

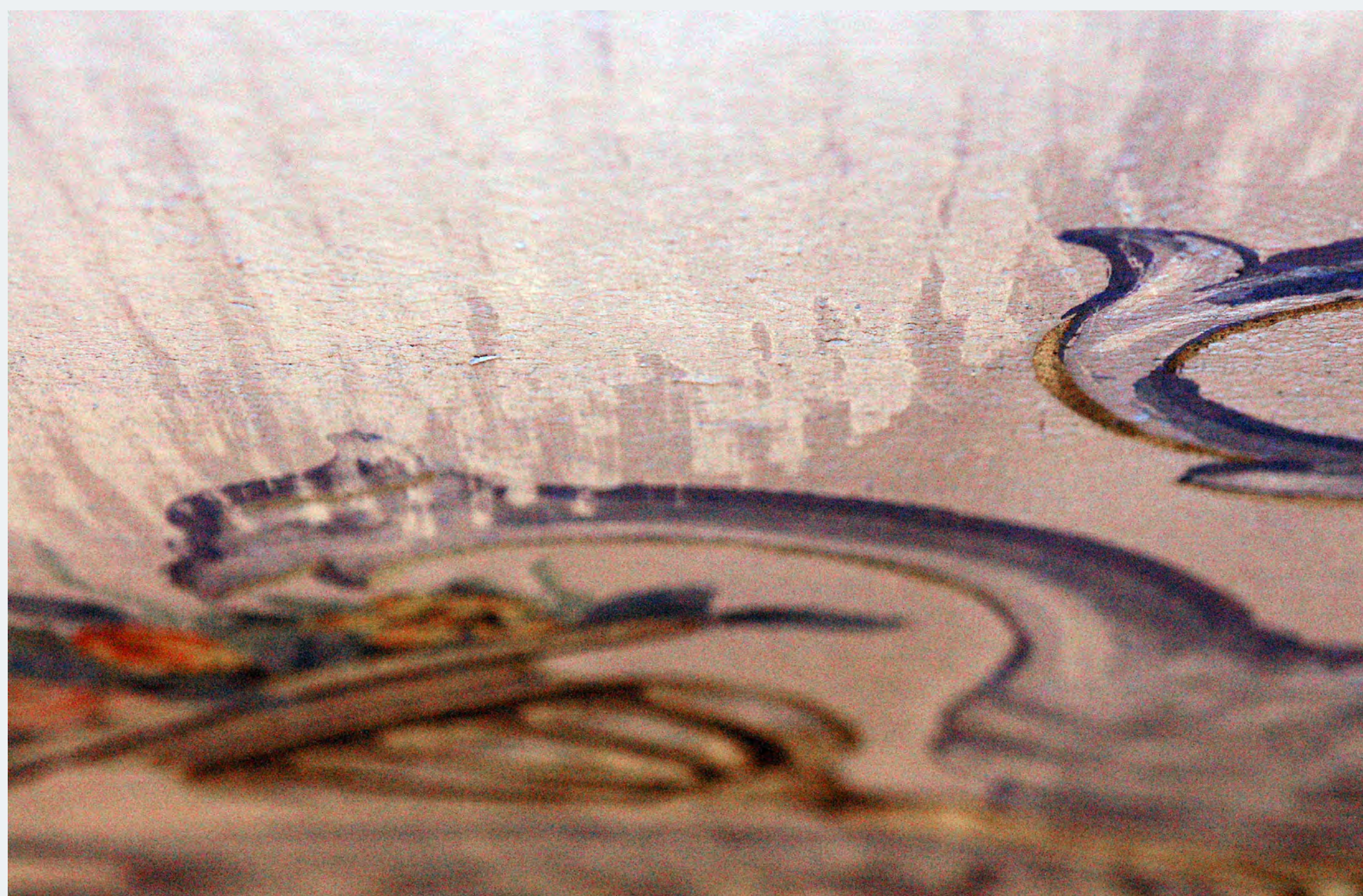
## ZATEČENO STANJE

Zidna slika na stropu iznad gledališta hvarskog Kazališta izvedena je u tehnici tempera i rasprostire se na približno 70 četvornih metara. Nosilac slikanog sloja je vapnena žbuka nanescena u dva sloja, od kojih je podložni sloj utisnut među letvice drvene stropne konstrukcije koja je učvršćena za poprečne grede. Dugotrajno djelovanje statičkih i dinamičkih opterećenja uzrokovalo je brojna i raznovrsna oštećenja koja su zamijećena i zabilježena u početku radova 2007. godine. Najsloženiji restauratorski problem bila je nestabilnost stropa izazvana slabljenjem vezivnih spona žbuke i drvene stropne konstrukcije, što je uzrokovalo otpadanje 1,5 četvornih metara slikarije na sjevernom središnjem dijelu stropa. Zidna slika već je pretrpjela otpadanje dijela stropa na južnoj strani koji je obnovljen rekonstruktivnim zahvatom. Vjerojatno je, u istom vremenu, prebojen i središnji podložni svijetloplavi ton kao i rubne dekorativne trake. Dugotrajno djelovanje mehaničkih sila i prirodno „starenje“ materijala uzrokovalo je brojne pukotine i naprsnuća žbuke te denivelaciju (poremećaj razine) stropne površine, što je izazvalo nepoželjne promjene slikanog sloja.



The painting on the ceiling above the audience of the Hvar Theatre is executed in tempera, and it covers a surface of approximately 70 square metres. The painted layer is applied against a ground consisting of lime plaster applied in two coats, with the bottom coat pressed in between the lattices of the wooden ceiling construction, fixed to cross-beams. The many years of static and dynamic pressure have caused extensive and varied damage, which was noticed and recorded at the beginning of the work in 2007. The most demanding problem, from the point of view of conservation, was the instability of the ceiling, caused by the weakened binding between the plaster and the wooden ceiling construction, which resulted in the falling-away of 1.5 square metres of the painting on the northern side of the central part of the painting. A piece of the wall painting had also fallen off earlier and been reconstructed in the meantime. The light blue colour of the background in the central part and the decorative ribbons along the edges were probably applied on that occasion.

## INITIAL CONDITION



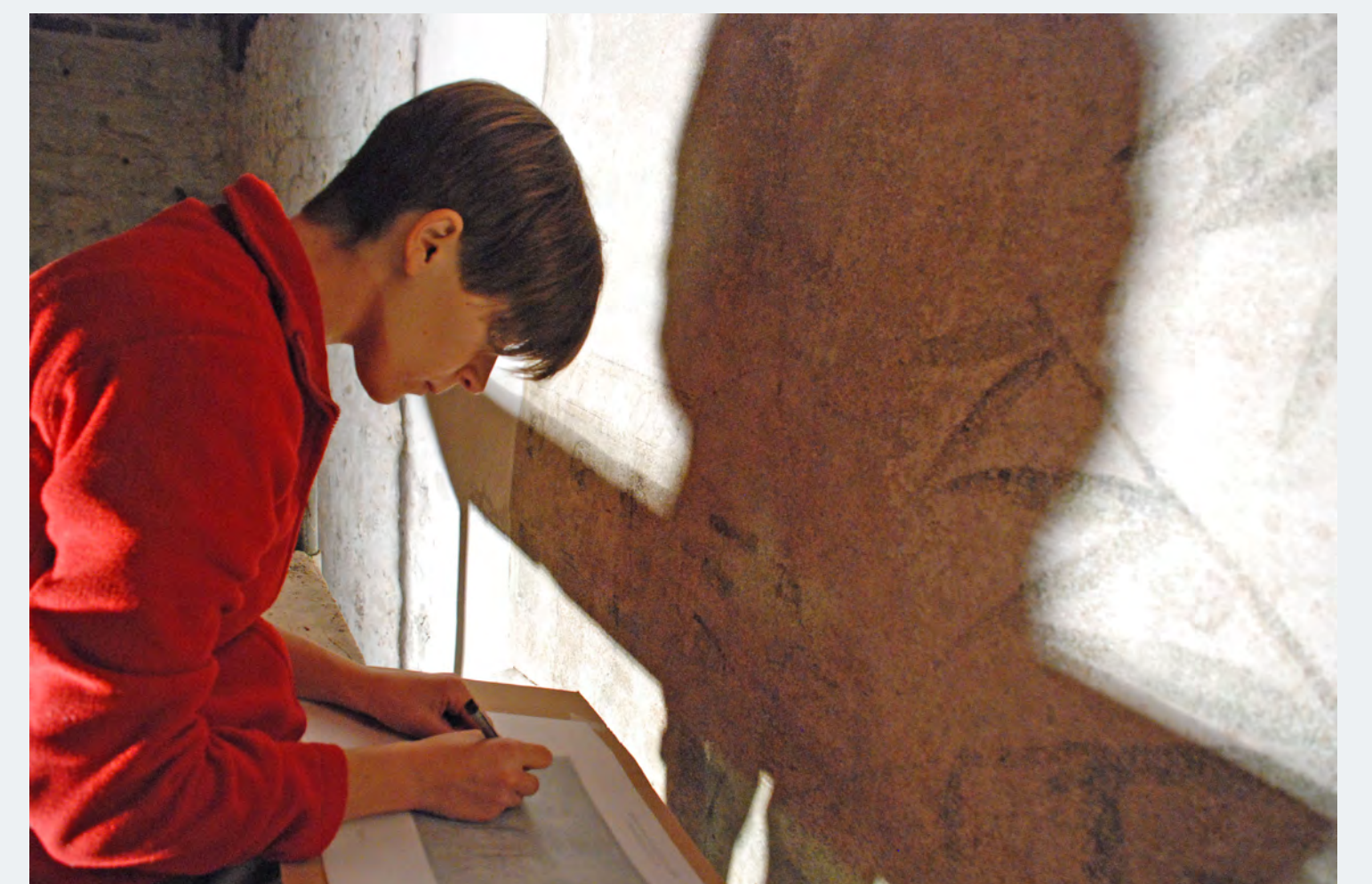
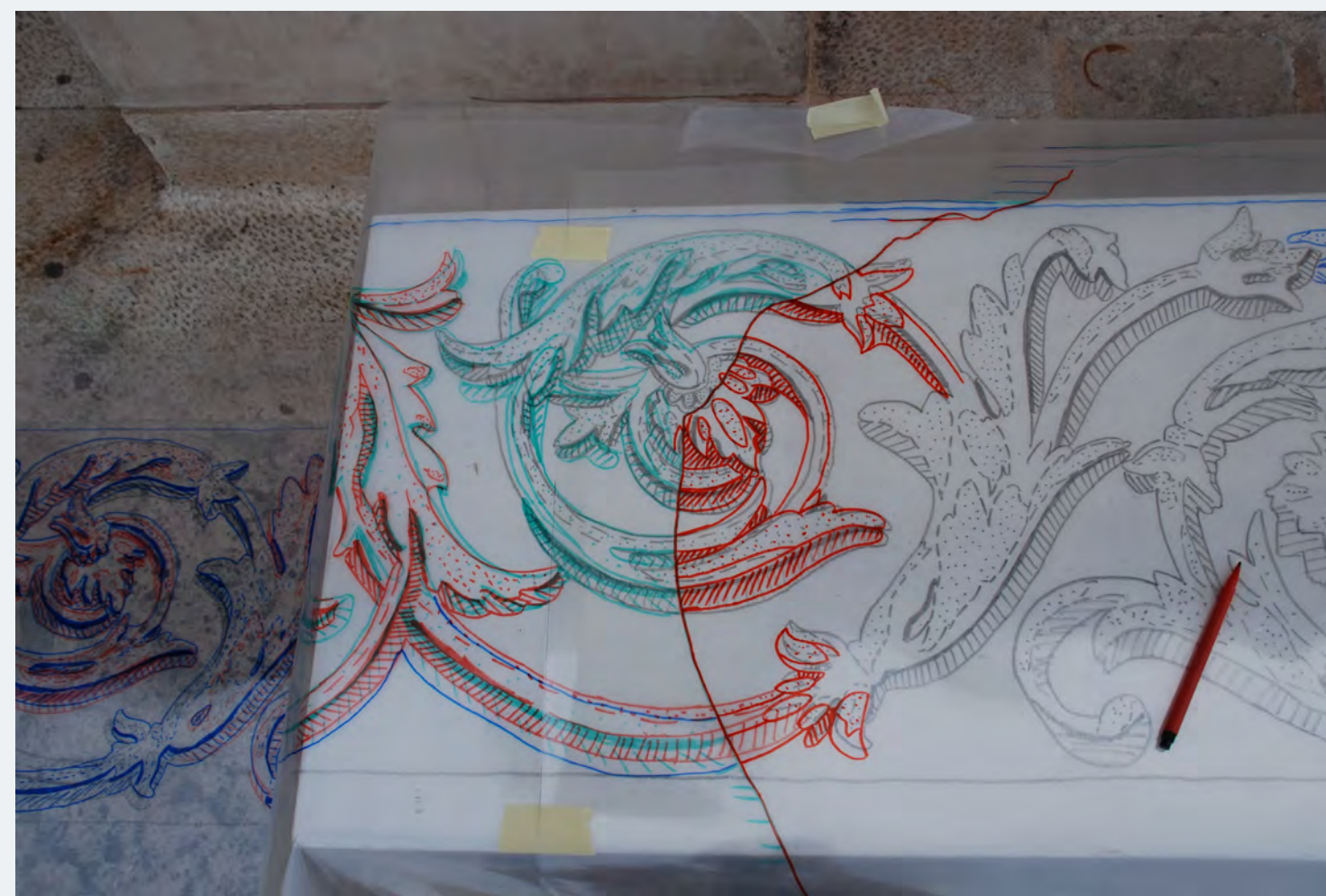


# DOKUMENTACIJA I ISTRAŽIVANJA

Dokumentacija se kao jedna od najvažnijih stavki konzervatorsko-restauratorskih zahvata provodi sustavno i ciljano prije, tijekom i nakon zahvata.

Relevantni podaci bilježeni su alfanumerički, grafički i fotografski te su prikladno obrađeni i arhivirani. Grafička dokumentacija bilježena je na prethodno učinjenim osnovnim grafičkim mapama te je poslije obrađena i kompletirana u odgovarajućem kompjutorskom programu.

Analitička istraživanja žbuke i slikanog sloja provedena su tijekom prve faze radova 2007. godine u Prirodoslovnom laboratoriju Hrvatskoga restauratorskog zavoda u Zagrebu. Dobiveni podaci korišteni su da bi se dopunili i potvrdili ili opovrgnuli zaključci doneseni na temelju vizualnog opažanja i opažanja mikroskopiranjem.



Compilation of documentation is one of the most important elements of conservation and restoration work, and it has to be done systematically, and in a targeted fashion, before, during and after any intervention.

The relevant data were recorded alphanumerically, graphically and photographically, and they were appropriately processed and archived. The graphic documentation was recorded on previously prepared basic graphic maps, and it was later processed and completed in a suitable computer program.

An analytical exploration of the plaster and painted layer was performed during the first phase of work, in 2007, in the Natural Science Laboratory of the Croatian Conservation Institute in Zagreb. The results were used to supplement and confirm or refute the conclusions reached on the basis of visual inspection and inspection under a microscope.

## DOCUMENTATION AND RESEARCH



# RETUŠ ZAVRŠNA ZAŠTITA

S obzirom na to da okolni dijelovi slikarije nisu pružali dovoljno pouzdanih dokaza o slijedu likovnog prikaza, učinjen je retuš integrativnog tipa, što pretpostavlja retuširanje novoožbukanih dijelova tako da se uklape u cjelinu slikarije bez iscrtavanja detalja. Retuš je rađen u tehnici tempere, istočkavanjem, da bi se razlikovao od izvornika, ali da ipak nije prenametljiv. Završna zaštita slikarije provodi se u svrhu stabilizacije slikarije i zaštite od budućih štetnih djelovanja. Treba istaknuti da ne postoji apsolutna zaštita slikarije, već je uz provedeni tretman slikariji potrebno uspostaviti optimalne uvjete opstojnosti kako bi se što dulje očuvala na najbolji mogući način. Zaštita slikanog sloja i žbuke provedena je u dva navrata prskanjem otopine fiksativa pod tlakom. Raspršivanje osigurava dobro prijanjanje fiksativa uz površinu i prodiranje u površinske slojeve žbuke, čime se osnažuju vezivna svojstva i adhezija slikanog sloja za žbuku.



Given that the surrounding sections of the painting did not provide sufficient reliable evidence on the pattern of the artistic work, the newly-plastered sections were retouched in an attempt to integrate them in the overall painting, without any details being drawn first. The technique that was used was dotting, in tempera, with the aim of achieving a result that would differ from the original, but still not be too intrusive.

The final protection of the painting aims at stabilizing the painting and protecting it from future adverse influences. It should be pointed out that absolute protection of a wall painting cannot be achieved, but rather the goal is to establish optimal conditions for the painting to be preserved in the best possible way for as long as possible. The painted layer and plaster were protected by a solution of a fixative that was sprayed twice. The spraying ensures good adhesion of the fixative to the surface and its penetration into the upper layers of the plaster, which strengthens the binding capacity and adhesion of the painted layer to the plaster.

## RETOUCHING FINAL PROTECTION



## KONSOLIDACIJA ŽBUKE

Konsolidacija žbuke podrazumijeva ponovno uspostavljanje kohezije unutar slojeva te obnovu adhezije među slojevima žbuke i podloge. Time se nastoji ostvariti cjelovitost i stabilnost. Vizualnom, taktilnom i auditivnom detekcijom uočeni problemi sanirani su obrublivanjem, injektiranjem, rekonstruktivnim žbukanjem, zapunjavanjem lakuna i pukotina te impregnacijom žbuke.

Korištene žbuke svojim su fizikalno-kemijskim odlikama usklađene s izvornom žbukom te su prilagođene specifičnim zahtjevima. Zadovoljenje estetskog kriterija podrazumijeva obrađivanje svih novopostavljenih dijelova na najmanje uočljiv način, čime se postiže cjelovitost i uspostavlja vizualna ujednačenost.



  
HRVATSKI  
RESTAURATORSKI  
ZAVOD

Plaster consolidation refers to the reestablishment of cohesion within the different layers and the restoration of adhesion between the layers of plaster and their carrier, in an attempt to achieve uniformity and stability. Visual, tactile and auditory detection was used to discover problems, which were then repaired by edging, injecting, reconstructive plastering, filling-in of the lacunae and cracks, and impregnation of the plaster.

The physical and chemical characteristics of the plaster used corresponded to the original and were adapted to the specific requirements. In order to satisfy aesthetic criteria, all newly-placed elements were worked in the least visible way, and with this the desire to achieve unity and to meet the criterion of visual uniformity was fulfilled.

## CONSOLIDATION OF PLASTER





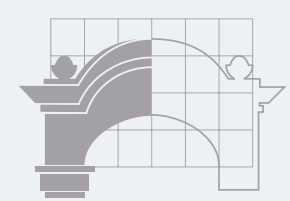
## ZATEČENO STANJE 2010.

## UKLANJANJE PRIVREMENOG ZAŠTITNOG SLOJA

Prema prethodno provedenim istraživanjima, zaštitni sloj uklonjen je acetonom, otapalom koje je slabilo čvrstoću ljepila te je na taj način omogućilo jednostavno odvajanje armaturnog materijala s lica slikarije. Aceton je zbog velike hlapljivosti zahtijevao hitrost u radu, a samo odvajanje trebalo je izvesti s najvećom pažnjom, kako uklanjanje armaturnog materijala ne bi izazvalo spontano odvajanje slikanog sloja od žbuko-podloge.

Usporedno s uklanjanjem zaštitnog sloja provedeno je i dočišćavanje lica mehaničkim i kemijskim metodama. Specijalnim deterdžentima i otapalima uklonjeni su preostali oblici zaprljanja, ostaci ljepila i materijala zaštitnog sloja.

Mjestimično zamijećen gubitak adhezije i kohezije unutar izvorne žbuke rezultat je djelovanja zaostalih soli u zidovima, no na temelju provedene građevinske sanacije i činjenice da tijekom rada nije zamijećeno prodiranje vlage koja bi ponovno pokrenula procese migracije soli, zaključujemo da su daljnja oštećenja takve vrste svedena na minimum.



HRVATSKI  
RESTAURATORSKI  
ZAVOD

In line with prior testing, the facing was removed using acetone – a solvent which reduced the strength of the glue and thus allowed the reinforcing material to be removed easily from the face of the painting. Due to its high volatility, acetone called for quick work, while at the same time the separation of the facing had to be done extremely carefully in order not to cause spontaneous detachment of the painted layer from its plaster ground. In parallel with the removal of the facing, the face of the painting was additionally cleaned with mechanical and chemical methods. The remaining dirt, glue and facing material were removed using special detergents and solvents.

It was noticed that in some places the original plaster had lost its adhesion and cohesion, which was a result of the action of salts that had remained in the walls. However, the building was structurally rehabilitated, and during our work no moisture was observed which could restart the salt migration, so our conclusion is that further damage of this kind had been reduced to a minimum.

## INITIAL CONDITION 2010

## REMOVAL OF FACING





## PREVENTIVNA KONSOLIDACIJA SLIKANOG SLOJA I PRIVREMENA ZAŠTITA

U skladu s rezultatima istraživanja materijala i metoda čišćenja, odabrano je i provedeno kemijsko i mehaničko čišćenje slikanog sloja od naslaga nečistoća i mrlja. Pri kemijskom čišćenju korištena je vodena otopina specijalnog deterdženta, nakon čega je slikani sloj, a time i žbuko-podloga, fiksiran vodenom otopinom posebne akrilne emulzije koja vraća vezivna svojstva slikanom sloju i žbuci, a pigmente na likovnom prikazu čini izražajnijim i vidljivijim.

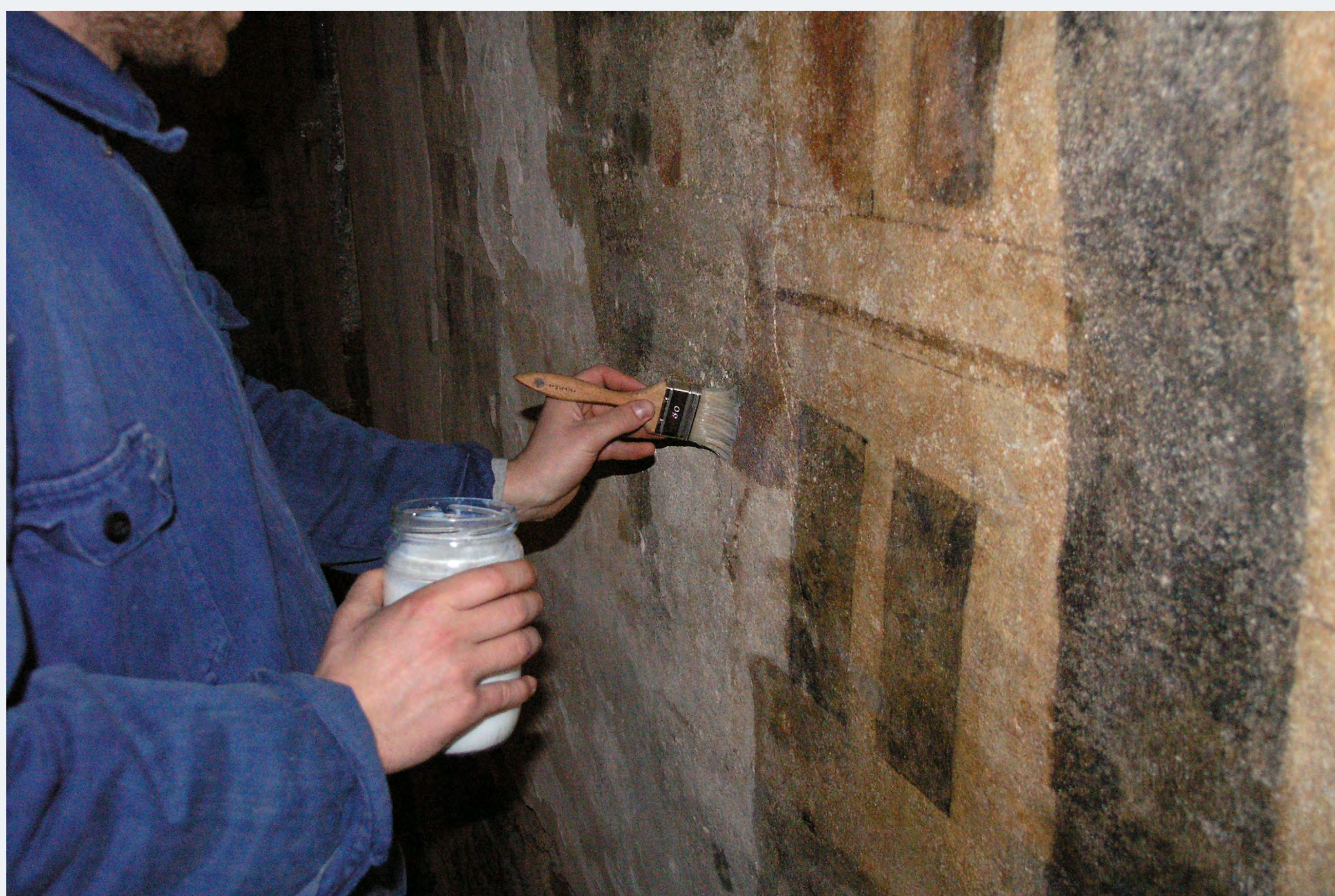
Fiksiranje slikanog sloja preduvjet je za postavljanje privremenog zaštitnog sloja na lice slikarije čija je uloga sprječavanje oštećivanja prilikom radova na građevinskoj sanaciji Kazališta. Zaštitni sloj činila su tri podsloja armaturnog materijala, sloj japanskog papira te dva sloja gaze zalijepljena na lice slikarije posebnim akrilnim vezivom. Čvrstoća i postojanost te jednostavnost uklanjanja zaštitnog sloja prethodno je provjerena probama, na prikladnoj podlozi, radi potvrde njegove učinkovitosti i neškodljivosti. Takvim tretmanom osigurana je cjelokupna zaštita slikarije.



HRVATSKI  
RESTAURATORSKI  
ZAVOD

In line with the results of the testing of materials and cleaning methods, chemical and mechanical cleaning was selected and applied for the removal of dirt and stains from the painted layer. For the chemical cleaning, a water solution of a special detergent was used, and afterwards the painted layer, including its plaster ground, was fixed with a water solution of a special acryl emulsion. This emulsion restores binding capacity to the painted layer and plaster, and makes pigments more expressive and visible. The painted coat had to be fixed to enable placing of a temporary protective facing over the painting, which would prevent it from being damaged during work on the structural rehabilitation of the theatre. The facing was composed of three underlayers of reinforcing material, a layer of Japanese paper and two layers of gauze glued to the face of the painting with a special acryl adhesive. The firmness and stability of the protective layer, as well as its easy removal, were tested on an appropriate ground, to verify its efficiency and harmlessness. The same treatment was used to protect the entire painting.

## PREVENTIVE CONSOLIDATION OF THE PAINTED LAYER AND TEMPORARY PROTECTION



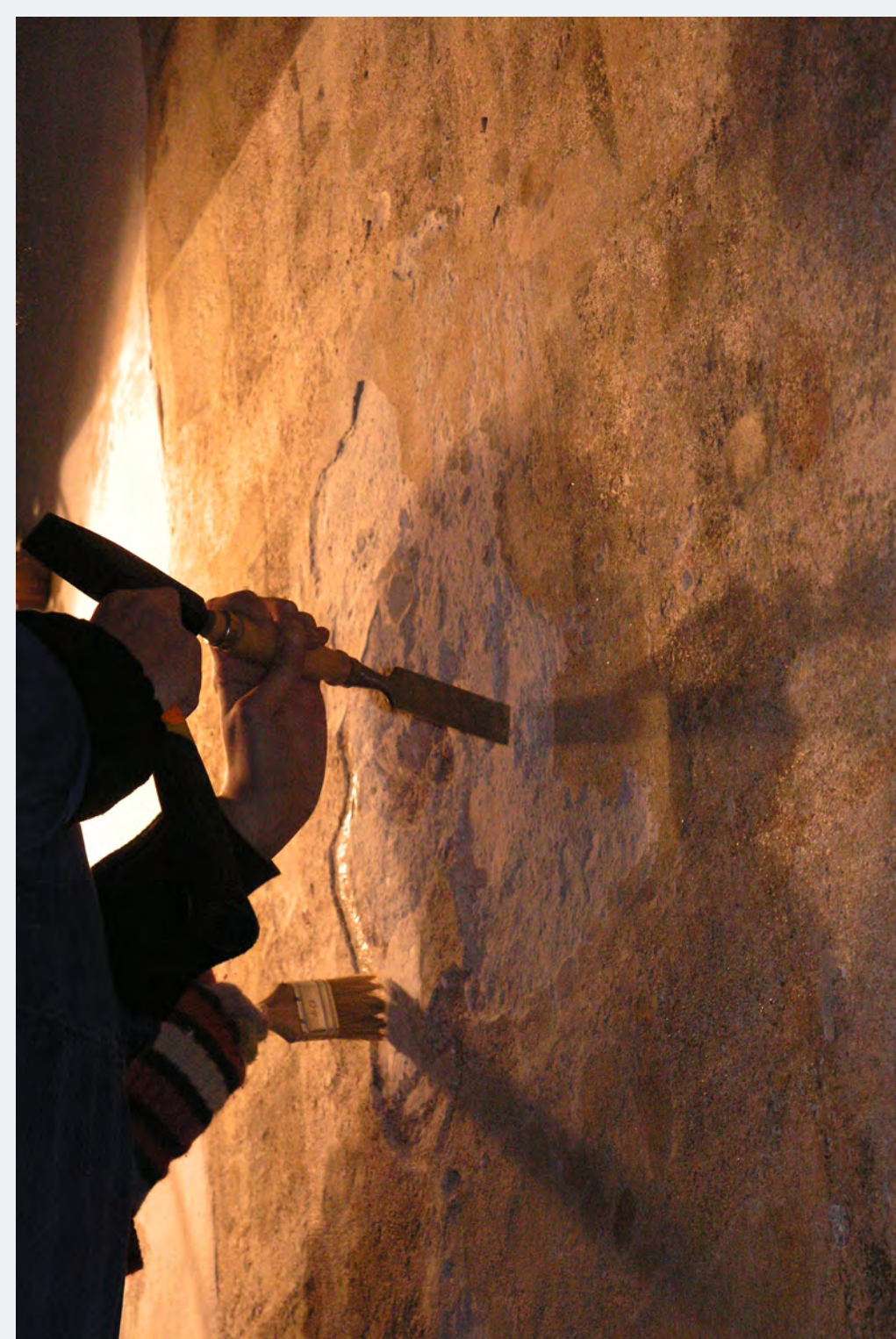


## ZATEČENO STANJE 2007. PREVENTIVNA KONSOLIDACIJA ŽBUKE

Zidna slika smještena na istočnom zidu hvarskog Kazališta kao scenska dekoracija pozornice ima površinu od približno 15 četvornih metara. Oslíkana je i položena u tanjem sloju koji tek mjestimično na sljubnicama zida pokazuje debljinu od 15 milimetara. Zamijećena oštećenja u obliku pulverizacije slikanog sloja i brojnih potklobučenja, rezultat su gubitka adhezije i kohezije unutar materijala, što je uzrokovano djelovanjem lako topivih soli koje preko vlage migriraju unutar materijala. Prodor vlage kroz istočni zid Kazališta najizraženiji je bio na mjestu zazidanog sjevernog prozora. Konzervatorsko-restauratorskim zahvatom koji je proveden 1989. godine sanirana su oštećenja te je izvedeno dožbukavanje i retuš, no intenzivno djelovanje vlage uzrokovalo je nova oštećenja.

Pulverizacija slikanog sloja, potklobučenja, pukotine, naprsnuća, brojne lakune te potreba za građevinskom sanacijom cijelog Kazališta zahtijevali su daljnje zaštitne zahvate.

Mehanički su uklonjene velike žbuko-zakrpe postavljene u prijašnjim zahvatima (1989. godine) na donjem sjevernom dijelu slikarije čija je struktura zbog djelovanja vlage oslabjela, što je uzrokovalo osipanje i listanje. Rubovi slikarije na oštećenim su dijelovima ojačani nanošenjem obruba prikladnom žbukom. S obzirom na to da je zvučno detektiran velik broj potklobučenja, provedeno je injektiranje veziva da bi se žbuci vratila kompaktnost i stabilnost. Kao mjesta za injektiranje iskorištena su već postojeća oštećenja slikarije, čime se spriječilo njezino dodatno oštećenje. Navedenim zahvatima konsolidacije žbuke oštećenja su sanirana, čime se spriječilo njezino daljnje propadanje, ali i zaštita od mogućih oštećenja tijekom građevinske sanacije Kazališta.



The wall painting on the eastern wall of the Hvar theatre, which functions as a stage decoration, covers approximately 15 square metres. It is painted in a thin layer which, only in certain places, along the wall joints, reaches a thickness of 15 mm. The damage noticed, in the form of pulverization of the painted layer and numerous air pockets, resulted from loss of adhesion and cohesion within the materials, caused by the action of readily soluble salts which migrated to the materials, assisted by moisture. The most extensive penetration of moisture through the eastern wall of the theatre occurred at the location of the walled-in northern window. In the 1989 conservation and restoration intervention, the damage was repaired, additional plaster applied, and the surface retouched, but the intensive moisture caused new damage. Further protective treatment was necessitated by pulverization of the painted layer, air pockets, cracks, fractures, numerous lacunae and the need for the structural rehabilitation of the entire theatre.

The large plaster patches made during earlier interventions (in 1989) were mechanically removed from the lower northern part of the painting. The painting's structure had been weakened by moisture, causing dropping and flaking. In the damaged segments, the painting's edges were strengthened by the application of appropriate plaster. Due to the fact that a substantial number of air pockets were detected by sound, a binding substance was injected in an attempt to restore the plaster's compactness and stability. Existing locations of damage were used as points of injection, thus preventing any additional damage. These procedures led to consolidation of the plaster and repair of damage to it, thus preventing its further deterioration, and protecting it from possible damage caused by the structural rehabilitation of the theatre.

INITIAL CONDITION  
2007

PREVENTIVE CONSOLIDATION  
OF THE PLASTER



## ZAVRŠNA ZAŠTITA

Završnom zaštitom nastoji se uspostaviti stabilnost slikanog sloja, zaštita od budućih štetnih utjecaja i očuvati postojeći vizualni integritet umjetnine. Nanošenjem zaštitnog sredstva obnavlja se prionljivost slikanog sloja za podlogu i kohezija slojeva, a zaglađivanjem površine izbjegava se različita disperzija svjetla. Površinskim višekratnim prskanjem primjerene otopine zaštitnog sredstva izbjegava se rizik otapanja čestica pigmentata i zamrljanost koji se mogu pojaviti prilikom nanošenja zaštitnog sredstva kistom.

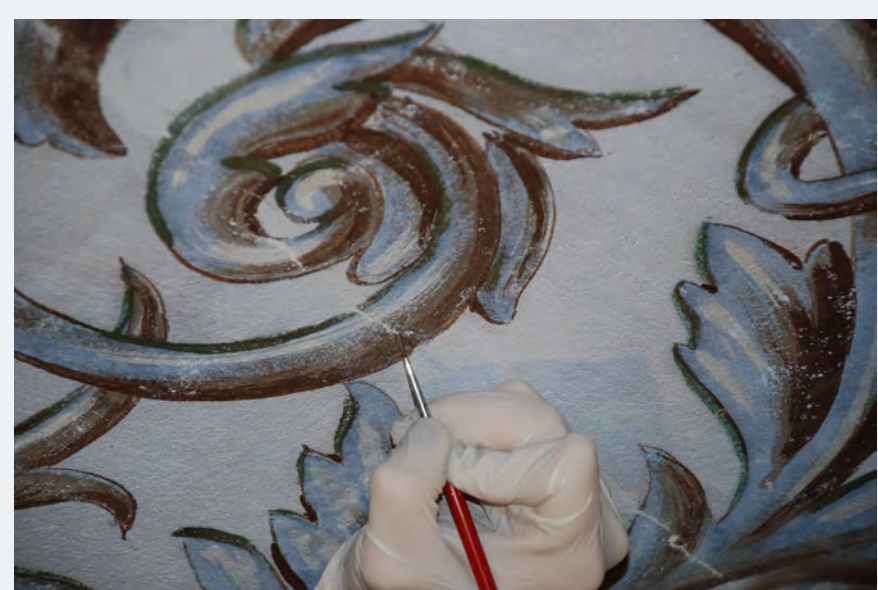
Navedenim načinom slikani sloj je stabiliziran, zaštićen i izoliran od vanjskih utjecaja, čime je osigurana njegova postojanost zahvaljujući važnim uvjetima za održavanje umjetnine: prihvatljivim fizičko-kemijskim vrijednostima i vremenskom čimbeniku.



The final protection is an attempt to establish the stability of the painted layer, protect it from future damaging influences and preserve the current visual integrity of the artefact. The application of the protective substance restores the adhesive capacity of the painted layer and the cohesion of various layers, and smoothing out of the surface prevents differences in light dispersion. Repeated surface spraying with an appropriate solution of the protective substance prevents the risk of dissolution of pigment particles and creation of stains, which can appear if the solution is applied by brush. The method described above stabilizes and protects the painted layer and isolates it from external factors, thus ensuring its stability thanks to acceptable physical and chemical values and climatic factors relating to the maintenance of the artefact.

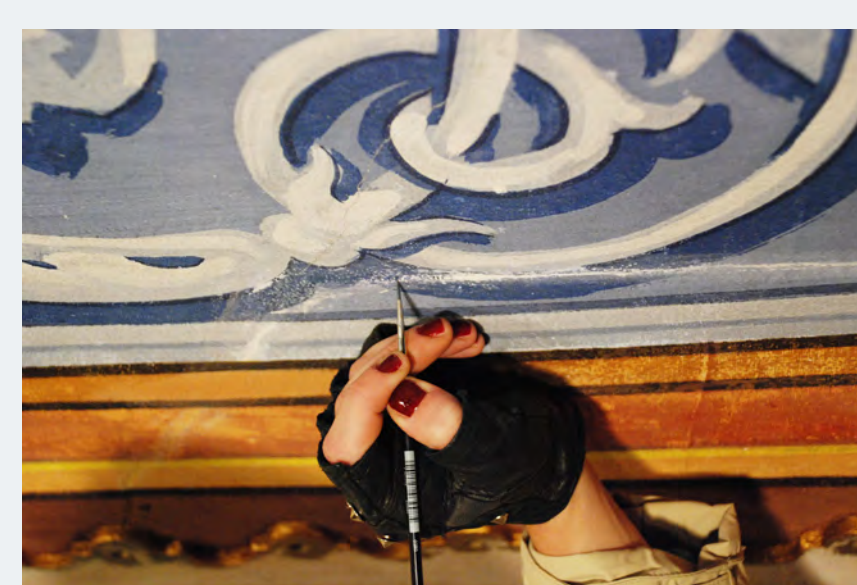
## FINAL PROTECTION





## RETUŠ I REKONSTRUKCIJA SLIKANOG SLOJA

Retuš i rekonstrukcija slikanog sloja izvedeni su tehnikom tempere koja je svojim odlikama potpuno u skladu s izvornim oslikom, a zasićenost boje i sjaj kontrolirani su količinom otapala (vode). Zrnata tekstura površine intonacca uvjetovala je istočkavanje preko lazurno postavljene podsljke kao najprimjereniju tehniku retuša. Na taj su način tretirane sve površine oslikanog stropa. Područja na kojima je nedostajao velik dio oslika rekonstruirana su precrtavanjem motiva oslika s okolnih dijelova slikarije. Rekonstrukcijski crtež nadograđivao se sukcesivnim nanošenjem lazurnih slojeva do željene razine, poštujući izgled izvornog oslika, izvedući ga na temelju postojećih identičnih elemenata kompozicije.



HRVATSKI  
RESTAURATORSKI  
ZAVOD

Retouching and reconstruction of the painted layer were executed in tempera, the characteristics of which are fully aligned with the original painting. The colour saturation and shine were controlled with the quantity of solvent (water) used. The granular texture of the intonacco surface called for the selection of dotting of the varnished background paint as the most appropriate retouching technique, which was used on all painted surfaces of the ceiling. The sections in which large segments of the painting were missing were reconstructed by copying the motifs from the surrounding sections of the painting. The reconstructed drawing was added to by applying successive coats of varnish until the desired level was reached, with due respect for the appearance of the original painting. The reconstructed drawing was made on the basis of the existing identical elements of the composition.

## RETOUCHING AND RECONSTRUCTION OF THE PAINTED LAYER



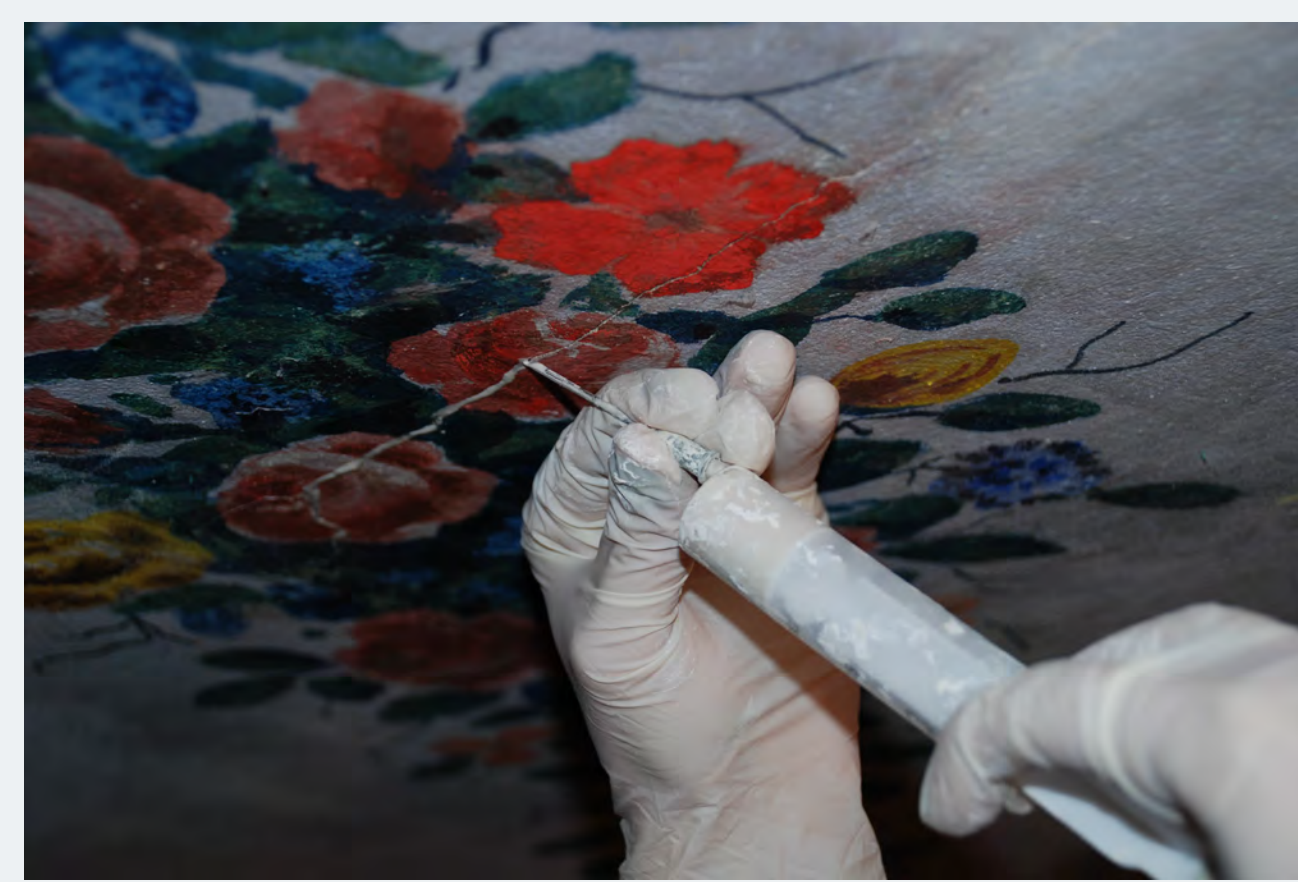
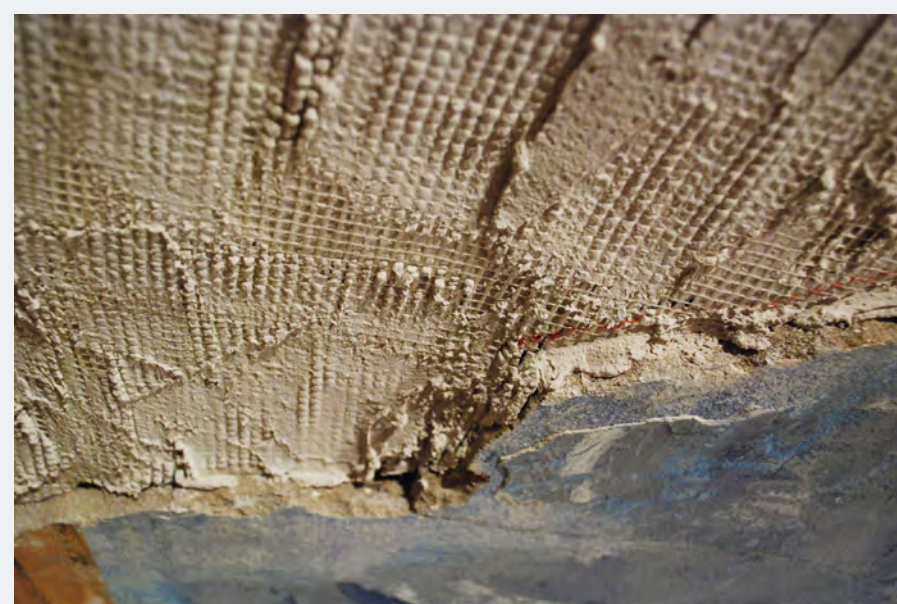


## REKONSTRUKCIJA ŽBUKE I RUBNOG ŠTUKATURNOG VIJENCA

Povrat konzistentnosti i stabilnosti ožbukanih površina kao i zadovoljavanje estetskih kriterija razlog su prekrivanja golih površina stropa novom žbukom. Dožbukavanje je izvedeno u dva sloja vapnenom žbukom srednje granulacije pijeska, koji je ujedno prirodni pigment te svojim fizikalno-kemijskim osobinama odgovara izvornoj žbuci, a odabrana je prema rezultatima laboratorijskih analiza izvorne žbuke. Drvene letvice su prije nanošenja žbuke učvršćene, konzervirane i izolirane da bi održale izvornu ulogu nosioca te da bi se spriječilo eventualno štetno međudjelovanje materijala.

Prvi sloj žbuke utisnut je među drvene letvice te prodiranjem na poleđinu letvica tvori efekt „sidra“. Zatim je nanesen drugi sloj žbuke s armaturom koja sprječava pucanje i odvajanje materijala. Velika pozornost posvećena je obradi površine novopostavljene žbuke koja teksturom i razinom odgovara izvornoj pa su prijelazi manje uočljivi.

Dijelovi potrebni za rekonstrukciju štukaturnog vijenca izrađeni su u radionici prema nacrtima izvornika i na strop su lijepljeni u manjim komadima radi jednostavnijeg postavljanja i reduciranja težine. Površina i rubni dijelovi rekonstruiranog vijenca obrađeni su i oblikovani prema izvornom uzorku da bi se ostvario potrebni vizualni kontinuitet ukrasnog elementa.



With the goal of restoring the consistency and stability of the plastered surfaces and satisfying aesthetic criteria, the bare ceiling surfaces were newly plastered. This additional plastering was done with two layers of lime plaster of medium sand granulation, which is also a natural pigment, and its physical and chemical characteristics correspond to the original. The plaster was selected on the basis of the results of laboratory analysis of the original plaster.

Prior to the application of the plaster, the wooden lattices were strengthened, conserved and isolated to preserve their original role as carriers and to prevent any possible damaging interaction of various materials.

The first layer of plaster was pressed in between the wooden lattices, and its penetration to the back of the lattices created an 'anchoring' effect. After this, the second layer of the reinforced plaster was applied, which prevents cracking and separation of the materials. A lot of attention was paid to the finishing of the surface of the newly-applied plaster. Its texture and level correspond to the original, thus making the joints less visible.

Elements necessary for the reconstruction of the stucco wreath were made in the workshop in line with the original drawings, and they were glued to the surface in small pieces in order to facilitate their positioning and to reduce the weight. The surface and the edges of the reconstructed wreath were finished and shaped in line with the original pattern to achieve the necessary visual continuation of the decorative element.

## RECONSTRUCTION OF THE PLASTER AND THE OUTLYING STUCCO WREATH



## UKLANJANJE PRIVREMENOG ZAŠTITNOG SLOJA

Uklanjanje privremenog zaštitnog sloja s lica slikarije ponajprije podrazumijeva otapanje ljepila kako bi se armaturni materijal mogao jednostavno ukloniti. Djelovanjem otapala, ljepilo zaštitnog sloja će popustiti te se zaštitni sloj s lica umjetnine uklanja laganim povlačenjem.

Razdoblje privremene zaštite hvarskih slikarija bilo je dulje od preporučenog, što je uzrokovalo otežano rastvaranje ljepila zaštitnog sloja. Materijali armaturnog sloja uklonjeni su postupnim pojedinačnim odvajanjem slojeva te su se usporedno sa slikane površine uklonili ostaci ljepila i neutralizirala zaštitna opna koja je u prethodnoj fazi zahvata postavljena radi izoliranja intonacca prije postavljanja privremenog zaštitnog sloja.



The removal of the facing from a painting consists primarily of dissolving the glue, so that the reinforcing material can easily be removed. The solvent weakens the adhesive capacity of the glue in the facing, and the facing can be removed by gentle pulling.

The period of time that the Hvar paintings had spent under the facing was longer than recommended, causing difficulty in dissolving the glue in the protective layer. The reinforcing layer was removed by gradual separation of individual layers, and at the same time, remains of the glue were removed from the painted surface, and the protective film – placed during an earlier phase of the intervention to isolate the intonacco prior to the placing of the temporary protective layer – was also neutralized.

## REMOVAL OF THE FACING



## UČVRŠĆENJE STROPA

Stabilnost stropne slikarije hvarskog Kazališta bila je ugrožena djelovanjem štetnih mehaničkih oštećenja, prije svega onih koje je uzrokovao čovjek, ali i prirodnim propadanjem materijala (starenjem), što je uzrokovalo njezino mjestimično odvajanje od drvene stropne konstrukcije. Da bi se odvajanje spriječilo i da bi se neutralizirali štetni utjecaji vremena, slikariju je potrebno učvrstiti i ponovno uspostaviti narušenu homogenost žbuke-nosioca slikanog sloja i drvene konstrukcije- nosioca zidne slike. Učvršćenje nestabilnih područja žbuke provedeno je umetanjem drvenih štapića koji služe kao poveznica tih dvaju sustava. Drvenim štapićima odgovarajuće veličine slikarija se „sidrila“ za novopostavljene poprečne grede. Smještaj štapića odgovara rasporedu novih greda, a štapići se ritmično nižu u razmaku od oko 1 četvornog metra, ovisno o smještaju figuralnih i ornamentalnih elemenata oslikane kompozicije koji se pritom nastoje izbjeći. Najprije su učvršćena mjesta uz velike lakune, zatim pukotine i na kraju cijela površina stropa. Mjesta sidrenja zabilježena su na dokumentacijskom crtežu, tako da se u svakom trenutku mogu jednostavno odrediti.



The stability of the ceiling painting in the Hvar theatre was impaired by harmful mechanical influences, primarily those caused by man, but also by natural deterioration (ageing) of the materials, which had caused its sporadic separation from the wooden ceiling construction. In order to prevent further separation and neutralize the damaging impact of time, the painting had to be reinforced, and the disturbed homogeneity of the plaster (carrier of the painted layer) and the wooden construction (carrier of the wall painting) had to be restored.

The unstable segments of the plaster were reinforced by inserted wooden sticks, used to bind together the two systems. The appropriately-sized wooden sticks were inserted to 'anchor' the painting to the newly-placed cross beams. The position of the sticks corresponded to the position of the new beams, and they were distributed regularly with a separation of approximately 1 square metre, depending on the position of figural and ornamental elements of the painted composition, which we tried to avoid. The places next to large lacunae were reinforced first, followed by cracks, and finally the entire ceiling surface was reinforced. The anchors were recorded in a documentation drawing, so that they can always easily be found.

## REINFORCEMENT OF THE CEILING



## ZATEČENO STANJE 2010.

Tijekom 2007. godine Odsjek za zidno slikarstvo, mozaike i štuko proveo je preventivne zaštitne zahvate da bi se zaštitio oslikani strop i umanjile se potencijalne opasnosti u provođenju građevinske sanacije. Druga faza radova koja je pretpostavljala provođenje cjelokupnog konzervatorsko-restauratorskog zahvata trebala se što skorije realizirati kako bi se izbjegli rizici dugotrajnog utjecaja različitih mehaničkih opterećenja na oslikani strop. Postavljeni zaštitni sloj te djelomično sidrenje površine stropa nisu mogli spriječiti dugotrajna opterećenja izazvana izlaganjem vibracijama različitih strojeva i alata te izravnim pritiscima na oslikani strop odozgo. S vremenom su vezivne sponje u spojevima stropne žbuke i letvica popustile, što je rezultiralo potpunim odvajanjem dijela oslikanog sloja sa žbukom. Odvajanje se dogodilo na mjestu već repariranog stropa u južnom središnjem dijelu, ali nasreću izvorni oslik nije pretrpio znatnija oštećenja.



In 2007, the Section for Conservation and Restoration of Wall Paintings, Mosaics and Stucco carried out protective treatment, with the goal of protecting the painted ceiling and reducing possible threats caused by the construction rehabilitation works. The second phase of the treatment, encompassing an overall conservation and restoration intervention, needed to be implemented soon afterwards, in order to avoid the risks posed by the long-term influence of various mechanical burdens on the painted ceiling. The placed facing and the partial anchoring of the ceiling could not prevent long-term damage caused by exposure to the vibrations of various machines and tools, as well as by direct pressure applied against the painted layer from above. With time, the binding in the connections between the ceiling plaster and the lattices became weaker, resulting in a complete separation of one section of the painted layer, together with the plaster. The separation occurred in a place that had already been repaired, on the southern side of the central part of the painting, but, luckily, the original painting coat had not suffered significant damage.

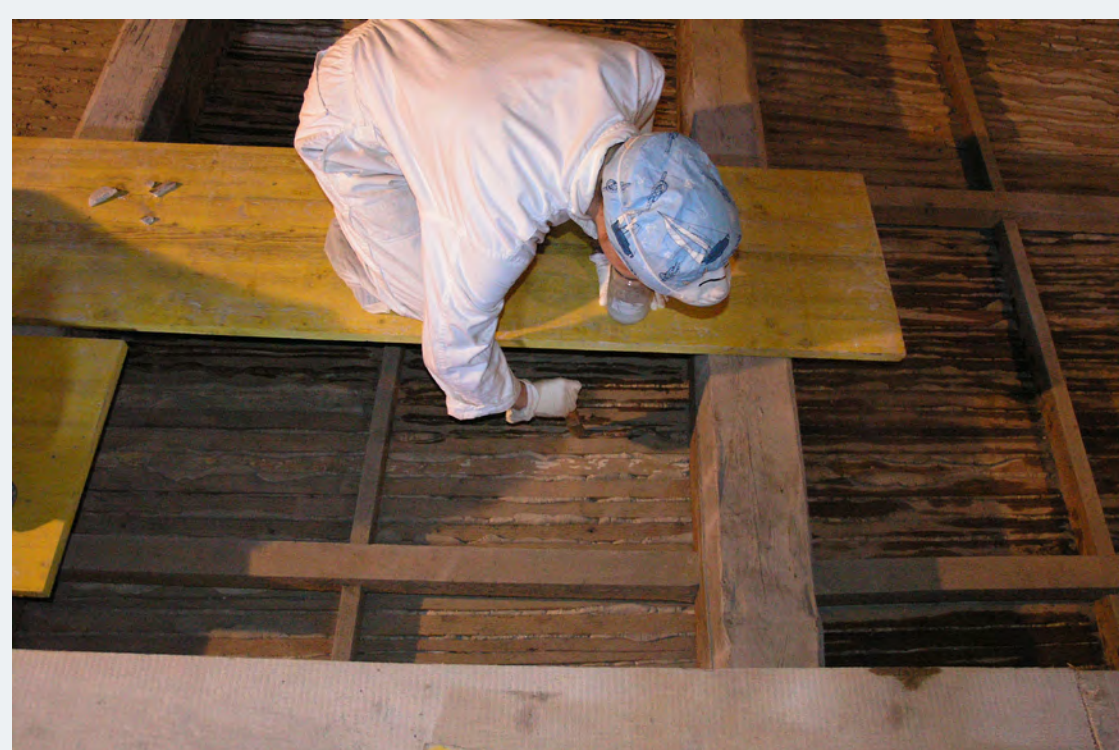


INITIAL CONDITION IN 2010



## ZAŠTITA POLEDINE STROPNE KONSTRUKCIJE

Poledinu drvene stropne konstrukcije svojom je težinom opterećivao 5 cm deo sloj prašine te različitog krupnijeg i sitnijeg otpada koji se je taložio desetljećima. Pri čišćenju prljavštine i otpada s poledine drvenih letvica uočeni su ostaci slikanog sloja. Prema nasumičnom smještaju letvica s oslikom, pretpostavlja se da su prije ugradnje u strop te letvice korištene kao dekoracija nekog drugog sklopa. Nakon čišćenja svi su drveni elementi stropa zaštićeni od daljnjeg propadanja nanošenjem specijalnog insekticidnog i fungicidnog sredstva, a na poledini je provedena impregnacija žbuke radi boljeg prijanjanja uz stropnu konstrukciju.



The back of the wooden ceiling construction was additionally burdened with a 5-cm-thick layer of dust and a variety of coarse and fine debris which had deposited over the decades. When cleaning the dust and debris from the back of the wooden lattices, the remains of a painted layer were noticed. Given the random distribution of the lattices that contained the painted coat, it was assumed that, prior to their insertion into the ceiling, they were used as decoration for another composition.

Once they were cleaned, all wooden elements of the ceiling were protected from further decay with special insecticide and fungicide, and the plaster on the back was impregnated to improve its adhesion to the ceiling construction.

## PROTECTION OF THE BACK OF THE CEILING CONSTRUCTION



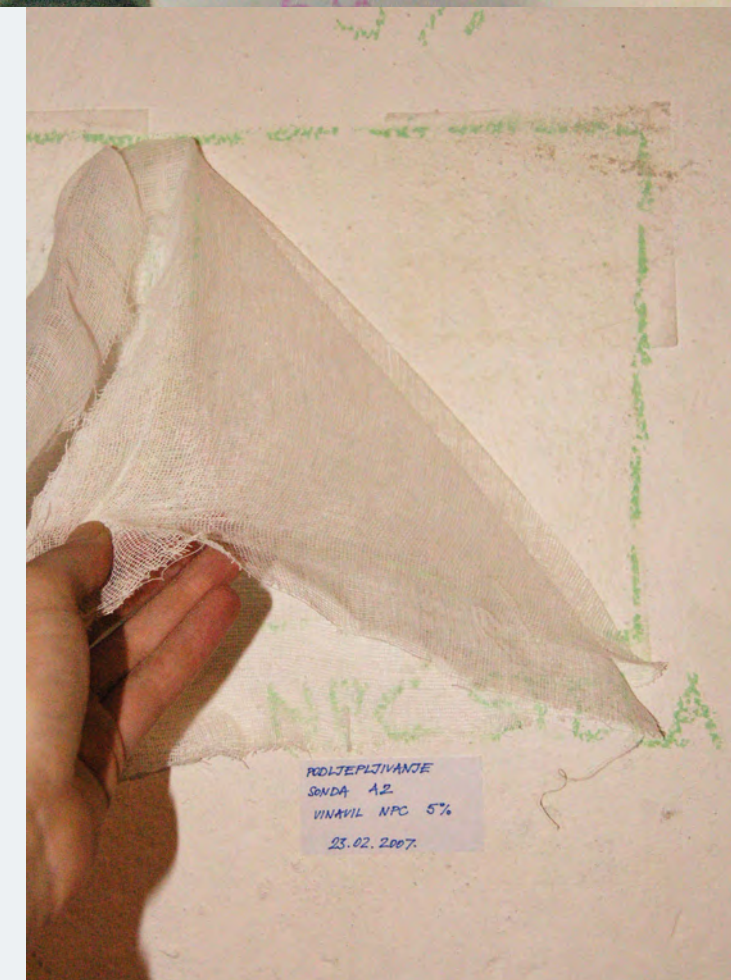
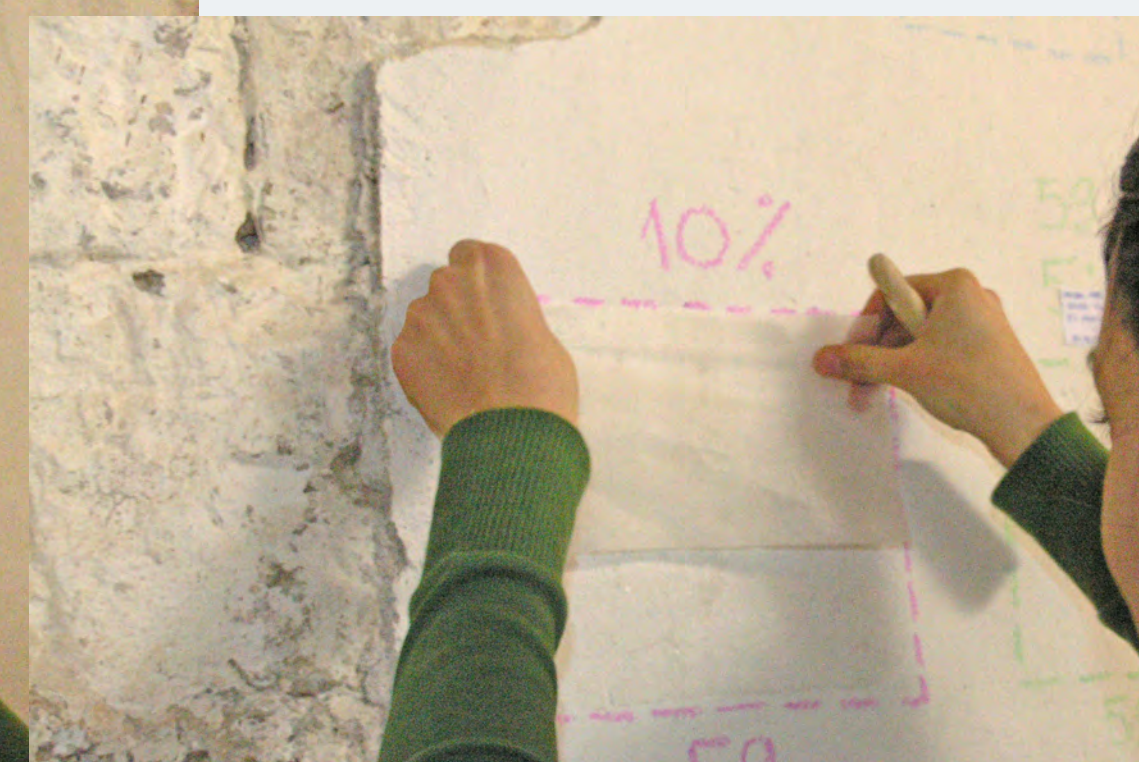
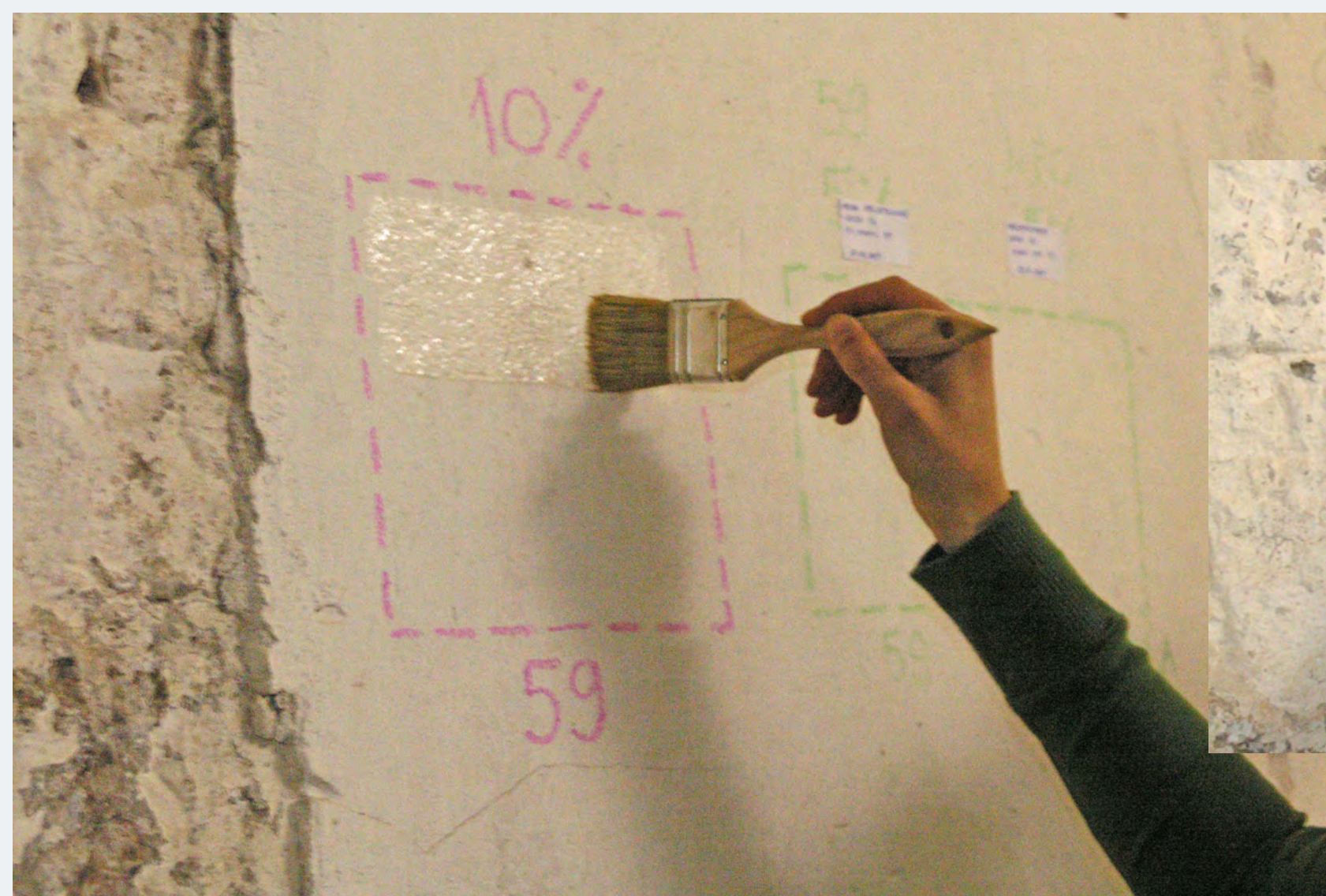
## POSTAVLJANJE PRIVREMENOG ZAŠTITNOG SLOJA

Privremeni zaštitni sloj (facing) čine slojevi armaturnog materijala povezani ljepljivom. Postavljen je preko lica slikarije da bi slikariju očuvao i štitiio tijekom provedbe građevinske sanacije te ostalih radova koji mogu biti vrlo štetni za slikariju.

Pri izboru ljepljiva, uz potrebu za stabilnim slojem koji se može jednostavno ukloniti, uzeti su u obzir i makroklimatski i mikroklimatski uvjeti, prisutnost vlage i soli unutar sastavnih dijelova umjetnine te razdoblje tijekom kojega je slikariji potrebna zaštita. Korišteno ljepljivo je 15%-tna vodena otopina VINAVIDA BLU NPC, čija je koncentracija odabrana na temelju probnih istraživanja.

Kao armaturni materijal korišten je japanski papir postavljen u jednom sloju kao finiji i fleksibilniji materijal koji dobro prianja uz podlogu te dva sloja pamučne gaze postavljene sukcesivno s preklapajućim rubovima u krpicama veličine 15 x 20 cm.

Odabrani način tretiranja treba pružiti dostatnu zaštitu, ako se naravno izuzmu nekontrolirane situacije koje na nju mogu neposredno utjecati (mehanička oštećenja, djelovanje vode i sl.).



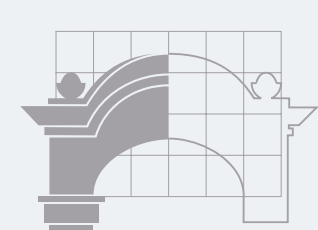
A temporary protective layer (facing) consists of layers of reinforcing material bound together with glue. It is placed over the face of a painting to protect it and prevent it from being damaged during structural rehabilitation and other works that present a potential threat to the painting.

When selecting the glue, in addition to the fact that we needed a stable layer that would be removed easily, we took into consideration both macro- and micro-climatic conditions, the presence of moisture and salts within integral parts of the artefact, and the length of the period during which the painting would need to be protected. The glue that was used was a 15% water solution of VINAVIDA BLU NPC. The concentration was chosen on the basis of the results of testing.

The reinforcing material used was Japanese paper, placed in one layer as a finer and more flexible material that adheres well to the ground, and two layers of cotton gauze, in small cloths of 15x20 cm, placed one next to another with overlapping edges.

The selected treatment should provide sufficient protection, with the exception of certain situations beyond our control that could impact the painting directly (mechanical damage, water etc.)

## PLACING A TEMPORARY PROTECTIVE LAYER



HRVATSKI  
RESTAURATORSKI  
ZAVOD

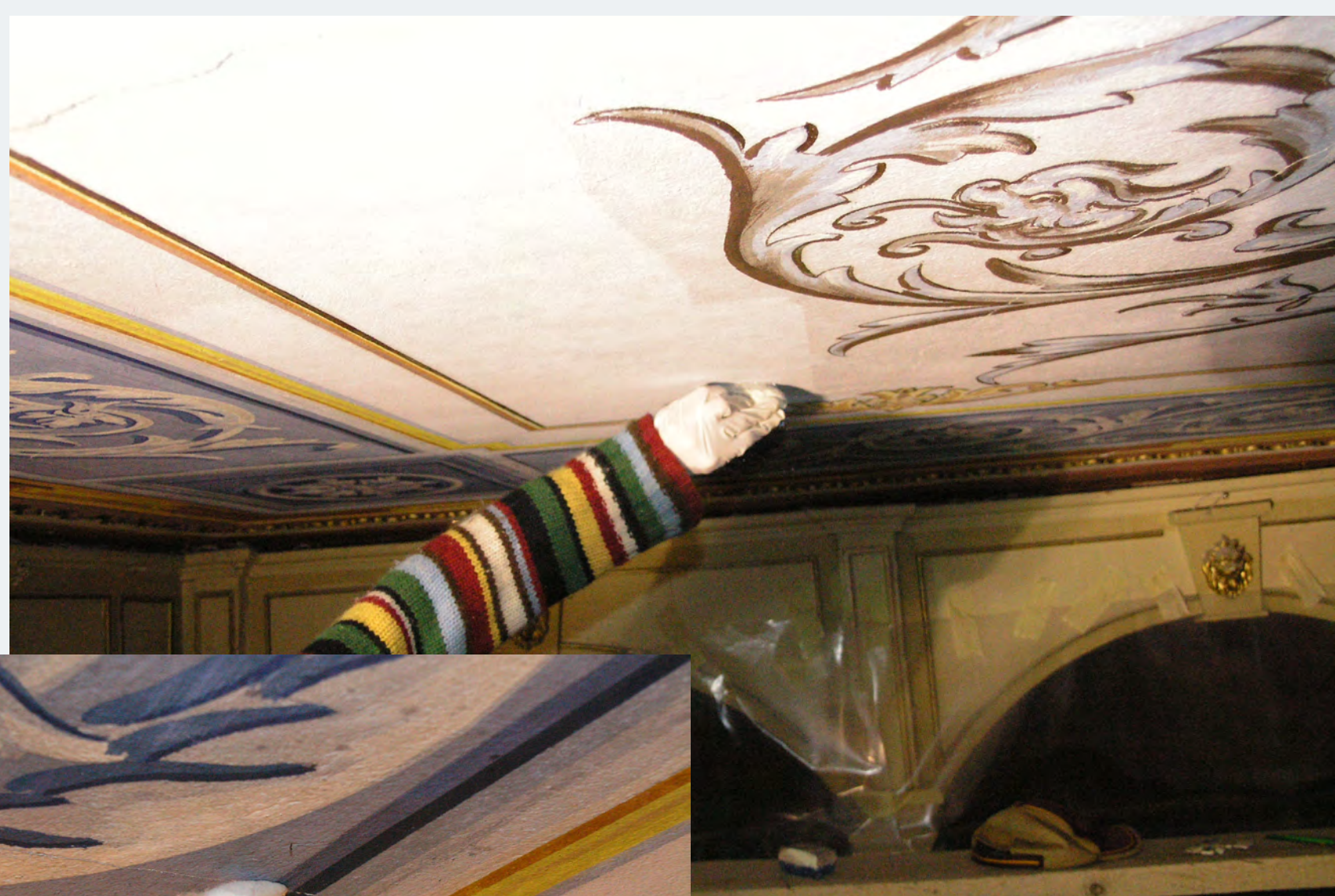
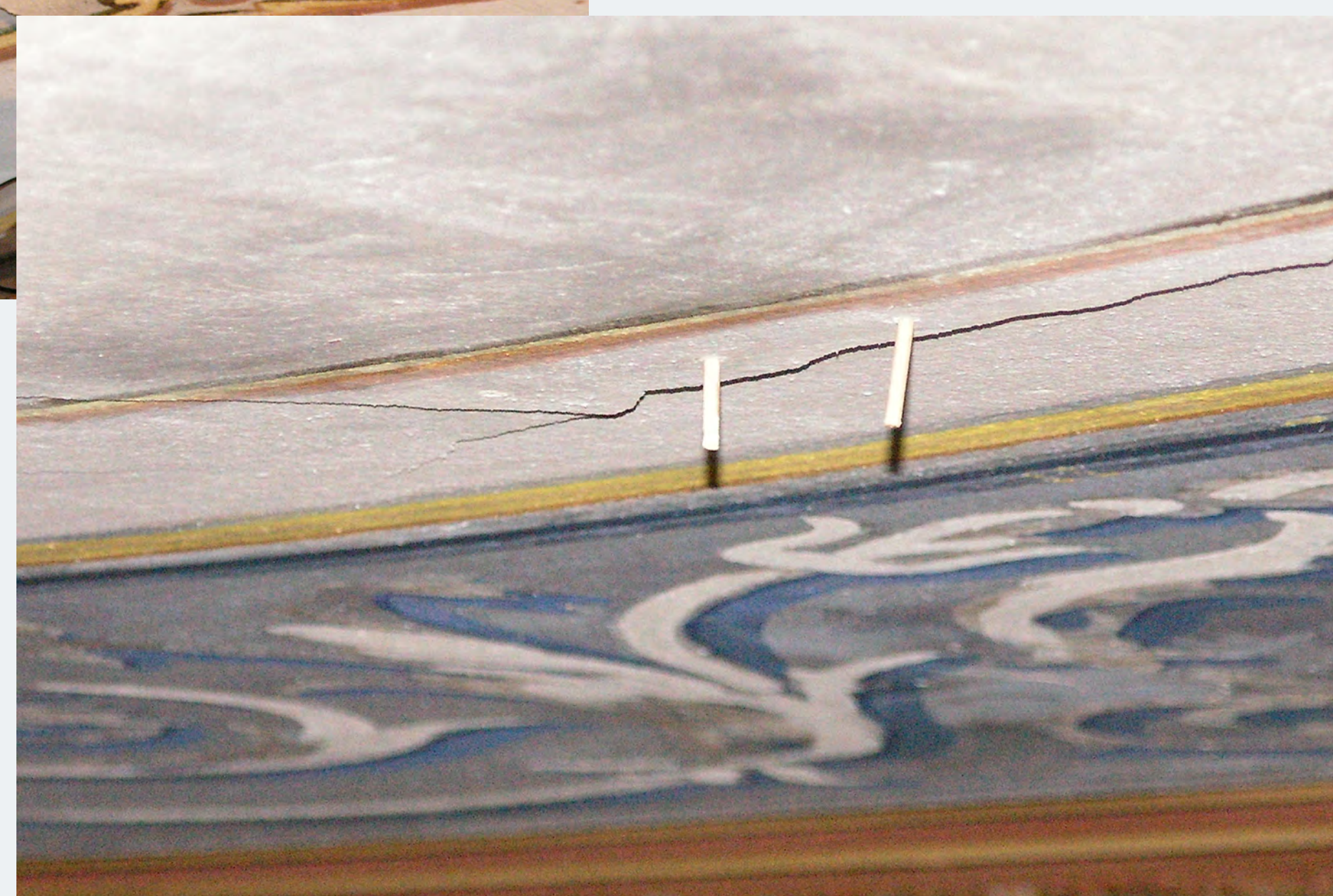


## PREVENTIVNA KONSOLIDACIJA ŽBUKE I SLIKANOG SLOJA

Konsolidaciju čini niz složenih restauratorskih postupaka kojima se tretira žbuka i slikani sloj da bi se ponovno uspostavila njihova izgubljena izvorna svojstva i u najvećoj mogućoj mjeri uklonili i zaustavili uznapredovali procesi propadanja na njima. S tim ciljem sve nestabilne dijelove žbuke i slikanog sloja potrebno je učvrstiti i ojačati da bi se spriječilo njihovo daljnje oštećivanje te se omogućilo nesmetano provođenje ostalih restauratorskih zahvata na umjetnini. Područja na kojima je zamijećeno odvajanje žbuke od drvenih letvica stropne konstrukcije stabilizirana su umetanjem drvenih štapića kao poveznice žbuke i stropne konstrukcije. Rubovi lakuna i velikih dijelova bez žbuke koji su skloniji habanju i fragmentarnom otpadanju obrubljeni su da bi se učvrstili i osigurali. Površinska prljavština s lica slikarije očišćena je kombinacijom kemijskih i mehaničkih metoda čišćenja koje su odabrane na temelju rezultata probi metoda i materijala čišćenja na destabiliziranim dijelovima pojedinih skupina pigmentata.

Slika „Djevojka koja svira orguljice“, smještena u središnjem dijelu medaljona s istočne strane oslika, naslikana je na papiru i kontaktnim ljepilom pričvršćena na strop.

Ljepilo koje je držalo sliku s vremenom je oslabjelo te je slika mjestimično bila potpuno odvojena od stropa, a zbog djelovanja vlage njezina površina namreškana, što je dovoljan razlog za njezino skidanje i prosljeđivanje na restauraciju uspecijaliziranu radionicu.



Consolidation consists of a range of complex conservation procedures that the plaster and painted layer are exposed to with the goal of regaining their lost original features, and removing and stopping, as much as possible, the advanced decaying processes within them. For this reason, all unstable sections of plaster and painted layer need to be strengthened and consolidated, to prevent any further damage and ensure unhindered execution of other conservation and restoration interventions on the artefact. The sections in which the plaster was separated from the wooden lattices of the ceiling construction were stabilized with inserted wooden sticks, which served as a link between the plaster and the ceiling construction. The edges of the lacunae and of the large segments that were left without plaster, which are prone to wear and to falling away in fragments, were reinforced and secured.

The surface dirt was cleaned off the face of the painting with a combination of chemical and mechanical cleaning methods, selected on the basis of the results of testing out various cleaning methods and materials on destabilized sections of individual groups of pigments.

The painting "A Girl Playing an Organ", located in the central section of the medallion in the eastern part of the ceiling painting, had been done on paper and glued to the ceiling with a contact adhesive.

The adhesive that held the painting had weakened with time, and in some places the painting had completely separated from the ceiling. Due to moisture, its surface was wrinkled, providing us with sufficient reason to pull the painting down and forward it to a specialized workshop for restoration.

## PREVENTIVE CONSOLIDATION OF THE PLASTER AND THE PAINTED LAYER

