Case Studies

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Content

Temporary Climate Solutions Case Study: ATEX innovation helps safely deliver project on time

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When Bilfinger Salamis, a market leading service provider for the energy generation industry, was commissioned to blast and paint the Britannia platform in the North Sea, its project managers knew that one important condition of the contract would be the provision of ATEX certified dehumidification equipment. In December 2012 there was only one provider in the UK capable of delivering such equipment – Polygon.

Problem

ATEX is the name commonly given to the two European Directives for controlling explosive atmospheres in any type of industry and was originally taken from the French title of the 94/9/EC directive: Appareils destinés à être utilisés en **AT**mosphères **EX**plosives.

Directive 99/92/EC (also known as 'ATEX 137' or the 'ATEX Workplace Directive') provides minimum requirements for improving the protection of workers potentially at risk from explosive atmospheres. Directive 94/9/EC (also known as 'ATEX 95' or the 'ATEX Equipment Directive') concerns equipment and protective systems intended for use in potentially explosive atmospheres.

Bilfinger Salamis was commissioned to blast and paint the central column truss on the Britannia platform stationed 130 miles North-East of Aberdeen. Achieving effective, productive, longer life coatings in such a humid and corrosive environment is almost impossible without very careful control of humidity levels, arresting corrosion of the blasted metal surface and allowing the project teams to 'hold-the-blast' for days or weeks, rather than hours, before painting.

As an ATEX Zone 1, it was imperative that ATEX certified equipment was employed to not only ensure the safety of the operators and project teams; but also ensure the contract was delivered on time, on budget and to the stringent quality standards demanded by the owners.

Solution

Polygon, a global market leader in temporary climate solutions has been working with coatings contractors for over 40 years and uniquely recognised the need for ATEX approved units in this sector. Our engineers were commissioned to build desiccant dehumidifiers to become fully sealed, conforming to ATEX Zone 1 standards – a first in the UK.

In order to meet stringent off-shore safety standards, a specialist HOFR supply cable was fitted to ensure the unit was compatible with the rig's electric outputs. The unit was also fitted with a weather resistant anti-static cover. The special lifting frame was certified for off-shore use by Global Integrated Testing at its facility in Aberdeen.

Two units were installed on the platform in December 2012 and ran without interruption for the duration of the three month project. Airflows and other controls were pre-set to ensure conditions were met, removing the need for any technician intervention and negating any downtime.

Case Study: ATEX innovation helps safely deliver project

Results

Michael Taylor, Project Manager for Bilfinger Salamis commented, "When we kicked off the Britannia FM Project the need for ATEX approved dehumidification was identified as a value added ticket to ensure control of the environment and allow continuity of the works. We searched the UK market with a view to sourcing fit for purpose units only to find that there were none available which met with the specification. We needed to address the gap in the industry and so we sat down with Polygon who were identified as the best solution to deliver an ATEX approved unit.

Polygon has delivered a fully certified and approved unit to the industry which I am pleased to say was well received by all the interested parties. We have recently mobilised a couple of these units to support an extensive PFP project on the Britannia Platform where it was critical to control the local environment in order to successfully deliver the scope on time and within budget. The feedback from the project team was very positive and supported our initial decision to deliver ATEX approved units to the industry."

Andy Oakes, Director of Polygon's UK Temporary Climate Solutions business commented:
"It's great that these two ATEX Zone 1 units met BIS Salamis' needs. We've gathered data which helps us in the development of a second generation machine with a smaller footprint and higher output."

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Temporary Climate Solutions Case Study: Polygon's expertise in creating the right environment is bullet-proof.

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The Scottish Parliament Building is situated at the foot of Edinburgh's famous Royal Mile, within the UNESCO World Heritage site. The building was constructed from a mixture of steel, granite and oak and recognised at the time as one of the most innovative designs in Britain.

Problem

The windows were specially commissioned to provide additional security and the building contractor, Henry Brothers (Magherafelt) Limited, recognised that a low dew point would need to be maintained during the installation of the windows.

The project created a unique technical challenge, one that could only be resolved with the right expertise and equipment. The contractor turned to several of Polygon's competitors for a solution, none of whom could confidently achieve the conditions.

Solution

Polygon, a global market leader in temporary climate solutions, has been providing temporary heating, cooling and drying services, as well as specific condition applications, to the construction industry for over 60 years. Polygon was appointed to provide temporary climate control for the building and completed a pre-installation survey within 24 hours of appointment. This was followed by a full scope of works three hours later.

It was critical that the environment was held at the correct conditions (-5° dew point) whilst the windows were installed.

Within four days a temporary scaffold had been erected and sheeting was used to encapsulate the building to create an airtight chamber. Polygon installed dehumidifiers, chillers, coils and power generation equipment on site.

Remote monitoring equipment was used to monitor the environment and alert the Polygon team if conditions dropped below the required -5° dew point. Regular reports were also generated for the customer.

Results

The conditions were successfully held, without interruption, for the duration of the three week project. As a result, the project was completed on time, and to budget.

"I am more than pleased with the response I received from Polygon concerning the temporary low dew point conditioning we required to install the glass panels. I would have no hesitation in calling upon their services for any future installations requiring tight control of conditions."
Gavin Fry, Contracts Manager for Henry Brothers (Magherafelt) Limited.

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Temporary Climate Solutions Case Study: Claxton Poultry controls condensation with Dehumidification.

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A mass quantity of water is used by poultry processors to maintain a hygienic work environment. This water evaporates and can cause condensation on the ceiling, walls and equipment within processing areas.

Polygon desiccant dehumidification equipment deployed to control condensation formation in processing.

Problem

Claxton Poultry in the USA received a warning letter from the Food Safety and Inspection Service (FSIS) of the U.S Department of Agriculture (USDA) due to the presence of condensation in the workplace. Officials of the USDA FSIS told Claxton that condensation is not permitted to form either in product or non-product areas, where the potential for dripping can occur; as this can cause contamination of the product.

For many years the problem had been addressed by using plastic sheets hung from the ceiling, along with employing personnel dedicated to wiping away condensation as it formed. This proved to be a costly and time-consuming solution which was unable to control condensation to meet with USDA compliance. Claxton contacted Polygon in search for a dependable, cost-effective solution.

Solution

A quick response was required to prevent any production downtime. Polygon provided a temporary Condensation Control System (CCS) to solve Claxton's condensation related problems. The CCS works by supplying dehumidified air that absorbs moisture and controls the formation of condensation.

The CCS consisted of desiccant dehumidifiers, cooling modules and chillers. The condensation began to disappear within hours of the equipment installation. The USDA warning letter was lifted after 90 days of operation without receiving an NR (Non-Compliance Record).

Claxton has seen other benefits of using dehumidification. A significant number of workers were dedicated to wiping away condensation and installing plastic sheeting. These workers are now able to perform other functions within the facility which has reduced labour costs.

Sanitation has been improved within the factory because with dehumidification operating, Claxton has been able to run sanitation right up to shift start. This allowed "on time" shift starts which have improved production management. Defrost cycles on existing cooling equipment have been reduced from four to once per day because desiccant dehumidification delivers air at lower dew point temperatures. Claxton Poultry is successfully using Polygon Condensation Control Systems in further processing areas, including evisceration.

"The Polygon equipment has allowed Claxton Poultry to operate without condensation-related NRs."
John Seibel, Complex Manager at Claxton.

Benefits

- USDA Compliance
- Reduced Manual Labour
- Reduced Pulldown Time/Increased Production
- Reduced Microbial Count
- Reduced Defrost Cycles
- Improved Temperature

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Temporary Climate Solutions Case Study: A-Grade drying on Grade B listed Glenbervie House.

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When Glenbervie House, a Grade B listed building in Falkirk suffered a severe fire, 60% of the roof's structure needed to be replaced. Once builders had secured the house, Polygon was called in to dry the internal structure.

Problem

The fire caused extensive damage to the roof, exposing the building to the elements for several weeks whilst the new roof was being completed. This meant that internal walls and wood flooring were subjected to water damage by the rain. Polygon's technicians were mindful that any drying had to limit the risk of materials warping and causing permanent damage.

Solution

Once appointed, Polygon TCS technicians surveyed the damage and tailored the drying process to suit the different materials found on site. Controlled drying was put in place for ornate plaster covings, wall plaster and timber panels. The controlled process enabled materials to dry at the optimum pace whilst avoiding irreversible damage.

The main hallway brickwork and chimney was found to be saturated, so Polygon TCS technicians encapsulated the affected areas to reduce drying times. Moisture core plugs were drilled into the walls at a depth of 40mm, to ensure the brickwork would be fully dried, negating the possibility of secondary damage.

Results

As the property is a Grade B listed building it was important to save as much of the original structure as possible. The drying works took a total time of four weeks, as specified on original estimates.

Temporary Climate Solutions Case Study: Historic building with rich past restored by Polygon TCS.

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Built in 1791, Airthrey Castle is a historic building and estate which now forms part of the buildings and grounds of the University of Stirling in central Scotland. When the property suffered water damage, it was essential that an expert restoration solution was executed in order to protect the contents and materials inside.

Problem

The water ingress resulted in a number of rooms on several floors becoming damp. Whilst there was an urgency to return the rooms to pre-incident condition, the contents needed to be dried at an appropriate pace to stabilise and avoid irreversible damage.

Solution

Once appointed, Polygon TCS technicians surveyed and assessed the damage and within days the drying works had started. Some of the rooms affected had special ornate coving in place, therefore Polygon technicians had to ensure that the moisture removal rate from the plaster coving was carefully monitored and that areas were not dried too quickly. As this could have resulted in the coving cracking and causing permanent damage.

The ceilings were lath and plaster, Polygon's technicians advised that as part of the strip out works, some areas of the old ceiling's ash deafening would require removal. This aided the drying out process and also reduced the risk of mould or rot to joist areas.

Results

The drying works were completed within the scheduled 3 weeks and a drying certificate was issued by Polygon to the client. The drying of all materials was successfully completed and no permanent damages were incurred.

Temporary Climate Solutions Case Study: Market leaders collaborate to deliver first class solutions.

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A water tank in a reservoir complex based in Oxfordshire, that supplies up to 90Ml of water per day to 150,000 customers required maintenance. The water storage tank, a key component of a municipality's water distribution system needs to be maintained, enabling it to meet the superior standards required. Any maintenance work that needs to be completed has to be carried out quickly and efficiently to minimise the impact to the customers that it serves.

Problem

Under pressure to get the required maintenance work completed quickly, the contractor needed to enlist the help of a company who specialised in temporary climate solutions prior to the coatings being applied. The tank needed to be dried out, as the advanced paint coating systems that are necessary to re-line the tanks require specific environmental conditions, otherwise the tank could be immediately subjected to a breakdown of the lining if the concrete was not dry prior to application. If humidity levels were too high in the tank and not controlled, it could result in increased project costs due to loss of time, loss of materials and wasted labour hours.

Solution

The contracting company, Stonbury, a market leading contractor to the water industry, carried out the refurbishment work. High pressure water jets, up to 3,000psi, were used. By using a turbo nozzle, they were able to remove any loose debris and aggregates in preparation for the concrete repairs and coatings to the tanks. It quickly became clear that Polygon's market leading expertise in providing temporary climate control systems could assist them in re-lining the water tank in even the harshest conditions. Polygon's experienced and highly trained team were called in to dry out the tank areas. This was done using a high volume heater which provided indirect, heated, dry air to the tank chamber. By utilising Polygon's state of the art climate control equipment, it allowed:

- Conditions to be closely monitored throughout the entire re-coat process
- The contractor to receive only the equipment required to meet the project demands
- The unique environmental conditions due to the moisture sensitivity of the coatings to be met.

Benefits

Faster coating: With dry air protection, you can blast and coat around-the-clock, during any weather and hold the blast for as long as necessary. Polygon is able to control the dewpoint temperature to meet NACE guidelines, eliminating any possibility of lining breakdown.

Improved coating: You can achieve improved coating life through a monolithic application and use high performance coatings, knowing that dry air protection will allow you to begin the second coat within 24 hours.

Agreeable working conditions: Polygon can combine chillers and desiccant dehumidification to provide cool, dry air to the tank. Allowing OSHA temperature standards to be met and higher worker productivity to be achieved.

Quiet operation: Polygon electric regenerated dehumidification systems run silently.

Contaminant free: Polygon dehumidifiers introduce no foreign matter into the coating environment. You get dried air of the same quality as the air found outside the tank.

Lower coating costs: With Polygon, your labour costs are reduced by up to 35% since delays from weather changes or daily start up and clean-up are eliminated.

Lower equipment costs: Polygon enables you to reduce running costs.

Temporary Climate Solutions Case Study: Screed moisture testing provides solutions onsite.

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At a construction site, there was a concern about the moisture level within the anhydrite screed. These types of screed have become a popular alternative to the sand and cement options; however a potential issue is that it can have a weak surface layer. This means that the drying process can be slower. The contractor must therefore ensure that the screed has been dried to the optimal level before any floor finish such as vinyl, tiles, carpets or wood panelling can be laid. In order to do this, an accurate moisture assessment is required from a specialist humidity expert.

Problem

The contractor was unsure of the exact level of moisture content that was acceptable within the anhydrite screed as although it appeared dry, there was a concern that the floor finishing could lift if applied. It was imperative that a thorough inspection was carried out, as an incorrect moisture reading or lack of understanding could have resulted in the premature laying of the final floor finish; affecting the floor quality significantly. This may have resulted in having to re-do the entire job, wasting valuable hours and materials.

Solution

Polygon's experience and expertise was called upon, and a meeting was set up on site as the contractor had numerous new plots that required testing. The Polygon team conducted a calcium carbide test; this involves a sample of the screed being taken to investigate the way in which it reacts with the calcium carbide mixture. Upon reacting, the reagent releases acetylene gas. The amount that is released will indicate the level of moisture within the sample.

As the moisture levels on site were above the level deemed acceptable, Polygon suggested that the screed should be dried, to prevent any further delay – a core service in the Polygon portfolio. High volume dehumidifiers were installed to produce extremely dry air which pulled the moisture molecules out of the screed, making the drying process more efficient and therefore allowing the project to be completed quicker.

The need for all plots to be tested across the construction company's portfolio was identified, and future plots are to be tested and if needed, rectified by the Polygon experts.

Benefits

- **Faster project completion:** Polygon's ability to provide consistent environmental conditions and accurate moisture readings allow a drying timetable to be provided. The overall construction process can be accelerated, ensuring accurate completion time, product quality and long term service.
- **A solution to many problems:** No matter what moisture problem a customer faces, Polygon has the expertise and equipment to fix it quickly. Not only that, if a problem is identified, they have a portfolio of services and an extensive fleet of equipment to create the environments that aid effective and time saving construction.
- **Expert knowledge:** With over 60 years servicing the construction market, Polygon TCS is a world leader in providing temporary climate solutions in the construction industry. Its specialist engineers have expert knowledge, allowing you to be sure you have the perfect construction environment.
- **Industry standards:** The moisture levels can be guaranteed as opposed to guess work or look and feel; the readings conform to British and European Standards allowing contractors to provide realistic recommendations on when optimum conditions would be reached to keep the project on track.

Temporary Climate Solutions Case Study: Productivity of potato manufacturing reaches a new peak.

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Within the food industry, it is critical that the correct environmental conditions are met in processing facilities. If they are not achieved, this can impact the quality of the food, ultimately leading to a product that is not suitable for distribution or consumption. Temporary climate control is a powerful solution for food processing factories, as the effects of humidity can essentially be abolished, enabling the factories to remain compliant with standards as well as increasing productivity. A potato factory within the UK required a solution to increase output, as excess moisture was reducing the shelf life of the product. Productivity was affected as operating staff waited for the potatoes to dry.

Problem

The harvested potatoes were arriving at the factory in an excessively muddy state. This meant that before production could begin, the potatoes required washing. As potatoes have naturally high moisture content, they were becoming too moist, limiting their shelf life. The customer wanted to test the use of temporary climate control systems. They could then assess whether it could benefit their business, and have a positive effect on the potatoes grade rating that was initially an unsatisfactory high grade nine.

Solution

Polygon, a global market leader in temporary climate solutions, has worked with food manufacturers for over four decades, and the company was recommended to help improve the production environment. Polygon was asked to create a solution that would provide low dew point air. Using Polygon's experience, expertise and leading edge technology, a solution was delivered that involved installing dehumidifiers, chillers and system fans. This provided the desired low dew point air, 4000m^3/ hr air – 25°C dew point at 10°C. The potatoes were blasted with air for two minutes to reduce moisture content at an air change rate of one every eight to ten seconds.

Polygon's solution was successful, the grading was reduced from a nine to zero, eradicating the customer's previous best which was a grade three. Another key benefit derived from the temporary humidity control test, was that the shelf life of the potatoes' had increased significantly. During the trial, customer complaints decreased as a direct result of the solution Polygon provided. The introduction of temporary climate control to the potato factory was a turning point for the company.

Benefits

- Improved production process
- Increase in product shelf life
- Optimum climate achieved to surpass the customer's previous best rating
- Ensuring continuous product drying during high ambient conditions
- Low cost/non-invasive solution ideal for product trials.

Temporary Climate Solutions Case Study: Polygon – A 'black belt' in water damage restoration.

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When the River Irvine in Kilmarnock burst its banks, it meant that properties in the surrounding areas were exposed to significant water damage and contamination. This put them at risk of extreme property damage and sanitary issues. The Scottish Environment Protection Agency (SEPA) stated that the river had reached its highest level in 57 years.

Problem

One of the local businesses affected was Kilmarnock Judo Club. Although the property runs adjacent to the river, the water had never been high enough to cause an issue in its 43 year history at the location. The river water that had contaminants present had seeped into the building, causing extensive black water damage to the floor, joists, flooring and wall cavities, as well as the plaster work. As brick is a porous material, the water had migrated into the interior of the building and damaged the interior walls also. The judo club has members ranging from children to adults, so they needed to ensure that this was dealt with effectively so as to not face any future issues derived from mould. The client needed to call upon a specialist water damage team.

Solution

The client enlisted the help of Polygon; who with over 60 years experience in managing flood and water damage restoration projects, were able to conduct a thorough survey of the building and use their expertise to determine the next actions. The aim was to sanitise and dry out the property and return it to its pre-incident state. This meant rectifying any moisture issues as quickly as possible, enabling a swift handover to the builders, to allow the building to be reinstated as soon as possible.

Polygon's construction drying services were required on site and in depth hygrometer sleeves were used to measure relative humidity within the brickwork. With this level of damage some level of strip out was required, although it's always Polygon's aim to keep this to a minimum.

Once the contaminated flooring and wall plaster had been stripped back, the moisture levels in the timber joists and brickworks needed to be brought back to an acceptable level prior to the walls being re-plastered.

Polygon's team were then able to formulate a drying regime. This led to the installation of dehumidifiers and air circulation fans that enabled the wet air to be replaced with dry air. The thorough drying of the building was paramount to avoid any secondary damage to the flooring or walls. If the new floor was fitted too early, it would begin to take on excess moisture, bringing a risk that it would swell and become damaged. Also, if the stripped out walls were plastered before they had reached 75% relative humidity or less, secondary damage could occur. The moisture conditions were monitored over a three week period to ensure that all the affected areas were brought back to pre-incident moisture levels before any finishing work was conducted.

Benefits

- **Specialists:** Water damage can have serious consequences without an immediate, targeted response. Polygon offers a variety of highly effective measures to handle the problem, whether it is an issue derived from a small leak or following a major flood.
- **Solutions:** The job starts with damage assessment and evaluation. During the drying process that follows, Polygon identifies all of the restoration measures required to get life back to normal. Only the latest energy-efficient technology and equipment is used and with their local presence and staff, they are close by to help you.

Temporary Climate Solutions Case Study: First Class solution helps Surrey Cricket Club avoid playing on a sticky wicket.

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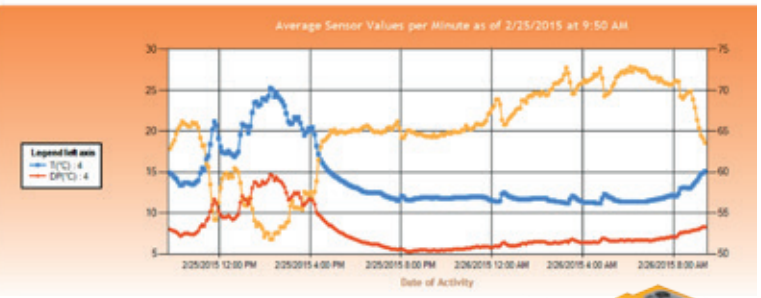
The landscape of modern day cricket is ever changing as the sport aims to ensure it best serves supporters and TV spectators alike. The emergence of different formats of the game means the seasons are longer – starting earlier and finishing later, which is of course not necessarily conducive to the British weather.

In order to effectively prepare for a longer season, teams have to start training earlier which has often meant travelling to sunnier, warmer countries. This is expensive and training on a hard South African wicket isn't ideal preparation for a damp start to the season in the UK. Equally, training indoors in the UK does not provide the ideal conditions either.

Problem

Polygon, a global leader in Temporary Climate Solutions was contacted by Surrey County Cricket Club to provide a solution to the condensation building up and dripping onto a new wicket being created for pre-season training at the Kia Oval. Lee Fortis, the groundsman needed the tented area to be free of condensation to allow the team to create the perfect playing surface in English conditions for pre-season.



Working collaboratively with the groundsman and his team throughout the project, Polygon's expert technicians discussed the options available to achieve the necessary conditions.

The client had purchased indirect oil fired heaters in an attempt to dry out the ground within the marquee. Whilst this was increasing the temperature it was also costing a lot of money in fuel and was actually making the condensation issues worse. The key priority was to eliminate the moisture created within the marquee.

Solution

Polygon's first observation was to install the heaters on the outside of the marquee and feed warm dry air into the space on a total loss basis. As a result no additional moisture was being added into the space. The task then was to work with the residual condensation from warm to cold ambients and the moisture release from the ground.

Polygon installed a desiccant dehumidifier with flexible ducting and a remote monitoring system. On the first trial the dehumidifier sat outside the marquee and ducted in working on a total loss basis. Ambient air was warmed and dried before entering the marquee via flexible ducting. The desiccant dehumidifier delivered the correct amount of dry air for the area and worked in conjunction with the clients heaters.

Case Study: First Class solution helps Surrey Cricket Club avoid playing on a sticky wicket.

Stage two saw the dehumidifier installed on the inside of the marquee on a recirculation basis. The dehumidifier supplied warm dry air at one end of the area and drew in cool damp air directly into the dehumidifier. The moisture removed was discharged into the atmosphere via a flexible duct. The heaters thermostats were lowered to 10°C and the amount of fuel usage dropped significantly.

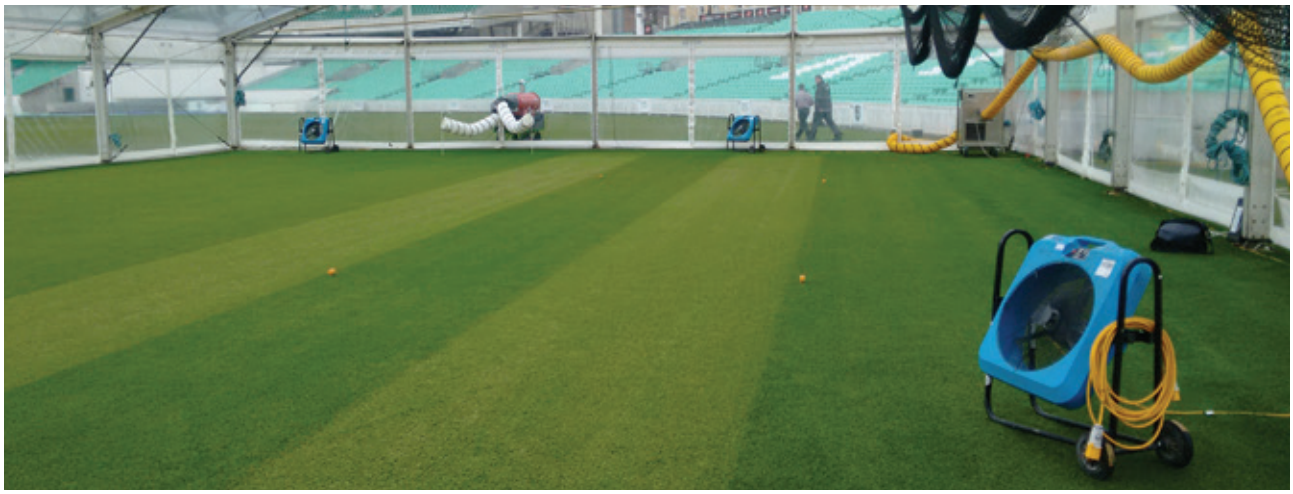
By moving the dehumidifier inside and working on a recirculation basis, Polygon were able to create dew points lower than the ambient conditions. By holding the dew point lower, there was no evidence of any condensation inside the marquee.

Benefits

- A collaborative approach has created a replicable benchmark standard for all tented practise areas
- Polygon's approach has negated the need for expensive overseas travel pre-season
- The engineered solution reduced the need for the heaters, minimising fuel costs
- Players are now able to practice all year round on the game day wicket.

Surrey Director of Cricket Alec Stewart with Ryan Stanley, Temporary Climate Solutions, Polygon.

Surrey Director of Cricket Alec Stewart said:
"As we were using a marquee for the first time, I was expecting to give the programme seven or seven and a half out of ten. However, using the expertise of our Head Groundsman Lee Fortis, along with the help of Polygon's dehumidifier, I was very very pleased to be able to give it nine and a half out of ten!"



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Temporary Climate Solutions Case Study: Polygon provides solutions for ice rinks.

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Preventing condensation on the ice sheet during events allows lower ice sheet temperatures to be achieved. Blowing a blanket of dry air over the arena prevents the formation of condensation on overhead surfaces, the ice sheet and structure. The elimination of condensation prevents rust on the permanent structure, improved ice quality and the elimination of fog.

Problem

High humidity and dew points are typical obstacles to be addressed during the warmer summer months as increased temperatures impact upon the arena temperatures, in turn causing poor ice quality.
In order to keep the ice surface dry and operational, a temporary climate solution is often required.

Solution

Utilising their state of the art technology and industry expertise, Polygon are able to ensure that the optimum environment is achieved.
To best determine the method for drying the arena air, Polygon's technicians measure the arena and ice sheet area. Following the inspection they are then able to advise on the most appropriate dehumidification equipment that should be installed, in order to create the required optimum environment.

Polygon's desiccant dehumidifiers allow ice surfaces to be kept dry and operational, with temperatures able to be maintained below ambient dew point. The use of these dehumidifiers allows Polygon's technicians to process the plant air by removing moisture via a vent in the ice machine bay or return air duct. This dehumidified air is then introduced to the arena operation, which in turn is able to lower the ice sheet area dew point. Polygon applies dry air directly to the arena above the ice sheet. This drives moisture from the area and effectively lowers the dew point and reduces the risk of condensation.

Benefits

Polygon can provide moisture control all year round, irrespective of weather. Operators can maintain good ice quality, keep spectators and players happy whilst eliminating costly moisture related maintenance issues. Better ice quality means reduced cost because moisture is removed by fit-for-purpose dehumidifiers, maintaining operation time and schedules, no matter what the season.

Temporary Climate Solutions Case Study: Importance of screed moisture testing identified.

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During the construction process, it is vital for the building contractor to ensure the screed has been dried to the optimal level before any final floor finishes such as vinyl, carpets or tiles are applied. If the screed is still wet, it can result in the floor finish lifting after fitting. This not only results in additional cost to repair the damage, it also creates significant disruption for the dweller and potential reputational damage for the contractor.

Problem

The contractor had not conducted a screed moisture test which would have shown moisture levels before applying the final floor finish. Instead, an element of guess work had taken place as the screed had looked and felt dry. After a tenant had moved into the property, a complaint was made as the floor had begun to lift. The client contacted Polygon late one evening but was unable to provide much information as to the floor finish and the exact details of the problem.

Solution

Polygon's technicians arrived at the property the next day. Due to the limited information available initially, an extensive range of equipment was taken on-site to ensure that the problem could be identified. The state of the art equipment included a thermal imaging camera to check the underfloor heating system, protimeter readers and RH floor boxes to assess moisture levels within the screed. A calcium carbide test was used to investigate the moisture levels of the screed. A sample was taken which reacted with the calcium carbide and demonstrated that the screed was in fact still wet, meaning that the floor finish had been applied prematurely.

The wet screed was quickly identified as the issue which was causing the flooring to rise. Due to Polygon's extensive portfolio of services, they were not only able to identify the issue but resolve it too. Polygon's technicians created a temporary climate solution that included lifting the final floor finish and drying out the screed. This was done by placing high volume dehumidifiers into the property. These produced extremely dry air; which pulled the moisture molecules out of the screed. The drying process was efficient and allowed the entire process from call to job completion to be finished in a week.

Benefits

- **A solution to many problems:** No matter what moisture problem a customer faces, Polygon has the expertise and equipment to fix it efficiently and effectively. Not only that, if a problem is identified Polygon have a portfolio of services and an extensive fleet of equipment to create the environments that aid effective and time saving construction.
- **Industry standards:** The moisture levels can be guaranteed as opposed to guess work or look and feel; the readings conform to British and European Standards allowing contractors to provide realistic recommendations on when optimum conditions would be reached to keep the project on track.

Temporary Climate Solutions Case Study: Polygon keeps construction project on schedule.

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A construction company building a new school in London was having issues drying screed and walls to the optimum level. Contractors must be certain that the walls and floors in any new construction have been dried properly; failure to do this could mean that in time flooring may lift and mould could develop. Ultimately this could require the contractor to revisit the job to carry out remedial work; costing them and the client time, money and loss of reputation.

Problem

The client was on a tight deadline to complete the project and was having problems drying the walls and screed. Concerned about the repercussions if they were to prematurely lay the final floor and wall finishes, they needed the building to be surveyed to search for causes of leaks and penetration points.

Solution

Polygon deployed an engineer within a day to conduct a full onsite building survey, which did identify areas of concern. Relative Humidity (RH) readings were conducted and they confirmed client concerns that the screed had not dried properly. Polygon then created and executed a bespoke solution to target and dry the required areas.

Polygon has an extensive portfolio, so were able to arrange for the delivery of all required equipment to site quickly. In order to create the correct environment, six dehumidifiers were installed along with a 170kw heater and two 65kw heaters. Polygon's engineers also used specialist equipment that plugged into the roof membrane and pulled out all moisture using a high vacuum pump.

Noticeable reductions were witnessed to moisture levels within a week and equipment remained on site for three months. Polygon conducted weekly maintenance visits where the unit was checked and readings were taken to ensure that the environment was being controlled to the exact requirements.

Benefits

- **Faster project completion:** Polygon provides consistent environmental conditions in specific environments and accurate moisture readings. This allows a drying timetable to be provided and the overall construction process can be accelerated; ensuring accurate completion time, product quality and long term service.
- **A solution to many problems:** No matter what moisture problem a customer faces, Polygon has the expertise and equipment to fix it quickly. Not only that, if a problem is identified, they have a portfolio of services and an extensive fleet of equipment to create the environments that aid effective and time saving construction.
- **Expert knowledge:** With over 40 years servicing the construction market, Polygon is a world leader in providing temporary climate solutions in the construction industry. Their specialist engineers have expert knowledge, allowing you to be sure you have the perfect construction environment.
- **Industry standards:** Moisture levels can be guaranteed as opposed to guess work or look and feel; the readings conform to British and European Standards allowing contractors to provide realistic recommendations on when optimum conditions would be reached to keep the project on track.

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