

BETTER PLACED

DESIGN GUIDE FOR HEALTH



SPACES, PLACES AND PRECINCTS

Health
Infrastructure

GOVERNMENT
ARCHITECT
NEW SOUTH WALES



Design objectives for NSW

Seven objectives define the key considerations in the design of the built environment.



Better fit
contextual, local
and of its place



Better performance
sustainable, adaptable
and durable



Better for community
inclusive, connected
and diverse



Better for people
safe, comfortable
and liveable



Better working
functional, efficient
and fit for purpose



Better value
creating and
adding value



Better look and feel
engaging, inviting
and attractive

Government Architect
NSW and Health
Infrastructure
acknowledge the
Traditional Custodians of
the land and pays respect
to Elders past, present
and future. We honour
Australian Aboriginal
and Torres Strait Islander
peoples' unique cultural
and spiritual relationships
to place, and their rich
contribution to our
society. To that end,
all our work seeks to
uphold the idea that
if we care for Country,
it will care for us.

GN ASW

Cover: Westmead Hospital
Aboriginal Country: Dharug
Architect: HDR
Image: Brett Boardman

Foreword



The Design Guide for Health: Spaces, Places and Precincts is a comprehensive document that outlines how to apply a place-based approach to the planning, design and provision of health facilities that support high-quality clinical care.

Health Infrastructure was established in 2008 as part of NSW Health to oversee the planning, design and construction of infrastructure project and programs over \$10 million. Today, we have a broader remit that includes 130 capital projects and programs, leadership of asset management policy and implementation, and commercial and development activities.

We understand the significant opportunity and responsibility that comes with delivering a substantial health capital works program and are committed to innovating and building more sustainable, resilient healthcare infrastructure.

The importance of good design cannot be underestimated. Good design is fundamental to sustainable healthcare as it promotes healing, enhances clinical service and wellbeing of patients, creates positive and supportive environments for workers and visitors and contributes to local public spaces and connections with the community.

This collaboration with the NSW Government Architect is testament to both organisation's commitment to share information, encourage good design practices and support individual project initiatives. Together we can realise the design vision of each project to make a valuable contribution to the health and wellbeing of our communities.

Rebecca Wark
Chief Executive, Health Infrastructure



The design of health facilities is both a privilege and a responsibility.

Our health projects have influence far beyond their physical boundaries: as important public places, places of work, learning, research and, of course, as places for clinical care and healing.

Good design starts with Country, and supports us to connect meaningfully to place, culture and the natural environment.

Good design also stands the test of time. The environments we design with care today will serve our communities well for generations. Investment in good design will deliver value for money and ensure the long-term performance, effectiveness, sustainability and adaptability of our buildings and spaces.

By their very nature, hospitals can be some of the most stressful environments we will ever encounter. It is critical to ensure the fundamentals of good design are non-negotiable. Natural light, fresh air, sunlight, landscape, access to the outdoors, spaces that are easy to navigate and places of respite – all are essential to helping people navigate these difficult times with dignity.

The Design Guide for Health demonstrates how great clinical design and great spatial design can be delivered together, not at the expense of the other. Health Infrastructure and GANSW have developed the principles in this guide to support all of us involved in the design and delivery of health projects for NSW to produce functional, beautiful and healthy environments that we can all be proud of, long into the future.

Abbie Galvin
Government Architect

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The guide has been developed through a collaboration between Government Architect New South Wales (GANSW) and Health Infrastructure (HI).

It is complemented by case studies that demonstrate how principles of good design manifest in a variety of health facilities.

SECTION ONE

INTRODUCING THE DESIGN GUIDE FOR HEALTH

**Albury Wodonga Regional
Cancer Centre**

Aboriginal Country: Waveroo, Wiradjuri
Architect: Billard Leece Partnership
Image: Ian ten Seldam

1.1

Design for health

Good design is fundamental to delivering effective, engaging and sustainable health facilities that provide outstanding care, create supportive working environments, and meet their potential as public places that shape our suburbs, towns, cities and regions.

Health facilities and precincts are the places where we heal ourselves, and where we are cared for by others. They are the location of profound human experiences – joy and healing, stress and confusion, care and compassion – that may have consequences across our whole lives. They have deep connections with the communities they are embedded in, and are often landmark buildings that evoke intergenerational stories.

Designing and delivering health facilities is a great privilege and a substantial responsibility. These are places of extraordinary skill, of technical and technological prowess and innovation. They must accommodate diverse patient and visitor experiences, from the life-changing to the everyday. They must contribute to closing the health gap faced by Aboriginal peoples. They must welcome people from all walks of life, all cultural backgrounds, all ages and states of health, and they must support everyone to navigate complex and sometimes challenging experiences. They must also operate as efficient and comfortable workplaces for the huge numbers of people who spend their working lives within their walls.

“There is growing recognition that architecture is a tool in the healing process.”

— *The Health Impacts of the Design of Hospital Facilities on Patient Recovery and Wellbeing, and Staff Wellbeing*,
Amanda Ampt, Patrick Harris
and Michelle Maxwell, 2008

Health facilities provide important social and community infrastructure and can be key nodes within transport and service networks. As major public facilities, they contribute to the vitality, economy and sustainability of the street, the neighbourhood, the district and the state.

Hospitals and health facilities represent huge investments – in time and money, and in hope and emotional commitment. They are community assets with longer-than-normal life spans, while clinical services and recurrent operational costs require significant ongoing public funding.

There is ample evidence that the design of health spaces has specific impacts on patient recovery and wellbeing, on the experiences of family and visitors, and the satisfaction and performance of those who work there. Good design helps reduce healthcare costs, enhance wellbeing and cultural safety, and attract and retain staff. Design is also vital to the creation of cherished public institutions that contribute to urban, suburban and regional environments and demonstrate the role of the built environment in improving public health and wellbeing.

In NSW, hospitals and health facilities deliver outstanding medical outcomes, but there are further opportunities to be found when design considerations are included from the very earliest stages of development. Embedding a range of priorities from the beginning amplifies the potential to design health places that provide quality clinical care and meet the many diverse roles of health facilities, now and in the future. This supports the shifting focus of health asset management towards whole-of-life considerations and assists with meeting broader economic, social and sustainability ambitions and government commitments, including ensuring operational affordability and efficiency.

Re-imagining the design of hospitals and health facilities may be challenging, but it must be pursued to ensure the full and true value of the investment in our health facilities is realised. Healthcare providers can lead the way, and there are many committed and skilled people, practices and organisations ready to work together to make this happen.

1.2 About the guide

The Design Guide for Health is about how to fulfil the potential of health facilities as public places that shape our built environment and contribute to health and wellbeing.

The guide will assist NSW Health and project stakeholders to develop a comprehensive place-based approach to the planning, design and provision of health facilities, while providing high-quality clinical infrastructure.

The opportunities, principles and processes outlined in this guide are relevant to health facilities, precincts and places of all types, sizes and locations.

The guide is in five parts:

- **Section One: Introducing the Design Guide for Health** outlines why good design is fundamental to health projects, and sets out the guide's intent and policy context.
- **Section Two: Roles and potential** explores the many roles of health facilities, and the potential for design to support and enhance these.
- **Section Three: Design principles** sets out seven principles to guide the briefing, design and development of health facilities of all types and scales.
- **Section Four: Effective processes** describes the core attributes of processes that support good design, and identifies opportunities within the current NSW Health Facility Planning Process.
- **Section Five: Resources and credits** outlines the documents that inform the design of health facilities.

The guide complements existing comprehensive guidance for planning the delivery of clinical services, and does not replicate the detailed information provided.

Section 5 provides information about these policies and strategies.

1.3 Who is the guide for?

This guide is for all those involved in planning, delivering and caring for health facilities.

It supports those who fund, project manage, design, deliver and commission healthcare places and spaces, and those responsible for managing and maintaining them.

Local health districts, specialty networks and other health entities responsible for project initiation and feasibility can use the guide to increase understanding of the contribution of design to health outcomes, and thereby to maximise benefit from their facilities and manage them over time.

NSW Health will use the guide to expand the framework through which they analyse and assess project proposals. This includes establishing criteria for assessing design needs and performance.

Health Infrastructure teams, including project directors and project managers, can use the guide to improve briefs, procurement and design management processes, to support facility, precinct and services asset design and life cycle, and to inform stakeholder engagement processes.

Professional design consultants can use the guide to help frame conversations with clients, project managers, stakeholders and other consultants to support collaboration and to optimise design outcomes.

Medical experts and stakeholder groups can use the guide to understand how design can support clinical and health outcomes, and the roles of design professionals in planning and briefing health projects.

Health Precinct Partners can use this guide to support their contribution to discussions about the design of shared facilities.

Aboriginal health teams can use this guide to support cultural safety through good design and thereby contributing to closing the gap.

Patient advocates and community groups can use this guide to increase understanding of the potential of design to support patients and strengthen communities. This can inform engagement processes.

Hospital managers can use the guide to understand how to gain the most benefit from their facility, and how to best care for it, maintain and develop it over time.

1.4 What is good design?

Good design is about how places and spaces work, feel and look.

Design encompasses the function and planning of buildings, precincts and networks, their sustainability and efficiency, and the experiences offered to those who use them – as patients, workers and visitors. It strengthens the communities these places are located within.

NSW Government policy legislation promotes:

- good design and amenity of the built environment
- the sustainable management of built and cultural heritage (including Aboriginal culture and heritage)
- the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.

These recognise the contribution that well-designed places and spaces make to improving quality of life. They embed this understanding in government systems and processes. Government design imperatives are supported by **Better Placed – An integrated design policy for the built environment of NSW**.

Good design ensures that a building or place meets the needs of its users – and does so in a way that is appropriate and inclusive. It considers the place’s relationship and contribution to context, culture and Country. Good design is concerned with the future and respects the past, ensuring facilities are robust and adaptable enough to respond as needs, systems and desires change over time.

In the context of health, design is about ensuring that facilities themselves are healthy places – functionally, socially and environmentally. This brings a whole-of-life-cycle approach that helps ensure facilities are sustainable, efficient and affordable to operate, and provide a legacy for generations to come.

This guide is not intended to be prescriptive. Rather, it provides a framework for considering key issues throughout the design, development and delivery of NSW Health facilities and aims to ensure that every effort is made to deliver quality, sustainable, healthy outcomes.

Better processes, better outcomes

Design is a process as well as an outcome – and the quality of the process has a huge impact. A coherent, collaborative design process, which responds to a good brief and is supported by an excellent procurement and delivery framework, is essential.

Design is cumulative – many decisions, big and small, build up over the course of a project. Design processes are also iterative, and sometimes decisions need to be reconsidered in light of new information. With good governance, appropriate time frames, excellent communication, and respect for the long-term impact of decisions, design processes reinforce and develop the core requirements and aims of a project. The result is a place that is greater than the sum of its parts.

Clear design governance, responsibility and respect for design processes is especially important in health projects, given the complexity of aims and needs and the extensive team required to deliver them.

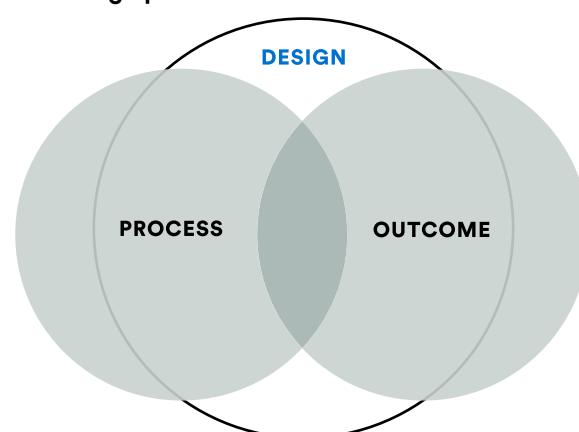
The roles of designers

Designers link good processes to good outcomes – and the skill of those involved matters. An array of design expertise is required on health projects – including architects, landscape architects, urban designers, services consultants, cultural advisors, interior designers, and many specialist consultants such as health planners and sustainability experts.

Design teams bring the experience, knowledge and methods required to synthesise diverse input from many sources and create a cohesive whole. During the design process, the lead consultant incorporates the expert contributions of many highly skilled consultants, and a complex array of client, stakeholder and user groups.

Design expertise is required from the very beginning. People with design knowledge should be involved in project inception, feasibility studies, options analysis and assessment, and brief writing, in establishing design principles and in design management.

Figure 1:
The design process



SECTION TWO

ROLES AND POTENTIAL

Royal North Shore Hospital
Aboriginal Country: Cammeraygal
Architect: BVN. Image: John Gollings

Health facilities fulfil diverse yet interlocking roles. All can be supported through good design.

The potential is two-fold – to enhance clinical services, health and healing, and to support the public realm and strengthen community.

Healthcare is delivered in a wide range of buildings, spaces and places – from rural ambulance stations, suburban nursing homes and regional palliative care facilities to large hospitals and health innovation precincts in major cities. Some are brand new, state-of-the-art facilities, or historic buildings that are treasured by the community; others are outdated structures that require adaptation and renovation to meet contemporary needs. Together, these many and diverse places create the infrastructure of the NSW health system.

There is great opportunity for design to enhance facilities of all types and scales. By responding to Future Health, the NSW Health 20-Year Infrastructure Strategy, the NSW Aboriginal Health Plan 2013–2023, HI's Sustainability Strategy and the GANSW Better Placed framework, this ensures that the massive investment in health facilities brings multiple and entwined benefits to the whole community.

Enhance clinical, health and healing functions

— Design can help improve clinical and health outcomes; support patient, visitor and staff wellbeing; support staff retention; increase efficiency; and create flexible spaces that accommodate ever-changing models of care.

Enhance the public realm and environment

— Design can enhance the public infrastructure in which a facility is embedded and strengthen our communities. This includes improving public health, contributing to the social determinants of health, supporting economic development, caring for Country, and helping to make vibrant, sustainable, inclusive and resilient built environments that support people of all social and cultural backgrounds.

This section outlines eight roles for health facilities, describing the needs and opportunities of each.

- A provider of health services
- A place for healing and care
- A workplace
- A contributor to closing the gap
- A site of learning and research
- A public place in a civic context
- A node within networks of infrastructure
- An exemplar of healthy places

“An opportunity exists to recast the role of health buildings within the built fabric of the community, bestowing on them an appropriate level of social significance and the civic importance that is their due The architecture of the hospital must not get subsumed by technical and bureaucratic demands ... a balance can be struck between the clinical demands of healthcare and a humane architecture.”

—Architecture and the Hospital, *Architecture Australia*, Sarita Chand, 2002

2.1 A provider of health services

Hospitals and health facilities are first and foremost places where health services are delivered.

Good design helps to create flexible, efficient and adaptable places that accommodate ever-developing models of care, evolving equipment and changing medical practices.

THE NEED

Health services are an area of constant evolution. Developments in clinical approaches and public health are fast-paced, major medical equipment is a highly competitive and rapidly advancing field, while digital technologies and telehealth are expanding how, when, and where services are delivered. In addition, government priorities for the provision of health services can change quickly.

New equipment, new efficiencies in procedures, and changing models of care all have wide-reaching ramifications and can help improve patient and staff experiences and support better health outcomes and increase efficiency. However, the fast pace of change also creates challenges for scoping, briefing, designing and delivering health facilities, which occurs within extended timeframes and requires significant financial investment.

Health facilities being planned now must fulfil contemporary needs while also being robust and flexible enough to accommodate ever-changing and future medical practices and models of care.

Liverpool Hospital Clinical Services Building

Aboriginal Country: Dharug

Architect: HDR

Image: Brett Boardman



OPPORTUNITY

The briefing, design, disposition and use of spaces all support the effective provision of services. Well-designed facilities retain their value over and above the medical and treatment trends that come and go within them.

Good design skills and processes are essential to accommodating competing functional demands and resolving arrangements of rooms and spaces into coherent places that serve multiple needs and diverse user groups. Design skills are also fundamental to understanding the current and long-term spatial and programmatic implications of ever-evolving and technically demanding processes, equipment and models of care. This is essential for anticipating future needs and embedding flexibility and adaptability into health facilities.

Extensive research shows that well-designed health environments:

- improve workflow and reduce waiting times, enabling staff to spend more time on patient care
- help increase community engagement with health services, including by Aboriginal people
- improve patient recovery and rehabilitation
- reduce post-surgical complications
- reduce the risk of hospital-based infections through improved air quality
- reduce medical errors
- support patient management of pain and increase pain tolerance
- improve patient safety and reduce patient falls
- reduce behavioural challenges, including decreasing agitation and aggression
- reduce stigma associated with seeking some types of health services
- reduce overall the length of patient stays

Refer to selected references in Part 5.2

2.2

A place for healing and care

Effective healing requires a delicate balance between ensuring people feel welcomed and cared for and meeting stringent clinical requirements.

Good design integrates both aspects to support patient safety, wellbeing and dignity.

THE NEED

Patient-led care prioritises the provision of choices, including the environment in which this care is received. The ability to engage with others in supportive environments; to feel culturally safe; to access outdoor spaces, greenery, view and fresh air; to control lighting and noise – all have a meaningful impact on patient wellbeing, and thereby on patient outcomes.

Attending a hospital can be intimidating and disorienting – many people feel a loss of control as they hand their life over to medical professionals and leave daily routines behind. Difficulties finding one's way around a hospital can cause agitation and disorientation. The elderly, visually impaired and people of non-English speaking backgrounds face additional challenges, as do those with poor previous experiences of institutional settings. In this context of heightened stress, the degree of comfort, dignity and security offered has a significant influence on the experience of treatment and the way care is received.

In addition to creating accommodating spaces for patients and other healthcare consumers, it is important that health facilities actively welcome family and visitors, who play an increasing role in supporting patient care and contribute to patient wellbeing.

**South East
Regional Hospital**
Aboriginal Country: Yuin
Architect: BVN
Image: John Gollings

OPPORTUNITY

Well-designed, welcoming health places, spaces and precincts offer multiple benefits for patients, their families, visitors and staff. A substantial and ever-growing body of research identifies the impacts that environmental and design quality can have on health outcomes. This includes helping patients to recover faster and improving safety, satisfaction and wellbeing. Conversely, the absence of inviting, calming and culturally safe environments can result in reluctance to access services, increase stress and impede patient recovery. The design of buildings, places and precincts can also promote family involvement in care, and should welcome and accommodate the care practices of many different cultural groups.

Design plays an important role in creating healing environments that increase safety and wellbeing and let people know they are cared for. Good design is vital to creating environments where people feel culturally safe, comfortable and respected. This is relevant to all social and cultural groups, but it is particularly important for Aboriginal and Torres Strait Islander peoples.

There is an increasing emphasis on the role of the arts in healing, with a particular focus on the participatory and restorative potential. Singing, dancing, yarnning and making art are relevant to multi-generational, multicultural healing activities. The architecture and design of health spaces and places can facilitate and support these activities.

Extensive research shows that well-designed environments:

- improve overall patient experiences and satisfaction levels
- contribute to cultural safety and a sense of belonging
- improve communication between medical staff and patients
- increase patient confidentiality, privacy and sense of dignity
- improve patient mood, increase the sense of wellbeing, and reduce depression and anxiety
- support family and visitor involvement in care
- increase willingness to engage with the healthcare system
- improve accessibility and reduce spatial disorientation
- improve sleep and cognitive functioning.

Refer to selected references in Part 5.2



2.3 A workplace

Health facilities are important workplaces for the professionals who provide health services and for those in support roles – cleaners, retail workers, managers and many others. Many are working in stressful contexts and juggling heavy workloads.

Good design enhances staff health and wellbeing, and support attraction and retention.

THE NEED

Attracting and retaining staff is one of the biggest challenges facing modern healthcare delivery, and is a major focus for local health districts and hospital operators. Staff also represent a huge investment – wages are one of the major contributors to recurrent costings over the lifespan of a healthcare service.

“Spatial configurations that improve co-worker proximity, visibility, and communication can have a positive influence on staff perceptions of work culture, available support, and workplace safety that, in turn, support the delivery of patient care.”

—*Briefing a Children’s Hospice,*
Rebecca McLaughlan and
Alan Pert, 2021

Royal Children’s Hospital

Aboriginal Country: Woiworung
Architect: Billard Leece Partnership and Bates Smart
Image: Shannon McGrath



OPPORTUNITY

The design of health facilities makes important contributions to providing safe, healthy, pleasant and efficient workplaces. The quality of the working environment – the ease of use and the efficiency and comfort provided – plays a role in attracting the best clinicians, health researchers and academics.

Well-designed facilities that are culturally safe can increase the recruitment of people from diverse groups (age, language, culture), which in turn helps ensure all patients are well-catered for. For example, attracting and supporting Aboriginal staff is a key part of improving the experiences of Aboriginal patients and visitors.

Extensive research shows that well-designed health environments:

- increase staff effectiveness and reduce errors
- increase the quality of communication between staff
- increase staff satisfaction and reduce stress, burnout and emotional exhaustion
- decrease tiredness, headaches and illness, and reduce fatigue associated with walking long distances
- reduce anxiety associated with the mismatch between the quality of the built environment and quality of care
- support staff to deliver high quality care.
- increase time available to spend with patients
- demonstrate to staff that they are respected, and their work is valued
- attract staff, improve retention and reduce employee turn-over.

Refer to selected references in Part 5.2

2.4

A contributor to closing the gap

Closing the gap between the health outcomes and life expectancy of Aboriginal peoples and the general population in Australia is a crucial endeavour.

Good design can help create culturally safe healthcare environments that respond to and care for Country.

THE NEED

This requires understanding the role and importance of Country and culture, and the historical and social factors that negatively affect the health of Aboriginal peoples. The health of Aboriginal peoples is part of the health of Country, where Country is the holistic world view that incorporates human, non-human and all the natural systems that connect them. Cultural identity and a sense of belonging to Country and community are fundamental to health and wellbeing.

There is a strong correlation between health status, inequalities in accessing health services, the social determinants of health and the ongoing negative impacts of colonisation. Social factors and experiences of racism can result in a reluctance to engage with health services, delays in seeking healthcare, and the tendency of Aboriginal patients to leave outpatients or emergency departments against medical advice at higher rates than the general population due to anxiety and stress.

Feeling culturally safe within healthcare settings is essential to effective healthcare for Aboriginal peoples. This means ensuring that patients, families and communities feel their cultural identity is respected, supported and protected in healthcare settings, and that power imbalances in the therapeutic relationship are not detrimental to patients' health and wellbeing.

“Improving cultural safety for Aboriginal and Torres Strait Islander health care users can improve access to, and the quality of, health care. This means a health system that respects Indigenous cultural values, strengths and differences, and also addresses racism and inequity.”

—Cultural safety in health care for Indigenous Australians: monitoring framework, Australian Institute of Health and Welfare 2021

OPPORTUNITY

The planning, briefing, project management, design and delivery of health facilities can make important contributions to improving Aboriginal health and wellbeing. There is great potential for design to complement emerging models of care, services, and organisational cultures focusing on cultural safety.

Most current guidance on Aboriginal health focuses on clinical practices and programs. Emerging research suggests that design, including the arrangement of spaces, can help create culturally safe and respectful healthcare environments that welcome Aboriginal patients, visitors and healthcare workers and thereby support improved health outcomes.

Designing to support cultural safety requires holistic processes and approaches that care for Country. This must be undertaken in collaboration with, and guided by, Aboriginal health organisations, knowledge-holders and communities.

- Well-designed health environments can:**
- complement developing models of care, services and organisational cultures
 - enhance and support cultural safety
 - support cultural practices that care for Country
 - increase Aboriginal engagement with health services
 - reduce tendency of Aboriginal patients to leave hospital waiting rooms
 - support visitors and facilitate cultural practices of care.

Justin Ridgeway (Worimi) and Uncle Ray Smith (Awabakal) get the fire going

Image: Peta Cooper.



2.5 A site of learning and research

Many health facilities have important roles as teaching and training environments, and some house significant medical and health-focused research.

Good design creates places that integrate roles and support the transfer of knowledge from the lab to the bedside.

THE NEED

Health precincts, particularly health innovation precincts, bring healthcare services, teaching and research functions together. They play important strategic roles in health planning, the provision of services, and as catalysts for urban development and economic growth.

Well-designed health precincts play a vital role in facilitating translational research – the process of transferring research from the lab bench to the bedside to the community. This ensures that new medical discoveries become part of the clinical practice of general practitioners, specialists and hospitals. This research is frequently interdisciplinary is conducted through partnerships among researchers, clinicians, patients, universities and affiliated organisations. Work can include clinical trials, biomedical research, applied health services research, and population health studies.

Actively translating the findings of ethical, culturally relevant research into practice, and understanding the needs and experiences of communities, is an important aspect of closing the gap for Aboriginal health, and is one of the strategic directions outlined in the NSW Aboriginal Health Plan.

Teaching occurs in hospitals of all sizes. This requires onsite accommodation, and teaching labs are increasingly being integrated into facilities as part of the provision for clinical services.

Lowy Cancer Research Centre UNSW

Aboriginal Country: Gadigal, Bidjigal
Architect: Lahznimmo Architects
in association with Wilson Architects
Image: Brett Boardman.



OPPORTUNITY

There is an opportunity to leverage the health system's current strengths – including its highly integrated services, physical assets and amenities and research capability – to drive major innovations in health delivery and health outcomes.

Research and teaching functions can be supported through the careful planning and design of facilities – from the master planning of precincts and campuses to the fine-grain layout of spaces, functions and equipment within buildings.

The design of health facilities, places and precincts can support the process of moving new ideas through the research pipeline to become new products and processes that improve health. The co-location of research institutes and health facilities on shared campuses, or within health innovation precincts, can assist in inspiring innovation and reducing the time between the research and its implementation into practice. There is also potential to configure parts of health facilities as “living labs”, where researchers and medical professionals can co-create health products and services, with building spaces and infrastructure supporting this process.

Well-designed health environments can:

- support the efficient translation of research into practice
- enhance connections between researchers and health clinicians
- support interdisciplinary collaborations
- accommodate a range of teaching methods
- facilitate inter-institutional relationships and collaborations.

2.6

A public place in a civic context

Hospitals and health facilities are significant physical and cultural landmarks, which reflect the community they are part of and are integral to it.

Good briefing and design ensures that health facilities contribute as good neighbours and positively shape the city and region.

THE NEED

Health facilities can make many contributions to the public realm and community life. Larger health precincts are major long-term anchor investments, which quickly become communities themselves and attract associated services that provide for the needs of staff, patients and visitors. This can catalyse and support further neighbourhood development.

Health spaces and services – auditoria, meeting rooms, cafes, gardens and landscapes – can cater for community activities and groups without substantial additional expenditure. Multi-use buildings can provide additional community facilities or create new work opportunities through social enterprises. Productive landscapes, such as community gardens, can provide food for patients, staff and disadvantaged members of the wider community. Mixed-use spaces may also attract new partnerships and additional funding for the health facility.

The contribution to community and economic development includes supporting Aboriginal peoples through employment, resource distribution, education and training – in line with the NSW Health commitment to improving the social determinants of health, including socio economic status, education, employment and social support networks.

Purfleet Aboriginal Clinic

Aboriginal Country: Biripi
Architect: Kaunitz Yeung Architects
Image: Brett Boardman

OPPORTUNITY

Good design at all scales is fundamental to helping realise the potential of health facilities as public places – as significant landmarks, as public buildings that convey civic values, as good neighbours that create opportunities for connection, and as precincts and landscapes that provide places for respite and enhance the health of those who use their services, visit and work in them.

Integrating the facility effectively into the surrounding environment also brings benefits for patients, helping reduce any stigma associated with seeking health care.

Urban and strategic design skills are important throughout the process, starting from project planning and inception. Good design is essential to knitting new development into its existing natural, built and historic environment to create vibrant places that relate to their surroundings, engender a sense of ownership and belonging, contribute to the local community, and are valued by the people who use them.

Health facilities are social places. They acquire meaning through the type, diversity and range of uses and through people's connection to them, which reinforces personal and collective identity and belonging. This sense of belonging and identity is created over time through the interdependent relationships between people and place.

Design skills can:

- analyse relevant land-use and movement patterns
- understand the potential of the site and the character of the adjacent public realm
- articulate place-based planning opportunities and requirements integrate landscapes and public environment

Well-designed health environments can:

- integrate a broad mix of functions and uses within a precinct or campus
- complement and improve adjacent urban environments
- support economic growth and community development
- contribute positively to the street life of adjacent areas
- support neighbourhood economic development
- become valued civic landmarks.



2.7

A node within networks of infrastructure

Specific health facilities are embedded within a multitude of networks and systems, both physical and virtual.

Good planning, briefing and design can help catalyse connection and support growth

THE NEED

Health facilities are part of the network of public places that serve our communities, such as libraries, schools, parks and retail centres. Larger health facilities and precincts are also major points in urban and regional transport networks – rail, car, bicycle and pedestrian.

Health facilities are important catalysts for wider economic benefit and community development, and have great potential to support targeted, appropriate growth – physically, economically, technologically and socially. As important destinations that see large flows of people daily, they can catalyse further improvements and new networks – road upgrades, cycling and pedestrian pathways, new bus routes and light rail can all follow investment in health.



OPPORTUNITY

Good design at a strategic level can help identify opportunities for specific facilities to contribute to these varied, interlocking systems. At the scale of the precinct and facility, good design integrates diverse systems and networks within the physical spaces and landscapes of a place. This includes balancing movement and place to ensure health facilities present as public places within the broader civic infrastructure and are well-integrated with transport networks.

Well-planned, briefed and designed health environments can:

- create key places and focal points of activity within the health network
 - support patients at each stage of their journey, including the connections and transfer between the various settings of home, community and hospital
 - connect effectively to a broad range of physical and virtual systems
 - contribute to public transport infrastructure of all types
 - facilitate new or enhanced active transport connections
 - enhance mobility and access.
-

The Kinghorn Cancer Centre

Aboriginal Country: Gadigal

Architect: BVN

Image: John Gollings

2.8

An exemplar of healthy places

Healthy, sustainable built environments provide a foundation for community health.

Well designed health facilities can contribute to prevention as well as treatment, thereby improving public health and contributing to reducing the overall cost of healthcare.

THE NEED

Health facilities are significant consumers of energy. In NSW, the government has committed to net zero emissions by 2050, with an objective to reduce emissions by 50% by 2030. Meeting this will require ambitious commitments to lower or meet zero carbon targets in health facilities.

Researchers argue that the health sector globally has been slow to reduce emissions and address climate concerns. This has a negative impact on public health, and results in high ongoing operational costs. For example, the recurrent cost of powering environmentally inefficient building stock is not an effective return on the substantial investment made by government and community.

The management of health facilities increasingly prioritises whole-of-life considerations and impacts on economic, social and sustainability outcomes. The need to think holistically as an integrated system is now widely understood and the application of this knowledge is under development.

Fiona Stanley Hospital

Aboriginal Country: Wajuk
Architect: Fiona Stanley
Hospital Design Collaboration
comprising Hassell, Hames
Sharley and Silver Thomas Hanley
Image: Peter Bennetts

OPPORTUNITY

Good design can help incorporate whole-of-life environmental impacts, create opportunities for healthy living and eating, and support public health, including reducing the incidence of skin cancer through the provision of appropriate shade.

Design can help realise the enormous opportunity that larger facilities and precincts bring to create significant environmental sustainability gains and to embrace more sustainable operational models, such as integrated and shared services between organisations and health partners. This also helps future-proof the facility.

To facilitate this, ambitious design and sustainability principles must be embedded into new and existing capital investments, and should include the full life-cycle costs of these assets. This helps ensure that considered design processes are able to fulfil the technological, process, social and cultural requirements of the project, while also addressing the costs of overall operations and maintenance over the life of a facility.

Good design to improve sustainability and public health can:

- reduce emissions, reduce water consumption, and increase energy efficiency
- improve air quality
- reduce the urban heat-island effect, increase shade, and incorporate passive cooling
- contribute to green infrastructure networks, including urban tree canopies and habitat
- provide connections to the natural environment and greenery
- promote physical activity and support active and passive recreation
- offer sustainable active transport for all ages
- create spaces for rest, shelter and comfort
- support social interaction
- accommodate children's play
- provide access to healthy eating options.



SECTION THREE

DESIGN PRINCIPLES

**Westmead Hospital
Redevelopment**

Aboriginal Country: Dharug
Architect: HDR
Image: Brett Boardman

Design principles provide a framework for analysis, understanding and decision-making. They are fundamental touchstones, guiding the long and complex process of scoping, developing and delivering a health facility.

This section outlines seven core principles:

- Design for dignity
- Design for wellbeing
- Design for efficient and flexible delivery of care
- Design with Country
- Design for the neighbourhood and surrounding environment
- Design for connection
- Design for sustainability

The principles can be tailored in response to the specifics of each project. They relate to key GANSW and NSW Health policies as outlined in table below.

These design principles need to be embedded in healthcare projects from the very beginning, including in vision statements, business cases, briefing documents, and throughout design and delivery processes.

Project teams can use these principles as check points at regular intervals. To be effective, these principles will form part of the assessment criteria used to review projects at all stages.

Delivering on these principles can be identified as a specific responsibility, and should have adequate allocations of time, budget and authority.

Table 1: Design principles in relationship to GANSW and NSW Health policies.

	Better Placed	20-Year Health Infrastructure Strategy	Future Health Report	NSW Aboriginal Health Plan 2013-2023
3.1 Design for dignity	Better for people Better look and feel	Future patient Future workforce	01. Patients and carers have positive experiences and outcomes that matter	Principle 1: Trust and cultural respect
3.2 Design for wellbeing	Better for people Better for community	Future patient Future workforce	02. Safe care is delivered across all settings	Principle 3: Wholistic approaches
3.3 Design for efficient and flexible delivery of care	Better working	Future patient Future workforce Future health infrastructure	02. Safe care is delivered across all settings 04. Our staff are engaged and well supported 05. Research and innovation, and digital advances inform service delivery	Strategic direction 3: Ensuring integrated planning and service delivery Strategic direction 6: Strengthening performance monitoring, management and accountability
3.4 Design with Country	Better performance Better for community	Future infrastructure Future patient Future workforce	03. People are healthy and well 06. The health system is managed sustainably	Principle 1: Trust and cultural respect Principle 3: Wholistic approaches Strategic direction 5: Providing culturally safe work environments and health services
3.5 Design for the neighbourhood and surrounding environment	Better fit Better for community Better value	Future infrastructure	03. People are healthy and well 06. The health system is managed sustainably	Principle 3: Wholistic approaches to the health of Aboriginal people Principle 7: Recognition of the contribution the health system can make to the social determinants of health.
3.6 Design for connection	Better for community Better value	Future infrastructure Future services	06. The health system is managed sustainably	Strategic Direction 2: Implementing what works and building the evidence
3.7 Design for sustainability	Better performance Better value	Future infrastructure	06. The health system is managed sustainably	Principle 3: Wholistic approaches to the health of Aboriginal people

3.1 Design for dignity

Maintaining, supporting and enhancing dignity is fundamental to design for healthcare.

Dignity matters to patients, particularly those who feel vulnerable, confused or scared.

Dignity matters to the clinical staff who care for patients with compassion in the midst of busy and stressful situations, and to the many other workers who support this care.

Dignity matters to families and visitors, who may be ill-at-ease and worried. Dignity matters to the community who commit major investment – financial and social – to the provision of public health facilities and places.

Dignity is fundamental to creating cultural safety.

Dignity is about equity. Health facilities, precincts and places should welcome people of all ages, abilities, backgrounds, cultures and socio-economic groups. This includes accommodating visitor groups of varying sizes, and ensuring people with previous challenging experiences of institutional settings feel safe. Broad consultation and collaborative, integrated design processes are required to meet the needs of the many and diverse groups who use health facilities.

Create welcoming, cared-for environments

A welcoming, well-maintained place helps people feel safe, cared for and supported during stressful times. It also enhances the engagement of visitors and family, which in turn improves patient outcomes.

The impression of a welcoming place starts from the moment people encounter a facility. It extends from the appearance of the facility in the cityscape to experiences of arrival and departure, entry and reception spaces, through to spaces for patient care, visitors and staff, inside and out.

Given the long life of health facilities, it is important to create inviting spaces that can be easily maintained. Worn-out, untidy, or excessively clinical environments can increase patient and visitor stress and anxiety, despite the provision of excellent medical care. Shabby, cluttered spaces also impact staff wellbeing, creating anxiety due to a mismatch between the quality of the built environment and the quality of care offered.

This is not just a matter of accommodating particular functions – ambience, spatial and material characteristics all contribute to a comfortable and hospitable facility, and to a pleasant, efficient workplace.



Robina Hospital

Aboriginal Country: Bundjalung

Architect: BVN

Image: Christopher Frederick Jones

Support cultural safety

Cultural safety ensures that patients, their families and communities feel that their cultural identity is respected and protected. This is particularly important for Aboriginal and Torres Strait Islander peoples. Design can help enhance cultural safety. For example, the design of entry areas and waiting rooms, including inviting outdoor spaces, can encourage people to stay, while the design of patient rooms and public spaces can enhance opportunities for family and social support in culturally appropriate ways.

Collaboration and consultation with local Aboriginal knowledge-holders and communities is essential to designing spaces and places that support cultural safety.

Balance privacy and connection

Privacy and the opportunity for respite are essential to the dignity of patients and their visitors, and help improve patient–staff communication. This must be balanced with clinical observation needs. It is also important for patients to feel connected to the life of the health facility and the world beyond – to have interaction as needed and not feel isolated and alone.

This delicate balance between privacy, clinical control and social connection can be supported through careful design and planning, including the provision of private areas, single rooms, design strategies that allow spaces to open up to each other, and separating public thoroughfares from staff and patient transport routes.

Staff also need privacy, quiet and opportunities to interact. Friendly spaces for staff to relax in are essential – this includes dedicated lounges and spaces that accommodate incidental encounters and moments of rest, such as alcoves in corridors.

Provide spaces for respite and reflection

Meditative spaces, with access to greenery and fresh air, provide patients with the opportunity to gain respite from medical procedures while still having the confidence of being under clinical control. Where appropriate, some patients also prefer to receive care in outdoor spaces.

Enable individuals to have some control of their environment

Patients sacrifice everyday routines as they hand their care over to the clinical system. This can be disorienting and at times distressing. The ability to have some control over the physical environment can contribute greatly to a patient's sense of dignity. This includes the capacity to modify lighting levels, noise and the degree of connection and privacy and access to semi-private spaces beyond the patient room.

Provide access for all

A health facility should provide environments that are accessible to all, are easily navigated, and reduce disorientation. This includes providing clear wayfinding so patients and visitors can move between various places with minimal confusion.

To cater for people with differing abilities, obvious considerations include level access, wide paths, grab rails and handrails, frequent seating and rest spaces, and shelter from the elements. Accessibility needs to be integrated into the design as a whole, not added as an afterthought. Colour, lighting, materials and texture can all aid and improve accessibility.



The Bright Alliance

Aboriginal Country: Gadigal, Bidjigal
Architect: HDR
Image: Brett Boardman

Design considerations

Neighbourhood scale

Consider the design of the facility in the urban context and streetscape. Ensure it is well-connected to the neighbourhood and appears as a welcoming place that conveys a sense of investment and care.

Precinct scale

Pay close attention to designing experiences of arrival and departure, using all modes of transport – including pedestrian paths and bicycle infrastructure.

For larger health precincts or campuses, ensure access to particular buildings or places is intuitive, accessible and safe from all entries (for example, there is no ‘wrong’ door).

Ensure spaces between buildings are integrally designed and give due consideration to adjacent and future facilities. Wherever possible, provide opportunities for respite, green connections, art and culture.

Provide good connectivity to points of interest for patients, staff and visitors.

Distribute spatial quality equitably, enabling all users to have access to public spaces, gardens and views.

Building scale

Provide entry and reception spaces that are easily recognised, safe and inviting.

Ensure the facility supports and welcomes diverse users, and the public spaces are spacious enough to support a broad range of social and cultural customs associated with care.

Provide comfortable and accessible public and semi-public spaces of different scales and types, with varying degrees of privacy. Carefully consider the relationship of these to private spaces for patients and staff.

Ensure the facility is welcoming to Aboriginal and Torres Strait Islander users.

Design waiting areas and circulation spaces to support cultural waiting behaviours, including providing privacy, views, and outdoor waiting spaces where possible.

Provide options for care to be safely delivered in outdoor spaces, such as gardens and balconies, where possible.

Wherever possible, ensure patient rooms and associated spaces are generous enough to accommodate visitors and families in culturally appropriate ways.

Ensure the facility is safe, accessible and welcoming for those with limited mobility and reduced cognitive functions.

Design reception areas and nurses’ stations to be approachable and unthreatening.

Separate public thoroughfares from staff and patient transport routes.

Include spaces for contemplation and respite, separate to patient rooms, though remaining under clinical supervision.

Provide adequate storage to ensure the facility can easily be kept tidy and that clutter does not accumulate.

Ensure all staff have access to pleasant workspaces and break rooms, and places to interact informally and formally.

Provide patients and visitors with the opportunity to modify their environment at the scale of the room wherever possible – in terms of light, views, noise and levels of privacy.

Design spaces to promote social interaction and connectivity. (This should be supported away from and separate to other exterior functions, such as designated outdoor smoking areas within mental health facilities.)

3.2 Design for wellbeing

Well-designed health facilities and places contribute to the wellbeing of patients, visitors and staff. Connections to the natural environment are particularly important.

The presence of gardens and greenery, and access to fresh air, sunlight and natural light all contribute to benefits including reduced recovery times, the lifting of mood and lowering of anxiety, and reductions in agitation and aggressive behaviour.

For staff, good connections to the natural environment help decrease stress and reduce tiredness and minor illnesses, improving worker experiences and increasing staff retention.

Provide access to greenery and gardens

Access to greenery and gardens can occur at different scales and includes visual and physical access – the ability to look out on green spaces and to sit or walk within them. Landscape elements also play a key role in wayfinding and orientation, while the shade provided can aid passive cooling and help prevent skin cancer. Vegetation and landscapes within health campuses can contribute to the ecological health of the neighbourhood and wider urban area – for example, the location and planting of gardens and courtyards can create and support habitat corridors.

Support HI's Arts in Health program

In healthcare settings, the arts can support clinical care and help to de-institutionalise clinical environments. Importantly, art practice can empower people to take a leading role in improving their health and wellbeing. Programs bringing art practice into healthcare settings include a wide range of genres – music, dance, performance, visual arts, heritage and literature – and deliver intrinsic value through participatory and shared experiences. Creating spaces for wellbeing facilitated by multi-disciplinary art activities is a low-risk and low-cost means of improving population health outcomes, strengthening intergenerational relationships and meeting clinical objectives. This is supported by the Arts in Health Program adds value to operational health programming beyond the life of the capital.

Woy Woy Rehabilitation Centre

Aboriginal Country: Kuring-gai
Architect: Woods Bagot
Image: Peter Bennetts





South East Regional Hospital

Aboriginal Country: Yuin

Architect: BVN

Image: John Gollings

Provide access to natural light and views

Natural light is an important component of biophilic design, and the presence of windows is associated with better cognitive functioning and better sleep patterns.

Bright light, particularly morning sunlight, helps elevate moods, manage pain and reduce recovery times. Exposure to sunlight can also bring specific benefits, such as the decreased risk of “ICU psychosis” in intensive care, prevention of vitamin D deficiency, and a reduction in post-myocardial infarction mortality. For staff, connection to sunlight and daylight can reduce stress and increase job satisfaction.

For patients, views are associated with reduced length of hospital stays and a reduced need for analgaesic medication. Views also support orientation for patients and visitors, and provide staff with a sense of connection.

Provide good ventilation and fresh air

Good air quality and ventilation is vital for reducing the circulation of airborne pathogens and for enhancing comfort and wellbeing. The ability to bring fresh air into a patient room or staff space is highly prized, but often not offered due to clinical concerns. All options should be explored where clinically appropriate.

“How a space looks is intimately connected to how it feels, and how it feels is important to health outcomes.”

— *Finding Joy in Unlikely Spaces*,
Rebecca McLaughlan 2021

Provide appropriate artificial lighting

Artificial lighting needs to be purposefully designed for circadian health in combination with natural lighting. This includes intentional darkness at night for patients and control of colour temperature across the 24-hour cycle to mimic natural light patterns.

Lighting plays an important role in setting the mood of a space and supporting its function, and is an important component in wayfinding and orientation. Poor or badly designed lighting can contribute to suboptimal experiences, cause headaches and lead to errors.

Some health functions and spaces have specific lighting standards, but all lighting needs to help create inviting and functional spaces.

Include positive distractions

Positive distractions include the presence of art, including Indigenous art, landscape elements and greenery, children's play areas, sensory elements and interactive media. Advantages include helping to change the perception of pain, reducing perceived waiting times and restlessness in waiting rooms, and reducing agitation and anxiety in emergency departments. Culturally appropriate positive distractions can contribute to cultural safety for Aboriginal people. Distractions in paediatric hospitals can help shift children's expectations of the hospital experience and stimulate a desire to return, which in turn helps reduce family anxiety.

Design the aural environment

Health facilities should be carefully designed to limit excess noise and provide quiet, restful spaces. Excessive noise has many detrimental effects. For patients, too much noise can lead to negative physiological changes, increased stress, disturbed sleep and decreased pain tolerance. This is a particular challenge during the night – the noise created by staff completing their work often impacts patients' sleeping patterns. For staff, excessive noise contributes to headaches, tiredness and burnout. It can cause problems with communication among staff, which may cause errors.

Maitland Hospital

Aboriginal Country: Wonnarua

Architect: BVN

Artwork: Peter Poulet

Image: Martin Siegner



Design considerations

Neighbourhood scale

Support public health and wellbeing through the provision of green spaces for relaxation and exercise.

Precinct scale

Incorporate green spaces throughout the precinct or campus. Include landscape corridors, courtyards, balconies, visual access to tree canopies and interactive green spaces with recreation facilities.

Ensure safe access to existing open space including green space and waterways.

Explore opportunities to incorporate productive landscapes, such as community gardens.

Provide pleasant, connected walkable environments to points of interest that offer opportunities for rest and respite for people of all abilities and mobility levels.

Provide opportunities for recreational, therapeutic and incidental physical activity.

Accommodate participatory arts activities of differing types and scales.

Provide access to healthy eating options.

Protect outdoor public spaces from encroachment over time, including overshadowing.

Ensure that outdoor spaces have access to sunshine and shade, and include noise buffering.

Design circulation spaces, breakout spaces, courtyards, terraces and other shared areas to contribute to the character, quality and experience of the facility.

Support safe night-time movement and activation.

“Hospital gardens not only provide restorative or calming nature views, but can also reduce stress and improve outcomes through other mechanisms, for instance, fostering access to social support and providing opportunities for positive escape and sense of control with respect to stressful clinical settings.”

— The Role of the Physical Environment in the Hospital of the 21st Century, Roger Ulrich and Craig Zimring 2004

Building scale

Include public outdoor spaces above the ground floor level and explore potential to use rooftops where safe and possible.

Provide views to the outside from within patient rooms, waiting areas and public spaces. This is particularly important above the ground floor.

Provide opportunities for incidental physical activity, for example, attractive safe and visible stairs between floors.

Provide patients, visitors and staff with ready access to greenery and gardens.

Provide access to green space within clinically secure environments for recovery and respite.

Include a range of pleasant waiting places. Include indoor and outdoor spaces, places of quiet and active spaces, places that are calming and others that are stimulating.

Provides spaces to support health-related arts activities.

Include windows in patient rooms, and ensure views are available from the patient bed.

Include windows in staff break rooms, public spaces and circulation spaces, such as corridors and atria.

Ensure all windows have appropriate shading and glare protection.

Provide patients with access to morning light.

Provide patients with darkness at night.

Give patients the capacity to control their environment (with help from staff and smart technology is needed).

Explore the potential for the aesthetic quality of interior spaces to support the health and wellbeing of patients, staff and visitors, including colour and material choices.

Where possible and appropriate, locate carers' accommodation within or close to patient rooms.

Integrate positive distraction into public spaces, including waiting areas, through sensory, active, creative and play-based spaces and integrated art.

Design the lighting for staff work areas to suit the task, including high lighting levels for complex tasks.

Design the aural environment carefully. Be mindful that excessive noise increases stress and fatigue for staff, patients and visitors alike.

Manage noise through design, including through the considered layout, disposition and arrangement of spaces, the selection of materials, surfaces and floor coverings, and insulation.

Explore the positive aspects of a gentle aural environment to help create a feeling of connection.

3.3

Design for efficient and flexible delivery of care

Health facilities are places of highly skilled, demanding and complex work. The design and physical infrastructure of these places must support busy people undertaking difficult, demanding and stressful tasks and providing complex clinical care.

The environment must accommodate large flows of patients and visitors who are present for a broad range of reasons – from the mundane to the life-threatening. The facility should support visitors and family who are also increasingly involved in the provision of care.

Health facilities are places of constant change. Advances in healthcare practice, clinical knowledge and major medical equipment are fast-moving. The social, political and economic contexts in which healthcare is funded and delivered is also in a state of continual flux. The design of hospitals, health facilities and other infrastructure must respond to these ever-shifting environments, while continuing to provide high-quality care and excellent workplaces.

Plan for the efficient delivery of clinical care

Efficient planning of spaces and effective relationships between different areas and functions is fundamental to the delivery of healthcare. This includes supporting contemporary models of medical care and accommodating changing technology. The design of the facility must ensure all needs are accommodated in a coherent and comprehensible arrangement of spaces, which also meet the many other needs and functions of the facility.

Planning and the relationship of spaces must be considered in three dimensions, including vertical connections between functions and spaces, and must integrate with the other functions of the facility.

Accommodate changing models of care

Efficiency must be balanced with flexibility. Healthcare is a field of rapid and constant change, while health facilities take a long time to design and build and last for generations. The design must anticipate future change, and support the flexible use and re-use of spaces over time.

Physical spaces must continually adapt to new technology and equipment and shifting models of care. This may involve changes to specific spaces or the distribution of equipment throughout a facility (rather than being clustered in a single location). There are also impacts on the way patients are managed and on workforce planning, which may change patient flows and require alternative room layouts and new connections between various functions.

Support telehealth

Contemporary healthcare has an increasing focus on virtual and digitally enabled care, which is accessed by patients and their carers from places beyond the hospital, such as the home. Telehealth and telemedicine – including teledentistry – links doctors, nurses, patients and specialists via telecommunications and facilities such as slow-scan television and voice conferences. This complements face-to-face consultation, improving access and availability, and increasing efficiency.

Virtual care requires appropriate, private and comfortable spaces for the staff providing this care, along with a broad spectrum of technical support – from telephone ports for telemedicine to a full ICT suite for virtual care within surgical and other highly technical environments.

Enhance visitor and family support

The provision of specific facilities can promote family and visitor involvement in care and increase social support. This includes family areas, overnight accommodation and children's play areas, comfortable waiting and lounge areas, and flexible single or double rooms. Carer's accommodation in patient rooms or nearby can help support inpatient care and may reduce pressure on busy nursing staff.

The presence of sufficient and appropriate spaces for family and visitors is important for many cultures, including Aboriginal patients, for whom social support and the ability to welcome large family groups is an important aspect of cultural safety.

There is potential to use technology to let patients and visitors wait in a range of spaces, including garden or other outdoor settings.

Prioritise efficient circulation routes and effective orientation

The design and planning of the facility should help orient visitors, patients, staff and the community, and reduce the distances travelled by staff and patients in the course of care. This is especially important when working on health sites that have grown over time and have become convoluted and confusing for patients and visitors and inefficient for staff. Signage can ameliorate complex layouts and help increase efficiency, but it cannot take the place of effective plan arrangements and well-designed intuitive wayfinding systems.



Northern Beaches Hospital

Aboriginal Country: Kuring-gai
Architect: BVN
Image: John Gollings

Design considerations

Precinct scale

Give careful consideration to future traffic and access strategies.

Explore the potential of alterations and new work to improve navigation and reduce travel distances and times. This can occur at all scales.

Consider establishing separate datums (levels) to ensure that general access across and between buildings does not unnecessarily intersect with or cross over key access routes for logistics, emergency vehicles and other clinical operations.

Use generous, direct paths to link the parts of a precinct or campus, create legible way finding, and improve the organisation of the precinct.

Implement precinct-wide shared service strategies to avoid unnecessary duplication and inefficiency of services over time.

Support the flexible delivery of healthcare.

Building scale

Design to support the delivery of the clinical services plan, incorporating knowledge from the Australasian Health Facility Guidelines. Ensure the design accommodates current and emerging models of care.

Incorporate opportunities identified in this guide in design responses and project design briefs to support the clinical services plan and functional brief.

Ensure the relationships between functional spaces are informed by anticipated technological changes, and changes to models of care that may follow.

Facilitate and enable digital connectivity.

Integrate flexibility to enable changes in response to developments in major medical equipment and changes in clinical practice.

Develop efficient plans and coherent circulation routes that respond to the needs of all staff, patients and visitors – be aware the facility will accommodate a mix of needs and relationships.

Plan the facility to enable all staff to do their job to the best of their ability. Ensure the needs of support staff are met to the same level and quality as senior medical staff and managers.

Provide adequate, culturally appropriate spaces for family and visitors, and to support them to assist with inpatient care.

Include quality spaces for staff that encourage collaboration and provide spaces for respite.

Consider the arrangement of functions and spaces in three dimensions. Explore vertical connections and circulation as well as horizontal connections.

Limit the lengths of corridors.

3.4 Design with Country

Designing with Country means putting the Aboriginal experience, concept and expression of Country at the centre of design processes.

This draws on a set of approaches developed by Indigenous peoples over generations. The need to respond to Country and culture is now embedded in planning legislation.

Designing with Country includes connecting with the natural environment and considering people, animals, resources and plants equally. This approach aligns with the biophilic design principles that are already a crucial part of the design of health facilities, and with sustainable design practices. Designing with Country brings these together with Indigenous cultural knowledge of identity and place. This is fundamental to creating places that are culturally safe for Aboriginal people.

Processes to support designing with Country should be embedded in every stage of developing health facilities, precincts and places – from feasibility studies to procurement, design processes and construction. These must engage with and be guided by recognised knowledge-holders in the relevant Aboriginal community. It is important to recognise that cultural connections with Country are different for different Aboriginal peoples and communities.

“Before embarking on working with Traditional Owners, go through a process of self-education to supplement any teaching you may or may not have received. Look for resources that have been delivered, authored, designed or co-designed with Traditional Owners of relevant Country.”

— *This is not my Country*, Sarah Lynn Rees 2020

Rammed Earth Health Hub

Aboriginal Country: Niyiyaparli

Architect: Kaunitz Yeung Architecture

Image: Robert Frith – Acorn Photography



“Cultural practices, such as burning, arts or crafts, dance or song, are part of lore and part of our role to keep Country healthy and balanced, not only for ourselves but for those yet to be born.”

—*The (Re)Indigenisation of Space*, PhD thesis, Danièle Hromek 2019

Develop cultural awareness

Increasing cultural awareness has multiple dimensions and should develop throughout and beyond the project life cycle. The Connecting with Country Framework offers four pathways – learning from first languages, developing mutually beneficial relationships with Country, reawakening memories of cultural landscapes, and knowledge-sharing – and provides suggestions about each.

Self-education is a good beginning, and there are many resources to support this work. However, it is vital that Aboriginal people retain authorship and control of their cultural knowledge and intellectual property, and how it is shared with others.

Co-design and co-manage with Aboriginal people

Aboriginal people should be invited to co-design and co-manage. This includes the development and assessment of cultural safety commitments and cultural competency requirements. This work should be adequately budgeted for, with appropriate time frames incorporated into project management and schedules. It must be guided by those recognised as knowledge-holders for Country, or by their nominated spokespeople. This includes Traditional Custodians, Traditional Owners, Elders, descendant groups, local Indigenous corporations, and local Aboriginal land councils.

Build relationships with local Aboriginal communities

Meaningful relationships with local Aboriginal communities are essential to designing with Country and creating places of cultural safety. Sensitivity to the complexities of identity is paramount. To ensure consultations occur in a culturally appropriate manner and with the relevant people, groups should be consulted in the following order:

1. those with ancestral connections to a place
2. people from surrounding groups/tribes/mobs/communities/nations
3. those who have moved to the area since colonisation and are integrated into the community
4. everyone else who wants a say.

Building relationships takes time and commitment, and must occur from project initiation, through to all phases of the project. The local health district is responsible for the enduring relationship. Project teams should build on these relationships, and integrate opportunities for the healthcare provider to maintain and strengthen relationships throughout the ongoing life of the facility.

“Aboriginal health means not just the physical wellbeing of an individual but refers to the social, emotional and cultural wellbeing of the whole community in which each individual is able to achieve their full potential as a human being, thereby bringing about the total wellbeing of their community”

—*National Aboriginal Health Strategy*, National Aboriginal Health Strategy Working Party 1989

Purfleet Aboriginal Clinic

Aboriginal Country: Biripi

Architect: Kaunitz Yeung Architecture

Image: Brett Boardman



“Build in a feedback loop. This process at a minimum involves multiple face-to-face engagements. It is integral that where knowledge has been shared and translated into design there is ongoing engagement to ensure what the designer has heard and subsequently translated into design, is appropriate to its cultural and geographic context.”

—*This is not my Country*, Sarah Lynn Rees, 2020

Engage with and nurture cultural practices

Cultural practices are an essential part of caring for Country; they help create and maintain places of cultural safety. Each health project has potential to support Traditional Custodians to continue their cultural practices on Country. This should include immediate opportunities during the development and delivery of the project, as well as longer term opportunities associated with future use. The exploration and development of these opportunities should be led by community groups and their recognised Aboriginal knowledge-holders with spiritual links to Country.

Include Country and culture when evaluating economic, environmental and social impacts

Each health facility is subject to a range of evaluations throughout its life, including investment proposals and decision documents, strategic plans, business cases, and investment and financial impact statements. Considerations of the impact on Country and culture should occur as part of all evaluations. This includes developing and using agreed indicators to measure these impacts, agreeing on what success looks like in terms of the health and wellbeing of Country, and clearly identifying how financial benefits of the project will be shared with community.

“Our identity as human beings remains tied to our land, to our cultural practices, our systems of authority and social control, our intellectual traditions, our concepts of spirituality, and to our systems of resource ownership and exchange.”

— Aboriginal health: social and cultural transition, *Ngoonjook: A Journal of Australian Indigenous Issues* 12, Pat Anderson (Alyawarre), 1997

Partner with or support Aboriginal businesses and professional services

Health projects present many opportunities to partner with and support Aboriginal owned and run businesses. These extend from project formation through to evaluation and maintenance. Opportunities include guiding design and engagement, enterprise opportunities for Aboriginal businesses (local and beyond, existing and emerging), and the potential for education and skills legacies for Aboriginal community groups.

Walk on Country on the site of the new Eurobodalla Regional Hospital

Aboriginal Country: Yuin



Design considerations

Neighbourhood scale

In collaboration with Aboriginal knowledge-holders and communities, understand the cultural meaning of the landscape and surrounding built environment, and explore how this might be revived, supported or appropriately expressed.

Integrate places and spaces that support the health, wellbeing, cultural safety and economic security of local Aboriginal communities and Country.

Contribute to the health and biodiversity of landscapes, ecosystems and waterways.

Precinct scale

Embed places and spaces that accommodate and welcome cultural practices that care for Country – including burning, dance, arts and craft, along with other practices relevant and desired by the local Aboriginal community.

Integrate places that support opportunities for Aboriginal businesses.

Ensure the entire precinct or campus promotes cultural safety.

Building scale

Design facilities to support cultural safety – include consideration of the planning, arrangement of spaces and design expression of entry and receptions areas, waiting rooms, circulation spaces, patient rooms and associated semi-public areas.

Where possible, provide exterior and garden spaces that are appropriate for waiting and care.

Consider location of care to be in keeping with local customs and connection with land.

“Caring for Country is not only caring for land, it is caring for ourselves. Country holds everything including spaces and places. Spaces and places, even those in urban centres, are thus full of Country, and therefore need appropriate cultural care to ensure healthy landscapes.”

— Danièle Hromek in *Designing with Country* discussion paper, Government Architect NSW, 2020

3.5 Design for the neighbourhood and surrounding environment

Health facilities contribute to the public spaces of our cities, towns, suburbs and regions.

Well-designed and carefully considered public spaces can strengthen the community and contribute to the quality of the wider built and natural environments. They encourage healthy public life and foster active lifestyles and social connections. They can also contribute to regenerating the natural environment and help create habitat corridors.



Health facilities should provide high-quality public spaces that are inviting, accessible, diverse and comfortable and well connected. This includes shared paths, designated walking and cycling paths and circulation routes, courtyards and gardens, entry, reception and waiting spaces and access to existing open spaces. They might also include mixed-use and shared community spaces, such as meeting and performance spaces.

Create value and economic investment in the community

Health facilities are powerful economic and social drivers that create their own ecosystem of subsidiary and related clinical, commercial and social activity. They present opportunities to activate, transform and uplift local communities and economies, to support employment and contribute to the social determinants of health of specific communities, including Aboriginal communities. Constructing new facilities and refurbishing existing ones is a significant investment, which should be leveraged to encourage the development of transport and other community infrastructure.

Contribute to the quality of the surrounding built environment

Health facilities are substantial developments that can positively shape neighbourhoods and streetscapes. Consideration should occur at all scales, from master planning the precinct and siting the facility to the creation of permeable edges and cross-site links. The quality of the design can set the standard for future development in the area and thereby contribute to economic development.

Contribute to the natural environment

Healthcare precincts and places have great potential to contribute to the natural environment and green infrastructure. This includes restoring, extending, or regenerating habitat, and enhancing local ecosystems and watersheds.

Explore opportunities to incorporate mixed-use spaces

Health facilities have the potential to welcome the broader community into public spaces within the health precinct – for example, through the provisions of mixed-used spaces, and by making some spaces available for community use.

Surgical, Treatment and Rehabilitation Service (STARS)

Aboriginal Country: Yuggera
Architect, interior designer and landscape architecture: Hassell
Image: Scott Burrows

Design considerations

Neighbourhood scale

Ensure meaningful consultation processes are in place to identify the needs of the community, including Aboriginal peoples. This should develop a shared understanding of the type and nature of public and shared spaces that are required or desired. Ensure these are integrated into the design brief and the resulting design.

Site the facility to enhance the contribution to its urban setting and create a landmark worthy of the investment. This includes the facility's relationship to streetscape, landscape, topography and other aspects of its urban context.

Site the facility to enhance its natural setting, including an understanding of watersheds and habitat.

Design the health facility to complement the neighbourhood identity, land use, and movement patterns. Explore opportunities to contribute to these and improve them if needed.

Ensure the facility presents as a valuable, civic place. Consider the impact of the facility within the neighbouring streetscape and views to the facility from a distance.

Ensure the edges of the health precinct or campus are inviting, well-connected to and integrated with the surrounding built environment.

Consider how the design of buildings and landscapes relate to the urban and neighbourhood character of the area, including heritage, culture and Country.

Precinct scale

Understand the role of the facility within the larger precinct or campus master plan, and design the facility to support and enhance this, including supporting relevant connections between facilities.

Encourage pedestrian activity through the provision of cross-site links and designated walking paths and cycle paths that are well connected to points of interest (including transport nodes), wayfinding, shade, and opportunities for rest.

Consider the built form and character of the facility in relation to the functions and spaces required in the broader precinct or campus.

Consider the relationship of the facility to other buildings and spaces within the precinct or campus.

Explore the experience of the facility in the round. Consider how the scale and massing of the built form and landscape elements contribute to the character of the facility and the local environment.

Ensure the facility contributes to and enhances the street and ground plane – both within the precinct or campus and on its edges.

Explore the contribution the precinct landscape can make to local ecosystems and habitat corridors.

Building scale

Explore how the ground plane of buildings and facilities can contribute to creating and enhancing public amenity.

Connect public spaces within the building to those within the precinct and neighbourhood.

Explore how the design and configuration of public spaces can support the facility's relationships to surrounding areas and streets.

3.6 Design for connection

Health facilities are important nodes within urban, transport, community and health networks. The design of facilities should enhance connection and catalyse the development of these networks.

Healthcare precincts bring together a broad mix of facilities and functions. The design of a precinct and the places within it can enhance and support connections between clinical, research, teaching, population and public health functions and connect individuals and communities.

There are opportunities for connection across NSW, at the level of the precinct and within individual facilities.

Connect to transport infrastructure

Health facilities and precincts should integrate with existing transport networks and catalyse new and improved systems. A strong connection to public transport and active transport systems is essential for staff, visitors and patients.

The paths to and from all transport networks should be safe and readily apparent for all users, and offer good active transport connections, including separated walking and cycling paths. It is particularly important to design for the experiences of arrival and departure. These networks should connect into transit and active transport routes through the campus and facility. Consideration should be given to different user groups, including patients who attend frequently – such as renal and cancer patients. It is also important to consider safety, lighting, natural surveillance and shade for different times of the day and night.

Connect into the urban structure

Understanding the urban structure and grain of the surrounding neighbourhood helps integrate the facility into the life of the community. This includes connecting to existing street patterns and grids, creating new cross-site links where appropriate, and linking to existing public spaces and places.



Maitland Hospital

Aboriginal Country:
Wonnarua
Architect: BVN
Image: Martin Siegner

Provide clear and coherent wayfinding

Wayfinding in hospitals is an area of substantial research, and many guidance documents are available. Many elements come together in an efficient and effective wayfinding system – clear paths, key views to the exterior, spatial hierarchy inside and outside buildings, architectural cues, materials, colour, lighting and signage all contribute. This helps orient visitors, patients and staff alike.

Collocate functions to facilitate the transfer of knowledge

Healthcare precincts and campuses bring great opportunity to collocate research, teaching and clinical functions, and inspire innovation. The physical relationship of these facilities to each other, and the quality and design of the spaces and routes that connect the various functions, can help accelerate and enhance collaboration and the transfer of knowledge. This can occur at all scales – precinct and campus, and within the facility.

Broad commercial co-location opportunities include medical manufacturing facilities, industry aligned investment, or investment aligned to broader NSW government objectives such as key-worker housing. In this context, the value driver for potential counterparties relate primarily to land provision.

Health facilities can also be understood in terms of the concept of “living labs”, where staff, researchers and industry can use aspects of facility operation to develop improved and new services and products. Small tweaks to areas of building design and operation can enable exceptional facility flexibility and research opportunities.

Design considerations

Neighbourhood scale

Integrate the health facility effectively into existing transport networks – public transport, cycleways, pedestrian routes, delivery routes, and car infrastructure.

Explore opportunities for the development to catalyse new transport infrastructure or renew existing infrastructure. Work to realise this to its full potential.

Engage with and connect into neighbouring streets, public places and open space.

Provide well-planned cross-site links, including safe and pleasant active transport routes such as cycle and walking paths.

Precinct scale

Understand the role of the facility within the larger precinct or campus master plan, and design the facility to support and enhance this, including supporting relevant connections between facilities.

Investigate opportunities to support innovation and translational research by collocating research institutes and health facilities. Ensure the design of these facilities enhances the transfer of knowledge.

Provide attractive and activated pathways through the grounds of the facility. Design these to engage and include the local community.

Design the sequence of public spaces and circulation routes to connect effectively to transport infrastructure.

Design for the pedestrian. Provide adequate shade, and protection from transport infrastructure, such as road and rail. Provide direct routes, clear wayfinding, and rest points with suitable lighting and natural surveillance.

Locate staff car parking in an area that ensures safety at night – in the car park and while moving to and from it.

Prioritise transport and access strategies for patients and visitors. For example, ensure the staff car parking strategy does not detrimentally impact the transport network, or come at the expense of critical patient and emergency vehicle access.

Building scale

Explore adjacencies between functions to enhance communication and support innovation and the transfer of knowledge.

Provide a clear and legible hierarchy of spaces that encompasses interior and exterior spaces.

3.7 Design for sustainability

Green buildings, places and precincts improve individual health outcomes for patients, staff and visitors by providing optimised interior environments, improved air quality and a reduction in the toxins associated with construction. Well-designed green buildings also have a well-documented positive effect on physical and mental health and wellbeing. This, in turn, reduces the societal cost of health care.

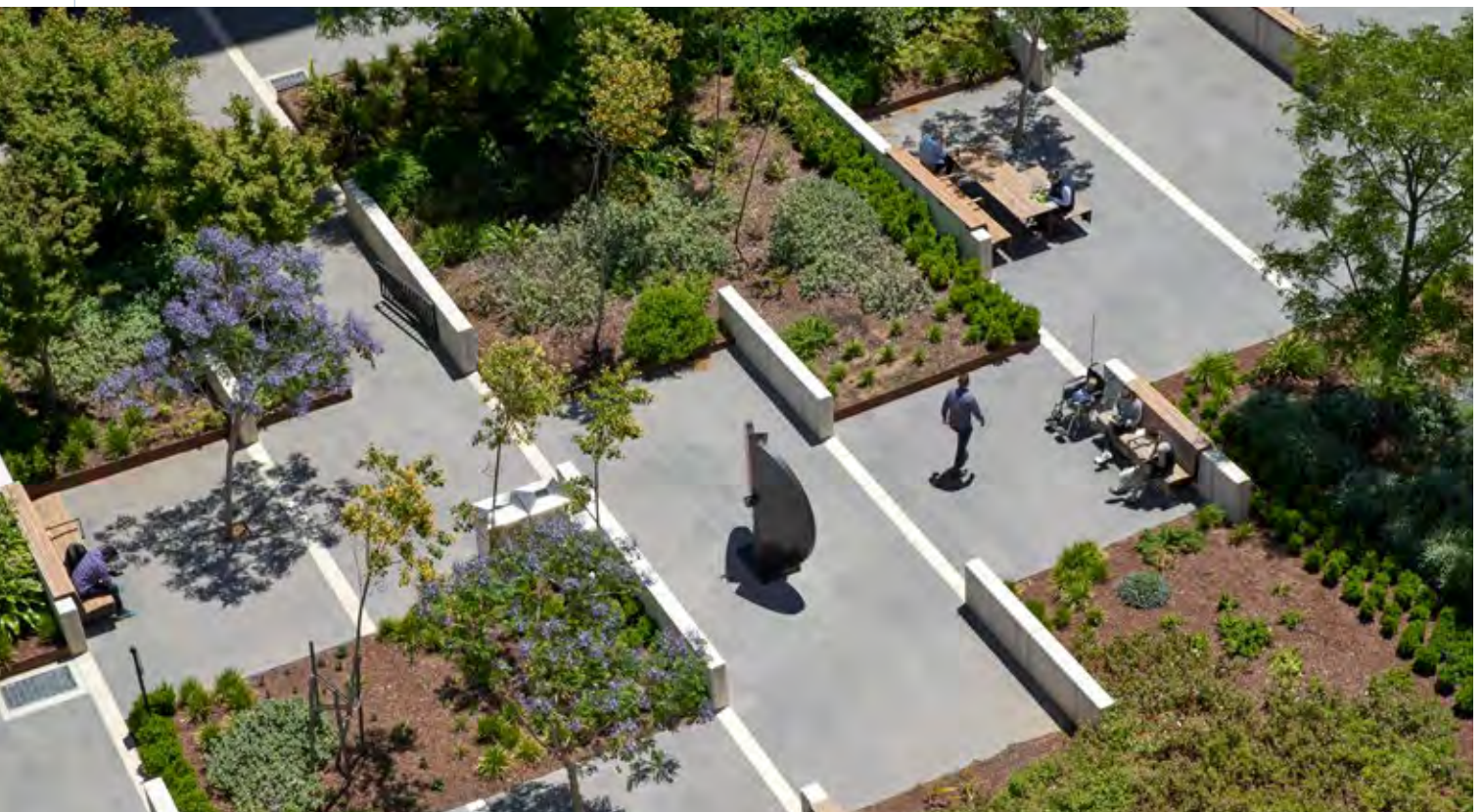
Bendigo Hospital

Aboriginal Country: Djadjawurung
Architect: Silver Thomas Hanley
and Bates Smart
Landscape: Oculus
Image: Peter Clarke

Sustainable design also brings public health benefits – by reducing the use of energy, water and resources, reducing emissions and air and water pollution, limiting waste, and improving air quality. Sustainable design contributes to tackling global climate challenges and supports the health and wellbeing of present and future communities and natural systems, including habitat for biodiversity.

Leadership is essential if we are to pursue more sustainable health facilities, precincts and places. To meet the NSW Government ambition of net zero by 2050, hospitals and other health service facilities will need to be embedded within green infrastructure plans, and sustainability aims must be made clear as part of the business case, scoping and briefing stages. Site opportunities should be investigated in the earliest concept design explorations – in terms of sun, wind, water, noise, outlook, and topography.

As civic places, hospitals and health facilities represent significant investment and hold great meaning for communities over generations. Designing facilities to adapt and endure includes enabling future adaptive re-use.





The Kinghorn Cancer Centre, Reflection Garden

Aboriginal Country: Gadigal

Landscape architect: 360 Degrees Landscape Architects

Architect: BVN

Image: Toby Burrows

Design for whole-of-life at all stages and scales

Whole-of-life considerations are increasingly valued in health facility management, as articulated in the NSW Strategic Asset Management Plan, the NSW Asset Management Plan, HI Asset Management Implantation Plan and HI Sustainability Strategy. This emphasis is essential to reducing environmental impact, generating health benefits, and realising financial savings. This must influence all stages, including the business case, briefing, budgeting, design and asset management. Upfront investment in environmental infrastructure, the selection of robust materials and systems that support passive heating and cooling, all create significant savings in the long term by reducing recurrent costs. Whole-of-life analysis of materials, systems and supply chains helps factor in the embodied energy and carbon impact of new construction.

Material selection needs particularly careful consideration within healthcare settings. This must support infection prevention and control while also meeting needs in relation to longevity and sustainability.

Design for resilience

Resilient design is the intentional design of built and natural systems that anticipate and enable us to adapt to changing contexts, disruption, chronic stresses and climate change in creative and innovative ways. It includes the capacity of buildings to protect people from extreme events, and to bounce back quickly from them.

The need for resilience and flexibility must be built in from the earliest stages of briefing and development and be established as a requirement to be met. Involving design professionals in these early phases can help identify opportunities and set parameters.



Woy Woy Rehabilitation Centre

Aboriginal Country: Kuring-gai

Architect: Woods Bagot

Image: Peter Bennetts.

“Rising to the challenge of net zero in healthcare will require broad transformative steps, such as reducing demand through preventive care, powering the entire enterprise with clean energy, choosing medical supplies and equipment with lower carbon footprints, and reducing travel through telemedicine.”

— A pathway to net zero emissions for healthcare,
British Medical Journal 371, Renee N Salas, Edward Maibach,
David Pencheon, Nick Watts and Howard Frumkin, 2020

Design to reduce energy consumption and enhance green energy generation

Health facilities are very dependent on building services, such as heating and cooling systems, artificial lighting, mechanical ventilation, and specialist systems required for the delivery of clinical care. There is great potential to reduce consumption and create savings through improved heating, ventilation and air conditioning (HVAC) and mechanical systems. This includes adopting best practices for ventilation and cooling system heat recovery, low-pressure ventilation systems, and advanced building controls to regulate building ventilation and conditioning. Energy use can be further reduced through passive environmental design, which brings health benefits in terms of access to daylight, natural ventilation and shaded areas.

Energy requirements and targets need to be included in design briefs and assessed throughout the design process.

Integrate water-sensitive design systems

The careful and considered design of water systems can help reduce water consumption and enhance the onsite collection, retention and recycling of water. This brings benefits for landscape design in addition to the long-term environmental and public health advantages.

Integrate the facility into green infrastructure networks

Green infrastructure is the interconnected, layered, three-dimensional network of green spaces, natural systems and semi-natural systems. It includes parks, rivers, urban bushland, private gardens, and street trees. Green infrastructure delivers a range of benefits – healthy living environments, mitigating flooding, improving air and water quality, and cooling the urban environment. It encourages walking and cycling, improves connections between places, and enhances biodiversity and ecological resilience.

Occupying large sites, healthcare precincts can make substantial contributions to green infrastructure networks, and gain many environmental benefits in return, including access to green spaces and landscapes that enhance wellbeing.

Site selection is key, including avoiding the location or expansion of health facilities onto flood plains. Instead, siting and development can regenerate green infrastructure to increase the facility’s and surrounding communities’ resilience to heat waves and flooding.

Design considerations

Adopt a whole-of-life-cycle approach at all scales and stages – from the business case through to the design of details and specification of systems, materials and operational efficiency.

Neighbourhood scale

When considering costs, include the assessment of wider public benefits over time (for example, transport and sustainability considerations).

Integrate the facility with existing and planned green infrastructure, with consideration of water systems, ecological communities, and productive landscapes.

Explore the potential of the facility to catalyse new investment in green infrastructure and sustainable electricity supplies.

Explore neighbourhood and precinct-wide opportunities for the re-use of waste water.

Connect to regional habitat corridors and contribute to green infrastructure networks, linking tree canopy, open space, bushland and waterways.

Precinct scale

Enable the implementation of efficient clinical operating models within the design. For example, efficient inpatient unit models can lead to reduced floor space requirements and reduced staffing levels, creating effective long-term strategies for efficient shared services.

Explore precinct-wide power generation opportunities and the productive use of waste heat.

Establish energy and carbon targets for the precinct, including setting net zero targets for new facilities. This requires policy and funding allocation from the beginning.

Facilitate and encourage sustainable transport modes including walking, cycling and public transport.

Incorporate environmentally sound waste management systems, including recycling, re-use and waste segregation.

Use water-sensitive urban design to support the retention and re-use of water.

Prioritise the use of resilient, climate-responsive plant species.

Explore opportunities for onsite productive gardens.

Explore potential to incorporate electric vehicle charging stations.

Build both redundancy and efficiency into precinct or campus-wide shared systems, such as ICT or medical gas.

Building scale

Design buildings, spaces and landscapes to adapt to changing climatic and environmental conditions. Will they be pleasant, workable places as the climate becomes hotter, drier, wetter and subject to wilder storms?

Design for adaptability in the face of medical disruptions, such as pandemics.

Include backup infrastructure to manage in times of crisis. Consider how hospital infrastructure can be used beyond the provision of individual clinical care.

Incorporate ongoing operational costs into business case and briefing phases, and design to support economy in these areas.

Design facilities for adaptability to emerging energy, water and waste technologies as they develop over time.

Retrofit and renovate existing facilities to reduce energy use.

Organise plan layouts, facades, materials and fixtures to optimise environmental performance, through access to fresh air, natural light and vegetation.

Incorporate passive environmental techniques wherever possible. This includes sunlight, shading, natural ventilation and other passive heating and cooling techniques.

Provide sunshading to enhance the environmental performance of building facades.

Incorporate heat pumps and solar photovoltaic panels where appropriate.

Select materials that help improve the sustainability profile of the facility. Prioritise the use of robust, locally sourced materials. Select materials with an awareness of whole-of-life considerations, balanced with clinical needs.

Help grow the circular economy through committing to major recycled material content in construction materials and operational procurement.

Consider the longer life of these buildings and places, including potential for future adaptive re-use.

Design facilities and precincts to be easily maintained and cared for over time.

SECTION FOUR

EFFECTIVE PROCESSES

Westmead Hospital
Aboriginal Country: Dharug
Architect: HDR
Image: Brett Boardman

Effective processes are essential to realising the value and health benefits that good design can bring – for the health system, for government at all levels, for the community and for Country.

A good design process establishes clear aims and ambitions for the project from the start, it communicates these effectively through a comprehensive brief, and provides the time and budget for meaningful consultation, collaboration, design iterations and documentation.

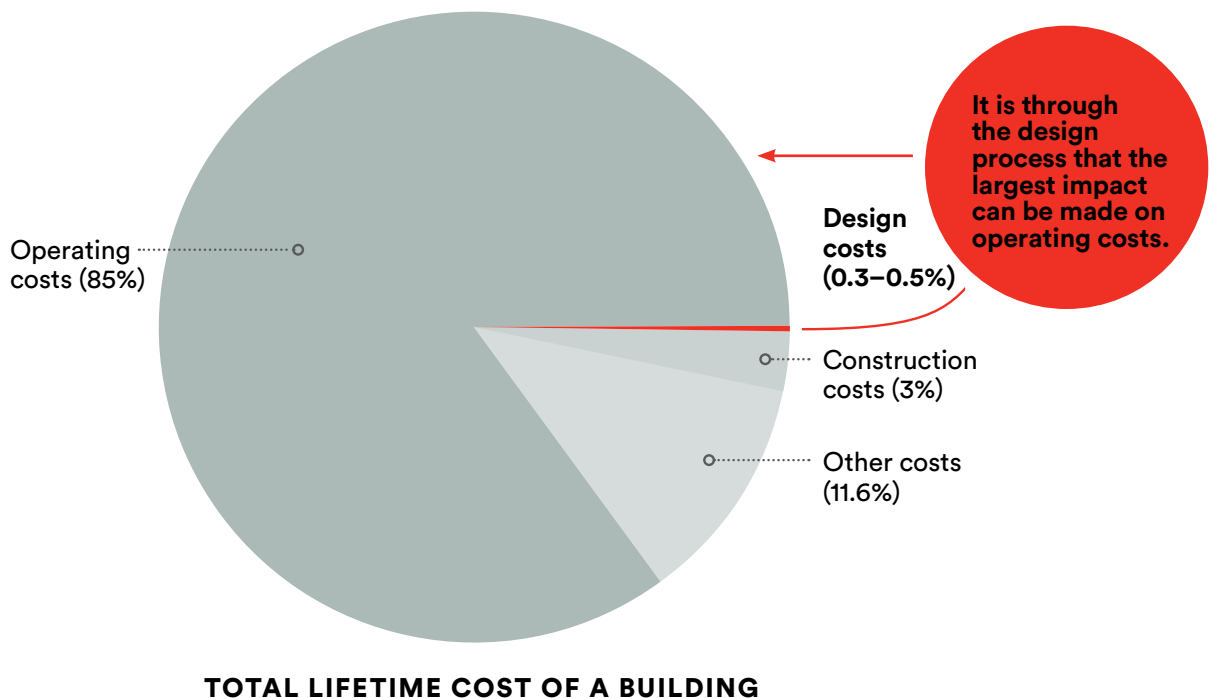
This requires committed clients, project management that enables good design, a highly skilled design team, knowledgeable consultants, effective and meaningful stakeholder and community engagement, and a culture of collaboration and respect. Good design is supported through robust review processes and champions who are responsible for ensuring design aims and intent are maintained throughout, and who have the authority to make this happen.

As the major client, the NSW Government has a powerful role. The processes government departments put in place, and the rigour and care with which projects are procured and delivered, affects the health and wellbeing of the whole community for generations.

This section focuses on the core aspects of procurement, design and delivery processes that support the creation of integrated, attractive, productive, amenable and resilient health facilities. It outlines the characteristics of effective design and delivery processes, and identifies the opportunities within the current system.

Figure 2: The value of good design

Design proportionally represents the smallest investment in the total lifetime cost of a building, yet it can provide the greatest cost-saving benefit over time.



4.1 Characteristics of an effective process

To achieve the design outcomes the people of NSW deserve, and to optimise value from the investment in health facilities, a commitment to design quality should be embedded throughout the process – from project initiation and business cases to construction and handover.

The following aspects will help create an effective process. They include specific frameworks and systems – for example, design governance and design review – and organisational cultures that foster trust, respect and collaboration.

A strong foundation

The design principles and governance structure establish the foundation for the planning, design and delivery of a project. The governance structure outlines the relationships between people, groups and organisations to support the delivery of the project, while the vision and design principles outline what is to be achieved.

Good design governance

Good design governance is essential to the delivery of high-quality projects that create value. A design governance structure helps bring all parties into an effective alliance that can leverage expertise and knowledge. It clarifies roles, builds trust, and creates the context in which effective and meaningful collaboration can occur. The governance structure should be put in place at the project initiation, and followed throughout the life cycle of the project.

The design governance structure for a health project should achieve the following:

- Identify key roles and responsibilities of those involved in the design, design management and delivery.
- Identify design champions within client and project management teams. Design champions are responsible for ensuring design quality criteria are met. The individuals should have design expertise and ensuring design quality should form part of their KPIs.
- Ensure design champions have adequate authority to address obstacles and stoppages.
- Ensure the capability of the design, project management and delivery teams is appropriate to the scale, challenges and opportunities of the project, and that appropriate expertise is available at the right project stages.
- Ensure key team members with design expertise are retained throughout the project, including during novation and other procurement processes.
- Define clear approaches to navigating design impasses, if and when they arise.
- Establish regular checks and reviews to ensure smaller scale decisions taken over the course of the project do not inadvertently compromise the vision, design principles and objectives of the project.
- Outline clear handover procedures between phases to ensure the project vision, design principles and objectives are maintained across the entire life cycle.
- Identify forums, roles and protocols for incorporating expert professional advice, such as design review.
- Identify forums, roles and protocols for collaborations with the stakeholder group and community representatives.
- Identify the processes and protocols for building ongoing relationships with the local Aboriginal community – both the Traditional Custodians and community members off-Country.
- Identify the Aboriginal communities and knowledge-holders that will benefit from, influence and guide the project.
- Identify aims in relation to improving the health of Aboriginal people as a priority population, contributing to local Aboriginal communities, and in relation to the NSW Aboriginal Health Plan.

Clear vision, design principles, and objectives

An articulate vision, design principles and objectives are fundamental to guiding the extended project team through the lengthy process of procuring, designing and delivering a health facility. Design principles provide crucial touchstones throughout the process to ensure the built project outcome delivers long-term value for all.

The vision, principles and objectives provide a core framework for developing the project's design brief and functional briefing, monitoring progress, evaluating design integrity and measuring success. They are particularly useful when difficult decisions need to be made, or when competing needs must be negotiated.

The design principles outlined in Section 3 of this document provide a useful basis for developing a project-specific vision, principles and objectives.

- Establish clear, overarching and project-specific vision, principles and objectives that align with policy commitments and the value to be created.
- Include the vision, principles and objectives in business case and feasibility studies, master planning study requirements, the design brief, and contracts for delivery.
- Identify consistent, agreed design quality criteria for evaluating performance against the vision, principles and objectives. These should cover qualitative and quantitative measures – including caring for Country, wellbeing, sustainability, clinical needs, cultural safety and Aboriginal health outcomes, community contribution, and urban impact.
- Embed design quality criteria into every stage of the scoping, briefing, procurement, assessment and delivery processes, and evaluate progress against these. Use design quality criteria to evaluate proposals, and create regular check points.
- Ensure that at all stages, design quality is budgeted for, evaluated and measured.

Understanding design and place opportunities

Embed place-based master plan and urban-scale thinking and consideration of Country at the very beginning of a healthcare project, particularly on larger projects and precincts. This will help ensure opportunities to catalyse development and connect with urban and neighbourhood structures and networks – opportunities that are abundant when planning and designing health facilities – are understood and can be realised, and that the project contributes to Country. Place-based thinking can also inform staging strategies (if required).

- Ensure business case and options analysis / assessment include urban design opportunities, network considerations, community aspirations and the impact on Country.
- Consider broad benefits and long-term value beyond the project site boundary to maximise public benefit.
- Explore opportunities to strengthen NSW Health's role in contributing to improving the social determinants of health for Aboriginal people through activities such as employment, resource distribution, and education and training.
- On large projects, develop a strategic framework to support the consideration of a wider area than a master plan.
- Ensure design and place investigations occur early and in parallel with the development of the clinical services plan.
- Consider and plan for other wellbeing outcomes, including open space, green infrastructure, walking and cycling paths, healthy food access and social connection)
- Consider and plan for co-located services, related or linked buildings; and opportunity to leverage these to promote innovation and research
- Consider and plan for existing partnerships and/or relationships with universities, schools, TAFE, councils, research institutes and local businesses and/or the opportunity to grow and strengthen these to promote innovation.

A good project design brief

A clear and cohesive project design brief is essential to achieving a good design outcome. The design brief communicates the agencies' intentions for a project: the aspirations, scope, needs and priorities, along with detailed requirements and time frames. It should include both aspirations and practical needs, but not identify how these will be met (this is the task of the design team).

The project design brief for a health facility must include design, urban and Country considerations, along with the description of clinical and functional requirements. It should be developed by those with design expertise, and include expert input from those with specialist clinical knowledge and Aboriginal knowledge-holders.

A good project design brief provides the wider project team – consultants, client, and collaborators – with a common reference point and clear direction. Investing time and expertise to develop a good project brief pays dividends in the longer term.

- Involve design expertise in the development of the brief.
- Involve Aboriginal knowledge-holders in the development of the brief.
- Clearly articulate the vision, principles, and objectives and identify key design drivers.
- Incorporate expert advice and the outcomes of community and stakeholder consultation.
- Ensure those responsible for developing the clinical services plan understand the value of environmental and design aspects to health and wellbeing outcomes.

Independent design review

Design review is an independent process that brings interdisciplinary expertise and knowledge to a project; this is a cost-effective and efficient way to ensure quality. Design review supports the client, project management, and the design and delivery team to meet the needs and aspirations of the project, and to ensure the project is contributing value to the community.

Design review involves early and ongoing evaluation. It provides checkpoints to ensure the design process is being properly managed, to evaluate proposals in relation to design quality criteria, and support the project's design governance structure with decision-making and evaluation.

For health projects, design review is best undertaken by panels of cross-disciplinary, built environment experts.

- Establish a clear framework and protocol for design review at key points in the project, including gateways. This should start at initial stages of the project and continue to the end.
- Ensure adequate time and budget to participate in design review processes, including adequate time to revise and redevelop design proposals in response to review processes.
- Allow sufficient budget for design revisions after design review sessions.
- Include design review processes in the terms of engagement for the design and consultant teams.
- Where relevant, engage with the NSW State Design Review Panel.

Appropriate procurement and delivery models

Procurement refers to two aspects of the design and delivery process – the engagement of the design team and other external consultants, and the contractual arrangement through which the facility is constructed. These are separate processes, although some procurement models combine both stages. Both have a significant impact on the quality of the design and the facility as built.

A project procurement strategy is a framework to help ensure that multiple procurements across a project life cycle sustain consistent quality objectives and realise long-term strategic benefits.

The quality of any project, large or small, is significantly influenced by the skills of the design consultants and by the procurement processes through which they are appointed. Design consultants should be engaged early in briefing, project definition and concept development phases where the opportunity to influence the quality of outcomes is the greatest.

A wide range of methods is available for appointing design teams – including procurement lists, expressions of interest, and design competitions. The appropriate method will vary depending on project scale, type and contract type, and procurement route.

- Establish a project procurement strategy, with reference to the agency's procurement protocol.
- Align with relevant government policies such as Better Placed and the NSW Procurement Policy Framework.
- Integrate procurement processes with design governance structures.
- Include design management skills in the project team.
- Select a project delivery process that will support and fulfil the design quality and health and wellbeing expectations, needs and obligations.
- Establish parameters for fairness and clarity of working relationships. For example, including agreed objectives in the project brief and equitable design contracts.
- Allow for adequate time frames and related fees to enable rigorous design development.
- Integrate weighting for design quality in evaluation criteria.
- Identify strategic opportunities that support broader government initiatives, for example, fostering emerging, regional and Aboriginal suppliers.

Robust consultation processes and collaborative design opportunities

Consultation and collaboration are essential to developing a deep and nuanced understanding of the needs of diverse stakeholders and user groups. This includes medical experts, researchers, clinicians, nurses, service providers and other relevant groups, such as community representatives, patient advocates and others.

Genuine community engagement is essential to integrating the facility into its neighbourhood and urban context. This can provide fruitful local support and partnerships, and aid understanding the potential of the place.

In all cases, consultation should be a meaningful exchange, not a tick-box exercise.

- Establish a program of consultation to occur at regular intervals throughout the scoping and design process.
- Include a wide range of stakeholder groups.
- Ensure the design team has access to user groups and community representatives at all stages of the design process.
- Include representation from more junior cohorts and those involved in support services, for example cleaners. Do not limit engagement to senior people and those in prestigious positions.
- Ensure consultation with Aboriginal communities is with appropriate knowledge-holders and representatives, starts at project inception, and continues throughout the project.
- Establish systems and protocols to ensure all voices are heard, and that the loudest, most powerful stakeholder does not dominate the process.
- Develop induction processes to provide participants in consultation with a level of design literacy and an understanding of the role design can play in health and wellbeing.
- Stage consultation throughout the process, so the necessary information and knowledge is available at the appropriate time, and respectful and productive relationships are built over time.
- Consultation should start at the very beginning with the development of the local health district's clinical services plan, and continue until the facility is handed over, and ideally throughout the ongoing life of the facility.

A culture of collaboration, respect and meaningful communication

Health facilities are exceedingly complex projects, with many competing demands and extended time frames. A culture of trust is essential to delivering high-quality projects within tight constraints and restricted budgets. Trust and good communication can help to resolve competing agendas and ensure people are able to do their best work.

- Develop a team approach, understanding the need for cross-disciplinary inputs and involvement.
- Understand how specialist knowledge can be integrated within processes to create efficiencies and shared knowledge.
- Embed respect for different types of expertise, knowledge and experience.
- Ensure collaboration and communication accords with principles of cultural safety.
- Use appropriate methods of representation that enable all decision-makers and team members to easily interpret, read, and quickly understand information.
- Ensure decisions are transparent and accountability is communicated.
- Do not tolerate bullying or aggression by anyone involved in the team.
- Report behaviour that doesn't reflect NSW Government core values of collaboration, respect, empowerment and openness.

Integrated research and evaluation

The design of health facilities, precincts and places can draw on an extensive and ever-growing body of research. This includes international scholarly research into the impact of environmental factors on health, design-based research captured through case studies and manuals, and the extensive data collected by HI.

Each health project also has the potential to contribute back to this body of knowledge and build ongoing improvements. Post-occupancy evaluation is one important means to do this, and is well-established in the NSW health system. This currently focuses solely on clinical outcomes, but there is an excellent opportunity to review projects in terms of design quality and the contribution the design makes to the wellbeing of patients, visitors, staff and the community.

- Provide adequate time and budget to collect and synthesize relevant existing research.
- Incorporate the assessment and analysis of precedents and case studies into the design process.
- Include a broad range of indicators in post occupancy evaluation, such as design quality, the impact of environmental quality on wellbeing and patient outcomes, Aboriginal health impacts and outcomes, public health impacts, and the value created for the public realm and the community.
- Ensure the data from post-occupancy evaluations is readily accessible and available to design teams for future projects.



Maitland Hospital
Aboriginal Country: Wonnarua
Architect: BVN
Image: Martin Siegner

5.

RESOURCES AND CREDITS

5.1

Policy and guidelines

The planning, design and delivery of health facilities in NSW occurs within a set of developed policies and systems. These are robust, complex and well-documented, particularly in relation to models of clinical care.

There is also substantial guidance available on good design, and support to achieve design quality.

This section outlines the policies, guidelines and documents that frame the design and delivery of health facilities, and which complement the content of this guide.

NSW Future Health Report

The **NSW Future Health Report** (NSW Health 2022) identifies six strategic outcomes that are the cornerstone of delivering Future Health.

- Patients and carers have positive experiences and outcomes that matter.
- Safe care is delivered across all settings.
- People are healthy and well.
- Our staff are engaged and well supported.
- Research and innovation, and digital advances inform service delivery.
- The health system is managed sustainably.

Each of these strategic outcomes is supported through a set of key objectives.

NSW Health 20-Year Health Infrastructure Strategy

The **20-Year Health Infrastructure Strategy** (NSW Health 2020) provides the framework for planning investment for health districts, networks and services in NSW. It supports the transition from volume-based care towards value-based, patient-centred care.

The strategy identifies four principles:

- The future patient is wellbeing-focused, tech-enabled and wants to direct their care.
- The future workforce is highly skilled, digitally enabled and flexible, with a culture that values leadership and innovation.
- Future services will flourish within a market of innovative, networked providers who drive collaboration and sharing across the entire health system.
- Future health infrastructure will be diverse, agile and sustainable.

NSW Health policies

The design of health facilities, precincts and places can support and enhance the delivery of a range of NSW Health policies and strategies.

Asset Management Plan (Health NSW 2022)

A state-wide asset management framework that will be fit-for-purpose, sustainable and adaptable and will optimise assets for the provision of health services.

The aim is to shift the focus to a whole-of-life view of acquiring, operating, maintaining and disposing of healthcare assets – from building hospitals and health facilities to sustaining hospitals and health facilities. This will help ensure NSW Health improves asset performance and, therefore, health outcomes.

The plan embeds environmental, social and financial sustainability requirements into the planning, design, delivery and management of Health NSW assets. This will help ensure Health NSW meets its commitments against the NSW Government's sustainability targets and will ensure Health NSW assets are resilient to the changing operating environment.

NSW Aboriginal Health Plan 2013–2023

(NSW Health 2012)

Developed through a partnership between the Aboriginal Health and Medical Research Council of NSW and the NSW Government, the NSW Aboriginal Health Plan 2013–2023 acknowledges the significant health disparities between Aboriginal and non-Aboriginal people in NSW and reflects the NSW Government's commitment to closing this gap.

It takes a systems approach that involves all parts of the health system in NSW and requires a focus on Aboriginal people, on services that are delivered in a culturally competent and safe manner and tailored to meet the unique and local needs of Aboriginal communities.

The plan identifies six strategic directions:

- Building trust through partnerships
- Implementing what works and building the evidence
- Ensuring integrated planning and service delivery
- Strengthening the Aboriginal workforce
- Providing culturally safe work environments and health services
- Strengthening performance monitoring, management and accountability.

The briefing, project management, design and delivery of health facilities, precincts and places has the potential to make important contributions to this work.

NSW Health and The Arts Framework

(NSW Health 2016)

The framework recognises the value of the arts in improving health outcomes as well as promoting health and wellbeing in the wider community. It enables the NSW Health system to maximise the benefits of integrating the arts into the design and delivery of health services. The framework includes governance, partnerships and funding and operational guidelines and resources.

NSW Skin Cancer Prevention Strategy and Guidelines to Shade

Goal 2 of the NSW Skin Cancer Prevention Strategy (Cancer Institute NSW 2017) concerns improving access to adequate shade, and thereby reducing the incidence of skin cancer. Guidelines to Shade (Cancer Council NSW 2013) provide general advice on increasing shade in the built environment.

Healthy Food and Drink in NSW Health Facilities for Staff and Visitors Framework

(NSW Health 2017)

This framework provides best practice guidelines to increase the availability of healthy options in NSW Health hospitals and facilities. It aims to make the healthy choice an easy choice for staff and visitors.

Health facility design guidance

Comprehensive and detailed information about clinical service requirements is provided in a range of regularly updated documents.

Australasian Health Facility Guidelines

(Australasian Health Infrastructure Alliance 2006–2023)

The AusHFG provide detailed information to inform the planning and design health facilities. They support the delivery of optimal patient care through provision of appropriate physical environments. NSW Health policy requires the use of the AusHFG in planning of new and refurbished facilities.

The guidelines include:

- whole-of-health-facility issues, such as design and infection prevention and control
- health planning units, which detail planning requirements for a range of common clinical units. Units include information on service description, models of care, operational policies, functional requirements, design requirements, a schedule of accommodation and a functional relationship diagram
- standard components, comprising a room data sheet and a room layout sheet, provide detailed arrangements for common rooms and spaces (for example patient bedroom, bathroom ensuite and operating rooms).

HI currently provides secretariat and project team support to update the AusHFG resources.

Australasian Health Facility Guidelines Variation Process (HINSW 2019)

The guidelines sets out the process to be followed for project-specific changes to the AusHFG within NSW. Any variation requires clearly documented justification and appropriate sign-off consistent with individual project governance arrangements.

Guide to the Role Delineation of Clinical Services (NSW Health 2019)

The guide provides the framework for the provision of strategic services and clinical and capital planning at local and state level. It describes the requirements for clinical services to be delivered safely, including minimum support services and workforce needs. These requirements are outlined the requirements at the level of the clinical services, not hospitals or health facilities as a whole.

Health Infrastructure Knowledge Library

The HI resources library includes a wide range of design guidance notes, templates and other information.

Health Infrastructure Sustainability Strategy (HI 2022)

The HI Sustainability Strategy objective is to enable future-focused and sustainable infrastructure and asset solutions that support the delivery of services to meet the healthcare needs of NSW communities. The overall structure provides the foundation and organisational arrangements for identifying, planning , implementing, monitoring, reviewing and continually improving sustainable outcomes from the organisation's activities and provides benefits for NSW Health.

Health Infrastructure Engineering Services Guidelines (HI 2016)

These guidelines underpin the planning and design of all public health projects in NSW. They support facilities that provide:

- Contemporary approaches to design
- Practical and easy usage
- Fitness for purpose
- Value for money.

The Guidelines provide performance-based information for the development of design and specification documentation for health care facilities. They identify performance parameters and boundaries where innovations can be explored. This aims to discourage designers from using the Engineering Services Guideline as default solutions, and instead to encourage designers to apply their knowledge and skills to deliver the performance requirements within the defined parameters.

GANSW design guidance

GANSW has a broad range of guidance material relevant to the design of health facilities.

Better Placed – An integrated design policy for the built environment of NSW (GANSW 2017)

Better Placed aims to enhance all aspects of urban environments in NSW by guiding the design of better places, spaces and buildings, and thereby better cities, towns and suburbs. It advocates for good design as an efficient way to mitigate risk and respond to the key challenges facing NSW, including health, climate resilience, rapidly growing population, changing lifestyles and demographics, and infrastructure and urban renewal.

Better Placed establishes the value of good design, identifies seven objectives that encompass the key considerations for good design outcomes (refer to inside front cover). It outlines the processes required to achieve these outcomes, from concept through to construction and maintenance.

Design Quality Framework (GANSW 2020)

The Framework provides government agencies with an established and structured system to support good design outcomes. This can be integrated into all activities that shape the built environment. The framework operates at two levels. It establishes clear aims, standards and protocols at the organisational level, which then flow through and support good processes at the level of individual projects of all scales and across project life cycles.

At the corporate level, a design quality framework includes:

1. The agency's design quality statement
2. Design governance protocols
3. Project lifecycle structure
4. Procurement protocol
5. Design review protocol
6. Design integrity standards.

This suite of documents can then be used to develop corresponding project-specific criteria, requirements and strategies. They can also be used to monitor performance and inform external requirements, including gateway reviews or design excellence requirements as part of development application assessments.

Draft Connecting with Country Framework

The framework supports the process of developing connections with Country to inform the planning, design and delivery of built environment projects in NSW. This aims to help meet three strategic goals:

- Reduce the impacts of natural events such as fire, drought and flooding through sustainable land and water use.
- Value and respect Aboriginal cultural knowledge with Aboriginal people co-leading design and development of all NSW infrastructure projects.
- Ensure Country is cared for appropriately and sensitive sites are protected by Aboriginal people having access to their homelands to continue their cultural practices.

GANSW advisory notes and frameworks

The suite of advisory notes and frameworks provided by GANSW highlight fundamental issues and opportunities in the planning and design of the built environment. They provide a starting point for conversations about how best to approach a specific project or a task within a project.

Many of the [advisory notes](#) and frameworks are interrelated and, where relevant, direct readers to further information and [resources](#).

Topics include:

- [Design Quality Framework Advisory Note](#)
- [Master Plans Advisory Note](#)
- [Green Infrastructure Spatial Frameworks Advisory Note](#)
- [Movement and Place Practitioner’s Guide](#)
- [Evaluating Good Design](#)
- [Implementing Good Design](#)
- [NSW State Design Review](#)
- [Designing with Country Discussion Paper](#)

5.2 Further reading

The impact of environmental quality on health outcomes is the subject of a vast body of research.

The following is a select list of publications drawn on in the preparation of this guide.

Design guides

[Design for Wellbeing: Design guide](#), University of Melbourne (2019).

[Design Matters for Nurses: Hospital design for nurse attraction and retention](#), Hassell & The University of Melbourne Health Systems & Workforce Unit (May 2016).

Literature reviews

Ampt, Amanda, Patrick Harris & Michelle Maxwell. [The Health Impacts of the Design of Hospital Facilities on Patient Recovery and Wellbeing, and Staff Wellbeing: A Review of the Literature, Centre for Primary Health Care and Equity](#), University of New South Wales, Sydney (October 2008).

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Ulrich, Roger & Craig & Zimring. [The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity](#), Report to The Center for Health Design for the Designing the 21st Century Hospital Project (September 2004).

Specific topics

Allen, Joseph G, Piers MacNaughton, Jose Guillermo Cedeno Laurent, Skye Flanigan, Erika Sita Eitland & John D. Spengler. “Green Buildings and Health”, *Current Environmental Health Reports* 2 (2015), 250–258.

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Anderson, Pat (Alyawarre). “Aboriginal Health: Social and cultural transition”, Alyawarre, *Ngoonjook: A Journal of Australian Indigenous Issues* 12 (July 1997), 80–89.

Hromek, Danièle (Budawang/Yuin). “Defining Country”, in *Designing with Country Discussion Paper*, Government Architect NSW (2020).

Nash, Daphne, Timothy O’Rourke, Paul Memmott & Michele Haynes. “Indigenous Preferences for Inpatient Rooms in Australian Hospitals: A mixed-methods study in cross-cultural design”, *HERD: Health Environments Research & Design Journal* 14 no. 1 (2020).

O’Rourke Timothy, Daphne Nash, Michele Haynes, Meredith Burgess & Paul Memmott. “Cross-cultural Design and Healthcare Waiting Rooms for Indigenous People in Regional Australia”, *Environment and Behaviour* 54 no 1 (2022), 89–115.

Rees, Sarah Lynn (Palawa). “This is not my Country”, *Architect Victoria* (Summer 2020).

Sherwood, Juanita (Wiradjuri). “Colonisation – It’s Bad for Your Health: The context of Aboriginal health”, *Contemporary Nurse* 46 no. 1 (2013), 28–40.

Western Health Alliance, *A Transition to Cultural Safety in Service Delivery*, WHAL Culturally Safe Practice Framework (2016).

Williams, Robyn. “Cultural Safety – What does it mean for our work practice?” *Australian and New Zealand Journal of Public Health* 23 no 2 (1999), 213–214.

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