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REPORT
BRUNSWICK ESTATE
PAINT REVIEW

FOR: BRIGHTON & HOVE CITY COUNCIL

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including this header page.



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INSTRUCTIONS AND BRIEF

This report has been written in accordance with the detailed consultant brief dated 9th July 2008. The objective of this report is:

- To provide an overview of the condition of the building fronts, the extent of paint degradation since the last redecoration and the general performance of the paint coatings.
- Provide opinion on the anticipated performance of the existing coatings for the duration of the current cycle ie until 2010.
- Advise on the likely physical and visual consequences for the fabric of the properties and their appearance were the current paint cycle to be extended for a further 1,2 or 3 years, based on the anticipated progressive rate and extent of deterioration.
- Advise on the appropriateness of extending the paint cycle, having regard to the purposes of the Hove Borough Council Act 1976 and its limitations. Presume that the paint specification will in all other respects remain unchanged.

The findings and conclusions of this report are based upon a street inspection and visual assessment of the building fronts and paint coatings and by appreciation of the performance ratings for the existing paint systems.

My inspection was carried out on 5th August 2008 when weather conditions were variable, generally bright with some showers.

I subsequently met with the Conservation Officers, Mr Roger Dowty and Mrs Lesley Johnston at the Council Offices on 17th September.

I met with the representative of the Friends of Brunswick Square and Terrace, Mr Tom Chevasse, in Brunswick Square on 23rd September. Their technical advisor, Mr Hayes, was not able to be present.

It was not possible to meet the paint manufacturer's Technical Director, Mr John Carlisle, within the required timescale. Initially I spoke to Sandtex technical advisors using the 'Sandtex Paintalk' trade technical advice line and subsequently spoke to the Technical Director after his return from holiday on 9th October.

GENERAL BACKGROUND

The general background included with the brief is summarised as follows.

The Brunswick Estate comprises 1-58 Brunswick Square, 1-42 Brunswick Terrace and 1-8 Brunswick Place, built during the 1820's and Listed Grade I as being of architectural and historic interest. The front elevations are finished in painted stucco to a uniform colour scheme.

The Hove Borough Council Act, 1976 includes control to preserve the uniformity of the area. It requires that the street facades and railing are repainted every fifth year ie years 2000, 2005, 2010 and so on with two coats of an approved paint and colour. The Council's control extends to the paint product to be specified by the owners and the frequency of repainting.

Since year 2000 the fronts have been coated with Sandtex Trade paints stipulated in the Brunswick Estate Repainting Specification. This specification is provided to assist owners. The Council can neither enforce strict adherence to the specification nor does it supervise the works which are entirely the responsibility of the property owners.

Prior to year 2000, different paint types have been used; in 1990 and 1995 Johnstones Alkyd paint and before this a Magnet lead based paint.

LIMITATIONS

The Limitations which apply to this inspection and report are as follows:

- 1 In accordance with your instructions my inspection is limited to the front elevations which were inspected from ground level pavings.
- 2 I was unable to inspect parts of the structure which are covered, unexposed or inaccessible and am therefore unable to report on their condition.
- 3 My survey was carried out in accordance with your instructions for and on your behalf only and I will accept no responsibility towards any third party for the content thereof.

SITE INSPECTION

Brunswick Terrace faces directly onto the sea and is therefore subject to severe exposure which would include strong salt laden winds and driving rain. The Terrace is south facing meaning that in summer months it receives direct sunlight all day with no shade. South facing elevations receive the full extremes of weather and tend to deteriorate more rapidly than other facing elevations.

Brunswick Square and Place are perpendicular to the sea front, the latter more distant from the shoreline so that the degree of exposure is somewhat less. Both face approximately east or west and are therefore in shade for some of the day. The degree of exposure to both direct heat and degrading ultraviolet light will therefore be less. The direction of the prevailing wind is from the south west meaning that the east side of the Square is exposed while the west side is more sheltered.

In general terms the surface condition of the painted stucco surfaces is good and it is not surprising that in general the condition of the painted surfaces to the fronts of the houses in the Terrace are poorer than the Square and Place.

The general features and style of all of the buildings is very similar and within the scope of this report they all suffer from a number of specific paint problems.

Typically the terraced facades are of four storeys with a parapet in front of an attic level with dormer window structures. Most also have a basement level with a traditional open lightwell area between elevation and pavement. The lightwell areas are protected by iron railings. Most of the elevations have pilasters and more significantly string courses and narrow balconies. The balconies also have iron railings.

The principal defects evident in the paint finishes are broadly in two groups, more serious with decay and possible structural implications:

- Rust staining below first floor balcony iron railings
- Rust staining on copings below pavement railings
- Rust staining on some rainwater downpipes
- Cracked stucco causing cracks in paint coating

and those which are largely cosmetic:

- Flaking masonry paint
- Blistered masonry paint finishes
- Uneven paint finish
- Soiling below string courses and balconies
- Bird faeces marking elevations

INCIDENCE OF PAINT DEFECTS

Table breaking down the incidence of buildings showing paint defects as a percentage of the total number of buildings in the Brunswick Estate.

Significant defects

Rust staining below first floor balcony iron railings Affects 50% of the Terrace and 14% of the east side of the Square	24%
Rust staining on copings below pavement railings Affects all of the Terrace and 60% of the east side of the Square	57%
Rust staining on some rainwater downpipes Random distribution	3%
Cracked stucco causing cracks in paint coating Random distribution throughout	11%

Cosmetic defects

Flaking masonry paint Random distribution in small patches throughout	13%
Blistered masonry paint finishes Random distribution in small patches	7%
Uneven paint finish Isolated fronts in the Terrace and Place	4%
Soiling below string courses and balconies Fairly even distribution throughout	40%
Bird faeces marking elevations Random distribution, largely the east sides of Terrace and Square	5%

EVIDENT PAINT DEFECTS

- 1 Rust staining below first floor balcony iron railings**
- 2 Rust staining on copings below pavement railings**
- 3 Rust staining on some rainwater downpipes**

Rust staining on the paint is a symptom of an underlying problem which could become a more significant structural defect if untreated. Of the identified problems rust staining is the most evident and widespread.

The rust staining is caused by failure of the paint coating on the iron allowing corrosion. Rainwater running off the exposed rust then causes unsightly brown iron staining on surfaces below. The extent of this varies but is already severe in some instances on fronts painted in 2005 and will inevitably worsen. Failure of this paint coating is most likely due to poor pre painting preparation, the main risk being that some rust has not been removed.

The worst staining is along the Terrace with generally lighter staining along most of the east side of Brunswick Square (which is also exposed to the prevailing wind). The west side of Brunswick Square and Brunswick Place are sheltered from the prevailing wind direction and are little affected by this problem. The Terrace is directly exposed to salt laden wind from the coast and the degree of exposure would be classified as severe. Corrosion of ironwork, as well as damage to the paint film, is exacerbated by the presence of salt. If the painting interval is extended the degree of corrosion as well as the extent and density of staining will worsen.

As iron corrodes it also tends to expand significantly. Where iron fixings are embedded in the masonry this expansion would cause the masonry to crack. This could cause significant cracking in the masonry and the need for more costly repairs including replacing corroded iron tips and making good damaged stucco before repainting.

If corrosion on iron rainwater goods becomes excessive they can split and water spills over the elevation causing dampness and consequent decay. Extended repainting periods increase the likelihood and scale of this damage. Corrosion of cast iron downpipes tends to start on the rear surface which is generally close to the wall and difficult to prepare and paint and is often unseen without close inspection until the extent of damage is severe.

Rust staining is already a significant problem on elevations painted only three years ago. Even if some form of monitoring were undertaken it is difficult to predict the further extent of staining in two years time when repainting is due and exactly how this would increase at 1, 2 and 3 additional years.

In some instances the corrosion and staining appears severe and requires attention now and this problem gives cause for concern in terms of an increased painting period.

However the majority of railings causing this problem are located at pavement level and at first floor balcony level. Access to those at paving level is readily available so that treatment can easily be undertaken without the need for costly scaffold. Those at first floor level could be treated from a low level scaffold without the need for full elevation height scaffold. Consideration might need to be given in some instances to making good this corrosion and associated staining before the time for the repainting cycle is due particularly if the cycle is extended.

There is a notable exception at attic level on part of the Terrace where access would require costly full height scaffold.

Whatever the painting cycle efforts should be made to try to reduce the extent of the corrosion. This can only be achieved through more thorough surface preparation. It is essential that all rust is removed back to bare unoxidised iron. In practice I believe this is difficult to achieve without some form of shot blasting which may not be practical and could cause damage to adjacent finishes. Improved preparation would minimise the extent of corrosion and reduce subsequent repainting costs, reduce the need for costly ironwork repairs and risk of consequent masonry and structural damage.

4 Cracked stucco causing cracks in paint coating

There are a number of fine cracks generally evident throughout the stucco finishes. Rainwater penetration is inevitable and will cause the paint to flake from the crack and risk of dampness in the masonry. However at present this does not appear to be a major problem, where the cracking is evident the degree is very fine.

If the repainting period is extended this might become unsightly and lead to further decay. Again this would increase the extent and consequently cost of pre painting preparation.

5 Flaking masonry paint

This appears to be a relatively minor problem occurring in a number of different positions. It is most likely related to inadequate surface preparation or dampness.

Where it has occurred if the repainting interval is extended the flaked paint is likely to peel off causing poor appearance and risking water absorption into masonry. This would increase the extent and consequently cost of pre painting preparation.

Analysis of affected areas may be worthwhile.

6 Blistered masonry finishes

This is also a relatively minor problem, again most likely related to

inadequate surface preparation or dampness. In terms of inspection from pavement level blistered paint is actually evident on very few buildings and it is not a major problem.

Over a longer period of time the extent of the blisters may increase if the cause is dampness and the blisters are likely to crack and peel causing a poor appearance and risk of water absorption. This would increase the extent and consequently cost of pre painting preparation.

Again analysis of affected areas may be worthwhile.

7 Uneven paint finish

Since the same specification has been applied to all of the elevations and the paint colour is exclusive this might be due to differences in substrate where some original stucco has many layers of paint built up over the years while other faces may have been re-rendered and will not have different types of underlying paint systems.

This is actually evident on very few buildings, largely confined to a small part of the Terrace, and does not appear to be a major problem.

8 Soiling below string courses and balconies

Water run marking in varying degrees is evident beneath many string courses and balconies. This is caused by rainwater running down the elevation and around the projection. This can be reduced by a drip detail which throws surface water clear of the elevation beneath. (None of these buildings has such drip details.) Although this is widespread affecting the majority of these buildings it is a cosmetic problem.

9 Bird faeces marking elevations

There is some isolated bird soiling. It is interesting to note that paint on 1-6 Brunswick Terrace which I have been told was applied in 2007 and appears new is already soiled by birds. Other older finishes appear little or no worse in this respect suggesting that the effects are either washed off or weather off.

Bird faeces are alkaline in nature and could cause damage to the paint surface. However there is no visual evidence that this is a significant problem. It appears that this can also be considered as a cosmetic problem.

PAINT SYSTEM AND SPECIFICATION

Masonry finishes

The repainting specification allows for repainting over existing prepared painted surfaces.

There is no indication in the Sandtex Trade product Technical Data Sheet relating to 'Classic Stone Gloss' masonry paint of recommended painting intervals or product guarantees.

The Sandtex Trade Technical Service told me that Classic Stone Gloss has not undergone any independent tests and that there is no intention to seek Agreement test approval or anything similar. They only provide time related product guarantees for paint systems which have been subjected to such testing. Thus there is no time related guarantee, or intention to consider one, for this particular paint. I was told that Sandtex recommend repainting cycles of between five and ten years for this paint type depending upon the degree of exposure. In severely exposed situations such as a coastal environment or shaded by trees and subject to moss and algae their suggestion is a five year cycle. The longer cycle would be appropriate for an unexposed situation such as a sheltered urban environment. On this basis a five year cycle would be appropriate for the Brunswick Estate.

However the Technical Director told me that Classic Stone Gloss has been available for nearly 20 years and based on his practical experience has no reservations that it would satisfy Agreement testing standards for a durability of 15 years. He said he is confident that it is suitable for 8-10 years painting cycles notwithstanding the exposure in this instance.

Some competitors systems claim seven year cycles but usually only where the system is first applied to bare surfaces. The 'bare surfaces' qualification means that reliance is not placed on the integrity of or adhesion to previous different and unknown paint types.

The Sandtex 'Classic Stone Gloss' Technical Data Sheet does not say whether the paint is breathable or impervious. The Sandtex Trade Technical Service told me that it is breathable and this was subsequently confirmed by the Technical Director. This breathability means that moisture trapped within the wall fabric can escape by evaporation at the surface through the paint film, provided areas where such problems have occurred have been stripped of all old impervious paint layers. Typically moisture is harboured in cracks and the use of a breathable system will be an advantage where crack repair is required because any entrapped moisture should be able to evaporate through the new paint, provided any crack filler used is not impermeable.

It is not envisaged that the paint system would be changed and it is beyond the scope of this report to consider alternative paint systems. However I note Sandtex Trade also manufacture a masonry paint 'High X-Posure Smooth' which has a British Board of Agreement Certificate for up to 15 years durability.

The performance of a paint system depends on the quality of the workmanship and adherence to manufacturers specifications and recommendations. This is a function of each owners procurement and contract arrangements and is outside Council control. If there are any compromises in time or cost then inevitably quality will suffer.

The performance of a paint system is dependant on application onto a sound substrate, which manufacturers specifications make clear. Paint applied over poor old paint layers is likely to fail prematurely. If the paint system is to be required to last longer quality control of the repainting contract becomes more important.

I am concerned about a basic difference in the preparation required by the Sandtex 'Classic Stone Gloss' Technical Data Sheet and the Brunswick Estate Paint Specification. In regard to sound previously painted surfaces the Sandtex document specifies that wet abrading is required after cleaning whereas the Brunswick Specification specifies cleaning but no abrading.

Paint systems generally require a mechanical key between new and old layers. When I challenged the Crown Technical Service on this point on the basis that the Brunswick Specification calls for washing only of sound surfaces I was told this depends on the age and surface condition of the paint and they confirmed that wet abrading is always required to provide a key.

However I have been told that the Brunswick Paint Specification was developed with Sandtex Paints then Technical Director (Mr Geoff Hayes). Their current Technical Director, Mr John Carlisle explained that it is only necessary to abrade a high gloss finish before painting with Classic Stone Gloss. He said this paint is not high gloss and weathering would reduce the sheen. He is satisfied that abrading is not necessary in this instance to promote adhesion of new paint.

When we met with Mr Tom Chevasse he told me that the rear elevation to number 36 Brunswick Square was painted with the Classic Stone Gloss in 2001. During my subsequent conversation with Mr Carlisle he confirmed that this was painted in accordance with the Brunswick Painting Specification and that he considers this an informal test site, which would be more meaningful than typical accelerated laboratory tests,

We viewed this elevation from Brunswick Street West after our meeting. From the available vantage point the surface condition of the paint and it's colour retention appeared satisfactory. There is some peeling paint at parapet level probably caused by dampness. This type of deterioration would be a risk to parapets on the fronts. Unfortunately it does not have ironwork railings to see the effects of corrosion staining down the elevation. However there is very dark rust staining in a corner caused by corroded straps around the chimney projection. It is possible that these straps were not painted, it might actually be difficult to paint them effectively if they lay flat on the wall. There is shallow string course but little evident soiling beneath. The aspect of this elevation is west and

broadly matches the east side of the Square although it appears more sheltered from the prevailing winds by adjacent rear extensions.

Wood and metalwork finishes

The manufacturers Technical Data Sheet for Flexigloss X-Tra System included in the Brunswick Estate paint specification for woodwork, metalwork and plastics indicates that this paint has been awarded a British Board of Agreement Certificate for up to eight years durability. In principal therefore extending the painting cycle for this part of the fabric should not be cause for concern.

However the major issue discussed earlier is rust staining from corroded ironwork which can only occur because the paint film on some ironwork has failed. On the basis that an Agreement Certificate proves eight year durability I assume this is not a product failure and most likely due to workmanship in preparation. It is often said in regard to painting ironwork that the choice of materials is less important than the preparation and that the primer used on the clean metal is the more important part of the system; it has been argued that the finish coats are there to protect the primer (they must be compatible).

It is essential that all rust is removed back to bare unoxidised iron. In practice I believe this is difficult to achieve without some form of grit or bead blasting which may be impractical and could cause damage to adjacent surfaces. Improved preparation should minimise the extent of corrosion and reduce subsequent repainting costs, reduce the need for costly ironwork repairs and risk of consequent masonry and structural damage. Whatever the painting cycle efforts to reduce the extent of the corrosion would be worthwhile.

Again there is a basic difference in the preparation required by the Sandtex 'Flexigloss X-Tra' Technical Data Sheet and the Brunswick Estate Paint Specification. The former stipulates residues should be removed from clean metal but does not say how, while the latter specifies washing with water and detergent. Both specify to prime within the working day using Crown Trade Universal Primer. Any remaining water on the iron will start 'flash' corrosion. However Mr John Carlisle is confident such flash corrosion would not cause further rusting provided it was painted in accordance with the specification.

My comments about the metalwork assume that the specified paint has been used. While the masonry and woodwork are painted with an exclusive colour making use of other paints unlikely, the ironwork is black and could easily be painted with other paint types which might not have the same durability.

From my pavement level inspection I was unable to determine the condition of the woodwork but the paint finishes generally appeared satisfactory. At our meeting Mr Tom Chevasse informed us that under the Estate leases the tenants have responsibility for windows so that if an extended painting cycle leads to increased decay in window joinery any

additional cost must be met by the tenants. However in this regard the 'Flexigloss X-Tra' paint has an Agreement Certificate for up to eight years durability. Again it would be important that preparation is thorough.

Some of the window joinery to the rear elevation of number 36 Brunswick Square has flaking paint exposing bare timber to more exposed lower parts of the frame. This would be cause for concern if allowed to occur on a large scale to the front elevations.

CONCLUSION

In considering an increase from five up to six, seven or eight years it should be borne in mind that these represent extensions in the time period of 20%, 40% and 60% respectively, not small increases.

Overall the paint surfaces appear satisfactory including the rear elevation at 36 Brunswick Square last painted in 2001 although this is less exposed than most front elevations on the Estate. Mr John Carlisle (the paint manufacturers Technical Director) told me that this elevation was painted in accordance with the Estate Paint Specification with his input. I was only able to inspect this from the access road (Brunswick Street West) which is significantly further away than the footpaths are to the fronts and it merits closer inspection to make a better judgement about the surface condition of the paint.

There is evident deterioration on the facades which were last painted in 2005. The major paint problem is the extent of rust staining from corroded iron railings. In some instances the extent of rust staining is already to such a degree that it now requires attention after only three years.

This problem can only be improved if the measures to prevent ironwork corroding can be improved. The manufacturers paint specification in common with accepted good practice requires that all rust be removed. This is often difficult or impractical and inevitably in site conditions some rust often remains. Manufacturers claims in regard to paint longevity will inevitably require that there is no rust present on the substrate.

It may be possible to improve the specification in regard to painting the ironwork to try to reduce susceptibility to corrosion and this merits further investigation.

The second main problem is probably dirt soiling below string courses and balcony projections. However this is essentially cosmetic and could be cleaned off if required.

The paint finish to the rear of number 36 Brunswick Square gives an indication of performance after seven years. Corroded iron straps give an idea of rust staining which is severe, but it is possible though that the straps were not painted. There is little or no evident dirt soiling below the string course but this feature is very shallow.

Other fronts will suffer more severe weather exposure and thus greater paint deterioration is to be expected.

Some parts of the estate are more vulnerable to weather and will therefore deteriorate more rapidly than others. A longer period might be feasible in sheltered parts of the Estate. In particular the Terrace is directly exposed to a coastal climate and subject to severe exposure.

Based upon the current condition of the fronts last painted in 2005 and in particular the extent of ironwork corrosion and associated rust staining I consider an increased time between repainting will have an adverse effect on the appearance and condition of the elevations unless measures are taken to control the corrosion of ironwork and associated rust staining.

Such measures could include further investigation to see if improved preparation is possible and considering the effectiveness of the specified primer. It would also be possible to consider intermediate attention to all ironwork to include a shorter painting cycle than for masonry and woodwork and cleaning of rust staining.

An extended painting cycle will be counterproductive if the extent of deterioration means that more extensive preparation and pre painting repairs are required which could exceed any cost savings over time from the increased period.

I have queried the masonry specification regarding cleaning and abrading. Abrading is labour intensive with relatively high cost. If an extended painting cycle means that some surface deterioration occurs and abrading is then necessary the cost of repainting could increase significantly. The paint manufacturers Technical Director considers this unlikely because the same paint system has been used for two previous cycles so that there should be a thick build up of the same type of paint over the surface.

If the rear elevation of number 36 Brunswick Square is used as a guide I would find it difficult to recommend unconditionally an increase in the painting cycle. Whilst the flat masonry areas appear satisfactory viewed from a distance, problem areas, such as the parapet finishes and lower parts of the joinery show obvious deterioration. The extent of any rust staining could only increase over time with risk of excessive corrosion unchecked. This elevation is probably more sheltered than the Estate fronts which might therefore be expected to have deteriorated further over the same period of time. I was told that this elevation was painted in accordance with the Brunswick Estate Painting Specification with input from the paint manufacturers Technical Director.

The Technical Director told me that Classic Stone Gloss has been available for nearly 20 years and based on his practical experience has no reservations that it would satisfy Agreement testing standards for a durability of 15 years. He said he is confident that it is suitable for 8-10 years painting cycles notwithstanding the exposure in this instance.

It should be borne in mind that the degree of exposure of the Terrace must be greater than for the Square and Place so that the latter would theoretically stand longer painting cycle. However different painting cycles would not maintain a harmonious appearance particularly as time progresses and they become more out of synchronisation. This is not therefore an acceptable solution and the painting cycle should be governed by the needs of the most exposed part of the estate. A more relevant controlled trial would be useful, to involve buildings from the exposed Terrace.

Alternatively subject to discussion with the paint manufacturer's Technical Director, consideration could be given to allowing one cycle to extend to six or seven years and reviewing the condition by survey before repainting so that the future painting cycle can be set from a basis of knowledge.

Signed September 2008

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