

# **REQUEST FOR PROPOSALS**

**For**

**City Facilities Heating, Ventilation and Air Conditioning (HVAC)  
Duct Cleaning CIP No. 925425**



**CITY OF SAN RAMON**  
PUBLIC WORKS DEPARTMENT  
PUBLIC SERVICES DIVISION

**Issued: September 16, 2020**

**Proposal Deadline: October 8, 2020 at 2:00 p.m.**

**to**

**City Clerk  
San Ramon City Hall  
7000 Bollinger Canyon Road  
San Ramon, CA 94583**

**Attn: Christina Franco, City Clerk**

**CITY OF SAN RAMON  
REQUEST FOR PROPOSALS**

**Table of Contents**

<b>1. ABOUT THE CITY</b> .....	1
<b>2. THE SERVICES</b> .....	1
<b>A. Summary</b> .....	1
<b>B. Form of Agreement</b> .....	1
<b>C. Scope of Services</b> .....	1
<b>3. REQUEST FOR PROPOSAL PROCEDURES</b> .....	1
<b>A. Requests for Information</b> .....	1
<b>B. Pre-Submittal Meeting</b> .....	2
<b>C. Submittal Instructions</b> .....	2
<b>D. Planned RFP Schedule</b> .....	2
<b>E. Addenda</b> .....	3
<b>4. PROPOSAL REQUIREMENTS</b> .....	3
<b>A. Cover Letter</b> .....	3
<b>B. General Qualifications</b> .....	4
<b>C. Experience</b> .....	4
<b>D. Staffing</b> .....	4
<b>E. Price</b> .....	4
<b>F. Proposed Approach</b> .....	4
<b>5. EVALUATION</b> .....	4
<b>6. SELECTION AND AWARD</b> .....	5
<b>A. Review</b> .....	5
<b>B. Award</b> .....	5
<b>C. Protest Procedures</b> .....	5
<b>7. MISCELLANEOUS</b> .....	5
<b>A. Disclaimers and Reservation of Rights</b> .....	5
<b>B. Conflict of Interest</b> .....	5
<b>C. Public Records</b> .....	6

## CITY OF SAN RAMON REQUEST FOR PROPOSALS

The City of San Ramon (“**City**”) requests proposals (“**Proposals**”) from qualified individuals or firms (individually, a “**Respondent**” and collectively, “**Respondents**”) for its City Facilities Heating, Ventilation and Air Conditioning Duct Cleaning CIP No. 925425 Project (“**Project**”).

### 1. ABOUT THE CITY

The City is a charter city located in Contra Costa County, with an estimated population of 79,000. Additional information about the City is available online at <http://www.sanramon.ca.gov/>.

### 2. THE SERVICES

**A. Summary.** The City requires City Facilities Heating, Ventilation and Air Conditioning Duct Cleaning CIP No. 925425 Project (“**Services**”) for various City facilities. The Project involves the cleaning and evaluation of the HVAC duct work in various City Facilities.

**B. Form of Agreement.** A copy of the City’s standard Maintenance Services Agreement (“**Agreement**”), is attached hereto as **Attachment A** and incorporated herein. By submitting a Proposal, the Respondent agrees to enter into the Agreement using the attached form with no exceptions to the form of the Agreement.

**C. Scope of Services.** The required Scope of Services is attached hereto as **Attachment B** and incorporated herein. By submitting a Proposal, the Respondent represents that it is fully qualified and available to provide the Services set forth in the Scope of Services at the price set forth in its Proposal, and that it agrees to provide those Services if it is awarded the Agreement, which will attach and incorporate the Scope of Services.

### 3. REQUEST FOR PROPOSAL PROCEDURES

**A. Requests for Information.** Questions or objections relating to the RFP, the attachments hereto, the RFP procedures, or the required Services may only be submitted via email to Jennifer Pachan, Senior Administrative Analyst, at [jepachan@sanramon.ca.gov](mailto:jepachan@sanramon.ca.gov) by 5:00 p.m., October 5, 2020 (the “**Request for Information Deadline**”). Responses to submitted questions will be posted on the City’s RFP page no later than 5:00 p.m., October 6, 2020. Any questions or objections that are not submitted in the manner specified and by the Request for Information Deadline will be deemed waived. City will not be bound by the oral representations of any City officials, employees, or representatives.

**B. Pre-Submittal Meeting.** A bidders' conference and job walk will be held on **September 24, 2020**, at the following location: **12501 Alcosta Blvd., San Ramon, CA 94583** to acquaint all prospective bidders with the Contract Documents and the Worksite. The bidders' conference is **mandatory**. A bidder who fails to attend a mandatory bidders' conference may be disqualified from bidding.

Due to the Contra Costa County Order in regards to the COVID-19 pandemic, required face masking and social distancing requirements, numerous limited size groups will be scheduled through the day on September 24, 2020. In order to attend, Contractors are required to email an electronic Notice of Intent to Attend the Bidder's Conference and Job Walk by the end of the business day on September 22, 2020 to Jennifer Pachan, [jepachan@sanramon.ca.gov](mailto:jepachan@sanramon.ca.gov).

Each bidder is limited to two (2) representatives and are required to submit the names of the attendees in the Notice of Intent to Attend the Bidder's Conference and Job Walk. A scheduled time slot will be returned electronically to each bidder by 12:00pm (noon) on Wednesday, September 23, 2020. Arrive no sooner than ten (10) minutes prior to your scheduled time and await escort at the front entrance to the San Ramon Community Center. Please note that no specific job-related questions will be answered during the bidder's conference or job walk and must be separately submitted electronically, as outlined above.

**C. Submittal Instructions.** Proposals must be **received** by the City by or before October 8, 2020 at 2:00 p.m. ("**Proposal Deadline**"). Respondent must submit one original and 2 identical copies of the Proposal in a sealed envelope labeled with Respondent's name and return address, marked "Proposal for City Facilities Heating, Ventilation and Air Conditioning Duct Cleaning CIP No. 925425," and addressed as follows:

City of San Ramon  
City Clerk  
7000 Bollinger Canyon Road  
San Ramon, CA 94583

The Proposal may be hand-delivered, sent via overnight delivery, or by regular mail, provided that it is received by the City no later than the Proposal Deadline. Late submissions will be disregarded.

**D. Planned RFP Schedule.** The following schedule is provided for planning purposes based on current information. However, all dates are subject to revision, including the Proposal Deadline, and may be amended by addenda to this RFP.

ACTIVITY	PLANNED DATES/TIME
RFP Issued	September 16, 2020
Notice of Intent to Attend Pre-Submittal Meeting	September 22, 2020
Confirmation of Scheduled Time Slot for Pre-Submittal Meeting	September 23, 2020
Pre-Submittal Meeting	September 24, 2020
Request for Information Deadline	October 5, 2020
Proposal Deadline	October 8, 2020
Interviews (if requested by City)	Week of October 12, 2020
Notice of Selection	October 19, 2020
Council Approval and Award	November 10, 2020
Commence Services	As soon as November 15, 2020

**E. Addenda.** City reserves the right to issue addenda to modify the terms and conditions of this RFP, including modifications to the Proposal Deadline or to the Attachments to this RFP. Addenda will be posted on the City's website at [www.sanramon.ca.gov/rfp](http://www.sanramon.ca.gov/rfp). Each Respondent is solely responsible for checking the City's website for addenda, and for reviewing any and all addenda before submitting its Proposal.

#### 4. PROPOSAL REQUIREMENTS

Each Proposal must be submitted in compliance with the requirements of this RFP. Each Proposal must respond to the items listed below. *Clarity and brevity are preferable to volume.* Do not attach brochures or promotional materials to the Proposal. However, resumes may be included in an appendix. By submitting a Proposal, the Respondent agrees that the lump sum price and proposed approach to providing the Services, including staffing, constitute a firm offer to enter into the Agreement with the City, and that the offer will remain open for 60 days following the Proposal Deadline.

**A. Cover Letter.** Provide a brief cover letter that includes all of the following information:

- (1) Respondent's name, address, phone number, and website address;
- (2) Type of organization (e.g. corporation, partnership, etc.);
- (3) A summary of general information about Respondent and the types of services it provides in relation to the Services required by the City; and
- (4) Contact information, including name, title, address, phone number, and email, of Respondent's primary representative for purposes of this RFP.

The cover letter must be signed by a representative that is authorized to bind Respondent by contract and must state his or her name, title, and email address.

**B. General Qualifications.** Provide a brief description of the Respondent's business, including the number of years in business under the current name. Describe the size of the business, including total number of employees and offices, and identify and briefly describe each local office that will be involved in providing the Services if awarded the Agreement. Describe how and why Respondent is qualified to provide the Services.

**C. Experience.** Identify services Respondent has provided in the last five years that are similar in scope and nature to the Services required by this RFP, particularly with respect to services provided to other cities or public agencies. For each example, provide (1) a brief description of the services provided, (2) an explanation of why this experience is relevant to the required Services, and (3) the name and address of the contracting agency, including contact information for a reference check (name, title, phone number, and email address).

**D. Staffing.** Identify by name and title Respondent's key personnel that will be assigned to provide the Services and for each, include a resume with his or her education, training, and experience. Identify by name, address, and website, each sub consultant or subcontractor, if any, that will be involved with providing the Services, including the proposed role for each such sub consultant or subcontractor. Include all applicable license numbers for any license required to perform the Services.

**E. Price.** Provide a lump sum price for the Services that is fully inclusive of all costs to provide the Services, including hourly billing rates, all labor, materials, equipment, supplies, the insurance required under the terms of the Agreement, travel fees, etc. Attach a copy of billing rates that would apply to any authorized additional Services.

**F. Proposed Approach.** Briefly describe Respondent's proposed approach to providing the Services and how that approach will offer value to the City. Identify any proposed innovations that may be used to achieve more cost-effective delivery of the Services. Provide a work plan and proposed schedule for the tasks described in the Scope of Services.

## 5. EVALUATION

The factors that the City will consider in evaluating Proposals are as follows:

- General qualifications 1-15 points
- Relevant experience 1-15 points
- Proposed staffing 1-15 points
- Pricing 1-15 points
- Proposed approach 1-10 points
- Responsiveness 1-10 points
- References 1-10 points

- Interview (if requested) 1-10 points

## 6. SELECTION AND AWARD

**A. Review.** Proposals will be reviewed for responsiveness and evaluated and ranked based on the factors listed in Section 5, above. When the evaluation is complete, the Proposals will be ranked based on total scores to identify the Proposal that is the most advantageous to the City. Acting in its sole discretion, the City may elect to conduct interviews with shortlisted Respondents.

**B. Award.** The City will award the Agreement, if at all, to the Respondent that is determined by the City, acting in its sole discretion, to offer the most advantageous Proposal to the City based on the City's review, as outlined above. City staff will submit its recommendation to the City Council or the awarding officer, as applicable, for award of the Agreement to the Respondent that it determines to offer the most advantageous Proposal. The Respondents will be notified of staff's intended recommendation by a Notice of Selection which will be posted on the City's website at [www.sanramon.ca.gov/rfp](http://www.sanramon.ca.gov/rfp), and which may also be emailed to each Respondent that submits a Proposal.

**C. Protest Procedures.** Any protest challenging the City's intended selection or the selection process must be submitted no later than 5:00 p.m., on the fifth business day following the date of the Notice of Selection. The protest must be submitted in writing via email to City Clerk, at [cityclerk@sanramon.ca.gov](mailto:cityclerk@sanramon.ca.gov), and must clearly specify the basis for the protest. The protest will be reviewed by the Public Works Department Director in consultation with the City Attorney's Office, and their determination on the protest is final. No public hearing will be held on the protest. Time being of the essence, the City reserves the right to proceed with award of the Agreement and commencement of the Services notwithstanding any pending protest or legal challenge.

## 7. MISCELLANEOUS

**A. Disclaimers and Reservation of Rights.** Upon receipt, each Proposal becomes the sole property of City and will not be returned to the Respondent. Each Respondent is solely responsible for the costs it incurs to prepare and submit its Proposal. The City reserves, in its sole discretion, the right to reject any and all Proposals, including the right to cancel or postpone the RFP or the Services at any time, or to decline to award the Agreement to any of the Respondents. The City reserves the right to waive any immaterial irregularities in a Proposal or submission of a Proposal. The City reserves the right to reject any Proposal that is determined to contain false or misleading information, or material omissions.

**B. Conflict of Interest.** Respondents must disclose to the City any actual, apparent, direct or indirect, or potential conflicts of interest that may exist with respect to Respondent, any employees of Respondent, or any other person relative to the Services to be provided pursuant to this RFP. This RFP process will

be conducted in compliance with all laws regarding political contributions, conflicts of interest, or unlawful activities. City employees are prohibited from participating in the selection process for this RFP if they have any financial or business relationship with any Respondent.

**C. Public Records.** The City is subject to the provisions of the California Public Records Act (Govt. Code § 6250 et seq.) (the “**Act**”), and each Proposal submitted to the City is subject to disclosure as a public record, unless the Proposal or any portion thereof is exempt under the Act. If a Respondent believes that any portion of its Proposal is exempt from disclosure under the Act, it must clearly identify the portion(s) it believes to be exempt and identify the basis for the exemption. Each Respondent bears the burden of proving any claimed exemption under the Act, and by submitting a Proposal, a Respondent agrees to indemnify, defend, and hold harmless the City against any third party claim seeking disclosure of the Proposal or any portions thereof.

**Attachments:**

Attachment A – Form of Agreement

Attachment B – Scope of Work, Specifications, & Appendices

Attachment A – Form of Agreement

PROFESSIONAL SERVICES AGREEMENT  
BETWEEN THE CITY OF SAN RAMON AND  
**CONTRACTOR**  
FOR  
CITY FACILITIES HEATING, VENTILATION AND AIR CONDITIONING (HVAC)  
DUCT CLEANING  
CIP No. 925425

This is an Agreement between the City of San Ramon, a municipal corporation, (“CITY”) and **(Contractor)**, (“CONTRACTOR”) together referred to as the “Parties.”

RECITALS

**WHEREAS**, CITY desires to secure professional HVAC Duct Cleaning Services and CONTRACTOR is qualified and willing to provide such professional assistance; and

**WHEREAS**, the City Council has authorized the Mayor to enter into an agreement for City Facilities Heating, Ventilation and Air Conditioning Duct Cleaning CIP No. 925425 Project by adopting Resolution No. 20**XX-XX** on **DATE APPROVED BY CITY COUNCIL**.

**NOW, THEREFORE**, in consideration of the mutual promises set forth, CITY and CONTRACTOR agree as follows:

1. **Award of Contract.** In response to the Request for Proposals, Contractor has submitted a Proposal to perform the Work as set forth in the Request for Proposal, Attachment B – Scope of Work. On \_\_\_\_\_, 20\_\_, City authorized award of this Contract to Contractor for the amount set forth in Section 6, below.
2. **Contract Documents.** The RFP documents incorporated into this Contract include and are comprised of all of the documents listed below.
  - 2 The Services
  - 3 Request for Proposal Procedures
  - 4 Proposal Requirements
  - 5 Evaluation
  - 6 Selection and Award
  - 7 Miscellaneous
3. **Scope of Service.** The scope of service covered by this Agreement including mandatory time frames for performance, deadlines for providing deliverables to CITY, and the maximum fee for each item under this Agreement is attached hereto as Exhibit A and incorporated herein by reference.

CONTRACTOR shall comply with specific standards or governmental requirements applicable to specific tasks hereunder or as may be necessary to enable CONTRACTOR to provide the services required hereunder.

4. **Modification of Agreement.** CITY may request changes to this Agreement including the Scope of Services to be performed by CONTRACTOR. Such requests shall be made in writing exclusively by CITY'S designated Project Manager, and shall describe in detail the proposed additions, deletions, or modifications. Such requests will include tabulation of costs, expenses, and time required to complete the requested work. CONTRACTOR shall have the length of time specified in the request to reply in writing to the request. Neither CITY'S request nor CONTRACTOR'S reply shall constitute a modification of this Agreement. Any modification shall be contained in a written amendment to the Agreement and will be effective only if signed by both parties. Execution of the amendment by CITY shall constitute authorization to proceed with the work identified therein.
5. **Time of Performance.** CONTRACTOR'S performance shall be completed by June 30, 2026, for a total agreement length not to exceed five (5) years. CONTRACTOR may commence work as of the date authorized by CITY'S Project Manager which date may be prior to execution of this Agreement.

However, CONTRACTOR is under no obligation to commence work hereunder prior to execution of this Agreement.

6. **Compensation.** CITY agrees to pay CONTRACTOR at the rates set forth in Exhibit A, and incorporated herein, in a sum not-to-exceed **SPELL OUT DOLLAR AMOUNT HERE (\$XX,XXX.XX)**. No compensation shall be made in excess of this amount. This amount includes any and all costs and reimbursable expenses as specified in Exhibit A.

Upon completion and acceptance of the deliverables CONTRACTOR shall submit an itemized invoice for the completed work showing applicable rates and charges as agreed to hereunder and the total amount due.

7. **Designated Representatives.**
  - a. CITY designates Sandy Martin, Facilities Maintenance Manager or her designee as its representative in all matters under this Agreement.
  - b. CONTRACTOR designates **Contact Title, Contact Name** as its Project Manager for this Agreement. CONTRACTOR may designate a different Project Manager only with prior written authorization from CITY.
8. **Cooperation of the City.** CITY shall make available to CONTRACTOR all financial records and related information necessary for performance of CONTRACTOR'S work under this Agreement.

**9. Independent Contractor.** CONTRACTOR is an independent contractor, controlling the means and manner of work, and shall not for any purpose be deemed to be an employee, agent, or other representative of CITY. Services called for herein shall be deemed to be unique. CONTRACTOR shall not assign, sublet, transfer, or otherwise substitute its interest in this Agreement, or any of its obligations hereunder, without the prior written consent of CITY.

**10. Out of State Business.** If CONTRACTOR is an out of state business and does not have a local office within the State of California, CONTRACTOR shall provide to CITY a completed Withholding Exemption Certificate Form as required by the California Franchise Tax Board. If the out of state contractor fails to provide the required form, CITY shall withhold seven (7%) percent of the total payment amount and send the withholdings to the Franchise Tax Board, as required by State law.

**11. Proprietary or Confidential Information.** CONTRACTOR understands and agrees that, in the performance of the work under this Agreement or in contemplation thereof, CONTRACTOR may have access to private, proprietary or otherwise confidential information owned or controlled by CITY, the disclosure of which may be damaging to CITY or to third parties.

CONTRACTOR agrees that all confidential information disclosed to CONTRACTOR by CITY shall be held in confidence and used only in performance of this Agreement. CONTRACTOR shall exercise the same standard of care to protect such information, as a reasonably prudent businessperson would use to protect its own private, proprietary or confidential information.

**12. Work Product.** The work product of CONTRACTOR in performing this Agreement shall become the property of CITY. However, copies of such work product shall be provided to CITY not only as a hard copy but an electronic version recorded on CD utilizing Microsoft Word, Access or Excel.

**13. Financial Records of Contractor.** CONTRACTOR shall maintain accounting records of funds received under this Agreement and full documentation of performance hereunder. CONTRACTOR shall permit CITY to have access to those records for the purpose of making an audit, examination, or review of financial and performance information relating to this Agreement. CONTRACTOR shall maintain such records for a minimum of four (4) years following payment by CITY for the last invoice for such services to be provided. When requested by CITY, CONTRACTOR shall make all such records available to CITY within fourteen (14) days of the request.

**14. Conflict of Interest.** CONTRACTOR shall comply with CITY Resolution No. 2020-017, Conflict of Interest Code, as amended from time to time, and will file all required disclosure statements.

**15. Nondiscrimination.** CONTRACTOR represents that it does not and agrees that it shall not discriminate against any employee or applicant for employment because of age, sex (including gender, gender identity, gender expression, transgender, pregnancy, and breastfeeding), religion, color, disability, genetic characteristics or information, race, national origin, ancestry, citizenship status, marital status, military or veteran status, medical condition, or sexual orientation (including homosexuality, bisexuality, or heterosexuality) or any other protected classification as defined and protected by law.

**16. Indemnification.** CONTRACTOR agrees to defend, hold harmless, and indemnify CITY, its officers, agents and employees from and against any and all losses, liability, or damages arising out of, in consequence of, or resulting from the negligent or willful acts, or omissions of CONTRACTOR.

CONTRACTOR shall hold CITY harmless and defend any suit or other proceedings brought by CONTRACTOR'S employees, contractors, or agents, either against CONTRACTOR or CITY, for compensation and/or other benefits claimed as "common law" or "implied by law" employees of CITY.

**17. Insurance.** CONTRACTOR shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by CONTRACTOR, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included on CONTRACTOR'S bid.

**A. Required Insurance.** CONTRACTOR shall maintain, at all times, during the term of this Agreement and at CONTRACTOR'S sole cost and expense:

- i. Comprehensive general liability (using Insurance Services Office form CG 00 01 or equivalent) in an amount not less than one million dollars (\$1,000,000) per occurrence for bodily injury, personal injury, and property damage, including without limitation, blanket contractual liability. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be not less than two million dollars (\$2,000,000).
- i. Automobile liability insurance (using Insurance Services Office form number CA 0001, Code 1 (any auto) or equivalent). Such insurance policy shall contain the same provisions and endorsements as are required herein for comprehensive general liability insurance.
- ii. Workers' Compensation insurance and Employer's Liability insurance as required by the laws of the State of California. Said insurance policy shall provide that the insurer waives all rights of subrogation against CITY, its officers, agents, employees and volunteers for losses arising from work performed by CONTRACTOR for CITY. Any notice of cancellation or

non-renewal of Workers' Compensation policies must be received by CITY at least thirty (30) days prior to such change. CONTRACTOR shall require each subcontractor to maintain Workers' Compensation insurance and Employer's Liability insurance in accordance with the laws of the State of California for all of the subcontractor's employees. This requirement may only be waived by CITY upon written verification that CONTRACTOR is a sole proprietor and does not and will not have employees during the term of this Agreement.

**B. The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:**

- i. CITY, its officers, officials, employees, agents and volunteers are to be named as additional insured with respect to: Liability arising out of activities performed by or on behalf of CONTRACTOR; products and completed operations of CONTRACTOR; premise owned, occupied or used by CONTRACTOR; or automobile owned, leased, hired or borrowed by CONTRACTOR. The coverage shall contain no special limitations on the scope of protection afforded to the CITY, its officers, officials, employees, agents or volunteers. If CONTRACTOR submits the ACORD Insurance Certificate, the additional insured endorsements must be set forth on the ISO Form CG20 10 11 85 or both CG 20 10 and CG 20 37 forms.
- ii. For any claims related to this project, CONTRACTOR'S insurance coverage shall be primary insurance with respect to CITY, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by CITY, its officers, officials, employees, agents or volunteers shall be excess of CONTRACTOR'S insurance and shall not contribute with it.
- iii. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to CITY, its officers, officials, employees, agents or volunteers.
- iv. Afford coverage for all claims based on any act, omission, event or condition that occurred or arose (or the onset of which occurred or arose) during the term of this Agreement;
- v. Apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability (cross liability endorsement);
- vi. Expressly provide that CITY, although named as insured, shall nevertheless be entitled to recover under the policy for any loss, injury or damage to CITY and that the insurer waives all rights of subrogation

against CITY, its officers, agents, employees and volunteers for losses arising from work performed by CONTRACTOR for CITY;

- vii. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to CITY.
- viii. Certificate Holder. The certificate holder shall include CITY and sent to the address as indicated in Section 21 (Notices) of this Agreement.
- ix. Interpretation. All endorsements, certificates, forms, coverage and limits of liability referred to herein shall have the meaning given such terms by the Insurance Services Officer of the State of California as of the effective date of this Agreement.

**C. Verification of Coverage.** CONTRACTOR shall furnish CITY with original endorsements effecting coverage required by this clause. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf.

**D. Subcontractors.** CONTRACTOR shall include all subcontractors as insured under its policies. All coverage for subcontractors shall be subject to all of the requirements stated herein.

**E. Insurer's Qualifications.** All insurance required under this section and all renewals of this agreement shall be issued by good and responsible companies admitted to do and doing business in the State of California and be rated in the "A" category by Best's Insurance Guide.

**F. Excess Insurance.** If CONTRACTOR maintains higher insurance limits than the minimums specified herein, CITY shall be entitled to coverage for the higher limits maintained by CONTRACTOR.

**18. Termination on Notice.** CITY may terminate this Agreement immediately for cause or without cause upon giving thirty (30) calendar days' written notice to CONTRACTOR. In the event of termination without cause, CITY shall pay all outstanding charges for services performed and approved by CITY as of the date of termination. Termination shall not extinguish any outstanding performance obligations under this Agreement, including but not limited to, making financial records available for review, return of any private or confidential information, warranties, or mutual indemnities.

**19. Suspension of Performance.** For the convenience of CITY or because of events beyond the control of CITY, CITY may give written notice to CONTRACTOR to suspend all work under this Agreement. If CONTRACTOR'S work is suspended for

longer than a period of one hundred twenty (120) days, an adjustment to CONTRACTOR'S compensation may be made for increased costs, if any, and this Agreement shall be modified accordingly.

**20. Notices.** If either party shall desire or is required to give notice to the other such notice shall be given in writing, via prepaid U.S. certified or registered postage, addressed to recipient as follows:

**To CITY:**

City of San Ramon

**Attn:** City Clerk

7000 Bollinger Canyon Road  
San Ramon, CA 94583

**To CONTRACTOR:**

**Contractor**

**Attn: Contact Name**

**Contact Title**

**Address**

**Address**

Changes to the above information shall be given to the other party in writing ten (10) business days before the change is effective.

**21. Commencement, Completion and Closeout.** Time is of the essence in the performance of this Agreement. Any time extension granted to CONTRACTOR must be in writing and shall not constitute a waiver of right CITY may have under the Agreement.

It shall be the responsibility of CONTRACTOR to coordinate and schedule the work to be performed so that commencement and completions take place in accordance with the provisions of the Agreement. Within thirty (30) days of completion CONTRACTOR shall submit to CITY a final billing to include all costs, charges, and claims in connection with the completed work. CITY shall not be required to pay for any work or claims not included on the aforementioned final billing.

**22. Jurisdiction, Venue, and Governing Law.** Any action at law or in equity brought by either of the Parties for the purpose of enforcing a right or rights provided for by this Agreement will be tried in a court of competent jurisdiction in the County of Contra Costa, State of California, and the Parties waive all provisions of law providing for a change of venue in these proceedings to any other county. This Agreement shall be governed by the laws of the State of California.

**23. Signatures and Counterparts.** This Agreement may be entered into by the Parties by signing any one or more counterparts, all of which shall constitute one and the same instrument. It is understood and agreed that this Agreement shall become effective and binding when one or more counterparts have been executed by each party and delivered to each other party. Additionally, facsimile and scanned signatures shall be binding the same as originals.

**24. Entire Agreement of Parties.** This Agreement supersedes any and all agreements, oral or written, between the parties with respect to the rendering of services by

CONTRACTOR to CITY and contains all of the representations, covenants and agreements between the parties as to the rendering of those services.

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*Signatures Intentionally Omitted*

END OF CONTRACT

**Attachment B**  
**Scope of Work, Specifications, & Appendices**

**SCOPE OF WORK**

Contractor will provide the complete cleaning of all ductwork for the City facilities listed above. This includes the cleaning of supply and return duct systems, grilles, diffusers, coils (if applicable), dampers, and fiberglass linings. Cleaning of the HVAC units is **not** included in this work. Cleaning will be completed using HEPA filtered vacuum systems, compressed air and by putting the duct system under negative pressure ensuring the prevention of cross contamination.

Upon completion of cleaning, the Contractor will sanitize the system using an EPA certified product to prevent the growth of mold, mildew, and other bacteria. After sanitizing has been completed, the Contractor shall encapsulate the interior fiberglass lining to seal the fiberglass from moisture to prevent the growth of mold, mildew, and other bacteria.

**Work Sites**

Alcosta Senior Community Center	9300 Alcosta Boulevard, San Ramon, CA
San Ramon City Hall	7000 Bollinger Canyon Road, San Ramon, CA
Dougherty Valley Aquatic Center	10550 Albion Road, San Ramon, CA
Dougherty Valley Service Center	2011 Rancho Park Loop, San Ramon, CA
San Ramon Community Center	12501 Alcosta Boulevard, San Ramon, CA
San Ramon Library	100 Montgomery Street, San Ramon, CA
San Ramon Olympic Pool	9900 Broadmoor Drive, San Ramon, CA
San Ramon Service Center	5000 Crow Canyon Road, San Ramon, CA

**Future Changes to the Scope of Work**

**Changes Initiated by the City**

The City reserves the right to add, delete or change areas under the Agreement and may do so upon giving written notice to the Contractor. Money not appropriated by City Council agreement may result in modification, cancellation, reduction in scope, and/or reduction in compensation. If these changes cause an increase or a reduction in the maintenance costs included in this agreement, they shall be readjusted and, when agreed upon, incorporated in to an Amendment to the Agreement.

**Changes Requested by the Contractor**

Changes requested in the specifications shall be made in writing. Approved changes shall be made by written amendment to the agreement between the Contractor and City at a reduction in cost or at no additional cost to the City. Nothing herein shall be construed as granting a right to the Contractor to demand acceptance of such changes.

## **Change Orders**

Change orders shall be in writing and state the dollar value of the change or established method of payment, any adjustment in contract time, and when negotiated prices are involved, shall provide for the contractor's signature indicating the acceptance. A contract change order will not become effective until the City Project Manager approves it.

In the case of a maintenance agreement, should additional work not be covered under the annual contingency, the additional work must be agreed upon through a signed amendment to the original agreement.

## **Extra Work**

New and unforeseen work will be classed as extra work when determined by the Director or Project Manager that such work is not covered by any of the various items for which there is a bid price or by combination of such items. In the event portions of such work are determined by the Director or Project Manager to be covered by none of the various items for which there is a bid price or combination of such items, the remaining portion of such work will be classed as extra work. Extra work also includes work specifically designated as extra work in the Specifications.

The Contractor shall do such extra work and furnish labor, materials and equipment therefore upon receipt of a written change order (see above) between the Contractor and City or other written order of the Director or Project Manager. The Contractor shall not be entitled to payment without an approved written order of the Director or Project Manager.

## PERFORMANCE STANDARDS AND MAINTENANCE SPECIFICATIONS

### **Certification**

***Contractor shall be a certified member of the National Air Duct Cleaners Association (NADCA) or shall maintain membership in a nationally recognized non-profit industry organization dedicated to the cleaning of HVAC systems.***

Contractor to provide all equipment, labor, materials, transportation, taxes, licenses, fees, and permits for satisfactory performance as detailed in the *Scope of Work and Specifications*.

### **Intent of Specifications**

The intent of the specifications is to describe the details for the completion of the work, which the Contractor agrees to perform in accordance with the terms of the contract. Where the specifications describe portions of the work in general terms but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish tools, equipment and incidentals, and perform all the work involved in executing the contract in a satisfactory and workmanlike manner.

In the event materials and/or equipment are to be furnished by the City, as agreed on, this shall not relieve the Contractor of the above requirements to furnish all other labor, materials and equipment to complete the contract.

### **Specifications**

#### **General Project Description**

This section defines the minimum requirements necessary to render HVAC components clean, and to verify the cleanliness through inspection and/or testing in accordance with items specified herein and applicable NADCA Standards.

The Contractor shall be responsible for the removal of visible surface contaminants and deposits from within the HVAC system in strict accordance with these specifications.

The HVAC system includes any interior surface of the facility's air distribution system for conditioned spaces and/or occupied zones. This includes the entire heating, air-conditioning and ventilation system from the points where the air enters the system to the points where the air is discharged from the system. The return air grilles, return air ducts to the air handling unit (AHU), the interior surfaces of the AHU, mixing box, coil compartment, condensate drain pans, humidifiers and dehumidifiers, supply air ducts, fans, fan housing, fan blades, air wash systems, spray eliminators, turning vanes, filters, filter housings, reheat coils, and supply diffusers are all considered part of the HVAC system. The HVAC system may also include other components such as dedicated exhaust and ventilation components and make-up air systems.

## **Scheduling/Working Hours**

All facilities under this contract are public buildings that operate not only Monday – Friday during the regular business hours of 8:30 a.m. – 5:00 p.m., but also after hours such as evenings and weekends to accommodate meetings and events. The City desires to minimize disruption to staff and building patrons during this HVAC duct cleaning work. This may require some portions of the work to be scheduled and conducted outside of regular business hours while avoiding evening and weekend meetings and events. The City intends to coordinate closely with the contractor on establishing set windows of time when the facilities, or portions of facilities, will be closed to use or public access.

***Please note that it is the City's intention to replace the package HVAC units, consequently, cleaning of the components of the package HVAC units is NOT part of these specifications.***

Contractor shall proceed with the project as follows:

1. Pre-Project Inspection: includes photographing duct conditions, determining cleaning method, inspecting all multi-zone air handlers.
2. Duct Cleaning: Shall begin after receiving approval of submittals. Work shall include cleaning ducts as described above as approved/directed by the City. Photograph final duct conditions.
3. Post-Project Close-Out:
  - a. Provide the City with written final duct cleaning report indicating the following:
    - i. Success of the cleaning project, as verified through visual inspection and/or gravimetric analysis.
    - ii. Areas of the system that found to be damaged and/or in need of repair.
  - b. Provide guided walk through on site with the City explaining conditions encountered, measures taken to address conditions, and future maintenance suggestions, if any.

## **Specific Project Description**

This section defines the scope of work and the work areas pertaining to City of San Ramon Administration Offices and San Ramon Community Center.

1. The minimum requirements necessary to render HVAC components clean and to verify the cleanliness through inspection and/or testing in accordance with items specified herein and applicable NADCA standards. The Contractor shall be responsible for the removal of visible surface contaminants and deposits from within the HVAC system in strict accordance with these specifications. The HVAC system includes any interior surface of the facility's air distribution system for conditioned spaces and/or occupied zones. This includes the entire supply and return air system from the points where the air enters the system to the points where the air is discharged from the system. The supply air ducts, return air plenums, turning vanes, supply diffusers and return grilles are all considered part

of the HVAC system. Include all exhaust air grilles. Areas excluded from cleaning: HVAC Units.

2. All work shall be performed during times at which the rooms served by the entire HVAC unit/duct system being cleaned are not occupied. City shall inform the Contractor of acceptable working days and times and shall coordinate room shutdown times for duct cleaning with occupants. The Contractor shall submit cleaning schedule to the City for approval. In no way shall duct cleaning impact the normal use of the buildings during normal operating hours.

### **HVAC System Component Inspections and Site Preparations**

1. HVAC System Component Inspections: Prior to the commencement of any cleaning work, the HVAC system cleaning contractor shall perform a visual inspection of the HVAC system to determine appropriate methods, tools, and equipment required to satisfactorily complete this project. The cleanliness inspection should include air handling units and representative areas of the HVAC system components and ductwork. In HVAC systems that include multiple air handling units, a representative sample of the units should be inspected. The cleanliness inspection shall be conducted without negatively impacting the indoor environment through excessive disruption of settled dust, microbial amplification or other debris. In cases where contamination is suspected, and/or in sensitive environments where even small amounts of contaminant may be of concern, environmental engineering control measures should be implemented.

***Damaged system components found during the inspection shall be immediately documented and brought to the attention of the City.***

2. Site Evaluation and Preparations: Contractor shall conduct a site evaluation, and establish a specific, coordinated plan which details how each area of the building will be protected during the various phases of the project.
3. Inspector Qualifications: Qualified personnel should perform the HVAC cleanliness inspection to determine the need for cleaning. At minimum, such personnel should have an understanding of HVAC system design, and experience in utilizing accepted indoor environmental sampling practices, current industry HVAC cleaning procedures, and applicable industry standards.
4. Prior to the start of work, the Contractor shall meet with the City's Project Manager to discuss the work schedule and other items related to successful execution of work.

### **General HVAC System Cleaning Requirements**

1. Containment: Debris removed during cleaning shall be collected and precautions must be taken to ensure that debris is not otherwise dispersed outside the HVAC system during the cleaning process.

2. **Particulate Collection:** Where the particulate collection equipment is exhausting inside the building, HEPA filtration with 99.97% collection efficiency for 0.3-micron size (or greater) particles shall be used. When the particulate collection equipment is exhausting outside the building, mechanical cleaning operations shall be undertaken only with particulate collection equipment in place, including adequate filtration to contain debris removed from the HVAC system. When the particulate collection equipment is exhausting outside the building, precautions shall be taken to locate the equipment down wind and away from all air intakes and other points of entry into the building.
3. **Controlling Odors:** Measures shall be employed to control odors and/or mist vapors during the cleaning process.
4. **Component Cleaning:** Cleaning methods shall be employed such that all HVAC system components must be visibly clean as defined in applicable standards (see NADCA Standards). Upon completion, all components must be returned to those settings recorded just prior to cleaning operations.
5. **Air-Volume Control Devices:** Dampers and any air-directional mechanical devices inside the HVAC system must have their position marked prior to cleaning and, upon completion, must be restored to their marked position.
6. **Service Openings:** The contractor shall utilize service openings, as required for proper cleaning, at various points of the HVAC system for physical and mechanical entry, and inspection.
  - a. Contractor shall utilize the existing service openings already installed in the HVAC system where possible.
  - b. Other openings shall be created where needed and they must be created so they can be sealed in accordance with industry codes and standards.
  - c. Closures must not significantly hinder, restrict, or alter the airflow within the system.
  - d. Closures must be properly insulated to prevent heat loss/gain or condensation on surfaces within the system.
  - e. Openings must not compromise the structural integrity of the system.
  - f. Construction techniques used in the creation of openings should conform to requirements of applicable building and fire codes, and applicable NFPA, SMACNA, NAIMA and NADCA Standards. (See Appendices A and B)
  - g. Cutting service openings into flexible duct is not permitted. Flexible duct shall be disconnected at the ends as needed for proper cleaning and inspection.
  - h. Rigid fiberglass duct systems shall be resealed in accordance with NAIMA recommended practices. Only closure techniques that comply with UL Standard 181 or UL Standard 181a are suitable for fiber glass duct system closures.

- i. All service openings capable of being re-opened for future inspection or remediation shall be clearly marked and shall have their location reported to the City in project report documents.
7. Ceiling sections (tile): The Contractor may remove and reinstall ceiling sections to gain access to HVAC systems during the cleaning process.
8. Air distribution devices (registers, grilles & diffusers): The contractor shall clean all air distribution devices.
9. Air handling units, terminal units (VAV, Dual duct boxes, etc.), blowers and exhaust fans: Except as noted for package HVAC units, the contractor shall insure that supply, return, and exhaust fans and blowers are thoroughly cleaned. Areas to be cleaned include blowers, fan housings, plenums (except ceiling supply and return plenums), scrolls, blades, or vanes, shafts, baffles, dampers and drive assemblies. All visible surface contamination deposits shall be removed in accordance with NADCA Standards. The Contractor shall:
  - a. Clean all air handling units (AHU) internal surfaces, components and condensate collectors and drains.
  - b. Assure that a suitable operative drainage system is in place prior to beginning wash down procedures.
  - c. Clean all coils and related components, including evaporator fins.
10. Duct Systems. The Contractor shall:
  - a. Create service openings in the system as necessary in order to accommodate cleaning of otherwise inaccessible areas.
  - b. Mechanically clean all duct systems to remove all visible contaminants, such that the systems are capable of passing cleaning verification tests (see NADCA Standards).

### **Health and Safety**

1. Safety Standards: Cleaning contractors shall comply with applicable federal, state, and local requirements for protecting the safety of the contractor's employees, building occupants, and the environment. In particular, all applicable standards of the Occupational Safety and Health Administration (OSHA) shall be followed when working in accordance with this specification.
2. Occupant Safety: No processes or materials shall be employed in such a manner that they will introduce additional hazards into occupied spaces.
3. Disposal of Debris: All debris removed from the HVAC System shall be disposed of in accordance with applicable federal, state and local requirements.

## **Cleaning Methods**

Various methods are employed to clean the HVAC units and associated ducting systems. These are as follows:

- Air Based Method – HEPA vacuuming, air brushing
- Liquid Based Method - Immersion or ultrasonic cleaning, damp wiping, high and low pressure spray cleaning
- Abrasive Method – abrasive media blasting, brushing and scraping

### ***Contractor shall specify minimum cfm rating of vacuum equipment in his submittal.***

1. Air Based Method: The HVAC system shall be cleaned using source removal mechanical cleaning methods designed to extract contaminants from within the HVAC system and safely remove contaminants from the facility. It is the contractor's responsibility to select source removal methods that will render the HVAC system visibly clean and capable of passing cleaning verification methods (See applicable NADCA Standards) and other specified tests, in accordance with all general requirements. No cleaning method, or combination of methods, shall be used which could potentially damage components of the HVAC system or negatively alter the integrity of the system.
  - a. All methods used, where possible, shall incorporate the use of a truck-mounted vacuum with a negative air collection device that is to be operated continuously during cleaning. The device shall be connected to the downstream end of the section being cleaned through a predetermined opening. The vacuum collection device must be of sufficient power to render all areas being cleaned under negative pressure, such that containment of debris and the protection of the indoor environment are assured.
  - b. All vacuum devices exhausting air inside the building shall be equipped with HEPA filters, including hand-held vacuums and wet-vacuums.
  - c. All vacuum devices exhausting air outside the facility shall be equipped with particulate collection including adequate filtration to contain debris removed from the HVAC system. Such devices shall exhaust in a manner that will not allow contaminants to re-enter the facility. Release of debris outdoors must not violate any outdoor environmental standards, codes or regulations.
  - d. All methods require mechanical agitation devices to dislodge debris adhered to interior HVAC system surfaces, such that debris may be safely conveyed to vacuum collection devices. Acceptable methods will include those, which will not potentially damage the integrity of the ductwork, nor damage porous surface materials such as liners inside the ductwork or system components.
  - e. All rotary brushes used are to be connected to a compressor that has a minimum of 88 CFM at 200 PSI.

## **Cleaning Methodology**

**Air Based Cleaning:** This procedure employs the use of high pressure air, brushes, scrapers and collection devices. This mechanical cleaning operation shall incorporate the use of vacuum collection devices that must be run continuously during the cleaning cycle. The following steps are to be followed to ensure proper cleaning. It is important to maintain appropriate pressure differential between the portion of the HVAC ductwork being cleaned and the surrounding indoor occupant spaces. Ensure that introduction of vacuum will not collapse ducting.

1. Inspect and document unit set points to include readings off of a Magnehelic or other pressure measurement indicator.
2. Perform shutdown of system and proceed with LOTO operations.
3. Locate access port for supply side of system (supply plenum) and isolate return side from supply side. If port access is not available, one must be made to gain access to interior duct surfaces. This must be made in accordance with NADCA Standard 05-1997.
4. Shutoff water supply to coil units and ensure all dampers and VAV are in the open position.
5. Hood up vacuum hose to supply opening and start HEPA vacuum.
6. Remove all supply registers and cover all supply vents to maintain maximum suction throughout system. For long runs, the vacuum will have to be located at various points along the system to remain effective. Clean registers.
7. Starting at the vent farthest from the HVAC unit, use the pressurized air source to blow all surfaces clean into the evacuated system (HEPA vacuum).
8. Insert the appropriate brushes to loosen materials and ensure that the liberated materials are being captured by the vacuum. Continue this step of the cleaning procedure until all surfaces are visibly clean. Repeat the activity for each drop, blocking off each drop not being cleaned and also when finished with the cleaning operation.
9. On spiral wound duct or flex duct, tapping the outside while brushing further assists in loosening of the material. Be sure not to crush or damage the ducting.
10. Continue to proceed from each supply inlet to the main unit.
11. In the event that there are coils and or VAVs installed, clean up to each side of these components and ensure that access is made to clean both sides. Mark balance damper positions prior to cleaning. Be careful not to damage any of the damper or coil components.

12. Ensure that each access port is properly sealed after completion of each cleaning step. In the event that this requires the use of a sealant material, the system should have the vacuum source removed to ensure that the sealant has time to cure as placing under vacuum may affect the sealing properties and result in leaks.
13. After the supply side is completed, mark the unit as completed. Small identification tags should also be placed at each register opening and at each component to indicate that the cleaning has been performed.
14. Move the operations to the return side (return plenum) and repeat steps 5-13.
15. Clean the return and supply diffusers with air and clean and wipe down all surfaces that are within the air flow path. Wiping should not be performed with liquid based wipes due to potential for odor issues and/or leaving moisture in the ducts.
16. The package or stand-alone unit should be cleaned next. This will include entering into the unit in some cases and the required confined space permits/certifications should be obtained prior to doing so
17. All interior surfaces including the fans, motor housings, linkages, dampers and other components must be wiped down accompanied by the vacuuming operation to capture all materials that are removed from the surfaces.
18. Ensure all terminal units are cleaned and register positions are restored to their original set points.
19. If the coil cleaning operations is to be performed, see the separate coil cleaning section
20. Install new filters and ensure that they fit properly
21. Wipe down all intake surfaces and grills.
22. Ensure all surfaces are visibly free of materials.
23. Restart unit and allow a minimum of eight air changes per covered are to occur and check all outlet registers and surfaces for duct particles.
24. If dust is observed to be coming from any register post cleaning, stop the AHU and inspect suspect areas for remaining visible contamination.
25. Clean any areas found to be contributors of the particle emissions.

## **Methods of Cleaning Fibrous Glass Insulated Components**

1. Fibrous glass thermal or acoustical insulation elements present in any equipment or ductwork shall be thoroughly cleaned with HEPA vacuuming equipment, while the HVAC system is under constant negative pressure, and not permitted to get wet in accordance with applicable NADCA and NAIMA standards and recommendations.
2. Cleaning methods used shall not cause damage to fibrous glass components and will render the system capable of passing cleaning verification tests (see NADCA Standards).

## **Damaged Fibrous Glass Material**

1. Evidence of damage: If there is any evidence of damage, deterioration, delaminating, friable material, mold or fungus growth, or moisture such that fibrous glass materials cannot be restored by cleaning or resurfacing with an acceptable insulation repair coating, they shall be identified for replacement.
2. Replacement: When requested or specified, Contractor must be capable of remediating exposed damaged insulation in air handlers and/or ductwork requiring replacement.
3. Replacement material: In the event fiber glass materials must be replaced, all materials shall conform to applicable industry codes and standards, including those of UL and SMACNA.
4. Replacement of damaged insulation is not covered by this specification. In the event damage is found, the Contractor shall advise the City, and may at the City's direction, provide an estimate of the cost of additional work required to repair the damage at the rates for additional work contained in the Contractor's bid submittal. If the City directs the Contractor to proceed with the repair, all repairs shall be in accordance with these specifications, all applicable codes and regulations, and industry standards.

## **Method of Cleaning Coils**

1. Vacuum the surfaces of the coils while gently brushing to dislodge easily removed deposits.
2. Ensure that the drip pan drains are clean and plug the drain to prevent coil cleaning chemical from leaving the pan.
3. Apply the chemical solution to the coils and allow the appropriate time to elapse before scrubbing.
4. Scrub the deposits off the coils using a spun polyester abrasive pad.
5. Rinse the solution off until the residue is gone.

6. Ensure that the collected rinse materials are captured into a chemically compatible container for proper disposal.
7. Inspect the coils to ensure that the surfaces are clean and bright and not any pitting, damage or other conditions that might reflect excessive wear on the inspection report.
8. Transfer the collected chemical waste to an approved hazardous waste disposal company.
9. Use the fin comb to straighten and clean the delicate condenser and evaporator fins in conjunction with the HEPA vacuum system.
10. Note any damage to the fins on the inspection report.

### **Antimicrobial Agents and Coatings**

The base specification does not include application of antimicrobial agents or coatings. The Contractor shall, however, notify the City if any mold or microbial infection or contamination is found. If ordered by the City, any antimicrobial agents and coatings shall be considered extra work and will be furnished in accordance with the price schedules included in the Contractor's bid submittal for such extra work. Such agents and coatings shall be applied in accordance with the following:

1. Antimicrobial agents shall only be applied if active fungal growth is reasonably suspected, or where unacceptable levels of fungal contamination have been verified through testing.
2. Application of any antimicrobial agents used to control the growth of fungal or bacteriological contaminants shall be performed after the removal of surface deposits and debris.
3. When used, antimicrobial treatments and coatings shall be applied in strict accordance with the manufacturer's written recommendations and EPA registration listing. MSDS shall be provided.
4. Antimicrobial coatings shall be applied according to the manufacturer's written instructions. Coatings shall be sprayed directly onto interior ductwork surfaces, rather than "fogged" downstream onto surfaces

### **Cleanliness Verification**

1. General: Verification of HVAC System cleanliness will be determined after mechanical cleaning and before the application of any treatment or introduction of any treatment-related substance to the HVAC system, including biocidal agents and coatings.
2. Visual Inspection: The HVAC system shall be inspected visually to ensure that no visible contaminants are present.

- a. If no contaminants are evident through visual inspection, the HVAC system shall be considered clean; however, the City reserves the rights to further verify system cleanliness through surface comparison testing or the NADCA vacuum test specified in the NADCA standards.
  - b. If visible contaminants are evident through visual inspection, those portions of the system where contaminants are visible shall be re-cleaned and subjected to re-inspection for cleanliness.
  - c. NADCA vacuum test analysis should be performed by a qualified third party experienced in testing of this nature.
3. Verification of Coil Cleaning
- a. Cleaning must restore the coil pressure drop to within 10 percent of the pressure drop measured when the coil was first installed. If the original pressure drop is not known, the coil will be considered clean only if the coil is free of foreign matter and chemical residue, based on a thorough visual inspection (see NADCA Standards).

## APPENDICES

### CLEANING METHODOLOGIES APPENDIX A

Based on NADCA ACR 2006

#### **Requirements for the Installation of Service Openings in HVAC Systems**

The requirements shown below apply universally to both removable duct access doors and permanent panels:

1. Service openings installed into the system shall not degrade the structural, thermal, or functional integrity of the system.
2. Service openings shall be closed in an air-tight manner such that no apparent leakage inward or outward is detectable.
3. Service openings shall not hinder, restrict, or alter the airflow within the duct.
4. Service opening construction materials and methods must be in compliance with industry standards and local codes, using materials acceptable under those standards and codes.

Materials used in the fabrication of duct access doors and permanent panels shall be those classified for flammability and smoke spread if the material is exposed to the internal air-stream. These materials are classified as having a flame-spread rating of not over 25 without evidence of continued progressive combustion and a smoke developed rating of not over 50, as determined by UL 723.

Metals used in the fabrication and installation of duct access doors and permanent panels shall be resistant to atmospheric corrosion and shall not be used in combinations that will cause galvanic action which might deteriorate any part of the system formed from such material.

All materials used in the fabrication of service openings shall be suitable for continuous exposure to the temperature and humidity conditions of air within the HVAC system.

All tapes used in the installation and closure of service openings shall meet the requirements of UL-181A and be properly labeled as such.

Air duct coverings shall not be installed so as to conceal or prevent use of any service opening.

Where a service opening is necessary in an air duct located above the ceiling of a fire-rated floor/roof-ceiling assembly, access shall be provided in the ceiling and shall be designed and installed so as not to reduce the fire resistance rating of the ceiling.

All service openings shall comply with applicable UL and NFPA standards, as well as local and state codes.

### **Permanent Closure Panels**

Closure panel seals shall be permanent.

Metal panels used for closing service openings in the HVAC system shall be of a like gauge or heavier.

Metal panels used for closing service openings shall be mechanically fastened (screwed, riveted, welded, or clamped) every 4" on center. The panel shall overlap the ductwork surfaces by a minimum of 1" on all sides.

Metal panels used for closing service openings shall be sealed with gaskets, caulking, mastic, or suitable tape.

### **Removable Duct Access Doors**

Duct access door frames and jamb seals shall be permanent.

Metals used in the fabrication of removable duct access doors for installation into the air duct system shall be 24 gauge minimum. The gage of the duct access door shall be based on the pressure class of the duct system.

### **Fibrous Glass System Service Openings**

Service openings installed in fibrous glass portions of a system must be constructed and closed in such a manner that there are no exposed fibrous glass edges within the system common to the air stream.

Any insulation removed during the installation of a service opening must be replaced (with insulation of the same thickness) or repaired so that there are no breaks or openings that would form paths for heat loss or gain, or for water vapor condensation to occur.

### **Drilled 1" Service Openings**

Drilled 1" service openings must be closed with materials having a flame-spread rating of not over 25 without evidence of continued progressive combustion and a smoke-developed rating of not over 50.

Any exposed fibrous glass edges within the duct should be sealed with no breaks or gaps in the insulation.

## CLEANING METHODOLOGIES APPENDIX B

Based on NAIMA "Fibrous Glass Duct Liner Standard' Third Edition, 2002

### Accessing Fibrous Glass Lined Ducts for Cleaning

#### Opening Ductwork

1. Determine location and dimensions of openings
2. Draw straight lines the size of the opening plus  $\frac{1}{2}$ " (15mm) on all four sides. These lines will establish the size of a sheet metal patch that will be required when closing the duct.
3. Drill two overlapping holes through the duct only at one corner, staying  $\frac{1}{2}$ " (15mm) inside drawn lines. Do not drill into duct liner.
4. Cut along opening lines with shears, staying  $\frac{1}{2}$ " (15mm) inside drawn lines.
5. Carefully loosen the sheet metal piece from the duct liner inside, and discard it.
6. Cut through the insulation with a knife around three sides of the opening at a  $45^\circ$  angle, leaving the upstream end uncut.
7. Carefully pull the insulation out through the opening, bending it at the upstream side so that the surface opposite the air stream surface is the most tightly folded. Tape it out of the way.

#### Opening Ducts Lined with Rigid Duct Liner Board

If the duct is lined with Type II rigid duct liner board rather than Type I flexible duct liner, the insulation must be cut away on all four sides and removed.

#### Closing Ductwork

When closing openings made for cleaning sheet metal ducts lined with fibrous glass duct liners, the insulation must be secured in its original position before the sheet metal is patched.

1. Coat edges of flexible duct liner flap (or cut-out piece of rigid duct liner board) with adhesive complying with ASTM C 916
2. Replace the flap or cut-out piece in its original position so the hole in the duct liner is tightly plugged.
3. Cut a sheet metal patch to dimensions drawn on duct when opening. The patch should be about 1" (25mm) larger in both dimensions than the hole in the sheet metal which it must cover.
4. Apply a bead of sealant around the opening. Sealant must be suitable for use on sheet metal ducts.

5. Apply adhesive to the duct liner flap or cut-out piece of duct liner board, and press the sheet metal patch in place over it.
6. Screw the sheet metal patch to the duct with sheet metal screws on 8" (200mm) centers (approximately) so the patch will overlap the opening by 2" (15mm), on all four sides.