Communications team
- LEED commissioning team
- LEED Accredited Professional (AP)
- Lighting, MEP, acoustical, structural, and technology consultants
- Change management consultants

Goals

Clearly defining and monitoring goals early in the process is critical to the team's success. Baseline goals for consideration are

- Knowledge of GSA World Class Workplace Leading by Example Toolkit, as the starting platform position.
- Improvement of spatial fairness and national identity through GSA

World Class Workplace for all GSA associates.

- Early team development and identification of key members: end user, project manager, world class advocate/expert, qualified interior design firm, LEED AP.
- Early identification of a single key decision maker.
- Development and sharing of a real implementation plan, budget, and funding source.
- Mapping out a realistic communication strategy that is flexible.

Challenges

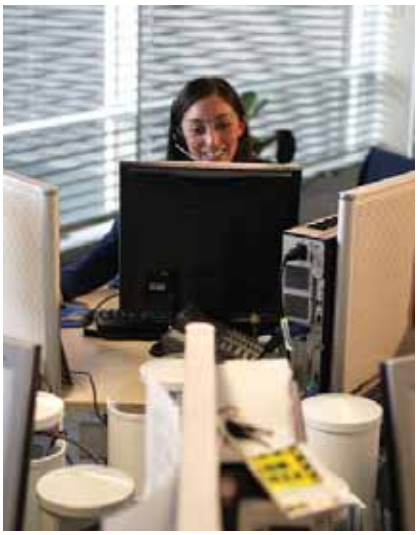
Identify potential challenges at the start. By early identification and incorporation of appropriate action into the process, we can steer a smoother course to successful realization of our goals. Common areas that require early attention and communication are

- Cultural diversity: There are presently four generations in the workplace with different motivations, skills, etc.
- Unclear budget or funding direction.
- Lack of perceived leader or decision maker.
- Lack of available end-user key contact.
- No communicated buy-in from the top.
- Unrealistic budget or schedule.

Success Criteria

In order to know if we have been successful at the end of the day, we should identify early on the potential criteria for success. This should all be documented in the Strategic Brief and used throughout the project so that there are no surprises at the end. The entire team will benefit from this early exercise. Some examples of criteria for success are

- Clear tracking of project progress; use the Strategic Brief.
- Making workplace quality the top priority.
- Meeting milestones.
- Instilling a sense of pride and ownership.
- Increasing awareness and recognition.
- Conducting a peer review, if agreed upon at the onset of the project.
- Creating a clear scope of work, deliverables, and expectations for consultants and team members.



- Utilizing the qualifications of a professional consultant in the Resource Section as an aid in selecting the right firm.
- Ensuring that the local flavor of regional and field offices is evident.
- Using sustainable design as baseline, followed by the Hallmarks, nature of work of organization and, ultimately, all equal the GSA organizational mission, goals, and values.
- Incorporating Design Excellence into the solution.
- Recognizing and rewarding teams, projects, and regions for delivering a World Class Workplace.
- Recognizing and rewarding the facilities manager and building management team for maintaining the workplace with the original designed and specified directions.

4 hallmarks

general considerations

A World Class Workplace is one that goes beyond function and aesthetics to become a strategic business tool. It is the result of an integrated, sustainable approach to develop workplaces that reflect the GSA "Hallmarks of the Productive Workplace" described below.

Workplace Requirements

A World Class Workplace should reflect the following "Hallmarks of the Productive Workplace" and satisfy the requirements as listed below.

Spatial Fairness

Design the workplace to meet the functional needs of the users by accommodating the tasks to be undertaken without compromising individual access to privacy, daylight, outside views, and aesthetics. Specific requirements include

- Natural Daylight—Everyone should have access to natural daylight. This promotes good health and increases productivity.
- Views—Provide all employees with seated views to the exterior. This also promotes good health and productivity.
- Fairness—Space should be appropriate to the type of work conducted. Therefore, rank of hierarchy is neutral in space standards. This supports collaboration, mentoring, and knowledge sharing. In open-plan office areas, provide accommodation for individual acoustic and visual privacy.
- Multiple Work Settings—Offer multiple approaches and solutions. This stimulates creativity and supports flexibility, knowledge sharing, and mentoring.

Healthfulness

Create workplaces with a clean, healthy building environment free of harmful contaminants and excessive noise, with access to clean air, light, and water. Specific requirements include

- Air—Provide clean, fresh air. Monitor and maintain air quality levels that meet or exceed those of EPA and DOE standards. Perform routine building maintenance with trained mechanics to maintain specified air quality standards. A system that provides user control is ideal. Consider underfloor air supply. Use only construction materials and methods that will not contain or release harmful contaminants that could adversely affect indoor air quality or require special treatment (such as abatement) during future modifications.

Goal: LEED-CI

A GSA World Class Workplace is committed to meeting LEED requirements (see resource section). Accomplish as many of the LEED requirements as possible on all projects.

- Water—Provide water that is drinkable, free of contaminants, and readily available.
- Ventilation—Provide exhaust ventilation (and consider negative air pressure) per applicable codes and EPA and DOE standards for all noxious fumes and odors, including those from copy areas, food preparation or storage, toilet rooms, janitor's closets, battery/rectifier, UPS rooms, and diesel generator rooms. Try to group like spaces together wherever possible.
- Ergonomics—Provide certified, ergonomically sound furniture, lighting, and equipment, including task chairs, variable-height work surfaces, computer monitor stands, adjustable keyboard trays, and adjustable, demountable task lights. Provide ergonomic consultation and training on office use and procedures for all new employees.
- Restrooms—All restrooms should be clean, maintained, and sanitary. Locate restrooms within 150' maximum travel distance from individual work areas.
- Amenities—A coffee bar, fitness center, health center, and day care center all provide a greater level of healthfulness and community.

Flexibility

Choose workplace configuration components that can be easily adapted to organizational or work process changes, and can be readily restructured to accommodate key functional changes with a minimum of time, effort, and waste. Specific requirements include

- Furniture Strategy—For open-plan, use modular work surfaces that allow the most varied arrangements and that fit together to provide maximum surface area in the space provided. Avoid using free-form work surfaces that do not function and avoid panel-hung elements that cannot work with freestanding panels. Use panels that are appropriate to function and tasks. Explore the use of demountable wall systems instead of hard wall construction.
- Kit-of-Parts Workstation—Identify and select workstation and office furniture that facilitates user adjustment and reconfiguration, including furniture, task lighting, power, data and communications connections, and air supply control.
- Fluid Layouts—Base layouts on function, not building grid; this encourages creativity and community. Provide free-standing, modular furniture components for all offices and workstations. Work surfaces should be light enough to be moved by one person. Heavy furniture such as files, storage towers, and bookcases should be on wheels or other devices so that when fully loaded, one person can move them easily.
- Technology—Provide power, data, and communications services through plug-and-play systems with integrated cable management to

the desktop that allows connections to be made easily, by the occupant, to serve components anywhere within the workstation. Consider wireless technology at least in conference and teaming spaces.

- Meeting and Team Rooms—Provide a variety of meeting spaces, such as a small meeting room for 4 to 8 people, medium room for 10 to 12 people, and large room for up to 20 people, separated by operable walls that can be opened to create larger conference rooms when needed. Provide for a central reservation system for all shared meeting facilities. These include:
  - Project/multi-purpose rooms;
  - Conventional meeting rooms. Supply with support tools, mobile easels, whiteboards, project screen, and tackable panels; and
  - Playful to invite innovative solutions.
- Space Types Standards—Create fewer space types. This will control costs, enable change, and foster an environment for diversity, innovation, and exploration.
- Telework—Offer alternative work strategies developed as an integral part of business operations, such as telework and shared workstations for teleworkers, touchdown workstations, hoteling, collaborative space, and community centers. Provide the equipment, software, and services necessary to fully support remote work at the same level as on-site work.

Comfort

Distribute workplace services, systems, and components that allow occupants to adjust thermal, lighting, acoustic, and furniture systems to meet personal and group comfort levels. Specific requirements include

- Thermal Control—Provide individual user control, within a reasonable range, of temperature and ventilation conditions at each workstation.
- Lighting—Provide individual user control of task and ambient lighting, including natural daylight.
- Ergonomics—Ensure all furniture and lighting is ergonomically sound. Provide components within the workstation enclosure that can be reconfigured by the user without tools or special expertise. Allow complete location flexibility for computer desk surfaces, storage elements, and computer monitor.
- Multiple Work Settings—Create a variety of work settings with varied types of seating to suit identified work types and individual needs.
- Adequate Space—Provide supportive office and worksurface space, which supports job function and technology for all employees.
- Security—Create an environment that provides a secure place for all employees. Coordinate security requirements to create a safe and secure workplace for all employees.

Technological Connectivity

Enable full communication and simultaneous access to data among distributed co-workers for both on-site workplaces (including individual workstations, team space, conference/multimedia space, hoteling space, etc.) and off-site workplaces (including telework or commuting center, home office, travel venues, etc.) . Specific requirements include

- Coordination—Collaborate with IT to ensure technology standards are flexible and appropriate to organizational goals.
- Plug 'N Play—Provide power, data, and communications services through plug-and-play systems with integrated cable management to the desktop that allows connections to be made easily, by the occupant, to serve components anywhere within the workstation.
- Data Sharing—Provide a unified, enterprise-wide voice and data system that can meet the work process automation needs of all occupants and allows data sharing/access across the organization.
- Telephone Service—Provide a telephone service that can provide direct inward dialing (DID) with one phone number access to each person, regardless of location, and that links both desk and mobile handsets.
- Network Access—Provide universal network access and support for remote workers from any location.
- Virtual Meeting Needs—Provide for current and future virtual meeting needs, including the capability for video teleconferencing in all meeting rooms and at the workstation desktop.
- Wireless—Select data, voice, and software systems that can accommodate wider utilization of wireless equipment or devices and larger collaboration groups.

Reliability

Support the workplace with efficient, state-of-the-art heating, ventilating, air conditioning (HVAC), lighting, power, security, and telecommunication systems and equipment that require little maintenance and are designed with battery and/or greater back-up capabilities to ensure minimal loss of service or downtime. Specific requirements include

- Clean Air and Ventilation—Clean air is a necessity in a World Class Workplace.
- Lighting—Consider both natural and artificial lighting to meet needs.

- HVAC—Provide HVAC systems with effective ventilation and individual user control of temperature and air flow. Select systems that can be adapted to changing space configurations and uses without involving demolition and renovation work.
- Instructions—Provide training and written operating instructions to all occupants on use of building systems and features, office equipment, and software.
- Security—Provide building systems security and access control to adequately safeguard the physical health and safety of building occupants.
- Maintenance—Develop and implement a comprehensive maintenance program to keep all building systems and equipment in good operating condition and minimize breakdowns.
- System Confirmation—Commission all systems, especially ventilation and lighting systems, after installation to ensure they are providing the full benefit as intended.

Sense of Place

Endow the workplace with a unique character, appropriate GSA image, and business identity to enable a sense of pride, purpose, and dedication among both the individual and the workplace community. Specific requirements include

- Environmental Graphics—Provide well-designed signage and graphics to reinforce the identity of space and enhance the user experience.
- Connectivity—Ensure employees and visitors know that they are in a GSA space from the entrance to the workplace. This will include items such as signage, GSA logo, furniture, and lighting types. (Refer to GSA Graphic Brand Standards.) GSA identity should exist from location-to-location. This doesn't necessarily mean that everything has the same look or that you have to take a one size fits all approach.
- Brand, Values, and Beliefs—Make sure the space clearly demonstrates the GSA Brand, Values, and Beliefs. Space should provide opportunities to express uniqueness without diminishing the GSA World Class Brand, Values, and Beliefs.
- Sense of Ownership—Provide clean, attractive, accessible, functional spaces that occupants can take pride in showing to customers, colleagues, family, and friends.
- First Impressions—Provide amenities that are valuable to the building occupants and that enhance way-finding, image, identity, sense of pride, ownership, and community.
- Color Scheme and Finishes—Use color strategically to create

desirable moods and themes. Create a calm work environment that promotes and encourages interaction, and stimulates creativity and innovative solutions. Accent colors and finishes can delineate function, and onstage/offstage areas, and can draw attention to particular aspects of the space (i.e., identity wall or conference center). Bring natural light into internal spaces.

- Continued Up-Keep—Space should be maintained to preserve original design quality, appearance, and intent through good maintenance and keeping replacement elements consistent with the original design intent.

5 demonstrate

applying hallmarks to the productive workplace

The Hallmarks expressed in the previous section served as an area of focus for the development of World Class Workplace design criteria. These Hallmarks and the World Class Workplace design criteria begin to define a “new office environment” that will motivate workers, increase productivity, and promote flexibility. Ideas to keep in mind

- Provide workstation components that offer the maximum opportunity for user adaptation.
- Bring natural lighting into all communal spaces. Avoid aligning enclosed spaces along windows, so that everyone can share natural light.
- Consider the acoustics level for open office plans as well as team areas. All areas should have acoustic properties that provide adequate speech privacy. This may include sound masking systems if necessary. Sound masking is not required, or appropriate, in all areas, or in all office spaces.
- Consider ergonomics a priority for all work settings. The design should explore flexible and adaptive work environments, settings, and furnishings.
- Create neighborhoods with some distinction to help with way- finding. The journey through the office should be pleasant and intuitive for the users, encouraging informal communication and sharing.
- Make sure the new design allows for the accommodation of future technology.
- Provide efficient storage that best meets the needs of the occupants and minimizes duplication and waste.
- Locate areas for printers and fax machines throughout the office. The proximity of these areas to all groups is crucial.
- Ensure that the division between workstations is at the minimum height necessary for the task requirements.
- Remember that the idea that the staff should be visible, as well as visually accessible to others, is essential to mission and the “team building” environment.
- Provide a centrally located Resource Center with layout space and personnel to maintain the files.

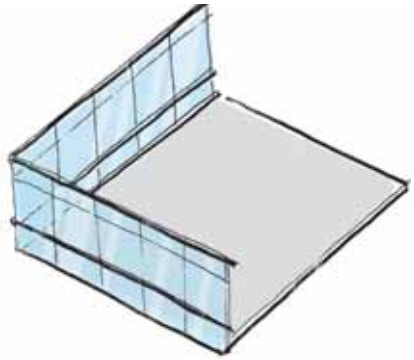
- Consider recycling stations to accommodate the recycling program.
- Remember that the workstation design, layouts, and ergonomics will be determined by GSA project team at a future date.

The following workplace elements were identified through the vision process:

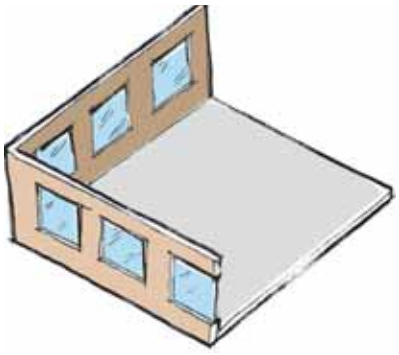
- Lighting
- Acoustics
- Ergonomics
- Adjacencies
- Amenities

space assessment guide

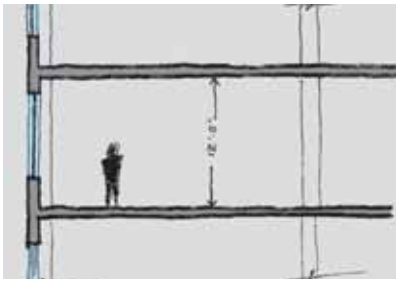
There are many variables that go into creating a World Class Workplace. One of the key ingredients is the existing space. If the space itself doesn't provide the right shell conditions, the project team will face an uphill battle in developing a quality workplace environment. That's why it's important to identify space that can be readily transformed into World Class Workplace. The following criteria have been provided as a reference for GSA project staff tasked with looking at potential space for World Class Workplace development. Assembling notes related to this criteria and sharing this with the design team can also greatly facilitate the design process, providing more up-front information about the space itself.



Perimeter Daylighting: Full Glazed Condition



Perimeter Daylighting: Punched Window Condition



Floor to Slab Height Diagram

Perimeter Windows and Daylighting

The key to providing natural daylight to the majority of the workplace is to have building orientations that maximize daylight potential, have floor to ceiling heights that allow deeper daylight penetration, and provide shading and glazing that minimize direct sun on workplace tasks. In the property selection, buildings should meet the criteria below to provide the framework for World Class Workplaces.

Maximizing Daylight Potential (for more information, see Lighting section)

- Select buildings with predominately North and South facing facades.
- Select narrow footprint buildings.
- Maximize South and North window areas.
- Install high-performance glazing.
- Provide adjustable and fixed horizontal shading for South facing facades, and vertical shading for East and West facing facades.
- Avoid direct sun penetration.

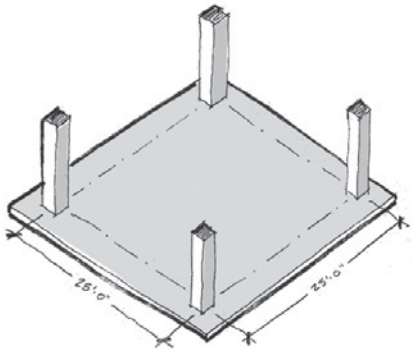
Floor to Slab Heights

Knowing the floor-to-slab height for a potential site is extremely important in evaluating whether a space is appropriate for a World Class Workplace environment.

Typically, developers, contractors, and real estate brokers refer to floor-to-floor height (or slab-to-slab heights). However, World Class Workplace is concerned with the maximum potential height within the volume of one floor. Floor-to-slab height refers to the height from the existing

concrete floor slab to the underside of the floor slab above. 13'-0" to 14'-0" is a recommended height. This provides room for lighting, mechanical systems and ancillary support systems.

The goal is to avoid having a finished ceiling below 9'-0".



Column Bay Spacing Diagram

Column Bays

Column bay spacing has a dramatic effect on the layout of workplace components. Tight column spacing can make it difficult to place workstation clusters and create private offices that are universal (standard) sizes. Column spacing is measured from the centerline of one column to the next.

In reinforced concrete buildings, column bays that are 25'-0" x 25'-0" or larger offer an adequate, decent amount of space to layout open and closed work areas with appropriate circulation. In steel buildings, 30'-0" x 30'-0" column spacing is a condition found in many facilities. This spacing provides ample area to create different types of workstation and private office layouts.

In warehouse or loft buildings, column spacing may be quite different depending on the original use and construction type of the facility.

Some questions to consider when looking at existing or new office space for development

- Is the column bay spacing consistent throughout the floor or are there variations in distances from one column to the next?

  Consistent base sizes of 25' x 25' or larger allow for more variety and flexibility in planning.

- Where are the wet stacks located?

  Wet stacks provide vertical circulation for water supply, waste removal, and drainage from floor to floor. While not always utilized, knowing their exact whereabouts is critical when creating the workplace layout.

- What material and shapes are the columns?

  If you're walking through a space and see columns encased in drywall, it's important to see what's behind the drywall. Are the columns reinforced concrete or steel? Concrete columns could be square, rectangular, or circular. If they're steel, are they surrounded by fireproofing?

- What is the condition at the top of the column?

  Depending on the condition of the columns, they can be a design feature in the space, strategically left exposed in key areas like a reception area.

Raised Floor

Knowing a few key items to consider will help determine whether raised floor is an appropriate World Class Workplace environment solution in your particular situation.

- Is a raised floor a viable option?
- Depending on the distribution needs of the occupant, a raised floor can be an appropriate solution even as a retrofit. Valuation of the life-cycle cost, in addition to the first costs, is key to making raised floor a realistic design consideration.
- 8" is the minimum depth that can handle air as well as power distribution. (More might be necessary depending on density and power load required.)
- An existing building can be retrofitted without dealing with awkward ramps. If you are retrofitting an entire floor, elevator stop points can be adjusted to be level with the floor. Base building bathrooms can have raised floor with ceramic tile installed over cementitious backer board. (New plumbing fixtures are raised accordingly.) Fire stair landings can be retrofitted to have an additional stair going down, and eliminate one going up.
- Return air will be handled at the ceiling. This can occur with a drop in ceiling, or no ceiling if you are maximizing ceiling heights.
- The cost of mechanical, electrical, voice, and data distribution is approximately the same whether distributed in the floor or the ceiling. The cost of the raised floor itself is primarily offset by the life-cycle costs. Typically the cost of the raised floor is paid back in the first three to four years of operations due to reduced energy and churn costs.
- Additional life-cycle savings can be achieved through furniture selection.
- The additional user control provided by raised floor distribution is vastly superior to ceiling distribution. By being able to relocate and adjust power and air supply ports, users are provided with a more comfortable environment, which has a significant impact on absenteeism and productivity.
- In addition, churn costs are lower. Plug-and-play ports allow the user to reposition every power and air supply portal in the floor.
- Raised floor power distribution can reduce the cost of furniture, if the alternative is powered systems panels. There is no need to add the expense of powered panels, which are also more expensive to install than non-powered systems and are less flexible.
- Careful evaluation of supplemental fan room locations and air handling equipment will determine if retrofit is possible.

- Work with an architect, interior designer, and engineer that have successfully delivered raised floor environments to determine if a raised floor is the right answer for you. An experienced team that follows the project through from initial evaluation to completion is key to the success of a raised floor installation.

Restroom Locations

When assessing a space, it is important to look at core support elements that are often overlooked. Close proximity and condition between restrooms and main work areas should be maintained.

There are two conditions that are typically found in the marketplace.

- If the facility is organized with a central core (or multiple cores depending on the size of the building), then the restrooms are typically located within the core, adjacent to vertical circulation.
- The second condition occurs when restrooms are either existing within the GSA space itself or can be built there. With this scenario, it is important to locate workstations within a comfortable walking distance from restrooms. Conference, teaming, and café/pantry spaces benefit from locations around restrooms.

Some criteria that can serve as a good reference

- Restrooms should be located within 150' of main workstation areas.
- Restrooms adjacent to café or pantry spaces offer staff an opportunity to better organize moments away from their individual workspace.
- Restrooms need to have appropriate capacity for staff and full ADA accessibility.
- Restroom fixtures should be up-to-date, easily maintained, and meet LEED CI.

Building Services

Identifying where main building services enter the space is an important component of property selection since this will ultimately affect the layout and distribution of mechanical, electrical, and telecommunications systems. Workplaces typically have a point where main building services enter the space. This includes

- Where fresh air ducts enter the space.
- Where main electrical and telephone rooms are located.
- Where sprinkler mains and fire control rooms are located.
- Where fiber optic lines enter the building (if applicable).

Locating these points on the floor plan and having a mechanical, electrical, and plumbing consulting engineer assess their condition is a recommended step in property selection.

planning strategies

Private Offices

Three different types of private office fronts are shown below. In each case, there is a conscious attempt to introduce as much natural and indirect light into the office through glass fronts. Note the amount of glass used in each case. Each of these options can be used with a demountable partition. Furniture walls are made of components that can be disassembled and moved, providing a greater degree of flexibility and reducing churn costs and downtime.

This first version shows a full glass front to the private office. In this case, full height glass panels are channel set. This design, as shown, assists in obtaining a LEED credit for daylighting provided that perimeter glazing is maximized.

A band of frosted vinyl film (by 3M) can be used on the lower 2'-6" portion of glass to act as a modesty screen. The film is fully removable and is a low-cost solution to gain privacy.

With this type of design, a minimum of 3/8" thick tempered glass should be used. Also, low-iron glass is worth considering. Low-iron glass, while more expensive, results in clearer glass and eliminates the greenish tint common to typical clear glass.

Keynotes

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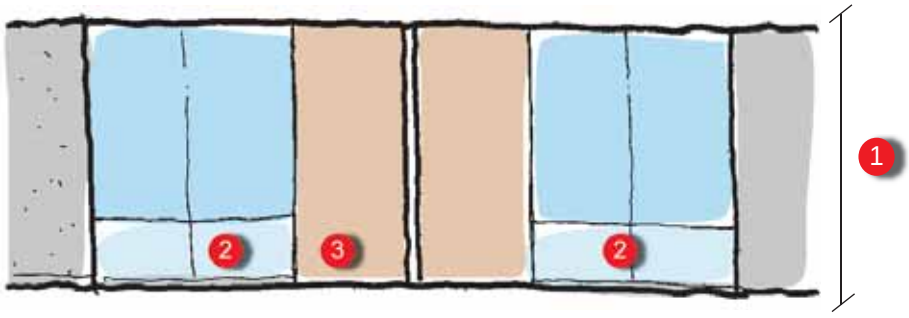
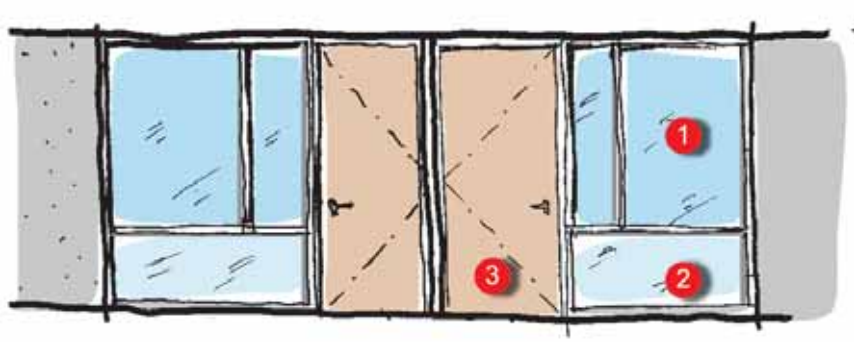


The second option utilizes an aluminum storefront framing system to create a pattern of glass and mullions. An opaque wood door (paint grade) is used in this approach. This design offers a high degree of privacy while still allowing a large amount of light into the office from the adjacent office.

Frosted film can also be used to create the look of sandblasted glass. When a storefront system is used to frame the glass, ¼" clear tempered glass can be used as panels.

Keynotes

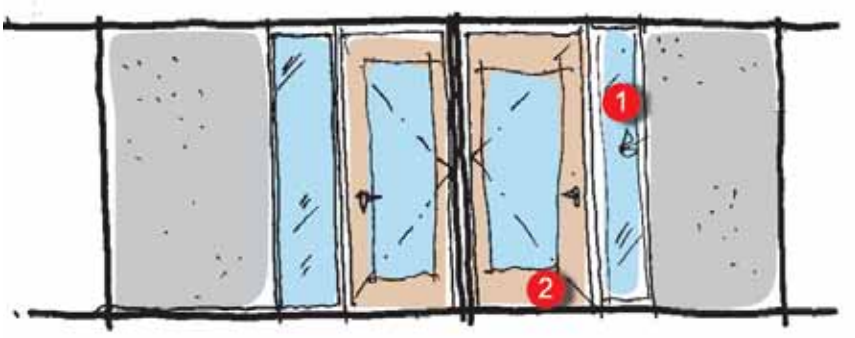
1. 1/4” thick glass panels set in aluminum frame system
2. 1/4” thick frosted glass panel set in aluminum frame system
3. 3’-0” wide wood doors (paint grade) set in aluminum frame



The third design option uses less glass and more solid wall in the construction of the office front. Here, an 18” full-height glass sidelight is used adjacent to the door. The door itself can be solid or contain a glass panel. This concept offers greater visual and acoustic privacy; however, less natural and ambient light from the workplace is allowed in. Demountable partitions should be considered.

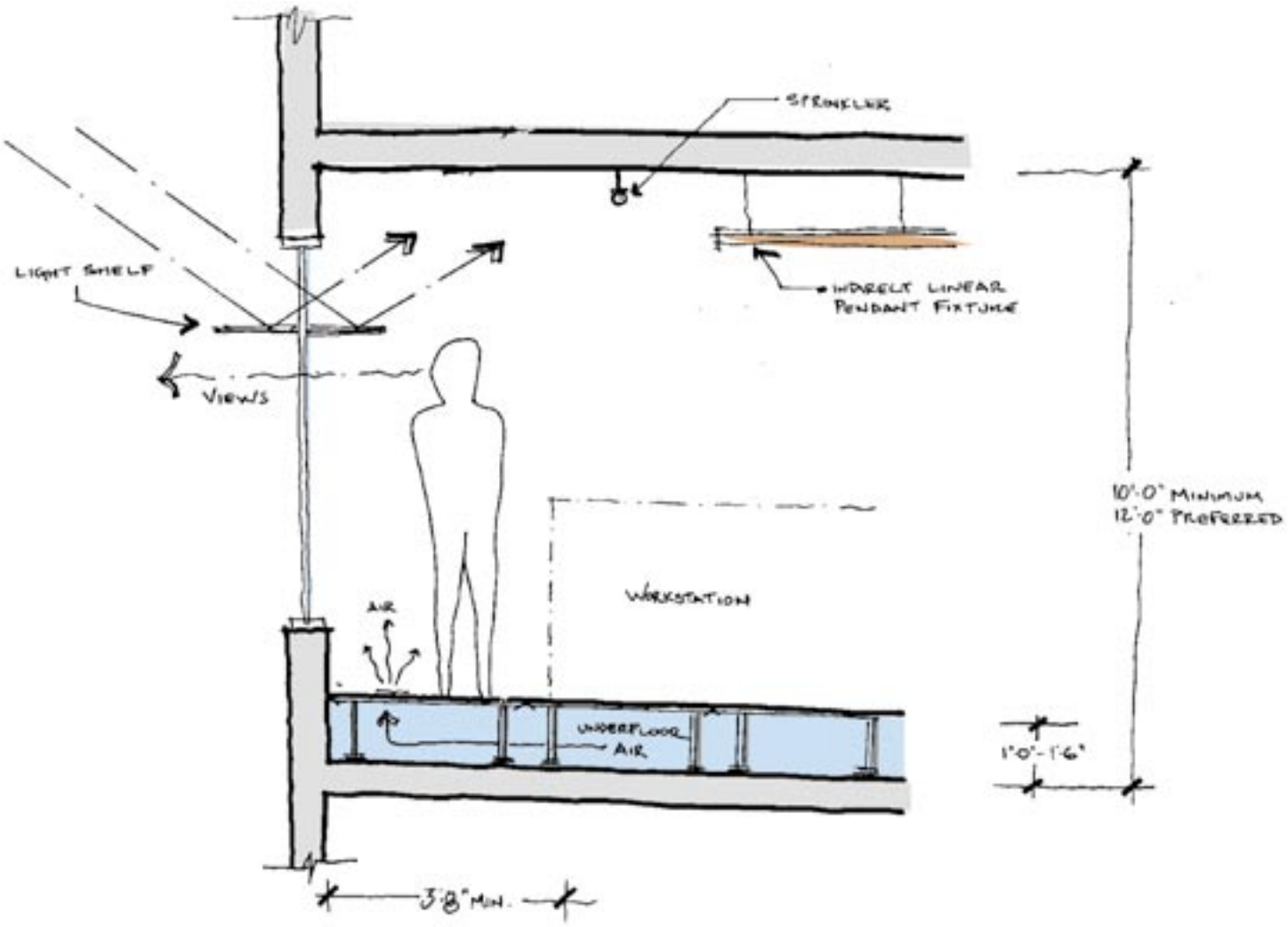
Keynotes

1. 18” wide clear glass sidelight
2. 3’-6” wide wood door set in aluminum frame



air distribution

Underfloor Air Distribution–Diagram 1

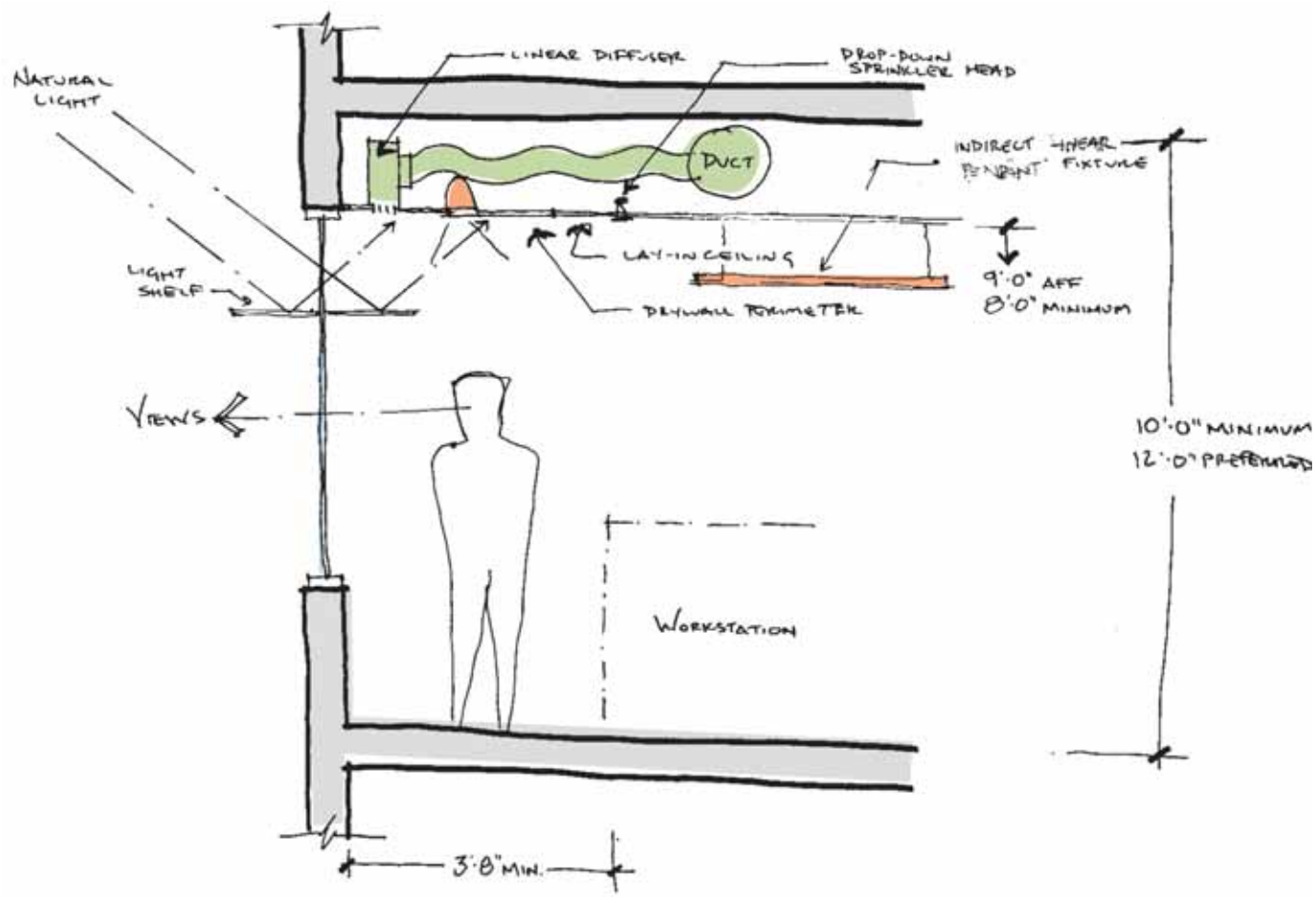


This diagram illustrates the recommended planning strategy for a World Class Workplace. This option addresses the Hallmarks, is appropriate for LEED CI, and helps create a more sustainable workplace. The following strategies are used:

- Raised floor system provides underfloor air supply. This provides greater individual climate control for the occupants and greater flexibility and cost savings for future space reconfiguration.
- Raised floor system also allows easy access and distribution of power and communications cables.
- Sprinklers and lighting are placed close to the slab above to maximize height.

- Furniture is set back from the window so that no single staff member occupies real estate on the perimeter of the workplace.
- Architectural construction doesn't block any portion of the window. The higher the height of the window, the greater the opportunity for light penetration deeper into the space.
- All exposed elements, including ductwork and cabling, should be designed and installed to provide an aesthetically pleasing solution.

Overhead HVAC Distribution: Diagram 2



This diagram illustrates an alternative strategy for a World Class Workplace environment. In this scenario, ductwork, electrical cabling, and other services are run across the ceiling.

- The existing floor slab is covered with a sustainable product (i.e., wool carpet with recycled backing, recycled rubber flooring, linoleum, etc.).
- If the ceiling slab above is in decent condition, it can be left exposed.

An exposed ceiling condition helps to make the workplace seem more spacious, providing greater volume than a finished ceiling set at a lower level.

- Ductwork should be held tight to the slab to maximize height.
- Sprinkler lines should also be held as tight as possible to the slab.
- Exposed ceilings should be painted a light, neutral color to reflect light.
- Cables to power lighting should be run through hard conduit (called EMT) to create an organized ceiling plan without the appearance of wires snaking in a variety of directions.
- Cable trays can be used to organize the run of data and telecommunications cables if a wireless network isn't utilized.

world class workplace sample plan

Now that we have assessed the building characteristics that would be appropriate to house a World Class Workplace, let's identify the guiding principles behind a floor plan that supports the GSA World Class brand. What does that mean when space planning is started? The sample plan is a diagram that embodies the seven Hallmarks in plan view.

There are two zones of activity that organize the overall plan. The first area is a public "front-of-house" zone that is controlled. This could be viewed as the public face of the workplace. It takes into consideration the first impression of visitors, acting as your storefront, while also offering space for public related activity. This area is where you would find reception, lobby, café, and more formal large conference areas and is referred to as ONSTAGE.

The second area is a more semi-private work zone that is dedicated to individual work and production. This area offers a variety of teaming areas, workstations, and private offices and is referred to as OFFSTAGE. Please note that offstage space is extremely important because this is where the bulk of the work takes place.

Notice that we have used the hard or demountable walls for private offices to create the two zones.

The Onstage environment has the following characteristics:

- Controlled light, view, access (Spatial Fairness).
- Identity and signage (Sense of Place).
- Encourages interaction in this zone to gain access to amenities such as the café space (Comfort, Reliability).
- Purposeful placement of team areas (#8) on the border between the two zones for natural areas of collaboration (Flexibility).

The Offstage environment has the following characteristics:

- Access to natural light and view for everyone. Minimize solid surfaces parallel to the window wall (Spatial Fairness).
- Minimum depth to the window wall (Healthfulness).
- Centralized work scenarios (Comfort).
  - Keep density down (minimizes acoustic and visual distraction, while allowing teaming).
  - Allow for the creation of neighborhood identities.

The Seven Hallmarks:

1. Spatial Fairness
2. Healthfulness
3. Flexibility
4. Comfort
5. Technological Connectivity
6. Reliability
7. Sense of Place

- Furniture “kit-of-parts” are used. These allow similar components to be arranged differently to accommodate varying conditions (Flexibility).
- Most things are the same, which allows for intuitive flexibility and user manageability.
  - Give users permission to move parts. This encourages variation in the configuration of approved parts.
- File/Support islands open up avenues of light and view (Way-finding).
- Ordered planning creates a calm, professional work environment (Reliability).
  - Some things have to be predictable or chaos creeps in (offices, corner team areas, printer locations, shared files).

Sample Plan: Restrooms Within Space

Keynotes

1. Reception
2. Cafe
3. Large conference room
4. Open workspace
5. Closed workspace
6. Support area
7. Teaming area large
8. Teaming area small
9. Flexible closed workspace

Sample Plan: Restrooms Within Core

Keynotes

1. Reception
2. Cafe
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4. Open workspace
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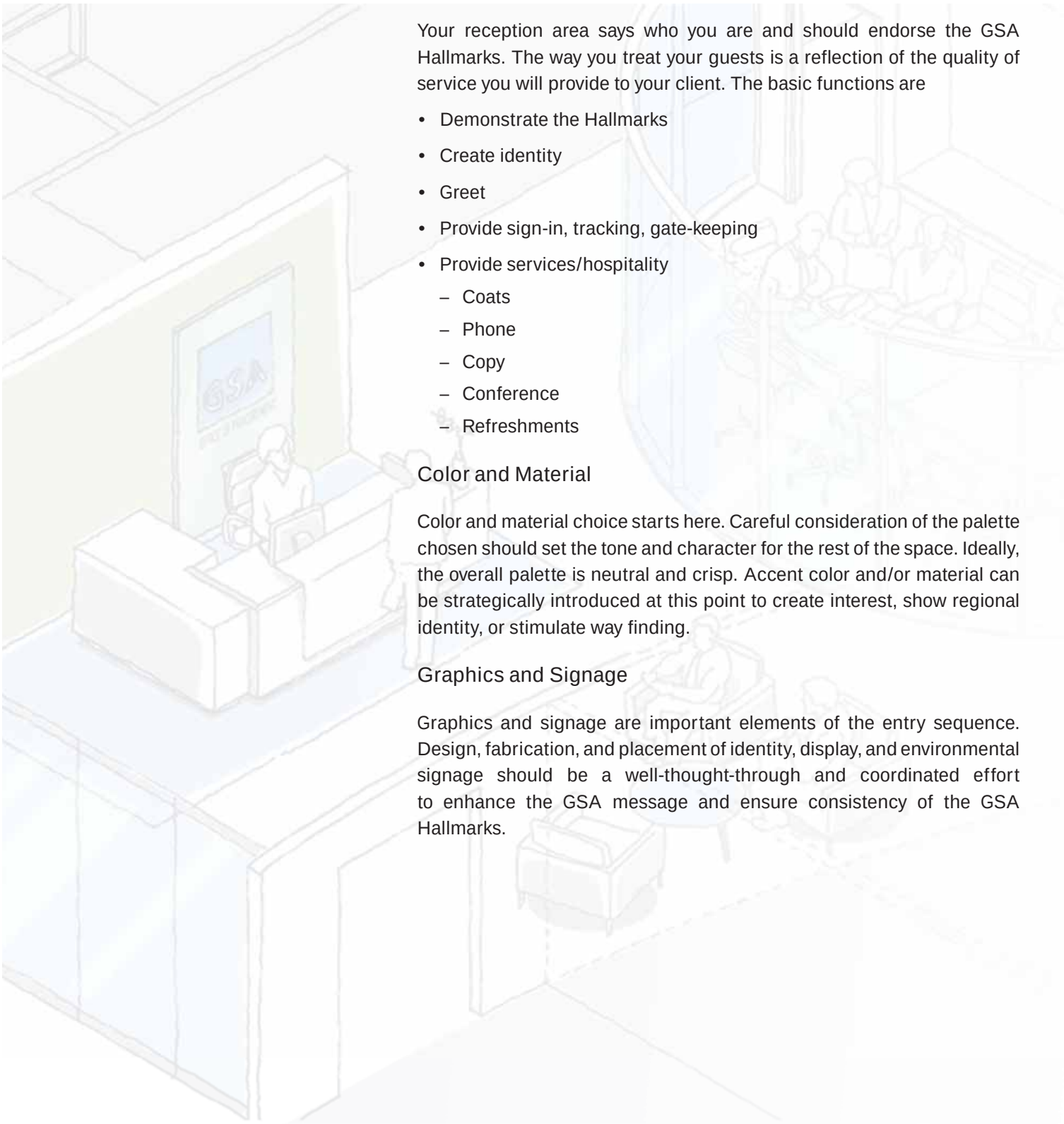
6. Support area
7. Teaming area large
8. Teaming area small
9. Flexible closed workspace

reception



Your reception area says who you are and should endorse the GSA Hallmarks. The way you treat your guests is a reflection of the quality of service you will provide to your client. The basic functions are

- Demonstrate the Hallmarks
- Create identity
- Greet
- Provide sign-in, tracking, gate-keeping
- Provide services/hospitality
  - Coats
  - Phone
  - Copy
  - Conference
  - Refreshments

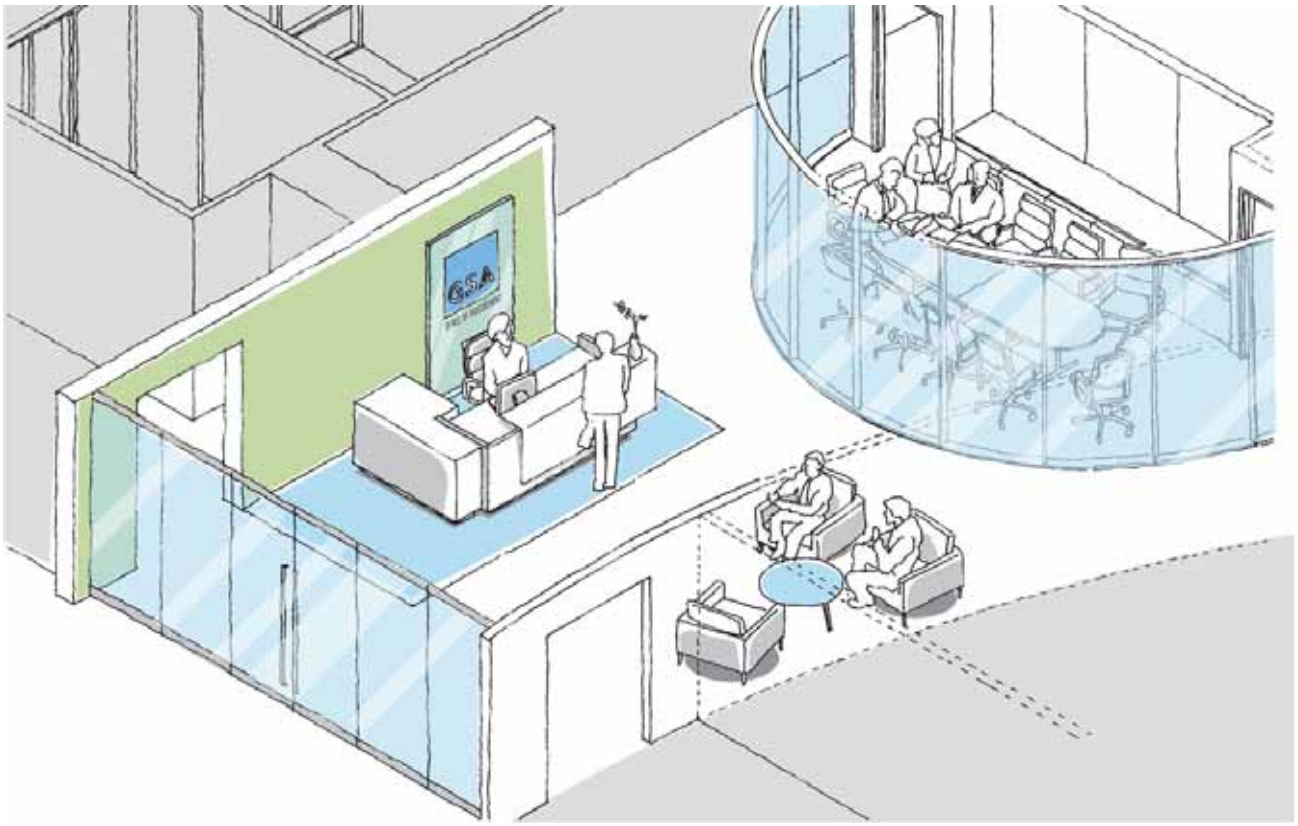
Color and Material

Color and material choice starts here. Careful consideration of the palette chosen should set the tone and character for the rest of the space. Ideally, the overall palette is neutral and crisp. Accent color and/or material can be strategically introduced at this point to create interest, show regional identity, or stimulate way finding.

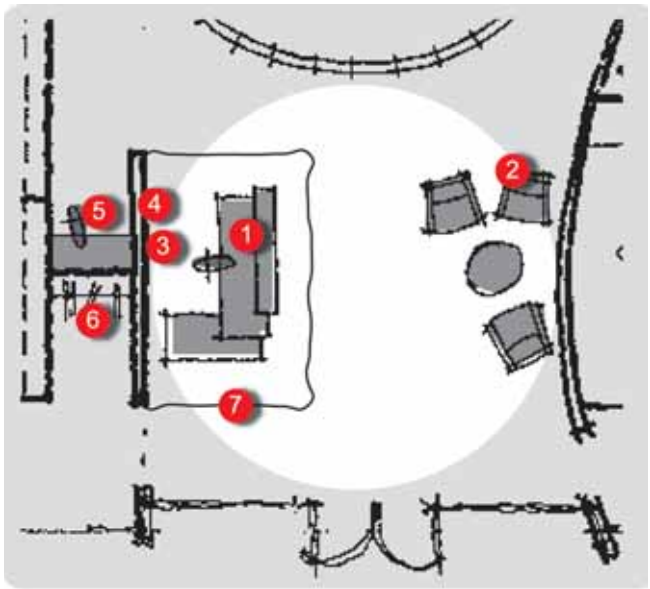
Graphics and Signage

Graphics and signage are important elements of the entry sequence. Design, fabrication, and placement of identity, display, and environmental signage should be a well-thought-through and coordinated effort to enhance the GSA message and ensure consistency of the GSA Hallmarks.

Reception: Axonometric View



Reception: Plan View (Scale 1/8" = 1'0")



Keynotes

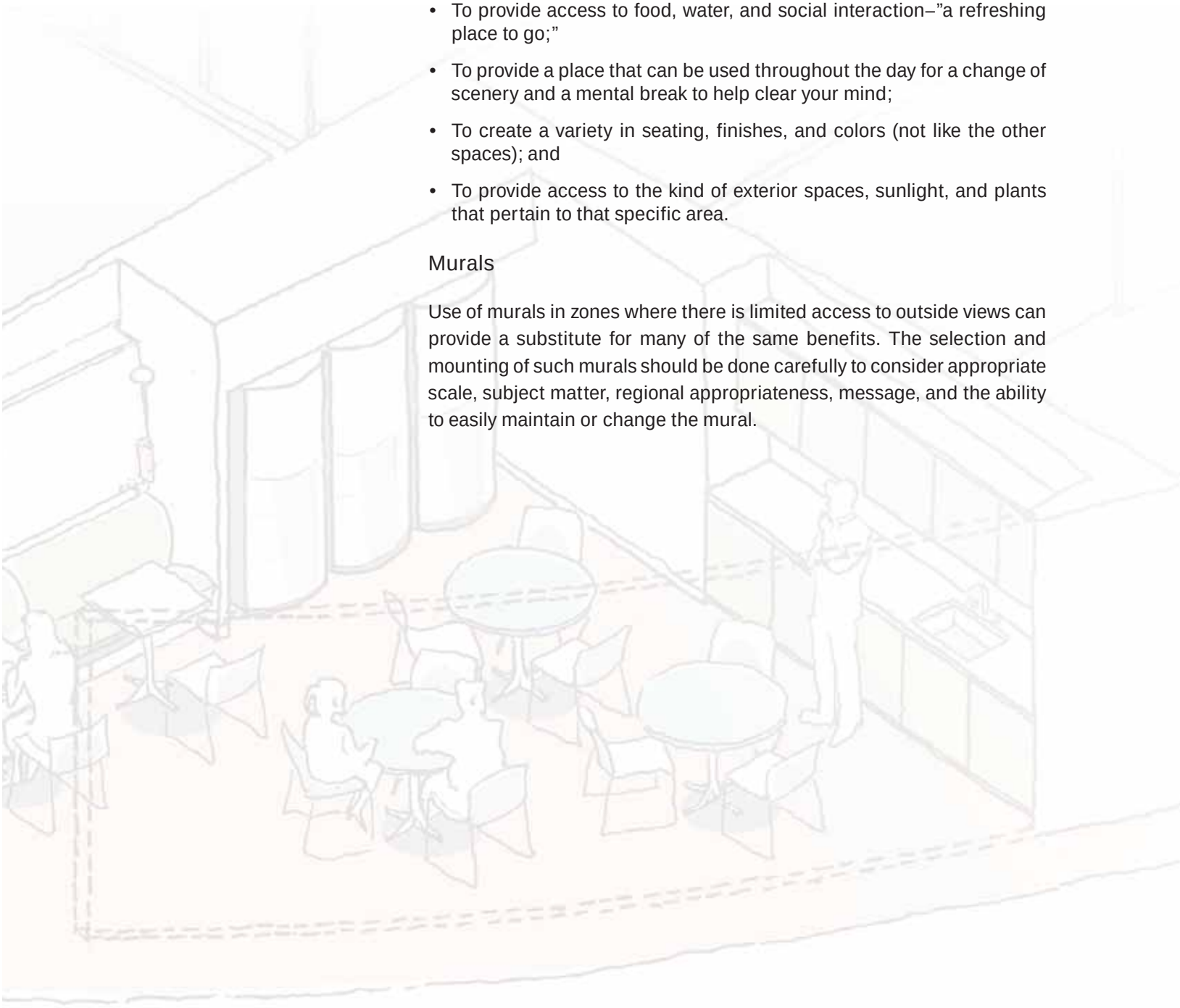
café

The café provides an opportunity for more than just physical refueling. It is a place for "mental refueling" as well. It demonstrates how you think about your staff, and their needs throughout the day. The basic functions of a cafe are

- To provide access to food, water, and social interaction–"a refreshing place to go;"
- To provide a place that can be used throughout the day for a change of scenery and a mental break to help clear your mind;
- To create a variety in seating, finishes, and colors (not like the other spaces); and
- To provide access to the kind of exterior spaces, sunlight, and plants that pertain to that specific area.

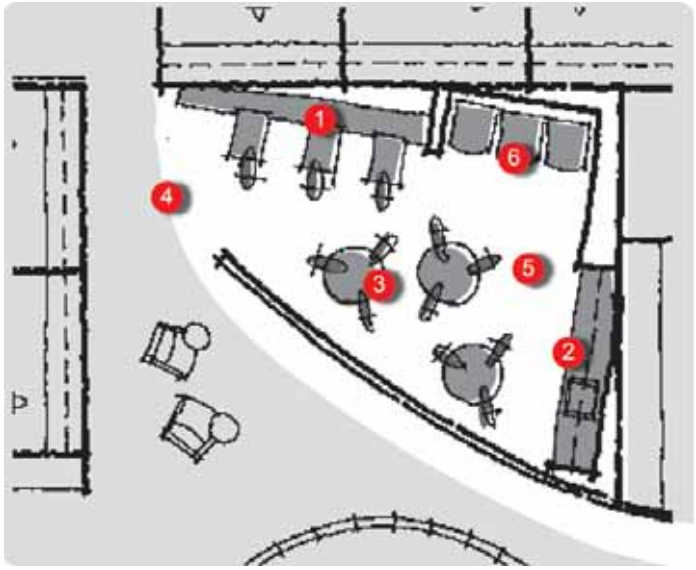
Murals

Use of murals in zones where there is limited access to outside views can provide a substitute for many of the same benefits. The selection and mounting of such murals should be done carefully to consider appropriate scale, subject matter, regional appropriateness, message, and the ability to easily maintain or change the mural.



Café: Axonometric View

Café: Plan View (Scale 1/8" = 1'0")



Keynotes

large conference room

The front of house conference room is the primary area where you and your client interface. It should be well thought out and seamless in the way it functions. (Ask yourself: Can you be in the room for four hours, and have what you need?) As a baseline, a good conference room should provide:

- Good air quality and control
- Good lighting and controls for various formats
- Good technology interface (speaker phone, video capable, laptop, e-mail connectivity)
- Access to food and beverage (there is nothing worse than a four-hour meeting with nothing to drink)
- A professional image
- Good maintenance practices
- Good scheduling practices
- Access to power and data connections without crossing circulation paths
- Flexible components that can be easily rearranged to accommodate different needs
  - Avoid large one-piece conference tables
- Good acoustic conditions
- As a rule, avoid large, one-piece conference tables

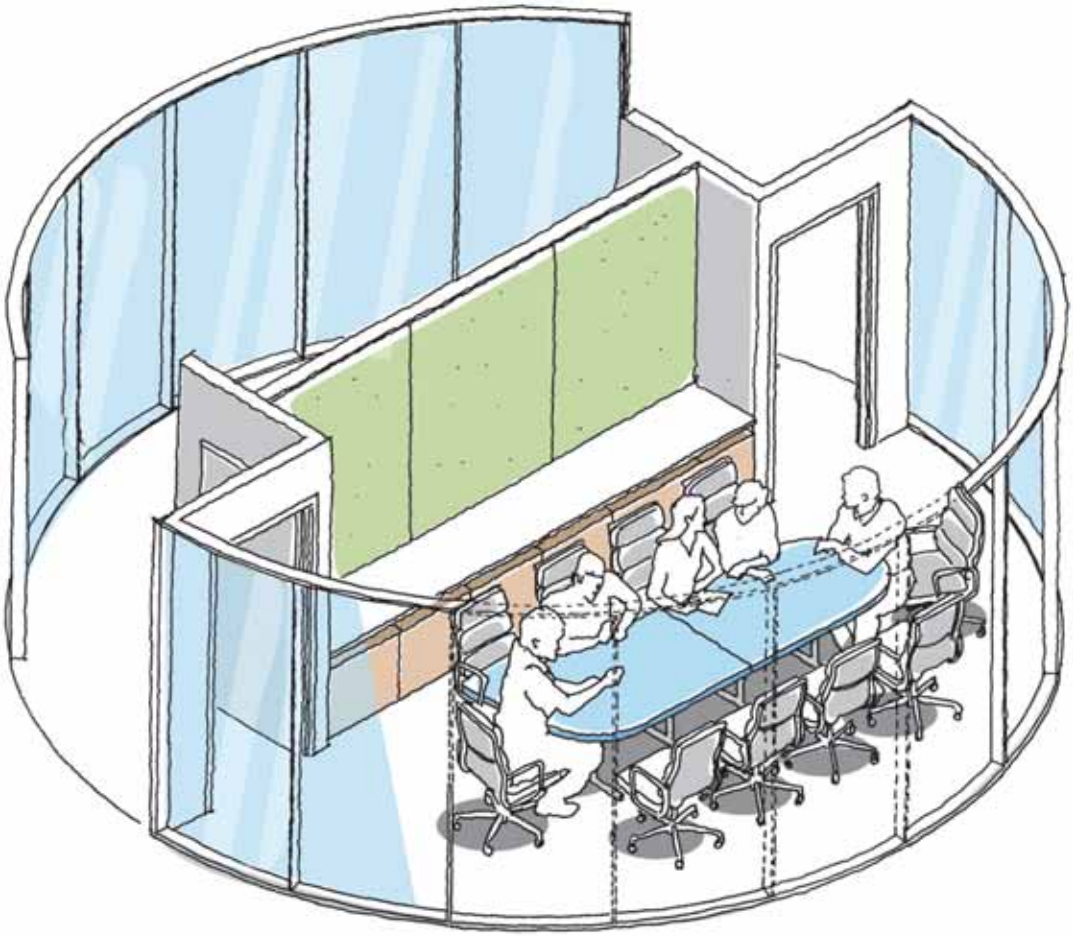
Color and Materials

The primary use of conference spaces precludes the use of strong accent colors or intrusive wall art. Remember the users of these spaces will require a working environment with wall surfaces and colors which are suitable for visual projection, pin-up, and writing. Wall surfaces should be able to sustain tack marks, and potentially markers, without repainting. You should consider writable wall coverings as well as tack space, based on your needs.

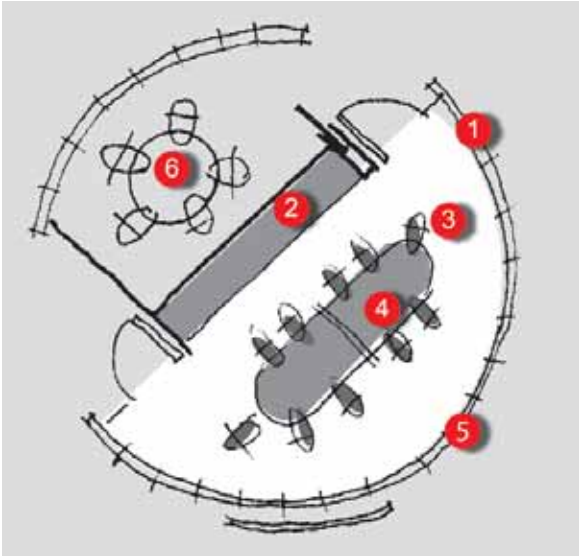
Acoustic Control

Conference rooms doors and walls should go to the underside of deck for sound containment to and from the adjacent space.

Large Conference Room: Axonometric View



Large Conference Room: Plan View
(Scale 1/8" = 1'0")



Keynotes

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open workspace

The open work areas are key to embracing the Hallmarks. This space plays an important role in creating a World Class Workplace. It supports 80% of your professional workforce. How you handle it will tell the story of how you expect to get your work done, and the Hallmarks you value: access to light and view, teamwork, adaptability, individual comfort, respect for natural resources, and professional atmosphere.

- Consider use of live plants to improve indoor air quality and user satisfaction.
- Use transparent or translucent vertical surfaces parallel to the windows to the greatest extent possible, especially above 48 inches in order to maximize light penetration into the space.
- Use limited parts and pieces, which are movable by the user.
- Provide good ergonometric seating and computer peripherals.
- Use tall mobile storage components that do not block light and views of others.
- Consider using storage towers on wheels which can replace overhead flipper bins or shelves; overhead bins and shelves block light and views, decrease configuration flexibility, and make space feel tighter.
- Reconfigure to allow for different levels of teaming;
  - Four-person team
  - Two-person team
  - Individual

Color and Material

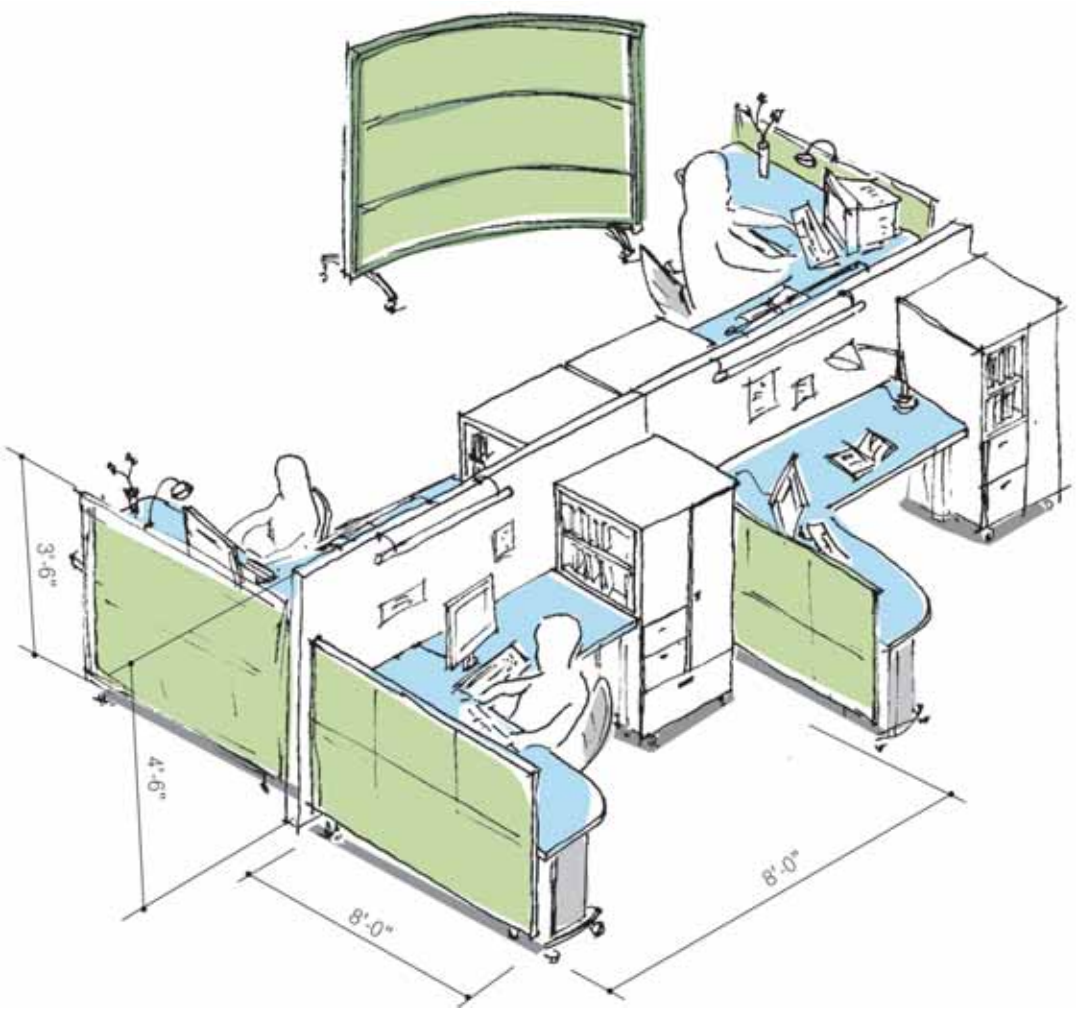
Choices for furnishings should be predominately neutral in color to allow for ease in reconfiguration. Worksurfaces should be light in color to maximize light reflectance and reduce contrast. Upholstery colors and materials should be selected with maintenance and reconfiguration in mind.

Architectural accent color and materials are more easily controlled and provide more visual impact. Ideally, the overall palette is neutral and crisp. Accent color and/or material can be strategically located to create interest, show regional identity, or stimulate way-finding.

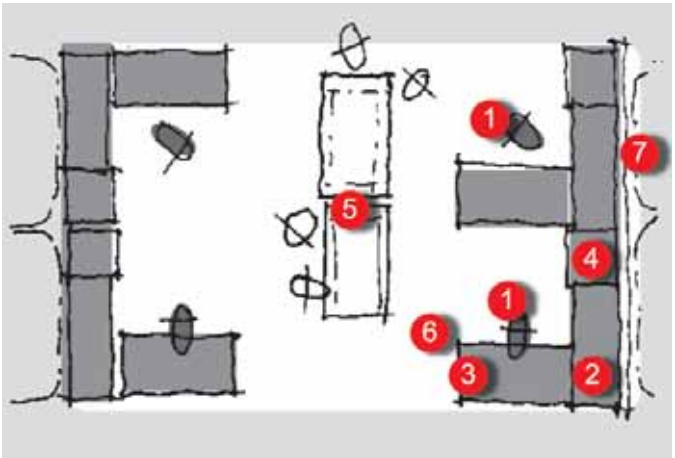
Acoustic Control

Workstations should be clustered in quantities of four in order to maintain adequate acoustic and visual separation. Maintaining a work environment that is not too densely packed is key to providing a healthy, professional, and aesthetically pleasant environment. A good rule of thumb is a maximum of four stations of 64SF each, every 20’ x 25’ bay.

Open Work Space: Axonometric View

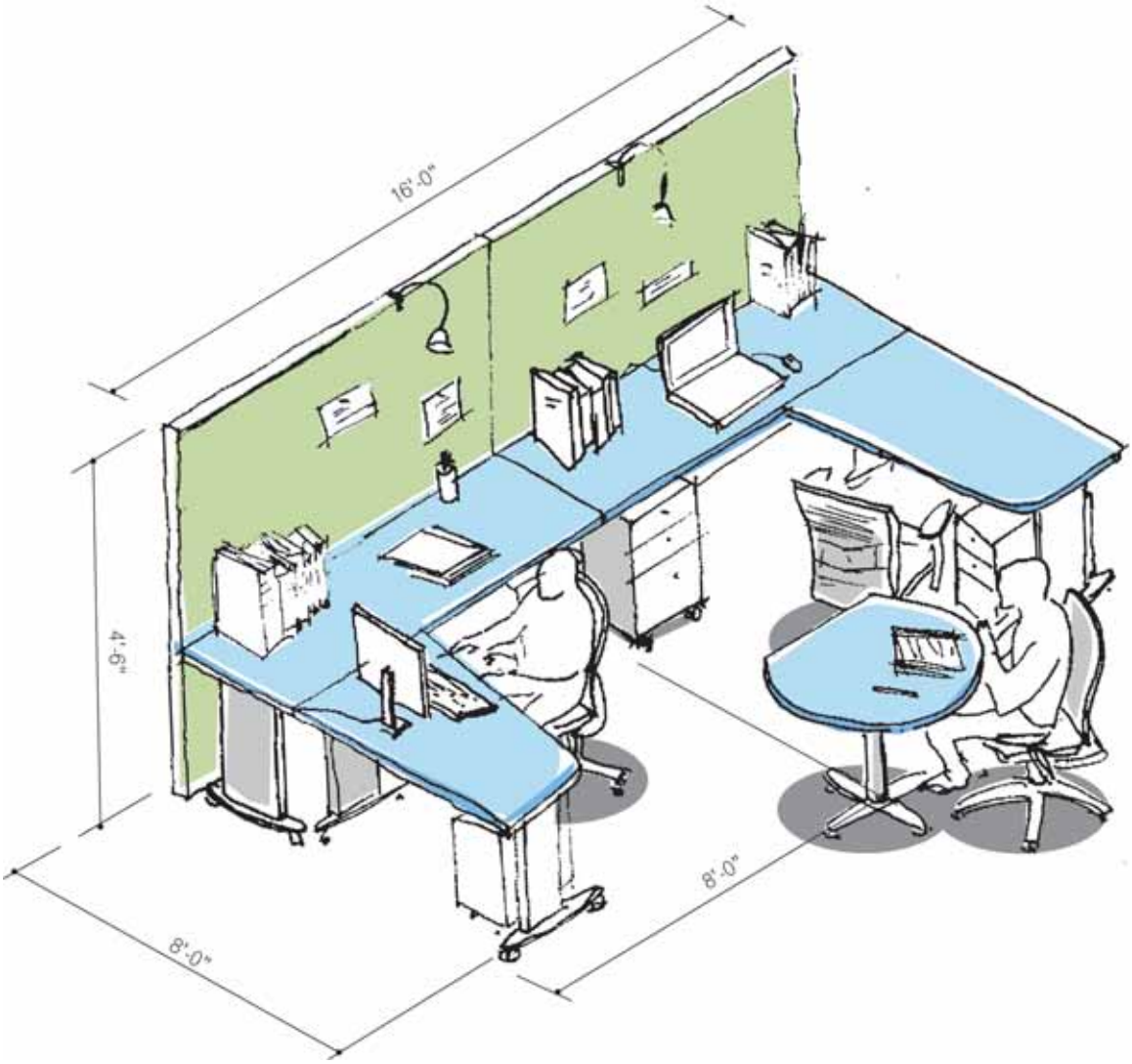


Open Work Space: Plan View (Scale 1/8" = 1'0")

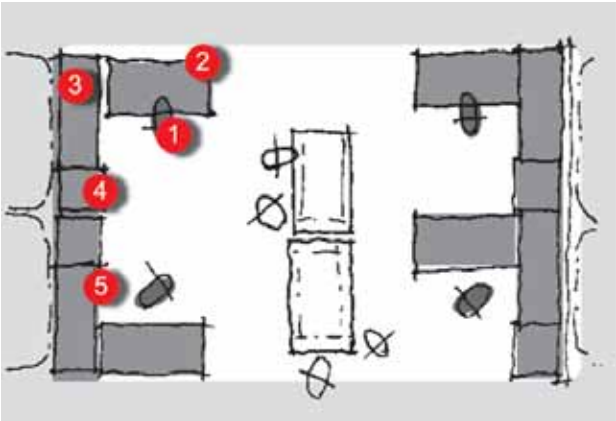


Keynotes

Open Work Space: Axonometric View



Open Work Space: Plan View (Scale 1/8" = 1'0")



Keynotes

closed workspace

This represents approximately 20% of most professional service firms. It is efficient, non-hierarchal, and accessible. Functional characteristics are

- Interior location to allow for maximum penetration of natural light and view for open plan associates.
- 10' x 12' footprint accommodates most closed work functions.
- Glass front is key.
- Two guest maximum. (If more than four people need to meet, go into another venue).
- Offices are available for other uses when not in use by primary occupant.
- Unassigned offices to be used as team areas, visitor stations, conference call areas (not to be used to permanently house two people).
- Vertical Storage on back wall (not side to prevent crowding).
- Smart outlet placement.

Color and Material

The palette of colors and materials selected for the closed workspace should be consistent with that in the open spaces. Furnishings should be interchangeable with that of the open workspace.

Demountable Walls

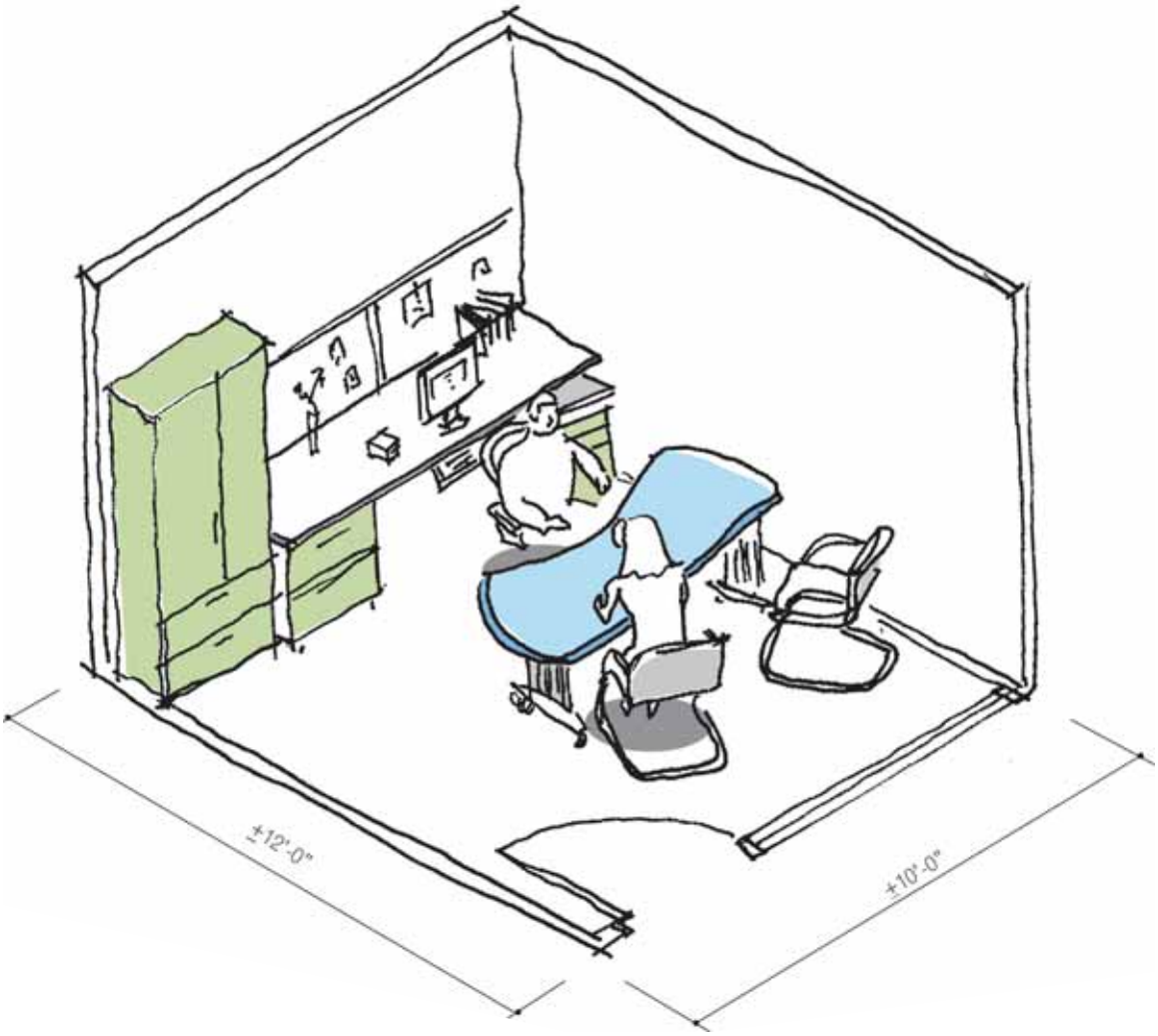
Demountable walls are an excellent option for closed workspaces. A planning strategy that minimizes the number of closed office standards also allows for a cost effective application of movable walls. This is especially so when glass fronts are incorporated.

Closed Office as Team Room

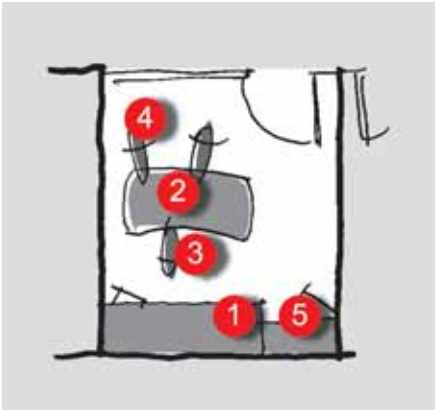
These are small conference rooms in the Offstage zone that are not scheduled. Functionally they provide

- Accommodation for small groups of two to four (can be same as office footprint),
- Speaker phone access,
- Acoustic privacy,
- Pin up and writing surface,
- Smart outlet placement, and
- Furnishings which can be easily used for visitor office.

Closed Office/Team Room: Axonometric View

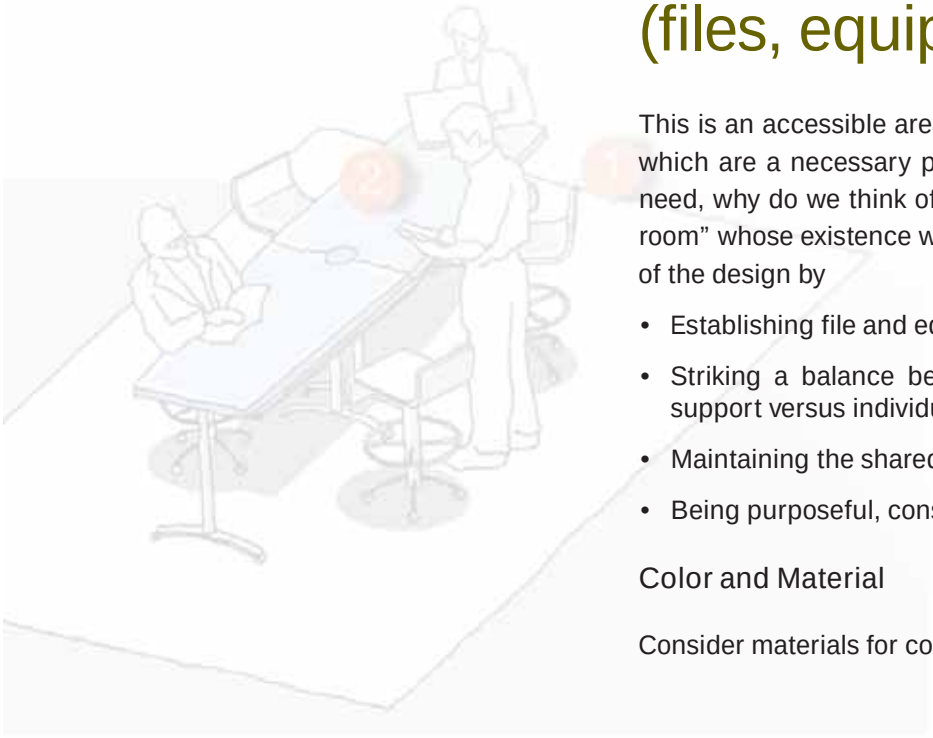


Closed Office/Team Room: Plan View
(Scale 1/8" = 1'0")



Keynotes

shared support (files, equipment)



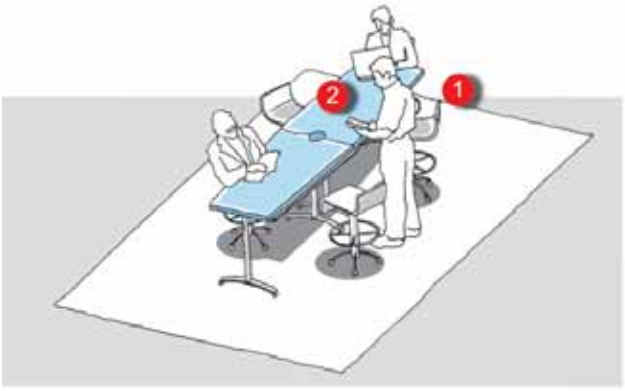
This is an accessible area for shared support such as files and printers, which are a necessary part of everyone's workplace. If it is a universal need, why do we think of it as optional? It is the "elephant sitting in the room" whose existence we continue to ignore. Embrace it. Make it a part of the design by

- Establishing file and equipment policies.
- Striking a balance between how much, and what, goes in shared support versus individual workstations.
- Maintaining the shared support areas.
- Being purposeful, consistent, and equitable.

Color and Material

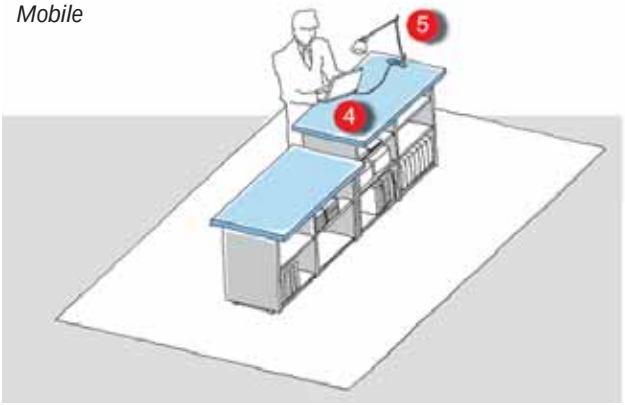
Consider materials for continuous worktops that are sustainable.

Shared Support Area: Axonometric Views of Island Area Showing Multiple Uses

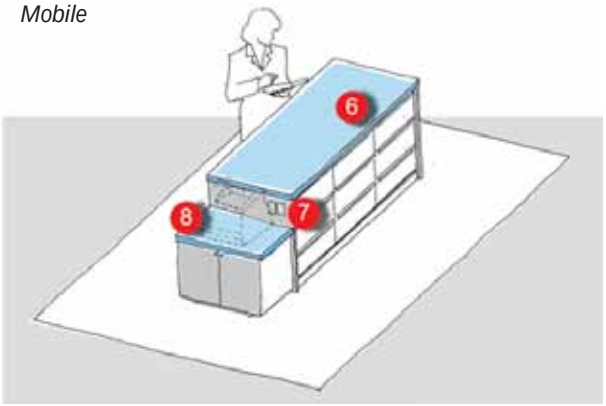


Meeting Space
Mobile

Hoteling
Mobile

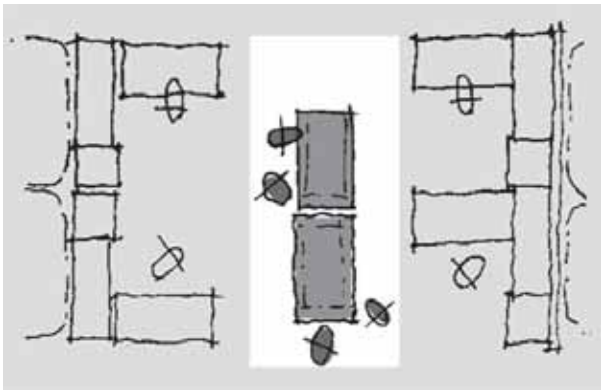


Resource Area
Mobile



Printer Station & Filing
Mobile

Shared Support Area: Plan View
(Scale 1/8”=1”0”)



Keynotes

team areas

These are spontaneous collaboration areas in the offstage zone that do not need to be scheduled. It is used primarily when a small group of two to three need to review their work for coordination purposes and to share ideas. It is the most visual and energized demonstration of collaboration that can be planned in the office. Don't leave it out! Plan for diverse work areas to support today's workforce.

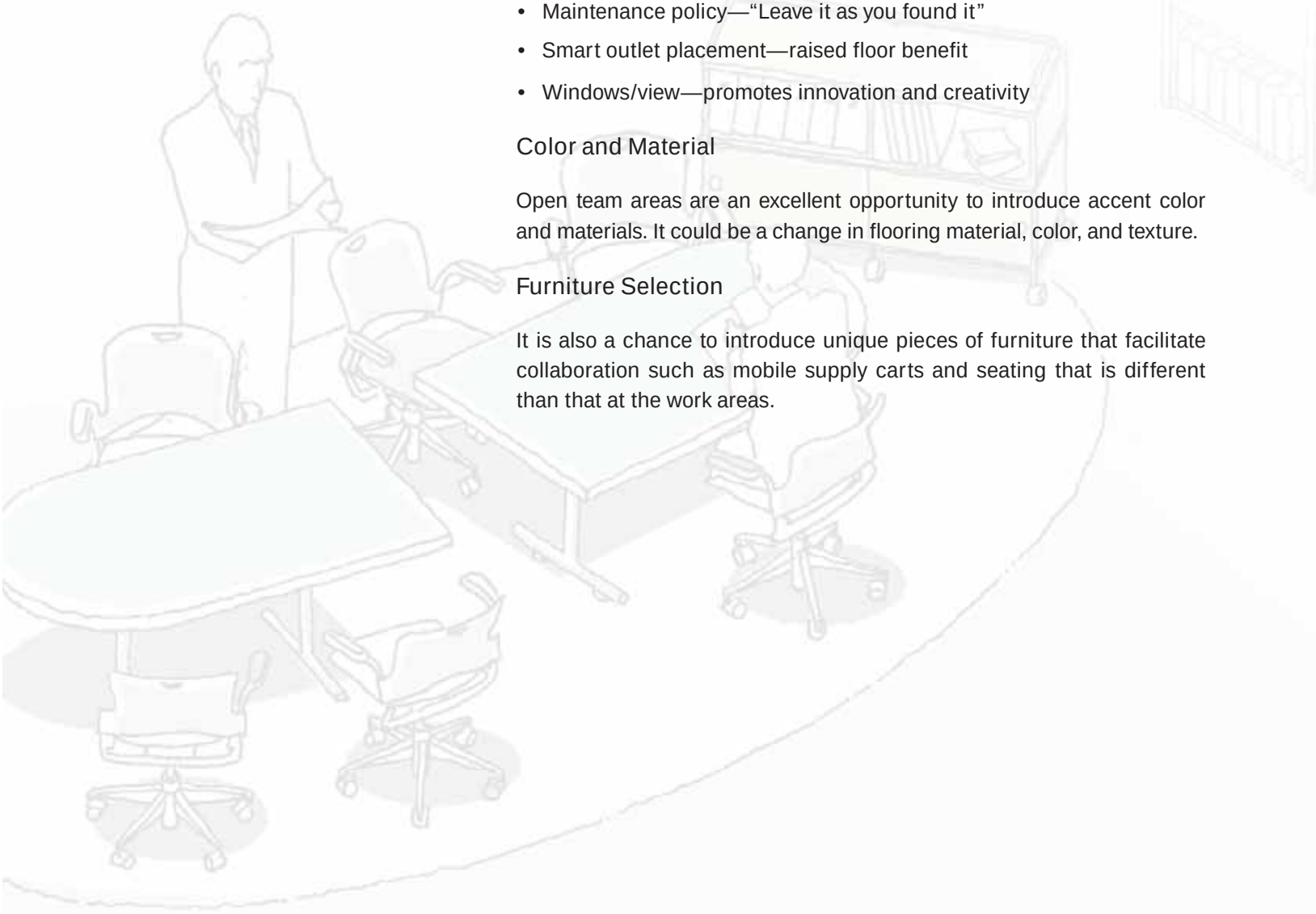
- Up to six people
- Flip chart or writing surface
- Responsive lighting and ceiling treatment
- Maintenance policy—"Leave it as you found it"
- Smart outlet placement—raised floor benefit
- Windows/view—promotes innovation and creativity

Color and Material

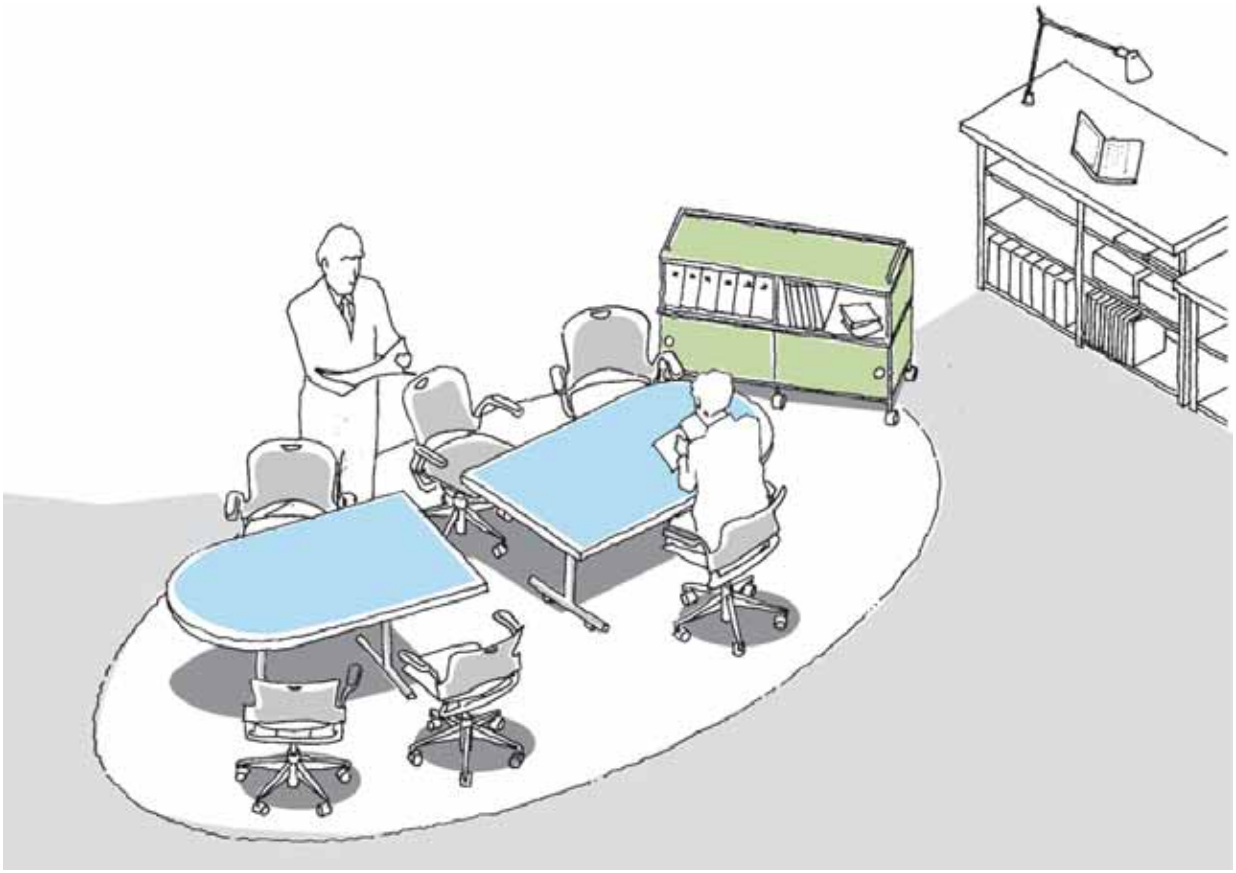
Open team areas are an excellent opportunity to introduce accent color and materials. It could be a change in flooring material, color, and texture.

Furniture Selection

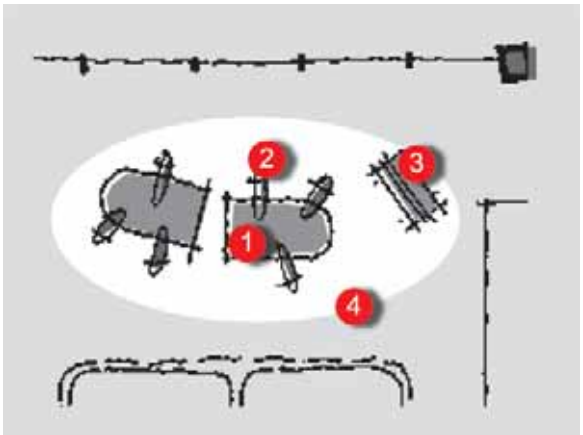
It is also a chance to introduce unique pieces of furniture that facilitate collaboration such as mobile supply carts and seating that is different than that at the work areas.



Open Team Meeting Area: Axonometric View



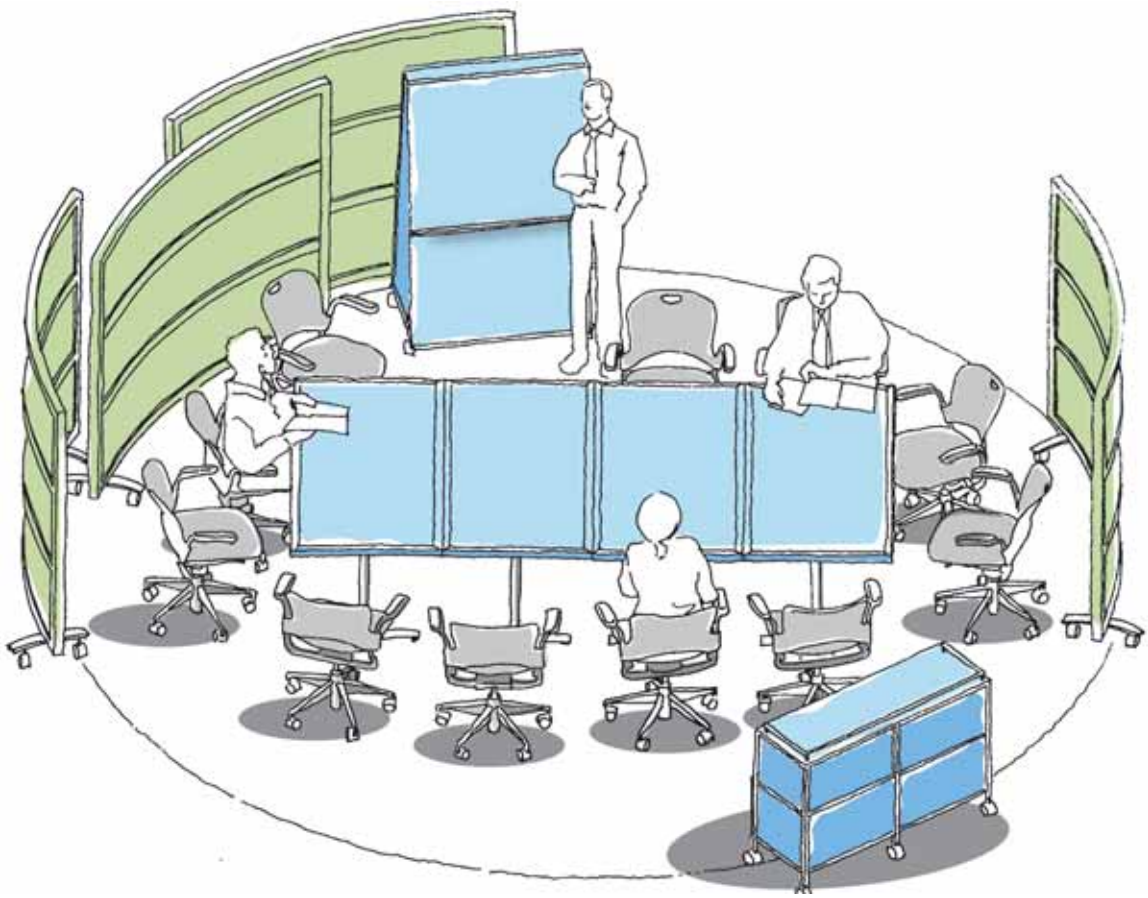
Open Team Meeting Area: Plan View
(Scale 1/8" = 1'0")



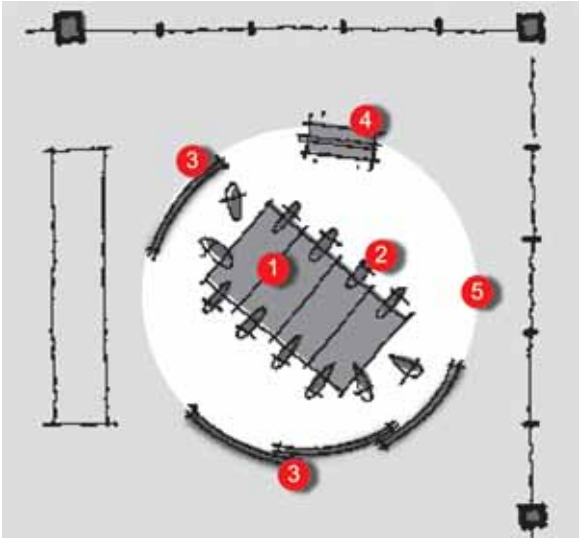
Keynotes

1. Movable teaming tables
2. Side chair with casters
3. Mobile cart with resource storage
4. Carpet change

Semi-Open Team Meeting Area–Large: Axonometric View



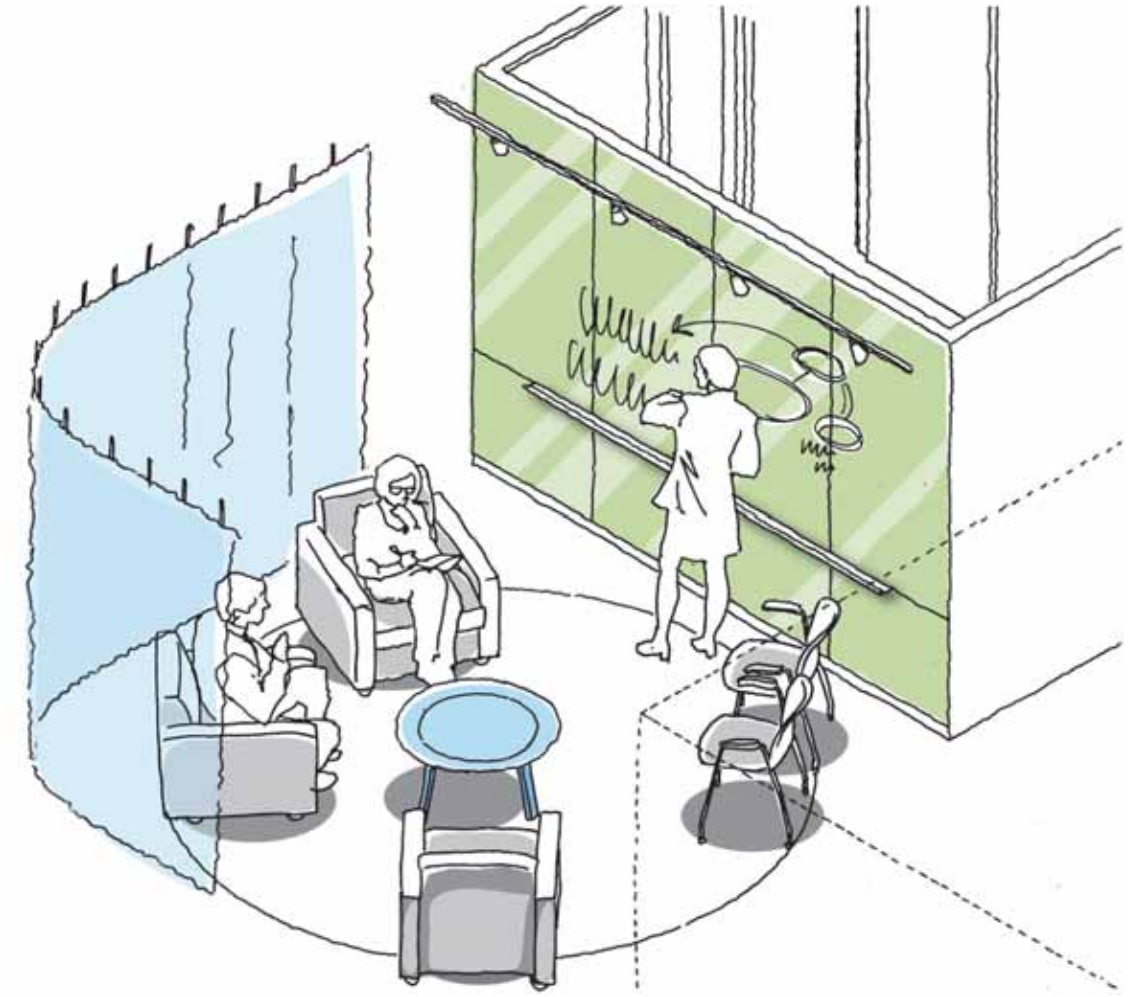
Semi-Open Team Meeting Area–Large: Plan View
(Scale view 1/8”=1’0”)



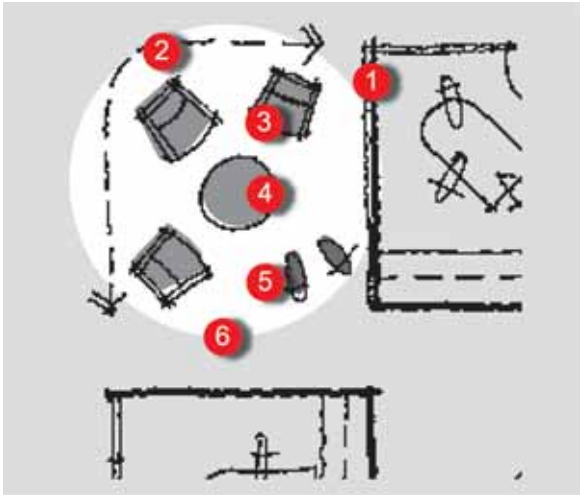
Keynotes

1. Movable meeting table
2. Ergonomic chair with casters
3. Movable translucent screens
4. Mobile pedestal/white board
5. Carpet change (inset accent material)

Semi-Open Team Meeting Area–Small: Axonometric View



Semi-Open Team Meeting Area–Small: Plan View
(Scale 1/8”=1’0”)



Keynotes

1. Dry erase wall panels
2. Metal mesh curtain
3. Mobile lounge chairs
4. Low team table
5. Side chair with casters
6. Carpet change (inset accent area)

6 lighting

human factors of lighting

There are many human factors related to lighting. The World Class Workplace needs to consider these to provide high quality visual environments, achieve high worker acceptance, and thus promote productivity.

Visual Environment

There are several visual environments that occupants encounter. Entering the building, workers will transition from the exterior daylight or night time through the entry lobby and continue to their workplace. Ambient lighting should be used to guide this transition. This ambient lighting should compliment the architecture and interior spaces, providing soft indirect glow with key accents on walls and other vertical surfaces. Once in the workplace, the ambient lighting becomes less important. Lighting vertical surfaces within the workplace provides a sense of personal space. Low glare adjustable task lighting can provide additional illumination, while accent lights can highlight displays. Views to the outside can provide stress reducing attributes.

Balancing Brightness

When there is too much contrast, the eye cannot adjust quickly. For example, when a task has direct sunlight on one half and shade on the other, the reader will adjust the task position to reduce the contrast. Within workplaces, contrast on the task should not exceed a 3-to-1 ratio for the best visual comfort. Providing even light on the partition walls balances the brightness, reduces shadows, and indirectly lights the desk surface.

Minimize or Eliminate Glare

Light sources directly in front of a worker create direct glare. Light within the workplace should be mostly indirect with reflected light from the ceiling and partition vertical surfaces. With reduced glare, occupants require less light for comparable visual performance.

Enhance Faces and Objects

Conversing with people consumes much of our office time. Lighting should complement faces for comfortable and effective verbal communication. Minimizing direct light (from downlights) and maximizing indirect light will soften facial features, making verbal communication more effective and comfortable.

Lighting Levels

Light level requirements vary greatly with specific tasks. Reading for long periods of time may require high light levels, yet casual conversation needs little. Age also plays a factor. Ideally, workers have individual control over lighting levels, so each can determine what is appropriate for changing needs. Task lighting levels should be variable, allowing the worker to add or subtract light within the workplace. Typical work areas can be lighted with glare free reflected ambient light between 20 and 35 footcandles. During the day, the majority of this should be from daylight. Workplaces can then vary from the ambient conditions with personally controlled ambient and task lighting. Personal preference can vary lighting levels, direction of light, and color. All workplaces should incorporate ways for workers to vary their lighting environments and meet individual preferences.

daylighting

Daylighting design provides two separate functions: access to views and daylight delivery.

Views out of a window, especially when it frames natural surroundings, can reduce worker stress. GSA real estate should take advantage of natural landscapes whenever possible. As a minimum, workers need frequent outdoor views during the work day. Direct line-of-sight views from each workstation are the most desirable.

Daylight delivery involves bringing light inside the building and distributing it throughout the space. Distributing daylight requires maximizing daylight potential with building orientation and high floor-to-ceiling heights. Additionally, it requires minimizing direct sun on tasks with shading and glazing. In the property selection, buildings should meet the criteria below.

Maximizing Daylight Potential

- Select buildings with predominately north and south facing facades: Buildings with large south and north facing facades have the greatest daylight potential. South facades are the most effective for daylight. Direct sun can be reflected up to the ceiling and windows are easily shaded. North facing facades admit little direct sunlight but provide even skylight for office environments. East and west orientations are the hardest to control since direct sun penetration is unavoidable up to half of the day.
- Select narrow footprint buildings: Narrow building footprints (long and skinny) provide the best daylight penetration. Squarer footprints typically provide less daylight access.
- Maximize south and north window areas: Continuous glazing is preferable over “punched” windows. Continuous glazing maximizes view and daylight potential, and reduces contrast between window area and walls.
- Install high performance glazing: Glazing properties include insulation values (R or U) and visual transmittance (Tvis). Clear glazing with higher insulation values minimizes heat gain or loss. Visual transmittance can vary between view windows (medium transmittance) and daylight windows (higher transmittance).
- Provide adjustable and fixed horizontal shading for south facing facades, and vertical shading for east and west facing facades: South facades are easily shaded with adjustable horizontal blinds or fixed

light shelves. Light shelves will not only shade direct sun but also will reflect sun light up to the ceiling to improve distribution. North facades require little or no shading. East and west facades allow direct sun into the work area. Vertical shading will minimize the amount of direct sun and landscape vegetation will also help to block the direct sun. In urban areas, adjacent buildings may block direct sun. In all cases, user controlled shading devices should reduce window brightness but preserve views.

- Avoid direct sun penetration: When direct sun reaches a work area, high contrast inhibits adaptation from bright sun to darker areas. As a result, workers will usually close the blinds or shades, negating the positive attributes of daylight. When designing world class workplaces, create daylight models to understand possible direct sun penetration. If East and West facing facades are unavoidable, then locate non essential tasks in the direct sun patterns.

electric lighting design approach

Too often, overhead ambient lighting is the only lighting in a workplace. Separating lighting into several categories or layers will increase visual comfort, provide additional flexibility, and create visual interest. When the electric lighting blends with daylight so as not to duplicate daylight levels, but to supplement it, then energy savings are also achieved.

Architectural Ambient Lighting

When the ceiling and walls are lighted with indirect light, the whole space appears to be larger and well balanced. By lighting the architecture, workplaces can move around the space independently of the whole space. Since the architecture is only lighted for ambience, the lighting levels can be approximately 1/3 the task lighting levels.

Individual Workplace Ambient Lighting

Since workplaces are becoming more personal spaces, each area should have its own “architectural” lighting. Workplace walls should be lighted separately to create a localized ambience. This may help to signal that a worker is “in” that day, and also create a visual backdrop for computer or reading tasks.

Task Lighting

Task lighting should not be located directly in front of occupants, but come from the side. If light reflects off of shiny surfaces or screens, the glare can reduce visibility. It is much better to locate task lights to the side or to reflect light off of background surfaces such as workplace panels.

Accent Lighting

Accent lighting is the jewel in a workplace. Artwork, important notices, and workers’ photos are all part of individualizing the World Class Workplace. Directional accent lighting can draw comfortable attention to these accent pieces for visual diversity.

equipment selection

Success of all lighting designs requires the correct equipment. Luminaires are built differently to optimize specific performance criteria. Luminaires may be designed to indirectly light ceilings with uniform light, or to evenly light vertical surfaces. Selecting luminaires cannot be done on aesthetics alone, but must consider photometric performance.

Luminaires

Ceiling suspended luminaires should have mostly uplighting that distributes light evenly across the ceiling. Additionally, a small amount of down light will help create a balanced lighting environment. Luminaires designed for short suspension lengths and even light distributions minimize visual clutter.

Wall washing luminaires should evenly light vertical surfaces from top to bottom. Additionally, direct glare should be minimized, especially in corridor applications.

Workstation partition mounted luminaires should be minimal in size and designed for partition lighting. Light Emitting Diode (LED) luminaires may be ideal for this application. Adjustable task lighting should provide concentrated light on the task, be minimal in size and mountable to partitions or desk surfaces. Accent lighting will direct glare free light to displays and artwork. Flexibility and small size are paramount.

Lamps

The most common lamp used for general ambient lighting is the linear fluorescent. With common diameter sizes of T8 (1”) and T5 (5/8”), linear fluorescents are excellent choices for general ambient lighting and wall washing. These lamps are energy efficient, provide excellent color, and are easily controlled with minimal maintenance. Use 3500K and 80+ CRI as a default specification.

LEDs are emerging in task lighting, partition wall washing, and accent lighting. LED advantages include extremely long life, low energy use, dimming capability, and compact size.

Induction lamps resemble large envelope incandescents, yet have fluorescent properties. Lasting over 100,000 hours, these sources are ideal for large area decorative pendants or atrium uplights.

Ballasts and Power Supplies

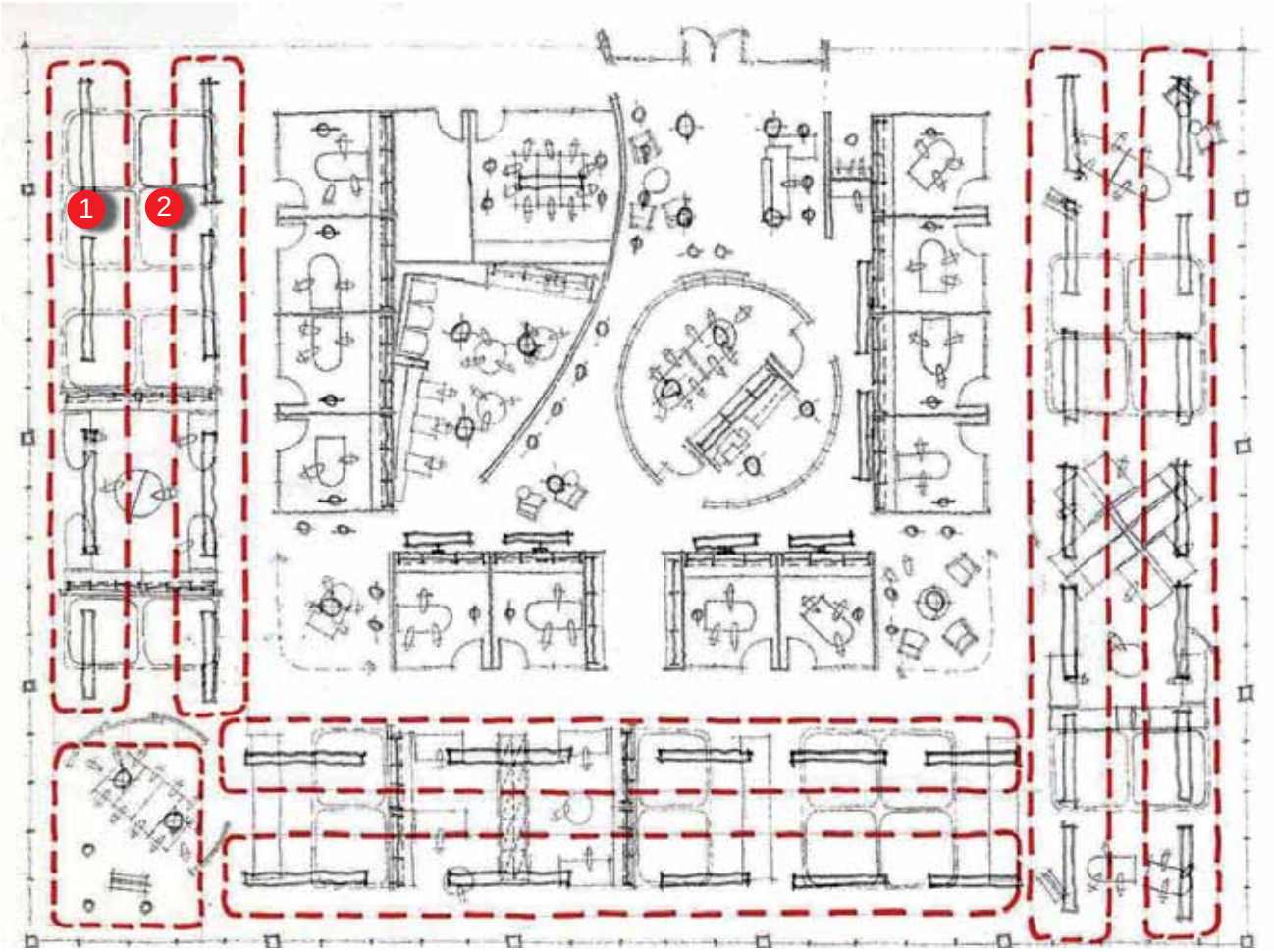
Fluorescent ballasts should all be electronic, have programmable start, and preferably dimmable. Power supplies to LED lamps should be dimmable.

Controls (Automated and Manual)

Automatic controls include occupancy sensors and daylight dimming. These controls only work when their operation is seamless and unnoticeable to the user. Many times automatic controls are unsuccessful in task areas such as personal work areas. They work very well in common areas such as lobbies, corridors, support areas, storage rooms, and restrooms.

Manual personal dimming should be available for all lighting within personal work areas. These areas include private offices, and work in conjunction with the manual dimming.

Daylight Control Zones



Keynotes

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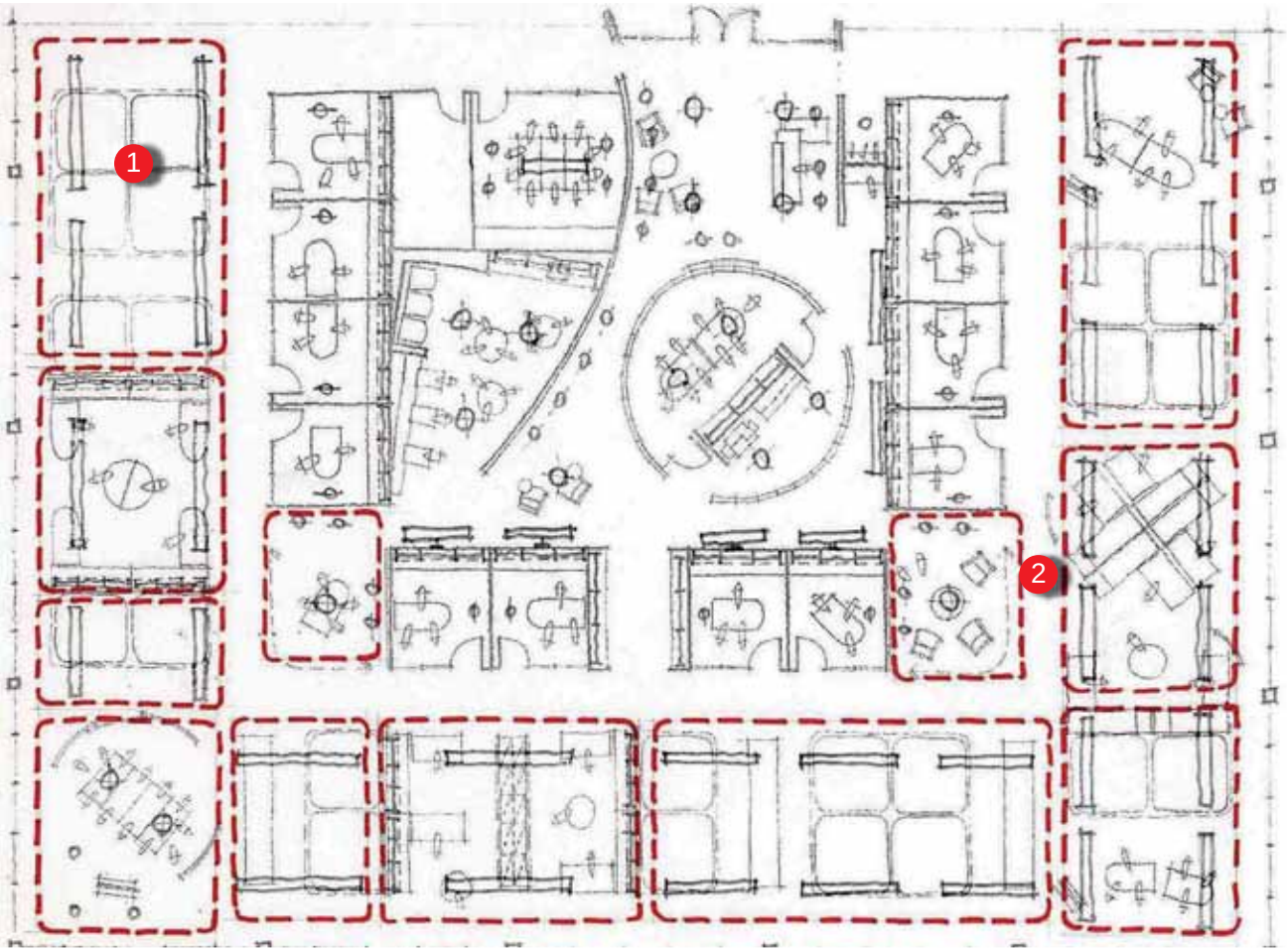
Occupancy Control Zones



Keynotes

operation and maintenance

Lighting: Should have minimal maintenance downtime

Commissioning

All daylighting and electric lighting controls must be commissioned after initial installation and at least 6 months after the space has been occupied. This important aspect will not only maximize energy savings, but also fine tune the system towards occupant preferences.

Equipment Longevity

Selecting reliable and long-life lamps, ballasts, power supplies, and controls minimizes downtime. Compatibility between equipment is important. For example, instant start ballasts decrease lamp life when turned off with motion sensors. Dimming ballasts and control systems should operate on the same low voltage system. Smart ballasts are becoming more popular, where the controls can address individual ballasts and sense lamp functions.

Energy Use

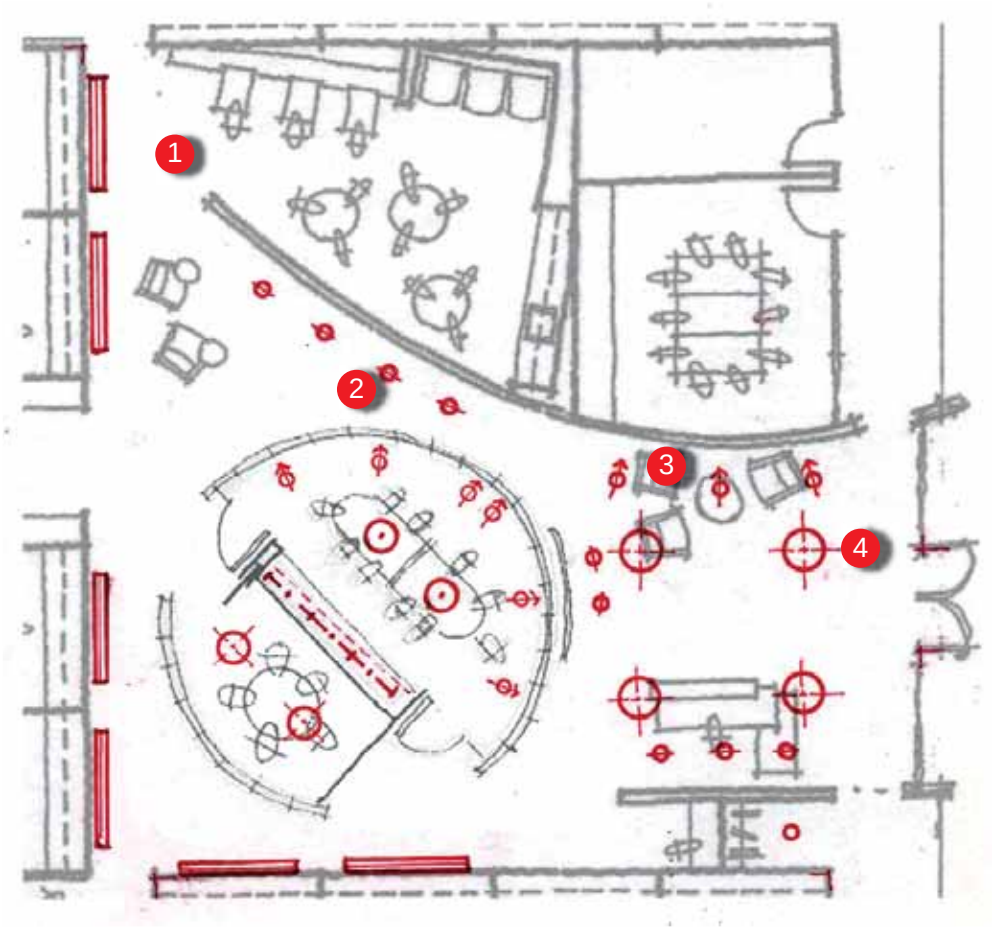
Energy use is determined partly by connected load and partly by amount of use. For maximum energy savings, specify high efficacy lamps, electronic program start dimming ballasts, high performance luminaires, and a combination of automatic and manual controls.

User Friendliness

The lighting system should be easy to use and understand. Controls should be labeled or intuitive. Give manual dimming controls to all user controlled work space lighting. Avoid high maintenance, complicated controls that require constant maintenance staff education. Provide easy to read user manuals and periodic commissioning or fine tuning.

Lighting–Lobby and Conference Room

LIGHTING SOURCES



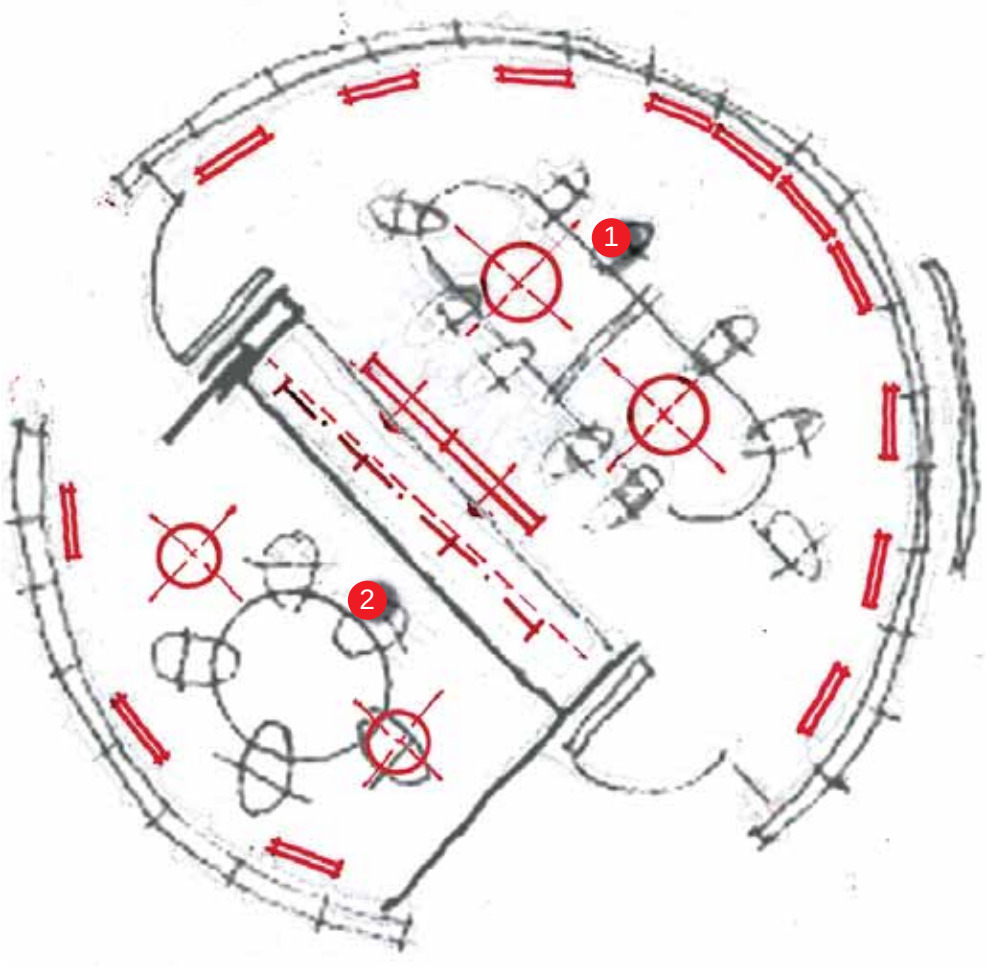
See pages 6.18-6.20 for "Lighting Sources" references

Keynotes

Lighting–Conference Room (Option A)

LIGHTING SOURCES

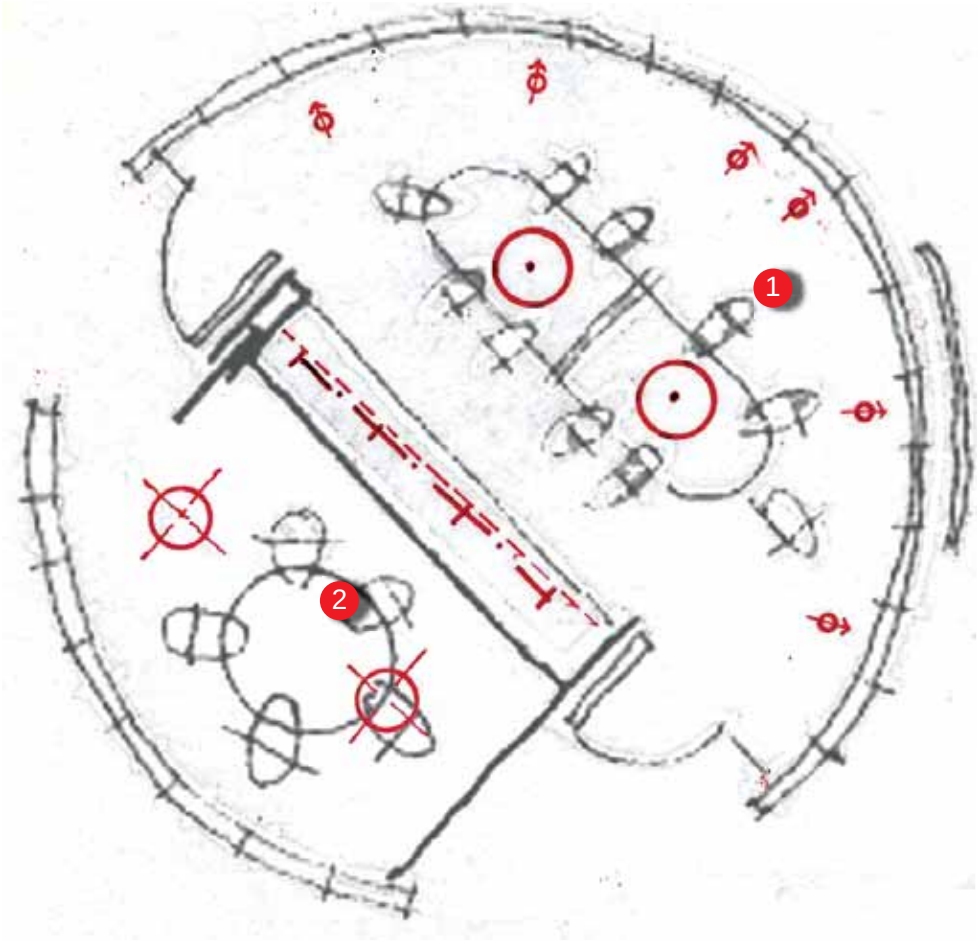
See pages 6.18-6.20 for "Lighting Sources" references



Keynotes

Lighting–Conference Room (Option B)

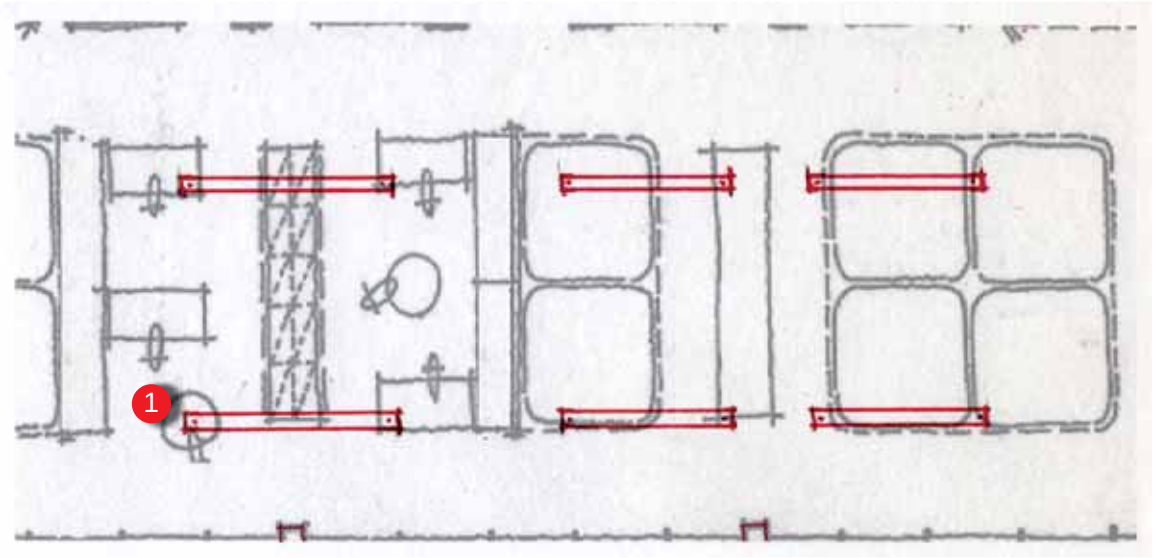
LIGHTING SOURCES



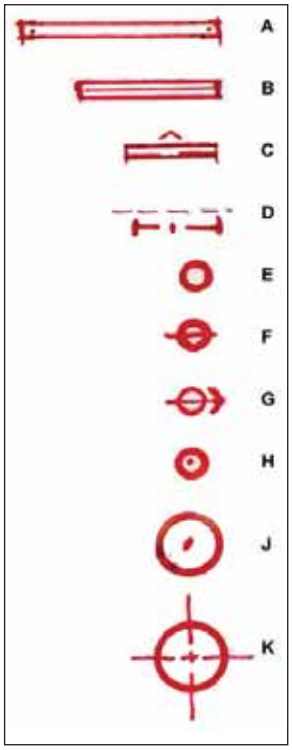
See pages 6.18-6.20 for "Lighting Sources" references

Keynotes

Lighting–Open Workspace



LIGHTING SOURCES



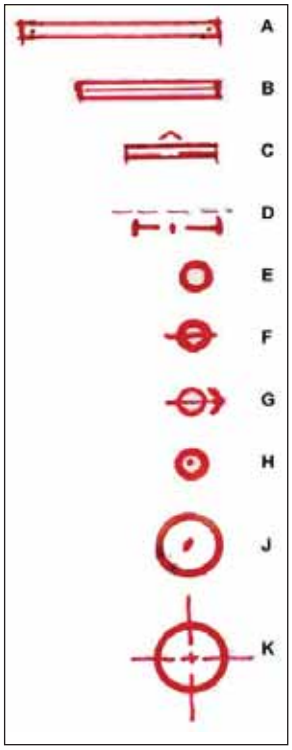
See pages 6.18-6.20 for "Lighting Sources" references

Keynotes

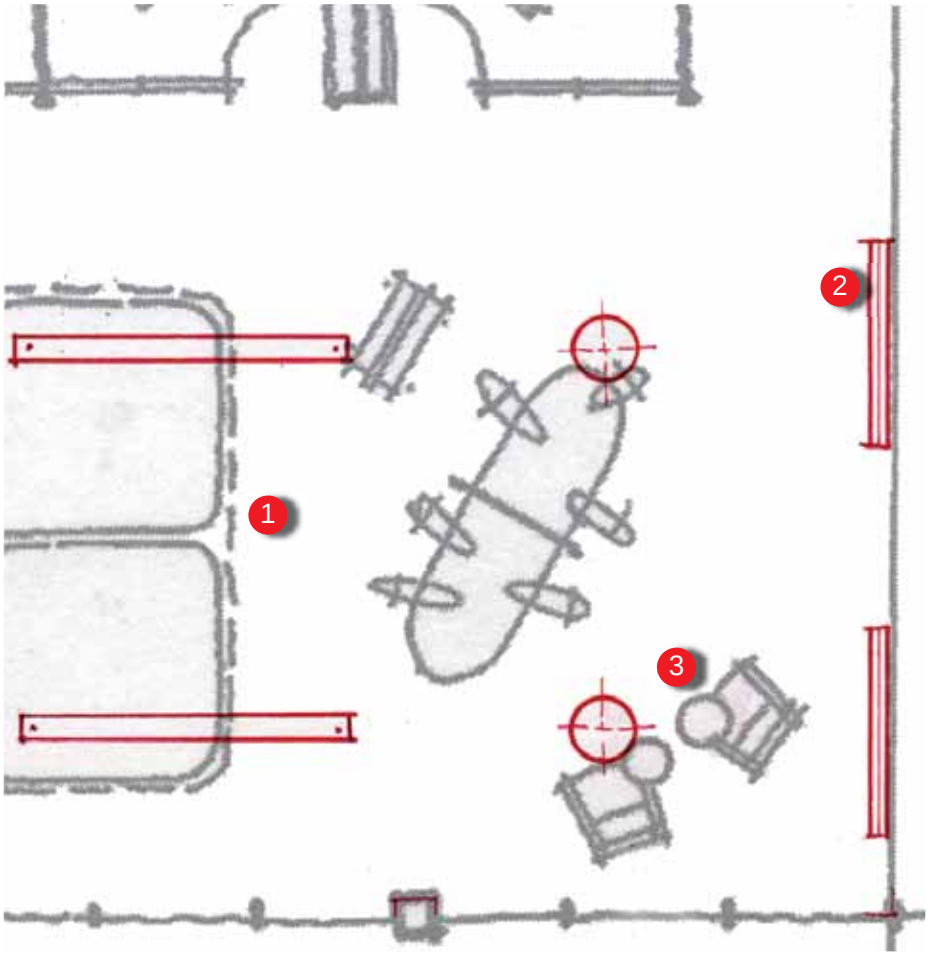
1. Suspended mounted direct/indirect luminaires add ceiling brightness for office ambient lighting.
2. Wall mounted indirect luminaires provide additional ambient light (not shown here).
3. Partition wall washing, accent lighting, and flexible task light provide localized brightness and control for each worker (not shown here).
4. Task lights (not shown here).

Lighting–Corner Work Area

LIGHTING SOURCES



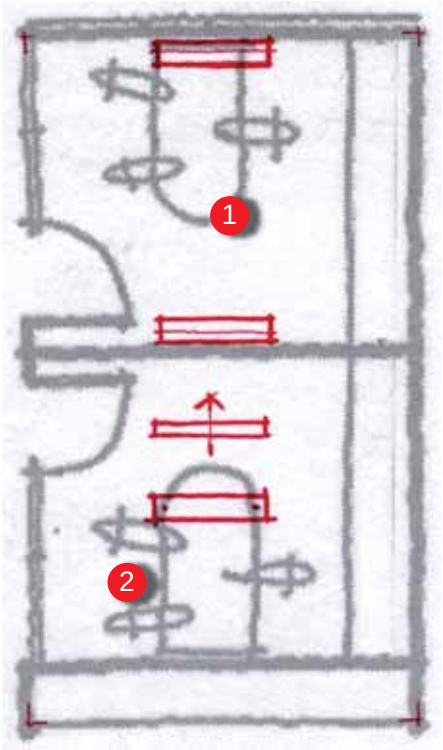
See pages 6.18-6.20 for "Lighting Sources" references

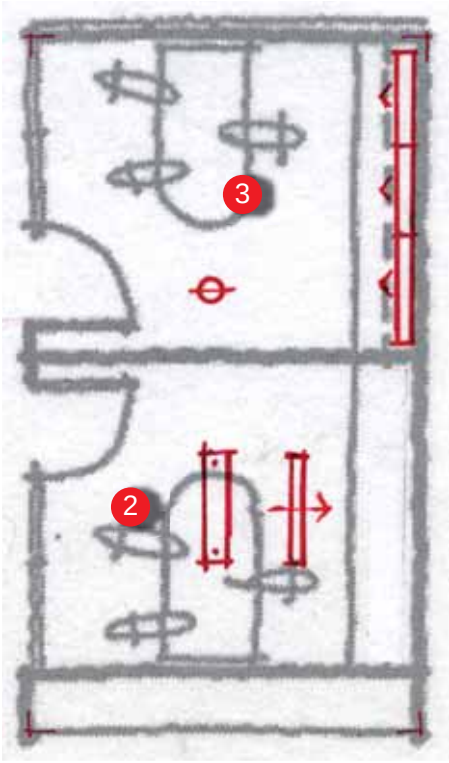


Keynotes

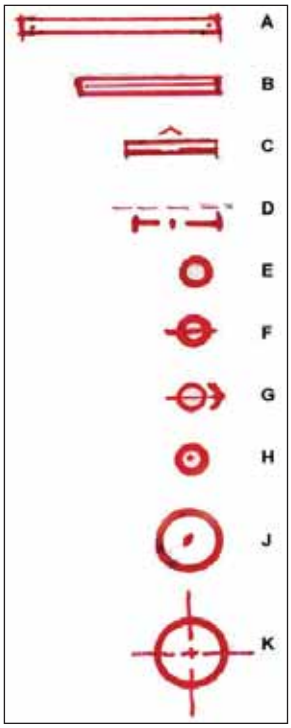
1. Suspended mounted direct/indirect luminaires add ceiling brightness for office ambient lighting.
2. Linear fluorescent wall washers will provide uniform wall brightness.
3. Decorative surface mounted luminaires add unique ambient lighting to work area.

Lighting–Private Offices





LIGHTING SOURCES



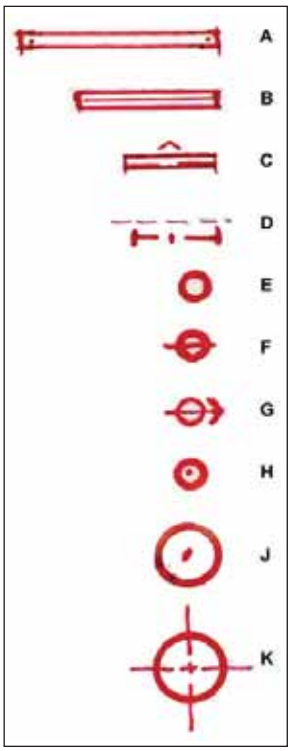
Keynotes

1. Wall mounted indirect luminaires provide ambient light with minimal ceiling clutter.
2. Suspended mounted direct/indirect luminaire provides ambient lighting. Recess linear wall washer provides additional wall brightness.
3. Wall mounted indirect luminaires provide ambient light with minimal ceiling clutter. Recess wall washer adds additional wall brightness.

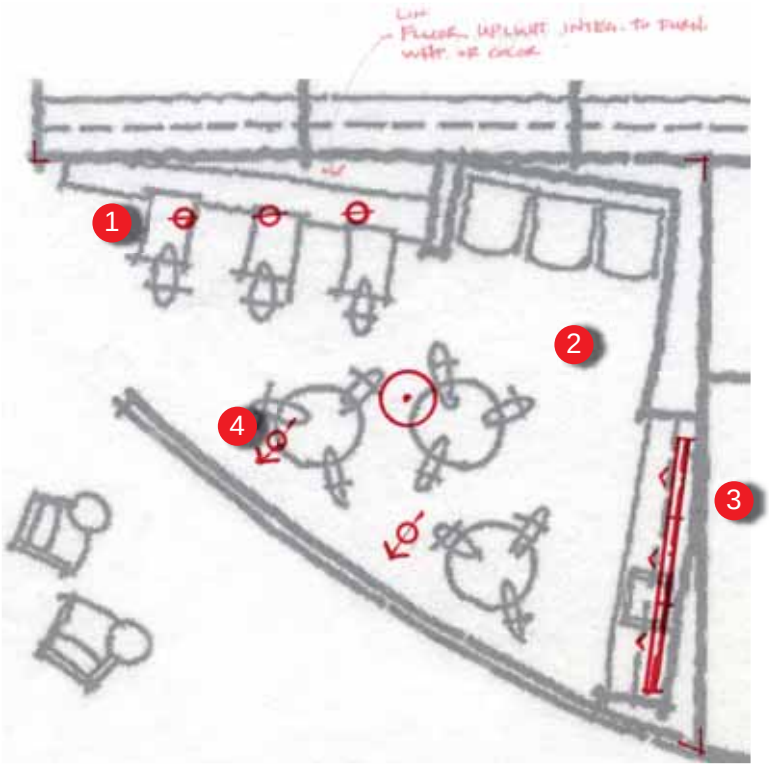
See pages 6.18-6.20 for "Lighting Sources" references

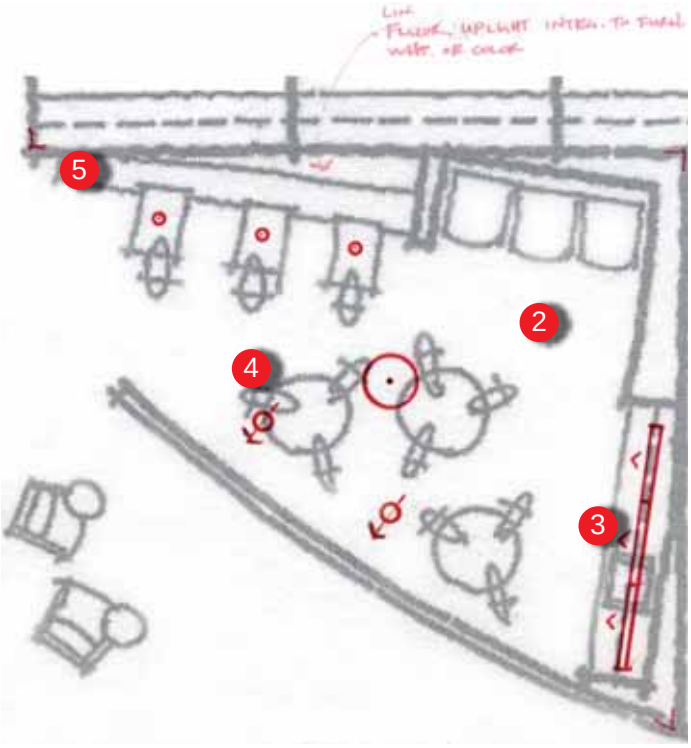
Lighting–Breakroom

LIGHTING SOURCES



See pages 6.18-6.20 for "Lighting Sources" references





Keynotes

1. Recess mounted wall washers add additional wall brightness.
2. Decorative pendant adds unique ambient lighting.
3. Wall mounted indirect lighting adds additional ambient lighting.
4. Recess or surface mounted accent luminaires provide highlights on displays.
5. Suspended small pendants add ambience over each table.

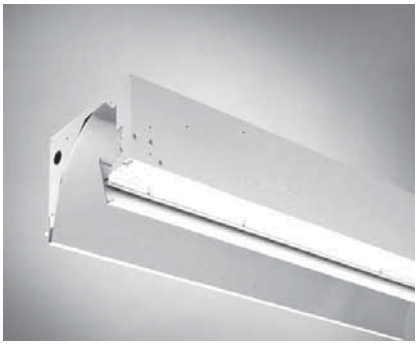
lighting sources: luminaires

(Reference to specific products are for illustrative purposes only).

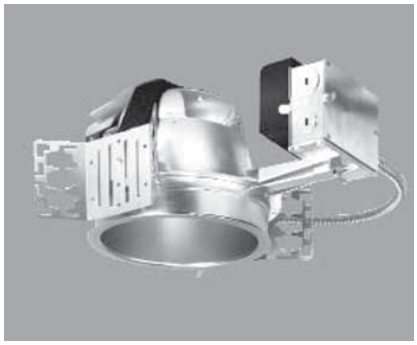
A Focal Point Lighting
Twelve
Pendant mounted linear indirect luminaire

B Focal Point Lighting
Metro Wall
Wall mounted linear fluorescent indirect

C Focal Point Lighting
Covelight
Surface mounted indirect cove light



D Focal Point Lighting
Slotlight
Recessed linear wall washer



E & F Cooper Portfolio
Recessed Downlight/Washer
Horizontal compact fluorescent lamp

G Cooper Portfolio
Recessed Adjustable Accent Light

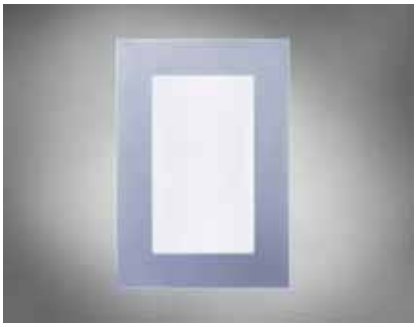
H Bruck
Pendant Mounted Decorative Downlight
Horizontal compact fluorescent lamp

J Focal Point
Pendant Mounted Indirect/Direct
Horizontal compact fluorescent lamps

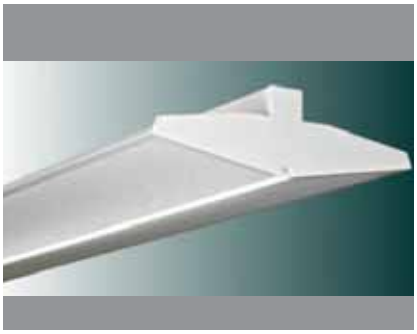
K Shaper
Surface Mounted Diffuse Luminaire
Horizontal compact fluorescent lamps

L Alkco Lighting
Lincs
Undercabinet Tasklight

L Alkco Lighting
Lincs
Undercabinet Tasklight



Focal Point Lighting
Metro Sconce
Wall mounted decorative sconce

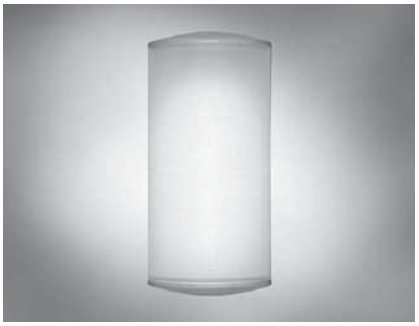


Finelite
Series 15
Pendant mounted linear indirect

I/O Lighting
Line
Linear LED caselight

Dazor
Adjustable Workstation Tasklight
Partition mounted LED tasklight

Focal Point Lighting
Groove
Pendant mounted downlight

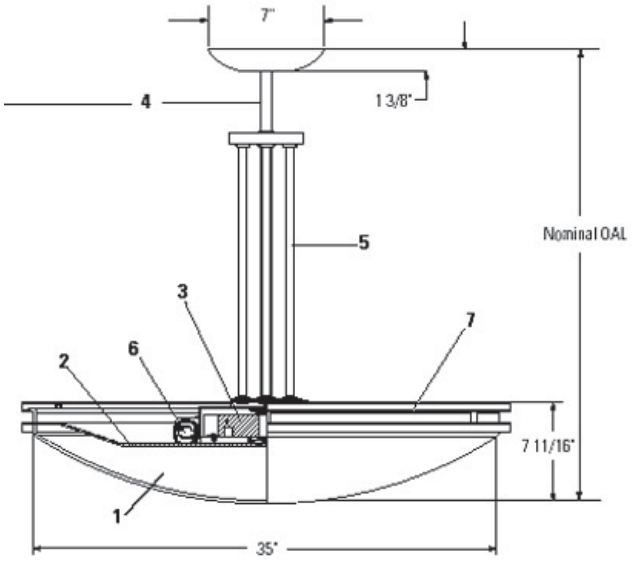


Focal Point Lighting
Softlite Sconce
Wall mounted decorative scone

lighting sources: luminaires (continued)

LiteControl
Eschelon
Pendant mounted indirect luminaire

LiteControl
Eschelon Jr.
Pendant mounted indirect luminaire



Lightolier
Gemini
Pendant mounted indirect luminaire

7 furniture & finishes

furniture and finishes

Furniture and finishes are a significant part of the workplace solution and contribute significantly to the development of a World Class Workplace.

Selecting furniture should be considered as early as possible during the project design process rather than at the concluding phases of a project. Furniture selection is just as critical as proper site selection and should be considered an integral part of the design, along with the interior architecture.

In a GSA World Class Workplace, meeting sustainable design criteria, providing ergonomic solutions, and offering greater flexibility are key components that address the GSA Hallmarks

- Spatial Fairness: furniture that can be used in open and closed workspaces.
- Healthfulness: furniture that is user-friendly and finishes that meet sustainable criteria.
- Flexibility: furniture that is freestanding, mobile or demountable.
- Comfort: furniture that is easily adjustable and ergonomically engineered.
- Technological Connectivity: furniture that offers plug 'n play solutions and minimizes wiring.
- Reliability: furniture and finishes that are durable and cost-effective, considering first cost and life-cycle costs.
- Sense of Place: furniture and finishes that enhance the spatial experience and promote pride, productivity, and interaction.

Sustainability

Furniture and finishes can have a major impact on indoor air quality. Furniture and finishes should be selected with LEED criteria in mind. This approach includes looking at the recycled content of materials (CPG), such as fabrics and carpets, as well as low-emitting characteristics.

Intent: Reduce the quantity of indoor air contaminants that are odorous, potentially irritating, and/or harmful to the comfort and well being of installers and occupants.

- Use systems furniture and office seating that is Greenguard certified or registered. Also look at furniture which has emissions that meet or are lower than the best practice emissions standards by USEPA or third party tested or registered.

Greenguard Certified and Mobile*

KNOLL

- *Currents*
- *Dividends*
- *Equity*
- *Morrison*
- *Reff*

HERMAN MILLER

- *Avive Collection*
- *Action Office*
- *Meridian Files/Peds/ Storage Cabinets*
- *Ethospace*
- *Resolve*
- *Aeron Chair*
- *Mirra Chair*

INSCAPE

- *Platform*

TEKNION

- *Amicus Task Seating*
- *T-3 Task Seating*
- *Chronicle Files / Storage*
- *Leverage System*
- *Transit Workstation*
- *Xm*
- *Ie*

HAWORTH

- *Moxie Table and Screen Collection*
- *Sit to Stand Table w/ Screen*
- *Tactics Table Collection*
- *950 Series Storage*

STEELCASE

- *Montage*
- *Answer*
- *Pathways Tech Wall*
- *Leap*
- *Protege*
- *Think*
- *Criteria Plus*

* *References to specific manufacturers/products in the table located on this page and throughout this Section are for illustrative purposes only.*

Mobile examples:

Inscape Speciality Storage Tower

Herman Miller Mirra Chair

Steelcase Think

Herman Miller Avive w/Ethospace

Inscape Platform

- The LEED CI Reference Guide and Checklist can be a valuable tool when evaluating choices. The Checklist is included in the Resource section of this Toolkit for your use.
- Interior finishes and building materials choices are important in sustainable design because of the extensive network of extraction, processing, and the transportation steps required to process them.

Intent: Create a healthy environment. Reduce the activities to create building materials that pollute the air and water, destroy natural habitats and deplete natural resources.

Consider the following when selecting and specifying:

- Adhesives and Sealants: South Coast Rule #1168.
- Paints and Coatings: Low VOC emissions and Green Seal Standard.
- Carpet: Must meet or exceed the requirements of the Carpet and Rug Institute's Green Label Indoor Air Quality Test Program.
- Wood veneers: Should be from sustainable forests, preferably FSC certified.
- Composite Wood: Must contain no added formaldehyde resins.

Consider the following when designing and specifying:

- Reuse building products and materials in order to reduce demand for virgin materials, reduce waste and limit amount of new production.
- Recycled Content: Use of post-consumer and post-industrial regional materials.
- Supports the regional economy and reduces transportation to the project site by using regionally manufactured materials.
- Rapidly Renewable Materials: Reduces depletion of finite raw materials and long-cycle materials.
- Certified Wood: Encourages environmentally responsible forest management.

Flexibility

Furniture that is flexible is easy for users to adjust to their individual and team needs. Considering flexible furniture solutions can help reduce churn costs. (Churn costs refer to the cost of space changes to relocate employees.) Furniture that is flexible can reduce labor costs, because it's inherently easy to reconfigure and reduces employee move time and disruption to work.

Consider the following criteria when evaluating furniture options:

Workstation examples:

Knoll
Dividends Mobile Station

Knoll
Currents

Herman Miller
Ethospace

Haworth
Moxie Table

- Furniture can be on glides or wheels for greater mobility.
- Furniture components are independent of panels, meaning panels do not require horizontal worksurfaces and components for stability, and vice versa.
- Demountable walls can also reduce churn cost for space changes. Demountable wall panels act as full height partitions for acoustic and visual privacy; however, they can be repositioned or relocated without significant effort. Demountable walls also provide a sustainable approach to furniture since they can be reused.

It's important to note that electrified panels and panel hung components restrict flexibility. Typically, electrified panels are more costly and can be eliminated if raised floor or an alternate distribution system is considered. Alternate strategies include strategically locating stations near columns and partitions.

Ergonomic

Ergonomic furniture offers greater comfort, more natural interaction of user and furniture/equipment, and promotes an ease of use that is designed for people and the tasks they perform. Ergonomic solutions help foster a healthy and productive workplace. Chairs and computer accessories must be selected with everyone in mind. Consider all ergonomic characteristics.

8 case studies

the GSA office of civil rights
g the Organization by Improving

Washington, DC

Before

After

Before

After

> "The WorkPlace 20·20 process has us thinking differently about our workplace as a result of examining the important roles of each associate. We have succeeded in creating a workplace that is strategic and proactive."
>
> *– Madeline Caliendo, Associate Administrator, GSA Office of Civil Rights*

A workplace renovation goes beyond space change to reinvigorate an organization.

Using an office space renovation to improve communication and morale was not on the agenda when the GSA Office of Civil Rights (OCR) got funding to improve their space. But through the Workplace 20·20 process, the entire staff of 15 became engaged in determining their future organization and workspace.

Organizational Goals

The OCR is responsible for ensuring that GSA complies with laws, regulations, and policies governing unlawful discrimination. Its work is highly sensitive and requires monitoring, tracking and resolving complaints and disputes. At the start of the project, the organization was in the midst of process and technological changes, and the leadership wanted a workplace that better supported these changes. Specific goals that guided design included:

- Supporting a more strategic and collaborative organization.
- Promoting communication across boundaries.
- Providing technology to support a new claims tracking process.
- Improving staff morale and working conditions.
- Workspace branding that projects an appropriate image.

Challenges

Project challenges included high dissatisfaction with existing workspace, limitations on both budget and space reconfiguration, staff concern for lack of separation between public and private areas, tension between the need for concentrated work and staff interaction, and low morale.

Innovations

Finding solutions to fit a limited budget encouraged creative thinking about the space during the design process. As the staff became more involved in thinking about what they do, they became more motivated in helping to develop more effective and attractive workspace. The resulting innovations included:

- A collaborative design process that encouraged participation.
- Office space that conveys a professional image.
- Dual function and multiple workspace types to support a variety of tasks in limited space.
- Aesthetically pleasing space to improve well-being and morale.
- Flexible furniture that accommodates individual preferences.

Discovery/Analysis Methods & Measures

Nature of Work

Key findings from a web-based Nature of Work analysis survey found that:

- The majority of tasks were performed at the desk.
- Individual workspaces were also frequently used for small, spontaneous meetings to coordinate or review activities, often using the computer as a focus of interaction.
- Unexpected meetings made it difficult for staff to telecommute.
- Most time is spent answering questions via phone or e-mail and preparing reports.
- Inadequate separation of public and private or confidential activities.

Workplace Satisfaction

A web-based workplace quality survey and on-site focus groups identified the following responses to the existing environment:

- The image and brand of OCR are not reflected in the current workplace.
- There is no inviting, impromptu meeting or break areas.
- The space is cluttered and unattractive.
- To acquire more shared space, staff were willing to reduce their personal workspace.

Environmental Issues, Themes & Solutions

The solutions developed to address specific issues determined during the analysis phase of programming help create a better sense of place and ownership, and a more positive image for the organization. They included:

Sustainability

- Use of LEED CI criteria.
- Using low VOC carpet and paints.
- Installing Green Label carpet.
- Using GREENGUARD furniture.
- More effective use of daylight.

Flexibility & Efficiency

- Mobile furniture allows for easy rearrangement of personal work spaces.
- More efficient overall layout makes it easier to access resources and people.
- Centralized filing areas reduce files in individual work areas.
- High level of visual privacy for work requiring concentration.
- Multiple workspaces support diverse jobs and projects.

Lighting

- Installing new, softer, glare-free indirect lighting.
- Adding task lights at the desk.
- Using translucent panel tops to increase daylight penetration.
- Using colorful wall finishes and furnishings.
- Using plants throughout space.
- Providing access to views in most spaces.
- Use of some décor elements created by the staff.
- Using lower furniture panel heights to improve spaciousness and staff communication.

Organizational Issues & Solutions

WorkPlace 20·20 Process

The process of analysis and discovery was a critical component of success. It included the use of a Balanced Scorecard approach to define a range of performance indicators.

Collaborative Environment

A more open environment, informal team meeting spaces and break areas are intended to increase communication and accessibility within and across groups.

Individualization

Flexible workstation elements allow staff to reconfigure workstations to meet their personal work preferences.

Post Occupancy Evaluation

A post occupancy study will assess occupant responses to the differences between the new and old workplaces.

GSA adaptable workplace lab

washington, dc

Hoachlander Davis

Easily reconfigured furniture allows groups to modify the environment to fit their needs.

Hoachlander Davis

Open meeting spaces support ad hoc meetings.

Technologically adaptable: A raised floor system provides a convenient cavity for wires and HVAC.

Would you believe you can make technological retrofits to a historic building in Washington DC and reduce churn costs by 50%?

On any given day in the life of organizations, people move. They join new groups and are relocated to new spaces, often at great expense to the organization. GSA wanted to make this process not only easier and less expensive, but also to use change as a positive factor in organizational life. To this end, they worked with a group of researchers from Carnegie Mellon University and the Pacific Northwest National Laboratory to develop and test a new space built around principles of adaptability.

Organizational Goals

The Adaptable Workplace Lab (AWL) was created for the National Office of Real Estate Portfolio Management and designed as an extremely flexible workspace supported by advanced building systems. The 10,000 square feet AWL is on the 7th floor of the GSA headquarters building. The central goal was to create a collaborative and open environment that enables organizational agility. A second key goal of the project was to test how well a wide range of technologies and design features–lighting, HVAC, connectivity, interior systems and the space delivery process–support the goals of adaptability. Key performance issues included enabling staff to work remotely, managing high levels of churn, supporting work/life balance, and providing for a high quality indoor air and thermal environment.

Challenges

Renovating a historic building is always a challenge, but the AWL presented more difficulties than usual. To meet the goal of flexibility, the project required total renovation of the HVAC system. This was more complex than anticipated, creating a situation in which systems were not fully tested prior to move in. As a result, the first group moving into the space experienced more problems with adjustment than subsequent occupants of the Lab.

Innovations

The key innovations to promote flexibility were:

- A raised floor for integration and reconfiguration of communications technologies, power, and ventilation.
- Individual control of thermal conditions.
- Installation and testing of several different modular furniture systems with varied enclosure, mobility, flexibility, and technical support.

GSA adaptable workplace lab

Discovery/Analysis Methods & Measures

Post Occupancy Results

Survey results found high levels of satisfaction with access to daylight and views, electric lighting, office aesthetics, and meeting spaces.

Furniture Systems

Responses to furniture systems varied. Overall, the favored system had partitions on wheels and could be moved easily by the users. Concerns with functionality of one of the systems was strong enough that it was replaced with another system in November 2003.

One group reported having re-configured all of its furniture within 90 minutes. In addition, several managers who are frequently out of the office have created – on their own - a shared, enclosed space rather than having separate offices for each.

Research Roles

Center for Building Diagnostics and Performances, Carnegie Mellon
Physical Measurement and Post Occupancy Evaluation

CMU & Charles Salter Associates
Environmental Quality Report (EQR)
Workplace Performance Survey (WPS)
POE Report

Vivian Loftness, Carnegie Mellon
Research Contact

Environmental Issues, Themes & Solutions

Acoustical Performance

Concerns with noise distractions in the space led to a retrofit with sound masking and reconstruction of two meeting rooms using a different partition system with better acoustical properties. In addition, offices for several managers were enclosed to improve speech privacy and to reduce noise spill to the surrounding spaces.

Thermal Performance

Analysis found that the initial mechanical design was inadequate and led to high levels of discomfort. A heat pump failure rate of 50% contributed to the problem. Subsequent repairs and retrofits have improved thermal comfort and have enabled more personal control over conditions.

Lighting

The separation of task lighting from ambient lighting was found to be successful. The use of open spaces and lack of walled offices along the perimeter greatly improved access to daylight and views throughout the space. Early concerns with glare were resolved by adding window shades. Separation of task from ambient lighting reduced energy loads by 50%.

Organizational Issues & Solutions

Life Cycle Costs

Although renovating the AWL was more expensive in the short term, it will be less expensive over the long term based on life cycle costs. The costs of the AWL renovation included removal of ceilings, asbestos, terra-cotta block corridor walls and installation of raised floor, new air handlers and grids for the various systems. However, GSA expects to recover the cost differences in less than 8 years because of energy savings and reduced workspace churn costs.

Organizational Agility

The goal to support organizational agility through improving the adaptability of space has been largely successful. In the several years since the Laboratory was completed, four different groups have occupied the space and each has reconfigured it according to its own needs.

The mobile furniture systems and the “plug and play” framework has enabled rapid adaptation to the space compared with traditional moves that require extensive renovation, changes in walls, technological connectivity, and HVAC relocation. With the most flexible system, 90% of the churn costs were eliminated. Even with the least flexible, the churn cost is 50% of what is typical elsewhere in the same building.

The anti-stress space, affectionately called "The Pit," has an exercise room, pool table, and lounge furnishings.

Local break areas and focus rooms are just two of the new types of spaces created.

The sky-lit café encourages impromptu collaboration.

> "I'm totally amazed by the transformation of the space and its impact on our people."
>
> *– Paul Prouty, Assistant Regional Administrator, Public Buildings Service*

The Workplace Environment as a Catalyst for Social Change

We know workplace design can influence functional behaviors, but can it be a catalyst for social change? Can organizations use the environment to improve sense of community, increase morale, reduce stress, and develop cross-group relationships? This seems like a pretty stiff challenge, but a small leadership group at the U.S. General Services Administration's Regional Office in Denver made it happen. They began with an environmental upgrade, and ended with a new office environment that dramatically changed not only the appearance of the space, but the attitudes and behaviors of the workforce.

Organizational Goals

The project, lead by the Public Buildings Service (PBS) team, was responding initially to GSA's World Class Workplace program to provide a better work environment for associates and help attract and retain new workers. However, as their commitment to the project developed, so did their desire to better understand how their own organization worked – especially how to improve internal working relationships in order to better serve their customers. They wanted to use the office as a showcase that would reflect the values and innovations GSA offers its customers. What better way than to start with your own organization?

Through numerous internal workshops and site visits to other organizations, the PBS team developed the following goals for the workplace renovation:

- Improve internal working relationships, especially cross group communication and collaboration.
- Reduce workplace stress and increase the overall quality of life for GSA associates.
- Use the workplace as a way to show that PBS is a thought leader, rather than a follower, in workplace design.

Innovations

Innovative design solutions resulting from the WorkPlace 20·20 process that benefited the organization and occupants included:

- Open spaces at central nodes for spontaneous staff interaction.
- More meeting spaces of a greater variety.
- A centrally located café.
- A new day-lit entry space.
- A "de-stress" space with pool table, ping pong, exercise room and lounge furnishings.

Project Facts

SF/Person (pre)
90 sq. ft..

SF/Person (post)
64 sq. ft.

Overall space (pre)
31,068 sq. ft.

Overall space (post)
32,719 sq. ft.

Completion
Sept. 2004

Commissioning
Nov. 2004

Post Occupancy Evaluation and Findings

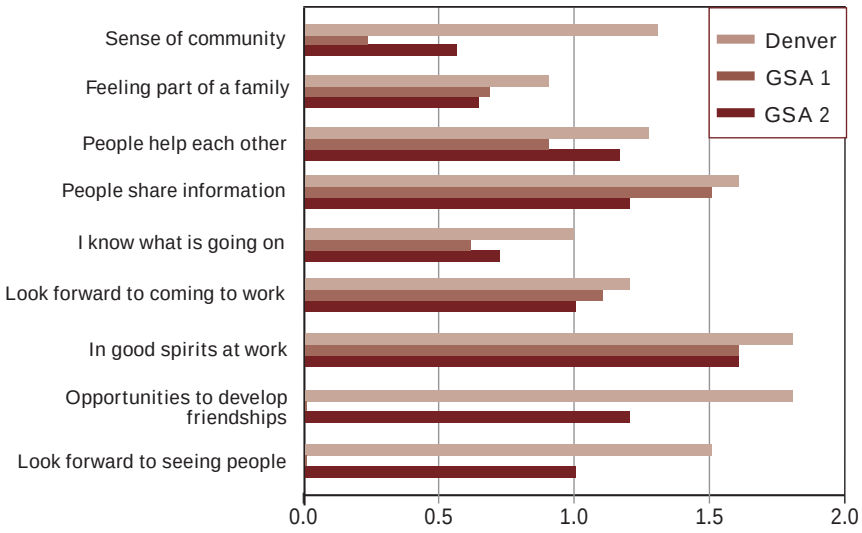
The success of the project is being evaluated in several ways:

Environmental Quality and Workplace Experiences Survey: This web-based survey administered by the University of California, Berkeley, Center for the Built Environment, incorporates measures of sense of community, morale and communication that are being used to asses the social outcomes. The graph below shows that the Denver project has higher scores for these social measures than two other GSA sites.

Social Network Analysis: The network analysis conducted by scientists at the Pacific Northwest National Laboratory shows:

- High connectedness between groups located in different parts of the building.
- Higher levels of face to face interactions than virtual interactions –a highly surprising and unusual result for work environments.
- The most distantly located individuals are less integrated with the network than those more centrally located, a result which has been found in other studies also suggesting that special attention needs to be paid to the potential for isolation.

Stress Testing: A team of physicians and psychologists at the National Institutes of Health is conducting a unique study to assess the relationship between the workplace and stress outcomes. Volunteers from the Denver site are fitted with special instrumentation to assess physiological indicators of stress over a 24 hour period. While they are at work, they also carry hand held computers that gather subjective information on their psychological and emotional state on a random basis over the course of the day. This "behavioral sampling" methodology also asks questions about what people are doing and where they are located in the office space. The study will provide information on stress levels related to space and activity at work.



senior leadership space

GSA northwest arctic regional office
auburn, washington

Personal work area

Village Green meeting space

Workspace can be used as a change agent when intent, perceptions and solutions mesh.

At the time of this project, the General Services Administration (GSA) was organized into three separate branches, or "Services," to support the various needs of U. S. Government agencies: The Federal Technology Service (FTS), the Federal Supply Service (FSS), and the Public Buildings Service (PBS). (*Note*: In 2005, FSS and FTS were merged to form the Federal Acquisition Service –FAS). These Services have, by tradition, generally operated independently of one another, resulting in additional coordination and missed opportunities to share information. This independence was reinforced in the Auburn office by having the Services located in different parts of the building, with interaction between them generally occurring only during formal meetings.

Organizational Goals

GSA's overall business goal is to provide more effective and efficient support for current and future federal customer agencies. To reach this goal, the Regional leadership focused on two strategies:

- Improving knowledge of the changing nature of work by experimenting with new workplace concepts and technological tools.
- Improving cross-service collaboration and communication to enable a more integrated approach to customers.

Challenges

In the late 1990's the GSA regional leadership grew increasingly concerned with their ability to compete successfully with the private sector in meeting the needs of Federal customers. Management discussed ways to change the existing business model and ways of working. In particular, they wanted to explore new ways to support the "One GSA" initiative proposed by GSA Headquarters, intended to provide a unified, rather than segmented, approach to providing customer service. At the same time, the emergence of new mobile and Internet-based technologies were changing the face of work itself and GSA wanted to explore the implications such new technology might have on their business.

Innovations

The key decision that emerged from an organizational analysis was to co-locate the leadership groups from each of the three Services in a central area intentionally designed to improve communication, collaboration, and strategic focus. The space was to be a living laboratory to explore the links between business needs, the nature of work, and the physical setting.

> The Senior Leadership Space is a design experiment and social experiment. It is a "living laboratory" that aims to change ways of working as well as ways of thinking, and is intended to provide a new vision of government work that is interactive, egalitarian, spontaneous and innovative.
>
> *– Post Occupancy Report, 2002, J. Heerwagen, B. Hunt, and L. Hunt*

Design Solutions

Key elements of the Senior Leadership Space include open plan workstations, a variety of enclosed conference rooms, a flexible, open, informal meeting space called the "Village Green", and small enclosed "focus booths" for confidential phone calls or "heads-down" work.

Specific design solutions included:

Personal Work Area. The personal workspace area consists of a series of 80 square foot, open-plan workstations. The leadership group was previously housed in private offices ranging in size from 180 to 500 square feet. To compensate in part for the much smaller workstation size in the new space, the leadership group was provided with other types of shared-use space and given several choices for the actual layout of their personal space. All furniture used within the confines of the partitions is freestanding, and all of the components are on wheels. This supports a certain degree of user-controlled reconfiguration when needed. The personal work areas are separated from the open group spaces by enclosed conference rooms.

Meeting Spaces. The office includes both open and enclosed meeting spaces. The Village Green is centrally located, has comfortable chairs and tables, and is intended for informal, spontaneous meetings as well as for group functions. Conference rooms of different sizes and with different types of furnishings surround the open space. A large video conferencing center houses state of the art equipment for communicating with geographically dispersed groups.

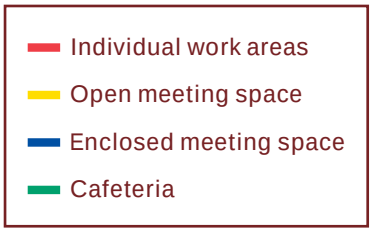
Quiet rooms. In addition to the group meeting areas, the workplace provides several small enclosed rooms for individual concentration and private conversations.

Post Occupancy Findings

Interviews and focus groups conducted in 2001 showed that:

- Communications and collaboration increased, but primarily within the Services.
- Cross-service collaboration proved to be more difficult due to organizational barriers, including different business models and cultures.
- Informal interaction, in addition to full-group meetings, improved cross-service awareness and knowledge of people, laying the foundation for development of future working relationships.
- Key concerns with the new space were increased distractions from conversations, loss of privacy, and increased interruptions to individual work.

senior leadership space



- Mobile work within the office was more difficult than envisioned due to lack of mobile technological support (phones, wireless access, laptops) and the frequent use of desk-based paper documents.
- A number of individuals were reluctant participants in the workplace experiment and were highly skeptical of the premise that space could promote collaboration across the Services. Not surprisingly, their comments on the space were the most negative.

A web-based Environmental Quality survey was administered in the spring of 2005 by the Center for the Built Environment at the University of California, Berkeley. Results showed high positive responses to questions concerning the social aspects of work, but continued concern with acoustics and distractions. This shows more positive adaptation to the space than in the 2001 assessment. The results suggest that radical changes in workplace may require longer periods of adjustment.

Lessons Learned

Designing for improved communication and collaboration is likely to increase concerns with loss of privacy and increased distraction. Design strategies to improve collaboration and interaction were at odds with the need for withdrawal and enclosure to support focused attention and confidentiality. The provision of small enclosed spaces on an "as needed" basis overcame this difficulty to some extent. However, the lack of tools to support mobile technology (phones, laptops, PDAs, Internet connections) made it more difficult to change location as work tasks changed. In addition, many people referred to desk-based documents

senior leadership space

Project Facts

SF/Person (pre)
180-500 sq. ft.

SF/Person (post)
80 sq. ft.

Overall space (pre)
12,000 sq. ft.

Overall space (post)
9,000 sq. ft.

Completion
2000

Preliminary Evaluation
2002

Occupant Survey
2005

when talking on the phone or with others in the space, making it difficult to move spontaneously to a different space.

Collaboration across units is difficult when units are highly independent. As has been shown in other research studies, work groups that have little history of collaboration are not likely to begin joint undertakings just because of changes in location and physical space. Although the organizational analysis that accompanied the design of the Senior Leadership Space included cultural and work process assessment, little attention was paid to implementing simultaneous changes in organizational policies and structures to support project goals.

Space, by itself, can create modest shifts in behaviors and attitudes, but dramatic changes in the nature of work may require additional support. The Senior Leadership Space represented a dramatic shift in workspace allocation and expectations about how leaders should work in the future. The physical environment alone cannot be expected to carry the full burden of change. In projects such as this, experts in organizational effectiveness and change management should be engaged to help build internal support structures that reward, model, and encourage changes in behaviors, values, and relationships. Organizational and change management support was not included in the development of and adaptation to the Senior Leadership Space. As a result, adaptation to the space was difficult for many in the early transition period. The adjustment was most difficult for those who did not concur with the overall goals and objectives for the space.

Moving from an entitlement-based to a functionally-based system of space allocation raises many concerns that need to be considered during project planning and design. For the past several years a debate has been taking place in both the public and private sectors about workspace: should it support and reflect rank, status and entitlement, or should it be designed primarily to support function, work flow and teamwork? These are not necessarily “either-or” decisions, but the Senior Leadership Space clearly was designed to de-emphasize rank, entitlement and personal space in favor of function, efficiency and group space. The result has been to elevate the debate over these two philosophical approaches.

Technology, space planning, and work change need to be well integrated if the workplace is to realize goals for flexibility and mobility. Many of the technologies for the Senior Leadership Space did not work as intended. In part this was due to the lack of participation in training efforts. However, the more serious issue was the absence of an integrated plan that assessed current use and future needs for technology, flexibility, and work process support.

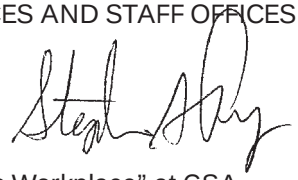
9 resources

memorandum for head of services & staff offices

July 31, 2002

MEMORANDUM FOR HEAD OF SERVICES AND STAFF OFFICES REGIONAL ADMINISTRATORS

FROM: STEPHEN A. PERRY
ADMINISTRATOR (A)



SUBJECT: Creating a "World Class Workplace" at GSA

GSA recognizes the importance of the workplace in sustaining a World Class workforce. It is integral to our mission:

" *We help Federal agencies better serve the public by offering, at best value, superior workplaces, expert solutions, acquisition services and management policies."*

I can think of no better place to make that mission a reality than in GSA's own workplace. In order for us to achieve a higher level of performance as an organization, and greater career success for GSA associates, we must provide ourselves with the tools we need to achieve these goals. As part of our program to "Create a Successful Future at GSA," I am pleased to announce our World Class Workplace Initiative.

This initiative, a major step toward realizing GSA's Strategic Goal to "Maintain a World Class Workforce and World Class Workplace," will be carried out under the guidance and direction of the new Human Capital Council, a steering committee representing GSA's Services, Staff Offices and Regions, and chaired by the Chief People Officer.

The World Class Workplace is a fundamentally new way of thinking about the role of our workplaces in serving GSA's mission needs - not just enhanced space planning. It addresses organizational issues as space requirements are developed, making workspace a part of our business strategies.

All aspects of the workplace will be considered to determine the solutions that will best support the needs of the individual and the organization. The resulting workplace can enhance both the productivity and the satisfaction of our associates. The Office of Governmentwide Policy's publication," The Integrated Workplace: A Comprehensive Approach to Developing Workspace," a copy of which is attached, describes these ideas.

The Public Buildings Service is currently undertaking a series of pilot projects based on the concepts of the "Integrated Workplace." As a part of this effort, they have developed a practical toolkit for associates to use on their own projects and have identified program advocates in each Region. This program, called "Workplace 20-20," will serve GSA as a framework for meeting PBS's client workspace needs, and as a means of meeting our own World Class Workplace goals.

Every GSA Region, Staff Office and Service will examine its strategic goals, work processes, culture, and workplaces (both "virtual" and "real") - and develop solutions that will accommodate current

memorandum for head of services & staff offices

needs, readily adapt to change and optimize operational expenses. All new and renovated GSA associates' space will be developed using the World Class Workplace approach and concepts. The attached implementation plan explains the process.

Through this long-term effort, GSA workspace will be transformed to better align with our strategic vision, reflect our core values, and support our future success -- enhancing morale, camaraderie, and team building. GSA's "Hallmarks of the Productive Workplace" (also attached) and a sustainable approach to both development and operation of our workplaces are central to this program.

As we work to link budget to performance, our associates must be afforded every opportunity to perform well. The World Class Workplace, by responding to the importance of how and where we work, will do just that.

The Office of the Chief People Officer, with assistance from the Office of Governmentwide Policy and the Public Buildings Service, will coordinate this initiative. Each of your offices should identify a program advocate for the World Class Workplace program within three weeks, and submit his/her name to June Huber, Director of Management Services. Questions can be directed to Ms. Huber at (202) 501-0796.

I know I can count on you to begin this work as soon as possible. I believe that the results will benefit us all. Please let me know if you have any suggestions to help make this initiative a great success.

Green Building Rating System For Commercial Interiors

Version 2

November 2004

LEED-CI project list

LEED-CI Project Checklist

Sustainable Sites		7 Possible Points
SSc1	Site Selection	3
	Select a LEED Certified Building (3 points)	
	Or locate the tenant space in a building with the following characteristics:	
	A. Brownfield Redevelopment (½ point)	
	B. Stormwater Management: Rate and Quantity (½ point)	
	C. Stormwater Management: Treatment (½ point)	
	D. Heat Island Reduction, Non-Roof (½ point)	
	E. Heat Island Reduction, Roof (½ point)	
	F. Light Pollution Reduction (½ point)	
	G. Water Efficient Irrigation: Reduce by 50% (½ point)	
	H. Water Efficient Irrigation: No Potable Use or No Irrigation (½ point in addition to prior requirement)	
	I. Innovative Wastewater Technologies (½ point)	
	J. Water Use Reduction: 20% Reduction (½ point)	
	K. Onsite Renewable Energy (½ to 1 point)	
	L. Other Quantifiable Environmental Performance (½ point)	
SSc2	Development Density and Community Connectivity	1
SSc3.1	Alternative Transportation, Public Transportation Access	1
SSc3.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
SSc3.3	Alternative Transportation, Parking Availability	1
Water Efficiency		2 Possible Points
WEc1.1	Water Use Reduction, 20% Reduction	1
WEc1.2	Water Use Reduction, 30% Reduction	1
Energy & Atmosphere		12 Possible Points
EAp1	Fundamental Commissioning	Required
EAp2	Minimum Energy Performance	Required
EAp3	CFC Reduction in HVAC&R Equipment	Required
EAc1.1	Optimize Energy Performance, Lighting Power	3
EAc1.2	Optimize Energy Performance, Lighting Controls	1
EAc1.3	Optimize Energy Performance, HVAC	2

6 U.S. Green Building Council

LEED-CI project list

EAc1.4	Optimize Energy Performance, Equipment and Appliances	2
EAc2	Enhanced Commissioning	1
EAc3	Energy Use, Measurement & Payment Accountability	2
EAc4	Green Power	1

Materials & Resources		14 Possible Points
MRp1	Storage and Collection of Recyclables	Required
MRc1.1	Tenant Space, Long Term Commitment	1
MRc1.2	Building Reuse, Maintain 40% of Interior Non-Structural Components	1
MRc1.3	Building Reuse, Maintain 60% of Interior Non-Structural Components	1
MRc2.1	Construction Waste Management, Divert 50% From Landfill	1
MRc2.2	Construction Waste Management, Divert 75% From Landfill	1
MRc3.1	Resource Reuse, 5%	1
MRc3.2	Resource Reuse, 10%	1
MRc3.3	Resource Reuse, 30% Furniture and Furnishings	1
MRc4.1	Recycled Content, 10% (post-consumer + 1/2 pre-consumer)	1
MRc4.2	Recycled Content, 20% (post-consumer + 1/2 pre-consumer)	1
MRc5.1	Regional Materials, 20% Manufactured Regionally	1
MRc5.2	Regional Materials, 10% Extracted and Manufactured Regionally	1
MRc6	Rapidly Renewable Materials	1
MRc7	Certified Wood	1

Indoor Environmental Quality		17 Possible Points
EQp1	Minimum IAQ Performance	Required
EQp2	Environmental Tobacco Smoke (ETS) Control	Required
EQc1	Outdoor Air Delivery Monitoring	1
EQc2	Increased Ventilation	1
EQc3.1	Construction IAQ Management Plan, During Construction	1
EQc3.2	Construction IAQ Management Plan, Before Occupancy	1

LEED-CI project list

EQc4.1	Low-Emitting Materials, Adhesives and Sealants	1
EQc4.2	Low-Emitting Materials, Paints and Coatings	1
EQc4.3	Low-Emitting Materials, Carpet Systems	1
EQc4.4	Low-Emitting Materials, Composite Wood and Laminate Adhesives	1
EQc4.5	Low-Emitting Materials, Systems Furniture and Seating	1
EQc5	Indoor Chemical and Pollutant Source Control	1
EQc6.1	Controllability of Systems, Lighting	1
EQc6.2	Controllability of Systems, Temperature and Ventilation	1
EQc7.1	Thermal Comfort, Compliance	1
EQc7.2	Thermal Comfort, Monitoring	1
EQc8.1	Daylight and Views, Daylight 75% of Spaces	1
EQc8.2	Daylight and Views, Daylight 90% of Spaces	1
EQc8.3	Daylight and Views, Views for 90% of Seated Spaces	1

Innovation & Design Process		5 Possible Points
IDc1.1	Innovation in Design	1
IDc1.2	Innovation in Design	1
IDc1.3	Innovation in Design	1
IDc1.4	Innovation in Design	1
IDc2	LEED Accredited Professional	1

Project Totals	57 Possible Points
Certified	21 – 26 Points
Silver	27 – 31 Points
Gold	32 – 41 Points
Platinum	42 – 57 Points

the balanced scorecard

Introduction

The Balanced Scorecard was developed by Drs. Robert Kaplan and David Norton in the early 1990's as an approach to strategic management. The Balanced Scorecard approach provides a clear prescription as to what organizations should measure in order to balance the financial perspective. Prior to this approach most organizations only measured bottom line financial data.

The Balanced Scorecard is a management system, as well as a measurement system, that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback concerning internal processes and external outcomes. Monitoring this feedback allows continuous strategic improvement in performance and results. Once an organization has undertaken the Balanced Scorecard approach as a measurement-based management tool, there is an opportunity to use the same balanced approach to develop similar metrics specifically focused on the workplace.

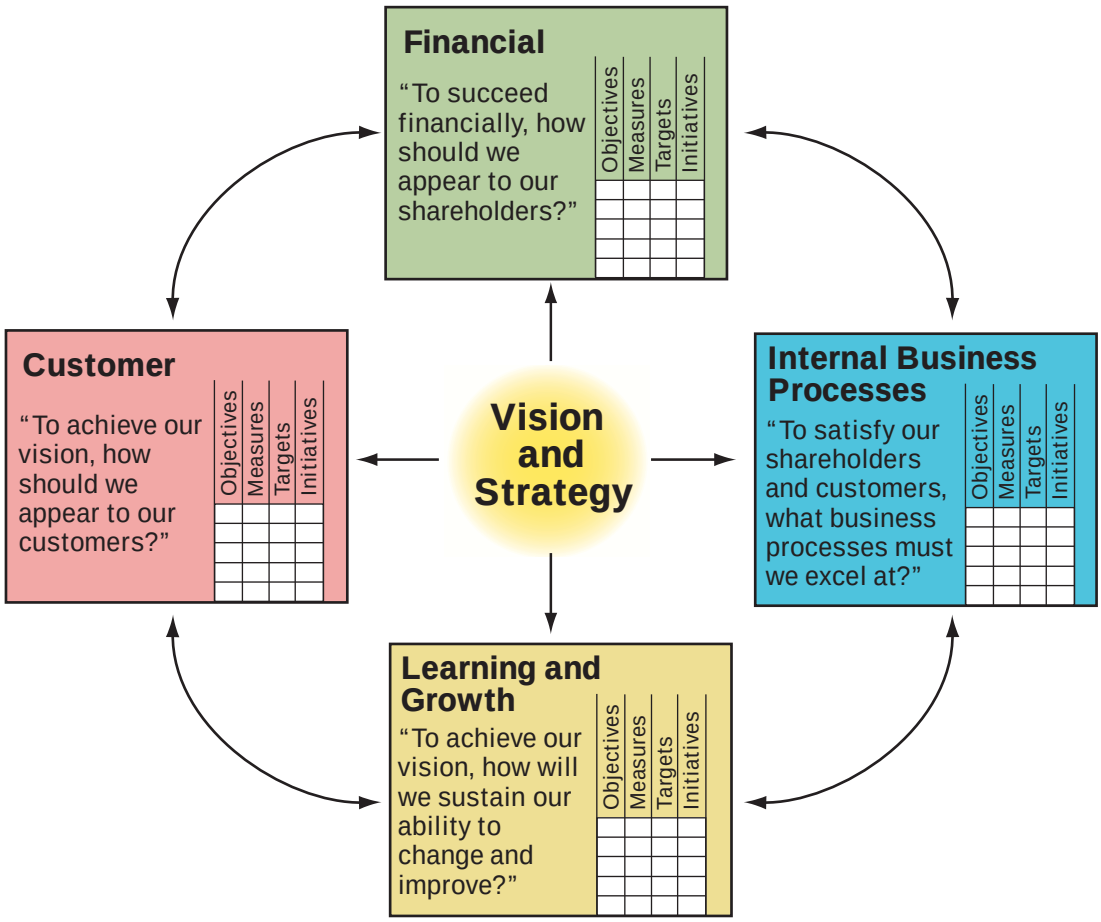
Kaplan and Norton describe the innovation of the Balanced Scorecard as follows:

> "The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events. That was an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate for guiding and evaluating information age organizations who are trying to create future value through investment in customers, suppliers, employees, processes, technology and innovation."

The Balanced Scorecard views the organization from four perspectives. Data is collected and analyzed, and metrics are developed relative to each of the following perspectives:

1. The Learning and Growth Perspective
2. The Business Process Perspective
3. The Customer Perspective
4. The Financial Perspective

After completing the process for the organization, the objectives, measures, targets, and initiatives at the organizational level can inform a balanced approach for evaluating the success of a World Class Workplace design.



The Learning and Growth Perspective

This perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement. Today people are considered the main resource and the key repository of knowledge. It follows that in today's climate of rapid organization change, employees must be in continuous learning mode.

Government, in particular, is experiencing a "brain-drain" that must be reversed. It's about more than training. It includes technological tools or what the Baldrige criteria call "high performance work systems". The workplace falls into this category. Both designers and organization leaders need to understand the impacts the workplace has on performance, learning, and growth of both the employees and the organization. This perspective ensures metrics that address these workplace issues.

The Business Process Perspective

Metrics based upon this perspective allow an understanding of how the business is running. It helps confirm the mission, and how products and services conform to customer requirements. People who intimately know the processes must carefully design metrics for this perspective. Typically, due to the uniqueness of organization missions, these metrics must be developed by organization leaders and employees, rather than by outside consultants. This is one reason why it is so important to have critical mass user participation and collaboration in the design of high performance workplaces.

The Customer Perspective

Reflecting recent awareness of the importance of customer focus and customer satisfaction, these indicators predict future situations beyond current financial performance. If customers are not satisfied with products and services today, they are likely to go elsewhere in the future. When developing metrics for customer satisfaction, it is very important to collect data and analyze it in terms of the kinds of customers and the kinds of processes involved. Workflow, technology, and brand in high performance workplaces must reflect customer satisfaction. Metrics must be designed to capture this perspective.

The Financial Perspective

In developing the Balanced Scorecard, Kaplan and Norton did not disregard the traditional need for financial data. Funding data that is accurate and timely will always be a priority. The point of the balanced scorecard approach is that emphasis only on financials leads to an unbalanced perspective.

Measurement-Based Methods

The four perspectives of the Balanced Scorecard ensure a balanced tool for informing measurement-based management. The scorecard builds on key concepts of previous management ideas such as Total Quality Management. The Balanced Scorecard provides feedback by incorporating feedback loops around process outputs. It also adds a feedback loop around the outcomes of strategies. This creates a double feedback loop and expands the focus of proposed metrics, which is especially important when dealing with high performance workplaces. Metrics must reflect process, as well as how well the needs of users

are accomplished. Metrics must also reflect outcomes to facilitate innovation and continuous improvement.

Metrics

It is commonly accepted that one cannot improve what cannot be measured. Metrics must be developed based on the priorities of the strategic plan or vision. This plan provides key business drivers and the basis or criteria for metrics. Processes must be defined to collect information relevant to the preferred metrics. Ultimately the data must be reduced to numerical form for storage, display, and analysis. Decision makers can then examine the outcomes and track the results.

The value of metrics is in their ability to:

- Provide a factual basis for defining present status from multiple perspectives,
- Guide continuous improvement,
- Identify trends over time,
- Spotlight the need for innovation in metrics—both methods and target, and
- Provide inputs into decision support and forecasting models.

Balanced Scorecard Approach as a Design Conversation Tool

To achieve World Class Workplaces and to improve performance, GSA, and other organizations, have used the Balanced Scorecard approach. The four quadrants of the balanced scorecard—Learning and Growth, Internal Business Process, Customer, and Financial are constant, and do not change for most clients. By using the outcomes of the organization's management scorecard, designers can review specific goals and action plans within each quadrant. This data is an excellent source of information for designers and organization stakeholders to discover and articulate innovative ways the workplace can facilitate achievement of organization goals.

Any project designed is an opportunity for using a balanced approach that contributes to improving business performance. By first clearly understanding and defining GSA goals, and afterward linking them to an appropriate space related strategy, we are on the path to delivering a World Class Workplace. The four quadrants of the Balanced Scorecard are excellent tools for maintaining a balanced perspective in the pursuit of the Seven Hallmarks of a World Class Workplace.

The GSA Seven Hallmarks of World Class Workplace can be assigned

to the appropriate quadrants and used as the business goals for the GSA organization. A comparative analysis of organizational objectives and corresponding action initiatives with the Hallmarks assigned to the quadrants is an excellent starting point for linking the design of a World Class Workplace to organization business strategies. This approach can help balance the reliance on only traditional financial drivers and help paint a full picture of what a GSA World Class Workplace should strive to be. Beginning the design process with the Balanced Scorecard for the organization is an efficient and effective way to successfully link strategy for use of space with GSA's Hallmarks of World Class Workplaces and the business goals of the organization.

Balanced Design Scorecard as Tracking Tool

Once the design strategy is linked to organization business goals detailed in the Balanced Scorecard management approach, the design team and organization stakeholders have another scorecard—the Balanced Design Scorecard. With this card, you can use the same balanced approach throughout the design implementation to continually determine whether the design is on track. We all know that over the course of a project, things change. Projects go on hold; stakeholders change. You can use this tool to quickly get new players up to speed on what was determined important and why. You can also use it to evaluate appropriate value engineering options.

Balanced Design Scorecard as a Post Occupancy Tool

After a space has been occupied for about a year, the design scorecard can be resurrected to prompt a post evaluation critique. For instance, take a team meeting area with flexible furniture, writing walls, and display for in-progress work. If this area had been created to respond to the goal of fostering team collaboration and knowledge sharing (linked to the business process quadrant of the balanced scorecard), when scored after a year, you might find that the client feels it is not meeting the goal. All the furniture, equipment and spaces are there, but no one is using the area as intended.

Now there is an opportunity for adjustment. Management can help focus an initiative to address the information discovered through the use of the balanced design scorecard. The design scorecard tool can help focus change management for the facility and the organization. Used properly, the Balanced Scorecard and the Balanced Design Scorecard are tools for changing organizational culture, and for modifying reward systems to support desired "future states" for employees, the organization, and the workplace.

the balanced scorecard

It is important to remember the Balanced Scorecard is a tool addressing the organization. The Balanced Design Scorecard is a tool addressing the design. The larger organizational issues must first be addressed using the Balanced Scorecard. The objectives, measures, targets and initiatives developed for each quadrant then narrow the field of opportunities and help the designers, researchers, and organization stakeholders more precisely target measures of success that define the desired World Class Workplace.

professional services qualifications

The following criteria are distinguishing qualifications meant to supplement standard documents used to procure design services for GSA. The intent is to obtain the necessary experience and expertise to successfully accomplish GSA World Class Workplace projects.

Company

The firm of record must have the following qualifications:

1. Interior design expertise for projects of requisite size and complexity. (Complexity to be defined by project.)
2. Previous experience using an integrated design approach that consciously and deliberately involves all stakeholders in project development and execution.
3. Possess the expertise, techniques, and tools available to provide detailed strategic and tactical business and work process analysis.
4. A corporate sustainable design commitment and staff with experience and documentation in sustainable design projects and/or LEED and LEED CI. Provide a narrative describing collaboration experience with professional LEED consultants and testimonials by clients of a completed project.

Project Team Requirements

The project team should have the following qualifications:

1. Be composed of members with experience in the following disciplines: interior design, architecture, strategic planning, programming, sustainable design, lighting design, organizational development, integrated systems design, information technology and communication systems, change management, communication, budgeting and cost estimating, and GSA pricing policy.
2. Experience working with a multi-discipline team, e.g. engineers, IT, graphics, cost estimators, etc.
3. Experience in working with both public and private sector organizations of similar size and complexity.
4. Ability to identify and analyze the business goals, strategies, and work processes of the tenant organizations.
5. Experience with accommodating alternative workplace strategies such as remote work, desk sharing, virtual work, etc.
6. At least one team member directly involved in the project who is LEED accredited with experience documenting.
7. A minimum of one senior team member each in interior design and architecture. Each member will have at least 15 years experience and

current professional certification and legal registration, e.g. NCDIQ for Interior Design.

8. Familiarity with applicable workplace concepts, including
   a. Integrated Workplace and GSA Hallmarks
   b. GSA Workplace 20•20
   c. GSA Leading by Example, a Demonstration Toolkit For Creating World Class Workplace
   d. GSA Design Excellence Program
   e. GSA Historic Preservation Program and similar strategic planning concepts, tools, and processes.
9. Provide a project manager with previous experience in projects of similar size, scope, and complexity with a background in interior design and/or architecture, and demonstrating the requisite management and communication skills needed for this type of project.
10. Principle project team members must have, as a minimum, a bachelor's degree or equivalent education in their associated discipline from an accredited college or university.
11. Where projects involve raised floor, underfloor air distribution and/or modular cabling, designers and engineers must have previous experience with this technology on two or more recent projects, and provide solution documentation with references, including "first versus life cycle cost analysis."

Project Team and Firm Portfolio Submittals

Submit proof of experience with similar projects. Submittal examples include

1. Experience with both private and public sector organizations.
2. Examples of analysis and recommendations linking organization mission, business strategy, and work processes to workplace strategies and space solutions. Include samples of
   a. Project strategy
   b. Strategic briefs
   c. Visioning sessions - format and documentation
   d. Building program
   e. Work area and organizational program
   f. Surveys
   g. Field observations and recommendation document
   h. Project implementation strategy
   i. Documents displaying strategic planning exercises–including

issues addressed and outcomes

j. Measurement tools used to evaluate outcome

3. A list of (minimum) five successful workplace projects, completed within past 10 years, at least three within the last five years include
   a. Project description
   b. Organization analysis, balanced scorecard
   c. List of major project issues and how the design addressed them
   d. Photos
   e. Samples of presentation drawings, concepts, diagrams, space plans, furniture kits of parts, lighting plans and concepts and construction documents
   f. Samples of budgets and/or cost estimates for tenant improvements, FF&E, IT & telecom, relocation costs, change management costs etc.
4. A list of two or more projects that the senior team worked on together, including references with contact information.
5. One page description of the firm's interior design philosophy.
6. One page description of firm's sustainable design commitment and attached documentation, e.g. LEED.
7. Resumes for all key project team members showing only projects in which they played a major role, and describing that role in detail.

Samples of Design Project Documents

1. Partition Plans, elevations, sections
2. Finish Plans – sustainable specifications
3. Furniture plans and specifications that promote flexibility and sustainability
4. Furniture panels and freestanding component plans etc.
5. Graphic and signage plans, way-finding, etc.
6. Plants and artwork
7. Lighting plans that coordinate daylight/views, ambient, direct, and task lighting
8. Electrical and data distribution plans
9. Underfloor air distribution strategy and solution

public and private sector project examples

Examples of Private and Public Sector Project Initiatives that focus on linking the strategic business needs and nature of work with the work environment.

Public Sector:

UK Public Sector	Goal	Results
The Government Communications Headquarters	Support complex technical infrastructure and encourage staff collaboration.	Now for the first time, incorporated spatial/work environment with business planning process.
Her Majesty's Treasury	Efficient use of space, facilitate team working, low energy.	Achieved an "excellent" rating for environmental standards. Staff unanimous in agreeing that the building encourages collaboration, knowledge sharing and communication.
The Ministry of Defense	*Encourage* less *hierarchical,* collaborative team working and knowledge sharing. A business transformation project.	Resulting in a change management program.
The Office of Government Commerce	Reinforce a new culture and identity. The refurbishment as a catalyst for improvement and change.	20% space reduction. A combination of diverse work settings. Churn cost reduction. 84% of staff rate space as excellent or good.
The Scottish Enterprise Headquarters	Establish single headquarters, modernize the organization, embed a single culture, improve public identity.	The integration of groups within one building. Increased flexibility to enable additional change.
GSA	**Goal**	**Results**
Office of Civil Rights	Increase morale and identity; healthier and more collaborative work place, more proactive work processes.	(See Case Study) Accomplished: healthier environment, collaboration, proactive solutions, and identity and morale goals.
GSA Office of the Future	Increase collaboration.	Improved communication and collaboration. Cultural shift reflecting business objectives.
GSA Adaptable Workplace Lab	Reduce churn costs. Provide healthier, sustainable work environment per federal mandate.	90% reduction in churn costs. Reduced operating expenses for heating and cooling.
GSA Office of Real Property	Increase collaboration and customer service	Users control workspace configuration. 3% reduction in cost per person.
GSA, PBS Region 3, Philadelphia	Integrate work functions and processes across the organization. Explore new workplace concepts.	Increased communication. Better customer solutions. No premium cost for higher performance workplace.

public and private sector project examples

Private Sector: The private sector has tended to lead the way.

Organization	Goal	Results
BMG Direct	Increase productivity and satisfaction.	Users indicated more satisfaction. Daylight and views to 80% of workers.
Deutsche Bank	Increase flexibility, space efficiency and improve knowledge sharing/ collaboration.	10-30% space reduction.
Millennium Pharmaceuticals	Provide maximum flexibility for lab conversions, encourage interaction between scientists.	Won R& D Magazine's 2003 Laboratory of the Year Award. Labs easily converted.
CIGNA	Increase productivity, attract and retain talented workforce.	Improved productivity 6%-15%. Reduced turnover costs by $8M.
University of Miami	Increase productivity.	Productivity increased by 109% in 2 years.
Herman Miller Marketplace	Sustainable work environment.	LEED Gold Certification, 3% increase in work quality, increased collaboration.
Sprint	Productivity across locations.	Accomplished.

research linking the workplace with productivity

> "For over a century, experiments on workplace design have shown that layout and lighting have profound effects on productivity."
>
> – *Frank Duffy, DEGW, (a London design consulting firm)*

Relatively minor changes in our workplace environment can have a dramatic effect on how we behave and how we perceive the environment. Workplace research has shown direct correlations between work performance and acoustics, views, light, thermal conditions, and air quality. Numerous surveys have shown that occupants believe that the quality of the indoor environment affects not only their satisfaction but also productivity. This section summarizes key research findings.

Recent Studies

Field studies by researchers at Rensselaer Polytechnic Institute shows that workers in a new building with workstation-based personal ambient controls, daylight, and views of a natural setting improved productivity relative to their former building, which did not have these amenities. The overall increase was close to 20%, with 3% attributed to the personal controls and 16% to the overall building improvement.

- The Heschong Mahone Group examined the influence of natural lighting and windows on job performance in a Call Center and a Desktop Workplace Study for the Sacramento Municipal Utility District. The Desktop study indicated that workers with views from their office space performed 10-15% better on tests, and Call Center study workers with outdoor views handled calls 7-12% faster than those without views. "It was the most consistent finding we've found in any of our studies," said Heschong.
- A pre and post study of a new green Herman Miller building in Holland, Michigan by a team of researchers at the Pacific Northwest National Laboratory showed improvements on Total Quality Metrics ranging from 0.5% to 2%. Given that Herman Miller was already operating at 97% to 98% on all measures, the increases were highly significant from the organization's perspective. The studies also showed that fewer workers experienced headaches in the new building (down from 16% to 7% who said they frequently had headaches) and that overall satisfaction levels improved significantly.
- A study at the Pacific Northwest National Laboratory showed that an environmental upgrade with improved lighting, ventilation, furnishings, and aesthetics reduced turnover by 60%. In the same study, absenteeism was reduced by 50%. The high reduction in turnover may have been due to the deliberate attempt to "naturalize" a windowless space with variable lighting, natural décor, and increased use of color.
- In a large-scale field study of illness symptoms at work, researchers in Europe found that workers who reported Sick Building Syndrome symptoms (headaches, respiratory difficulties, sore eyes) worked 7.2% more slowly on a vigilance task and made 30% more errors on a cognitive test.

research linking the workplace with productivity

Summary of Recent Research

A summary of findings from laboratory and field studies in the U.S. and Europe shows that sustainable design features can have multiple effects on physical health (stress, headaches, muscular-skeletal functioning), psychosocial well-being (affective functioning, quality of life), and cognitive performance (memory, attention, comprehension). The research findings, presented by Judith Heerwagen and Vivian Loftness at Greenbuild 2005, are summarized in Table 1. The circles indicate strong evidence for a link between the building element and health, well-being, or cognitive outcomes. In some cases, the links are negative (e.g., poor thermal or air quality conditions have negative consequences on health, performance, and well-being). But many of the building elements have positive impacts on health, performance, or well-being. Thus their presence can have an ameliorative effect on the occupants' experience of the space. These high-impact positive features include daylight, views, connection to nature, personal control, and the ability to control distractions when the work requires focused attention.

The table shows that psychosocial well-being is influenced by all of the building elements in the table and is thus the easiest aspect of workplace experience to improve through workplace redesign. Significant improvements in overall well-being, however, require a twofold approach: alleviating discomforts (thermal, air quality) and adding positive features (daylight, views, nature, privacy).

Although the table shows that cognitive enhancements are more difficult to achieve (e.g., have fewer links to building elements), several design features are important for cognitive functioning which, in turn, influences overall performance on knowledge work tasks. The building elements with the highest impact (those that are linked to all three outcome areas) are thermal conditions, air quality, views and connection to nature, and personal control.

Table 1. Building Elements with Known Impacts on Health, Performance, and Well-Being

BUILDING ELEMENT	Links to Physical Health	Links to Cognitive Performance	Links to Psychosocial Well-Being
Thermal conditions	●	●	●
Air quality	●	●	●
Views & connection to nature	●	●	●
Daylight			●
Sunlight patches	●		●
Personal ambient control	●	●	●
Control over distractions		●	●
Ergonomics	●		●
Acoustic conditions		●	●
Privacy			●

Translating Outcomes to Dollars

Building the business case for design investments requires the tools and perspectives of business, not just results from research projects. Faculty and students at the Center for Building Performance and Diagnostics at Carnegie Mellon University have done just that. Their Building Investment Decision Support tool (BIDS™), which is funded in part by GSA, translates research findings into dollars as a way of assessing the life-cycle benefits of investments in discrete building elements. The tool covers cost savings in the following areas – integrated systems, facility management, individual productivity, organizational productivity, attraction/retention, health costs, churn, technology, and waste. Because GSA helped fund the work, all GSA associates are included in the rights to use the BIDS™ tool. (See http://www:cbpd.arc.cmu.edu/bids)

world class workplace advocates list

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