



**HERITAGE
COUNCIL**
OF WESTERN AUSTRALIA

REGISTER OF HERITAGE PLACES ASSESSMENT DOCUMENTATION

11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

The criteria adopted by the Heritage Council in November 1996 have been used to determine the cultural heritage significance of the place.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 3.5.3 Developing agricultural industries
- 3.13 Developing an Australian manufacturing industry
- 3.14 Developing an Australian engineering and construction industry
- 3.17 Inventing devices
- 5 Working
- 8.10.4 Designing and building fine buildings
- 8.10.5 Advancing knowledge in science and technology

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 110 Resource exploitation and depletion
- 112 Technology and technological change
- 408 Institutions

11.1 AESTHETIC VALUE*

The Materials Science Building's external form, massing and detail emulate the architectural style developed by Dutch architect Willem Marinus Dudok in the town of Hilversum, Holland, in the Inter-War period, which influenced the Public Works Department under the directorship of Principal Architect A.E. (Paddy) Clare in the 1940s. (Criterion 1.2)

The Materials Science Building is a landmark due to its distinctive architectural design, including horizontal massing, portal windows and a tall brick chimney, and its location at a busy city intersection. (Criterion 1.3)

* For consistency, all references to architectural style are taken from Apperly, R., Irving, R., Reynolds, P. *A Pictorial Guide to Identifying Australian Architecture. Styles and Terms from 1788 to the Present*, Angus and Robertson, North Ryde, 1989.
For consistency, all references to garden and landscape types and styles are taken from Ramsay, J. *Parks, Gardens and Special Trees: A Classification and Assessment Method for the Register of the National Estate*, Australian Government Publishing Service, Canberra, 1991, with additional reference to Richards, O. *Theoretical Framework for Designed Landscapes in WA*, unpublished report, 1997.

11. 2. HISTORIC VALUE

Chemistry Centre (fmr), East Perth is significant as the location of the principal laboratories of the Government Chemical Laboratories (and its successive reorganisations) from 1942 until 2009) and demonstrates the value of chemical analysis to the State Governments of the post-World War II era in Western Australia. (Criterion 2.1)

Chemistry Centre (fmr), East Perth is associated with Western Australia's development of mineral & petroleum resources, agriculture and manufacturing in the post-World War II era, having undertaken analysis and developmental research to support these industries. (Criterion 2.2)

Chemistry Centre (fmr), East Perth undertook free testing of mineral samples from private interests as part of a government policy of supporting the development of the mining industry, and as such was important in facilitating the mineral boom of the 1960s and 1970s that was critical to the development of the State. (Criterion 2.2)

Government Analyst (later Director) from 1939 to 1947, Harry Bowley, initiated the planning and construction of the offices and laboratories on the site and oversaw much of the construction, as the culmination of his 49-year career working in the laboratories of the Mines Department. (Criterion 2.3)

Chemistry Centre (fmr), East Perth is an example of where the purpose of the buildings and their architectural design combined to reflect a dominant philosophy at the time of construction, namely that development progress could be achieved through modernity, technology and functionality, which is expressed architecturally through an unpretentious Interwar Functionalist style design. (Criterion 2.4)

11. 3. SCIENTIFIC VALUE

The Materials Science Building is used in the teaching of architecture as a fine example of the application of European design of the 1930s, especially the work of Dudok, to Australian buildings, and as a fine technical example of Functionalist design. (Criterion 3.1)

Chemistry Centre (fmr), East Perth has been the site of much significant scientific research since its construction, which has contributed in particular to the development of the State's agricultural, manufacturing and mining industries since World War II, as well as contributing to the protection of the environment and public health and safety in Western Australia. (Criterion 3.2)

11. 4. SOCIAL VALUE

12. DEGREE OF SIGNIFICANCE

12. 1. RARITY

The Materials Science Building is a rare example of the early influence of the international Modern Movement in State public works under the direction of Principal Architect A.E. (Paddy) Clare. (Criterion 5.1)

The Materials Science Building is rare in Western Australia as an example of architectural design strongly emulating that of internationally acclaimed Dutch architect Willem Dudok. (Criterion 5.1)

12.2 REPRESENTATIVENESS

The Materials Science Building is representative of the early influence of the international Modern Movement in art and architecture on mid-twentieth century Western Australian public works. (Criterion 6.1)

12.3 CONDITION

In 2015, *Chemistry Centre (fmr), East Perth* is in fair to good condition. Several years of vacancy and lack of maintenance have resulted in some decline. Structural elements are generally in better condition than detailing, and exterior elements overall are in better condition than the interior.

12.4 INTEGRITY

Chemistry Centre (fmr), East Perth's original intention as the State Government chemical laboratories remains evident, although most buildings have been demolished. The Materials Science Building has been vacant since 2009 and much internal material has been removed. The place has moderate integrity.

12.5 AUTHENTICITY

Chemistry Centre (fmr), East Perth has moderate authenticity. While the Materials Science Building is in its original state, all other buildings have been demolished. There have been minor intrusions into the porthole windows of the Materials Science Building on the Plain Street façade.

13. SUPPORTING EVIDENCE

The documentation for this place is based on the heritage assessment completed by Wayne Moredoundt, historian, and Don Wallace of Palassis Architects, in February 2002, with amendments and/or additions by State Heritage Office staff and the Register Committee.

13.1 DOCUMENTARY EVIDENCE

Chemistry Centre (fmr), East Perth comprises the Materials Science Building, a single storey brick and corrugated fibrocement former government chemical laboratory constructed in 1952 to a 1940s Public Works Department plan as a late rendition of the Inter-War Functionalist style emulating Dutch architect W.M. Dudok, and the site of a more extensive laboratory and office complex constructed from 1942 to 1984, which has since been demolished.

The first Western Australian Government Analyst, Mr E.A. Mann, was appointed in 1896, stationed in Fremantle, and served in the role until 1922. Prior to this, analytical services within government were primarily in assaying (determining the content or quality of ore). By 1904, Mann had become Government Analyst, Agricultural Chemist and Chief Inspector of Explosives and the following year his staff had grown to eight analysts. The laboratory in Fremantle was too small so, in 1906, operations transferred to a building in Wellington Street, Perth, on the site of the present Royal Perth Hospital boiler house. The 1906 Annual Report contains the first reference to the laboratory of the Government Analyst being known as the 'Government Chemical Laboratory'.¹

The work of the Laboratory continued to increase. A 1922 reorganisation saw the laboratory of Government Analyst and Agricultural Chemist amalgamated with the laboratory of the Government Mineralogist and Dr E.S. Simpson, who had started in the Mines Department in 1897, became the Government Mineralogist, Analyst and Agricultural Chemist, a role he held until 1939. Three sections were formed in the combined laboratory – Toxicology, Foods and Drugs; Mineralogy, Mineral Technology and Geochemistry; and Agriculture, Water Supply and Sewerage.²

Despite additions in 1922, by the end of the 1930s the Wellington Street location had become a serious impediment to the work of the Laboratory, being small and unsuitable, especially because adjacent hospital machines constantly shook the building. The rattling damaged the fine instruments and equipment required in the operation of the Laboratory. Replacements were difficult and expensive to obtain due to escalating international tensions.³ In addition, the 1937 Stephenson Report had recommended construction of a new hospital building on the existing Wellington Street site.⁴

1 Government Chemical Laboratories, *Annual Report*, 1978, pp.5-8

2 Government Chemical Laboratories, *Annual Report*, 1978, pp.5-6

3 *Annual Report for the Chemical Branch, Mines Department, for the Year 1940*, p.1

4 G. Bolton, *History of Royal Perth Hospital*, UWA Press, Perth, 1982, pp.126-127

Harry Bowley was appointed Government Analyst in 1939 and immediately started planning for a new building.⁵ Bowley was a long-serving employee of the department, having commenced work in 1898 as a junior clerk in the Geological Survey Branch.⁶

During 1940, plans were prepared by Public Works Department for a new Laboratory. Government funds were earmarked to construct the building on unoccupied Government land with frontages to Hay Street, Plain Street and Adelaide Terrace, East Perth. Tests showed the site to be reasonably free from vibration. Ample land was also made available for future building requirements and necessary ground space.⁷ The new laboratory was established so that chemical works for all government departments could be carried out in one building complex.⁸

The location of the Chemical Laboratory site was Perth Town Lots T8, T9, and T10, land reserved during the nineteenth century for government use and previously largely undeveloped. There was a police station on the corner of Plain Street and Hay Street from at least the 1890s.⁹ From 1926, Police Stables were located towards the corner of Hay Street and Plain Street, with the surrounding land used to train police horses. The police stables were demolished for the construction of the Laboratories.¹⁰

Construction work for the new Chemical Laboratories began in 1940. The cost of the project was estimated at £31,000.¹¹ The foundation stone was laid on 2 September 1941, the building occupied from December 1942 and the official opening performed in November 1944, by which time the cost had increased to £42,000. The plans provided for a well-equipped and modern laboratory, with special attention being paid to minimizing health hazards, and improving working conditions in the laboratories by adopting a system of mechanical ventilation. To avoid fumes as much as possible, gas heating was discarded for electricity.¹² Despite the Government making funds available, the fit-out was very limited, due to wartime restrictions, and no attempt was made to improve the grounds.¹³ The new building was a vast improvement on the former Wellington Street site, but the Director still asserted that it was not a modern laboratory because of its old and often outdated equipment.¹⁴ Serious shortages of scientific equipment continued for some years and were responsible for holding up important and urgent work.¹⁵

5 Government Chemical Laboratories, *Annual Report*, 1958, p.5

6 Government Chemical Laboratories, *Annual Report*, 1978, p.6

7 *Annual Report of the Chemical Branch, Mines Department*, 1940, p.1

8 *West Australian*, 18 November 1944, p.5

9 Post Office Directories 1893-1949

10 Post Office Directories 1893-1949; *West Australian*, 3 September 1941, p.6

11 *West Australian*, 3 September 1941, p.6

12 *Annual Reports of the Government Mineralogist and Analyst*, 1941&1942, p.1

13 *Annual Report of the Government Mineralogist, Analyst and Chemist*, 1941, 1942&1943, p.1; *West Australian*, 18 November 1944, p.5

14 *Annual Report of the Government Mineralogist, Analyst and Chemist*, 1943, p.1

15 *Annual Report of the Government Mineralogist, Analyst and Chemist*, 1944, p.1

Although the new laboratories were planned to give more space for expansion, work had increased so rapidly since the transfer from Wellington Street that additional chemists were appointed, so using all available working spaces. In 1945, the Director outlined the need to provide additional accommodation in the following areas: administration; stores for soil and mineral samples; a refectory large enough to seat all members of staff and with provision for the screening of scientific films; a conference room; female staff facilities; a new soil mineralogy laboratory block; a new metallurgy laboratory; a new fuel technology laboratory; and an industrial chemistry laboratory block.¹⁶

In 1947, with emphasis on post-war industrial development foremost, the Laboratories were reorganised into five subdivisions. An additional 651 square metres of space was added to the laboratories.¹⁷

In 1947, Bowley retired after 49 years working for the Department, and was replaced as Director by H.P. Rowledge.¹⁸

The Laboratories continued to be overcrowded, with the Industrial Chemistry Division particularly restricted by its lack of a designated building. Plans were drawn c.1947 for a new Industrial Chemistry Building, for the corner of Hay and Plain Streets, but these did not proceed at the time. The number of samples being processed by the laboratories was increasing exponentially and the lack of appropriate industrial chemistry facilities was reported to be limiting the industrial development of the State.¹⁹

In January 1952, tenders were called for the erection of an industrial chemistry building at the Chemical Laboratories, especially a 'unit process laboratory'. The proposed building was to be a brick and tile structure, 130ft long by 40ft wide (40x12m), consisting primarily of a single large room with a concrete floor, along with two smaller laboratories and an office.²⁰ It appears the building (now known as the Material Science Building) was completed by the end of the year, but it was some time before the relevant laboratory equipment was acquired and installed.²¹ The small laboratories became functional in August 1954, but installation of the large unit process plant, occupying the majority of the building space, was not completed until May 1956.²²

The 1952 building was designed by the PWD under the guidance of the Principal Government Architect, A.E. (Paddy) Clare, as the 1940s buildings

¹⁶ *Annual Report of the Government Mineralogist, Analyst and Chemist*, 1945, p.1

¹⁷ *Government Chemical Laboratories, Annual Report*, 1947, pp.1-2

¹⁸ *Government Chemical Laboratories, Annual Report*, 1947, pp.1-2

¹⁹ Palassis Architects, 'Chemistry Centre Perth: Conservation Plan', prepared for Hassell, 30 August 2010, pp.18-19

²⁰ *West Australian*, 31 January 1952, p.3, accessed at <http://trove.nla.gov.au/ndp/del/article/49013006> 8 April 2015.

²¹ *West Australian*, 3 September 1952, p.6, accessed at <http://trove.nla.gov.au/ndp/del/article/49050643> 8 April 2015,

Note: the building is not on a 1948 aerial photograph but is on an April 1953 sewerage plan (see images reproduced in Palassis Architects, 'Chemistry Centre Perth: Conservation Plan', prepared for Hassell, 30 August 2010, pp.19&21)

²² Palassis Architects, 'Chemistry Centre Perth: Conservation Plan', prepared for Hassell, 30 August 2010, p.19

had been.²³ Clare was Principal Architect of the PWD from 1930 until 1960. Vin Davies, an architect with the PWD from 1946 until the establishment of the Building Management Authority, recalled in 1994 that:

Most importantly Clare was well informed on the changes occurring in architectural theory and design, including the Modern Movement, the landmark work of Frank Lloyd Wright, Walter Gropius, Le Corbusier, Mies Van Der Rohe and Willem Dudok. The younger pre-second World War architects, like W.L.Green, G.W. Finn, L.W. Walters, W. Leighton and a little later S.B. Cann and E. H. Van Mens, were also aware of and influenced by these trends.²⁴

The new building at the corner of Hay and Plain Streets was designed in a late rendition of the Interwar Functionalist style of architecture, strongly emulating the interwar period architectural work of internationally acclaimed Dutch architect Willem Dudok. Functionalist architecture was part of the Modernist movement, and advocated progress through science, technology, truth in art, and designing primarily to meet functional needs.²⁵ As such, Chemical Laboratories were an ideal subject for this architectural style and the resulting building was a characteristic Functionalist structure. By the post World War II period, the Functionalist style was being applied with less detailing and more severe lines. It eventually fed into the Post World War II International style, which is also evident in the design of sections of *Chemistry Centre (fmr), East Perth*.²⁶

Dudok's work had a profound influence on architecture around the world, and was particularly influential in Australia. Public Works Department architecture of the 1940s and 1950s was strongly influenced by Dudok. At least one PWD architect is known to have visited Hilversum, the town in Holland that was considered a showcase of Dudok's work and which was visited by many architects from around the world. The subsequent work of PWD architects Finn, Walters and Green shows evidence of the Dudok influence, and it is likely that one or more of these architects may have been involved in the design of *Chemistry Centre (fmr), East Perth*.²⁷

Rowledge continued as Director until his retirement in 1955. The range of work and number of staff continued to expand, pressuring the facilities.²⁸

Although the Government Chemical Laboratories were a part of the Mines Department, the work undertaken was received from a wide variety of both government agencies and private interests, and applied to many fields. Much

²³ *West Australian*, 18 November 1944, p.5

²⁴ Davies, Vincent F.U. in Bronswijk, B. and Richards, D. (Eds.), *Creating the Public Realm: Public Architecture in Western Australia: 1890 – 2000*, Building Management Authority, Perth, 1994. p.6

²⁵ Apperly, Richard; Irving, Robert and Reynolds, Peter *A Pictorial Guide to Identifying Australian Architecture: Styles and Terms from 1788 to the Present*, Angus & Robertson, North Ryde, 1989, p.184

²⁶ John Stephens, Head of the Department of Architecture in the School of Architecture Construction and Planning, Curtin University, phone conversation with Clare Schulz, 28 July 2005

²⁷ Simon Anderson, Senior Lecturer in Architecture, UWA, phone conversation with Clare Schulz, 3 August 2005

²⁸ Government Chemical Laboratories, *Annual Report*, 1951, p.4

of the work of the Laboratories involved physical and chemical testing of samples submitted for various analyses. However, there was also an ongoing program of innovative research and development, which annual reports repeatedly lamented as being limited by staff shortages, cramped spaces, and the necessity of dealing expediently with more immediate requests. The Agricultural and Water Supply section of the Laboratory consistently received the majority of samples tested, in many years accounting for over half the samples processed. A significant amount of work was undertaken for the Department of Agriculture processing samples from the various government agricultural research stations. The results of this work influenced the development of agriculture in the State.²⁹ A particularly important aspect of the Laboratories' work in agricultural research was the identification of nutrient deficiencies in Western Australian soils, which enabled the development of highly efficient fertilizers.³⁰

Following Rowledge's retirement in 1955, J.C. Hood was the appointed Director, until his death in office in May 1957. Dr L.W. Samuel then became Director, continuing in this post until 1973. During the sixteen years that Dr Samuel was Director, there were several building extension programmes and increases in staff and functions, including a major building program on the East Perth site from 1962 to 1966 that approximately doubled the laboratory, library and refectory spaces. Some functions also moved off-site to Bentley or transferred to other departments.³¹

Increasingly the Laboratories were viewed as a source of technical knowledge on a wide range of issues. The breadth of work undertaken was extensive, including: testing blood and urine samples of those accused of driving under the influence of alcohol; investigating the chemical and medicinal properties of plants; testing agricultural produce and soils for nutrient and chemical levels; monitoring the effects of pesticides and various aspects of air quality; providing tests to assist in criminal investigations (eventually becoming the forensic department in the 1980s); testing patient samples from the public health system; investigating appropriate floor coverings and metal coatings for different commercial and government situations; involvement with veterinary medicines; and, problem solving on request for industries.³² Much of the work undertaken by the Laboratories was in response to specific requests or enquiries, including developing new products to solve particular problems. Through the 1950s and into the 1960s, enquiries relating to plastics were especially prominent, as the material became more and more commonly used in both domestic and commercial situations.³³

Staff members also provided technical advice to numerous committees, including the Poisons Advisory Committee, Pesticide Advisory Committee, Fluoridation of Water Advisory Committee, a 1962 taskforce investigating

29 Government Chemical Laboratories, *Annual Reports*, 1951-1965

30 Chemistry Centre website, 27 July 2005,
<http://www.doir.wa.gov.au/CCWA/72FD671D74C94B2794E1494E2EF9A5ED.asp>

31 Government Chemical Laboratories, *Annual Report*, 1960, p. 3 & 1962 pp.3-4, 1966 p.4

32 Government Chemical Laboratories, *Annual Reports*, 1951-1965, 1984-85

33 Government Chemical Laboratories, *Annual Reports*, 1951-1965

whether Western Australia required 'Clean Air' legislation as in other States, and bodies approving new products for use in the State.³⁴

Initially it appears that a great deal of the Chemical Laboratories' work was undertaken for free. However, by the mid-1960s it was reported with some degree of frustration that significant amounts of staff time was being consumed with working on sponsored projects for private interests.³⁵ This included testing mineral samples submitted by mining corporations for verification of ore deposits.³⁶

The Government Chemical Laboratories were the major source of mineral testing and research work relating to mining, enabling the development of the mining industry in the State. The number of mineral samples being tested by the Laboratories boomed from the mid-1960s, as a result of the discovery of new mineral deposits, especially in the north west of the State.³⁷ Much of this work was undertaken by Engineering Chemistry division, which relocated to new Bentley premises during this period.³⁸

The expansion of mining in Western Australia from the 1950s to the 1970s dramatically influenced the development of the State. The value of the State's mineral production doubled in the 1950s, with the previous supremacy of the gold industry being challenged by the rapid discovery and expansion of the exploitation of other ore deposits.³⁹ In 1966, for the first time, iron ore surpassed gold as the greatest mineral extract, by value, in the State. In 1968-69, revenue from the mineral boom allowed the State for the first time since Federation to cease its annual draw on the Commonwealth Grants Commission.⁴⁰ Mining became the mainstay of the State's economy. In 1963-64, mining and quarrying accounted for 6.2% of production in Western Australia; by 1974-75, this had risen to 30.9%.⁴¹

With Dr Samuel's retirement in 1973, R.C. Gorman became the Director of the Laboratories.

A fire in January 1972 severely damaged the central 1942 buildings. The Laboratories managed to continue operations through the subsequent year of rebuilding, by crowding staff and loaned equipment into the unaffected buildings, including the 1952 building.⁴²

³⁴ Government Chemical Laboratories, *Annual Reports*, 1951-1965, 1984-85

³⁵ Government Chemical Laboratories, *Annual Reports*, 1964 p.14

³⁶ Government Chemical Laboratories, *Annual Reports*, 1951-1965

³⁷ Government Chemical Laboratories, *Annual Reports*, 1951-1965, esp. 1951 p.12; 1958 p.25; 1965 p.34

³⁸ Email from Richard Hartley, on HCWA file P1612, and Government Chemical Laboratories, *Annual Reports*, 1960s

³⁹ K. Spillman, *A Rich Endowment: Government and Mining in Western Australia 1829-1994*, Nedlands WA, UWA Press for the Department of Minerals and Energy in association with the Centre for Western Australian History, p.191

⁴⁰ K. Spillman, *A Rich Endowment: Government and Mining in Western Australia 1829-1994*, Nedlands WA, UWA Press for the Department of Minerals and Energy in association with the Centre for Western Australian History, p.195

⁴¹ K. Spillman, *A Rich Endowment: Government and Mining in Western Australia 1829-1994*, Nedlands WA, UWA Press for the Department of Minerals and Energy in association with the Centre for Western Australian History, pp. 197-198

⁴² Government Chemical Laboratories, *Annual Report*, 1972, pp.4-6

In 1975, long-term planning with respect to the Plain Street site and the future of building on the site commenced.⁴³ By 1976, there was a particular need to provide air-conditioning for staff as well as instruments, to make hot summer conditions more bearable.⁴⁴ However, it was February 1982 before Stage 1 of the air-conditioning fit-out was operational.⁴⁵

In 1984, buildings at the southwest corner of the site were demolished for the construction of Mineral House II. A 'temporary' administration, store and library building was erected abutting the east side of the Materials Science Building to house functions dislocated in the demolition.⁴⁶

After several reviews, and concerns at environmental problems associated with the operation of a chemical laboratory in the City, especially fumes, the Government announced in 1986 that the Laboratories were to remain a single consolidated unit as part of the Department of Mines. Following the Government's decision, plans were made regarding a new site for the Laboratories on land adjacent to Curtin University in Bentley. The vision for the future was of the construction of new laboratories at Bentley in association with a Mineral Research Centre.⁴⁷

The following year, the Government Chemical Laboratories, renamed the Chemistry Centre, was restructured. It now comprised the following laboratories: Agricultural Chemistry, Environmental Chemistry, Forensic Science, Health Chemistry, Kalgoorlie Metallurgical, Mineral Processing and Mineral Science.⁴⁸

By 1990-91, further modifications to the *Chemistry Centre (fmr), East Perth* buildings were made to improve safety and occupational health conditions. A proposal for a staged building program for the transfer of the Mineral Processing Laboratory and Hay Street facilities to Bentley was put to the Government for funding in 1991-92.⁴⁹ Subsequently, no major additions or changes were made at the Hay Street site, in anticipation of relocation to Bentley.⁵⁰

In January 1994, the State Government announced that the Chemistry Centre would be 'commercialized' from 1 July 1994.⁵¹

The following year, the restructure of the Chemistry Centre resulted in a number of changes. The Centre moved to a new phase of operation as an independent commercial unit in the Department of Minerals and Energy. The introduction of inter-agency charging and competitive tendering for scientific services previously provided resulted in other significant changes within the Centre as some work was transferred to the private sector.⁵² As the reduction

43 Government Chemical Laboratories, *Annual Report*, 1975, p.4
44 Government Chemical Laboratories, *Annual Report*, 1976, pp.3-4
45 Government Chemical Laboratories, *Annual Report*, 1981, p.3
46 Government Chemical Laboratories, *Annual Report*, 1985, p.4
47 Government Chemical Laboratories, *Annual Reports*, 1984-1987
48 Chemistry Centre, *Annual Review*, 1987-88, p.4
49 Chemistry Centre, *Annual Review*, 1990-91 p.4
50 Chemistry Centre, *Annual Review*, 1991-92 pp.3-4
51 Chemistry Centre, *Annual Review*, 1993-94, pp.5-6
52 Chemistry Centre, *Annual Review*, 1994-95, pp.4-5

in the role and function of the Chemistry Centre continued, Government client agencies reduced requirements for scientific services and staff numbers declined. During this time, it was proposed that the existing Chemistry Centre buildings be replaced by new facilities, as their site was required for the State Government's 'City Gateway Project'.⁵³

During 2000-2001, the Chemistry Centre became part of the portfolio of the Minister for State Development and then a Division of the newly created Department of Mineral and Petroleum Resources.⁵⁴

The Material Science Building has been used by architectural lecturers as an excellent example of Functionalist design style from the 1940s, demonstrating the transition from 1930s Art Deco influenced Functionalism to more streamlined and severe Post World War II adaptations of Functionalism. It is also used to illustrate the way that the style of an architect in one part of the world, in this case Dudok, is transported and adapted to completely different contexts and remains identifiable as having been influenced by the original architect or design school. Units in architectural history, design and technical aspects make reference to the place as being a finely designed building and the strongest remaining example in the State of its style.⁵⁵ It had been thought that the building was part of the original 1942 construction on site.⁵⁶

In 2007, *Chemistry Centre (fmr), East Perth* became the autonomous 'WA Chemistry Centre', using the trading name 'ChemCentre', after the passing of the *Chemistry Centre (WA) Act, 2007*. The Act established the ChemCentre as a statutory authority.⁵⁷

From 2009 into 2010 the agency gradually relocated operations to the newly constructed Resources and Chemistry Precinct on site at Curtin University, Bentley. Scientific equipment was either relocated or disposed of.⁵⁸

Despite the development of other laboratories and research institutions, both in government departments, at universities and through private initiatives, *Chemistry Centre (fmr)* continued to provide a wide range of scientific research and support services in the fields of forensic, organic, inorganic, residue, environmental, agricultural, soil, mineral, synthetic and regulatory chemistries into the 2000s. It remained the 'premier analytical chemistry facility' in the State until the agency relocated to Bentley. The 1952 building was used as the Materials Science Building until it was vacated.⁵⁹

A heritage assessment for *Chemistry Centre (fmr), East Perth* was completed in 2002 and consultation ensued over many years regarding potentially entering the place in the State Register of Heritage Places and conserving at

53 Chemistry Centre, *Annual Review*, 1996-97, p.4; Chemistry Centre, *Annual Review*, 1997-98, p.4

54 Chemistry Centre, *Annual Review*, 2000-2001, p.1

55 Simon Anderson, phone conversation with Clare Schulz, 3 August 2005; John Stephens, phone conversation with Clare Schulz, 28 July 2005

56 SHO place files for P10612

57 SHO place files for P10612

58 Chemistry Centre website, 12 November 2009, <http://www.chemcentre.wa.gov.au/>; Palassis Architects, 'Chemistry Centre Perth: Conservation Plan', prepared for Hassell, 30 August 2010, p.iii

59 Chemistry Centre website, 27 July 2005, <http://www.doir.wa.gov.au/CCWA/index.asp>

least the iconic 1952 building on the corner of Hay and Plain Streets. A conservation plan was completed by Palassis Architects in 2010. A draft archival record for buildings on site was completed by TPG in September 2011.⁶⁰

In 2015, the original large site was subdivided and demolition was approved for most buildings on site. At the same time, plans were made to conserve and reuse the 1952 Materials Science Building, on the newly created Lot 101, as part of a new predominantly residential development on the site. The site is now referred to as 'ChemLabs'.⁶¹

In 2018, the site is owned and managed by the Metropolitan Redevelopment Authority. The former Laboratory Buildings (aside from the Materials Science Building) have been demolished.⁶²

13.2 PHYSICAL EVIDENCE

Chemistry Centre (fmr), East Perth comprises the Materials Science Building, a single storey brick and corrugated fibrocement government chemical laboratory constructed in 1952 in a late rendition of the Inter-War Functionalist style (emulating W.M. Dudok), and the site of a more extensive laboratory and office complex constructed from 1942 to 1984 which has since been demolished.

The place formerly comprised part of a street block fronted by Hay Street, Plain Street and Adelaide Terrace on the north, west and south sides respectively. Mineral House, a Late-Twentieth Century International Style office tower, occupies approximately one quarter of the land area at the corner of Adelaide Terrace and Plain Street. Mineral House and the other buildings and site south of Lot 101 are not included in this assessment.

The setting comprises Queens Gardens, a park, opposite and northeast of the place on Hay Street. Diagonally opposite on the corner of Hay and Plain Streets is a small unfenced park. The mid-rise Department of Housing Building is opposite on Plain Street. East of the site is recent mid-rise residential development. South and immediately east of the Materials Science Building is the site of the laboratory and administration buildings of the former Chemical Laboratories, which is in the process of demolition and redevelopment.

The Materials Science Building is designed in the Interwar Functionalist Style, with parapets and cubiform overall forms used together with some materials contemporary with the early post war period. It is also reminiscent of the Post World War II International style. It includes a mezzanine which gives the impression externally that it is a two-storey building, while the remainder of the laboratory buildings on site were single-storey. The remainder of the Chemical Laboratory buildings on site were in a vernacular Interwar style, except for some less-sophisticated Interwar Functionalist elements to the Adelaide Terrace façade. The more recent blockwork iron roofed single storey

60 SHO place files for P10612

61 SHO place files for P10612

62 SHO place files for P10612

eastern wing of the Materials Science Building is being removed as part of current development works.

The Materials Science Building is constructed of an overlaid asymmetrical composition of rectangular blocks using salmon brick parapet walls with cement coping. The composition is given horizontal emphasis by a band of low steel framed windows along Hay Street while this emphasis is balanced by vertical rectangular blocks (including a chimney) at the Plain Street corner. The only non-rectilinear features on this block are three porthole windows on the Plain Street facade. The rectangular forms are connected to ground on Plain Street by low planters and retaining walls.

The roof is a low-pitch hipped gable of corrugated fibrocement sheeting that has been identified as containing asbestos. The roof is entirely hidden behind brick parapets.

The Materials Science Building is fitted out in the manner of a warehouse with concrete floors, exposed steel roof trusses and unpainted walls. Some sections of this block have been partitioned with stud-framed structures. There are no ceilings and silver insulative roof lining is evident. The concrete floor has a slight gradient to permit drainage and a channel is cut through the slab, with a pressed metal cover in place. Internal fixtures and fittings relating to the building's original function remain, including simple light fittings and shades, copper pipework, exhaust ducting and steel railings.⁶³

The buildings are in fair to good condition, with structural elements generally in better condition than detailing, and exterior elements overall in better condition than the interior.⁶⁴

13.3 COMPARATIVE INFORMATION

Interwar Functionalist Style and Dudok

The Materials Science Building is constructed in a Dudok-inspired late rendition of the Interwar Functionalist style. It is a late example of the style, and also shows influences of the emerging Post World War II International style.

There are 36 places entered in the State Register⁶⁵ which are noted as having been designed in the Interwar Functionalist style. The majority are halls, hotels, cinemas or residences, which express the style in a more decorative manner. However, there are three hospitals (Lake Grace, Graylands and sections of P2438 *King Edward Memorial Hospital*), one school (P15744 *John Curtin College of the Arts*), a research station (P16599 *Salmon Gums Research Station*) and an electricity substation (P3711 *Electricity Sub-Station, Fremantle*) that display some similarities to *Chemistry Centre (fmr), East Perth* as large, functional buildings with minimal decorative treatment.

⁶³ TPG, 'Chemistry Centre: Materials Science Building – Conservation Works Schedule', May 2014, pp.8-11, on SHO file P10612 vol.3

⁶⁴ TPG, 'Chemistry Centre: Materials Science Building – Conservation Works Schedule', May 2014, pp.5-8, on SHO file P10612 vol.3

⁶⁵ State Heritage Office database search, 8 April 2015

An additional 18 places entered in the State Register have been noted as being designed in the Post World War II International style. Those with some similarities include:

- P14911 *ABC Sound Broadcasting and Television Studios, Perth* (1960)
- P15426 *Narrogin Regional Hospital* (various stages from 1934)
- P04559 *Graham Flats* (1958)
- P02450 *Perth Modern School* (post-war additions)
- P15744 *John Curtin College of the Arts* (post-war sections)

The Material Science Building strongly emulates W.M. Dudok's architectural style. Unlike other similar PWD designs of the 1940s such as Senior Technical School, Leederville, (designed 1944 and which shares the emphasis on mass composition and materials) there is no Art Deco ornament. A larger building with a similar aesthetic is Agnes Walsh's Nurses' Home building (1946) (part of the registration of *King Edward Memorial Hospital* designed by G.W.Finn of the PWD (noted in the style guide as being a Post War International style building⁶⁶).

Examples of Dudok-inspired buildings in other States include Adelaide High School (designed by E. Fitzgerald & J. Brogan in the 1940s), Sydney and Newcastle Technical Colleges (designed by Harry Rembert) and Tip Top Bakery, East Brunswick Victoria (1948, recently adapted for apartments). However, no other Western Australian building so closely emulates the personal architectural style of Dudok, as does the Materials Science Building of the *Chemistry Centre (fmr), East Perth*.

Willem Marinus Dudok (1884-1974) was appointed architect to the town of Hilversum near Amsterdam from 1916. He developed his own distinct style and employed it in many schools and other public buildings. The climax of his style can be seen in the Hilversum Town Hall of 1928-30, internationally one of the most influential buildings of its date. The Materials Science Building of *Chemistry Centre (fmr), East Perth* can be broadly compared compositionally to his Hilversum Town Hall but more particularly to his Catharina van Rennes school also in Hilversum, despite this being a two-storey building. Each of these buildings employs asymmetrical composition of rectangular blocks, including a tower, in light coloured exposed brick with concrete eyebrow awnings over long bands of low windows.

In considering the similarities of the Materials Science Building to Dudok's work, one also must consider what was formerly the Laboratories' principal entrance, on Adelaide Terrace. The Adelaide Terrace Wing was cut short by the later development of Mineral House, the development of which removed its western wing and main entrance. The Adelaide Terrace wing subsequently read as a single linear block with almost complete horizontal emphasis. This was not as originally designed. The original design comprised a composition of strong horizontal emphasis with an off-centre vertical mass balancing the

⁶⁶ Apperly, Richard; Irving, Robert and Reynolds, Peter *A Pictorial Guide to Identifying Australian Architecture: Styles and Terms from 1788 to the Present*, Angus & Robertson, North Ryde, 1989, p.216

composition (though with less sophistication than that of the Materials Science Building) and giving emphasis to the main entrance. The design even used many of the details of Dudok's work including the Faience tile cladding of the short window piers, which was the cladding also used to line the now-demolished entrance portal. The design was later extended at both ends and then reduced by demolition of much of the western wing.

In contrast, the complex massing of the Materials Science Building has been retained as a single composition without extension of additional masses or diminution. The Materials Science Building is rare for its strong emulation of W.M. Dudok's architectural style within a Western Australian context. This similarity does not extend to the essentially warehouse-like interior but is principally related to the exterior form, material and detail.

Laboratories

The State Heritage Office database includes seventeen other places noted as having laboratories, five of which are entered in the State Register:

- *P01273 Chamber of Mines Building, Kalgoorlie*
- *P05566 Avondale Research Station*
- *P06839 Gascoyne Research Station*
- *P16599 Salmon Gums Research Station, P16601 Frank Wise Institute of Tropical Agriculture.*

The latter four places are agricultural research stations, as are the majority of the other places noted as having laboratories in the State Heritage Office database, and are not directly comparable. *Chemistry Centre (fmr), East Perth* handled much of the testing of samples from these research stations. *P01273 Chamber of Mines Building, Kalgoorlie* was constructed in 1903, and became a branch of the *Chemistry Centre (fmr), East Perth*.

Although other laboratories were built, *Chemistry Centre (fmr), East Perth* was the central chemical laboratory of the State Government from 1942 to 2009. Although private industry, educational institutions and some government departments have also developed laboratories to take over some of the work previously undertaken by the *Chemistry Centre (fmr), East Perth*, *Chemistry Centre (fmr), East Perth* is unusual for the wide variety of work it handled during its period of operation.

As a mid-twentieth century State Government chemical laboratory, the place is rare. As well as being rare as an emulation of Willem Dudok's work in particular, the place can be seen to be more generally representative of the early influence of the international Modern Movement in art and architecture on mid-twentieth century Western Australian public works.

13.4 KEY REFERENCES

Management Services Branch: Corporate Development Division, Department of Mines, *Chemistry Centre History of Accommodation 1906-1989*, Perth, 1989. Copy held with Chemistry Centre Western Australia.

13.5 FURTHER RESEARCH
