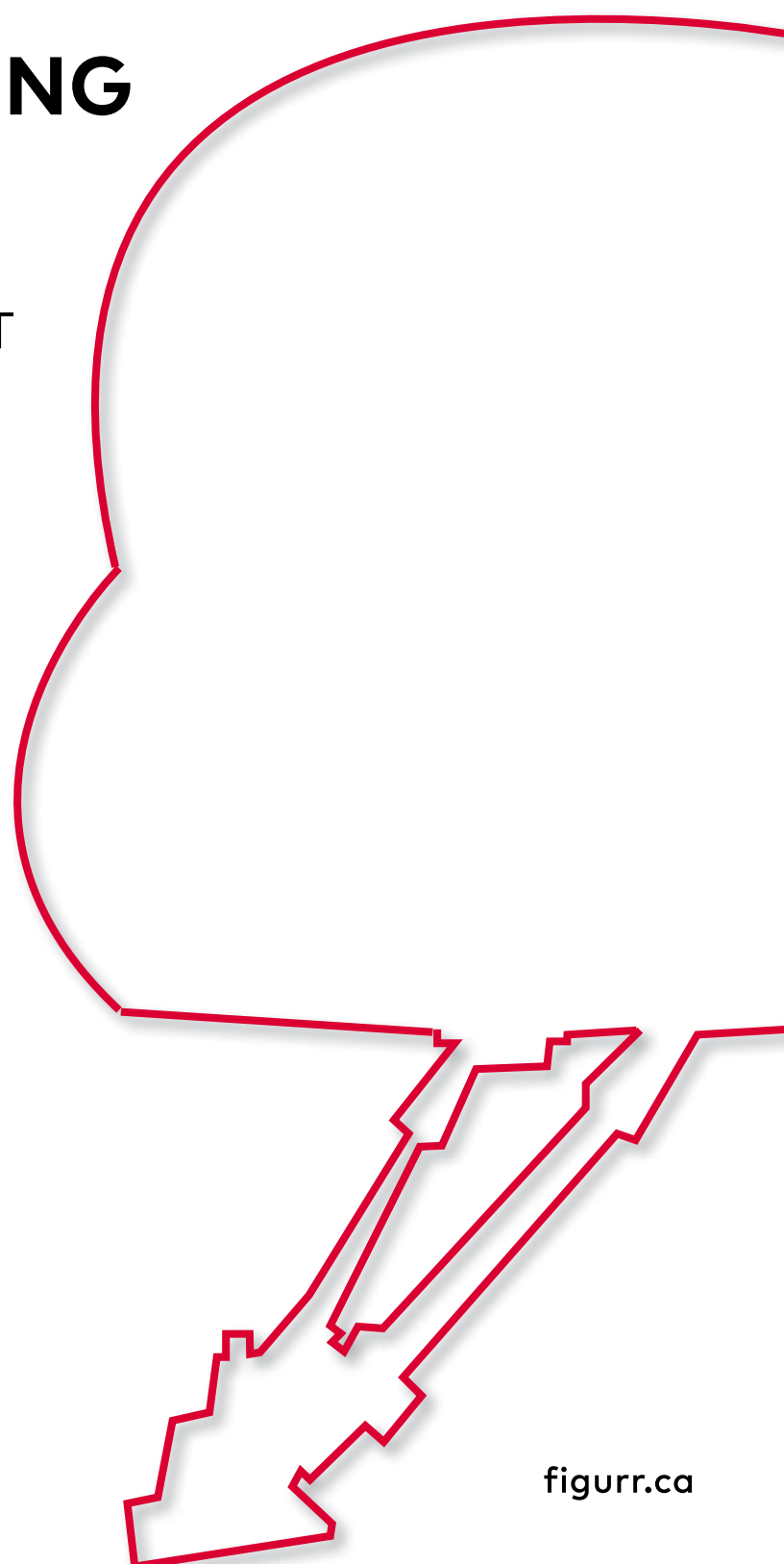


AVIATION TRAINING CENTRE DESIGN

GUIDELINES FOR PROJECT
PLANNING AND DELIVERY



ABOUT FIGURR

WE BUILD RELATIONSHIPS, NOT JUST BUILDINGS.

Figurr Architects Collective is a global leader in aviation training centre design. The team has over 20 years of technical experience delivering quality, high-tech projects that support the present and future needs of the aviation industry.

Figurr has acted as architect, prime consultant, and coordinator on a wide variety of aviation training projects globally for corporate training partners, simulator manufacturers, airline carriers, and within the defense and security industries.

We are experts in aviation training centre design. Figurr has an in-depth understanding of the requirements for flight operations, cabin crew, and maintenance training – creating efficient, affordable, and flexible building designs that support client project requirements.

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“In the early days, there wasn't as much training or much thought about good learning. Now, that's all changed.

The amount of training that people coming out of aviation school need to get their expertise has increased. They're spending way more time in our facility and in our classrooms.

So, we want to have a space that is pleasant and builds an environment for good learning.”

HOWARD GALLINGER,
Manager Flight Simulation,
Air Canada

TRAINING CENTRE CHECKLIST

Before you build, expand, or commit, start with these questions:

- 1. Capacity & Growth**
Is your facility sized for the future, not just where it is today?
→ *Expansion & scalability strategies (p. 24)*
- 2. Decision Timing**
Have you clearly defined how decisions and information will flow between stakeholders?
→ *Project planning & communication structure (p. 14–15)*
- 3. Infrastructure Requirements**
Do you know what your training equipment needs to operate reliably and efficiently?
→ *Simulator & technical requirements (p. 22–23)*
- 4. Training Flow**
Does your facility layout support how training actually operates?
→ *Training flow, adjacencies & human factors (p. 8–9)*
- 5. Experience/Brand**
Does your training environment reflect the standard your organization is known for?
→ *Learning environment, comfort & user experience (p. 10–11)*

If you answered "no" to any of these, it's worth a conversation. MEET WITH OUR TEAM.

THANK YOU

We want to thank everyone who made this document possible.

We are grateful to the clients and partners who volunteered their time to speak with us about their experiences in designing their aviation training centres.

Your support is appreciated. Your insights are important contributions to the future of aviation training and education.

Thank you.

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INTRODUCTION

The global aviation industry continues to face a significant and sustained pilot shortage. Recent long-term forecasts indicate that up to 660,000 new commercial pilots will be required worldwide over the next 20 years to support fleet growth and replace retiring personnel, underscoring an acute gap between pilot supply and demand (Airbus, 2024; Boeing, 2025). This growing shortfall reinforces the urgent need for expanded pilot recruitment and training initiatives. Central to this response is the development of new aviation training centres worldwide—whether through purpose-built facilities, expansions of existing campuses, or the adaptive reuse and renovation of current buildings.

This document considers critical questions surrounding site selection, user comfort and efficiencies, project initiation strategies, and pre-emptive measures for addressing design and construction challenges. The four sections together provide a foundation for conceptual inquiry into practical strategies that support the effective planning, design, and delivery of contemporary aviation training centres.

UPDATED: APRIL 2026

ORIGINAL: APRIL 2024

"As the Senior Technical Engineer and Design Lead at CAE, my primary focus lies in ensuring that our clients' building infrastructures are meticulously designed to seamlessly integrate our simulation devices. This task necessitates close collaboration with a highly skilled and seasoned team of architects and engineers. Together, we ensure not only the smooth set-up and immediate functionality of the simulators but also their long-term sustainability and ease of maintenance."

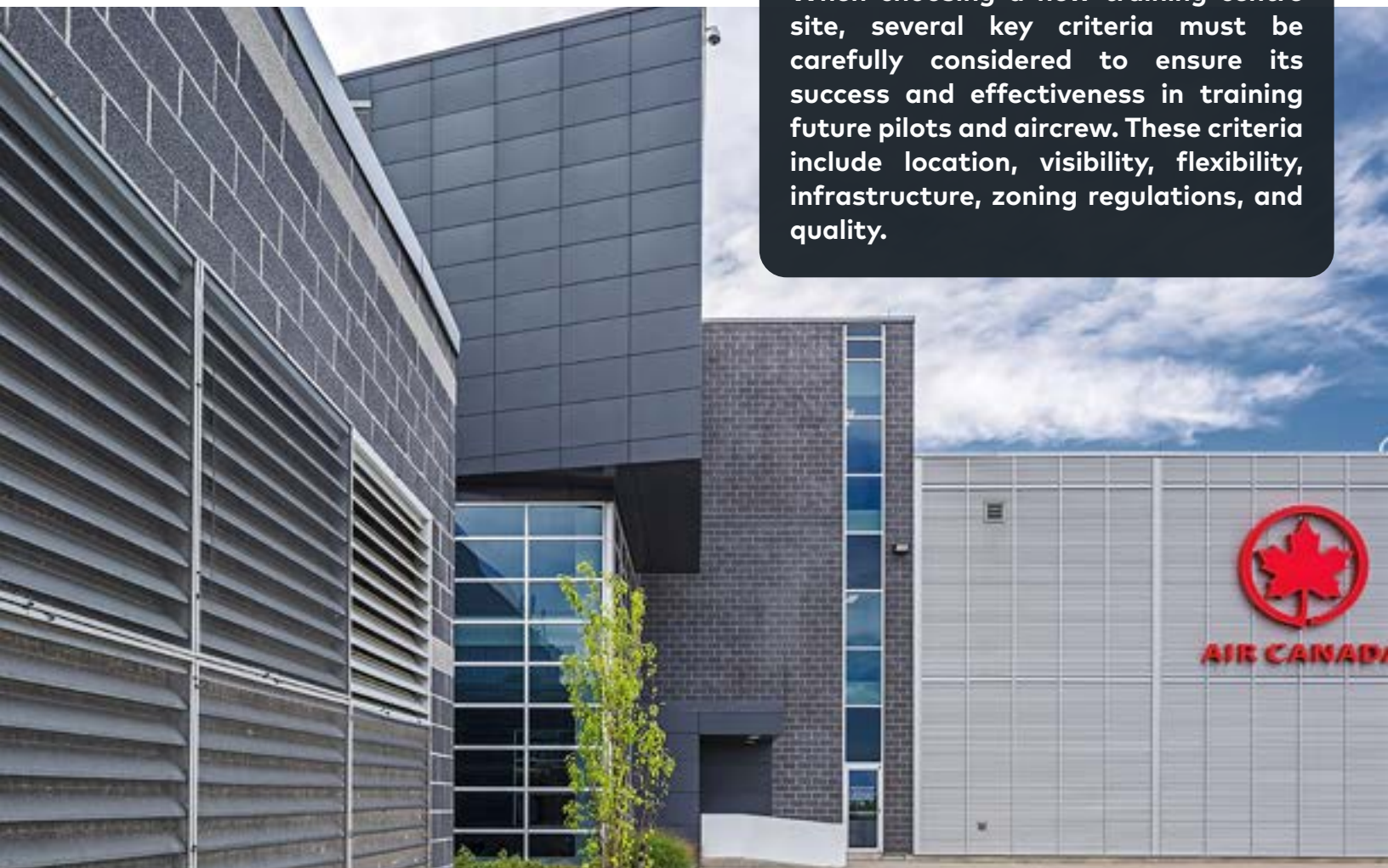
ANTOINE EL-KHOURY,
Technical Specialist, Simulator Facilities
and Training Centers, Global Hardware
Engineering and Manufacturing,
CAE Inc.

1

REAL ESTATE CONSIDERATIONS & STRATEGIES

Choosing the right location is paramount whether constructing a new aviation training centre facility on a **greenfield site**, renovating and expanding existing centres, or repurposing existing buildings to accommodate a new state-of-the-art facility.

When choosing a new training centre site, several key criteria must be carefully considered to ensure its success and effectiveness in training future pilots and aircrew. These criteria include location, visibility, flexibility, infrastructure, zoning regulations, and quality.





Location

Location is critical to project success.

Situated near airports and major transportation hubs to facilitate access from various global locations.

Proximity to amenities such as hotels, restaurants, and fitness facilities is also essential for the convenience of students and staff. Business aviation is a competitive market, and the location of a training centre plays a central role in potential students' training decisions.



Visibility

The facility should have a **prominent presence** in the community.

To attract students and showcase its qualities and offerings, a visible location helps in marketing and branding efforts.



Flexibility & Expansion

The building site should offer ample space for current program requirements while also **allowing for future expansion.**

Interms of student flow through, growth projections need to be accounted for when choosing a site with expansion growth potential. Internal design flexibility is also crucial to adapting to future training needs as technology evolves.



Infrastructure

Important considerations for site selection include adequate parking for students, staff, and visitors.

Reliable **access to utilities**, especially sufficient clean electric power to support the simulation equipment, is critical. Redundancy in the power supply should be considered to ensure uninterrupted operation.



Zoning Regulation

Location will determine the applicable building codes, zoning regulations, and (possibly) governmental mandates.

A building must comply with regulations to be awarded a building permit and a certificate of occupancy. Adherence to aviation regulations is vital if it is located on airport land.

Local building codes and bylaws must be followed to ensure safety and regulatory compliance. Permit submittals and review periods must be included in project scheduling.



Quality Facilities

State-of-the-art training facilities, including classrooms, simulation training equipment, and briefing rooms, are essential.

Amenities (cafeterias, lounges, study areas, recreational facilities) enhance the student experience.

Natural light and views can positively impact learning outcomes. It is also critical to understand the training requirements as annual reoccurring requirements differ from initial training requirements due to the duration of certification.

By carefully considering zoning regulations, available site infrastructure, expansion opportunities, and building presence and visibility, a site that meets the current training needs will allow for future growth and success in addressing the industry's pilot shortage.

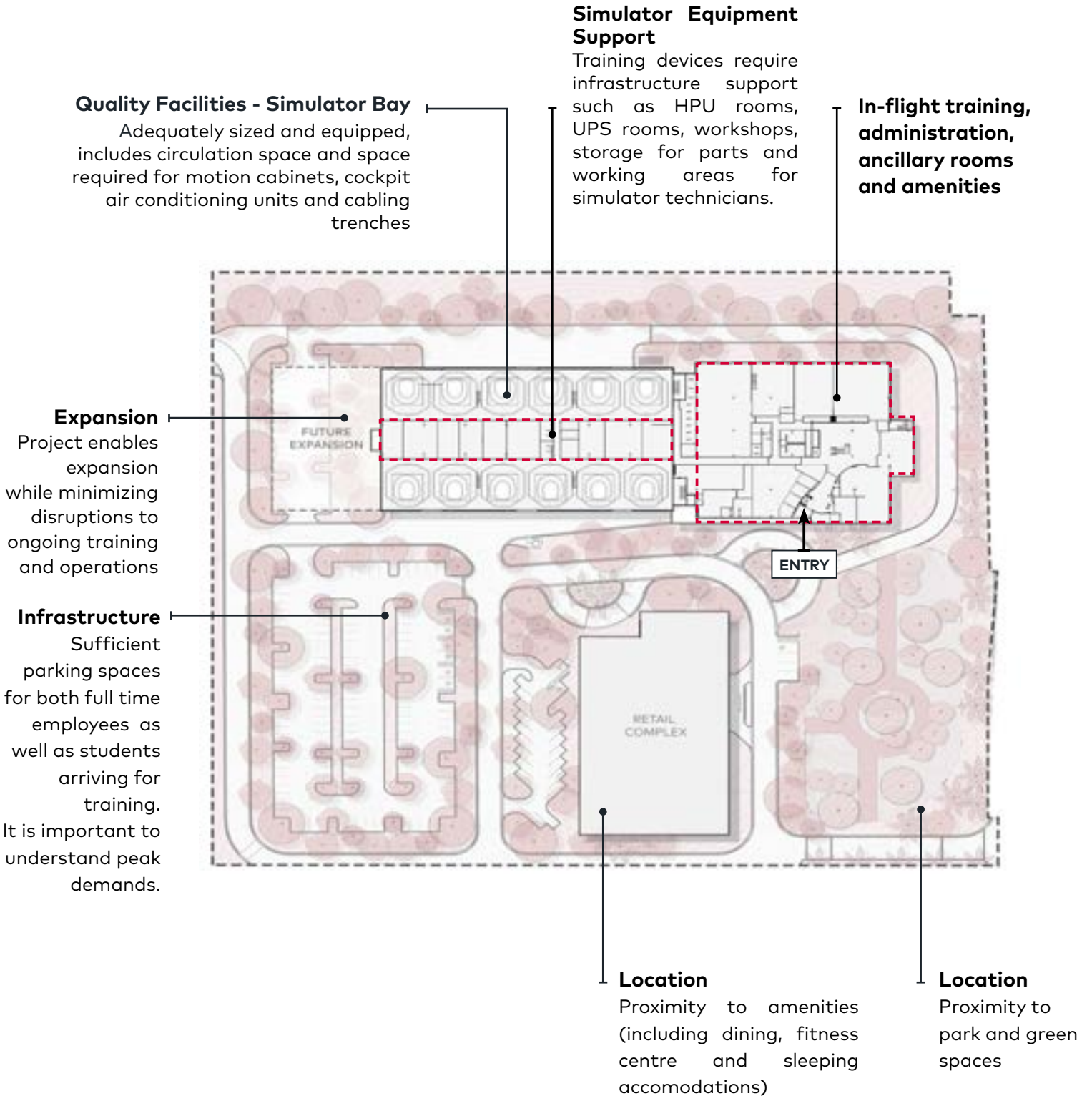


IMAGE 01. Example of aviation training centre siteplan.

"When a pilot comes on course, they are at their highest stress levels because everything's new. They're learning new concepts, new airplanes, new procedures, and they're away from home. So, having access to simple amenities goes a long way."

CAPTAIN DAVE BUTLER,
Director Non-Revenue Flight Operations
and Operational Excellence,
Air Canada

2

INTEGRATING HUMAN FACTORS INTO THE DESIGN

This section addresses the complex dynamics and adjacencies inherent in training operations, ensuring an approach to facility design and functionality that optimizes the learning experience for pilots and in-flight crew.



Designing a flight training centre requires an understanding of educational design and the unique demands of hands-on learning required for certification.

2 | INTEGRATING HUMAN FACTORS INTO THE DESIGN

One of the first important tasks a designer has is understanding the Owner's immediate and future requirements and their expectations of the students' and instructors' experiences. We believe that well designed training centres support mental health and the well-being of students and instructors. As designers, we address aesthetics and the nuances of space, functionality, **human factors**, and cost and constructability of the building.

To understand and describe the function and flow of a training centre, we map multiple training types into flow breakdowns to understand areas and adjacencies crucial to the learning experience.

The chart below shows pilot and crew training adjacencies in a typical aviation training centre.

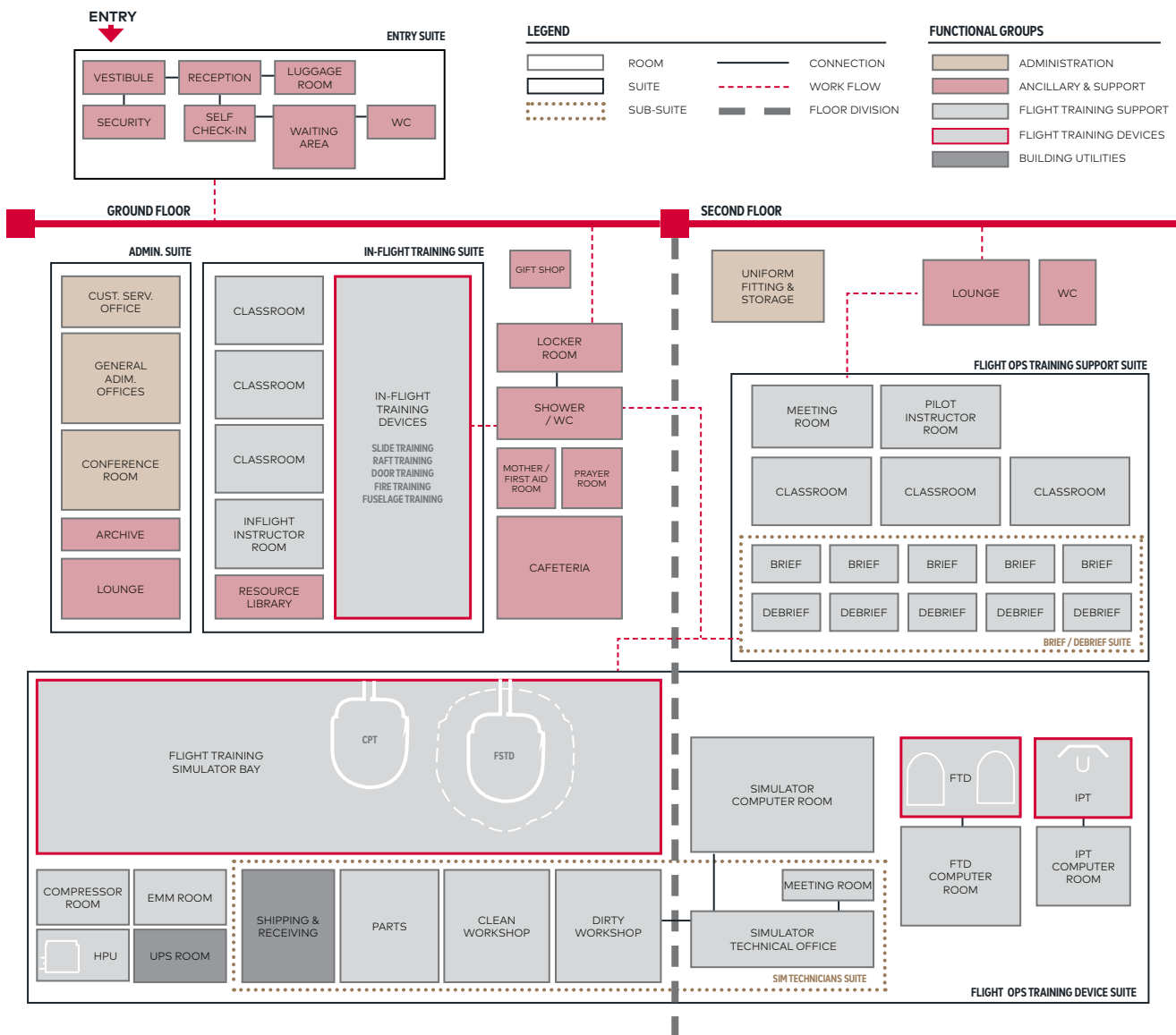


IMAGE 02. Flow diagram of pilot and crew training adjacencies.

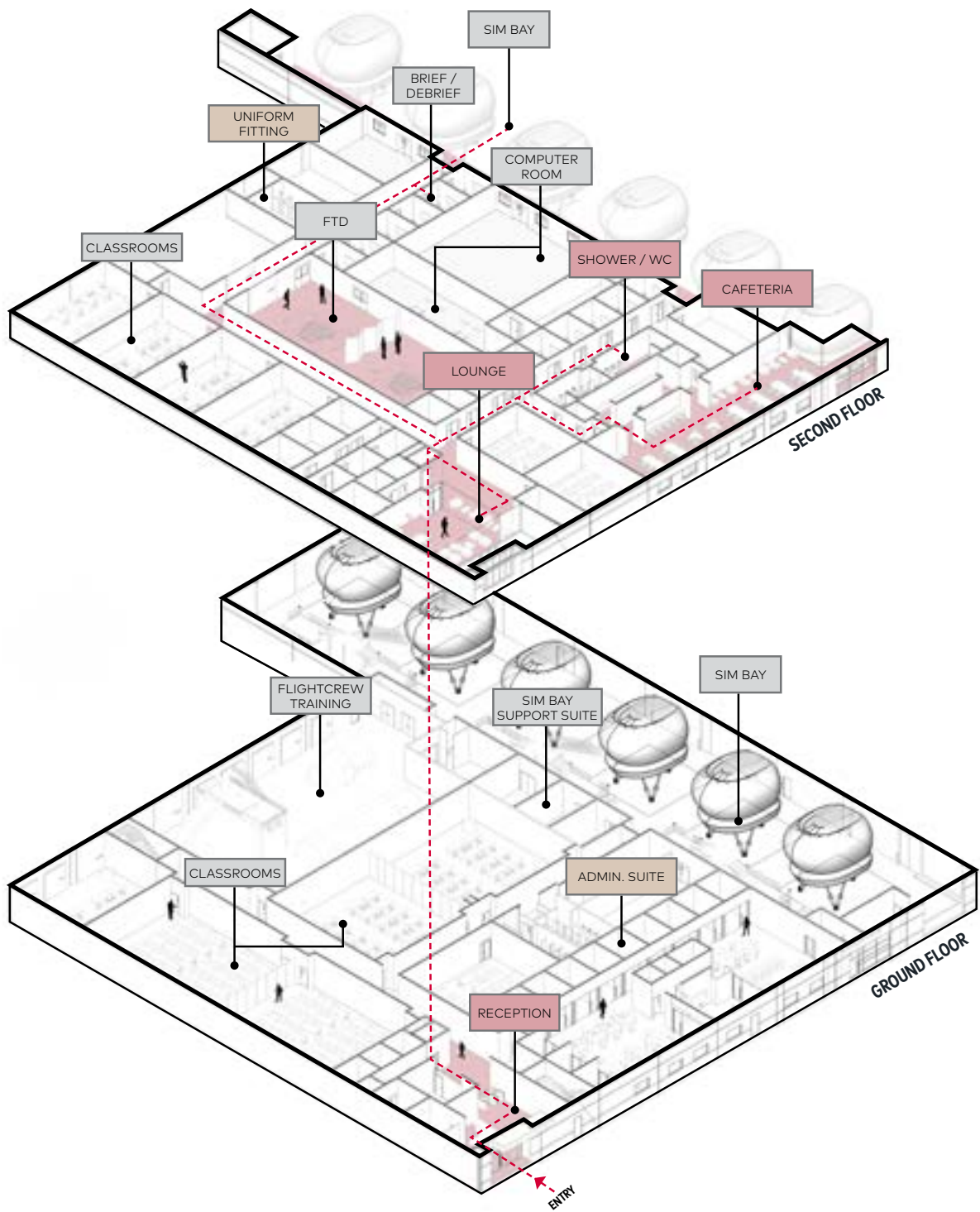


IMAGE 03. Building diagram of pilot and crew training circulation.

These are some factors that should be considered in order to optimize the learning experience for pilots and in-flight crew:



ACOUSTICS

Creating the ideal training environment necessitates an understanding of what the purpose of each space is and how sensitive the activity is to ambient noise. Some functions such as crew training on door trainers, generate significant noise while other activities, such as classrooms and flight training, require significant noise mitigation between adjacent rooms. In addition, private offices and certification rooms need a high level of noise control. **Noise control within and between spaces is critical when designing a training centre.**

Additionally, a building's envelope design must consider proximity to airports and flight paths, exterior mechanical yards, and heavy vehicular traffic. This may necessitate a robust envelope to control exterior noise from entering the building.



COLOURS & MATERIALS

Creating a visually engaging and inspiring learning environment is an important aspect of designing a training centre. **The choice of colours and materials goes beyond aesthetics, as these features can profoundly impact students' concentration, emotion, learning capabilities, and well-being.**

Colour must be carefully considered as it significantly impacts emotion, concentration, and engagement (Heath, 2021). Colour is a tool to help create visually engaging learning environments that maintain students' interest, help produce a positive atmosphere, foster a feeling of warmth and comfort, and assist with wayfinding. (Norva Nivel, 2023)

Additionally, the quality of the materials and manufacturing process must be carefully considered. In addition to aesthetic and psychological influences, materials can impact indoor air quality due to **off-gassing** - impacting a student's learning ability and health.



THERMAL COMFORT

Maintaining comfortable indoor conditions is crucial for an optimal learning environment. Depending on the location of the training centre, ideal indoor air temperature comfort levels typically range between 18 - 22 degrees celsius with an indoor relative humidity level between 30% - 60%. Additionally, good ventilation and indoor air quality can significantly enhance trainees' learning abilities compared to a poorly ventilated space.

There are several strategies regarding thermal comfort which can be passive or addressed through mechanical systems. The approach to occupant comfort can also reflect an Owner's desire for sustainable certification.

Discussions around the importance and approach should be considered early in the design process.



LIGHTING

Daylighting plays a crucial role in learning and maintaining student focus. Up to 50% of a trainee's attentiveness and energy can be attributed to integrating natural light and thoughtful artificial lighting in learning spaces. (Barrett, Davies, & Barrett, 2015) As such, it is important that designers **optimize window placement** to maximize natural lighting and exterior views.

As with most aspects of training centre design, **balancing functionality and human factors** is an ongoing point of discussion with building owners and user groups. For interior lighting, the ability to control one's environment is essential. The design must also consider user needs and zoning requirements.

A schematic design phase with multiple iterations of lighting simulations can be valuable and provide insights into the optimal balance between maximized lighting, energy, thermal considerations, and design for learning.



MAINTENANCE

Often, maintenance of the training devices is conducted in-house, either by an on-site technician or an outside consultant. However, in both cases, **distinct spaces are required to enable proper maintenance of the training devices.**

Rooms such as a clean room and a dirty room are utilized to perform this maintenance. The clean room is typically used for working on electronics and computer components, while the dirty room is designated for more mechanical maintenance tasks involving hydraulics, oils, and lubricants.

Designing an effective flight training centre demands a particular understanding of the unique requirements of pilots, crew, and instructors. From optimizing natural and artificial lighting to selecting colours and materials that foster occupant comfort, each architectural element plays a crucial role in cultivating an immersive, supportive learning environments.

By balancing form and function, designers can create training facilities that not only meet operational needs, but also empower trainees to excel in their aviation journey.

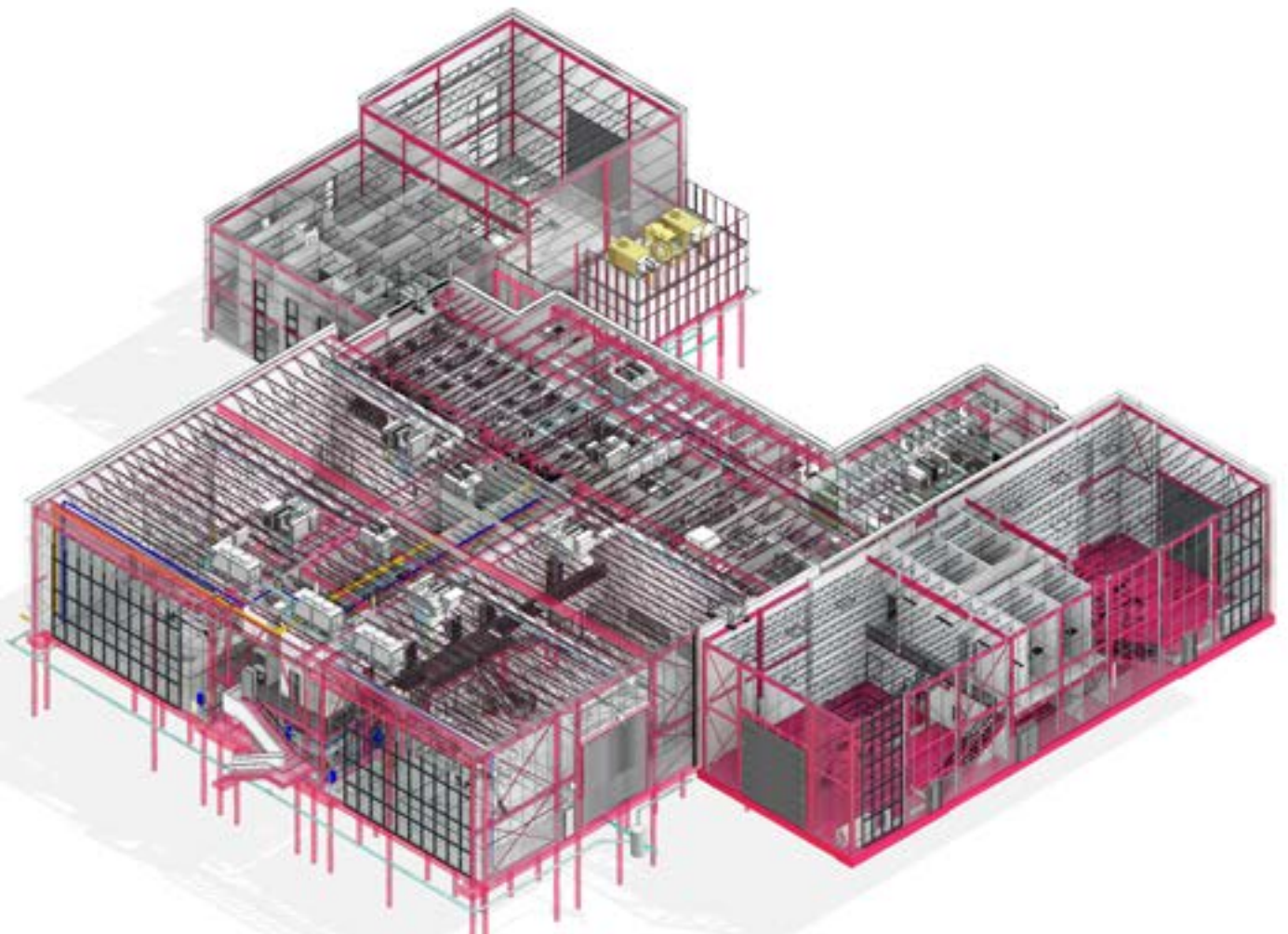


IMAGE 04: Cabin trainer.

3

DESIGN COMMUNICATION STRATEGIES

Successful projects always have a strong and clearly defined communication chain. This chain should be established early so that information is efficiently dispersed both internally and externally to the key stakeholders.



Every building project follows a typical process in its communication strategy:



The nuances and challenges of communication occur within each of these steps, as well as how they relate to each other. Training centre projects, from design to construction, can take several years to realize, so understanding roles and responsibilities from the start will help organize the project as it moves through the various phases.

Establishing a communication hierarchy early in the project minimizes requirement overlaps and redundancies and creates an efficient information flow. This makes single contact points between the owner and various user groups essential to streamline communication.

Unless the owner specifically engages the designers to prepare programming and site selection studies, designers start their process with a general program and site location determined by the Owner in discussion with the user groups. Those two initial project givens have their communication flow that addresses two different building considerations, Program and Location.

PROGRAM

The program informs physical size, adjacencies within departments, and individual space requirements. Understanding the program and adjacency requirements is one of the first steps in the design process. Users generally understand their space needs—the type and number of rooms required to support their training requirements.

The programming phase examines user space requirements, the finished concept, and user idiosyncrasies and summarizes their workflow and operations. All user groups must reflect on their needs, receive approvals from the Owner, and sign off on requirements. While there is always flexibility during design, adding or subtracting a new program can cause considerable delays in the design schedule or drive capital costs. Besides understanding the purely functional space requirements, this phase of communication and design will identify the importance of **human factors** such as materials, lighting, space requirements, and sound control.

Designers often use **Room Data Sheets** to assist user groups with identifying their needs and incorporating them into the drawings. Experience designing these facilities teaches designers to ask the proper questions and understand where the user requirements may be continuously defined.

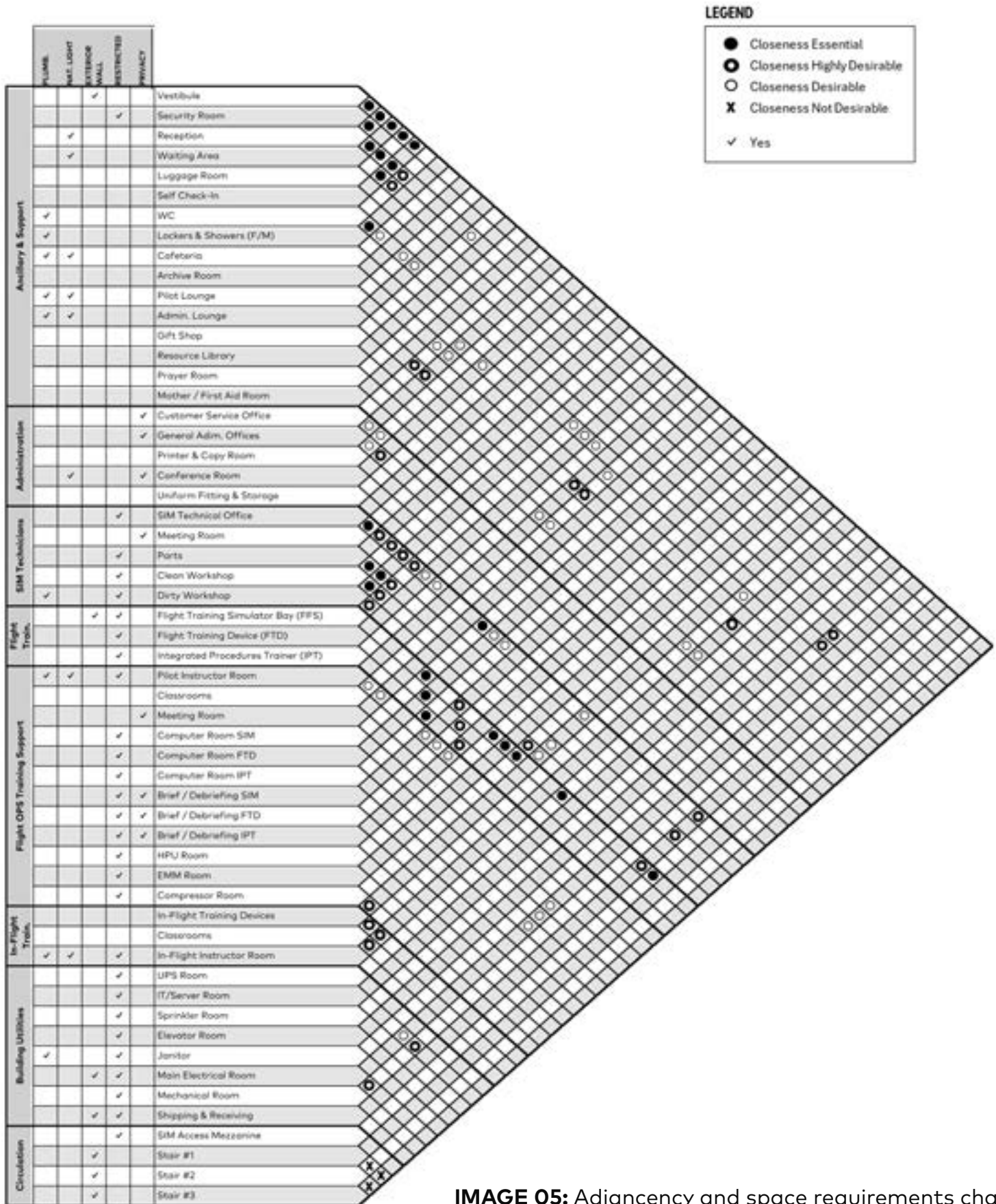


IMAGE 05: Adjacency and space requirements chart

LOCATION

The location determines which building codes, guidelines, and standards the project will need to conform to and will determine the formal schedule of submissions required to build and operate the training centre. Once the general size and program requirements are known, the **AHJ** should be engaged early to clearly set out their requirements, which are built into the overall design schedule.



The location of the future training centre can significantly impact the project's cost and schedule. In addition to the physical infrastructure traits and project types mentioned above, the site's location will determine who the authorities having jurisdiction will be, what the applicable design codes are, and generally inform the permitting schedule and review process.

Sites can be regulated by the local municipality, provisional or state regulatory agencies, or on a federal level. Different classifications have different code implications. The complexity of this building typology with the various regulatory agencies, such as Transport Canada, NavCan, or the Federal Aviation Administration, further drives the review and approval process. These reviews occur during design and after construction is completed to commission and certify the equipment and building.

Each interaction between major stakeholders and the **AHJ** is complicated, and the expectations between all the groups need to be explicitly understood by all. Formal minutes documenting decisions and actions with timelines are essential tools that help maintain a clean communication flow throughout the design. This will be true as the project evolves and the Building Contractor becomes involved.

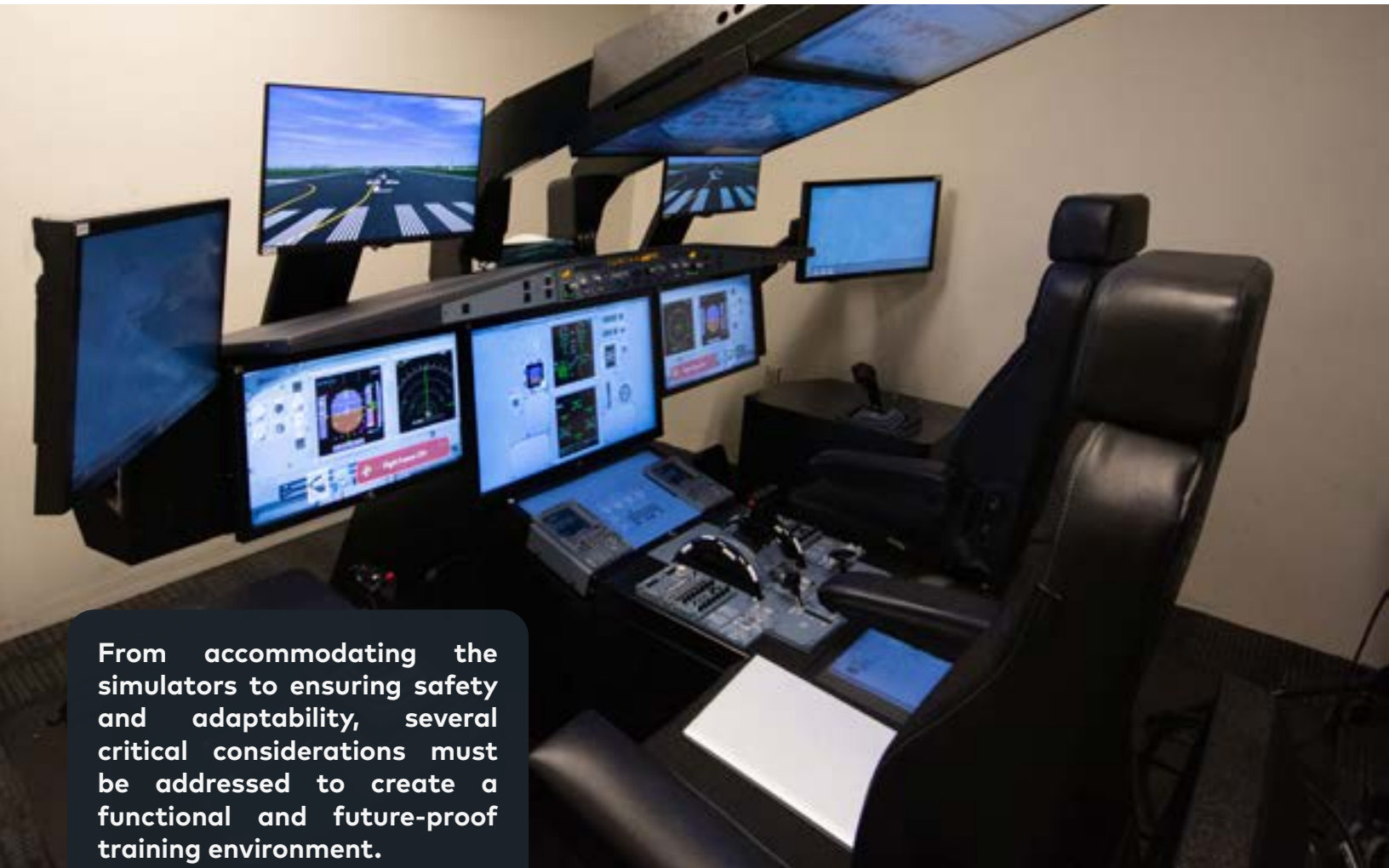
"In my experience working at CAE, I've found that assembling a team of professional building consultants, architects, engineers, and construction managers who truly grasp the nuances of flight training center requirements is paramount. It's crucial that they not only understand design intricacies but also respect budgets and schedules. Without a doubt, an experienced and well-versed consulting team is instrumental in ensuring the success of our building projects."

DANNY NEUBARTH,
Eng., MBA, Property Specialist,
CAE Inc.

4

DESIGN CHALLENGES & PROGRAM REQUIREMENTS

Designing an aviation training centre, particularly one with simulation facilities, presents many challenges and requires meticulous planning to effectively meet program and equipment requirements.



From accommodating the simulators to ensuring safety and adaptability, several critical considerations must be addressed to create a functional and future-proof training environment.



FIRE PROTECTION AND LOSS PREVENTION

A well-planned project will identify any third-party insurers and their requirements.

Work safety is generally governed provincially or at the state level. **Understanding safety requirements for confined spaces, electrified spaces, and high spaces needs to be incorporated into the design.** Some Owners have their own internal safety requirements that need to be accounted for in the design, such as tether tracks above the simulator for maintenance, and removable guardrails for equipment movement.

Simulator support spaces often have raised floors for cable management and underfloor cooling. **Plenum** requirements for utilities that utilize these spaces should be understood.

***EXAMPLE:** FM Global has design requirements that mitigate damage from environmental events and fire. They look at loss prevention from within the equipment and within the space that houses the equipment. Often, their requirements exceed those required by local jurisdictions.*



DESIGNING FOR REDUNDANCY

Redundancy is critical for successful and reliable aviation training facilities. Redundant systems, such as backup generators, **uninterruptible power supplies (UPS)**, redundant data storage, and backup HVAC units, offer **fail-safe mechanisms to prevent disruptions caused by equipment failures or power outages.**

These redundant systems bolster the facility's resilience and ensure uninterrupted operations, maintaining continuity in training activities even in the face of unexpected technical challenges. By investing in redundancy, aviation training centres can uphold a continuous training service and environment for effective pilot and crew development.

It is essential to understand the Owner's expectations regarding redundancy, as designing for a safe shutdown of equipment is significantly different in terms of physical space requirements and cost than designing the system for continual training during power failures.



IMAGE 06. Simulator bay under construction.



SIMULATOR FACILITY REQUIREMENTS

One of the top challenges in aviation training centre design is incorporating simulation equipment. **These training devices are at the heart of pilot and crew training programs and demand specific spatial and technical considerations.** Simulator bays and rooms need to be adequately sized and equipped to house various types of simulators, including **full-flight simulators (FFS)**, **flight training devices (FTD)**, and **integrated procedural trainers (IPT)**.

Inflight or crew training often requires fuselages for cabin training, which could be static or dynamic, towers for slide training, and various emergency and task-specific trainers such as door trainers. Understanding what aspects of the equipment are fixed and what can be altered as the design evolves helps the project respond to immediate and future requirements. We often begin the design process with equipment features rather than specific pieces. Each has different requirements, such as access height and clearances. We must be cognizant of what won't and could change.

Additionally, **designers must anticipate space requirements for the associated equipment**, such as instructor stations, computer rooms, and briefing and debriefing areas. Each simulator type has unique space and technical requirements, necessitating careful coordination between design teams, simulator manufacturers, and regulatory authorities. It is essential to consider that the technology supporting training devices evolves quickly and often they will have different requirements from a building at the end of the project than when it was first conceived.



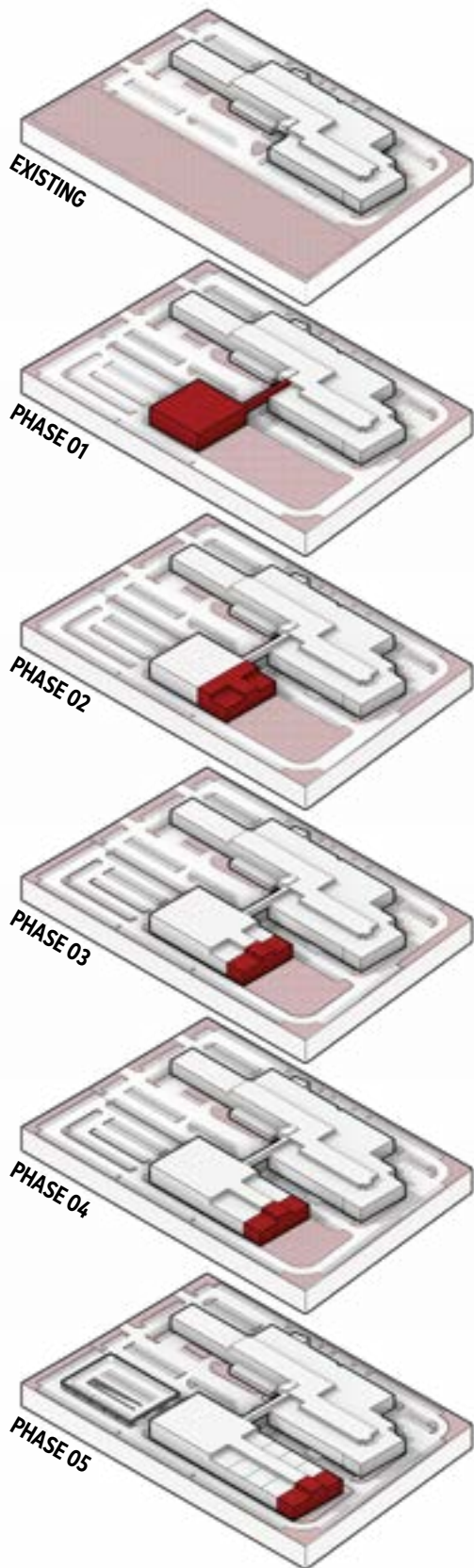
SPACE REQUIREMENTS

Integrating sophisticated simulation equipment and digital infrastructure poses specific demands on mechanical, electrical, and computer/server systems. HVAC systems must allocate adequate space to regulate temperature, humidity levels, and airflow within simulator bays.

Furthermore, **simulator computer rooms require controlled cooling, humidity levels, power distribution, and security measures to safeguard critical data and ensure uninterrupted connectivity.** **Computer Room Air Conditioning (CRAC)** units are highly sophisticated systems which require proper placement and an understanding of air distribution from underfloor **plenums**. Electrical systems should be robust to support the power demands of simulators, control consoles, and ancillary devices. Many facilities require **uninterruptible power supply (UPS)** systems, which help condition the incoming power from the local grid, avoid spikes that can damage the equipment, and create a means for the safe shutdown of equipment in the event of power failure.



IMAGE 07. Full flight simulator
FIGURR ARCHITECTS COLLECTIVE



DESIGNING FOR EXPANSIONS

Integrating modularity and adaptable site layouts is paramount for the **sustained growth of aviation training centres** amidst the rising demand for pilot and crew training.

Modularity enables seamless adjustments within the facility to accommodate evolving training requirements and technological advancements, while adaptable layouts facilitate dynamic responses to industry trends. Guided by comprehensive master planning that considers site factors, long-term development is optimized to enhance efficiency and support the facility's mission.

Designing with scalability ensures the seamless integration of additional training resources without compromising ongoing operations. Flexible site layouts and master plans enable phased expansions while minimizing disruptions, fostering agility and responsiveness for continued success in the ever-evolving aviation landscape. During the initial design and concept phase, the designer should understand the Owner's expectations for expansion.

In some cases, investing in initial systems to support future growth can be more cost-effective and less disruptive to training than adding additional power and mechanical systems at a future date. The discussion should address capital cost investment, design schedule and future growth possibilities.

IMAGE 08. Project phasing diagram

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IMAGE 09. Figurr Architecture Collective project locations.

CONCLUSION

Establishing new and updated aviation training centres is crucial to addressing the projected shortage of pilots and crew in the aviation industry.

This document is a guide to the key considerations involved in designing and planning aviation training centres. As outlined, selecting a suitable site, designing optimal learning environments, managing communication with stakeholders, and overcoming design challenges are some of the key elements that contribute to a successful project.

This is a living document which will be updated and expanded on to address the many other considerations project planning and delivery.

If you have any questions you can reach out to our team at **aviation@figurr.ca**.

A

HOW CAN AN AVIATION TRAINING CENTRE DESIGN REFLECT SAFETY, SUSTAINABILITY, AND EFFICIENCY?

The Goal: To design a state-of-the-art aviation training facility that consolidates training operations from multiple sites while embodying the core values of the aviation industry: safety, sustainability, and operational efficiency.



Designing a state-of-the-art aviation training facility requires a deep understanding of how built environments can reflect and reinforce operational values.

PROJECT: CAE Sydney Aviation Training Centre

CLIENT: CAE, Inc.

Location: St Peters, Sydney, Australia

AREA: 76,800 ft² (7 135 m²)

YEAR OF CONSTRUCTION: 2024

SUSTAINABILITY: Targeting a 5-star Green Star design rating

THE GOAL

To design a state-of-the-art aviation training facility for flight and cabin crew that embodies aviation's core values by consolidating multiple training functions into a cohesive learning environment. The facility needed to accommodate up to eight full-flight simulators, cabin crew emergency training equipment, and classrooms while providing a physical environment that reinforces the industry's commitment to safety protocols, sustainable operations, and efficient resource utilization.



IMAGE 10. Flight SIM at CAE Sydney Aviation Training Centre.

THE PROCESS

The design of the training facility stemmed from a deep understanding of how built environments can reflect and reinforce operational values. Just as aircraft design balances numerous technical requirements with user experience, the facility's architecture needed to integrate complex technical systems with human-centered learning spaces.



SAFETY

Safety—aviation's highest priority—shaped core design decisions. Key building systems incorporated redundancy principles directly borrowed from aircraft design, including backup power systems and fail-safe environmental controls for simulation spaces. Sound isolation between training areas was carefully engineered to prevent disruption during essential learning activities, while fire protection systems surpassed standard building code requirements to align with aviation's stringent approach to risk management.



IMAGE 11. Computer room.



SUSTAINABILITY

Sustainability propelled the project towards a targeted 5-star Green Star rating, reflecting the aviation industry's evolving commitment to environmental responsibility. The design incorporated energy-efficient systems with enhanced monitoring capabilities (similar to aircraft performance systems), passive design strategies to maximize natural light where appropriate, and water conservation measures including greywater recycling. Materials were chosen for their durability and low environmental impact; mirroring how modern aircraft are conceived with lifecycle impacts in mind.



IMAGE 12. Walkway between SIM bay and meeting rooms.



EFFICIENCY

Efficiency—critical to aviation economics—manifested in the facility's carefully optimized layout. A linear program arrangement positioned personnel areas along the main façade to maximize natural light, while each floor served a specific function: the ground floor for wide-body trainers and emergency equipment, the first floor dedicated to simulators and procedural trainers, and the second floor containing classrooms and administration. This systematic organization of space mirrors how aircraft interiors are designed for maximum functional efficiency with minimal wasted space.



COLLABORATION

The collaborative design process engaged multiple stakeholders, including training instructors, simulator technicians, and sustainability specialists. It employed a systems-integration approach that parallels how aircraft components are designed through multidisciplinary collaboration.

THE IMPACT

The completed facility serves as a physical embodiment of aviation's core values. Every design decision reinforces the culture and protocols that training participants will carry into their careers. The building becomes a teaching tool, with its infrastructure showcasing the same principles governing aircraft design and operation.

Students transitioning between classrooms, briefing spaces, and simulator bays experience spatial sequences that mirror real operational workflows, reinforcing procedural thinking. Technical spaces like simulator halls demonstrate the same attention to precision and redundancy found in aircraft systems, with the built environment physically manifesting the industry's uncompromising approach to safety.

The facility's sustainable features allow CAE to demonstrate its environmental commitments tangibly, while efficient space utilization maximizes the training capacity within the available footprint. This supports up to 4,500 pilots and cabin crew annually and helps address the growing global need for aviation professionals.



IMAGE 13. Pilot training.

PROJECT FEATURES

- Comprehensive training environment consolidating multiple training functions into one coherent facility
- Eight full-flight simulator bays with both modern **EMM** and legacy **HPU systems**
- State-of-the-art cabin crew emergency training facilities including wide-body trainers, door trainers and slide trainers
- Sophisticated sound isolation systems mirroring the industry's attention to environmental factors affecting performance
- Redundant technical systems reflecting aviation's approach to safety-critical operations
- Advanced building management systems providing real-time monitoring similar to aircraft systems
- Energy-efficient design targeting a **5-star Green Star rating**, embodying the industry's sustainability journey
- Linear programming that optimizes functional efficiency and workflow, similar to aircraft interior logic



IMAGE 14. Simulator bay.

KEYWORDS AND TERMS

Authority Having Jurisdiction (AHJ)

These are professionals who have authority over a certain jurisdiction. These are often permits departments or fire marshals for municipalities, as well as Airport Authorities.

Computer Room Air Conditioning (CRAC)

Specialized air conditioning units used to keep simulator computer rooms at an optimal indoor temperature and humidity level. These units typically rely on raised flooring for even underfloor cool air distribution.

Full-Flight Simulator (FFS)

A Full Flight Simulator is a sophisticated aviation training device which relies on full motion throughout an X- Y- and Z-axis and combines high definition visuals through dome projection or collimated projection screens. Level D FFS (highest level) have been accepted by most authorities to replace real time flight with simulation training. They rely on principles of embodied cognition to create realistic flying environments.

Flight Training Device (FTD)

A Flight Training Device is an aviation training device which is considered a step below full flight simulators. They typically represent a specific aircraft in terms of control and panel locations. They may have extensive visual systems or utilize multiple display panels. They typically do not rely on motion for training.

Greenfield Site

A greenfield site is an undeveloped land that can be used for commercial development.

Human Factor

Human factors in aviation training can refer to a wide range of physical and psychological experiences that pilots and crew are subject to during the operation of an aircraft. It can encompass biomechanical reactions, fatigue, communications, interaction with the aircraft, etc. From a building science perspective, human factors are those elements of design which impact the users experience and use of space, e.g. focused on ergonomics, human comfort, mental health, etc.

Integrated Procedural Trainer (IPT)

An Integrated Procedural Trainer is an aviation training device that is meant to be reconfigurable for multiple aircraft types. They rely on tactile learning and panel displays to approximate cockpit systems. They tend to be used for pilots to learn procedures prior to training in a more sophisticated device.

Off-Gassing

The airborne release of chemicals which are part of a product. Long term exposure to these vapours have shown to be detrimental to health.

Plenum

Concealed spaces either above the finished ceiling or below-raised access flooring. Often require fire-rated cables and dedicated smoke or heat detection and suppression systems.

Room Data Sheet

Room Data Sheets include all the required elements needed for the function of a particular room. This includes information on the type of furniture needed, the minimum area, and room occupancy. Other information related to engineering services such as what ventilation might be required to the type of lighting and draining needed in the room. All of this information about the room is compiled onto a Room Data Sheet to use during the design phase of the project.

Uninterruptible Power Supply (UPS)

An Uninterruptible Power Supply is a battery back up system as well as power conditioning system used to ensure stable and constant incoming power. The system comprises UPS and batteries and can be sized to allow for a safe shut down of computers and equipment in the event of significant power failure. It is also used to filter incoming power from the grid especially in areas where there are spikes and drops in the quality of local grid infrastructure.

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FIG. 1	FIG. 2
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