

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM S-1

Registration Statement Under The Securities Act of 1933

CHF SOLUTIONS, INC.

(Exact name of Registrant as specified in its charter)

Delaware

(State or other jurisdiction
of incorporation or organization)

3845

(Primary Standard Industrial
Classification Code Number)

68-0533453

(I.R.S. Employer
Identification No.)

**12988 Valley View Road
Eden Prairie, Minnesota 55344
(952) 345-4200**

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

**John Erb
Chief Executive Officer
CHF Solutions, Inc.
12988 Valley View Road
Eden Prairie, Minnesota 55344
(952) 345-4200**

(Name, address, including zip code, and telephone
number, including area code, of agent for service)

COPIES TO:

**Phillip D. Torrence
Honigman LLP**

650 Trade Center Way, Suite 200
Kalamazoo, MI 49002
Tel: (269) 337-7700
Fax: (269) 337-7703

**Thomas Lynch
General Counsel**

CHF Solutions, Inc.
12988 Valley View Road
Eden Prairie, Minnesota 55344
Tel: (952) 345-4200

**Michael F. Nertney
Ellenoff Grossman & Schole LLP**

1345 Avenue of the Americas
New York, NY 10105-0302
Tel: (212) 370-1300
Fax: (212) 401-4741

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. **333-235385**

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE		
Title of each class of securities to be registered	Proposed Maximum aggregate offering price(1)	Amount of registration fee (2)(3)
Class A Units consisting of:		
(i) Shares of common stock, par value \$0.0001 per share		
(ii) Warrants to purchase common stock		
Class B Units consisting of:		
(i) Shares of Series H Convertible Preferred Stock		
(ii) Shares of common stock issuable on conversion of Series H Convertible Preferred Stock		
(iii) Warrants to purchase common stock		
Common stock issuable upon exercise of Warrants		
Total	\$3,220,000	\$417.96

(1) Estimated solely for the purpose of computing the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended (the "Act"). Pursuant to Rule 416 under the Act, the securities registered also include such indeterminate amounts and numbers of shares of common stock issuable to cover additional securities that may be offered or issued to prevent dilution resulting from stock splits, stock dividends or similar transactions. Represents only the additional number of securities being registered, including the price of additional shares of common stock and warrants to purchase shares of common stock that the underwriters have the option to purchase to cover over-allotments, if any. Does not include the securities that the registrant previously registered on the registration statement on Form S-1 (File No. 333-235385).

(2) Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price of all securities being registered.

(3) The registrant previously paid filing fees of \$2,089.78 in connection with previous filings of its registration statement on Form S-1 (File No. 333-235385).

The Registration Statement shall become effective upon filing with the Securities and Exchange Commission in accordance with Rule 462(b) under the Securities Act of 1933, as amended.

EXPLANATORY NOTE

This Registration Statement is being filed pursuant to Rule 462(b) as promulgated under the Securities Act of 1933, as amended, and includes the registration statement facing page, this page, the signature page, an exhibit index and the required opinion and consents solely to register up to an aggregate of \$3,220,000 in (i) additional Class A Units, with each Class A Unit consisting of one share of the Company's common stock, par value \$0.0001 per share (the "common stock"), one warrant to purchase one share of common stock (ii) additional Class B Units, with each Class B Unit consisting of one share of the Company's Series H convertible preferred stock, par value \$0.0001 per share (the "Series H Preferred Stock"), one warrant to purchase one share of common stock, (iii) shares of Common Stock issuable upon conversion of the additional shares of Series H Preferred Stock and (iv) shares of Common Stock issuable upon exercise of the warrants included in the additional Class A Units and Class B Units. The contents of the Registration Statement on Form S-1 (Registration No. 333-235385), as amended, including the exhibits and power of attorney thereto, which was declared effective by the Securities and Exchange Commission on January 24, 2020, are incorporated by reference in this Registration Statement.

Item 16. Exhibits and Financial Statement Schedules.

Exhibit Number	Description
---------------------------	--------------------

5.1 *	Opinion of Honigman LLP.
-----------------------	--------------------------

23.1 *	Consent of Independent Registered Public Accounting Firm.
------------------------	---

23.2 *	Consent of Honigman LLP (included in Exhibit 5.1).
------------------------	--

24.1 **	Power of Attorney (incorporated by reference to Exhibit 24.1 to the Form S-1 Registration Statement (Registration No. 333-235385), filed by CHF Solutions, Inc. on December 6, 2019).
-------------------------	---

* Filed herewith.

** Previously filed.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Eden Prairie, State of Minnesota, on this 24th day of January, 2020.

CHF SOLUTIONS, INC.

By: /s/ JOHN L. ERB

John L. Erb

Chief Executive Officer and Chairman of the Board

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and as of the dates indicated.

Signature	Title	Date
<hr/> <i>/s/ JOHN L. ERB</i> John L. Erb	Principal Executive Officer and Chairman of the Board	January 24, 2020
<hr/> <i>/s/ CLAUDIA DRAYTON</i> Claudia Drayton	Principal Financial Officer and Principal Accounting Officer	January 24, 2020
<hr/> *	Director	January 24, 2020
<hr/> Steve Brandt		
<hr/> *	Director	January 24, 2020
<hr/> Maria Rose Costanzo		
<hr/> *	Director	January 24, 2020
<hr/> Jon W. Salvesson		
<hr/> *	Director	January 24, 2020
<hr/> Gregory Waller		
<hr/> *	Director	January 24, 2020
<hr/> Warren Watson		

* */s/ JOHN L. ERB*

By:

John L. Erb
Attorney-in-fact

HONIGMAN[®](269) 337-7700
Fax: (269) 337-7701

January 24, 2020

CHF Solutions, Inc.
12988 Valley View Road
Eden Prairie, Minnesota 55344**Re: Registration Statement on Form S-1**

Ladies and Gentlemen:

We have acted as counsel to CHF Solutions, Inc., a Delaware corporation (the "**Company**"), in connection with the preparation and filing with the Securities and Exchange Commission (the "**Commission**") pursuant to the Securities Act of 1933, as amended (the "**Securities Act**"), of a Registration Statement on Form S-1 (File No. 333-235385) and each amendment thereto and the preparation and filing with the Commission pursuant to Rule 462(b) of the Securities Act, of a Registration Statement on Form S-1 (collectively, as amended and supplemented from time to time, the "**Registration Statement**"), relating to the offer and sale by the Company of up to \$3,220,000 in the aggregate of (i) units consisting of one share of the Company's common stock, par value \$0.0001 per share (the "**Common Stock**") and one warrant to purchase one share of Common Stock (the "**Class A Units**"), (ii) units consisting of one share of Series H Convertible Preferred Stock, par value \$0.0001 per share (the "**Preferred Stock**") and one warrant to purchase one share of Common Stock (the "**Class B Units**" and, together with the Class A Units, the "**Units**"), (iii) shares of Common Stock issuable upon conversion of the shares of Preferred Stock, and (iv) shares of Common Stock issuable upon exercise of the warrants issued under the Units. The Units are to be sold to the underwriters for resale to the public as described in the Registration Statement and pursuant to the underwriting agreement referred to in the Registration Statement (the "**Underwriting Agreement**"). Pursuant to the Certificate of Designation (the "**Certificate of Designation**") establishing the powers, designations, preferences and rights of the Preferred Stock to be filed in connection with the offering contemplated by the Registration Statement and the Company's Fourth Amended and Restated Certificate of Incorporation, as amended (the "**Certificate of Incorporation**"), the shares of the Preferred Stock will be convertible into shares of Common Stock. We have assumed that the sale of the Preferred Stock, Common Stock and warrants underlying the Units to the underwriter by the Company will be authorized and at a price established by the Board of Directors of the Company or a duly-formed Pricing Committee thereof in accordance with the Delaware General Corporation Law. We have also assumed that, at the time of exercise of the warrants underlying the Units or conversion of the Preferred Stock, a sufficient number of shares of Common Stock will be authorized and available for issuance and that the consideration for the issuance and sale of the Common Stock in connection with such exercise or conversion is an amount that is not less than the par value of the Common Stock.

For the purpose of rendering the opinions herein, we examined originals or copies of such documents as we deemed relevant. In conducting our examination, we assumed, without investigation, the genuineness of all signatures, the correctness of all certificates, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted as certified or photostatic copies, the authenticity of the originals of such copies, the accuracy and completeness of all records made available to us by the Company and the due authorization, execution, delivery, and/or filing of all documents where due authorization, execution, delivery and/or filing are a prerequisite to the effectiveness thereof.

Our opinions are limited solely to matters set forth herein. The law covered by the opinions expressed herein is limited to the federal law of the United States, New York law applicable to contracts and Delaware corporate law. We express no opinion as to whether the laws of any particular jurisdiction are applicable to the subject matter hereof. We are not rendering any opinion as to compliance with any federal or state law, rule or regulation relating to securities, or to the sale or issuance thereof.

Based on our examination of such documents and other matters as we deem relevant, we are of the opinion that:

1. When the Certificate of Designation has been properly filed with the Delaware Secretary of State, the Preferred Stock will be duly authorized and, upon issuance, delivery, and payment therefor pursuant to the terms of the Underwriting Agreement, the Preferred Stock will be validly issued, fully paid and non-assessable.
2. The shares of Common Stock that are (a) offered by the Registration Statement, to be issued and sold by the Company as described in the Registration Statement and in the manner set forth in the Underwriting Agreement, against payment therefor, (b) issuable upon the valid exercise of the warrants underlying the Units in accordance with their terms, including without limitation, payment of the consideration therefor as described therein, and (c) issuable upon the valid conversion of the shares of Preferred Stock in accordance with the Certificate of Designation, in each case, when issued and delivered in accordance with the Underwriting Agreement, warrant, or Preferred Stock conversion right, as applicable (including, without limitation, the payment in full of all applicable consideration therefor) and in accordance with the Company's Certificate of Incorporation, as amended and supplemented to date by all amendments and certificates of designation thereto, will be validly issued, fully paid and non-assessable.
3. When the warrants underlying the Units have been duly executed and delivered by the Company against payment of the consideration for the Units specified in the Underwriting Agreement, such warrants underlying the Units will constitute binding obligations of the Company, enforceable against the Company in accordance with their terms.
4. The Units, when issued against payment therefor as set forth in the Registration Statement and the Underwriting Agreement, will be validly issued, fully paid and non-assessable.

Our opinions set forth in paragraph 3 above are subject to the effect of any applicable bankruptcy, insolvency, reorganization, moratorium or similar law relating to or affecting creditors' rights generally (including, without limitation, fraudulent conveyance and voidable transaction laws), general principles of equity, including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief, regardless of whether considered in a proceeding in equity or at law and limitations regarding the availability of indemnification and contribution where such indemnification or contribution may be limited by applicable law or the application of principles of public policy.

We express no opinion as to the enforceability of (i) provisions that relate to choice of law, forum selection or submission to jurisdiction (including, without limitation, any express or implied waiver of any objection to venue in any court or of any objection that a court is an inconvenient forum) to the extent that the validity, binding effect or enforceability of any such provision is to be determined by any court other than a state court of the State of New York, (ii) waivers by the Company of any statutory or constitutional rights or remedies, (iii) terms which excuse any person or entity from liability for, or require the Company to indemnify such person or entity against, such person's or entity's negligence or willful misconduct, (iv) obligations to pay any prepayment premium, default interest rate, early termination fee or other form of liquidated damages, if the payment of such premium, interest rate, fee or damages may be construed as unreasonable in relation to actual damages or disproportionate to actual damages suffered as a result of such prepayment, default or termination, or (v) provisions providing that the terms of agreement may not be waived or modified except in writing.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the Registration Statement. In giving such consent, we do not admit that we are within the category of persons whose consent is required by Section 7 of the Securities Act or the rules and regulations promulgated thereunder by the Commission. This opinion is expressed as of the date hereof, and we disclaim any undertaking to advise you of any subsequent changes in the facts stated or assumed herein or of any subsequent changes in applicable law.

Very truly yours,

/s/ HONIGMAN LLP

HONIGMAN LLP

PDT//JQW/REW

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement on Form S-1 of CHF Solutions, Inc. and subsidiaries filed pursuant to Rule 462(b) of the Securities Act of 1933 of our report dated February 21, 2019, relating to the consolidated financial statements of CHF Solutions, Inc. and subsidiaries (the “Company”), (which report expresses an unqualified opinion on the consolidated financial statements for the year ended December 31, 2018 and includes an explanatory paragraph relating to the substantial doubt about the Company’s ability to continue as a going concern as described in Note 1 to the consolidated financial statements), appearing in the Annual Report on Form 10-K for the year ended December 31, 2018.

We also consent to the reference to us under the caption “Experts” in the prospectus, which is a part of Amendment No. 4 to the Registration Statement on Form S-1/A of CHF Solutions, Inc. (File No. 333-235385) incorporated by reference into this Registration Statement.

/s/ Baker Tilly Virchow Krause, LLP

Minneapolis, Minnesota
January 24, 2020
