

2020-21 Graduate/Trainee Supervisor Innovation Project

As a part of Sarah's focus on learning and development, innovation and continuous improvement, a new Sarah Solutions Centre at Regency Park is in the process of being established. The SSC will not only be a learning and training facility for Sarah staff, external students, and other construction industry professionals but also a facility to physically showcase construction techniques and methods.

The establishment of this facility will help develop the next generation of professionals entering the construction industry and will cement Sarah's place as an industry leader for innovation in South Australia.

For the 2020-21 Innovation Project, Construction Graduates and Trainee Supervisors will work collaboratively to build the displays which will be exhibited at the SSC. There will be seven displays built, based on the following topics:

- Roof Design
- Roof/Wall Cladding Interface Detail
- Fire Walls and Service Penetrations
- Core-Filled Blockwork
- External Facades – Exotec/Brick Veneer
- Cement Sheeting
- Precast Installation

The Construction Graduates and Trainee Supervisors will be split into pairs, and each pair will be responsible for building and delivering one of the displays.

Project Brief

As a pair, you will be allocated one of the seven topics for which you will build a display.

Working closely with our Senior Site Manager, Steve Blackmore, you will need to design the display using a standard pallet with a cement sheet as a base. From there, you will need to organise the supply and installation of the display at the SSC and manage the installation process including defects. This will involve the design of the display,

The following requirements must be included in your display:

- Create an initial design of the display for approval.
- Create an ITP of the works utilising manufacturer's recommendations and the Australian Standards.
- Obtain footage of the activity in your display topics occurring – this may be obtained from site or from the internet.
- A QR sign will be placed on each display, so the viewer is able to access information about the topics kept centrally in a QR workbook. You will need to collate literature about your topics to be included in the QR workbook.
- Organise construction of the display at the warehouse with trades and suppliers. Understand and document production rates. For example – *How many blocks can be installed in a day/man? What is the maximum course height before concrete filling has to occur?*

While Steve will be your supervisor for this project, you are expected to consult with Richard Hough, Salem Tredrea and Dena English throughout your project to ensure that relevant considerations are given to process, business and quality requirements.

Due Date: March 2021

Project Groups

#	Topic	Team Members
1	Roof Design	Nathan Bowden + Rachel Kitto
2	Roof/Wall Cladding Interface Detail	Vandi Huynh + Joe Raymond
3	Fire Walls and Service Penetrations	Andrew Colmagro + Craig Hann
4	Core Filled Blockwork	Josh Matheson + Andrew Glazbrook
5	External Facades – Exotec/Brick Veneer	Oscar Clark + Shane Williams
6	Cement Sheeting	Shane Fessas + Paul Schultz
7	Precast Installation	Adrian Condello + Josef Fuschtei
8	Health Sector Specific	Oscar Clark + Shane Williams

Display Topics

The first 7 displays for the SSC are described below.

1 – Roof Design

- Box gutter roof interface
- Two types of deck on side (kliplock/face-fixed)
- Bondor/Aspin panel on other side
- Also roof raisers, C purlins, bridging pieces, safety mesh, turn ups/downs, walk boards, pole flashings, box gutter expansion joints, conventional sump, syphon, overflows, apron, parapet flashings, insulation.
- Example Web resources:
 - https://www.youtube.com/watch?v=G_pia4bi8tg
 - <https://www.lysaght.com/products/klip-lok-700-hi-strength>
 - <https://www.saiglobal.com/pdftemp/previews/osh/as/as1000/1500/15621.pdf>

2 – Roof/Wall Cladding Interface Detail

- Roof/wall cladding/parapet detail
- Framing, packing, wall penetrations, over/under flashings, toe moulds, barge flashings, apron flashings, parapet flashings (cross fall ply support), external gutters, roof penos, tray flashings, deck tights.
 - Plus – correct screw class, decks to suit roof pitch, weathering of sheets, direction of deck install, end span mid span, safety mesh install and sign off, safety systems and additional support, roof raisers, section-insulation, correct silicon, dis-similar metals – copper over zinc, roof hand over clean up, parapet expansion joints, box gutter falls.
- Example Web resources:
 - <https://www.saiglobal.com/pdftemp/previews/osh/as/as1000/1500/15621.pdf>
 - <https://www.bradfordinsulation.com.au/home-insulation/roof-sarking/building-code-of-australia-and-sarking>
 - <https://ncc.abcb.gov.au/ncc-online/NCC/2016-A1/NCC-2016-Volume-Two/Part-35-Roof-And-Wall-Cladding/Part-351-Roof-Cladding/Part-351-Roof-Cladding?inlineLink=%7B6B6003C7-BE3C-46CA-B880-336D354ABD23%7D>

3 – Fire Walls and Service Penetrations

- Fire wall/smoke wall and penetration sign offs
- Show shaft wall, fire wall system.
- Service penetrations, floor penos, fire boxes, water pipes, fire pipes, cables, cable tray, refrigeration pipes, fire dampers, peno ID/register, types of fire walls, fixing of sheets, lapping of sheets.
- Example Web resources:
 - https://tfire.com.au/Penetrations?gclid=Cj0KCQiAgo3-BRD0ARIsAE5vnaIRkLUmpccdv7ySPQ-gFGwgZo6keCfYU_FOKo-hXn4NcuBN_JuDvYaAuqLEALw_wcB
 - <https://www.fyreguard.com/penetration-seals.php>
 - <https://ncc.abcb.gov.au/ncc-online/NCC/2016-A1/NCC-2016-Volume-One/Section-C-Fire-Resistance/Specification-C315-Penetration-Of-Walls-Floors-And-Ceilings-By-Services/1-Scope?inlineLink=%7B5CC29A39-E6D6-495C-9B6E-7120CAB47449%7D>
 - <https://www.saiglobal.com/PDFTemp/Previews/OSH/As/as4000/4000/40721.pdf>

4 – Core Filled Blockwork

- Core filled blockwork 140mm and 190mm
- Clean out holes, starter bars, horizontal bars, door frame install, fire rated and non-fire rated block, 90mm blocks (partition blocks), brick ties, tram track, fire caulking, head restraints, expansion joints, concrete mic design (size agg, concrete strength, wetting down of block prior to pour, curing time of mortar prior to pouring, damp course, minimum nibs to door ways), engineers inspections.
- Example Web resources:

- https://www.nationalmasonry.com.au/wp-content/uploads/National_Masonry_Design_Guide_Book_2_SQLD.pdf
- <https://www.adbrimasonry.com.au/LiteratureRetrieve.aspx?ID=178001>
- <https://australmasonry.com.au/product/australite/>

5 – External Facades – Exotec/Brick Veneer

- Brickwork perp and bed sizes, sarking, brick ties (metal nylon, stainless steel), damp course, weep holes, vermin caps, window sills, internal wash out (cleanliness inspections), coloured mortar (bucket mix), types of joints.
- Example Web resources:
 - <https://www.jameshardie.com.au/productrange/exotec-panel-&-system>
 - https://www.pghbricks.com.au/?utm_source=google&utm_medium=search&utm_campaign=jw_search_bricks&utm_adgroup=veneers&utm_term=pgh_pure_velvets_bmm&gclid=Cj0KCQiAgo3-BRDoARIsAE5vnaJaDTbmoMwdrUgGSw00LfNialjvvEYi8y-bNva5GGeNfWj9dsWbQ4saAsM-EALw_wcB

6 – Cement Sheeting

- Framing/top hat and packing, sarking, toe/sill molds, supplier inspections, compliant installs to manufacturer's details, sealing to openings/penetrations, filling of screw holes (correct filler), parapet capping.

7 – Precast Installation

- 1.5 by 1.5 panel – can make out of cement sheet and render to reduce weight, push pull props and locks, fixings, grout tubes, lifting ferrules, packers, base grouting-type, installation requirements, caulking, fire rated external polyurethane.
- Example Web resources:
 - https://www.ccaa.com.au/iMIS_Prod/CCAA/Public_Content/PUBLICATIONS/Technical_Publications/Briefings/Concrete_Panel_Buildings.aspx?WebsiteKey=4998d6ce-2791-4962-b1e2-6b717f54a8d3
 - <https://www.safeworkaustralia.gov.au/doc/national-code-practice-tilt-and-concrete-elements-building-construction>
 - https://infostore.saiglobal.com/en-us/standards/as-3850-2003-122484_saig_as_as_257121/

8 – Health Sector Specific

- More information to be provided by Mick Trlin and Bill Stevenson.